



STATE DEPARTMENT OF TRANSPORTATION  
HARBORS DIVISION  
79 South Nimitz Highway • Honolulu, HI 96813



## KALAELOA HARBOR FUEL PIER DEVELOPMENT PLAN

### Notes from Planning Workshop #2

April 3, 2014

The meeting was opened by Carter Luke, DOT Harbors Division (DOT-H), Engineering Program Manager. Jeff Overton of Group 70 presented the PowerPoint presentation on proposed Fuel Pier improvements. The presentation is posted on the following website: <http://kalaeloaharbor2040.com>. Meeting participants were given the opportunity after the presentation to provide input and ask questions. Below is a summary of the various topics and discussions. DOT-H and Group 70 responses where included are *italicized*.

#### Fuel Forecast

- Do the vessel forecasts (slide 12 in presentation) include Liquefied Natural Gas (LNG) ships? Offshore moorings access for refined fuels import will also change these numbers.

*No, this vessel forecast does not include the number of ships that will come in to unload at an LNG terminal. These calculations will be reviewed and updated.*

#### Alternative Pier Designs

*It is a balancing act for DOT-H to try to design the project with funding constraints. By understanding what options are best for operations and other considerations, DOT-H can have a better idea of what to look out for when reviewing the design.*

##### Alternative A: Segmented Pier Design

- This configuration has been done in Alaska and elsewhere, and is not uncommon.
- It seems that the choice for having a segmented pier is driven by its low cost. Prevailing tradewinds will be pushing the ship into the pier. Has the mass of fuel ships and side loads been considered in this design? With a segmented pier, the lateral forces are not distributed evenly. A 750-foot length overall (LOA) ship coming up to a segmented pier may displace the whole pier. Wouldn't there need to be as many piles in this configuration as a continuous pier?
- Hoses laid all over the pier may be a problem, as space will be at a premium. Stevedores need to know that the pier design will work functionally and operationally.

*This is a 20% design, but these details will need to be fleshed out.*

- Sustaining the weight of the ship is one thing, but allowing the ship flexible berthing also helps. If you build the whole pier at once and place all the manifolds at once, it would be more accommodating.

*The need for phasing of the fuel pier is being analyzed.*

- Allowing the ship to take on provisions at one place instead of going to another pier would be beneficial to shippers. What about accommodating larger vehicles on the segmented pier, in the case of offloading an 18-wheeler and using forklifts?

*The design incorporates the turning radius of trucks and other factors of forklift operation, but other larger vehicles have not been considered. Designing the pier to accommodate a large vehicle like an 18-wheeler would compromise some of the inherent features of a fuel pier, making the pier operationally unusable for its design characteristics.*

#### Alternative C: Continuous Sheet Pile Bulkhead

- The surge in the winter months is excessive. If a bulkhead system is installed, it could increase surge within the harbor. This should be reviewed. Piles are preferred, allowing for surge to be attenuated under the pier and on the revetment.
- It would depend on whether the pier was built strictly for a fuel pier or not. Eventually there may be overflow of dry goods (i.e., if other piers are being fixed, etc). If so, then a backfilled pier (i.e., continuous sheetpile pier) would offer the most flexibility.

*To design the fuel pier as a multi-purpose pier to accommodate dry bulk / break-bulk cargo vessels is not practicable as the jetty does not have sufficient yard area to support this type of activity. The use of the fuel pier with the presence of an LNG (or LPG) terminal further compounds its infeasibility. We feel the expansion of the linear feet of Pier 7 (extending an additional 325 feet) coupled with the increased access of Piers 5 and 6 for dry bulk / break-bulk cargo vessels provides sufficient cargo handling areas that will be available to meet future demand.*

### **Infrastructure**

#### Pier Construction

- The Fuel Pier will have approximately the same elevation as the other piers in KBPH.
- Do we know the composition of the harbor floor? If it is solid coral, the piles will be able to support better than if there is soft material. Otherwise, the piles would not be able to hold up a ship.

*Yes, the bed of the harbor is solid coral.*

#### Pipelines

- Above-ground racks to secure the pipelines to are preferred to underground galleries. Because a gallery is an enclosed space, it would require a chemist each time it is accessed to determine the safety. Europe has raised steel platforms supporting pipelines on either side.
- It would be advantageous for potential Fuel Pier users to talk with DOT and determine their needs.

*Group 70 has met with most groups and will need to meet with them again for additional details.*

- Will pipelines tie into the refineries?

*Yes, pipelines will be needed for exports and trans-shipments of fuels to Neighbor Islands.*

#### Loading Arms vs. Hoses

- Loading arms restrict pier operations because of their fixed nature, unlike hoses. Just like a segmented pier, the fixed loading arms restrict the ship docking flexibility.

#### Fire Suppression

- Anything on land that is intended to shoot water onto a ship will need to account for the 25-30 knot prevailing tradewinds in KBPH.

#### Spill Response

- Spill response will need to have storage on land like they do now.

