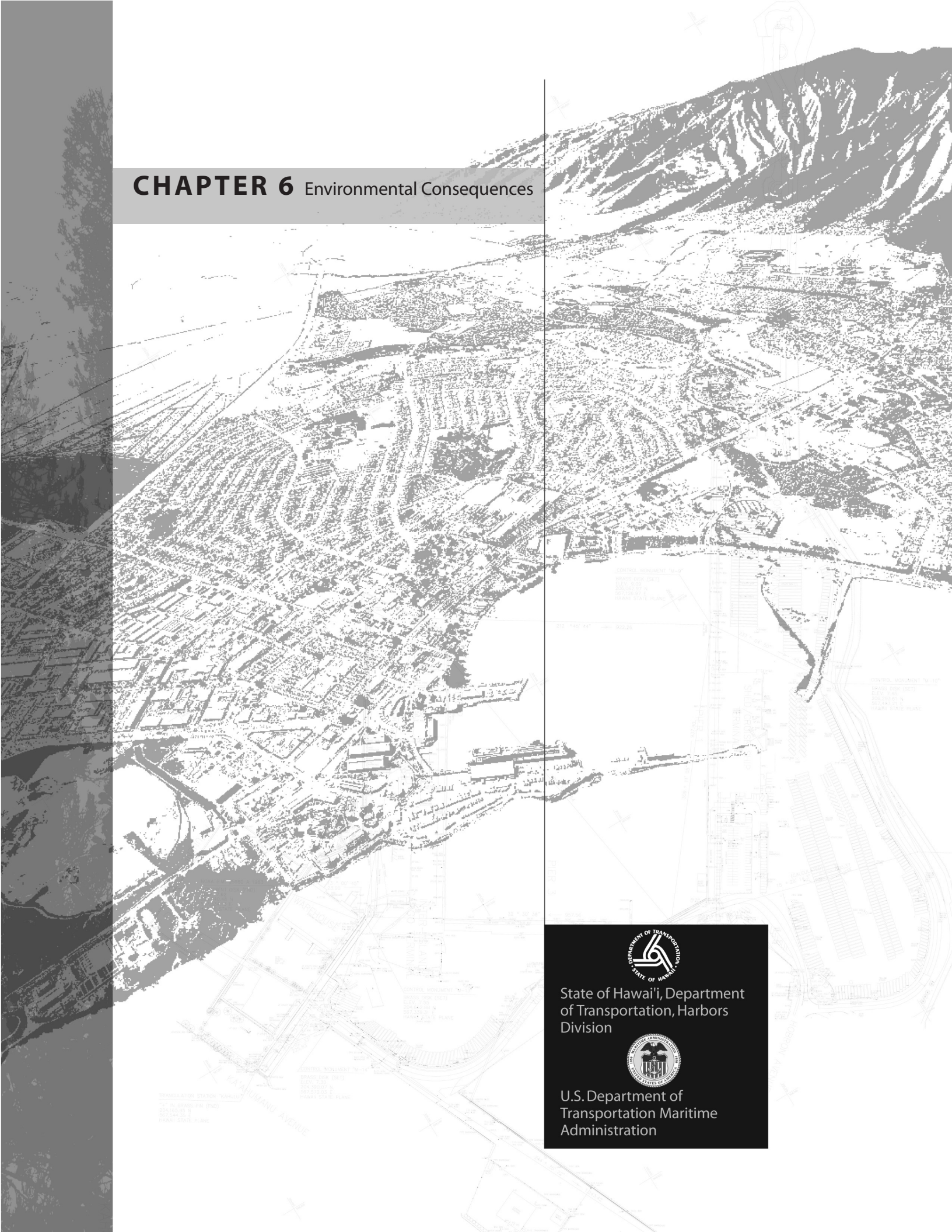
CHAPTER 6 Environmental Consequences



State of Hawai'i, Department of Transportation, Harbors Division

U.S. Department of Transportation Maritime Administration

CHAPTER 6 ENVIRONMENTAL CONSEQUENCES

6.1 INTRODUCTION

This chapter evaluates potential environmental consequences associated with the proposed action and alternatives, identifies criteria used to determine whether impacts are potentially significant, and discusses possible management and design measures to minimize or avoid impacts. Direct impacts are analyzed under each resource section. Cumulative and secondary impacts are addressed at the end of the chapter.

Impact analysis deals with peacetime conditions, under MARSEC Level 1. As noted in Section 2.3.3, recreational activities in Kahului Commercial Harbor could be restricted if the U.S. Coast Guard (USCG) implements special security measures independent of the Master Plan.

6.2 AIR QUALITY

6.2.1 Impact Methodology and Significance Criteria

Each alternative's impacts on air quality were determined based on anticipated changes in emissions of air pollutants specifically associated with construction and operation of the proposed harbor improvement activities. Determinations of significance took into account whether the activities being evaluated would cause the island of Maui or the state of Hawai'i to exceed National Ambient Air Quality Standards (NAAQS) or state Ambient Air Quality Standards (AAQS).

6.2.2 Proposed Action (Alternative A)

SIGNIFICANT IMPACTS. None. The project is not expected to have significant impacts on air quality.

Emissions of air pollutants from construction activities would be temporary and would result from two main sources: (1) fugitive dust from soil excavation and vehicle

movement, and (2) operation of fossil-fuel powered construction equipment and generators (if construction activities require generators). The emission rate for fugitive dust is difficult to estimate accurately because the potential for its generation varies greatly depending on the amount and type of soil disturbance, moisture content, and soil type. Fugitive dust would be minimized as required by Hawai‘i Administrative Rules (HAR) 11.60.1-33. If required, permits for generators with the potential to affect air quality would be obtained pursuant to HAR 11.60.1. Construction equipment would be operated in compliance with existing state and federal regulations governing emission controls.

The State of Hawai‘i does not regulate mobile sources of emissions, and as stated in Section 2.3.2, the transportation conformity rule does not apply as the state is in attainment of the NAAQS. Increases in ship traffic, cargo movement, and vehicle numbers, and the increased emission of air pollutants from burning fossil fuels associated with these activities, are expected regardless of whether the proposed harbor improvements occur. As identified in Section 5.9, the Maui County population is expected to increase from approximately 141,000 in 2006 to approximately 200,000 in 2030. While this represents an increase in population of about 41 percent, it still represents a 2030 Maui County population of about one-quarter the present-day population of O‘ahu. Assuming that the amount of cargo traffic increases in proportion to population growth, the relative increase in air emissions would still be significantly lower than the present-day emissions from ships in Honolulu Harbor. As the island of O‘ahu is still in attainment of NAAQS and state AAQS, the increase in vessel traffic to Kahului Commercial Harbor is not expected to cause the island or state to exceed the standards. Therefore, the proposed action would not significantly impact air quality. The proposed action would not cause the island of Maui or the state of Hawai‘i to be categorized as “nonattainment” areas for the federal and state air quality standards.

MANAGEMENT MEASURES. Visible emissions of fugitive dust from construction activities at the property line are prohibited by state law. Construction management constraints for fugitive dust control would be implemented as described in Section 2.3.2 in compliance with HAR 11-60.1-33, as needed.

6.2.3 Alternative B

SIGNIFICANT IMPACTS. None. Alternative B is not expected to have significant impacts on air quality.

Impacts are expected to be similar to those under Alternative A.

MANAGEMENT MEASURES. Impacts to air quality and management measures for fugitive dust control would be similar to those described under Alternative A.

6.2.4 No Action Alternative

SIGNIFICANT IMPACTS. None. Significant impacts to air quality are not anticipated from the No Action Alternative.

Vessel traffic would increase as described under Alternative A, even without the improvements proposed in the 2030 Master Plan; however, as described above, impacts would not be significant.

MANAGEMENT MEASURES. The harbor improvements approved under the *2025 Master Plan EA,* as well as routine, programmed maintenance, would occur under the No Action Alternative. Temporary impacts from construction activities and management measures for fugitive dust control would be similar to those described under Alternative A.

6.3 PHYSICAL OCEANOGRAPHY

6.3.1 Impact Methodology and Significance Criteria

Each alternative's impacts were determined based on the degree to which changes in physical oceanography would contribute to shoreline erosion or otherwise alter the physical environment in and around the harbor. Factors considered in determining the significance of an impact include the degree to which the activities would alter the physical environment.

6.3.2 Alternative A (Proposed Action)

SIGNIFICANT IMPACTS. Significant changes to the physical oceanography from dredging activities are not anticipated, as ocean disposal of dredged material is not currently being considered. Changes to physical oceanography from construction of breakwater extensions are not expected to be significant but would be dependent on the final design, configuration, and size of the structures, which will be identified in future engineering documents.

While potential dredging methods and disposal locations are discussed for consideration in this document, specific methods and disposal locations have been only tentatively identified in this master-planning level document, as factors such as sediment characterization and suitability for re-use have not been determined. Ocean disposal of dredged material is not being specifically considered at this time. Were it to be considered, it would only be allowed at a designated ocean disposal site. Use of dredged material as fill within the harbor would alter the physical characteristics of the specific fill area. The harbor in its current configuration was created by multiple

dredging and filling events and is physically separate from the surrounding marine environment; therefore, additional dredging within the harbor itself would not be considered a significant impact to physical oceanography. Changes in long-shore currents from installation of breakwater extensions are not expected to be significant, as long-shore currents and subsequent beach erosion are typically created by waves breaking at an angle to the shore, and the direction of sand movement is typically in the same direction as the waves. Since waves approach Kahului Commercial Harbor from the north and northeast, impacts would be primarily to the harbor itself.

Further consideration of the impacts to physical oceanography from the breakwater extensions would be included in preliminary engineering for the proposed construction. Design of the breakwaters would take into consideration the minimization of impacts to physical oceanography in addition to other design considerations.

MANAGEMENT MEASURES. Management constraints identified in Section 2.3.1, In-water Construction Management Constraints, identify how the various potential dredging methods would be conducted, including management practices to reduce siltation outside of the immediate dredge area (such as installation of silt curtains). Impacts to physical oceanography are not considered significant and mitigation is not required.

6.3.3 Alternative B

SIGNIFICANT IMPACTS. As with Alternative A, significant impacts from dredging activities during breakwater construction are not anticipated.

MANAGEMENT MEASURES. As with Alternative A, implementation of management constraints would eliminate the need for mitigation.

6.3.4 No Action Alternative

SIGNIFICANT IMPACTS. None.

Impacts to physical oceanography would be minimal and restricted to the already disturbed inner side of the East Breakwater.

MANAGEMENT MEASURES. None.

6.4 MARINE BIOTA

6.4.1 Impact Methodology and Significance Criteria

Comprehensive field surveys of the marine habitats inside and directly outside of Kahului Commercial Harbor in the vicinity of areas of proposed expansion of harbor facilities were carried out in early 2007. Results of the surveys provided ground-truth data to produce a benthic habitat map of the area utilizing the multispectral properties of available satellite remote sensing imagery. The map provides an accurate large-scale classification of benthic habitats. The extent of major bottom covers, particularly coral reef community resources, are delineated to a degree that can be of value for evaluation of both potential impacts and potential mitigation of reef area altered by modification of Kahului Commercial Harbor. The report summarizing the results of these field surveys is provided in Appendix G.

Each alternative's impacts were determined based on the degree to which they would adversely affect threatened and endangered marine species or important habitats. Factors considered in determining the significance of an impact include the amount of species or habitat loss expected from the activities.

6.4.2 Proposed Action (Alternative A)

SIGNIFICANT IMPACTS. Loss of approximately 22 percent coverage of coral reef habitat in the western part of the harbor, in addition to loss of coral in the already disturbed eastern part of the harbor.

THREATENED AND ENDANGERED SPECIES. No significant impacts to threatened or endangered marine species are expected from the proposed action. As identified in Chapter 5, the only protected or endangered species encountered during fieldwork was the green sea turtle (*Chelonia mydas*). However, no turtle nesting grounds are known to occur inside the harbor. Other protected and endangered species that might occur in the area are marine mammals, particularly the humpback whale (*Megaptera novaeangliae*) and Hawai'ian monk seal (*Monachus schauinslandi*). These species do not typically frequent or feed within the harbor.

HABITAT. With respect to benthic habitats, Alternative A would include both direct effects, which are defined as physical removal of the physical habitat by dredging or build-over, and indirect effects which include impacts brought about by physical or chemical changes of the water column as a result of construction activities (e.g., changes to coral survival or recruitment, smothering, abrasion, or reduced productivity caused by excessive dredge-induced sedimentation or subsequent light reduction). Direct effects of Alternative A would include loss of existing coral growing on the

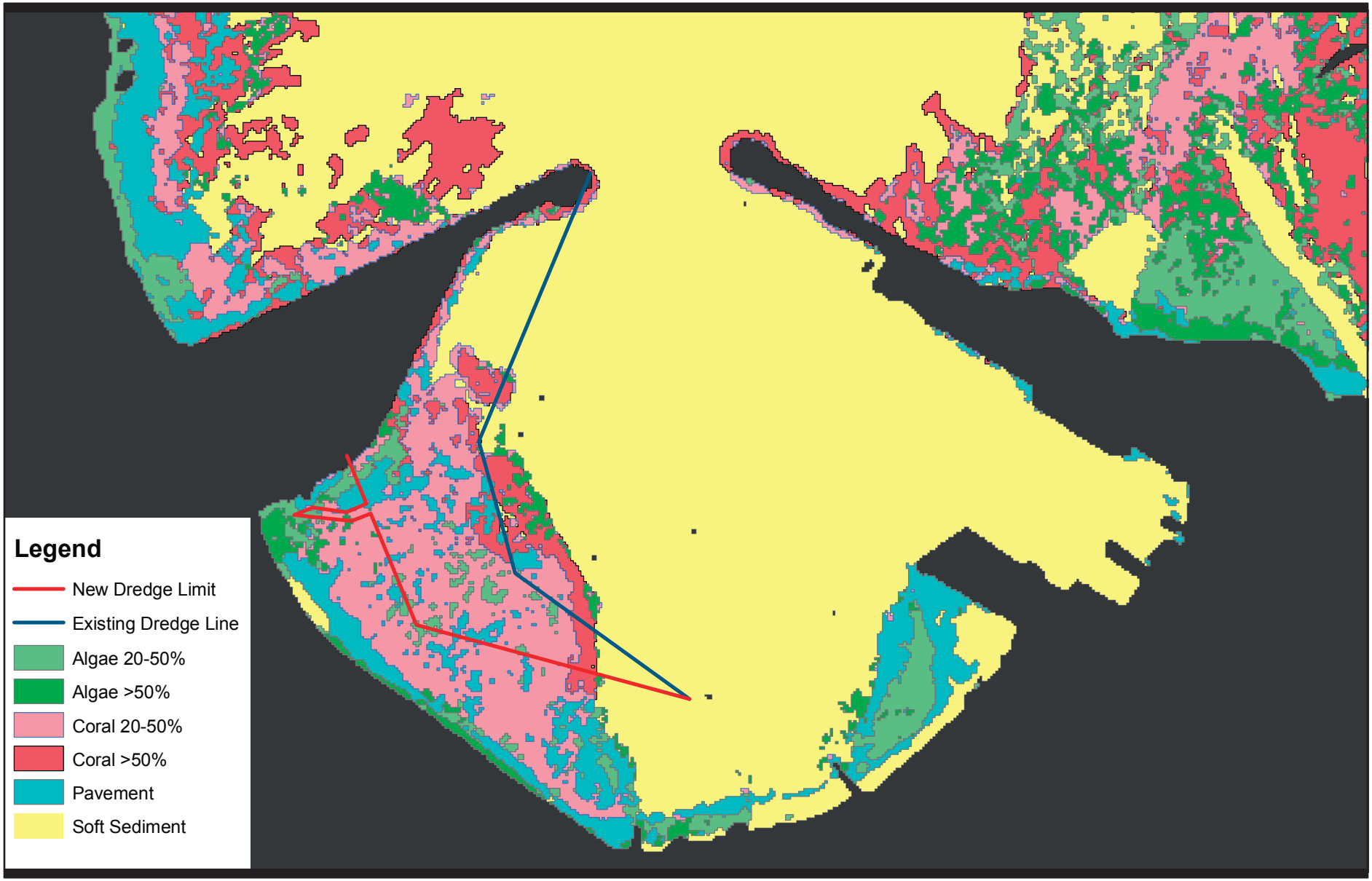
tetrapods on the inner side of the East Breakwater (approximately 0.4 acres (0.16 ha) with 20 to 50 percent coral cover and 0.13 acres (0.05 ha) with greater than 50 percent coral cover) and reef habitat that presently occurs on the shallow un-dredged reef on the inner west side of the harbor (approximately 15 acres (6.1 ha) with 20 to 50 percent coral cover and 6.5 acres (2.6 ha) with greater than 50 percent coral cover; Figure 6-1). No listed coral species were identified in the dredging area.

Construction of extensions of both the East and West Breakwaters would have minimal direct effects to hard bottom communities at either location, as the underlying habitats are soft sediment. Similarly, expansion activities in the inner eastern harbor in the area of Piers 2, 3, and 4 would have minimal direct effects as the entire area is characterized by soft bottom. Future construction of breakwater extensions would provide additional habitat for coral growth, similar to existing breakwaters, which appear to provide ideal habitat for coral settlement.

However, final dredging limits and depths and breakwater location and configuration have not yet been determined. Therefore, specific impacts from the proposed dredging and breakwater construction activities, and specific mitigation measures, will be evaluated in supplemental documents prepared during the USACE permitting process.

Indirect effects to marine communities are more difficult to estimate than direct effects owing to uncertainties of the magnitude of alteration of the water column from the construction activities, as well as the physiological resilience of the existing communities. More exact estimates of sedimentation arising from the construction activities would likely require modeling of the sediment plumes and deposition rates, which would be covered in the USACE permitting process. Periodic high loads of resuspended sediment frequently occur due to maneuvering of large ships in the harbor. As a result, the existing harbor communities are pre-adapted to sediment stress and may not be affected further by similar loads created during construction activities. In addition, if sediment plumes exit the harbor through the entrance channel, it is likely that such plumes would be sufficiently dispersed by waves and currents before they could reach areas with substantial reef structure.

The most extensive loss to reef communities under Alternative A would be to the communities on the shallow reef flat in the western sector of the harbor as a result of dredging to expand the size of the navigable basin. As much as 21 acres (8.5 hectares) of existing corals could be affected under Alternative A. Reef communities within the harbor likely experience regular episodes of high sediment from ship activities, and as a result, benthic communities are largely pre-adapted to temporary sedimentation due to dredging.



BeltCollins

NORTH

0 350 700

SCALE IN FEET

Figure 6-1
PROPOSED EXTENSION OF DREDGE AREA FOR ALTERNATIVES A AND B

Kahului Commercial Harbor 2030 Master Plan
Draft Environmental Impact Statement
December 2007

Reefs outside the harbor are unlikely to be affected by the proposed expansion, as they are not within the construction footprints, and sediments exiting the harbor would be dispersed by prevailing oceanographic condition to levels not exceeding the natural envelope of variability.

Consultation is required with the National Marine Fisheries Service (NMFS) under the Magnuson-Stevens Fishery Act regarding impacts to Essential Fish Habitat, and with the U.S. Fish and Wildlife Service (USFWS) regarding impacts to endangered species under Section 7 of the Endangered Species Act. Preliminary consultation has been initiated as part of this draft EIS.

Development of the West Breakwater area may limit the County's reliance on that area to dry seaweed it gathers on occasion from the harbor.

MITIGATION MEASURES. The U.S. Maritime Administration, Department of Transportation (MARAD) is in the process of consultation with NMFS and USFWS. As no federally managed species have to date been identified in the project area, no significant impacts to threatened or endangered species are anticipated and no mitigation to those species is identified. Management measures to protect threatened and endangered marine species, such as excluding marine species from the construction areas through installation of silt curtains and halting construction activities if endangered or threatened species are spotted, would minimize the potential for impacts to these species.

Regarding impacts to habitat through loss of coral reef coverage in the western part of the harbor, management measures described in Section 2.3 will be implemented, including installation of silt curtains to minimize impacts of turbidity on marine biota and timing construction for periods in which coral is not reproducing (April through August). In addition, the State of Hawai'i Department of Transportation Harbors Division (DOT Harbors) will evaluate the feasibility of transplanting corals that may be eliminated by proposed improvements. It should be noted that, while dredging to the preliminary dredging limits identified in the marine studies conducted for this draft EIS would involve a loss of approximately 22 percent coral coverage within the harbor, the extent and specific location of the loss of coral reef habitat cannot be definitively identified until specific dredging limits and depths, as well as breakwater location and configuration, are determined through detailed engineering design.

