

distributions, should shift between users in the future. As such, the open central harbor area can be reconfigured to meet the changing needs of users; it would only be a matter of restriping the pavements and adding barricades.

- An approximately 2 acre area is set aside for UH research facilities, with access from Kūmau Street. The Pier 5 cruise pier could be designed for berthing of small UH research vessels along the west side of the pier, if required.
- The Hilo Master Plan requires the integration of the Ocean View Beach Lots into Hilo Harbor property. Overall, the current harbor property is expanded with an additional 5.5 acres of property to the west.
- Current cement and off-site petrochemical storage are adequate to meet future throughput projections.

### **4.3 KAWAIHAE HARBOR**

#### **4.3.1 Kawaihae Harbor Master Plan 2035 features**

The Kawaihae Master Plan is shown in Figure 4.2. Salient features of the plan include:

##### **Berths**

To meet forecasted demand, Kawaihae Harbor will require additional berth capacity. Pier 2A will be extended by 340 feet, and a new Pier 2C will be built that will provide an additional 325 feet of berth capacity. The construction of Pier 2C will require the removal of DLNR Division of Boating and Ocean Recreation's (DOBOR) boat mooring facility. Both extensions will increase the berth capacity to four 400-foot long barges. See key 10 on Figure 4.2.

In the long-range picture, the Kawaihae Master Plan recommends the construction of a new berth at the Coral Flats. Two additional 400-foot long barge berths are created from the construction of an 865-foot long pier at the Coral Flats. The maximum length of wharf that could be accommodated at the Coral Flats without impacting the US Army LST/LSV ramp would be 1,025 feet. The new wharves increase the overall berth length at the harbor by 1,530 feet and can accommodate smaller vessels such as tow boats, etc. See key 21 on Figure 4.2.

##### **Cargo Terminals**

The customer services office and LCL break bulk area adjacent to the Main Gate remain. The container storage area inland of Pier 2 is reorganized to provide for roughly 60 percent of the recommended storage. The yard consists of one row of grounded exports adjacent to the pier and uniform rows of chassis behind.

At Coral Flats, roughly 40 percent of the harbor container storage is provided in a similar fashion of uniform blocks behind the berths. The storage includes grounded blocks for exports, 40-foot long chassis rows, 20-foot long chassis rows, and reefers. Twenty-two acres of

additional paved ground space is made available for container operations. See key 11 on Figure 4.2.

The entire 2.7 acres of recommended auto storage is provided south of Pier 2, where it is easily accessible from both Pier 2 and the new berths at Coral Flats.

### **Dry-Bulk Cargo**

Hawaiian Cement has a hatch at Pier 1 and a storage facility landside of Pier 1, and remains in its current configuration. Pier 1 continues to be used for overflow cargo storage operations and other miscellaneous maritime-related uses deemed appropriate. Because of surge issues at Pier 1, especially during the winter months, berthing may be restricted unless surge mitigation projects can be completed.

In the long-term, the remaining Coral Flats upland area can be used for future dry- and neo-bulk cargo handling and storage operations.

### **Liquid-Bulk Cargo**

Mid-Pacific Petroleum (Mid-Pac) and Big Island Energy have existing fuel storage facilities on Harbors Division's property, and both remain in their current configurations. Mid-Pac has fuel transmission pipelines to Pier 2A.

The Kawaihae Master Plan recommends that additional storage be located off from Harbors' property. Harbors Division will need to review this on a case-by-case basis. One alternative is to use Mid-Pac's existing site where there is room to construct additional storage. Another alternative is property immediately located across Kawaihae Road on the Department of Hawaiian Homelands (DHHL) industrial lands. DHHL has expressed a willingness to accommodate fuel storage development on their property.

### **Passenger Terminal**

Cruise operations were considered during planning, but because of the priority for cargo space and the small harbor basin for navigation, it was not considered likely or feasible. In contrast, ferry operations could become a possibility, so an area west of the Coral Flats berths has been identified as a possible location for this activity. See key 21 on Figure 4.3. Pier 1 is also an alternative location for ferry operations, but because of the wave conditions especially during the winter, may have to be restricted from use during certain times of the year should such an operation be located there.

### **Other Facilities**

If there are no suitable locations outside of Kawaihae Harbor, a one acre space for biosecurity, agricultural inspection, quarantine, and treatment operations for DOA has been identified adjacent to the South Gate customer services office area. See key 20 on Figure 4.2. There is substantial area in the Coral Flats upland area that remains available for development. Future use could include dry- and neo-bulk cargo handling and storage operations. In addition, there is

demand for industrial lots that can be used for truck staging and holding activities. The National Park Service has expressed its preference for keeping the Pelekane buffer zone undeveloped.

### **Harbor Entrance and Roadways**

Traffic in and out of Kawaihae Harbor currently is through the Main Gate which separates truck in and out movements. Sufficient area is needed to accommodate internal circulation and queues at the security gate. See key item 1 on Figure 4.2. When the office is relocated and later with more use is used at an extended Pier 2C and Coral Flats, the South Gate entrance will take on greater importance, including provision of security and truck gates that will serve the Coral Flats and auto storage areas. At full build out, there would be five truck incoming lanes and five truck outgoing lanes servicing Kawaihae Harbor.

