

**Final Supplemental Environmental Assessment
of Traffic Impacts and
Finding of No Significant Impact
for the 2025 Master Plan Improvements at
Kahului Commercial Harbor
District of Wailuku, County of Maui**

TMK: 3-7-01: 21 & 22; 3-7-10: 2, 3, 6, 13, 15, 21, 22,
24, 26, 27, 28, 30, 32 & 34; and 3-7-08: 2, 3, 4 & 6

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April 11, 2008

This document is prepared pursuant to Chapter 343, HRS, and
Administrative Rules, Title 11, Chapter 200, of the Department of Health

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Chapter 1

Purpose and Need

1.1 Introduction and Background

This supplemental environmental assessment (EA) is prepared in accordance with Chapter 343, Hawaii Revised Statutes (HRS), to evaluate potential traffic impacts of improvements to Kahului Commercial Harbor on the Island of Maui. The subject improvements were evaluated in the *Final Environmental Assessment and Finding of No Significant Impact, 2025 Master Plan Improvements, Kahului Commercial Harbor (2025 Master Plan EA)*, dated November 2005 and signed by the Deputy Director of Harbors, State of Hawaii Department of Transportation (DOT), on November 28, 2005. The Final EA and Finding of No Significant Impact (FONSI) covered short-term harbor improvements presented in the *Kahului Commercial Harbor 2025 Master Plan*, completed in September 2000.

Maui Tomorrow Foundation, Inc., Friends of Haleakala National Park, Inc., and the Kahului Harbor Coalition filed suit in the Circuit Court of the Second Circuit, challenging the State DOT's FONSI determination. The County of Maui filed as an intervener in the lawsuit.

On July 9, 2007, the Court entered an order granting, in part, motions for summary judgment determining that the Final EA for the Kahului Commercial Harbor 2025 Master Plan improvements was “inadequate with respect to the subject matter of traffic impacts.” The Court vacated the Finding of No Significant Impact published in The Environmental Notice on December 23, 2005, with respect to the subject matter of traffic impacts only.

After an evidentiary hearing on remedies held on August 2, 2007, the Court referred the subject EA back to the DOT for the preparation of a Supplemental Environmental Assessment as to traffic only and ordered the DOT to comply with the notice, publishing, and comment requirements as set out in HRS § 343-5. The Court affirmed that the subject FONSI was adequate with respect to all other subject matters other than the subject matter of traffic impacts.

1.2 Purpose and Scope of this Document

The purpose of this document is to comply with the above referenced order of the Court to prepare a supplemental EA addressing traffic impacts associated with the projects proposed in the 2025 Master Plan EA. These projects are listed in section 1.3 below and described in more detail in Chapter 2.

1.3 Proposed Action and Alternatives

The *Kahului Commercial Harbor 2025 Master Plan* was prepared to serve as a guide for development, maintenance, and enhancement of the Island of Maui’s only commercial port. DOT’s commercial harbor master plans have 20- to 25-year planning horizons and are typically updated every five years. Short-, intermediate-, and long-range projects were identified in the 2025 Master Plan. The DOT Harbors Division decided to undertake those improvements necessary within the short term (next 10 years) to ensure efficient, safe, accessible, and economical operations at Kahului Commercial Harbor. Those short-term improvements comprised the preferred alternative or proposed action in the 2025 Master Plan EA and are the subject of this supplemental EA. The short-term improvements are:

- Pier 1D (Pier 1 extension);
- Pier 1 waterline;
- New Pier 4 (angled configuration), which may be constructed in phases as funds become available; and
- Structural pavement, access bridge, and utilities at “Pu‘unēnē Yard.”

In addition, the 2025 Master Plan EA included an alternative to the new Pier 4 with angled configuration. Instead of the angled configuration, this alternative would involve expansion/extension of the existing Pier 3 to create a linear Pier 3 and Pier 4.

Another short-term project—Pier 1 comfort stations and sewer line—was identified in the 2025 Master Plan but declared exempt from Chapter 343 review.¹ It is not evaluated in this supplemental EA. The Pier 1 waterline project listed above is intended to serve the renovated comfort stations.

The Pier 1 waterline is currently in design. The Pu‘unēnē storage yard improvements were completed in September 2007.

In accordance with Chapter 343, HRS, the 2025 Master Plan EA considered the no-action alternative. The no-action alternative is evaluated in this supplemental EA.

1.4 Need for the Project

The overall objectives of the *Kahului Commercial Harbor 2025 Master Plan* were to:

¹This project allowed for closure of the harbor’s cesspools to meet federal requirements. DOT Harbors Division determined that the project was in Exemption Class #2: Replacement or reconstruction of existing structure and facilities where the new structure will be located generally on the same site and will have substantially the same purpose, capacity, density, height, and dimensions as the structure replaced.

- Plan the proper development of Kahului Commercial Harbor, thereby facilitating maritime shipments of the essential commodities required by Maui’s citizenry;
- Optimize the utilization of land and water resources committed to marine cargo and passenger operations in an economically responsible manner;
- Provide terminal, other harbor resources, and access to these facilities in locations within Kahului Bay and other locations in a manner that best relates to and serves Maui in an efficient, safe, and secure manner; and
- Minimize the impact on environmental quality and recreational opportunities contiguous with Maui’s port facilities.

The 2025 Master Plan EA was limited to evaluating improvements that could be implemented within the foreseeable future—roughly a 10-year timeframe. The projects listed in the previous section were identified as meeting immediate facility needs at the port to accommodate projected cargo and passenger demands.

The 2025 Master Plan included an analysis of berthing space requirements at Kahului Commercial Harbor based on forecast ship arrivals (both cargo and passenger) and overall ship lengths. Assumptions were made as to the use of piers by specific types of vessels. However, the berths at Kahului and throughout the state are generally common use, with piers planned and designed to accommodate various vessel types to the extent practical. This provides maximum flexibility to the harbor master in meeting maritime demand.

The berthing space analysis indicated that all four piers at Kahului Commercial Harbor would be more than fully utilized in 2025. Projected berth utilization factors are shown in the following table. Berth utilization factors of 0.5 (for unscheduled calls) and 0.6 (for scheduled calls) indicate that the berth is fully utilized or approximately filled one-half of the time. The 0.5 berth utilization factor accounts for the difficulty for vessels to maintain an accurate schedule due to rough seas, delays at other ports, etc.

**TABLE 1
BERTHING SPACE ANALYSIS**

Pier	Users	Utilization Factor
1	Sugar, coal, tinplate, sand, lumber, scrap metal, liquid fertilizer, cruise ships, overseas container operations	1.19
2	Inter-island cargo, liquefied petroleum gas (propane) operations, vessels awaiting permanent berths, tugs, other users	1.01
3	Cement and petroleum products	1.00
4	Liquid-bulk and other cargo vessels, inter/intra-island ferries, tugs, other users	2.07

The 2025 Master Plan also included an analysis of container storage yard space requirements to accommodate projected cargo volumes. The analysis was based on a standardized 20-foot-long container—20-foot-equivalent units or TEU. Therefore, a 20-foot-long container is represented as one TEU, a 24-foot-long container is equivalent to 1.2 TEU, a 40-foot-long container is equivalent to 2 TEUs, and so forth. The number of TEUs can be translated to projected storage volumes and areas. By applying commonly used port planning formulae, the following spatial requirements for projected cargo volumes were determined:

- Pier 1 overseas cargo will require container yard space of 21 acres by 2025 (15.9 acres are currently available). Based on projected cargo volumes and existing available space, the Pier 1 container yard was projected to be at capacity by 2005.
- Pier 2 inter-island cargo will require container yard space of 24 acres by 2025 (17.6 acres were available when the analysis was done). The Pier 2 yard was near capacity at the time of the master plan analysis (2000).
- Additional overflow space of 3.7 acres, located at the corner of Hobron Avenue and Ka‘ahumanu Avenue, is used for automobile storage. Additional capacity provided by this overflow space would delay the need for more container storage space until 2008.

