# SUMMARY KAHULUI AIRPORT MASTER PLAN UPDATE



## **1. PLAN OBJECTIVES**

The Kahului Airport Master Plan (OGG MP) Update is part of an ongoing planning process of the Department of Transportation, Airports Division (DOTA), to build upon previously prepared airport master plans and development plans based on identified needs. The role of the MP update is to guide future airport development which will satisfy forecast aviation demands in a financially sound manner and in harmony with community, environmental, and socioeconomic issues and concerns. This MP Update is based on a 20-year planning horizon (2015-2035). Subsequent development plans will provide greater detail for implementation. Because of changing needs and priorities, the MP should be updated every five (5) to 10 years.

## 2. ALTERNATIVES

Alternative land use plans were prepared to explore land use options, and include:

- Construction of a Parallel Taxiway to be used as a temporary runway during reconstruction of Runway 2-20
- Extension of Runway 2-20 to 8,530 feet
- Terminal improvements
- Land acquisition

## **3. PLAN EVALUATION**

The alternatives evaluation process was an iterative process rather than an empirical selection process. Many individuals and organizations provided input into the process and as a result, an important goal was to achieve consensus. It should be noted that the final selection of a particular plan component was not always unanimous. Ultimately, the selection of particular plan components was based on the criteria of "what was best for the Airport and island of Maui."

The evaluation led to the selection of the preferred or recommended MP. The plan evaluation methodology can be summarized in the following steps:

- Preliminary proposals were developed based on airport staff interviews, projects completed since 1993, airport stakeholder comments, passenger forecasts, and operation forecasts.
- 2. The preliminary proposals were presented to DOTA staff for comment and approval for presentation to the public.
- The Technical Advisory Committee and Citizen Advisory Committee reviewed and commented on proposals at public meetings.
- 4. Comments from public meetings were used to refine proposals through removing or adding projects.
- Refined proposals were reviewed again with DOTA staff to ensure compatibility with existing development, future and existing capacity, future and existing operational needs, all within the need to meet FAA regulations.

The process of plan review was a very fluid one. Often there was no clear delineation of stages of progress leading up to the recommended MP. This is because the planning process balances future scenarios with ever changing existing conditions. For example, neighboring land owners such as Alexander & Baldwin (A&B) Properties have evolving plans for an industrial park south of the airport property. Their proposals necessitated the need to react and reanalyze the MP proposals to ensure compatible land use while maintaining airport operational needs. Much effort was directed towards maintaining communication and distribution of information between DOTA staff, consulting staff, and public stakeholders as alternative proposals evolved.

## 4. OGG MASTER PLAN

The proposed Airport MP and Terminal Area Plan forecasts an anticipated increase in passengers and operations, and identifies the locations of existing, relocated, and new airfield and terminal facilities recommended through the year 2035 in **Figure 1**. The plan was prepared in the context of the design aircraft, the B-737-800, which accounts for 64% of the total overseas operations. Furthermore, the plan identifies on-going improvements on airport property and outside of the airport, such as a new airport access road with its direct linkage to Hāna Highway. The highway improvements will facilitate vehicular access to and from the airport.

Interisland passenger counts are projected to increase to over 3 million (mil.) while overseas passengers are expected to increase to 3.5 mil. by 2035. Interisland operations are projected to increase to 25,000 annually while overseas operations are expected to increase to 11,000 annually. The new consolidated rent-a-car (CONRAC) facility located adjacent to the terminal building will further enhance visitor services at the airport. The new facility will provide customer servicing, car return and pickup, and vehicle servicing for car rental companies. Additional terminal improvements currently scheduled include modernization improvements to infrastructure and passenger screening services. All improvements described

below will add to the facilities and services available at the airport to airlines and passengers.