With regard to the drying of seaweed, consultation among the County of Maui, the Department of Land and Natural Resources, and the Department of Transportation will be needed to identify a drying site, whether on the West Breakwater or elsewhere.

6.4.3 Alternative B

SIGNIFICANT IMPACTS. Loss of approximately 22 percent coverage of coral reef habitat in the shallow western part of the harbor.

Direct effects of Alternative B would include loss of most of the existing coral growing on the tetrapods on the inner side of the East Breakwater (approximately 0.4 acres (0.16 ha) with 20 to 50 percent coral cover and 0.13 acres (0.05 ha) with greater than 50 percent coral cover) and, as with Alternative A, most of the shallow reef habitat that presently occurs on the shallow un-dredged reef on the inner west side of the harbor (Figure 6-1).

MITIGATION MEASURES. As described in Alternative A, the extent of the loss of coral reef habitat cannot be determined until specific dredging limits and depths, as well as breakwater location and configuration, are determined. Management measures described in Section 2.3 will be implemented to minimize impacts.

6.4.4 No Action Alternative

SIGNIFICANT IMPACTS. None.

The No Action Alternative would have the direct effect of loss of existing corals on the tetrapods on the inner side of the East Breakwater. These impacts have been evaluated as part of improvements to Pier 1 planned under the 2025 Master Plan.

MITIGATION MEASURES. No mitigation measures are proposed as there would be no significant impacts.

6.5 TERRESTRIAL FLORA AND FAUNA

6.5.1 Impact Methodology and Significance Criteria

Each alternative's impacts on terrestrial flora and fauna were determined based on whether federally- or state-listed threatened or endangered species or species of concern or their habitat would be affected by construction and operation of the proposed harbor improvement activities. While critical habitat has been designated within one mile of the project site, there is no critical habitat designated in the region of influence for terrestrial flora and fauna.

6.5.2 Proposed Action (Alternative A)

SIGNIFICANT IMPACTS. None. The project is not expected to have significant impacts on terrestrial flora and fauna.

The eastern part of the harbor is developed, with the majority of the land area paved. Terrestrial flora at the West Breakwater Harbor Development is predominantly a mix of introduced and native plant species, such as beach *naupaka,* Bermuda grass, and tree heliotrope. Little faunal resources have been identified in the project area. The USFWS has identified threatened and endangered species and habitat within the vicinity of the project; however, no threatened or endangered species or species of concern or their habitat have been identified at the site itself. As required by Section 7 of the Endangered Species Act, MARAD has begun coordinating with the USFWS and NMFS on the project, and will work with the appropriate federal and state agencies to minimize impacts to threatened and endangered species.

Artificial lights could present a danger to listed seabirds, which have been observed throughout Maui. The risk of groundings can be managed through shielding of light sources.

As described in Section 6.4 above, specific dredging quantities, disposal methods, and disposal locations have not been identified in this master-planning level document. In the event that upland disposal of dredged material or placement at the West Breakwater Harbor area are chosen as the preferred disposal method, locations would be selected to avoid impacts to threatened or endangered terrestrial flora or fauna. Dredged material could be received at a landfill for use as cover, pending characterization to determine that the material is not hazardous. Dewatering locations for dredged material will be chosen to avoid impacts to terrestrial flora and fauna. Dewatering and disposal of dredged material will not occur in areas with threatened or endangered terrestrial flora or fauna.

MANAGEMENT MEASURES. Management measures are not proposed at this time as no significant impacts are anticipated. If upland disposal of dredged material is determined to be the preferred disposal option, impacts to terrestrial flora and fauna at specific disposal locations would be evaluated. The Department of Transportation will consult with the USFWS regarding measures to minimize harm to listed seabirds as the project moves towards design, and will adopt such measures as needed.

6.5.3 Alternative B

SIGNIFICANT IMPACTS. None. Significant impacts to terrestrial flora and fauna are not anticipated from the activities described in Alternative B.

Impacts to terrestrial flora and fauna would be similar to those described under the proposed action.

MANAGEMENT MEASURES. Management measures are not proposed at this time. As in Alternative A, if upland disposal of dredged material is determined to be the preferred disposal option, dewatering and disposal of dredged material would not occur in areas with threatened or endangered terrestrial flora or fauna. As in Alternative A, t he Department of Transportation will consult with USFWS regarding measures to minimize harm to listed seabirds as the project moves towards design.

6.5.4 No Action Alternative

SIGNIFICANT IMPACTS. None. Significant impacts to terrestrial flora and fauna are not anticipated from the No Action Alternative.

The sites of previously approved projects are predominantly developed and on filled land. These areas do not contain threatened or endangered species or habitat. This includes construction activities on the former Alexander and Baldwin Properties (A&B Properties) parcels.

MANAGEMENT MEASURES. None.

6.6 SENSITIVE ENVIRONMENTS

6.6.1 Impact Methodology and Significance Criteria

Each alternative's impacts on sensitive environments were determined based on the compatibility of the proposed activities with the sensitive environment. Impacts are considered to be significant if the proposed activities would adversely alter the sensitive environment or if the presence of the sensitive environment in the project area would cause damage to natural or socio-economic resources.

6.6.2 Proposed Action (Alternative A)

SIGNIFICANT IMPACTS. Impacts to sensitive environments from dredging and breakwater construction activities may be significant; however, the significance of these impacts cannot be determined at the master plan-level of analysis. Pier extensions in the already-developed east side of the harbor are not anticipated to have significant impacts on sensitive environments.

FLOOD PLAINS. The proposed action includes extending the turning basin closer to the shoreline. Dredging limits and depths will be determined after detailed analyses have been completed by the USACE. As described in Section 5.15.3.2, the primary locations where waves break in the harbor are currently defined by the edge of the turning basin. Moving the edge of the turning basin closer to the shore could potentially bring large winter waves closer to the roadway, increasing the number of occasions when roadway flooding from large surf could occur. This potential impact will be evaluated in the detailed engineering studies. Construction of new structures at the harbor will comply with development standards for construction in the flood plain.

TSUNAMI ZONES. While the exact location, orientation, length and impacts of the East Breakwater extension will be evaluated further in detailed analyses to be conducted as part of the USACE design and permitting process, construction of the East Breakwater extension would temper the impact of tsunami waves in the harbor by further constricting the entrance to the harbor and providing a physical barrier in an additional direction. The contribution of harbor dredging on the impacts from tsunami waves to the surrounding environment would likely be reduced by the addition of the breakwater. Further modeling of wave climates would be conducted as part of the breakwater design.

BEACHES. The proposed area of fill on the west side of Pier 2 area would eliminate approximately 400 feet (130 m) of shoreline on the east side of Hoaloha Beach. In addition, dredging projects may impact the shoreline. Breakwater construction is intended to reduce surge in the harbor, which would serve to minimize the impacts of waves breaking on the beach.

EROSION-PRONE AREAS. Construction of the East Breakwater extension could alter the long-shore sand transport and contribute to beach erosion outside of the harbor. Changes in long-shore currents from installation of breakwater extensions are not expected to be significant, as long-shore currents and subsequent beach erosion are typically created by waves breaking at an angle to the shore, and the direction of sand movement is typically in the same direction as the waves. Since waves approach Kahului Commercial Harbor from the north and northeast, impacts would be primarily to the harbor itself. The breakwater design will take into consideration the potential effects on currents and sand transport, among other factors. As the breakwaters protect the inside of the harbor from strong wave action, breakwater extensions could serve to reduce the erosion rate inside the harbor to less than the current Annual Erosion Hazard Rate of −0.5 as discussed in Section 5.6.

GEOLOGICALLY HAZARDOUS LAND. Proposed improvements will be constructed in accordance with the International Building Code, which provides guidance on construction in seismic zones.

MITIGATION MEASURES. As detailed design documents are prepared for the specific construction projects, measures to minimize impacts to the sensitive environments will be evaluated and implemented where feasible to reduce the impacts of the projects on these resources. Construction activities will use the management measures described in Section 2.3 to minimize impacts.

6.6.3 Alternative B

SIGNIFICANT IMPACTS. Significant impacts to sensitive environments are not anticipated from the activities described in Alternative B.

Impacts to sensitive environments from Alternative B would be similar to those from the proposed action, with the exception that there would be no loss of beach on the west side of Pier 2, as no filling activities would occur. Specific impacts from dredging and breakwater construction and appropriate mitigation, if required, will be identified as part of the USACE permitting process in the future.

MITIGATION MEASURES. As with Alternative A, final design of the dredging and breakwater construction projects will take into account the minimization of impacts on sensitive environments. If significant impacts are identified at that point, appropriate mitigation will be developed.

6.6.4 No Action Alternative

SIGNIFICANT IMPACTS. No significant impacts to sensitive environments would occur under the No Action Alternative, as no construction activities would take place in or around sensitive environments.

MITIGATION MEASURES. None.

6.7 GEOLOGY, TOPOGRAPHY, AND SOILS

6.7.1 Impact Methodology and Significance Criteria

Each alternative's impacts on geology, topography, and soils were determined based on the effects of the project on the physiography, such as changes to slopes or an increase in erosion rates. Factors considered in determining the significance of an alternative's impact on geologic, topographic, or soil conditions include the extent to which the construction and operation of the alternative would alter the geology of the site, alter the existing terrain, or result in substantial erosion.

6.7.2 Alternative A (Proposed Action)

SIGNIFICANT IMPACTS. No significant impacts to geology, topography, or soils are expected from construction and operation of the proposed action. Impacts to erosion-prone areas such as the shoreline are discussed in Section 6.6.2.

Substantial excavation of land areas are not planned as part of this alternative. Dredging activities to widen the existing harbor basin approximately 800 feet (260 m) would change the underlying harbor substrate. The design depth of the proposed dredge areas (as shown in Chapter 4) would likely equal the existing depth of minus 35 feet (−11 m) in the harbor basin. Final dredging limits and depths, as well as breakwater location and configuration, will be determined through further engineering studies to be conducted as part of the USACE permitting process. Impacts of dredging on the underlying geology of the harbor are not expected to be significant, as the harbor basin has been widened and deepened at various times since its early construction, and it is assumed that the geology of proposed dredge areas is similar to that of previously dredged areas. No major changes to topography or soils are expected from this alternative.

MITIGATION MEASURES. No mitigation measures are proposed as no significant impacts are anticipated. In the event that future engineering and environmental studies identify significant impacts to geology, topography, or soils, mitigation measures would be proposed at that time.

6.7.3 Alternative B

SIGNIFICANT IMPACTS. No significant impacts to geology, topography, or soils are expected from construction and operation of Alternative B.

Impacts to geology from dredging activities would be similar to those in the proposed action; however, the area of fill under Alternative B would be less than that of the proposed action.

MITIGATION MEASURES. No mitigation measures are proposed as no significant impacts are anticipated.

6.7.4 No Action Alternative

SIGNIFICANT IMPACTS: No significant impacts to geology, topography, or soils would occur under the No Action Alternative.

Impacts associated with construction projects approved under the 2025 Master Plan would include small areas of land disturbance in highly urbanized and altered sites.

Construction Best Management Practices (BMPs) identified in Section 2.3.2 would minimize soil impacts from construction activities.

MITIGATION MEASURES. None.

6.8 GROUNDWATER AND SURFACE WATER RESOURCES

6.8.1 Impact Methodology and Significance Criteria

Each alternative's impacts to groundwater and surface water resources were evaluated by identifying potential pollutants that may be generated from proposed activities and evaluating existing regulatory requirements. Factors considered in determining an impact's significance included the degree to which the activity would potentially degrade groundwater or surface water quality or conflict with regulatory requirements.

6.8.2 Alternative A (Proposed Action)

SIGNIFICANT IMPACTS. No significant impacts to groundwater resources are expected from the proposed action. The project is below the Underground Injection Control (UIC) line; therefore, the underlying aquifer is not used for drinking water. Impacts to marine waters include temporary increases in turbidity and suspended sediments associated with dredging and filling activities. Construction of the East Breakwater extension may alter long-shore currents and affect Kanahā Pond Wildlife Sanctuary, a surface water body approximately one-half mile east of the harbor. However, as the exact orientation and location of the proposed breakwater extension has not been identified, specific impacts have not been determined. Minimization of impacts to both marine and terrestrial resources will be considered when developing breakwater design, orientation, and size.

Upland placement of dredged material for dewatering may be required; no significant impacts to groundwater or surface water are expected. BMPs to minimize impacts from dewatering are provided in Section 2.3.

Without management measures, construction activities have the potential to contribute pollutants such as petroleum and suspended sediments to surface waters. BMPs such as those identified in Sections 2.3.1 and 2.3.2 will be implemented to minimize impacts to surface waters.

MANAGEMENT MEASURES. Water quality monitoring will be conducted during dredging and filling activities as part of the Clean Water Act Section 401 Water

Quality Certification requirements. BMPs identified in Section 2.3, such as installation of silt curtains to prevent turbidity, will be implemented.

6.8.3 Alternative B

Impacts to groundwater and surface water resources from Alternative B would be similar to those under the proposed action. Areas of fill would be less than under the proposed action.

6.8.4 No Action Alternative

No significant impacts to groundwater or surface water resources would occur under the No Action Alternative. Without management measures, construction activities approved as part of the 2025 Master Plan could contribute pollutants such as petroleum and suspended sediments to surface waters. BMPs such as those identified in Sections 2.3.1 and 2.3.2 will be implemented to minimize impacts to surface waters.

6.9 SOCIO-ECONOMIC CONDITIONS

6.9.1 Impact Methodology and Significance Criteria

Impacts from construction and operation of each alternative on the population, economy, communities, and development plans are evaluated.

SOCIAL ANALYSIS METHODOLOGY. Social impacts of the master plan improvements fall under four broad headings:

- Impacts on the island, county, and state of more or less operational congestion at Kahului Commercial Harbor;
- Local impacts of more or less operational congestion at Kahului Commercial Harbor;
- Local impacts of an expanded commercial harbor footprint; and
- Impacts of alternatives on operations and persons within the commercial harbor area.

ECONOMIC ANALYSIS METHODOLOGY. A major tool for economic impact assessment, input-output modeling of the county and state economies, sheds light on cumulative

impacts of a project on the local economy. Input-output models track the relationships among local industries, allowing estimation of three sorts of impact:

- Direct impacts: Spending on a project creates jobs. For construction projects, direct jobs include both work at the project site and work offsite (in offices and base yards).
- Indirect impacts: Construction of a project affects the rest of the local economy when materials are purchased from other local firms.
- Induced impacts: Workers whose jobs are created through direct and indirect spending on a project in turn spend much of their wages in the local economy, supporting a wide range of other jobs (notably retail, service, and government jobs).

For construction, input-output analysis serves to distinguish immediate from cumulative impacts. For operations at the harbor, an order-of-magnitude account of the economic impacts associated with the alternatives can be provided, assuming that they differ in the efficiency of cargo handling, not in the total volume of cargo that could be handled at Kahului Commercial Harbor. Input-output analysis is not feasible above all because inefficiencies affect both harbor operations and on-island transportation and trade dependent on the harbor. The impact outside the harbor is not a matter of inter-industry transactions but of multi-industry reliance on harbor throughput. Factors affecting efficiency and productivity include:

- availability of pier space,
- availability of land for commercial harbor activities, and
- location of cargo operation and storage areas in close proximity.

ISSUES OF CONCERN NOT AFFECTED BY THE MASTER PLAN. Some issues of serious concern to Maui stakeholders are not appreciably affected by the 2030 Master Plan improvements:

- Hawaii Superferry (HSF) is now accommodated within the harbor and could be accommodated under all alternatives. (Whether the inter-island ferry docks at Pier 2 or the West Breakwater harbor area could affect local road and ocean users, as discussed below.) Anticipated effects of HSF operations such as possible problems of alien species introduction or increased use of Neighbor Island recreational resources by visitors from O‘ahu may or may not occur—but they would not be impacts of the 2030 Master Plan. These impacts will be addressed in a separate Environmental Impact Statement (EIS) as directed by Act 2, 2007 Special Session of the Hawai‘i State Legislature.

- Young Brothers, Ltd. has announced plans to discontinue less-than-container-load (LCL) service at Kahului Commercial Harbor as of 2010. With increased land area available for cargo, a new container freight station (CFS) could be located on land in or near the current commercial harbor area. Alternatively, it could be located off-site. In either case, containers would be moved from the piers to the CFS, where they would be emptied and cargos delivered to owners. Under all three alternatives, development of a new CFS is likely, and its location is unknown. (Under the No Action alternative, no DOT funds would be spent on a CFS.)

SIGNIFICANCE CRITERIA. Socio-economic impacts are considered for the immediate area in and around Kahului Commercial Harbor, and for the island, county and state communities. Impacts are significant if they involve substantial change or disruption in economic life, community cohesion, and the quality of life for members of the communities under study.

6.9.2 Alternative A (Proposed Action)

6.9.2.1 Social Impacts

SIGNFICANT IMPACTS. No significant adverse impacts are expected.

IMPACTS ON ISLAND, COUNTY, AND STATE COMMUNITIES. The harbor improvements proposed in the 2030 Master Plan are intended to ease congestion in the harbor and to anticipate increasing demand for harbor facilities. Orderly economic growth is expected as a consequence of successful implementation of the plan. That growth in turn would support prosperous communities throughout Maui and Hawai‘i.

LOCAL SOCIAL IMPACTS OF HARBOR CONGESTION. With or without the proposed action, the volume of cargo and number of passengers moving through Kahului Commercial Harbor will increase over time. Currently, some passengers and crew from cruise ships walk along Hobron Avenue from Pier 1 to Maui Mall and back. This street lacks sidewalks and is unevenly paved. As traffic increases, it will become even more dangerous for pedestrians than it is already. This situation can be much improved by increased use of buses, whether public transportation or ones sent by the malls to transport cruise passengers.

Under Alternative A, regular passenger traffic is located on the West Breakwater Harbor Development area. Due to the distance between the West Breakwater Harbor Development area and the Kahului malls, foot traffic will be rare. However, Pier 1

space could be allocated occasionally for cruise ships, so passengers and crew could from time to time walk from Pier 1 to Maui Mall.[1]

To mitigate risk of accidents to pedestrians, DOT Harbors may post signs near the exit from Pier 1, warning visitors that nearby road conditions are hazardous and inform them that bus service is available. It would also be important to alert bus service providers at the malls before passenger ships are expected at Pier 1.

LOCAL SOCIAL IMPACTS OF A LARGER COMMERCIAL HARBOR FOOTPRINT. Under Alternative A, part of the West Breakwater harbor area not currently in use would be developed. The proposed action also calls for dredging to allow deep-draft vessels to reach the West Breakwater Harbor Development area. Activity there would result in more traffic along Kahului Beach Road. The traffic analysis for this plan shows minimal harbor traffic moving on Kahului Beach Road towards Waiehu, and little impact on eastbound traffic as measured at the intersection of the Kahului Beach Road with Wahine Pi'o Avenue.

Local stakeholders potentially affected by harbor expansion to the West Breakwater harbor area include:

- RECREATIONAL USERS OF THE DEPARTMENT OF LAND AND NATURAL RESOURCES (DLNR) LAND ON THE BREAKWATER AREA**.** As described in Section 6.15, boaters, fishermen, and surfers use the West Breakwater. Development of commercial harbor piers and operating areas would make most of the breakwater inaccessible to shore fishermen. Surfers would still be able to enter the water from the area surrounding the boat ramp, but surf activities would be greatly affected by changes in bottom contours. Availability of parking may be limited by DOT Harbors development of the West Breakwater area. (See Section 6.15 for further discussion of impacts on recreational users.)

- THE MAUI CULTURE AND ARTS CENTER**.** The Center is located off Wahine Pi'o Street. The facility overlooks the harbor. Currently, no activities occur on the harbor side of the Center. The Center has recently gained responsibility over the grounds in that area and is considering landscape improvements and possible use of outdoor areas for Hawai'ian cultural performances, some of which may be planned to attract cruise visitors.[2] Visitors include schoolchildren during the day and other residents for evening performances and film showings. After a large evening concert or similar event, Wahine Pi'o Street is filled along its entire length, and movement onto Ka'ahumanu

[1] Currently, only one cruise ship based outside Hawai'i visits Kahului. If more ships request space at Pier 1, the District Manager would likely allow them to berth there, so long as other users' needs are met. Because Pier 1 has the only deep-draft fuel berth at Kahului, fuel shipments would likely have priority.