The roads used to access Kawaihae Harbor are in need of improvements, including Kawaihae Road, the climbing/deceleration hill that leads to and from Queen Ka'ahumanu Highway, and the intersection of Kawaihae Road and Queen Ka'ahumanu Highway. The HDOT Highways Division has planning studies underway for these. Close coordination between Highways Division and Harbors Division is recommended.

In the long-term, HDOT Highways Division has plans for a new Kawaihae Bypass Road that would provide additional roadway capacity to and from the harbor and a Draft Environmental Impact Statement is in preparation. The concept is to create direct spur(s) into Kawaihae Harbor at each of the gates, or at least at South Gate.

### **Navigational Improvements**

Dredging to minus 35 feet will be necessary in front of the Pier 3 area to accommodate barges. In addition, Piers 1 and 2A experience surge conditions, especially during winter months as the wave energy enters the harbor and impacts operations. Continued coordination with the US Army Corps of Engineers is necessary to work out a possible solution to attenuate wave conditions through breakwater structures or other improvements.

### **Pelekane Buffer Zone**

The area between NPS Pu'ukoholā Heiau and the Coral Flats has been under lease to the NPS as a buffer area. Known as the Pelekane buffer zone, it provides one way of minimizing harbor impacts by providing distance between these two entities. In addition, the buffer zone is believed to contain a number of historic sites. Although there are no known archeological studies of the area, it has been said that it contains an early residential area for John Young, an Ali'i who was King Kamehameha's representative in this area and who is buried nearby. The buffer remains serving the purpose of providing an area of no development between the two entities.

In summary, the Kawaihae Master Plan provides for all the elements needed to meet the 2035 forecast. Container storage is rationalized with flexibility in mind. Greater use is made of the

Coral Flats and the South Gate area. The plan can also accommodate future ferry operations if required and remaining areas near Coral Flats allow the harbor to accommodate other business as yet undefined.

The primary disadvantage of the plan is the reliance on Pier 2A and a 340 foot extension to the north of Pier 2A, which is an area susceptible to downtime resulting from wave surges from the harbor entrance. This cannot be avoided as the area is needed since this plan maximizes available berth lengths that can be accommodated in the harbor. Measures to mitigate surge conditions in the harbor will need to be conducted if vessels are expected to use Piers 1 and 2A.



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#### 4.3.2 How the Use of Coral Flats for Cargo Relates to Other Adjacent Uses

The United States (US) Army Landing Ship, Tank (LST) and Landing Ship, Vehicle (LSV) ramp and associated fenced backlands area at the Coral Flats remain in its current configuration for use by the US Army. The Army has its own easement to access their area, but the current right of way cuts through the area identified for future cargo operations. Therefore, it is recommended that Harbors negotiate with the Army to develop a different route where the two functions can co-exist without interfering with one another.

A new access alignment around the south end of the proposed Coral Flats container yard could be developed with further coordination with the US Army. Of greater concern would be the compatibility of any proposed passenger terminal and berth, and hence public use, in the area immediately adjacent the current US Army area. Careful consultation will be necessary with the US Army before a new passenger facility could be proposed or constructed in this area.

The final development of the Kawaihae Small Boat Harbor (South) will be independent from the proposed Coral Flats cargo terminal. A new perimeter roadway will provide exclusive access for recreational users and the public to the Kawaihae Small Boat Harbor (South), although the 2035 Master Plan envisions that the South Gate harbor entrance to the proposed perimeter roadway will be shared with commercial traffic for a short distance.

Consideration has been given to the nearby Pu'ukoholā Heiau. This majestic, sacred, and massive lava rock temple was built by hand in 1790 (or 1791). It has been carefully restored and preserved in recent years and is situated prominently above the harbor. There are many other historic places at the site, including other heiau features and the homestead of John Young, a close advisor to King Kamehameha I. The proposed harbor uses at the Coral Flats have been situated to avoid visual, noise, or other impacts to the sacred lands at Pu'ukoholā Heiau, and the National Park Service has been regularly consulted during the preparation of the 2035 Master Plan.

**Figure 4.3: View from Pu'ukoholā Heiau towards Kawaihae Harbor**





### 4.3.3 Cost Estimates and Phasing for Kawaihae Master Plan

The overall cost for Kawaihae Master Plan is estimated at \$280.6 million (in 2010 Dollars). The Kawaihae Master Plan is based on forecasts outlined in the *Future Berth and Yard Requirement Report* (2009). Kawaihae Harbor will require substantial increases in berth length and yard area to meet the forecast volumes. It is projected that approximately 1,500 feet of new berth and more than 18 acres of additional cargo storage area is needed.