*Storage will be included in Fuel Pier concept plan.*

### Impact

- There are 58 corals across the US proposed for candidate species, and 30 in Hawaii. This may make construction of the pier difficult.

*Initial studies have indicated a limited number of corals with one candidate species in the vicinity.*

### Pipeline Ownership / Financing

- The Port Authority of Guam has shared ownership of lines with fuel companies. This has become a bit of a contractual nightmare when looking at upgrading 60 year old lines.

*DOT-H will not retain ownership of any fuel lines.*

- Will the pipelines be a part of the proposed action of the Environmental Impact Statement (EIS)?

*Yes, the pipelines will be part of the proposed action in the EIS. DOT-H will not provide pipelines, but will look at putting in what is needed to support the pier users. The number of pipelines that will be needed has not been determined at this time – this will occur in the future when more detailed plans are made. Proposed actions of pipeline users will not be incorporated into the EIS.*

### Master Plan Related Comments

#### Piers 9 & 10

- Pier 10 with a dry dock is possible, but downwind of LNG is not preferred. If ship repair was located upwind of LNG, there would be much less of a problem for hot work, sources of ignition and sandblasting activities. Even with lunch trucks there will be open flame.

*Yes, but the operating range is a 100-foot radius zone for all hot work activities and possible sources of ignition. The 700-foot safety zone is just for planning and control purposes to shut down operations and/or evacuate if there is a spill or leak. Also depending on the authority having jurisdiction, it is possible that no non-facility structures could be constructed within this zone, i.e., no churches or schools. The 700-foot radius control zone is contingent on the size of the pipe and the flow rate, i.e., smaller pipe, smaller zone, but longer unloading time.*

- By berthing an LNG ship at Pier 9 instead of Pier 10, there would be an impact every ten days for about two days or about six days per month in an extended control zone with a 700-foot radius. This zone would be larger than the 500-foot radius of the control zone created by filling the ISO containers. That smaller zone, however, would be in effect continually as the ISO filling would be continual, and would restrict some neighboring activity on a daily basis.
- Would the LNG facility conduct LNG bunkering activities from the pier as well?

*HawaiiGAS would not offer bunkering from the fuel pier, as current practice is for a fuel barge to bunker the ships while they are parked at a pier. An ISO container bunker barge will fuel the ships with LNG and the ISO containers could be filled at the pier or moved to another pier and be transferred onto the bunker barge.*

- An LNG barge will supply KBPH with LNG six days per month from the Floating Storage Regasification Unit (FSRU). Where will it go the other 24 days per month?

*HawaiiGAS – Shipping logistics are still in the preliminary stage and we are reviewing multiple options depending on the timing, volume, number of ships, and infrastructure size. However, one option is to have one of the feeder ships bringing LNG from the Mainland to come straight into KBPH and unload its cargo directly into the LNG storage tank, instead of at the FSRU. This would keep that vessel dedicated to delivering gas straight into land-based storage.*

- Will LNG occur within the next seven to nine years? If/when Marisco is moved, will the pier be developed for them to continue operations?

*Introduction of LNG in large quantities is moving at a rapid pace. The 2040 Master Plan will determine the timing of the projects based on need and financial availability.*

- If extending Pier 7, might as well construct Piers 8 and 9 all at the same time.
- The Pier 9 area is in need of electricity.

#### Dredging

- DOT-H is working with USACE regarding future dredging. The new Fuel Pier will accommodate a 45-foot draft instead of the current 38 feet. Ships are currently not fully loaded, and there will probably be an interim phase of light loads at the Fuel Pier until the harbor is dredged.
- The dry dock will need to have further dredging to accommodate its size.

#### Lighting

- When will there be lighting in the harbor for 24-hour navigation?

*This has not yet been determined. Lighting for the 24-hour navigation ability is under the jurisdiction of DOT-H and navigational aids under the jurisdiction of USCG.*

***Those Present:***

Aloha Petroleum – D. Belknap, J. Finch  
Amergent Techs – W. Anonsen  
Dalian Inteh Group Co. Ltd. – V. Yu  
DBEDT - M. Glick  
DOT Harbors – S. Dale, C. Luke, B. Toba, A. Murakami, D. Vo, D. Watase  
DOT Statewide Transportation Office - M. McLaurin, A. Setogawa  
Facts Global Energy - S. Wee  
Foss Maritime Co. - M. MacDonald  
Group 70 – B. Natale, J. Overton  
Hawaii Gas –R. DeGarmo, B. Treat  
Hawaii Independent Energy – D. Richards, R. Rivas, L. Tanaka  
Hawaii Pilots Association – E. Enos  
Healy Tibbitts Builders, Inc. – D. Masumoto  
HECO – J. Arakaki  
Kirby / GM - M. Lewis  
Marisco - F. Anawati, M. Stewart  
Mid Pac Petroleum - R. Whang  
PENCO/AMC – D. Carter  
Tesoro Hawaii – L. Tanaka  
USCG – B. Marhoffer  
Wespac Midstream – B. Thompson  
Zilkha - T. Tolkinen