### <u>Airfield Plan</u>

Airfield facilities include the lengthening of Runway 2-20 to 8,530 feet (ft.), providing for a future (beyond the planning period) parallel runway east of runway 2-20, additional taxiways, holding apron areas, shoulders, blast pads, navigational aids, and associated runway safety areas and protection zones. The proposed improvements are projected to meet the forecasted operations demand increase of 13 percent in the planning period. The proposed airfield improvements will provide the air carriers with another level of operational flexibility, capacity and safety. The recommended airfield facilities are described below. They include the proposed Runway 2-20 extension and taxiway improvements to meet short-term runway reconstruction needs and long-term operational needs. These facilities will accommodate forecast activity through the 20-year MP period.

### Runway 2-20 Extension

The existing Runway 2-20 is 6,995 ft. long and is planned for an extension of length to 8,530 ft., retaining the present width of 150 ft. See **Figure 1**. The length of the runway extension was defined by the selected design aircraft (B-737-800), the location of the Hāna Highway, and the area needed for the Runway Protection Zone (RPZ), where the runway is within the sponsor's control. Runway 2-20 would be extended by 1,535 ft., south of the end of the present Runway 2, to provide the 8,530-ft. length.

The objective of lengthening the runway was motivated by market demands to serve West Coast and some Midwest (e.g., Chicago, Dallas, and Denver) markets on the continental U.S. where the design aircraft departing OGG would be able to take off at maximum takeoff weight (MTOW), thereby incurring minimal to no weight penalties. Aircraft performance data show that the maximum runway length should be 8,400 ft. to allow a B-737-800 to takeoff at MTOW. Furthermore for comparison, the maximum runway length for a B-777-200 would require a runway length of 8,500 ft. Therefore, extending Runway 2-20 to 8,530 ft. would allow the design aircraft and larger aircraft such as the B-777-200 to takeoff at MTOW with no weight penalties.

Furthermore, aircraft taking off at MTOW on the shortened runway must takeoff with a reduced amount of fuel, thus requiring the aircraft to land in Honolulu to refuel before proceeding to a mainland destination. Extending the runway would allow aircraft to takeoff at MTOW with the required amount of fuel needed to get to the destination without making any additional stops.

The runway extension could potentially increase revenues by approximately 4% per aircraft by allowing the airline companies to increase the load factor in arriving and departing aircraft. This will lead to greater airline operational efficiency.

The preferred alternative proposes an extension to Runway 2-20 to the south towards Hana Highway, for a total length of 8,530 ft. All the alternatives require the RPZ to extend over Hana Highway and into the neighboring properties. The preferred 1,535 ft. extension alternative minimizes the RPZ extension across the Hana Highway and reduces the area needed for land acquisition. The alternatives with runway extension lengths greater than 1,535 ft. would extend the RPZ over Hana Highway and into the neighboring properties. The greater than 1,535 ft. extension would require additional land acquisition and the relocation of Hana Highway to the south around the RPZ or through a tunnel under the RPZ. Both greater than 1,535 ft. extension alternatives were considered costly and not feasible and are eliminated from further consideration.

Similarly, extension of the runway to the north was deemed not feasible because it would require extensive land acquisition and the relocation of an existing resident and a senior center.

Extending the runway will further require the permanent closure of Haleakalā Highway

between Hāna Highway and Keolani Place, improvement to the existing drainage system, relocation of navigational aids, and utility upgrades. Additional taxiways are also recommended for this runway to expedite aircraft ground movement and reduce aircraft delay times, particularly during periods of peak activity.

#### Runway 2-20 Reconstruction

Runway 2-20 is currently in need of reconstruction due to failure of the pavement structure where slippage has been detected in the 18+-inch deep structure. Several alternatives to reconstruct Runway 2-20 were considered without the need to close the airport. Of the alternatives, the DOTA considered a plan that would utilize existing apron taxiway located east of Runway 2-20 to serve as a temporary runway while Runway 2-20 is reconstructed. Once the reconstruction work is completed, all operations would resume at Runway 2-20. Uses that were relocated as a result of the temporary runway will return to previous locations.