Additional navigational studies will be required to confirm the final length and orientation of the new wharf at Coral Flats, and its proximity to an extended Pier 2B. Based on the limited bathymetry available, the water depth is about 14 feet compared to 35 to 40 feet water depths along Pier 2. New dredging will be required to accommodate barges and vessels at the new Coral Flats pier.

Improvements recommended in the Kawaihae Master Plan are proposed to be accomplished in four phases. Phase 1 includes the Pier 2C Extension of 325 feet and the reconfiguration of the adjacent container yard. This would result in a sixty percent increase in capacity and will accommodate for an estimated 15 years of growth. Phase 2 adds another 340 feet of berth and streamlines the associated yard. Phase 3 demolishes the existing Pier 2A and constructs a new pile supported concrete pier. Inland container storage would be reorganized. Phase 4, at full build out, adds a new Pier 3 Cargo Terminal at Coral Flats, bringing the necessary capacity to meet 2035 forecasts. All costs shown below include 35 percent contingency.

#### **Phase 1 (Estimated Cost \$61.4 million):**

- Demolition of the existing DLNR DOBOR's boat launch ramp at the south end of Pier 2B and construction of a 325-foot pier extension at the south end of the existing pier.
- Dredging south of Pier 2B for adequate water depth for barges.
- Reorganization of the Pier 2B yard to provide one row of grounded exports adjacent to the pier and uniform rows of wheeled chassis slots behind the grounded containers.
- Expansion of the import/export auto storage yard to 2.7 acre.
- Creation of one-acre space for inspection, quarantine, and treatment area for DOA located next to the South Gate customer services area providing easy access to Pier 2 and the future Coral Flats berths. This area is centrally located and close enough to the main cargo operations without interfering with the flow of cargo operations. The precise configuration can be changed within the area designated depending on the specific needs of the DOA.
- Reconfiguration of the Main Gate to provide for separated truck in-gates and out-gates to handle the increase in truck traffic and separate inbound and outbound functions. In total, there are 3 truck in-lanes and 3 truck out-lanes.
- Opening of a second access/egress point at the South Gate with security and truck gates



that will serve the import/export auto storage area and future Coral Flats development. A new customer service area for a second operator has been provided next to the South Gate. Without highway improvements, the entrance will be through the Middle Gate (See key 7 on Figure 4.2). The new gate may have a security booth west of the turnoff to a new perimeter roadway to the Kawaihae Small Boat Harbor (South).

- Development of lease lots to allow for staging of containers and shipping services in preparation for Phases 3 and 4 and generation of additional income for the sale of future lands. Dredge material can be used to build up this site.

**Phase 2 (Estimated Cost \$31.4 million):**

- Addition of a 340-foot extension to the north end of Pier 2A. This provides berthing for four 400-foot barges. Note: The north Pier 2A extension will be susceptible to downtime due to storm surge issues in the harbor which will be very difficult to mitigate. Berthing preference would be given to the three or more southern berths along Pier 2 and the north end would only be used during calm seas and when the others are occupied.

**Phase 3 (Estimated Cost \$53.4 million):**

- Demolition of the existing Pier 2A and construction of new pile-supported concrete pier.
- Reorganization of the container storage area inland of Pier 2A to provide one row of grounded exports adjacent to the pier and uniform rows of wheeled chassis slots behind.
- Although at present there are no pending plans for ferry service to Kawaihae Harbor, the area west of the future Coral Flats berths has been identified as a location that could serve future ferry operations, including the staging of vehicles. Winter surge issues at Pier 1 will likely preclude its use for ferries as there are limited opportunities to mitigate harbor surge at the berth.

**Phase 4 Full Build Out (Estimated Cost \$134.4 million):**

- Construction of an 865-foot wharf at the Coral Flats for two new 400-foot barge berths. Note: An additional 160 feet could be added to the wharf if required, but at 1,025 feet, this would be the maximum length of wharf that can be accommodated at the Coral Flats without impacting the US Army LST/LSV ramp.
- Dredging at new Coral Flats berth for adequate water depth for barges.
- Construction of a new container yard at the Coral Flats to accommodate storage of grounded blocks for exports, 40-foot chassis rows, 20-foot chassis rows, and reefers.
- Modification of the South Gate yard access road to widen the roadway before reaching the container yard in order to provide two in-lanes to the terminal plus two out-lanes

complete with clerk booths for processing incoming and outgoing trucks.

- Pier 1 remains as is and will primarily be used by cement barges that currently calls once every two and one-half weeks. Cargo barges may use the berth at Pier 1 when ocean condition permits and Pier 2 is fully occupied since there is access to the main yard area pending an upgrade of the bridge that spans the harbor canal. Note: The emphasis should be to limit utilization of this berth due to harbor surge issues, particularly during the winter months, its distance from the main harbor working area, and the restricted apron width due to adjacent buildings.
- Bulk commodities operators Hawaiian Cement, Mid Pac, and Big Island Energy all remain in their current configurations. Their current storage capacities are projected to be more than adequate to meet future needs and their location does not conflict with other cargo operations.
- The US Army LST/LSV ramp remains in its present configuration.

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