[2] Personal communication. Karen Fischer, Executive Director. May 2007.

Avenue is slow. Traffic generated by patrons can consist of more than 1,000 vehicles. Should a concert end at the time an evening ferry arrives, the ferry traffic—100 or more cars—would add to congestion along Kahului Beach Road. Performers at the Center typically ship displays and backdrops by LCL service. Increased congestion and/or replacement of LCL service by a second-party CFS would add to the Center's costs, since the Center would need to pay not only for the new service but for the artists' time spent waiting for their equipment to arrive.

- USERS OF FIELDS IN THE KEOPUOLANI REGIONAL PARK AND WAR MEMORIAL COMPLEX. Wahine Pi'o Street and Kaneloa Avenue link the fields to Kahului Beach Road and to Ka'ahumanu Avenue. Increased traffic on Kahului Beach Road could slow traffic from sports events. The fields nearest the harbor are for soccer and softball, lack lighting, and seem unlikely to attract large crowds. The stadium can seat more than 15,600 spectators, so traffic due to major sports events would likely affect all the nearby roads. The incremental traffic associated with passenger service at the West Breakwater Harbor Development area is not enough to affect Level of Service (LOS) measures at Kahului Beach Road intersections, and is very small in comparison to the traffic generated occasionally by major public events.

- MAUI COMMUNITY COLLEGE (MCC). MCC is located along Ka'ahumanu Avenue and Wahine Pi'o Street. According to Director of Administrative Services David Tamanaha, harbor activities are not expected to have any impact on college operations.[3]

- HARBOR LIGHTS CONDOMINIUM. This four-building, 351-unit complex is located on Kahului Beach Road, so changes in the traffic volume on that street would affect residents. Maui County tax appraisers identify none of the units as having "ocean" views. Realtors advertising units on upper floors of Building A often include pictures of cruise ships in the harbor in their property listings; listings in all buildings may be described as "across street from ocean." Changes in harbor activity would change views from the property. Given realtors' use of cruise ship pictures to sell units in Harbor Lights, it seems unlikely that commercial harbor activity closer to the complex than at present would have an adverse visual impact. Under Alternative A, evening traffic and noise could increase once the inter-island ferry adds evening visits to the West Breakwater Harbor Development (expected as of 2009).

- SHOPPING CENTERS ON KA'AHUMANU AVENUE**.** Currently, cruise passengers reach the shopping centers either on foot or on courtesy buses operated by the

[3] Personal communication. May 2007.

centers. Under Alternative A, cruise ships would dock at the West Breakwater harbor area and would be farther from Kaʻahumanu Avenue. Passengers would nearly all reach the malls by vehicle, and Queen Kaʻahumanu Center—the largest mall and the one closest to the new cruise ship site—would presumably capture the large majority of these customers.

Dedication of the recently acquired parcels for maritime uses would lead to displacement of current tenants of the Old Kahului Store and Kahului Railroad Building. They would need to find new space in the Wailuku-Kahului area. Both retail and office space can be leased in the area.

Finally, stakeholders have raised questions about the interface between commercial harbor activity and others in Kahului, both in the harbor and along the inland edge of property used for commercial harbor activity. At the Maui Harbor Users Group (MHUG) meetings, stakeholders largely agreed on the value of continuing dual commercial and recreational use of harbor waters—and the alternatives considered here provide for dual use. Some spoke against the possibility that commercial harbor operations would wall off access to and views of the ocean.

Under Alternative A, DOT Harbors would plan on landscaping the inland edge of commercial harbor lands to soften views of the area. As more land becomes available for commercial harbor operations, there would be less need to stack containers close to the roadway, and space can be devoted to landscaping. The Old Railway Building, located on the former A&B Properties parcels, would be retained, keeping the most important local commercial structure along the roadway.

MITIGATION MEASURES. None. As noted above, signage, landscaping, and the use of courtesy buses or other vehicles will respond to current or anticipated problems. Since none of these problems rise to the level of significant impacts, they are not mitigation measures.

6.9.2.2 Local Impacts and Environmental Justice

Executive Order (EO) No. 12898 of 1994 instructed federal agencies to consider "environmental justice" in decision-making. The key issue is whether federal actions place a disproportionate burden on minority and/or low-income communities. The proposed action does not involve questions of environmental justice, inasmuch as (a) the proposed action is not a choice of a new site but an expansion of an existing commercial harbor within the area long defined as a harbor through federal and state action; (b) local impacts of the proposed action are small; and (c) nearby communities, while having large minority populations (by federal definitions), are not exceptional when compared with other Maui communities.

Alternative A was chosen for consideration because expansion of Kahului Commercial Harbor operations would be more efficient, less costly, and less likely to involve significant environmental impacts than development of a new harbor.

6.9.2.3 Economic Impacts

SIGNFICANT IMPACTS. No significant adverse impacts are expected.

For ease of presentation, a comparison of economic impacts for each alternative is provided in the data presented in this section. The subsequent sections (Alternative B and No Action Alternative) will focus on impacts that differ from the proposed action.

CONSTRUCTION IMPACTS. Construction is expected to occur over many years. The amount of work and the number of workers involved would vary from project to project. Total construction costs were estimated as part of the 2030 Master Plan. Table 6-1 uses the costs discussed in Chapter 3, separating land acquisition costs from construction costs. Construction jobs can be estimated from construction costs, based on historical ratios, as shown in Table 6-1, per the Department of Labor and Industrial Relations (DLIR) and Department of Business, Economic Development and Tourism (DBEDT).

Direct plus indirect jobs are estimated using the Type I multipliers in Table 6-1; the Type II multipliers are used to estimate direct and indirect plus induced jobs. Direct, indirect and induced impacts, taken together, account for the cumulative economic impact of a project.

Over the entire period of the master plan, a total of 1,765 person-years of direct jobs would be created, under Alternative A, the preferred alternative. Averaging this total over 22 years in which the 2030 Master Plan improvements could be made, the average annual direct job count is about 80 jobs.

Table 6-1. Construction Jobs and Wages

	Alternatives			
	A	B	No Action	
Construction Costs	$353.1	$328.6	$0.0	million 2007 $s
Direct Jobs				
Total direct jobs	1,765	1,643	—	person-years
Annual Average	80	75	—	person-years

Table 6-1. Construction Jobs and Wages *(continued)*

	Alternatives			
	A	B	No Action	
Direct Wages				
Total direct jobs	$133.5	$124.2	$0.0	million 2007 $s
Annual Average	$6.1	$5.6	$0.0	million 2007 $s
Direct, Indirect, and Induced Jobs				
Jobs: Statewide	3,742	3,483	—	person-years
Jobs: Maui County	3,036	2,826	—	person-years
Wages: Statewide	$209.2	$194.7	$0.0	million 2007 $s
Wages: Maui County	$180.8	$168.2	$0.0	million 2007 $s

Notes: Construction jobs estimated from construction cost, using ratio of 5.0 jobs/million dollars, based on Hawai‘i heavy construction jobs and spending in 2005. Average construction wage estimated from 2005 Employment and Payrolls, adjusted to 2007 dollars in line with Consumer Price Index (CPI). Annual average jobs and wages calculated for a 22-year construction period. The job count would likely fluctuate greatly, since major projects would occur in some, but not all, years. Indirect and induced jobs are estimated using the State's Inter-County Input-Output model. It presents both statewide (inter-county) indirect and induced impacts of job creation in a given county and county-specific ones. For construction, the key multipliers are:

	Statewide		County Only	
	Type I	Type II	Type I	Type II
Construction, Maui	1.52	2.12	1.32	1.72

For every new direct job in construction on Maui, 0.52 indirect jobs are created in Hawai‘i, of which 0.32 are in Maui County. Again, a total of 1.12 new indirect and induced jobs are created statewide along with every 1 new direct job, of which 0.72 are located in Maui County. Wages for indirect and induced jobs are estimated from 2005 average incomes, adjusted to 2007 dollars in line with increases in CPI.

Sources: DLIR 2006; DBEDT 2005, 2007.

Taking into account direct, indirect, and induced jobs, the total statewide impact associated with Alternative A construction is 3,742 person-years of employment, of which 3,036 are expected to be in Maui County. The cumulative wage impact would be about $209 million (2007 dollars) statewide, including $181 million in Maui County.

OPERATIONAL IMPACTS. Direct operational jobs in the commercial harbors include stevedores, transportation workers, supervisors, and harbors staff. Some components of Hawai‘i's port economy are concentrated in Honolulu: shipping agencies and

commercial fishing boats, for example, are found there and not in Kahului Commercial Harbor.

Economic impacts of a proposed development typically occur because the project brings capital into the local economy. Construction of harbor improvements would have economic impacts in this way. Commercial harbor operations, however, are not expected to attract capital to Kahului or to Hawai‘i. They respond to demand caused by population and economic growth. The issue of the economic impact of operations is instead whether operations would be constricted or limited under one alternative or another, i.e., whether limited infrastructure would limit the ability of Maui's economy to grow or would increase operations costs.

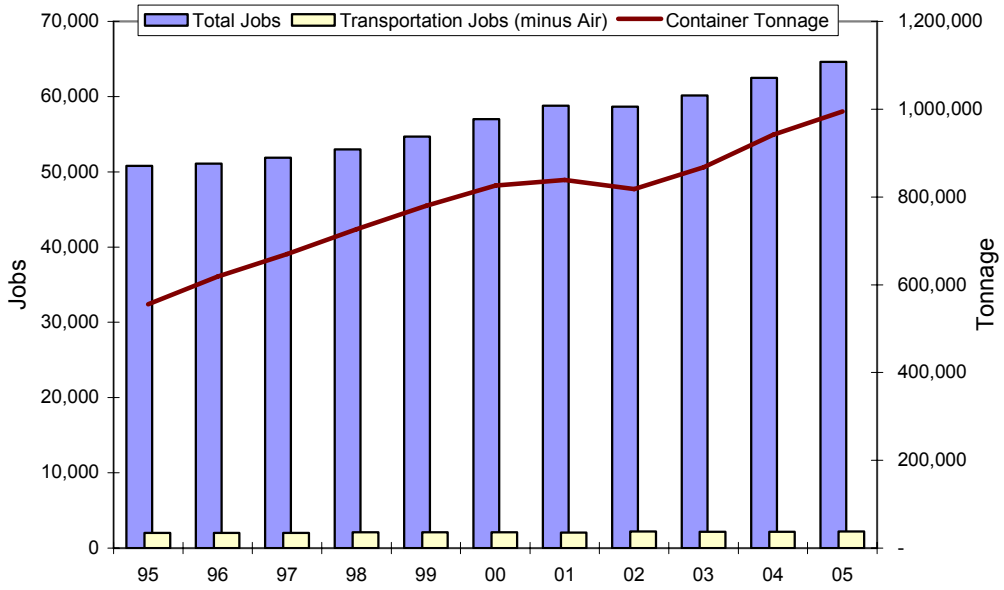
The key question is whether the efficiency (or inefficiency) of operations under different alternatives would have an impact on jobs and wages both in the commercial harbor and in the regional economy. This idea is plausible but hard to test. A study of Hawai‘i's port economy used input-output modeling to ask what economic implications would follow from constraints on growth in the state port economy (SMS 1997). This was a "what-if" exercise, without evidence to show what conditions would lead to limited growth of the port economy over a period of 24 years (1996 through 2020). The constraint studied was that the port economy would grow by 1 percent annually, not the 2 percent forecast for that period – a 50 percent decrease in the rate of growth. The impact was appreciably greater within the port economy than for the state economy as a whole. Port jobs would grow by about 47 percent under the constrained scenario. Growth in the Gross State Product was estimated as only 94 percent of the unconstrained scenario, i.e., a 50 percent constraint on port economic inputs resulted in a 53 percent decrease in direct job growth, but only a 6 percent decrease on overall economic growth.

Average annual job counts in many industries are available for Maui Island and County on an annual basis. These can be used to adapt the constraint analysis to Maui. For transportation, sector totals and air transportation subtotals are available; separate subtotals for ocean transportation, freight transportation, and other transportation are not.[4]

Figure 6-2 shows Maui Island relationships among cargo activity, transportation, and the island economy over time. As the economy has grown, so has container tonnage. Transportation jobs do not show the same pattern of growth. Over much of the period, the number of transportation jobs associated with the cargo moved into and out of Maui tended to decline, as shown in the next graphic (Figure 6-3). From 2002 onward, this trend—towards more efficiency in handling and hauling freight—has disappeared.

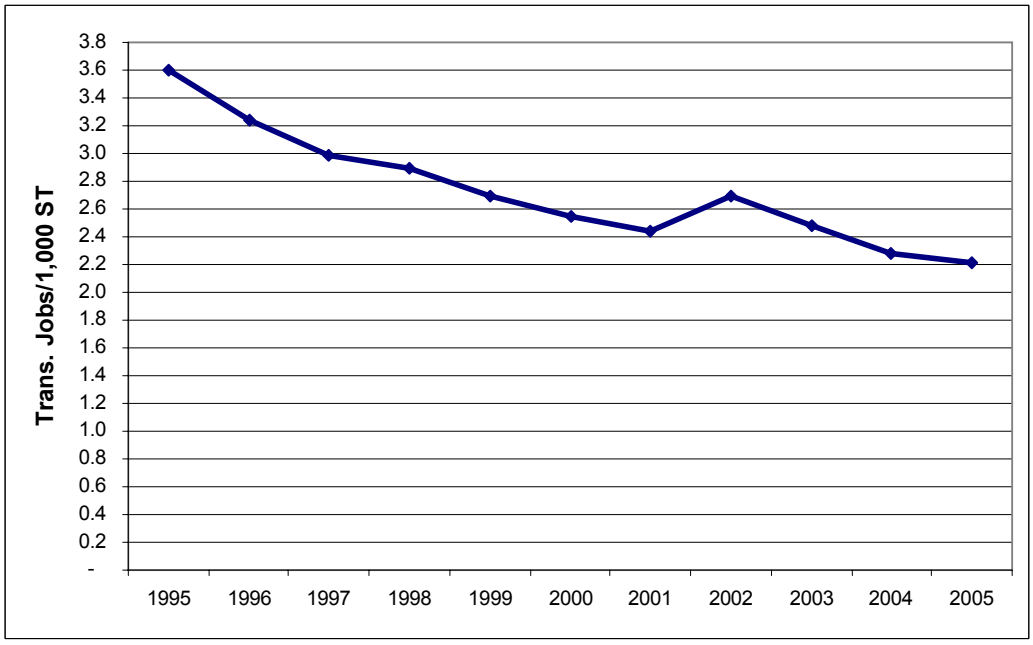
[4] Statewide, 27,922 persons were employed in the Transportation and Utilities sector in 2005 (DLIR, 2006), of which 10,161 were in air transportation – so 17,761 were in "Transportation (minus Air)," i.e., a sub-sector total roughly comparable to that shown in Figure 6-2. Some 3,425 persons were in water transportation and 1,190 in water transportation support services, or 26 percent of the sub-sector total.

Figure 6-2. Container Cargo and Jobs, Maui Island, 1995 to 2005



SOURCE: DOT wharfage data and annual job counts compiled by DLIR (available at www.hiwi.org/article.asp?ARTICLEID=515&PAGEID=94&SUBID). Wharfage data converted to calendar year estimates by averaging fiscal year data from adjacent years.

Figure 6-3. Relationship of Transportation Jobs to Cargo, Maui Island, 1995 to 2005



NOTE: Jobs are Transportation sector, excluding Air, as in preceding graph.

There has been a strong association between Maui's economy and cargo (0.97 correlation between total island jobs and container tonnage) but a somewhat weaker association between cargo growth and transportation jobs (0.84). Ground and ocean transportation operations on Maui appear to have become more efficient, measured in relation to cargo shipped, through 2001.

One reason for the change in efficiency after 2001, visible in Figure 6-3, may be that congestion at the port and on the highways has grown to the point that it negates the gains in productivity made by Maui's transportation industry.[5]

Between 2005 and 2030, container cargo shipped to and from Maui is expected to increase by 2.9 percent annually—a total increase of 104 percent over the 2005 cargo tonnage. If the recent ratio of transportation jobs to cargo were held constant, transportation jobs would increase by approximately 2,500 jobs.[6] In contrast, if the trend towards efficiency evident from 1995 through 2001 were projected out to 2030, the increase in transportation jobs associated with more cargo would drop to about 1,675 jobs.[7]

For the proposed action, factors affecting efficiency and productivity include:

- Availability of pier space: More pier space is needed to allow vessels to dock, unload and load, and leave the harbor quickly. Under current conditions, some ships must enter the harbor, dock, begin unloading, yield their pier space to another scheduled user, and then resume the process. Alternative A would increase pier space to help alleviate congestion at the piers. Practices such as greater reliance on night operations could ease competition for pier space but would still result in higher operating costs.
- Availability of land for commercial harbor activities: Alternative A responds to the need for additional land for container storage, vehicle storage, and covered storage. The former A&B Properties' parcels along Ka'ahumanu Avenue would not suffice to meet anticipated demand for land.
- Location of cargo operation and storage areas in close proximity: Separation of operating areas has arisen as a question in discussions of LCL cargo. In the past, LCL cargo was handled on and near Pier 2. In recent months, the

[5] When statewide data on cargo shipments and transportation jobs are compared, no trend towards increased efficiency is evident. Correlations between statewide job counts and cargo tonnages (−0.10) and between statewide job counts and transportation job counts (0.26) are low.

[6] As will be discussed below, these jobs are not comparable to the direct or the total jobs estimated above for construction. Direct commercial harbor jobs account for about a quarter of the jobs counted here (applying a statewide ratio to Maui, for which comparable figures are not available.)

[7] The 2030 projections (DBEDT 2004) call for even slower growth in the transportation sector in Maui County. It seems likely that those projections extend the initial productivity gains associated with containerization and big box retailing in the 1980s and early 1990s into the future.

covered areas used for LCL have been demolished to increase space near Pier 2. Under anticipated future conditions, such cargo could be containerized and then separated for pick up by its owners at a CFS. A CFS operation would involve more labor and time to handle cargo than in the past. The greater the distance between the pier and a CFS, the more labor needed to move cargo between the two locations. While Alternative A calls for a CFS, it does not specify its location, and hence the distance between the CFS and the piers is not at issue.

Under all alternatives, LCL cargos are likely to be phased out, and Kahului would need a CFS operation. Again, space for storing vehicles could be closer to or farther from the pier at which vehicles are offloaded, affecting labor time and cost for moving the vehicles. While the 2030 Master Plan calls for additional land for vehicle storage, a specific location is not identified.

The alternative offering the most efficient use of labor is Alternative A. Transportation job growth associated with it would likely be closer to the lower calculation cited above (1,675 more jobs than in 2005) than to the higher one. With this alternative, increases in productivity associated with efficient transportation are expected.

These job estimates are for most of the transportation sector; they cover direct jobs in the harbor, jobs in trucking companies and warehousing affected by efficiency of harbor operations, as well as other jobs. These are an indicator of cumulative, not just direct, impacts. Table 6-2 summarizes the argument and provides a range of estimates of the cumulative job impacts of operations as of 2030.[8]

[8] The transportation jobs are jobs as of 2030. The annual growth in jobs in earlier years would presumably depend on the speed at which harbor improvements can be made. Since the transportation jobs are indicators of cumulative impact, not a calculation of that impact, wages associated with those jobs are not estimated here.

Table 6-2. Summary of Estimated Cumulative Job Impact Indicators Associated With Harbor Operations

A.	**2005 Data, Maui Island**		
	Transportation, Warehousing and Utilities job count		3,150 jobs
	Air Transportation		950 jobs
	Transportation (minus Air) subsector		2,200 jobs
B.	**Extrapolation to 2030**		Ratio
	Transportation (minus Air) jobs per 1,000 tons, containers		
	1995		3.60
	2005		2.21
	recent average ratio (2002 to 2005)		2.42
	ratio projected from 1995 to 2005*		1.62
	2005 to 2030 increase in containers	104%	1,034,262 tons by 2030
	2030 increase in subsector jobs		
	at recent (2002 to 2005) ratio		2,503 new jobs
	at ratio projected from 1995 to 2002		1,676 new jobs
C.	**Application to Alternatives: Job Growth, Transportation (minus Air) subsector**		
	Alternative A: Low Congestion		1,600 to 1,7500 new jobs
	Alternative B: Low Congestion, cargo areas separated		1,650 to 1,800 new jobs
	No Action: Increased Congestion		2,500 to 2,800 new jobs

Notes: See earlier notes on adjustment of fiscal year (FY) wharfage data for comparison with calendar year (CY) job counts.