Without the Runway 2-20 reconstruction, the economic loss from a forced closure of the runway due to repair issues could total approximately \$8.4 mil. per day for a period of up to approximately 16 weeks (URS, 2014).

#### Future Runway 2R-20L Parallel

The plan also recommends that a new 7,000-ft. long, 150-ft. wide parallel Runway 2R-20L be built 2,500 ft. to the east (centerline-tocenterline separation) of the existing Runway 2-20 in the future. See Figure 1. The 7,000-ft. length will allow for simultaneous operations (takeoffs and landings) and serve as an alternative to the primary runway should it be taken out of service. The parallel runway is proposed to have the same operational features as the primary runway as it will allow unrestricted operations to the West Coast of the States. The centerline-to-centerline United runway separation will allow for simultaneous Visual Flight Rule (VFR) operations by heavy aircraft (e.g., B-737, B-757, and B-767) as well as some staggered parallel instrument operations under certain conditions and with precision instrument landing systems (ILS) on both runways. The planned runway is constrained to 7,000 ft. by Hāna Highway to the south and residential development to the north. This runway is proposed beyond the planning period because land acquisition will be an essential first step. Further, additional airfield capacity as measured by the annual service volume (ASV) is not needed during the planning period.

#### Passenger Terminal

The 13 existing aircraft parking positions fronting the main passenger terminal are currently insufficient to support projected aircraft operations towards the end of the 2035 planning period. Overseas passenger arrivals and departures are similarly projected to increase from 2.9 mil. to 3.6 mil. The traveling public will also have available additional services from curb to departure gate and vice versa. There are 13 aircraft parking positions sized for operations by three interisland and 10 overseas aircraft. Space should be provided for two additional air carrier aircraft parking positions on the apron to the north for expansion beyond the 2035 planning period. Depending on airline scheduling practices (e.g., overlapping of interisland and overseas peak hours and, turnaround time for overseas flights), it is possible that a few additional aircraft parking positions could be required infrequently during extremely busy periods by the end of the planning period. In recognition of this, the plan preserves space to the south of the existing aircraft parking apron and recommends additional gates at this end to support the increase in flights. The proposed MP accommodates power-in/push back operations within each aircraft parking position.

### Terminal – North-End Expansion

The north end of the terminal currently houses 22 departure gates with nine (9) aircraft parking positions. With the relocation of the cargo, General Service Equipment (GSE), car rental customer service and customer pick-up area, this area will be available for additional terminal functions such as aircraft parking position and/or additional terminal holdrooms (holding areas). See **Figure 1**. An additional exit from the north end to the baggage claim is proposed. Terminal expansion to the north is constrained by the runways; therefore it is proposed that new gates be added to the south end of the terminal complex. The north end would be reserved for aircraft movement and parking and airline operations. Additional operations by Island Air and 'Ohana could be accommodated here rather than along the main aircraft ramp.

#### **Terminal – South-End Expansion**

There are six (6) holding areas on the second level of the terminal on the south end that service gates 1-16. There are four (4) aircraft parking positions available (one interisland and three overseas). The utility of the gates are limited by the size of the holdrooms, where each holdroom is nearly half of the area as compared to holdrooms for gates 17-39. The holdrooms are proposed to be tripled in size by building over the ground-level vehicular access way and connecting with the terminal building footprint on the other side. Currently, Building 345 which contains three (3) holdrooms, Gates 2-7, two (2) ticketing areas, a U.S. Department of Agriculture (USDA) Inspection station, and two (2) restrooms, has a combined approximate footprint of 21,780 square foot (s.f.). Building 341 which contains three holdrooms, Gates 9-15, two (2) ticketing areas, an ice cream shop, two (2) restrooms, and two (2) airline offices has a combined footprint of 22,740 s.f. Also, the walkway that connects the two (2) buildings will be doubled; it currently has a footprint of approximately 5,830 s.f. The total expansion would be approximately two (2) acres. During the expansion of facilities to the south, the central terminal area is proposed to be expanded by covering the open areas to provide

for addition retail opportunities, i.e. a central mall concept.

