JULY 2025 | DRAFT (PRINTED APRIL 2026)

Kalaeloa Airport Master Plan Update

Chapter 1: Inventory of Existing Conditions

Prepared for:

Hawaii Department of Transportation, Airports

Prepared by:

RICONDO

In association with:

BOWERS + KUBOTA

Ricondo & Associates, Inc. prepared this document for the stated purposes as expressly set forth herein and for the sole use of Hawaii Department of Transportation and its intended recipients. The techniques and methodologies used in preparing this document are consistent with industry practices at the time of preparation and this Report should be read in its entirety for an understanding of the analysis, assumptions, and opinions presented. Ricondo & Associates, Inc. is not registered as a municipal advisor under Section 15B of the Securities Exchange Act of 1934 and does not provide financial advisory services within the meaning of such act.

TABLE OF CONTENTS

1. Inventory of Existing Conditions 1-1

1.1 General Information 1-1
1.1.1 Historical Background 1-1
1.1.2 Airport Location and Size 1-2
1.1.3 Airport Role 1-2
1.1.4 Historical Airport Activity Data 1-2
1.2 Airfield and Airspace 1-7
1.2.1 Airfield Infrastructure 1-7
1.2.2 Airspace 1-18
1.2.3 Meteorological Conditions 1-28
1.3 General Aviation Facilities 1-34
1.3.1 Aircraft Apron and Tie-Downs 1-34
1.3.2 Fixed Base Operators 1-34
1.3.3 Flight School 1-36
1.3.4 Conventional Hangars 1-36
1.3.5 T-hangars and Tie-Downs 1-37
1.3.6 Airport Tenants Summary 1-37
1.3.7 Aircraft Fueling and Fuel Storage 1-38
1.3.8 Aircraft Wash Rack 1-38
1.3.9 Automobile Parking 1-39
1.3.10 Summary of General Aviation Facilities 1-39
1.4 Support Facilities 1-40
1.4.1 Airport Traffic Control Tower 1-40
1.4.2 Airport Maintenance 1-42
1.4.3 Airport Administration 1-42
1.4.4 Aircraft Rescue and Firefighting 1-43
1.4.5 Honolulu Fire Department and Honolulu Police Department 1-43
1.4.6 Hawaii Civil Air Patrol 1-43
1.4.7 State of Hawaii Department of Health – Hazard Evaluation and Emergency Response 1-43

1.4.8 Other Support Facilities 1-43
1.4.9 Summary of Support Facilities 1-43
1.5 Non-Aeronautical Facilities 1-44
1.5.1 Naval Air Museum Barbers Point 1-44
1.5.2 Intermodal Connectivity to Airport 1-46
1.6 Military Facilities 1-48
1.6.1 Hawaii National Guard 1-48
1.6.2 US Coast Guard 1-50
1.7 Utilities 1-52
1.7.1 Water 1-52
1.7.2 Sewer 1-52
1.7.3 Drainage 1-52
1.7.4 Electrical 1-56
1.8 Facilities Condition and Age Estimation 1-56
1.9 Environmental Conditions 1-58
1.10 Land Use 1-65
1.10.1 On-Airport Land Use 1-67
1.10.2 Off-Airport Land Use 1-67

LIST OF APPENDICES

Appendix A Airfield Pavement Conditions Report
Appendix B Kalaeloa Airport Infrastructure Improvements – Project Definition Report
Appendix C Instrument Approach and Departure Procedures

LIST OF TABLES

Table 1.1-1 Historical Enplaned Passengers, Aircraft Operations, and Based Aircraft 1-5
Table 1.2-1 Existing Runway Characteristics 1-9
Table 1.2-2 Existing Taxiway Characteristics 1-12
Table 1.2-3 Existing Airfield Lighting and Navigational Aids 1-16
Table 1.2-4 Current Instrument Approach and Departure Procedures 1-23
Table 1.2-5 Airports within 25 Nautical Miles 1-28

Table 1.2-6 Runway Wind Coverage....1-29
Table 1.2-7 Temperatures in the Airport Vicinity (2015 to 2024)....1-29
Table 1.3-1 Summary of T-Hangars and Tie-Downs....1-37
Table 1.3-2 Summary of Airport Tenants....1-38
Table 1.3-3 General Aviation Facilities Summary....1-39
Table 1.4-1 Support Facilities Summary....1-44
Table 1.8-1 Condition of Facilities Summary....1-57
Table 1.9-1 Existing Environmental Conditions....1-59
Table 1.10-1 HCDA 5-year Strategic Plan Projects....1-65
Table 1.10-2 Planned and Ongoing Development Surrounding KCDD....1-67

LIST OF EXHIBITS

Exhibit 1.1-1 Kalaeloa Historical Timeline....1-3
Exhibit 1.1-2 Airport Location....1-4
Exhibit 1.1-3 Historical Aircraft Operations....1-5
Exhibit 1.1-4 Historical Based Aircraft....1-6
Exhibit 1.2-1 Existing Airfield Configuration....1-8
Exhibit 1.2-2 Runway Use Configuration Diagrams....1-11
Exhibit 1.2-3 Existing Aircraft Apron....1-13
Exhibit 1.2-4 Airfield Pavement Condition by Use....1-14
Exhibit 1.2-5 Airfield Pavement Condition Distribution....1-14
Exhibit 1.2-6 Airfield Pavement Conditions....1-15
Exhibit 1.2-7 Existing Navigational Aids....1-17
Exhibit 1.2-8 Fencing and Security Gates....1-19
Exhibit 1.2-9 Airfield Roadway Network....1-20
Exhibit 1.2-10 Federal Aviation Administration Visual Flight Rules Sectional Chart - Oahu....1-22
Exhibit 1.2-11 Runway 4R – Instrument Approach Procedures – Non-Directional Beacon....1-24
Exhibit 1.2-12 Runway 4R – Instrument Approach Procedures – Area Navigation (Global Positioning System)....1-25
Exhibit 1.2-13 Runway 4R – Instrument Approach Procedures – Very High Frequency Omnidirectional Range with Distance Measuring Equipment....1-26

Exhibit 1.2-14 Jelie One Departure Procedure – Area Navigation 1-27
Exhibit 1.2-15 All Weather – Wind Rose and Coverage Table 1-30
Exhibit 1.2-16 Visual Meteorological Conditions – Wind Rose and Coverage Table 1-31
Exhibit 1.2-17 Instrument Meteorological Conditions – Wind Rose and Coverage Table 1-32
Exhibit 1.2-18 All Weather – Wind Occurrence Grid 1-33
Exhibit 1.3-1 Existing General Aviation Facilities 1-35
Exhibit 1.4-1 Existing Support Facilities 1-41
Exhibit 1.5-1 Existing Non-Aeronautical Facilities 1-45
Exhibit 1.5-2 Connectivity to Airport 1-47
Exhibit 1.6-1 Hawaii National Guard Facilities 1-49
Exhibit 1.6-2 US Coast Guard Facilities 1-51
Exhibit 1.7-1 Existing Electrical Utilities and Solar Energy Facilities 1-53
Exhibit 1.7-2 Existing Water Lines 1-54
Exhibit 1.7-3 Existing Sewer Lines 1-55
Exhibit 1.9-1 Existing Environmental Resources 1-62
Exhibit 1.9-2 Existing Water Resources 1-63
Exhibit 1.9-3 Existing Sea Level Rise Impact Areas 1-64
Exhibit 1.10-1 Existing On-Airport Land Use 1-68
Exhibit 1.10-2 Existing Off-Airport Land Use 1-69
Exhibit 1.10-3 Existing Kalaeloa Community Development District Land Use 1-70

1. INVENTORY OF EXISTING CONDITIONS

This chapter describes the existing conditions and current facilities at Kalaeloa Airport (JRF or Airport). It describes the physical, operational, and functional characteristics of the Airport, which ultimately serve as the basis for identifying improvements to Airport elements for inclusion in the Master Plan Update (MPU). The inventory of existing conditions presented herein reflects data collected or conditions observed as of May 2025.

The data and information collected as part of the inventory serve as a baseline for existing conditions by which the subsequent master planning analysis will be based upon. The description of these facilities will assist in the assessment of the overall condition of the Airport and the ability of various facilities to serve current and future operational demand levels. The data also provides a basis for identifying facilities that may be nearing the end of their useful life, underutilized, and/or do not conform with current design standards or industry needs.

The information contained in this section was obtained from a variety of sources and through collaboration with the Hawaii Department of Transportation, Airports (HDOT). Various sources, including reports, drawings, and databases, as well as a site visit, served as the primary data sources for documenting the location, size, and configuration of existing facilities and infrastructure. The MPU team also conducted a site visit with HDOT to collect and validate additional information and gain an understanding of the Airport's unique operational needs.

1.1 GENERAL INFORMATION

This section describes the historical background of JRF and general information, including airport location, airport size, airport role and classification, and historical airport activity.

1.1.1 HISTORICAL BACKGROUND

The Kalaeloa Community has a deeply rooted history, spanning from early Hawaiian settlements (early 1700s) through the sugar plantation era (late 1800s) and into its significant role during World War II.

The Kalaeloa Community is also known as Barbers Point due to Henry Barber's ship Arthur, which was wrecked along the shoreline in 1796. The US Navy established its presence in Kalaeloa in the 1930s by constructing Ewa Field. In the 1940s, the Ewa Field was expanded into the Marine Corps Air Station (MCAS), which eventually led to the construction of Naval Air Station Barbers Point (NASBP) following the attack on Pearl Harbor. Commissioned in 1942, NASBP served as a pivotal facility supporting carrier-borne aircraft and military operations during World War II.

In 1949, the US Coast Guard (USCG) began operations at its own facility, Coast Guard Air Station Barbers Point. By 1952, the MCAS was closed due to its runways being too short to accommodate jet aircraft. Despite its strategic role during World War II and in the four decades that followed, in 1993, the US Congress authorized closure of NASBP at the recommendation of the Department of Defense (DoD). In response, the Barbers Point Redevelopment Commission (BPRC) was established to facilitate the transition of the NASBP property to the state, city, and other agencies.

In 1997, the Community Reuse Plan was adopted, which included a land use strategy for the redevelopment of NASBP. The plan proposed designating part of the site as a general reliever airport to support aviation training and serve as an alternate landing location for commercial airlines and military operations. This recommendation was driven by the US Navy's planned closure of Ford Island Auxiliary Landing Field, which was anticipated to increase congestion and cause operational delays at Daniel K. Inouye International Airport (HNL), formerly Honolulu

International Airport. In 1998, the HDOT, in collaboration with the BPRC, published the *Kalaeloa Airport Master Plan*. The plan outlined how the Airport could accommodate the needs of aviation users and identified potential uses for surplus land.

In July 1999, NASBP and Ford Island Auxiliary Landing Field closed. The NASBP was officially transferred to HDOT and renamed Kalaeloa Airport. In Hawaiian, "Kalaeloa" means "long point," describing the shape of the southwestern tip of the shoreline. The Airport's code designator, JRF, honors Commander John Rodgers, who served as the Commanding Officer of the Naval Air Station at Pearl Harbor from 1923 to 1925 and made the first attempt (unsuccessful) to fly from San Francisco to Hawaii in 1925. By 2002, the Kalaeloa Community Development District (KCDD) was established pursuant to Act 184 and comprised approximately 3,700 acres of land that included all of the land within the former NASBP. Responsibility for developing the KCDD transferred from BPRC to the Hawaii Community Development Authority (HCDA).

Exhibit 1.1-1 presents a historical timeline that shows how the Kalaeloa Community and JRF have evolved over time.

1.1.2 AIRPORT LOCATION AND SIZE

As depicted on **Exhibit 1.1-2**, JRF is located on the southwest coast of the island of Oahu, Hawaii, west of the city of Honolulu, and it is located approximately 8 nautical miles (NMs) west of HNL. The Airport is situated within the KCDD, which is managed by HCDA. Access to the Airport is provided via Midway Street. JRF encompasses approximately 757 acres of land and falls under Tax Map Key (TMK) (1) 9-1-013.

1.1.3 AIRPORT ROLE

JRF is included in the National Plan of Integrated Airport Systems (NPIAS) and categorized as a local public reliever airport. NPIAS is a Federal Aviation Administration (FAA) report that identifies airports integral to national air transportation. An airport must meet a set of criteria (e.g., based aircraft counts and locational requirements) to be included in the NPIAS. Airports included in the NPIAS are eligible for development grants under the FAA Airport Improvement Program (AIP).

JRF is considered a major asset as it supports a broad range of operations, including general aviation (GA), flight schools, and activities conducted by the USCG, Hawaii Air National Guard (HIANG), and Hawaii Army National Guard (HIARNG).

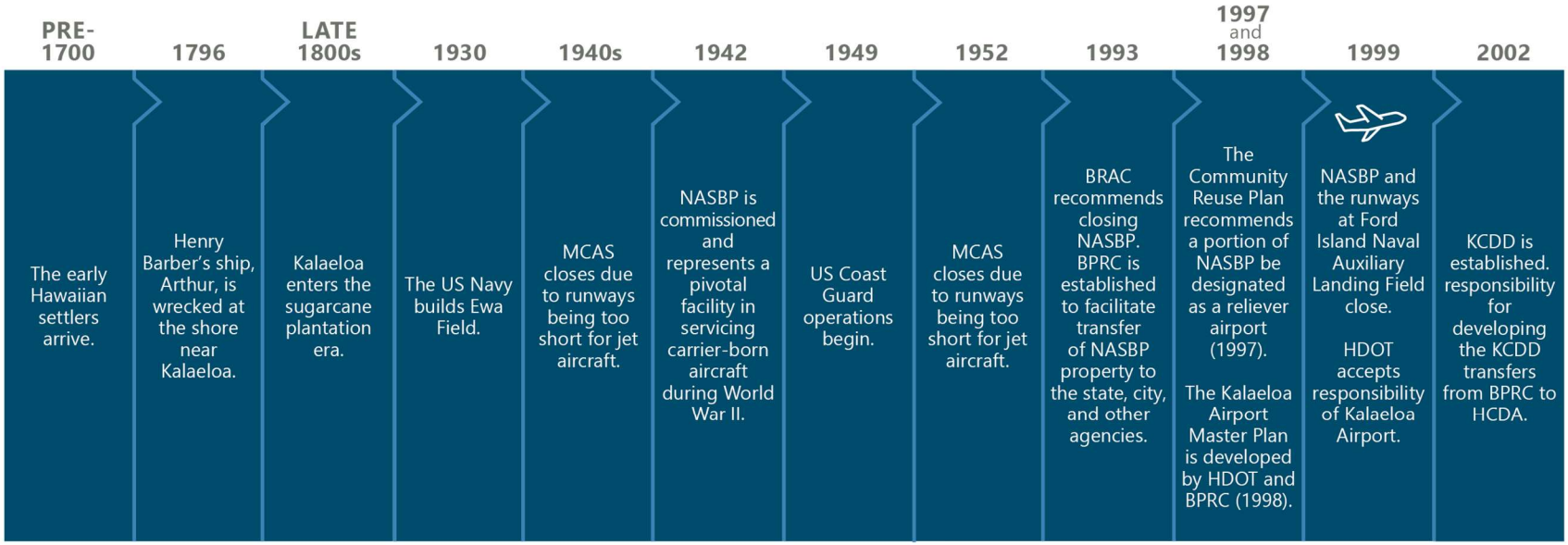
1.1.4 HISTORICAL AIRPORT ACTIVITY DATA

Since its establishment in 1999 under the authority of HDOT, JRF has experienced fluctuations in airport activity, as shown on **Exhibit 1.1-3**. Aircraft operations decreased after 2002, possibly due to the end of the HDOT landing fee waivers.[1] The economic recession from 2006 to 2008 also likely caused a decrease in operations. In July 2014, JRF accommodated Mokulele Airlines, which was the first commercial airline to operate out of the Airport. The airline offered four daily flights to Molokai, with onward connections to Maui, and it operated Cessna Grand Caravan aircraft. However, operations ceased in September 2016 after the airline experienced consistent monthly losses and determined that continued service at JRF was no longer viable.[2] During Mokulele Airlines' time at JRF, the Airport recorded approximately 2,000 to 5,500 enplaned passengers, as shown in **Table 1.1-1**. From 2018 to 2024, the Airport experienced growth in local GA operations.

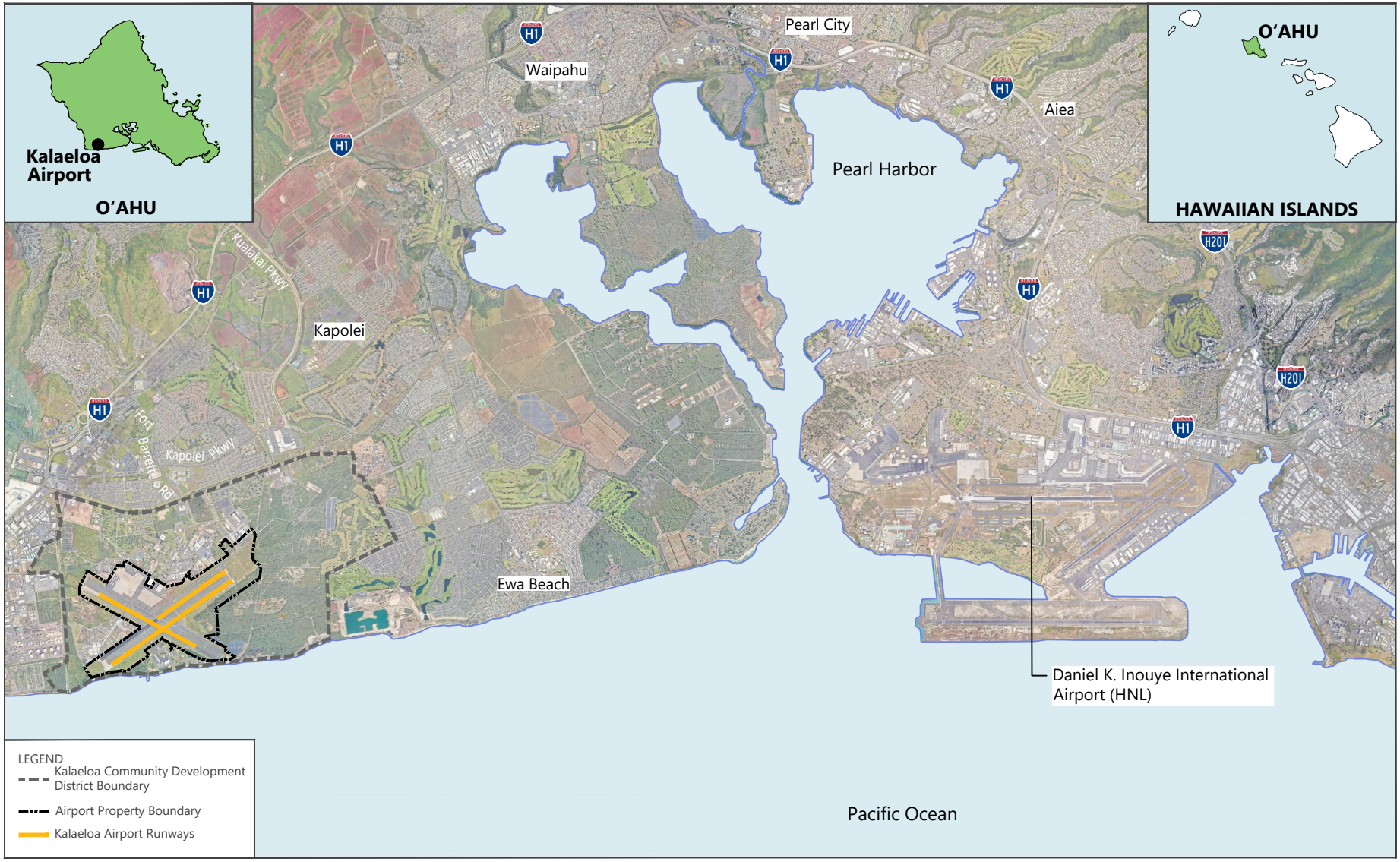
[1] Hawaii Department of Transportation, Chronology of Aviation in Hawaii: 2000 to 2009, https://aviation.hawaii.gov/events/chronology/2000-2009-2/ (accessed June 25, 2025).

[2] Mokulele Airlines, https://www.mokuleleairlines.com/mahalo-kalaeloa/ (accessed May 20, 2025).

EXHIBIT 1.1-1 KALAELOA HISTORICAL TIMELINE



NOTES: BRAC – Base Realignment and Closure Commission BPRC – Barbers Point Redevelopment Commission HCDA – Hawaii Community Development Authority
HDOT – Hawaii Department of Transportation KCDD – Kalaeloa Community Development District MCAS – Marine Corps Air Station NASBP – Naval Air Station Barbers Point
SOURCES: Hawaii Community Development Authority, *Draft Kalaeloa Master Plan*, July 2024; Hawaii Department of Transportation, *Kalaeloa Airport Master Plan*, November 1998; Hawaii Community Development Authority, https://dbedt.hawaii.gov/hcda/discover-kalaeloa/about-kalaeloa/ (accessed May 20, 2025).



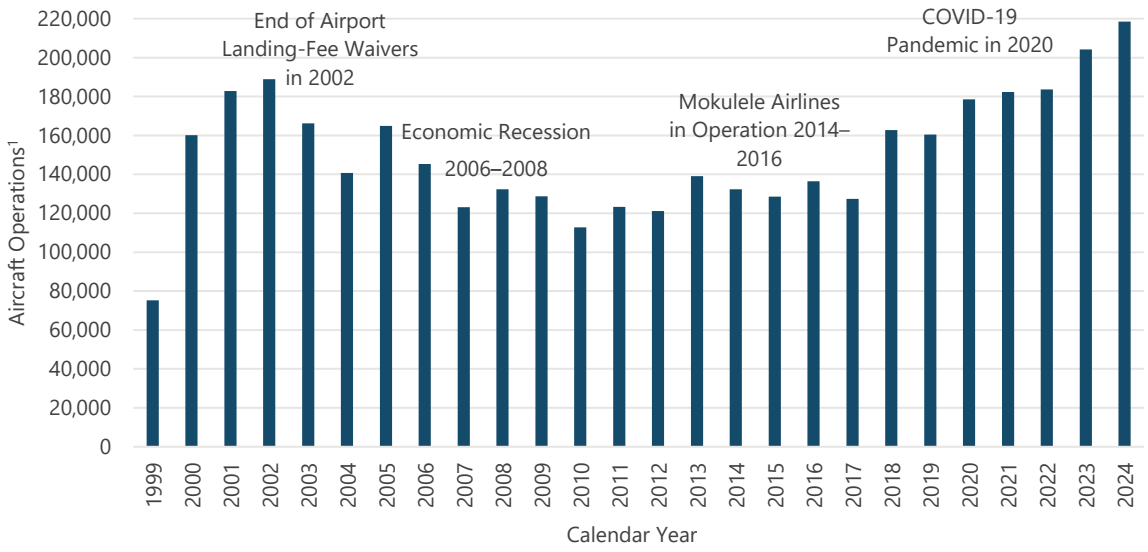
SOURCES: Hawaii Department of Transportation, *Kalaeloa Airport - Airport Layout Plan,* October 2014; Google Earth Pro, November 2022 (aerial photography - for visual reference only).

EXHIBIT 1.1-2

AIRPORT LOCATION

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.1-2 AIRPORT LOCATION.dwgLayout: EXHIBIT 1.1-2 AIRPORT LOCATION Plotted: Apr 13, 2026, 12:59PM

EXHIBIT 1.1-3 HISTORICAL AIRCRAFT OPERATIONS



NOTE:
1 Aircraft operations are counted as takeoffs and landings.
SOURCE: Hawaii Department of Transportation, May 2025.

TABLE 1.1-1 (1 OF 2) HISTORICAL ENPLANED PASSENGERS, AIRCRAFT OPERATIONS, AND BASED AIRCRAFT

YEAR	ENPLANED PASSENGERS[1]	AIRCRAFT OPERATIONS[1]	BASED AIRCRAFT[2]
1999	0	75,293	20
2000	0	160,157	16
2001	0	182,888	16
2002	0	188,831	16
2003	0	166,160	16
2004	0	140,736	25
2005	0	164,948	28
2006	0	145,264	28
2007	0	123,184	28
2008	0	132,327	22
2009	0	128,732	22
2010	0	112,830	14
2011	0	123,219	27
2012	0	121,114	27
2013	0	139,124	35
2014	2,100	132,385	39
2015	5,477	128,558	30
2016	4,195	136,470	37

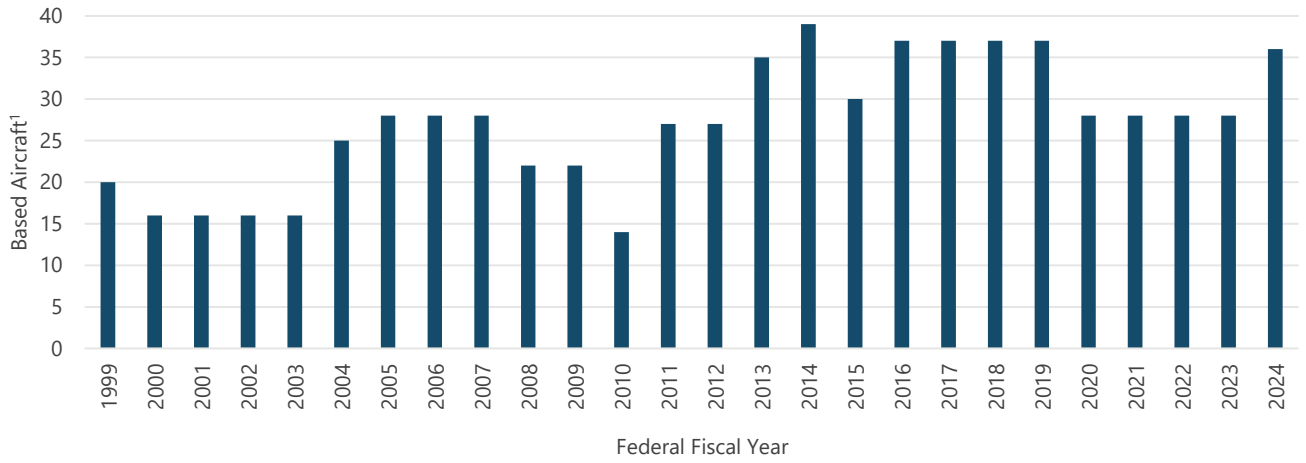
TABLE 1.1-1 (2 OF 2) HISTORICAL ENPLANED PASSENGERS, AIRCRAFT OPERATIONS, AND BASED AIRCRAFT

YEAR	ENPLANED PASSENGERS[1]	AIRCRAFT OPERATIONS[1]	BASED AIRCRAFT[2]
2017	0	127,357	37
2018	0	162,699	37
2019	0	160,399	37
2020	0	178,493	28
2021	0	182,306	28
2022	0	183,683	28
2023	0	204,193	28
2024	3 [3]	218,540	36

NOTES:
1 Aircraft operations and passenger enplanements data are in calendar years. Aircraft Operations are counted as takeoffs and landings.
2 Based aircraft data are from the Federal Aviation Administration's *Terminal Area Forecast*, except for the year 2024, which was provided by the Hawaii Department of Transportation in calendar year 2024. Based aircraft data from 1999 to 2023 are in federal fiscal years.
3 The three enplanements' passengers shown may be due to a chartered or unscheduled flight.
SOURCES: Hawaii Department of Transportation, May 2025 (enplaned passengers and aircraft operations); US Department of Transportation, Federal Aviation Administration, *Terminal Area Forecast*, January 2025 (2013 to 2023 based aircraft); Hawaii Department of Transportation, May 2025 (2024 based aircraft registration data).

Based aircraft are defined as operational and airworthy aircraft that are routinely stored at an airport for most of the year, thus indicating a sustained presence and usage at the facility. According to the HDOT 2024 Aircraft registration database, the total number of based aircraft at JRF was 36 as of July 2025, as shown in Table 1.1-1 and on **Exhibit 1.1-4**. As of July 2025, the based aircraft fleet mix consisted of 1 helicopter, 6 multi-engine fixed-wing aircraft, and 29 single-engine fixed-wing aircraft.

EXHIBIT 1.1-4 HISTORICAL BASED AIRCRAFT



NOTE:
1 Based aircraft data are from the Federal Aviation Administration's *Terminal Area Forecast*, except for the year 2024, which was provided by the Hawaii Department of Transportation.
SOURCES: US Department of Transportation, Federal Aviation Administration, *Terminal Area Forecast*, January 2025 (2013 to 2023 based aircraft); Hawaii Department of Transportation, May 2025 (2024 based aircraft registration data).

1.2 AIRFIELD AND AIRSPACE

This section documents the existing configuration, infrastructure, and operational characteristics of the Airport's airfield. As of July 2025, the design work for the Airfield Improvements project (State Project No. AO5022-01) at JRF was in its early stage, at 15 percent in project definition phase. This project entails reconstructing many pavement sections of the airfield, including runways, taxiways, and apron areas, to address the current overall poor condition of the airfield pavement.[3] Design work efforts for JRF Airfield Improvements project are anticipated to be completed by fall 2027, with construction completed by summer 2029. To improve the Airport's pavement condition pending completion of the entire airfield reconstruction, design efforts for Runway 4R-22L overlay are underway (State Project No. AO5022-02), with an anticipated construction completion by summer 2027. For purposes of this inventory chapter, these projects were considered existing conditions, and subsequent sections herein may be updated as the MPU nears completion.

1.2.1 AIRFIELD INFRASTRUCTURE

The airfield consists of the facilities necessary to support the operation of aircraft, including runways, taxiways, and apron areas, along with associated pavement markings, lighting systems, and navigational aids (NAVAIDs). It was constructed in 1941 by the Army Corps of Engineers and originally consisted of 2½-inch asphalt concrete on an unspecified thickness of rolled coral. The infields between the runways, taxiways, and apron were of the same materials. Subsequently, overlays were applied solely within the limits of runways and taxiways, resulting in the current configuration of the airfield. Most of the runways and taxiways are either asphalt or overlaid asphalt, with the first 1000-feet of Runway 4R and Runway 11 Portland cement concrete (PCC). Most of the apron areas are PCC; some later additions are asphalt.[4] **Exhibit 1.2-1** presents an overview of the airfield configuration, including movement and nonmovement areas. The movement area encompasses runways, taxiways, and other areas that are used for taxiing or hover taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and aircraft parking areas. It is the area where the airport traffic control tower (ATCT) has authority, and movement within this area requires ATCT clearance. The nonmovement area is defined as ramps and aprons; it is not controlled by the ATCT, which means aircraft may move or taxi without clearance from or communications with ATCT.

1.2.1.1 RUNWAYS

Characteristics

JRF has two closely spaced parallel runways, 4L-22R and 4R-22L, separated by 625 feet from centerline to centerline, and one crosswind runway, 11-29. The southeast end of Runway 11-29, between Runway 4L-22R and the Runway 29 end has been closed since April 2025 due to deteriorating pavement conditions (i.e. cracks/surface variations with vegetation growth). Declared distances for Runway 11-29 are published through the FAA Notice to Airmen (NOTAM), making only the northwestern portion of the runway usable resulting in 4,910 feet of available runway length compared to the published full length of 8,365 feet.[5] The existing runways are located south of the Airport facilities, as shown on Exhibit 1.2-1. **Table 1.2-1** summarizes the physical characteristics of the three runways. The runways vary in length, ranging from 4,505 feet to 8,365[6] feet, are 200-feet wide, are primarily asphalt, and have no shoulders. Each runway end has a blast pad, except for the Runway 4L end and Runway 29 end. Displaced thresholds, measured from the full length of Runway 11-29 ends, are 939 and 1,429 feet, respectively.[7]

---

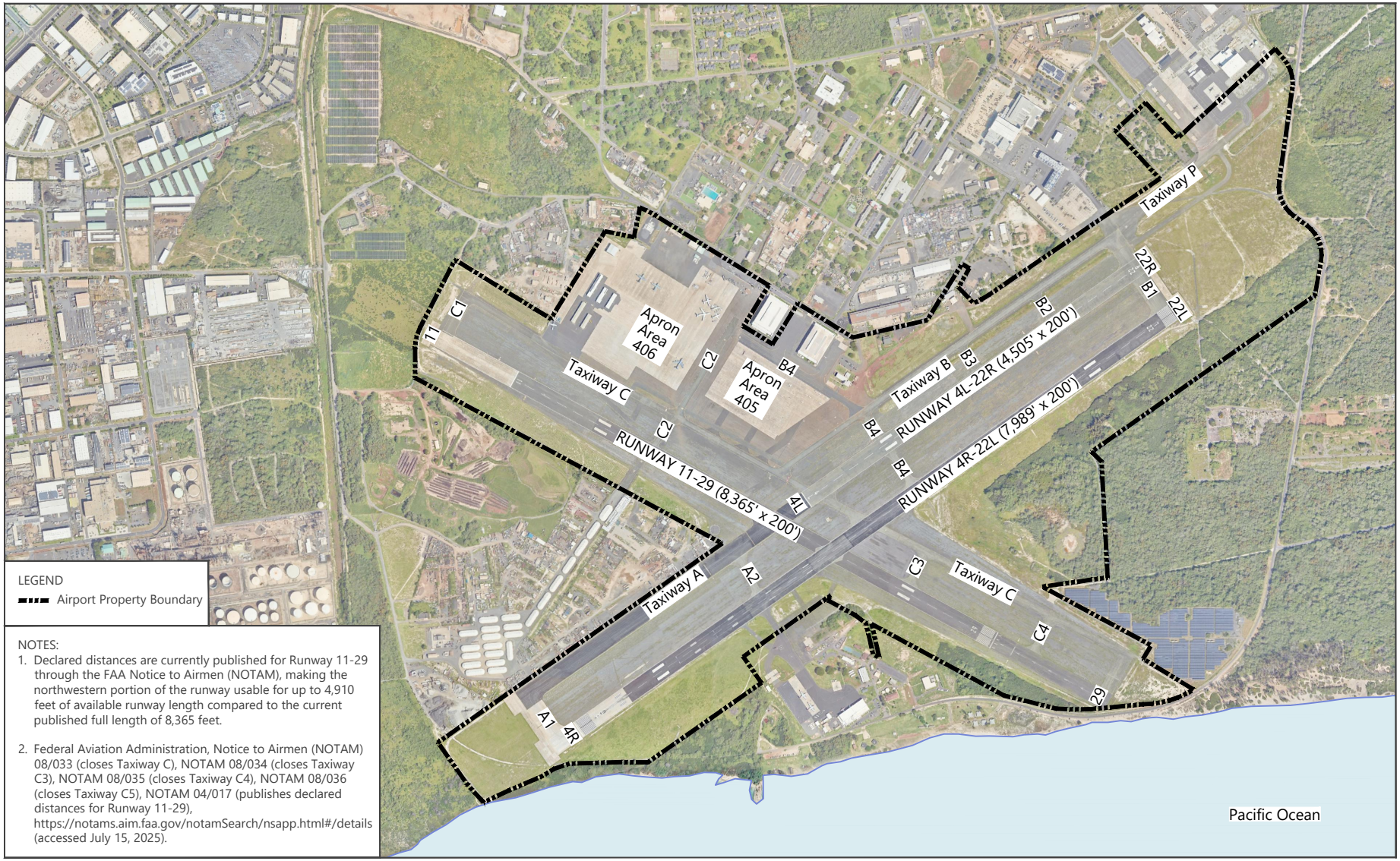
[3] Hawaii Department of Transportation, Statewide Pavement Management System Update, Final Report for Kalaeloa Airport, (January 2022)

[4] Ibid.

[5] Federal Aviation Administration, Notice to Airmen (NOTAM) 08/033 (closes Taxiway C), NOTAM 08/034 (closes Taxiway C3), NOTAM 08/035 (closes Taxiway C4), NOTAM 08/036 (closes Taxiway C5), NOTAM 04/017 (publishes declared distances for Runway 11-29), https://notams.aim.faa.gov/notamSearch/nsapp.html#/details (accessed July 15, 2025).

[6] As stated previously, only the northwestern portion of Runway 11-29 is available via declared distances published through various FAA NOTAMs for a total usable length of 4,910 feet, as of July 2025.

[7] Ibid.



SOURCES: Hawaii Department of Transportation, Kalaeloa Airport – Airport Layout Plan, October 2014; Google Earth Pro, November 2022 (aerial photography – for visual reference only)

NORTH 0 1,600 ft

EXHIBIT 1.2-1

EXISTING AIRFIELD CONFIGURATION

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.2-1 EXISTING AIRFIELD CONFIGURATION.dwgLayout: EXHIBIT 1.2-1 EXISTING AIRFIELD CONFIGURATION Plotted: Apr 8, 2026, 08:59AM

TABLE 1.2-1 EXISTING RUNWAY CHARACTERISTICS

CHARACTERISTICS	RUNWAY 4L	22R	4R	22L	11	29
Length (feet)	4,505		7,989		8,365[1]	
Width (feet)	200		200		200	
Shoulders (feet)	0		0		0	
Surface Type – Condition[2]	Asphalt – Poor	Asphalt – Poor	PCC/Asphalt – Poor	Asphalt – Poor	PCC/Asphalt – Fair	Asphalt – Very Poor
Blast Pad (length x width) (feet)	None	150 x 300	150 x 300	150 x 300	100 x 280	None
Pavement Classification Rating (PCR)	602/F/A/X/T		602/F/A/X/T		602/F/A/X/T	
Load Bearing Capacity						
Single Wheel (pounds)	120,000		120,000		120,000	
Double Wheel (pounds)	250,000		250,000		250,000	
Double Tandem (pounds)	513,000		513,000		513,000	
Dual Double Tandem (pounds)	1,029,000		1,029,000		1,029,000	
Runway Lighting	MIRLs		MIRLs		MIRLs	
Runway End Elevation (feet)	21.4	28.7	11.4	26.7	32.3	8.3
Displaced Threshold (feet)	None	None	None	None	939	1,429
Visual Aids[3]	PAPI 2L	PAPI 2L	PAPI 4R	PAPI 4L	PAPI 4L	PAPI 4L
Runway Marking	Basic	Basic	Precision	Basic	Basic	Basic
Runway Design Code	A-II/Visual	A-II/Visual	C-IV/5000	C-IV/Visual	C-IV/Visual	C-IV/Visual
Approach Reference Code (APRC)	B-II/Visual	B-II/Visual	D-VI-4000	D-VI-4000	D-V-4000	D-V-4000
Departure Reference Code (DPRC)	D-V	D-V	D-V	D-V	D-V	D-V

NOTES:
MIRLs – Medium-Intensity Runway Lights
PAPI – Precision Approach Path Indicator
1 As stated previously, only the northwestern portion of Runway 11-29 is available via declared distances published through various FAA NOTAMs for a total usable length of 4,910 feet, as of July 2025.
2 Hawaii Department of Transportation, Statewide Pavement Management System Update, Final Report for Kalaeloa Airport, (January 2022)
3 Description for various types of PAPI:
2L refers to a 2-light PAPI located on the left side of the runway.
4R refers to a 4-light PAPI located on the right side of the runway.
4L refers to a 4-light PAPI located on the left side of the runway.
SOURCES: US Department of Transportation, Federal Aviation Administration, Airport Data and Informational Portal, April 16, 2026; Hawaii Department of Transportation, January 2024 (topographic file).

Runway Use

Runway use at an airport is typically driven by prevailing wind and weather conditions, the lengths and widths of the runways, runway instrumentation, and the effects of other airports in the area. Aircraft arrive and depart depending on wind and weather conditions and noise considerations. Wind velocity and wind direction typically dictate the direction in which the runways can be used for arrivals and departures. Ceiling height and visibility determine the ATC procedures that are in effect. Two types of primary wind conditions occur at JRF: Trade wind (northeasterly flow) and Kona wind (southwesterly flow) conditions. During trade wind conditions, which occur 66 percent of the time, Runways 4L and 4R are the primary arrival and departure runways. In Kona wind conditions, which occur 34 percent of the time, Runways 22L and 22R are the primary arrival and departure runways. In addition to prevailing winds, the active runway configuration at HNL influences how the Airport operates to ensure aircraft are traveling safely throughout the airspace for both airports. **Exhibit 1.2-2** depicts runway use during trade and Kona wind conditions, as well as annual occurrences for primary and secondary airfield operating configurations at the Airport. As shown, arrivals and departures on Runways 4L and 4R represent 74.6 percent during trade wind conditions. Arrivals and departures on Runways 22L and 22R represent 12.3 percent during Kona wind conditions. These airfield operating configurations are the primary airfield operating configurations at the Airport. Other airfield operating configurations including utilization of all three runways, Runway 4L-22R, Runway 4R-22L, and Runway 11-29 are also depicted. These airfield operating configurations are the secondary airfield operating configurations at the Airport. In trade wind conditions, the utilization of Runways 4L-4R and Runway 11 represents 6.3 percent of the annual occurrence. In Kona wind conditions, the utilization of Runway 22L-22R, and Runway 29 represents 3.5 percent. The remaining 3.3 percent represents annual occurrences of runway use configurations composed of other runway use combinations ranging from 0.3 to 0.5 percent.

According to HDOT, Runway 11-29 is generally utilized when crosswind components on runways 4-22 are exceeded, especially for smaller general aviation aircraft. Runway 11-29 also serves as a back-up runway when Runway 4R-22L is closed for maintenance or emergencies. As previously mentioned, however, the use of Runway 11-29 is restricted due to deteriorated pavement conditions.

1.2.1.2 TAXIWAYS

The existing taxiway system at the Airport consists of runway exits and parallel and connecting taxiways that allow the circulation of aircraft while on the ground between the runway, GA apron, and apron areas for the HIARNG/HIANG and USCG facilities located off airport property. Most taxiways are constructed of asphalt, except for the southwest portion of Taxiway A, which is PCC. The following three taxiways serve the runways: Taxiway A provides access to Runways 4L and 4R; Taxiway B is parallel to Runway 4L-22R; and Taxiway C is parallel to Runway 11-29. Taxiway P connects to Taxiway B and provides access to HIARNG/HIANG facilities. All taxiways are equipped with medium-intensity taxiway lights (MITLs). **Table 1.2-2** presents the taxiway characteristics.

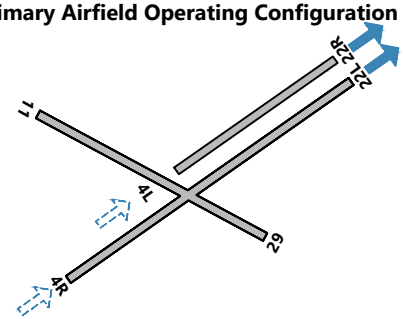
1.2.1.3 APRON

The aircraft aprons at JRF are constructed of PCC, asphalt, and overlaid asphalt. The Airport has two apron areas that are located west of the ATCT and separated by Taxiway C2, Apron Area 405 and Apron Area 406, as depicted on **Exhibit 1.2-3**. The total apron area is approximately 66.4 acres. Further discussion of these apron areas is provided in Section 1.3.1.

Trade Wind Conditions[1]

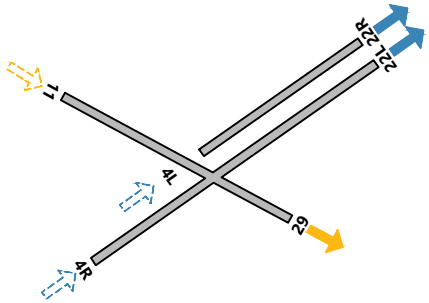
Visual Meteorological Conditions: 64.4%
Instrument Meteorological Conditions: 1.6%
Total: **66%**

Primary Airfield Operating Configuration



Annual Occurrence of Airfield Operating Configuration[2]: **74.6%**

Secondary Airfield Operating Configuration

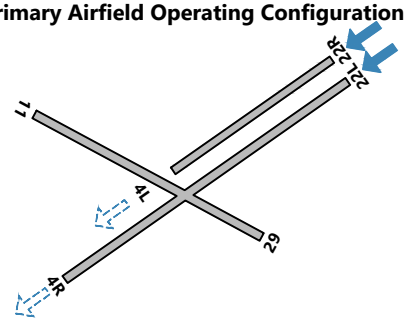


Annual Occurrence of Airfield Operating Configuration[2]: **6.3%**

Kona Winds Conditions[1]

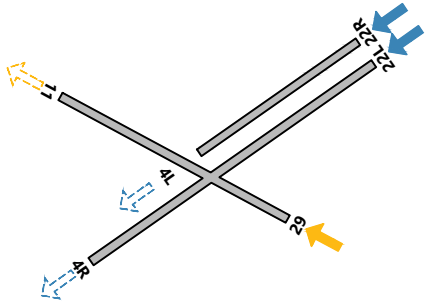
Visual Meteorological Conditions: 33.5%
Instrument Meteorological Conditions: .5%
Total: **34%**

Primary Airfield Operating Configuration



Annual Occurrence of Airfield Operating Configuration[2]: **12.3%**

Secondary Airfield Operating Configuration



Annual Occurrence of Airfield Operating Configuration[2]: **3.5%**

NOTES:

1 Weather conditions were determined by using local weather data from National Oceanic and Atmospheric Administration for a ten-year period.

2 Annual occurrence of airfield operating configurations were determined from radar data provided by ATAC Corporation.

3 The remaining 3.3 percent annual occurrence of airfield operating configurations are composed of other runway use combinations ranging from 0.3 percent to 0.5 percent.

4 All occurrences of calm wind conditions, defined as wind speeds of of 0-5 miles per hour (MPH), were assumed to operate in a trade wind configuration. Calm wind conditions occurred 55 percent of the time.

5 The Airport is closed due to weather 1.9 percent of the time during the observed years, for the purpose of this exhibit the 1.9 percent is is included into the Instrument Meteorological Conditions share.

LEGEND
- Primary Arrivals
- Primary Departures
- Secondary Arrivals
- Secondary Departures

SOURCES: National Oceanic and Atmospheric Administration, National Centers for Environmental Information, July 2025 (Global Hourly Integrated Surface Dataset, Station 911780, January 1, 2015, through December 31, 2024 (87,184 observations); ATAC Corporation, *Aircraft Fleet Mix Data, Fiscal Year 2024*, July 2025; Ricondo & Associates, Inc., June 2025 (analysis).

EXHIBIT 1.2-2

NORTH

Not To Scale

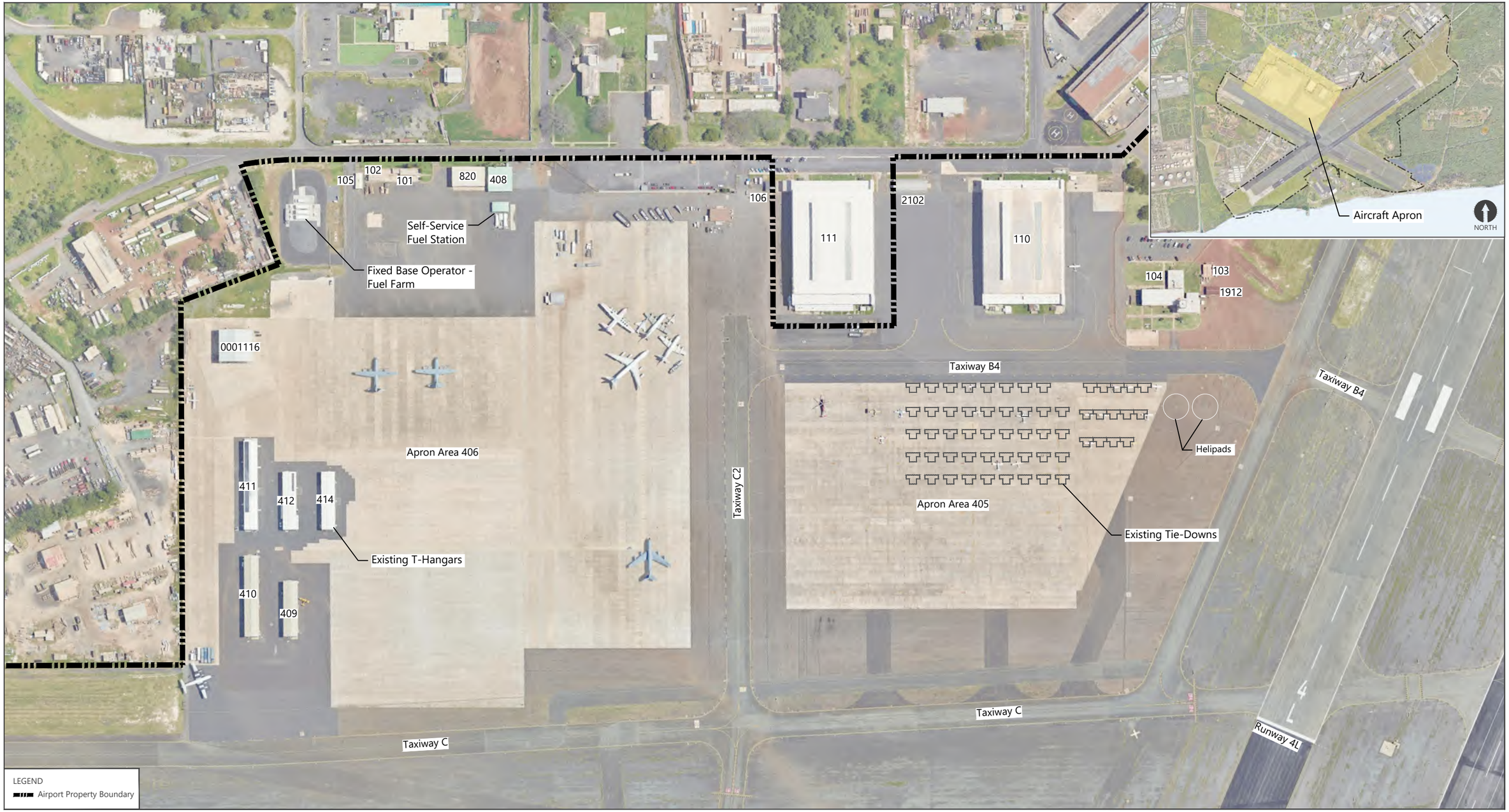
RUNWAY USE CONFIGURATION DIAGRAMS

Drawing: P:_PROJECTS\HDOT(HI)\JRF\25011429-MP NEM\Master Plan\1.1 Inventory\1.1.3 Airspace Data\AutoCAD\JRF-Runway_Use_Configuration_Diagrams.dwgLayout: 8.5x11L Plotted: May 1, 2026, 03:30PM

TABLE 1.2-2 EXISTING TAXIWAY CHARACTERISTICS

TAXIWAY	WIDTH (FEET)	SHOULDER (FEET)	DESCRIPTION
A	190	0	Connector taxiway between Runway 4R to Runway 4L
A1	200	0	Connector taxiway between Taxiway A and Runway 4R end
A2	75	0	Connector taxiway between Taxiway A and Runway 4R; also connects to USCG facilities
B	75	0	Parallel taxiway to Runway 4L-22R; Also connects to Taxiway P, which leads to the HIARNG/HIANG facilities
B1	200	0	Connector taxiway between Taxiway B and Runways 22R and 22L ends
B2	100	0	Connector taxiway between Taxiway B and Runway 4L-22R
B3	100	0	Connector taxiway between Taxiway B and Runway 4L-22R
B4	75	0	Connector taxiway between Taxiway B and Runway 4L-22R; also connects to Runway 4R-22L
C	75	0	Parallel taxiway to Runway 11-29
C1	125	0	Connector taxiway between Taxiway C and Runway 11 end
C2	75	0	Connector taxiway between Taxiway C and general aviation apron area
C3	75	0	Connector taxiway between Taxiway C and Runway 11-29
C4	75	0	Connector taxiway between Taxiway C and Runway 11-29
C5	255	0	Connector taxiway between Taxiway C and Runway 29 end
P	75	0	Connector taxiway between Taxiway B and HIARNG/HIANG facilities

NOTES:
USCG – US Coast Guard HIARNG – Hawaii Army Reserve National Guard HIANG – Hawaii Air National Guard
SOURCE: Hawaii Department of Transportation, May 2025.



SOURCES: Hawaii Department of Transportation (HDOT), May 2025 (JRF Tenant Information); Google Earth Pro, November 2022 (aerial photography - for visual reference only); HDOT, Tenant Property Map, September 2022 (tie-down position layout).

NORTH 0 300 ft

EXHIBIT 1.2-3

EXISTING AIRCRAFT APRON

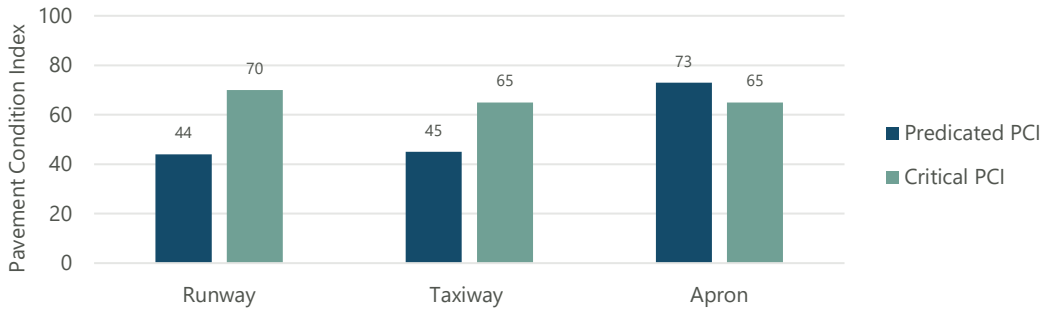
Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.2-3 EXISTING AIRCRAFT APRON.dwgLayout: Existing Conditions Plotted: Feb 20, 2026, 09:31AM

1.2.1.4 AIRFIELD PAVEMENT CONDITIONS

Pavement conditions at JRF were last assessed in July 2019 using the pavement condition index (PCI) procedure and documented in the final report, *Statewide Pavement Management System Update (dated July 2022),* which serves as the basis for the ongoing airfield Improvements project design efforts. The PCI procedure quantifies the types, severities, and amounts of distress present. This information was then used to develop a composite index that represents the overall condition of the pavement in numerical terms, ranging from 0 (failed) to 100 (excellent). When the PCI is determined, it is measured against the critical PCI, which establishes whether localized preventive maintenance or major rehabilitation is needed. A predicated PCI above the critical PCI indicates localized maintenance is needed. A predicated PCI below the critical PCI indicates major rehabilitation is needed. At JRF, the critical PCI for the runways is 70, and it is 65 for the taxiways and apron areas.

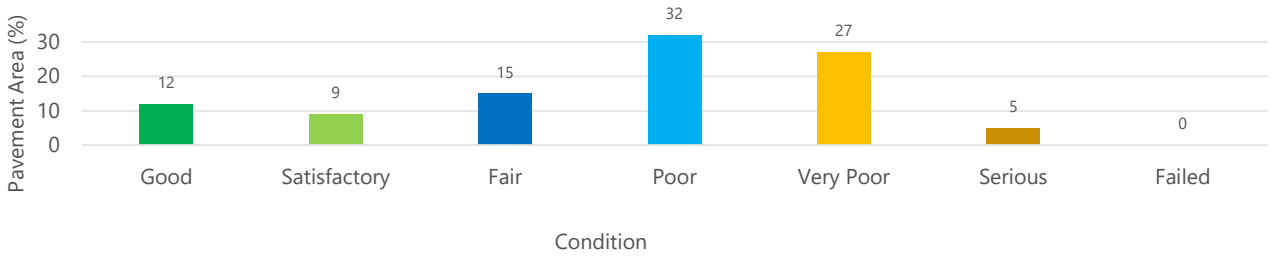
Exhibit 1.2-4 shows a breakdown of the PCI values by pavement use and **Exhibit 1.2-5** shows the pavement condition distribution for the overall airfield pavement area. The apron at JRF requires localized maintenance due to its higher predicated PCI than the critical PCI. The runways and taxiways, however, require major rehabilitation due to their predicated PCI values that are lower than the critical PCI. **Exhibit 1.2-6** depicts the PCI values for the entire JRF airfield. The condition of the pavements at the Airport ranged from a low PCI rating of 12 to a high rating of 93. The overall airfield pavement is in "poor" condition with a weighted average PCI of 53. **Appendix A** provides the entire *Airfield Pavement Conditions* report.

EXHIBIT 1.2-4 AIRFIELD PAVEMENT CONDITION BY USE

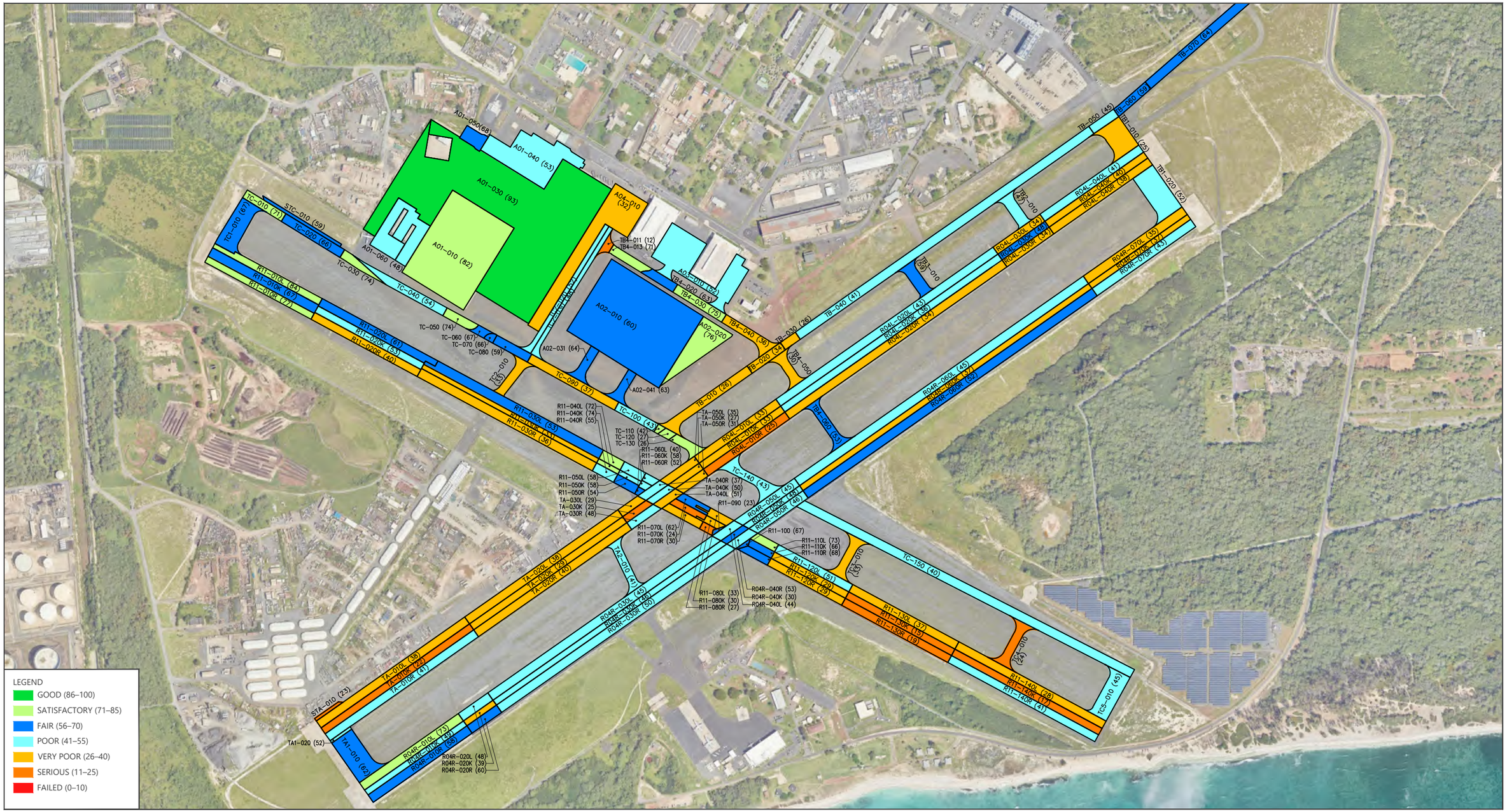


NOTES: PCI – Pavement Condition Index Pavement inspection was conducted in July 2019.
SOURCES: Bowers + Kubota Consulting/Applied Pavement Technology, *Statewide Pavement Management System Update Final Report*, July 2022.

EXHIBIT 1.2-5 AIRFIELD PAVEMENT CONDITION DISTRIBUTION



NOTE: Pavement inspection was conducted in July 2019.
SOURCE: Bowers + Kubota Consulting/*Applied Pavement Technology, Statewide Pavement Management System Update Final Report*, July 2022.



SOURCE: Bowers+Kubota Consulting, *Statewide Pavement Management System Update Final Report – Kalaeloa Airport, Kapolei, Hawaii*, January 2022.

NORTH 0 800 ft

EXHIBIT 1.2-6

AIRFIELD PAVEMENT CONDITIONS

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.2-6 AIRFIELD PAVEMENT CONDITIONS.dwgLayout: Existing Conditions Plotted: Apr 8, 2026, 08:20AM

1.2.1.5 AIRFIELD LIGHTING AND NAVIGATIONAL AIDS

Airfield marking, lighting systems, and NAVAIDs at JRF assist pilots with visual and electronic guidance to and from the Airport. **Table 1.2-3** summarizes the lighting and NAVAIDs at the Airport.

TABLE 1.2-3 EXISTING AIRFIELD LIGHTING AND NAVIGATIONAL AIDS

CHARACTERISTICS	AIRPORT-WIDE	RUNWAY					
		4L	22R	4R	22L	11	29
Approach Aids							
Precision Approach Path Indicator (PAPI)		●	●	●	●	●	●
Approach Lighting System							
Medium-Intensity Runway Lights (MIRLs)		●	●	●	●	●	●
Medium-Intensity Approach Light System with Sequenced Flashers (MALSF)				●			
Other							
Wind Cone	●	●	●	●	●	●	
Segmented Circle	●	●					
Rotating Beacon	●						
Automated Surface Observing System (ASOS)	●						

SOURCE: US Department of Transportation, Federal Aviation Administration, Airport Data and Informational Portal, May 15, 2025.

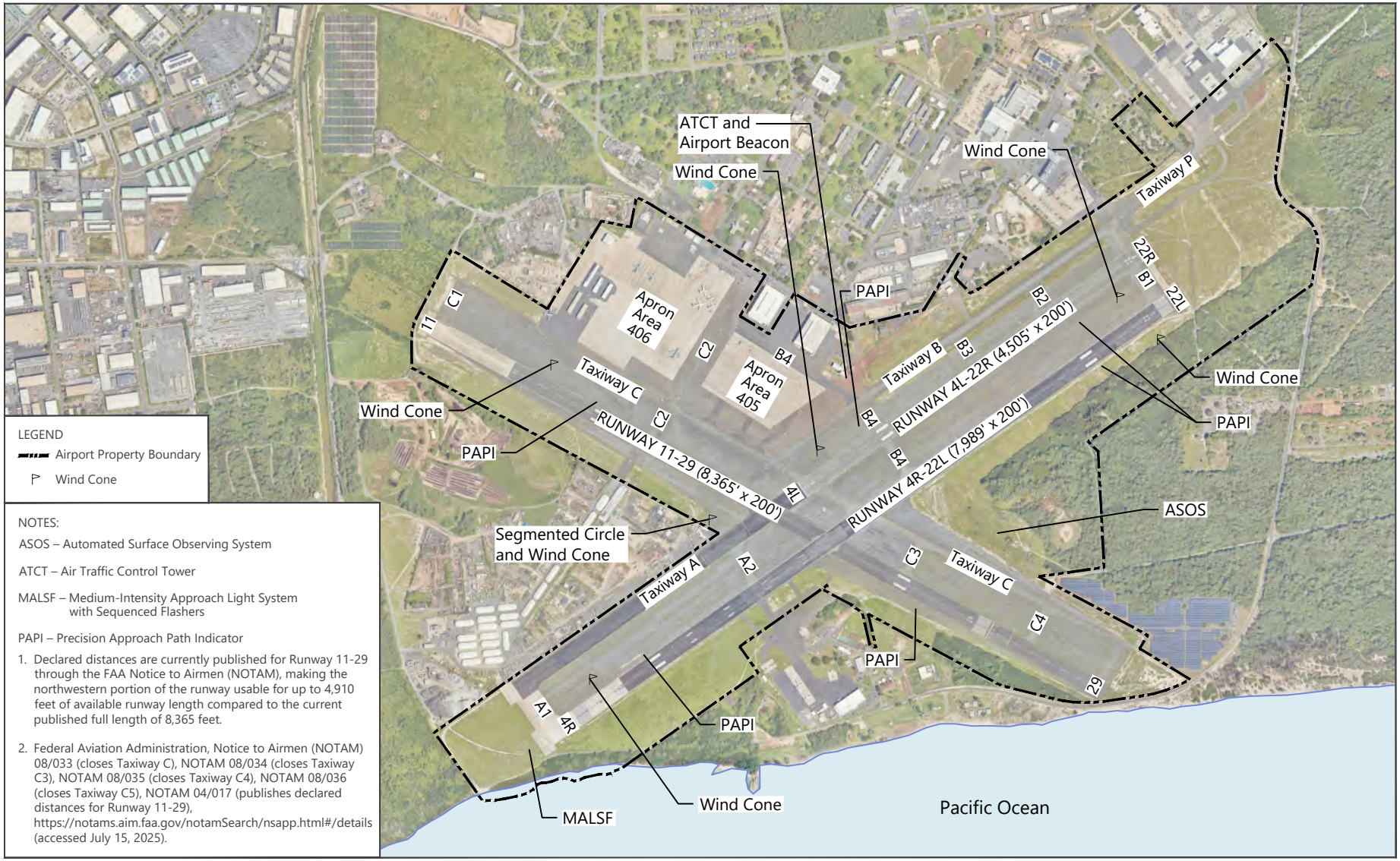
Airfield Marking and Lighting

Runways 11-29, 4L-22R, and 22L have basic runway markings, and Runway 4R has precision runway markings. All runways are equipped with medium-intensity runway lights (MIRLs). All entry/exit taxiways and parallel taxiways to all the runways are equipped with MITLs. Runway 4R is equipped with a medium-intensity approach light system with sequenced flashers (MALSF).

As shown on **Exhibit 1.2-7**, Runway 4L and 22R ends are equipped with a 2-light precision approach path indicator (PAPI) located on the left side of the respective runway. Similarly, Runway 4R and 22L ends are equipped with a 4-light PAPI located on the left side of the respective runway. Runway ends 11 and 29 are equipped with a 4-light PAPI located on the left side of the respective runway.

Navigational Aids

The ATCT is centrally located north of the Airport property; it is operational between 6:00 a.m. and 10:00 p.m. and is managed by HIANG. Other NAVAIDs at the Airport include one segmented circle, five wind cones, a rotating beacon, and an automated surface observing system (ASOS). The rotating beacon is located at the ATCT (Building 104), and the ASOS is located east of the Airport near the midpoint of Runway 4R-22L. Exhibit 1.2-7 depicts the locations of these NAVAIDs.



SOURCES: Hawaii Department of Transportation, *Kalaeloa Airport – Airport Layout Plan*, October 2014; Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 1,600 FT

EXHIBIT 1.2-7

EXISTING NAVIGATIONAL AIDS

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.2-7 EXISTING NAVIGATIONAL AIDS.dwgLayout: EXHIBIT 1.2-7 EXISTING NAVIGATIONAL AIDS Plotted: Feb 20, 2026, 09:31AM

1.2.1.6 FENCING AND SECURITY GATES

The JRF airfield security fencing consists primarily of chain-link fence with three strands of barbed wire. The fencing surrounds and controls access to the Airport Air Operations Area (AOA) with portions of the fence connecting with the adjacent USCG property. Twenty security gates are located at various points around the airfield, which control access to the airfield and facilities located within the AOA. Controlled access to the apron area is at Gate 12, which is located on Midway Street, west of Hangar 111. **Exhibit 1.2-8** depicts the location of the airfield security gates.

1.2.1.7 PERIMETER AND SERVICE ROADS

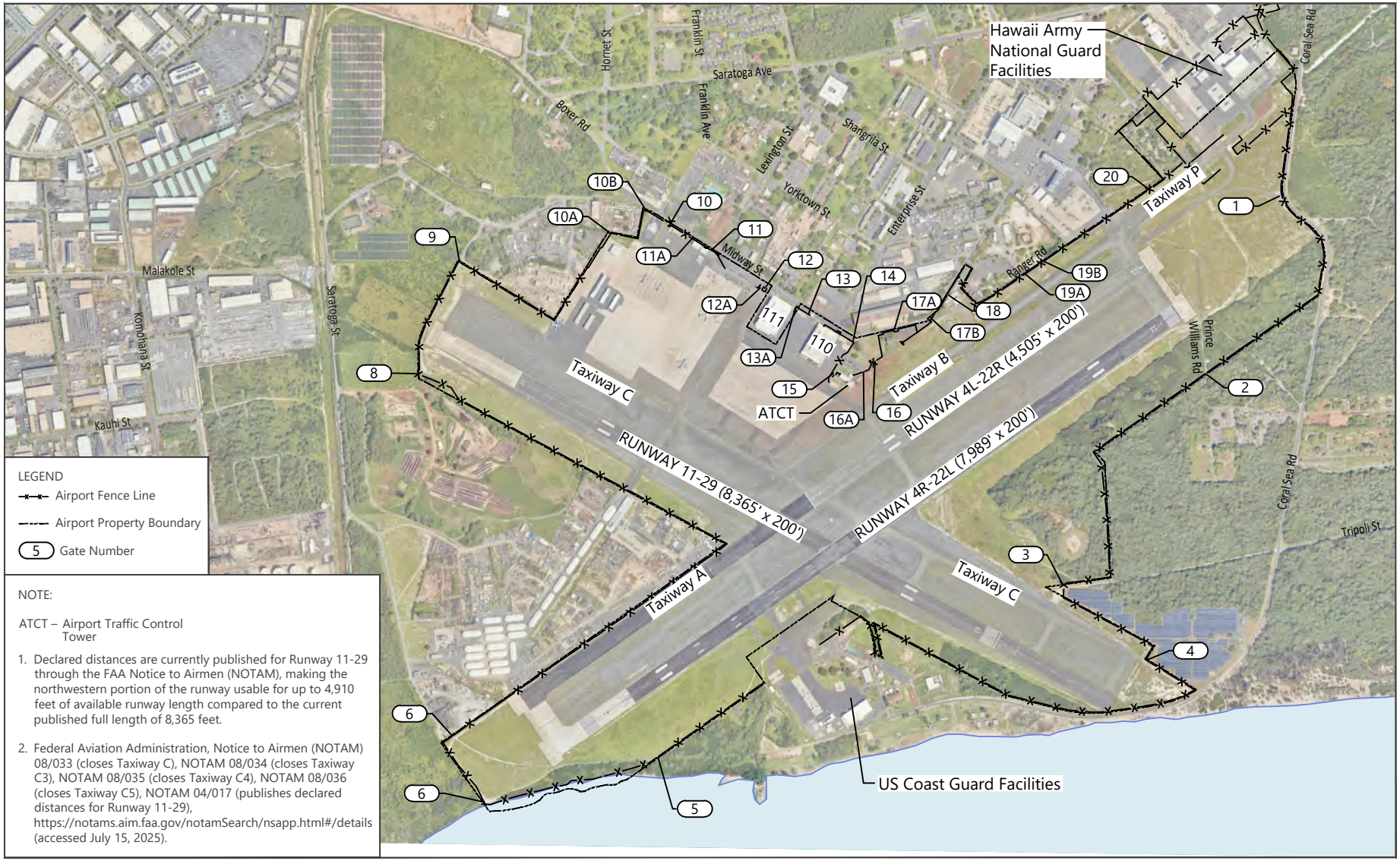
The perimeter roads at the Airport generally follow the security fencing and property line. A portion of Midway Street, a public roadway, serves as the perimeter road along the north portion of the Airport property line. Most perimeter roads and airfield service roads in the AOA are gravel and dirt. There are no designated markings for apron vehicle service roads (VSRs) to direct safe maneuvering of vehicle operations between taxiing and parked aircraft. **Exhibit 1.2-9** presents the airfield roadway network.

1.2.2 AIRSPACE

The FAA divides the U.S. airspace into classes (A, B, C, D, E, G) based on traffic, control, and safety needs from the busy controlled Class A to the uncontrolled Class G, each with specific rules, requiring pilot communication and clearances for aircraft operations, especially around airports and Special Use Airspace (SUA) for security/military zones.

The airspace around airports is categorized into several different classes:

- Class A Airspace: Controlled airspace typically reserved for commercial jet aircraft in the cruise segment of flight, under strict air traffic control for instrument flight rules (IFR) operations only. The airspace extends from 18,000 feet mean sea level (MSL) up to and including 60,000 feet.
- Class B Airspace: Controlled airspace usually designated for a major airport, looking like an "upside-down wedding cake" with multiple layers from the ground surface up to 10,000 feet. The airspace is composed of a series of interconnected circular patterns around the airport that vary based on the terrain, volume, and flow of air traffic, as well as proximity of other airports.
- Class C Airspace: Controlled airspace designated for busy but not major airports. The typical dimensions of the airspace consist of a 5-NM radius core area extending from the surface to 4,000 feet above the airport elevation and a 10-NM radius shelf area extending from 1,200 feet to 4,000 feet above airport elevation. However, the floor and ceiling of the airspace can vary based on local conditions.
- Class D Airspace: Controlled airspace for an airport that has a functioning control tower but does not provide radar services like Class B or Class C airspace. Class D airspace normally extends from the surface up to a designated MSL altitude (approximately 2,500 feet above ground level [AGL]).
- Class E Airspace: Controlled airspace designated for small airports without operating control towers, as well as federal and victor airways. If Class D airspace has a control tower with limited hours, then the airspace usually reverts to Class E while the tower is closed. It is the most common type of controlled airspace in the U.S., essentially all controlled airspace not classified as A, B, C, or D forming a "catch-all" that manages flight from 1,200 feet AGL up to 18,000 feet MSL for IFR operations, while providing flexible access for visual flight rules (VFR) operations without requiring constant radio contact, though specific rules apply.
- Class G Airspace: Uncontrolled airspace that typically extends from the surface to 700 or 1,200 feet AGL. In some areas, Class G airspace may extend from the surface to 14,500 feet MSL.



LEGEND
- Airport Fence Line
- Airport Property Boundary
- 5 Gate Number

NOTE:

ATCT – Airport Traffic Control Tower

1. Declared distances are currently published for Runway 11-29 through the FAA Notice to Airmen (NOTAM), making the northwestern portion of the runway usable for up to 4,910 feet of available runway length compared to the current published full length of 8,365 feet.

2. Federal Aviation Administration, Notice to Airmen (NOTAM) 08/033 (closes Taxiway C), NOTAM 08/034 (closes Taxiway C3), NOTAM 08/035 (closes Taxiway C4), NOTAM 08/036 (closes Taxiway C5), NOTAM 04/017 (publishes declared distances for Runway 11-29), https://notams.aim.faa.gov/notamSearch/nsapp.html#/details (accessed July 15, 2025).