1.5 Other Environmental Documents

The short-term harbor improvements, some of which have already been constructed (see section 1.3 above), are included in two environmental impact statements being prepared by DOT. One is the *Kahului Commercial Harbor 2030 Master Plan and Draft Environmental Impact Statement (2030 EIS)* (December 2007). The projects that comprise the proposed action in the 2025 Master Plan EA are considered part of the existing conditions for the purposes of the 2030 environmental impact statement (EIS) evaluation. The traffic analysis conducted for the 2030 EIS—specifically, traffic conditions projected under the no-action or without-project alternative—was used in the traffic analysis presented in this supplemental EA.

The second document is an EIS being prepared by DOT Harbors Division in accordance with Act 2, passed in Special Session of the Hawaii State Legislature and signed by Governor Lingle on November 4, 2007. Act 2 mandates preparation of an EIS “regarding commercial harbor improvements undertaken to accommodate a large capacity ferry vessel company and its operations.” That EIS will analyze impacts of the barge located at the end of Pier 2 at Kahului Commercial Harbor, as well as facilities constructed/installed at other ports to accommodate inter-island ferry operations. Similar to the 2030 EIS, the 2025 short-term harbor improvements are considered part of existing conditions.

Chapter 2

Proposed Action and Alternatives

2.1 Proposed Action (Preferred Alternative)

The State Department of Transportation (DOT) Harbors Division proposed the following short-term improvements on the east side of Kahului Commercial Harbor, which comprised the preferred alternative in the *Final Environmental Assessment and Finding of No Significant Impact, 2025 Master Plan Improvements, Kahului Commercial Harbor* (2025 Master Plan EA) (see Figure 1). These projects would help meet the need for additional berthing and storage space identified in Chapter 1.

- **Pier 1D.** Pier 1D is an extension of Pier 1 toward the west. It consists of a series of mooring/breasting dolphins extending about 500 feet from the end of Pier 1C. The dolphins are spaced at approximately 100-foot intervals with catwalks/ramps connecting each dolphin. A dolphin typically consists of a mooring bollard supported by concrete piles. The catwalks/ramps, about six feet wide and pile supported, provide access to the mooring bollards.
- **Pier 1 Waterline.** This waterline serves the expanded and renovated Pier 1 shed comfort stations. (The comfort station expansion/renovation is an exempt project, as explained in Chapter 1, involving closure of cesspools and installation of a sewer line connection to the County sewer system on Wharf Street.)
- **New Pier 4, Angled.** This project provides a new pier structure from the existing north corner of Pier 3 to Pier 1 at about a 30-degree angle. Piers of this type are typically supported on piles and/or bulkheads with fill. If pile supports are used, pile spacings would be about 8 to 12 feet in the longitudinal direction and approximately 20 to 25 feet in the lateral direction. Riprap under the pier would provide erosion protection along the shoreline. Pile spacings are dependent on various factors such as soil conditions, pier loads, and pile size. Elevation of the new Pier 4 would match the existing Pier 3 elevation. Pier 4 would provide for off-loading of liquid-bulk cargo, roll-on/roll-off needs of vessels, intra- and inter-island ferries, tugs, and other users. In addition to the berthing structures, this project would include associated improvements such as ramps, bollards, transmission pipelines, utilities, pavement striping, lighting, and other support facilities.

Pier 4 and associated improvements may be constructed in phases with the ultimate configuration as described here (preferred) or a linear Piers 3 and 4 alternative as described in section 2.2 below. The Pier 4 project would include improvements to facilitate loading and unloading of cargo and

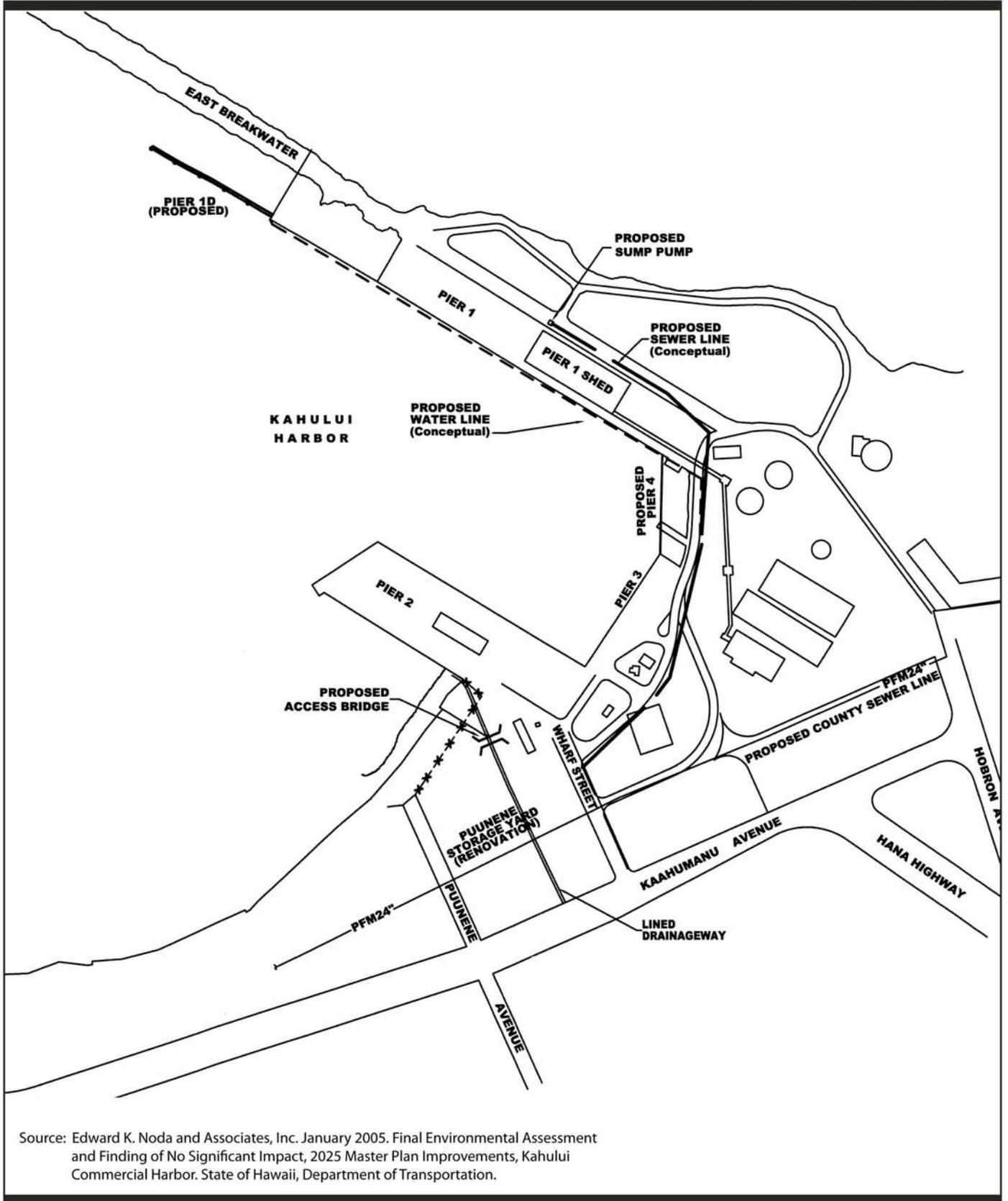
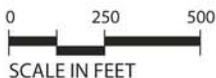


