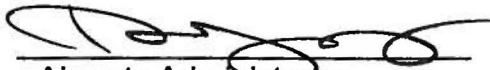


KAHULUI AIRPORT AIRLINE COMPETITION PLAN UPDATE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION AIRPORTS DIVISION

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Submitted by:



Airports Administrator
Department of Transportation
State of Hawaii

2-25-04
Date

**Kahului Airport
Airline Competition Plan Update**

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Executive Summary

Kahului Airport is located on the north central shore of Maui, northeast of the town of Kahului. The Airport encompasses approximately 1,500 acres of land and is owned and operated by the state of Hawaii as part of the statewide airports system. A medium hub airport, Kahului Airport currently has two airlines, Hawaiian Airlines and Aloha Airlines, that are carrying approximately 64% (combined) of the passenger traffic in 2002. Under the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century, a competition plan is required for this airport. The Kahului Airport Airline Competition Plan was submitted to the Federal Aviation Administration on July 1, 2002. After additional information was provided, FAA accepted the Competition Plan Update on August 29, 2002. However the acceptance letter also listed points to be addressed in the next plan update.

Before addressing these points, it is important to point out that:

- The current combined market share of Hawaiian and Aloha Airlines has decreased by 7.4%, from 71% in 2001 to 63.6% in 2002. This is a relative decrease in market share of over 10% from 2001 to 2002.
- These two airlines are increasingly participating in the highly competitive mainland market, as demonstrated by the dramatic 164% increase of in their combined average trip length.
- No requests for additional flights have been denied by Kahului Airport during the Update period.
- The airport has made substantial efforts to increase capacity, as demonstrated by the OGG Terminal Facilities Study, and the fact that Phase I of the Terminal Improvement Project is now under way.

These facts indicate that the competitive environment of Kahului Airport has substantially improved since the last Competition Plan Update. [Note: One of these two airlines, Hawaiian, declared bankruptcy in March, 2003. The long-term effects of the bankruptcy situation remain to be seen. However, the legal and financial implications of this issue have delayed renegotiations of lease items relevant to the Airline Competition Plan.]

The FAA Competition Plan Update acceptance letter listed the following points to be addressed in the next plan update:

Availability of gates and related facilities

"Is this increase [i.e. a 25 percent increase in overseas departures] due to expansion of service by existing carriers or are new entrants providing additional service to OGG?"

The increase in overseas departures, noted in the previous update, was primarily due to existing carriers. Recently, there have been a couple of new entrants such as Northwest and North American Airlines.

Leasing and subleasing arrangements

"[The FAA] recommend[s] that the Airports Division develop a formal process to resolve disputes regarding denial of reasonable access, sublease fees or terms, or ground-handling services"

A formal dispute resolution process is being drafted by DOT-A, for use at OGG. As part of this process, OGG will implement a standardized form to keep record of all request and resulting approvals and denials for space from any aviation tenant.

Gate assignment policy

"FAA would like to recommend the Airports Division develop a formal gate assignment policy for evaluation of signatory/nonsignatory gate requests at OGG. In your next update please provide a status report on your consideration of this recommendation."

Kahului Airport is now developing a policy based on the formal gate assignment policies at Honolulu International Airport.

"Also, the Airports Division committed to undertake consideration of changes in the signatory status requirements. Please provide a discussion concerning policy changes on this issue."

DOT-A is currently evaluating the possibility that the income tax return requirement for new entrants be dropped, as a means of meeting this requirement. Because of the complexity of the legal and financial implications of this issue, this change is still in progress.

Airport controls over airside and groundside capacity.

"[The FAA] encouraged the Airports Division to reconsider the language in the Lease extension agreement to remove the capital improvement provision."

DOT-A intends to negotiate this clause out of the next airport- airline lease agreement. However, because of practical considerations, such as the bankruptcy proceedings of major carriers such as Hawaiian and United, this lease-renegotiation process has been delayed. However, it should be noted that the presence of this clause has not resulted in any construction delays at Kahului, nor have any requests for additional flight been denied, during the Competition Plan Update period.

In addition to the questions above, this Update addresses the following FAA-required topics:

- **Patterns of air service** Overall Air service patterns remain similar to that outlined in the original Competition Plan.
- **Gate use requirements** Kahului Airport has not had major changes in requirements for signatory status; lease requirements; common-use gate priorities; gate use monitoring; or calculation of rental rates and common-use fees.
- **Financial constraints** Overall financial constraints remain similar to those previously outlined.
- **Airport intentions to build or acquire gates** The existing Airline Competition Plan notes that there is considerable capacity available outside of the peak periods. These observations are still valid. However, provisions are being made for aircraft parking hardstands that will alleviate the effect on the passenger level-of-service due to the inevitable late arrivals and departures, as well as other scheduling aberrations.

Summary

Interisland passenger air travel is often the only practical link between the Hawaiian Islands. Additional competition would benefit the traveling public, especially Hawaii residents. Airports Division welcomes any legitimate entry by new carriers. The current combined market share of the two major carriers (Hawaiian and Aloha) has decreased by over 10% from 2001 to 2002. No requests for additional flights by any airlines have been denied during this period. These facts, when combined with the efforts to increase capacity, indicate that the competitive environment of Kahului Airport has improved since the last Competition Plan Update.

Background

Kahului Airport is located on the north central shore of Maui, northeast of the town of Kahului. The Airport encompasses approximately 1,500 acres of land and is owned and operated by the state of Hawaii as part of the statewide airports system. A medium hub airport, Kahului Airport currently has two airlines, Hawaiian Airlines and Aloha Airlines, that are carrying approximately 64% (combined) of the passenger traffic. Under the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century, a competition plan is required for this airport.

The Kahului Airport Airline Competition Plan (Competition Plan) was submitted to the Federal Aviation Administration (FAA) on July 1, 2002. After additional information was provided, FAA accepted the Competition Plan on August 29, 2002. The acceptance letter listed points to be addressed in the next plan update, which are highlighted in *italics* in the following text.

Availability of Gates and Related Facilities

There are two distinct types of air carrier operations using the terminal gates - inter-island and overseas. Inter-island operations provide air service within the Hawaiian Islands. Inter-island flight distances from Kahului Airport are short, varying from 25 miles to 202 miles. Narrow-bodied aircraft, primarily Boeing 717's and Boeing 737's are used. Overseas operations provide air service to the continental United States and Canada. Flight distances are long, 2,400 miles and greater. Generally, wide-bodied aircraft, such as Boeing 767's or Boeing 777-200's, (as well as a few Lockheed L-1011's and McDonnell-Douglas DC-10's), and long ranged narrow-bodied aircraft, such as Boeing 737-700's and Boeing 757's are used. Aircraft used for these two types of air carrier operations affects gate assignments. While aircraft used for inter-island operations can be accommodated at all gates, those used for overseas operations aircraft can't. These gate restrictions will affect the aircraft mix that can be accommodated.

The FAA letter of August 29, 2002, (which confirmed the acceptance of OGG FY 2002 Competition Plan Update), asks:

"Is this increase [i.e. a 25 percent increase in overseas departures] due to expansion of service by existing carriers or are new entrants providing additional service to OGG?"

The increase in overseas departures, noted in the previous update, was primarily due to existing carriers. Recently, there have been new entrants such as Northwest and North American Airlines. For additional detail, please refer to the August 23, 2002, Design Day schedule, (see Appendix C), which was the basis for the OGG Terminal Facilities Study (OGG-TFS). The purpose of this study was to optimize the capacity of the existing terminal and to plan for expanded facilities. The initial stages of this expansion are currently in progress.

Since the 2002 Design Day, two airlines, United and American, have dropped daily flights, although this may only be seasonal. Three airlines, have added flights: Northwest (1 daily flight to Seattle), Aloha, (1 weekly flight to Vancouver) and North American (4 weekly flights to Boise, Spokane and Anchorage). All requests for additional flights have been accommodated. The increased flights have been scheduled such that the peak hour data used for the OGG-TFS remains unaffected.

Leasing and Subleasing Arrangements

Airports Division owns, in fee, the terminal facilities at Kahului Airport. The airlines are charged for using terminal facilities, either through a lease or revocable permit. Airfield costs are recovered through a landing fee. Residual costs to operate the statewide airports system is recovered through the Airports System Support Charge. A lease with an airline will contain conditions and rental rates for a set duration, usually one or more years. A revocable permit provides for use of the terminal facilities, but contains language that allows Airports Division to cancel the permit upon thirty days written notice. Other user-based fees are assessed for common use areas and recovered on a per revenue-landing basis.

Subleasing is allowed only on a lease and is prohibited under a revocable permit. Conditions in the lease require approval of any sublease. Also, it is Airports Division's policy to deny, take all or a portion of, or require a change to sublease rents that it considers excessive and/or speculative.

The FAA letter of August 29, 2002, (which confirmed the acceptance of OGG FY 2002 Competition Plan Update), stated:

"[The FAA] recommend[s] that the Airports Division develop a formal process to resolve disputes regarding denial of reasonable access, sublease fees or terms, or ground-handling services"

A formal dispute resolution process is being drafted by DOT-A, for use at OGG. As part of this process, OGG will implement a standardized form to keep record of all request and resulting approvals and denials for space from any aviation tenant.

In the event of a dispute arising between air carriers, or between air carriers and the Kahului Airport staff, these new formalized procedures will indicate specific procedures for filing written complaints, with the appropriate contact name and address. An airport official at the District level will be designated to have authority to mediate these disputes. A specified time-frame will be established for the resolution of these disputes. In addition, there will be a process to appeal initial determinations to either senior DOT-A management or the State Department of Transportation. These procedures will be established in accordance with accepted principles of alternative dispute resolution practices, in order to streamline the process and reduce the need for time-consuming and expensive litigation.