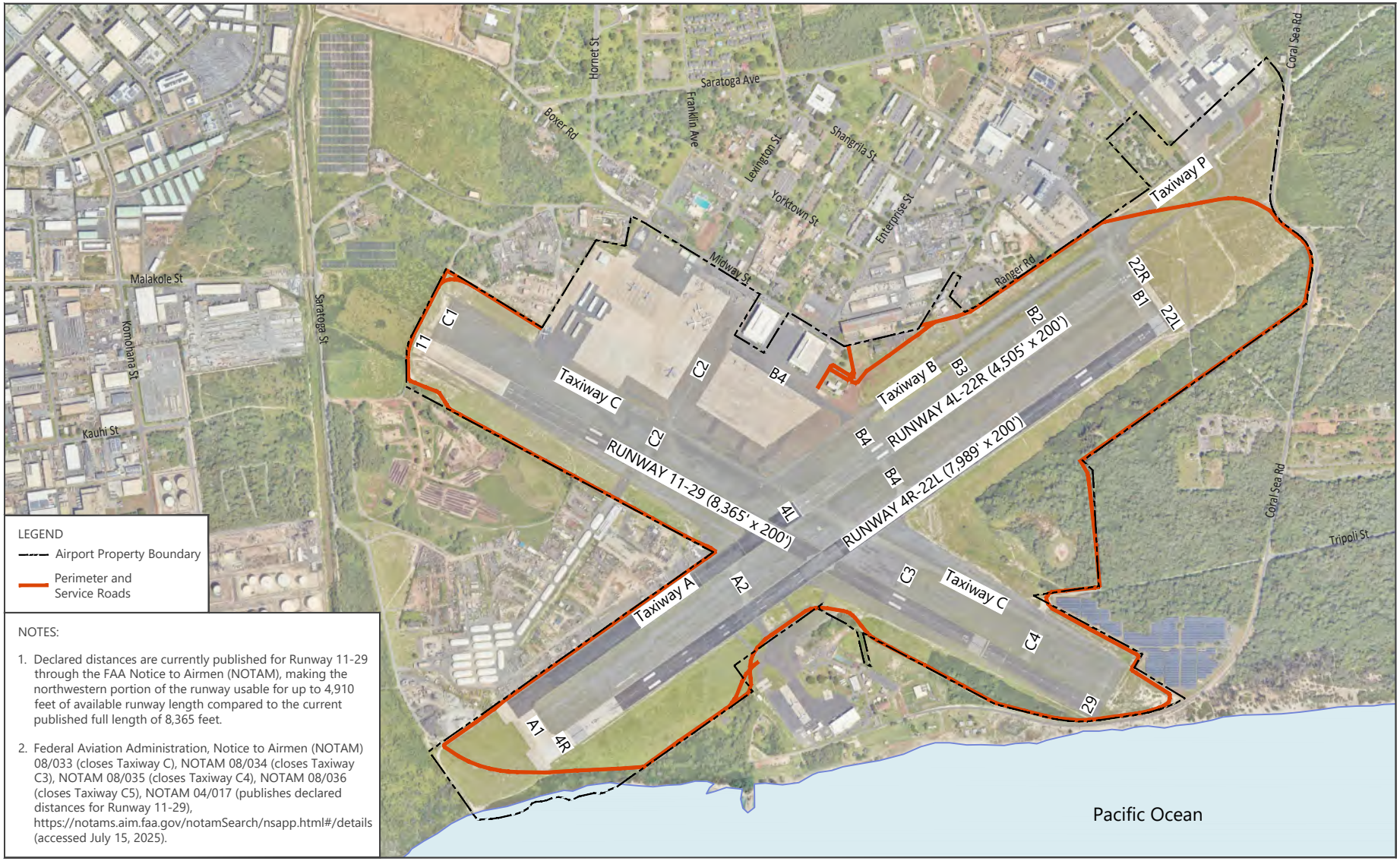
SOURCES: Hawaii Department of Transportation, *Kalaeloa Airport – Airport Layout Plan*, October 2014; Hawaii Department of Transportation, May 2025 (security gate map); Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 1,600 ft

EXHIBIT 1.2-8

FENCING AND SECURITY GATES

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.2-8 FENCING AND SECURITY GATES.dwgLayout: EXHIBIT 1.2-8 FENCING AND SECURITY GATES Plotted: Feb 20, 2026, 09:31AM



SOURCES: Hawaii Department of Transportation, *Kalaeloa Airport – Airport Layout Plan*, October 2014; Google Earth Pro, November 2022 (aerial photography – for visual reference only).

EXHIBIT 1.2-9

AIRFIELD ROADWAY NETWORK

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.2-9 AIRPORT ROADWAY NETWORK.dwgLayout: EXHIBIT 1.2-9 AIRPORT ROADWAY NETWORK Plotted: Feb 20, 2026, 09:31AM

The airspace around JRF is designated as Class D airspace when the ATCT is in operation from 6:00 a.m. to 10:00 p.m. Hawaii Standard Time (HST). This airspace extends from the surface to 2,500 feet above the Airport elevation. When the tower is not in operation, the entirety of JRF airspace operates as Class E.[8]

The outer radius of class D airspace is typically cylindrical and generally extends outward 4 NMs. The configuration of each Class D airspace is specifically tailored, and, when instrument procedures are published, the airspace is normally designed to protect aircraft following those procedures. Airspace extensions to protect instrument approach/departure procedures may be designated Class D or Class E airspace. There are two areas designated as Class E airspace adjacent to the Airport's Class D airspace for arrival/departure extensions. One extends to the northwest and begins at the surface. The other segment extends to the southwest from the surface to an elevation of 700 feet AGL.

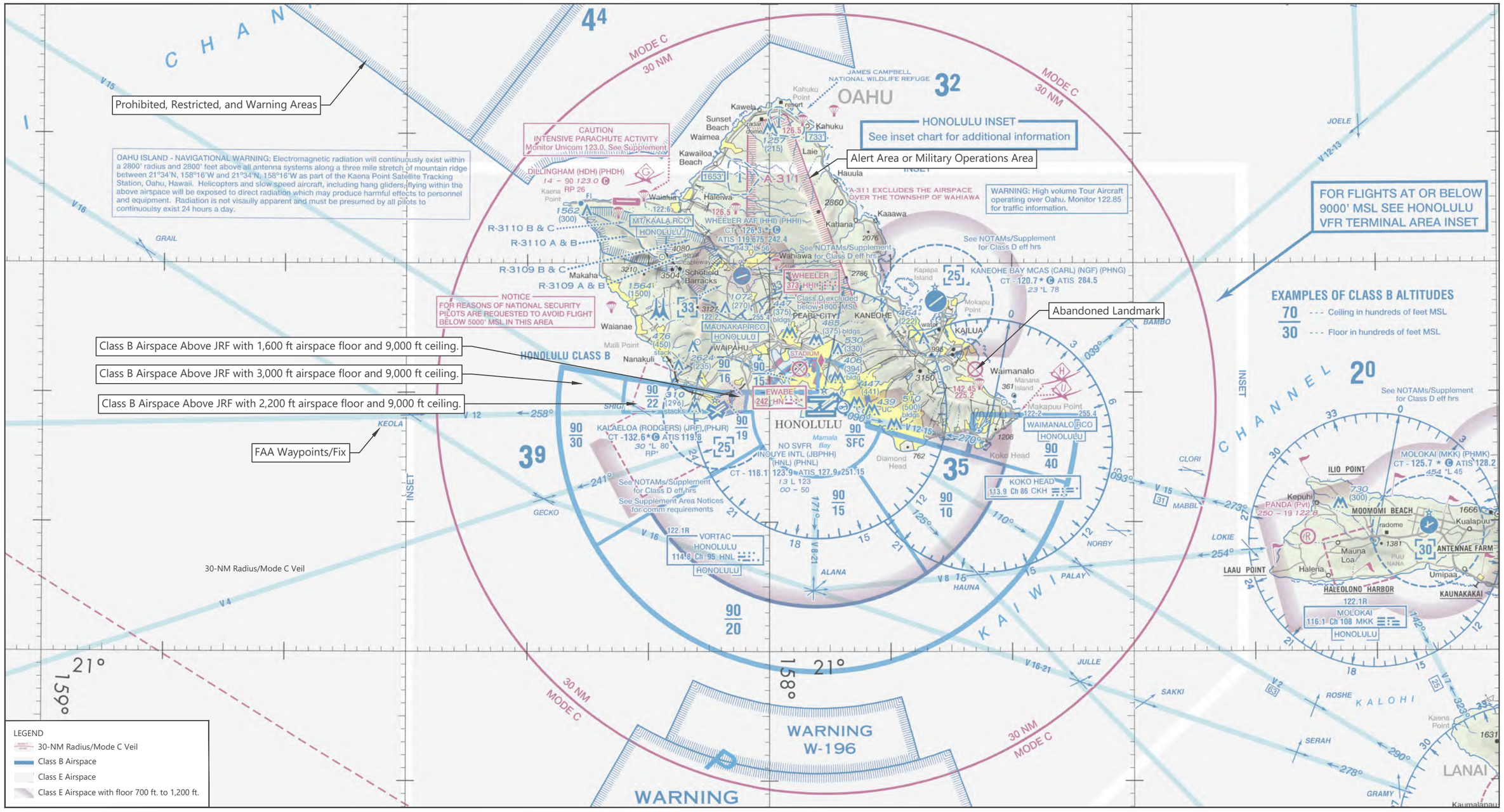
Proximate to and operating in tandem with the Airport's Class D airspace is the HNL Class B airspace. Portions of the HNL Class B airspace extend over JRF, with altitudes that vary by segment, beginning at the surface up to 3,000 feet MSL. These surfaces elevations take priority over the JRF airspace ceiling, effectively lowering the usable vertical limit for Class D operations at JRF. Unless otherwise cleared into the Class B airspace, aircraft bound for JRF should avoid HNL airspace. Appendix D, Section 1, to Part 91 of the Code of Federal Regulations (CFR), Title 14N, lists major airports where aircraft operating within 30 NMs of the airports listed from the surface up to 10,000 feet MSL must have an altitude-encoding transponder (Mode C transponders) and Automatic Dependent Surveillance–Broadcast (ADS-B) Out equipment. This equipment automatically provides the aircraft location and current flight altitude to air traffic controllers, enhancing the safety of air traffic control (ATC) at busy airports. HNL is listed in Appendix D, and the 30-NM radius from HNL, also called the Mode C Veil, delineates the boundary where aircraft without the necessary equipment are restricted from entering the airspace (unless otherwise authorized by ATC). Prior to entering the airspace, each aircraft must establish two-way radio communications with the ATC facility providing air traffic services, and the aircraft must thereafter maintain communication while in the airspace. **Exhibit 1.2-10** depicts the JRF class D airspace and how some sections of HNL class B airspace overlap the JRF airspace. The 30-NM radius, or Mode C Veil, is also shown, covering the entire island of Oahu.

SUAs are areas where activities are restricted or prohibited due to their nature, often for military or national security reasons, or high-volume flight training. There are various types of SUAs including Prohibited Areas, Restricted Areas, Military Operations Areas (MOAs), Warning Areas, Alert Areas, Controlled Firing Areas (CFAs), and National Security Areas (NSAs). As shown on Exhibit 12.2-10, there are Warning Areas on the northern and southern portions of Oahu, within the 30-NM radius of HNL. Warning Areas are similar to Restricted Areas where flight is allowed but restricted, usually due to invisible hazards like artillery, missiles, or aerial gunnery but located over international waters.

1.2.2.1 AIR TRAFFIC CONTROL

ATC is a service provided by ground-based controllers who direct aircraft on the ground and in the air. The primary purpose of ATC is to separate aircraft to prevent collisions, organize and expedite the flow of traffic, and provide information and other support for pilots through radio communication, radar, and complex systems, with aircraft traffic controllers operating in towers, terminal areas, and enroute centers.

[8] Federal Aviation Administration, VFR Sectional Chart, July 2025.



SOURCES: US Department of Transportation, Federal Aviation Administration, *VFR Sectional Chart*, July 2025; Ricondo & Associates, Inc., July 2025.

EXHIBIT 1.2-10

FEDERAL AVIATION ADMINISTRATION
VISUAL FLIGHT RULE SECTIONAL CHART - OAHU

Drawing: P:_PROJECTS\HDOT(HI)\JRF\25011429-MP NEM\Master Plan\1.1 Inventory\1.1.3 Airspace Data\AutoCAD\JRF Arrival and Departure Procedures.dwgLayout: Existing Conditions Plotted: Apr 14, 2026, 02:44PM

HIANG manages the JRF ATCT and handles traffic in the local airspace, or its class D airspace as defined above, and includes ground control and local control. Ground control is responsible for all movements within the movement area. Local control is responsible for all aircraft operating in the class D airspace up to and including 1,500 feet clear of the class B airspace. Local control is also responsible for switching JRF operating flow to east (trade wind) or west (kona wind) when HNL is operating in east of west flow.[9]

Due to JRF airspace overlap with HNL airspace, however, JRF ATCT coordinates with HNL ATCT for operations within class B airspace and the Honolulu Control Facility (HCF) for transition procedures (i.e. exiting class D airspace, transitioning through class B airspace, etc.), clearance delivery, instrument flight rules (IFR) separation, visual flight rules (VFR) advisories, and flight management. The HCF integrates the HNL control tower, the Terminal Radar Approach Control (TRACON), and the Honolulu Center Radar Approach Control (CERAP) into a single complex.

When the JRF ATCT is not in service, the Kalaeloa Tower frequency is designated as the Common Traffic Advisory Frequency (CTAF), through which pilots are advised to self-announce their flight intentions and location while operating within the vicinity of JRF. Standard self-announcement communication protocol includes reporting its position when 10 miles out from the Airport, when entering the traffic pattern downwind, base, and final leg of flight, and when clear of the runway.

1.2.2.2 PUBLISHED INSTRUMENT APPROACH AND DEPARTURE PROCEDURES

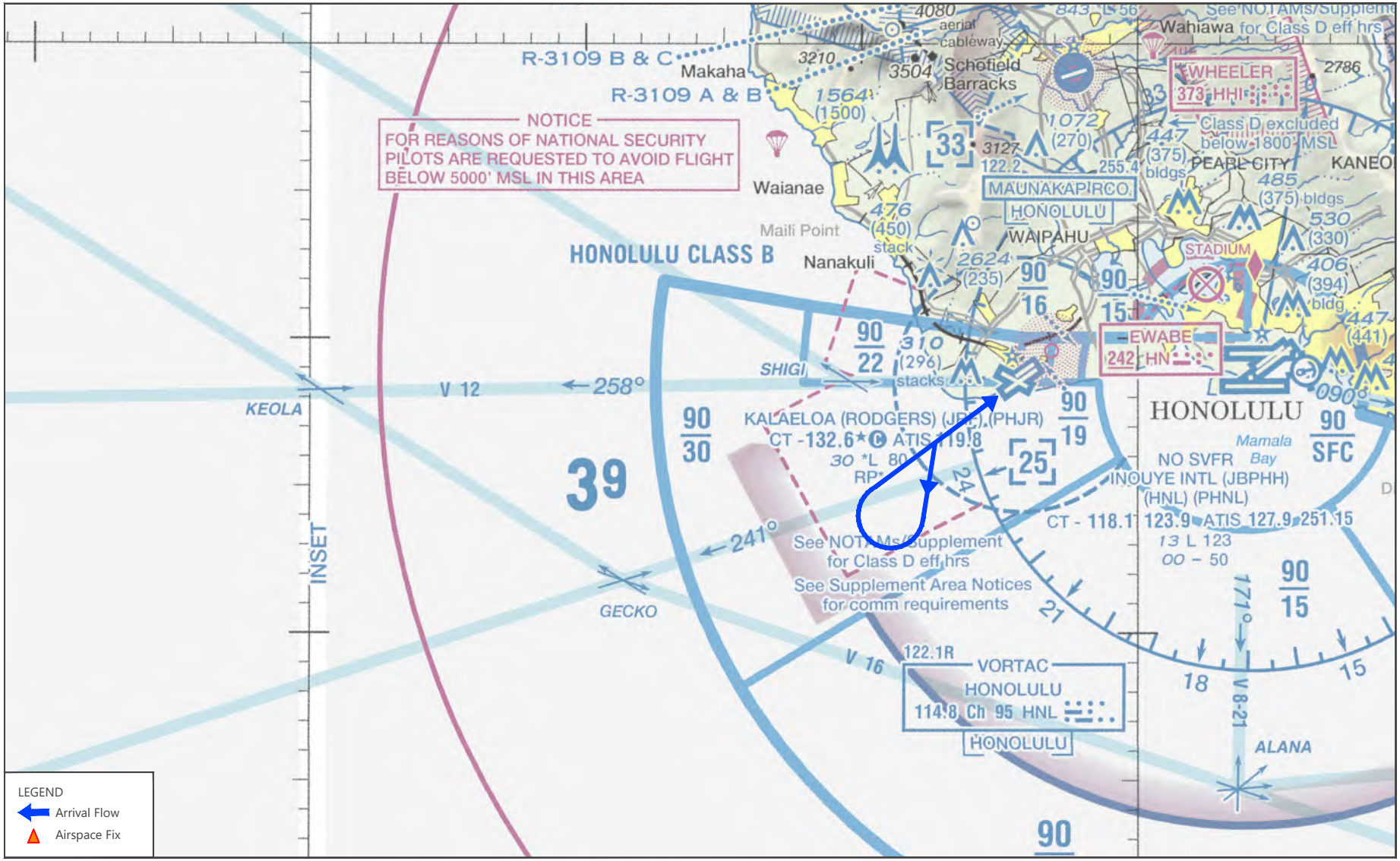
Instrument approach and departure procedures are standardized flight paths designed to allow aircraft to operate safely under IFR weather conditions. They ensure orderly traffic flow and provide protection from terrain and obstacles when visibility is low. Approach procedures are a series of predetermined maneuvers that guide an aircraft from the enroute phase to a landing or a point where a visual landing can be made. Departure procedures transition an aircraft from the runway to the enroute phase of flight. **Table 1.2-4** summarizes the current approach and departure procedures at the Airport. As shown, there are three instrument approach procedures (IAPs) published for Runway 4R. Runway 22L, Runway 4L-22R, and Runway 11-29 are visual approach runways. There is only one standard instrument departure (SID) procedure published for JRF. **Exhibits 1.2-11** through **1.2-14** depict the Airport's IAPs and SID approach and departure routes. **Appendix C** provides copies of IAPs and SID procedures for JRF.

TABLE 1.2-4 CURRENT INSTRUMENT APPROACH AND DEPARTURE PROCEDURES

RUNWAY	INSTRUMENT APPROACH PROCEDURES (IAPS)	STANDARD INSTRUMENT DEPARTURE (SID)
Runway 4R	RNAV (GPS), VOR/DME, NDB	Jelie One
Runway 22L	-	
Runway 4L	-	
Runway 22R	-	
Runway 11	-	
Runway 29	-	

NOTES:
NDB – Non-Directional Beacon
RNAV (GPS) – Area Navigation (Global Positioning System)
VOR/DME – Very High Frequency Omnidirectional Range with Distance Measuring Equipment
SOURCE: US Department of Transportation, Federal Aviation Administration, https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dtpp/ (accessed June 5, 2025).

[9] Federal Aviation Administration, Honolulu Control Facility, Kalaeloa (John Rodgers Fiedl) ATCT Standard Operating Procedures, Document Number: JRF 7110.1, Version F, July 7, 2025.



SOURCES: US Department of Transportation, Federal Aviation Administration, *VFR Sectional Chart*, July 2025; Ricondo & Associates, Inc., July 2025.

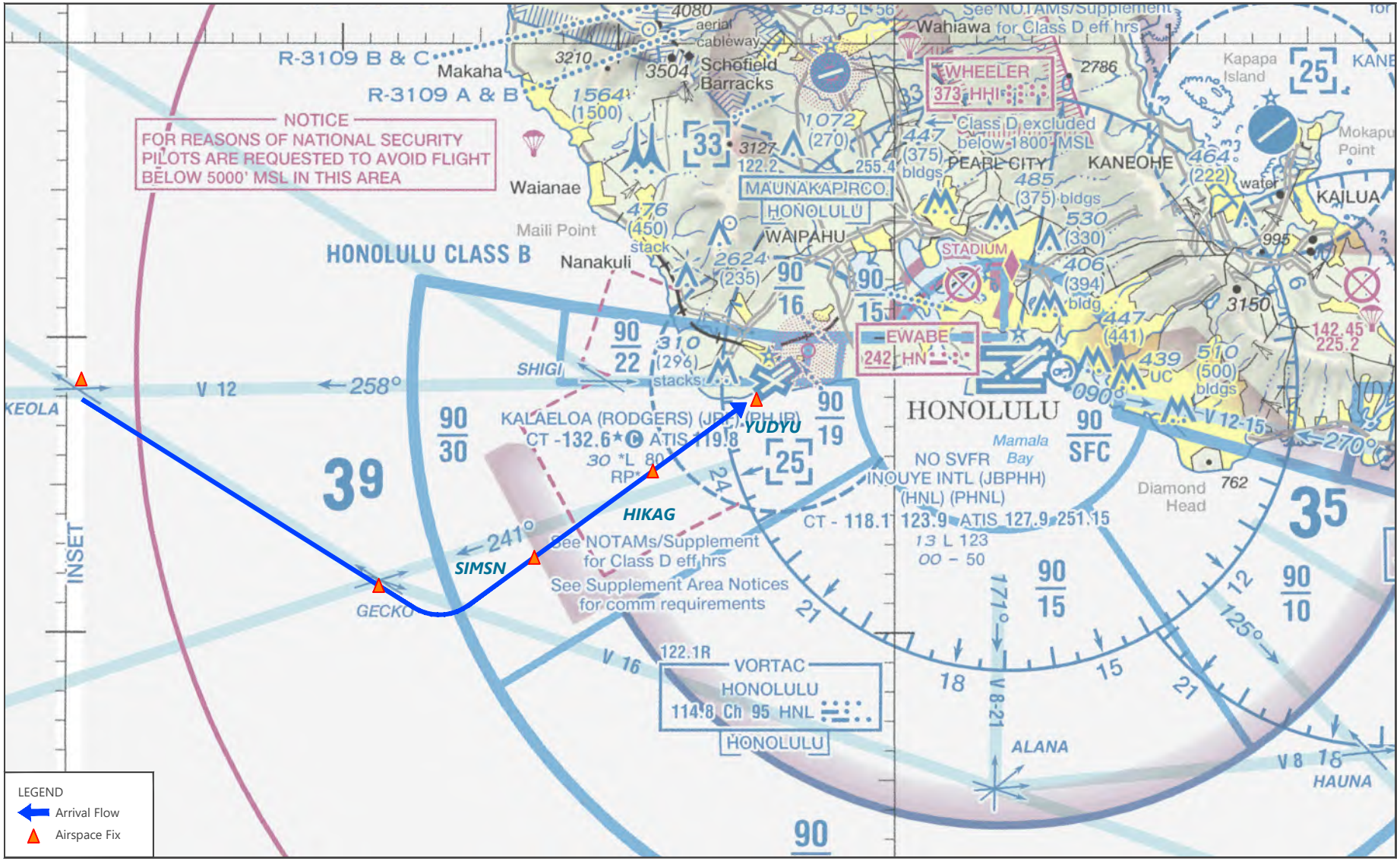
NORTH

Not To Scale

EXHIBIT 1.2-11

RUNWAY 4R – INSTRUMENT APPROACH PROCEDURES
NON-DIRECTIONAL BEACON

Drawing: P:_PROJECTS\HDOT(HI)\JRF\25011429-MP NEM\Master Plan\1.1 Inventory\1.1.3 Airspace Data\AutoCAD\JRF Arrival and Departure Procedures.dwgLayout: NDB - APPROACH Plotted: Apr 14, 2026, 02:43PM



SOURCES: US Department of Transportation, Federal Aviation Administration, *VFR Sectional Chart*, July 2025; Ricondo & Associates, Inc., July 2025.

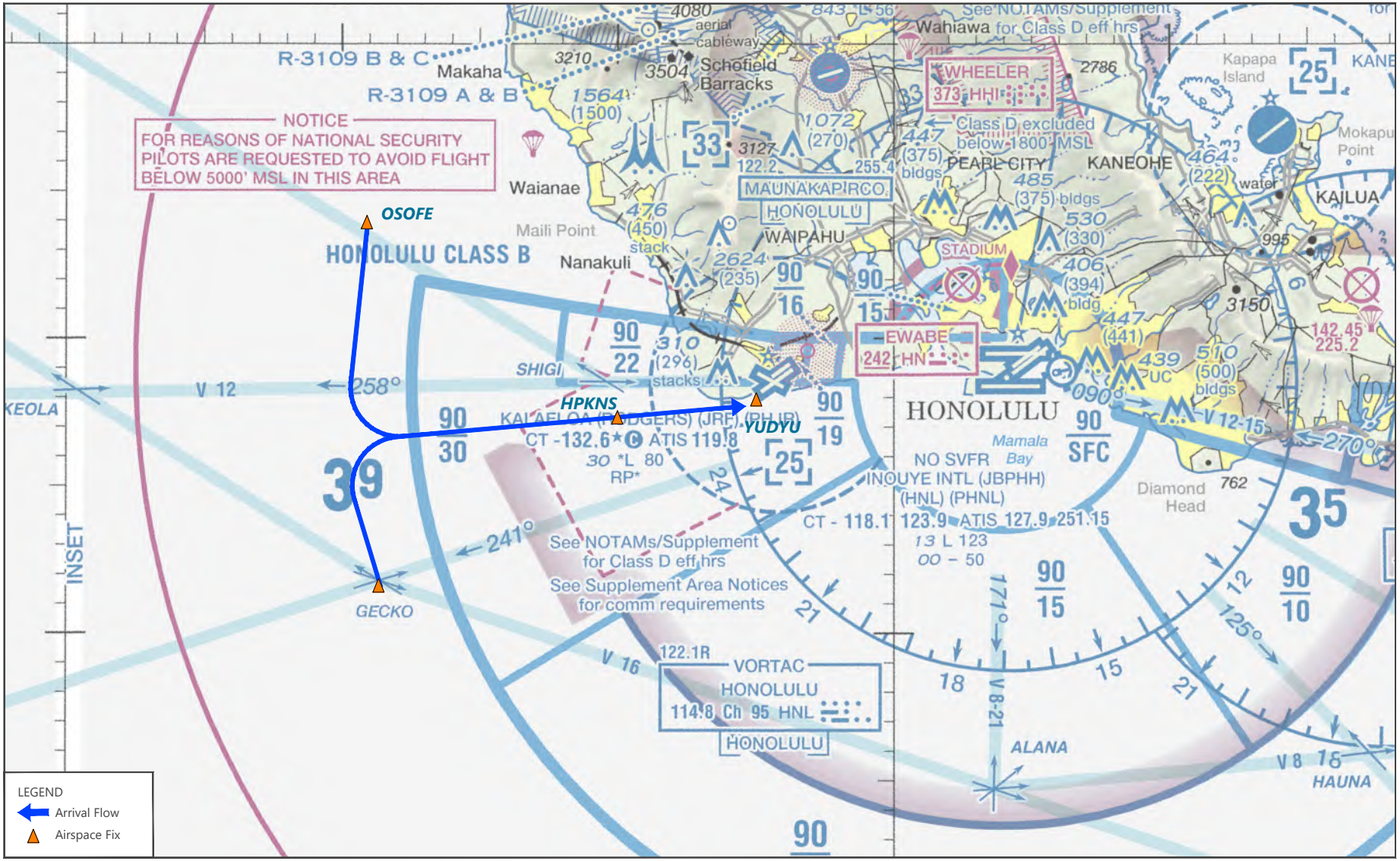
NORTH

Not To Scale

EXHIBIT 1.2-12

RUNWAY 4R – INSTRUMENT APPROACH PROCEDURES
AREA NAVIGATION (GLOBAL POSITIONING SYSTEM)

Drawing: P:_PROJECTS\HDOT(HI)\JRF\25011429-MP NEM\Master Plan\1.1 Inventory\1.1.3 Airspace Data\AutoCAD\JRF Arrival and Departure Procedures.dwgLayout: RNAV APPROACH Plotted: Apr 14, 2026, 02:43PM



SOURCES: US Department of Transportation, Federal Aviation Administration, *VFR Sectional Chart*, July 2025; Ricondo & Associates, Inc., July 2025.

NORTH

Not To Scale

EXHIBIT 1.2-13
RUNWAY 4R – INSTRUMENT APPROACH PROCEDURES
VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE
WITH DISTANCE MEASURING EQUIPMENT

Drawing: P:_PROJECTS\HDOT(HI)\JRF\25011429-MP NEM\Master Plan\1.1 Inventory\1.1.3 Airspace Data\AutoCAD\JRF Arrival and Departure Procedures.dwgLayout: VOR-DME - APPROACH Plotted: Apr 14, 2026, 02:44PM

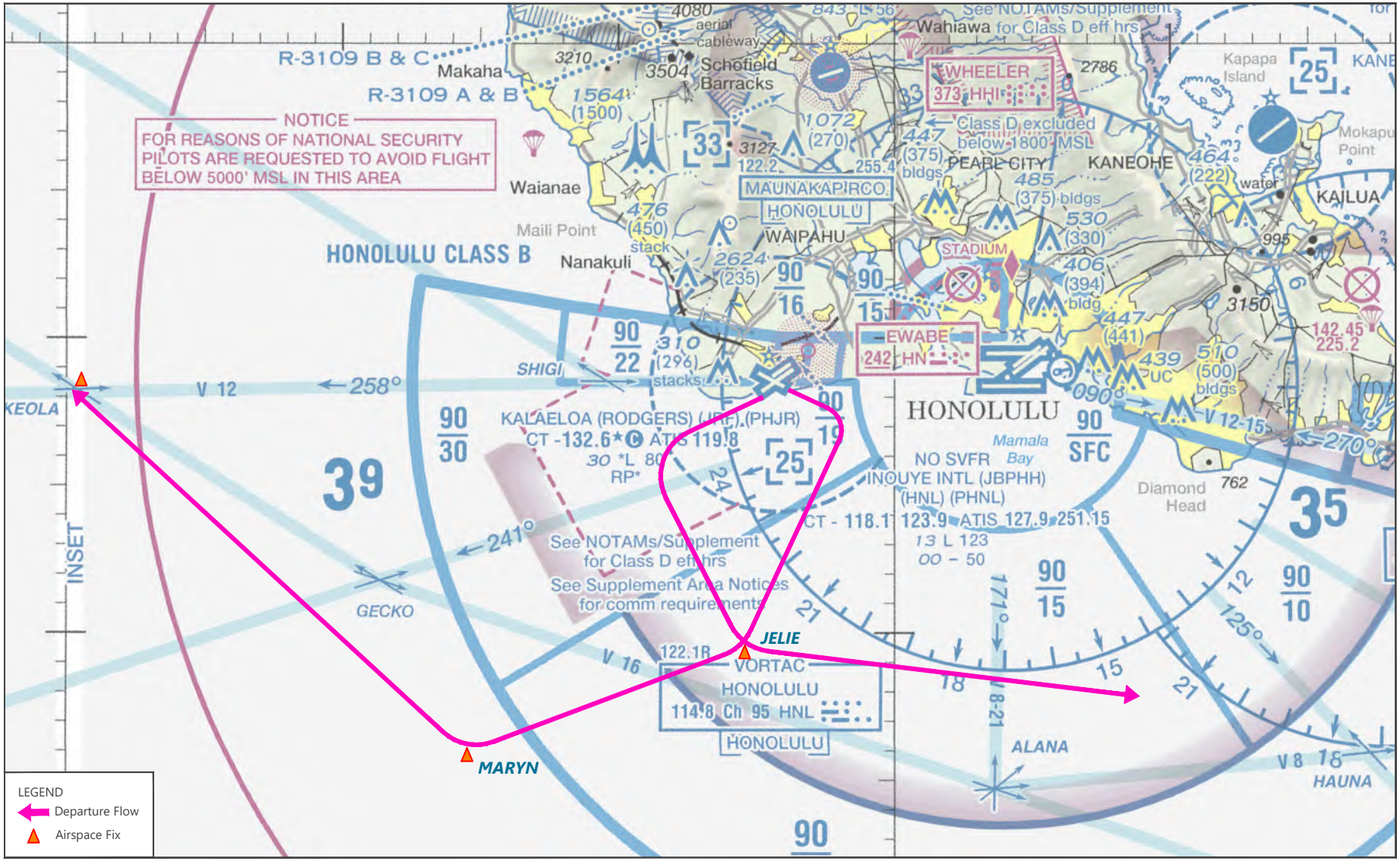


EXHIBIT 1.2-14

JELIE ONE DEPARTURE PROCEDURE
AREA NAVIGATION

Drawing: P:_PROJECTS\HDOT(HI)\JRF\25011429-MP NEM\Master Plan\1.1 Inventory\1.1.3 Airspace Data\AutoCAD\JRF Arrival and Departure Procedures.dwgLayout: JELIE - DEPARTURE Plotted: Apr 14, 2026, 02:44PM

1.2.2.3 REGIONAL AIRSPACE

Table 1.2-5 lists the four airports within a 25-NM radius of JRF: HNL, Kawaihapai Airport (HDH), Kaneohe Bay MCAS (Marion E. Carl Field; NGF), and Wheeler Army Airfield (HHI). HNL is located on the south shore of Oahu and is a state-owned airport. HDH is owned by the DoD, via the US Army, managed by the Hawaii Department of Transportation, and located on the north side of Oahu near the town of Waialua. NGF is owned by the DoD, via the US Navy, operated exclusively by the US Marine Corps, and located on the east shore of Oahu. HHI is owned by the DoD, operated by the US Army, and located near the town of Wahiawa. Table 1.2-5 also shows the corresponding airspace classification for each airport, which can also be seen on Exhibit 1.2-10.

TABLE 1.2-5 AIRPORTS WITHIN 25 NAUTICAL MILES

AIRPORT	AIRPORT OWNER	APPROXIMATE DIRECT NAUTICAL MILEAGE FROM KALAELOA AIRPORT	AIRSPACE
Daniel K. Inouye International Airport (HNL)	Hawaii Department of Transportation	8	Class B
Kawaihapai Airfield (HDH)	Department of Defense (US Army)	15	Class G
Kaneohe Bay Marine Corps Air Station (NGF)	Department of Defense (US Navy)	19	Class D
Wheeler Army Airfield (HHI)	Department of Defense (US Army)	11	Class D

SOURCE: Hawaii Department of Transportation, Airports, *Hawaii Airports and Flying Safety Guide (2012–2013)*, 5th edition, Revision 1.2, June 2025; Federal Aviation Administration, Sectional Aeronautical Chart, July 2025; Federal Aviation Administration, *Airport Data and Information Portal,* July 2025.

1.2.3 METEOROLOGICAL CONDITIONS

Meteorological conditions at JRF were analyzed to determine historical wind and weather patterns. The data, obtained from the National Climatic Data Center, consist of 94,075 observations for a 10-year period from January 1, 2015, through December 31, 2024. Wind speed and direction, visibility, and cloud ceiling were used to evaluate the general weather conditions and runway coverage.

Visual meteorological conditions (VMC) and instrument meteorological conditions (IMC) are defined by cloud ceiling and visibility levels. During VMC, cloud ceilings are at 1,000 feet or greater AGL, with visibility of 3 statute miles (SM) or greater. When these conditions are met, VFR operations are allowed. If current airport conditions fall below the 1,000-foot AGL and 3-SM visibility minimums, then these conditions are considered IMC and pilots must operate under IFR. Pilots then rely on ATC to provide separation services from other aircraft and terrain. Operating under IFR requires additional pilot training and aircraft certifications beyond those required for operating under VFR. At JRF, VMC occurred for approximately 96.9 percent of the total recorded observations, while IMC was recorded for approximately 3.1 percent of the total recorded observations.

1.2.3.1 WIND SPEED AND DIRECTION

Wind patterns have a significant effect on runway use at airports, as aircraft typically take off and land into the wind. When the winds are not directly aligned with the runway(s), pilots calculate a crosswind component to determine whether a runway is usable. FAA Advisory Circular (AC) 150/5300-13B, *Airport Design*, recommends that the runway(s) at an airport achieve at least 95 percent wind coverage and should be evaluated based on a period of at least 10 consecutive years.

Runway 11-29 and Runway 4-22 were evaluated with crosswind components of 10.5 knots, 13.0 knots, 16.0 knots, and 20.0 knots to provide runway coverage percentages for all runway design codes (RDCs). All-weather, VMC, and IMC wind roses are depicted on **Exhibits 1.2-15** through **1.2-17** respectively. **Exhibit 1.2-18** presents the percent occurrence of wind by direction for the all-weather condition. For this analysis, wind speeds between 0.0 and 5.0 knots were considered calm conditions.

Table 1.2-6 summarizes the runway wind coverage provided by the existing airfield layout. As shown, all runways combined provide at least 99.78 percent wind coverage or better for all-weather conditions and crosswind components.

TABLE 1.2-6 RUNWAY WIND COVERAGE

CROSSWIND COMPONENT	ALL WEATHER[1]	VISUAL METEOROLOGICAL CONDITIONS[2]	INSTRUMENT METEOROLOGICAL CONDITIONS[3]
10.5 Knots	99.78%	99.81%	98.90%
13.0 Knots	99.92%	99.94%	99.52%
16.0 Knots	99.97%	99.98%	99.10%
20.0 Knots	100.00%	100.00%	99.72%

NOTES:
1 94,075 weather observations were recorded for all-weather conditions.
2 91,174 weather observations were recorded for visual meteorological conditions.
3 2,901 weather observations were recorded for instrument meteorological conditions.
SOURCES: National Oceanic and Atmospheric Administration, National Centers for Environmental Information, June 2025 (Global Hourly – Integrated Surface Dataset, Station 911780, January 1, 2015, to December 31, 2024; wind data); Ricondo & Associates, Inc., June 2025 (wind analysis).

1.2.3.2 TEMPERATURE

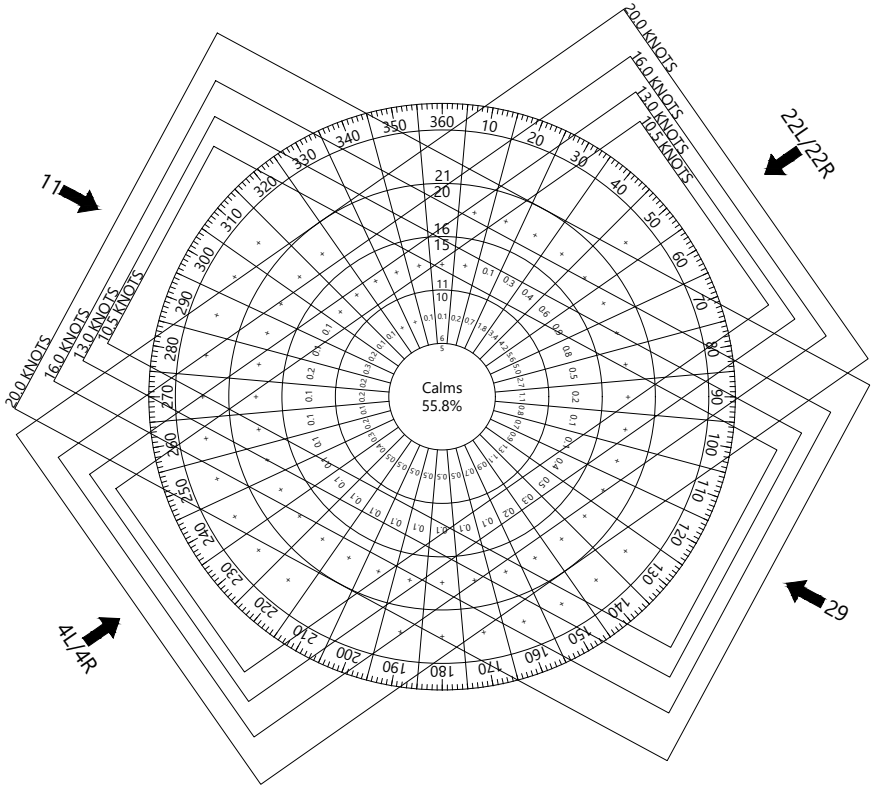
Table 1.2-7 summarizes temperatures at the Airport for January 1, 2015, through December 31, 2024. The average low temperature of 72.8 degrees Fahrenheit (°F) and the mean minimum temperature of 64.7°F occurred in January. The average high temperature of 81.1°F and the mean maximum temperature of 89.1°F occurred in August.

TABLE 1.2-7 TEMPERATURES IN THE AIRPORT VICINITY (2015 TO 2024)

MONTH	MEAN MAXIMUM	MEAN MINIMUM	MEAN AVERAGE
January	80.9	64.7	72.8
February	80.9	65.1	73.0
March	81.6	66.0	73.8
April	83.6	67.7	75.7
May	84.9	69.0	76.9
June	87.3	71.3	79.3
July	88.0	72.5	80.3
August	89.1	73.1	81.1
September	88.9	72.4	80.7
October	87.3	71.7	79.5
November	84.1	69.4	76.8
December	82.1	66.9	74.5
Annual	**84.9**	**69.2**	**77.0**

NOTE:
All temperatures are in degrees Fahrenheit.
SOURCES: National Oceanic and Atmospheric Administration, National Centers for Environmental Information, 2015–2024 Summary of Monthly Normals, June 2025 (data); Ricondo & Associates, Inc., June 2025 (analysis).

ALL-WEATHER WIND ROSE



ALL-WEATHER WIND COVERAGE TABLE

CROSSWIND COMPONENT	RWY 11	RWY 29	RWY 4L/4R	RWY 22L/22R
12 MPH (10.5 KNOTS)	92.46%	61.27%	89.76%	63.81%
	97.97%		97.80%	
	99.86%			
15 MPH (13 KNOTS)	93.71%	61.64%	90.72%	64.44%
	99.59%		99.41%	
	99.96%			
18 MPH (16 KNOTS)	93.88%	61.79%	90.99%	64.63%
	99.91%		99.87%	
	99.99%			
23 MPH (20 KNOTS)	93.90%	61.85%	91.01%	64.71%
	99.99%		99.97%	
	100.00%			

NOTES:

1 Occurrence grid is shown in true heading. The Airport's magnetic declination is 11 degrees East.

2 MPH - Miles Per Hour

SOURCES: National Oceanic and Atmospheric Administration, National Centers for Environmental Information, July 2025 (Global Hourly Integrated Surface Dataset, Station 911780, January 1, 2015, through December 31, 2024 (87,184 observations); ATAC Corporation, *Aircraft Fleet Mix Data, Fiscal Year 2024*, July 2025; Ricondo & Associates, Inc., June 2025 (analysis).

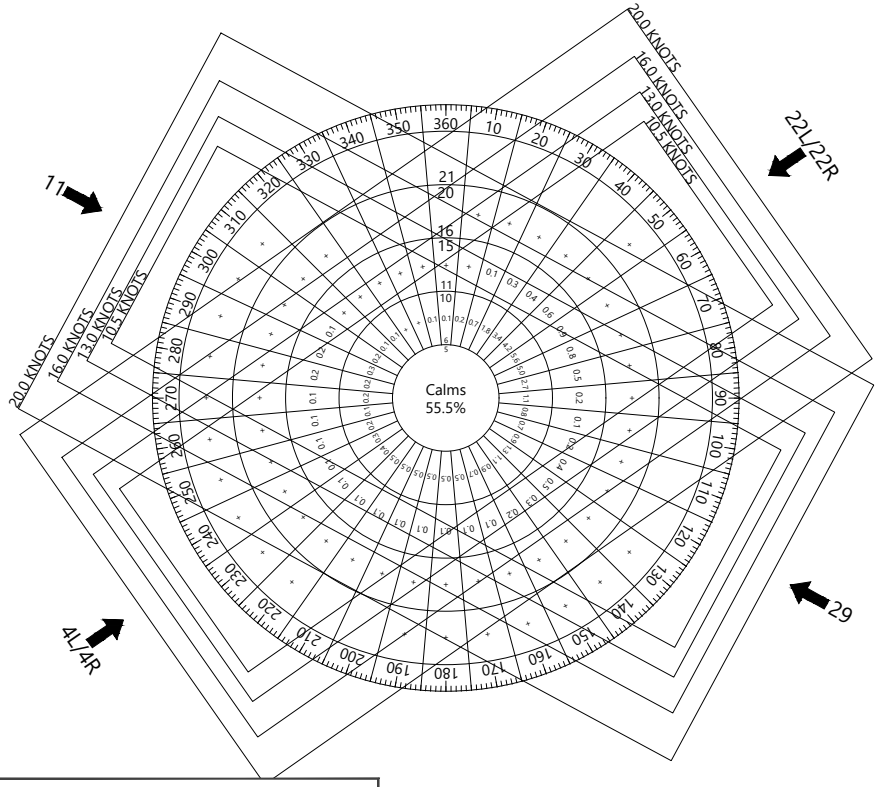
NORTH 0 Not To Scale

EXHIBIT 1.2-15

ALL WEATHER
WIND ROSE AND COVERAGE TABLE

Drawing: P:_PROJECTS\HDOT(HI)\JRF\25011429-MP NEM\Master Plan\1.1 Inventory\1.1.4 Meteorological Conditions\AutoCAD\Revised\Exhibit-0-JRF-Wind Velocity and Direction - REVISED.dwgLayout: All Weather Plotted: Feb 19, 2026, 12:09PM

VMC WIND ROSE



VMC WIND COVERAGE TABLE

CROSSWIND COMPONENT	RWY 11	RWY 29	RWY 4L/4R	RWY 22L/22R
12 MPH (10.5 KNOTS)	92.45%	61.03%	89.74%	63.55%
	97.98%		97.80%	
	99.87%			
15 MPH (13 KNOTS)	93.69%	61.40%	90.72%	64.18%
	99.60%		99.40%	
	99.96%			
18 MPH (16 KNOTS)	93.86%	61.55%	90.99%	64.37%
	99.91%		99.87%	
	99.99%			
23 MPH (20 KNOTS)	93.88%	61.61%	91.01%	64.45%
	99.99%		99.97%	
	100.00%			

NOTES:

1 Occurrence grid is shown in true heading. The Airport's magnetic declination is 11 degrees East.

2 MPH - Miles Per Hour

3 VMC - Visual Meteorological Conditions

SOURCES: National Oceanic and Atmospheric Administration, National Centers for Environmental Information, July 2025 (Global Hourly Integrated Surface Dataset, Station 911780, January 1, 2015, through December 31, 2024 (87,184 observations); ATAC Corporation, *Aircraft Fleet Mix Data, Fiscal Year 2024*, July 2025; Ricondo & Associates, Inc., June 2025 (analysis).

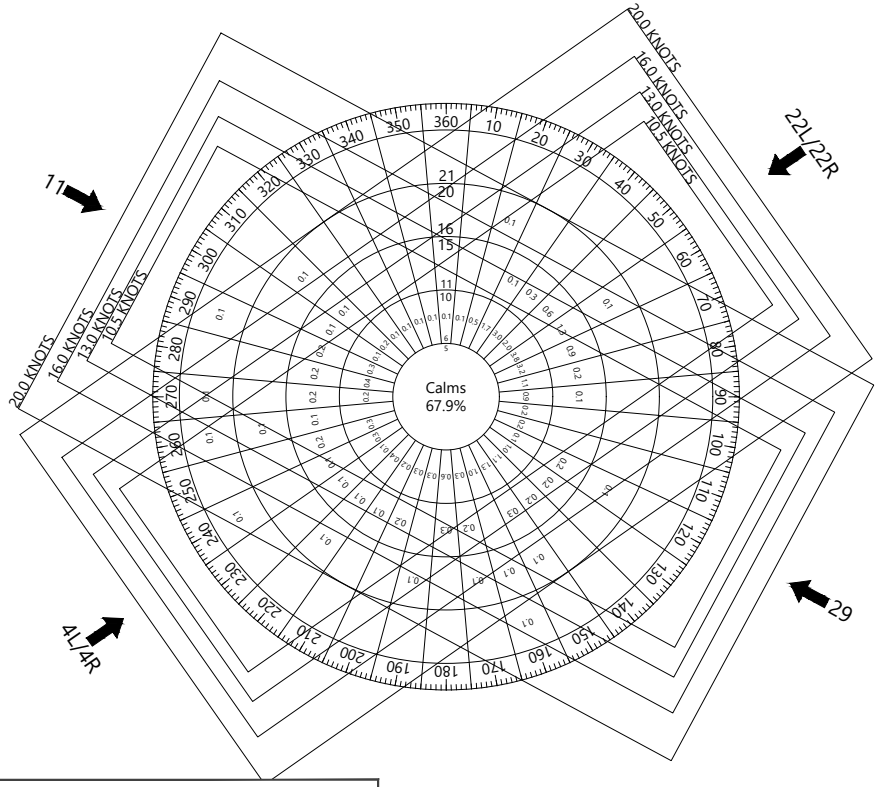
NORTH 0 Not To Scale

EXHIBIT 1.2-16

VISUAL METEOROLOGICAL CONDITIONS
WIND ROSE AND COVERAGE TABLE

Drawing: P:_PROJECTS\HDOT(HI)\JRF\25011429-MP NEM\Master Plan\1.1 Inventory\1.1.4 Meteorological Conditions\AutoCAD\Revised\Exhibit-0-JRF-Wind Velocity and Direction - REVISED.dwgLayout: VFR Plotted: Feb 19, 2026, 12:08PM

IMC WIND ROSE



IMC WIND COVERAGE TABLE

CROSSWIND COMPONENT	RWY 11	RWY 29	RWY 4L/4R	RWY 22L/22R
12 MPH (10.5 KNOTS)	92.98%	72.23%	90.35%	75.60%
	97.32%		98.07%	
	99.41%			
15 MPH (13 KNOTS)	94.48%	72.60%	90.94%	76.51%
	99.20%		99.57%	
	99.84%			
18 MPH (16 KNOTS)	94.91%	72.76%	90.99%	76.57%
	99.79%		99.68%	
	99.95%			
23 MPH (20 KNOTS)	94.96%	72.92%	90.99%	76.84%
	100.00%		99.95%	
	100.00%			

NOTES:

1 Occurrence grid is shown in true heading. The Airport's magnetic declination is 11 degrees East.

2 MPH - Miles Per Hour

3 IMC - Instrument Meteorological Conditions

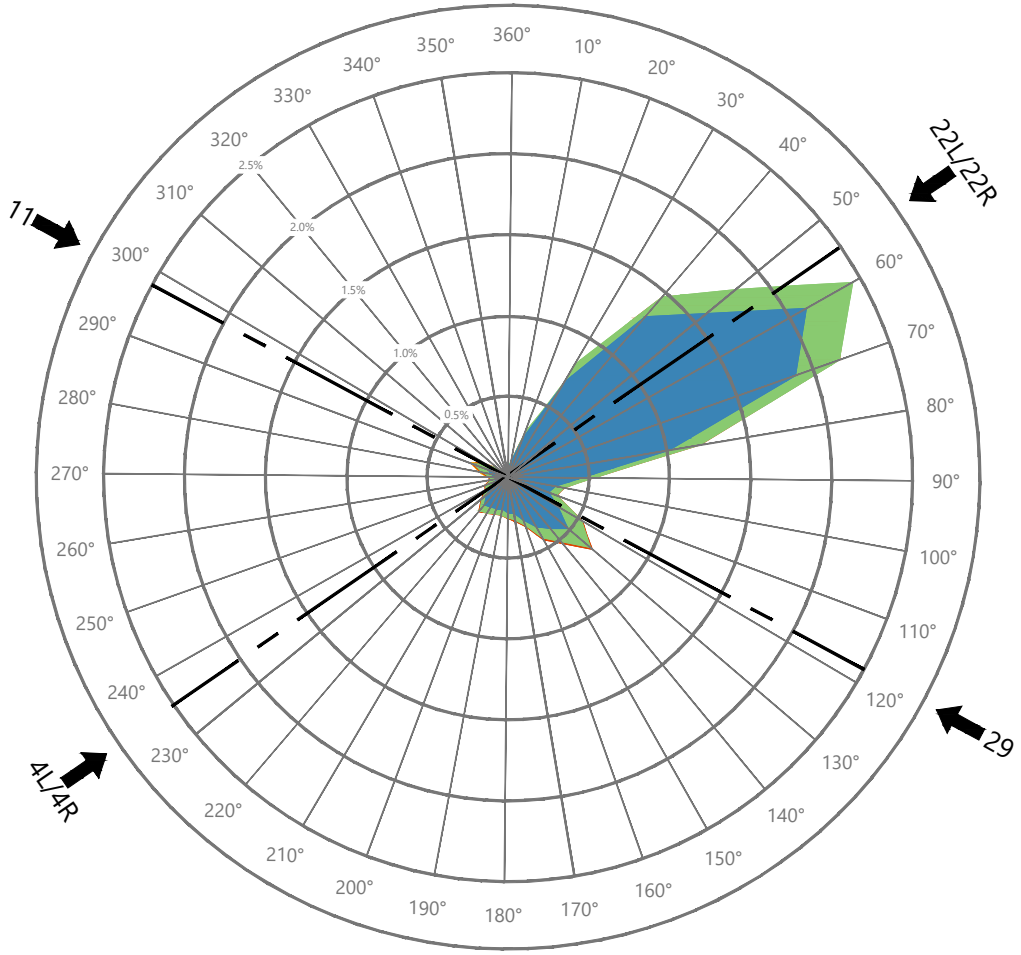
SOURCES: National Oceanic and Atmospheric Administration, National Centers for Environmental Information, July 2025 (Global Hourly Integrated Surface Dataset, Station 911780, January 1, 2015, through December 31, 2024 (87,184 observations); ATAC Corporation, *Aircraft Fleet Mix Data, Fiscal Year 2024*, July 2025; Ricondo & Associates, Inc., June 2025 (analysis).

NORTH 0 Not To Scale

EXHIBIT 1.2-17

INSTRUMENT METEOROLOGICAL CONDITIONS
WIND ROSE AND COVERAGE TABLE

Drawing: P:_PROJECTS\HDOT(HI)\JRF\25011429-MP NEM\Master Plan\1.1 Inventory\1.1.4 Meteorological Conditions\AutoCAD\Revised\Exhibit-0-JRF-Wind Velocity and Direction - REVISED.dwgLayout: IFR Plotted: Feb 19, 2026, 12:08PM



LEGEND
- Wind Velocity 6-10 Knots (18.5%)
- Wind Velocity 11-15 Knots (22.2%)
- Wind Velocity 16-20 Knots (22.4%)
- Wind Velocity 21+ Knots (22.5%)
- Runway Orientation

NOTES:

1 Wind velocities of 5 knots or less are considered calm.

2 Occurrence grid is shown in true heading. The Airport's magnetic declination is 11 degrees East.

SOURCES: National Oceanic and Atmospheric Administration, National Centers for Environmental Information, July 2025 (Global Hourly Integrated Surface Dataset, Station 911780, January 1, 2015, through December 31, 2024 (87,184 observations); ATAC Corporation, *Aircraft Fleet Mix Data, Fiscal Year 2024*, July 2025; Ricondo & Associates, Inc., June 2025 (analysis).

NORTH 0 Not To Scale

EXHIBIT 1.2-18

ALL WEATHER
WIND OCCURRENCE GRID

Drawing: P:_PROJECTS\HDOT(HI)\JRF\25011429-MP NEM\Master Plan\1.1 Inventory\1.1.4 Meteorological Conditions\AutoCAD\Revised\Exhibit-0-JRF-Wind Velocity and Direction - REVISED.dwgLayout: All Weather Occurrence (L) Plotted: Feb 19, 2026, 12:08PM

1.3 GENERAL AVIATION FACILITIES

GA facilities support both based and itinerant aircraft operations at JRF. Components of GA landside facilities include fixed base operator (FBO) facilities; conventional, box, and T-hangars; apron areas; and automobile parking areas. GA consists of all flying activities except for military and commercial service. **Exhibit 1.3-1** depicts the locations and types of GA facilities. It also identifies tenants associated with each building number per HDOT's tenant property map (as of May 2025).

1.3.1 AIRCRAFT APRON AND TIE-DOWNS

Apron areas are used to park and service FBO or GA aircraft, including executive (private) jets and helicopters, as well as accommodate cargo and the temporary storage of disabled aircraft. According to HDOT, the share for aircraft apron parking is 90 percent and 10 percent for based and transient aircraft, respectively.

Apron Area 405, adjacent to Hangars 110 and 111 (east of Taxiway C2), is approximately 17 acres and accommodates helicopters and small fixed-wing aircraft. There are 58 tie-down position markings on Apron Area 405, which encompasses approximately 7 acres of the total 17 acres. Two helicopter helipads, each approximately 4,816 square feet, are adjacent to Apron Area 405. According to the JRF Tenant Information List, 27 of the 58) of the marked tie-down positions (approximately 47 percent) are occupied. It should also be noted that remnants of infrastructure from a decommissioned self-service fuel station remain visible east of the apron area.

Apron Area 406, located west of Taxiway C2, is approximately 49 acres and accommodates jet aircraft. There are no marked aircraft parking positions on Apron Area 406. Two tenants occupy space on Apron Area 406:

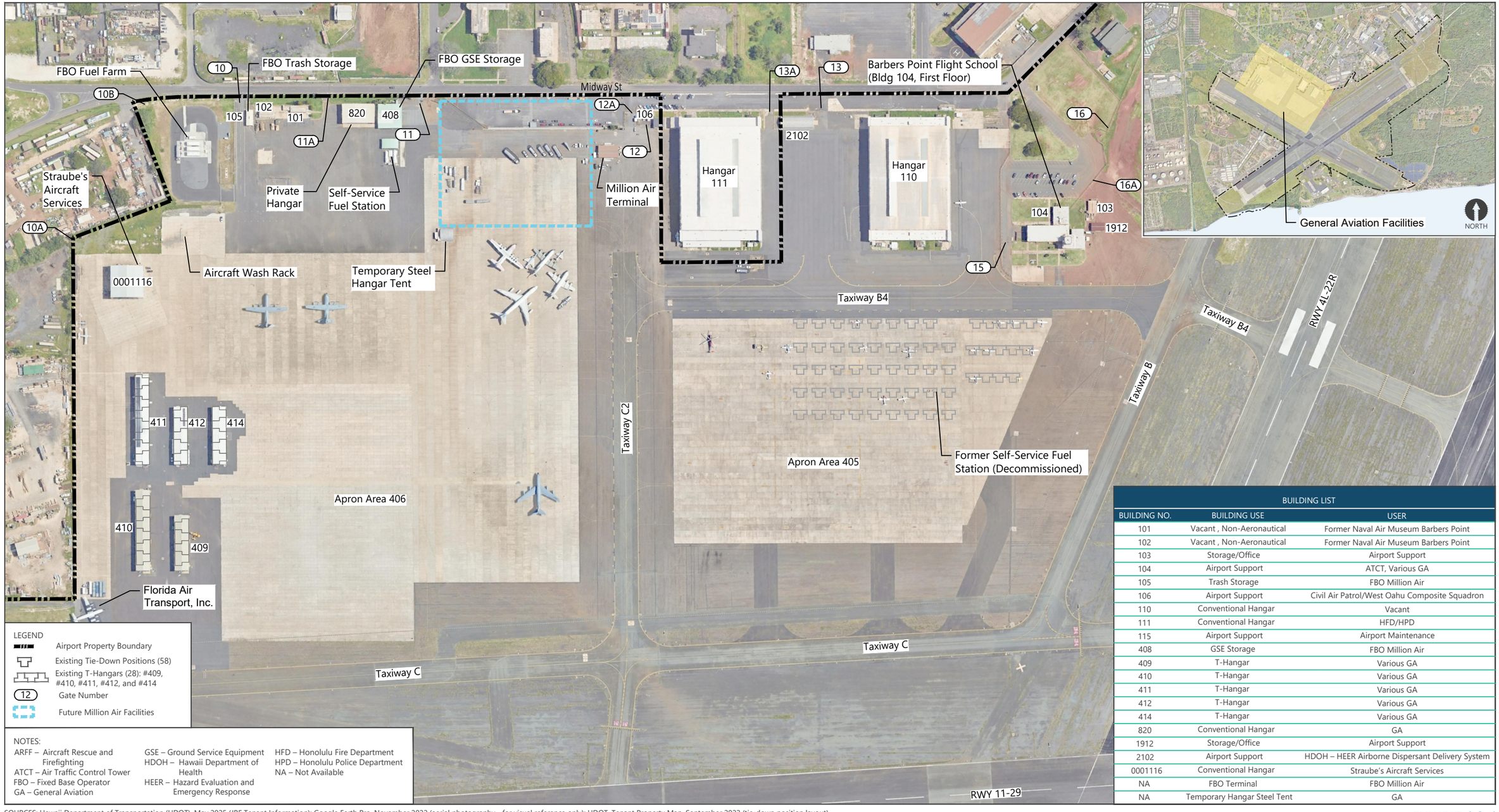
- Florida Air Transport, Inc., – located at the south corner for trailer storage and aircraft parking
- Private GA Individual – located south of the self-service fuel station in a steel hangar tent for aircraft parking

As noted previously, there are no designated markings for apron vehicle service roads to direct the safe maneuvering of vehicle operations between taxiing aircraft.

1.3.2 FIXED BASE OPERATORS

FBOs are commercial businesses granted the right by an airport sponsor to operate at an airport and provide aeronautical services, such as fueling, hangar rental, tie-down and parking, aircraft rental and charters, aircraft maintenance, sightseeing flights, flight instruction, conference facilities, concierge, and similar services.

Million Air is the only FBO operating at JRF since 2022. Its terminal/office space is located in a temporary 2,456-square-foot portable building west of and adjacent to Hangar 111. In addition, Million Air uses a conventional hangar, Building 408 (approximately 5,506 square feet), for ground service equipment (GSE) storage and Building 105 (approximately 1,102 square feet) for overnight storage and cleaning of trash receptacles. Building 408 is located north of the self-service fuel station, and Building 105 is located adjacent to the recently built fuel farm facility.



LEGEND

- Airport Property Boundary
- Existing Tie-Down Positions (58)
- Existing T-Hangars (28): #409, #410, #411, #412, and #414
- (12) Gate Number
- Future Million Air Facilities

NOTES:

ARFF – Aircraft Rescue and Firefighting
ATCT – Air Traffic Control Tower
FBO – Fixed Base Operator
GA – General Aviation
GSE – Ground Service Equipment
HDOH – Hawaii Department of Health
HEER – Hazard Evaluation and Emergency Response
HFD – Honolulu Fire Department
HPD – Honolulu Police Department
NA – Not Available

BUILDING LIST

BUILDING NO.	BUILDING USE	USER
101	Vacant , Non-Aeronautical	Former Naval Air Museum Barbers Point
102	Vacant , Non-Aeronautical	Former Naval Air Museum Barbers Point
103	Storage/Office	Airport Support
104	Airport Support	ATCT, Various GA
105	Trash Storage	FBO Million Air
106	Airport Support	Civil Air Patrol/West Oahu Composite Squadron
110	Conventional Hangar	Vacant
111	Conventional Hangar	HFD/HPD
115	Airport Support	Airport Maintenance
408	GSE Storage	FBO Million Air
409	T-Hangar	Various GA
410	T-Hangar	Various GA
411	T-Hangar	Various GA
412	T-Hangar	Various GA
414	T-Hangar	Various GA
820	Conventional Hangar	GA
1912	Storage/Office	Airport Support
2102	Airport Support	HDOH – HEER Airborne Dispersant Delivery System
0001116	Conventional Hangar	Straube's Aircraft Services
NA	FBO Terminal	FBO Million Air
NA	Temporary Hangar Steel Tent	GA

SOURCES: Hawaii Department of Transportation (HDOT), May 2025 (JRF Tenant Information); Google Earth Pro, November 2022 (aerial photography - for visual reference only); HDOT, Tenant Property Map, September 2022 (tie-down position layout).
Hawaii Department of Transportation (HDOT), Kalaeloa Airport – Airport Layout Plan, October 2014.

NORTH 0 300 ft

EXHIBIT 1.3-1

EXISTING GENERAL AVIATION FACILITIES

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.3-1 EXISTING GENERAL AVIATION FACILITIES.dwgLayout: Existing Conditions Plotted: Apr 30, 2026, 04:38PM

To enhance the efficiency and commercial viability of GA and military aircraft operations at the Airport, Million Air has plans to improve their facilities, including construction of a pre-engineered metal and glass facility, approximately 50 feet in height, 310 feet in length, and 140 feet in width. The conceptual program planned for the improved facilities include the following:

- Automobile Parking Facilities: an automobile parking lot with approximately 100 vehicle stalls
- Aircraft Hangar: a 30,000-square-foot hangar featuring a ramp-side door measuring approximately 150-feet wide by 28-feet high, providing direct runway access for GA aircraft and service vehicles
- Executive Terminal and Office Space: an 8,000-square-foot, two-story area designed to accommodate an executive terminal/lobby, conference room, pilot lounge and theater rooms, quiet rooms, café/refreshment area, and supporting office spaces
- Ground Service Maintenance Area: a 2,000-square-foot section dedicated to equipment storage and servicing for all vehicles supporting FBO air operations

An environmental assessment (EA) for the development plans was completed in 2021 and resulted in a Finding of No Significant Impact (FONSI).[10] As of July 2025, construction is anticipated to be completed within 18-24 months. For purposes of the inventory chapter, these planned facilities are considered existing conditions.

1.3.3 FLIGHT SCHOOL

The Barbers Point Flight School (BPFS) has approximately 3,451 square feet of leased space on the first floor of the ATCT building for offices, a flight school simulation room, and a student/customer lounge.[11] With, BPFS has a full-service flight training facility, including aircraft maintenance, and operates a fleet of small aircraft including Cessna 150 (1), Cessna 172s (2), Cessna Skyhawk (3), Tecnam P2010 MKII (1), and Tecnam P2008 Light Sport (1). BPFS anticipates receiving two additional aircraft, 2026 Tecnam P-Mentor by March 2026. These aircraft are FAA certified in the US as "full IFR trainer" aircraft and were built specifically for flight schools and for IFR training.[12]

BPFS shares the adjacent automobile parking area with other tenants occupying Building 104, including HDOT Airport administration and ATCT staff. The automobile parking area is approximately 29,476 square feet, providing 94 parking stalls for all Building 104 occupants.

1.3.4 CONVENTIONAL HANGARS

At JRF, the four conventional hangars include Straube's Aircraft Services hangar, Hangar 110, Hangar 111, and Building 820. Although Hangar 111 is located off airport property, it remains accessible from the airfield. The locations of these facilities are shown on Exhibit 1.3-1 and are described below:

- The Straube's Aircraft Services 16,200-square-foot hangar (Building 0001116) is used for aircraft painting and detailing services and located at the northwestern end of the Airport, adjacent to and between the T-hangars and aircraft wash rack.

[10] Wilson Okamoto Corporation, *Final Environmental Assessment, Million Air – Kalaeloa Airport: Fixed Base Operation and Fuel Farm Facility*, April 2021.

[11] Hawaii Department of Transportation, May 2025 (Airport tenant information).

[12] Barbers Point Flight School, https://www.hawaiiflightschool.com/ (accessed June 9, 2025).

- Hangars 110 and 111 are recognized in the Historic American Buildings Survey (HABS; Survey Number: HABS HI-279-M) [13] and are eligible for the National Register of Historic Places (NRHP) for being the first built structures of the NASBP in 1942 and for their distinctive architecture. Each hangar has two floors of office space at each end of the building. Hangar 110, which is 105,284 square feet, is vacant and has been leased for aircraft storage purposes. Hangar 111, which is 102,270 square feet, is an off-airport property owned by the University of Hawaii. It was used as the university's Pacific Aerospace Training Center until September 2016. The Honolulu Fire Department (HFD) and Honolulu Police Department (HPD) use the hangar. Section 1.4.5 provides additional information on the HFD and HPD use of the hangar.
- Building 820 is a 6,086-square-foot hangar used by an individual private GA operator on a revocable permit. The facility is located between the former Naval Air Museum Barbers Point and Building 408.

1.3.5 T-HANGARS AND TIE-DOWNS

HDOT owns and operates T-hangars and aircraft tie-down positions. To the north of Runway 11 on Apron Area 406, there are 5 T-hangar buildings comprising a total of 28 units. HDOT maintains a waiting list, as approximately 96 percent of the T-hangars are occupied as of July 2025. As previously mentioned, marked tie-downs at the Airport are located on Apron Area 405. Most of the 58 tie-down positions, as reported by HDOT, have faded marking positions. **Table 1.3-1** summarizes the number of units for each T-hangar building and tie-downs positions and occupancy status.

TABLE 1.3-1 SUMMARY OF T-HANGARS AND TIE-DOWNS

T-HANGAR BUILDING NO.	NO. OF UNITS	OCCUPANCY STATUS (AS OF MAY 2025)
409	6	all occupied
410	4	3 of 4 occupied
411	8	all occupied
412	5	all occupied
414	5	all occupied
Total	28	
TIE-DOWNS	**NO. OF UNITS**	**OCCUPANCY STATUS (AS OF MAY 2025)**
Marked tie-down positions	58	27 positions

SOURCE: Hawaii Department of Transportation, May 16, 2025.

1.3.6 AIRPORT TENANTS SUMMARY

As of July 2025, there are 44 tenants with leases and/or revocable permits. The tenants comprise different functional users, such as an FBO, flight school, helicopter operator, other GA businesses, private GA individuals, Airport support, and the military. **Table 1.3-2** categorizes the tenants and summarizes the number of tenants holding leases or revocable permits, the number of tenants who own based aircraft at JRF, the total number of based aircraft, and the number of occupied tie-down positions on Apron Area 405.

[13] Library of Congress, https://www.loc.gov/pictures/collection/hh/item/hi0416/ (accessed June 6, 2025).

TABLE 1.3-2 SUMMARY OF AIRPORT TENANTS

TENANT FUNCTIONAL CATEGORY	NO. OF TENANTS	NO. OF TENANTS ON LEASES	NO. OF TENANTS ON REVOCABLE PERMITS	NO. OF TENANTS WITH A BASED AIRCRAFT[1]	NO. OF BASED AIRCRAFT OWNED	NO. OF OCCUPIED TIE-DOWN POSITIONS[2]
Fixed Base Operator	1	1	1	0	0	0
Flight School	1	1	1	1	9	9
GA Helicopter	1	0	1	0	0	0
Other GA businesses	16	2	14	9	12	5
Private GA Individuals	21	0	21	13	15	9
Airport Support	3	2	1	0	0	4
Military	1	1	0	0	0	0
Total	**44**	**7**	**39**	**23**	**36**	**27**

NOTES:
GA – General Aviation
1 Approximately 52 percent (23 out of 44) Airport tenants have a based aircraft.
2 Exhibit 1.3-1 identifies the occupied tie-down positions on Apron Area 405. Approximately 45 percent (26 of 58) of the tie-down positions are occupied.
SOURCE: Hawaii Department of Transportation, Field Visit, May 16, 2025.

1.3.7 AIRCRAFT FUELING AND FUEL STORAGE

There are two fueling facilities in operation at JRF: a fuel farm owned by the FBO and a self-service fuel station. The 82,815-square-foot fuel farm, located to the far northwest end of the Airport, was constructed in 2022. It includes three 30,000-gallon tanks for Jet-A fuel and one 10,000-gallon tank for aviation gasoline (Avgas). The self-service fuel station (approximately 6,281 square feet) is positioned in front of Building 408 on Apron Area 406 and comprises one 10,000-gallon tank for Avgas and one 20,000-gallon tank for Jet-A fuel.

Two former fueling sites at JRF were decommissioned:

- The former U.S. Navy fuel farm facility, located adjacent to the HIARNG facilities, was initially decommissioned as part of the Base Realignment and Closure action in 1999. There are ongoing testing and monitoring of contaminants at the former fuel farm area. Long-term monitoring is scheduled to continue until 2045 in several locations. The former fuel farm and areas adjacent to the nearby aircraft apron are under lease to HIARNG through August 2046[14].
- On Apron Area 405, remnants of infrastructure from a decommissioned self-service fuel station remain visible.

1.3.8 AIRCRAFT WASH RACK

An aircraft wash rack is a designated common-use area where GA aircraft owners can clean and wash their aircraft. These areas feature a paved platform designed to collect and manage wash water runoff. Wash racks can be in the open air, under a canopy (covered), or inside an enclosed hangar, with or without doors. The aircraft wash rack at JRF spans approximately 22,880 square feet and is an open-air facility situated northwest of the Airport, between Straube's Aircraft Services and the fuel farm facility.

[14] Hawaii Department of Transportation, State Lease No. DOT-A-16-0004, Land Lease for the Department of Defense Hawaii Army National Guard, July 25, 2016.

1.3.9 AUTOMOBILE PARKING

Dedicated public automobile parking for GA users on the non-secure side of the Airport is accessible via Midway Street and situated near Hangars 110 and 111 and the FBO terminal. The sizes of the parking areas vary as follows:

- Hangar 110 – 24,260 square feet (86 stalls)
- Hangar 111 – 25,420 square feet (off-Airport, 82 stalls)
- FBO Terminal – 47,860 square feet (100 stalls)
- BPFS – 29,476 square feet (94 stalls); shares with Building 104 tenants (HDOT Administration and ATCT Staff)

On the secure side, approximately 2,530 square feet of automobile parking space (10 stalls) is adjacent to the FBO terminal and an additional 3,695 square feet of parking with 21 stalls is dedicated to Building 108.

Based on site observations, improvements to the parking areas are needed due to lack of adequate lighting and the faded parking stall markings.

1.3.10 SUMMARY OF GENERAL AVIATION FACILITIES

Table 1.3-3 summarizes the size of each GA facility, along with the number of parking stalls or units, as appropriate.

TABLE 1.3-3 (1 OF 2) GENERAL AVIATION FACILITIES SUMMARY

FACILITY	AREA (SQUARE FEET)	NO. OF POSITIONS/UNITS
Aircraft Apron Total		N/A
Apron Area 405	736,195 (17 acres)	58 positions
Apron Area 406	2,155,239 (49 acres)	no markings
Helicopter Parking	9,632	2 positions
FBO		
Terminal – Portable Building	2,456	N/A
GSE Storage – Building 408	5,506	N/A
Storage – Building 105	1,102	N/A
Automobile Parking	50,390	110 stalls
Conventional Hangar Total		N/A
Hangar 110	105,284	N/A
Hangar 111 (Off-Airport)	102,270	N/A
Building 820	6,086	N/A
Straube's Aircraft Services – Building 0001116	16,200	N/A
Automobile Parking	49,686	86 stalls

TABLE 1.3-3 (2 OF 2) GENERAL AVIATION FACILITIES SUMMARY

FACILITY	AREA (SQUARE FEET)	NO. OF POSITIONS/UNITS
T-Hangars and Marked Tie-Downs Total	47,701	28 units
Building 409	8,012	4 units
Building 410	11,378	6 units
Building 411	12,253	8 units
Building 412	8,296	5 units
Building 414	7,762	5 units
Marked tie-downs	282,156 (7 acres)	58 positions stalls
Other GA		
Barbers Point Flight School – Building 104, 1st Floor	3,451	N/A
Automobile Parking (Building 104 Tenants)	29,476 (+3,695 on secured side)	94 stalls (+21 stalls on secured side)
Fueling Area Total	89,096	N/A
FBO Fuel Farm Facility	82,815	3 tanks, each 30,000 gallons of Jet-A fuel; dimension: 10 feet by 40 feet 1 tank, 10,000 gallons of Avgas; dimension: 10 feet by 30 feet
Self-Service Fuel Station	6,281	1 tank, 20,000 gallons of Jet-A fuel; dimension: 10 feet by 38 feet 1 tank, 10,000 gallons of Avgas; dimension: 8 feet by 32 feet
Aircraft Wash Rack	22,880	1 position

NOTES: GA – General Aviation FBO – Fixed Base Operator N/A – Not Applicable Avgas – Aviation Gasoline GSE – Ground Service Equipment
SOURCES: Hawaii Department of Transportation, May 16, 2025 (tenant list information); Hawaii Department of Transportation, Draft Kalaeloa Airport – Airport Layout Plan, September 2014.