Figure 1
PROPOSED IMPROVEMENTS—PREFERRED ALTERNATIVE

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passengers. Due to funding constraints, the initial construction phase may be smaller than the proposed Pier 4 development described here, and may use mooring/breasting dolphins, linear pier, finger pier, or other types of moorings between the existing Pier 1 and Pier 3. The pier would be constructed on bulkheads with fill and/or on piles, depending on cost and substrate type. As part of the construction, the area fronting Piers 3 and 4 would be dredged to a depth of 30 to 35 feet. This area is outside of the “federal project limits” (i.e., area of the harbor basin dredged and maintained by the U.S. Army of Corps of Engineers). If suitable, dredge material may be used as fill for the construction of Pier 4.

- Structural Pavement, Access Bridge, and Utilities at “Pu‘unēnē Yard.” This project includes the demolition of existing pavement and construction of structural pavement, drainage infrastructure, fire-suppression infrastructure, and a new access bridge connecting the Pu‘unene Yard to Pier 2. A portion of the pavement, about 200 feet on the north end of the yard and bridge, is designed for high-capacity loads for heavy-lift operations, such as the Hyster 920 or Cat 925. Pavement for the remaining portion of the yard is designed to store automobiles and containers on chassis. Infrastructure improvements include drainage lines, fire protection lines, and electrical ducts. The bridge is constructed over the existing open drainage way.

2.2 Other Action Alternative – Piers 3 and 4, Linear

The 2025 Master Plan EA considered an alternative to the angled Pier 4 described above. This alternative would provide approximately 800 feet of linear pier area by expanding the Pier 3 apron seaward by about 60 feet and constructing a new linear Pier 4 (see Figure 2). In addition, new fuel transmission pipelines for off-loading of liquid-bulk cargos, as well as waterlines for firefighting, would be installed. As with the preferred alternative, the extension of Pier 3 and the new Pier 4 would be supported on piles and/or bulkheads with fill. Typical pier design calls for pile spacing from 8 to 12 feet in a longitudinal direction and from 20 to 25 feet in a lateral direction. Pile spacings would be determined in the design process, depending on factors such as soil conditions, pier loads, and pile size. Riprap protection would be laid under the piers and along the shoreline for erosion protection.

Pier 4 would facilitate loading and unloading of the same cargo and passenger types as the preferred alternative. In addition to berthing structures, the project would include ramps, bollards, transmission pipelines, utilities, paving, pavement striping, lighting, etc. to accommodate various users.

Due to funding constraints, the initial construction phase may be smaller in scale and involve using mooring/breasting dolphins, linear pier, finger pier, or other types of moorings between the existing Pier 1 and Pier 3.

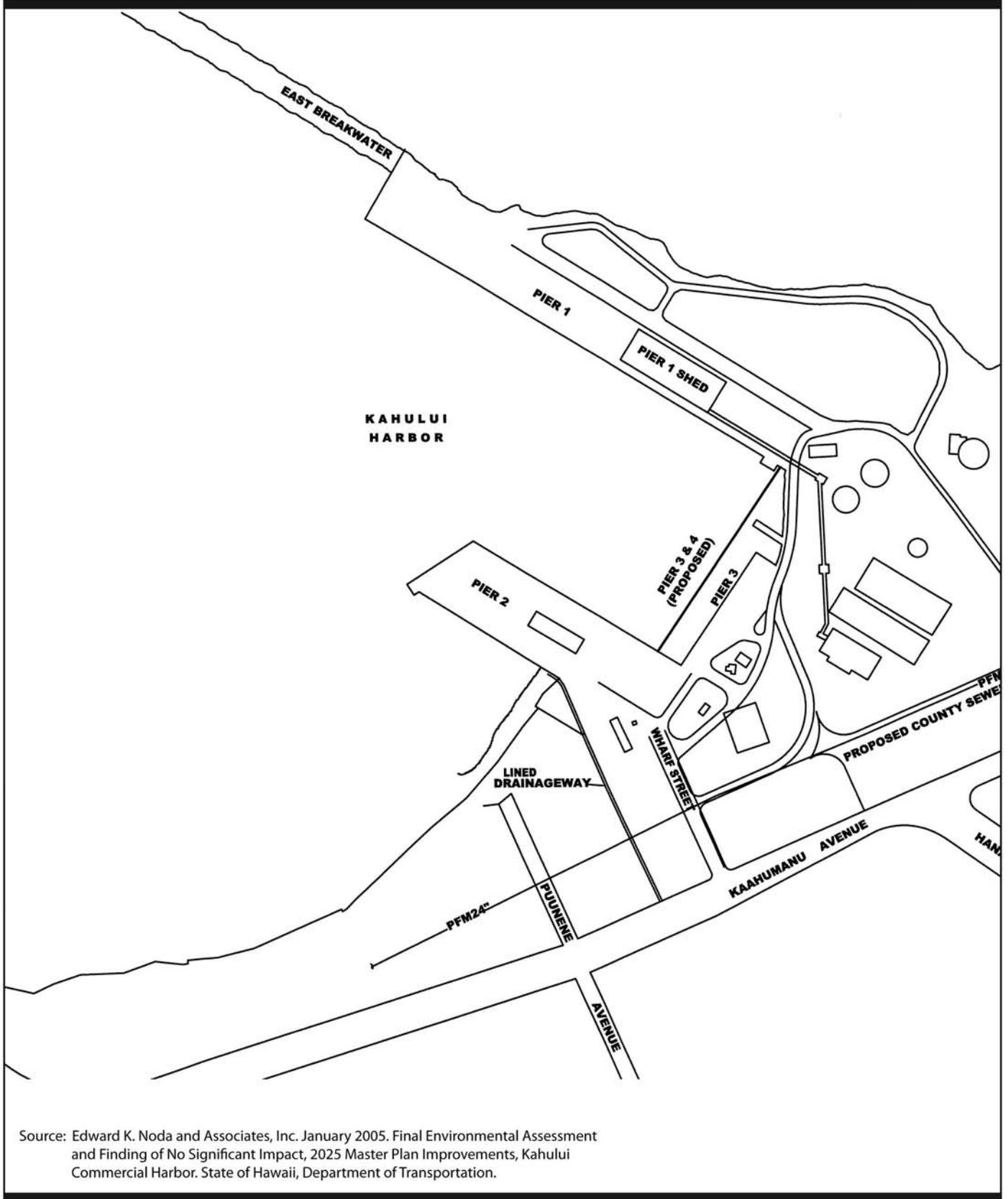
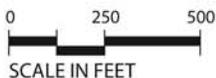


Figure 2
PIERS 3 AND 4, LINEAR—OTHER ACTION ALTERNATIVE

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2.3 No-Action Alternative

Under the no-action alternative, the proposed improvements described above would not be constructed within the short term. However, shipping traffic, cargo tonnage, and passenger volumes would still increase. With no new piers or infrastructure, forecast vessel traffic would be accommodated with existing facilities, causing substantial overflow of these facilities and producing delays in the loading and unloading of cargo and passengers. Ships awaiting berthing would have to either moor offshore or wait at other ports until space becomes available. Container storage space would be inadequate. These inefficiencies would add to the cost of goods transported into and out of Maui.