Patterns of Air Service

Overall Air service patterns remain similar to that outlined in the original Kahului Airport Airline Competition Plan, (December 2000). As previously noted elsewhere, the airline industry in Hawaii continues to recover from the effects of the events of September 11, 2001. Two major airlines serving Kahului, United and Hawaiian, remain in bankruptcy.

It is important to point out that the current combined market share of Hawaiian and Aloha Airlines has decreased by 7.4%, from 71% in 2001 to 63.6% in 2002. This is a relative decrease in market share of over 10% from 2001 to 2002. In addition, these two airlines are increasingly participating in the highly competitive mainland market, as demonstrated by the dramatic 164% increase of their combined average trip length. (Aloha: 308mi. vs. 112mi.; Hawaiian: 619mi. vs. 454mi.) (See Table 1)

Table 1: 2002 Carrier Market Share at Kahului Airport

Carrier	'Zero-Passengers' (i.e. Empty Seats)	Total Passengers	Revenue (Dollars)	RPMs	Avg. Nonstop Distance	Market Share
(Interline)	28680	89790	22614923	327671432	3523	2.1%
AA	101540	435320	106725577	1531767280	3410	10.3%
AQ	48950	1248270	83781627	385037189	308	29.6%
DL	32480	112030	25966879	423950216	3622	2.7%
HA	150170	1435000	130696864	908872821	619	34.0%
NW	8360	50010	15332212	185891809	3527	1.1%
TZ	2600	230500	39884067	583003741	2529	5.4%
UA	117790	602530	138162910	1609299895	2600	14.3%
Total	490810	4214050	567584871	5999148754	1387	[97.5%]*

*Note: Carriers with less than 1% market share are not shown.
These carriers account for approximately 2.5% of the market.
Source: FAA Data, 2002

Gate Assignment Policy

Because Airports Division owns, in fee, the terminal facilities at Kahului Airport, it retains total control of the terminal gates at all times. Gate usage is monitored by Airports Division to obtain the best utilization of available gates. (See Table 2 for Gate Assignments by Aircraft type)

The FAA letter of August 29, 2002, (which confirmed the acceptance of OGG FY 2002 Competition Plan Update), stated:

"FAA would like to recommend the Airports Division develop a formal gate assignment policy for evaluation of signatory/nonsignatory gate requests at OGG. In your next update please provide a status report on your consideration of this recommendation."

Kahului Airport is now developing a policy based on the formal gate assignment policies at Honolulu International Airport.

In addition, the OGG Terminal Facilities Study recommends the installation of Common Use Terminal Equipment (CUTE) at the gates. This will allow improved flexibility in assignments. The gates at Kahului Airport are not totally flexible for assignment, however, because there is a need to assign by aircraft type (narrow vs. wide body), and also by whether or not agricultural inspection is required (which is a facility layout issue). Thus 100% total flexibility cannot be achieved without segregating facilities for the two travel sectors, (interisland and mainland), and re-sizing aircraft parking positions accordingly. However, the installation of CUTE will improve flexibility within these limits.

"Also, the Airports Division committed to undertake consideration of changes in the signatory status requirements. Please provide a discussion concerning policy changes on this issue."

DOT-A is currently evaluating the possibility that the income tax return requirement for new entrants be dropped, as a means of meeting this requirement. Because of the complexity of the legal and financial implications of this issue, this change is still in progress.

Table 2: Gate Assignments by Aircraft Type at Kahului Airport

Gate 1	B717,	B737		Gate 23	B717,	B737	
Gate 1A	DC10,	L1011		Gate 23A	B757,	B767,	DC10,
					L1011		
Gate 5	B767,	DC10,	L1011				
Gate 5A	B717,	B737		Gate 27	B757,	B767,	DC10,
					L1011		
Gate 7	B717,	B737		Gate 27A	B717,	B737	
Gate 7A	B767,	DC10,	L1011	Gate 27-1	B777		
Gate 7B	B777						
				Gate 29	B747		
Gate 9	B717,	B737		Gate 29A	B717,	B737	
				Gate 29B	B757,	B767,	DC10,
Gate 11	B717,	B737			L1011		
Gate 13	B717,	B737		Gate 33A	B757,	B767,	DC10,
					L1011		
Gate 15	B717,	B737,	B757	Gate 33B	B717,	B737	
				Gate 33-1	B777		
Gate 17	B717,	B737					
Gate 17a	DC10,	L1011		Gate 35	B717,	B737	
				Gate 35A	B767,	DC10,	L1011
Gate 19	B717,	B737					
				Gate 37	B717,	B737	
Gate 21	B717,	B737					
Gate 21A	DC10,	L1011		Gate 39	B767,	DC10,	L1011
				Gate 39A	B717,	B737	
				Gate 39-1	B777		

Gate Use Requirements

Kahului Airport has not had major changes in requirements for signatory status; lease requirements; common-use gate priorities; gate use monitoring; or calculation of rental rates and common-use fees.

Financial Constraints

Overall financial constraints remain similar to that outlined in the original Kahului Airport Airline Competition Plan, (December 2000). As previously noted elsewhere, the airline industry in Hawaii continues to recover from the effects of the events of September 11, 2001. Two major airlines serving Kahului, United and Hawaiian, remain in bankruptcy.

Airport Controls Over Airside and Groundside Capacity.

The existing airport-airline lease extension agreement is based on a residual rate setting methodology. The lease extension also provides a concurrence methodology for capital improvement projects in excess of the concurred capital improvement program. New projects go through a concurrence process in which fifty percent of the signatory airlines representing at least fifty percent of the total landing fees and Airport System Support Charge can delay the project by withholding concurrence. However, the lease extension allows Airports Division to proceed with a non-concurred project in the State Fiscal Year following the year concurrence was withheld. In essence, the airport-airline lease extension allows the signatory airlines, by withholding concurrence, to delay a capital improvement project up to one year.

The FAA letter of August 29, 2002, (which confirmed the acceptance of OGG FY 2002 Competition Plan Update), stated:

"[The FAA] encouraged the Airports Division to reconsider the language in the Lease extension agreement to remove the capital improvement provision."

DOT-A intends to negotiate this clause out of the next airport-airline lease agreement. However, because of practical considerations, such as the bankruptcy proceedings of major carriers such as Hawaiian and United, this lease-renegotiation process has been delayed. However, it should be noted that the presence of this clause has not resulted in any construction delays at Kahului, nor have any requests for additional flights been denied, during the Competition Plan Update period.

Short-term capacity enhancement initiatives are listed in Table 3, which follows.

KAHULUI AIRPORT (OGG)

Airline Competition Plan

Short-Term Processing Capacity Enhancement Initiatives

Data from DOT-A OGG Terminal Facilities Study - Fall 2003

	Existing Terminal	Short-Term Improvements	Capacity Enhancement Initiatives
ANNUAL PASSENGERS	5,228,736	5,600,000	
AIRSIDE			
Aircraft Gates	16	17	Two widebody capable aircraft gates south of Gate 1 planned as short-term improvement
Interisland	7	5	Implement CUTE at gates to increase A/C parking flexibility/gate assignments
Mainland	9	12	Potential addition of flights on shoulders of Peak Period
Aircraft Hardstand	1	2	Two hardstands next to new gates planned as short-term improvement; potential use during Peak Period for Interisland ground loading
TERMINAL			
Ticketing Hall (s.f.)	63,280	84,090	Phases 1 and 2 of the Terminal Improvements Project began 12/03
No. of Structural Bays	7	9	and will increase the Ticketing Hall from 7 to 9 bays, adding 20,810 sf.
USDA Inspection	4	4	No additional processing lanes are needed; but planned re-location will increase visibility and capacity
ETD/EDS	20/2	TSA	Upon completion of inline EDS system, ETD will vacate Ticketing Hall; Increasing queuing capacity
Ticket Counters/Queuing	51	86	DOT-A anticipates 3 (+) unassigned positions during peaks in short-term
Security Checkpoint (s.f.)	5,075	6,240	Security checkpoint will move to the Garden area to consolidate operations and increase lanes.
Lanes	4	6	Moving checkpoint also provides for future expansion/improved queuing
Concourses (s.f.)	256,600	279,110	Two widebody capable holdrooms south of Gate 1 planned as PAL 1 improvement
Interisland Holdrooms	7	5	
Mainland Holdrooms	9	12	Optimization recommendation to remodel holdrooms to increase operational flexibility/shared use
Combined/Shared Use	16	17	
Baggage Claim Hall (s.f.)	51,810	50,740	Remodel of Baggage Claim Hall included Terminal Improvements Project (begun 12/03)
Claim Devices	5	5	Existing devices 1 and 2 replaced with larger sloped plate devices; increases advice claim area Device frontage increased; 1 new - B777, 2 new - B767, 2 existing - B767 sized sloped plate devices
LANDSIDE			
Terminal Curbs (l.f.)	870	930	Short-term initiatives (new Support Area @ south end) will remove non-essential vehicle traffic from drives
Ticketing	305	325	Vehicle traffic controls to be modified as Optimization initiative; increased flows and improved curb access
Baggage Claim	565	605	Removal of non-essential vehicle traffic from terminal drives increases capacity, safety, security

Table 3

Summary

Interisland passenger air travel is often the only practical link between the Hawaiian Islands. Additional competition would benefit the traveling public, especially Hawaii residents. Airports Division welcomes any legitimate entry by new carriers. The current combined market share of Hawaiian and Aloha Airlines has decreased by over 10% from 2001 to 2002. This fact, when combined with the efforts to increase capacity, (as described in the Kahului Terminal Facilities Study), indicate that the competitive environment of Kahului Airport has improved since the last Competition Plan Update. Most important, no requests for additional flights have been denied during this period.