1.4 SUPPORT FACILITIES

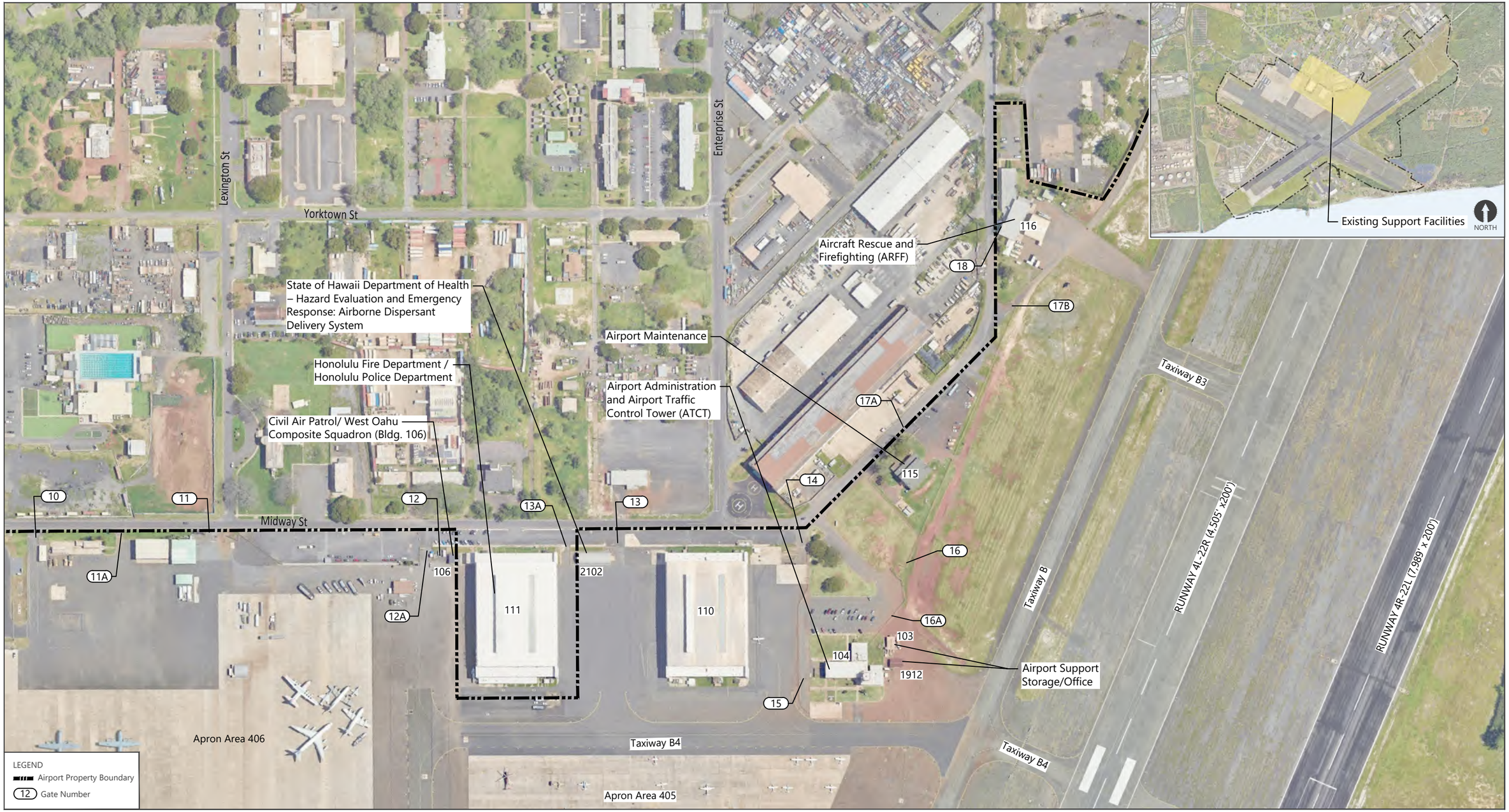
Support facilities at JRF include those for the ATCT, aircraft rescue and firefighting (ARFF), Airport Maintenance, Airport Administration, HFD, HPD, Hawaii Civil Air Patrol (CAP), and State of Hawaii Department of Health – Emergency Response. **Exhibit 1.4-1** depicts the locations of these support facilities.

1.4.1 AIRPORT TRAFFIC CONTROL TOWER

The ATCT (Building 104) is a four-story structure encompassing approximately 17,876 square feet. It is recognized in the HABS (Survey Number: HABS HI-279-I)[15] and is eligible for listing in the NRHP due to its distinctive architecture and historical significance as part of the NASBP during World War II.

The first floor, approximately 9,648 square feet, is occupied by Airport Administration, BPFS, National Oceanic and Atmospheric Administration (NOAA), and Federal Emergency Management Agency (FEMA).

[15] Library of Congress, https://www.loc.gov/pictures/collection/hh/item/hi0416/ (accessed June 6, 2025).



SOURCES: Hawaii Department of Transportation, *Kalaeloa Airport – Airport Layout Plan*, October 2014; Google Earth Pro, November 2022 (aerial photography – for visual reference only).

EXHIBIT 1.4-1

EXISTING SUPPORT FACILITIES

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.4-1 EXISTING SUPPORT FACILITIES.dwgLayout: Existing Conditions Plotted: Apr 7, 2026, 04:09PM

The second floor, which spans approximately 6,050 square feet, is used by HIANG personnel. However, there are plans for HIANG to vacate the area to allow for Airport Administration expansion.

The third floor, about 1,089 square feet, houses FAA communication equipment and includes circulation space, such as a spiral staircase leading to the fourth floor. The top floor, also approximately 1,089 square feet, is used by HIANG, specifically the 297th Air Traffic Control Squadron (297 ATCS) unit, who operates the ATCT daily from 6:00 AM to 10:00 PM.[16] Part of the 154th Wing's Operations Group, the 297 ATCS is primarily responsible for providing terminal air traffic control services and maintaining global combat-readiness to set up air traffic control in austere or emergency locations, supporting tactical air forces and US Air Force missions worldwide, with significant deployments for operations and disaster relief in the Pacific. It is the only unit in the Pacific trained to operate the MSN-7 (Meteorological Shelter Navigation), a mobile tower system used to sustain air operations when fixed towers are unavailable. The MSN-7 can be operational within 90 minutes of arrival. It is typically mounted on a high mobility multipurpose wheeled vehicle and can be transported via C-130 or 17 aircraft.[17] As an FTC, it is eligible for receiving federal funding, especially for modernization of aging infrastructure. The JRF ATCT is a Federal Contract Tower (FTC) owned by HDOT and uniquely operated by the DoD. HDOT received federal funds for interior improvements in 2024, as part of State Project No. AO5024-03. Work was completed in 2025.

Atop the ATCT four-story structure is the Airport rotating light beacon, a visual navigational aid that helps pilots locate and identify the Airport, especially at night or during poor weather conditions (IMC).

As previously mentioned, the automobile parking area, which encompasses 94 stalls on the non-secure side, is a shared facility for all occupants in Building 108. On the south (secure) side, there is an additional 3,695 square feet of parking with 21 stalls.

1.4.2 AIRPORT MAINTENANCE

Northeast of the ATCT is Airport Maintenance (Building 115). The 7,515-square-foot facility is recognized in the HABS (Survey Number: HABS HI-279-N)[18] and is eligible for listing in the NRHP due to its distinctive architecture and historical significance as the torpedo assembly and maintenance facility during World War II. Adjacent to the facility is about 25,066 square feet (26 stalls) of paved parking space for Airport Maintenance's equipment and vehicle storage.

1.4.3 AIRPORT ADMINISTRATION

Airport Administration is located on the first floor on the southwest wing of the ATCT (Building 104). The Airport Administration space includes administrative offices, a conference room, lobby, and security check-in area. Airport Administration plans to expand to the second floor when HIANG personnel vacate. However, the facility is noncompliant with the Americans with Disability Act (ADA) due to a lack of elevators. In addition, Airport Administration shares space with NOAA and FEMA.

[16] United States Air Force, 154 Wing – Hawaii Air National Guard, https://www.154wg.ang.af.mil/Units/ (accessed July 20, 2025)

[17] State of Hawaii, Department of Defense, https://dod.hawaii.gov/blog/history-of-the-297th-air-traffic-control-squadron/, (accessed July 20, 2025)

[18] Library of Congress, https://www.loc.gov/pictures/collection/hh/item/hi0416/ (accessed June 6, 2025).

1.4.4 AIRCRAFT RESCUE AND FIREFIGHTING

Located east of the Airport Maintenance building is the 14,063-square-foot ARFF facility (Building 116) that includes six vehicle bays. Fronting the vehicle bays is 30,107 square feet of apron space that has access to Taxiway B and is near Taxiway B3. The apron accommodates a 4,498-square-foot hangar tent that houses four fire trucks. In addition, the ARFF location includes a 1,168-square-foot storage building on the east side of the apron. To the northeast of the ARFF facility is approximately 10,494 square feet of automobile parking space (29 stalls).

The ARFF facility is classified as Index B, which indicates the type of ARFF equipment and quantity of fire extinguishing agent that must be kept at the Airport, per the Code of Federal Regulations (CFR), Title 14, Part 139.

1.4.5 HONOLULU FIRE DEPARTMENT AND HONOLULU POLICE DEPARTMENT

As noted in Section 1.3, the HFD and HPD operate from Hangar 111, which is owned by the University of Hawaii and is located off Airport property. Both departments use helicopters to support their operations, and these aircraft are stored in Hangar 111. The HFD and HPD personnel relocated to JRF due to insufficient space at the South Ramp of HNL. As of July 2025, HDOT is coordinating with the University of Hawaii on a "through the fence" (TTF) agreement to preserve the HDOT rights and authorities, following a recommendation from the FAA land use compliance inspection conducted in December 2024.

1.4.6 HAWAII CIVIL AIR PATROL

The Hawaii CAP is a congressionally chartered, federally funded, 501(c)(3) nonprofit corporation that serves as the civilian auxiliary to the US Air Force. At JRF, the Hawaii CAP consists of the West Oahu Composite Squadron, which has volunteer senior and cadet programs for emergency services, particularly air operations, as well as aerospace and safety education. The Hawaii CAP operates out of a 1,074-square-foot facility (Building 106), located west of Hangar 111.

1.4.7 STATE OF HAWAII DEPARTMENT OF HEALTH – HAZARD EVALUATION AND EMERGENCY RESPONSE

The State of Hawaii Department of Health – Hazard Evaluation and Emergency Response Office maintains and operates an Airborne Dispersant Delivery System (ADDS) hangar between Hangars 110 and 111. The 4,800-square-foot ADDS hangar (Building 2102) is a key component of the State of Hawaii's emergency response to oil spills in the Hawaiian Waters.

1.4.8 OTHER SUPPORT FACILITIES

Adjacent to the east side of the ATCT are Building 103 and Building 1912, which are 1,065 square feet and 1,008 square feet, respectively. These support facilities are used for additional Airport storage and office space.

1.4.9 SUMMARY OF SUPPORT FACILITIES

Table 1.4-1 summarizes the size of each support facility at the Airport.

TABLE 1.4-1 SUPPORT FACILITIES SUMMARY

FACILITY	AREA (SQUARE FEET)	NO. OF POSITIONS/UNITS
Airport Administration – Building 104, 1st Floor	9,648	N/A
Airport Traffic Control Tower – Building 104, 2nd Floor Through 4th Floor	8,228	N/A
Airport Maintenance – Building 115	7,515	N/A
Aircraft Rescue and Firefighting Facility Total	19,497	N/A
Building 116	14,063	N/A
Hangar Tent	4,498	4 stalls
East Storage Building	936	N/A
Hawaii Civil Air Patrol / West Oahu Composite Squadron – Building 106	1,074	N/A
State Department of Health, Hazard Evaluation and Emergency Response – Building 2102	4,800	N/A
Other Support		
Building 103	1,065	N/A
Building 1912	1,008	N/A
Automobile Parking Total	65,036	170 stalls
Airport Traffic Control Tower – Building 104	29,476 (+3,695)	115 stalls (including secured side)
Airport Maintenance – Building 115	25,066	26 stalls
Aircraft Rescue and Firefighting – Building 116	10,494	29 stalls

NOTE:
N/A – Not Applicable
SOURCES: Hawaii Department of Transportation, May 16, 2025 (tenant list information); Hawaii Department of Transportation, Draft Kalaeloa Airport – Airport Layout Plan, September 2014.

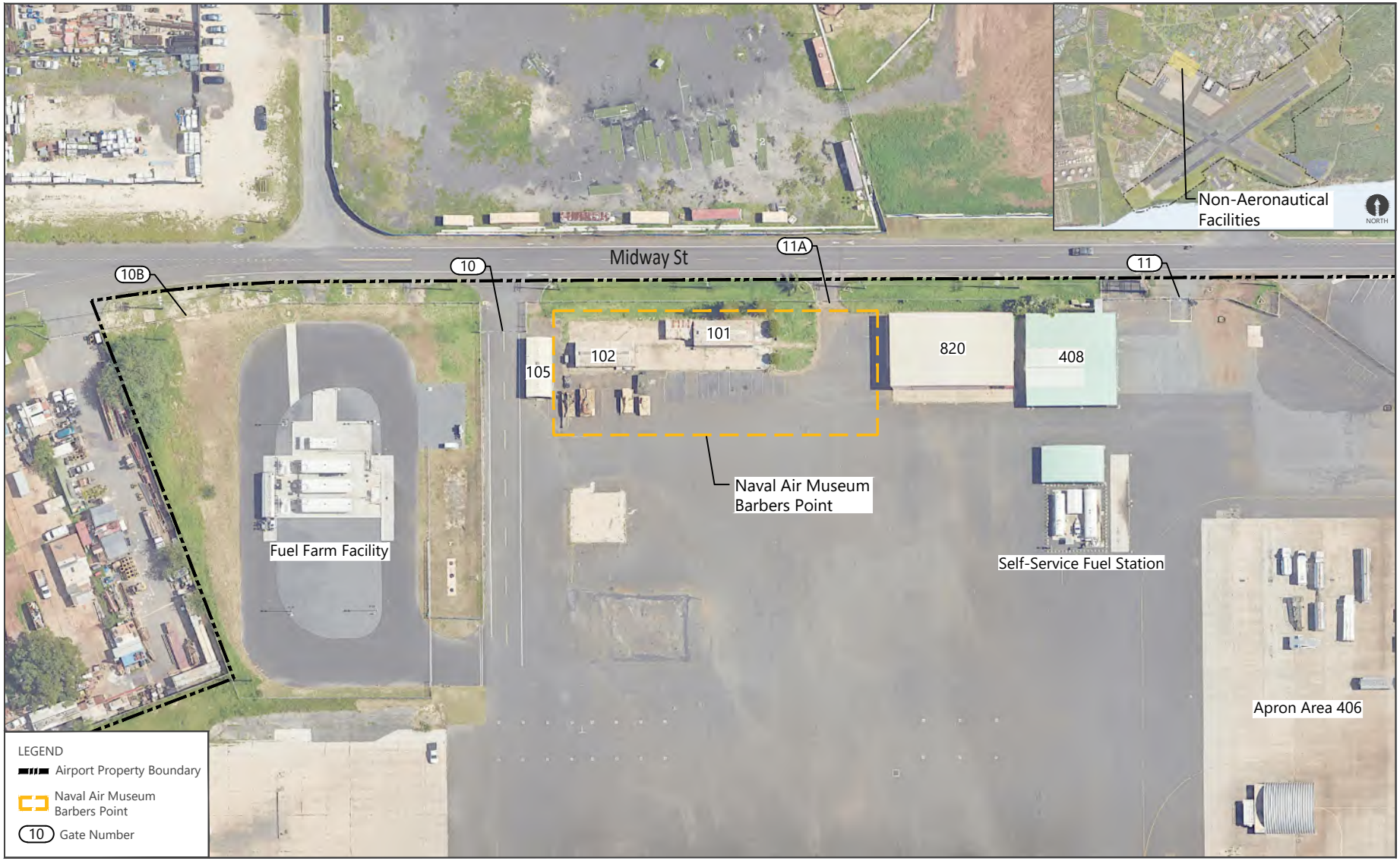
1.5 NON-AERONAUTICAL FACILITIES

The following subsections describe the on-Airport non-aeronautical facilities and intermodal connectivity to JRF.

1.5.1 NAVAL AIR MUSEUM BARBERS POINT

The FAA defines a non-aeronautical facility as any use that is not directly related to aircraft operations or airport-related activities. This includes operating a non-aviation business or activities that displace aeronautical functions. The Naval Air Museum Barbers Point, located east of the FBO fuel farm, may be considered non-aeronautical, as it has been closed since 2020.[19] Additionally, Buildings 101 and 102, approximately 1,072 square feet and 1,550 square feet, respectively, were used by the museum, contain asbestos, and are recommended to be demolished. A portion of the museum's collection, including four military tanks and two military helicopters, remains on Apron Area 406 adjacent to the museum buildings. **Exhibit 1.5-1** presents the location of the Naval Air Museum Barbers Point.

[19] Aviation Pros, https://www.aviationpros.com/aircraft-maintenance-technology/aircraft-technology/news/21160128/vintage-aircraft-face-chopping-block (accessed June 10, 2025).



SOURCES: Hawaii Department of Transportation, May 2025 (JRF tenant information), May 2025; Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 120 ft

EXHIBIT 1.5-1

EXISTING NON-AERONAUTICAL FACILITIES

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.5-1 EXISTING GENERAL AVIATION FACILITIES.dwgLayout: EXHIBIT 1.5-1 EXISTING GENERAL AVIATION FACILITIES Plotted: Feb 20, 2026, 09:32AM

1.5.2 INTERMODAL CONNECTIVITY TO AIRPORT

Effective intermodal connectivity is critical for optimizing the movement of goods and passengers between air, sea, and land transportation networks. This section provides an overview of the key intermodal components that connect JRF to nearby ports, roadways, and public transit infrastructure (bus and rail), as shown on **Exhibit 1.5-2**.

1.5.2.1 PORT

Approximately 5.5 miles by car from JRF is Kalaeloa Barbers Point Harbor (KBPH). KBPH is one of two commercial harbors on Oahu and the second busiest port in the state of Hawaii. Due to its proximity to the island's two refineries, KBPH serves as the hub for Hawaii's fuel supply system and distribution center for finished petroleum and non-petroleum products to interisland harbors. In addition, KBPH can handle petroleum products, ethanol, asphalt, coal, cement, sand, aggregates, and scrap metal cargoes and provides space for ship maintenance and repair activities. It provides several specialized cargo handling facilities that are not available at Honolulu Harbor. JRF serves a vital role in supporting the operations of KBPH by enhancing transportation connectivity, facilitating emergency response capabilities, and contributing to the region's economic development.

1.5.2.2 ROADS

JRF is accessible via the following major roadways:

- From H-1 Interstate westbound, take Exit 2 toward Makakilo Drive, stay in either of the left two lanes of the exit ramp. Turn left on Makakilo Drive to Highway 901 (Fort Barrette Road), which becomes Enterprise Street. From Enterprise Street, turn left onto Midway Street, and follow signs to the Airport.
- Similarly, from H1 Interstate eastbound, take Exit Wakea Street and continue straight. Then, turn left on Kapolei Parkway to Highway 901 (Fort Barrette Road) and Enterprise Street. From Enterprise Street, turn left onto Midway Street, and follow signs to the Airport.

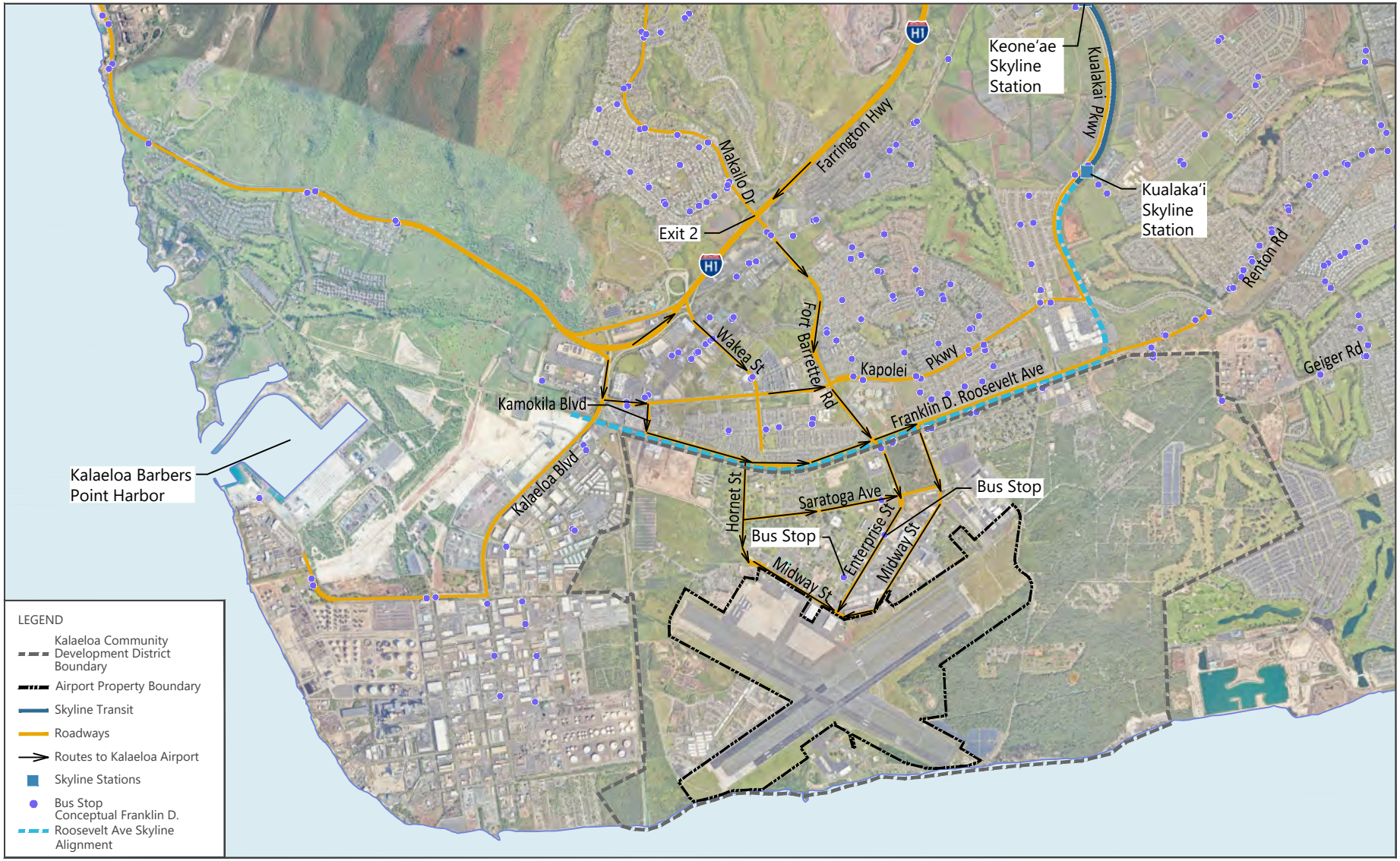
1.5.2.3 PUBLIC TRANSIT

Skyline

The Honolulu rail system, known as Skyline, features 19 stations along an 18.9 mile-long corridor on the south shore of Oahu. The first 13 stations, from Kualakai (East Kapolei) to Kahauiki (Kalihi Transit Center), are operational and have been transferred to the City's Department of Transportation Services for passenger service. The remaining stations are under construction and are anticipated to be completed by 2031. There is no direct Skyline connection to the Airport. The nearest Skyline station is Kualakai Station in East Kapolei, has an approximate driving distance of 4 to 5 miles from the Airport. According to the HCDA *Draft Kalaeloa Master Plan* (July 2025), there is an opportunity to continue the Skyline transit corridor from Kualakai Station to travel along Franklin D. Roosevelt Avenue, along the conceptual alignment shown on Exhibit 1.5-2.

Bus

TheBus is the public transit system serving the island of Oahu and is fully integrated with Skyline, Honolulu's rail system. Riders can use the same HOLO card to transfer seamlessly between the bus and rail at no additional cost within a 2.5-hour window. JRF is served by bus route 415, which has 8 stops departing from Kapolei Transit Center to the last 2 stops nearest the Airport at Yorktown Street and Bunker Hill Street intersection and along Enterprise Street near Belleau Woods Street. It is an approximately 15- to 20-minute walk to the Airport from these bus stops.



SOURCES: Hawaii Community Development Authority, *Draft Kalaeloa Master Plan*, July 2024; Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 4,000 ft

EXHIBIT 1.5-2

CONNECTIVITY TO AIRPORT

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.5-2 CONNECTIVITY TO AIRPORT.dwgLayout: EXHIBIT 1.5-2 CONNECTIVITY TO AIRPORT Plotted: Apr 24, 2026, 02:13PM

1.6 MILITARY FACILITIES

JRF plays a critical role in supporting military operations and emergency response efforts, particularly for adjacent facilities operated by the HIARNG, HIANG, and USCG. Although these military facilities are located off Airport property, access to JRF is essential for executing their missions. To facilitate this, memorandums of understanding (MOUs)/operating agreements and land lease agreements are in place. The terms and conditions within these agreements provide HDOT with sufficient rights and powers; therefore, no additional TTF agreements with the FAA are needed.[20] The following subsections describe the roles and facilities of HIARNG, HIANG, and USCG.

1.6.1 HAWAII NATIONAL GUARD

HIARNG and HIANG are both components of the Hawaii National Guard and collaborate on missions such as disaster response and homeland security. For example, both support the 93rd Civil Support Team (CST), which assists civil authorities, at the direction of the Governor, with domestic chemical, biological, radiological, nuclear, or high-yield explosive incident sites.[21]

While they work together on joint missions, HIARNG and HIANG serve distinct roles, operate different equipment, and fall under separate branches of the US military. HIARNG is affiliated with the US Army, whereas HIANG is affiliated with the US Air Force.

1.6.1.1 HAWAII ARMY NATIONAL GUARD

The HIARNG is headquartered in Kalaeloa and occupies about 181 acres, northeast of JRF. Its mission is to provide manned, trained, and equipped units capable of responding to national contingencies, natural disasters, human-caused crises, or the unique needs of the civil authorities.[22] HIARNG consists of a headquarters and three major commands: the 29th Infantry Brigade Combat Team, the 103rd Troop Command, and the 298th Regiment Multi-functional, Regional Training Institute.

HDOT and HIARNG executed an MOU/operating agreement in February 2022 to define the rights and responsibilities of the HIARNG and HDOT in their respective operations of the Airport. The HIARNG Army Aviation Support Facility (AASF) occupies premises bordering JRF and relies upon access and use of Airport facilities, including taxiways, runways, ramps, and aircraft parking areas, for the conduct of its mission. The AASF is located at the far northeast side of JRF, adjacent to the old fuel farm, as shown on **Exhibit 1.6-1**. Access to the airfield is via Taxiway P, which connects to Taxiway B and is under improvements for enhanced marking and signage, as of July 2025. The operating agreement is effective until August 31, 2031, and is subject to review or modification annually around the anniversary of its effective date, and triennially in its entirety.

HIARNG has several major military construction projects in the pipeline to increase capacity and readiness, as well as plans to relocate personnel and aircraft equipment.[23] HIARNG has a land lease agreement with HDOT (State Lease No. DOT-A-16-0004) to use the Airport's old fuel farm area (approximately 7.3 acres) and have apron access (approximately 9.8 acres). The land lease term is from September 2016 to August 2031.

---

[20] Traci Lum, Planner, Hawaii Department of Transportation, "Land use Compliance Inspection (JRF & HDH)," email to Ura Yvan, Land Use Compliance Inspection (JRF and HDH), Ricondo & Associates, Inc., May 14, 2025.

[21] State of Hawaii – Hawaii Army National Guard, Units, https://dod.hawaii.gov/hiarng/about/units/ (accessed June 5, 2025).

[22] State of Hawaii – Hawaii Army National Guard, About, https://dod.hawaii.gov/hiarng/about/ (accessed June 5, 2025).

[23] State of Hawaii, Department of Business, Economic Development & Tourism, Hawaii Community Development Authority, Kalaeloa Master Plan, July 2024.



SOURCES: Hawaii Department of Transportation, *Kalaeloa Airport – Airport Layout Plan*, October 2014; Hawaii Army National Guard, May 2024 (Army Aviation Support Facility Site Plan); State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, April 2024 (Department of Defense parcels); Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 500 ft

EXHIBIT 1.6-1

HAWAII NATIONAL GUARD FACILITIES

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.6-1 HAWAII NATIONAL GUARD FACILITIES.dwgLayout: Existing Conditions Plotted: Feb 27, 2026, 08:59AM

1.6.1.2 HAWAII AIR NATIONAL GUARD

HIANG has both a state and a federal mission. At the state level, HIANG supports the State of Hawaii by providing organized and trained personnel to protect citizens and property, preserve peace, and ensure public safety in response to natural or human-caused disasters. Federally, the HIANG mission is to provide ready combat units, combat support units, and qualified personnel for active duty in the US Air Force and US Space Force. HIANG comprises a headquarters, the 154th Wing, the 201st Air Operations Group, and the 298th Air Defense Group.[24]

HIANG maintains a presence in Kalaeloa through the 297 ATCS, a unit of the 154th Wing. While the squadron is headquartered off Airport, within a 5-minute drive from the Airport, it also operates the ATCT (Building 104, fourth floor), as described in Section 1.4.1, and occupies office space on the second floor.

1.6.2 US COAST GUARD

Located south of the intersection of Runways 4R-22L and 11-29, the USCG Air Station Barbers Point occupies approximately 61 acres, as shown on **Exhibit 1.6-2**. Known as the "Guardians of the Pacific," the USCG supports the Fourteenth Coast Guard District with long-range patrol and logistical capabilities, as well as search and rescue operations, maritime and recreational boating safety, law enforcement, environmental protection, and homeland security.[25]

The station's facilities include a 48,000-square-foot aircraft maintenance hangar, apron parking, and helipads that accommodate both fixed-wing aircraft, such as the HC-130J Hercules, and rotary-wing aircraft, such as the MH-65 Dauphin helicopter, often seen in its distinctive red and white color. The HC-130J Hercules provides long-range fixed-wing operations, ensuring safety, security, and presence throughout the Pacific, while the MH-65 Dauphin is used for short-range search and rescue, law enforcement, and homeland security missions. The USCG apron connects directly to and has a helipad adjacent to Runway 4R and Taxiway A2.[26]

In July 1999, HDOT and the USCG established an operating agreement that allows the USCG to have free and unrestricted access and use of all Airport taxiways, runways, ramps, and aircraft parking areas, as well as a designated training drop area parallel to the primary runway to support the USCG missions. The operating agreement is subject to review and modification periodically and shall remain in effect until such time that HDOT decides to close JRF, or, upon a mutual written agreement signed by both parties, to dissolve this operating agreement.

[24] State of Hawaii – Hawaii Air National Guard, https://dod.hawaii.gov/hiang/ (accessed June 5, 2025).

[25] US Department of Homeland Security, United States Coast Guard – Pacific Area, https://www.pacificarea.uscg.mil/Our-Organization/District-14/D14-Units/District-14-Air-Station-Barbers-Point/ (accessed June 5, 2025).

[26] US Department of Homeland Security, United States Coast Guard, Aviation Programs, https://www.dcms.uscg.mil/Our-Organization/Assistant-Commandant-for-Acquisitions-CG-9/Programs/Air-Programs/ (accessed June 5, 2025).



LEGEND
- Airport Property Boundary
- United States Coast Guard Property Boundary
- 3 Gate Number
- Future Facilities

NOTES:

1. The Federal Bureau of Investigation (FBI) is currently planning to build a 100x100x20 hangar on United States Coast Guard (USCG) property for Cessna 182 and Cessna 206 aircraft. Work schedule is unknown at this time. For purposes of the Inventory Chapter of the Master Plan, this hangar will be considered as an existing facility.
2. The USCG is currently planning to build 2 hangars and support offices. These facilities are anticipated to be completed by 2028. For purposes of the Inventory Chapter of the Master Plan, these facilities will be considered existing facilities.

SOURCES: State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, April 2024 (Department of Defense parcels); Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 400 ft

EXHIBIT 1.6-2

US COAST GUARD FACILITIES

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.6-2 U.S.COAST GUARD FACILITIES.dwgLayout: Existing Conditions Plotted: May 1, 2026, 11:24AM

1.7 UTILITIES

The existing water, sewer, drainage, and electrical infrastructure serving KCDD and JRF is the original system installed by the NASBP. The aging utilities no longer meet current standards and require replacement to meet operational requirements. **Exhibit 1.7-1** through **Exhibit 1.7-3** depicts the existing water, sewer, drainage, and electrical infrastructure within KCDD and JRF. Since JRF is part of KCDD, this section summarizes the infrastructure assessments from the *Draft Kalaeloa Master Pl*an by HCDA and the 2021 *Kalaeloa Airport Infrastructure Improvement Project Definition Report* (PDR).[27,28] The PDR (see **Appendix B**) evaluated specifically the JRF infrastructure and provides recommendations to bring the utility system up to current operational and regulatory standards.

1.7.1 WATER

In 2020, ownership of the system was transferred to Kalaeloa Water Company (KWC). The JRF facilities serviced by the water system include the ATCT, Hangars 110 and 111, Airport Maintenance building, ARFF facility, fuel farm, and Straube's Aircraft Services building. According to the *Kalaeloa Airport Infrastructure Improvement PDR*, the water system at JRF has experienced water line breaks and needs to be replaced. In addition, the water meters located on Airport and the fire hydrants along Midway Street require easements.

1.7.2 SEWER

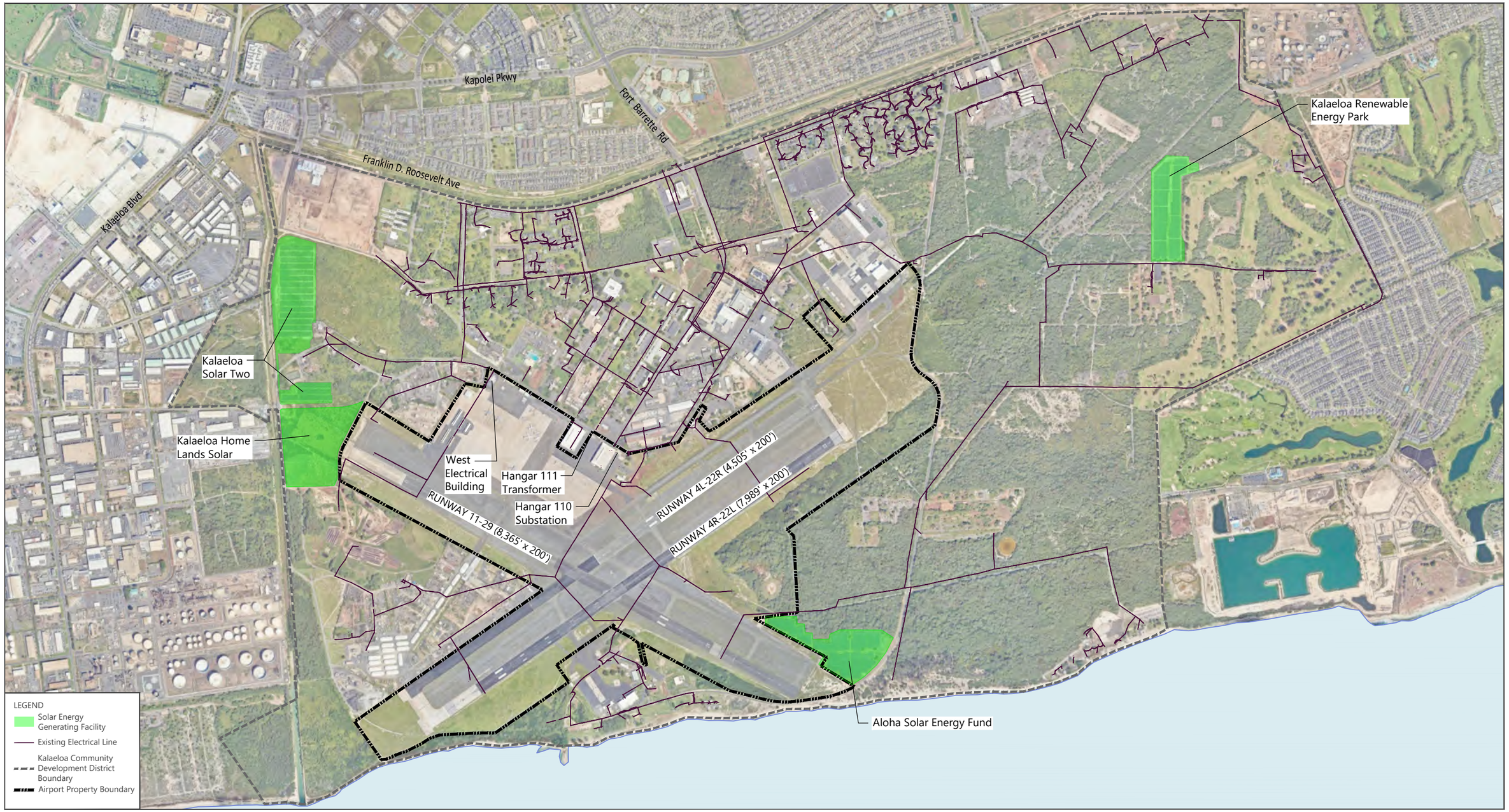
KWC oversees the sewer system and made leak repairs in 2016. At JRF, an existing sewer line traverses under the runways to the main pump station located near the USCG facility. The JRF facilities serviced by the KWC sewer system include the ATCT, Hangars 110 and 111, Airport Maintenance building, ARFF facility, FBO fuel farm, and Straube's Aircraft Services building. According to the *Kalaeloa Airport Infrastructure Improvement PDR*, the recommended improvements to the sewer system include providing a sewer pump station and force main to connect to the sewer line in Midway Street for the ATCT and Airport Maintenance building, replacing the sewer lines to Hangar 111, and providing a new sewer lateral for the ARFF facility. Hangar 110, the FBO fuel farm, and the Straube's Aircraft Services hangar do not require sewer improvements.

1.7.3 DRAINAGE

According to the *Draft Kalaeloa Master Pl*an by HCDA, the existing drainage system is not in accordance with the State of Hawaii or City and County of Honolulu standards. The drainage system within KCDD comprises 253 drywells; maintenance has not been done since the NASBP closure in 1999, and the capacity is unknown. In addition to the drywells, 10 sumps are located at various locations within KCDD, which are designed to collect runoff and infiltrate the ground. Excess runoff flows to adjacent lands and the Pacific Ocean.

[27] State of Hawaii, Department of Business, Economic Development & Tourism (DBEDT), Hawaii Community Development Authority (HCDA), Kalaeloa Master Plan (Draft), July 2024.

[28] State of Hawaii, Department of Transportation, Kalaeloa Airport Infrastructure Improvement Project Definition Report (Preliminary Report), August 2021.



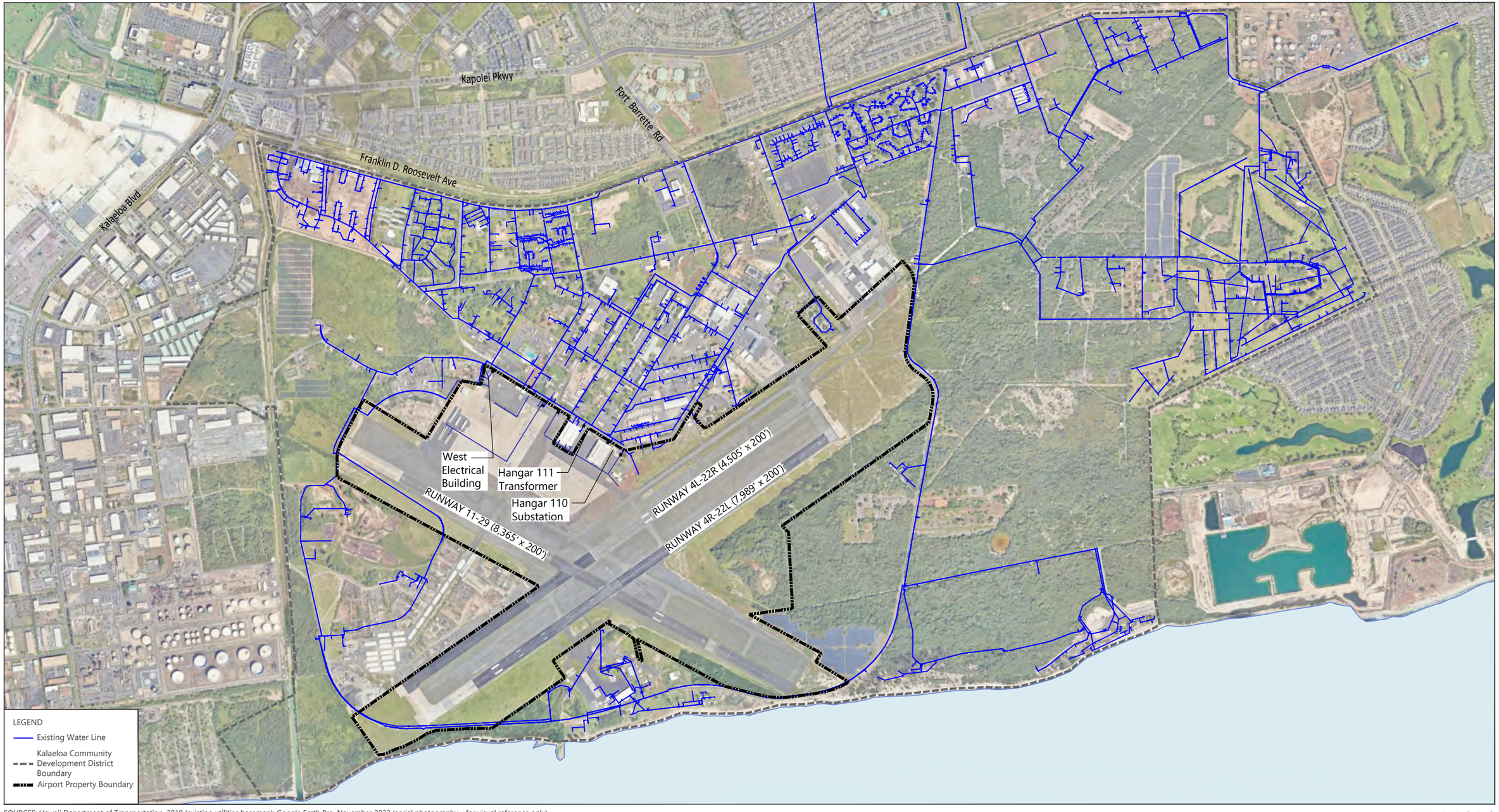
SOURCES: Hawaii Department of Transportation, 2019 (existing utilities basemap); Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 1,600 ft

EXHIBIT 1.7-1

EXISTING ELECTRICAL UTILITIES AND SOLAR ENERGY FACILITIES

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.7-1 EXISTING UTITLITIES.dwgLayout: Existing Conditions Plotted: Apr 13, 2026, 01:00PM



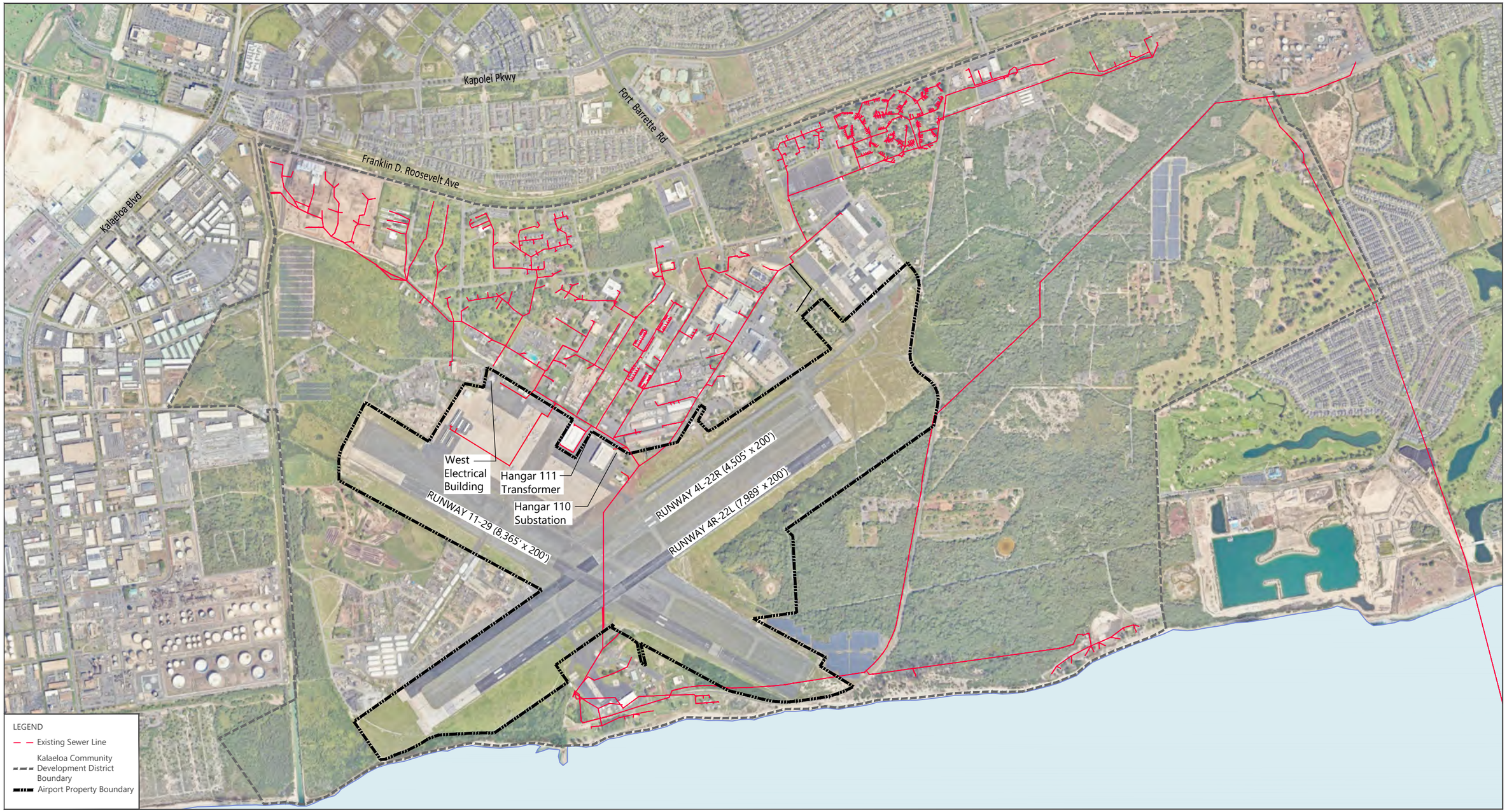
SOURCES: Hawaii Department of Transportation, 2019 (existing utilities basemap); Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 1,600 ft

EXHIBIT 1.7-2

EXISTING WATER LINES

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.7-2 EXISTING WATER LINES.dwgLayout: Existing Conditions Plotted: Apr 13, 2026, 01:00PM



SOURCES: Hawaii Department of Transportation, 2019 (existing utilities basemap); Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 1,600 ft

EXHIBIT 1.7-3

EXISTING SEWER LINES

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.7-3 EXISTING SEWER LINES.dwgLayout: Existing Conditions Plotted: Apr 13, 2026, 01:00PM

1.7.4 ELECTRICAL

Hawaiian Electric Company (HECO) has duct lines along Enterprise Avenue near the intersection of Midway Street. Power to the Airport is provided by the existing overhead electrical distribution system within KCDD, which is still owned by the US Navy. However, the US Navy no longer maintains the electrical lines due to the lack of sufficient funding for operation and maintenance. HCDA manages the replacement and maintenance of the aging electrical infrastructure within KCDD. Ultimately, non-Navy customers from the Navy electrical distribution system will be transferred to the HECO distribution system.[29] Other electrical facilities within KCDD include several on-site energy-generation facilities that were developed at various locations, including Aloha Solar Energy Fund, Kalaeloa Home Lands Solar, Kalaeloa Solar Two, and Kalaeloa Renewable Energy Park, as shown on Exhibit 1.7-1. Aloha Solar Energy Fund is adjacent to Runway 11, and Kalaeloa Home Lands Solar is adjacent to Runway 29.

The existing electrical system infrastructure includes an electrical substation by Hangar 110 and a transformer by Hangar 111 and the West Electrical Building, as shown on Exhibit 1.7-1. The 630-square-foot electrical substation north of Hangar 110 is fed by the US Navy's electrical system along Midway Street and provides power to Hangar 110, the ATCT, and the Airport Maintenance building. The 195-square-foot electrical transformer is located north of Hangar 111 and is fed by the US Navy's electrical system along Midway Street. Electrical service to the ARFF facility is provided by another US Navy electrical system along Midway Street. The 445-square-foot West Electrical Building is located at the western end of JRF, adjacent to the Straube's Aircraft Services building. Power is provided by the US Navy's overhead electrical system, which also provides power to the Straube's Aircraft Services building and the T-hangars.

According to the *Kalaeloa Airport Infrastructure Improvement PDR*, the following electrical improvements are recommended:

- Due to corrosion, replace the Hangar 110 substation with a new HECO substation.
- Replace the Hangar 111 transformer with a new HECO transformer and meter.
- Install a new HECO substation along Midway Street (west portion of Airport) to service the West Electrical Building.
- Provide new HECO, Hawaiian Telecom (HTCO), and Charter Communications duct lines along Midway Street.
- Replace existing duct lines to Hangar 110, the Airport Maintenance building, the West Electrical Building, and the ARFF facility.

1.8 FACILITIES CONDITION AND AGE ESTIMATION

Table 1.8-1 summarizes the condition and age estimation of each GA, support, and non-aeronautical building/facility or structure at JRF. Each facility is rated as being in poor, average, good, or excellent condition. A facility in excellent condition indicates it is fairly new and is less than 10 years old, while a facility in good condition indicates it requires only light or routine maintenance. A facility in average condition indicates the facility requires renovation, while a facility in poor condition indicates it has reached the end of its useful life and utility.

[29] State of Hawaii, Department of Business, Economic, Development & Tourism (DBEDT), Hawaii Community Development Authority (HCDA), Press Release (Navy provides $18 million to improve Kalaeloa electrical system, October 2, 2024), https://dbedt.hawaii.gov/hcda/files/2024/10/Navy-HCDA-Joint-Press-Release-Final-1.pdf (Accessed June 2025).

TABLE 1.8-1 (1 OF 2) CONDITION OF FACILITIES SUMMARY

BUILDING/FACILITY	CONDITION	AGE ESTIMATION	EST. DATE BUILT	DESCRIPTION
GA				
FBO				
Terminal – Portable Building	Excellent	4–5	2021–2022	Fairly new, less than 10 years old
Hangar for GSE Storage – Building 408	Excellent	5	2020	Fairly new, less than 10 years old
Trash Storage – Building 105	Average	25+	Unknown	Requires light or routine maintenance
Conventional Hangar				
Hangar 110	Average	85	1940s	Requires renovation
Hangar 111 (Off-Airport)	Average	85	1940s	Requires renovation
Building 820	Good	19–21	2004–2006	Requires light or routine maintenance
Straube's Aircraft Services – Building 0001116	Excellent	8–12	2015–2017	Fairly new, less than 10 years old
T-Hangars				
Building 409	Good	12	2012–2013	Requires light or routine maintenance
Building 410	Good	12	2012–2013	Requires light or routine maintenance
Building 411	Excellent	8	2017	Fairly new, less than 10 years old
Building 412	Excellent	6	2019	Fairly new, less than 10 years old
Building 414	Excellent	6	2019	Fairly new, less than 10 years old
Fueling Area				
FBO Fuel Farm Facility	Excellent	3	2022	Fairly new, less than 10 years old
Self-Service Fuel Station	Good	19–21	2004–2006	Requires light or routine maintenance
Support				
Airport Administration and Airport Traffic Control Tower (ATCT) – Building 104	Average	85	1940s	Requires renovation
Airport Maintenance – Building 115	Average	85	1940s	Requires renovation
Aircraft Rescue and Firefighting Facility Total				
Building 116	Average	25+	Unknown	Requires light or routine maintenance
Hangar Tent	Good	13	2012	Requires light or routine maintenance
East Storage Building	Good	24	2001	Requires light or routine maintenance
Hawaii Civil Air Patrol / West Oahu Composite Squadron – Building 106	Average	25+	Unknown	Requires light or routine maintenance

TABLE 1.8-1 (2 OF 2) CONDITION OF FACILITIES SUMMARY

BUILDING/ FACILITY	CONDITION	AGE ESTIMATION	EST. DATE BUILT	DESCRIPTION
State Department of Health, Hazard Evaluation and Emergency Response – Building 2102	Excellent	7	2018	Fairly new, less than 10 years old
Other Support				
Building 103	Average	25+	Unknown	Requires light or routine maintenance
Building 1912	Good	19–21	2004–2006	Requires light or routine maintenance
Non-Aeronautical				
Building 101	Poor	85	1940s	To be demolished due to asbestos
Building 102	Poor	85	1940s	To be demolished due to asbestos
Utilities				
Water System	Poor	85	1940s	Outdated, to be replaced
Sewer System	Poor	85	1940s	Outdated, to be replaced
Drainage System	Poor	85	1940s	Outdated, to be replaced
Electrical				
Hangar 110 Substation	Poor	85	1940s	To be replaced due to corrosion
Hangar 111 Transformer	Poor	85	1940s	Outdated, to be replaced
West Electrical Building	Poor	85	1940s	Outdated, to be replaced

NOTES:
ATCT – Airport Traffic Control Tower GA – General Aviation GSE – Ground Service Equipment FBO – Fixed Base Operator
SOURCES: Hawaii Department of Transportation, May 16, 2025 (tenant list information); Hawaii Department of Transportation, *Draft Kalaeloa Airport – Airport Layout Plan*, September 2014; Bowers + Kubota Consulting, *Kalaeloa Airport Infrastructure Improvement Project Definition Report (PDR)*, August 2021; Google Earth Pro, 2025 (historical imagery).

1.9 ENVIRONMENTAL CONDITIONS

The environmental baseline presents an overview of environmentally sensitive features and land uses on and surrounding the Airport, and it identifies key environmental issues that should be considered while developing and evaluating alternatives. The development of the environmental baseline considered the environmental resources and impact categories under the National Environmental Policy Act (NEPA) and contained in FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures*. Due to the location of the Airport and the surrounding environment, not all resources that require review under NEPA are present or have the potential to be affected by potential Airport development. Resource categories not present at or near the Airport are not included in this baseline. **Table 1.9-1** provides a list of the environmental resources on Airport property and in areas adjacent to the Airport, along with a description of the status of each resource. **Exhibit 1.9-1** depicts the environmental conditions at the Airport, and **Exhibit 1.9-2** depicts the water resources at the Airport, as described in Table 1.9-1. **Exhibit 1.9-3** illustrates the Sea Level Rise (SLR) impact areas in the vicinity of the Airport.

TABLE 1.9-1 (2 OF 3) EXISTING ENVIRONMENTAL CONDITIONS

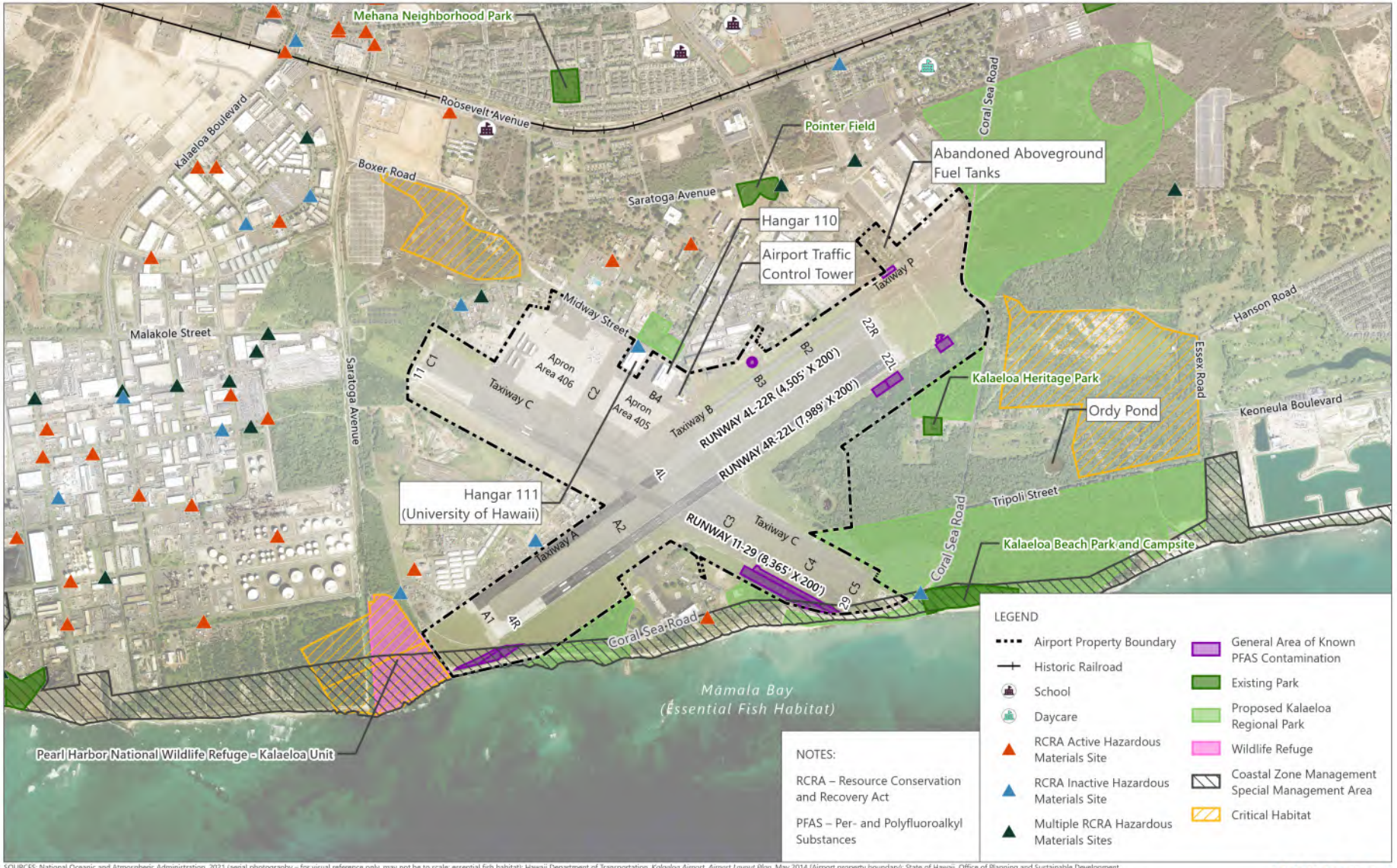
ENVIRONMENTAL RESOURCE	STATUS ON-AIRPORT	STATUS OF ADJACENT PROPERTY OFF-AIRPORT
Hazardous Materials, Solid Waste, and Pollution Prevention	According to Hawaii Department of Transportation (HDOT) 2020 GIS data, there are six areas of known pre- and polyfluoroalkyl substances (PFAS) contamination on Airport property. There are two sites of PFAS contamination along the northeast Airport property boundary, two sites located south of the Runway 22L end, one site located along the Runway 29 end and displaced threshold, and one site located south of the Runway 4R end. A former fuel farm with aboveground fuel tanks (leased to HIARNG through August 2046) is located northeast of the Runway 22R end and an area of known PFAS contamination is located just south of the fuel tank site. A June 2022 PFAS report prepared for the US Department of the Navy identified three PFAS sites on-Airport, two of which were included in the HDOT GIS data. The additional PFAS site identified includes the Airport runway foaming area. These PFAS sites are the subject of ongoing multi-agency investigations. Also note that remnants of infrastructure from a decommissioned self-service fuel station remains visible on Apron 405. Based on the 2021 Million Air Final Environmental Assessment (EA), Hangar 110 and Substation S110 have the potential to contain hazardous materials.	Based on the 2021 Million Air Final EA, Hangar 111, adjacent to the north Airport property boundary, has the potential to contain hazardous materials. There are multiple active and inactive RCRA hazardous materials sites within the vicinity of the Airport property. There are more than four inactive and five active sites near the Airport to the north and west of the Airport property boundary. Additionally, an oil refining facility is located west of Airport property along Saratoga Avenue. The June 2022 PFAS report prepared for the US Department of the Navy identified three PFAS sites off-Airport in the vicinity. These include a plating facility to the northeast, and fire training pits and a stormwater drainage ditch to the south. These PFAS sites are the subject of ongoing multi-agency investigations.
Historical, Architectural, Archeological, and Cultural Resources	There are no structures on or adjacent to Airport property listed in the National Register of Historic Places (NRHP). Under Section 106 of the National Historic Preservation Act, structures 50 years of age or greater are age-eligible for consideration for the NRHP and are subject to State Historic Preservation Officer (SHPO) review if there is a federal action. FAA guidance on National Environmental Policy Act (NEPA) evaluation considers historic properties to be those listed in the NRHP or eligible for listing in the NRHP. Prior NEPA documentation for JRF identified 11 structures on-Airport constructed between 1942 and 1944, of eligible age for consideration for the NRHP. These structures include: Building 104 (airport traffic control tower [ATCT]), Hangar 110, Building 115, and eight ready magazine storage structures. Any other structures at JRF approaching 50 years of age are eligible for NRHP consideration. The Airport property has been used by the US Navy and used extensively for aviation and aircraft-related uses for over 90 years. No identified archeological sites or cultural resources are known on Airport property.	Based on prior NEPA documentation, Hangar 111 was constructed in 1942 and is of eligible age for NRHP consideration. Hangar 111 is a University of Hawaii facility located adjacent to Airport property on the north side of the Airport, near Hangar 110. There are no structures on or adjacent to Airport property listed in the NRHP. Any other structures adjacent to JRF approaching 50 years of age are eligible for NRHP consideration. Kalaeloa Heritage Park, located approximately 500 feet east of the Airport, is a 77-acre parcel with over 177 recorded cultural sites. To the north of the Airport property there is the Oahu Rail and Land Company Right-of-Way, which is a historic railroad in the NRHP. The railroad operates for leisure tours today. The railroad runs along Roosevelt Avenue, about 0.5 miles to the north of the Airport property.
Natural Resources and Energy Supply	Electrical power for Oahu is provided by the Hawaiian Electric Company. The Airport and its vicinity are primarily powered by the Downtown Power Plant.	There is a decommissioned fuel farm facility directly to the northwest of the Airport property, and an oil refining facility is located west of Airport property along Saratoga Avenue.
Socioeconomics and Children's Environmental Health and Safety Risks	The Airport is located in Census Tract 85.02, covering 7.6 square miles including the entire Airport. The tract has a population of 3,229 people and multiple childcare facilities and schools. American Renaissance Academy is located directly east of the Airport, while Barbers Point Elementary is located about 0.5 miles north of the Airport. Socioeconomic characteristics of Census Tract 85.02 include the following: ▪ Minority Population Percentage: 80.6 percent ▪ Percentage of Persons Below Poverty Level: 18.8 percent ▪ Median Household Income: $81,833 ▪ Employment Rate: 88.7 percent	
Visual Effects	The Airport is along the coast of Mamala Bay, with beaches and parks along the bay directly to the south of the Airport property. The Airport vicinity consists of flat paved aircraft parking, and the area is characterized by structures for industrial and former miliary use. No other visual resources are known on or adjacent to the Airport.	

TABLE 1.9-1 (3 OF 3) EXISTING ENVIRONMENTAL CONDITIONS

ENVIRONMENTAL RESOURCE	STATUS ON-AIRPORT	STATUS OF ADJACENT PROPERTY OFF-AIRPORT
Water Resources		
▪ **Wetlands**	Based on 2024 National Wetlands Inventory (NWI) data obtained by the Hawaii State GIS Program, there are approximately 2.5 acres of estuarine and marine wetlands present within the Airport property located in the southwest portion of the Airport, south of the Runway 4R end along the Mamala Bay coastline, on the edge of the Airport property. Additionally, there is a 0.4 acre freshwater forested/shrub wetland located south of the intersection of Runway 4R-22L and Runway 11-29 that is within a notch in the Airport boundary.	There are wetlands present within the vicinity of the Airport property. According to 2024 NWI data, there is a 0.5-acre freshwater pond wetland located approximately 1,200 feet west of the Airport property. Wetland areas are located approximately 0.75 miles and 1.25 miles to the east of the Airport property, near Tripoli Street. There are additional wetlands located to the west along Saratoga Avenue and to the south along the Mamala Bay coast. There are approximately 60 acres of wetlands in total within the vicinity of the Airport. The 1999 FEIS for the Disposal and Reuse of Naval Air Station Barbers Point identified Ordy Pond as an anchialine pond, which is hydraulically connected to the ocean and surface levels fluctuate with the tide. Ordy Pond is located approximately 2,100 feet east of the Airport Property, northeast of the Runway 29 end, identified by a circular clearing in the vegetation. Ordy Pond is listed as a wetland in the FEIS. The 2024 NWI data identifies Ordy Pond as a freshwater forested/shrub wetland.
▪ **Floodplains**	The edge of the Federal Emergency Management Agency (FEMA) Flood Zone VE (coastal zones with a 1 percent or greater chance of flooding) within the 100-year floodplain along the coast of Mamala Bay intersects with the southern edge of the Airport property to the south of Runway 4R. There are approximately 3 acres of Zone VE floodplains located on the Airport property.	FEMA Flood Zone VE and portions of Zone AE (base floodplain) within the 100-year floodplain are located near the vicinity of the Airport property, along the coast of Mamala Bay, directly south of the Airport property. The floodplain also runs approximately 0.3 miles to the west of the Airport property, along an inlet from Mamala Bay.
▪ **Surface Waters**	The southwest portion of the Airport property includes narrow portions of the Mamala Bay coastline, which is classified in the 2024 NWI as an estuarine and marine wetland. Additionally, a 0.4-acre wetland is located in a notch in the southern portion of the Airport property boundary. No surface water is visible for this area in aerial imagery, and no surface waters were identified in this area in natural resource agency databases.	Surface water is present approximately 0.8 miles to the east of the Airport property. The Mamala Bay coastline is adjacent to the southern Airport property boundary. The FEIS for the Disposal and Reuse of Naval Air Station Barbers Point classified Ordy Pond, discussed above as a wetland and is located approximately 2,100 feet east of the Airport Property. Ordy Pond is an anchialine pond, which is hydraulically connected to the ocean and surface levels fluctuate with the tide.
▪ **Groundwater**	There are no groundwater wells located on the Airport property. The groundwater under the area of the Airport is within aquifers that are part of the Ewa aquifer system of the Pearl Harbor aquifer sector. A confined aquifer is a deep layer of basalt, as well as a shallow unconfined aquifer in the overlying caprock, and is present under the Airport.	The Kalaeloa Basalt groundwater well is located along the coast of Mamala Bay, approximately 0.2 miles to the west of Airport property.
▪ **Wild and Scenic Rivers**	The State of Hawaii does not have any designated Wild or Scenic Rivers.	

NOTES: ATCT – Airport Traffic Control Tower USDOT – US Department of Transportation FEMA – Federal Emergency Management Agency GIS – Geographic Information System
NRHP – National Register of Historic Places PFAS – Pre- and Polyfluoroalkyl Substances RCRA – Resource Conservation and Recovery Act USEPA – US Environmental Protection Agency
USFWS – US Fish and Wildlife Service EA – Environmental Assessment FEIS – Final Environmental Impact Statement

SOURCES: Hawaii Department of Transportation, *General Areas of Known PFAS Contamination*, 2025; US Department of the Interior, US Fish and Wildlife Service, Information for Planning and Consultation (IPaC), https://ecos.fws.gov/ipac/ (accessed June 25, 2025); US Census Bureau, *2023 American Community Survey 5-Year Estimates, Oahu Census Tract 85.02*, J2023, https://api.census.gov/data/2023/acs/acs5/profile (accessed June 2025); Wilson Okamoto Corporation, *Final Environmental Assessment, Million Air – Kalaeloa Airport, Fixed Base Operation and Fuel Farm Facility*, April 2021; State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, October 2021 (existing parks); State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, 2026 (schools, wildlife reserves, future parks, wetlands); State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, February 2025 (special management areas); US Department of the Interior, US Fish and Wildlife Service, May 2025 (critical habitats, water); US Environmental Protection Agency, June 2025 (hazardous waste facilities); US Census Bureau, 2025 (rail); Ricondo & Associates, Inc., June 2025 (Kalaeloa Beach Park); US Geological Survey, December 2023 (surface waters); State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, June 2024 (coral reefs); US Department of Homeland Security, Federal Emergency Management Agency, FIRM Panel 15003C, February 2025 (floodplains). US Department of Defense, Department of the Navy, *Final Environmental Impact Statement for the Disposal and Reuse of Naval Air Station Barbers Point*, Hawaii, February 1999 (wetlands, surface waters); US Department of the Navy, Naval Facilities Engineering Systems Command Pacific Base Realignment and Closure Program Management Office West, *Final Preliminary Assessment Report, Basewide Investigation of Per- and Polyfluoroalkyl Substances (PFAS), Former Naval Air Station Barbers Point, Oahu Hawaii*, June 2022 (hazardous waste facilities).



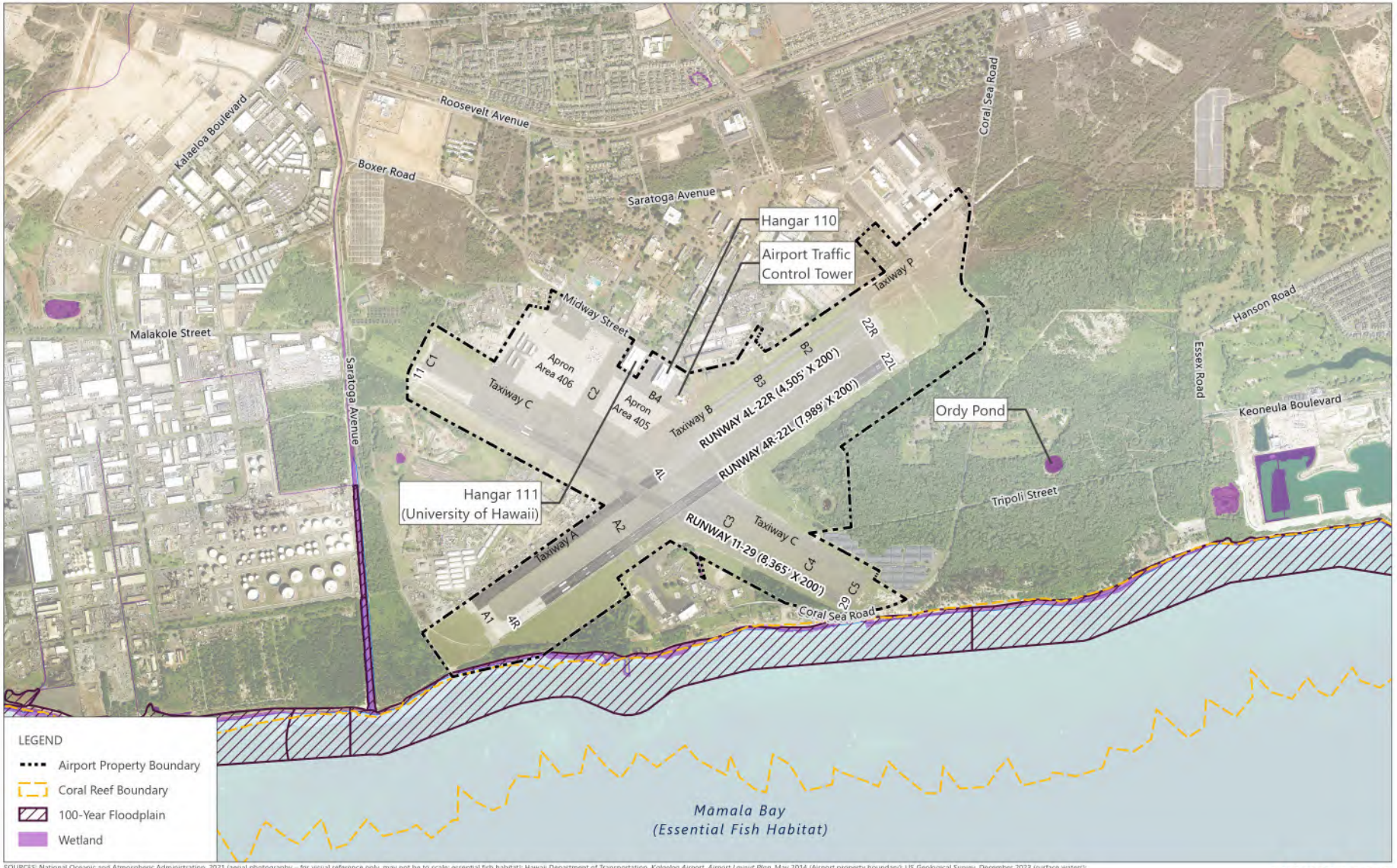
SOURCES: National Oceanic and Atmospheric Administration, 2021 (aerial photography – for visual reference only, may not be to scale; essential fish habitat); Hawaii Department of Transportation, *Kalaeloa Airport, Airport Layout Plan*, May 2014 (Airport property boundary); State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, October 2021 (existing parks); State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, 2024 (schools, wildlife reserves, future parks); State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, February 2025 (special management areas); US Fish and Wildlife Service, May 2025 (critical habitats, water); US Environmental Protection Agency, June 2025 (hazardous waste facilities); US Census Bureau, 2025 (rail); Environmental Science International, Inc., May 2025 (contamination areas); Ricondo & Associates, Inc., June 2025 (Kalaeloa Beach Park).

EXHIBIT 1.9-1

NORTH 0 2,500 ft

EXISTING ENVIRONMENTAL RESOURCES

Project: P:\GIS\Projects\JRF\APRX\JRF_MP_EnvironmentalInventory_20260424.aprx Layout: JRF_MP_Ex1.9-1_ExistingEnvironmentalResources_20260224



SOURCES: National Oceanic and Atmospheric Administration, 2021 (aerial photography – for visual reference only, may not be to scale; essential fish habitat); Hawaii Department of Transportation, *Kalaeloa Airport, Airport Layout Plan*, May 2014 (Airport property boundary); US Geological Survey, December 2023 (surface waters); State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, June 2024 (coral reefs); US Fish and Wildlife Service, May 2025 (wetlands); US Department of Homeland Security, Federal Emergency Management Agency, FIRM Panel 15003C, February 2025 (floodplains).

EXHIBIT 1.9-2

NORTH 0 2,500 ft

EXISTING WATER RESOURCES

Project: P:\GIS\Projects\JRF\APRX\JRF_MP_EnvironmentalInventory_20250617.aprx Layout: JRF_MP_Ex1.9-2_WaterResources_20260224



SOURCES: National Oceanic and Atmospheric Administration, 2021 (aerial photography – for visual reference only, may not be to scale); Hawaii Department of Transportation, *Kalaeloa Airport, Airport Layout Plan*, May 2014 (Airport property boundary); Tetra Tech, Inc., University of Hawai'i, Coastal Geology Group, and State of Hawaii, Office of Planning and Sustainable Development, Hawaii Statewide GIS Program, September 2022 (SLR-XA).