2.4 Project Funding

Commercial harbor improvements are typically financed solely with State of Hawaii funds, either through the Harbors Special Fund or the General Fund. DOT Harbors Division usually funds its operating and capital improvement expenses through the Harbors Special Fund, derived from fees collected from commercial harbor users. The estimated construction costs of the projects described in this chapter are as follows:

**TABLE 2
ESTIMATED COST OF PROPOSED SHORT-TERM IMPROVEMENTS**

Projects	Estimated Cost
Pier 1D	\$1,000,000
Pier 1 waterline	\$1,000,000
New Pier 4, angled (preferred alternative)	\$26,000,000
Piers 3 and 4, linear (other alternative)	\$39,000,000
Pu'unēnē storage yard improvements	\$3,464,775

2.5 Required Permits and Approvals

The following government consultations and permits will be required to develop components of the subject projects that involve in-water work:

- Clean Water Act Section 404 permit: U.S. Army Corps of Engineers, State of Hawaii Department of Health (DOH)
- Clean Water Act Section 401 water quality certification: State of Hawaii DOH, U.S. Environmental Protection Agency (EPA)
- Rivers and Harbors Act, Section 10 permit: U.S. Army Corps of Engineers

In addition, the projects will require a National Pollutant Discharge Elimination System (NPDES) permit for construction activities from State DOH.

Most of Kahului Commercial Harbor land is within the State Urban District and zoned Industrial by Maui County. The harbor is located within the Special Management Area (SMA) and the County’s Wailuku-Kahului Community Plan area. Development in the SMA is regulated through the County’s SMA permit system. DOT Harbors Division is exempt from county permitting requirements, including the SMA permit and county zoning approval, pursuant to Hawaii Revised Statutes (HRS) Chapter 266-2(b).²

² HRS Chapter 266-2(b) states “Notwithstanding any law or provision to the contrary, the department of transportation is authorized to plan, construct, operate, and maintain any harbor facility in the State, including, but not limited to, the acquisition and use of lands necessary to stockpile dredged spoils, without the approval of county agencies.”

Chapter 3

Affected Environment, Environmental Consequences, and Proposed Mitigation

3.1 Introduction

As explained in Chapter 1, the analysis in this document is limited to traffic impacts associated with the short-term improvements proposed in the *Final Environmental Assessment and Finding of No Significant Impact, 2025 Master Plan Improvement, Kahului Commercial Harbor* (2025 EA) (November 2005). This chapter begins with an overview description of the environmental setting, including harbor facilities, major streets in the area, and points of interest in the harbor vicinity. The traffic analysis follows.

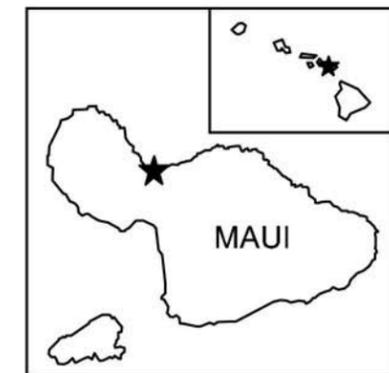
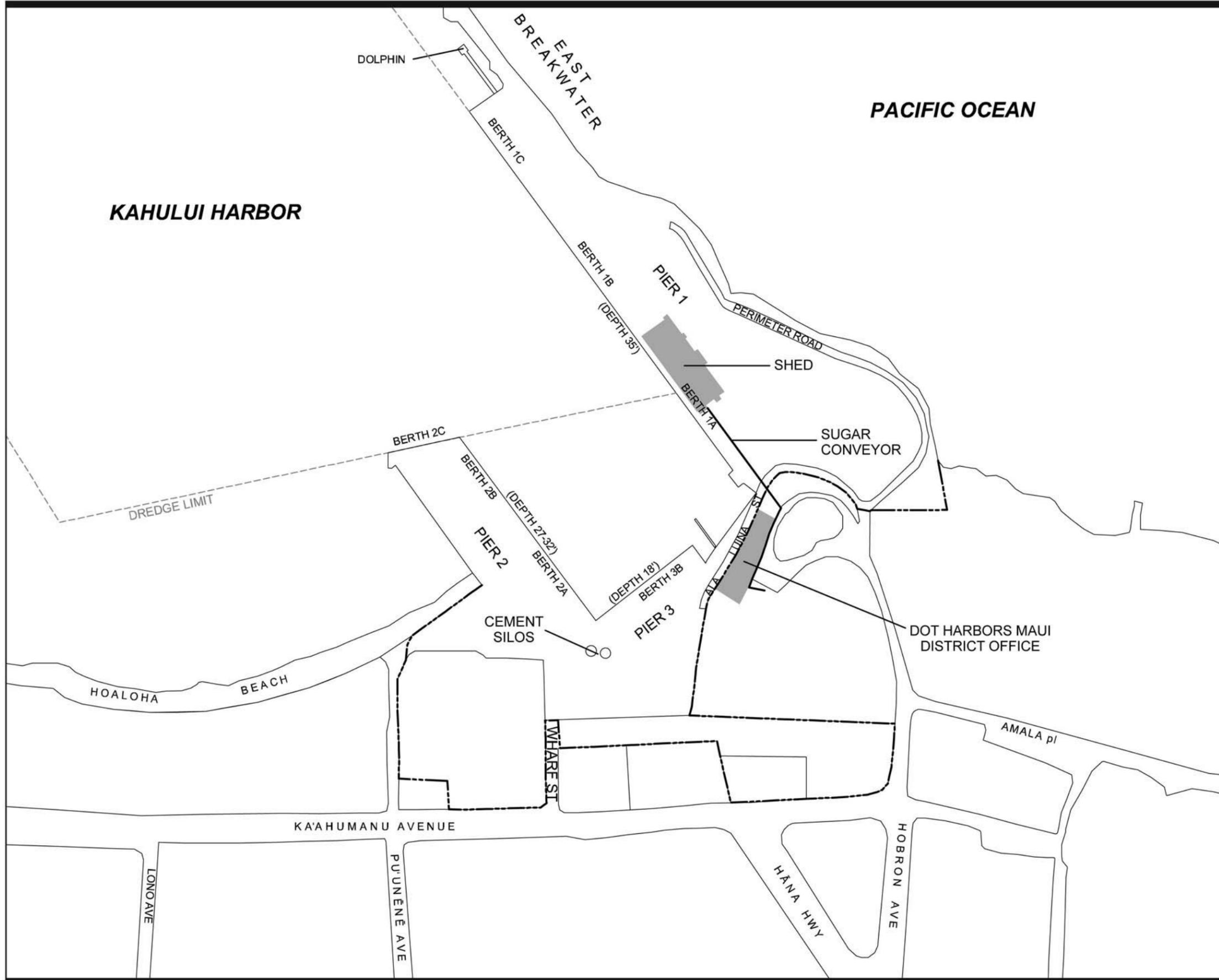
3.2 Overview – The Environmental Setting

Kahului Commercial Harbor is the busiest neighbor island deep-draft harbor and ranks as the third busiest in the state. It is the only commercial harbor on the Island of Maui. The bulk of goods used by Maui’s residents and visitors are imported via the commercial harbor. Commercial operations are currently limited to approximately 50 acres on the east side of the harbor, including three major berthing facilities (Piers 1, 2, and 3) with storage areas, warehouses, harbor offices, and tenant buildings. See Figure 3.