Due to airport ownership of the terminal facilities, the Airports Division retains the flexibility on gate and holdroom assignments. This allows the Airports Division to maximize utilization of the facilities at Kahului Airports, including gates, holdrooms, and ticket counters. Kahului Airport is actively working to make available gates, holdrooms, and ticket counter space, by means of the recently completed Kahului Terminal Facilities Study. Currently, Phase I of the Terminal Improvement Project is now under way. These efforts will continue Kahului Airport's policy of maintaining open and competitive access to all airlines interested in providing air service to Maui.

[NOTE: Because of the interest that members of the traveling public may have in airline competitive issues at Kahului Airport, the Airports Division has put copies of the competition plans and response letters on the airport web site. A copy of the final draft of this Competition Plan Update will be posted on the web site after its acceptance by the FAA.]

Appendix A

KAHULUI AIRPORT (OGG)

Airline Competition Plan

Summary of Terminal Passenger Processing Capacity

Data from DOT-A OGG Terminal Facilities Study - Fall 2003

	Existing Facilities (Fall 2002)	Existing Facilities Utilization	Optimized Facilities (Fall 2003)	PAL 1 Requirements (Short Term)	Capacity Enhancement Initiatives
ANNUAL PASSENGERS	5,228,736	5,228,736	5,300,000	5,600,000	
AIRSIDE					
Aircraft Gates	16	33% DD/46% PP	17	17	Two widebody capable aircraft gates south of Gate 1 planned as PAL 1 improvement
Interisland	7	25% DD/29% PP	5	5	Optimization recommendation to implement CUTE at gates to increase A/C parking flexibility/gate assignments
Mainland	9	38% DD/55% PP	12	12	Potential addition of flights on shoulders of PP
Aircraft Hardstand	1	NA	2	2	Two hardstands next to new gates planned as PAL 1 improvement; potential use during PP for II ground load
TERMINAL					
Ticketing Hall (s.f.)	63,280		67,670	84,090	Phases 1 and 2 of the Terminal Improvements Project begins 12/03; increases Ticketing Hall from 7 to 8 bays
No. of Structural Bays	7	NA	7	9	
USDA Inspection	4	93%	4	4	No additional processing lanes; paired devices maintained; re-location increases visibility/capacity
ETD/EDS	20/2	101%	24/2	TSA	Upon completion of inline EDS system, ETD will vacate Ticketing Hall; increases queuing capacity
Ticket Counters/Queuing	51	105%	56	86	Anticipate 3 or more unassigned positions at PAL 1 during peaks; additional capacity available off-peak
Security Checkpoint (s.f.)	5,075		6,200	6,240	Move checkpoint to Garden area planned as PAL 1 improvement to consolidate operations/increase lanes
Lanes	4	157%	7	6	Moving checkpoint also provides for future expansion/improved queuing
Concourses (s.f.)	266,600		277,910	279,110	Two widebody capable holdrooms south of Gate 1 planned as PAL 1 improvement
Interisland Holdrooms	7	85% Avg	5	5	
Mainland Holdrooms	9	205% Avg	12	12	Optimization recommendation to remodel holdrooms to increase operational flexibility/shared use
Combined/Shared Use	16	81% Avg	17	17	
Baggage Claim Hall (s.f.)	51,810		51,440	50,740	Phases 1 and 2 of the Terminal Improvements Project begins 12/03; remodel Baggage Claim Hall
Claim Devices	5		5	5	
Active Claim Area	916sf II/3,287sf ML	141% II/71% ML	1,290sf II/2,338sf ML	1,097sf II/1,987sf ML	Existing devices 1 and 2 replaced with larger sloped plate devices; increases active claim area
Passive Claim Area	4,251sf II/6,939sf ML	68% II/51% ML	2,903sf II/3,506sf ML	2,468sf II/2,980sf ML	
Device Frontage	344' II/492' ML	117% II/55% ML	404' II/270' ML	343' II/229' ML	Device frontage increased; 1 new - B777, 2 new - B767, 2 existing - B767 sized sloped plate claim devices
LANDSIDE					
Terminal Curbs (l.f.)	870		886	930	PAL 1 initiatives (new Support Area @ south end) will remove non-essential vehicle traffic from drives
Ticketing	305	84%	310	325	Vehicle traffic controls to be modified as Optimization initiative; increased flows and improved curb access
Baggage Claim	565	83%	575	605	Removal of non-essential vehicle traffic from terminal drives increases capacity, safety, security

NA = Not Applicable

DD = Design Day

PP = Peak Period

Avg = Average

II = Interisland

ML = Mainland

CUTE = Common Use Terminal Equipment

A/C = Aircraft

Appendix B

Kahului Airport Terminal Facility Study



Prepared for:

Airports Division
Department of Transportation
State of Hawaii



KFC AIRPORT, INC.

nbbj

EXECUTIVE SUMMARY

OVERVIEW

The airport system is a critical element in the transportation network of the State of Hawaii and thus important to its people and to visitors. As the second largest airport within the Hawaii airport system, Kahului Airport is an invaluable asset within this system. Goals for its development must be in alignment with a vision to provide efficient, high levels of service within an atmosphere commensurate with the spirit of the islands. Improving its functional capability, operational personality, and the means to maintain the physical plant is critical to preserving its value and economic vitality.

The purpose of the Terminal Facilities Study was to identify Optimization and Short Term actions that enable the State to focus energy on facility and operational improvements that simultaneously result in elevated levels of service for travelers and improved operational efficiency for the airport. In addition, the study identifies Intermediate and Long Range development options for the airport that are a roadmap for enhancing capacity. The study's initiatives are triggered by probable market driven aviation demand and the effect on need for people driven services. Simply stated, they are "demand driven, strategy based, and people focused".

STUDY CONTEXT

Two teams were engaged in this study: a Study Team and a Stakeholder Team. The Study Team was comprised of State DOT-A, the Hawaii Airline Liaison Office (HALO), and consultants. The Stakeholder Team included the DOT-A Administrator, Maui Airport District Office (OGG ADO), Maui County liaison to the Governor's Office, representatives of the airlines and other major tenants, representative of the Maui Visitors Bureau, representative of the Maui Hotel Association, the Transportation Security Administration (TSA), and the US Department of Agriculture (USDA), all as participants and resources, engaged throughout the study.

Study goals and key principles were identified early so that they influence the process of idea generation and alternatives investigation. They were derived from issues and needs discussed during the initial working sessions and were used to measure ideas and alternatives. The goals follow; their associated key principles can be found in the report.

- Optimize Airport Terminal Capacity
- Elevate Quality of Passenger Experience
- Optimize Financial Capacity
- Focus on the Experience of the Facility
- Identify Sensible Actions

The timeframe of World, National, and State events set the context for this study as they impact operational procedures and the passenger experience at this airport.

- The study began in October of 2002 with effects of 9/11 continuing to evolve.
- The airline industry continues in financial difficulty, there is flat performance in US economic growth, moderate growth in economic conditions in the State; all resulting in lower revenue for airports.
- The drop in passenger traffic from Asia has reduced demand for interisland flights.
- Passenger traffic from the mainland is growing at OGG.
- TSA baggage screening related to 12/31/02 impact the Ticketing Hall.
- The study was completed in September 2003.

SUMMARY of FINDINGS

Kahului Airport is currently under stress caused by a period of rapid growth in passenger traffic of a type that it was not designed to handle. The airport was designed to serve regularly scheduled interisland passenger traffic traveling on narrow body type aircraft capable of carrying 100 or so passengers. Growth in passenger traffic was mainly due to the addition of direct overseas mainland passenger traffic traveling on wide body type aircraft capable of carrying 250 or more passengers peaking during the mid-day period. Processing for mainland bound travel has many more passengers per flight, occurring during a short duration, and additional requirements over and above that for interisland travel. Thus, aircraft gate capacity is stressed, and passenger processing capacity and the physical arrangement of airport facilities are not adequate to meet need. In addition, new security requirements post 9/11 has required more space and processes fewer passengers per hour than previous. The result is confusion about check-in requirements, longer lines and inadequate space to organize passenger queues, aircraft gate capacity at maximum utilization during peak periods, inadequate baggage claim device capacity, and inadequate food and beverage concessions. The overall effect is low levels of service for passenger processing.

The following summarizes the key findings and recommendations of the study. Expanded detail and information can be found in Chapter 1.

Terminal Area Requirements

The chart describes current demand and capacity of the airport terminal area, and based on performance assessment, the optimal capacity required to balance passenger processing. The chart, based on anticipated growth, describes requirements for facilities during the Short Term, Intermediate, and Long Range planning activity passenger levels. The optimization and activity level requirements were the bases for near term and long range development strategies.