* Logarithmic projection, R2 = 0.9515

Sources: DLIR, wharfage dataset.

The 2030 job estimates used here are indicators of cumulative impacts in one year. For economic impacts of construction, the job estimates cover total employment over the period to 2030. The annual average cumulative employment impacts of construction for Alternative A would be 160 to 170 jobs.

FISCAL IMPACTS. The State of Hawai'i depends on several cash flows for its revenues, notably taxes and intergovernment payments. Taxes associated with construction of Kahului Commercial Harbor improvements are estimated in Table 6-3. The State also looks to the federal government to help pay for improvements, but no amount has been committed to this purpose.

Table 6-3. State of Hawai'i Revenues Associated With Construction

	Alternatives	
	A	B
Construction Costs	$353.1	$328.6
Wages, Construction-related workforce	$209.2	$194.7
Taxes		
Excise tax		
on construction	$14.1	$13.1[1]
on worker's spending	$5.2	$4.9[2]
Personal income tax	$9.8	$9.1[3]
Corporate income tax	$0.4	$0.4[4]
TOTAL	$29.6	$27.6

Notes. All amounts are millions of 2007 dollars
1 Calculated at 4% of construction costs
2 Calculated at 4% of disposable income
3 Calculated at 4.69% of income, based on historical (2004) ratio
4 Calculated at 0.12%, based on historical (2002) ratio of corporate receipts to corporate income tax

Sources: State of Hawai'i, Department of Taxation, 2006, 2007. State of Hawai'i, Department of Business, Economic Development and Tourism. 2006.

The County of Maui depends above all on real property taxes for its revenues. Since the 2030 Master Plan deals with government-owned land on which no property taxes are collected, minimal or no real property tax impacts are expected.

MITIGATION MEASURES. None.

6.9.3 Alternative B

6.9.3.1 Social Impacts

SIGNIFICANT IMPACTS. None. Social impacts associated with Alternative B are similar to those under the proposed action.

IMPACTS ON ISLAND, COUNTY, AND STATE COMMUNITIES. As under the proposed action, harbor improvements considered under Alternative B are intended to ease

congestion in the harbor and to accommodate increasing demand for harbor facilities. As the 2030 Master Plan improvements are proposed in response to forecast harbor growth, the 2030 Master Plan improvements would facilitate movement of cargo through the harbor and would not have a significant adverse impact on the island, county, or state communities.

LOCAL SOCIAL IMPACTS OF HARBOR CONGESTION. As with the proposed action, the volume of cargo and number of passengers moving through Kahului Commercial Harbor would increase regardless of master plan improvements. The improvements are proposed to ease congestion at existing piers and would not directly contribute to increased congestion. Under Alternative B, with cargo and passenger operations mixed at both the existing harbor facilities on the east side and the developed West Breakwater harbor area, movement of cargo between the east and west sides would increase, affecting traffic on access roads (Hobron Avenue, Wharf Street, and Puʻunēnē Avenue) and on Kaʻahumanu Avenue. The traffic study anticipates no degradation of level of service at intersections due to this alternative. With some cargo functions on the West Breakwater harbor area, the analysis shows slightly improved traffic movement at Hobron Avenue intersections near the existing commercial harbor area.

LOCAL SOCIAL IMPACTS OF A LARGER COMMERCIAL HARBOR FOOTPRINT. Use of the West Breakwater harbor area under Alternative B would increase the footprint of the commercial harbor. The alternative calls for dredging to allow deep-draft vessels to access the West Breakwater harbor area. Activity there would result in more traffic along Kahului Beach Road. Truck and equipment activity under Alternative B would be greater than under the proposed action, as cargo and passenger operations would be mixed on both the east and west side of the harbor.

As described for Alternative A, local stakeholders potentially affected by harbor expansion to the West Breakwater harbor area include users of the DLNR small boat-launch on the breakwater area, fields in the Keopuolani Regional Park and War Memorial complex, and the Maui Culture and Arts Center, along with Maui Community College, Harbor Lights Condominium residents, and merchants in the shopping centers on Kaʻahumanu Avenue.

The presence of cargo ships and cargo loading/unloading activities at the West Breakwater Harbor Development area under Alternative B would be closer to the abovementioned users than under Alternative A. Under Alternative B, both cruise ship and ferry passengers would be located at Pier 2, fairly close to Maui Mall. The pedestrian route would be shorter and more direct than at present. Queen Kaʻahumanu Center would still capture visitor traffic, but less than under Alternative A.

Under Alternative B, DOT Harbors would landscape the inland edge of commercial harbor lands. As more land becomes available for commercial harbor operations, there would be less need to stack containers close to the roadway, and space could be devoted to landscaping. The Old Railway Building would be retained.

MITIGATION MEASURES. None.

6.9.3.2 Economic Impacts

SIGNIFICANT IMPACTS. None. Economic impacts under Alternative B are similar to those identified under Alternative A. This section discusses impacts specific to Alternative B that are not addressed under Alternative A. The analysis in Section 6.9.2.3 show comparisons among the alternatives.

CONSTRUCTION IMPACTS. For Alternative B, the direct employment impact would be 1,643 person-years, or about 75 jobs per year over the master plan improvement period, as shown in Table 6-1.

For Alternative B, the total statewide construction job impact would be 3,483 person-years of employment, of which 2,826 person-years would be located in Maui County. The wages associated with these jobs comes to $195 million, of which $168 million would be earned in Maui County.

OPERATIONAL IMPACTS. For Alternative B, factors affecting efficiency and productivity include:

- *AVAILABILITY OF PIER SPACE:* Alternative B would increase pier space to help alleviate congestion at the piers.
- *AVAILABILITY OF LAND FOR COMMERCIAL HARBOR ACTIVITIES:* Under Alternative B, additional land for container storage, vehicle storage, and covered storage would be found. Use of the former A&B Properties parcels along Ka‘ahumanu Avenue would not suffice to meet anticipated demand for space.
- *LOCATION OF CARGO OPERATION AND STORAGE AREAS IN CLOSE PROXIMITY:* Three separate issues have arisen, only one of which bears on the differences among the three alternatives. Alternative B would place one major cargo operation in the Pier 1 area and the other on the West Breakwater harbor area. Operators have noted that cargo and workers often move between the Matson and Young Brothers areas, so that separation of the two would increase operating costs.
- As with the proposed action, Alternative B calls for a CFS without specifying its location. The distance between the CFS and the piers is not at issue.

Under Alternative B, operational labor costs would likely be higher than under Alternative A, because of the separation of cargo handling areas. However, the difference in labor associated with this factor is likely to be small compared too the growth due to anticipated increases in cargo to be handled.

MITIGATION MEASURES. None.

6.9.4 No Action Alternative

6.9.4.1 Social Impacts

SIGNIFICANT IMPACTS. Operational congestion at and around the harbor would increase over time without harbor improvements. The result would have both local and county-wide impacts affecting residents' quality of life.

IMPACTS ON ISLAND, COUNTY, AND STATE COMMUNITIES. Under the No Action Alternative, congestion at the harbor would lead to increased transportation costs and time, adversely affecting businesses and consumers on Maui Island and on Moloka'i. In addition to the everyday inefficiencies described above, congested port facilities could have severe impacts during and after natural emergencies. After a hurricane, access to airports and harbor facilities is crucial for emergency response. Maui is already more vulnerable than Hawai'i Island, O'ahu, and Kaua'i because it has only one commercial harbor. If that harbor's landside areas are normally filled to capacity, little or no space would be available in the event of an emergency, and emergency response would be slowed.

LOCAL SOCIAL IMPACTS OF HARBOR CONGESTION. Under the No Action Alternative, neither berthing space nor port land acreage would increase, although the movement of goods and passengers in and out of Kahului Commercial Harbor is projected to increase. Traffic on access roads (Hobron Avenue, Wharf Street, and Pu'unēnē Avenue) and on Ka'ahumanu Avenue would be affected. Congestion at sea, on harbor lands, and nearby, would worsen.

Some passengers and crew from cruise ships would continue to walk along Hobron Avenue from Pier 1 to Maui Mall and back. As traffic increases, this route would become even more dangerous for pedestrians than it is already. This situation can be much improved by the use of buses, whether public transportation or ones sent by the malls to collect cruise passengers. Space for such buses near Pier 1 would be limited under the No Action Alternative.

LOCAL SOCIAL IMPACTS OF A LARGER COMMERCIAL HARBOR FOOTPRINT. There would be no impacts under the No Action Alternative, as the harbor footprint would not change.

Under the No Action Alternative, pressure to use commercial harbor lands for cargo storage would increase, extending the recent trend to clear as much space as possible for container storage.

MITIGATION MEASURES. While the social impacts of the No Action Alternative would need mitigation, mitigation would involve harbor improvements, and hence be outside the scope of this alternative.

6.9.4.2 Economic Impacts

SIGNIFICANT IMPACTS. Increased congestion would lead to inefficiencies and higher cost of goods to and from Maui. The direct impact would be an increase in transportation jobs. Indirectly, the impact would be less benign, and potentially significant.

This section discusses impacts specific to the No Action Alternative. A comparison of impacts among all three alternatives is provided in Section 6.9.2.3.

CONSTRUCTION IMPACTS. For the No Action Alternative, no construction beyond the projects planned and discussed in the 2025 Master Plan is expected.

OPERATIONAL IMPACTS. For the No Action Alternative, factors affecting efficiency and productivity include:

- *AVAILABILITY OF PIER SPACE:* The No Action Alternative does not address this issue; hence, congestion is expected to worsen with increased shipping. (Mitigation measures such as greater reliance on night operations could ease competition for pier space but would still result in higher operating costs.)
- *AVAILABILITY OF LAND FOR COMMERCIAL HARBOR ACTIVITIES:* Under the No Action Alternative, additional land for commercial harbor activities would not be available. Again, increased congestion is expected to result in increased inefficiency and costs.
- *LOCATION OF CARGO OPERATION AND STORAGE AREAS IN CLOSE PROXIMITY:* Under the No Action Alternative, DOT Harbors would have no role in building a CFS. LCL cargo would either be handled in the open near the pier—a procedure that Young Brothers has announced to be no longer acceptable—or no longer taken by the operator. Under the latter scenario, others would take over responsibility for loading cargo into containers and then separating it out after arrival. With little land available adjacent to the harbor, such a private CFS would be offsite, and could easily be a mile away from the piers.

Under the No Action Alternative, transportation job growth would be higher than for the other alternatives.

The higher operational job growth shown for the No Action Alternative—about 1,000 more jobs in 2030 than with the other alternatives—would develop over time, so that the cumulative impact over the 2030 Master Plan period would be far greater. By way of comparison, the annual average cumulative employment impacts of construction for either Alternative A or Alternative B would be 160 to 170 jobs.

In short, worsening congestion and inefficiency under the No Action alternative would add up to a much greater economic impact over time than the cost of construction for the proposed harbor improvements.

MITIGATION MEASURES. While the economic impacts of the No Action Alternative could be mitigated, mitigation would involve harbor improvements, and hence be outside the scope of this alternative.

6.10 TRAFFIC CONDITIONS

6.10.1 Impact Methodology and Significance Criteria

To evaluate the potential impact of traffic generated by the implementation of the proposed alternatives on the surrounding street system, Fehr & Peers/Kaku Associates, Inc. prepared the *Kahului Harbor Master Plan Traffic Study* (Appendix H). Fehr & Peers/Kaku Associates, Inc. developed estimates of future traffic conditions in the area with and without the proposed projects. Traffic count data were collected at the primary driveways to the current harbor to develop an empirical trip generation rate specific to Kahului Commercial Harbor uses. The estimates of future vehicular traffic entering and exiting the harbor area were developed after reviewing the details of proposed land use plans, conversing with harbor officials, and studying current local land uses.

As described in Section 5.10, the level of service (LOS) analysis methodology used is a qualitative measure used to summarize conditions of traffic flow. This methodology represents traffic delays in terms of grades, with LOS A representing excellent conditions and LOS E and F generally regarded as unacceptable. Impacts were considered to be significant if the alternative changed the LOS from an acceptable grade (A through D) to an unacceptable grade (E or F).

6.10.2 Alternative A (Proposed Action)

SIGNIFICANT IMPACTS. None. Alternative A is expected to generate approximately 96 trips during the AM peak hour, 141 trips in the mid-morning peak hour, and 114 trips during the weekday afternoon peak hour.

Under projected 2030 traffic conditions, LOS at the following intersections would be unacceptable (grade E or F) regardless of the contributions of the proposed action:

- Haleakalā Highway/Hanakai Street and Hāna Highway
- Haleakalā Highway and Hāna Highway
- Dairy Road and Puʻunēnē Avenue/Mokulele Highway (PM peak)
- Hobron Avenue and Amala Place (PM peak)

Under Alternative A, all intersections studied, with the exception of Haleakalā Highway/Hanakai Street and Hāna Highway in the AM. peak hour and Haleakalā Highway and Hāna Highway in the PM peak hour, would remain at the same LOS as in the No Action Alternative. Both of these intersections worsen from LOS E to F, with changes in delay between one and six seconds. The intersection of Hobron Avenue and Amala Place would operate at LOS F under either Alternative A or the No Action Alternative; however, under Alternative A, the intersection would operate with less delay as a direct result of the movement of cruise ship operations to the West Breakwater Harbor area.

The Alternative A-related component of future traffic growth at the intersections studied was calculated based on the proportion of project peak hour traffic relative to the total new peak hour 2030 traffic volumes. The maximum contribution of Alternative A to the 2030 traffic volumes was identified to be between 5 and 15 percent.

Regional analysis was conducted to determine the potential impacts to Maui's roadway system. The largest increases in traffic attributable to Alternative A include two-way traffic increase on Kaʻahumanu Avenue, where PM peak traffic grows by 1.6 percent (59 trips). The largest percent increase occurs on the Puʻunēnē Avenue segment where PM peak traffic grows by 2.8 percent (47 trips). Based on the 2030 base (No Action) volumes, the estimated level of increase in traffic at these locations is not deemed to be significant.

MITIGATION MEASURES. While impacts from Alternative A were not identified as significant, mitigation measures to address overall unacceptable traffic conditions were developed. The recommended mitigation measures to address overall unacceptable traffic conditions include the following.

- *DAIRY ROAD AND PU'UNĒNĒ AVENUE/MOKULELE HIGHWAY.* This intersection could be mitigated to LOS D with the addition of another southbound left-turn lane. The high volumes of left turns during the PM peak hour lead are delayed by the increases in through traffic. In order to accommodate another southbound left-turn lane on Pu'unēnē Avenue, this mitigation requires the removal of a 15-foot landscaped median at this intersection.

  Alternative A's fair-share contribution to the cost of this mitigation measure is identified as 4.9 percent. While this improvement mitigates Alternative A's portion of traffic impact, there is a need to consider regionally-oriented long-term improvements to accommodate anticipated regional traffic growth from West and South Maui.

- *HALEAKALĀ HIGHWAY/HANAKAI STREET AND HĀNA HIGHWAY; HALEAKALĀ HIGHWAY AND HĀNA HIGHWAY.* These two stop-controlled intersections would operate poorly under base 2030 traffic conditions and would worsen slightly with the addition of Alternative A. In order to improve operations at this intersection, the two intersections should be combined into one and signalized. The proposed combined operation would pull the left-turn pocket for eastbound traffic on Hāna Highway up to the intersection at Hanakai Street, allowing this movement protected turn status. With installation of the signal and combination of the two intersections, the intersection would operate at LOS C at worst for the analyzed peak hours.

  Alternative A's fair-share contribution to the cost of this mitigation measure is identified as 15 percent, based on the share of new traffic through these intersections that can be ascribed to this alternative.

6.10.3 Alternative B

SIGNIFICANT IMPACT. Alternative B would contribute to the intersection of Ka'ahumanu Avenue and Pu'unēnē Avenue worsening from Level D to Level E at the mid-morning peak hour. However, only approximately six percent of the new traffic at this intersection would result from implementation of Alternative B. Under projected 2030 traffic conditions, LOS at the following intersections would be unacceptable (grade E or F) regardless of the contributions of Alternative B.

- Haleakalā Highway/Hanakai Street and Hāna Highway
- Haleakalā Highway and Hāna Highway
- Dairy Road and Pu'unēnē Avenue/Mokulele Highway (PM peak)

Under Alternative B, the intersection of Hobron Avenue and Amala Place would improve from LOS F to LOS E. This is still considered an unacceptable LOS based on significance criteria; however, Alternative B's contribution to improving the LOS would negate the need for contribution to mitigation at this intersection.

The Alternative B-related component of future traffic growth at the intersections studied was calculated based on the proportion of project peak hour traffic relative to the total new peak hour 2030 traffic volumes. The maximum contribution of Alternative B to the 2030 traffic volumes was identified to be between 3 and 10 percent.

MITIGATION MEASURES. While only one impact from Alternative B was identified as significant, several mitigation measures to address overall unacceptable traffic conditions were developed.

- *KA'AHUMANU AVENUE AND PU'UNĒNĒ AVENUE.* The intersection of Ka'ahumanu Avenue and Pu'unēnē Avenue could be mitigated to LOS D in the mid-morning peak hour with the reconfiguration of this intersection. The new configuration would consist of two northbound left-turn lanes and a through/right lane on the northbound approach, which would be accommodated through removal of a southbound departure lane. The southbound approach would need to be reconfigured to a through/right lane and a left-turn lane to ensure that both the northbound and southbound approaches align correctly. Additionally, this mitigation may require a physical reconstruction of the eastbound approach. The reconstruction is necessary to cut back the raised median to provide additional room to clear two lanes turning left from northbound on Pu'unēnē to westbound on Ka'ahumanu.

  Alternative B's fair-share contribution to the cost of this mitigation measure is identified as 6.1 percent.

- *DAIRY ROAD AND PU'UNĒNĒ AVENUE/MOKULELE HIGHWAY.* This intersection could be mitigated to LOS D with the addition of another southbound left-turn lane. The high volumes of left turns during the PM peak hour are delayed by the increases in through traffic. In order to accommodate another southbound left-turn lane on Pu'unēnē Avenue, this mitigation requires the removal of a 15-foot landscaped median at this intersection.

  Alternative B's fair-share contribution to the cost of this mitigation measure is identified as 3.0 percent.

- *HALEAKALĀ HIGHWAY/HANAKAI STREET AND HĀNA HIGHWAY; HALEAKALĀ HIGHWAY AND HĀNA HIGHWAY.* These two stop-controlled intersections would operate poorly under base 2030 traffic conditions and would worsen slightly

with the addition of Alternative B. In order to improve operations at these two intersections, they should be combined into one and signalized. The proposed combined operation would pull the left-turn pocket for eastbound traffic on Hāna Highway up to the intersection at Hanakai Street, allowing this movement protected turn status. With installation of the signal and combination of the two intersections, the intersection would operate at LOS C at worst for the analyzed peak hours.

Alternative B's fair-share contribution to the cost of this mitigation measure is identified as 9.8 percent.

6.10.4 No Action Alternative

SIGNIFICANT IMPACTS. Future traffic conditions without the proposed project reflect traffic increases generated by other specific developments in the project vicinity. Four of 14 intersections studied show unacceptable LOS in 2030 under the No Action Alternative. These intersections are the same as those described under Alternative A.

- Haleakalā Highway/Hanakai Street and Hāna Highway
- Haleakalā Highway and Hāna Highway
- Dairy Road and Pu'unēnē Avenue/Mokulele Highway (PM peak)
- Hobron Avenue and Amala Place (PM peak)

MITIGATION MEASURES. Mitigation measures to address overall unacceptable traffic conditions were developed.

- *DAIRY ROAD AND PU'UNĒNĒ AVENUE/MOKULELE HIGHWAY.* This intersection could be mitigated to LOS D with the addition of another southbound left-turn lane. The high volumes of left turns during the PM peak hour lead are delayed by the increases in through traffic. In order to accommodate another southbound left-turn lane on Pu'unēnē Avenue, this mitigation requires the removal of a 15-foot landscaped median at this intersection.
- *HALEAKALĀ HIGHWAY/HANAKAI STREET AND HĀNA HIGHWAY; HALEAKALĀ HIGHWAY AND HĀNA HIGHWAY.* These two stop-controlled intersections would operate poorly under base 2030 traffic conditions. In order to improve operations at this intersection, the two intersections should be combined into one and signalized. The proposed combined operation would pull the left-turn pocket for eastbound traffic on Hāna Highway up to the intersection at Hanakai Street, allowing this movement protected turn status. With installation of the signal and combination of the two intersections, the intersection would operate at LOS C at worst for the analyzed peak hours.