The subject property consists of Tax Map Keys (TMKs) 3-7-01: 21 & 22; 3-7-10: 2, 3, 6, 13, 15, 21, 22, 24, 26, 27, 28, 30, 32 & 34; and 3-7-08: 2, 3, 4 & 6. It is located in Kahului in the district of Wailuku, on the north side of the island of Maui. The project area for the 2025 Master Plan short-term improvements is comprised of the East Breakwater; the three piers; and land bounded by Ka‘ahumanu Avenue and the shoreline between Pu‘unēnē Avenue and Hobron Avenue.

Pier 1 provides 1,658 feet of berthing space and has approximately 17.6 acres of paved areas for cargo operations, circulation, and parking. Nominal water depth is 35 feet. A shed behind the pier is used as a passenger terminal and for equipment storage. Other facilities on Pier 1 include transmission pipelines for gasoline, kerosene, diesel, fuel oil, and molasses and a conveyor for sugar, as well as a mobile crane.

Pier 2 has a total available berthing space of 1,184 feet, and a portion of the pier has been strengthened to support heavy-lift cargo operations. The nominal water depth along the pier varies between 27 and 32 feet. Combined backlands for Piers 2 and 3 total about 20.9 acres of paved surface for cargo operations, ferry operations, circulation, and cement storage. Transmission pipelines for cement and propane



- CHANNEL & TURNING BASIN
- DOT PROPERTY LINE
- CONVEYOR



0 100 200 400
SCALE IN FEET

Figure 3
CURRENT FACILITIES AT
KAHULUI COMMERCIAL HARBOR

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serve Pier 2. Cement is stored in silos located landside near the corner of Piers 2 and 3.

Pier 3 is situated between and perpendicular to Piers 1 and 2. The pier is 500 feet long, with a nominal water depth of only 18 feet, which limits its ability to berth larger or fully-loaded vessels. Additional facilities include transmission pipelines for gasoline, jet fuel, fuel oil, and ethanol.

Streets in the harbor vicinity are Ka‘ahumanu Avenue, Pu‘unēnē Avenue, Hobron Avenue, Hana Highway, Wharf Street, and Ala Luina Street.³ Hana Highway and Ka‘ahumanu Avenue function as major roadways in the area, serving both regional and local vehicular traffic. See Figure 4, Vicinity Map.

Kahului serves as Maui’s transportation hub and retail/industrial center. Kahului Airport is the major airport in the county. As shown in Figure 4, neighborhood and other points of interest near the harbor include low-rise commercial and residential areas, the Harbor Lights condominium complex, recreation fields, the Maui Arts and Culture Center, Maui Community College, two low-rise hotels along the waterfront, Hoaloha Park with facilities for the canoe clubs that practice in the harbor, three shopping centers inland of Ka‘ahumanu Avenue, a bank, automobile dealer’s lot, and buildings leased to multiple tenants on the seaward side of Ka‘ahumanu Avenue, and an industrial area with harbor-related operations and warehouses adjacent to the harbor.

3.3 Traffic

Fehr & Peers/Kaku Associates performed a traffic analysis for this Supplemental EA (see Appendix A). The findings are presented below.

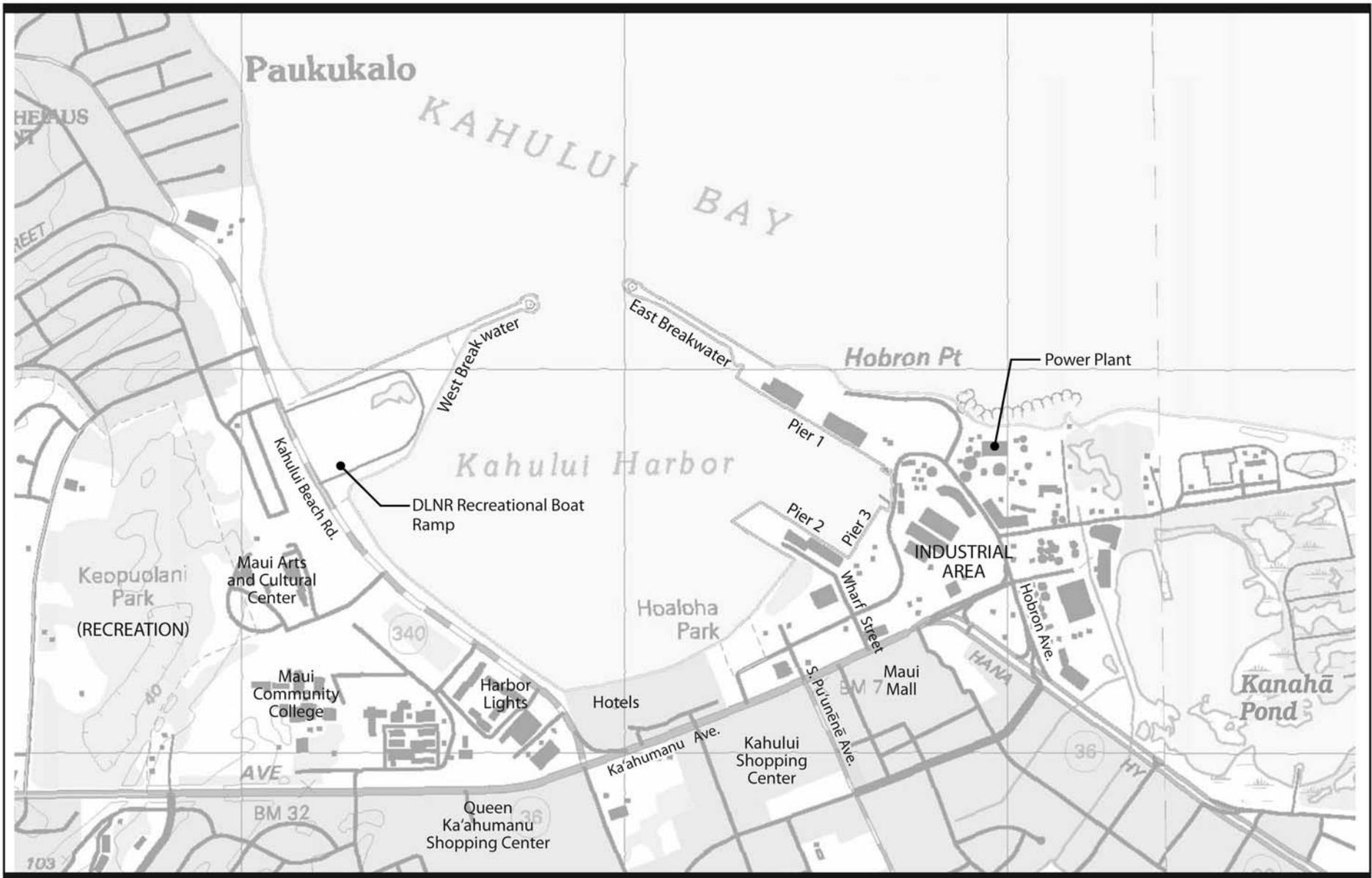
3.3.1 Existing Conditions

Study Intersections and Counts of Existing Traffic

Access to Kahului Harbor is provided at three locations along Ka‘ahumanu Avenue: Pu‘unēnē Avenue, Wharf Street, and Hobron Avenue (see Figure 4). The signalized intersections at Pu‘unēnē Avenue and Wharf Street offer access to Piers 2 and 3. The Hobron Avenue intersection, controlled by a stop sign, provides access to Pier 1.