TABLE ES-1

KAHULUI AIRPORT Terminal Facilities Study Summary of Terminal Area Requirements					
	Existing Fall 2002	Optimization Fall 2003	PAL 1 (Short Term)	PAL 2 (Intermediate)	PAL 3 (Long Range)
ANNUAL PASSENGERS	5,228,736	5,300,000	5,600,000	6,200,000	8,400,000
AIRSIDE					
Aircraft Gates	16	17	17	19	22
Interisland	7	5	5	6	7
Mainland	9	12	12	13	15
Aircraft Hardstand	1	2	2	2	2
TERMINAL					
Ticketing Hall (s.f.)	63,280	67,670	84,090	93,280	100,230
No. of Structural Bays	7	7	9	9	10
USDA Inspection	4	4	4	4	4
ETD/EDS	20/2	24/2	TSA	TSA	TSA
Ticket Counters	51	56	86	86	91
Security Checkpoint (s.f.)	5,075	6,200	6,240	7,320	7,380
Lanes	5	7	6	8	8
Concourses (s.f.)	256,600	277,910	279,110	314,570	360,710
Interisland Holdrooms	7	5	5	6	7
Mainland Holdrooms	9	12	12	13	15
Baggage Claim Hall (s.f.)	51,810	51,440	50,740	60,700	71,160
Claim Devices	5	5	5	6	7
Concessions (s.f.)	28,860	30,670	40,040	44,680	54,250
Food/Beverage/Specialty					
Other Public Spaces (s.f.)	22,860	24,140	31,360	34,720	39,480
Restrooms, Services, Etc.					
Other Terminal (s.f.)	257,284	227,739	292,420	312,730	353,790
M/E/P, Offices, Etc.					
Total Area	685,769	685,769	784,000	868,000	987,000
LANDSIDE					
Terminal Curbs (l.f.)	870	885	930	1,030	1,400
Ticketing	305	310	325	360	490
Baggage Claim	565	575	605	670	910
Terminal Drive (ft. width)	76	56	56	56	68
12'/drive, 20'/man.& park					
Parking (stalls)	1,920	NA	2,005	2,170	2,545
Public + Employee					
Rental Car (acres)	24.5	NA	23.3	25.8	35.0

Optimization and Short Term Action Plan

Implementing Optimization actions result in improving function, thus elevating passenger level of service, within the general confines of the existing facilities. Implementing Short Term actions result in increasing and balancing airport capacity to process passengers in anticipation of growth at the airport. The Action Plan provides preliminary engineering estimates for construction costs, and recommends possible phasing options. The Action Plan is very dependent on the funds available by the DOT-A for Capital Improvement Projects (CIP) or other Operations and Maintenance (O&M) Projects. These financial constraints drive the schedule and implementation of the recommended actions. In addition, Early Actions are included that can be implemented in the immediate term potentially utilizing operations and maintenance budgets.

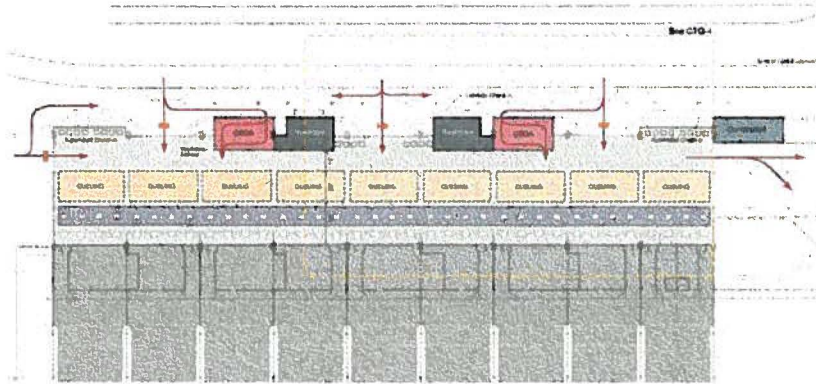
Early Actions:

- Add one lane of check-in queuing the entire length of the Ticketing Hall by shifting one USDA screening device, containing retail displays within the concession, and slightly shifting the line of ETD stations toward the ticket counters
- Move the HA EDS machine out of the queuing area and into the Outbound Baggage area, move AQ EDS to within AQ queuing area
- Start design of central consolidated Security Checkpoint in order to provide at least six lanes of screening
- Reactivate the Wayfinding Project, re-visit visual design, gate numbering system
- Increase curb utilization and traffic flow by testing alternatives to the current function of traffic lights, can be done as a "mock-up" test
- Increase aircraft gate utilization by study and re-assignment of gates
- Repair the lighting in Central Concessions Hall

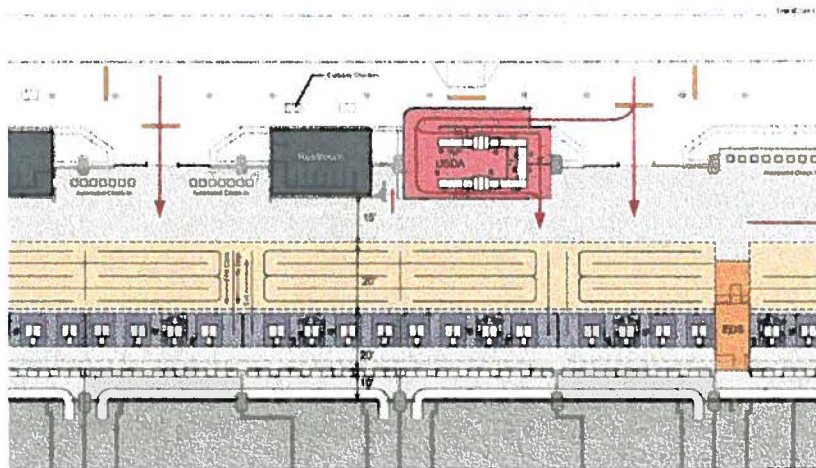
A summary of prioritized and phased Action Plan items are listed on the following matrix. The action items are prioritized based on perceived value or benefit (high, moderate, or low) as determined by the stakeholders. Conceptual level cost estimates for each of the action items are also summarized (high, moderate, or low). For detailed information, Project Data Sheets for each action are available in the study report.

TABLE ES-2

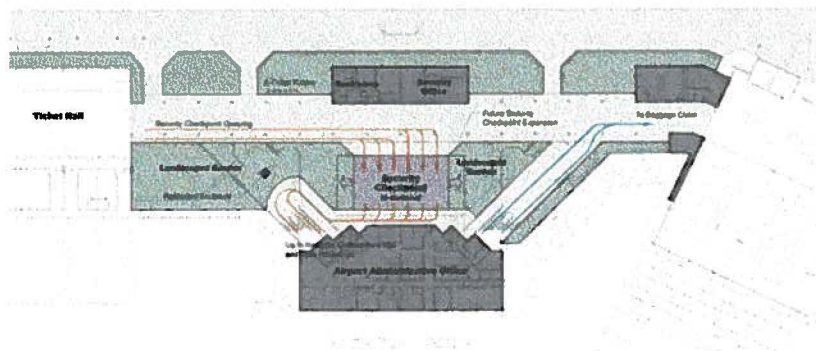
KAHULUI AIRPORT TERMINAL FACILITIES STUDY Summary of Optimization and Short Term Action Plan						
Priority <small>(Rank by Stakeholders @ 03/04/03 Working Session)</small>	Action I.D.	Action Description	Cost	Benefit (Based on Stakeholders Assessment)	Comments	
Rank			LOW: <\$100K MODERATE: \$100K - \$1million HIGH: >\$1 million			
1	All	AAO - 5	Operations and Maintenance Plan (Unanimous first choice of all)	High	High	Unanimous
2	10	CTG - 3b	Ticketing Hall Passenger Processing and Flows - 9 Bay Consolidated USDA Inspection @ 2 Locations	Moderate	High	
2	10	PES - 5c	Wayfinding - Intra-terminal	Moderate	High	
3	9	CTG - 5c	Security Checkpoint - Future and Growth	Moderate	High	
3	9	GTC - 2d	Baggage Claim Hall - Expansion: Square the Diagonal Corner and Modify TIP Claim Device Layout	High	High	
4	5	CTG - 6	Concourses - Gate Check-in Podium Location	Moderate	Moderate	6, 7, & 9 combined
4	5	CTG - 7	Concourse Gates 1 thru 15 - Exit Stair Locations	Moderate	Moderate	6, 7, & 9 combined
4	5	CTG - 9	Concourse Gates 1 thru 15 - Remove Wall Between Circulation and Holdroom	Moderate	Moderate	6, 7, & 9 combined
4	5	AAO - 3	Aircraft Gate Utilization	None to DOTA	Moderate	
5	2	AAO - 1	Modify Terminal Drives/Curbs Traffic Control	Low to Moderate	Moderate	
6	0	CTG - 3a	Ticketing Hall Passenger Processing and Flows - 9 Bay Dispersed USDA Inspection @ 4 Locations	Moderate	Low	Not Preferred
6	0	CTG - 3e	Ticketing Hall Passenger Processing and Flows - 7 Bay Dispersed USDA Inspection @ 4 Locations	Moderate	Low	Not Preferred
6	0	CTG - 3f	Ticketing Hall Passenger Processing and Flows - 7 Bay Dispersed USDA Inspection @ 4 Locations (South Location)	Moderate	Low	Not Preferred
6	0	CTG - 8	Concourse Gates 1 thru 15 - Air-condition Concourse	High	Low	
6	0	CTG - 10	Concourse Gates 1 thru 15 - Add Powerwalkways	High	Low	
6	0	PES - 3	Central Concessions Hall - Lighting	Moderate	Low	
6	0	PES - 5a	Wayfinding - Curb to Gate	Moderate	Low	Re-visit Design
6	0	PES - 5b	Wayfinding - Gate to Curb	Moderate	Low	Re-visit Design
6	0	PES - 5d	Wayfinding - Graphic Design	Low	Low	Re-visit Design
6	0	PES - 5e	Wayfinding - Gate Numbering	Moderate	Low	Re-visit Design
6	0	AAO - 2	Construction Phasing	Low	Low	
6	0	AAO - 7	Baggage Claim Device Assignments	None to DOTA	Low	
<div> <div>Optimization</div> <div>Short Term</div> <div>Future</div> </div>						