6.11 PUBLIC SERVICES AND INFRASTRUCTURE

6.11.1 Impact Methodology and Significance Criteria

Each alternative's impacts on public services and infrastructure were evaluated based on the availability of existing and future planned services to meet increased demand from the alternative. Only increased demand attributed specifically to the activities proposed under each alternative was considered when determining significance. Increased demand from future harbor growth which would occur with or without the harbor improvements (i.e., increased cargo movement based on increased population needs) was excluded.

Alternatives were considered significant if it were determined that public services and infrastructure capacity would need to be increased to meet the demand created by the activities proposed in the alternative.

6.11.2 Alternative A (Proposed Action)

SIGNIFICANT IMPACTS. None.

Electrical, water, wastewater, solid waste, and emergency services described in Section 5.11 would not be significantly affected by the proposed action. Under Alternative A, new infrastructure would be constructed at the West Breakwater Harbor Development which would connect to the existing utilities; however, this new infrastructure would shift some of the demand from the existing harbor area.

MANAGEMENT MEASURES. Prior to development of construction plans for future development, the appropriate state and county agencies and utility providers would be consulted, and appropriate approvals would be obtained.

6.11.3 Alternative B

SIGNIFICANT IMPACTS. None.

Electrical, water, wastewater, solid waste, and emergency services described in Section 5.11 would not be significantly affected by Alternative B. As with Alternative A, new infrastructure would be constructed at the West Breakwater Harbor Development which would connect to the existing utilities; however, this new infrastructure would shift some of the demand from the existing harbor area.

MANAGEMENT MEASURES. Prior to development of construction plans for future development, the appropriate state and county agencies and utility providers would be consulted, and appropriate approvals would be obtained.

6.11.4 No Action Alternative

SIGNIFICANT IMPACTS. None.

Under the No Action Alternative, projected harbor growth would continue to be concentrated at the east side of the harbor, and existing utility lines and services would continue to be used. Improvements to these services would likely occur as part of regular maintenance and upgrades.

MANAGEMENT MEASURES. Prior to development of construction plans for future utility repair and upgrades, the appropriate State and County agencies and utility providers would be consulted, and appropriate approvals would be obtained.

6.12 NOISE ENVIRONMENT

6.12.1 Impact Methodology and Significance Criteria

Each alternative's noise impacts were determined based on effects of the project on sensitive noise receptors. Impacts are considered significant if they create long-term ambient noise levels above the maximum permissible sound levels for Class C zoning.

6.12.2 Alternative A (Proposed Action)

SIGNIFICANT IMPACTS. None. There are no sensitive noise receptors, such as schools, hospitals, or residences, in the project area.

Dredging operations and construction activities would generate noise, but it would be temporary. Construction activities would be conducted in compliance with state rules (i.e., a noise permit or variance would be obtained, as required).

Noise levels associated with construction activities, including dredging, would vary in location, intensity, and persistence. Persistent noises would include diesel machinery operation, including construction equipment, dredging equipment (hydraulic pump or mechanical bucket dredge), and sediment transport equipment. Some noise would be generated at the support areas by material handling equipment, heavy vehicles, and possibly generators. The duration of these activities would be relatively constant during working hours. Noise levels are anticipated to be highest from activities such

as pile driving, which radiate sound into the water, outward through the bottom sediment, and additional sound into the air.[9]

Noise estimates for hydraulic dredging are based on use of a generator during active dredging. Associated noise levels of up to 75 dBA could occur at 150 feet (48 m), which would be within the DOT Harbors property and would decrease below state standards at the property line. Noise estimates for mechanical dredging are based on use of a crane during active dredging. Associated noise levels up to 80 dBA could occur at 150 feet (48 m). Construction and dredging noise levels may need to be attenuated to meet the zoning district sound levels, or if not possible, a community noise permit would be required from the DOH Noise and Radiation Branch. Permit coverage is for the hours of 7:00 AM to 6:00 PM. during weekdays. Construction activities are not expected to occur outside of these hours; however, if activities extend past 6:00 PM, a variance is required. Application for a variance requires public notice, and the process may involve a public hearing to address community concerns.

Long-term noise impacts from vessel operations and vehicle traffic at the harbor are not expected to be significant. Operational noise would increase at the West Breakwater Harbor Development, which, while closer to residential areas, is still approximately one-half mile from sensitive noise receptors. Operational noise would be commensurate with existing noise levels in the urban setting.

MANAGEMENT MEASURES. Management measures for construction activities identified in Section 2.3.2 would be implemented as needed to minimize noise impacts.

6.12.3 Alternative B

SIGNIFICANT IMPACTS. None. There are no sensitive noise receptors, such as schools, hospitals, or residences, in the project area.

As in Alternative A, dredging operations and construction activities would generate noise, but it would be temporary. Operational noise would increase at the West Breakwater Harbor Development. Construction activities would be conducted in compliance with State rules (i.e., a noise permit or variance would be obtained, as required).

MANAGEMENT MEASURES. Management measures for construction activities identified in Section 2.3.2 would be implemented as needed to minimize noise impacts.

[9] Hastings M.C., and A.N. Popper. January 2005. Effects of Sound on Fish. Subconsultants to Jones & Stokes Under California Department of Transportation Contract No. 43A0139, Task Order 1

6.12.4 No Action Alternative

SIGNIFICANT IMPACTS. None.

Construction activities already approved under the 2025 Master Plan EA would occur at the eastern side of the harbor. As in Alternatives A and B, construction activities would be conducted in compliance with State rules.

MANAGEMENT MEASURES. Management measures for construction activities identified in Section 2.3.1 would be implemented as needed to minimize noise impacts.

6.13 CULTURAL AND HISTORIC RESOURCES

6.13.1 Archaeological and Historic Sites

6.13.1.1 Impact Methodology and Significance Criteria

Each alternative's impacts on archaeological and historic sites were evaluated based on whether construction activities would disturb subsurface archaeological resources identified as eligible for listing on State of Hawai'i Inventory of Historic Places or the National Register of Historic Places. The impacts would be considered significant if disturbance of the resources led to permanent loss or alteration of the site.

6.13.1.2 Alternative A (Proposed Action)

SIGNIFICANT IMPACTS. None.

According to the archaeological assessment conducted for the 2025 Master Plan EA, no archaeological resources are present in the existing harbor area. Development would be primarily offshore and on existing fill land. Since the West Breakwater harbor area was constructed from excavated fill material, no archaeological resources would be affected by construction activities for the West Breakwater Harbor area. Surface archaeological resources have not been identified at the A&B Properties parcels.

Kahului Commercial Harbor has been designated a historic site in the State of Hawai'i Inventory of Historic Places and is potentially eligible for listing on the National Register of Historic Places. According to the cultural assessment conducted for the 2025 Master Plan EA, the Kahului Railroad Building, which is on the A&B Properties parcels recently acquired by DOT Harbors, is a contributing element to the listing of the harbor as historic. Any modification or alteration to the building would constitute

an effect under the stipulations of the NHPA. Impacts to this building include potential changes to the interior of the building to convert it for use by DOT Harbors. Specific uses, such as administrative offices, have not yet been determined; however, no alterations to the exterior of the building are proposed. In accordance with Section 106 of the NHPA, consultation with the State Historic Preservation Division (SHPD) will take place as part of the draft EIS, prior to proposed improvements to the building.

As part of the Cultural Impact Assessment conducted for the 2025 Master Plan EA, consultation was undertaken with the SHPD, in which the SHPD expressed agreement that the harbor improvements proposed in that plan would have no effect on any architectural historic properties, and there would be no need to implement measures to mitigate adverse effects. This determination was made based on the distance of 500 feet (160 m) between the proposed new pier construction and the structure, the lack of impact on the visual integrity of the historic building, and the lack of special or unique architectural qualities of the majority of other existing buildings at the harbor. The use of the historic building for administrative offices and the use of the surrounding area for storage would be the most important differences between activities proposed under the 2025 Master Plan and this plan.

MANAGEMENT MEASURES. Potential impacts to archaeological resources, while unlikely based on previous investigations described in Section 5.13, would be minimized by ensuring that should human remains, prehistoric or historic artifacts, or cultural features be encountered in the course of excavation during construction, the contractor will halt work in the area and contact the SHPD in accordance with Section 6e of Hawai‘i Revised Statutes (HRS) 343.

Consultation with SHPD will occur prior to any renovation or alteration of the historic Kahului Railroad Building. Exterior alterations would be avoided, and a buffer between the historic building and cargo storage areas could be developed to minimize visual impacts to the historic structure. Recommendations by the SHPD for minimizing or avoiding impacts to the building will be considered and implemented to the extent practicable.

6.13.1.3 Alternative B

SIGNIFICANT IMPACTS. None.

Impacts to archaeological and historic resources under Alternative B would be similar to those under Alternative A.

MANAGEMENT MEASURES. Management measures to minimize or avoid impacts to archaeological and historic resources would be the same as those described under Alternative A.

6.13.1.4 No Action Alternative

SIGNIFICANT IMPACTS. None

Under the No Action Alternative, DOT Harbors would still plan to carry out improvements approved in the 2025 Master Plan EA. Development of the recently purchased A&B Properties' parcels would proceed under the No Action Alternative, and the Kahului Railroad Building would be converted for use by DOT Harbors. Specific uses, such as administrative offices, have not yet been determined. SHPD will be consulted on the project.

MANAGEMENT MEASURES. Management measures to minimize or avoid impacts to archaeological and historic resources would be the same as those described under Alternative A.

6.13.2 Cultural Practices

6.13.2.1 Impact Methodology and Significance Criteria

Impacts to current recreational practices are discussed in Section 6.15. Each alternative's impacts to cultural practices other than recreation were determined based on whether the activities would restrict or prevent cultural practitioners from using existing harbor resources for traditional cultural practices. Impacts would be considered significant if traditional cultural practices would be eliminated by the implementation of the alternative.

6.13.2.2 Alternative A (Proposed Action)

SIGNIFICANT IMPACTS. None.

Other than existing recreation (fishing, surfing, canoe paddling) described in Section 6.15, cultural activities are not typically practiced in the harbor; therefore, no impacts to cultural practices beyond recreational impacts are expected from Alternative A.

MANAGEMENT MEASURES. None.

6.13.2.3 Alternative B

SIGNIFICANT IMPACTS. None.

Other than existing recreation (fishing, surfing, canoe paddling) described in Section 6.15, cultural activities are not typically practiced in the harbor; therefore, no impacts to cultural practices beyond recreational impacts are expected from Alternative B.

MANAGEMENT MEASURES. None.

6.13.2.4 No Action Alternative

SIGNIFICANT IMPACTS. None.

Other than existing recreation (fishing, surfing, canoe paddling) described in Section 6.15, cultural activities are not typically practiced in the harbor; therefore, no impacts to cultural practices are expected from the No Action Alternative.

MANAGEMENT MEASURES. None.

6.14 VISUAL AND AESTHETIC RESOURCES

6.14.1 Impact Methodology and Significance Criteria

Each alternative's impacts to visual or aesthetic resources were evaluated based on whether the activities would alter scenic vistas, scenic overlooks, unique topography, or visual landmarks having scenic value. Impacts were considered to be significant if the activities would permanently alter these resources.

6.14.2 Alternative A (Proposed Action)

SIGNIFICANT IMPACTS. None.

No significant scenic vistas, scenic overlooks, unique topography, or visual landmarks having scenic value were identified in the harbor area; therefore, there would be no impacts from Alternative A. Consideration of "exceptional trees" discussed in Section 5.14 would take place in design and construction.

MANAGEMENT MEASURES. None.

6.14.3 Alternative B

SIGNIFICANT IMPACTS. None.

No significant scenic vistas, scenic overlooks, unique topography, or visual landmarks having scenic value were identified in the harbor area; therefore, there would be no impacts from Alternative B.

MANAGEMENT MEASURES. None

6.14.4 No Action Alternative

SIGNIFICANT IMPACTS. None.

No significant scenic vistas, scenic overlooks, unique topography, or visual landmarks having scenic value were identified in the harbor area; therefore, there would be no impacts from the No Action Alternative.

MANAGEMENT MEASURES. None.

6.15 RECREATIONAL RESOURCES

6.15.1 Impact Methodology and Significance Criteria

Each alternative's impacts on recreational resources were determined based on the expected level of use of the resources during construction and operation of the proposed activities.

6.15.2 Alternative A (Proposed Action)

SIGNIFICANT IMPACTS. Significant impacts from the proposed action include impacts to the outrigger canoe course and shoreline use associated with the Pier 2 expansion, and impacts to the primary harbor surf sites from the West Breakwater harbor area improvements.

OUTRIGGER CANOE COURSE. The outrigger canoe race course is presently situated so that it is out of the wind and in the lee of Pier 2. It is also situated so that there is clearance between the end of the race course and Pier 2 to allow up to ten canoes at a time to line up for race starts, to make turns around the flagged buoys marking the end of the course during races, and to finish races by paddling past the flagged buoys marking the end of the race course. (Local paddlers have indicated a need or preference for a 50-foot buffer between the race course and Pier 2; they are currently operating without that buffer depth for some lanes.) Furthermore, the race course is situated so that the inner length of the race course is far enough off the beach to provide a safety zone for canoes departing and landing on the beach, while at the same

time the outer length of the race course is situated to intrude as little as possible into the turning basin.

Given all the factors that presently determine the site of the race course, expansion at Pier 2 would affect the outer lanes and start area. Dredging and new breakwater construction would affect wave conditions within Kahului Commercial Harbor. An indirect impact of new breakwater construction, intended to reduce surge in the harbor, would likely be to create improved conditions throughout the harbor for canoe paddling.

KAHULUI BEACH/HOALOHA BEACH. Expansion at Pier 2 would encroach on the shoreline, further reducing the size of the only remnant of the original Kahului Beach. While Hoaloha Beach is not highly regarded as a swimming site, it is the major access point to the harbor for all paddling activities, including canoe regattas, which utilize the entire beach.

The end of Hoaloha Beach near Pier 2 is a fishing site during certain times of the year when halalu, or juvenile akule, congregate around Piers 1 and 2. Expansion of Pier 2 would affect access to this fishery, reducing or perhaps eliminating it as a fishing site. It would also eliminate Kahului Harbor Area 2, a State-regulated fishing area adjacent to Pier 2 (Figures 6-4A and 6-4B).

WEST BREAKWATER SURF SITES. The development of a commercial shipping pier within the harbor along the seawall of the West Breakwater, including reclaiming land (additional landfills), dredging to a depth of approximately minus 35 feet, (−11 m) and constructing a pier, would impact the primary surf sites in the harbor (Figure 6-4A).

- The surf site known as Jetties would be eliminated by the dredging of the berth and construction of the breakwater to protect the berth.
- The surf sites known as Old Mans and Harbor Lights would be eliminated by the dredging of the turning basin.
- The construction of the 900-foot breakwater extension off of the East Breakwater could impact surf conditions at the surf site known as Ledges during certain times of the year, dependent on the final configuration, location, and length of the breakwater extension.
- Some surf sites on the opposite side of the channel from the boat ramp may be affected by the refraction of waves off the new pier and its breakwater.

Dredging may create new surf sites closer to the shoreline. Even if new breaks yield attractive waves, the rides would be shorter.

Furthermore, development of the West Breakwater harbor area may reduce parking areas currently used by surfers in and around the harbor.

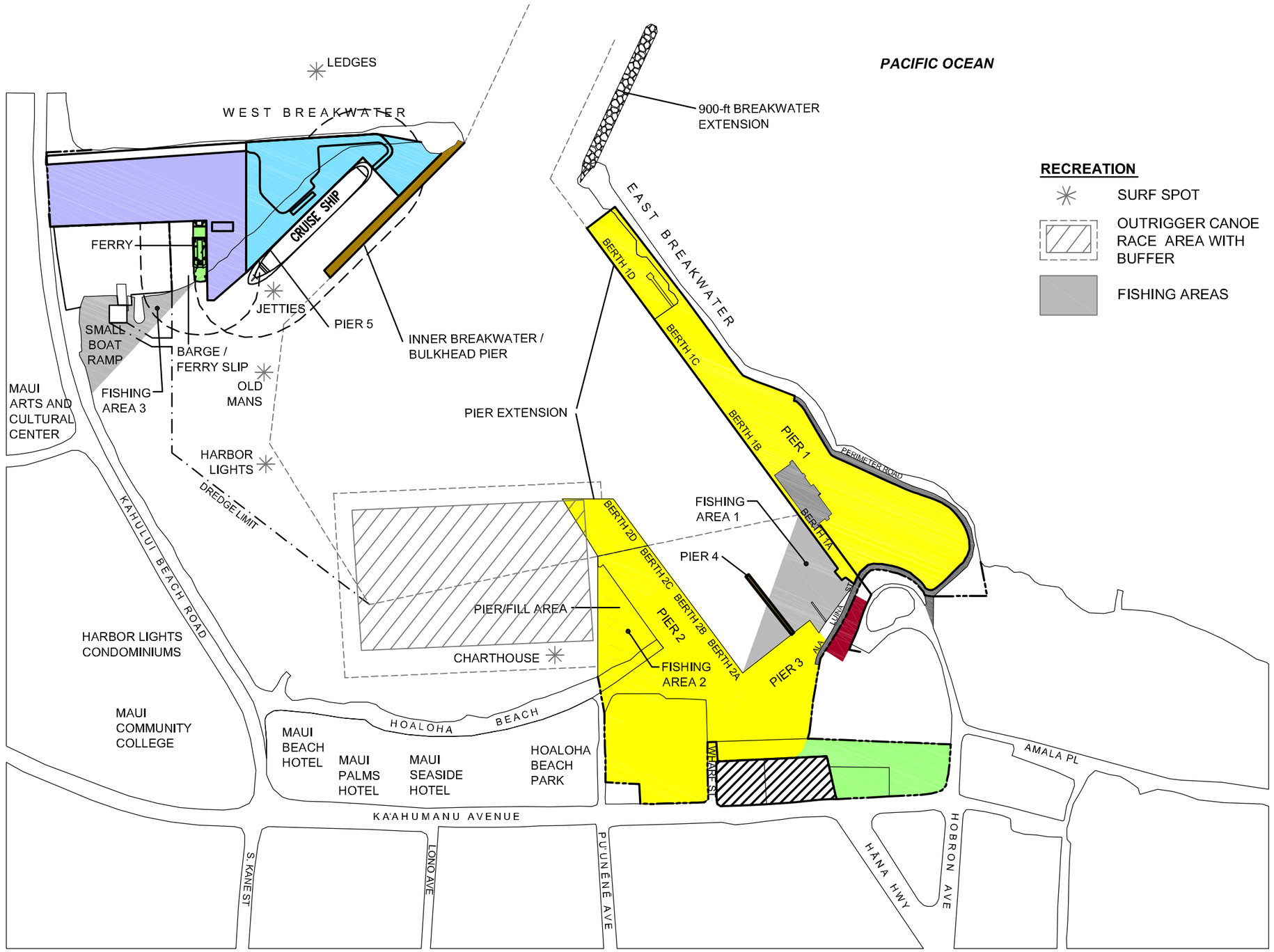
In addition to the impacts described above, the Pier 2 expansion would impact a secondary surf site in the harbor, as well as harbor access.

HOALOHA PARK SURF SITE. Expansion at Pier 2 may encroach on or eliminate the surf site fronting Hoaloha Park that some surfers know as Charthouse. While this surf site is considered to be a secondary site compared to others in the harbor, it is still recognized and used as a viable surf site during favorable swell conditions (Figure 6-4A).

HARBOR ACCESS. Expansion at Pier 2 would impact the public's access to the harbor. After the events of 9-11, the entire harbor was designated as a secure area. Certain commercial areas, such those around Piers 1 and 2, were placed off-limits to public access and a 300-foot security zone was imposed on passenger ships in the harbor. Relocation of passenger ships to the West Breakwater Harbor Development area would move the areas restricted for public access restrictions to state land that is now accessible to the public and could affect existing ocean recreation activities.