NORTH 0 2,500 ft

EXHIBIT 1.9-3

EXISTING SEA LEVEL RISE IMPACT AREAS

Project: P:\GIS\Projects\JRF\APRX\JRF_MP_EnvironmentalInventory_20260424.aprx Layout: JRF_MP_Ex1.9-3_ExistingSeaLevelRiseImpactAreas_20260224

1.10 LAND USE

Land use regulations near airports typically focus on safety for airport users and the surrounding community, as well as focus on minimizing negative impacts, such as noise disturbance. Zoning regulations generally discourage or prohibit land use that is incompatible with airports. The authority to enact zoning codes lies at the local level, but the FAA and HDOT offer guidance. Notably, the FAA also requires agreement to written grant assurances from airport sponsors prior to providing federal funding for airport improvements. This includes an assurance that "appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft."[30] Both on-Airport and off-Airport land uses were reviewed.

A Strategic Plan as of June 2025 set forth by the HCDA establishes programs, projects, and tasks that need to be commenced or completed over a five-year period. **Table 1.10-1** summarizes each program, project or task.

TABLE 1.10-1 (1 OF 2) HCDA 5-YEAR STRATEGIC PLAN PROJECTS

NO.	PROJECT	STRATEGY DESCRIPTION	TARGET PHASE	PRIORITY
	Short-Term (1 year)			
1	Kalaeloa (Community) Master Plan and Administrative Rules Amendment	Amendment of the Kalaeloa Master Plan and Administrative Rules to reflect the changing conditions and realities and considers the community's vision for the KCDD.	Promulgate plan and rules on or before December 31, 2025	High
2	Saratoga Avenue Electrical and Communication Infrastructure Improvements	Planning and design for critical electrical and communications infrastructure along Saratoga Avenue. Collaborative effort is between stakeholders, Hunt Development, Hawaiian Electric Company, and elected officials.	Commence	High
3	Navy Electrical	Project consists of connecting the following users to the Enterprise Road electrical corridor located in the District: (i) Film Studio parcel located at 146 Midway Street, Building 140, Kapolei, Hawaii 96707 and (ii) Hawaii Army National Guard located at 91-1227 Enterprise Avenue, Kapolei, Hawaii 96707.	Commence	High
4	Infrastructure Improvements Study for the KCDD	The infrastructure study regarding roads, complete streets, drainage, and electrical informs the HCDA's infrastructure master plan.	Complete	High
5	Climate Change and Sea Level Rise Rulemaking	As required by Act 221, HCDA will commence rulemaking that considers the impacts of climate change, sea level rise, and climate-resilient development in the design and siting of buildings in the KCDD.	Commence	High
6	Implement Innovative Methods to Develop More Affordable Housing	Identify suitable parcels for acquisition in the KCDD to develop affordable housing.	Ongoing	Medium
7	Environmental Impact Statement for the KCDD	Prepare a programmatic environmental impact statement to cover infrastructure projects, development, and master plan implementation in Kalaeloa.	Commence	Medium

[30] US Department of Transportation, Federal Aviation Administration, *Airport Sponsor Assurances, 21. Compatible Land Use*, February 2020.

TABLE 1.10-1 (2 OF 2) HCDA 5-YEAR STRATEGIC PLAN PROJECTS

NO.	PROJECT	STRATEGY DESCRIPTION	TARGET PHASE	PRIORITY
8	R-1 Recycled Water Infrastructure Grant	Work with the Hawaii Community Foundation and the Ulupono Initiative to submit a grant for the plan, design, and construction of an R-1 water transmission line in the KCDD.	Commence	Medium
	Medium-Term (3 year)			
1	KCDD Reserved Housing Rules	Review the reserved housing rules and suggest amendments to the same that facilitate the production of reserved housing.	Complete (if possible, in less than 3 years)	Medium
	Long-Term (5+ year)			
1	Plan for Transitioning Out of Kalaeloa	HCDA's ability to influence the redevelopment of Kalaeloa is primarily limited to planning, regulating, and infrastructure improvements, since HCDA does not own any major parcels in the district with significant redevelopment potential. Upon completion of the Kalaeloa Master Plan and Rules amendment, HCDA will focus on its role as a regulator as well as pursue financing opportunities for infrastructure improvements. If funding for infrastructure improvement does not become available in a timely manner, transferring control of the district over to the City may be appropriate.	Commence	Low

NOTES:
HCDA - Hawaii Community Development Authority
KCDD – Kalaeloa Community Development District
SOURCE: Hawaii Community Development Authority, Strategic Plan, June 2025.

Surrounding the KCDD, various commercial, residential and infrastructure developments have been planned or are currently ongoing. **Table 1.10-2** lists present a representative list of known developments; however, the list is not exhaustive, and other projects may be planned or underway. Immediately adjacent to the east of KCDD is Wai Kai (recently completed in 2023) and the Kekailani at Hoakalei Luxury homes (ongoing). Other ongoing residential developments north or northeast of KCDD include Makamae Residential Development by Gentry Homes, Parkway Village at Kapolei, Ho'opili Residential Development by Dr. Horton. The Kaleima'o Village – West Loch Apartments, Nāliko Rental Residential Development, and Leiwili Kapolei Residential Development are planned developments. The Honoulioui Wastewater Treatment Plant Facility northeast of KCDD is ongoing.

TABLE 1.10-2 PLANNED AND ONGOING DEVELOPMENT SURROUNDING KCDD

NO.	DEVELOPMENT	LOCATION IN RELATION TO KCDD
1	Wai Kai (Waterfront Recreation Venue)	East (Ewa)
2	Kekailani at Hoakalei Luxury Homes	East (Ewa)
3	Makamae Residential Development by Gentry Homes	Northeast (Ewa)
4	Kaleima'o Village – West Loch Apartments	Northeast (Ewa)
5	Honoulioui Wastewater Treatment Plant Facility	Northeast (Ewa)
6	Parkway Village at Kapolei	North (Kapolei)
7	Nāliko Rental Residential Development	North (Kapolei)
8	Ho'opili Residential Development by Dr. Horton	North (Kapolei)
9	Leiwili Kapolei Residential Development	North (Kapolei)

NOTE: KCDD – Kalaeloa Community Development District
SOURCES: City and County of Honolulu, Ewa Development Plan, 2020; City and County of Honolulu, Housing Development Division.

1.10.1 ON-AIRPORT LAND USE

JRF is owned by the State of Hawaii and designated for use by HDOT. The property spans approximately 757 acres and is classified as "Urban" under the State Land Use District system. Although the site is zoned as Federal and Military Preservation (F-1) under the City and County of Honolulu zoning, it falls under the jurisdiction of the HCDA as part of the KCDD. According to the HCDA *Draft Kalaeloa Master Plan* (July 2025), the Airport is designated as Special District (SD) 1 (SD-1) and is subject to separate regulations and rules due to the precedence of federal jurisdiction.

The land uses on Airport property are owned primarily by the HDOT for JRF operations, which include GA facilities, Airport support facilities, airfield, automobile parking, and open space areas, as shown on **Exhibit 1.10-1**.

1.10.2 OFF-AIRPORT LAND USE

Lands surrounding the Airport are a mix of developed and undeveloped parcels, predominantly designated as "Urban" under the State Land Use District system. Kalaeloa features a diverse mix of zoning districts, including residential, apartment, business, industrial, mixed use, and resort uses, as shown on **Exhibit 1.10-2**. Residential communities surround JRF to the north and northeast, while business and commercial uses are concentrated at the northwest and southeast corners of the Airport. Resort-oriented development is also present nearby, most notably the Wai Kai facility, which provides recreational and hospitality amenities. The zoning west of the Airport is designated as industrial and includes the Campbell Industrial Park and KBPH.

Within the KCDD, there are various transects of urbanism, which is a planning and design concept that describes the transition of different types of urban environments from undeveloped natural areas, classified as T1, to the dense urban core, classified as T6. The transects provide the basis of allowable development types and densities. **Exhibit 1.10-3** identifies the transects and SDs within KCDD. Primary lands abutting the Airport boundary include SD-2 Military, SD-3 Department of Hawaiian Home Lands, and T2 Rural.



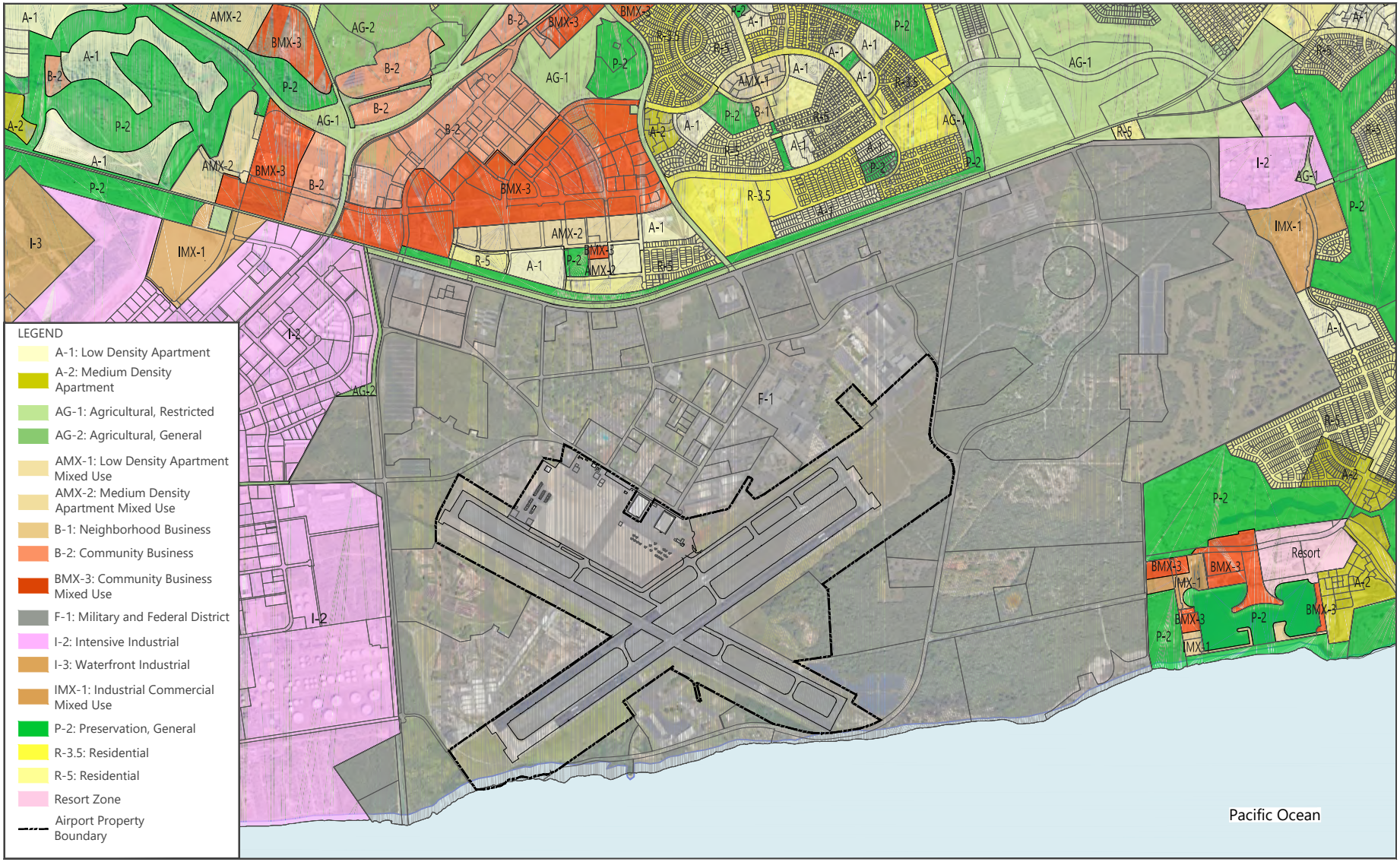
SOURCES: Hawaii Department of Transportation, *Kalaeloa Airport – Airport Layout Plan*, October 2014; Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 1,600 ft

EXHIBIT 1.10-1

EXISTING ON-AIRPORT LAND USE

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.10-1 EXISTING ON-AIRPORT LAND USE.dwgLayout: EXHIBIT 1.10-1 EXISTING ON-AIRPORT LAND USE Plotted: Feb 25, 2026, 10:15AM



SOURCES: City and County of Honolulu, Honolulu Geographic Information System, Parcel and Zoning Information App, May 29, 2025, May 29, 2025; Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 2,800 ft

EXHIBIT 1.10-2

EXISTING OFF-AIRPORT LAND USE

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.10-2 EXISTING OFF-AIRPORT LAND USE.dwgLayout: EXHIBIT 2.10-2 EXISTING OFF-AIRPORT LAND USE Plotted: Feb 25, 2026, 10:26AM



SOURCES: Hawaii Statewide Geographic Information System Program, City and County of Honolulu Parcel, June 13, 2025; Hawaii Community Development Authority, *Draft Kalaeloa Master Plan*, July 2024; Google Earth Pro, November 2022 (aerial photography – for visual reference only).

NORTH 0 2,600 ft

EXHIBIT 1.10-3

EXISTING KALAELOA COMMUNITY DEVELOPMENT DISTRICT LAND USE

Drawing: P:\Projects\25A0114.00_Kalaeloa Airport Master Plan\03Graphics\CAD\Figures\EXHIBIT 1.10-3 EXISTING KALAELOA COMMUNITY DEVELOPMENT DISTRICT.dwgLayout: EXHIBIT 1.10-3 EXISTING KALAELOA COMMUNITY DEVELOPMENT DISTRICT Plotted: Apr 14, 2026, 12:42PM

APPENDIX A

Airfield Pavement Conditions Report

STATEWIDE PAVEMENT MANAGEMENT SYSTEM UPDATE

FINAL REPORT

KALAELOA AIRPORT, KAPOLEI, HAWAII



DAVID IGE, GOVERNOR
STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION

FOR PAVEMENT INSPECTION CONDUCTED DECEMBER 2014

BOWERS + KUBOTA CONSULTING

SUBMITTED AUGUST 2016
PROJECT NO. AS1120-06

EXECUTIVE SUMMARY

I. INTRODUCTION

This executive summary reviews the methods and processes used to develop the Pavement Management System update for the Kalaeloa Airport. This report also provides the results of the findings of research and field surveys conducted at the airport. The 2016 Statewide Pavement Management Update (SPMS) report for Kalaeloa Airport provides complete documentation of this process.

Bowers + Kubota Consulting in association with their consultants, were contracted to update the SPMS for Kalaeloa Airport, Hilo International Airport, Kona International Airport, Lihue Airport, Kapalua Airport, Lanai Airport, and Molokai Airport, to meet project objectives outlined by the State of Hawaii, Department of Transportation, Airports Division (DOTA). This report focuses on the SPMS update for the Kalaeloa Airport, is summarized in this Executive Summary, and is presented in the final report and supporting appendices.

II. PROJECT OBJECTIVES

In order to provide a consistent objective and systematic procedure for setting priorities and schedules, allocating resources, and budgeting for pavement maintenance and rehabilitation, DOTA and their consultants developed an SPMS for pavements at airports throughout the State of Hawaii.

The primary objectives of a pavement management system are to:

- develop and implement a PMS program for pavements;
- perform a functional condition survey of the existing pavements;
- estimate the distress repair quantities;
- perform nondestructive testing;
- perform structural analysis;
- determine the expected life of pavements;
- determine allowable loading and pavement classification numbers;
- perform a rehabilitation analysis of the pavements;
- determine estimated budgets for maintenance and major M&R;
- prioritize M&R requirements; and
- determine a 5 year CIP program.

III. LOCATION AND BACKGROUND

The Kalaeloa Airport (JRF) is a general aviation airport that is also designated as a reliever airport for Honolulu International Airport. It is located on the southwest coast of

the Island of Oahu, along the Ewa Plain and south of the Waianae Mountains. The airfield was constructed in 1941 by the Corps of Engineers and originally consisted of 2-½ inches of asphalt concrete on an unspecified thickness of rolled coral.

There are three intersecting runways at Kalaeloa Airport: Runway 4R-22R which is 8,000 feet long and 200 feet wide, Runway 4L-22R which is 4,500 feet long and 200 feet wide and Runway 11-29 which is 6,000 feet long and 200 feet wide. There are fourteen (14) taxiways, and four (4) aprons.

IV. PAVEMENTS, PMS AND MICROPAVER

From the moment a pavement is placed, it begins a gradual deterioration process. The rate at which a pavement deteriorates can be attributed to several factors such as surface weathering, fatigue effects, drainage water effects, and differential movement in the underlying subbase over a period of years. In addition, poor construction techniques, poor mix designs, poor workmanship, and/or substandard materials can accelerate the pavement deterioration process. A pavement that is of a thickness and design not compatible to today's standards, combined with increased aircraft operations on a pavement, can also accelerate the deterioration process. As a result, there is a continual requirement to perform routine maintenance, rehabilitation, and upgrading of existing airport pavements.

Routine maintenance performed consistently during the early stages of deterioration, can prevent the need for extensive repairs at a later date. Delaying pavement repairs can be costly, not only in terms of dollars, but also in terms of shutdown time and operational impacts. Therefore, early detection and repair of pavement defects are the most important preventative maintenance procedure. Cracks and other surface defects, which at their early stages are almost unnoticeable, may develop into serious pavement distresses if not repaired.

The most effective means of preserving pavement areas is the implementation of a comprehensive maintenance/management program. MicroPAVER was developed by the U.S. Army Construction Engineering Laboratory (CERL) and is supported by several agencies including the Federal Aviation Administration (FAA). The Hawaii DOTA uses MicroPAVER as their PMS platform and the software provides a systematic and consistent method for selecting maintenance and rehabilitation (M&R) needs, determining priorities, determining funding needs, and scheduling the optimum time for repair by predicting future pavement condition and distresses.

The MicroPAVER system also has the capability to provide the following based on information gathered from pavement field surveys and as-built records research:

- pavement network definitions;
- assessment of the functional condition of existing pavements;
- inventory reporting and storage of pavement condition history;

- storage of nondestructive testing data;
- storage of construction and maintenance history, including cost data;
- rating and evaluation of the present condition of the pavement using the pavement condition index (PCI) and prediction of future condition;
- identification of M&R needs, inspection scheduling and reporting;
- economic analysis and funding scenarios;
- expected structural remaining life of pavements;
- performance of a life-cycle cost analysis for various maintenance and rehabilitation alternatives;
- determination of the optimum alternative as well as the best time of application;
- prioritization and development of cost-effective rehabilitation programs;
- 5-year Capital Improvement Program (CIP) budgeting;
- and recommendations for program implementation.

V. RECORDS RESEARCH AND FINDINGS

The historical records for the Kalaeloa Airport were collected from available information regarding the existing pavement construction history. "As-builts" were available for many of the pavements, and where previous records were not available, pavement coring from a previous PMS update was employed. The information collected consists of pavement history, construction dates, age (or date when the PCI was last 100), pavement thickness and composition, traffic information and forecast, soil classifications, maintenance history, and climate or weather patterns.

The majority of the runways and taxiways are either constructed of asphalt concrete (AC) or overlaid asphalt (AAC), with the first 1,000 feet of Runway 4R made of Portland cement concrete (PCC). The majority of the apron areas are PCC, with some later AC additions. The age of each section of pavement surveyed at the time of this report is shown in Table 1. Upon review of the collected documents, and past pavement corings, a construction history of pavements was then developed for Kalaeloa Airport.

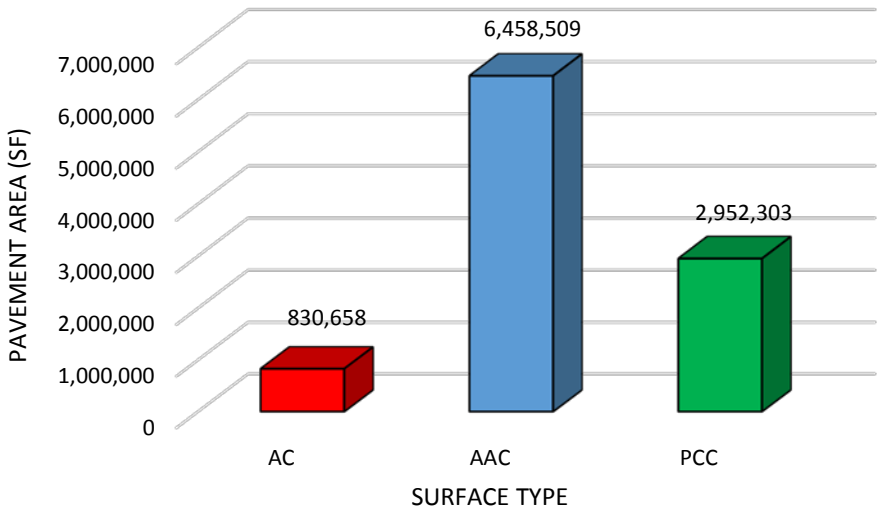


FIGURE 1: KALAELOA AIRPORT PAVEMENT AREA BY SURFACE TYPE

AGE (YEARS)	PERCENT	SQUARE FEET
0-05	1.5%	149,726
06-10	6%	647,041
11-15	4%	413,623
16-20	1%	112,579
26-30	42%	4,257,190
31-35	3%	351,959
36-40	1.5%	147,945
Over 40	41%	4,161,407
Total	**100%**	**10,241,470**

TABLE 1: KALAELOA AIRPORT PAVEMENT AGE

VI. INVESTIGATIONS AND NETWORK DEFINITION

Kalaeloa Airport's pavement network was defined and divided into a hierarchy of pavements consisting of branches (runways, taxiways, and aprons), sections (different pavement history, condition of pavement, traffic patterns, etc.), and sample units (5,000 square feet for AC pavements or 20 panels for PCC pavements).

The network was predominately based on the research findings from the existing as-builts and past pavement corings for the airport. A detailed visual survey of airport pavements, and nondestructive testing was then completed to gather information for the functional and structural evaluations. The pavement network hierarchy of branches, sections, and

sample units was then stored in the database along with additional information from the pavement inventory.

A total of 23 branches and 145 sections were identified at the Kalaeloa Airport. 1,973 sample units were identified with roughly 28% of these sample units visually inspected in the field for this 2016 update.

VII. PAVEMENT CONDITION SURVEY

The pavement condition index (PCI) is a numerical index (indicator) that reflects the functional condition and surface operational condition of a pavement, and is based on an objective measurement of distress type, severity, and quantity. The PCI is a numerical index ranging from zero (0) for a "failed" pavement to 100 for a pavement in "good" condition or recently reconstructed or overlaid (see Table 2).

COLOR	PCI RATING	DEFINITION
	86 - 100	GOOD: Pavement has minor or no distresses and should require only routine maintenance.
	71- 85	SATISFACTORY: Pavement has scattered low-severity distresses that should require only routine maintenance.
	56 - 70	FAIR: Pavement has a combination of generally low- and medium-severity distresses. Near-term maintenance and repair needs may range from routine to major.
	41 - 55	POOR: Pavement has low-, medium-, and high-severity distresses that probably cause some operational problems. Near-term maintenance and repair needs may range from routine up to a requirement for reconstruction.
	26 - 40	VERY POOR: Pavement has predominantly medium- and high-severity distresses that cause considerable maintenance and operational problems. Near-term maintenance and repair needs will be intensive in nature.
	11 - 25	SERIOUS: Pavement has mainly high-severity distresses that cause operational restrictions; immediate repairs are needed.
	0 - 10	FAILED: Pavement deterioration has progressed to the point that safe aircraft operations are no longer possible; complete reconstruction is required.

TABLE 2: PAVEMENT CONDITION INDEX (PCI) RATING SCALE

A pavement condition survey is the primary means of obtaining and recording functional pavement distress data. The condition survey for both rigid and flexible pavement facilities consists primarily of a visual inspection of the pavement surfaces for signs of distress resulting from traffic (aircraft and vehicular) and environmental influences. In December of 2014, the Bowers + Kubota team conducted a visual inspection of the Kalaeloa Airport pavements. The survey was done in accordance with the FAA Advisory Circular (AC) 150/5380-6, "*Guidelines and Procedures for Maintenance of Airport Pavements.*"

All distress data gathered during the field condition survey was entered into MicroPAVER, and the PCI was calculated for each sample unit. The program then used the sample unit PCI and standard statistical procedures to estimate the section PCI within a network level analysis confidence level.

Examination of specific distress types, distress severities (low, medium, and high), and quantities of the distress, provided valuable information which helped to determine causes of a pavements deterioration, its current condition, its rate of deterioration, and its M&R needs. A summary of the asphalt and Portland cement concrete distresses found at the airport is shown in Table 3.

DISTRESS TYPE	% OF SECTIONS 2014
ASPHALT DISTRESSES	
Alligator Cracking	11%
Bleeding	14%
Block Cracking	67%
L&T Cracking	86%
Patching	21%
Weathering	89%
Raveling	15%
Swelling	20%
PCC DISTRESSES	
Linear Cracks	42%
Joint Seal Damage	100%
Corner Break	17%
Small Patch	67%
Large Patch	67%
Pop Outs	--
Shrinkage	83%
Scaling	58%
Shattered Slab	17%
Joint Spall	--
Corner Spall	83%

TABLE 3: KALAELOA AIRPORT 2014 DISTRESSES

In general, the condition of the pavements at Kalaeloa Airport ranged from a low PCI rating of 7 (AAC shoulder section), to a high of 100 (AAC apron section) and is in "fair" condition with a weighted average PCI of 59 for the entire airfield. See Figure 2.

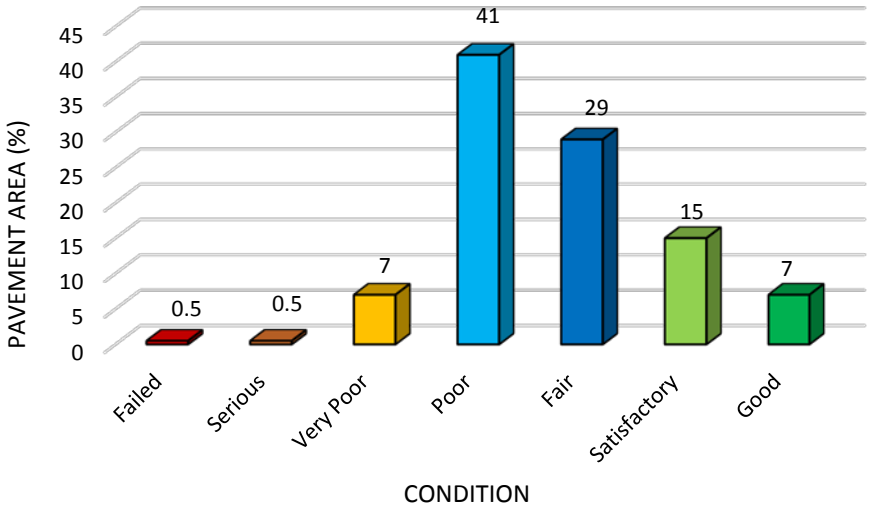


FIGURE 2: CONDITION OF PAVEMENT BY AREA

VIII. CORING

Pavement coring is often used as a means to determine a pavements thickness and to support the structural and functional analyses of pavements. At Kalaeloa Airport, a total of 12 pavement cores was drilled and analyzed for the 2000 SPMS report. The 2000 coring results were then used for the update to adjust the assumed thickness and construction of a given branch section as needed.

IX. AIR TRAFFIC ANALYSIS

To develop appropriate rehabilitation designs it is necessary to determine movements (arrival and departure) at an airport for an analysis period as well as the type of aircraft that utilize that airport. Furthermore, annual aircraft departures for an analysis period are also important to determine structural remaining life, allowable pavement loads and pavement classification numbers.

The FAA pavement design procedure, described in FAA AC 150/5320-6E, "*Airport Pavement Design and Evaluation"*, requires that pavement designs be developed using a 20-year analysis period. Movement data for the year 2014 were adjusted for the growth anticipated over a 20-year period. The average annual growth rate was found to be 0.19 percent and was then applied to movement data for the year 2014.

X. NONDESTRUCTIVE DEFLECTION TESTING ANALYSIS

To estimate remaining pavement life, allowable loads, pavement classification numbers, and to develop site-specific rehabilitation strategies, it is necessary to know the strength of the existing pavement layers comprising each pavement section. Nondestructive

testing data was collected at Kalaeloa Airport and then input into a pavement evaluation software to estimate pavement layer strengths.

Allowable loads or gross aircraft weight each pavement section can support for a 20-year period was also estimated. Allowable loads were developed assuming the traffic patterns at the airport as described in the air traffic analysis.

Pavements must have adequate load carrying capacity, good rideability, and must allow safe operation of aircraft under all conditions. Structural remaining life was also determined as part of the nondestructive deflection testing analysis. The NDT testing results found that the majority of the pavement sections tested at Kalaeloa Airport had a structural remaining life in excess of ten years. However, 14 of the tested pavement sections have a structural remaining life of less than two years. Recommended overlay thicknesses are also presented as general guidelines for rehabilitation requirements.

XI. BUDGET SCENARIOS

Using the M&R policies established for DOTA's pavements, various funding scenarios were developed to determine a reasonable budget to maintain the pavements at the Kalaeloa Airport at an acceptable level, and for determining maintenance and preliminary major M&R budgets.

Alternative Budget Scenarios

The DOTA requested four budget scenarios be analyzed within MicroPAVER for the planning period 2016 through 2020. MicroPAVER computes a work plan based on projected PCI condition, M&R treatments as defined by the maintenance policy, and representative unit costs for the selected M&R treatments. These project costs do not include design or project management costs.

The four scenarios are: 1) No Funding; 2) Minimum Condition; 3) State Budget; 4) Unlimited Funding.

No Funding: Budget set to $0. This scenario results in a steadily declining network PCI, with a final area-weighted PCI condition of 37 in 2020. The area-weighted conditions of each branch in the network showed a decline, with the most drastic decline occurring in Taxiway B2, which dropped from a PCI of 60 (PCI at the time of inspection) to 30.

Minimum Condition: The weighted-average condition of the pavement at the time of inspection was a PCI of 59 points. This scenario results in the network having a final area-weighted PCI condition of 89 in 2020, with a total outlay over the five-year period totaling $156 million. There would be $152 million in unfunded major M&R at the end of the five-year period.

State Budget: The current proposed state budget for Kalaeloa has been established as $750,000 in fiscal year (FY) 2016, $1,300,000 in FY 2017, $750,000 in FY 2018, $650,000 in FY 2019, and $550,000 in FY 2020. This scenario results in the network PCI drops 22 points with a final area-weighted PCI condition on 37 in 2020. The total budget required for this scenario is approximately $4,000,000 over the next five years.

Unlimited Funding: Performing the majority of the maintenance in the first year to be followed by a program of preventative maintenance and major work results in a final area-weighted condition PCI of 90 in 2020, approximately 31 points higher than the PCI of 59 at the time of inspection. An initial outlay of $147.9 million is required in 2016, with a total outlay over the five-year period totaling $157 million.

Backlog Elimination: In addition to the four requested budget scenarios, a backlog elimination scenario was examined. Deferred maintenance or unfunded backlog consists of pavement maintenance that is needed, but cannot be performed due to lack of funding. Reduced budgets have forced the DOTA to defer necessary pavement maintenance. By eliminating the backlog, the weighted PCI will increase from 59 to 91 in 2020. The budget needed to accomplish this is $190 million over the next five years.

Many factors affect budget scenarios beyond available funding, pavement ranking and current M&R projects at the Kalaeloa Airport also need to be taken into consideration.

BUDGET	2016 PCI	5 YEAR BUDGET	2020 PCI
NO FUNDING	59	$0	37
MINIMUM CONDITION	59	$156,000,000	89
STATE BUDGET	59	$4,000,000	37
UNLIMITED FUNDING	59	$157,000,000	90
BACKLOG ELIMINATION	59	$190,000,000	91

TABLE 4: KALAELOA AIRPORT BUDGET SCENARIOS

Recommended Budget Scenarios

Based on the pavement assessment and the analyzed budget scenarios, a schedule of recommended projects is proposed in this section. It should be noted that the proposed projects are based on network level inspections, and a project level analysis should be performed prior to any project design or implementation. The recommended projects are listed in Table 5 below.

YEAR	PAVEMENT SECTION	PROJECT COST	ANNUAL COST
2016	Runway 11-29 Keel: 2” Mill and Overlay	$1,545,948	$1,545,948
2017			
2018	Runway 04R-22L Keel: 2” Mill and Overlay	$1,678,360	$1,678,360
2019			
2020	Taxiway C, Section 020, 040, 080, 090, 100, 140, 150: 2” Mill and Overlay	$2,400,576	$2,400,576
		FIVE YEAR TOTAL:	**$5,624,884**
2021+	Nearly all sections at or near the critical PCI and require major M&R. Total major backlog approximately $30M (assuming 2” Mill and Overlay)	$30M+	$30M+

TABLE 5: RECOMMENDED CAPITAL IMPROVEMENT PROJECTS

XII. SUMMARY AND BENEFITS OF A PAVEMENT MANAGEMENT SYSTEM

An SPMS program will provide the DOTA with an integrated framework for comprehensive evaluation and decision making for managing pavements at the Kalaeloa Airport. Furthermore, implementing an SPMS program will provide an objective evaluation of the condition of existing pavements (both functionally and structurally), identification of short-term and long-range rehabilitation and maintenance requirements, and funding requirements to provide such maintenance or rehabilitation.

The SPMS program for Kalaeloa Airport will provide a consistent objective and systematic procedure for setting priorities and schedules, allocating resources, making cost-effective decisions regarding pavement maintenance, replacement and rehabilitation, and budgeting for maintenance and capital improvement projects. It will also quantify information and provide specific recommendations for actions required to maintain a pavement network at an acceptable level of service while minimizing the cost of maintenance and rehabilitation.

Implementing an SPMS program includes maintaining airfield pavements at a level cognizant with funding and acceptable management practices. The benefits of implementing such a program, includes minimizing the stop-gap allocation of funds, wisely utilizing the limited funds available for maintenance and rehabilitation, and optimizing the performance of pavements at Kalaeloa Airport during subsequent years.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

I. INTRODUCTION i
II. PROJECT OBJECTIVES i
III. LOCATION AND BACKGROUND i
IV. PAVEMENTS, PMS AND MICROPAVER.....ii
V. RECORDS RESEARCH AND FINDINGS.....iii
VI. INVESTIGATIONS AND NETWORK DEFINITION iv
VII. PAVEMENT CONDITION SURVEY v
VIII. CORING vii
IX. AIR TRAFFIC ANALYSIS vii
X. NONDESTRUCTIVE DEFLECTION TESTING ANALYSIS vii
XI. BUDGET SCENARIOS viii
XII. SUMMARY AND BENEFITS OF A PAVEMENT MANAGEMENT SYSTEM.....x

CHAPTER 1 - THE PAVEMENT MANAGEMENT SYSTEM PROCESS

1.1 INTRODUCTION 1-1
1.2 PROJECT SCOPE 1-2
1.3 PAVEMENT MANAGEMENT SYSTEMS.....1-3
1.4 PAVEMENT MANAGEMENT REPORT OUTLINE 1-10

CHAPTER 2 - PAVEMENT INVENTORY

2.1 OVERVIEW 2-1
2.2 CLIMATIC CONDITIONS.....2-2
2.3 PAVEMENT NETWORK AND BRANCHES.....2-2
2.4 PAVEMENT SECTIONS AND SAMPLE UNITS 2-3
2.5 PAVEMENT INVENTORY 2-4
2.6 INVENTORY CHANGES FROM PREVIOUS INSPECTION 2-5
2.7 SUMMARY.....2-6

CHAPTER 3 - FIELD INSPECTION AND DATA ANALYSIS

3.1 OVERVIEW 3-1
3.2 METHODOLOGY 3-1
3.3 DISTRESS TYPES 3-3
3.4 FIELD INSPECTION RESULTS 3-20
3.5 CORING RESULTS 3-24
3.6 SUMMARY 3-25

CHAPTER 4 - MAINTENANCE AND REHABILITATION PLANNING

4.1 OVERVIEW 4-1
4.2 FAMILY CURVES 4-1
4.3 PRIORITIZATION OF PAVEMENT PROJECTS 4-4
4.4 CRITICAL PCI VALUES 4-5
4.5 MAINTENANCE POLICIES 4-6
4.6 UNIT COSTS 4-7
4.7 BUDGET SCENARIOS 4-7
4.8 SUMMARY 4-8

CHAPTER 5 - AIR TRAFFIC ANALYSIS

5.1 INTRODUCTION 5-1
5.2 FLEET MIX AND TRAFFIC VOLUMES 5-1
5.3 TRAFFIC FLOW ASSUMPTIONS 5-3
5.4 AIR TRAFFIC UTILIZATION 5-3
5.5 SUMMARY 5-4

CHAPTER 6 - NONDESTRUCTIVE DEFLECTION TESTING ANALYSIS

6.1 OVERVIEW 6-1
6.2 NONDESTRUCTIVE DEFLECTION TESTING 6-1
6.3 BACKCALCULATION OF MATERIAL PROPERTIES 6-3
6.4 ACN/PCN 6-4

6.5 STRUCTURAL REMAINING LIFE AND OVERLAY THICKNESS REQUIRED.....6-9
6.6 SUMMARY.....6-10

CHAPTER 7 - CAPITAL IMPROVEMENT RECOMMENDATIONS
7.1 INTRODUCTION.....7-1
7.2 DEVELOPMENT OF CAPITAL IMPROVEMENT ALTERNATIVES.....7-1
7.3 RECOMMENDED CAPITAL IMPROVEMENT PROJECTS.....7-4
7.4 SUMMARY.....7-5

APPENDICES

A.2.1 WORK HISTORY .....
A.3.1 BRANCH CONDITION.....
A.3.2 SECTION CONDITION.....
A.3.3 AIRPORT PHOTOS.....
A.3.4 AIRPORT DISTRESSES .....
A.4.1 LOCALIZED MAINTENANCE.....
A.4.2 STOP GAP MAINTENANCE.....
A.4.3 UNIT COSTS.....
A.4.4 PREDICTED PCI MAPS.....
A.5.1 KALAELOA AIRPORT FLEET MIX.....
A.5.2 20-YEAR AVERAGE ANNUAL MOVEMENTS .....
A.5.3 2015-2016 ATADS AIRCRAFT OPERATIONS .....
A.6.1 HWD TESTING PATTERN .....
A.6.2 ESTIMATED MATERIAL PROPERTIES FROM NDT TESTING.....
A.6.3 ACN VALUES FOR AIR TRAFFIC MIX .....
A.6.4 PCN VALUES, REMAINING LIFE AND CURRENT PCI VALUES .....
A.7.1 NO FUNDING BUDGET SCENARIO.....
A.7.2 MINIMUM CONDITION BUDGET SCENARIO .....
A.7.3 STATE BUDGET SCENARIO.....
A.7.4 UNLIMITED FUNDING BUDGET SCENARIO .....
A.7.5 BACKLOG ELIMINATION BUDGET SCENARIO .....

CHAPTER 1

THE PAVEMENT MANAGEMENT SYSTEM PROCESS

1.1 INTRODUCTION

Airfield pavements represent a large investment for the State of Hawaii. The Department of Transportation Airports Division's (DOTA) major objective is to provide adequate load-carrying capacity, good ride quality, and above all, safe operation of aircraft. Once pavement construction is complete, pavements immediately begin a gradual deterioration due to surface weathering, fatigue, poor drainage, and differential movement of pavement layers. Faulty construction techniques, sub-standard materials or poor workmanship can accelerate this deterioration process. Over time, many pavements are also subjected to loads much greater than those for which they were originally designed, or experience a considerable increase in take-off and landing frequencies, contributing to premature pavement distress.

Historically, maintenance and repair (M&R) priority has been given to those pavements that have reached critical levels of deterioration, at the cost of the overall pavement network condition. Such a reactive strategy can result in the gradual deterioration of the network as a whole, while slowly increasing the backlog of unfunded projects. An Airport Pavement Management System (APMS) assists the airport managers in cataloguing the pavement inventory, assessing its current condition, and predicting its rate of deterioration, thereby allowing a more pro-active approach to maintenance programming.

In September 1988, the Federal Aviation Administration (FAA) issued Advisory Circular (AC) 150/5380-7, "*Pavement Management System*." This AC contains "guidelines…recommended by the FAA for use when considering implementation of a pavement management system".

Also included within this AC is a list of potential benefits to be derived from the implementation of an APMS. These benefits include:

- An objective and consistent evaluation of the condition of a network of pavements;
- A systematic engineering basis for determining M&R needs;
- Identification of budget requirements necessary to maintain pavements at various levels of serviceability;
- Documentation on the present and future condition of the pavements in a network;
- Determination of life-cycle costs for various M&R alternatives; and

- Identification of the impact on the pavement network as a result of performing major repairs.

All of these benefits combine to allow the APMS to provide a systemic, consistent procedure for setting priorities and schedules, allocating resources, and budgeting for pavement maintenance and rehabilitation. Reports generated allow the user to quantify the results of alternative maintenance and repair scenarios, thus ensuring the maintenance of the pavement network at an acceptable level of service while minimizing the present day cost of maintenance and rehabilitation.

1.2 PROJECT SCOPE

The Hawaii DOTA commissioned two projects in the year 2000: "Statewide Airports Pavement Management System for Large and Medium Hub Airports" and "Pavement Management System for Small Hub Airports". These projects defined the original airfield pavement networks, researched pavement maintenance history, performed initial distress surveys of airfield pavements, and implemented MicroPAVER as an APMS. The "Pavement Management System for Small Hub Airports" project was initially updated in 2005 and this project is the second update of that work. The airports included in this 2016 update are Hilo, Kona, Kapalua, Lanai, Molokai, Kalaeloa and Lihue. The project has been broken down into five tasks:

1. Records Research and Data Gathering:
2. Field Inspection and Testing
3. Data Population into MicroPAVER and Data Analysis
4. M&R Planning, Economic Analysis and Recommendations
5. Report Writing.

The deliverable product will be an updated MicroPAVER database, with an accompanying report showing current budget and M&R recommendations based on criteria provided by the DOTA. The five tasks include the following:

1. *Records Research and Data Gathering*: Obtain the data from the 2005 update (report, MicroPAVER database, CAD files); review construction records for any work done subsequent to the previous report; obtain current M&R costs; obtain current traffic information; update MicroPAVER network definitions based on current information.

2. *Field Inspection and Testing*: Develop a sampling rate based on the pavement condition index (PCI) standard deviation from each pavement section from the previous inspections; Perform field surveys of runways, taxiways, and airfield aprons at a 95% confidence level in accordance with ASTM D 5340-12 and FAA AC-150/5380-6; Survey shoulders at a 92% confidence level.

3. *Data Population into MicroPAVER and Data Analysis:*

    a. Based on results of the records research and network definition changes, the AutoCAD files will be updated to reflect the changes. The AutoCAD files will also be updated to show the sample units that were field inspected for this update in December of 2014;

    b. For those pavement sections that have been constructed since the last inspection, or have been rehabilitated (e.g. mill and AC overlay), new pavement section and facility names will be added to the MicroPAVER database, to include pavement surface type, layer properties, and construction dates;

    c. Enter the raw PCI data obtained during the field inspections. After the PCI raw data has been entered into MicroPAVER, re-evaluate the existing performance models;

    d. Update M&R tables based on current cost data;

    e. Using the revised performance models and MicroPAVER "Condition Analysis" tools, present the results of the 2014 PCI survey and predict how each pavement section will deteriorate in the next five years. These results will be used to assess the effectiveness of current M&R practices that are being used at each airport;

    f. Review the non-destructive testing (NDT) data and back-calculation results to ensure the layer modulus values are reasonable for the soil conditions that exist at each airport. Use the data to compute the pavement classification number (PCN) values for each pavement section using the FAA pavement design software COMFAA 3.0.

4. *Maintenance and Repair (M&R) Planning, Economic Analysis and Recommendations:* Based on the results that have been obtained from Tasks 1 through 3, prepare a five-year work plan using the M&R module in MicroPAVER. Budgets used for the work plan will be developed based on State criteria.

5. *Report Writing:* Present the results for Tasks 1-4 in a report formatted per current DOTA standards.

1.3 PAVEMENT MANAGEMENT SYSTEMS

Prior to the implementation of an APMS program, four criteria for budgeting and fund allocation were used by the majority of airports:

- **Routine Maintenance.** Many airports established maintenance cycles such as annual crack sealing, patching and, seal coating every fourth year. Pavements ready for the four-year seal coat were budgeted, and the line items for crack sealing and patching were increased by the inflation rate over the prior year.
- **"Worst First".** Major maintenance was prioritized on a "worst first" basis. Those pavements that were visibly deteriorated got first priority. This component of the pavement maintenance program seemed logical to tax payers, the media and elected officials.
- **User Complaint.** The "worst first" or routine maintenance program elements could always be adjusted to accommodate work requirements stemming from complaints or accident experience.
- **Political Priority.** Major repairs, due to their high cost, may become political tools, with projects being approved or denied purely on their political value versus their engineering need.

In the past, these approaches worked well and often became entrenched as standard operating procedures. However, available funding has been reduced and the competition for these limited financial resources are intense. Budgets are inspected line by line, with reviewers requesting detailed justifications for every item. Project impact, estimated costs and performance data on alternative maintenance techniques and strategies must be part of the recommendation. Common questions asked by the decision makers may include:

- On average, funds are available to accomplish only one-third to one-half of the overlays that our maintenance standards indicate are necessary. Which ones should be done? Should thinner overlays be utilized?
- What would be the impact of deferring crack filling this year?
- Could all repairs be delayed another year? What is the financial consequence of delaying a few rehabilitation projects a year or two?
- What would be the impact of a 5%, 10% or 15% reduction in budget?

Agencies who implement and utilize APMS's have consistently found that they are able to optimize their available funds. This results in accomplishing more with limited funds while improving the overall condition of their pavement networks.

An APMS program provides an integrated framework for comprehensive evaluation and decision making for managing airfield pavements. The essential components for a good APMS provide for an objective evaluation of the condition of existing pavements and identification of short-term and long-range rehabilitation, strengthening, and/or maintenance requirements, as well as costs to provide such maintenance or rehabilitation.

In 2000, the Hawaii DOTA implemented the software MicroPAVER as their APMS platform. The procedures used by MicroPAVER to calculate the PCI is the only pavement evaluation methodology to have received an American Society of Testing and Materials standard designation (ASTM D5340-12) for rating the condition of airfield

pavements. The PCI is a numerical rating (on a scale of 1-100) determined by a visual pavement survey.

Once the inventory and condition data for an airport is entered into MicroPAVER, this program can:

- Maintain the inventory database;
- Calculate the PCI of the pavement;
- Filter information and present it in report form based on user determined criteria such as age, condition of a pavement at the last inspection, elapsed time since last major rehabilitation, and pavement type or use (for a list of MicroPAVER reports, see Appendix A.2);
- Generate a PCI vs. age curve: this curve is used by MicroPAVER to predict the future condition of similar pavement;
- Project M&R needs: by anticipating the rate of deterioration of a pavement, a pro-active maintenance program can be developed;
- Compare budget scenarios and life cycle cost analysis based on local cost data input by the user; and
- Prioritize M&R needs based on budget constraints.

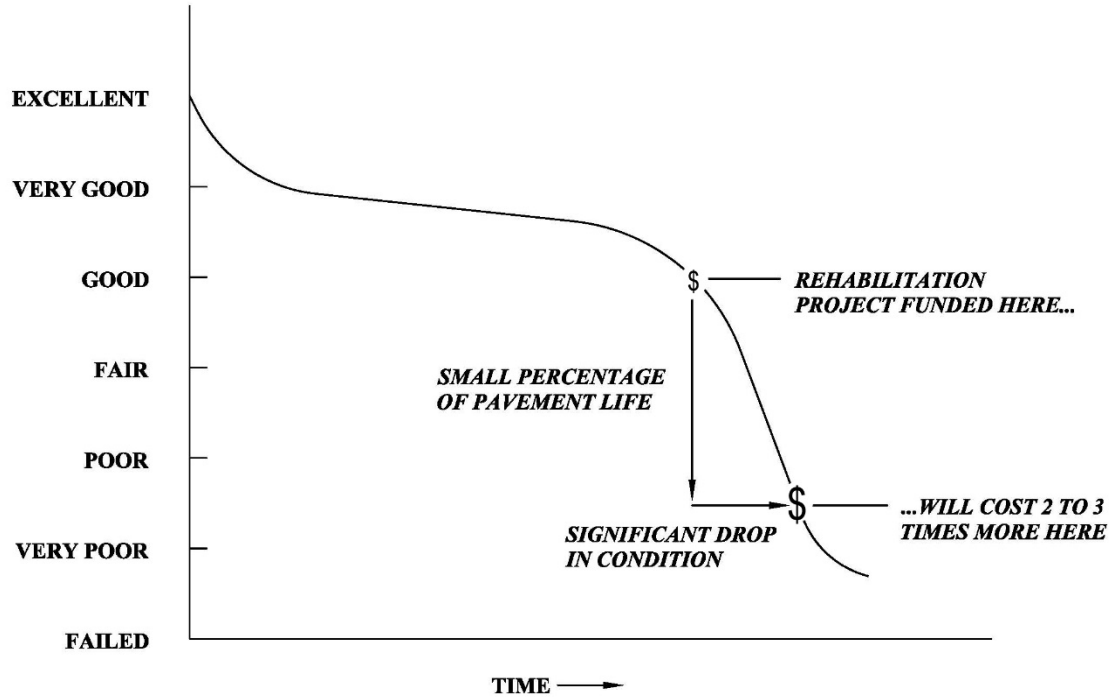
MicroPAVER can also maintain additional pavement information such as traffic data, nondestructive testing information, and skid resistance data.

Historically, most organizations have made maintenance decisions based on past experience, without the benefit of documented data or analysis. This practice does not encourage life cycle cost analysis, nor evaluation of the cost effectiveness of alternate scenarios, and can lead to the inefficient use of funds. With limited money to spend on M&R, a defined procedure for setting priorities and schedules that will maximize the funds available is more important than ever.

In examining the lifespan of a 20-year pavement, an “excellent” to “fair” condition rating may last only 12 to 15 years. After that point, the rate of deterioration of pavements accelerates sharply as the age of the pavement increases, and within five years, the pavement may deteriorate to the point of failure. In order to extend pavement life, maintenance and repairs need to be scheduled and performed before the pavement surface declines to a “fair” condition. The point at which rehabilitation can be done before the steep decline occurs is called the “critical PCI”, and is generally considered to be about a PCI of 55 for small airports (general aviation and commercial airports not considered to be hubs), and a PCI of 65 for primary (large, medium, small, and nonhub) airports, which must accommodate heavier planes and greater traffic. If the work is done before the accelerated deterioration point, the cost of rehabilitation can be reduced (see Figure 1.1).

An APMS attempts to determine at what point on the curve a maintenance program should be implemented and at what cost. The point in the deterioration process at which an M&R program is implemented can make an enormous difference to the life of the

pavement. Implementing an M&R program while the pavement is still in relatively good condition achieves **almost three times the increase in life expectancy than delaying improvements for four years.** However, funding availability may not always coincide with maintenance requirements, and therefore an APMS can be a critical tool in predicting when to apply maintenance in order to maximize available funding.



Based on: GAO REPORT: *AIRFIELD PAVEMENT- KEEPING NATION'S RUNWAYS IN GOOD CONDITION COULD REQUIRE SUBSTANTIALLY HIGHER SPENDING (JULY 1998)*

FIGURE 1.1: CONCEPTUAL ILLUSTRATION OF PAVEMENT CONDITION LIFE-CYCLE

1.3.1 Pavement Management System Levels

A pavement management system handles maintenance planning at two distinct levels: *network* and *project*.

At the *network* level of pavement management, the emphasis is on the budget process, both long and short term. Included in the network management goals are the identification of the pavement needs, determining the funds required to address these needs, determining the impact of funding options on the long term health of the pavement network, and ultimately identifying candidate projects for funding.

Project level pavement management is the process of analysis and design to determine the layer material types, properties and thicknesses needed for the pavement structure that will give the best service to the public at the least cost.

This report addresses pavement management on the network level, which consists of the following components:

1. Inventory Definition;
2. Condition Assessment:
    a. Pavement Inspection;
    b. Determination of Present Condition;
3. Condition Prediction and Analysis;
4. Work Planning.

1.3.2 Pavement Management System Components

INVENTORY DEFINITION

The inventory includes information that defines the management sections, with location, limits, size and functional classification for each section. Some basic information about the pavement such as the layer thickness and dates of construction is normally included in the inventory. This type of data is initially entered into the database during implementation, and is only modified when a significant change occurs in the data.

To establish a pavement inventory:

a. List all pavements to be included in the network. The network usually consists of all pavements within an airport layout that will be managed by the system;
b. Divide the network into branches. A branch is a readily identifiable part of the pavement network and has a distinct function. In airfields, branches usually consist of individual runways, taxiways and aprons (see MicroPAVER Branch Condition report, Appendix A.3.1);
c. Research the construction/maintenance history from historical documents (as-builts, master plans, airport layouts, etc.). The history should encompass original construction to the present (see MicroPAVER Work History report, Appendix A.2.1);
d. Divide the branches into sections. A section is the smallest management unit when considering the application and selection of maintenance and rehabilitation (M&R) treatments. A section ID is assigned to an area of pavement that exhibits a common age, construction type, traffic, and other criteria. It should be noted that the age of a pavement section should be reset to zero when major maintenance is completed;
e. Name the sections. Each section is named consistent with the following conventions:

    - Network: Either the actual name of the airport or the FAA three letter designation;

- Branch: A branch is given an alphanumeric designation, with the first letter being R, T, A or S for Runway, Taxiway, Apron or Shoulder. Runways are named using the letter R followed by the first two numbers of the four number runway orientation compass bearing designation (i.e. Runway 08-26 becomes R08). Taxiways use the alpha designation of each taxiway (i.e. Taxiway A becomes TA), while aprons are given a two number designation starting at 01 and following in consecutive order, from major to minor apron (i.e. the main terminal Apron becomes A01);
- Section: A branch is broken into sections of consistent age and cross-sections, and then numbered with three digits in increments of 10, starting at 010. If a section is divided longitudinally, an alpha designation is added to show if it is left, keel (center) or right (L, K or R).

f. Enter all information, including the square footage of each section, into the MicroPAVER database;
g. Divide the section into sample units. A sample unit is a section of uniform pavement area of which a certain percentage is inspected. Typically, the sample unit is between 3,000 to 7,000 square feet for asphalt pavement, and 12 to 28 slabs for concrete pavement.

CONDITION ASSESSMENT

Pavement assessment begins with the collection of data to determine the extent of existing distresses, current structural integrity of pavement, and to evaluate past maintenance policies.

Pavement Inspection

A visual inspection of the pavement is performed to determine the type, severity, and quantity of surface distresses present. To perform field inspections:

a. Establish the number of sample units to be inspected to satisfy the statistical sampling plan established as per the latest FAA AC: 150/5380-6, *"Guidelines and Procedures for Maintenance of Airport Pavements";*
b. Perform a distress inspection on each sample unit;
c. Perform nondestructive testing as needed;
d. Test pavement core samples as needed;
e. Determine whether additional pavement quality and structural tests are required to supplement the inspection data;
f. Perform any additional testing.

Determination of Present Condition

Once the pavement distresses have been collected, they are then used to determine the overall pavement condition in accordance with the FAA Advisory Circular (AC) 150/5380-6, *"Guidelines and Procedures for Maintenance of Airport Pavements"*. The PCI is an index of the pavement's functional condition, and provides insight into the causes of distress, and whether the particular distress is related to load or climate. To determine the PCI:

a. Enter data into MicroPAVER database;
b. Customize database as required to accommodate data;
c. Perform any additional testing necessitated by data analysis;
d. Re-evaluate pavement sections based on data analysis;
e. Calculate current PCI.

The PCI of each tested sample unit is calculated using the method defined by MicroPAVER; in summary, this involves calculating the distress quantities and the distress densities for each tested unit. These values are used to determine a deduct value and this deduct value is subtracted from 100 to give the PCI value. The PCI of the total section is then determined based on the sample unit PCI values.

PAVEMENT CONDITION PREDICTION AND ANALYSIS

Condition prediction models use the known pavement information as a basis to predict future deterioration trends. MicroPAVER uses a "family" model process to identify pavements with similar construction, traffic, weather, and other factors that may affect pavement life. The group of pavements assigned to a particular model is termed a *family*, and curves are generated based on the pavement's age and PCI data. These family curves are refined with each subsequent pavement inspection.

The MicroPAVER condition analysis process predicts the condition of pavement sections by defining its position relative to the family prediction curve; it is assumed that the deterioration of pavements within a family are similar, and as such, the PCI can be predicted at the desired future age. The steps to PCI prediction include:

a. Define the pavement family;
b. Filter the data;
c. Develop the family model;
d. Predict the pavement section condition.

WORK PLANNING

A common method to identify sections that need work is to compare the condition of the section to an established minimum criterion. The criterion most commonly used is the *critical PCI.* This PCI is the dividing line between preventative maintenance and moderate rehabilitation or reconstruction- if the pavement condition is below the critical PCI, preventative maintenance would not be cost effective, and a more drastic remedy must be used to increase the pavement condition.

Different critical PCI values can be established for each functional classification, traffic grouping or pavement type. As sections are identified for treatment, the condition of each is increased in that year based on the expected effect of that treatment, and future projections for that pavement are based on the changed condition. The treatment and funds needed for each year are summed to determine annual budget requirements over the analysis period.

Key requirements of an effective work plan:

a. Research existing maintenance practices and possible alternatives;
b. Establish policies and costs;
c. Generate economic analyses and provide recommendations.

It must be emphasized that MicroPAVER is a management tool, and is not meant to replace engineering and planning judgment. Structural evaluations, rehabilitation alternatives, scheduling constraints and traveler inconvenience due to airfield maintenance should also be taken into account.

1.4 PAVEMENT MANAGEMENT REPORT OUTLINE

This report summarizes the results of the Hawaii DOTA's 2016 update of their Pavement Management system which was first implemented in the year 2000. The report is organized as follows:

Executive Summary
Chapter 1. The Pavement Management System Process
Chapter 2. Pavement Inventory
Chapter 3. Field Inspection and Data Analysis
Chapter 4. Maintenance and Rehabilitation Planning
Chapter 5. Air Traffic Analysis
Chapter 6. Non-Destructive Deflection Testing Analysis
Chapter 7. Capital Improvement Recommendations

CHAPTER 2

PAVEMENT INVENTORY

2.1 OVERVIEW

Kalaeloa Airport (JRF) is a general aviation airport that is also designated as a reliever airport for Honolulu International Airport. It is located on the southwest coast of the Island of Oahu, along the Ewa Plain and south of the Waianae Mountains (see Figure 2-1). The airfield was constructed in 1941 by the Army Corps of Engineers and originally consisted of 2- ½ inches of asphalt concrete on an unspecified thickness of rolled coral.

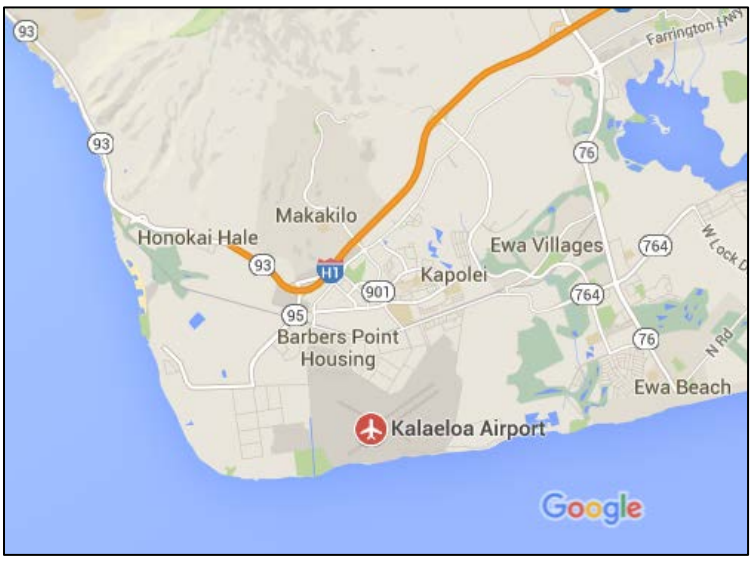


FIGURE 2.1: KALAELOA AIRPORT LOCATION MAP

In 1941, the airfield consisted of three runways and associated taxiways and aprons, in the same approximate layout as at present. The original Runways 4R and 4L were 200 feet wide by 8,700 feet long, with the infield built of the same materials as the runways for a continuous width of approximately 850 feet. Runway 11-29 was also built during the original construction, at the existing length of 8,411 feet and at widths varying from 600 feet to 650 feet. Between 1959 and 1964, overlays were applied solely within the limits of the existing configurations of the runways and taxiways, resulting in the current separation between Runways 4R and 4L, and Runway 11 and Taxiway K. The current aprons were built during the initial construction effort in 1942 of either rolled coral (Apron 1) or concrete (Apron 2). In 1951, Apron 1 was rebuilt with concrete. New taxiways, aprons and overlays of varying thickness were built during 1942 to 2011.

The majority of the runways and taxiways are either asphalt (AC) or overlaid asphalt (AAC), with the first 1000 feet of Runway 4R made of Portland cement concrete (PCC).

The majority of the apron areas are PCC, with some later additions built of AC. A full listing of pavement construction history can be found in Appendix A.2.1.

2.2 CLIMATIC CONDITIONS

Kalaeloa Airport is located on the leeward side of Oahu and trade wind weather with infrequent light showers is typical for this airfield. The mean annual temperature is 76° Fahrenheit, varying from a mean of 68° Fahrenheit in the winter to 84° Fahrenheit in the summer, with summertime temperatures rarely exceeding 96°. This area of Oahu gets less than an inch of rain a month during the summer months, and averages 3.3 inches of rain during December, a total of 18 inches of rain per year.

2.3 PAVEMENT NETWORK AND BRANCHES

A key element in a pavement management system is defining the pavement network, which is the process of dividing an installation's pavements into a hierarchical order that facilitates inspection and maintenance planning. The Hawaii DOTA considers each airfield to be an individual network. Networks are then divided into branches, which are a readily identifiable part of the pavement system and have distinct functions. In airfields, branches typically consist of individual runways, taxiways and aprons.

The Kalaeloa Airport network is made up of three (3) runways, 14 taxiways, and four (4) apron areas. These pavements are comprised of approximately 71% asphalt and 29% concrete. The main pavement branches and their MicroPAVER designation are shown in Table 2.1, and the airport layout is shown in Figure 2.4.

BRANCH NAME	MicroPAVER DESIGNATION	RANKING
NE Main Apron	A01	Secondary / Tertiary
East Apron	A02	Primary / Tertiary
Hanger 110 Apron	A03	Secondary
Runway 11-29	R11-29	Primary
Runway 04-22 Left	R4L-22R	Secondary
Runway 04-22 Right	R4R-22L	Primary
Taxiway A, A1, A2	TA, TA1, TA2	Primary / Secondary
Taxiway B, B1, B2, B3, B4	TB, TB1, TB2, TB3, TB4	Primary
Taxiway C, C1, C2, C3, C4, C5	TC, TC1, TC2, TC3, TC4, TC5	Primary / Secondary

**Note: Where multiple rankings are shown, refer to Section Condition Report in Appendix A.3.2 for Section specific rankings.*

TABLE 2.1: KALAELOA AIRPORT PAVEMENT BRANCHES

2.4 PAVEMENT SECTIONS AND SAMPLE UNITS

Once branches have been defined, pavement evaluation and analysis techniques require the airfield pavement system to be broken up into discrete sections. A pavement "section" is the smallest management unit used when considering the application and selection of M&R treatments, and is defined by Section 2.1.8 of ASTM D 5340-12 as *"a contiguous pavement area having uniform construction, maintenance, usage history, and condition. A section should also have the same traffic volume and load intensity."* The construction history of the pavement is used to define pavement sections, and runways were further subdivided longitudinally, so that each runway is made up of three, 50 foot wide sections. This allows the center section of the runway (the "keel" section) to be treated as an individual section. Although the keel section has a construction history consistent with the sections adjacent to it, heavy traffic usage along the keel section of the runway necessitates its separation. The sections were given numeric designations beginning at 010 for each branch, with the runway longitudinal sections given further designations of "L", "K" & "R" for left, keel and right. Kalaeloa Airport has 145 total sections, of which a full listing can be found in Appendix A.3.2.

To facilitate the visual survey of the airfield pavement, each section is further subdivided into conveniently defined portions, or sample units. Similar sizing is critical: studies have found that maintaining the size of the sample units to within 40% of the established norm reduces the error to 2 points. To meet that criteria, MicroPAVER recommends that sample units for asphalt pavements be 5,000 square feet (± 2,000), and sample units for PCC pavements be 20 slabs (± 8). The sample unit size for PCC pavements assumes a joint spacing no greater than 25 feet; for slabs with joints exceeding that criteria, imaginary joints less than or equal to 25 feet are assumed.

For this project, a PCI confidence level of 95% was required for all traveled pavements (runways, taxiways and aprons) and 92% for the airfield shoulders. To determine the number of sample units that need to be inspected to achieve the required confidence level, the following equation is used:

$$n = \frac{N \times s^2}{\left(e^2 / 4\right)(N-1) + s^2} \qquad \textbf{(eq. 2.1)}$$

where:

n = the number of sample units to be tested
N = total number of samples in the pavement section
e = allowable error
s = standard deviation (as calculated by MicroPAVER based on the inspection conducted in 2000.

The sample units inspected for this project were selected from those inspected in 2005, with additional sample units added as required. Sample units that included a one-time

occurrence of a distress (i.e. a large patch) or an unusual severity or quantity of a distress seen elsewhere, were assigned as "additional" units as per PCI procedure. This allows the PCI to be calculated without extrapolating the aberrant distress throughout the section as a whole.

2.5 PAVEMENT INVENTORY

Kalaeloa's airfield pavement consists of 10,241,470 square feet of pavement area, divided into 23 branches and 145 sections. Pavement age at Kalaeloa Airport varies from 3 to 71 years old at the time of inspection, with 1.5% of the pavement under 5 years old, and 12.5% under 20 years old. Table 2.2 shows the distribution of airfield pavement by age.

AGE (YEARS)	PERCENT	SQUARE FEET
0-05	1.5%	149,726
06-10	6%	647,041
11-15	4%	413,623
16-20	1%	112,579
26-30	42%	4,257,190
31-35	3%	351,959
36-40	1.5%	147,945
Over 40	41%	4,161,407
Total	**100%**	**10,241,470**

TABLE 2.2: KALAELOA AIRPORT PAVEMENT AGE

Most of the runways and taxiways are either AC or AAC, with some PCC at the ends of the runways. The majority of the apron areas are PCC. Figure 2.2 shows the distribution of airfield pavement by surface types, and Figure 2.3 shows the distribution by usage.

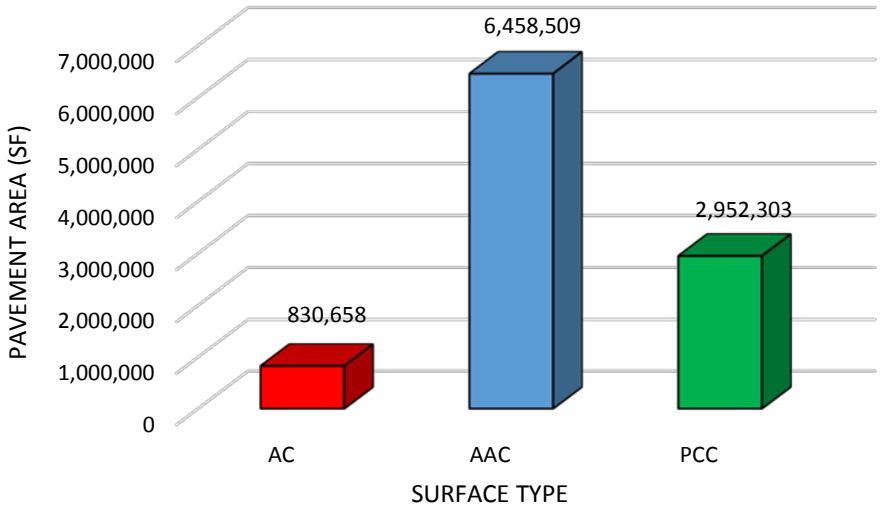


FIGURE 2.2: KALAELOA AIRPORT PAVEMENT AREA BY SURFACE TYPE

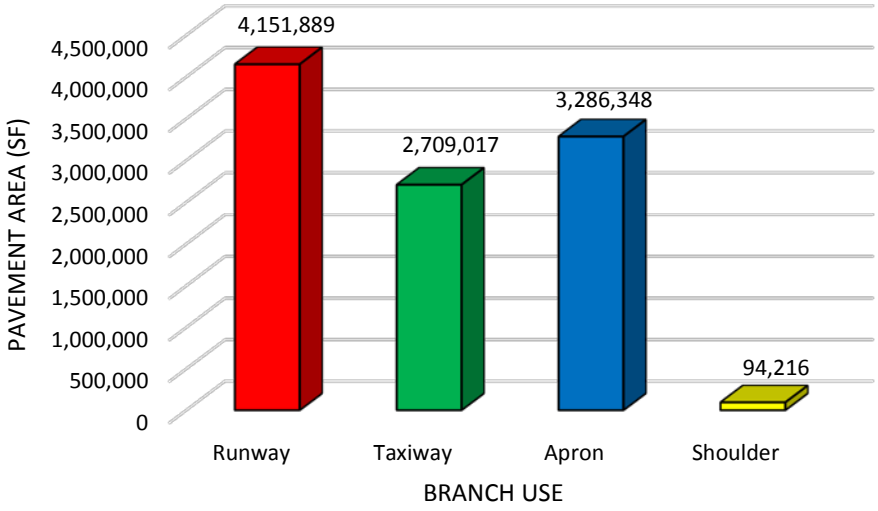


FIGURE 2.3: KALAELOA AIRPORT PAVEMENT AREA BY BRANCH USE

2.6 INVENTORY CHANGES FROM PREVIOUS INSPECTION

The following changes to the pavement sections have been made to the Kalaeloa pavement inventory:

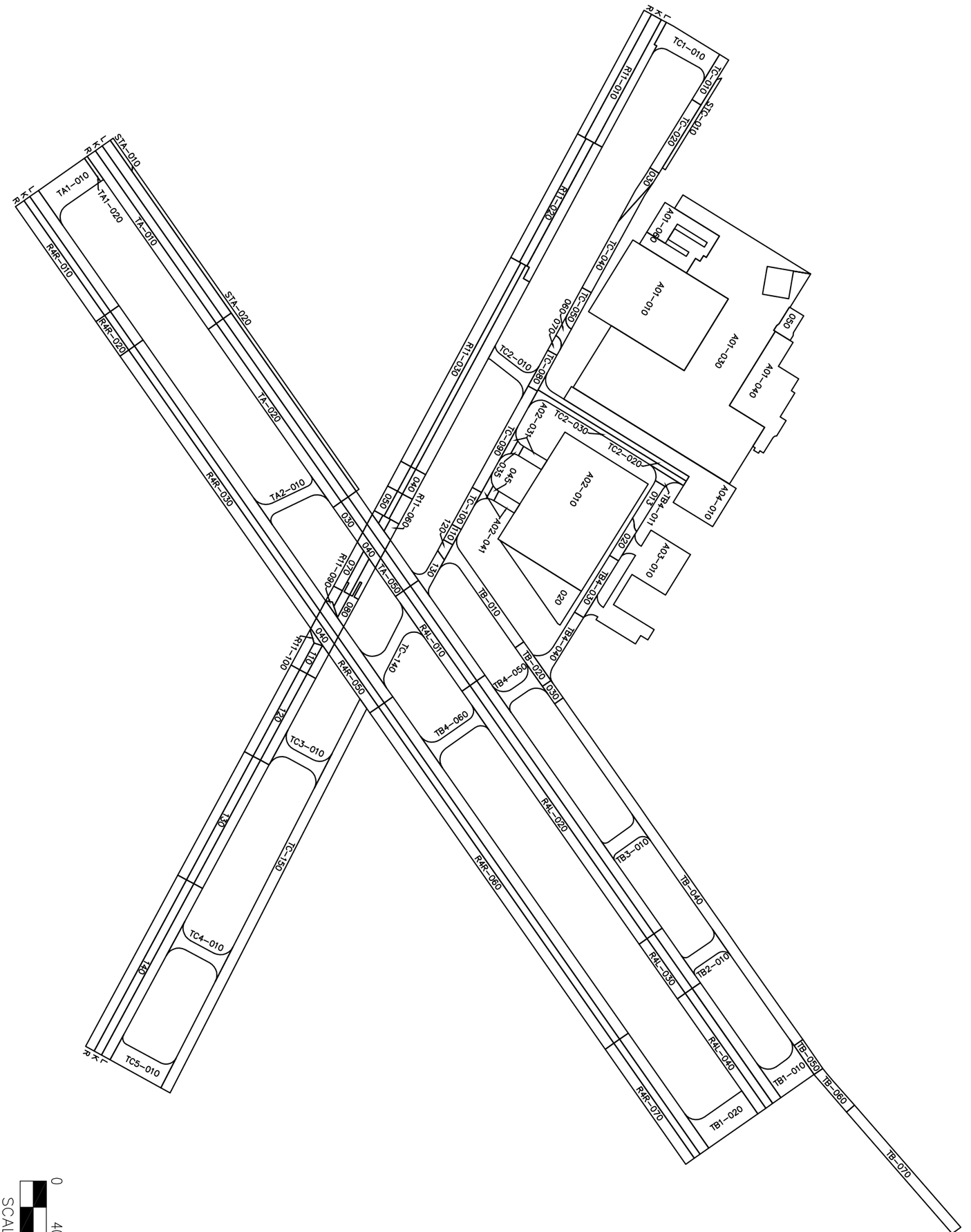
- Section A01-020 has been removed from the inventory;
- A portion of the PCC section A01-030 has been reconstructed as AC, therefore a new section named A01-060 was added to the inventory;
- AAC section A02-030 has been subdivided into two new sections, A02-031 and A02-035;

- AAC section A02-040 has been subdivided into two new sections, A01-041 and A01-045;
- New AAC sections TB-060 and TB-070 have been added to the inventory;
- AAC section TB4-010 has been subdivided into two new sections, TB4-011 and TB4-013.

The new layout and section designations can be seen in Figure 2.4, and a graphic depiction of the current age of the pavements can be seen in Figure 2.5.

2.7 SUMMARY

The pavement inventory methodology for Kalaeloa Airport was originally established during the DOTA's Pavement Management System implementation project in 2000 and redefined during the 2005 update. Following a review of construction records for pavement work done subsequent to the 2005 report the MicroPAVER network definitions were updated based on current information.