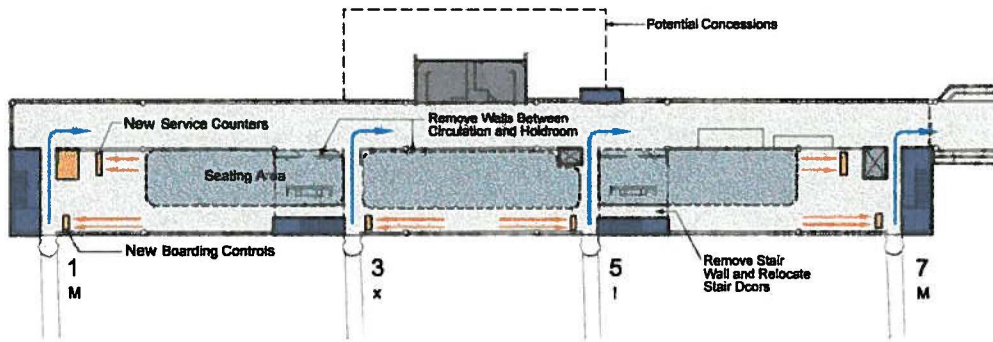
CTG – 3b



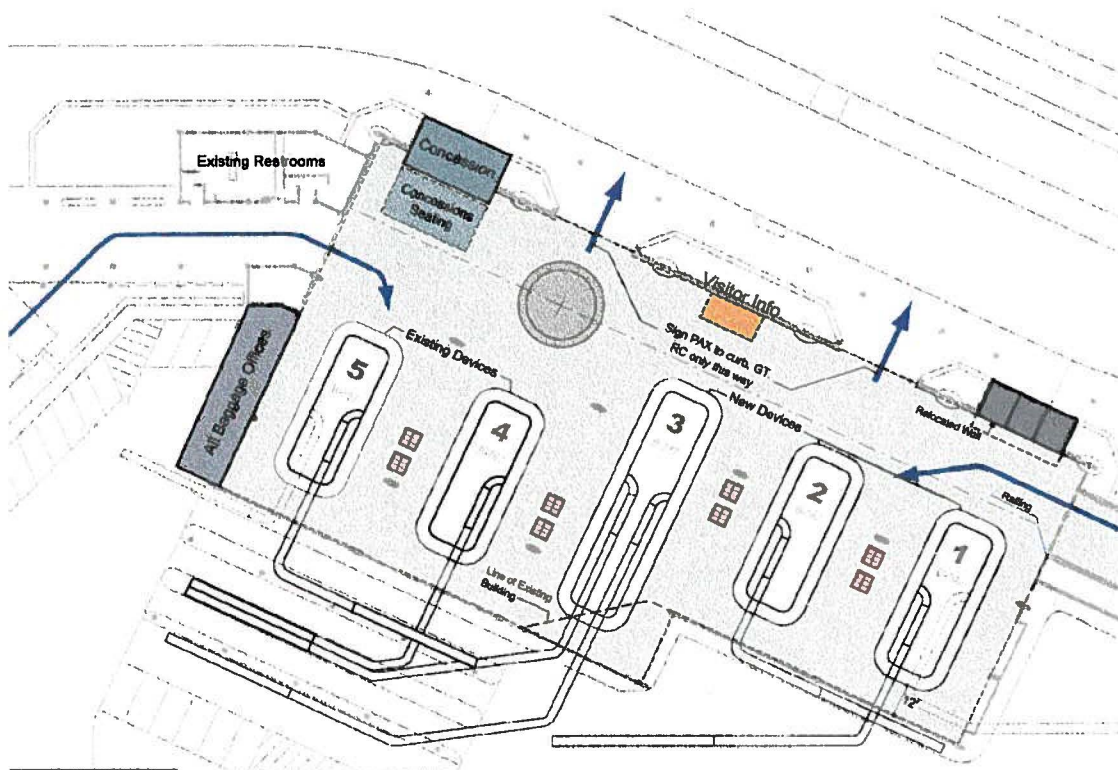
CTG – 4



CTG – 5c



CTG - 6/7/9



GTC - 2d/AAO - 7

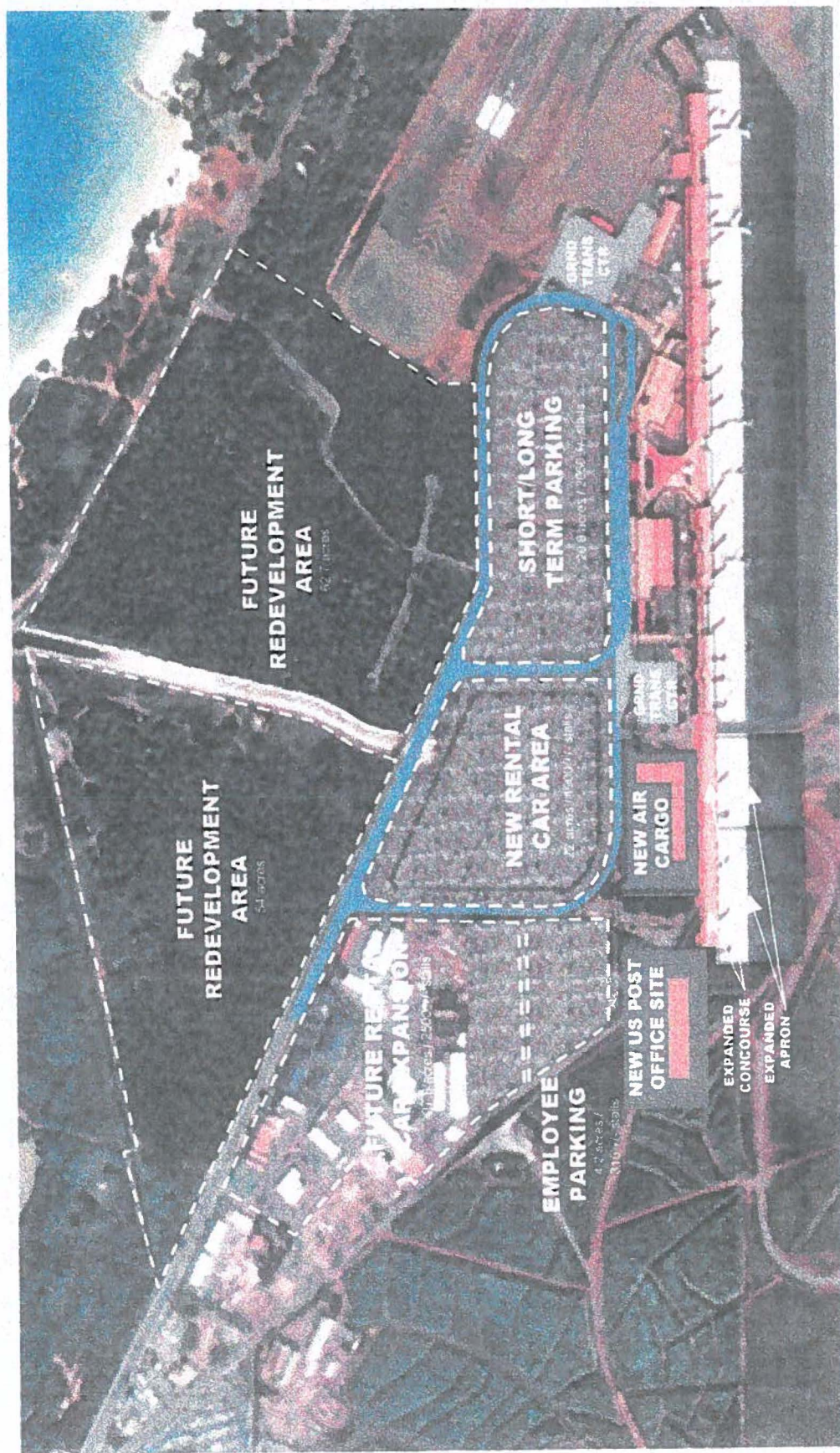
Landside and Land Use Evaluation and Recommendations

Three major alternatives for Intermediate and Long Range development strategies for the landside areas, with associated use scenarios were explored and evaluated. Of the various possibilities, Alternative 2A appears to have the most potential for the long term development of the airport. Existing circulation conflicts associated with the rental car area would be reduced, by relocating the rental car area, and beachside land is made available for redevelopment. The larger area inside the terminal loop could be assigned as required for optimal rental car and parking use. Adjacent land can be made available for rental car use, as needed, by phasing out existing government agency uses.

In addition, this alternative accommodates a variety of possible airport access routes:

- Keolani Place (existing)
- Haleakala Highway
- Hana Highway interchange (proposed)

The exact configuration of roadways and dimensions of parking areas require more detailed study, in order to determine the optimum allocation of the available space, but the general configuration of Alternative 2, scenario A, will allow for flexible and functional airport landside operations.