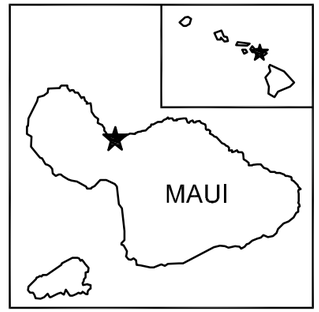
The development of harbor facilities at the West Breakwater Harbor area for passenger vessels may impact Hale Kiawe and a regulated fishing area (Fishing Area 3; see Figures 6-4A and 6-4B) by imposing security zones that may overlap the DLNR parcel and Fishing Area 3. However, the proposed action would not include physical changes to the DLNR-owned portion of the West Breakwater harbor area.

The development of harbor facilities at the West Breakwater Harbor area would impact the public's access to the harbor. Development at the West Breakwater Harbor area would extend public access restrictions into areas that are now open to the public. However, as the DLNR public boat-launch ramp area is not part of this evaluation and the proposed West Breakwater Harbor development activities would not restrict access to the DLNR boat-launch ramp, public access to the boat-launch ramp is not evaluated.



RECREATION

- SURF SPOT
- OUTRIGGER CANOE RACE AREA WITH BUFFER
- FISHING AREAS



- EXISTING CHANNEL & TURNING BASIN
- NEW CHANNEL/DREDGE LIMIT
- DOT PROPERTY LINE
- CONVEYOR
- POSSIBLE EXPANSION AREA
- 300-FOOT SECURITY ZONE
- ADMINISTRATION
- AUTO STORAGE
- COVERED STORAGE / SHED
- CRUISE OPERATIONS
- INTER-ISLAND FERRY
- NEW PIER / CONSTRUCTION
- OPEN STORAGE
- ROADWAY

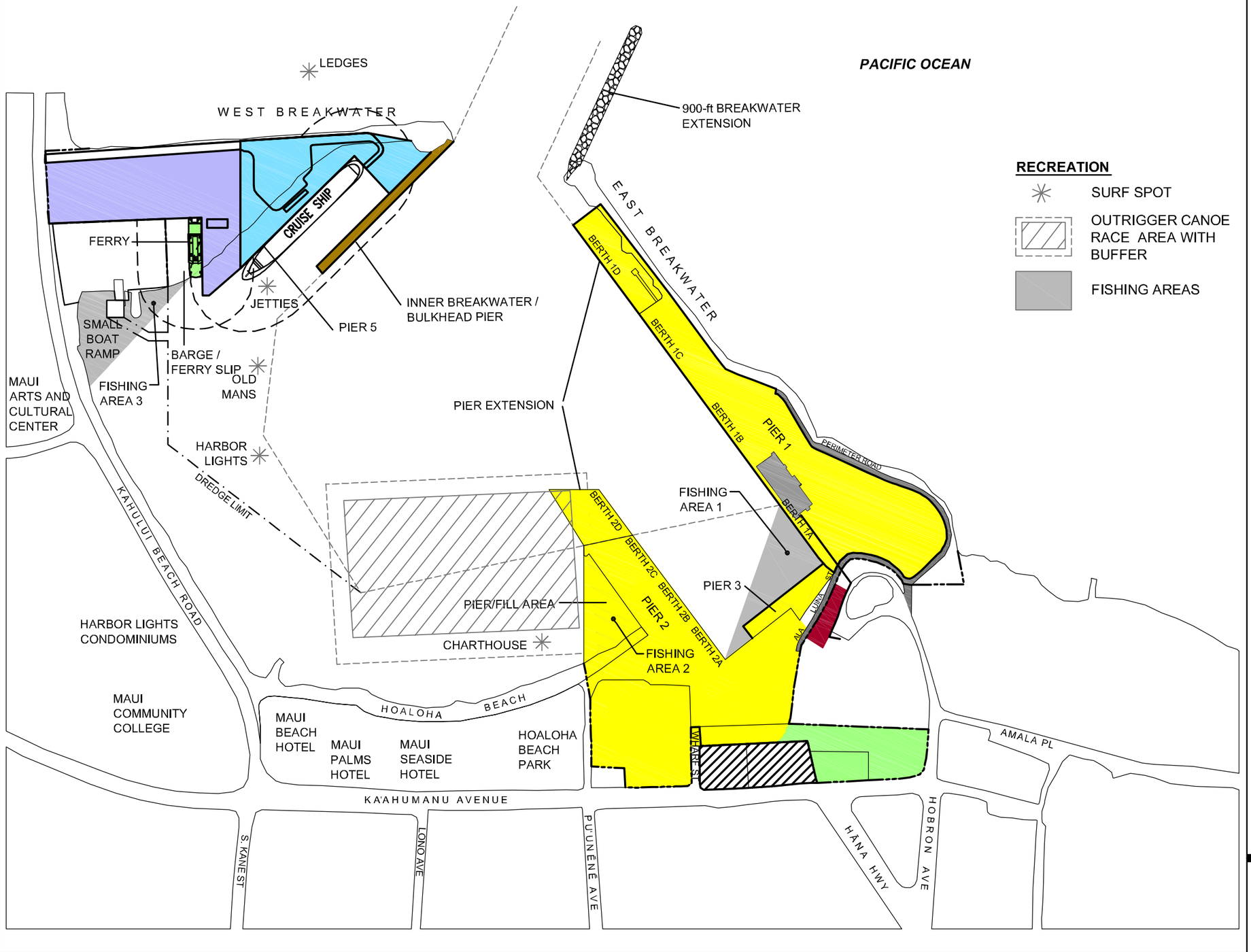
BeltCollins

NORTH

0 150 300 600
SCALE IN FEET

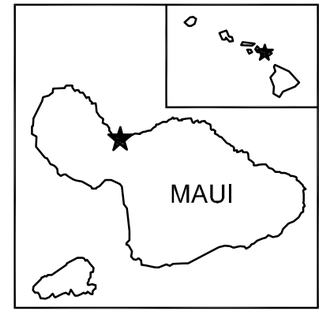
FIGURE 6-4A
RECREATION USES UNDER ALTERNATIVE A1

Kahului Commercial Harbor 2030 Master Plan
Draft Environmental Impact Statement
State of Hawai'i, Department of Transportation, Harbors Division
December 2007



RECREATION

- SURF SPOT
- OUTRIGGER CANOE RACE AREA WITH BUFFER
- FISHING AREAS



- EXISTING CHANNEL & TURNING BASIN
- NEW CHANNEL/DREDGE LIMIT
- DOT PROPERTY LINE
- CONVEYOR
- POSSIBLE EXPANSION AREA
- 300-FOOT SECURITY ZONE
- ADMINISTRATION
- AUTO STORAGE
- COVERED STORAGE / SHED
- CRUISE OPERATIONS
- INTER-ISLAND FERRY
- NEW PIER / CONSTRUCTION
- OPEN STORAGE
- ROADWAY

Collins

NORTH

0 150 300 600
SCALE IN FEET

FIGURE 6-4B
RECREATION USES UNDER ALTERNATIVE A2

Kahului Commercial Harbor 2030 Master Plan
Draft Environmental Impact Statement
State of Hawai'i, Department of Transportation, Harbors Division
December 2007

The significance of these impacts must be assessed in relation to the accessibility of alternative sites. A recent guide[10] lists 19 surf sites, some with more than one break, between Ho'okipa and Waihe'e. (Two of these are within Kahului Commercial Harbor.) For Kahului residents, only a few of these are as conveniently located as the harbor. Also, guidebook warnings about "respect" for "locals" indicate that demand for access to surf is already great enough to lead to conflicts at some of these sites. Loss of Kahului Commercial Harbor surf sites can accordingly be expected to add to the distance many Kahului residents must go to surf, as well as add to congestion at surf breaks elsewhere on the island.

MITIGATION MEASURES. DOT Harbors has begun discussions with the Kahului canoe clubs to see whether the proposed actions would limit their activities and whether the race course can be moved to better meet their needs. DOT Harbors would work with canoe clubs to address specific impacts to the course and discuss the best location for the canoe course within the harbor, as feasible. If necessary, DOT Harbors would work with canoe clubs to identify locations outside the harbor to which it may be possible to relocate clubs. Impacts to recreational activities during construction of the Pier 2 fill area could be minimized by timing construction to occur outside of the regatta season when the area is used for the race course.

Mitigation for loss of fishing areas is not proposed in light of the availability of other fishing areas in the harbor and around Maui. Although the full extent of impacts on surf sites cannot be determined until studies are conducted for the proposed dredging, it is apparent that the dredging may adversely affect two or three sites and potentially eliminate two others. Mitigation is likely limited to creating new surf sites closer to the shoreline, but it is acknowledged that these would be different from the existing sites, that is, they would have shorter rides. This situation is an example of a dilemma encountered when two highly valued activities compete for space. In this case, dredging of the commercial harbor created favorable surf conditions that have become very popular among surfers and bodyboarders. This situation creates the conflicting uses of recreational activity in a working commercial harbor that requires expansion to meet current and future needs. It appears that neither action alternative (A or B) would preserve the surf sites; only the No Action Alternative would do so. The purpose of this EIS is to disclose such impacts to the decision-makers and to the public.

6.15.3 Alternative B

SIGNIFICANT IMPACTS. Disruption of canoe regattas and loss of primary harbor surf sites from dredging and West Breakwater Harbor development activities.

[10] Blue Planet Surf Maps Co. *The Essential Surfing Maui Surf Map Guidebook.* 5th ed. San Diego, CA: 2006.

Impacts to recreational activities in Kahului Commercial Harbor from Alternative B include encroachment into the existing canoe regatta course by the Pier 2 extension and the 300-foot security zones which would be in place when passenger vessels are berthed at Pier 2, restricting the use of the regatta course during these periods. For passenger vessels berthing on the east side of Pier 2, a small area of the security zone would impact the canoe regatta course (see Figure 6-5). However, the security zone for passenger vessels berthed on the west side of Pier 2 would overlap most of the lanes of the regatta course, potentially halting racing activities for the duration of time passenger vessels are at the pier. The inter-island passenger ferry is expected to be berthed for approximately two hours.

Impacts to West Breakwater Harbor area surf sites from Alternative B would be similar to those from Alternative A. Impacts to fishing and other recreation would be similar to Alternative A.

MITIGATION MEASURES. As described in Alternative A, the full extent of impacts on surf sites cannot be determined until studies are conducted for the proposed dredging; however, it is apparent that the dredging may adversely affect two or three sites and potentially eliminate two others. Mitigation is likely limited to creating new surf sites closer to the shoreline, but it is acknowledged that these would be different from the existing sites, that is, they would have shorter rides.

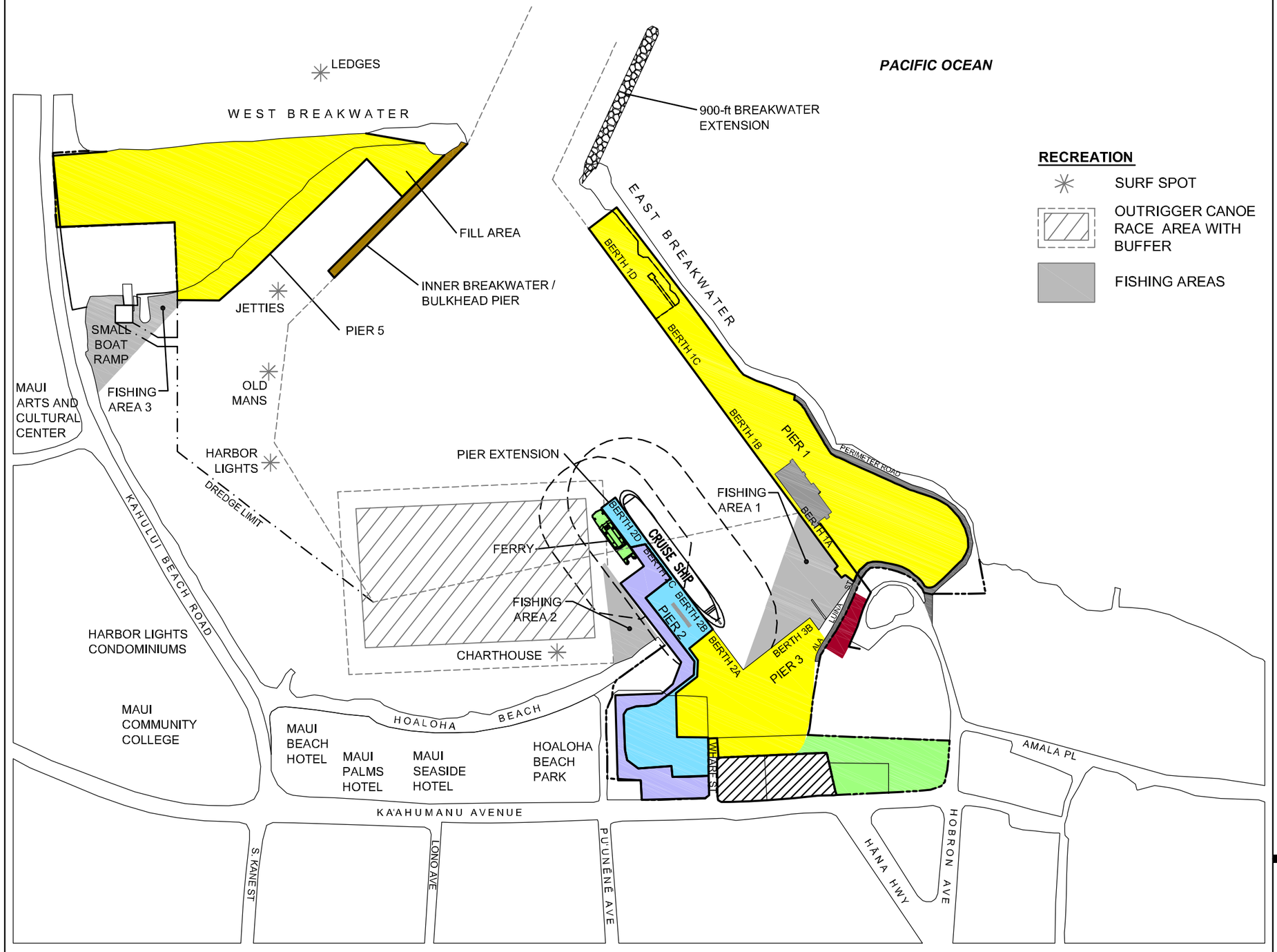
The impacts of the security zones on canoe racing activities could potentially be mitigated through coordination with the U.S. Coast Guard (USCG) to allow certain recreational activities to occur within the security zone. This would be determined at the discretion of the Captain of the Port or a designated representative.

6.15.4 No Action Alternative

SIGNIFICANT IMPACTS. None.

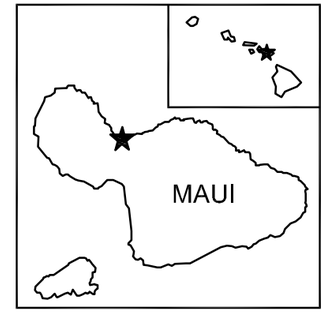
Under the No Action Alternative, harbor operations would continue in the current locations, and existing recreational activities would not be limited by harbor expansion. The 300-foot buffer zone around passenger vessels berthing at the east side of Pier 2 extends slightly into the canoe race course buffer area and Fishing Area 2 (Figure 6-6); this reduces the available area for these activities but does not completely eliminate the recreational resource.

MANAGEMENT MEASURES. None.



RECREATION

- SURF SPOT
- OUTRIGGER CANOE RACE AREA WITH BUFFER
- FISHING AREAS



- EXISTING CHANNEL & TURNING BASIN
- NEW CHANNEL/DREDGE LIMIT
- DOT PROPERTY LINE
- CONVEYOR
- POSSIBLE EXPANSION AREA
- 300-FOOT SECURITY ZONE
- ADMINISTRATION
- AUTO STORAGE
- COVERED STORAGE / SHED
- CRUISE OPERATIONS
- INTER-ISLAND FERRY
- NEW PIER / CONSTRUCTION
- OPEN STORAGE
- ROADWAY

BeltCollins

NORTH

0 150 300 600
SCALE IN FEET

FIGURE 6-5
RECREATION USES UNDER ALTERNATIVE B

Kahului Commercial Harbor 2030 Master Plan
Draft Environmental Impact Statement
State of Hawai'i, Department of Transportation, Harbors Division
December 2007

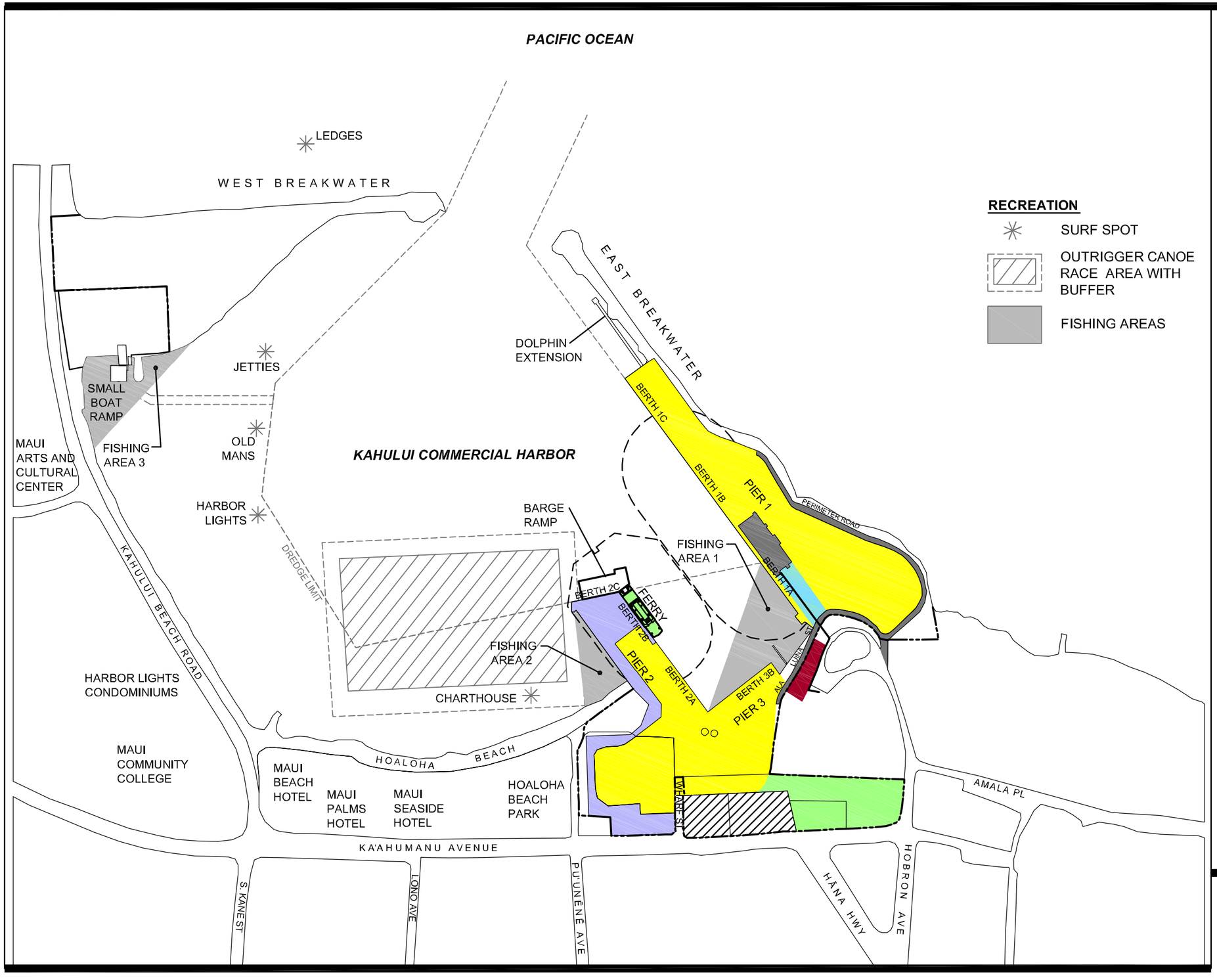


FIGURE 6-6
RECREATION USES UNDER NO ACTION ALTERNATIVE

Kahului Commercial Harbor 2030 Master Plan
Draft Environmental Impact Statement
State of Hawai'i, Department of Transportation, Harbors Division
December 2007

6.16 EVALUATION OF IMPACTS UNDER SECTION 4(F) OF USDOT ACT OF 1966

As described in Section 1.8.3, federal law (49 U.S.C. 303) requires a "special effort" to limit or avoid impacts of transportation projects on public open lands, recreation areas, wildlife refuges and historic sites, as follows:

> *It is the policy of the U.S. government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.*
>
> *The Secretary of[T]ransportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States, in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of lands crossed by transportation activities or facilities.... the Secretary may approve a transportation program or project … requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance (as determined by the Federal, State or local officials having jurisdiction over the park, area, refuge or site) only if –*
>
> 1. *There is no prudent and feasible alternative to using that land; and*
>
> 2. *The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and water-fowl refuge, or historic site resulting from the use.*

The Kahului 2030 Master Plan has been described in the preceding sections. Impacts, including impacts on recreation activities, have been analyzed. This section discusses the Master Plan as a project subject to Section 4(f) and recasts the impact analysis in terms of this federal law.