SCALE: 1" = 800'-0"

0 400 800 1600

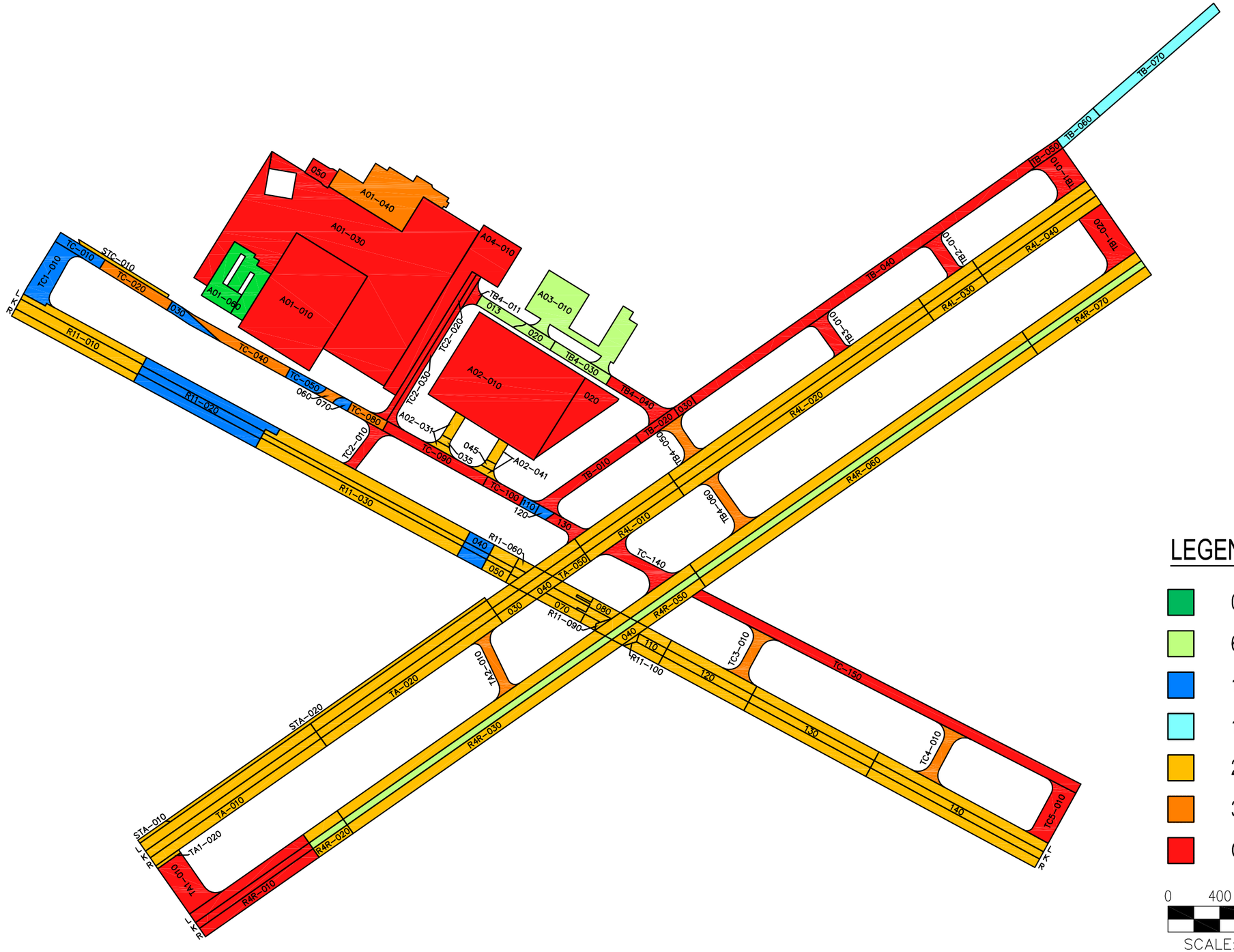
TRUE NORTH

2.4	FIGURE NO.:	DATE: DEC 2014

PAVEMENT MANAGEMENT SYSTEM UPDATE
KALAELOA AIRPORT
PAVEMENT LAYOUT 2014

BOWERS + KUBOTA CONSULTING

• Project Management • Planning • Architectural/Engineering Design • Construction Management



BOWERS + KUBOTA CONSULTING

• Project Management • Planning • Architectural/Engineering Design • Construction Management

PAVEMENT MANAGEMENT SYSTEM UPDATE
KALAELOA AIRPORT
PAVEMENT AGE

DATE:
DEC 2014

FIGURE NO.:
2.5

CHAPTER 3

FIELD INSPECTION AND DATA ANALYSIS

3.1 OVERVIEW

In December 2014, a visual inspection of the airfield pavements at Kalaeloa Airport was conducted in order to update the existing pavement management database. The visual survey measures and records signs of pavement distress as seen in the sample units inspected. This survey was conducted in accordance with the methods described in ASTM D 5340-12, using the sampling rate determined by the equation (eq. 2.1) shown in Chapter 2. The ten-day survey was performed by two (2), two-person teams. The aprons and taxiways were surveyed in six days and the runways were surveyed in four days.

Upon completion of the pavement survey, the PCI for each section was evaluated and compared to that determined in the 2005 survey. Any major discrepancies were noted, and additional airfield personnel interviews and/or field surveys were conducted to determine their cause. Where warranted, the database was adjusted and the PCIs were re-evaluated. A discussion of discrepancies found and their cause are in Section 3.4.

3.2 METHODOLOGY

As discussed in Chapter 1, the PCI is a measure of the pavement's functional condition. It provides insight into the causes of distress, and whether the distress is related to load or climate. The MicroPAVER distresses and their designation codes are shown in Table 3.1. Of the thirty-three (33) distresses listed in Table 3.1, twenty-two (22) were found in the pavements at Kalaeloa Airport.

ASPHALT DISTRESSES		PCC DISTRESSES	
CODE	DESCRIPTION	CODE	DESCRIPTION
41	Alligator Cracking *	61	Blow up
42	Bleeding *	62	Corner Break *
43	Block Cracking *	63	Longitudinal, Transverse & Diagonal Cracks *
44	Corrugation	64	Durability "D" Cracking
45	Depression *	65	Joint Seal Damage *
46	Jet Blast	66	Small Patch *
47	Joint Reflection Cracking *	67	Large Patch *
48	Longitudinal & Transverse Cracking *	68	Pop Outs
49	Oil Spillage *	69	Pumping
50	Patching *	70	Scaling *
51	Polished Aggregate	71	Settlement or Faulting *
52	Raveling *	72	Shattered Slab *
53	Rutting	73	Shrinkage Cracking *
54	Shoving	74	Joint Spalls *
55	Slippage Cracking	75	Corner Spalls *
56	Swelling *	76	Alkali Silica Reaction
57	Weathering *		

** = Found in Kalaeloa Pavements*

TABLE 3.1: MicroPAVER DISTRESS CODES

The PCI (a numerical rating on a scale of 1-100) is generated from the type, severity and quantity of each distress found in an inspected sample unit. The PCI of each inspected sample unit is then extrapolated over the section as a whole to obtain the Section PCI. Distresses found in sample units classified as "additional" instead of "random" are not extrapolated over the entire section but merely added to the extrapolated quantity. The PCI numerical rating system is shown in Table 3.2.

COLOR	RATING	DEFINITION
	86-100	GOOD: Pavement has minor or no distresses and should require only routine maintenance.
	71-85	SATISFACTORY: Pavement has scattered low-severity distresses that should require only routine maintenance.
	56-70	FAIR: Pavement has a combination of generally low- and medium-severity distresses. Near-term maintenance and repair needs may range from routine to major.
	41-55	POOR: Pavement has low-, medium-, and high-severity distresses that probably cause some operational problems. Near-term maintenance and repair needs may range from routine up to a requirement for reconstruction.
	26-40	VERY POOR: Pavement has predominantly medium- and high-severity distresses that cause considerable maintenance and operational problems. Near-term maintenance and repair needs will be intensive in nature.
	11-25	SERIOUS: Pavement has mainly high-severity distresses that cause operational restrictions; immediate repairs are needed.
	0-10	FAILED: Pavement deterioration has progressed to the point that safe aircraft operations are no longer possible; complete reconstruction is required.

TABLE 3.2: PAVEMENT CONDITION INDEX (PCI) RATING SCALE

The ASTM governing PCI surveys offers this warning:

> *"The PCI provides a measure of the **present condition** of the pavement based on the distress observed on the surface of the pavement, which also indicates the structural integrity and surface operational condition (localized roughness and safety). The PCI **cannot** measure the structural capacity; neither does it provide direct measurement of skid resistance or roughness. It provides an objective and rational basis for determining maintenance and repair needs and priorities. Continuous monitoring of the PCI is used to establish the rate of pavement deterioration, which permits early identification of major rehabilitation needs. The PCI provides feedback on pavement performance for validation or improvement of current pavement design and maintenance procedures."*

It is imperative that the planners treat the PCI as a tool that will assist them in the maintenance planning process. Any major project should always be preceded by an up to date, physical inspection of the pavement to re-evaluate maintenance needs prior to the project design.

3.3 DISTRESS TYPES

Distress tends to fall into one of four cause categories:

- Load related: for asphalt - alligator cracking, corrugation, depression, polished aggregate, rutting and slippage cracking; for concrete - corner breaks, longitudinal cracking, polished aggregate, pumping and joint spalling.
- Climate and durability related: for asphalt - bleeding, block cracking, joint reflection cracking, longitudinal and transverse (L&T) cracking, swelling and raveling/weathering; for concrete - blow-ups, "D" cracking, longitudinal cracking, pop-outs, pumping, scaling, shrinkage cracks, and joint/corner spalling.
- Moisture and Drainage related: for asphalt - alligator cracking, depressions, potholes and swelling; for concrete - corner breaks, divided slabs and pumping.
- Other factors: oil spillage, jet blast erosion, bleeding, patching and concrete slab joint faulting.

As described above, distress may have more than one cause. For example, depressions may be caused by incorrect compaction during construction, or by sub-grade softening due to environmental factors. Engineering judgment is critical in analyzing the actual cause.

For asphalt surfaced pavements, of the seventeen (17) AC distresses listed in Table 3.1, eleven (11) were found in the pavements at Kalaeloa Airport. For PCC Pavements, eleven (11) of the sixteen (16) listed distresses were found.

Distress descriptions for the distresses pictured in Figures 3.1 thru 3.18 were taken from the "PCI Field Manual," developed by the U.S. Army Construction Engineering Research Lab (CERL), latest edition. Several of the distress photos were taken from the FAA PAVEAIR database and do not represent actual pavement distresses at Kalaeloa Airport.

3.3.1 Alligator Cracking (AC)

Alligator cracking is a series of interconnecting cracks caused by fatigue failure of the asphalt concrete surface where tensile stress and strain is highest under wheel loads. The cracks propagate to the surface initially as a series of parallel cracks. After repeated traffic loading the cracks connect, forming many sided, sharp angled pieces that develop a pattern resembling chicken wire or the skin of an alligator. The pieces are less than two feet long on the longest side. Alligator cracking occurs only in areas that are subjected to repeated traffic loading, such as wheel paths, and is considered a major structural distress.

SEVERITIES:

- Low - made up of fine, hair-like cracks running parallel to each other with none or only a few inter-connecting cracks. The cracks are not spalled;
- Medium - further development of light alligator cracking into a pattern or network of cracks that may be lightly spalled. Medium-severity alligator cracking is described as a well-defined pattern of interconnecting cracks, where all pieces are securely held in place (good aggregate interlock between pieces);
- High - has progressed so that the pieces are well defined and spalled at the edges. Some of the pieces may rock under traffic and may cause Foreign Object Debris (FOD) potential.

REPAIR POLICIES:

- Low - No action, surface seal or overlay for low severity distress;
- Medium - partial or full depth patch, overlay or reconstruct;
- High - partial or full depth patch, overlay or reconstruct.



FIGURE 3.1: ALLIGATOR CRACKING

3.3.2 Bleeding (AC)

Bleeding is a film of bituminous material on the pavement surface that creates a shiny, glass-like, reflecting surface that usually becomes quite sticky. Bleeding is caused by excessive amounts of asphaltic cement or tars in the mix or low-air void content, or both. It occurs when asphalt fills the voids of the mix during hot weather and then expands out onto the surface of the pavement. Since the bleeding process is not reversible during cold weather, asphalt or tar will accumulate on the surface.

SEVERITIES: No degrees of severity are defined. Bleeding should be noted when it is extensive enough to reduce skid resistance.

REPAIR POLICIES: Do nothing; apply heat and roll sand into areas with bleeding, removing the excess material; patch.



FIGURE 3.2: BLEEDING

3.3.3 Block Cracking (AC)

Block cracks are interconnected cracks that divide the pavement into rectangular shaped pieces. The blocks may range in size from 1 by 1 foot to 10 by 10 feet. Block cracking is caused mainly by shrinkage of the asphalt concrete and is not load associated. The occurrence of block cracking usually indicates that the asphalt has hardened significantly. Block cracking normally occurs over a large proportion of the pavement area, but will sometimes occur only in the non-traffic areas.

SEVERITIES:

- Low - defined by cracks that are at most lightly spalled, causing no FOD potential. Un-filled cracks have 1/4 inch or less mean width, and filled cracks have filler in satisfactory condition;
- Medium - defined by cracks that are moderately spalled (some FOD potential), un-filled cracks that are at most lightly spalled, but have a mean width greater than 1/4 inch or filled cracks that are at most lightly spalled but have filler in unsatisfactory condition;
- High - defined by cracks that are severely spalled, causing a definite FOD potential.

REPAIR POLICIES:

- Low - No action;
- Medium - seal cracks, apply rejuvenator, recycle surface or scarify and overlay;
- High - recycle surface or scarify and overlay.



FIGURE 3.3: BLOCK CRACKING

3.3.4 Depression (AC)

Depressions are localized pavement surface areas having elevations slightly lower than those of the surrounding pavement. In many instances, light depressions are not noticeable until after a rain, when ponding water creates "birdbath" areas; but the depressions can also be located without rain because of stains created by ponding of water. Depressions can be caused by settlement of the foundation soil or can be built during construction. Depressions cause roughness and, when filled with water of sufficient depth, could cause hydroplaning of aircraft.

SEVERITIES:

- Low - Depression can be observed or located by stained areas, only slightly affects pavement riding quality, and may cause hydroplaning potential on runways. Maximum depth 1/8 to 1/2 inch for runways, 1/2 to 1 inch for taxiways and aprons;
- Medium - The depression can be observed, moderately affects pavement riding quality, and causes hydroplaning potential on runways. Maximum depth 1/2 to 1 inch for runways, 1 to 2 inches for taxiways and aprons;
- High - The depression can be readily observed, severely affects pavement riding quality, and causes definite hydroplaning potential; Depth greater than 1 inch for runways, greater than 2 inches for taxiways and aprons.

REPAIR POLICIES:

- Low - No action;
- Medium - Shallow, partial or full depth patch;
- High - Shallow, partial or full depth patch.



FIGURE 3.4: DEPRESSION

3.3.5 Longitudinal and Transverse Cracking (AC)

Longitudinal and transverse (L&T) cracks are parallel to the pavement's centerline or laydown direction. They may be caused by: 1) a poorly constructed paving lane joint; 2) shrinkage of the AC surface due to hardening of the asphalt; or 3) a reflective crack caused by cracks beneath the surface course. Transverse cracks extend across the pavement perpendicularly to the pavement centerline or laydown direction, and may be caused by items 2) or 3) as stated above. These types of cracks are not usually load related.

SEVERITIES:

- Low - have either minor spalling or no spalling. The cracks can be filled or un-filled. Un-filled cracks have a mean width of 1/4 inch or less. Filled cracks are any width but their filler is in satisfactory condition;
- Medium - one of the following conditions exists: 1) cracks are moderately spalled and can be either filled or un-filled of any width; 2) filled cracks are not spalled or only lightly spalled, but the filler is in unsatisfactory condition; 3) un-filled cracks are not spalled or only lightly spalled, but the crack width exceeds 1/4 inch; or 4) light random cracking exists near the crack or at the corner of the intersecting cracks;
- High - severely spalled with a definite FOD potential. They can be either filled or un-filled.

REPAIR POLICIES:

- Low - No action;
- Medium - seal cracks;
- High - seal cracks or perform a full depth patch.



FIGURE 3.5: LONGITUDINAL AND TRANSVERSE CRACKING

3.3.6 Oil Spillage (AC)

Oil spillage is the deterioration or softening of the pavement surface caused by the spilling of oil, fuel, or other solvents.

SEVERITIES: No degrees of severity are defined. It is sufficient to indicate that oil spillage exists.

REPAIR POLICIES:

- Do nothing;
- Partial or full depth patch.



FIGURE 3.6: OIL SPILLAGE

3.3.7 Patching (AC and PCC)

Repair patching and utility cut patching is considered a defect, regardless of how well it performs. In PCC pavement, patches are classified based on size: a small patch is less than five square feet, and a large patch is five square feet or larger. The criteria for severity levels are the same for both sizes of PCC patches and all AC patches.

SEVERITIES:

- Low - in good condition and is performing satisfactorily;
- Medium - is somewhat deteriorated and affects riding quality to some extent;
- High - is badly deteriorated and affects riding quality significantly or has high FOD potential.

REPAIR POLICIES:

- Low - No action;
- Medium - seal cracks, repair the distresses in the patch or replace the patch;
- High - replace the patch.



FIGURE 3.7: ASPHALT PATCHING

3.3.8 Raveling and Weathering (AC)

Raveling and weathering are the wearing away of the pavement surface caused by the dislodging of aggregate particles and loss of asphalt or tar binder. It may also indicate that the asphalt binder has hardened significantly. As used in this test method, fine aggregate refers to aggregate with a largest dimension less than 3⁄8 inch, and coarse aggregate refers to aggregate with a smallest dimension greater than or equal to 3⁄8 inch.

Note- the prior description of raveling was "the wearing away of the pavement surface caused by the dislodging of aggregate particles and loss of asphalt binder"; the re-definition of this distress, combined with new, more objective severity descriptions has resulted in an increased PCI of some sections with this distress increasing since the last inspection.

SEVERITIES:

- Low - 1) The surface is in generally good condition, but fine aggregate and binder have worn away exposing the coarse aggregate. The coarse aggregate, however, is still firmly embedded in the mix; 2) In a square yard representative sample, the number of coarse aggregate pieces missing is between 5 and 20; 3) In a square yard representative sample, brushing one's foot across the surface does not dislodge more than 20 coarse aggregate pieces. If in doubt, three representative square yards should be inspected and the number of missing pieces of coarse aggregate counted.
- Medium - 1) In a square yard representative sample, the number of coarse aggregate pieces missing is between 21 and 40; 2) In a square yard representative sample, brushing one's foot across the surface dislodges between 21 and 40 coarse aggregate pieces. If in doubt, three representative square yards should be inspected and the number of missing pieces of aggregate counted.
- High - 1) In a square yard representative sample, the number of coarse aggregate pieces missing is over 40; 2) In a square yard representative sample, brushing one's foot across the surface dislodges more than 40 coarse aggregate pieces. If in doubt, three representative square yards should be inspected and the number of missing pieces of aggregate counted. Mechanical damage caused by equipment is counted as high severity.

REPAIR POLICIES:

- Low - No action or apply rejuvenators (Note: FAA and military regulations prohibit the use of sealants on runways);
- Medium - apply rejuvenators or surface sealant;
- High - overlay, recycle or reconstruct for high severity distresses.



FIGURE 3.8: MEDIUM SEVERITY AC RAVELING AND WEATHERING



FIGURE 3.9: HIGH SEVERITY AC RAVELING AND WEATHERING

3.3.9 Rutting (AC)

A rut is a surface depression in the wheel path; however, in many instances ruts are noticeable only after a rainfall, when the wheel paths are filled with water. Pavement uplift may occur along the sides of the rut. Rutting stems from a permanent deformation in any of the pavement layers or sub-grade, usually caused by consolidation or lateral movement of the materials due to traffic loads. Significant rutting can lead to major structural failure of the pavement.

SEVERITIES (BASED ON RUT DEPTH):

- Low - less than ½ inch in depth;
- Medium - between ½ and 1 inch in depth;
- High - exceeds 1 inch in depth.

REPAIR POLICIES:

- Low - No action;
- Medium - patch and/or overlay;
- High - patch and/or overlay.



FIGURE 3.10: AC RUTTING

3.3.10 Swelling (AC)

Swelling is characterized by an upward bulge in the pavement's surface. A swell may occur sharply over a small area, or as a longer gradual wave. Either type of swell can be accompanied by surface cracking. A swell is usually caused by the swelling soil, but a small swell can also occur on the surface of an asphalt overlay as a result of a blow up in an underlying PCC slab.

SEVERITIES:

- Low - swells are barely visible, have a height differential of under 3/4 inch and have a minor effect on the pavement's ride quality;
- Medium - swells can be observed without difficulty, have a height differential of between 3/4 to 1-1/2 inch and have a significant effect on the pavement's ride quality;
- High - swells can be readily observed, have a height differential of over 1 ½ inches and severely affect the pavement's ride quality.

REPAIR POLICIES:

- Low - No action;
- Medium - reconstruction or full depth patch;
- High - reconstruction or full depth patch.



FIGURE 3.11: AC SWELLING

3.3.11 Cracks: Longitudinal, Transverse and Diagonal (PCC)

These cracks divide the slab into two or three pieces, and are usually caused by a combination of load repetition, curling stresses, and shrinkage stresses. Low severity cracks are not considered major structural distresses. Medium or high severity cracks are usually working cracks and are considered major structural distresses.

SEVERITIES:

- Low - 1) unfilled cracks 1/4 inch to 1/2 inch wide with no faulting or spalling; 2) cracks less than 1/2 inch wide with low severity spalling; or 3) filled cracks of any width, with filter performing in a satisfactory manner and no faulting or spalling;
- Medium - 1) un-filled cracks between 1/2 to 1 inch wide with no faulting or spalling; or 2) filled cracks of any width faulting less than 1/8 inch or medium severity spalling;
- High - 1) un-filled cracks with a width greater than 1 inch; 2) un-filled cracks of any width with faulting greater than 1/2 inch or medium severity faulting; or 3) filled cracks of any width faulting greater than 1/2 inch or high severity faulting.

REPAIR POLICIES:

- Low - No action or seal cracks;
- Medium - seal cracks;
- High - seal cracks, apply a full depth patch or replace the slab.



FIGURE 3.12: PCC TRANSVERSE CRACKS

3.3.12 Joint Seal Damage (PCC)

Joint seal damage is any condition, which enables soil or rocks to accumulate in the joints or allow significant infiltration of water. Accumulation of incompressible materials in the joint prevents the slab from expanding and may result in buckling, shattering, or spalling. Pliable joint filler bonded to the edges of the slabs protects joints from the accumulation of materials and also prevents water from seeping down and softening the foundation supporting the slab. Typical types of joint seal damage are: 1) stripping the joint sealant; 2) extrusion of joint sealant; 3) weed growth; 4) hardening of the filler; 5) loss of bond to the slab edges; and 6) lack or absence of sealant in the joint.

SEVERITIES:

- Low - in generally good condition throughout the section. Sealant is performing well with only a minor amount of any of the above types of damage present;
- Medium - in generally fair condition throughout the section, with one or more of any of the above types of damage present occurring to a moderate degree. Sealant needs immediate replacement within 2 years;
- High - in generally poor condition throughout the section, with one or more of any of the above types of damages present, occurring to a severe degree. Sealant needs immediate replacement.

REPAIR POLICIES:

- Low - No action;
- Medium - seal joints;
- High - seal joints.



FIGURE 3.13: PCC JOINT SEAL DAMAGE

3.3.13 Scaling (PCC)

Map cracking or crazing refers to a network of shallow, fine, or hairline cracks that extend only through the upper surface of the concrete. The cracks tend to intersect at angles of 120 degrees. Map cracking or crazing is usually caused by over finishing the concrete and may lead to scaling of the surface, which is the breakdown of the slab surface to a depth of approximately 1⁄4 to 1⁄2 inch. Scaling may also be caused by improper construction and poor aggregate. Another recognized source of distress is the reaction between the alkalis (Na2O and K2O) in some cements and certain minerals in some aggregates. Products formed by the reaction between the alkalis and aggregate result in expansions that cause a breakdown in the concrete.

SEVERITIES:

- Low - Crazing or map cracking exists over significant slab area. The surface is in good condition with no scaling. The crack pattern must be well defined and easily recognized;
- Medium - Slab is scaled over approximately 5% or less of the surface with some FOD potential;
- High - Slab is severely scaled causing a high FOD potential. Usually, more than 5% of the surface is affected.

REPAIR POLICIES:

- Low - Monitor;
- Medium - Patching, partial depth;
- High - Slab replacement.



FIGURE 3.14: SCALING

3.3.14 Joint Spalls (PCC)

Joint spalling is the disintegration of the slab edges within two feet of the side of the joint. A joint spall usually does not extend vertically through the slab, but intersects the joint at an angle. Spalling results from excessive stresses at the joint crack caused by infiltration of incompressible materials or traffic loads. Weak concrete at the joint (caused by overworking) combined with traffic loads is another cause of spalling.

SEVERITIES:

- Low - over 2 feet long and is broken into no more than three pieces defined by low or medium severity cracks, with little or no FOD potential; or is 2) less than 2 feet long and is broken into more than three pieces, with little FOD or tire damage potential;
- Medium - over 2 feet long and is broken into more than 3 pieces defined by light or medium cracks or some FOD potential existing; or is 2) less than 2 feet long and is broken into pieces or fragmented, with some of the pieces loose or absent, causing considerable FOD or tire damage potential;
- High - over 2 feet long and is broken into more than three pieces defined by one or more high severity cracks with high FOD potential.

REPAIR POLICIES:

- Low - No action;
- Medium - perform a partial depth patch;
- High - perform a partial depth patch.

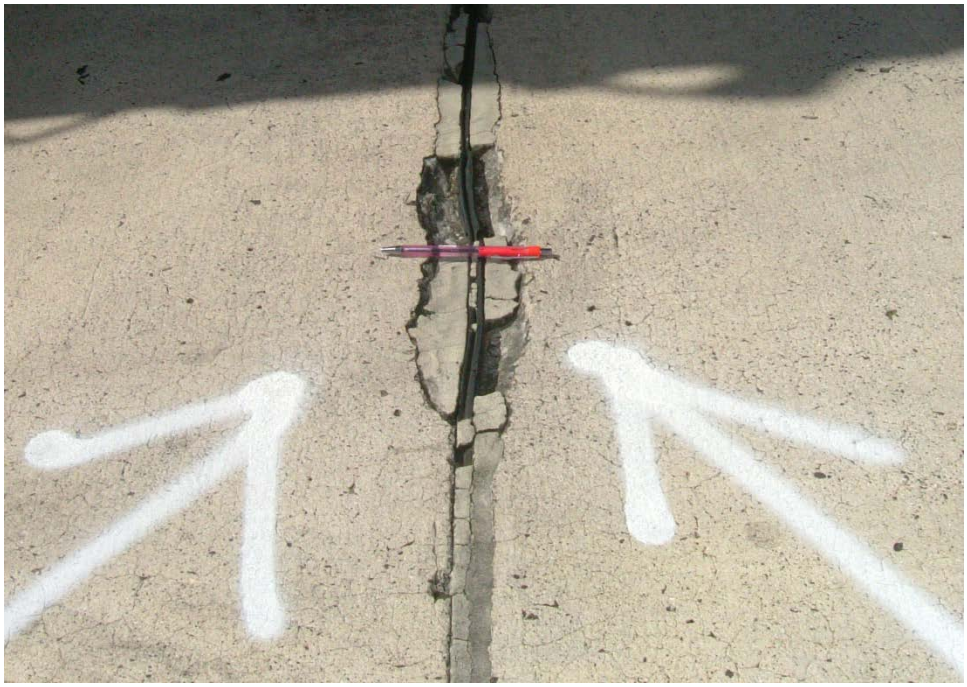


FIGURE 3.15: PCC JOINT SPALL

3.3.15 Corner Spalls (PCC)

Corner spalling is the raveling or breakdown of the slab within approximately two feet of the slab's corner. A corner spall differs from a corner break in that the spall angles downward to intersect the joint while the break extends vertically through the slab.

SEVERITIES:

- Low - either 1) the spall is broken into one or two pieces defined by low severity cracks with little or no FOD potential; or 2) the spall is defined by one medium severity crack with little or no FOD potential;
- Medium - 1) the spall is broken into two or more pieces defined by medium severity cracks, and a few small fragments may be absent or loose; 2) the spall is defined by one severe, fragmented crack that may be accompanied by a few hairline cracks or 3) the spall has deteriorated to the point where loose material is causing FOD potential;
- High - 1) the spall has broken into two or more pieces defined by high severity fragmented cracks, with loose or absent fragments; 2) pieces of the spall have been displaced to the extent that tire damage hazard exists, or 3) the spall has deteriorated to the point where loose material is causing high FOD potential.

REPAIR POLICIES:

- Low - No action;
- Medium - partial depth patch;
- High - partial depth patch.

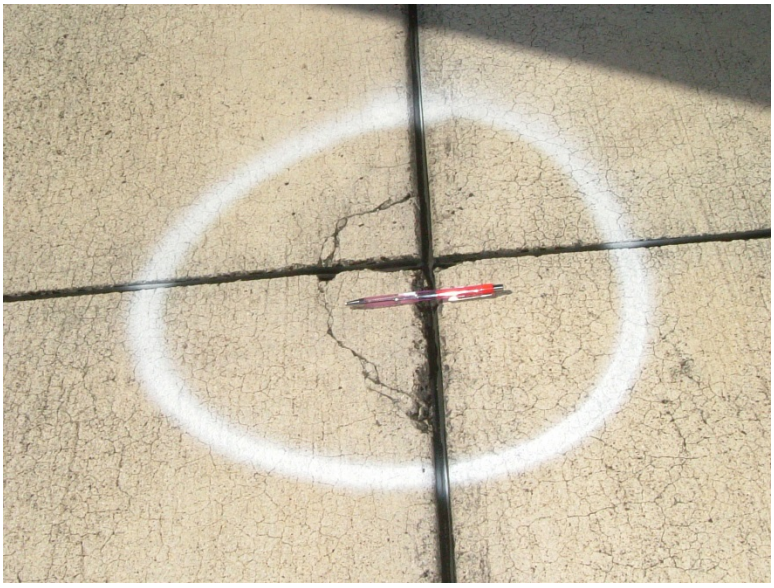


FIGURE 3.16: PCC CORNER SPALL

3.4 FIELD INSPECTION RESULTS

Kalaeloa Airport is comprised of 145 sections with 1,973 sample units. Five hundred and fifty-six (556) or roughly 28% of the 1,973 sample units were visually inspected in the field. Data from the inspected sample units were input into the MicroPAVER database and a resultant PCI for each section was computed. The PCI rating scale is shown in Table 3.2.

Pavement distresses found in more than 10% of the pavement sections at Kalaeloa Airport are shown in Table 3.3. The percentages shown in Table 3.3 are based on the type of pavement, i.e. 89 of the 133 asphalt pavement sections (67%) exhibits block cracking, and 10 of the 12 PCC pavement sections (83%) exhibits shrinkage crack.

DISTRESS	% OF SECTIONS 2015	% OF SECTIONS 2005
Alligator Cracking	11%	22%
Bleeding	14%	
Block Cracking	67%	
L&T Cracking	86%	75%
Patching	21%	24%
Weathering	89%	59%
Raveling	15%	
Swelling	20%	
Linear Cracks	42%	69%
Joint Seal Damage	100%	100%
Corner Break	17%	
Small Patch	67%	85%
Large Patch	67%	46%
Pop Outs		23%
Shrinkage	83%	77%
Scaling	58%	
Shattered Slab	17%	15%
Joint Spall		100%
Corner Spall	83%	92%

Note: Shading denotes PCC pavement sections

TABLE 3.3: KALAELOA AIRPORT 2015 DISTRESSES

3.4.1 Overall Results

The computed PCI for the sections at Kalaeloa Airport ranged from a low of 7 (AAC shoulder section) to a high of 100 (AAC apron section). The weighted average PCI for the entire airfield was 59, or "fair". There were 18 branches and 109 sections with an average PCI below the critical PCI.

The aprons (13 sections) had an average PCI of 64; the runways (71 sections) had an average PCI of 57; the taxiways (58 sections) had an average PCI of 57 and the shoulders (3 sections) had an average PCI of 16. Refer to Figure 3.17 for a chart showing the condition versus percent of pavement area, and Figure 3.18 for a map of the PCI rating for each section.

The weighted average PCI of 59 for Kalaeloa Airport is well below the weighted average PCI for small hub Hawaii Airports of 79. The rating at Kalaeloa can be attributed to the fact that the average age of the pavements surveyed was 28 years old and has received little to no maintenance since the last inspection.

A graphic depiction of the current pavement PCI can be found in Figure 3.18, and photos of the distresses found can be found in Appendix A.3.3.

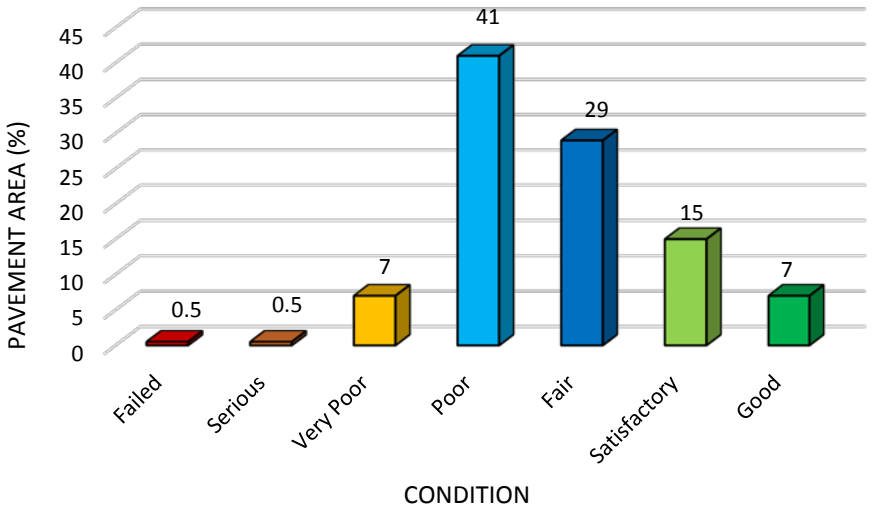


FIGURE 3.17: CONDITION OF PAVEMENT BY AREA

3.4.2 Runway 4R-22L

GENERAL CONDITION: Currently, Runway 4R receives the majority of the traffic at Kalaeloa. Typically, a runway is subdivided longitudinally, so that each runway is made up of three sections of even width. This allows the center section of the runway (the "keel" section) to be treated as an individual section. Although the keel section has a construction history consistent with the sections adjacent to it, heavy traffic usage along the keel section of the runway necessitates its separation. At Kalaeloa Airport, Runway

4R was divided into three (3) sections of even width and was further divided into seven (7) sections along its length based on construction history.

The area-weighted PCI of Runway 04R-22L is 59. The most common distresses found during this inspection were alligator cracking, block cracking, linear cracking and weathering for AC sections. Distresses for PCC sections included corner spall, joint spall, joint seal damage, and patching.

VARIANCE FROM 2005 FINDINGS: Runway 04R-22L has received no maintenance since 2004 and at that time only the keel received a mill and overlay. The weighted average PCI has dropped 22 points from 81 since the last survey.

3.4.3 Runway 11-29

GENERAL CONDITION: With a weighted average PCI of 62, Runway 11-29 can be considered to be in "fair" condition. The lowest PCI values are in the keel sections of the runway, with the lowest PCI of 35 being found in Section 080K. Typically, the keel sections of a runway have a PCI slightly lower than the sections on each side of them. The most common distresses found during this inspection were block cracking, longitudinal and transverse cracking, swelling, raveling and weathering for AC sections. The most common distresses for PCC sections include joint spall and joint seal damage.

VARIANCE FROM 2005 FINDINGS: Only a portion of Runway 11-29 received an overlay in 2000, therefore decreasing the weighted average PCI for the runway by 18 points from 80 since the last survey.

3.4.4 Runway 04L-22R and Taxiway A

GENERAL CONDITION: For the majority of their service life, Runway 4L and Taxiway A, comprised the 8,330 foot length of Runway 04L-22R. Due to this fact the pavement condition of Runway 4L and Taxiway A should be examined jointly. All sections are 28 years old, with PCIs from 38 to 50. The PCI for Runway 4L is 45, and for Taxiway A, 46. Most of the keel sections, as typically found in runways, are in worse condition than the left and right sections. The most common distresses found during the inspection of Runway 4L and Taxiway A were block cracking, longitudinal and transverse cracking and weathering.

VARIANCE FROM 2005 FINDINGS: The pavement condition index of Runway 04L-22R decreased by 13 points, and that of Taxiway A by 21 since the 2005 visual inspection. Runway 04L and Taxiway A have received no preventative maintenance since 1986, therefore all sections of Runway 04L and Taxiway A are below the critical PCI, with the worst being section R4L-010K and R4L-030K.

3.4.5 Parallel Taxiways B and C

GENERAL CONDITION: Taxiway B runs parallel to R4L, and Taxiway C runs parallel to Runway 11. They are divided into seven and fifteen sections respectively, based on construction history. The sections range in age from 14 to 50 years old, and in PCI from 43 to 83, with branch PCIs of 58 and 61.

VARIANCE FROM 2005 FINDINGS: The original sections 060 and 070 of Taxiway B were not included during the 2005 inspection, however, these sections were included during this update. Taxiway B has received no preventative maintenance since 1998, dropping the PCI by 13 points from 71 to 58. Several sections of Taxiway C received a mill and overlay in 2000 but no other maintenance since, and the weighted average PCI decreased by 22 points from 83 to 61. All sections of Taxiway B are below the critical PCI for taxiways of 65, while seven sections of Taxiway C are below the taxiway critical PCI.

3.4.6 Minor Taxiways

GENERAL CONDITION: Twenty-one (21) of the 58 taxiway pavement sections were connecting taxiways, with PCIs ranging from 36 to 95. Distresses include alligator cracking, block cracking, linear cracking and weathering. Distresses for PCC sections include corner spall, joint spall, joint seal damage, and patching.

VARIANCE FROM 2005 FINDINGS: Only three sections of Taxiway B4 received preventative maintenance in 2006, these three sections have an average PCI of 92. No other pavement sections have received preventative maintenance since the last inspection. All other pavement sections continue to deteriorate, the weighted average PCIs for all sections had decreased between 4 and 37 points since the 2005 inspection. Of the 58 sections, 15 sections are below the critical PCI

3.4.7 Aprons

GENERAL CONDITION: Thirteen (13) of the 145 airfield pavement sections were aprons, with an average PCI of 64. There are four (4) aprons, made up of PCC, AC and AAC sections. The apron sections range in age from 3 to 71 years old, with PCIs ranging from 20 to 100. Four of the thirteen sections were below the critical PCI for aprons on 65. The most common distresses found during this inspection were linear cracking, raveling and weathering for AC sections. Distresses for PCC sections include corner break, corner spall, linear cracking, shrinkage cracking, scaling, joint spall, joint seal damage, and patching.

VARIANCE FROM 2005 FINDINGS: The apron sections have been reconfigured since the 2005 inspection. A portion of the PCC pavement of A01-010 was reconstructed with AC during the construction of the T-Hangers in 2011 and renamed A01-060. In addition, a new T-hanger was constructed and A01-020 was removed from the inventory. Branches A03 and A04 were added to the inventory to reflect their current usage. An increase of 3 points in the PCI of Branch A01 can be attributed to the new AC section A01-060.

Branch A02 also increased in PCI by 2 points from 40 to 42. Branch A03 was reconstructed in 2006, and has the highest PCI value with a weighted average condition of 95. Branch A04 is the oldest apron pavement section and has the lowest PCI value with a weighted average condition of 31.

3.4.9 Shoulders

Three shoulder sections were defined and inspected as part of this project. All shoulder sections were 28 years old, and the PCI ranged from 7 to 44. The shoulder had an average weighted PCI of 16, having the lowest PCI by use. Block cracking, weathering, patching and medium to high severity raveling were the predominant distresses recorded.

VARIANCE FROM 2005 FINDINGS: The shoulder of Taxiway B was removed from the inventory.

3.5 CORING RESULTS

As stated in Chapter 1, a branch is divided into sections based on pavements of similar age and cross-section. However, as-built drawings do not always accurately depict what the field conditions are, or may leave out vital information altogether. During the initial implementation of the MicroPAVER system, pavement coring was used as a means to determine the existing state of a pavement and the depths and types of materials of which it is comprised. ***The information presented here is from the 2000 PMS report.***

A core sample was taken from each section, which had an original construction date of 1941 (Taxiway C - sections 010 through 050, 080, 090; all other taxiways - section 010). A total of 11 core samples were taken.

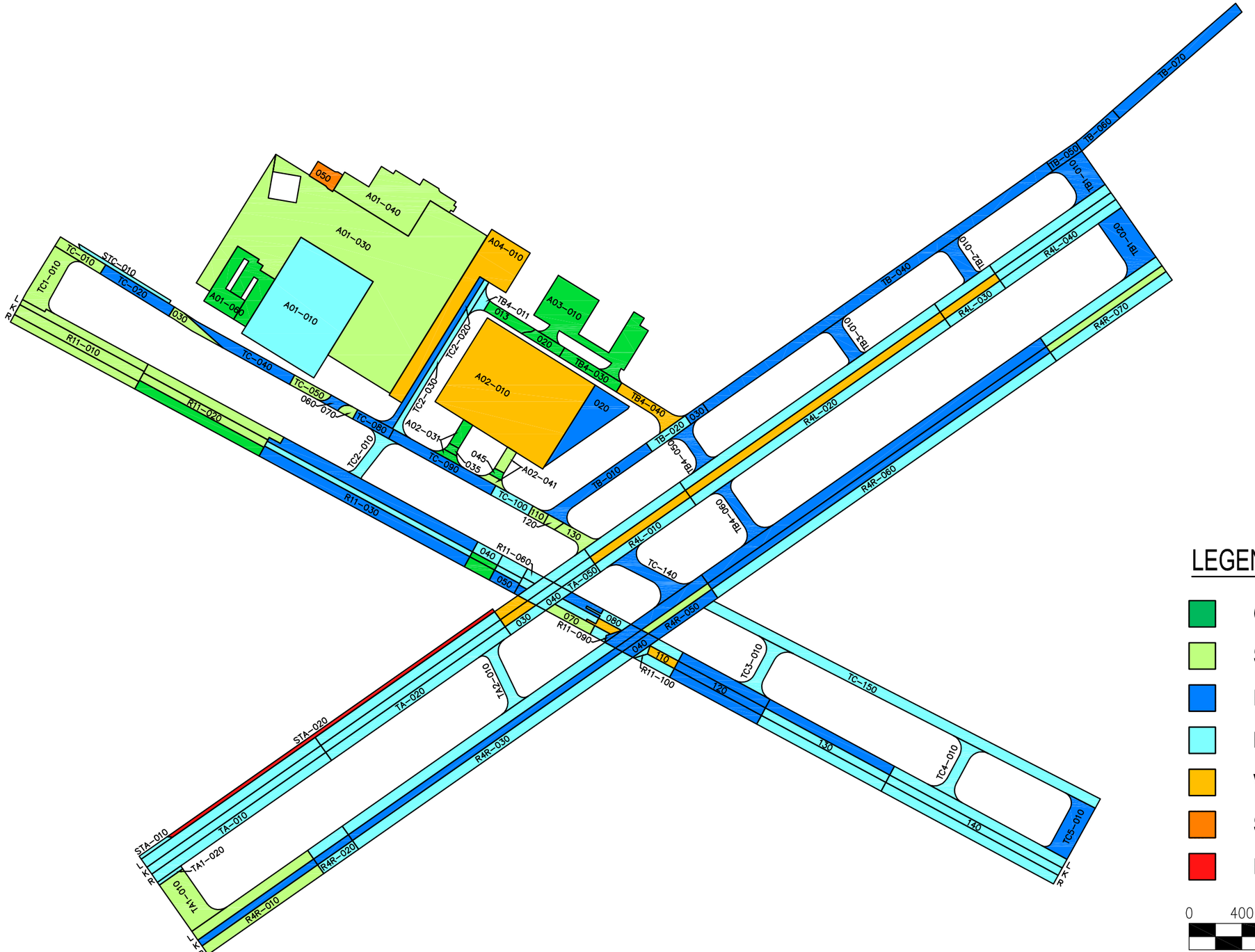
In 2000 an overlay was placed on some pavements in preparation for a Hawaii Super Prix racing event that was planned to be held at Kalaeloa Airport. However, no as-builts or historical documents were available to determine the overlay thickness, and whether milling occurred prior to placement of the overlay. The affected pavements for the Super Prix project included portions of both Runway 11-29 and Taxiway K. Cores analyzed indicated that a 2.5 inch overlay was applied following a 0.5 inch milling.

The plans for construction along Runway 4R and Taxiway A did not specify mill depth. The core analysis indicates a 2 inch mill prior to the 1985 overlay for the runway, and a 2 inch mill prior to the 1986 overlay, and a 1 inch milling in 1959 for the taxiway.

Additional core samples were taken at Runway 11-29, Section 110L and within the aprons to verify pavement thickness due to differing field conditions. Twelve core samples were drilled and analyzed. A schedule of the core results can be found in Appendix A.3.5.

3.6 SUMMARY

The pavement of Kalaeloa Airport was inspected in December 2014 as a part of a continuing inspection program integral to the Hawaii Department of Transportation Airports Division's Pavement Management Program. Overall, the pavement is in "fair" condition with an area-weighted PCI of 59. By use, the area-weighted PCI is 57 for the runways, 57 for the taxiways, 64 for the aprons, and 16 for the shoulders. During the 2005 inspection 30 of the pavement sections at this airfield were below the critical PCI. Very little pavement maintenance has occurred since the last visual inspection, resulting in an increase in the number of critical sections to 109. The majority of the critical sections require replacement if they are to remain in use.



BOWERS + KUBOTA CONSULTING

• Project Management • Planning • Architectural/Engineering Design • Construction Management

PAVEMENT MANAGEMENT SYSTEM UPDATE
KALAELOA AIRPORT
2014 PCI

DATE:
DEC 2014

FIGURE NO.:
3.18

CHAPTER 4

MAINTENANCE AND REHABILITATION PLANNING

4.1 OVERVIEW

The MicroPAVER Maintenance and Repair (M&R) Plan modulus provides a tool for analyzing alternative pavement maintenance and repair activities. The M&R plan uses basic inventory data, inspection information, maintenance policies, maintenance costs, and predictions about future pavement conditions to tailor a plan specific to local pavement maintenance practices.

Future condition is predicted based on curves generated using existing condition data for pavements of similar construction - these curves are known as "family curves." After future condition is predicted, a maintenance plan is implemented to maintain pavement at the highest possible condition level using available funding.

4.2 FAMILY CURVE METHOD

Many techniques are available for developing pavement prediction models, some of these techniques include the use of straight-line extrapolation, regression, constrained least squared and S-shaped curves. For an in-depth description of each, refer to "Pavement Management for Airports, Roads and Parking Lots" by M.Y. Shahin, 2002.

An extensive research program conducted at the U.S. Army Construction Engineering Research Laboratory (CERL) resulted in the development of what is known as the “Family Curve Method.” The method was designed for use with MicroPAVER to predict PCI with respect to time by:

- Defining the pavement family;
- Filtering the data;
- Conducting outlier analysis;
- Developing the family model;
- Predicting pavement section condition.

4.2.1 Define the Pavement Family

A pavement family is defined as a group of pavement sections with similar deterioration characteristics. The MicroPAVER software allows the user to define a family based on several screening factors to include rank, surface type, or use. The user may define as many families as required to obtain accurate prediction models, however data availability may impose a limitation on appropriate family definition.

Under the Hawaii SPMS, families were originally developed by grouping pavements by use and surface type for each airport. In some cases, a shortage of points resulted in incomplete curves, with the worst case resulting in a section with only two data points. Kalaeloa Airport had enough data points to generate a flexible family curve; however, the data for Kalaeloa, Hilo, Kona, Lihue, and Lanai airports were combined to generate the most accurate rigid pavement family curves.

4.2.2 Filter the data

This step allows the user to filter out inconsistent data points. When the same section is listed more than once, sequential condition levels of the same section are compared. If the PCI increases with age by more than 20 points, the point is moved to the error file. If a pavement section is listed more than once and the PCIs are the same, only one pavement section data point is retained. A set of boundaries are defined by a maximum and minimum envelope expected over the life of the pavements. Points falling outside the boundaries are moved to the errors file.

4.2.3 Conduct Outlier Analysis

Further examination of the data for statistical removal of extreme points is performed in the outlier analysis. MicroPAVER allows the user to set a confidence interval (usually 95%) to be used to identify outliers. Sections that are detected as outliers based on the confidence interval set are identified and removed to the outlier error file.

4.2.4 Develop the Family Model

After the data has been processed through the filtering and outlier analysis, a curve is developed. This best fit curve for the family analysis extends only as far as the available data points. To predict future pavement condition, the curve is extrapolated by extending a tangent of the same slope as that of the curve for the last few years.

The data from Kalaeloa Airport was used to produce six (6) family curves:

1. PCC: All PCC pavement sections (Combined PCC data from Hilo, Kona, Lihue, Kalaeloa and Lanai)
2. MIN AC RWTW: All AC runways and taxiways
3. MIN AC AP: All AC aprons
4. MIN AAC RWTW: All AAC runways and taxiways
5. MIN AAC AP: All AAC aprons
6. MIN SHLD: All shoulders

As more data points are accumulated through future inspections, it may be beneficial to generate family curves for each individual airport.

It is assumed that the deterioration of all pavement sections in a family is similar and is a function of only their current condition, regardless of age. Figure 4.1 (Flexible Pavement) and Figure 4.2 (Rigid Pavement) shows how a family curve would be used to determine the future condition of a specific pavement section within an associated family.

Using the PCI/age data for all pavements included in the family, a family prediction model curve is drawn. A modified curve is drawn through the latest PCI/age point for the pavement section being investigated, parallel to the assigned family prediction model curve. The predicted PCI can then be determined at the desired future age. Once family curves have been developed and assigned, they can be used to implement a maintenance and rehabilitation plan tailored to the user's specific needs.

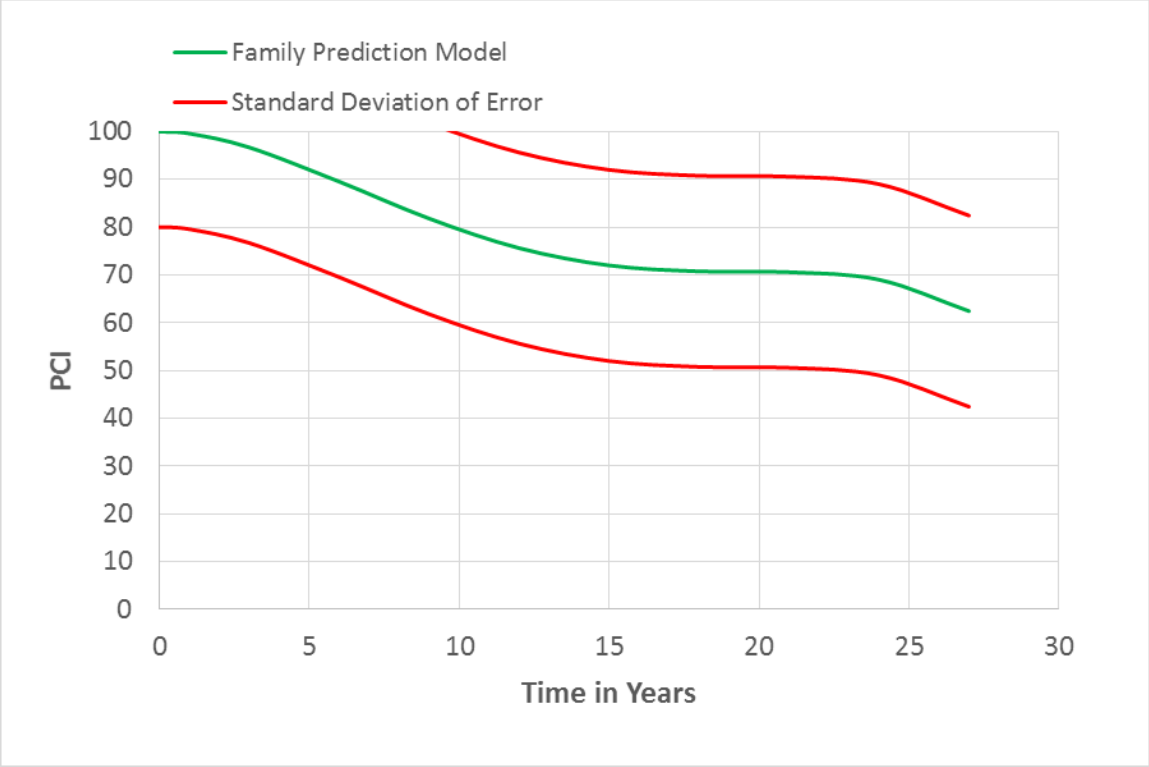


FIGURE 4.1: TYPICAL FAMILY CURVE (FLEXIBLE PAVEMENT)

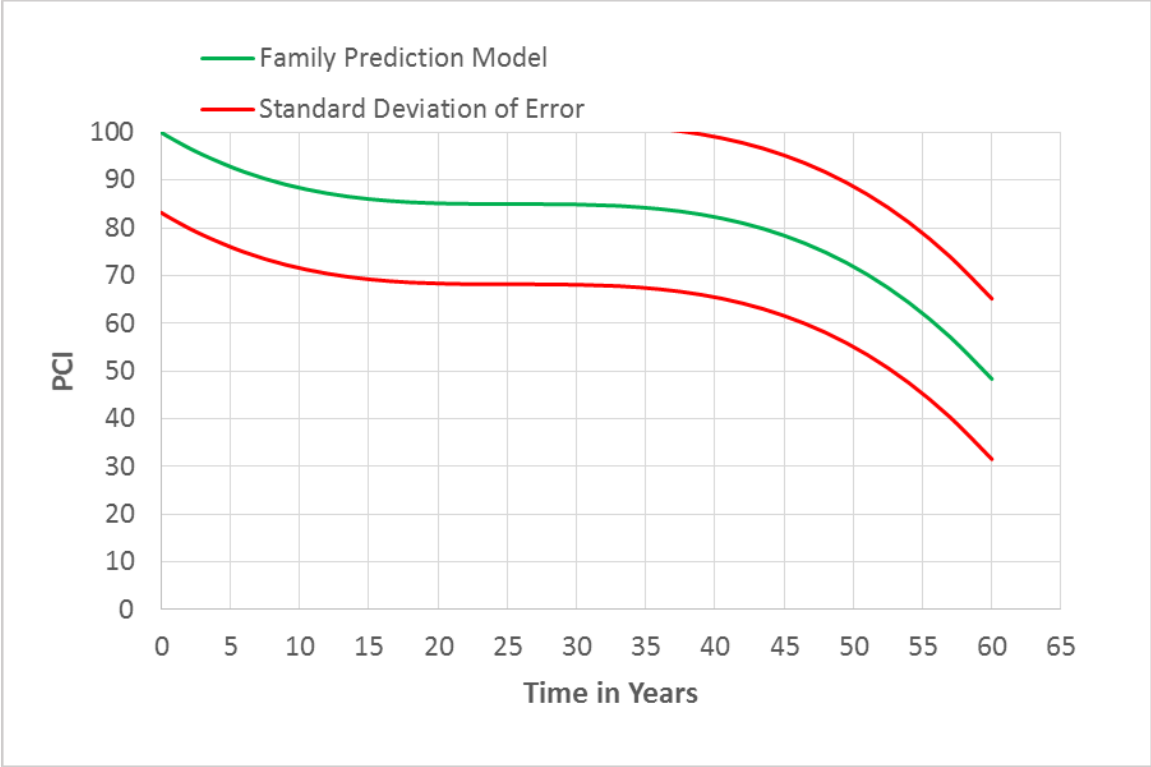


FIGURE 4.2: TYPICAL FAMILY CURVE (RIGID PAVEMENT)

4.3 PRIORITIZATION OF PAVEMENT PROJECTS

To optimize a constrained budget, MicroPAVER first assigns priorities based on M&R categories, in the following order:

1. Localized Safety
2. Localized Preventive
3. Global Preventive
4. Major above critical PCI
5. Major below critical PCI

Within each M&R category, a priority factor is assigned based on pavement use and rank. For pavement use, the breakdown is as follows:

1. High Priority: Runways
2. Medium Priority: Taxiways and aprons
3. Low Priority: Shoulders

Pavement rank (primary, secondary and tertiary) is determined by the airport engineer and is shown as part of the section condition report (Appendix A.3.2). A priority matrix (Table 4.1) is built to determine the order that maintenance will be performed. Within each priority level, there is likely to be multiple sections requiring maintenance. When this occurs, the section PCI is used to schedule maintenance, with those sections closest

to the critical PCI getting a higher priority. An exception to this general rule is when a pavement requires localized safety maintenance, in that situation pavements with the lowest PCI are treated first.

BRANCH USE PRIORITY	SECTION PRIORITY		
	HIGH	MEDIUM	LOW
HIGH	1	3	6
MEDIUM	2	5	8
LOW	4	7	9

TABLE 4.1: PRIORITY MATRIX

4.4 CRITICAL PCI VALUES

In MicroPAVER, the critical PCI is defined as *"the PCI value at which the rate of PCI loss increases with time, or the cost of applying localized preventive maintenance increases significantly."* The critical PCI was determined by the Hawaii DOTA based on branch use, with runways having a critical PCI of 70, taxiways and aprons a critical PCI of 65, and shoulders a critical PCI of 55.

The critical PCI is used to determine pavement work requirements based on whether or not the pavement PCI is above or below the critical PCI limit, and whether or not the distresses observed for each section are caused by structural deficiencies. Pavements thus fall into one of three categories, with the following results:

- The section is above the critical PCI with no structural distresses:
    1. Apply localized preventive maintenance. For subsequent years, if the PCI is predictable, but specific distress knowledge is unavailable, the cost of localized preventive maintenance is estimated;
    2. Apply global preventive M&R provided the specified intervals are not exceeded, with the section PCI increasing by the specified increment.
- The section is above the critical PCI with structural distresses:
    1. Determine the cost for major M&R based on the PCI versus unit cost relationship established by the user;
    2. Verify funding availability based on budget;
    3. If funds are available, apply major M&R and reset the PCI to 100. If funds are not available, treat the section as if it has no structural distresses for the current year, and verify funding availability for the following years.

- The section is below the critical PCI:
    1. Determine the cost for major M&R based on the PCI versus unit cost relationship established by the user;
    2. Verify funding availability based on budget;
    3. If funds are available, apply major M&R and reset the PCI to 100. If funds are not available, apply localized safety (stop-gap) maintenance policy for the current year and verify funding availability for the following years.

4.5 MAINTENANCE POLICIES

There are four (4) basic maintenance policies:

- Localized Safety (Stop Gap)
- Preventive Maintenance
- Global Maintenance
- Major M&R

MicroPAVER has default maintenance policies that may be used, or the policies may be tailored based on local practices. After maintenance policies have been tailored to local practices (see Appendices A.4.1 and A.4.2), unit cost data is input for each activity on a unit cost basis to be used by MicroPAVER in its M&R activities analysis.

4.5.1 Localized Safety (Stop-gap) and Preventive Maintenance Policies

Localized maintenance policies are meant to identify ongoing, daily maintenance of small sections of pavement. The safety (stop-gap) plan addresses distresses that would affect safety if left un-repaired and is applied to pavements below the critical PCI. The preventive maintenance policy is aimed at slowing the rate of deterioration through consistent maintenance of existing pavement and is applied to pavements above the critical PCI.

4.5.2 Global Maintenance Policy

A global maintenance policy establishes a schedule of maintenance activities applied to an entire section at pre-determined application intervals. An example of a global policy would be to apply a thin AC overlay to an entire section at 10-year intervals.

4.5.3 Major M&R Policy

M&R projects are scheduled by MicroPAVER to upgrade pavements below the critical PCI, or to improve pavements to a level set by the MicroPAVER user. Major M&R scenarios are generated on a cost versus existing PCI basis (see Table 4.2). Although no specific repair is recommended, the costs used for these projections can be adjusted to reflect local repair practices. As an example, if local practice dictates taking “no action” to a section of pavement with a PCI above 70, the three PCI categories (70-79, 80-89, and 90-100) would have their associated costs reduced to zero. In addition, if local policy

dictates that all pavements below the critical PCI be milled and replaced, historical data on local costs are inserted for those categories.

4.6 UNIT COSTS

MicroPAVER handles immediate (within one year) maintenance differently than future maintenance. Costs for immediate maintenance are based on unit costs for specific treatment methods, while future maintenance costs are based on the pavement PCI. Unit costs for Kalaeloa Airport were based on unit cost recommendations from Applied Pavement Technology (APTech), the DOTA pavement consultant for the Honolulu and Kahului Airport PMS reports. APTech's cost recommendations can be found in Appendix A.4.3.

Future maintenance costs based on the pavement PCI are calculated by multiplying the appropriate cost by the section area. The unit cost per PCI range is:

PCI FACTOR	COST CATEGORY (SF)						
	AC PAVEMENT			PCC PAVEMENT			Shoulder and Blastpad
	M&R Airfields	Local Preventative	Stop Gap M&R	M&R Airfields	Local Preventative	Stop Gap M&R	
0-9	$39.27	$1.18	$0.23	$72.15	$7.16	$1.58	$7.43
10-19	$39.27	$0.95	$0.16	$72.15	$5.97	$1.26	$7.43
20-29	$39.27	$0.63	$0.16	$72.15	$4.97	$0.78	$7.43
30-39	$39.27	$0.39	$0.07	$72.15	$4.14	$0.49	$4.96
40-49	$8.13	$0.16	$0.03	$3.45	$3.45	$0.30	$4.96
50-59	$8.13	$0.13	$0.02	$2.90	$2.90	$0.20	$4.96
60-69	$8.13	$0.09	$0.02	$2.30	$2.30	$0.13	$1.46
70-79	$7.40	$0.06	$0.00	$1.75	$1.75	$0.00	$1.46
80-89	$7.40	$0.02	$0.00	$1.20	$1.20	$0.00	$0.00
90-100	$7.40	$0.00	$0.00	$0.65	$0.65	$0.00	$0.00

TABLE 4.2: TYPICAL M&R COSTS BY CONDITION

4.7 BUDGET SCENARIOS

There are an infinite variety of budget scenarios which can be developed for any given pavement network. Variables affecting the budget planning process include (but are not limited to):

- Yearly budget amount - this can be an unlimited or set amount;
- Minimum PCI acceptable - pavements are assigned primary, secondary, or tertiary status, and a minimum PCI is set for each pavement section by the user;
- Type of maintenance plans included - a budget can be analyzed to include any combination of the M&R options;
- Cost data - cost per work type, or cost per PCI range, is tailored by the user for local conditions;
- Forecasting period - budget analysis period is set by the user.

The Hawaii DOTA requested that four funding alternatives be analyzed:

- **No Funding** - This alternative explores the "do nothing", worst case scenario. What would happen if no money was spent at all?
- **Minimum Condition** - The Minimum Condition alternative sets the lowest pavement condition (PCI) that is allowed for each pavement rank (**P** - Primary, **S** - Secondary, **T** - Tertiary, etc.). How much would it cost to achieve and maintain this target PCI?
- **State Budget** - This alternative uses the "Critical PCI Method" to optimize M&R activity against a specified budget provided by the State. How can the current budget be optimized, and what condition will the pavement be in?
- **Unlimited Funding** - This alternative explores the "do everything", best case scenario. What would the pavement network look like if money was no object?

Section 7.2 of Chapter 7, "Development of Capital Improvement Alternatives" analyzes these alternatives in more detail.

4.8 SUMMARY

Maintenance and rehabilitation planning is based on the theory that similar pavements will age in a similar manner. To predict the rate of deterioration, family curves are developed and used to predict future condition based on current PCI and age. Pavements within a network are prioritized based on rank and use, and once a priority is established and unit costs set, budget alternatives can be developed and compared. These plans are presented in Chapter 7.

CHAPTER 5

AIR TRAFFIC ANALYSIS

5.1 INTRODUCTION

Air traffic operations are an important part of the analysis and design of airport pavement facilities. It can provide valuable insight into the current performance of the existing pavement, as well as aid in the development of new or rehabilitative structural pavement design. In addition, air traffic is critical in the determination of structural remaining life and comparison of the aircraft classification number (ACN) versus the pavement classification number (PCN) which are discussed in detail in Chapter 6.

This chapter describes the development of the traffic values for use in the network-level evaluation of the airfield pavements at Kalaeloa Airport. The traffic values presented here are developed for the sole purpose of evaluating the pavement sections for inclusion into the Capital Improvement Program (CIP) and should not be used for airport master planning or project-level pavement design.

5.2 FLEET MIX AND TRAFFIC VOLUMES

5.2.1 Fleet Mix

The design and rehabilitation needs of an airport's pavement are based not only on the existing condition of the pavement, but also its projected traffic. In order to best design pavements that will withstand repeated traffic loadings, current and projected traffic volumes must be determined to develop rehabilitation designs and strategies.

The aircraft traffic information for Kalaeloa Airport was provided by the Hawaii DOTA. The documents provided for this project were:

- Cumulative Number of Landings, prepared by the DOTA (Kalaeloa ATCT);
- FAA Terminal Area Forecast (TAF) reports;
- Air Traffic Activity System (ATADS) Aircraft Operations see Appendix A.5.3;
- Correspondence with DOTA staff.

These documents were used to identify the fleet mix and the number of movements of each aircraft type currently using the airport, as well as the projected growth rate for the 20-year analysis period.

The fleet mix used for pavement analysis at Kalaeloa Airport is summarized in Table 5.1, the complete listing can also be found in Appendix A.5.1. The fleet mix was established based on information provided by the Kalaeloa ATCT Manager, the report identified

aircraft types operating at the airport for June 2016. This data was multiplied by a factor of twelve to determine the estimated counts for one year. This report provided movement counts for all military and non-military aircrafts. Helicopter movements were listed but not included during the structural analysis since these aircraft are light and operate only in limited locations.

Another report (ATADS) lists the total traffic volumes, however, the counts are only broken down into four categories: air carrier, air taxi, general aviation, and military with no listing of specific aircraft types provided.

Table 5.1 also lists the maximum landing weight, maximum take-off weight and gear configuration for each aircraft in the fleet mix. The maximum take-off weight for an aircraft was obtained from the FAA's COMFAA computer program. This software contains limited aircraft and does not identify maximum landing weights. The maximum landing weights, and the maximum take-off weights for aircraft not listed in the COMFAA program were obtained from FAA documents, manufacturer's specifications, and other appropriate documents.

CLASS	AIRCRAFT TYPE	TOTAL TRAFFIC	DEPARTURES	TOTAL BY CLASS	GEAR TYPE	WIDE BODY	MAX LANDING WEIGHT (lbs)	MAX TAKEOFF WEIGHT (lbs)
4	C-130	8,400	4,200	12,276	2S	No	139,500	155,000
	C-135	120	60		2D	No	322,500	322,500
	B-707	24	12		2D	No	257,000	257,000
	C-17	3,600	1,800		2T	No	585,000	585,000
6	C-5	132	66	132	C5	No	769,000	840,000

TABLE 5.1: KALAELOA AIRPORT 2016 FLEET MIX
(Complete table can be found in Appendix A.5.1)

5.2.2 20-Year Movements

The FAA pavement design procedure, described in FAA Advisory Circular 150/5320-6E, "*Airport Pavement Design and Evaluation,"* requires that pavement designs be developed using a 20-year analysis period. The average annual growth rate for the 20-year analysis period for all aircraft operations was found to be 0.19 percent, based on projections from the Terminal Area Forecast. The annual 0.19 percent growth rate was applied to the movement data in Table 5.1 and the resulting 20-year average annual movements are presented, by aircraft type, in Table 5.2.

AIRCRAFT TYPE	FY 2014 MOVEMENTS	2034 20-YEAR AVERAGE ANNUAL MOVEMENTS
C-130	8,400	8,725
C-17	3,600	3,739
C-5	132	137
C-135	120	125

TABLE 5.2: 20-YEAR AVERAGE ANNUAL MOVEMENTS SAMPLE TABLE
(Complete table can be found in Appendix A.5.2)

5.3 TRAFFIC FLOW ASSUMPTIONS

To develop appropriate rehabilitation designs, it is necessary to know what traffic uses each facility has. To estimate traffic levels for each facility, assumptions were made about runway use and aircraft taxi patterns. These assumptions were developed based on discussions with airport personnel and observations made during the visual inspections. Once these theoretical traffic flows were finalized, they were provided to airport staff for review and incorporated into the final traffic flow assumptions listed below:

- Runway 4R-22L
  - Used by single engine aircraft approximately 35 percent of the time
  - Used by twin engine aircraft approximately 83 percent of the time
  - Used by Air Taxi aircraft approximately 50 percent of the time
  - Used by C-130 aircraft approximately 98 percent of the time
  - Used 100 percent of the time by C-17, C-5, C-135, B-737, C-26, B-707, and G5 aircraft
- Runway 4L-22R
  - Used by single engine aircraft approximately 60 percent of the time
  - Used by twin engine aircraft approximately 15 percent of the time
  - Used by Air Taxi aircraft approximately 50 percent of the time
- Runway 11-29
  - Used by single engine aircraft approximately 5 percent of the time
  - Used by twin engine aircraft approximately 2 percent of the time
  - Used by C-130 aircraft approximately 2 percent of the time

These assumptions were utilized to allocate traffic for each individual pavement section (area).

5.4 AIR TRAFFIC UTILIZATION

Determination of the critical aircraft is required to calculate the structural remaining life (SRL), allowable pavement loads, PCN, and to identify feasible rehabilitation alternatives for the airside pavements at Kalaeloa Airport. The critical aircraft is the aircraft which

can potentially cause the most damage to the pavement. The procedure for selecting the "critical aircraft" was substantially revised in the FAA AC 150/5335-5C "*Standardized Method of Reporting Airport pavement Strength – PCN*".

The previous approach described in AC 150/5335-5B, required the determination of the critical aircraft's total equivalent movements. The AC specified the critical aircraft as the aircraft in the fleet mix that requires the thickest pavement section. The pavement thickness for each aircraft is evaluated using the pavement thickness design charts contained in AC 150/5320-6D "*Airport Pavement Design and Evaluation*". The remaining aircrafts and their associated movements were converted to the equivalent movements of the critical aircraft, the total equivalent movements were used for all subsequent analysis of the structural integrity of the pavement.

The new approach outlined in AC 150/5335-5C utilizes COMFAA to evaluate all aircrafts, as opposed to a singular critical aircraft. Once evaluated, COMFAA lists the six most damaging aircrafts or critical aircrafts. The procedure for computing equivalent movements has been replaced with a procedure based on the cumulative damage factor (CDF). The CDF is the amount of the structural fatigue life a pavement has experienced and is expressed as a ratio of applied load repetitions to allowable load repetitions until failure.

5.5 SUMMARY

Air traffic operations are an essential component in the structural evaluation and design of airport pavements. The traffic information provided is used to calculate the pavement's structural life, allowable pavement loads, PCNs, and developing CIP rehabilitation strategies.

CHAPTER 6

NON-DESTRUCTIVE DEFLECTION TESTING ANALYSIS

6.1 OVERVIEW

Non-destructive testing (NDT) analysis is a testing method that is capable of quickly gathering data at several locations while keeping a runway, taxiway or apron operational. Without NDT, structural data must be obtained from cores, borings, or excavation pits which can be very disruptive to airport operations. The equipment used in NDT testing measures pavement surface response (i.e. deflections) using an applied dynamic load which simulates a moving wheel and the deflections obtained provide inputs for the structural analysis of the pavement section.

An NDT program uses a heavy-weight model falling weight deflectometer (HWD) to produce deflection testing data. The deflections are then used in conjunction with pavement cross section information and subgrade characteristics obtained from historical records and geotechnical results and then backcalculated to derive pavement responses due to load. This backcalculated data is subsequently used for further pavement analysis.

Although NDT has many advantages it must be noted that it does have some limitations. NDT is a very good methodology for assessing a pavements structural condition; however, the functional condition of a pavement (e.g. visual condition - PCI, smoothness, and friction characteristics) must also be evaluated and are obtained through visual surveys as discussed in earlier chapters.

The differentiation between structural and functional performance is important in developing requirements for pavement rehabilitation. For example, a pavement can have a low PCI due to environmental distress, yet the pavement has sufficient thickness to accommodate structural loading. The converse may also be true, whereby a pavement may be in good condition, but has a low structural life due to proposed heavier aircraft loading.

Therefore, the results of an NDT testing should not be used without also examining a pavements functional condition. Once the NDT-based structural and functional conditions are both known, it gives a complete picture for pavement analysis.

6.2 NON-DESTRUCTIVE DEFLECTION TESTING

Pavement Technical Solutions (PTS) conducted the nondestructive deflection testing at Kalaeloa Airport as part of the 2016 Statewide Pavement Management System report. This testing was conducted during April of 2016 and performed on all runway areas. The data obtained from the testing allow the backcalculation of the material properties of the pavement and subgrade.

Description and Purpose

The HWD is a load impulse device which imparts an impulse load to a pavement with a free falling weight that impacts a set of rubber springs. The magnitude of the dynamic load is dependent upon the mass of the weight and the height from which the weight is dropped. This simulates the magnitude and duration of the dynamic loads that moving aircraft wheels apply to a pavement. The results of the HWD testing are used to backcalculate the properties of layers in the pavement system, as well as to provide a useful means of characterizing existing conditions for the purpose of both new and rehabilitation design.

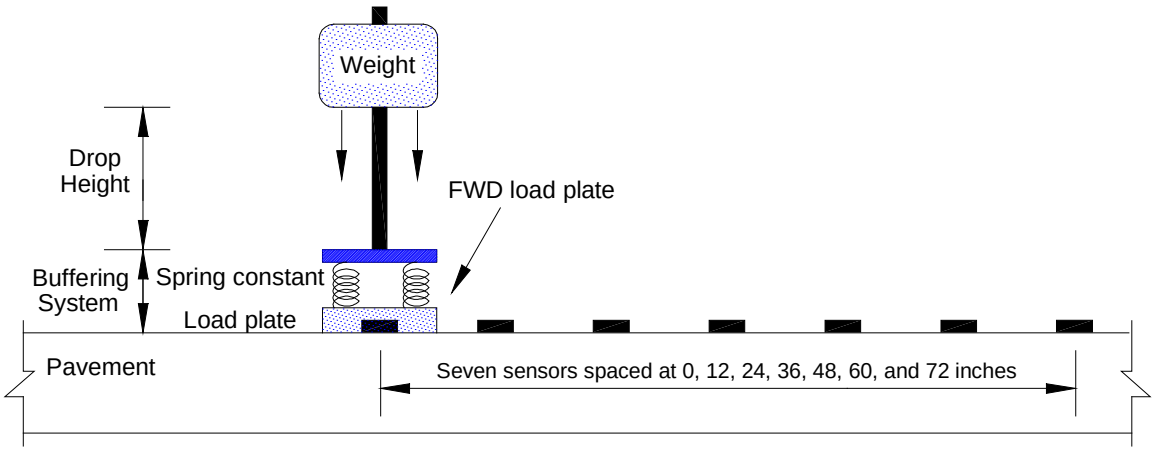


FIGURE 6.1: HWD TESTING EQUIPMENT SCHEMATIC

The HWD was configured with sensor spacings of 0, 12, 24, 36, 48, 60 and 72 inches. A one-drop testing sequence at approximately 20,000 lbf was targeted for all AC pavements throughout the airport. A one-drop test sequence of 20,000 lbf was also applied at the midslab of PCC pavements. Load levels were set to provide reasonable deflection values based on impulse sampling before the start of testing for each section. As much as possible, tests were conducted at non-distressed areas away from joints and cracks.

Deflections were also measured across PCC pavement discontinuities, such as joints or cracks, to estimate deflection load transfer efficiency (LTE). LTE measures the ability of the pavement structure to transfer loads from one side of a joint or crack to the adjacent pavement; low load transfer can mean poor support and/or high movements in response to loads. Low load transfer is likely to contribute to excessive movements and spalling in PCC pavements.