Intermediate & Long Range Alternatives
 Landside Alternative 2 Scenario A

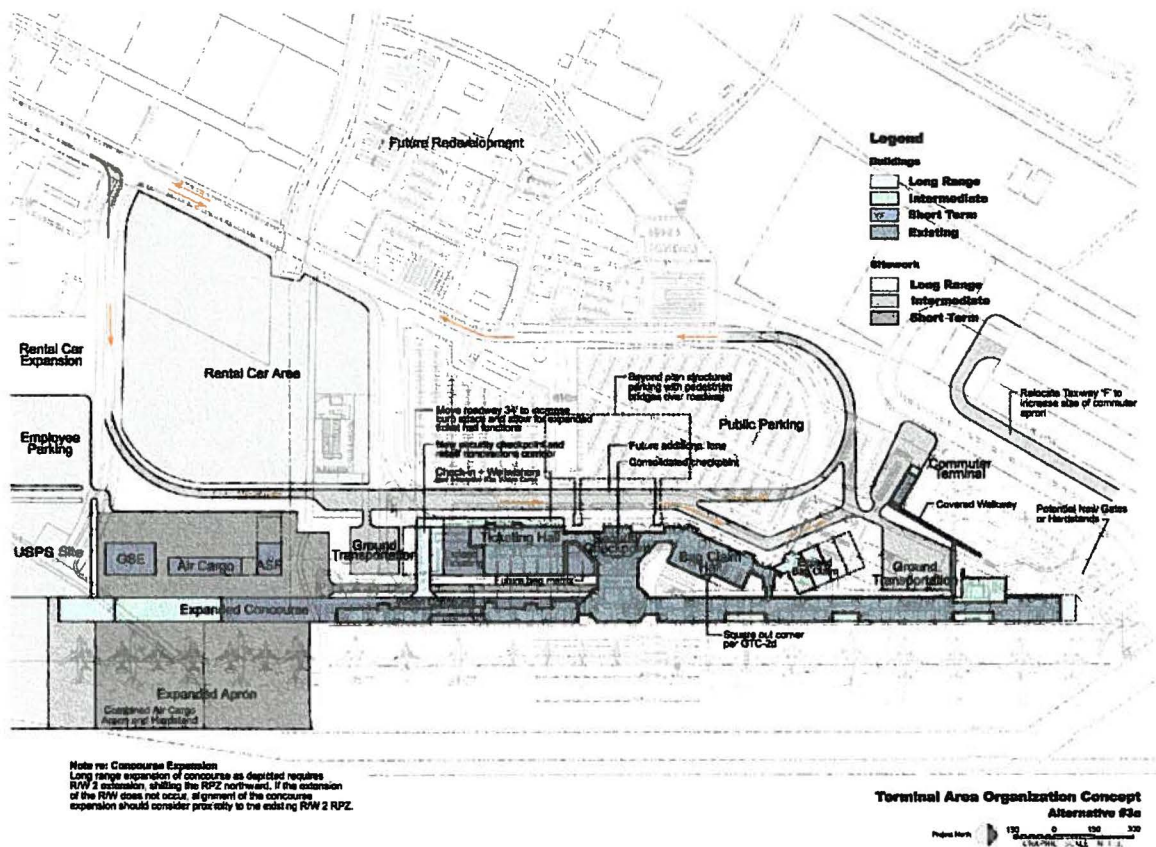
Intermediate and Long Range Preferred Alternative

The longer term view of the airport was guided by strategies to meet needs described in potential development scenarios. The likely outcome of several of the economic development based scenarios was growth in overseas mainland flights. Due to anticipated growth in the mainland sector of passenger traffic, the preferred development plan is Alternative #3. The plan increases operational flexibility of the terminal area by increasing the size of site available for terminal use. This is accomplished by moving the curbs away from the terminal buildings thus increasing the space available to process departing passengers and accommodate wellwishers. Likewise arriving passengers and their greeters would benefit by having more space to determine ground transport options and for orientation out of the airport after claiming their baggage. There are two iterations of Alternative #3 shown; they are similar except for the roadway layouts. Although future requirements may call for the larger roadway relocation shown in Alternative 3b, the study team recommends Alternative 3a.

Alternative #3a: Expanded Terminal Site – Modify Roadway/Curbs

Short Term - \$93,000,000

- Alters terminal drives to increase length of the departures curb
- Provides new support area site development south of the terminal
- Provides new aircraft apron for gates and hardstands south of Gate 1
- Provides new consolidated security checkpoint at the central garden (TSA)
- Expands the Ticketing Hall to the south
- Provides new outbound baggage screening matrix (TSA)
- Widens and lengthens the Concourse to the south (consider addition of powerwalkways)
- Provides new covered walkway between the north Concourse and Commuter Terminal
- Provides new Alien Species Inspection, Air Cargo, and GSE support facilities

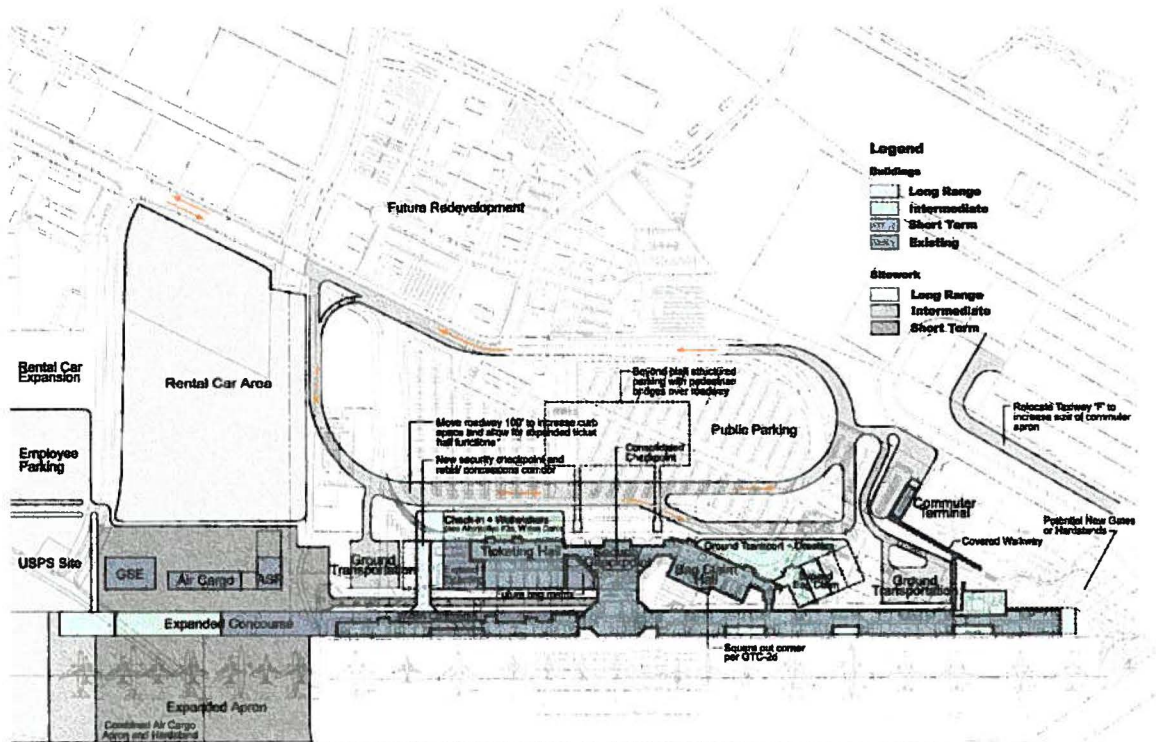


Intermediate - \$67,000,000

- Expands terminal roadway loop to the north and south including separate arrivals curb
- Relocates terminal drive and curbs west by 34'
- Provides new Ground Transportation lots south of Ticketing and north of Baggage Claim
- Alters parking at the Commuter Terminal
- Provides new aircraft apron for gates and hardstands to the south
- Realigns T/W F to expand the Commuter apron
- Expands functions at the front of the Ticketing Hall and Baggage Claim Halls
- Provides a second Baggage Claim Hall at the north end
- Lengthens the Concourse to the south (add powerwalkways if not added prior)
- Expands the Commuter Terminal

Long Range - \$60,000,000

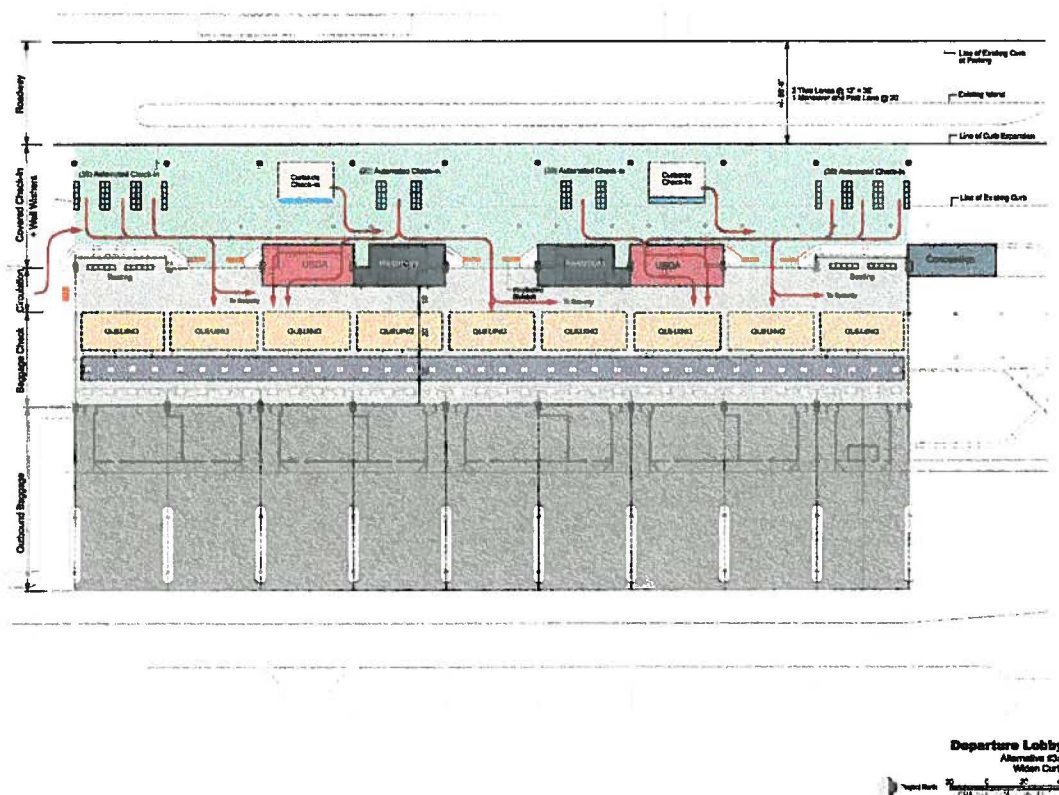
- Provides new employee parking
- Provides new rental car areas
- Provides new USPS site
- Provides new aircraft apron for gates and hardstands to the south
- Expands the Ticketing Hall to the south
- Provides a second security checkpoint at the south end of the Ticketing Hall
- Expands the second Baggage Claim Hall at the north end
- Expands the Concourse to the north and south



Note re: Concourse Expansion
Long range expansion of concourse as depicted requires
RWY 2 extension, shifting the RPZ northward. If the extension
of the RWY does not occur, segment of the concourse
expansion should consider proximity to the existing RWY 2 RPZ.