6.16.1 Application of Section 4(f)

Kahului Commercial Harbor includes two breakwaters built to create a safe environment for commercial shipping and the area between them. The submerged land in the harbor was acquired by the Hawai'i DOT for commercial harbor use. While Kahului Harbor is operated as a commercial harbor, the State DOT has worked with

the State DLNR, which owns the small boat ramp area on the West Breakwater, and with local recreational groups to allow recreational activity within the harbor waters. Accordingly, Kahului Harbor can be considered a public recreation area. The West Breakwater was named by the County of Maui "Kahului Harbor Park." However, the County did not maintain it as a recreation area and has accepted the reversion of the property to the State. Hence the DOT land on the breakwater is no longer considered a recreation area.

6.16.1.1 Discussion of Alternatives Relative to 4(f) Evaluation

Alternatives A and B described in Chapter 4 meet the purpose and need of this EIS, to meet the anticipated demand for commercial harbor facilities to support the existing and projected Maui economy to 2030. These alternatives are accordingly considered to be prudent and feasible. The No Action Alternative does not support anticipated commercial harbor demand. The long-term alternatives discussed in Section 4.6 are also excluded, on grounds of cost and environmental impact

If harbor improvements are not made, Maui would likely still see increasing cargo and passenger volumes. Congestion at the harbor would be greater than with improvements. As a result, the time commercial vessels spend within the harbor – and hence the time in which recreational use of the harbor area is restricted – would be greater without improvements than with them.

The significance of the harbor as a recreational area can be considered for each major recreational use:

FISHING (FROM SHORE, BREAKWATERS, AND IN NEAR-SHORE WATERS). The state has identified the Kahului Commercial Harbor as a regulated fishing area, with three sections subject to regulation (Figures 6-2A and 6-2B). Area 1 has been closed due to security restrictions. Area 2 (on the west side of Pier 2) would be affected by the proposed fill on that side of Pier 2, which would cover the current regulated fishing area. Part of Area 3 near the inside of the West Breakwater could be restricted due to security concerns. Part of Area 3 runs along the section of the West Breakwater owned by the DLNR. That area is not affected by the proposed Master Plan projects.

Fishing is done from shore along Hoaloha Beach and outside the harbor area. The harbor stands out as an area where schooling fish such as *akule* are found, unlike the rest of the coastline, and can be considered a unique fishing resource.

The proposed harbor development would restrict the area in which fishing is allowed. Since *akule* fishing has been found mainly in Area 1, which is already closed for security reasons, and since other areas near the harbor are still available for fishermen, the 2030 plan does not have a significant impact on fishing in and around Kahului.

RECREATIONAL BOATING. The recreational boat ramp on the West Breakwater is the only small boat facility on the north coast of Maui and the only ramp in Wailuku-Kahului urban area. Currently, boats and other recreational vessels are restricted from the turning basin area when commercial vessels enter or leave the harbor. Under the 2030 plan, the frequency of commercial visits is expected to rise and the dredged turning basin would increase in size, but the small boat area and the channel dredged for small boats would not be affected by the plan.

CANOE PADDLING. The harbor is a much-used practice and recreation area for paddlers. Like boaters, they must clear the turning basin when commercial vessels are moving within the harbor. With the expected increase in shipping to and from Maui, this restriction would apply more often.

As the most frequently used canoe regatta course on the north shore of Maui, the Kahului Commercial Harbor race area can be considered a significant resource for canoe paddling regattas. As shown in Figures 6-2A and 6-3, the course has been established close to Pier 2. The pier restricts the buffer area to the east of the outer lanes to less than the 50 foot (16 m) width preferred by the local canoe clubs.

The proposed extension of Pier 2 under Alternative A would limit the size of the buffer area and would affect the starting area of some outer lanes. The docking of ferries at Pier 2 under Alternative B would further limit the size of the buffer area and restrict use of the course while the vessels are in harbor. Also, it is likely that some of the outer lanes would be over the expanded turning basin. Those lanes would not be available for use while commercial vessels enter and leave the harbor.

SURFING. Surfing occurs at several sites along the north coast of Maui, in addition to such famous sites as Mā‘alaea on the south coast. Kahului Commercial Harbor offers winter surf breaks that are easily accessible from the beach or the West Breakwater Harbor area. While Kahului Commercial Harbor is not considered unique as a surfing resource since other winter breaks exist on Maui’s north coast, the harbor offers both winter breaks and surf opportunities near a beach and parking in an area convenient to current and future population centers.

Both Alternative A and Alternative B depend on increasing the dredged area within the turning basin. With the enlarged dredge area, most of the recognized surf breaks in Kahului Commercial Harbor would likely no longer exist. Instead, new surf breaks would likely be created at the new dredge limit, closer to the shore. The quality of the breaks cannot be forecast. Because of their location, the rides could be shorter than those from the current surf breaks. Breaks at the new dredge limit may provide waves appropriate for young surfers to learn skills, but this is by no means certain.

6.16.1.2 Discussion of Mitigation Measures Relative to 4(f) Evaluation

Based on the information in this EIS, the 2030 Master Plan could involve significant impacts to two recreational uses: canoe paddling and surfing. The Master Plan alternatives do not limit small boat activity or significantly limit fishing resources.

CANOE PADDLING. Impacts on canoe regattas could be minimized through collaboration between DOT and canoe regatta planners. Mitigation could involve using the current race course and cooperatively developing procedures to maintain distance between canoes and commercial vessels when the latter are moving into and out of the harbor. Eventually, DOT and regatta planners may find it appropriate to move the course further north within the harbor. That move would not be desirable under current conditions, but could be feasible when new breakwaters are constructed to help calm waters throughout the harbor area.

SURFING. Mitigation of the impact on surfing poses a greater challenge. One way to mitigate loss of a resource is to replace it at a nearby location. New surf breaks might be created through dredging elsewhere. However, suitable replacement locations have not been identified. To the west of the harbor lies Paukūkalo ("Hata Bay"). The coast is rocky and visited mainly by fishermen and beachcombers.[11] It is sometimes possible to surf offshore, but rip and shore currents can be strong. To the east of Kahului Commercial Harbor is the Kanahā area. Kanahā Pond is a wildfowl refuge. Changes to offshore conditions must be evaluated in light of potential effects on the refuge and its inhabitants. Further east is Kanahā Beach Park. The area offers a sand beach and calm swimming areas located near shore. At Paukakalo, a new site could simply replace existing breaks. At Kanahā, the impact of a new break on existing resources—the refuge and beach—would need to be closely analyzed before any such mitigation is proposed.

Mitigation of the impact on surfing is viewed here as impractical not just because of cost but because Maui has no empty but convenient site where experimental mitigations could be attempted without harm to important resources.

6.16.1.3 Interagency Coordination

The Maritime Administration is sending a coordination letter with this Draft Environmental Impact Statement, requesting comments and concurrence, to:

- Secretary, U.S. Department of Agriculture
- Secretary, U.S. Department of Housing and Urban Development

[11] This and subsequent characterizations derive from J. Clark, *The Beaches of Maui County* (Honolulu, HI: 1980) and consultation with the author.

- Secretary, U.S. Department of the Interior
- Director, Department of Land and Natural Resources, State of Hawai‘i
- Director, Department of Transportation, State of Hawai‘i

Responses from the coordinating agencies will be included in the Final Environmental Impact Statement.

6.17 DISCUSSION OF SIGNIFICANCE CRITERIA

HAR, Section 11-200-12, establishes thirteen (13) significance criteria which agencies shall use in evaluating an action's impacts. Following is a discussion of how the proposed action relates to the thirteen criteria.

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;

DISCUSSION. Loss of marine resources may occur as a result of dredging and filling activities within the commercial harbor. Consultation with USFWS, NMFS, and DLNR, which will include natural resource surveys, will identify areas with protected species and ways to avoid and/or mitigate impacts to those resources. Impacts to cultural resources, such as cultural use of the harbor, will be managed and/or mitigated through coordination with appropriate parties and agencies.

(2) Curtails the range of beneficial uses of the environment;

DISCUSSION. Impacts to recreational activities in the bay, such as surfing and canoe paddling, may occur as well as impacts to coral and other marine resources. Consultation with recreational users and applicable federal and state agencies is being conducted as part of the EIS process.

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

DISCUSSION. The stated purpose of Chapter 344 is to establish a state policy which will encourage productive and enjoyable harmony between people and their environment, promote efforts which will prevent or eliminate damage to

the environment and biosphere and stimulate the health and welfare of humanity, and enrich the understanding of the ecological systems and natural resources important to the people of Hawai‘i. The proposed project would comply with the policies, goals, and guidelines of Chapter 344.

(4) Substantially affects the economic or social welfare of the community or State;

DISCUSSION. By improving the means to transport goods and services to and from Maui, the proposed action will have a substantial beneficial effect on the economic and social welfare of the community.

(5) Substantially affects public health;

DISCUSSION. No significant effects on public health are anticipated. DOT Harbors intends to construct and operate the harbor improvements in compliance with all applicable rules, regulations, and laws.

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

DISCUSSION. Significant secondary impacts are not expected. The proposed harbor improvements would be in response to anticipated population growth; they are not expected to induce growth.

(7) Involves a substantial degradation of environmental quality;

DISCUSSION. Impacts to environmental quality from construction activities are expected to be short-term and temporary. No long-term impacts to environmental quality are anticipated.

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

DISCUSSION. With one or two exceptions, mitigation measures would minimize or avoid short-term and long-term adverse effects of the harbor improvements. The improvements represent a major commitment by DOT Harbors to meet the shipping and transportation needs of the island of Maui.

(9) Substantially affects air or water quality or ambient noise levels;

DISCUSSION. Construction-related impacts to air and water quality would be temporary and minimized through the implementation of BMPs. Construction-

related noise is not likely to impact ambient noise levels, as the proposed project is in an industrial area.

(10) 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;

DISCUSSION. The project is located in a flood plain, tsunami zone, and coastal waters. Impacts to physical conditions in the harbor associated with dredging and breakwater construction activities are expected to be tempered by the construction of a breakwater extension to reduce surge within the harbor, and further evaluation will be undertaken to determine the best configuration of breakwaters and dredge limits. Impacts to environmentally sensitive areas will be taken into consideration during the design.

(11) Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or,

DISCUSSION. The project is in a heavily industrialized commercial harbor area with no important scenic vistas.

(12) Requires substantial energy consumption.

DISCUSSION. Improvements to commercial harbor facilities will likely require additional energy consumption but it is not expected to be substantial or out of line with projected population and economic growth.

6.18 CONSISTENCY WITH STATE AND COUNTY LAND USE DESIGNATIONS AND CONTROLS

The majority of the Kahului Commercial Harbor lands are situated within the State Urban District and are zoned Industrial by the County of Maui. The Urban District generally includes lands characterized by "city-like" concentrations of people, structures and services. This district also includes vacant areas for future development.[12] Jurisdiction of this district lies with Maui County.

Two parcels immediately to the south of Kahului Commercial Harbor are also included in this analysis. These parcels (3-7-10:001 and 036) were purchased by DOT Harbors from A&B Properties in December 2007, and an environmental assessment

[12] State of Hawai'i Land Use Commission website. Urban District definition. http://luc.state.hi.us/about.htm#URBAN%20DISTRICT. Accessed May 4, 2007.

for the acquisition of these parcels by the DOT was completed in 2006. The former A&B Properties' parcels are in the Urban District and are zoned Industrial by the County of Maui.

The West Breakwater Harbor area is nearly all in the Conservation District-Resource Subzone.[13] Conservation Districts are administered by the State Board of Land and Natural Resources, and uses are governed by rules promulgated by the State DLNR.[14] The objective of the Resource Subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas. Land uses permitted in the Resources Subzone (requiring a Conservation District Use permit) include those undertaken by the State or County (such as transportation services) to fulfill a mandated governmental function, activity, or service for public benefit in accordance with public policy and the purpose of the Conservation District. The Board of Land and Natural Resources set aside the West Breakwater Harbor area outside the DLNR area for commercial harbor purposes in its meeting on September 24, 2006.

The harbor is located within the Special Management Area (SMA) and is within the Wailuku-Kahului Community Plan area. Development in geographically-designated SMAs is regulated through Maui County's SMA permit system. DOT Harbors is exempt from County permitting requirements, including the SMA permit and county zoning requirements, pursuant to the Hawai'i Revised Statutes Chapter 266-2(b).[15] The Wailuku-Kahului Community Plan provides specific recommendations to address the Maui County General Plan's goals, objectives, and policies. The General Plan was adopted in 1980 and updated in 1990, and a draft 2030 General Plan was released in 2007. Both the General Plan and the Community Plan are part of a planning hierarchy which includes the Hawai'i State Plan and State Functional Plans. The 1990 Community Plan recognizes Kahului Commercial Harbor as an important center of economic activity. It has identified the lack of capacity at the harbor as a major problem for the region, and has recognized expansion of existing industrial centers associated with the harbor as an economic goal. However, the West Breakwater is identified for eventual park development in the Community Plan. Since the Community Plan was adopted, Maui County has agreed to the reversion of most of the West Breakwater land to the State for maritime use.

[13] Maui County zoning maps show a narrow slice of the West Breakwater, along Kahului Beach Road, as zoned Residential (personal communication, Francis Cerizo, Maui County Planning Department, December 2007).

[14] State of Hawai'i Land Use Commission website. Conservation District definition. luc.state.hi.us/about.htm#CONSERVATION%20DISTRICT. Accessed May 4, 2007.

[15] HRS 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 commercial 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."

6.19 CUMULATIVE IMPACTS

Council on Environmental Quality (CEQ) regulations implementing National Environmental Policy Act (NEPA) require that the cumulative impacts of a proposed action be assessed (40 Code of Federal Regulations (CFR) 1500-1508). A cumulative impact is defined at 40 CFR 1508.7 as an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." Chapter 343 HRS also requires cumulative impact analysis. Cumulative impacts are discussed separately from sections describing impacts for each resource area because the cumulative regions of influence may differ than those for direct and indirect impacts. Because of this difference, this EIS may identify significant direct impacts for a particular resource area and may not identify significant cumulative impacts for the same resource.

Resource areas for which cumulative impacts have been identified are air quality, marine biota, socio-economic environment, traffic, and recreation.

6.19.1 Other Projects Considered for Cumulative Impacts

Other past, present, or reasonably foreseeable projects which have been included in the evaluation of cumulative impacts from the proposed harbor improvements include:

- Harbor improvements identified in the Final Environmental Assessment and Finding of No Significant Impact 2025 Master Plan Improvements Kahului Commercial Harbor;
- Kahului Town Center Strategic Master Plan;
- Plans for residential expansion of subdivisions in and around Kahului; and
- Improvements and development activities at other DOT-managed harbors around the state.

6.19.2 Cumulative Impacts by Resource

6.19.2.1 Air Quality

Cumulative impacts to air quality are not expected to be significant.

Increases in ship traffic, cargo movement, and vehicle numbers, and the increased emission of air pollutants from burning fossil fuels associated with these activities, are expected regardless of whether the proposed harbor improvements occur. Population increases anticipated for Maui Island through the 2030 planning horizon would likely

contribute to increased burning of fossil fuels for transportation and energy generation which would contribute to cumulative air quality impacts. State law directs agencies to increase use of renewable fuels through such laws as the Alternative Fuel Program Support (HRS Chpater 196A), which directs the state to provide 20 percent of highway fuel use through alternative fuels by the year 2020. These types of programs, if successfully implemented along with more widespread use of non-fossil fuel based energy sources, may reduce or slow the increase in the amount of air pollutants emitted in Hawai'i. However, even with increased fossil fuel combustion, it is anticipated that the county and state would remain in compliance with NAAQS and State AAQS.

According to the EPA transportation and air quality website,[16] in May 2004, as part of the Clean Air Nonroad Diesel Rule, EPA finalized new requirements for nonroad diesel fuel that will decrease the allowable levels of sulfur in fuel used in marine vessels by 99 percent. These fuel improvements, which began to take effect in 2007, were intended to create immediate and significant environmental and public health benefits by reducing particulate matter from non-road diesel engines such as marine vessels and construction equipment.

In March 2007, EPA proposed a new emission control program to reduce emissions from all types of marine diesel engines below 30 liters per cylinder displacement. These include marine propulsion engines used on vessels from recreational and small fishing boats to yachts, tugs, and Great Lake freighters, and marine auxiliary engines ranging from small generator sets to large generators on ocean-going vessels. The proposal aims to cut particulate matter emissions from these engines by 90 percent and nitrogen oxides emissions by 80 percent.

6.19.2.2 Marine Biota

Cumulative losses of live coral around Maui in the 2030 planning horizon may be significant due to factors not directly related to harbor development. According to coral surveys conducted by the State DLNR Division of Aquatic Resources (DAR), mean coral cover in 2006 at nine monitoring locations around Maui declined by approximately 25 percent from 1999.[17] Reasons for coral decline cited by the DAR study include invasive algae, elevated nutrient levels, increased sedimentation, chemical runoff, and other pollution. Other environmental factors such as change in sea temperature, strong coastal storms, and large waves may also contribute to loss of coral habitat.

[16] U.S. Environmental Protection Agency. www.epa.gov/otaq/marine.htm. Accessed November 21, 2007.

[17] Hawai'i DLNR, Division of Aquatic Resources. Status of Maui's Coral Reefs. www.hawaii.gov/dlnr/dar/pubs/MauiReefDeclines.pdf. Accessed August 20, 2007.

Impacts to coral from dredging activities associated with the proposed action would be localized and represent an estimated loss of approximately 22 percent of the coral substrate in Kahului Commercial Harbor, or approximately 21 acres (8.5 ha) of the estimated 97 acres (39.3 ha) of existing coral dredged. However, over the long-term, construction of breakwater extensions may provide additional substrate which could contribute to increased coral settlement in and around the harbor. In addition, when possible, DOT Harbors will design new pier areas using piling-type structures versus bulkhead and fill structures to maintain marine habitat underneath the piers. Final determination of construction methods would be made during pier design.

6.19.2.3 Socio-economic Environment

As long-term socio-economic analysis takes general socio-economic conditions into account, the discussion in Section 6.9 identifies cumulative socio-economic impacts of the proposed action along with direct impacts. Increased economic throughput and transportation job growth are examples of cumulative impacts discussed in Section 6.9.

6.19.2.4 Traffic

As the nature of long-term traffic impact analysis takes into account contributions of multiple sources of traffic, the discussion in Section 6.10 identifies cumulative traffic impacts associated with the proposed action. Decreased LOS associated with commercial development around the harbor is one example of cumulative impacts discussed in Section 6.10.

6.19.2.5 Recreational Resources

Cumulative impacts to recreational resources associated with the proposed action would largely be restricted to impacts on recreational fishing and associated with potential future restrictions on the type and amount of recreational catches. As noted earlier, reduced availability of surf sites in Kahului Commercial Harbor could lead to increased demand at other surf sites. Population growth would likely also lead to increases in the surfing population and hence increased use of surf sites. Past, present, and reasonably foreseeable projects in addition to the proposed action would not likely impact canoe paddling or swimming. (With population growth, increasing participation in paddling and swimming can be anticipated. Sites for these activities within Kahului Commercial Harbor would not be substantially affected.) Cumulative impacts to fishing are not likely to be significant.

6.20 SECONDARY IMPACTS

The harbor improvements proposed under the 2030 Master Plan would not increase the volume of commercial harbor traffic; however, increasing the area of the turning basin could accommodate larger ships.

Secondary impacts from the proposed improvements could include the following:

- Sedimentation from construction activities exiting the harbor and contributing to water quality concerns in a remote location. Implementation of BMPs and the natural effect of sediment dispersal by waves would reduce the potential for this secondary impact.
- Potential for invasive coral species to recolonize dredged harbor bottom land.
- Reduced surge in the harbor could change the nature of recreation activities from wave-tolerant activities such as surfing and outrigger canoe paddling to more calm-water activities such as kayaking.
- Loss of surf sites and fishing areas in the harbor could lead to increased demand on those resources in other areas of Maui.
- Secondary socio-economic impacts could include increased economic stimulus from the creation of construction jobs and the purchase of materials to construct the product.
- Changes to the location of cruise and ferry passenger debarking could alter which retail users are visited by passengers.