Testing Pattern

In order to provide a meaningful characterization of pavement properties for analysis sufficient data must be collected. A testing pattern was established at Kalaeloa Airport

which would provide enough data to adequately represent the facility's entire length and width. Table 6.1 presents the testing pattern used at Kalaeloa Airport.
On Runway 4R-22L, testing was conducted in six lanes and were generally performed in the keel section and toward each edge. The keel section was tested at offsets of approximately 10 feet on both sides of the centerline staggered every 100 feet. In addition, tests were conducted at approximately 35 and 50 feet from centerline on each side of the centerline with intervals of tests staggered every 200 and 400 feet.

On Runway 11-29, testing was also conducted in six lanes and were generally performed in the keel section and toward each edge. The keel section was tested at offsets of approximately 10 feet on both sides of the centerline staggered every 100 feet. In addition, tests were conducted at approximately 35 and 50 feet from centerline on each side of the centerline with intervals of tests staggered every 200 and 400.

On Runway 4L-22R, testing was conducted in six lanes and were generally performed in the keel section and toward each edge. The keel section was tested at offsets of approximately 10 feet on both sides of the centerline staggered every 100 feet. In addition, tests were conducted at approximately 35 and 50 feet from centerline on each side of the centerline with intervals of tests staggered every 200 and 400 feet.

FEATURE	LANE	TESTING PATTERN	RANGE	FREQUENCY
Runway 04L-22R	1	10 ft right	0 to 4,300 ft	100 ft intervals
	2	10 ft left	50 to 4,250 ft	100 ft intervals
	3	35 ft right	50 to 4,250 ft	200 ft intervals
	4	35 ft left	100 to 4,300 ft	200 ft intervals
	5	50 ft right	0 to 4,350 ft	400 ft intervals
	6	50 ft left	0 to 4,350 ft	400 ft intervals
Runway 04R-22L	1	10 ft right	0 to 8,085 ft	100 ft intervals
	2	10 ft left	50 to 8,050 ft	100 ft intervals
	3	35 ft right	50 to 8,050 ft	200 ft intervals
	4	35 ft left	100 to 8,074 ft	200 ft intervals
	5	50 ft right	0 to 8,000 ft	400 ft intervals
	6	50 ft left	0 to 8,000 ft	400 ft intervals

TABLE 6.1: HWD TESTING PATTERN FOR NETWORK-LEVEL DEFLECTION TESTING - SAMPLE TABLE (Complete table can be found in Appendix A.6.1)

6.3 BACKCALCULATION OF MATERIAL PROPERTIES

The pavement sections at Kalaeloa Airport mainly consist of AC pavements (often with one or more AC overlays) over a granular base course, with the exception of eleven

sections comprised of PCC pavement over a granular base. The deflection data provided by PTS was analyzed by the evaluation software BAKFAA, as part of the 2016 Statewide Pavement Management System report. The BAKFAA software was developed by the FAA to analyze deflection data collected with a HWD and estimates the pavement layer strength using the principles of layered elastic theory.

Once the deflection data was formatted, the deflection data at each test point was entered into the BAKFAA software, along with the layer thickness for the pavement section in which the test point was located. BAKFAA uses an iterative process to calculate the strength of each pavement layers at the test location being analyzed. During this iterative process, the software "backcalculates", or estimates, the elastic modulus of each pavement layer and then compares the software-predicted deflection profile to the field-measured deflection profile. The strength of the layers is varied until the two deflection profiles match.

Once the deflection profiles match, the software assigns the strength it calculated to each identified pavement layer. The layer strengths calculated are presented in terms of a dynamic elastic modulus value. The modulus values for the pavement sections which were tested in 2015 are presented in Table 6.2. The values shown are the mean values calculated from all tests in the section, less one standard deviation which is the value required for use in the FAA pavement description procedure.

BRANCH	SECTION	SUBGRADE M_R (ksi)	SUBGRADE CBR (%)
Runway 04L-22R (R4L)	010K	50	33
	010L	50	33
	010R	50	33
	020K	50	33
	020L	23.0	15
	020R	13.1	9
	030K	15.4	10
	030L	29.6	20

TABLE 6.2: MATERIAL PROPERTIES ESTIMATED FROM THE NONDESTRUCTIVE DEFLECTION TESTING FOR PAVEMENT SECTIONS AT KALAELOA AIRPORT - SAMPLE TABLE (Complete table can be found in Appendix A.6.2)

6.4 ACN/PCN

The ACN/PCN is a system for reporting the airfield pavement bearing strength. In this system the load bearing strength of airside pavements, pavement testing and performance data are analyzed in accordance with the International Civil Aviation Organization (ICAO) as outlined in the Doc. 9157-AN/901, Part 3, *Aerodrome Design Manual* and the FAA Advisory Circular AC 150/5335-5C titled "*Standardized Method of Reporting*

Airport Pavement Strength - PCN." The definitions of aircraft classification number (ACN) and pavement classification number (PCN) as presented in AC 150/5335-5C are as follows:

ACN: A number that expresses the relative structural effect of an aircraft on different pavement types for specified standard subgrade strengths in terms of a standard single wheel load. The ACN number is calculated using an aircraft's characteristic.

PCN: A number that expresses the relative load carrying capacity of a pavement in terms of a standard single wheel load.

Aircraft Classification Number

The ACN represents the relative structural impact of a particular aircraft on different pavement types for specified standard subgrade strengths. This is accomplished by expressing the required pavement thickness for an individual aircraft in terms of the equivalent single wheel load that would be needed to produce that same pavement thickness (see Figure 6.2). The magnitude of the equivalent single wheel load (expressed in Mg) multiplied by two is the ACN. Higher ACN values indicate the aircraft would have a more severe effect on a pavement, whereas lower values indicate a less severe effect. However, granular subgrade soils with higher CBRs and thus stronger support conditions, will produce a lower ACN than those with weaker support conditions. ACNs have a minimum value of 0 with no upper limit.

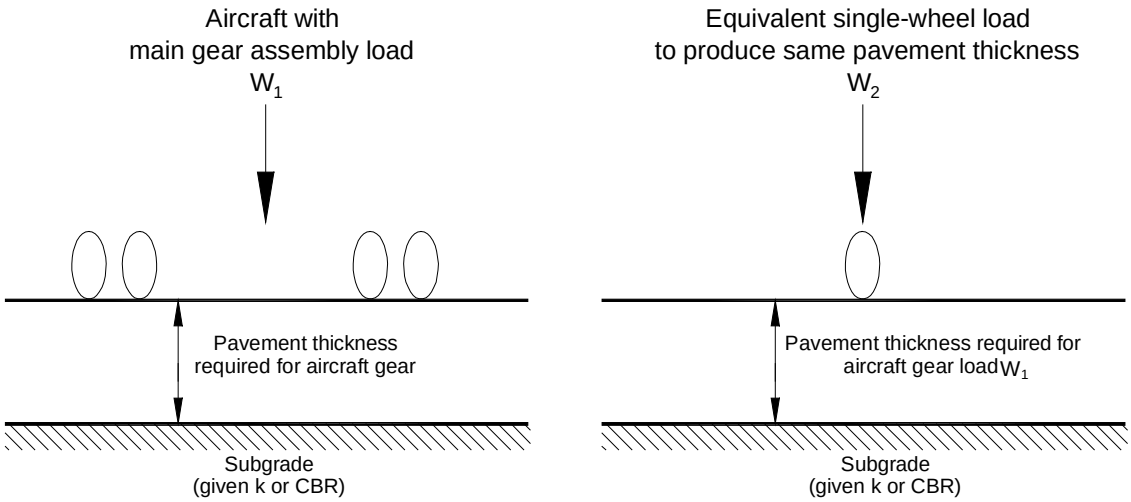


FIGURE 6.2: AIRCRAFT CLASSIFICATION NUMBER (ACN) CONCEPT

The ACN values for some of the aircrafts currently using Kalaeloa Airport are provided in Table 6.3 and Appendix A.6.3. COMFAA was used to determine the ACN values at various subgrade strengths for both rigid and flexible pavements.

AIRCRAFT TYPE	MAX LANDING WEIGHT (lbs)	MAX TAKEOFF WEIGHT (lbs)	RIGID ACN				FLEXIBLE ACN			
			SUBGRADE CBR				SUBGRADE CBR			
			A (552)	B (295)	C (147)	D (74)	A (15)	B (10)	C (6)	D (3)
B-737(200)	72	36	30.3	32.1	33.8	35.2	26.9	27.7	31.1	35.3
C-130	8,400	4,200	29.7	32.2	34.9	27.5	26.7	30.3	32.3	37.6
C-135	120	60	38.3	46.0	54.5	62.3	38.8	43.2	52.3	67.1
B-707	24	12	28.3	33.4	39.7	45.8	28.9	31.5	37.4	49.1
C-17	3,600	1,800	43.6	48.0	56.5	70.1	42.8	47.7	56.8	74.2
C-5	132	66	24.2	31.5	35.0	39.3	25.0	27.7	34.2	47.9

TABLE 6.3: ACN VALUES FOR REPRESENTATIVE TRAFFIC MIX AT KALAELOA AIRPORT
(Complete table of ACN values for aircraft at Kalaeloa Airport can be found in Appendix A.6.3)

Pavement Classification Number

The PCN is established by a structural assessment of a pavement and indicates a pavement's ability to support, without weight restrictions, an aircraft that has an ACN value equal to or less than the PCN value. This number is applicable to both flexible and rigid pavements.

A summary of the PCN values and pavement classification codes are provided in Table 6.4. The PCN values were estimated using COMFAA, a computer program developed by the FAA which follows the methodology outlined in the ICAO. As stated in Chapter 5.4, the software utilizes a procedure based on cumulative damage factor (CDF). The CDF is a ratio of applied load repetitions to allowable load repetitions till failure, or the amount of the structural fatigue life a pavement has experienced. COMFAA uses the pavement thickness, subgrade CBR, and aircraft movements to calculate a CDF for each aircraft in the fleet. The total CDF of all aircrafts implies how much damage is being done to the pavement which determines the PCN value of each pavement section. The four codes following the numerical PCN represent the following categories:

- Pavement Type
  R = Rigid
  F = Flexible

- Subgrade Strength Category
  A = High (k > 442 pci or CBR > 13)
  B = Medium (k = 221 to 442 pci or CBR = 8 to 13)
  C = Low (k = 92 to 221 pci or CBR = 4 to 8)
  D = Very Low (k < 92 pci or CBR < 4)

- Maximum Allowable Tire Pressure
  W = High (no pressure limit)
  X = Medium (182 to 254 psi)
  Y = Low (74 to 181 psi)
  Z = Very Low (< 73 psi)

- Pavement Evaluation Method
  T = Technical Evaluation
  N = Non-technical Evaluation

BRANCH	SECTION	PCN NUMBER	PCN CODE	THEORETICAL STRUCTURAL REMAINING LIFE	CURRENT PCI
Runway 11-29 (R11)	010K	44	R/C/W/T	>10	80
	010L	39	R/B/W/T	>10	80
	010R	38	R/B/W/T	>10	82
	020K	27	F/A/W/T	>10	82
	020L	27	F/A/W/T	>10	75
	020R	27	F/A/W/T	>10	87
	030K	27	F/A/W/T	>10	54

TABLE 6.4: PCN VALUES, REMAINING LIFE AND CURRENT PCI AT KALAELOA AIRPORT
(Complete table with results for all of the pavement sections can be found in Appendix A.6.4)

The PCN values are only reported for the subgrade strength category as obtained through NDT testing. All of the pavements tested at Kalaeloa Airport had a “high” subgrade strength value.

AC 150/5335-5C states that significant over-estimation of the pavement capacity can result in an excessively damaging aircraft, which uses the pavement on a very infrequent basis, is used to determine the PCN. Likewise, significant under-estimation of the pavement capacity can lead to uneconomic use of the pavement by preventing acceptable traffic from operating. For sections of pavement considered to be underutilized, all aircrafts currently permitted to use the pavement facility were evaluated, and the largest ACN was reported as the PCN. Although there are no minimum limits on frequency of operation before an aircraft is considered part of the normal traffic, a rational approach must be used to avoid overstating or understating the pavement capacity.

The PCN number is only valid for the pavement thickness, traffic projection and CBR used during the PCN computation. Thus, the PCN value should be viewed as an estimation of the pavement strength rather than a precisely derived value and should be

reevaluated when the fleet mix or pavement section changes (overlay, reconstruction, etc.).

Evaluation of ACN/PCN Results

The ACN/PCN system is structured such that a pavement with a given PCN value can support an aircraft that has an ACN value equal to or less than that PCN. Likewise, according to the ICAO procedure, the pavement cannot accept an aircraft with an ACN value exceeding the PCN. However, the Aerodrome Design Manual does allow for some overloads according to the following criteria (ICAO):

- For flexible pavements, occasional movements by aircraft with an ACN not exceeding 10 percent of the reported PCN should not adversely affect the pavement.
- For rigid or composite pavements, occasional movements by aircraft with an ACN not exceeding 5 percent of the reported ACN should not adversely affect the pavement.
- The annual number of overload movements should not exceed approximately 5 percent of the total annual aircraft movements.

To evaluate the load-carrying capability of the airport pavement sections using the ACN/PCN procedure, the section PCN values are compared with the ACN of the aircraft using that section.

An aircraft's ACN value will vary depending on the subgrade strength of the pavement. For example, a C-5 aircraft has an ACN value of 27.7 on pavements with "high" subgrade strength. However, the same aircraft will have an ACN value of 35.1 on pavements with "medium" subgrade strength.

The most typical use of the ACN/PCN procedure is to determine whether a particular aircraft type not currently using the airfield can or should use the facility. As stated in Chapter 3, the overall pavement at Kalaeloa Airport is in fair condition with an area weighted PCI of 59. The majority of the pavement surface has not received any M&R since the 2005 inspection, 15 of the sections tested had PCN values lower than the using aircrafts' ACN value. Suggesting that the pavement cannot adequately support the current fleet mix. Although the pavement thickness has remained the same, an increase in traffic frequency or load can adversely affect the PCN value.

It should be noted that another means of structural evaluation according to the ACN/PCN method (i.e. the non-technical method) only investigates the ACN of the aircraft currently using an airfield. If the aircraft has not caused damage to the airfield pavement, then the PCN of that facility is assumed to be at least as great as the aircraft using the facility. Although this method is not recommended for a comprehensive structural evaluation, it does provide an indication that the pavements may be capable of handling the current aircraft mix without significant performance problems.

6.5 STRUCTURAL REMAINING LIFE

For a pavement to serve its purpose, it must have adequate load carrying capacity, good rideability, and must allow safe operation of aircraft under all conditions. When a pavement reaches the end of its structural life, it no longer has adequate load carrying capacity.

Structural remaining life (SRL) is defined as the length of time the existing pavement will last before it requires a major rehabilitation (i.e. thick overlay, reconstruction). Once the existing pavement material strengths for each section are characterized, and design traffic is identified, the SRL can be estimated.

The FAA software FAARFIELD was used to estimate the remaining structural life for each pavement section. These values were based on the 20-year traffic volumes, the existing pavement cross-section information, and the pavement subgrade properties obtained thru the NDT testing conducted in 2016. Similarly, to COMFAA, the software utilizes a procedure based on cumulative damage factors (CDF) and a CDF is calculated for each aircraft in the fleet. If the sum of the CDFs for all aircraft in the fleet is equal to one, then the pavement is predicted to fail in 20 years with all of the aircraft operating at their assumed operating weights and annual departures. Should the total CDF exceed one, the pavement is predicted to fail in less than 20 years.

The SRL information is presented for each pavement section in Table 6.4. A graphical depiction of the structural remaining life can be found in Figure 6.3. As stated in section 6.1, although NDT testing is a good methodology for assessing a pavement's structural condition it should not be used as a stand-alone means of evaluation. To provide a complete picture of the overall condition of a pavement, the visual condition of a pavement should also be considered. Therefore, the current PCI for each pavement section is also presented in Table 6.4.

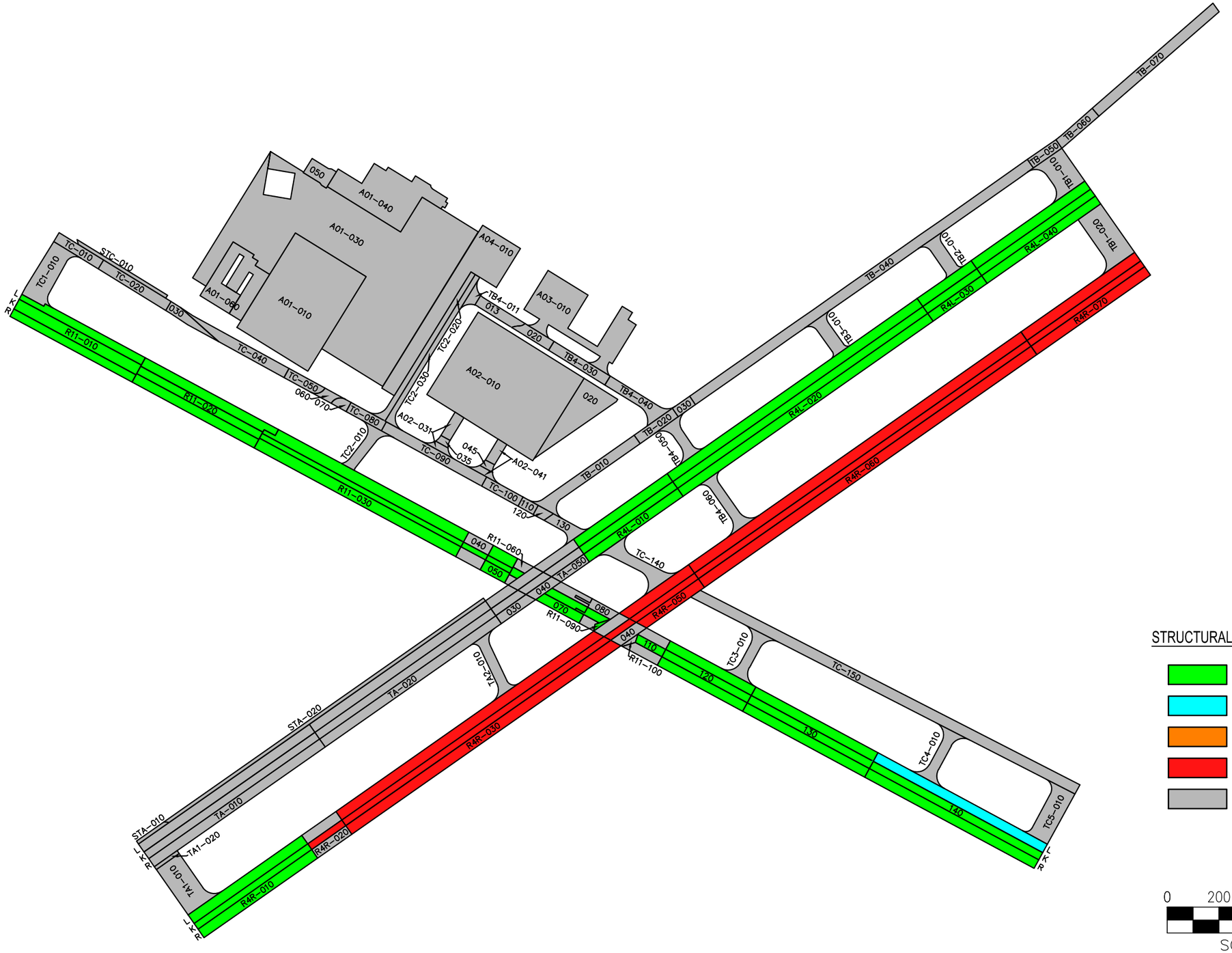
According to the 2016 NDT testing results, as well as the pavement cross-sections and air traffic projection, the majority of the pavement tested has a SRL in excess of ten years. However, 14 of the pavement sections tested at Kalaeloa Airport has a SRL of less than two years. The low SRL can be caused by several different factors, the current traffic could be overloading the pavement, the pavement thickness may not be adequate, or the pavement has come to the end of its service life. A pavement's service life is defined as the period of time from the completion of construction until the structural integrity of the pavement is considered to be unacceptable and requires structural rehabilitation or replacement.

All of the low SRLs came from Runway 04R-22L which is the most widely used runway, and receives all the heavy aircraft operations. According to the as-built documents provided by DOTA, Runway 04R-22L has not been reconstructed since its initial construction in 1942, furthermore it has not received any maintenance since 1985. The results of the PCN and SRL analysis suggest that the low SRL pavement sections cannot

adequately support the current fleet mix, and therefore the pavement is at the end of its service life.

6.6 SUMMARY

This chapter summarized the results of the nondestructive testing program and subsequent analysis which was performed at Kalaeloa Airport in 2016. This chapter also summarized the results of the back calculation of the subgrade CBR based on the non-destructive testing. The NDT results were further used to evaluate the PCN of each section and then compared to the aircraft ACN. Furthermore, the results of the testing assessed the structural remaining life of the pavements and the results were also presented herein.



BOWERS + KUBOTA CONSULTING

◆ Project Management ◆ Planning ◆ Architectural/Engineering Design ◆ Construction Management

PAVEMENT MANAGEMENT SYSTEM UPDATE
KALAELOA AIRPORT
STRUCTURAL REMAINING LIFE MAP

DATE:
MAY 2016

FIGURE NO.:
6.03

CHAPTER 7

CAPITAL IMPROVEMENT RECOMMENDATIONS

7.1 INTRODUCTION

A Capital Improvement Plan (CIP) is used to plan and program for the construction of projects that will develop and maintain the airports of Hawaii. Its development is one of the fundamental building blocks in planning an effective budget and determining future impact to the pavement network. The CIP can serve as an important forecasting tool for executive management to anticipate and plan for growth. Capital investments made in a logical, deliberate and accountable manner insure that major repair, replacement, acquisition and construction costs are not last-minute decisions that require long-term operating obligations.

This capital improvement analysis aims at identifying capital improvement items for the fiscal years 2016 to 2020 (five years). In reality, the development program represents a series of choices and alternatives for the airport. Upon review of the recommendations made in this report, airport managers will be able to program facility improvements to meet demands, while also responding to financial realities and select development items that are synchronized with current development needs. However, it may be necessary to selectively implement the capital items during a timeframe that differs from that which is listed in this report.

7.2 DEVELOPMENT OF CAPITAL IMPROVEMENT ALTERNATIVES

There are an infinite variety of budget scenarios which can be developed for any given pavement network. Variables affecting the budget planning process include (but are not limited to):

- Yearly budget amount - this can be an unlimited or set amount;
- Minimum PCI acceptable - pavements are assigned primary, secondary, or tertiary status, and a minimum PCI is set for each pavement section by the user;
- Type of maintenance plans included - a budget can be analyzed to include any combination of the M&R options;
- Cost data - cost per work type, or cost per PCI range, is tailored by the user for local conditions;
- Forecasting period - budget analysis period is set by the user.

Alternative Budget Scenarios

For the purpose of this report, the DOTA requested four budget scenarios be analyzed for the period between FY 2016 and 2020. MicroPAVER computes a work plan based on projected PCI condition, M&R treatments as defined by the maintenance policy, and

representative unit costs for the selected M&R treatments. It must be emphasized that these project costs ***do not include*** design or project management costs. The costs for the M&R treatments were shown in Table 4.2. The four scenarios requested were:

1. No Funding - This scenario explores the ramification of eliminating all maintenance spending, and the resulting pavement degradation.

2. Minimum Condition - What would it cost, and what project would be required, to maintain the pavement network at preset minimum acceptable standards? These standards vary based on the pavement rank of each pavement section, and were set as follows:

   - Runways, all pavement ranks: 70
   - Taxiways, Primary: 65
     Taxiway, Secondary: 60
     Taxiway, Tertiary: 55
   - Aprons, Primary: 65
     Aprons, Secondary: 60
     Aprons, Tertiary: 55
   - Shoulders: 55

3. State Budget - Based on a pre-established budget provided by the State, which projects should be scheduled, and what would the resultant pavement condition be. For Kalaeloa, the budget has been established as $750,000 in FY 2016, $1,300,000 in FY 2017, $750,000 in FY 2018, $650,000 in FY 2019, and $550,000 in FY 2020 (total of $4 million).

4. Unlimited Funding - If funding was not a limiting factor, what pavement sections need maintenance or rehabilitation? All pavement maintenance and repair is performed in the first year, with the only expenses after that being preventive maintenance.

MicroPAVER uses three methods to generate work plans. The first, Critical PCI Method, optimizes M&R activity against a specified budget or determines the budget needed to maintain a specified condition level. This method was used for Scenarios 1, 3 and 4. The second, Minimum Condition, measures costs but rations M&R by pavement condition. This method was utilized for Scenario 2. The third, Consequence Model, measures the impact of a localized M&R action over the first year, and was not used for this report.

7.2.1 No Funding

Budget set to $0: This scenario results in a steadily declining network PCI, with a final area-weighted condition of 37 in 2020. The area-weighted conditions of each branch in the network showed a decline, with the most drastic decline occurring in Taxiway B2,

which dropped from a PCI of 60 (PCI at the time of inspection) to 30. The full results for this scenario, on an annual, by section basis, are found in Appendix A.7.1.

7.2.2 Minimum Condition

The weighted-average condition of the pavement at the time of inspection was a PCI of 59 points. This scenario results in the network having a final area-weighted condition of 89 in 2020, with a total outlay over the five-year period totaling $156 million. The proposed projects are listed below in Table 7.1. There would be $152 million in unfunded major M&R at the end of the five-year period. The full results for this scenario are found in Appendix A.7.2.

YEAR	PAVEMENT SECTION	PROJECT COST	ANNUAL COST
2016	Apron A01, Section 010: Concrete Pavement Restoration	$20,089,475	$148,277,349
	Apron A01, Section 050: PCC Reconstruction	$1,796,905	
	Apron A02, Section 010: PCC Reconstruction	$45,446,069	
	Apron A04, Section 010: AC Reconstruction	$8,495,618	
	Runway 11-29: AC Reconstruction & 6” Mill & Overlay	$11,997,347	
	Runway 4L-22R: AC Reconstruction & 6” Mill & Overlay	$19,932,821	
	Runway 4R-22L: AC Reconstruction & 6” Mill & Overlay	$11,362,488	
	Taxiway A & TA1, TA2 Connectors: AC Reconstruction & 6” Mill & Overlay	$15,043,825	
	Taxiway B & TB1, TB2, TB3, TB4 Connectors: AC Reconstruction & 6” Mill & Overlay	$7,458,176	
	Taxiway C & TC2, TC3, TC4, TC5 Connectors: AC Reconstruction & 6” Mill & Overlay	$6,654,625	
2017	Runway 11-29, Sections 030R, 070L, 120L, 130L: 6” Mill & Overlay	$2,192,922	$4,379,877
	Runway 4R-22L, Sections 020K, 030K, 040K, 050L, 050R: 6” Mill & Overlay	$1,839,058	
	Taxiway C, Section 020: 6” Mill & Overlay	$347,897	
2018	Runway 11-29, Section 030L: 6” Mill & Overlay	$1,036,308	$1,581,632
	Taxiway B4, Sections 050, 060: 6” Mill & Overlay	$545,324	
2019	Runway 11-29, Section 050R: 6” Mill & Overlay	$130,079	$1,454,770
	Runway 4R-22L, Sections 010K, 060K: Concrete Pavement Restoration & 6” Mill & Overlay	$1,324,691	
2020	Taxiway C, Section 060: 6” Mill & Overlay	$76,186	$76,186
		FIVE YEAR TOTAL:	**$155,769,814**

TABLE 7.1: PROPOSED PROJECTS FOR MINIMUM CONDITION BUDGET SCENARIO

7.2.3 State Budget

The currently proposed State budget for Kalaeloa has been established $750,000 in FY 2016, $1,300,000 in FY 2017, $750,000 in FY 2018, $650,000 in FY 2019, and $550,000 in FY 2020 (total of $4 million). Under this funding scenario, the PCI drops 22 points from the overall PCI with a final area-weighted condition of 37 in 2020. The full results for this scenario are found in Appendix A.7.3.

7.2.4 Unlimited Funding

In order to extend the pavement life, preventative maintenance needs to be scheduled and performed before the pavement declines pass the critical PCI. The rehabilitation cost increases significantly when the pavement is below the critical PCI, and the majority of the pavement at Kalaeloa airport is below the critical PCI. Under this funding scenario, the major rehabilitation of pavement under the critical PCI is performed in the first year. Followed by a program of preventive maintenance work, results in a final area-weighted condition PCI of 90 in 2020, approximately 31 points higher than the PCI at the time of inspection. An initial outlay of $147.9 million is required in 2016, with a total outlay over the five-year period totaling $157 million. The full results for this scenario are found in Appendix A.7.4.

7.2.5 Backlog Elimination

In addition to the above budget scenarios, an additional scenario was examined:

The deferred maintenance or unfunded backlog is addressed under this funding scenario. “Deferred maintenance” or “Unfunded backlog” consists of pavement maintenance that is needed, but cannot be performed due to lack of funding. Reduced budgets have forced DOTA to defer necessary pavement maintenance. By eliminating the backlog, the weighted-average PCI will increase to 91 points in 2020 with all but one branch in “satisfactory” or “good” condition. The budget needed to accomplish this goal is approximately $190 million over the next five years. The full results for this scenario are found in Appendix A.7.5.

7.3 RECOMMENDED CAPITAL IMPROVEMENT PROJECTS

Based on the pavement assessment and the analyzed budget scenarios, a schedule of recommended projects is proposed in this section. **It is critical to emphasize that the proposed projects are based on network level inspections, and that a project level analysis should be performed prior to any project design or implementation.**

While the M&R plans summarized in the previous section are based on present and expected PCI, additional information was factored into the choices for projects recommended. Theoretical structural life of the pavement, operational importance of the pavement section as well as foreign object debris (FOD) potential was also considered.

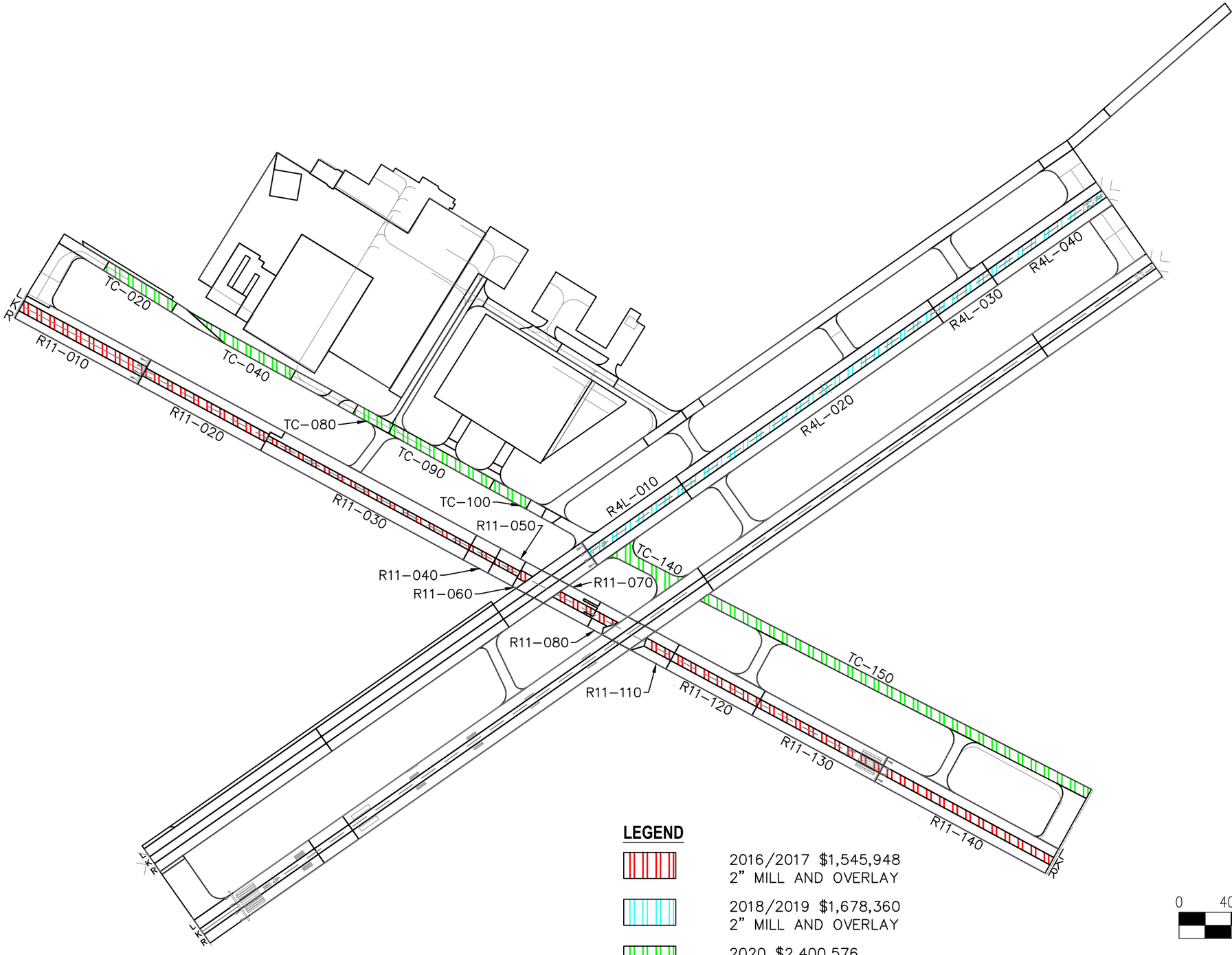
The full listing of the recommended projects is listed below, and a graphical depiction can be found in Figure 7.1 and 7.2.

YEAR	PAVEMENT SECTION	PROJECT COST	ANNUAL COST
2016	Runway 11-29 Keel: 2" Mill and Overlay	$1,545,948	$1,545,948
2017			
2018	Runway 04R-22L Keel: 2" Mill and Overlay	$1,678,360	$1,678,360
2019			
2020	Taxiway C, Section 020, 040, 080, 090, 100, 140, 150: 2" Mill and Overlay	$2,400,576	$2,400,576
		FIVE YEAR TOTAL:	**$5,624,884**
2021+	Nearly all sections at or near the critical PCI and require major M&R. Total major backlog approximately $30M (assuming 2" Mill and Overlay)	$30M+	$30M+

TABLE 7.2: RECOMMENDED CAPITAL IMPROVEMENT PROJECTS

7.4 SUMMARY

Five M&R plans were analyzed using different budget constraints. While the M&R plan generated by MicroPAVER lists the projects with no consideration for location, the list of recommended projects groups sections in a single network branch together in order to minimize disruption to airfield traffic while maximizing project dollars. Of the 145 sections at Kalaeloa Airport, 109 sections were below the critical PCI values. In all funding scenarios, excluding the "Do Nothing" scenario, the majority of the funds would be used to address pavements that would affect safety if left un-repaired and was applied to sections below the critical PCI. Since more than 75 percent of the pavement is critical, the current State Budget cannot adequately address all the critical pavement. This budget currently provides a temporary fix, however, the pavement would continue to deteriorate unless the backlog of work can be eliminated.



BOWERS + KUBOTA CONSULTING

♦ Project Management ♦ Planning ♦ Architectural/Engineering Design ♦ Construction Management

PAVEMENT MANAGEMENT SYSTEM UPDATE
KALAELOA AIRPORT
RECOMMENDED CAPITAL IMPROVEMENT PROJECTS

MAY 2016

FIGURE NO.:

7.01

STATEWIDE PAVEMENT MANAGEMENT SYSTEM UPDATE

FINAL REPORT APPENDICES

KALAELOA AIRPORT, KAPOLEI, HAWAII



DAVID IGE, GOVERNOR
STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION

FOR PAVEMENT INSPECTION CONDUCTED DECEMBER 2014

BOWERS + KUBOTA CONSULTING

May 2016
PROJECT NO. AS1120-06

SUBMITTED AUGUST 2016

APPENDIX A.2.1 - WORK HISTORY

Pavement Database: Kalaeloa

Network: NAS Barbers Point Ka **Branch:** A01 NE Main Apron **Section:** 010 **Surface:** PCC

L.C.D.: 1/2/1951 **Use:** APRON **Rank:** S **Length:** 800.00 (Ft) **Width:** 600.00 (Ft) **True Area:** 479,993.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1961	JS-LC	Joint Seal (Localized)			☐	
1/2/1951	SU-PC	Surface Course - PCC	1,919,972.00	10.00	☑	
1/2/1951	NU-IN	New Construction - Initial			☑	
1/1/1951	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A01 NE Main Apron **Section:** 030 **Surface:** PCC

L.C.D.: 1/2/1964 **Use:** APRON **Rank:** S **Length:** 2,980.00 (Ft) **Width:** 415.00 (Ft) **True Area:** 1,238,412.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1964	SU-PC	Surface Course - PCC	4,953,648.00	10.00	☑	
1/2/1964	NU-IN	New Construction - Initial			☑	
1/1/1964	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A01 NE Main Apron **Section:** 040 **Surface:** AC

L.C.D.: 1/2/1981 **Use:** APRON **Rank:** T **Length:** 625.00 (Ft) **Width:** 320.00 (Ft) **True Area:** 196,106.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1981	SU-AC	Surface Course - AC	245,132.50	3.00	☑	
1/2/1981	NU-IN	New Construction - Initial			☑	
1/1/1981	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A01 NE Main Apron **Section:** 050 **Surface:** PCC

L.C.D.: 1/2/1952 **Use:** APRON **Rank:** T **Length:** 200.00 (Ft) **Width:** 150.00 (Ft) **True Area:** 24,905.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	JS-LC	Joint Seal (Localized)			☐	
1/2/1952	NU-IN	New Construction - Initial			☑	
1/2/1952	SU-PC	Surface Course - PCC	99,620.00	10.00	☑	
1/1/1952	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A01 NE Main Apron **Section:** 060 **Surface:** AC

L.C.D.: 1/2/2011 **Use:** APRON **Rank:** T **Length:** 347.00 (Ft) **Width:** 456.00 (Ft) **True Area:** 149,726.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2011	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 010 **Surface:** PCC

L.C.D.: 1/1/1951 **Use:** APRON **Rank:** P **Length:** 900.00 (Ft) **Width:** 700.00 (Ft) **True Area:** 629,880.02 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1960	JS-LC	Joint Seal (Localized)			☐	
1/1/1951	NU-IN	New Construction - Initial			☑	
1/1/1951	SG-CO	Subgrade - Compacted		6.00	☐	
1/1/1951	SU-PC	Surface Course - PCC	2,519,520.00	6.00	☑	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 020 **Surface:** PCC

L.C.D.: 1/2/1964 **Use:** APRON **Rank:** P **Length:** 685.00 (Ft) **Width:** 143.00 (Ft) **True Area:** 100,323.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1964	NU-IN	New Construction - Initial			☑	
1/2/1964	SU-PC	Surface Course - PCC	401,292.00	10.00	☑	
1/1/1964	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 031 **Surface:** AAC

L.C.D.: 1/2/1988 **Use:** APRON **Rank:** T **Length:** 297.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,153.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1988	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1988	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	27,691.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 035 **Surface:** AAC

L.C.D.: 1/2/1988 **Use:** APRON **Rank:** T **Length:** 54.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 4,510.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1988	OL-AT	Overlay - AC Thin	0.00	2.50	☑	
1/1/1988	MI-CO	Cold Milling	0.00	1.00	☐	
1/2/1942	NU-IN	New Construction - Initial	0.00	0.00	☑	
1/2/1942	SU-AC	Surface Course - AC	5,637.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted	0.00	6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 041 **Surface:** AAC

L.C.D.: 1/2/1988 **Use:** APRON **Rank:** T **Length:** 277.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 20,867.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1988	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1988	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	26,083.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 045 **Surface:** AAC

L.C.D.: 1/2/1988 **Use:** APRON **Rank:** T **Length:** 53.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 4,567.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1988	OL-AT	Overlay - AC Thin	0.00	2.50	☑	
1/1/1988	MI-CO	Cold Milling	0.00	1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	5,708.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial	0.00	0.00	☑	
1/1/1942	SG-CO	Subgrade - Compacted	0.00	6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A03 Hanger 110 and 11 **Section:** 010 **Surface:** AC

L.C.D.: 1/2/2006 **Use:** APRON **Rank:** S **Length:** 700.00 (Ft) **Width:** 330.00 (Ft) **True Area:** 198,568.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2006	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** A04 Adjacent Apron **Section:** 010 **Surface:** AC

L.C.D.: 1/1/1943 **Use:** APRON **Rank:** S **Length:** 1,400.00 (Ft) **Width:** 100.00 (Ft) **True Area:** 216,338.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1943	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 010K **Surface:** PCC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 80,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	SU-PC	Surface Course - PCC	320,000.01	13.00	☑	,
1/2/1986	NU-IN	New Construction - Initial			☑	
1/1/1986	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 010L **Surface:** PCC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 56,400.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	SU-PC	Surface Course - PCC	225,600.01	10.00	☑	,
1/2/1986	NU-IN	New Construction - Initial			☑	
1/1/1986	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 010R **Surface:** PCC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 60,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	SU-PC	Surface Course - PCC	240,000.01	10.00	☑	,
1/2/1986	NU-IN	New Construction - Initial			☑	
1/1/1986	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 020K **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 60,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/2/1980	OL-AT	Overlay - AC Thin		4.00	☑	
1/1/1980	MI-CO	Cold Milling		4.00	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 020K **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 60,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1942	SU-AC	Surface Course - AC	75,000.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 020L **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 1,100.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 74,531.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	93,163.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 020R **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 70,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	87,500.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 030K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,665.00 (Ft) **Width:** 40.00 (Ft) **True Area:** 66,600.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/2/1985	SU-AC	Surface Course - AC	83,250.00	5.00	☑	,
1/2/1985	NU-IN	New Construction - Initial			☑	
1/1/1985	BA-AG	Base Course - Aggregate		8.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 030L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,565.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 127,468.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 030L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,565.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 127,468.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	159,335.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 030R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,665.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 133,200.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	166,500.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 040K **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 40.00 (Ft) **True Area:** 8,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/2/1985	SU-AC	Surface Course - AC	10,000.00	5.00	☑	,
1/2/1985	NU-IN	New Construction - Initial			☑	
1/1/1985	BA-AG	Base Course - Aggregate		8.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 040L **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 16,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	20,000.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 040R **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 16,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	20,000.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 050K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 40.00 (Ft) **True Area:** 8,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/2/1985	SU-AC	Surface Course - AC	10,000.00	5.00	☑	,
1/2/1985	NU-IN	New Construction - Initial		0.00	☑	
1/1/1985	SB-AG	Subbase - Aggregate		8.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 050L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 16,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	20,000.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 050R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 16,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	20,000.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 060K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 80.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 4,822.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	6,027.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 060L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 122.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 7,912.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	9,890.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 060R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 57.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 3,340.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	4,175.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 070K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 306.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 17,320.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	21,650.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 070L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 273.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 17,534.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	21,917.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 070R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 339.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 23,716.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	29,645.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 080K **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 155.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 10,346.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	12,932.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 080L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 203.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 15,796.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	19,745.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 080R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 104.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 7,911.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	9,888.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 090 **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 149.00 (Ft) **Width:** 25.00 (Ft) **True Area:** 2,608.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	3,260.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 100 **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 150.00 (Ft) **Width:** 22.00 (Ft) **True Area:** 3,306.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	4,132.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 110K **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 13,336.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	16,670.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Pavement Database: Kalaeloa

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 110L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 214.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 14,910.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	18,637.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 110R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 214.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 17,597.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	21,996.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 120K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 700.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 42,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	52,500.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 120L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 700.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 49,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	61,250.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 120R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 700.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 49,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	61,250.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 130K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 60,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	75,000.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 130L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 70,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	87,500.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 130R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 70,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	87,500.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 140K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,389.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 83,345.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	104,181.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 140L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,389.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 96,956.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	121,195.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 140R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,389.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 97,022.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	121,277.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 010K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 825.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 49,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	61,875.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 010L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 825.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 57,750.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	72,187.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 010R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 825.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 57,750.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	72,187.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 020K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 2,200.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 132,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	165,000.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 020L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 2,200.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 154,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	192,500.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 020R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 2,200.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 154,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	192,500.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 030K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 475.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 28,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	35,625.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 030L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 475.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 33,600.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	42,000.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		2.50	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 030R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 475.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 33,600.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	42,000.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Pavement Database: Kalaeloa

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 040K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 60,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	75,000.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 040L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 1,000.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 70,951.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	88,688.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 040R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 1,000.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 69,042.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	86,302.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 010K **Surface:** PCC

L.C.D.: 1/2/1961 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 50,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1980	JS-LC	Joint Seal (Localized)			☐	
1/1/1973	JS-LC	Joint Seal (Localized)			☐	
1/1/1967	JS-LC	Joint Seal (Localized)			☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/2/1961	SU-PC	Surface Course - PCC	200,000.01	12.00	☑	,
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 010L **Surface:** PCC

L.C.D.: 1/2/1961 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 75,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1980	JS-LC	Joint Seal (Localized)			☐	
1/1/1973	JS-LC	Joint Seal (Localized)			☐	
1/1/1967	JS-LC	Joint Seal (Localized)			☐	
1/2/1961	SU-PC	Surface Course - PCC	300,000.01	12.00	☑	,
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 010R **Surface:** PCC

L.C.D.: 1/2/1961 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 75,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1980	JS-LC	Joint Seal (Localized)			☐	
1/1/1973	JS-LC	Joint Seal (Localized)			☐	
1/1/1967	JS-LC	Joint Seal (Localized)			☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/2/1961	SU-PC	Surface Course - PCC	300,000.01	12.00	☑	,
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 020K **Surface:** AAC

L.C.D.: 1/2/2004 **Use:** RUNWAY **Rank:** P **Length:** 300.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 15,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1980	SU-AC	Surface Course - AC	18,750.00	2.50	☑	,
1/2/1980	NU-IN	New Construction - Initial			☑	
1/1/1980	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 020L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 300.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 020R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 300.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 030K **Surface:** AAC

L.C.D.: 1/2/2004 **Use:** RUNWAY **Rank:** P **Length:** 2,319.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 115,940.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	
1/1/1961	SU-AC	Surface Course - AC	144,925.00	3.50	☑	,

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 030L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 2,282.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 171,155.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	SU-AC	Surface Course - AC	2,139,442.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 030R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 2,350.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 176,269.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	220,336.25	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 040K **Surface:** AAC

L.C.D.: 1/2/2004 **Use:** RUNWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 11,193.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	
1/1/1961	SU-AC	Surface Course - AC	13,991.25	3.50	☑	,

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 040L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 16,790.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	20,987.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 040R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 16,790.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	SU-AC	Surface Course - AC	20,987.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 050K **Surface:** AAC

L.C.D.: 1/2/2004 **Use:** RUNWAY **Rank:** P **Length:** 557.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 28,025.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	SU-AC	Surface Course - AC	35,031.25	3.50	☑	,
1/1/1961	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 050L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 590.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 44,395.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	55,493.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 050R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 524.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 39,680.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 050R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 524.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 39,680.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	49,600.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 060K **Surface:** AAC

L.C.D.: 1/2/2004 **Use:** RUNWAY **Rank:** P **Length:** 2,925.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 146,246.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1961	SU-AC	Surface Course - AC	182,807.50	3.50	☑	,
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 060L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 2,925.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 219,369.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	SU-AC	Surface Course - AC	274,211.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 060R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 2,925.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 219,368.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	SU-AC	Surface Course - AC	274,210.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 070K **Surface:** AAC

L.C.D.: 1/1/2004 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 50,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 070K **Surface:** AAC

L.C.D.: 1/1/2004 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 50,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/1/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	SG-CO	Subgrade - Compacted		6.00	☐	
1/1/1961	SU-AC	Surface Course - AC	62,500.00	3.50	☑	,

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 070L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 75,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	SU-AC	Surface Course - AC	93,750.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 070R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 75,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	93,750.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** STA Shoulder TA **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1986 **Use:** SHOULDE **Rank:** T **Length:** 242.00 (Ft) **Width:** 25.00 (Ft) **True Area:** 6,322.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1986	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** STA Shoulder TA **Section:** 020 **Surface:** AAC

L.C.D.: 1/1/1986 **Use:** SHOULDE **Rank:** T **Length:** 2,811.00 (Ft) **Width:** 25.00 (Ft) **True Area:** 69,087.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1986	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** STC Shoulder Taxiway **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1986 **Use:** SHOULDE **Rank:** T **Length:** 766.00 (Ft) **Width:** 25.00 (Ft) **True Area:** 18,807.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1986	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 010K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,500.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 90,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	112,500.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 010L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,500.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 105,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	131,250.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 010R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,500.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 105,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	131,250.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 020K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,550.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 93,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 020K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,550.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 93,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	116,250.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 020L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,550.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 108,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	135,625.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 020R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,550.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 108,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	135,625.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 030K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 255.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 15,074.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 030K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 255.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 15,074.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1942	SU-AC	Surface Course - AC	18,842.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 030L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 222.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 15,294.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial		0.00	☑	
1/2/1942	SU-AC	Surface Course - AC	19,117.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 030R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 287.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 19,894.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	24,867.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 040K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 13,440.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	16,800.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 040L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 15,680.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	19,600.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 040R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 15,680.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	19,600.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 050K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 300.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 17,982.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/1986	MI-CO	Cold Milling	0.00	2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin	0.00	2.00	☑	
1/2/1959	OL-AT	Overlay - AC Thin	0.00	2.50	☑	
1/1/1959	MI-CO	Cold Milling	0.00	1.00	☐	
1/2/1942	NU-IN	New Construction - Initial	0.00	0.00	☑	
1/2/1942	BA-AG	Base Course - Aggregate	0.00	6.00	☐	
1/2/1942	SU-AC	Surface Course - AC	22,477.50	2.50	☑	,

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 050L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 332.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 23,273.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	29,091.25	2.50	☑	,

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 050L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 332.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 23,273.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 050R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 267.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 18,698.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	23,372.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA1 Taxiway A1 **Section:** 010 **Surface:** PCC

L.C.D.: 1/2/1961 **Use:** TAXIWAY **Rank:** S **Length:** 400.00 (Ft) **Width:** 201.00 (Ft) **True Area:** 82,390.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	JS-LC	Joint Seal (Localized)			☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/2/1961	SU-PC	Surface Course - PCC	329,560.01	12.00	☑	,
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA1 Taxiway A1 **Section:** 020 **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** S **Length:** 201.00 (Ft) **Width:** 24.00 (Ft) **True Area:** 4,908.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	6,135.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA2 Taxiway A2 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1977 **Use:** TAXIWAY **Rank:** P **Length:** 430.00 (Ft) **Width:** 74.00 (Ft) **True Area:** 36,831.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1977	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	46,038.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1965 **Use:** TAXIWAY **Rank:** P **Length:** 847.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 67,790.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1965	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	84,737.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 020 **Surface:** AAC

L.C.D.: 1/1/1965 **Use:** TAXIWAY **Rank:** P **Length:** 340.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 25,131.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1965	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1959	NU-IN	New Construction - Initial		0.00	☑	
1/2/1959	SU-AC	Surface Course - AC	31,413.75	5.00	☑	,
1/1/1959	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 030 **Surface:** AAC

L.C.D.: 1/1/1965 **Use:** TAXIWAY **Rank:** P **Length:** 142.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 11,067.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1965	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	13,833.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 040 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 2,982.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 222,601.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	278,251.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 050 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 248.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 18,949.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1958	NU-IN	New Construction - Initial			☑	
1/2/1958	SU-AC	Surface Course - AC	23,686.25	4.00	☑	,
1/1/1958	BA-AG	Base Course - Aggregate		9.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 060 **Surface:** AAC

L.C.D.: 1/1/1998 **Use:** TAXIWAY **Rank:** P **Length:** 342.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 25,762.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1998	OL-AT	Overlay - AC Thin	0.00	1.50	☑	
1/2/1942	NU-IN	New Construction - Initial	0.00	4.00	☑	
1/1/1942	BA-AG	Base Course - Aggregate	0.00	12.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 070 **Surface:** AAC

L.C.D.: 1/1/1998 **Use:** TAXIWAY **Rank:** P **Length:** 1,157.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 86,817.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1998	OL-AT	Overlay - AC Thin	0.00	1.50	☑	
1/2/1942	NU-IN	New Construction - Initial	0.00	4.00	☑	
1/1/1942	BA-AG	Base Course - Aggregate	0.00	12.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB1 Taxiway B1 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 288.00 (Ft) **Width:** 200.00 (Ft) **True Area:** 62,122.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	77,652.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB1 Taxiway B1 **Section:** 020 **Surface:** AAC

L.C.D.: 1/1/1961 **Use:** TAXIWAY **Rank:** P **Length:** 427.00 (Ft) **Width:** 200.00 (Ft) **True Area:** 87,519.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1961	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	109,398.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB2 Taxiway B 2 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 290.00 (Ft) **Width:** 98.00 (Ft) **True Area:** 30,719.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	38,398.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB3 Taxiway B3 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 290.00 (Ft) **Width:** 98.00 (Ft) **True Area:** 31,005.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** TB3 Taxiway B3 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 290.00 (Ft) **Width:** 98.00 (Ft) **True Area:** 31,005.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	38,756.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 011 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 75.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 9,817.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin	0.00	2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	12,271.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial	0.00	0.00	☑	
1/1/1942	SG-CO	Subgrade - Compacted	0.00	6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 013 **Surface:** AAC

L.C.D.: 1/1/2006 **Use:** TAXIWAY **Rank:** P **Length:** 350.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 26,073.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2006	OL-AT	Overlay - AC Thin	0.00	0.00	☑	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	32,591.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 020 **Surface:** AAC

L.C.D.: 1/1/2006 **Use:** TAXIWAY **Rank:** P **Length:** 275.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 20,569.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2006	OL-AT	Overlay - AC Thin	0.00	0.00	☑	
1/2/1988	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1988	MI-CO	Cold Milling		2.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	25,711.25	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 030 **Surface:** AAC

L.C.D.: 1/1/2006 **Use:** TAXIWAY **Rank:** P **Length:** 475.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 35,427.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2006	OL-AT	Overlay - AC Thin	0.00	0.00	☑	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	44,283.75	2.50	☑	,

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 030 **Surface:** AAC

L.C.D.: 1/1/2006 **Use:** TAXIWAY **Rank:** P **Length:** 475.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 35,427.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 040 **Surface:** AC

L.C.D.: 1/2/1965 **Use:** TAXIWAY **Rank:** P **Length:** 471.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 40,674.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1965	SU-AC	Surface Course - AC	50,842.50	4.00	☑	,
1/2/1965	NU-IN	New Construction - Initial			☑	
1/1/1965	BA-AG	Base Course - Aggregate		16.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 050 **Surface:** AC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 290.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 29,246.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1980	NU-IN	New Construction - Initial			☑	
1/2/1980	SU-AC	Surface Course - AC	36,557.50	4.00	☑	,
1/1/1980	BA-AG	Base Course - Aggregate		8.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 060 **Surface:** AAC

L.C.D.: 1/1/1977 **Use:** TAXIWAY **Rank:** P **Length:** 426.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 37,830.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1977	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	47,287.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** TAXIWAY **Rank:** P **Length:** 354.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 28,252.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	35,315.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 020 **Surface:** AAC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 560.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 42,792.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	

Pavement Database: Kalaeloa

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 020 **Surface:** AAC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 560.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 42,792.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	53,490.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 030 **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** TAXIWAY **Rank:** P **Length:** 261.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 20,714.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	25,892.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 040 **Surface:** AAC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 750.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 52,695.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	65,868.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 050 **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** TAXIWAY **Rank:** P **Length:** 230.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 21,030.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	26,287.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 060 **Surface:** AAC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 107.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 9,371.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	11,713.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 070 **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** TAXIWAY **Rank:** P **Length:** 100.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 7,855.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	9,818.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 080 **Surface:** AAC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 356.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 21,749.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	27,186.25	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 090 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 798.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 61,870.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	77,337.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 100 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 315.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,507.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 100 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 315.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,507.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1959	NU-IN	New Construction - Initial		0.00	☑	
1/2/1959	SU-AC	Surface Course - AC	28,133.75	5.00	☑	,
1/1/1959	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC1 Taxiway C1 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** TAXIWAY **Rank:** P **Length:** 440.00 (Ft) **Width:** 170.00 (Ft) **True Area:** 73,949.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1973	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1973	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	92,436.25	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 110 **Surface:** AAC

L.C.D.: 1/2/2000 **Use:** TAXIWAY **Rank:** P **Length:** 125.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 9,374.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling	0.00	0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1959	NU-IN	New Construction - Initial			☑	
1/2/1959	SU-AC	Surface Course - AC	11,717.50	5.00	☑	,
1/1/1959	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 120 **Surface:** AAC

L.C.D.: 1/2/2000 **Use:** TAXIWAY **Rank:** P **Length:** 100.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 7,918.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling	0.00	0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	9,897.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 130 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 262.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,299.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 130 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 262.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,299.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	27,873.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 140 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 482.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 50,319.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	62,898.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 150 **Surface:** AAC

L.C.D.: 1/2/1964 **Use:** TAXIWAY **Rank:** P **Length:** 3,094.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 232,055.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1964	NU-IN	New Construction - Initial			☑	
1/2/1964	SU-AC	Surface Course - AC	290,068.75	4.00	☑	,
1/1/1964	BA-AG	Base Course - Aggregate		12.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC2 Taxiway C2 **Section:** 010 **Surface:** AAC

L.C.D.: 1/2/1973 **Use:** TAXIWAY **Rank:** S **Length:** 349.00 (Ft) **Width:** 73.00 (Ft) **True Area:** 30,089.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1973	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1973	MI-CO	Cold Milling	0.00	2.00	☐	
1/2/1942	SU-AC	Surface Course - AC	37,611.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC2 Taxiway C2 **Section:** 020 **Surface:** AAC

L.C.D.: 1/3/1964 **Use:** TAXIWAY **Rank:** P **Length:** 1,240.00 (Ft) **Width:** 37.50 (Ft) **True Area:** 49,776.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/3/1964	SU-AC	Surface Course - AC	62,220.00	4.00	☑	,
1/2/1964	NU-IN	New Construction - Initial		0.00	☑	
1/2/1964	BA-AG	Base Course - Aggregate		12.00	☐	
1/1/1964	SG-CO	Subgrade - Compacted	0.00	6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC2 Taxiway C2 **Section:** 030 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 1,240.00 (Ft) **Width:** 37.50 (Ft) **True Area:** 47,512.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	59,390.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC3 Taxiway C3 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1977 **Use:** TAXIWAY **Rank:** S **Length:** 359.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 35,292.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1977	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	44,115.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC4 Taxiway C4 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1977 **Use:** TAXIWAY **Rank:** S **Length:** 392.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 37,992.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1977	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	47,490.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC5 Taxiway C5 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 416.00 (Ft) **Width:** 160.00 (Ft) **True Area:** 65,345.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	81,681.25	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Pavement Database: Kalaeloa

Summary:

Work Description	Section Count	Area Total (SqFt)	Thickness Avg (in)	Thickness STD (in)
Base Course - Aggregate	25	1,550,225.02	7.72	2.76
Cold Milling	161	7,773,592.09	1.22	0.82
Joint Seal (Localized)	13	1,817,168.03		
New Construction - Initial	145	10,241,470.10	0.42	1.23
Overlay - AC Thin	260	13,477,949.16	2.35	0.63
Subbase - Aggregate	1	8,000.00	8.00	0.00
Subgrade - Compacted	112	8,029,173.08	5.97	0.33
Surface Course - AC	123	6,472,740.07	2.73	0.62
Surface Course - PCC	12	2,952,303.03	10.58	1.75

Pavement Database: Kalaeloa

Network: NAS Barbers Point Ka **Branch:** A01 NE Main Apron **Section:** 010 **Surface:** PCC

L.C.D.: 1/2/1951 **Use:** APRON **Rank:** S **Length:** 800.00 (Ft) **Width:** 600.00 (Ft) **True Area:** 479,993.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1961	JS-LC	Joint Seal (Localized)			☐	
1/2/1951	SU-PC	Surface Course - PCC	1,919,972.00	10.00	☑	
1/2/1951	NU-IN	New Construction - Initial			☑	
1/1/1951	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A01 NE Main Apron **Section:** 030 **Surface:** PCC

L.C.D.: 1/2/1964 **Use:** APRON **Rank:** S **Length:** 2,980.00 (Ft) **Width:** 415.00 (Ft) **True Area:** 1,238,412.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1964	SU-PC	Surface Course - PCC	4,953,648.00	10.00	☑	
1/2/1964	NU-IN	New Construction - Initial			☑	
1/1/1964	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A01 NE Main Apron **Section:** 040 **Surface:** AC

L.C.D.: 1/2/1981 **Use:** APRON **Rank:** T **Length:** 625.00 (Ft) **Width:** 320.00 (Ft) **True Area:** 196,106.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1981	SU-AC	Surface Course - AC	245,132.50	3.00	☑	
1/2/1981	NU-IN	New Construction - Initial			☑	
1/1/1981	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A01 NE Main Apron **Section:** 050 **Surface:** PCC

L.C.D.: 1/2/1952 **Use:** APRON **Rank:** T **Length:** 200.00 (Ft) **Width:** 150.00 (Ft) **True Area:** 24,905.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	JS-LC	Joint Seal (Localized)			☐	
1/2/1952	NU-IN	New Construction - Initial			☑	
1/2/1952	SU-PC	Surface Course - PCC	99,620.00	10.00	☑	
1/1/1952	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A01 NE Main Apron **Section:** 060 **Surface:** AC

L.C.D.: 1/2/2011 **Use:** APRON **Rank:** T **Length:** 347.00 (Ft) **Width:** 456.00 (Ft) **True Area:** 149,726.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2011	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 010 **Surface:** PCC

L.C.D.: 1/1/1951 **Use:** APRON **Rank:** P **Length:** 900.00 (Ft) **Width:** 700.00 (Ft) **True Area:** 629,880.02 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1960	JS-LC	Joint Seal (Localized)			☐	
1/1/1951	NU-IN	New Construction - Initial			☑	
1/1/1951	SG-CO	Subgrade - Compacted		6.00	☐	
1/1/1951	SU-PC	Surface Course - PCC	2,519,520.00	6.00	☑	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 020 **Surface:** PCC

L.C.D.: 1/2/1964 **Use:** APRON **Rank:** P **Length:** 685.00 (Ft) **Width:** 143.00 (Ft) **True Area:** 100,323.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1964	NU-IN	New Construction - Initial			☑	
1/2/1964	SU-PC	Surface Course - PCC	401,292.00	10.00	☑	
1/1/1964	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 031 **Surface:** AAC

L.C.D.: 1/2/1988 **Use:** APRON **Rank:** T **Length:** 297.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,153.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1988	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1988	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	27,691.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 035 **Surface:** AAC

L.C.D.: 1/2/1988 **Use:** APRON **Rank:** T **Length:** 54.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 4,510.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1988	OL-AT	Overlay - AC Thin	0.00	2.50	☑	
1/1/1988	MI-CO	Cold Milling	0.00	1.00	☐	
1/2/1942	NU-IN	New Construction - Initial	0.00	0.00	☑	
1/2/1942	SU-AC	Surface Course - AC	5,637.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted	0.00	6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 041 **Surface:** AAC

L.C.D.: 1/2/1988 **Use:** APRON **Rank:** T **Length:** 277.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 20,867.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1988	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1988	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	26,083.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A02 East Apron **Section:** 045 **Surface:** AAC

L.C.D.: 1/2/1988 **Use:** APRON **Rank:** T **Length:** 53.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 4,567.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1988	OL-AT	Overlay - AC Thin	0.00	2.50	☑	
1/1/1988	MI-CO	Cold Milling	0.00	1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	5,708.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial	0.00	0.00	☑	
1/1/1942	SG-CO	Subgrade - Compacted	0.00	6.00	☐	

Network: NAS Barbers Point Ka **Branch:** A03 Hanger 110 and 11 **Section:** 010 **Surface:** AC

L.C.D.: 1/2/2006 **Use:** APRON **Rank:** S **Length:** 700.00 (Ft) **Width:** 330.00 (Ft) **True Area:** 198,568.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2006	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** A04 Adjacent Apron **Section:** 010 **Surface:** AC

L.C.D.: 1/1/1943 **Use:** APRON **Rank:** S **Length:** 1,400.00 (Ft) **Width:** 100.00 (Ft) **True Area:** 216,338.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1943	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 010K **Surface:** PCC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 80,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	SU-PC	Surface Course - PCC	320,000.01	13.00	☑	,
1/2/1986	NU-IN	New Construction - Initial			☑	
1/1/1986	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 010L **Surface:** PCC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 56,400.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	SU-PC	Surface Course - PCC	225,600.01	10.00	☑	,
1/2/1986	NU-IN	New Construction - Initial			☑	
1/1/1986	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 010R **Surface:** PCC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 60,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	SU-PC	Surface Course - PCC	240,000.01	10.00	☑	,
1/2/1986	NU-IN	New Construction - Initial			☑	
1/1/1986	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 020K **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 60,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/2/1980	OL-AT	Overlay - AC Thin		4.00	☑	
1/1/1980	MI-CO	Cold Milling		4.00	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 020K **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 60,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1942	SU-AC	Surface Course - AC	75,000.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 020L **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 1,100.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 74,531.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	93,163.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 020R **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 70,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	87,500.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 030K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,665.00 (Ft) **Width:** 40.00 (Ft) **True Area:** 66,600.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/2/1985	SU-AC	Surface Course - AC	83,250.00	5.00	☑	,
1/2/1985	NU-IN	New Construction - Initial			☑	
1/1/1985	BA-AG	Base Course - Aggregate		8.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 030L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,565.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 127,468.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 030L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,565.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 127,468.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	159,335.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 030R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,665.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 133,200.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	166,500.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 040K **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 40.00 (Ft) **True Area:** 8,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/2/1985	SU-AC	Surface Course - AC	10,000.00	5.00	☑	,
1/2/1985	NU-IN	New Construction - Initial			☑	
1/1/1985	BA-AG	Base Course - Aggregate		8.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 040L **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 16,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	20,000.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 040R **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 16,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	20,000.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 050K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 40.00 (Ft) **True Area:** 8,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/2/1985	SU-AC	Surface Course - AC	10,000.00	5.00	☑	,
1/2/1985	NU-IN	New Construction - Initial		0.00	☑	
1/1/1985	SB-AG	Subbase - Aggregate		8.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 050L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 16,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	20,000.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 050R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 200.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 16,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	20,000.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 060K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 80.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 4,822.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	6,027.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 060L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 122.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 7,912.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	9,890.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 060R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 57.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 3,340.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	4,175.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 070K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 306.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 17,320.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	21,650.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 070L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 273.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 17,534.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	21,917.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 070R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 339.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 23,716.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	29,645.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 080K **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 155.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 10,346.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	12,932.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 080L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 203.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 15,796.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	19,745.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 080R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 104.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 7,911.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	9,888.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 090 **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 149.00 (Ft) **Width:** 25.00 (Ft) **True Area:** 2,608.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	3,260.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 100 **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 150.00 (Ft) **Width:** 22.00 (Ft) **True Area:** 3,306.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	4,132.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 110K **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 13,336.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	16,670.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Pavement Database: Kalaeloa

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 110L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 214.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 14,910.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	18,637.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 110R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 214.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 17,597.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	21,996.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 120K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 700.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 42,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	52,500.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 120L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 700.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 49,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	61,250.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 120R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 700.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 49,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	61,250.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 130K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 60,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	75,000.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 130L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 70,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	87,500.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 130R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 70,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	87,500.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 140K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,389.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 83,345.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	104,181.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 140L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,389.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 96,956.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	121,195.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R11 Runway 11 **Section:** 140R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** P **Length:** 1,389.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 97,022.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	MI-CO	Cold Milling		1.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	121,277.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 010K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 825.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 49,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	61,875.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 010L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 825.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 57,750.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	72,187.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 010R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 825.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 57,750.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	72,187.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 020K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 2,200.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 132,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	165,000.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 020L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 2,200.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 154,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	192,500.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 020R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 2,200.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 154,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	192,500.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 030K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 475.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 28,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	35,625.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 030L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 475.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 33,600.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	42,000.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		2.50	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 030R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 475.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 33,600.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	42,000.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Pavement Database: Kalaeloa

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 040K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 1,000.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 60,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	75,000.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 040L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 1,000.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 70,951.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	88,688.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4L Runway 4 Left **Section:** 040R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** RUNWAY **Rank:** S **Length:** 1,000.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 69,042.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	86,302.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 010K **Surface:** PCC

L.C.D.: 1/2/1961 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 50,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1980	JS-LC	Joint Seal (Localized)			☐	
1/1/1973	JS-LC	Joint Seal (Localized)			☐	
1/1/1967	JS-LC	Joint Seal (Localized)			☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/2/1961	SU-PC	Surface Course - PCC	200,000.01	12.00	☑	,
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 010L **Surface:** PCC

L.C.D.: 1/2/1961 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 75,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1980	JS-LC	Joint Seal (Localized)			☐	
1/1/1973	JS-LC	Joint Seal (Localized)			☐	
1/1/1967	JS-LC	Joint Seal (Localized)			☐	
1/2/1961	SU-PC	Surface Course - PCC	300,000.01	12.00	☑	,
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 010R **Surface:** PCC

L.C.D.: 1/2/1961 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 75,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1980	JS-LC	Joint Seal (Localized)			☐	
1/1/1973	JS-LC	Joint Seal (Localized)			☐	
1/1/1967	JS-LC	Joint Seal (Localized)			☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/2/1961	SU-PC	Surface Course - PCC	300,000.01	12.00	☑	,
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 020K **Surface:** AAC

L.C.D.: 1/2/2004 **Use:** RUNWAY **Rank:** P **Length:** 300.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 15,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1980	SU-AC	Surface Course - AC	18,750.00	2.50	☑	,
1/2/1980	NU-IN	New Construction - Initial			☑	
1/1/1980	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 020L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 300.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 020R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 300.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 030K **Surface:** AAC

L.C.D.: 1/2/2004 **Use:** RUNWAY **Rank:** P **Length:** 2,319.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 115,940.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	
1/1/1961	SU-AC	Surface Course - AC	144,925.00	3.50	☑	,

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 030L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 2,282.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 171,155.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	SU-AC	Surface Course - AC	2,139,442.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 030R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 2,350.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 176,269.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	220,336.25	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 040K **Surface:** AAC

L.C.D.: 1/2/2004 **Use:** RUNWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 11,193.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	
1/1/1961	SU-AC	Surface Course - AC	13,991.25	3.50	☑	,

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 040L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 16,790.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	20,987.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 040R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 16,790.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	SU-AC	Surface Course - AC	20,987.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 050K **Surface:** AAC

L.C.D.: 1/2/2004 **Use:** RUNWAY **Rank:** P **Length:** 557.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 28,025.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	SU-AC	Surface Course - AC	35,031.25	3.50	☑	,
1/1/1961	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 050L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 590.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 44,395.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	55,493.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 050R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 524.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 39,680.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 050R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 524.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 39,680.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	49,600.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 060K **Surface:** AAC

L.C.D.: 1/2/2004 **Use:** RUNWAY **Rank:** P **Length:** 2,925.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 146,246.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1961	SU-AC	Surface Course - AC	182,807.50	3.50	☑	,
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 060L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 2,925.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 219,369.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	SU-AC	Surface Course - AC	274,211.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 060R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 2,925.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 219,368.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	SU-AC	Surface Course - AC	274,210.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 070K **Surface:** AAC

L.C.D.: 1/1/2004 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 50,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 070K **Surface:** AAC

L.C.D.: 1/1/2004 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 50.00 (Ft) **True Area:** 50,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2004	MI-CO	Cold Milling	0.00	3.00	☐	
1/1/2004	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/1/1961	SG-CO	Subgrade - Compacted		6.00	☐	
1/1/1961	SU-AC	Surface Course - AC	62,500.00	3.50	☑	,

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 070L **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 75,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	SU-AC	Surface Course - AC	93,750.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** R4R Runway 4 Right **Section:** 070R **Surface:** AAC

L.C.D.: 1/2/1985 **Use:** RUNWAY **Rank:** P **Length:** 1,000.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 75,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1985	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1985	MI-CO	Cold Milling		2.00	☐	
1/1/1961	OL-AT	Overlay - AC Thin		1.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	93,750.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** STA Shoulder TA **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1986 **Use:** SHOULDE **Rank:** T **Length:** 242.00 (Ft) **Width:** 25.00 (Ft) **True Area:** 6,322.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1986	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** STA Shoulder TA **Section:** 020 **Surface:** AAC

L.C.D.: 1/1/1986 **Use:** SHOULDE **Rank:** T **Length:** 2,811.00 (Ft) **Width:** 25.00 (Ft) **True Area:** 69,087.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1986	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** STC Shoulder Taxiway **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1986 **Use:** SHOULDE **Rank:** T **Length:** 766.00 (Ft) **Width:** 25.00 (Ft) **True Area:** 18,807.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1986	NU-IN	New Construction - Initial	0.00	0.00	☑	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 010K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,500.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 90,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	112,500.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 010L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,500.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 105,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	131,250.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 010R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,500.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 105,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	131,250.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 020K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,550.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 93,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 020K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,550.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 93,000.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	116,250.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 020L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,550.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 108,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	135,625.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 020R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 1,550.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 108,500.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		1.50	☑	
1/2/1942	SU-AC	Surface Course - AC	135,625.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 030K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 255.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 15,074.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 030K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 255.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 15,074.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1942	SU-AC	Surface Course - AC	18,842.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 030L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 222.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 15,294.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial		0.00	☑	
1/2/1942	SU-AC	Surface Course - AC	19,117.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 030R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 287.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 19,894.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	24,867.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 040K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 13,440.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	16,800.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 040L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 15,680.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	19,600.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 040R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 224.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 15,680.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	19,600.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 050K **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 300.00 (Ft) **Width:** 60.00 (Ft) **True Area:** 17,982.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin	0.00	3.00	☑	
1/1/1986	MI-CO	Cold Milling	0.00	2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin	0.00	2.00	☑	
1/2/1959	OL-AT	Overlay - AC Thin	0.00	2.50	☑	
1/1/1959	MI-CO	Cold Milling	0.00	1.00	☐	
1/2/1942	NU-IN	New Construction - Initial	0.00	0.00	☑	
1/2/1942	BA-AG	Base Course - Aggregate	0.00	6.00	☐	
1/2/1942	SU-AC	Surface Course - AC	22,477.50	2.50	☑	,

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 050L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 332.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 23,273.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	29,091.25	2.50	☑	,

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 050L **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 332.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 23,273.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA Taxiway A **Section:** 050R **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** P **Length:** 267.00 (Ft) **Width:** 70.00 (Ft) **True Area:** 18,698.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1959	MI-CO	Cold Milling		1.00	☐	
1/2/1942	SU-AC	Surface Course - AC	23,372.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA1 Taxiway A1 **Section:** 010 **Surface:** PCC

L.C.D.: 1/2/1961 **Use:** TAXIWAY **Rank:** S **Length:** 400.00 (Ft) **Width:** 201.00 (Ft) **True Area:** 82,390.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	JS-LC	Joint Seal (Localized)			☐	
1/2/1961	NU-IN	New Construction - Initial			☑	
1/2/1961	SU-PC	Surface Course - PCC	329,560.01	12.00	☑	,
1/1/1961	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA1 Taxiway A1 **Section:** 020 **Surface:** AAC

L.C.D.: 1/2/1986 **Use:** TAXIWAY **Rank:** S **Length:** 201.00 (Ft) **Width:** 24.00 (Ft) **True Area:** 4,908.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1986	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1986	MI-CO	Cold Milling		0.50	☐	
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	6,135.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TA2 Taxiway A2 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1977 **Use:** TAXIWAY **Rank:** P **Length:** 430.00 (Ft) **Width:** 74.00 (Ft) **True Area:** 36,831.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1977	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	46,038.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1965 **Use:** TAXIWAY **Rank:** P **Length:** 847.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 67,790.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1965	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	84,737.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 020 **Surface:** AAC