Terminal Area Organization Concept
Alternative #3b

Project No. 152 0 160
Scale: 1" = 100' 1/4" = 100' 1/4" = 100'



The features of the plan increase operational flexibility while maintaining clarity of functions by expanding major processing functions in their current location. Additionally, they simplify roadway circulation and increase capacity by removing non-essential traffic.

Appendix C

KAHULUI AIRPORT (OGG) - MAUI

23 AUGUST 2002 - Flight Schedule

This flight schedule shows only aircraft occupying gates, it does not show all RON (remaining overnight), parked or maintenance aircraft.

	AIRLINE			SCHEDULE			ARRIVALS			DEPARTURES		
	A/L	GTE	EQ	ATA		ATD	FLT NBR	FROM	TERM PAX	FLT NBR	TO	ORIG PAX
1	AQ	9	B737	1317	ii	1353	95	KOA	80	95	LIH	74
2	AQ	9	B737	1409	ii	1445	270	HNL	98	272	KOA	80
3	AQ	11	B737	1056	ii	1148	208	HNL	117	29	HNL	118
4	AQ	11	B737	1220	ii	1253	118	LIH	72	118	KOA	65
5	AQ	13	B737	558	ii	624	302	HNL	50	211	HNL	104
6	AQ	13	B737	726	ii	754	274	HNL	69	273	HNL	100
7	AQ	13	B737	802	ii	834	266	HNL	79	266	KOA	78
8	AQ	13	B737	906	ii	933	62	HNL	118	63	HNL	118
9	AQ	13	B737	1053	ii	1133	70	HNL	112	73	HNL	122
10	AQ	13	B737	1200	ii	1235	72	HNL	115	71	HNL	117
11	AQ	13	B737	1250	ii	1318	276	HNL	118	277	HNL	118
12	AQ	13	B737	1425	ii	1455	262	HNL	109	263	HNL	118
13	AQ	13	B737	1513	ii	1542	238	HNL	73	239	HNL	98
14	AQ	13	B737	1635	ii	1703	112	HNL	25	115	HNL	94
15	AQ	13	B737	1704	ii	1734	286	HNL	37	287	HNL	102
16	AQ	13	B737	1912	ii	1940	66	HNL	104	67	HNL	118
17	AQ	13	B737	2002	ii	2028	228	HNL	102	297	HNL	105
18	AQ	15	B737	647	ii	729	240	HNL	59	245	HNL	104
19	AQ	15	B737	749	ii	828	272	HNL	95	105	HNL	103
20	AQ	15	B737	922	ii	950	206	HNL	101	207	HNL	106
21	AQ	15	B737	1047	ii	1118	61	KOA	104	61	LIH	98
22	AQ	15	B737	1203	ii	1245	28	HNL	118	111	HNL	118
23	AQ	15	B737	1346	ii	1428	210	HNL	100	227	HNL	106
24	AQ	15	B737	1455	ii	1525	106	HNL	99	107	HNL	122
25	AQ	15	B737	1527	ii	1604	248	LIH	116	215	HNL	118
26	AQ	15	B737	1604	ii	1645	26	HNL	120	93	HNL	121
27	AQ	15	B737	1648	ii	1709	114	HNL	108	265	HNL	78
28	AQ	15	B737	1734	ii	1811	224	HNL	50	225	HNL	75
29	AQ	15	B737	1845	ii	1906	116	HNL	111	116	ITO	36
30	HA	17	B717	537	ii	614	106	HNL	38	105	HNL	118
31	HA	17	B717	658	ii	720	114	HNL	65	115	HNL	111
32	HA	17	B717	823	ii	847	136	HNL	67	125	HNL	112
33	HA	17	B717	909	ii	937	516	HNL	109	133	HNL	74
34	HA	17	B717	1036	ii	1057	520	HNL	100	141	HNL	122
35	HA	17	B717	1120	ii	1139	132	HNL	48	131	HNL	107
36	HA	17	B717	1219	ii	1241	126	HNL	91	127	HNL	120
37	HA	17	B717	1317	ii	1341	236	HNL	71	165	HNL	76
38	HA	17	B717	1452	ii	1515	344	HNL	123	345	HNL	121
39	HA	17	B717	1552	ii	1622	170	HNL	122	171	HNL	123
40	HA	17	B717	1724	ii	1747	548	HNL	76	549	HNL	123
41	HA	17	B717	1903	ii	1959	351	ITO	99	557	HNL	117
42	HA	19	B717	831	ii	900	138	HNL	70	515	HNL	92
43	HA	19	B717	945	ii	1010	116	HNL	123	379	HNL	102
44	HA	19	B717	1102	ii	1126	524	HNL	92	525	HNL	102

KAHULUI AIRPORT (OGG) - MAUI

23 AUGUST 2002 - Flight Schedule

This flight schedule shows only aircraft occupying gates, it does not show all RON (remaining pvernight), parked or maintenance aircraft.

	AIRLINE			SCHEDULE			ARRIVALS			DEPARTURES		
	A/L	GTE	EQ	ATA		ATD	FLT NBR	FROM	TERM PAX	FLT NBR	TO	ORIG PAX
45	HA	19	B717	1255	ii	1319	528	HNL	102	529	HNL	123
46	HA	19	B717	1354	ii	1412	164	HNL	79	163	HNL	61
47	HA	19	B717	1508	ii	1534	184	HNL	116	539	HNL	123
48	HA	19	B717	1621	ii	1642	538	HNL	100	541	HNL	109
49	HA	19	B717	1843	ii	1909	196	HNL	101	197	HNL	108
50	HA	19	B717	2014	ii	2037	556	HNL	99	561	HNL	50
51	HA	21	B717	752	ii	847	112	HNL	67	112	ITO	77
52	HA	21	B717	953	ii	1019	187	ITO	102	187	LIH	108
53	HA	21	B717	1151	ii	1215	380	HNL	103	381	HNL	110
54	HA	21	B717	1311	ii	1336	166	HNL	106	166	KOA	103
55	HA	21	B717	1357	ii	1418	147	KOA	123	147	HNL	42
56	HA	21	B717	1703	ii	1729	544	HNL	99	544	ITO	87
57	HA	21	B717	1807	ii	1833	194	HNL	112	195	HNL	120
58	HA	1	B767	1216	D	1326	15	SFO	59	14	SFO	212
59	HA	1	B767	1352	D	1506	5	LAX	251	6	LAX	251
60	AQ	5	B737-700	1253	D	1429	483	SNA	87	474	OAK	122
61	AQ	7	B737-700	1113	D	1225	473	OAK	66	484	SNA	124
62	HA	7	B767	1235	D	1418	29	SEA	126	30	SEA	152
63	DL	7	B767	1600	D	2116	1565	LAX	242	292	LAX	287
64	AA	23	B757	1149	D	1330	253	LAX	176	254	LAX	176
65	AA	23	B767	1410	D	1710	7	DFW	132	6	DFW	226
66	AA	23	B757	1857	D	2100	161	LAX	161	14	LAX	176
67	UA	23	B757	2130	D	2310	97	SJC	176	82	SJC	176
68	UA	27	B777	1117	D	1258	45	LAX	347	42	LAX	348
69	UA	27	B767	1920	D	2120	35	SFO	226	46	SFO	244
70	UA	27	B757	2155	D	2330	43	SFO	100	44	SFO	182
71	UA	29	B767	1138	D	1338	47	SFO	240	34	SFO	210
72	UA	29	B757	1940	D	2200	39	LAX	172	38	LAX	182
73	TZ	33	B757	1205	D	1325	761	LAX	240	762	LAX	247
74	AC	33	B767	2325	F	2359	57	YVR	148	666	RON	0
75	TZ	35	B757	1127	D	1308	617	SFO	140	618	SFO	241
76	AA	35	B767	1650	D	1810	3003	STL	58	3008	STL	213
77	RY	39	DC10	1103	D	1228	507	OAK	50	508	HNL	129