Traffic counts were conducted in April 2007 at the three intersections during the following time periods: morning (7:00-9:00 AM), mid-morning (9:00-11:00 AM), and afternoon (3:30-5:30 PM). These counts were performed as part of a traffic study carried out by Fehr & Peers/Kaku Associates for the State DOT’s proposed Kahului Commercial Harbor 2030 Master Plan. The traffic study, dated

³ Ala Luina Street is a limited-access roadway within the harbor. It has been closed to general traffic since February 2007.



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**Figure 4
VICINITY MAP**



Source: U.S. Geological Survey. October 2004. Digital Raster Graphic. Project area boundary determined from Tax Map Key (First American Real Estate Solutions. 2006. Realty Atlas, Hawaii. Counties of Maui and Kalawao. Zones 3 thru 6.)

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November 2007, is presented in Appendix B. Additional counts were conducted at the Pu'unene Avenue and Wharf Street intersections in January 2008 during the late afternoon time period (5:00-8:00 PM).

To reflect 2008 conditions, the 2007 traffic counts were adjusted with ambient annual growth factors. These growth factors were developed from the Maui islandwide transportation demand forecasting model developed for the County of Maui as part of a long-range transportation planning effort.⁴

Traffic demand forecasts on the arterial streets (Ka'ahumanu and Pu'unēnē Avenues) were assessed using data from the model, which provided average yearly growth factors for each major highway in the area. These factors, summarized in Table 3 below, indicate annual growth rates for Ka'ahumanu Avenue of less than one percent per year for both the morning and afternoon peak hours. For Pu'unēnē Avenue, the rates are almost three percent per year for the morning peak hour and almost two percent per year for the evening peak hour.

**TABLE 3
PEAK HOUR GROWTH FACTORS**

Location	A.M. Peak Hour	P.M. Peak Hour
	Annual Growth Rate	Annual Growth Rate
Ka'ahumanu Avenue	0.7%	0.4%
Pu'unene Avenue	2.7%	1.6%
Minor Streets	0.4%	0.4%

Note: Mid-morning peak hour assumes the same growth as a.m. peak hour.

The growth rates were applied to major movements from the identified arterial (through movements on Ka'ahumanu Avenue and turns onto/from Pu'unēnē Avenue). All other minor movements were assumed to grow by 0.4 percent. For purposes of this analysis, growth rates applied to the mid-morning period were assumed to be the same as the morning peak hour.

Adjustments to Account for Hawaii Superferry Operations

When the traffic counts were collected in 2007 and 2008, the Hawaii Superferry (HSF) was not operational. Based on scheduled sailings at Kahului Harbor, the mid-morning and potentially the late afternoon time periods require adjustments to account for HSF operations. Based on HSF information, the average daily demand is estimated at 110 vehicles per sailing, and the peak day demand is estimated at 153 vehicles per sailing. These estimates were converted into peak hour vehicle trips using the following assumptions:

⁴ Development of the model is fully documented in *Maui Island Traffic Impact Fee Report and Comprehensive Roadway Master Plan* (Kaku Associates, Inc., November 2006).

1. Other than the exception noted in item 5 below, all traffic generated by loading and unloading of vehicles and passengers would occur in one hour.
2. Passengers with vehicles boarding the ferry would generate one vehicle trip per passenger in the inbound (toward the harbor) direction.
3. Passengers with vehicles disembarking from the ferry would generate one vehicle trip per passenger in the outboard direction.
4. Loading and unloading passengers without vehicles would generate two vehicle trips per passenger—one trip inbound and one outbound.
5. Only 90 percent of the passengers loading onto the ferry (both with and without vehicles) would arrive at the harbor during the peak hour.

These assumptions were used to develop the HSF traffic generation estimates shown in Table 4. Weekday average demand is projected at 267 total vehicles per hour. Peak daily demand is projected at 371 total vehicles per hour. To maintain a conservative analysis, trip generation for the peak day demand was applied to the study intersections. This HSF traffic demand scenario was applied to account for the HSF sailings during the mid-morning and (potentially) the late afternoon periods.

**TABLE 4
HSF TRIP GENERATION FORECASTS**

HSF Demand Scenario	Trip Generation (Vehicles)		
	Inbound	Outbound	Total
Projected Average Daily	128	139	267
Projected Peak Day	178	193	371

In a separate study, reported in a memorandum dated January 30, 2008 (Appendix C), Fehr & Peers/Kaku Associates observed actual traffic conditions in the vicinity of Kahului Harbor to assess traffic impacts of HSF on the local street system. These field observations, conducted between January 20 and 23, 2008, occurred at the two intersections that provide access to HSF’s terminal on Pier 2—Ka’ahumanu Avenue/Pu’unēnē Avenue and Ka’ahumanu Avenue/Wharf Street. The observations were not incorporated into the Level of Service (LOS) analysis described below, but the findings offer some context regarding HSF’s relative contribution to traffic in the harbor vicinity.

This effort focused on potential traffic issues caused by the loading and unloading of passenger vehicles. At the time of the observations, two sailings were scheduled each day at Kahului Harbor: the 10:15 AM arrival from Honolulu and the 11:15 AM departure to Honolulu. HSF's published information indicates that gates are opened approximately two hours prior to departure and closed approximately 30 minutes prior to departure. Field observations were performed over the entire period around the overlapping arrival and departure times.

HSF provided actual passenger load numbers on the four days of field observations. The largest loads observed was on Monday, January 21—the Martin Luther King, Jr. holiday—with 135 vehicles, of which 41 were returning to Kahului and 94 were departing from Kahului. Based on conversations with HSF staff, this was the largest loads since HSF services restarted in November 2007. The remainder of the observations showed total vehicular loads ranging from 59 to 80 vehicles, with an average split of 40 percent returning to Kahului and 60 percent departing from Kahului.

Both intersections operated freely without congestion on all four days during the ferry loading and unloading of vehicles, with little or no queuing of vehicles on any approach to the intersections and without any delays associated with ferry operations. Traffic control officers directed traffic at Ka'ahumanu Avenue and Pu'unēnē Avenue. Disembarking vehicles departing the harbor were controlled. Officers ensured that these vehicles did not block vehicles attempting to access the bank parking lot, accessing other areas in the harbor, or arriving to board the ferry. They also ensured that vehicles were not allowed to leave the harbor area if no queuing space was available on the southbound leg of Pu'unēnē Avenue.

On Monday, January 21, the intersections were congested between approximately 11:00 AM and 12:00 noon. Primarily caused by the higher than normal traffic volumes on Ka'ahumanu Avenue, this congestion occurred after all vehicles disembarking the ferry had departed the area and after all vehicles embarking the ferry had arrived and were either on the ferry or within the harbor gates. According to the traffic control officers and harbor staff, the high traffic volumes and subsequent congestion was generated by holiday activities at the adjacent shopping centers.