L.C.D.: 1/1/1965 **Use:** TAXIWAY **Rank:** P **Length:** 340.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 25,131.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1965	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1959	NU-IN	New Construction - Initial		0.00	☑	
1/2/1959	SU-AC	Surface Course - AC	31,413.75	5.00	☑	,
1/1/1959	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 030 **Surface:** AAC

L.C.D.: 1/1/1965 **Use:** TAXIWAY **Rank:** P **Length:** 142.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 11,067.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1965	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	13,833.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 040 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 2,982.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 222,601.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	278,251.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 050 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 248.00 (Ft) **Width:** 80.00 (Ft) **True Area:** 18,949.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1958	NU-IN	New Construction - Initial			☑	
1/2/1958	SU-AC	Surface Course - AC	23,686.25	4.00	☑	,
1/1/1958	BA-AG	Base Course - Aggregate		9.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 060 **Surface:** AAC

L.C.D.: 1/1/1998 **Use:** TAXIWAY **Rank:** P **Length:** 342.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 25,762.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1998	OL-AT	Overlay - AC Thin	0.00	1.50	☑	
1/2/1942	NU-IN	New Construction - Initial	0.00	4.00	☑	
1/1/1942	BA-AG	Base Course - Aggregate	0.00	12.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB Taxiway B **Section:** 070 **Surface:** AAC

L.C.D.: 1/1/1998 **Use:** TAXIWAY **Rank:** P **Length:** 1,157.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 86,817.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1998	OL-AT	Overlay - AC Thin	0.00	1.50	☑	
1/2/1942	NU-IN	New Construction - Initial	0.00	4.00	☑	
1/1/1942	BA-AG	Base Course - Aggregate	0.00	12.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB1 Taxiway B1 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 288.00 (Ft) **Width:** 200.00 (Ft) **True Area:** 62,122.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	77,652.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB1 Taxiway B1 **Section:** 020 **Surface:** AAC

L.C.D.: 1/1/1961 **Use:** TAXIWAY **Rank:** P **Length:** 427.00 (Ft) **Width:** 200.00 (Ft) **True Area:** 87,519.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1961	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	109,398.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB2 Taxiway B 2 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 290.00 (Ft) **Width:** 98.00 (Ft) **True Area:** 30,719.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	38,398.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB3 Taxiway B3 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 290.00 (Ft) **Width:** 98.00 (Ft) **True Area:** 31,005.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** TB3 Taxiway B3 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1967 **Use:** TAXIWAY **Rank:** P **Length:** 290.00 (Ft) **Width:** 98.00 (Ft) **True Area:** 31,005.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1967	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	38,756.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 011 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 75.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 9,817.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin	0.00	2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	12,271.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial	0.00	0.00	☑	
1/1/1942	SG-CO	Subgrade - Compacted	0.00	6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 013 **Surface:** AAC

L.C.D.: 1/1/2006 **Use:** TAXIWAY **Rank:** P **Length:** 350.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 26,073.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2006	OL-AT	Overlay - AC Thin	0.00	0.00	☑	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	32,591.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 020 **Surface:** AAC

L.C.D.: 1/1/2006 **Use:** TAXIWAY **Rank:** P **Length:** 275.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 20,569.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2006	OL-AT	Overlay - AC Thin	0.00	0.00	☑	
1/2/1988	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/1988	MI-CO	Cold Milling		2.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	25,711.25	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 030 **Surface:** AAC

L.C.D.: 1/1/2006 **Use:** TAXIWAY **Rank:** P **Length:** 475.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 35,427.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2006	OL-AT	Overlay - AC Thin	0.00	0.00	☑	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	44,283.75	2.50	☑	,

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 030 **Surface:** AAC

L.C.D.: 1/1/2006 **Use:** TAXIWAY **Rank:** P **Length:** 475.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 35,427.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 040 **Surface:** AC

L.C.D.: 1/2/1965 **Use:** TAXIWAY **Rank:** P **Length:** 471.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 40,674.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1965	SU-AC	Surface Course - AC	50,842.50	4.00	☑	,
1/2/1965	NU-IN	New Construction - Initial			☑	
1/1/1965	BA-AG	Base Course - Aggregate		16.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 050 **Surface:** AC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 290.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 29,246.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1980	NU-IN	New Construction - Initial			☑	
1/2/1980	SU-AC	Surface Course - AC	36,557.50	4.00	☑	,
1/1/1980	BA-AG	Base Course - Aggregate		8.00	☐	

Network: NAS Barbers Point Ka **Branch:** TB4 Taxiway B4 **Section:** 060 **Surface:** AAC

L.C.D.: 1/1/1977 **Use:** TAXIWAY **Rank:** P **Length:** 426.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 37,830.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1977	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	47,287.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** TAXIWAY **Rank:** P **Length:** 354.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 28,252.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	35,315.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 020 **Surface:** AAC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 560.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 42,792.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	

Pavement Database: Kalaeloa

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 020 **Surface:** AAC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 560.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 42,792.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	53,490.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 030 **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** TAXIWAY **Rank:** P **Length:** 261.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 20,714.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	25,892.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 040 **Surface:** AAC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 750.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 52,695.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	65,868.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 050 **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** TAXIWAY **Rank:** P **Length:** 230.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 21,030.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	26,287.50	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 060 **Surface:** AAC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 107.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 9,371.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	11,713.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 070 **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** TAXIWAY **Rank:** P **Length:** 100.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 7,855.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	9,818.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 080 **Surface:** AAC

L.C.D.: 1/2/1980 **Use:** TAXIWAY **Rank:** P **Length:** 356.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 21,749.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1980	OL-AT	Overlay - AC Thin		3.00	☑	
1/1/1980	MI-CO	Cold Milling		3.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	27,186.25	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 090 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 798.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 61,870.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	77,337.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 100 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 315.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,507.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 100 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 315.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,507.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1959	NU-IN	New Construction - Initial		0.00	☑	
1/2/1959	SU-AC	Surface Course - AC	28,133.75	5.00	☑	,
1/1/1959	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC1 Taxiway C1 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/2000 **Use:** TAXIWAY **Rank:** P **Length:** 440.00 (Ft) **Width:** 170.00 (Ft) **True Area:** 73,949.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2000	MI-CO	Cold Milling		0.50	☐	
1/1/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1973	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1973	MI-CO	Cold Milling		2.00	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	92,436.25	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 110 **Surface:** AAC

L.C.D.: 1/2/2000 **Use:** TAXIWAY **Rank:** P **Length:** 125.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 9,374.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling	0.00	0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1959	NU-IN	New Construction - Initial			☑	
1/2/1959	SU-AC	Surface Course - AC	11,717.50	5.00	☑	,
1/1/1959	BA-AG	Base Course - Aggregate		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 120 **Surface:** AAC

L.C.D.: 1/2/2000 **Use:** TAXIWAY **Rank:** P **Length:** 100.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 7,918.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/2000	OL-AT	Overlay - AC Thin		2.50	☑	
1/1/2000	MI-CO	Cold Milling	0.00	0.50	☐	
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	SU-AC	Surface Course - AC	9,897.50	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 130 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 262.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,299.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 130 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 262.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 22,299.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1959	OL-AT	Overlay - AC Thin		2.50	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	27,873.75	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 140 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 482.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 50,319.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	62,898.75	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC Taxiway C **Section:** 150 **Surface:** AAC

L.C.D.: 1/2/1964 **Use:** TAXIWAY **Rank:** P **Length:** 3,094.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 232,055.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1964	NU-IN	New Construction - Initial			☑	
1/2/1964	SU-AC	Surface Course - AC	290,068.75	4.00	☑	,
1/1/1964	BA-AG	Base Course - Aggregate		12.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC2 Taxiway C2 **Section:** 010 **Surface:** AAC

L.C.D.: 1/2/1973 **Use:** TAXIWAY **Rank:** S **Length:** 349.00 (Ft) **Width:** 73.00 (Ft) **True Area:** 30,089.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/2/1973	OL-AT	Overlay - AC Thin		2.00	☑	
1/1/1973	MI-CO	Cold Milling	0.00	2.00	☐	
1/2/1942	SU-AC	Surface Course - AC	37,611.25	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC2 Taxiway C2 **Section:** 020 **Surface:** AAC

L.C.D.: 1/3/1964 **Use:** TAXIWAY **Rank:** P **Length:** 1,240.00 (Ft) **Width:** 37.50 (Ft) **True Area:** 49,776.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/3/1964	SU-AC	Surface Course - AC	62,220.00	4.00	☑	,
1/2/1964	NU-IN	New Construction - Initial		0.00	☑	
1/2/1964	BA-AG	Base Course - Aggregate		12.00	☐	
1/1/1964	SG-CO	Subgrade - Compacted	0.00	6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC2 Taxiway C2 **Section:** 030 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 1,240.00 (Ft) **Width:** 37.50 (Ft) **True Area:** 47,512.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	SU-AC	Surface Course - AC	59,390.00	2.50	☑	,
1/2/1942	NU-IN	New Construction - Initial			☑	
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC3 Taxiway C3 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1977 **Use:** TAXIWAY **Rank:** S **Length:** 359.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 35,292.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1977	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	44,115.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC4 Taxiway C4 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1977 **Use:** TAXIWAY **Rank:** S **Length:** 392.00 (Ft) **Width:** 75.00 (Ft) **True Area:** 37,992.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1977	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	47,490.00	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Network: NAS Barbers Point Ka **Branch:** TC5 Taxiway C5 **Section:** 010 **Surface:** AAC

L.C.D.: 1/1/1964 **Use:** TAXIWAY **Rank:** P **Length:** 416.00 (Ft) **Width:** 160.00 (Ft) **True Area:** 65,345.00 (SqFt)

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1964	OL-AT	Overlay - AC Thin		2.00	☑	
1/2/1942	NU-IN	New Construction - Initial			☑	
1/2/1942	SU-AC	Surface Course - AC	81,681.25	2.50	☑	,
1/1/1942	SG-CO	Subgrade - Compacted		6.00	☐	

Pavement Database: Kalaeloa

Summary:

Work Description	Section Count	Area Total (SqFt)	Thickness Avg (in)	Thickness STD (in)
Base Course - Aggregate	25	1,550,225.02	7.72	2.76
Cold Milling	161	7,773,592.09	1.22	0.82
Joint Seal (Localized)	13	1,817,168.03		
New Construction - Initial	145	10,241,470.10	0.42	1.23
Overlay - AC Thin	260	13,477,949.16	2.35	0.63
Subbase - Aggregate	1	8,000.00	8.00	0.00
Subgrade - Compacted	112	8,029,173.08	5.97	0.33
Surface Course - AC	123	6,472,740.07	2.73	0.62
Surface Course - PCC	12	2,952,303.03	10.58	1.75

APPENDIX A.3.1 –

BRANCH CONDITION

Branch Condition Report

Pavement Database: Kalaeloa

Branch ID	Number of Sections	Sum Section Length (Ft)	Avg Section Width (Ft)	True Area (SqFt)	Use	Average PCI	Standard Deviation PCI	Weighted Average PCI
A01	5	4,952.00	388.20	2,089,142.00	APRON	62.80	28.08	72.69
A02	6	2,266.00	190.50	782,300.02	APRON	80.33	23.46	42.32
A03	1	700.00	330.00	198,568.00	APRON	95.00	0.00	95.00
A04	1	1,400.00	100.00	216,338.00	APRON	31.00	0.00	31.00
R11	38	24,052.00	64.39	1,585,976.02	RUNWAY	59.11	15.01	61.91
R4L	12	13,500.00	66.67	900,693.01	RUNWAY	43.75	3.44	44.69
R4R	21	24,969.00	66.67	1,665,220.01	RUNWAY	61.24	9.89	58.66
STA	2	3,053.00	25.00	75,409.00	SHOULDER-	25.50	18.50	10.10
STC	1	766.00	25.00	18,807.00	SHOULDER-	41.00	0.00	41.00
TA	15	11,485.00	66.67	765,015.02	TAXIWAY	45.40	3.67	45.91
TA1	2	601.00	112.50	87,298.00	TAXIWAY	62.00	10.00	70.88
TA2	1	430.00	74.00	36,831.00	TAXIWAY	54.00	0.00	54.00
TB	7	6,058.00	75.71	458,117.00	TAXIWAY	57.57	4.10	58.45
TB1	2	715.00	200.00	149,641.00	TAXIWAY	58.00	1.00	57.83
TB2	1	290.00	98.00	30,719.00	TAXIWAY	60.00	0.00	60.00
TB3	1	290.00	98.00	31,005.00	TAXIWAY	57.00	0.00	57.00
TB4	7	2,362.00	75.00	199,636.00	TAXIWAY	69.29	22.18	69.14
TC	15	7,894.00	75.00	610,800.00	TAXIWAY	67.33	11.38	60.75
TC1	1	440.00	170.00	73,949.00	TAXIWAY	79.00	0.00	79.00
TC2	3	2,829.00	49.33	127,377.00	TAXIWAY	55.67	3.30	55.83
TC3	1	359.00	75.00	35,292.00	TAXIWAY	45.00	0.00	45.00
TC4	1	392.00	75.00	37,992.00	TAXIWAY	50.00	0.00	50.00
TC5	1	416.00	160.00	65,345.00	TAXIWAY	58.00	0.00	58.00

Branch Condition Report

Pavement Database: Kalaeloa

Use Category	Number of Sections	Total Area (SqFt)	Arithmetic Average PCI	Standard Deviation PCI	Weighted Average PCI
APRON	13	3286348.01916849	70.92	28.12	64.06
RUNWAY	71	4151889.04644737	57.14	13.74	56.87
SHOULDER-AF	3	94216.0000060069	30.67	16.78	16.27
TAXIWAY	58	2709017.03335841	58.43	13.93	56.66
ALL	145	10241470.0989803	58.34	16.66	58.75

APPENDIX A.3.2 –

SECTION CONDITION

Section Condition Report

Pavement Database: Kalaeloa

Branch ID	Section ID	Last Const. Date	Surface	Use	Rank	Lanes	True Area (SqFt)	Last Inspection	Age At Inspec	PCI
NetworkId: JRF										
A01	010	1/2/1951	PCC	APRON	S	0	479,993.00	12/4/2014	63	41
A01	030	1/2/1964	PCC	APRON	S	0	1,238,412.00	12/4/2014	50	83
A01	040	1/2/1981	AC	APRON	T	0	196,106.00	12/4/2014	33	74
A01	050	1/2/1952	PCC	APRON	T	0	24,905.00	12/4/2014	62	20
A01	060	1/2/2011	AC	APRON	T	0	149,726.00	12/4/2014	3	96
A02	010	1/1/1951	PCC	APRON	P	0	629,880.02	12/4/2014	63	34
A02	020	1/2/1964	PCC	APRON	P	0	100,323.00	12/4/2014	50	69
A02	031	1/2/1988	AAC	APRON	T	0	22,153.00	12/4/2014	26	96
A02	035	1/2/1988	AAC	APRON	T	0	4,510.00	12/4/2014	26	100
A02	041	1/2/1988	AAC	APRON	T	0	20,867.00	12/4/2014	26	83
A02	045	1/2/1988	AAC	APRON	T	0	4,567.00	12/4/2014	26	100
A03	010	1/2/2006	AC	APRON	S	0	198,568.00	12/4/2014	8	95
A04	010	1/1/1943	AC	APRON	S	0	216,338.00	12/4/2014	71	31
R11	010K	1/2/1986	PCC	RUNWAY	P	0	80,000.00	12/4/2014	28	80
R11	010L	1/2/1986	PCC	RUNWAY	P	0	56,400.00	12/4/2014	28	81
R11	010R	1/2/1986	PCC	RUNWAY	P	0	60,000.00	12/4/2014	28	82
R11	020K	1/1/2000	AAC	RUNWAY	P	0	60,000.00	12/4/2014	14	82
R11	020L	1/1/2000	AAC	RUNWAY	P	0	74,531.00	12/4/2014	14	75
R11	020R	1/1/2000	AAC	RUNWAY	P	0	70,000.00	12/4/2014	14	87
R11	030K	1/2/1986	AAC	RUNWAY	P	0	66,600.00	12/4/2014	28	54
R11	030L	1/2/1986	AAC	RUNWAY	P	0	127,468.00	12/4/2014	28	66
R11	030R	1/2/1986	AAC	RUNWAY	P	0	133,200.00	12/4/2014	28	63
R11	040K	1/1/2000	AAC	RUNWAY	P	0	8,000.00	12/4/2014	14	88
R11	040L	1/1/2000	AAC	RUNWAY	P	0	16,000.00	12/4/2014	14	48
R11	040R	1/1/2000	AAC	RUNWAY	P	0	16,000.00	12/4/2014	14	89
R11	050K	1/2/1986	AAC	RUNWAY	P	0	8,000.00	12/4/2014	28	48
R11	050L	1/2/1986	AAC	RUNWAY	P	0	16,000.00	12/4/2014	28	43
R11	050R	1/2/1986	AAC	RUNWAY	P	0	16,000.00	12/4/2014	28	69
R11	060K	1/2/1986	AAC	RUNWAY	P	0	4,822.00	12/4/2014	28	49
R11	060L	1/2/1986	AAC	RUNWAY	P	0	7,912.00	12/4/2014	28	54
R11	060R	1/2/1986	AAC	RUNWAY	P	0	3,340.00	12/4/2014	28	57
R11	070K	1/2/1986	AAC	RUNWAY	P	0	17,320.00	12/4/2014	28	50
R11	070L	1/2/1986	AAC	RUNWAY	P	0	17,534.00	12/4/2014	28	63
R11	070R	1/2/1986	AAC	RUNWAY	P	0	23,716.00	12/4/2014	28	72
R11	080K	1/2/1985	AAC	RUNWAY	P	0	10,346.00	12/4/2014	29	35
R11	080L	1/2/1985	AAC	RUNWAY	P	0	15,796.00	12/4/2014	29	46
R11	080R	1/2/1985	AAC	RUNWAY	P	0	7,911.00	12/4/2014	29	50
R11	090	1/2/1985	AAC	RUNWAY	P	0	2,608.00	12/4/2014	29	58
R11	100	1/2/1985	AAC	RUNWAY	P	0	3,306.00	12/4/2014	29	55
R11	110K	1/2/1985	AAC	RUNWAY	P	0	13,336.00	12/4/2014	29	39
R11	110L	1/2/1985	AAC	RUNWAY	P	0	14,910.00	12/4/2014	29	42
R11	110R	1/2/1985	AAC	RUNWAY	P	0	17,597.00	12/4/2014	29	42
R11	120K	1/2/1986	AAC	RUNWAY	P	0	42,000.00	12/4/2014	28	59
R11	120L	1/2/1986	AAC	RUNWAY	P	0	49,000.00	12/4/2014	28	64
R11	120R	1/2/1986	AAC	RUNWAY	P	0	49,000.00	12/4/2014	28	62
R11	130K	1/2/1986	AAC	RUNWAY	P	0	60,000.00	12/4/2014	28	43
R11	130L	1/2/1986	AAC	RUNWAY	P	0	70,000.00	12/4/2014	28	62
R11	130R	1/2/1986	AAC	RUNWAY	P	0	70,000.00	12/4/2014	28	48

Pavement Database: Kalaeloa

Branch ID	Section ID	Last Const. Date	Surface	Use	Rank	Lanes	True Area (SqFt)	Last Inspection	Age At Inspec	PCI
R11	140K	1/2/1986	AAC	RUNWAY	P	0	83,345.00	12/4/2014	28	45
R11	140L	1/2/1986	AAC	RUNWAY	P	0	96,956.00	12/4/2014	28	52
R11	140R	1/2/1986	AAC	RUNWAY	P	0	97,022.00	12/4/2014	28	44
R4L	010K	1/2/1986	AAC	RUNWAY	S	0	49,500.00	12/4/2014	28	38
R4L	010L	1/2/1986	AAC	RUNWAY	S	0	57,750.00	12/4/2014	28	45
R4L	010R	1/2/1986	AAC	RUNWAY	S	0	57,750.00	12/4/2014	28	43
R4L	020K	1/2/1986	AAC	RUNWAY	S	0	132,000.00	12/4/2014	28	40
R4L	020L	1/2/1986	AAC	RUNWAY	S	0	154,000.00	12/4/2014	28	47
R4L	020R	1/2/1986	AAC	RUNWAY	S	0	154,000.00	12/4/2014	28	50
R4L	030K	1/2/1986	AAC	RUNWAY	S	0	28,500.00	12/4/2014	28	39
R4L	030L	1/2/1986	AAC	RUNWAY	S	0	33,600.00	12/4/2014	28	44
R4L	030R	1/2/1986	AAC	RUNWAY	S	0	33,600.00	12/4/2014	28	43
R4L	040K	1/2/1986	AAC	RUNWAY	S	0	60,000.00	12/4/2014	28	48
R4L	040L	1/2/1986	AAC	RUNWAY	S	0	70,951.00	12/4/2014	28	43
R4L	040R	1/2/1986	AAC	RUNWAY	S	0	69,042.00	12/4/2014	28	45
R4R	010K	1/2/1961	PCC	RUNWAY	P	0	50,000.00	12/4/2014	53	65
R4R	010L	1/2/1961	PCC	RUNWAY	P	0	75,000.00	12/4/2014	53	81
R4R	010R	1/2/1961	PCC	RUNWAY	P	0	75,000.00	12/4/2014	53	75
R4R	020K	1/2/2004	AAC	RUNWAY	P	0	15,000.00	12/4/2014	10	64
R4R	020L	1/2/1985	AAC	RUNWAY	P	0	22,500.00	12/4/2014	29	50
R4R	020R	1/2/1985	AAC	RUNWAY	P	0	22,500.00	12/4/2014	29	46
R4R	030K	1/2/2004	AAC	RUNWAY	P	0	115,940.00	12/4/2014	10	65
R4R	030L	1/2/1985	AAC	RUNWAY	P	0	171,155.00	12/4/2014	29	53
R4R	030R	1/2/1985	AAC	RUNWAY	P	0	176,269.00	12/4/2014	29	43
R4R	040K	1/2/2004	AAC	RUNWAY	P	0	11,193.00	12/4/2014	10	65
R4R	040L	1/2/1985	AAC	RUNWAY	P	0	16,790.00	12/4/2014	29	62
R4R	040R	1/2/1985	AAC	RUNWAY	P	0	16,790.00	12/4/2014	29	61
R4R	050K	1/2/2004	AAC	RUNWAY	P	0	28,025.00	12/4/2014	10	73
R4R	050L	1/2/1985	AAC	RUNWAY	P	0	44,395.00	12/4/2014	29	63
R4R	050R	1/2/1985	AAC	RUNWAY	P	0	39,680.00	12/4/2014	29	65
R4R	060K	1/2/2004	AAC	RUNWAY	P	0	146,246.00	12/4/2014	10	68
R4R	060L	1/2/1985	AAC	RUNWAY	P	0	219,369.00	12/4/2014	29	58
R4R	060R	1/2/1985	AAC	RUNWAY	P	0	219,368.00	12/4/2014	29	50
R4R	070K	1/1/2004	AAC	RUNWAY	P	0	50,000.00	12/4/2014	10	74
R4R	070L	1/2/1985	AAC	RUNWAY	P	0	75,000.00	12/4/2014	29	55
R4R	070R	1/2/1985	AAC	RUNWAY	P	0	75,000.00	12/4/2014	29	50
STA	010	1/1/1986	AAC	SHOULDER-AF	T	0	6,322.00	12/4/2014	28	44
STA	020	1/1/1986	AAC	SHOULDER-AF	T	0	69,087.00	12/4/2014	28	7
STC	010	1/1/1986	AAC	SHOULDER-AF	T	0	18,807.00	12/4/2014	28	41
TA	010K	1/2/1986	AAC	TAXIWAY	P	0	90,000.00	12/4/2014	28	44
TA	010L	1/2/1986	AAC	TAXIWAY	P	0	105,000.00	12/4/2014	28	48
TA	010R	1/2/1986	AAC	TAXIWAY	P	0	105,000.00	12/4/2014	28	50
TA	020K	1/2/1986	AAC	TAXIWAY	P	0	93,000.00	12/4/2014	28	42
TA	020L	1/2/1986	AAC	TAXIWAY	P	0	108,500.00	12/4/2014	28	43
TA	020R	1/2/1986	AAC	TAXIWAY	P	0	108,500.00	12/4/2014	28	49
TA	030K	1/2/1986	AAC	TAXIWAY	P	0	15,074.00	12/4/2014	28	40
TA	030L	1/2/1986	AAC	TAXIWAY	P	0	15,294.00	12/4/2014	28	39
TA	030R	1/2/1986	AAC	TAXIWAY	P	0	19,894.00	12/4/2014	28	42

Pavement Database: Kalaeloa

Branch ID	Section ID	Last Const. Date	Surface	Use	Rank	Lanes	True Area (SqFt)	Last Inspection	Age At Inspec	PCI
TA	040K	1/2/1986	AAC	TAXIWAY	P	0	13,440.00	12/4/2014	28	49
TA	040L	1/2/1986	AAC	TAXIWAY	P	0	15,680.00	12/4/2014	28	49
TA	040R	1/2/1986	AAC	TAXIWAY	P	0	15,680.00	12/4/2014	28	47
TA	050K	1/2/1986	AAC	TAXIWAY	P	0	17,982.00	12/4/2014	28	48
TA	050L	1/2/1986	AAC	TAXIWAY	P	0	23,273.00	12/4/2014	28	49
TA	050R	1/2/1986	AAC	TAXIWAY	P	0	18,698.00	12/4/2014	28	42
TA1	010	1/2/1961	PCC	TAXIWAY	S	0	82,390.00	12/4/2014	53	72
TA1	020	1/2/1986	AAC	TAXIWAY	S	0	4,908.00	12/4/2014	28	52
TA2	010	1/1/1977	AAC	TAXIWAY	P	0	36,831.00	12/4/2014	37	54
TB	010	1/1/1965	AAC	TAXIWAY	P	0	67,790.00	12/4/2014	49	60
TB	020	1/1/1965	AAC	TAXIWAY	P	0	25,131.00	12/4/2014	49	48
TB	030	1/1/1965	AAC	TAXIWAY	P	0	11,067.00	12/4/2015	50	57
TB	040	1/1/1967	AAC	TAXIWAY	P	0	222,601.00	12/4/2014	47	58
TB	050	1/1/1967	AAC	TAXIWAY	P	0	18,949.00	12/4/2014	47	59
TB	060	1/1/1998	AAC	TAXIWAY	P	0	25,762.00	12/4/2014	16	60
TB	070	1/1/1998	AAC	TAXIWAY	P	0	86,817.00	12/4/2014	16	61
TB1	010	1/1/1967	AAC	TAXIWAY	P	0	62,122.00	12/4/2014	47	59
TB1	020	1/1/1961	AAC	TAXIWAY	P	0	87,519.00	12/4/2014	53	57
TB2	010	1/1/1967	AAC	TAXIWAY	P	0	30,719.00	12/4/2014	47	60
TB3	010	1/1/1967	AAC	TAXIWAY	P	0	31,005.00	12/4/2014	47	57
TB4	011	1/1/1964	AAC	TAXIWAY	P	0	9,817.00	12/4/2014	50	42
TB4	013	1/1/2006	AAC	TAXIWAY	P	0	26,073.00	12/4/2014	8	95
TB4	020	1/1/2006	AAC	TAXIWAY	P	0	20,569.00	12/4/2014	8	91
TB4	030	1/1/2006	AAC	TAXIWAY	P	0	35,427.00	12/4/2014	8	90
TB4	040	1/2/1965	AC	TAXIWAY	P	0	40,674.00	12/4/2014	49	36
TB4	050	1/2/1980	AC	TAXIWAY	P	0	29,246.00	12/4/2014	34	66
TB4	060	1/1/1977	AAC	TAXIWAY	P	0	37,830.00	12/4/2014	37	65
TC	010	1/1/2000	AAC	TAXIWAY	P	0	28,252.00	12/4/2014	14	74
TC	020	1/2/1980	AAC	TAXIWAY	P	0	42,792.00	12/4/2014	34	64
TC	030	1/1/2000	AAC	TAXIWAY	P	0	20,714.00	12/4/2014	14	82
TC	040	1/2/1980	AAC	TAXIWAY	P	0	52,695.00	12/4/2014	34	59
TC	050	1/1/2000	AAC	TAXIWAY	P	0	21,030.00	12/4/2014	14	79
TC	060	1/2/1980	AAC	TAXIWAY	P	0	9,371.00	12/4/2014	34	70
TC	070	1/1/2000	AAC	TAXIWAY	P	0	7,855.00	12/4/2014	14	83
TC	080	1/2/1980	AAC	TAXIWAY	P	0	21,749.00	12/4/2014	34	58
TC	090	1/1/1964	AAC	TAXIWAY	P	0	61,870.00	12/4/2014	50	59
TC	100	1/1/1964	AAC	TAXIWAY	P	0	22,507.00	12/4/2014	50	43
TC	110	1/2/2000	AAC	TAXIWAY	P	0	9,374.00	12/4/2014	14	80
TC	120	1/2/2000	AAC	TAXIWAY	P	0	7,918.00	12/4/2014	14	74
TC	130	1/1/1964	AAC	TAXIWAY	P	0	22,299.00	12/4/2014	50	72
TC	140	1/1/1964	AAC	TAXIWAY	P	0	50,319.00	12/4/2014	50	58
TC	150	1/2/1964	AAC	TAXIWAY	P	0	232,055.00	12/4/2014	50	55
TC1	010	1/1/2000	AAC	TAXIWAY	P	0	73,949.00	12/4/2014	14	79
TC2	010	1/2/1973	AAC	TAXIWAY	S	0	30,089.00	12/4/2014	41	55
TC2	020	1/3/1964	AAC	TAXIWAY	P	0	49,776.00	12/4/2014	50	60
TC2	030	1/1/1964	AAC	TAXIWAY	P	0	47,512.00	12/4/2014	50	52
TC3	010	1/1/1977	AAC	TAXIWAY	S	0	35,292.00	12/4/2014	37	45
TC4	010	1/1/1977	AAC	TAXIWAY	S	0	37,992.00	12/4/2014	37	50
TC5	010	1/1/1964	AAC	TAXIWAY	P	0	65,345.00	12/4/2014	50	58

Section Condition Report (Summary)

Pavement Database: Kalaeloa

Age Category	Average Age at Inspection	Total Area (SqFt)	Number of Sections	Arithmetic Average PCI	Standard Deviation PCI	Weighted Average PCI
03-05	3	149,726.00	1	96.00	0.00	96.00
06-10	9	647,041.00	10	78.00	12.51	79.31
11-15	14	413,623.00	13	78.46	10.01	79.24
16-20	16	112,579.00	2	60.50	0.50	60.77
26-30	28	4,257,190.05	79	52.68	14.79	51.31
31-35	34	351,959.00	6	65.17	5.67	68.78
36-40	37	147,945.00	4	53.50	7.37	53.64
41-50	49	2,440,382.01	21	57.14	9.91	70.32
Over 50	58	1,721,025.03	9	52.89	20.73	43.10
ALL	31	10,241,470.10	145	58.34	16.66	58.75

APPENDIX A.3.3 –
AIRPORT PHOTOS



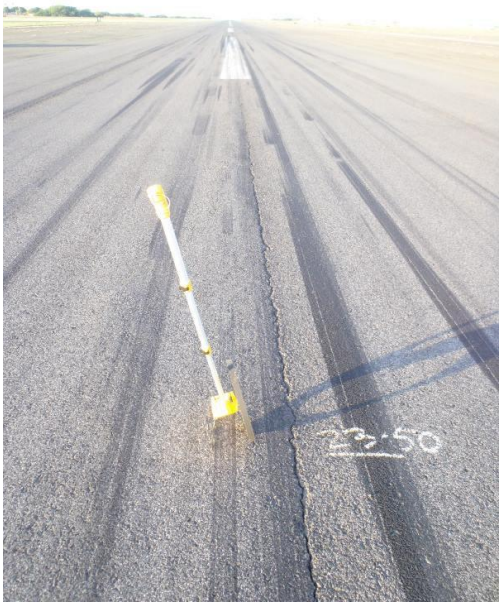
Patching and Utility Cut



Longitudinal Crack (Low)



Bleeding



Longitudinal Crack (Medium)



Weathering

APPENDIX A.3.4 –
AIRPORT DISTRESSES

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
East Apron	041	02	BLEEDING	2	SqFt	N
East Apron	020	03	CORNER SPALLING	1	Slabs	L
East Apron	020	12	CORNER SPALLING	1	Slabs	L
East Apron	010	01	CORNER SPALLING	1	Slabs	M
East Apron	020	18	CORNER SPALLING	1	Slabs	M
East Apron	020	18	CORNER SPALLING	1	Slabs	H
East Apron	010	31	JOINT SEAL DAMAGE	20.00	Slabs	M
East Apron	010	36	JOINT SEAL DAMAGE	20	Slabs	M
East Apron	020	03	JOINT SEAL DAMAGE	20	Slabs	H
East Apron	010	55	JOINT SEAL DAMAGE	20	Slabs	M
East Apron	010	11	JOINT SEAL DAMAGE	20	Slabs	M
East Apron	010	41	JOINT SEAL DAMAGE	20	Slabs	M
East Apron	010	16	JOINT SEAL DAMAGE	20	Slabs	M
East Apron	020	12	JOINT SEAL DAMAGE	20	Slabs	H
East Apron	010	71	JOINT SEAL DAMAGE	20	Slabs	M
East Apron	010	21	JOINT SEAL DAMAGE	20	Slabs	M
East Apron	010	21	JOINT SEAL DAMAGE	20	Slabs	L
East Apron	010	75	JOINT SEAL DAMAGE	20	Slabs	M
East Apron	020	22	JOINT SEAL DAMAGE	20	Slabs	H
East Apron	010	61	JOINT SEAL DAMAGE	20	Slabs	M
East Apron	010	01	JOINT SEAL DAMAGE	15	Slabs	H
East Apron	010	81	JOINT SEAL DAMAGE	20	Slabs	M
East Apron	020	18	JOINT SEAL DAMAGE	20	Slabs	H
East Apron	010	31	JOINT SPALLING	1.00	Slabs	L
East Apron	010	41	JOINT SPALLING	1	Slabs	L
East Apron	020	12	JOINT SPALLING	1	Slabs	L
East Apron	010	01	JOINT SPALLING	1	Slabs	M
East Apron	010	36	LARGE PATCH/UTILITY	2	Slabs	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
East Apron	010	36	LARGE PATCH/UTILITY	1	Slabs	M
East Apron	010	71	LARGE PATCH/UTILITY	1	Slabs	M
East Apron	010	21	LARGE PATCH/UTILITY	1	Slabs	L
East Apron	010	61	LARGE PATCH/UTILITY	1	Slabs	L
East Apron	010	31	LINEAR CRACKING	7.00	Slabs	L
East Apron	010	36	LINEAR CRACKING	1	Slabs	L
East Apron	010	36	LINEAR CRACKING	4	Slabs	M
East Apron	020	03	LINEAR CRACKING	4	Slabs	L
East Apron	020	03	LINEAR CRACKING	1	Slabs	L
East Apron	020	03	LINEAR CRACKING	4	Slabs	M
East Apron	010	55	LINEAR CRACKING	9	Slabs	L
East Apron	010	11	LINEAR CRACKING	7	Slabs	L
East Apron	010	51	LINEAR CRACKING	9	Slabs	L
East Apron	010	41	LINEAR CRACKING	10	Slabs	L
East Apron	010	16	LINEAR CRACKING	2	Slabs	M
East Apron	010	16	LINEAR CRACKING	1	Slabs	L
East Apron	020	12	LINEAR CRACKING	1	Slabs	L
East Apron	010	71	LINEAR CRACKING	11	Slabs	L
East Apron	010	71	LINEAR CRACKING	2	Slabs	M
East Apron	010	75	LINEAR CRACKING	1	Slabs	L
East Apron	010	61	LINEAR CRACKING	11	Slabs	L
East Apron	010	01	LINEAR CRACKING	4	Slabs	M
East Apron	010	81	LINEAR CRACKING	4	Slabs	L
East Apron	020	18	LINEAR CRACKING	5	Slabs	L
East Apron	031	03	LONGITUDINAL/TRANSVERSE CRACKING	5	Ft	L
East Apron	041	02	LONGITUDINAL/TRANSVERSE CRACKING	60	Ft	L
East Apron	041	02	LONGITUDINAL/TRANSVERSE CRACKING	60	Ft	M
East Apron	031	02	LONGITUDINAL/TRANSVERSE CRACKING	5	Ft	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
East Apron	041	01	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
East Apron	041	01	LONGITUDINAL/TRANSVERSE CRACKING	66	Ft	L
East Apron	031	01	LONGITUDINAL/TRANSVERSE CRACKING	43	Ft	L
East Apron	010	31	SCALING	4.00	Slabs	L
East Apron	010	36	SCALING	1	Slabs	L
East Apron	010	55	SCALING	3	Slabs	L
East Apron	010	51	SCALING	1	Slabs	L
East Apron	010	41	SCALING	2	Slabs	L
East Apron	010	16	SCALING	1	Slabs	L
East Apron	010	71	SCALING	2	Slabs	L
East Apron	010	21	SCALING	4	Slabs	L
East Apron	010	75	SCALING	2	Slabs	L
East Apron	010	61	SCALING	3	Slabs	L
East Apron	010	31	SHATTERED SLAB	6.00	Slabs	L
East Apron	010	36	SHATTERED SLAB	4	Slabs	L
East Apron	010	36	SHATTERED SLAB	10	Slabs	M
East Apron	010	55	SHATTERED SLAB	6	Slabs	L
East Apron	010	11	SHATTERED SLAB	1	Slabs	M
East Apron	010	11	SHATTERED SLAB	2	Slabs	L
East Apron	010	51	SHATTERED SLAB	3	Slabs	M
East Apron	010	51	SHATTERED SLAB	5	Slabs	L
East Apron	010	41	SHATTERED SLAB	1	Slabs	L
East Apron	010	16	SHATTERED SLAB	4	Slabs	M
East Apron	010	16	SHATTERED SLAB	11	Slabs	L
East Apron	010	71	SHATTERED SLAB	1	Slabs	M
East Apron	010	71	SHATTERED SLAB	3	Slabs	L
East Apron	010	21	SHATTERED SLAB	4	Slabs	M
East Apron	010	21	SHATTERED SLAB	7	Slabs	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
East Apron	010	75	SHATTERED SLAB	2	Slabs	M
East Apron	010	75	SHATTERED SLAB	8	Slabs	L
East Apron	010	61	SHATTERED SLAB	3	Slabs	L
East Apron	010	61	SHATTERED SLAB	1	Slabs	L
East Apron	010	81	SHATTERED SLAB	4	Slabs	M
East Apron	010	81	SHATTERED SLAB	6	Slabs	L
East Apron	010	81	SHATTERED SLAB	4	Slabs	M
East Apron	020	18	SHATTERED SLAB	4	Slabs	L
East Apron	010	55	SHRINKAGE CRACKING	1	Slabs	N
East Apron	010	11	SHRINKAGE CRACKING	1	Slabs	N
East Apron	010	51	SHRINKAGE CRACKING	1	Slabs	N
East Apron	010	75	SHRINKAGE CRACKING	1	Slabs	N
East Apron	020	18	SHRINKAGE CRACKING	1	Slabs	N
East Apron	010	31	SMALL PATCH	1.00	Slabs	H
East Apron	010	31	SMALL PATCH	3.00	Slabs	L
East Apron	010	36	SMALL PATCH	1	Slabs	L
East Apron	010	55	SMALL PATCH	1	Slabs	L
East Apron	010	55	SMALL PATCH	1	Slabs	M
East Apron	010	11	SMALL PATCH	7	Slabs	L
East Apron	010	11	SMALL PATCH	2	Slabs	M
East Apron	010	11	SMALL PATCH	2	Slabs	H
East Apron	010	51	SMALL PATCH	2	Slabs	M
East Apron	010	41	SMALL PATCH	2	Slabs	M
East Apron	010	41	SMALL PATCH	8	Slabs	L
East Apron	010	16	SMALL PATCH	2	Slabs	H
East Apron	010	16	SMALL PATCH	2	Slabs	M
East Apron	010	71	SMALL PATCH	1	Slabs	L
East Apron	010	71	SMALL PATCH	1	Slabs	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
East Apron	010	21	SMALL PATCH	3	Slabs	L
East Apron	010	75	SMALL PATCH	2	Slabs	M
East Apron	010	75	SMALL PATCH	5	Slabs	L
East Apron	010	61	SMALL PATCH	4	Slabs	L
East Apron	010	61	SMALL PATCH	3	Slabs	M
East Apron	010	81	SMALL PATCH	2	Slabs	L
East Apron	031	03	WEATHERING	114	SqFt	L
East Apron	041	02	WEATHERING	332	SqFt	L
East Apron	031	02	WEATHERING	114	SqFt	L
East Apron	041	01	WEATHERING	318	SqFt	L
East Apron	031	01	WEATHERING	566	SqFt	L
Hanger 110 and 111 Apron	010	34	LONGITUDINAL/TRANSVERSE CRACKING	140.00	Ft	L
ger 110 and 111 A	010	28	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
ger 110 and 111 A	010	37	LONGITUDINAL/TRANSVERSE CRACKING	57	Ft	L
ger 110 and 111 A	010	24	LONGITUDINAL/TRANSVERSE CRACKING	4	Ft	L
ger 110 and 111 A	010	17	LONGITUDINAL/TRANSVERSE CRACKING	131	Ft	L
Hanger 110 and 111 Apron	010	34	WEATHERING	326.00	SqFt	L
ger 110 and 111 A	010	37	WEATHERING	206	SqFt	L
NE Main Apron	030	103	CORNER BREAK	1.00	Slabs	L
NE Main Apron	030	82	CORNER BREAK	1	Slabs	L
NE Main Apron	010	01	CORNER BREAK	1	Slabs	L
NE Main Apron	030	19	CORNER BREAK	1	Slabs	M
NE Main Apron	010	08	CORNER SPALLING	1.00	Slabs	L
NE Main Apron	030	147	CORNER SPALLING	1.00	Slabs	L
NE Main Apron	030	103	CORNER SPALLING	1.00	Slabs	L
NE Main Apron	030	306	CORNER SPALLING	1	Slabs	L
NE Main Apron	010	106	CORNER SPALLING	1	Slabs	M
NE Main Apron	030	132	CORNER SPALLING	1	Slabs	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	030	177	CORNER SPALLING	1	Slabs	L
NE Main Apron	030	250	CORNER SPALLING	2	Slabs	L
NE Main Apron	030	141	CORNER SPALLING	2	Slabs	L
NE Main Apron	030	213	CORNER SPALLING	1	Slabs	L
NE Main Apron	030	124	CORNER SPALLING	1	Slabs	L
NE Main Apron	030	88	CORNER SPALLING	1	Slabs	L
NE Main Apron	010	113	CORNER SPALLING	1	Slabs	M
NE Main Apron	010	01	CORNER SPALLING	4	Slabs	L
NE Main Apron	030	245	CORNER SPALLING	1	Slabs	L
NE Main Apron	030	109	CORNER SPALLING	1	Slabs	L
NE Main Apron	030	204	CORNER SPALLING	1	Slabs	L
NE Main Apron	010	92	CORNER SPALLING	3	Slabs	L
NE Main Apron	030	10	CORNER SPALLING	1	Slabs	L
NE Main Apron	030	330	CORNER SPALLING	1	Slabs	L
NE Main Apron	030	45	CORNER SPALLING	1	Slabs	L
NE Main Apron	010	85	CORNER SPALLING	3	Slabs	L
NE Main Apron	030	54	CORNER SPALLING	1	Slabs	L
NE Main Apron	030	240	CORNER SPALLING	3	Slabs	L
NE Main Apron	030	280	CORNER SPALLING	2	Slabs	M
NE Main Apron	010	99	CORNER SPALLING	1	Slabs	M
NE Main Apron	050	01	CORNER SPALLING	2	Slabs	L
NE Main Apron	050	01	CORNER SPALLING	2	Slabs	M
NE Main Apron	030	287	CORNER SPALLING	2	Slabs	L
NE Main Apron	030	30	CORNER SPALLING	1	Slabs	L
NE Main Apron	050	05	CORNER SPALLING	4	Slabs	M
NE Main Apron	040	33	DEPRESSION	150	SqFt	L
NE Main Apron	040	28	DEPRESSION	150	SqFt	L
NE Main Apron	010	65	FAULTING	1	Slabs	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	010	29	FAULTING	1	Slabs	L
NE Main Apron	010	08	JOINT SEAL DAMAGE	20.00	Slabs	M
NE Main Apron	010	22	JOINT SEAL DAMAGE	20.00	Slabs	M
NE Main Apron	030	216	JOINT SEAL DAMAGE	20.00	Slabs	M
NE Main Apron	030	147	JOINT SEAL DAMAGE	20.00	Slabs	L
NE Main Apron	030	103	JOINT SEAL DAMAGE	20.00	Slabs	L
NE Main Apron	030	306	JOINT SEAL DAMAGE	24	Slabs	M
NE Main Apron	010	106	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	01	JOINT SEAL DAMAGE	21	Slabs	L
NE Main Apron	010	36	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	132	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	177	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	250	JOINT SEAL DAMAGE	18	Slabs	H
NE Main Apron	030	308	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	219	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	141	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	213	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	180	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	82	JOINT SEAL DAMAGE	20	Slabs	L
NE Main Apron	030	124	JOINT SEAL DAMAGE	20	Slabs	L
NE Main Apron	030	88	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	010	113	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	010	01	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	60	JOINT SEAL DAMAGE	24	Slabs	L
NE Main Apron	030	128	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	210	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	109	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	204	JOINT SEAL DAMAGE	20	Slabs	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	010	92	JOINT SEAL DAMAGE	20	Slabs	H
NE Main Apron	030	10	JOINT SEAL DAMAGE	20	Slabs	L
NE Main Apron	030	171	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	010	51	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	010	37	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	28	JOINT SEAL DAMAGE	24	Slabs	L
NE Main Apron	030	330	JOINT SEAL DAMAGE	24	Slabs	M
NE Main Apron	010	72	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	010	15	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	19	JOINT SEAL DAMAGE	20	Slabs	L
NE Main Apron	030	273	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	45	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	010	85	JOINT SEAL DAMAGE	20	Slabs	H
NE Main Apron	010	65	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	195	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	54	JOINT SEAL DAMAGE	20	Slabs	L
NE Main Apron	030	97	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	315	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	240	JOINT SEAL DAMAGE	18	Slabs	M
NE Main Apron	030	156	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	118	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	266	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	76	JOINT SEAL DAMAGE	20	Slabs	L
NE Main Apron	030	327	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	010	29	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	010	58	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	251	JOINT SEAL DAMAGE	18	Slabs	M
NE Main Apron	030	280	JOINT SEAL DAMAGE	20	Slabs	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	010	99	JOINT SEAL DAMAGE	20	Slabs	H
NE Main Apron	050	04	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	050	01	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	294	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	287	JOINT SEAL DAMAGE	20	Slabs	L
NE Main Apron	030	320	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	010	44	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	010	120	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	30	JOINT SEAL DAMAGE	20	Slabs	L
NE Main Apron	030	165	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	67	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	313	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	030	301	JOINT SEAL DAMAGE	20	Slabs	M
NE Main Apron	050	05	JOINT SEAL DAMAGE	20	Slabs	H
NE Main Apron	010	08	JOINT SPALLING	1.00	Slabs	L
NE Main Apron	010	22	JOINT SPALLING	1.00	Slabs	M
NE Main Apron	030	216	JOINT SPALLING	7.00	Slabs	L
NE Main Apron	030	147	JOINT SPALLING	4.00	Slabs	L
NE Main Apron	030	103	JOINT SPALLING	9.00	Slabs	L
NE Main Apron	030	306	JOINT SPALLING	4	Slabs	L
NE Main Apron	030	01	JOINT SPALLING	1	Slabs	L
NE Main Apron	010	36	JOINT SPALLING	1	Slabs	M
NE Main Apron	030	132	JOINT SPALLING	7	Slabs	L
NE Main Apron	030	177	JOINT SPALLING	4	Slabs	L
NE Main Apron	030	177	JOINT SPALLING	1	Slabs	M
NE Main Apron	030	250	JOINT SPALLING	7	Slabs	L
NE Main Apron	030	250	JOINT SPALLING	3	Slabs	M
NE Main Apron	030	308	JOINT SPALLING	1	Slabs	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	030	219	JOINT SPALLING	9	Slabs	M
NE Main Apron	030	141	JOINT SPALLING	1	Slabs	L
NE Main Apron	030	213	JOINT SPALLING	5	Slabs	L
NE Main Apron	030	180	JOINT SPALLING	6	Slabs	L
NE Main Apron	030	82	JOINT SPALLING	3	Slabs	L
NE Main Apron	030	82	JOINT SPALLING	2	Slabs	M
NE Main Apron	030	124	JOINT SPALLING	5	Slabs	L
NE Main Apron	030	88	JOINT SPALLING	5	Slabs	L
NE Main Apron	010	113	JOINT SPALLING	2	Slabs	M
NE Main Apron	030	245	JOINT SPALLING	7	Slabs	L
NE Main Apron	030	245	JOINT SPALLING	10	Slabs	M
NE Main Apron	030	60	JOINT SPALLING	1	Slabs	L
NE Main Apron	030	128	JOINT SPALLING	8	Slabs	L
NE Main Apron	030	210	JOINT SPALLING	9	Slabs	L
NE Main Apron	030	109	JOINT SPALLING	4	Slabs	L
NE Main Apron	030	204	JOINT SPALLING	1	Slabs	M
NE Main Apron	030	204	JOINT SPALLING	2	Slabs	L
NE Main Apron	010	92	JOINT SPALLING	8	Slabs	L
NE Main Apron	010	92	JOINT SPALLING	2	Slabs	M
NE Main Apron	030	171	JOINT SPALLING	2	Slabs	L
NE Main Apron	010	51	JOINT SPALLING	2	Slabs	M
NE Main Apron	010	51	JOINT SPALLING	2	Slabs	L
NE Main Apron	030	28	JOINT SPALLING	2	Slabs	L
NE Main Apron	030	330	JOINT SPALLING	1	Slabs	M
NE Main Apron	030	330	JOINT SPALLING	2	Slabs	L
NE Main Apron	030	19	JOINT SPALLING	2	Slabs	L
NE Main Apron	030	273	JOINT SPALLING	2	Slabs	L
NE Main Apron	030	45	JOINT SPALLING	6	Slabs	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	030	45	JOINT SPALLING	1	Slabs	M
NE Main Apron	010	85	JOINT SPALLING	6	Slabs	L
NE Main Apron	010	85	JOINT SPALLING	6	Slabs	M
NE Main Apron	010	65	JOINT SPALLING	1	Slabs	L
NE Main Apron	030	195	JOINT SPALLING	1	Slabs	L
NE Main Apron	030	54	JOINT SPALLING	4	Slabs	L
NE Main Apron	030	240	JOINT SPALLING	14	Slabs	M
NE Main Apron	030	240	JOINT SPALLING	3	Slabs	L
NE Main Apron	030	156	JOINT SPALLING	5	Slabs	L
NE Main Apron	030	118	JOINT SPALLING	1	Slabs	L
NE Main Apron	030	266	JOINT SPALLING	3	Slabs	L
NE Main Apron	030	76	JOINT SPALLING	1	Slabs	L
NE Main Apron	010	29	JOINT SPALLING	2	Slabs	L
NE Main Apron	010	58	JOINT SPALLING	1	Slabs	L
NE Main Apron	030	251	JOINT SPALLING	2	Slabs	L
NE Main Apron	030	280	JOINT SPALLING	2	Slabs	L
NE Main Apron	030	280	JOINT SPALLING	2	Slabs	M
NE Main Apron	010	99	JOINT SPALLING	7	Slabs	L
NE Main Apron	010	99	JOINT SPALLING	3	Slabs	M
NE Main Apron	050	04	JOINT SPALLING	5	Slabs	L
NE Main Apron	050	04	JOINT SPALLING	4	Slabs	M
NE Main Apron	050	01	JOINT SPALLING	5	Slabs	L
NE Main Apron	050	01	JOINT SPALLING	1	Slabs	M
NE Main Apron	030	294	JOINT SPALLING	3	Slabs	L
NE Main Apron	030	287	JOINT SPALLING	2	Slabs	L
NE Main Apron	010	44	JOINT SPALLING	3	Slabs	L
NE Main Apron	010	44	JOINT SPALLING	1	Slabs	M
NE Main Apron	030	30	JOINT SPALLING	1	Slabs	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	030	165	JOINT SPALLING	4	Slabs	L
NE Main Apron	030	67	JOINT SPALLING	7	Slabs	L
NE Main Apron	030	313	JOINT SPALLING	1	Slabs	L
NE Main Apron	050	05	JOINT SPALLING	3	Slabs	L
NE Main Apron	050	05	JOINT SPALLING	5	Slabs	M
NE Main Apron	050	05	JOINT SPALLING	1	Slabs	H
NE Main Apron	030	216	LARGE PATCH/UTILITY	1.00	Slabs	M
NE Main Apron	030	216	LARGE PATCH/UTILITY	4.00	Slabs	L
NE Main Apron	030	103	LARGE PATCH/UTILITY	4.00	Slabs	L
NE Main Apron	010	106	LARGE PATCH/UTILITY	1	Slabs	M
NE Main Apron	030	132	LARGE PATCH/UTILITY	2	Slabs	L
NE Main Apron	030	177	LARGE PATCH/UTILITY	4	Slabs	L
NE Main Apron	030	245	LARGE PATCH/UTILITY	2	Slabs	L
NE Main Apron	030	128	LARGE PATCH/UTILITY	4	Slabs	L
NE Main Apron	010	51	LARGE PATCH/UTILITY	1	Slabs	M
NE Main Apron	030	19	LARGE PATCH/UTILITY	4	Slabs	L
NE Main Apron	030	240	LARGE PATCH/UTILITY	2	Slabs	L
NE Main Apron	030	280	LARGE PATCH/UTILITY	8	Slabs	L
NE Main Apron	050	04	LARGE PATCH/UTILITY	10	Slabs	M
NE Main Apron	050	04	LARGE PATCH/UTILITY	2	Slabs	H
NE Main Apron	050	01	LARGE PATCH/UTILITY	2	Slabs	M
NE Main Apron	050	05	LARGE PATCH/UTILITY	1	Slabs	H
NE Main Apron	010	08	LINEAR CRACKING	13.00	Slabs	L
NE Main Apron	010	08	LINEAR CRACKING	4.00	Slabs	M
NE Main Apron	010	22	LINEAR CRACKING	6.00	Slabs	L
NE Main Apron	010	22	LINEAR CRACKING	1.00	Slabs	M
NE Main Apron	010	106	LINEAR CRACKING	9	Slabs	M
NE Main Apron	010	106	LINEAR CRACKING	11	Slabs	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	030	01	LINEAR CRACKING	1	Slabs	M
NE Main Apron	030	01	LINEAR CRACKING	5	Slabs	L
NE Main Apron	010	36	LINEAR CRACKING	2	Slabs	M
NE Main Apron	010	36	LINEAR CRACKING	3	Slabs	L
NE Main Apron	030	88	LINEAR CRACKING	1	Slabs	M
NE Main Apron	010	113	LINEAR CRACKING	11	Slabs	M
NE Main Apron	010	113	LINEAR CRACKING	8	Slabs	L
NE Main Apron	010	01	LINEAR CRACKING	6	Slabs	L
NE Main Apron	010	01	LINEAR CRACKING	3	Slabs	M
NE Main Apron	010	92	LINEAR CRACKING	2	Slabs	L
NE Main Apron	010	92	LINEAR CRACKING	18	Slabs	M
NE Main Apron	010	51	LINEAR CRACKING	13	Slabs	M
NE Main Apron	010	51	LINEAR CRACKING	4	Slabs	L
NE Main Apron	010	37	LINEAR CRACKING	4	Slabs	L
NE Main Apron	010	37	LINEAR CRACKING	8	Slabs	M
NE Main Apron	010	72	LINEAR CRACKING	8	Slabs	M
NE Main Apron	010	72	LINEAR CRACKING	7	Slabs	L
NE Main Apron	010	15	LINEAR CRACKING	15	Slabs	L
NE Main Apron	010	15	LINEAR CRACKING	3	Slabs	M
NE Main Apron	030	19	LINEAR CRACKING	1	Slabs	M
NE Main Apron	010	85	LINEAR CRACKING	14	Slabs	M
NE Main Apron	010	65	LINEAR CRACKING	9	Slabs	L
NE Main Apron	010	65	LINEAR CRACKING	8	Slabs	M
NE Main Apron	030	315	LINEAR CRACKING	2	Slabs	L
NE Main Apron	030	315	LINEAR CRACKING	1	Slabs	M
NE Main Apron	030	266	LINEAR CRACKING	1	Slabs	M
NE Main Apron	010	29	LINEAR CRACKING	10	Slabs	L
NE Main Apron	010	29	LINEAR CRACKING	5	Slabs	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	010	58	LINEAR CRACKING	7	Slabs	M
NE Main Apron	010	58	LINEAR CRACKING	9	Slabs	L
NE Main Apron	010	99	LINEAR CRACKING	20	Slabs	M
NE Main Apron	050	04	LINEAR CRACKING	6	Slabs	M
NE Main Apron	050	04	LINEAR CRACKING	6	Slabs	L
NE Main Apron	050	01	LINEAR CRACKING	4	Slabs	L
NE Main Apron	050	01	LINEAR CRACKING	13	Slabs	M
NE Main Apron	030	287	LINEAR CRACKING	2	Slabs	M
NE Main Apron	030	320	LINEAR CRACKING	1	Slabs	M
NE Main Apron	010	44	LINEAR CRACKING	7	Slabs	M
NE Main Apron	010	44	LINEAR CRACKING	2	Slabs	L
NE Main Apron	010	120	LINEAR CRACKING	12	Slabs	M
NE Main Apron	010	120	LINEAR CRACKING	5	Slabs	L
NE Main Apron	030	313	LINEAR CRACKING	1	Slabs	M
NE Main Apron	030	301	LINEAR CRACKING	1	Slabs	L
NE Main Apron	050	05	LINEAR CRACKING	3	Slabs	L
NE Main Apron	050	05	LINEAR CRACKING	10	Slabs	M
NE Main Apron	050	05	LINEAR CRACKING	1	Slabs	H
NE Main Apron	040	23	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	L
NE Main Apron	040	15	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	L
NE Main Apron	040	18	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
NE Main Apron	040	01	LONGITUDINAL/TRANSVERSE CRACKING	40	Ft	L
NE Main Apron	040	01	LONGITUDINAL/TRANSVERSE CRACKING	40	Ft	M
NE Main Apron	040	23	RAVELING	500	SqFt	L
NE Main Apron	040	15	RAVELING	1000	SqFt	L
NE Main Apron	040	18	RAVELING	1000	SqFt	L
NE Main Apron	040	33	RAVELING	500	SqFt	L
NE Main Apron	040	33	RAVELING	150	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	040	01	RAVELING	2500	SqFt	L
NE Main Apron	040	28	RAVELING	500	SqFt	L
NE Main Apron	040	28	RAVELING	150	SqFt	M
NE Main Apron	010	08	SCALING	2.00	Slabs	L
NE Main Apron	010	22	SCALING	13.00	Slabs	L
NE Main Apron	010	106	SCALING	4	Slabs	L
NE Main Apron	010	36	SCALING	10	Slabs	L
NE Main Apron	030	180	SCALING	3	Slabs	L
NE Main Apron	030	88	SCALING	1	Slabs	L
NE Main Apron	010	113	SCALING	3	Slabs	L
NE Main Apron	030	204	SCALING	1	Slabs	L
NE Main Apron	010	92	SCALING	10	Slabs	L
NE Main Apron	010	51	SCALING	6	Slabs	L
NE Main Apron	010	37	SCALING	9	Slabs	L
NE Main Apron	010	72	SCALING	2	Slabs	L
NE Main Apron	010	15	SCALING	9	Slabs	L
NE Main Apron	010	85	SCALING	10	Slabs	L
NE Main Apron	010	65	SCALING	5	Slabs	L
NE Main Apron	010	29	SCALING	7	Slabs	L
NE Main Apron	010	58	SCALING	6	Slabs	L
NE Main Apron	010	99	SCALING	5	Slabs	L
NE Main Apron	010	44	SCALING	1	Slabs	L
NE Main Apron	030	124	SHRINKAGE CRACKING	1	Slabs	N
NE Main Apron	030	245	SHRINKAGE CRACKING	1	Slabs	N
NE Main Apron	030	28	SHRINKAGE CRACKING	1	Slabs	N
NE Main Apron	010	85	SHRINKAGE CRACKING	1	Slabs	N
NE Main Apron	030	54	SHRINKAGE CRACKING	1	Slabs	N
NE Main Apron	010	44	SHRINKAGE CRACKING	1	Slabs	N

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
NE Main Apron	010	44	SHRINKAGE CRACKING	2	Slabs	N
NE Main Apron	010	113	SMALL PATCH	1	Slabs	L
NE Main Apron	030	60	SMALL PATCH	1	Slabs	L
NE Main Apron	030	204	SMALL PATCH	1	Slabs	M
NE Main Apron	010	92	SMALL PATCH	6	Slabs	L
NE Main Apron	030	10	SMALL PATCH	1	Slabs	L
NE Main Apron	010	51	SMALL PATCH	4	Slabs	M
NE Main Apron	010	51	SMALL PATCH	1	Slabs	L
NE Main Apron	010	85	SMALL PATCH	1	Slabs	L
NE Main Apron	010	65	SMALL PATCH	3	Slabs	L
NE Main Apron	030	240	SMALL PATCH	1	Slabs	L
NE Main Apron	010	58	SMALL PATCH	2	Slabs	M
NE Main Apron	010	99	SMALL PATCH	5	Slabs	L
NE Main Apron	050	04	SMALL PATCH	1	Slabs	M
NE Main Apron	050	01	SMALL PATCH	1	Slabs	M
NE Main Apron	030	320	SMALL PATCH	1	Slabs	L
NE Main Apron	030	313	SMALL PATCH	2	Slabs	L
NE Main Apron	030	313	SMALL PATCH	1	Slabs	M
NE Main Apron	050	05	SMALL PATCH	2	Slabs	L
NE Main Apron	060	28	SWELLING	1	SqFt	M
NE Main Apron	060	24	SWELLING	4	SqFt	M
NE Main Apron	040	23	WEATHERING	4500	SqFt	L
NE Main Apron	040	15	WEATHERING	500	SqFt	L
NE Main Apron	040	18	WEATHERING	500	SqFt	M
NE Main Apron	040	33	WEATHERING	4350	SqFt	L
NE Main Apron	040	01	WEATHERING	500	SqFt	M
NE Main Apron	040	28	WEATHERING	4350	SqFt	L
Runway 11	070K	01	ALLIGATOR CRACKING	75	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	070K	02	BLEEDING	400	SqFt	N
Runway 11	050K	02	BLEEDING	100	SqFt	N
Runway 11	030R	10	BLEEDING	45	SqFt	N
Runway 11	060R	1	BLEEDING	8	SqFt	N
Runway 11	070L	01	BLEEDING	30	SqFt	N
Runway 11	050L	03	BLEEDING	6	SqFt	N
Runway 11	060K	01	BLEEDING	450	SqFt	N
Runway 11	050L	01	BLEEDING	100	SqFt	N
Runway 11	060L	01	BLEEDING	3	SqFt	N
Runway 11	030K	04	BLOCK CRACKING	6,000.00	SqFt	M
Runway 11	130L	04	BLOCK CRACKING	1500	SqFt	L
Runway 11	070K	02	BLOCK CRACKING	900	SqFt	M
Runway 11	120K	06	BLOCK CRACKING	3000	SqFt	M
Runway 11	120K	04	BLOCK CRACKING	1200	SqFt	L
Runway 11	140L	06	BLOCK CRACKING	1750	SqFt	L
Runway 11	130R	06	BLOCK CRACKING	3500	SqFt	M
Runway 11	030R	10	BLOCK CRACKING	3000	SqFt	L
Runway 11	140L	13	BLOCK CRACKING	2100	SqFt	L
Runway 11	060L	02	BLOCK CRACKING	1103	SqFt	M
Runway 11	030L	05	BLOCK CRACKING	900	SqFt	L
Runway 11	140R	12	BLOCK CRACKING	7000	SqFt	M
Runway 11	080L	03	BLOCK CRACKING	2543	SqFt	M
Runway 11	080L	03	BLOCK CRACKING	1272	SqFt	L
Runway 11	140K	14	BLOCK CRACKING	1200	SqFt	L
Runway 11	030K	06	BLOCK CRACKING	1200	SqFt	L
Runway 11	030K	06	BLOCK CRACKING	3600	SqFt	M
Runway 11	070L	02	BLOCK CRACKING	600	SqFt	M
Runway 11	130K	02	BLOCK CRACKING	1200	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	140R	08	BLOCK CRACKING	3500	SqFt	L
Runway 11	140R	08	BLOCK CRACKING	3500	SqFt	M
Runway 11	030L	13	BLOCK CRACKING	300	SqFt	M
Runway 11	030L	13	BLOCK CRACKING	120	SqFt	M
Runway 11	050L	03	BLOCK CRACKING	1000	SqFt	L
Runway 11	050L	03	BLOCK CRACKING	1000	SqFt	M
Runway 11	030K	08	BLOCK CRACKING	1500	SqFt	L
Runway 11	030K	02	BLOCK CRACKING	3000	SqFt	L
Runway 11	030K	02	BLOCK CRACKING	3000	SqFt	M
Runway 11	030R	02	BLOCK CRACKING	1125	SqFt	L
Runway 11	030R	02	BLOCK CRACKING	750	SqFt	L
Runway 11	030K	10	BLOCK CRACKING	300	SqFt	M
Runway 11	130K	08	BLOCK CRACKING	2400	SqFt	M
Runway 11	140R	04	BLOCK CRACKING	7000	SqFt	M
Runway 11	130K	05	BLOCK CRACKING	3000	SqFt	M
Runway 11	110K	02	BLOCK CRACKING	4500	SqFt	M
Runway 11	090	01	BLOCK CRACKING	175	SqFt	M
Runway 11	140K	11	BLOCK CRACKING	6000	SqFt	M
Runway 11	130R	03	BLOCK CRACKING	3500	SqFt	M
Runway 11	130L	01	BLOCK CRACKING	500	SqFt	L
Runway 11	080K	02	BLOCK CRACKING	5396	SqFt	M
Runway 11	120R	03	BLOCK CRACKING	500	SqFt	L
Runway 11	130L	07	BLOCK CRACKING	150	SqFt	L
Runway 11	050L	01	BLOCK CRACKING	100	SqFt	L
Runway 11	050L	01	BLOCK CRACKING	600	SqFt	M
Runway 11	080R	02	BLOCK CRACKING	1344	SqFt	M
Runway 11	050K	01	BLOCK CRACKING	100	SqFt	M
Runway 11	080K	01	BLOCK CRACKING	4950	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	110R	02	BLOCK CRACKING	5250	SqFt	M
Runway 11	110R	03	BLOCK CRACKING	5250	SqFt	M
Runway 11	110K	03	BLOCK CRACKING	4500	SqFt	M
Runway 11	140R	01	BLOCK CRACKING	2400	SqFt	M
Runway 11	140K	07	BLOCK CRACKING	400	SqFt	M
Runway 11	080R	01	BLOCK CRACKING	1820	SqFt	M
Runway 11	080L	02	BLOCK CRACKING	3413	SqFt	M
Runway 11	080L	02	BLOCK CRACKING	1137	SqFt	L
Runway 11	120L	03	BLOCK CRACKING	1000	SqFt	L
Runway 11	120R	07	BLOCK CRACKING	1200	SqFt	M
Runway 11	060L	01	BLOCK CRACKING	875	SqFt	M
Runway 11	110L	03	BLOCK CRACKING	5250	SqFt	M
Runway 11	110L	02	BLOCK CRACKING	5250	SqFt	M
Runway 11	010K	08	CORNER SPALLING	1	Slabs	L
Runway 11	010R	07	CORNER SPALLING	1	Slabs	L
Runway 11	010L	03	JOINT SEAL DAMAGE	15	Slabs	H
Runway 11	010K	08	JOINT SEAL DAMAGE	20	Slabs	H
Runway 11	010K	10	JOINT SEAL DAMAGE	20	Slabs	H
Runway 11	010L	09	JOINT SEAL DAMAGE	15	Slabs	H
Runway 11	010K	04	JOINT SEAL DAMAGE	20	Slabs	H
Runway 11	010K	02	JOINT SEAL DAMAGE	20	Slabs	H
Runway 11	010L	05	JOINT SEAL DAMAGE	15	Slabs	H
Runway 11	010L	07	JOINT SEAL DAMAGE	15	Slabs	H
Runway 11	010R	01	JOINT SEAL DAMAGE	15	Slabs	H
Runway 11	010R	09	JOINT SEAL DAMAGE	15	Slabs	H
Runway 11	010R	03	JOINT SEAL DAMAGE	15	Slabs	H
Runway 11	010R	07	JOINT SEAL DAMAGE	15	Slabs	H
Runway 11	010L	03	JOINT SPALLING	9	Slabs	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	010K	10	JOINT SPALLING	1	Slabs	L
Runway 11	010K	10	JOINT SPALLING	8	Slabs	M
Runway 11	010L	09	JOINT SPALLING	7	Slabs	L
Runway 11	010K	02	JOINT SPALLING	2	Slabs	L
Runway 11	010K	02	JOINT SPALLING	1	Slabs	M
Runway 11	010L	05	JOINT SPALLING	8	Slabs	L
Runway 11	010L	07	JOINT SPALLING	6	Slabs	L
Runway 11	010R	09	JOINT SPALLING	1	Slabs	M
Runway 11	010R	09	JOINT SPALLING	2	Slabs	L
Runway 11	010R	03	JOINT SPALLING	1	Slabs	L
Runway 11	010R	01	LARGE PATCH/UTILITY	2	Slabs	L
Runway 11	120K	02	LONGITUDINAL/TRANSVERSE CRACKING	250.00	Ft	M
Runway 11	020K	07	LONGITUDINAL/TRANSVERSE CRACKING	300.00	Ft	L
Runway 11	020K	07	LONGITUDINAL/TRANSVERSE CRACKING	100.00	Ft	M
Runway 11	050R	04	LONGITUDINAL/TRANSVERSE CRACKING	75.00	Ft	M
Runway 11	140L	10	LONGITUDINAL/TRANSVERSE CRACKING	125	Ft	L
Runway 11	140L	10	LONGITUDINAL/TRANSVERSE CRACKING	500	Ft	M
Runway 11	130L	04	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	130L	04	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	070K	02	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	120K	06	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	120K	04	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	120K	04	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
Runway 11	040K	02	LONGITUDINAL/TRANSVERSE CRACKING	60	Ft	L
Runway 11	140L	06	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	L
Runway 11	140L	06	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Runway 11	130R	06	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 11	050K	02	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	050K	02	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 11	030R	10	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Runway 11	030R	10	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Runway 11	020K	04	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	020R	06	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	L
Runway 11	020L	10	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
Runway 11	020L	10	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	L
Runway 11	020K	01	LONGITUDINAL/TRANSVERSE CRACKING	15	Ft	L
Runway 11	020K	01	LONGITUDINAL/TRANSVERSE CRACKING	30	Ft	L
Runway 11	020K	01	LONGITUDINAL/TRANSVERSE CRACKING	130	Ft	L
Runway 11	020K	01	LONGITUDINAL/TRANSVERSE CRACKING	60	Ft	L
Runway 11	140L	13	LONGITUDINAL/TRANSVERSE CRACKING	500	Ft	M
Runway 11	060L	02	LONGITUDINAL/TRANSVERSE CRACKING	230	Ft	M
Runway 11	060R	1	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Runway 11	030L	05	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	L
Runway 11	140K	14	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Runway 11	020L	02	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	020L	05	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	020L	05	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	070L	02	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 11	030L	09	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Runway 11	030L	09	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 11	130K	02	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	040R	02	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	M
Runway 11	020R	09	LONGITUDINAL/TRANSVERSE CRACKING	275	Ft	L
Runway 11	070L	01	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 11	070R	01	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 11	030L	13	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	030L	21	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	030R	18	LONGITUDINAL/TRANSVERSE CRACKING	725	Ft	M
Runway 11	030R	18	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	030L	17	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	030L	17	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Runway 11	050L	03	LONGITUDINAL/TRANSVERSE CRACKING	25	Ft	L
Runway 11	050L	03	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 11	030K	08	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 11	040R	04	LONGITUDINAL/TRANSVERSE CRACKING	10	Ft	L
Runway 11	020K	10	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
Runway 11	020K	10	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	L
Runway 11	030R	06	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	L
Runway 11	030R	06	LONGITUDINAL/TRANSVERSE CRACKING	120	Ft	M
Runway 11	020L	08	LONGITUDINAL/TRANSVERSE CRACKING	500	Ft	M
Runway 11	020L	08	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	030R	02	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Runway 11	030R	14	LONGITUDINAL/TRANSVERSE CRACKING	125	Ft	L
Runway 11	030R	14	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 11	030K	10	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 11	140L	02	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 11	130K	08	LONGITUDINAL/TRANSVERSE CRACKING	500	Ft	M
Runway 11	070K	01	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	130K	05	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	060K	01	LONGITUDINAL/TRANSVERSE CRACKING	125	Ft	M
Runway 11	100	01	LONGITUDINAL/TRANSVERSE CRACKING	45	Ft	L
Runway 11	100	01	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	130R	09	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	090	01	LONGITUDINAL/TRANSVERSE CRACKING	202	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	120L	05	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	120L	05	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Runway 11	120L	01	LONGITUDINAL/TRANSVERSE CRACKING	550	Ft	M
Runway 11	130L	01	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	130L	01	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Runway 11	120R	03	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	120R	03	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
Runway 11	130L	07	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	050L	01	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Runway 11	050L	01	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
Runway 11	070R	03	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 11	080R	02	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
Runway 11	050K	01	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	050K	01	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	L
Runway 11	020R	03	LONGITUDINAL/TRANSVERSE CRACKING	350	Ft	L
Runway 11	040K	01	LONGITUDINAL/TRANSVERSE CRACKING	45	Ft	M
Runway 11	020R	01	LONGITUDINAL/TRANSVERSE CRACKING	70	Ft	L
Runway 11	140R	01	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 11	140K	07	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 11	080R	01	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 11	050R	02	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Runway 11	120L	03	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Runway 11	120L	03	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Runway 11	040L	03	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	L
Runway 11	120R	07	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 11	120R	05	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Runway 11	120R	05	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 11	060L	01	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	140K	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	140K	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 11	040L	01	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	L
Runway 11	020K	04	PATCHING	140	SqFt	L
Runway 11	030L	13	PATCHING	480	SqFt	L
Runway 11	110K	03	PATCHING	12	SqFt	H
Runway 11	140L	10	RAVELING	3500	SqFt	L
Runway 11	120K	06	RAVELING	300	SqFt	M
Runway 11	140L	06	RAVELING	1500	SqFt	L
Runway 11	140L	06	RAVELING	1500	SqFt	M
Runway 11	130R	06	RAVELING	3500	SqFt	M
Runway 11	140L	13	RAVELING	700	SqFt	M
Runway 11	140L	13	RAVELING	3500	SqFt	L
Runway 11	140K	14	RAVELING	2603	SqFt	M
Runway 11	130K	02	RAVELING	1200	SqFt	M
Runway 11	080K	02	RAVELING	1349	SqFt	L
Runway 11	080K	01	RAVELING	1238	SqFt	L
Runway 11	140K	07	RAVELING	1200	SqFt	M
Runway 11	040L	03	RAVELING	2000	SqFt	M
Runway 11	140K	03	RAVELING	1200	SqFt	M
Runway 11	040L	01	RAVELING	2000	SqFt	M
Runway 11	010K	08	SCALING	2	Slabs	L
Runway 11	010K	02	SCALING	5	Slabs	L
Runway 11	010R	01	SCALING	1	Slabs	L
Runway 11	010R	03	SCALING	1	Slabs	L
Runway 11	010L	09	SHRINKAGE CRACKING	1	Slabs	N
Runway 11	010K	04	SHRINKAGE CRACKING	1	Slabs	N
Runway 11	010K	04	SHRINKAGE CRACKING	1	Slabs	N