TOTAL

8459

9653

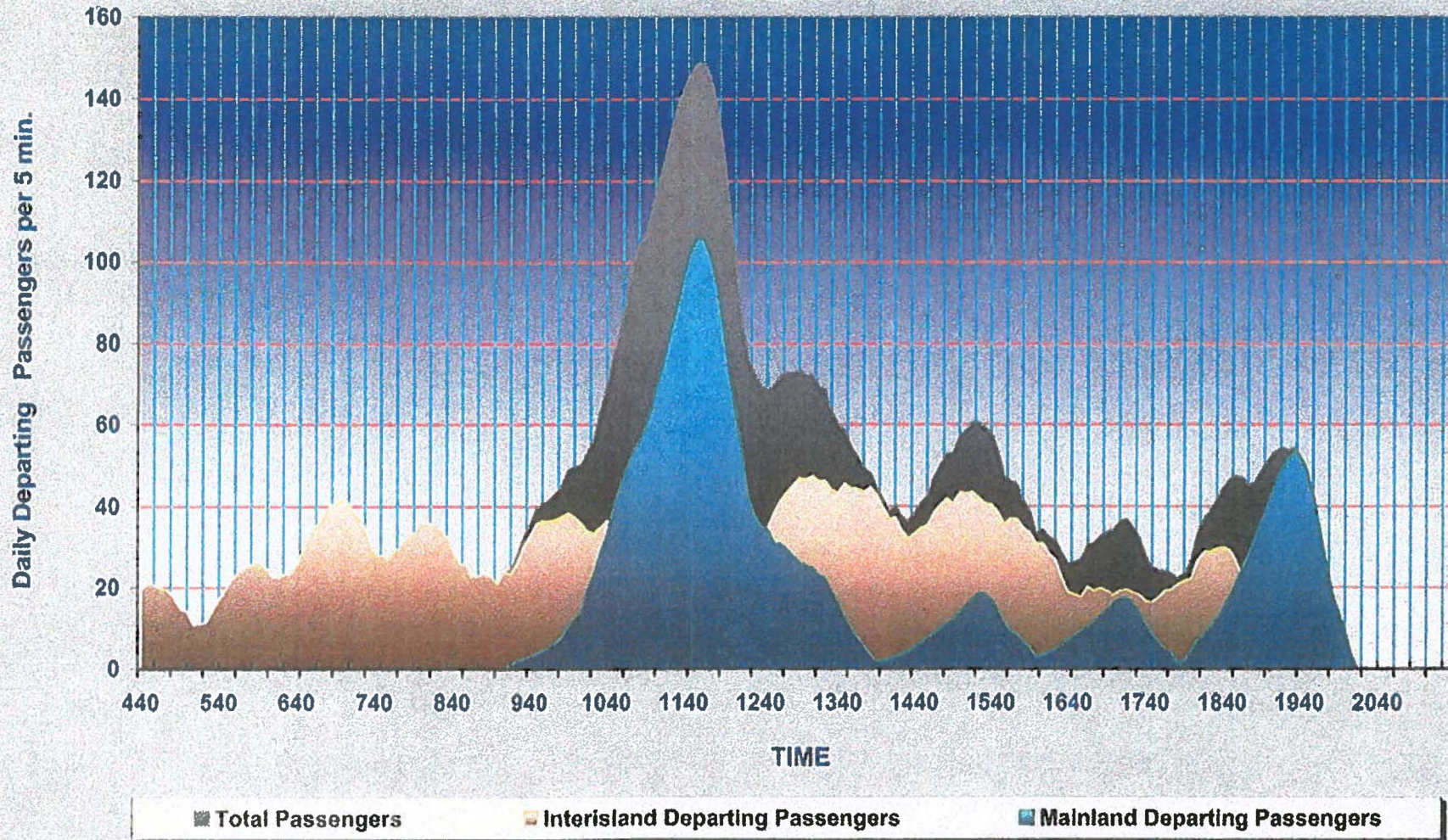
AIRLINE CODES:

AA AMERICAN AIRLINES
AC AIR CANADA
AQ ALOHA AIRLINES
DL DELTA AIRLINES
HA HAWAIIAN AIRLINES
RY RYAN INTERNATIONAL AIRLINES
TZ AMERICAN TRANS AIR
UA UNITED AIRLINES

Arrival PAX:

Foreign 148
Domestic 3049
Interisland 5262
Total 8459

GRAPH 1
KAHULUI AIRPORT
DAILY DEPARTING PASSENGERS
23 AUGUST 2002



GRAPH 2
KAHULUI AIRPORT
MAINLAND AND INTERISLAND SECTORS - DAILY
ARRIVING PASSENGERS

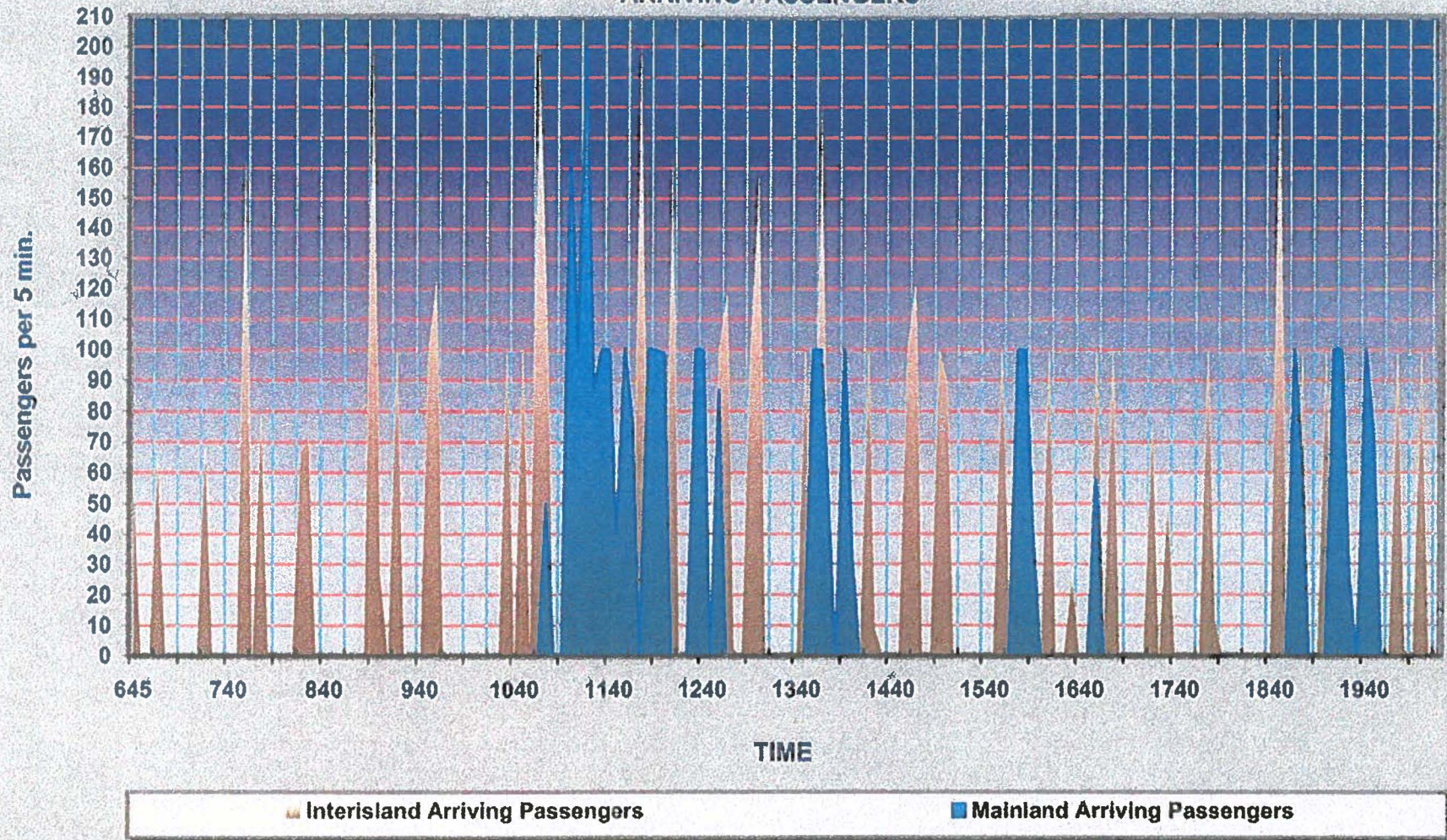


TABLE 12
Kahului Airport Terminal Facilities Study
Aircraft Gate Utilization Evaluation

Design Day Gate Utilization

Carrier
Gate Number
Gate Occupancies per Day
Avg Dwell Hours
Gate Utilization
Average Util./Hold room Building
Design Day Operation
Design Day Gate Utilization
Total Design Day Operations
Capacity @ D.U.F.
Daily Capacity @ D.U.F.
Block Capacities
Daily Operations Capacity (1)

HR-A				HR-B				HR-C			HR-D			HR-E			HR-F		
HA		AQ	HA, AQ, DL	AQ	AQ	AQ	AQ	HA	HA	HA	AA		UA	UA		TZ, AC	TZ, AA		RY
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39
2		1	3	2	2	13	12	12	9	7	4		3	2		2	2		1
1.3		1.7	1.6	0.7	0.8	0.6	0.7	0.5	0.5	0.6	2.0		1.8	2.3		0.9	1.6		1.5
26%		17%	47%	7%	8%	40%	41%	34%	23%	21%	78%		55%	45%		17%	32%		15%
30%				24%				26%			67%			31%			23%		
6				29				28			7			4			3		
33%																			
77																			
8				38				37			9			5			4		
101																			
9				45				43			11			6			5		
118																			

Peak Period Gate Utilization

Carrier
Gate Number
Peak Period Gate Occupancies
Avg Dwell Hours
Gate Utilization
Average Util./Hold room Building
Peak Period Operation
Peak Period Gate Utilization
Total Peak Period Operations
Capacity @ D.U.F.
Peak Period Capacity @ D.U.F.
Block Capacities
Peak Period Capacity (1)

HR-A				HR-B				HR-C			HR-D			HR-E			HR-F		
HA		AQ	AQ, HA		AQ	AQ	AQ	HA	HA	HA	AA		UA	UA		TZ	TZ		RY
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39
1		1	2		1	2	1	2	2	1	1		1	1		1	1		1
1.3		1.3	1.2	0.0	0.6	0.6	0.8	0.9	0.5	0.5	2.0		1.8	2.1		0.9	1.6		1.5
42%		44%	80%	0%	21%	41%	26%	62%	32%	11%	65%		59%	69%		29%	53%		50%
55%				22%				35%			62%			49%			52%		
4				4				5			2			2			2		
46%																			
19																			
5				5				7			3			3			3		
25																			
6				6				8			3			3			3		
29																			

Notes:

(1) Operations are constrained by a single apron taxiway and proximity to aircraft queuing at Runway 2. Assumed a reduction to 65% of capacity.