Existing Level of Service (LOS)

Level of Service (LOS) is a qualitative measure used to describe the condition of traffic flow, ranging from excellent (LOS A) to overloaded (LOS F). The LOS definitions for signalized and unsignalized intersections are given in Tables 5 and 6 below. LOS D is typically considered the minimum acceptable LOS in urban areas.

**TABLE 5
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS**

Level of Service	Volume/Capacity	Average Stopped Delay per Vehicle (seconds)
A	0.000 – 0.600	≤10
B	>0.600 – 0.700	>10 and ≤20
C	>0.700 - 0.800	>20 and ≤35
D	>0.800 - 0.900	>35 and ≤55
E	>0.900 - 1.000	>55 and ≤80
F	> 1.000	>80

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

**TABLE 6
LEVEL OF SERVICE DEFINITIONS FOR
UNSIGNALIZED INTERSECTIONS**

Level of Service	Average Total Delay (seconds/vehicle)
A	≤ 10.0
B	> 10.0 and ≤ 15.0
C	> 15.0 and ≤ 25.0
D	> 25.0 and ≤ 35.0
E	> 35.0 and ≤ 50.0
F	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000

LOS analyses were conducted at the study intersections to determine existing operating conditions both with and without HSF, using the operations methodology for signalized and unsignalized intersections from the *2000 Highway Capacity Manual* (Transportation Research Board, 2000).

As shown in Table 7, the three intersections operate at LOS C or better during each peak hour. The intersection delay at Ka‘ahumanu Avenue and Pu‘unē Avenue ranges between 19 and 30 seconds. At the Ka‘ahumanu Avenue/Wharf Street intersection, the delay ranges between 7 and 12 seconds. Intersection delay at Ka‘ahumanu Avenue and Hobron Avenue ranges between 15 and 21 seconds.

**TABLE 7
EXISTING INTERSECTION LEVELS OF SERVICE**

Intersections	Peak Hour	Existing (2008)		Existing + HSF		Change in Delay
		Del/Veh ¹	LOS	Del/Veh ¹	LOS	
1. Ka'ahumanu Av & Pu'unene Av	A.M.	18.3	B	18.3	B	0.0
	Mid-A.M.	22.2	C	28.4	C	6.2
	P.M.	27.2	C	27.2	C	0.0
	Late-P.M.	21.5	C	28.6	C	7.1
2. Ka'ahumanu Av & Wharf St	A.M.	6.7	A	6.7	A	0.0
	Mid-A.M.	9.2	A	9.4	A	0.2
	P.M.	11.5	B	11.5	B	0.0
	Late-P.M.	11.8	B	12.1	B	0.3
3. Ka'ahumanu Av & Hobron Av (stop controlled)	A.M.	15.4	C	15.4	C	0.0
	Mid-A.M.	17.6	C	17.6	C	0.0
	P.M.	20.9	C	20.9	C	0.0
	Late-P.M.	N/A		N/A		

Note:

- 1 Delay indicates average stopped delay per vehicle in seconds.
For stop-controlled intersection: worst-case approach delay is displayed.

With the addition of HSF-generated traffic, the Ka'ahumanu Avenue/Pu'unē Avenue intersection experiences an additional five seconds of delay during the mid-morning period and an additional seven seconds of delay during the late afternoon period. Although the intersection delay increases, the intersection continues to operate at LOS C with HSF traffic.

At the Ka'ahumanu Avenue/Wharf Street intersection, the addition of HSF traffic results in an increase in delay of approximately two seconds during the mid-morning period and a negligible increase during the late afternoon period. The condition at this intersection increases to LOS B during the mid-morning period and remains at LOS A during the late afternoon period with HSF traffic. Adding HSF

traffic at Ka‘ahumanu Avenue and Hobron Avenue does not result in an increase of intersection delay.

Each intersection continues to operate at an acceptable LOS during each period with the addition of HSF traffic.

3.3.2 Potential Impacts and Proposed Mitigation

Proposed Action (Preferred Alternative)

The year 2015 conditions were analyzed for effects of the proposed action on traffic operations. This is when the short-term harbor improvements described in the 2025 EA as the preferred alternative are proposed for completion. Assumptions used to develop the 2015 conditions include ambient background traffic growth, short-term harbor improvement projects, and HSF traffic. Ambient growth rates are described above. The growth rates were applied in an identical manner over a seven-year period to estimate the background traffic growth in 2015. The afternoon growth rate was applied to the late afternoon period. Traffic related to the proposed action—the short-term harbor improvements—was assigned to the study intersections to account for the addition of port-related traffic. Traffic related to the HSF was also assigned to the intersections in a manner identical to that described above.

Table 8 presents the projected 2015 LOS for the study intersections during each analyzed peak period. The intersections are projected to operate at LOS C or better during each time period without HSF traffic.

**TABLE 8
FUTURE WITH PROJECT CONDITIONS INTERSECTION LEVELS OF SERVICE**

Intersections	Peak Hour	With Project (2015)		With Project + HSF		Change in Delay
		Del/Veh ¹	LOS	Del/Veh ¹	LOS	
1. Ka'ahumanu Av & Pu'unene Av	A.M.	19.4	B	19.4	B	0.0
	Mid-A.M.	23.0	C	32.7	C	9.7
	P.M.	29.4	C	29.4	C	0.0
	Late-P.M.	23.2	C	31.1	C	7.9
2. Ka'ahumanu Av & Wharf St	A.M.	7.9	A	7.9	A	0.0
	Mid-A.M.	9.5	A	9.6	A	0.1
	P.M.	12.3	B	12.3	B	0.0
	Late-P.M.	12.3	B	12.6	B	0.3
3. Ka'ahumanu Av & Hobron Av (stop controlled)	A.M.	16.0	C	16.0	C	0.0
	Mid-A.M.	18.5	C	18.5	C	0.0
	P.M.	22.2	C	22.2	C	0.0
	Late-P.M.	N/A		N/A		

Note:

- 1 Delay indicates average stopped delay per vehicle in seconds.
For stop-controlled intersection: worst-case approach delay is displayed.

With HSF traffic, the Ka'ahumanu Avenue/Pu'unēnē Avenue intersection is projected to experience an additional 10 seconds of delay during the mid-morning and eight seconds of delay during the late afternoon period. This intersection is projected to continue operating at LOS C.

Adding HSF traffic to Ka'ahumanu Avenue and Wharf Street results in a negligible increase during the mid-morning and late afternoon periods, with the intersection continuing to operate at LOS C.

The Ka‘ahumanu Avenue/Hobron Avenue intersection does not experience an increase in intersection delay due to the addition of HSF traffic and is projected to continue operating at LOS C.

Like the existing conditions, each study intersection continues to operate at an acceptable LOS during each period with the addition of HSF traffic.

The three study intersections currently operate at LOS C or better during all peak periods, both with and without the addition of HSF-related traffic. Projecting the operating conditions at 2015, when the short-term harbor improvements (proposed action/preferred alternative) are expected to be completed, the intersections are expected to continue operating at an acceptable level of service (LOS C or better). Therefore, no mitigation is required.

Other Action Alternative (Piers 3 and 4, Linear)

Traffic impacts associated with the Other Action Alternative, characterized by a linear alignment of Piers 3 and 4, would be the same or similar to those described above for the Proposed Action (Preferred Alternative). Construction of the short-term improvements under this alternative is expected to be completed within the same timeframe—the year 2015. The same assumptions regarding growth rates and port-related traffic apply. The three study intersections are expected to continue operating at LOS C or better. Therefore, no mitigation is required.