Due to the concern that airlines are adding flights and will continue to do so warrants the recommendation to extend the terminal building to the south. The existing air cargo and alien species inspection facility (ASIF) will be relocated to the industrial lots on the south ramp. The terminal extension to the south would support more passenger holding areas and gates to serve additional aircraft. (See Figure 1). This maybe done at a later phase than other projects and could have а potential area of approximately eight (8) acres.

#### **Terminal – Relocation of Art Work**

The existing statue of Maui, the Sun God, is proposed to be relocated from its current position to the baggage claim area (where the current skylight is located). Cost to be determined.

#### Cost Estimate by Phase (Subject to Change)

The proposed projects identified in this MP Update have been divided into development phases based on need, timing and availability of development funds. The cost estimates are presented for guidance only and do not represent actual contractors bid prices. The prices have been further modified to assume design costs, contractors' markups, project management, and a project contingency to account for unanticipated costs. Local fees and taxes have not been included. Further, no price escalation from 2015 is assumed. Project costs summarized by development phases are:

Phase 1 (2015-2021)	\$ 403.4 mil.
Phase 2 (2022 – 2027)	\$ 143.7 mil.
Phase 3 (2030 +)	\$ 2,424.8 mil.
TOTAL	\$ 2,971.9 mil.

## **COMMENT FORM** Kahului Airport Master Plan Update

All comments should be mailed or emailed to:

Ms. Lynette Kawaoka Airport Division 400 Rodgers Boulevard, Suite 700 Honolulu, Hawai'i 96818

Name		
Address:		 
Talanhana	Emaile	 
	Email:	 

Please place me on your mailing list for future meeting dates and project updates. Check here  $\Box$ 



#### Runway 2-20 Extension (1535 lf.) (Grade, Pave, Navaids) 1

- (2) Taxiway A Extension
- (3) South Ramp Apron 27ac.
- 4 Taxiway Realignment (Twy B, F and G)
- (5) Transient Aircraft Parking (9 ac.)
- 6) Runway 2R-20L (Parallel Runway) 7000ft.
- (7)Parallel Taxiway for Parallel Runway 2R-20L
- Temporary Runway 2-20 (using Twy 'L') plus Navaids at 7000ft. 8
- 9
- Kalialinui Channel Improvements
- (10) Parallel Taxiway "M" plus Service Road
- (11)Navigational and Landing Aids - Replacement
- (12) FATO Relocation
- (13) Runway 2-20 Reconstruction
- (14) Crossover T/W Connecting Taxiway A to RWY 2T
- (15) Temp. Runway 2-20 Blast Pads
- (16) Temp. Runway 2-20 RSA Improvements
- (17) Drainage Improvements

#### TERMINAL

- (18) Helicopter Facility Expansion (Grade and Pave) South Ramp Aviation Lease Lots (Grade, Pave, Utilities) (19)
- (20) Keolani Lease Lots (Clear and Grade)
- (21) Terminal North - New Gates (Clear and Demo)
- (22) Terminal South - Holdrooms
- (23) Terminal 2nd Level Improvements
- (24) Haleakalā Highway (To Be Closed)
- (25) Realign Hana Highway (Grade and Pave)
- (26) Alahao Emergency Access Road
- (27) GA T-hangars - East Ramp
- (28) Land To Be Acquired
- (29) East Ramp Access Road
- (30) East Ramp Access Road Tunnel
- (31) RAC Overflow Parking (19 ac.)
- (32) Bridge to RAC subd.
- (33) Industrial Aviation Lots East Ramp 20 ac.
- (34) Employee Parking (5 ac.)
- (35) Demolish Existing GSE & Cargo
- (36) Cell Phone Parking Lot
- (37) East Ramp Temp. Relocation of Services



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