6.21 RELATIONSHIPS BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

NEPA requires that an EIS consider the relationship between short-term uses of the environment and the impacts that these uses could have on the maintenance and enhancement of long-term productivity of the affected environment. This section compares the short- and long-term environmental effects of the Proposed Action.

Short-term impacts would result from construction activities on land and in the waters of the harbor. Short-term construction-related traffic, noise, air quality, and water quality impacts described in this document would not be significant because management measures such as noise-attenuation measures, dust control, and water quality Best Management Practices described in Chapter 2 would be implemented to minimize impacts.

Long-term impacts would result from removal of existing coral resources by dredging and filling, and changes to the wave climate and bathymetry within the harbor which currently supports surfing during certain conditions. The long-term productivity of Kahului Commercial Harbor would be greatly increased over its present condition, including the potential to avert operational congestion which could lead to socio-economic impacts for Maui.

6.22 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES BY THE PROPOSED ACTION

A commitment of resources is considered irreversible when it precludes restoration of those resources to their pre-project condition. Use, consumption, destruction, or degradation of resources resulting from implementation of the proposed project, such that the resource cannot be retrieved or replaced in any form, is considered an irretrievable commitment of resources. Most resource commitments for the Proposed Action are temporary, and would only occur during construction. Irreversible and irretrievable commitments include:

- construction materials;
- soil and sediment that may be excavated and disposed;
- available space in a construction and demolition landfill;
- money;
- manpower; and
- energy in the form of direct consumption of fossil fuel for vehicles.

Natural or cultural resources which may be irrevocably lost include recreational surfing resources and a section of Hoaloha Beach near Pier 2. Other resources which may be impacted, such as coral reef or canoe paddling resources may be retrieved or replaced in other locations, and are therefore not irrevocably lost.

6.23 PROBABLE ADVERSE ENVIRONMENTAL IMPACTS WHICH ARE UNAVOIDABLE

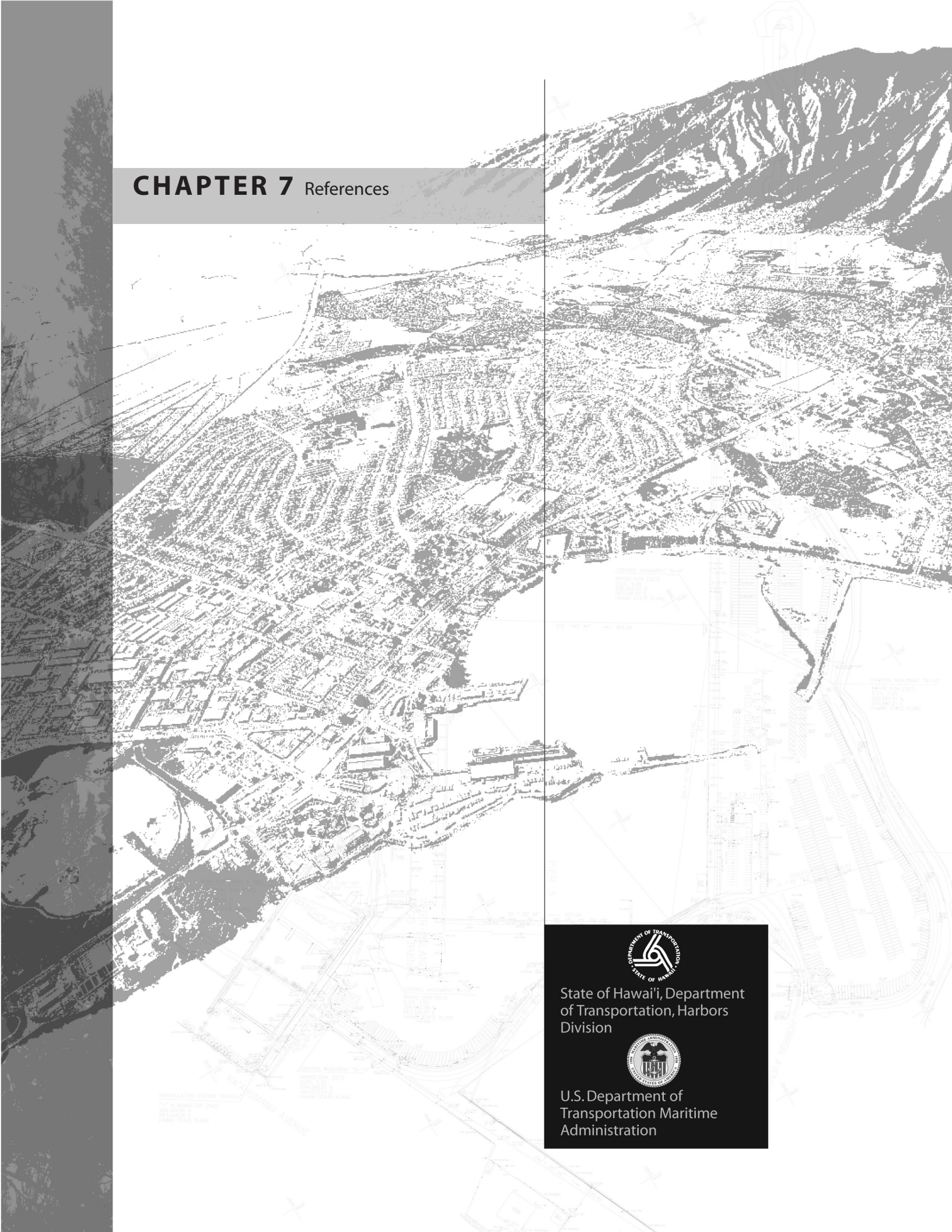
The proposed development activities, including dredging and breakwater construction at Kahului Commercial Harbor, would result in certain unavoidable environmental impacts as outlined in the resource impact sections of Chapter 6.

Construction associated with the proposed development would generate short-term noise, fugitive dust, and increased siltation. These impacts would be limited to the immediate vicinity of the construction areas and would be managed through construction management measures identified in Chapter 2.

Dredging and breakwater construction activities will eliminate approximately 22 percent of coral reef coverage within the commercial harbor as identified in Section 6.4. Mitigation measures under consideration include construction BMPs to limit impacts of turbidity and siltation on remaining coral resources and evaluation of the potential for transplanting coral which may be impacted.

Dredging and breakwater development activities will eliminate some surf sites along the existing dredge limit in the harbor. New surf sites closer to the shoreline may be created by dredging activities.

CHAPTER 7 References



State of Hawai'i, Department of Transportation, Harbors Division

U.S. Department of Transportation Maritime Administration

CHAPTER 7
REFERENCES

A. Gomes. The Honolulu Advertiser. August 23, 2006. *Kahulu Plan Mixes Retail, Condos.*

Alexander & Baldwin website. www.abprop.com/development/asp/DevDetail.asp ?txtdevid=D25. accessed May 29, 2007.

Bermello Ajamil and Partners, Inc. March 2007. *2007 Kahului Cruise Market Study.* Final. Prepared for TEC, Inc.

Blue Planet Surf Maps Co. 2006. *The Essential Surfing Maui Surf Map Guidebook.*. 5th ed. San Diego, CA:

CH2MHill. November 2006. *Traffic Study for Kahului Ferry Terminal.*

Code of Federal Regulations. CFR 165.1408. Revised July 1, 2006. *Navigation and Navigable Waters.*

Coles, S.L., P.R. Reath, K. Longnecker, H. Bolick., and L.G. Eldridge. November 2004. *Assessment of Nonindigenous Marine Species in Harbors and on Nearby Coral Reefs on Kaua‘i, Moloka‘i, Maui, and Hawai‘i. Bishop Museum Technical Report No 29a. Honolulu, Hawai‘i.*

County of Maui, Department of Planning, Long Range Planning Division. February 2007. *2030 General Plan Update Countywide Policy Plan.* Draft.

County of Maui, Department of Public Works and Environmental Management. February 2006. *Maui Inland Sand Resource Quantification Study. Maui, Hawaii.* Prepared by SSFM International.

County of Maui, Office of Economic Development. December 2006. *Maui County Data Book 2006.*

Federal Emergency Management Agency. March 16, 1995. *Flood Insurance Rate Map (FIRM).* Maui County, Hawaii. Panel 15003 190D.

Fletcher, C.H., E.E. Grossman, B.M. Richmond, and A.E. Gibbs. 2002. *USGS Atlas of Natural Hazards in the Hawaiian Coastal Zone. Geologic Investigations Series I-2761*. U.S. Department of the Interior, U.S. Geological Survey

Focus Maui Nui. December 2003. Executive Summary. (County of Maui)

Global Ballast Water Programme, International Maritime Organization. 26-27 March 2001. Proceedings, 1st International Ballast Water Treatment R&D Symposium. Ed. Steve Raaymakers. London.

Hastings PhD., Mardi C. and A. N. Popper, Ph.D. January 28, 2005. *Effects of Sound on Fish.* Subconsultants to Jones & Stokes Under California Department of Transportation Contract No. 43A0139, Task Order 1.

Hawaii Division of Aquatic Resources. Status of Maui's Coral Reefs. www.hawaii.gov/dlnr/dar/pubs/MauiReefDeclines.pdf. Accessed August 20, 2007

Hawaii Harbor Users Group. December 2005. *Report on Port Facilities and Development Priorities.* Prepared by Mercator Transport Group.

Hawaii Superferry, Inc. February 2007. *Hawaii Superferry Commitments and Actions to Address Environmental Concerns.* Prepared by CH2MHill.

Hawaii Superferry. 2007. Routes and Schedules. www.hawaiisuperferry.com/main/faresroute/rtssched/default.aspx. Accessed November 6,, 2007.

International Archaeological Research Institute, Inc. April 2004. *Archaeological and Cultural Impact Assessment of Cultural Resources at Kahului Harbor*, in State of Hawai'i Department of Transportation. November 2005. *Final Environmental Assessment and Finding of No Significant Impact, 2025 Master Plan Improvements, Kahului Commercial Harbor.*

Juvik, Sonia P. and James O. 1998. *Atlas of Hawaii.* Third Edition.

Makai Ocean Engineering and Sea Engineering. 1991. *Aerial Photograph Analysis of Coastal Erosion on the Islands of Kauai, Molokai, Lanai, Maui, and Hawaii.*

Marine Research Consultants, Inc. 2007. *Reconnaissance Survey of the Marine Environment, Kahului Commercial Harbor, Maui, Hawaii; Characterization of Benthic Habitats, Assessment of Impacts from Harbor Expansion* (June 2007)

Maui County Council. 2002. *Wailuku–Kahului Community Plan.* Exhibit I

Mayor's Cruise Ship Task Force (Maui). August 15, 2005. *Final Report.*

MEC Analytical Systems. March 2005. *Phase I Dredged Materials Management Plan COMNAVMARIANAS, Guam. Prepared for Department of the Navy, Pacific Division, Naval Facilities Engineering Command. In association with Hawaii Pacific Engineers, Inc.*

Mercator Transport Group. December 2005. *Hawaii Harbor Users Group Report on Port Facilities and Development Priorities.*

Personal communication, Donald Medeiros, Director, Maui County Department of Transportation, July 2007.

Personal communication, Mr. Steve Holaday, President, HC&S., and Belt Collins Hawaii, September 27, 2007.

Personal communication. Mr. Tracy Takamine, Solid Waste Division Director, Maui County Department of Environmental Management, and Belt Collins Hawaii. October 10, 2007.

Personal communication. Director of Administrative Services David Tamenaha, Maui Community Colleges. May 2007)

Personal communication. David Ward, August 2007

SMS Research and Marketing Services. September 1997. *Economic Impact Assessment of Hawaii's Harbors.* Prepared for State Department of Transportation, Harbors Division.

State of Hawai‘i, Department of Business, Economic Development and Tourism. Undated. *2002 and 2003 Hawaii Cruise Industry Impact Study.*

State of Hawai‘i Department of Business, Economic Development, and Tourism website. www.hawaii.gov/dbedt/info/economic/databook/Data_Book_time_series/sec01update.xls. Accessed May 28, 2007

State of Hawai‘i Department of Health Clean Air Branch, *Annual Summary 2006 Hawaii Air Quality Data.*

State of Hawai‘i Department of Health Clean Air Branch website www.hawaii.gov/health/environmental/air/chart.pdf; Accessed November 8, 2007

State of Hawai‘i, Department of Land and Natural Resources, Board of Land and Natural Resources. September 22, 2006. *Minutes for the Meeting of the Board of land and Natural Resources.*

State of Hawai‘i, Department of Land and Natural Resources, Division of Aquatic Resources. July 2006. *Hawai‘i Fishing Regulations.*

State of Hawai‘i, Department of Land and Natural Resources, Division of Aquatic Recources.. September 2003. *State of Hawai‘i Aquatic Invasive Species (AIS) Management Plan.*

State of Hawai‘i, Department of Transportation. Unpublished. *Statewide Fuel Facilities Development Plan.*

State of Hawai‘i, Department of Transportation, Harbors Division. July 2007. *Draft Kahului Harbor Master Plan Traffic Study.*

State of Hawai‘i, Department of Transportation, Harbors Division. July 2006. *Final Environmental Assessment and Finding of No Significant Impact, Acquisition of Land and Improvements for the Expansion of Kahului Commercial Harbor.* Tax Map Key 3-7-10:001 and 3-4-10:036.

State of Hawai‘i, Department of Transportation, Harbors Division, Maui District. *2006. Unpublished berth-foot-hours study.*

State of Hawaii, Department of Transportation, Harbors Division. September 2000. *Final Kahului Commercial Harbor 2025 Master Plan.*

State of Hawai‘i, Department of Transportation, Harbors Division. November 2005. *Final Environmental Assessment and Finding of No Significant Impact 2025, Master Plan Improvements, Kahului Commercial Harbor.* Job H.C. 3334.

State of Hawai‘i Land Use Commission website. Conservation District definition. luc.state.hi.us/about.htm#CONSERVATION%20DISTRICT. Accessed May 4, 2007

State of Hawai‘i. April 2007. *Summary of Memorandum of Understanding Between Young Brothers, Department of Transportation and Department of Commerce and Consumer Affairs on Less Than Container Load Cargo.*

U.S. Army Corps of Engineers, Engineer Research and Development Center, Coastal and Hydraulics Laboratory. June 2002. *Wave Climate and Wave Response, 2025 Plan, Kahului Harbor, Maui, Hawaii.* ERDC/CHL TR-02-xx.

U.S. Army Corps of Engineers, Honolulu Engineer District. April 1995. *Maui Second Commercial Harbor Navigation Study, Island of Maui, Hawaii.*

U.S. Department of Transportation and U.S. Coast Guard. October 1995. *Navigation Rules International—Inland.*

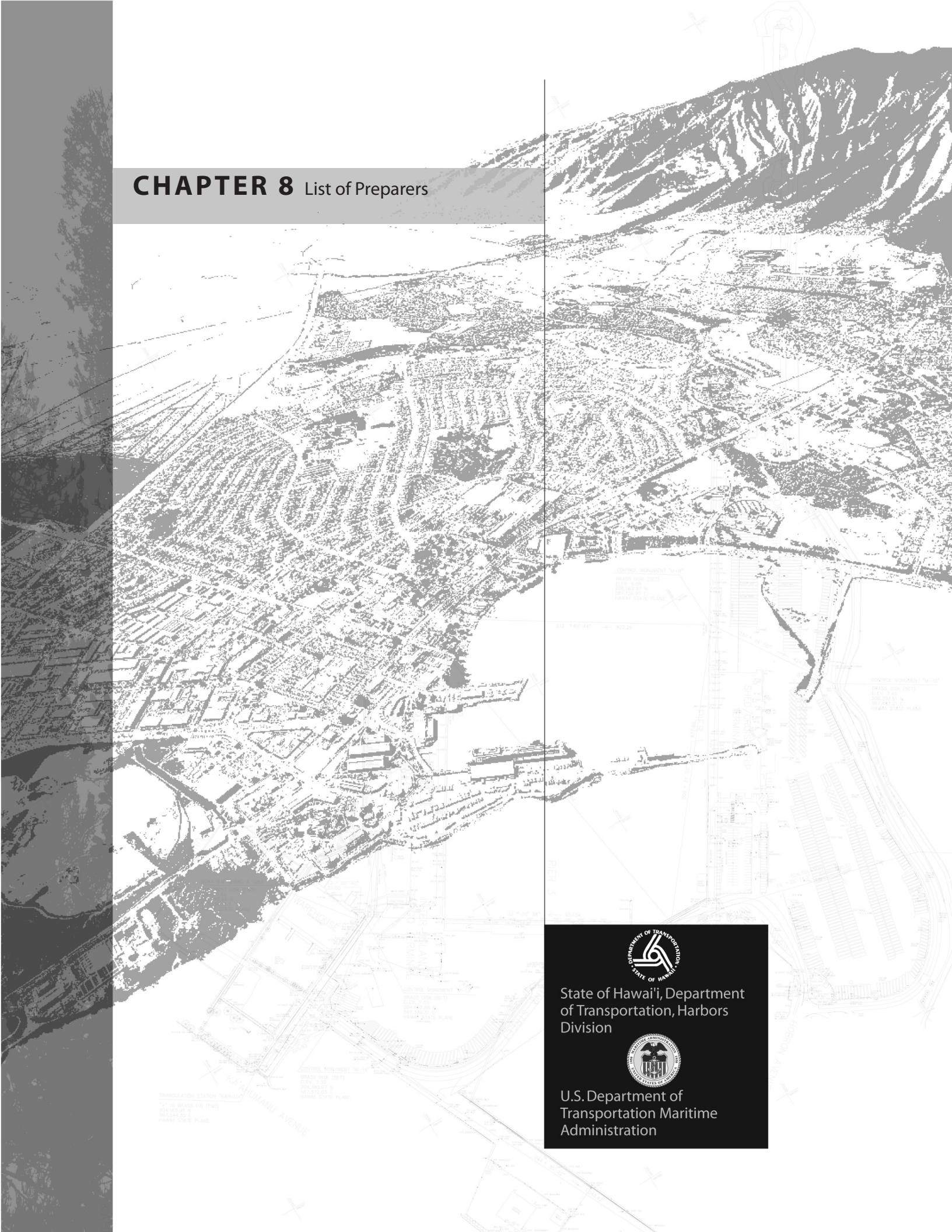
U.S. Environmental Protection Agency. May 2007. *Fact Sheet, Performance Verification of Ship Ballast Water Treatment Technologies and Exchange Screening Technologies.*

U.S. Environmental Protection Agency Air and Radiation NAAQS web page. www.epa.gov/air/criteria.html. Accessed November 8, 2007.

U.S. Geological Survey. October 2004. Quad map.

Ziemann, D.A. August 2003. *Kahului Commercial Harbor 2025 Master Plan Environmental Assessment Water Quality, Marine Biological, and Natural Resources Impact Assessment*.

CHAPTER 8 List of Preparers



State of Hawai'i, Department of Transportation, Harbors Division

U.S. Department of Transportation Maritime Administration

CHAPTER 8
LIST OF PREPARERS

PREPARERS

This Draft Master Plan and Environmental Impact Statement was prepared for the U.S. Department of Transportation (USDOT) Maritime Administration (MARAD) and the State of Hawai‘i, Department of Transportation (DOT), Harbors Division (DOT Harbors). The prime consultant was Belt Collins Hawaii. The following list identifies the individuals and organizations involved in the preparation of this report.

PRIME CONSULTANT: BELT COLLINS HAWAII

Anne Mapes, Chairman
Sue Sakai, Director of Planning
John Kirkpatrick, Senior Socio-Economic Analyst
Maura Mastriani, Environmental Scientist
Michael Lim, Planner
Diane Yamamoto, Graphic Designer
Alexa Jacroux Biggs, GIS Program Manager
Daughn O’Neill, Editor
Lynne Fujikawa, Editor

OTHER CONSULTANTS

John Clark, Ocean Recreation Specialist
Steve Dollar, Marine Research Consultants, Inc.
Jim Hunt, TEC Inc.
Dick Kaku, Kaku Associates/Fehr & Peers
George Krasnick, TEC Inc.
Jim Reed, TEC Inc.

With input from MARAD and DOT Harbors.