No-Action Alternative

Projected operating conditions of the No-Action Alternative are summarized in Table 9. Each intersection is projected to operate at LOS C or better during each peak period with and without the addition of HSF traffic. Adding HSF traffic results in an increase in delay of eight to nine seconds at Ka‘ahumanu Avenue and Pu‘unēnē Avenue, a negligible increase in delay at Ka‘ahumanu Avenue and Wharf Street, and no additional delay at Ka‘ahumanu Avenue and Hobron Avenue. The intersections are projected to continue operating at an acceptable LOS.

**TABLE 9
FUTURE NO BUILD CONDITION INTERSECTION LEVELS OF SERVICE**

Intersections	Peak Hour	No Build (2015)		No Build + HSF		Change in Delay
		Del/Veh ¹	LOS	Del/Veh ¹	LOS	
1. Ka'ahumanu Av & Pu'unene Av	A.M.	19.0	B	19.0	B	0.0
	Mid-A.M.	22.9	C	32.3	C	9.4
	P.M.	28.6	C	28.6	C	0.0
	Late-P.M.	22.7	C	30.2	C	7.5
2. Ka'ahumanu Av & Wharf St	A.M.	7.7	A	7.7	A	0.0
	Mid-A.M.	9.3	A	9.6	A	0.3
	P.M.	12.1	B	12.1	B	0.0
	Late-P.M.	12.1	B	12.4	B	0.3
3. Ka'ahumanu Av & Hobron Av (stop controlled)	A.M.	15.8	C	15.8	C	0.0
	Mid-A.M.	18.3	C	18.3	C	0.0
	P.M.	21.9	C	21.9	C	0.0
	Late-P.M.	N/A		N/A		

Note:

- 1 Delay indicates average stopped delay per vehicle in seconds.
For stop-controlled intersection: worst-case approach delay is displayed.

Construction-related Impacts

Management measures would be implemented as part of the proposed action and other action alternative to avoid or minimize potential traffic impacts during construction of the short-term improvements. Construction-related traffic impacts are not considered significant since they are temporary and controlled by having the contractor follow best practices. In the case of traffic, these may include following a traffic management plan that limits certain activities to non-peak hours and providing traffic control measures when needed to assure safety and minimize congestion. Since the proposed improvements are all located within the harbor complex, impacts on public roads are further minimized.

3.4 Secondary and Cumulative Impacts

Secondary impacts are those impacts caused by the action that are later in time or further removed in distance but still reasonably foreseeable (HAR 11-20-2). No secondary impacts are expected relative to traffic. No traffic mitigation is required that would involve future construction or effects on public facilities.

Cumulative impacts are environmental impacts resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (HAR 11-200-2). Traffic analyses are conducted to determine cumulative impacts. The findings of the traffic study conducted for this Supplemental EA considered ambient conditions and growth factors, including population, economic, and development projections.

Chapter 4

Determination and Findings

Based on the analysis documented herein, the determination is a Finding of No Significant Impact (FONSI). This determination has taken into consideration primary and secondary traffic consequences of the proposed action and alternatives, which are considered cumulative impacts, including short-term and long-term effects. In summary, the project would have no significant traffic impacts and can be accommodated by existing and planned infrastructure.

Following is a discussion of the FONSI determination, using the applicable significance criteria established in HAR Section 11-200-12 to evaluate project impacts that are relevant to the scope of this document, i.e., the subject matter of traffic impacts only. Pursuant to subparagraph 12, ...*an action shall be determined to have a significant effect on the environment if it:*

- (1) *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.*

Projected traffic conditions associated with the proposed action and alternatives have no impact on natural and cultural resources.

- (2) *Curtails the range of beneficial uses of the environment.*

Projected traffic conditions associated with the proposed action and alternatives do not curtail the range of beneficial uses of the environment.

- (3) *Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revision thereof and amendments thereto, court decisions, or executive orders.*

The proposed action is being carried out in compliance and in concert with the applicable environmental policies, goals, and guidelines

- (4) *Substantially affects the economic and social welfare of the community or state.*

No economic or social welfare issues are associated with traffic impacts.

- (5) *Substantially affects public health.*

No public health issues are associated with the proposed action and its traffic impacts.

- (6) *Involves substantial secondary impacts such as population changes or effects on public facilities.*

No population changes or substantial effects on public facilities are associated with the proposed action or alternatives. No improvements to public roadways are required.

- (7) *Involves a substantial degradation of environmental quality.*

No degradation of environmental quality is associated with the proposed action and alternatives. Traffic conditions are projected to remain at acceptable levels.

- (8) *Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.*

Cumulative impacts disclosed in this EA, specifically traffic, would not have considerable effects upon the environment or involve a commitment for larger actions. No mitigation is required.

- (9) *Substantially affects a rare, threatened, or endangered species, or its habitat.*

No rare, threatened, or endangered species, or their habitat, occur in the project area (not applicable to traffic impacts).

- (10) *Detrimentially affects air or water quality or ambient noise levels.*

With traffic conditions projected to remain at acceptable levels, no detrimental impacts on local air quality are expected due to emissions from idling vehicles.

Water quality and ambient noise levels: not applicable to traffic.

- (11) *Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.*

Not applicable to traffic.

- (12) *Substantially affects scenic vistas and viewplanes identified in county or state plans or studies.*

Not applicable to traffic.

- (13) *Requires substantial energy consumption.*

The proposed action and its associated traffic do not require substantial energy consumption.

Chapter 5

Consulted Parties

5.1 Pre-Assessment Consultation

Fehr & Peers/Kaku Associates consulted with planning staff in the State Department of Transportation Highways Division.

DOT Harbors consulted with the Office of Environmental Quality Control regarding the appropriate accepting authority/determination agency for this document.

5.2 Draft Supplemental EA Distribution List

The distribution list for the Draft Supplemental EA is presented in Appendix D.

5.3 Draft Supplemental EA Comment and Response Letters

Comment letters on the Draft Supplemental EA were received from the following. Copies of comment and response letters are contained in Appendix E in the order listed.

County of Maui:

- Department of the Corporation Counsel
- Department of Fire and Public Safety
- Department of Parks & Recreation (no comments)
- Department of Planning
- Police Department
- Department of Transportation

State of Hawaii:

- Department of Transportation, Statewide Transportation Planning

Citizen Groups and Individuals:

- Kahului Harbor Coalition
- Maui Tomorrow Foundation, Inc.

Chapter 6 References

Belt Collins Hawaii Ltd. (December 2007) *Kahului Commercial Harbor 2030 Master Plan Draft Environmental Impact Statement*

Edward K. Noda and Associates, Inc. (November 2005) *Final Environmental Assessment and Finding of No Significant Impact, 2025 Master Plan Improvements, Kahului Commercial Harbor*

Fehr & Peers/Kaku Associates (February 7, 2008) “Memorandum to Belt Collins Hawaii – Kahului Harbor Supplemental EA for 2015”

Fehr & Peers/Kaku Associates (January 30, 2008) “Memorandum to Belt Collins Hawaii – Kahului Harbor Supplemental EA for 2015”

Fehr & Peers/Kaku Associates (November 2007) *Kahului Harbor Master Plan Traffic Study*, prepared for State of Hawaii Department of Transportation.

Kaku Associates, Inc. (November 2006) *Maui Island Traffic Impact Fee Report and Comprehensive Roadway Master Plan*