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	010L	07	SHRINKAGE CRACKING	2	Slabs	N
Runway 11	050R	04	SWELLING	75.00	SqFt	L
Runway 11	070K	02	SWELLING	75	SqFt	L
Runway 11	050K	02	SWELLING	75	SqFt	L
Runway 11	060L	02	SWELLING	75	SqFt	L
Runway 11	060R	1	SWELLING	75	SqFt	L
Runway 11	070L	02	SWELLING	100	SqFt	M
Runway 11	070L	01	SWELLING	30	SqFt	L
Runway 11	070L	01	SWELLING	50	SqFt	L
Runway 11	070R	01	SWELLING	200	SqFt	L
Runway 11	050L	03	SWELLING	75	SqFt	L
Runway 11	030K	10	SWELLING	12	SqFt	L
Runway 11	070K	01	SWELLING	300	SqFt	L
Runway 11	060K	01	SWELLING	75	SqFt	L
Runway 11	120R	03	SWELLING	100	SqFt	M
Runway 11	050L	01	SWELLING	250	SqFt	L
Runway 11	070R	03	SWELLING	50	SqFt	L
Runway 11	080R	02	SWELLING	30	SqFt	M
Runway 11	050R	02	SWELLING	25	SqFt	L
Runway 11	120L	03	SWELLING	31	SqFt	M
Runway 11	060L	01	SWELLING	15	SqFt	L
Runway 11	030K	04	WEATHERING	6,000.00	SqFt	M
Runway 11	120K	02	WEATHERING	6,000.00	SqFt	M
Runway 11	020K	07	WEATHERING	600.00	SqFt	L
Runway 11	050R	04	WEATHERING	4,000.00	SqFt	L
Runway 11	140L	10	WEATHERING	3500	SqFt	M
Runway 11	130L	04	WEATHERING	7000	SqFt	M
Runway 11	070K	02	WEATHERING	6000	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	120K	06	WEATHERING	5700	SqFt	M
Runway 11	120K	04	WEATHERING	6000	SqFt	M
Runway 11	040K	02	WEATHERING	800	SqFt	L
Runway 11	130R	06	WEATHERING	3500	SqFt	M
Runway 11	050K	02	WEATHERING	4000	SqFt	L
Runway 11	030R	10	WEATHERING	6000	SqFt	L
Runway 11	020K	04	WEATHERING	600	SqFt	L
Runway 11	020R	06	WEATHERING	700	SqFt	L
Runway 11	020L	10	WEATHERING	1750	SqFt	L
Runway 11	020K	01	WEATHERING	600	SqFt	L
Runway 11	140L	13	WEATHERING	2800	SqFt	M
Runway 11	060L	02	WEATHERING	4412	SqFt	L
Runway 11	060R	1	WEATHERING	3340	SqFt	L
Runway 11	030L	05	WEATHERING	6000	SqFt	L
Runway 11	140R	12	WEATHERING	7000	SqFt	M
Runway 11	080L	03	WEATHERING	5086	SqFt	L
Runway 11	140K	14	WEATHERING	2603	SqFt	M
Runway 11	020L	02	WEATHERING	700	SqFt	L
Runway 11	030K	06	WEATHERING	6000	SqFt	L
Runway 11	020L	05	WEATHERING	700	SqFt	L
Runway 11	070L	02	WEATHERING	5250	SqFt	L
Runway 11	030L	09	WEATHERING	6000	SqFt	L
Runway 11	130K	02	WEATHERING	2400	SqFt	M
Runway 11	130K	02	WEATHERING	2400	SqFt	L
Runway 11	140R	08	WEATHERING	3500	SqFt	L
Runway 11	140R	08	WEATHERING	3500	SqFt	M
Runway 11	040R	02	WEATHERING	800	SqFt	L
Runway 11	020R	09	WEATHERING	700	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	070L	01	WEATHERING	4417	SqFt	L
Runway 11	070R	01	WEATHERING	5389	SqFt	L
Runway 11	030L	13	WEATHERING	5520	SqFt	L
Runway 11	030L	21	WEATHERING	3000	SqFt	L
Runway 11	030L	21	WEATHERING	3000	SqFt	M
Runway 11	030R	18	WEATHERING	6000	SqFt	L
Runway 11	030L	17	WEATHERING	3000	SqFt	L
Runway 11	030L	17	WEATHERING	3000	SqFt	M
Runway 11	050L	03	WEATHERING	4000	SqFt	L
Runway 11	030K	08	WEATHERING	6000	SqFt	L
Runway 11	040R	04	WEATHERING	800	SqFt	L
Runway 11	020K	10	WEATHERING	1500	SqFt	L
Runway 11	030R	06	WEATHERING	600	SqFt	L
Runway 11	030K	02	WEATHERING	6000	SqFt	L
Runway 11	020L	08	WEATHERING	1750	SqFt	L
Runway 11	030R	02	WEATHERING	6000	SqFt	L
Runway 11	030R	14	WEATHERING	6000	SqFt	L
Runway 11	030K	10	WEATHERING	3000	SqFt	L
Runway 11	030K	10	WEATHERING	3000	SqFt	M
Runway 11	140L	02	WEATHERING	3500	SqFt	L
Runway 11	140L	02	WEATHERING	3500	SqFt	M
Runway 11	130K	08	WEATHERING	6000	SqFt	M
Runway 11	140R	04	WEATHERING	7000	SqFt	L
Runway 11	070K	01	WEATHERING	5747	SqFt	L
Runway 11	130K	05	WEATHERING	6000	SqFt	M
Runway 11	060K	01	WEATHERING	4822	SqFt	L
Runway 11	100	01	WEATHERING	3306	SqFt	L
Runway 11	130R	09	WEATHERING	3500	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	130R	09	WEATHERING	3500	SqFt	L
Runway 11	110K	02	WEATHERING	4500	SqFt	L
Runway 11	090	01	WEATHERING	1304	SqFt	L
Runway 11	120L	05	WEATHERING	7000	SqFt	M
Runway 11	140K	11	WEATHERING	6000	SqFt	M
Runway 11	120L	01	WEATHERING	7000	SqFt	M
Runway 11	130R	03	WEATHERING	3500	SqFt	M
Runway 11	130R	03	WEATHERING	3500	SqFt	L
Runway 11	130L	01	WEATHERING	7000	SqFt	M
Runway 11	080K	02	WEATHERING	4047	SqFt	M
Runway 11	120R	03	WEATHERING	7000	SqFt	L
Runway 11	130L	07	WEATHERING	7000	SqFt	M
Runway 11	050L	01	WEATHERING	4000	SqFt	L
Runway 11	070R	03	WEATHERING	5250	SqFt	L
Runway 11	080R	02	WEATHERING	3361	SqFt	L
Runway 11	050K	01	WEATHERING	4000	SqFt	L
Runway 11	080K	01	WEATHERING	2475	SqFt	M
Runway 11	080K	01	WEATHERING	1238	SqFt	L
Runway 11	110R	02	WEATHERING	5250	SqFt	L
Runway 11	110R	03	WEATHERING	5250	SqFt	L
Runway 11	020R	03	WEATHERING	700	SqFt	L
Runway 11	110K	03	WEATHERING	4500	SqFt	L
Runway 11	040K	01	WEATHERING	800	SqFt	L
Runway 11	020R	01	WEATHERING	700	SqFt	L
Runway 11	140R	01	WEATHERING	3500	SqFt	M
Runway 11	140R	01	WEATHERING	3500	SqFt	L
Runway 11	140K	07	WEATHERING	4800	SqFt	M
Runway 11	080R	01	WEATHERING	4550	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 11	080L	02	WEATHERING	4550	SqFt	L
Runway 11	050R	02	WEATHERING	3996	SqFt	L
Runway 11	120L	03	WEATHERING	7000	SqFt	L
Runway 11	040L	03	WEATHERING	2000	SqFt	L
Runway 11	120R	07	WEATHERING	1200	SqFt	M
Runway 11	120R	07	WEATHERING	5800	SqFt	M
Runway 11	120R	05	WEATHERING	7000	SqFt	M
Runway 11	060L	01	WEATHERING	3500	SqFt	L
Runway 11	140K	03	WEATHERING	3600	SqFt	L
Runway 11	140K	03	WEATHERING	1200	SqFt	M
Runway 11	110L	03	WEATHERING	5250	SqFt	L
Runway 11	110L	02	WEATHERING	5250	SqFt	L
Runway 11	040L	01	WEATHERING	2000	SqFt	L
Runway 4 Left	020K	13	ALLIGATOR CRACKING	45	SqFt	M
Runway 4 Left	020R	15	BLEEDING	6.00	SqFt	N
Runway 4 Left	020K	16	BLEEDING	15	SqFt	N
Runway 4 Left	020L	01	BLEEDING	80	SqFt	N
Runway 4 Left	020K	18	BLEEDING	25	SqFt	N
Runway 4 Left	020K	21	BLEEDING	14	SqFt	N
Runway 4 Left	020K	01	BLEEDING	27	SqFt	N
Runway 4 Left	020L	02	BLEEDING	45	SqFt	N
Runway 4 Left	040K	05	BLEEDING	6	SqFt	N
Runway 4 Left	020K	11	BLEEDING	23	SqFt	N
Runway 4 Left	020K	03	BLEEDING	24	SqFt	N
Runway 4 Left	040K	03	BLEEDING	5	SqFt	N
Runway 4 Left	040K	01	BLEEDING	18	SqFt	N
Runway 4 Left	020K	13	BLEEDING	3	SqFt	N
Runway 4 Left	020K	08	BLEEDING	39	SqFt	N

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Left	010K	07	BLEEDING	15	SqFt	N
Runway 4 Left	010K	05	BLEEDING	12	SqFt	N
Runway 4 Left	020R	15	BLOCK CRACKING	7,000.00	SqFt	M
Runway 4 Left	010L	07	BLOCK CRACKING	4,900.00	SqFt	M
Runway 4 Left	040L	07	BLOCK CRACKING	5250	SqFt	M
Runway 4 Left	020L	17	BLOCK CRACKING	1400	SqFt	L
Runway 4 Left	020L	17	BLOCK CRACKING	4200	SqFt	M
Runway 4 Left	040K	07	BLOCK CRACKING	3000	SqFt	L
Runway 4 Left	020K	16	BLOCK CRACKING	6000	SqFt	M
Runway 4 Left	040R	01	BLOCK CRACKING	1730	SqFt	M
Runway 4 Left	020L	01	BLOCK CRACKING	4200	SqFt	L
Runway 4 Left	030L	04	BLOCK CRACKING	3500	SqFt	M
Runway 4 Left	040L	04	BLOCK CRACKING	3500	SqFt	M
Runway 4 Left	020K	18	BLOCK CRACKING	6000	SqFt	M
Runway 4 Left	020R	05	BLOCK CRACKING	1750	SqFt	M
Runway 4 Left	020K	21	BLOCK CRACKING	6000	SqFt	M
Runway 4 Left	010L	04	BLOCK CRACKING	3500	SqFt	M
Runway 4 Left	020K	01	BLOCK CRACKING	3000	SqFt	M
Runway 4 Left	020K	06	BLOCK CRACKING	6000	SqFt	M
Runway 4 Left	030R	04	BLOCK CRACKING	1750	SqFt	M
Runway 4 Left	030R	02	BLOCK CRACKING	7000	SqFt	M
Runway 4 Left	020L	02	BLOCK CRACKING	1750	SqFt	M
Runway 4 Left	040K	05	BLOCK CRACKING	3000	SqFt	M
Runway 4 Left	010L	02	BLOCK CRACKING	3500	SqFt	M
Runway 4 Left	040K	09	BLOCK CRACKING	3000	SqFt	M
Runway 4 Left	010R	06	BLOCK CRACKING	4900	SqFt	M
Runway 4 Left	020L	12	BLOCK CRACKING	700	SqFt	L
Runway 4 Left	020L	12	BLOCK CRACKING	2450	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Left	020R	20	BLOCK CRACKING	500	SqFt	M
Runway 4 Left	040R	04	BLOCK CRACKING	6908	SqFt	M
Runway 4 Left	020K	11	BLOCK CRACKING	1500	SqFt	M
Runway 4 Left	020K	03	BLOCK CRACKING	6000	SqFt	M
Runway 4 Left	020L	07	BLOCK CRACKING	3500	SqFt	M
Runway 4 Left	020L	07	BLOCK CRACKING	700	SqFt	L
Runway 4 Left	040K	03	BLOCK CRACKING	4500	SqFt	M
Runway 4 Left	040L	01	BLOCK CRACKING	3500	SqFt	M
Runway 4 Left	020R	02	BLOCK CRACKING	3500	SqFt	M
Runway 4 Left	020L	22	BLOCK CRACKING	3500	SqFt	M
Runway 4 Left	020L	22	BLOCK CRACKING	1400	SqFt	L
Runway 4 Left	010R	01	BLOCK CRACKING	3500	SqFt	M
Runway 4 Left	030L	02	BLOCK CRACKING	3500	SqFt	M
Runway 4 Left	010R	04	BLOCK CRACKING	7000	SqFt	M
Runway 4 Left	040K	01	BLOCK CRACKING	5100	SqFt	M
Runway 4 Left	020K	13	BLOCK CRACKING	900	SqFt	M
Runway 4 Left	020K	08	BLOCK CRACKING	1500	SqFt	M
Runway 4 Left	040L	10	BLOCK CRACKING	7000	SqFt	M
Runway 4 Left	040R	10	BLOCK CRACKING	6894	SqFt	M
Runway 4 Left	040R	07	BLOCK CRACKING	3450	SqFt	M
Runway 4 Left	020R	10	BLOCK CRACKING	2310	SqFt	M
Runway 4 Left	010K	07	BLOCK CRACKING	3000	SqFt	M
Runway 4 Left	030K	03	BLOCK CRACKING	4500	SqFt	M
Runway 4 Left	030K	05	BLOCK CRACKING	4500	SqFt	M
Runway 4 Left	010K	03	BLOCK CRACKING	6000	SqFt	M
Runway 4 Left	010K	01	BLOCK CRACKING	6000	SqFt	M
Runway 4 Left	030K	01	BLOCK CRACKING	6000	SqFt	M
Runway 4 Left	010K	05	BLOCK CRACKING	3960	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Left	020R	15	LONGITUDINAL/TRANSVERSE CRACKING	600.00	Ft	M
Runway 4 Left	010L	07	LONGITUDINAL/TRANSVERSE CRACKING	400.00	Ft	M
Runway 4 Left	010L	07	LONGITUDINAL/TRANSVERSE CRACKING	400.00	Ft	M
Runway 4 Left	040L	07	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 4 Left	020L	17	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	040K	07	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Runway 4 Left	040K	07	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
Runway 4 Left	020K	16	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	040R	01	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 4 Left	020L	01	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
Runway 4 Left	030L	04	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 4 Left	040L	04	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 4 Left	020K	18	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	020R	05	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 4 Left	020K	21	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	010L	04	LONGITUDINAL/TRANSVERSE CRACKING	500	Ft	M
Runway 4 Left	020K	01	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	020K	06	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	030R	04	LONGITUDINAL/TRANSVERSE CRACKING	500	Ft	M
Runway 4 Left	030R	02	LONGITUDINAL/TRANSVERSE CRACKING	500	Ft	M
Runway 4 Left	020L	02	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 4 Left	040K	05	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	010L	02	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 4 Left	040K	09	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	010R	06	LONGITUDINAL/TRANSVERSE CRACKING	370	Ft	M
Runway 4 Left	020L	12	LONGITUDINAL/TRANSVERSE CRACKING	275	Ft	M
Runway 4 Left	020R	20	LONGITUDINAL/TRANSVERSE CRACKING	500	Ft	M
Runway 4 Left	040R	04	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Left	020K	11	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	020K	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	020L	07	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Runway 4 Left	020L	07	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 4 Left	040K	03	LONGITUDINAL/TRANSVERSE CRACKING	360	Ft	M
Runway 4 Left	040L	01	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	020R	02	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 4 Left	020L	22	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	010R	01	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	030L	02	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	010R	04	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 4 Left	040K	01	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	020K	13	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	020K	08	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	040L	10	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	040R	10	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	040R	07	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Runway 4 Left	020R	10	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Runway 4 Left	010K	07	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	030K	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	030K	05	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	010K	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	010K	01	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	030K	01	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	010K	05	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Left	030R	02	PATCHING	288	SqFt	M
Runway 4 Left	030R	02	PATCHING	45	SqFt	M
Runway 4 Left	030L	02	PATCHING	200	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Left	020K	13	PATCHING	160	SqFt	L
Runway 4 Left	040L	04	RAVELING	1	SqFt	H
Runway 4 Left	020K	06	RAVELING	99	SqFt	M
Runway 4 Left	020R	15	WEATHERING	7,000.00	SqFt	L
Runway 4 Left	010L	07	WEATHERING	7,000.00	SqFt	L
Runway 4 Left	040L	07	WEATHERING	7000	SqFt	L
Runway 4 Left	020L	17	WEATHERING	7000	SqFt	L
Runway 4 Left	040K	07	WEATHERING	6000	SqFt	L
Runway 4 Left	020K	16	WEATHERING	6000	SqFt	L
Runway 4 Left	040R	01	WEATHERING	6918	SqFt	L
Runway 4 Left	020L	01	WEATHERING	7001	SqFt	L
Runway 4 Left	030L	04	WEATHERING	6300	SqFt	L
Runway 4 Left	030L	04	WEATHERING	700	SqFt	M
Runway 4 Left	040L	04	WEATHERING	7000	SqFt	L
Runway 4 Left	020K	18	WEATHERING	6000	SqFt	L
Runway 4 Left	020R	05	WEATHERING	7000	SqFt	L
Runway 4 Left	020K	21	WEATHERING	6000	SqFt	L
Runway 4 Left	010L	04	WEATHERING	7000	SqFt	L
Runway 4 Left	020K	01	WEATHERING	5400	SqFt	L
Runway 4 Left	020K	01	WEATHERING	600	SqFt	M
Runway 4 Left	020K	06	WEATHERING	1101	SqFt	M
Runway 4 Left	020K	06	WEATHERING	4800	SqFt	L
Runway 4 Left	030R	04	WEATHERING	7000	SqFt	L
Runway 4 Left	030R	02	WEATHERING	7000	SqFt	L
Runway 4 Left	020L	02	WEATHERING	7000	SqFt	L
Runway 4 Left	040K	05	WEATHERING	6000	SqFt	L
Runway 4 Left	010L	02	WEATHERING	7000	SqFt	L
Runway 4 Left	040K	09	WEATHERING	6000	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Left	010R	06	WEATHERING	7000	SqFt	L
Runway 4 Left	020L	12	WEATHERING	7000	SqFt	L
Runway 4 Left	020R	20	WEATHERING	7000	SqFt	L
Runway 4 Left	040R	04	WEATHERING	6908	SqFt	L
Runway 4 Left	020K	11	WEATHERING	6000	SqFt	L
Runway 4 Left	020K	03	WEATHERING	6000	SqFt	L
Runway 4 Left	020L	07	WEATHERING	7000	SqFt	L
Runway 4 Left	040K	03	WEATHERING	6000	SqFt	L
Runway 4 Left	040L	01	WEATHERING	7000	SqFt	L
Runway 4 Left	020R	02	WEATHERING	1050	SqFt	M
Runway 4 Left	020R	02	WEATHERING	5950	SqFt	L
Runway 4 Left	020L	22	WEATHERING	7000	SqFt	L
Runway 4 Left	010R	01	WEATHERING	7000	SqFt	L
Runway 4 Left	030L	02	WEATHERING	7000	SqFt	L
Runway 4 Left	010R	04	WEATHERING	7000	SqFt	L
Runway 4 Left	040K	01	WEATHERING	6000	SqFt	L
Runway 4 Left	020K	13	WEATHERING	6000	SqFt	L
Runway 4 Left	020K	08	WEATHERING	5100	SqFt	L
Runway 4 Left	020K	08	WEATHERING	900	SqFt	M
Runway 4 Left	040L	10	WEATHERING	7000	SqFt	L
Runway 4 Left	040R	10	WEATHERING	6894	SqFt	L
Runway 4 Left	040R	07	WEATHERING	6899	SqFt	L
Runway 4 Left	020R	10	WEATHERING	7000	SqFt	L
Runway 4 Left	010K	07	WEATHERING	900	SqFt	M
Runway 4 Left	010K	07	WEATHERING	5100	SqFt	L
Runway 4 Left	030K	03	WEATHERING	6000	SqFt	L
Runway 4 Left	030K	05	WEATHERING	4500	SqFt	L
Runway 4 Left	010K	03	WEATHERING	6000	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Left	010K	01	WEATHERING	600	SqFt	M
Runway 4 Left	010K	01	WEATHERING	5400	SqFt	L
Runway 4 Left	030K	01	WEATHERING	6000	SqFt	L
Runway 4 Left	010K	05	WEATHERING	5700	SqFt	L
Runway 4 Left	010K	05	WEATHERING	300	SqFt	M
Runway 4 Right	030R	21	ALLIGATOR CRACKING	150.00	SqFt	L
Runway 4 Right	030K	08	ALLIGATOR CRACKING	51	SqFt	L
Runway 4 Right	030K	05	ALLIGATOR CRACKING	39	SqFt	L
Runway 4 Right	030K	29	ALLIGATOR CRACKING	45	SqFt	L
Runway 4 Right	030K	11	ALLIGATOR CRACKING	60	SqFt	L
Runway 4 Right	030R	09	ALLIGATOR CRACKING	200	SqFt	L
Runway 4 Right	030K	26	ALLIGATOR CRACKING	15	SqFt	L
Runway 4 Right	030K	14	ALLIGATOR CRACKING	24	SqFt	L
Runway 4 Right	030R	31	ALLIGATOR CRACKING	150	SqFt	L
Runway 4 Right	030K	17	ALLIGATOR CRACKING	6	SqFt	L
Runway 4 Right	060K	20	ALLIGATOR CRACKING	9	SqFt	L
Runway 4 Right	020K	02	ALLIGATOR CRACKING	12	SqFt	L
Runway 4 Right	060R	22	BLEEDING	50	SqFt	N
Runway 4 Right	030R	21	BLOCK CRACKING	150.00	SqFt	M
Runway 4 Right	030R	21	BLOCK CRACKING	1,406.00	SqFt	M
Runway 4 Right	060L	03	BLOCK CRACKING	844.00	SqFt	M
Runway 4 Right	070L	01	BLOCK CRACKING	1,406.00	SqFt	M
Runway 4 Right	070L	12	BLOCK CRACKING	2,062.00	SqFt	M
Runway 4 Right	030R	03	BLOCK CRACKING	3656	SqFt	M
Runway 4 Right	030R	03	BLOCK CRACKING	1125	SqFt	L
Runway 4 Right	040L	02	BLOCK CRACKING	1342	SqFt	M
Runway 4 Right	050R	07	BLOCK CRACKING	1406	SqFt	M
Runway 4 Right	020R	01	BLOCK CRACKING	2809	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	040R	02	BLOCK CRACKING	1342	SqFt	M
Runway 4 Right	060R	04	BLOCK CRACKING	1406	SqFt	M
Runway 4 Right	070L	09	BLOCK CRACKING	1406	SqFt	M
Runway 4 Right	030L	04	BLOCK CRACKING	1856	SqFt	M
Runway 4 Right	050R	05	BLOCK CRACKING	562	SqFt	M
Runway 4 Right	060L	27	BLOCK CRACKING	844	SqFt	M
Runway 4 Right	070R	14	BLOCK CRACKING	1219	SqFt	L
Runway 4 Right	070R	14	BLOCK CRACKING	2437	SqFt	M
Runway 4 Right	030R	16	BLOCK CRACKING	2812	SqFt	M
Runway 4 Right	020R	03	BLOCK CRACKING	2247	SqFt	M
Runway 4 Right	020R	03	BLOCK CRACKING	1966	SqFt	L
Runway 4 Right	060L	15	BLOCK CRACKING	562	SqFt	M
Runway 4 Right	030L	24	BLOCK CRACKING	2812	SqFt	M
Runway 4 Right	060R	10	BLOCK CRACKING	1125	SqFt	M
Runway 4 Right	020L	04	BLOCK CRACKING	2809	SqFt	M
Runway 4 Right	030R	09	BLOCK CRACKING	2250	SqFt	M
Runway 4 Right	030R	09	BLOCK CRACKING	2250	SqFt	L
Runway 4 Right	030R	25	BLOCK CRACKING	1406	SqFt	L
Runway 4 Right	030R	25	BLOCK CRACKING	250	SqFt	M
Runway 4 Right	030L	15	BLOCK CRACKING	2812	SqFt	M
Runway 4 Right	020L	02	BLOCK CRACKING	2809	SqFt	L
Runway 4 Right	060R	34	BLOCK CRACKING	1406	SqFt	M
Runway 4 Right	060R	34	BLOCK CRACKING	2812	SqFt	L
Runway 4 Right	060R	28	BLOCK CRACKING	1406	SqFt	M
Runway 4 Right	060R	28	BLOCK CRACKING	2812	SqFt	L
Runway 4 Right	070R	03	BLOCK CRACKING	1406	SqFt	L
Runway 4 Right	070R	03	BLOCK CRACKING	1406	SqFt	M
Runway 4 Right	060R	22	BLOCK CRACKING	1688	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	060R	22	BLOCK CRACKING	1688	SqFt	L
Runway 4 Right	030L	10	BLOCK CRACKING	1856	SqFt	M
Runway 4 Right	030L	28	BLOCK CRACKING	844	SqFt	M
Runway 4 Right	060L	33	BLOCK CRACKING	2812	SqFt	M
Runway 4 Right	070R	07	BLOCK CRACKING	3656	SqFt	L
Runway 4 Right	030L	19	BLOCK CRACKING	2812	SqFt	M
Runway 4 Right	060L	21	BLOCK CRACKING	1406	SqFt	M
Runway 4 Right	070R	11	BLOCK CRACKING	1406	SqFt	L
Runway 4 Right	070R	11	BLOCK CRACKING	1406	SqFt	M
Runway 4 Right	060R	16	BLOCK CRACKING	1406	SqFt	M
Runway 4 Right	060R	16	BLOCK CRACKING	844	SqFt	L
Runway 4 Right	030R	31	BLOCK CRACKING	1250	SqFt	M
Runway 4 Right	070L	05	BLOCK CRACKING	1406	SqFt	M
Runway 4 Right	050L	08	BLOCK CRACKING	844	SqFt	M
Runway 4 Right	040R	01	BLOCK CRACKING	856	SqFt	M
Runway 4 Right	010K	17	CORNER SPALLING	1.00	Slabs	H
Runway 4 Right	010R	16	CORNER SPALLING	3	Slabs	L
Runway 4 Right	010R	07	CORNER SPALLING	1	Slabs	L
Runway 4 Right	070R	03	DEPRESSION	6	SqFt	L
Runway 4 Right	030R	31	DEPRESSION	25	SqFt	L
Runway 4 Right	010K	17	JOINT SEAL DAMAGE	16.00	Slabs	H
Runway 4 Right	010L	02	JOINT SEAL DAMAGE	24	Slabs	H
Runway 4 Right	010L	16	JOINT SEAL DAMAGE	24	Slabs	H
Runway 4 Right	010L	14	JOINT SEAL DAMAGE	24	Slabs	H
Runway 4 Right	010L	06	JOINT SEAL DAMAGE	24	Slabs	H
Runway 4 Right	010L	12	JOINT SEAL DAMAGE	24	Slabs	H
Runway 4 Right	010R	16	JOINT SEAL DAMAGE	24	Slabs	H
Runway 4 Right	010R	02	JOINT SEAL DAMAGE	24	Slabs	H

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	010K	15	JOINT SEAL DAMAGE	16	Slabs	H
Runway 4 Right	010K	11	JOINT SEAL DAMAGE	16	Slabs	H
Runway 4 Right	010K	07	JOINT SEAL DAMAGE	16	Slabs	H
Runway 4 Right	010K	05	JOINT SEAL DAMAGE	16	Slabs	H
Runway 4 Right	010K	01	JOINT SEAL DAMAGE	16	Slabs	H
Runway 4 Right	010K	13	JOINT SEAL DAMAGE	16	Slabs	H
Runway 4 Right	010K	09	JOINT SEAL DAMAGE	16	Slabs	H
Runway 4 Right	010R	07	JOINT SEAL DAMAGE	24	Slabs	H
Runway 4 Right	010K	03	JOINT SEAL DAMAGE	16	Slabs	H
Runway 4 Right	010R	11	JOINT SEAL DAMAGE	24	Slabs	H
Runway 4 Right	010L	02	JOINT SPALLING	1	Slabs	M
Runway 4 Right	010R	16	JOINT SPALLING	8	Slabs	L
Runway 4 Right	010R	02	JOINT SPALLING	19	Slabs	L
Runway 4 Right	010K	15	JOINT SPALLING	1	Slabs	M
Runway 4 Right	010K	11	JOINT SPALLING	1	Slabs	L
Runway 4 Right	010K	07	JOINT SPALLING	1	Slabs	L
Runway 4 Right	010K	07	JOINT SPALLING	2	Slabs	M
Runway 4 Right	010K	01	JOINT SPALLING	2	Slabs	M
Runway 4 Right	010K	13	JOINT SPALLING	1	Slabs	M
Runway 4 Right	010K	09	JOINT SPALLING	1	Slabs	L
Runway 4 Right	010K	09	JOINT SPALLING	2	Slabs	M
Runway 4 Right	010R	07	JOINT SPALLING	2	Slabs	M
Runway 4 Right	010R	07	JOINT SPALLING	20	Slabs	L
Runway 4 Right	010R	11	JOINT SPALLING	8	Slabs	L
Runway 4 Right	010L	06	LARGE PATCH/UTILITY	1	Slabs	L
Runway 4 Right	010L	12	LARGE PATCH/UTILITY	2	Slabs	L
Runway 4 Right	010K	15	LARGE PATCH/UTILITY	1	Slabs	L
Runway 4 Right	010K	11	LARGE PATCH/UTILITY	1	Slabs	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	010K	07	LARGE PATCH/UTILITY	8	Slabs	L
Runway 4 Right	010K	07	LARGE PATCH/UTILITY	1	Slabs	M
Runway 4 Right	010K	05	LARGE PATCH/UTILITY	1	Slabs	L
Runway 4 Right	010K	05	LARGE PATCH/UTILITY	4	Slabs	M
Runway 4 Right	010K	01	LARGE PATCH/UTILITY	3	Slabs	L
Runway 4 Right	010K	01	LARGE PATCH/UTILITY	1	Slabs	M
Runway 4 Right	010K	13	LARGE PATCH/UTILITY	5	Slabs	L
Runway 4 Right	010K	13	LARGE PATCH/UTILITY	2	Slabs	M
Runway 4 Right	010K	09	LARGE PATCH/UTILITY	1	Slabs	L
Runway 4 Right	010R	07	LARGE PATCH/UTILITY	1	Slabs	L
Runway 4 Right	010K	03	LARGE PATCH/UTILITY	1	Slabs	M
Runway 4 Right	010K	03	LARGE PATCH/UTILITY	6	Slabs	L
Runway 4 Right	060K	32	LONGITUDINAL/TRANSVERSE CRACKING	20.00	Ft	L
Runway 4 Right	060K	32	LONGITUDINAL/TRANSVERSE CRACKING	150.00	Ft	M
Runway 4 Right	030R	21	LONGITUDINAL/TRANSVERSE CRACKING	300.00	Ft	M
Runway 4 Right	060L	03	LONGITUDINAL/TRANSVERSE CRACKING	225.00	Ft	M
Runway 4 Right	060K	23	LONGITUDINAL/TRANSVERSE CRACKING	210.00	Ft	M
Runway 4 Right	070L	01	LONGITUDINAL/TRANSVERSE CRACKING	450.00	Ft	M
Runway 4 Right	070L	12	LONGITUDINAL/TRANSVERSE CRACKING	110.00	Ft	M
Runway 4 Right	070L	12	LONGITUDINAL/TRANSVERSE CRACKING	55.00	Ft	M
Runway 4 Right	070L	12	LONGITUDINAL/TRANSVERSE CRACKING	55.00	Ft	M
Runway 4 Right	060K	02	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 4 Right	060K	02	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Runway 4 Right	030K	08	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	030R	03	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M
Runway 4 Right	050R	03	LONGITUDINAL/TRANSVERSE CRACKING	262	Ft	M
Runway 4 Right	040L	02	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	050R	07	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	070K	06	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Runway 4 Right	070K	06	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Runway 4 Right	020R	01	LONGITUDINAL/TRANSVERSE CRACKING	6	Ft	M
Runway 4 Right	020R	01	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Runway 4 Right	040R	02	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060R	04	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	070L	09	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	030L	04	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	050R	05	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	030K	05	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	030K	23	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 4 Right	060K	08	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	030K	29	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Right	060L	27	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	L
Runway 4 Right	030K	11	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	070R	14	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Runway 4 Right	070K	04	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Runway 4 Right	070K	04	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Runway 4 Right	070K	04	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Runway 4 Right	030R	16	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	020R	03	LONGITUDINAL/TRANSVERSE CRACKING	410	Ft	M
Runway 4 Right	060K	26	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 4 Right	070K	08	LONGITUDINAL/TRANSVERSE CRACKING	110	Ft	L
Runway 4 Right	070K	08	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Runway 4 Right	060L	09	LONGITUDINAL/TRANSVERSE CRACKING	15	Ft	M
Runway 4 Right	060L	09	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M
Runway 4 Right	070K	02	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060L	15	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	070K	12	LONGITUDINAL/TRANSVERSE CRACKING	180	Ft	L
Runway 4 Right	030L	24	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Right	060R	10	LONGITUDINAL/TRANSVERSE CRACKING	327	Ft	M
Runway 4 Right	060K	29	LONGITUDINAL/TRANSVERSE CRACKING	15	Ft	L
Runway 4 Right	060K	29	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 4 Right	020L	04	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	030R	09	LONGITUDINAL/TRANSVERSE CRACKING	330	Ft	M
Runway 4 Right	030R	25	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 4 Right	030L	15	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Right	020L	02	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Runway 4 Right	020L	02	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	M
Runway 4 Right	060K	35	LONGITUDINAL/TRANSVERSE CRACKING	188	Ft	M
Runway 4 Right	060R	34	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 4 Right	030K	26	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060R	28	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	070R	03	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 4 Right	060R	22	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	030L	10	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060K	11	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060K	14	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	070K	10	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060K	38	LONGITUDINAL/TRANSVERSE CRACKING	165	Ft	M
Runway 4 Right	060K	38	LONGITUDINAL/TRANSVERSE CRACKING	30	Ft	M
Runway 4 Right	030L	28	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060L	33	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Right	070R	07	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Right	030L	19	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060L	21	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	070R	11	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060K	17	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060K	17	LONGITUDINAL/TRANSVERSE CRACKING	30	Ft	M
Runway 4 Right	030K	02	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060R	16	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Right	030K	14	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	030R	31	LONGITUDINAL/TRANSVERSE CRACKING	120	Ft	M
Runway 4 Right	070L	05	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	030K	20	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 4 Right	030K	17	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 4 Right	060K	05	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	060K	20	LONGITUDINAL/TRANSVERSE CRACKING	55	Ft	L
Runway 4 Right	060K	20	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Runway 4 Right	020K	02	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	050L	08	LONGITUDINAL/TRANSVERSE CRACKING	20	Ft	H
Runway 4 Right	050L	08	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Right	050L	04	LONGITUDINAL/TRANSVERSE CRACKING	45	Ft	M
Runway 4 Right	050L	04	LONGITUDINAL/TRANSVERSE CRACKING	262	Ft	M
Runway 4 Right	050L	02	LONGITUDINAL/TRANSVERSE CRACKING	187	Ft	M
Runway 4 Right	020K	03	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Runway 4 Right	020K	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Runway 4 Right	020K	03	LONGITUDINAL/TRANSVERSE CRACKING	20	Ft	L
Runway 4 Right	040K	02	LONGITUDINAL/TRANSVERSE CRACKING	336	Ft	M
Runway 4 Right	040K	01	LONGITUDINAL/TRANSVERSE CRACKING	336	Ft	M
Runway 4 Right	040R	01	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	050K	02	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Runway 4 Right	050K	02	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Runway 4 Right	050K	06	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	040L	03	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Runway 4 Right	040L	03	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Runway 4 Right	050K	04	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Runway 4 Right	050K	04	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Runway 4 Right	020R	03	PATCHING	450	SqFt	L
Runway 4 Right	060L	09	PATCHING	3	SqFt	H
Runway 4 Right	060L	15	PATCHING	225	SqFt	L
Runway 4 Right	020L	04	PATCHING	462	SqFt	L
Runway 4 Right	060R	22	PATCHING	9	SqFt	L
Runway 4 Right	060R	16	PATCHING	225	SqFt	L
Runway 4 Right	050L	08	PATCHING	3	SqFt	H
Runway 4 Right	040K	02	PATCHING	54	SqFt	L
Runway 4 Right	040L	03	PATCHING	54	SqFt	L
Runway 4 Right	060L	09	RAVELING	2812	SqFt	M
Runway 4 Right	060R	22	RAVELING	360	SqFt	L
Runway 4 Right	050L	04	RAVELING	9	SqFt	H
Runway 4 Right	010K	09	SCALING	1	Slabs	L
Runway 4 Right	010K	17	SHRINKAGE CRACKING	1.00	Slabs	N
Runway 4 Right	010L	16	SHRINKAGE CRACKING	1	Slabs	N
Runway 4 Right	010L	14	SHRINKAGE CRACKING	1	Slabs	N
Runway 4 Right	010R	16	SHRINKAGE CRACKING	1	Slabs	N
Runway 4 Right	010K	15	SHRINKAGE CRACKING	3	Slabs	N
Runway 4 Right	010K	11	SHRINKAGE CRACKING	4	Slabs	N
Runway 4 Right	010R	11	SHRINKAGE CRACKING	1	Slabs	N
Runway 4 Right	010K	17	SMALL PATCH	5.00	Slabs	L
Runway 4 Right	010K	17	SMALL PATCH	5.00	Slabs	M
Runway 4 Right	010L	02	SMALL PATCH	3	Slabs	M
Runway 4 Right	010L	02	SMALL PATCH	2	Slabs	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	010L	16	SMALL PATCH	1	Slabs	M
Runway 4 Right	010L	16	SMALL PATCH	2	Slabs	L
Runway 4 Right	010L	14	SMALL PATCH	1	Slabs	L
Runway 4 Right	010L	06	SMALL PATCH	3	Slabs	L
Runway 4 Right	010L	12	SMALL PATCH	4	Slabs	L
Runway 4 Right	010L	12	SMALL PATCH	3	Slabs	M
Runway 4 Right	010R	16	SMALL PATCH	3	Slabs	L
Runway 4 Right	010R	02	SMALL PATCH	4	Slabs	M
Runway 4 Right	010K	15	SMALL PATCH	7	Slabs	L
Runway 4 Right	010K	15	SMALL PATCH	2	Slabs	M
Runway 4 Right	010K	11	SMALL PATCH	2	Slabs	M
Runway 4 Right	010K	07	SMALL PATCH	1	Slabs	L
Runway 4 Right	010K	07	SMALL PATCH	1	Slabs	M
Runway 4 Right	010K	05	SMALL PATCH	4	Slabs	L
Runway 4 Right	010K	05	SMALL PATCH	3	Slabs	M
Runway 4 Right	010K	01	SMALL PATCH	2	Slabs	L
Runway 4 Right	010K	13	SMALL PATCH	2	Slabs	L
Runway 4 Right	010K	09	SMALL PATCH	3	Slabs	M
Runway 4 Right	010K	09	SMALL PATCH	4	Slabs	L
Runway 4 Right	010R	07	SMALL PATCH	1	Slabs	L
Runway 4 Right	010K	03	SMALL PATCH	2	Slabs	L
Runway 4 Right	010R	11	SMALL PATCH	1	Slabs	L
Runway 4 Right	060L	27	SWELLING	10	SqFt	L
Runway 4 Right	060K	32	WEATHERING	1,875.00	SqFt	L
Runway 4 Right	030R	21	WEATHERING	5,625.00	SqFt	L
Runway 4 Right	060L	03	WEATHERING	5,625.00	SqFt	L
Runway 4 Right	060K	23	WEATHERING	1,875.00	SqFt	L
Runway 4 Right	070L	01	WEATHERING	2,812.00	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	070L	12	WEATHERING	4,124.00	SqFt	L
Runway 4 Right	060K	02	WEATHERING	1875	SqFt	L
Runway 4 Right	030K	08	WEATHERING	1873	SqFt	L
Runway 4 Right	030R	03	WEATHERING	5625	SqFt	L
Runway 4 Right	050R	03	WEATHERING	2812	SqFt	L
Runway 4 Right	040L	02	WEATHERING	5368	SqFt	L
Runway 4 Right	050R	07	WEATHERING	5625	SqFt	L
Runway 4 Right	070K	06	WEATHERING	1875	SqFt	L
Runway 4 Right	020R	01	WEATHERING	5618	SqFt	L
Runway 4 Right	040R	02	WEATHERING	5368	SqFt	L
Runway 4 Right	060R	04	WEATHERING	5625	SqFt	L
Runway 4 Right	070L	09	WEATHERING	5625	SqFt	L
Runway 4 Right	030L	04	WEATHERING	5625	SqFt	L
Runway 4 Right	050R	05	WEATHERING	5625	SqFt	L
Runway 4 Right	030K	05	WEATHERING	1873	SqFt	L
Runway 4 Right	030K	23	WEATHERING	1873	SqFt	L
Runway 4 Right	060K	08	WEATHERING	1875	SqFt	L
Runway 4 Right	030K	29	WEATHERING	2489	SqFt	L
Runway 4 Right	060L	27	WEATHERING	5625	SqFt	L
Runway 4 Right	030K	11	WEATHERING	1873	SqFt	L
Runway 4 Right	070R	14	WEATHERING	4875	SqFt	L
Runway 4 Right	070K	04	WEATHERING	1875	SqFt	L
Runway 4 Right	030R	16	WEATHERING	5625	SqFt	L
Runway 4 Right	020R	03	WEATHERING	5618	SqFt	L
Runway 4 Right	060K	26	WEATHERING	1875	SqFt	L
Runway 4 Right	070K	08	WEATHERING	1875	SqFt	L
Runway 4 Right	060L	09	WEATHERING	2812	SqFt	L
Runway 4 Right	070K	02	WEATHERING	1875	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	060L	15	WEATHERING	5400	SqFt	L
Runway 4 Right	070K	12	WEATHERING	3000	SqFt	L
Runway 4 Right	030L	24	WEATHERING	5625	SqFt	L
Runway 4 Right	060R	10	WEATHERING	5625	SqFt	L
Runway 4 Right	060K	29	WEATHERING	1875	SqFt	L
Runway 4 Right	020L	04	WEATHERING	5156	SqFt	L
Runway 4 Right	030R	09	WEATHERING	5625	SqFt	L
Runway 4 Right	030R	25	WEATHERING	5625	SqFt	L
Runway 4 Right	030L	15	WEATHERING	5625	SqFt	L
Runway 4 Right	020L	02	WEATHERING	5618	SqFt	L
Runway 4 Right	060K	35	WEATHERING	1875	SqFt	L
Runway 4 Right	060R	34	WEATHERING	5625	SqFt	L
Runway 4 Right	030K	26	WEATHERING	1873	SqFt	L
Runway 4 Right	060R	28	WEATHERING	5625	SqFt	L
Runway 4 Right	070R	03	WEATHERING	5625	SqFt	L
Runway 4 Right	060R	22	WEATHERING	5625	SqFt	L
Runway 4 Right	030L	10	WEATHERING	5625	SqFt	L
Runway 4 Right	060K	11	WEATHERING	1875	SqFt	L
Runway 4 Right	060K	14	WEATHERING	1875	SqFt	L
Runway 4 Right	070K	10	WEATHERING	1875	SqFt	L
Runway 4 Right	060K	38	WEATHERING	1875	SqFt	L
Runway 4 Right	030L	28	WEATHERING	5625	SqFt	L
Runway 4 Right	060L	33	WEATHERING	5625	SqFt	L
Runway 4 Right	070R	07	WEATHERING	5625	SqFt	L
Runway 4 Right	030L	19	WEATHERING	5625	SqFt	L
Runway 4 Right	060L	21	WEATHERING	5625	SqFt	L
Runway 4 Right	070R	11	WEATHERING	5625	SqFt	L
Runway 4 Right	060K	17	WEATHERING	1875	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Runway 4 Right	030K	02	WEATHERING	1873	SqFt	L
Runway 4 Right	060R	16	WEATHERING	5625	SqFt	L
Runway 4 Right	030K	14	WEATHERING	1873	SqFt	L
Runway 4 Right	030R	31	WEATHERING	4125	SqFt	L
Runway 4 Right	070L	05	WEATHERING	5625	SqFt	L
Runway 4 Right	030K	20	WEATHERING	1873	SqFt	L
Runway 4 Right	030K	17	WEATHERING	1873	SqFt	L
Runway 4 Right	060K	05	WEATHERING	1875	SqFt	L
Runway 4 Right	060K	20	WEATHERING	1875	SqFt	L
Runway 4 Right	020K	02	WEATHERING	2500	SqFt	L
Runway 4 Right	050L	08	WEATHERING	5625	SqFt	L
Runway 4 Right	050L	04	WEATHERING	5616	SqFt	L
Runway 4 Right	050L	02	WEATHERING	5630	SqFt	L
Runway 4 Right	020K	03	WEATHERING	4846	SqFt	L
Runway 4 Right	040K	02	WEATHERING	2909	SqFt	L
Runway 4 Right	040K	01	WEATHERING	2687	SqFt	L
Runway 4 Right	040R	01	WEATHERING	5711	SqFt	L
Runway 4 Right	050K	02	WEATHERING	1873	SqFt	L
Runway 4 Right	050K	06	WEATHERING	1882	SqFt	L
Runway 4 Right	040L	03	WEATHERING	5818	SqFt	L
Runway 4 Right	050K	04	WEATHERING	1882	SqFt	L
Shoulder TA	020	08	BLOCK CRACKING	5,000.00	SqFt	M
Shoulder TA	020	02	BLOCK CRACKING	5000	SqFt	M
Shoulder TA	020	12	BLOCK CRACKING	5000	SqFt	M
Shoulder TA	010	1	BLOCK CRACKING	3161	SqFt	M
Shoulder TA	020	04	BLOCK CRACKING	5000	SqFt	M
Shoulder TA	020	08	LONGITUDINAL/TRANSVERSE CRACKING	400.00	Ft	M
Shoulder TA	010	1	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Shoulder TA	020	08	PATCHING	200.00	SqFt	L
Shoulder TA	020	02	PATCHING	200	SqFt	L
Shoulder TA	020	12	PATCHING	200	SqFt	L
Shoulder TA	010	1	PATCHING	100	SqFt	L
Shoulder TA	020	04	PATCHING	200	SqFt	M
Shoulder TA	020	08	RAVELING	2,500.00	SqFt	H
Shoulder TA	020	08	RAVELING	2,500.00	SqFt	M
Shoulder TA	020	02	RAVELING	2500	SqFt	H
Shoulder TA	020	12	RAVELING	2500	SqFt	M
Shoulder TA	020	12	RAVELING	2500	SqFt	H
Shoulder TA	020	04	RAVELING	2500	SqFt	H
Shoulder TA	020	04	RAVELING	2500	SqFt	M
Shoulder TA	010	1	WEATHERING	6322	SqFt	L
Shoulder Taxiway (	010	5	PATCHING	75	SqFt	M
Shoulder Taxiway (	010	2	PATCHING	150	SqFt	L
Shoulder Taxiway (	010	5	RAVELING	1879	SqFt	M
Shoulder Taxiway (	010	2	RAVELING	2201	SqFt	M
Shoulder Taxiway (	010	2	RAVELING	2201	SqFt	L
Shoulder Taxiway (	010	5	WEATHERING	1804	SqFt	M
Shoulder Taxiway (	010	2	WEATHERING	1100	SqFt	M
Shoulder Taxiway (	010	2	WEATHERING	1100	SqFt	H
Taxiway A	010K	06	ALLIGATOR CRACKING	1	SqFt	L
Taxiway A	010K	10	ALLIGATOR CRACKING	6	SqFt	L
Taxiway A	040R	02	BLEEDING	140	SqFt	N
Taxiway A	040K	02	BLEEDING	60	SqFt	N
Taxiway A	040L	02	BLEEDING	280	SqFt	N
Taxiway A	040R	03	BLEEDING	50	SqFt	N
Taxiway A	040K	03	BLEEDING	120	SqFt	N

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway A	010L	15	BLOCK CRACKING	1,750.00	SqFt	L
Taxiway A	010L	15	BLOCK CRACKING	2,100.00	SqFt	M
Taxiway A	050L	03	BLOCK CRACKING	2626	SqFt	M
Taxiway A	020L	14	BLOCK CRACKING	7000	SqFt	M
Taxiway A	020K	15	BLOCK CRACKING	6000	SqFt	M
Taxiway A	010R	09	BLOCK CRACKING	3511	SqFt	M
Taxiway A	040R	02	BLOCK CRACKING	5074	SqFt	M
Taxiway A	030R	01	BLOCK CRACKING	5252	SqFt	M
Taxiway A	010L	03	BLOCK CRACKING	5250	SqFt	L
Taxiway A	040K	02	BLOCK CRACKING	1485	SqFt	M
Taxiway A	010R	01	BLOCK CRACKING	3629	SqFt	M
Taxiway A	010R	13	BLOCK CRACKING	2310	SqFt	M
Taxiway A	010R	05	BLOCK CRACKING	5270	SqFt	M
Taxiway A	010L	11	BLOCK CRACKING	1400	SqFt	L
Taxiway A	010L	11	BLOCK CRACKING	2800	SqFt	M
Taxiway A	040L	02	BLOCK CRACKING	1732	SqFt	M
Taxiway A	050L	04	BLOCK CRACKING	3491	SqFt	M
Taxiway A	030L	03	BLOCK CRACKING	4800	SqFt	M
Taxiway A	020K	07	BLOCK CRACKING	2000	SqFt	M
Taxiway A	020K	11	BLOCK CRACKING	3000	SqFt	M
Taxiway A	050R	02	BLOCK CRACKING	3467	SqFt	M
Taxiway A	010L	07	BLOCK CRACKING	2800	SqFt	M
Taxiway A	010L	07	BLOCK CRACKING	1400	SqFt	L
Taxiway A	050K	02	BLOCK CRACKING	2250	SqFt	M
Taxiway A	020K	03	BLOCK CRACKING	3000	SqFt	M
Taxiway A	050R	03	BLOCK CRACKING	4607	SqFt	M
Taxiway A	010K	14	BLOCK CRACKING	3000	SqFt	M
Taxiway A	010K	06	BLOCK CRACKING	5085	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway A	020R	10	BLOCK CRACKING	2310	SqFt	M
Taxiway A	040K	03	BLOCK CRACKING	1486	SqFt	M
Taxiway A	020R	02	BLOCK CRACKING	3500	SqFt	M
Taxiway A	020R	06	BLOCK CRACKING	3500	SqFt	M
Taxiway A	010K	02	BLOCK CRACKING	3000	SqFt	M
Taxiway A	020L	04	BLOCK CRACKING	2450	SqFt	L
Taxiway A	020L	04	BLOCK CRACKING	2100	SqFt	M
Taxiway A	020R	14	BLOCK CRACKING	7000	SqFt	M
Taxiway A	030K	02	BLOCK CRACKING	4500	SqFt	M
Taxiway A	010K	10	BLOCK CRACKING	1500	SqFt	M
Taxiway A	050K	03	BLOCK CRACKING	2252	SqFt	M
Taxiway A	020L	08	BLOCK CRACKING	1050	SqFt	M
Taxiway A	020L	08	BLOCK CRACKING	1750	SqFt	L
Taxiway A	020L	12	BLOCK CRACKING	7000	SqFt	M
Taxiway A	030L	01	BLOCK CRACKING	7000	SqFt	M
Taxiway A	030R	03	BLOCK CRACKING	5253	SqFt	M
Taxiway A	030K	01	BLOCK CRACKING	6000	SqFt	M
Taxiway A	040L	01	BLOCK CRACKING	1880	SqFt	M
Taxiway A	010L	15	LONGITUDINAL/TRANSVERSE CRACKING	300.00	Ft	M
Taxiway A	050L	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	010R	09	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	040R	02	LONGITUDINAL/TRANSVERSE CRACKING	210	Ft	M
Taxiway A	010L	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	040K	02	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway A	010R	01	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Taxiway A	010R	13	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	010R	05	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Taxiway A	010L	11	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway A	040L	02	LONGITUDINAL/TRANSVERSE CRACKING	210	Ft	M
Taxiway A	050L	04	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	020K	07	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Taxiway A	020K	07	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	H
Taxiway A	020K	11	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	050R	02	LONGITUDINAL/TRANSVERSE CRACKING	500	Ft	M
Taxiway A	010L	07	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	050K	02	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	020K	03	LONGITUDINAL/TRANSVERSE CRACKING	58	Ft	H
Taxiway A	020K	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	050R	03	LONGITUDINAL/TRANSVERSE CRACKING	500	Ft	M
Taxiway A	010K	14	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Taxiway A	010K	14	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	H
Taxiway A	010K	06	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	020R	10	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	040R	03	LONGITUDINAL/TRANSVERSE CRACKING	210	Ft	M
Taxiway A	040K	03	LONGITUDINAL/TRANSVERSE CRACKING	120	Ft	M
Taxiway A	020R	02	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	020R	06	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	010K	02	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	020L	04	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	010K	10	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	050K	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway A	020L	08	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Taxiway A	020L	12	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	M
Taxiway A	040L	01	LONGITUDINAL/TRANSVERSE CRACKING	120	Ft	M
Taxiway A	020K	15	PATCHING	16	SqFt	L
Taxiway A	020K	15	PATCHING	12	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway A	010L	03	PATCHING	27	SqFt	L
Taxiway A	030L	03	PATCHING	9	SqFt	L
Taxiway A	030L	03	PATCHING	30	SqFt	M
Taxiway A	020K	07	PATCHING	9	SqFt	L
Taxiway A	020K	11	PATCHING	15	SqFt	L
Taxiway A	020K	11	PATCHING	1500	SqFt	L
Taxiway A	020K	03	PATCHING	9	SqFt	L
Taxiway A	010K	06	PATCHING	15	SqFt	L
Taxiway A	030K	02	PATCHING	16	SqFt	L
Taxiway A	030K	01	PATCHING	9	SqFt	L
Taxiway A	040R	02	SWELLING	40	SqFt	M
Taxiway A	040K	02	SWELLING	30	SqFt	L
Taxiway A	040L	02	SWELLING	60	SqFt	L
Taxiway A	040R	03	SWELLING	30	SqFt	M
Taxiway A	040L	01	SWELLING	65	SqFt	L
Taxiway A	010L	15	WEATHERING	7,000.00	SqFt	L
Taxiway A	050L	03	WEATHERING	5253	SqFt	L
Taxiway A	020L	14	WEATHERING	7000	SqFt	L
Taxiway A	020K	15	WEATHERING	6000	SqFt	L
Taxiway A	010R	09	WEATHERING	7023	SqFt	L
Taxiway A	040R	02	WEATHERING	5254	SqFt	L
Taxiway A	030R	01	WEATHERING	5252	SqFt	L
Taxiway A	010L	03	WEATHERING	6973	SqFt	L
Taxiway A	040K	02	WEATHERING	4500	SqFt	L
Taxiway A	010R	01	WEATHERING	7258	SqFt	L
Taxiway A	010R	05	WEATHERING	7026	SqFt	L
Taxiway A	010L	11	WEATHERING	7000	SqFt	L
Taxiway A	050L	04	WEATHERING	6982	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway A	030L	03	WEATHERING	4800	SqFt	L
Taxiway A	020K	07	WEATHERING	4000	SqFt	L
Taxiway A	020K	11	WEATHERING	6000	SqFt	L
Taxiway A	050R	02	WEATHERING	5254	SqFt	L
Taxiway A	010L	07	WEATHERING	7000	SqFt	L
Taxiway A	050K	02	WEATHERING	4500	SqFt	L
Taxiway A	020K	03	WEATHERING	6000	SqFt	L
Taxiway A	050R	03	WEATHERING	6981	SqFt	L
Taxiway A	010K	14	WEATHERING	3000	SqFt	L
Taxiway A	010K	14	WEATHERING	3000	SqFt	M
Taxiway A	010K	06	WEATHERING	6000	SqFt	L
Taxiway A	020R	10	WEATHERING	7000	SqFt	L
Taxiway A	040R	03	WEATHERING	5795	SqFt	L
Taxiway A	040K	03	WEATHERING	4505	SqFt	L
Taxiway A	020R	02	WEATHERING	7000	SqFt	L
Taxiway A	020R	06	WEATHERING	7000	SqFt	L
Taxiway A	010K	02	WEATHERING	6000	SqFt	L
Taxiway A	020L	04	WEATHERING	7000	SqFt	L
Taxiway A	020R	14	WEATHERING	7000	SqFt	L
Taxiway A	030K	02	WEATHERING	4500	SqFt	L
Taxiway A	010K	10	WEATHERING	6000	SqFt	L
Taxiway A	050K	03	WEATHERING	4505	SqFt	L
Taxiway A	020L	08	WEATHERING	7000	SqFt	L
Taxiway A	020L	12	WEATHERING	7000	SqFt	L
Taxiway A	030L	01	WEATHERING	7000	SqFt	L
Taxiway A	030R	03	WEATHERING	5253	SqFt	L
Taxiway A	030K	01	WEATHERING	6000	SqFt	M
Taxiway A	040L	01	WEATHERING	5696	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway A1	010	07	CORNER SPALLING	2	Slabs	L
Taxiway A1	010	16	CORNER SPALLING	1	Slabs	L
Taxiway A1	010	06	CORNER SPALLING	1	Slabs	M
Taxiway A1	010	01	JOINT SEAL DAMAGE	20	Slabs	H
Taxiway A1	010	07	JOINT SEAL DAMAGE	20	Slabs	H
Taxiway A1	010	17	JOINT SEAL DAMAGE	20	Slabs	L
Taxiway A1	010	16	JOINT SEAL DAMAGE	20	Slabs	H
Taxiway A1	010	06	JOINT SEAL DAMAGE	20	Slabs	H
Taxiway A1	010	01	JOINT SPALLING	4	Slabs	H
Taxiway A1	010	01	JOINT SPALLING	3	Slabs	M
Taxiway A1	010	07	JOINT SPALLING	5	Slabs	L
Taxiway A1	010	07	JOINT SPALLING	3	Slabs	M
Taxiway A1	010	17	JOINT SPALLING	1	Slabs	L
Taxiway A1	010	17	JOINT SPALLING	1	Slabs	M
Taxiway A1	010	16	JOINT SPALLING	1	Slabs	L
Taxiway A1	010	06	JOINT SPALLING	1	Slabs	H
Taxiway A1	010	06	JOINT SPALLING	4	Slabs	M
Taxiway A1	020	01	LONGITUDINAL/TRANSVERSE CRACKING	700	Ft	M
Taxiway A1	010	01	SCALING	1	Slabs	L
Taxiway A1	010	06	SHRINKAGE CRACKING	1	Slabs	N
Taxiway A1	010	01	SMALL PATCH	2	Slabs	M
Taxiway A1	010	01	SMALL PATCH	3	Slabs	H
Taxiway A1	010	01	SMALL PATCH	1	Slabs	L
Taxiway A1	010	07	SMALL PATCH	2	Slabs	L
Taxiway A1	010	16	SMALL PATCH	2	Slabs	M
Taxiway A1	010	16	SMALL PATCH	1	Slabs	L
Taxiway A1	010	06	SMALL PATCH	1	Slabs	L
Taxiway A1	020	01	WEATHERING	4908	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway A2	010	03	ALLIGATOR CRACKING	65	SqFt	L
Taxiway A2	010	03	ALLIGATOR CRACKING	25	SqFt	M
Taxiway A2	010	03	ALLIGATOR CRACKING	81	SqFt	M
Taxiway A2	010	07	ALLIGATOR CRACKING	20	SqFt	L
Taxiway A2	010	05	BLOCK CRACKING	300.00	SqFt	M
Taxiway A2	010	03	BLOCK CRACKING	240	SqFt	M
Taxiway A2	010	07	BLOCK CRACKING	941	SqFt	M
Taxiway A2	010	05	LONGITUDINAL/TRANSVERSE CRACKING	300.00	Ft	L
Taxiway A2	010	03	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M
Taxiway A2	010	07	LONGITUDINAL/TRANSVERSE CRACKING	60	Ft	M
Taxiway A2	010	05	WEATHERING	2,790.00	SqFt	L
Taxiway A2	010	03	WEATHERING	5578	SqFt	L
Taxiway A2	010	07	WEATHERING	1882	SqFt	L
Taxiway B	040	25	ALLIGATOR CRACKING	50	SqFt	M
Taxiway B	020	02	ALLIGATOR CRACKING	75	SqFt	M
Taxiway B	030	01	ALLIGATOR CRACKING	72	SqFt	L
Taxiway B	040	25	BLOCK CRACKING	900	SqFt	M
Taxiway B	010	12	BLOCK CRACKING	1500	SqFt	L
Taxiway B	010	09	BLOCK CRACKING	450	SqFt	M
Taxiway B	010	09	BLOCK CRACKING	450	SqFt	M
Taxiway B	040	04	BLOCK CRACKING	90	SqFt	M
Taxiway B	040	10	BLOCK CRACKING	900	SqFt	M
Taxiway B	060	02	BLOCK CRACKING	450	SqFt	M
Taxiway B	010	07	BLOCK CRACKING	675	SqFt	M
Taxiway B	040	18	BLOCK CRACKING	450	SqFt	M
Taxiway B	040	18	BLOCK CRACKING	450	SqFt	M
Taxiway B	040	18	BLOCK CRACKING	675	SqFt	M
Taxiway B	070	14	BLOCK CRACKING	200	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway B	010	03	BLOCK CRACKING	300	SqFt	L
Taxiway B	040	31	BLOCK CRACKING	210	SqFt	M
Taxiway B	020	04	BLOCK CRACKING	450	SqFt	M
Taxiway B	030	02	BLOCK CRACKING	675	SqFt	L
Taxiway B	020	02	BLOCK CRACKING	450	SqFt	M
Taxiway B	030	01	BLOCK CRACKING	900	SqFt	M
Taxiway B	040	25	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway B	040	25	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway B	070	02	LONGITUDINAL/TRANSVERSE CRACKING	450	Ft	M
Taxiway B	010	12	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway B	010	12	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Taxiway B	010	09	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway B	010	09	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway B	040	04	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M
Taxiway B	040	10	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Taxiway B	040	36	LONGITUDINAL/TRANSVERSE CRACKING	116	Ft	L
Taxiway B	040	36	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway B	070	10	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M
Taxiway B	070	10	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Taxiway B	060	02	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M
Taxiway B	010	07	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway B	070	06	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M
Taxiway B	070	06	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Taxiway B	050	04	LONGITUDINAL/TRANSVERSE CRACKING	600	Ft	M
Taxiway B	060	04	LONGITUDINAL/TRANSVERSE CRACKING	45	Ft	M
Taxiway B	060	04	LONGITUDINAL/TRANSVERSE CRACKING	450	Ft	M
Taxiway B	040	18	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway B	070	14	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway B	070	14	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Taxiway B	010	03	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway B	010	03	LONGITUDINAL/TRANSVERSE CRACKING	85	Ft	M
Taxiway B	040	31	LONGITUDINAL/TRANSVERSE CRACKING	263	Ft	M
Taxiway B	020	04	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway B	030	02	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Taxiway B	050	03	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Taxiway B	050	03	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M
Taxiway B	020	02	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway B	020	02	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Taxiway B	030	01	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway B	030	01	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway B	010	12	PATCHING	196	SqFt	L
Taxiway B	010	12	SWELLING	75	SqFt	M
Taxiway B	040	25	WEATHERING	5639	SqFt	L
Taxiway B	070	02	WEATHERING	5622	SqFt	L
Taxiway B	010	12	WEATHERING	5605	SqFt	L
Taxiway B	010	09	WEATHERING	4457	SqFt	L
Taxiway B	010	09	WEATHERING	1114	SqFt	M
Taxiway B	040	04	WEATHERING	5554	SqFt	L
Taxiway B	040	10	WEATHERING	4458	SqFt	L
Taxiway B	040	10	WEATHERING	1114	SqFt	M
Taxiway B	040	36	WEATHERING	5672	SqFt	L
Taxiway B	070	10	WEATHERING	5634	SqFt	L
Taxiway B	060	02	WEATHERING	5476	SqFt	L
Taxiway B	010	07	WEATHERING	5548	SqFt	L
Taxiway B	070	06	WEATHERING	5622	SqFt	L
Taxiway B	050	04	WEATHERING	5689	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway B	060	04	WEATHERING	5528	SqFt	L
Taxiway B	040	18	WEATHERING	2252	SqFt	M
Taxiway B	040	18	WEATHERING	3377	SqFt	L
Taxiway B	070	14	WEATHERING	5725	SqFt	L
Taxiway B	010	03	WEATHERING	5534	SqFt	L
Taxiway B	040	31	WEATHERING	5634	SqFt	L
Taxiway B	020	04	WEATHERING	1111	SqFt	M
Taxiway B	020	04	WEATHERING	4445	SqFt	L
Taxiway B	030	02	WEATHERING	5570	SqFt	L
Taxiway B	050	03	WEATHERING	5655	SqFt	L
Taxiway B	020	02	WEATHERING	1125	SqFt	M
Taxiway B	020	02	WEATHERING	4500	SqFt	L
Taxiway B	030	01	WEATHERING	1099	SqFt	M
Taxiway B	030	01	WEATHERING	4398	SqFt	L
Taxiway B 2	010	04	BLOCK CRACKING	490	SqFt	L
Taxiway B 2	010	02	LONGITUDINAL/TRANSVERSE CRACKING	400	Ft	M
Taxiway B 2	010	06	LONGITUDINAL/TRANSVERSE CRACKING	240	Ft	M
Taxiway B 2	010	04	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Taxiway B 2	010	06	PATCHING	16	SqFt	M
Taxiway B 2	010	02	SWELLING	115	SqFt	M
Taxiway B 2	010	02	WEATHERING	4921	SqFt	L
Taxiway B 2	010	06	WEATHERING	2181	SqFt	M
Taxiway B 2	010	06	WEATHERING	2181	SqFt	L
Taxiway B 2	010	04	WEATHERING	4909	SqFt	L
Taxiway B1	010	08	ALLIGATOR CRACKING	75	SqFt	L
Taxiway B1	020	11	BLOCK CRACKING	1250	SqFt	M
Taxiway B1	010	11	BLOCK CRACKING	500	SqFt	L
Taxiway B1	020	07	BLOCK CRACKING	1254	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway B1	020	03	BLOCK CRACKING	1250	SqFt	M
Taxiway B1	020	14	BLOCK CRACKING	1250	SqFt	M
Taxiway B1	020	17	BLOCK CRACKING	1250	SqFt	M
Taxiway B1	010	04	BLOCK CRACKING	500	SqFt	L
Taxiway B1	020	11	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Taxiway B1	010	11	LONGITUDINAL/TRANSVERSE CRACKING	450	Ft	M
Taxiway B1	020	07	LONGITUDINAL/TRANSVERSE CRACKING	350	Ft	M
Taxiway B1	020	03	LONGITUDINAL/TRANSVERSE CRACKING	350	Ft	M
Taxiway B1	020	14	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Taxiway B1	020	17	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Taxiway B1	010	01	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway B1	010	01	LONGITUDINAL/TRANSVERSE CRACKING	450	Ft	L
Taxiway B1	010	04	LONGITUDINAL/TRANSVERSE CRACKING	450	Ft	M
Taxiway B1	010	08	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	M
Taxiway B1	010	08	LONGITUDINAL/TRANSVERSE CRACKING	315	Ft	L
Taxiway B1	010	01	SWELLING	75	SqFt	M
Taxiway B1	010	08	SWELLING	100	SqFt	M
Taxiway B1	020	11	WEATHERING	5000	SqFt	L
Taxiway B1	010	11	WEATHERING	5000	SqFt	L
Taxiway B1	020	07	WEATHERING	5021	SqFt	L
Taxiway B1	020	03	WEATHERING	5000	SqFt	L
Taxiway B1	020	14	WEATHERING	5000	SqFt	L
Taxiway B1	020	17	WEATHERING	5000	SqFt	L
Taxiway B1	010	01	WEATHERING	6935	SqFt	L
Taxiway B1	010	04	WEATHERING	5002	SqFt	L
Taxiway B1	010	08	WEATHERING	5000	SqFt	L
Taxiway B3	010	01	JOINT REFLECTION CRACKING	6736	Ft	L
Taxiway B3	010	01	LONGITUDINAL/TRANSVERSE CRACKING	175	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway B3	010	01	LONGITUDINAL/TRANSVERSE CRACKING	200	Ft	L
Taxiway B3	010	05	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Taxiway B3	010	05	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	L
Taxiway B3	010	03	LONGITUDINAL/TRANSVERSE CRACKING	30	Ft	L
Taxiway B3	010	03	LONGITUDINAL/TRANSVERSE CRACKING	250	Ft	M
Taxiway B3	010	01	SWELLING	100	SqFt	L
Taxiway B3	010	05	WEATHERING	2474	SqFt	M
Taxiway B3	010	05	WEATHERING	2474	SqFt	L
Taxiway B3	010	03	WEATHERING	2471	SqFt	M
Taxiway B3	010	03	WEATHERING	2471	SqFt	L
Taxiway B4	060	01	ALLIGATOR CRACKING	40	SqFt	L
Taxiway B4	040	03	BLEEDING	6	SqFt	N
Taxiway B4	040	05	BLEEDING	5	SqFt	N
Taxiway B4	011	01	BLOCK CRACKING	4898	SqFt	M
Taxiway B4	040	02	BLOCK CRACKING	5622	SqFt	M
Taxiway B4	040	03	BLOCK CRACKING	5612	SqFt	M
Taxiway B4	011	02	BLOCK CRACKING	4900	SqFt	M
Taxiway B4	040	05	BLOCK CRACKING	5591	SqFt	M
Taxiway B4	040	03	DEPRESSION	50	SqFt	L
Taxiway B4	060	03	LONGITUDINAL/TRANSVERSE CRACKING	75.00	Ft	L
Taxiway B4	060	03	LONGITUDINAL/TRANSVERSE CRACKING	225.00	Ft	M
Taxiway B4	050	02	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	L
Taxiway B4	050	02	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	L
Taxiway B4	050	04	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway B4	050	04	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Taxiway B4	060	01	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Taxiway B4	060	01	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway B4	050	05	LONGITUDINAL/TRANSVERSE CRACKING	128	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway B4	050	05	LONGITUDINAL/TRANSVERSE CRACKING	45	Ft	L
Taxiway B4	060	06	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway B4	060	06	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Taxiway B4	013	02	LONGITUDINAL/TRANSVERSE CRACKING	120	Ft	L
Taxiway B4	040	05	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway B4	013	04	LONGITUDINAL/TRANSVERSE CRACKING	5	Ft	L
Taxiway B4	030	01	LONGITUDINAL/TRANSVERSE CRACKING	4	Ft	L
Taxiway B4	030	01	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway B4	030	03	LONGITUDINAL/TRANSVERSE CRACKING	27	Ft	L
Taxiway B4	020	04	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway B4	020	04	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Taxiway B4	040	05	PATCHING	600	SqFt	M
Taxiway B4	050	02	SWELLING	150	SqFt	M
Taxiway B4	030	03	SWELLING	1	SqFt	M
Taxiway B4	060	03	WEATHERING	5,515.00	SqFt	L
Taxiway B4	050	02	WEATHERING	5049	SqFt	L
Taxiway B4	011	01	WEATHERING	4898	SqFt	M
Taxiway B4	050	04	WEATHERING	4335	SqFt	L
Taxiway B4	050	04	WEATHERING	1445	SqFt	M
Taxiway B4	060	01	WEATHERING	3801	SqFt	L
Taxiway B4	050	05	WEATHERING	1528	SqFt	M
Taxiway B4	050	05	WEATHERING	2837	SqFt	L
Taxiway B4	040	02	WEATHERING	5622	SqFt	M
Taxiway B4	060	06	WEATHERING	2980	SqFt	L
Taxiway B4	040	03	WEATHERING	5612	SqFt	M
Taxiway B4	011	02	WEATHERING	4900	SqFt	M
Taxiway B4	040	05	WEATHERING	5591	SqFt	M
Taxiway B4	020	02	WEATHERING	280	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway C	140	04	ALLIGATOR CRACKING	225	SqFt	L
Taxiway C	140	07	ALLIGATOR CRACKING	110	SqFt	L
Taxiway C	140	02	BLOCK CRACKING	566.00	SqFt	L
Taxiway C	140	09	BLOCK CRACKING	256	SqFt	M
Taxiway C	140	09	BLOCK CRACKING	1536	SqFt	L
Taxiway C	150	11	BLOCK CRACKING	450	SqFt	L
Taxiway C	150	31	BLOCK CRACKING	1125	SqFt	M
Taxiway C	150	04	BLOCK CRACKING	900	SqFt	M
Taxiway C	150	24	BLOCK CRACKING	400	SqFt	L
Taxiway C	090	04	BLOCK CRACKING	210	SqFt	M
Taxiway C	060	02	BLOCK CRACKING	60	SqFt	L
Taxiway C	090	10	BLOCK CRACKING	900	SqFt	L
Taxiway C	040	06	BLOCK CRACKING	900	SqFt	L
Taxiway C	140	07	BLOCK CRACKING	2810	SqFt	M
Taxiway C	080	01	BLOCK CRACKING	585	SqFt	L
Taxiway C	040	09	BLOCK CRACKING	675	SqFt	L
Taxiway C	150	42	LONGITUDINAL/TRANSVERSE CRACKING	240.00	Ft	M
Taxiway C	140	02	LONGITUDINAL/TRANSVERSE CRACKING	225.00	Ft	M
Taxiway C	010	04	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Taxiway C	010	04	LONGITUDINAL/TRANSVERSE CRACKING	37	Ft	L
Taxiway C	150	18	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway C	150	18	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Taxiway C	070	02	LONGITUDINAL/TRANSVERSE CRACKING	48	Ft	L
Taxiway C	150	37	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway C	010	02	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway C	010	02	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	L
Taxiway C	150	11	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway C	150	11	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway C	150	31	LONGITUDINAL/TRANSVERSE CRACKING	40	Ft	M
Taxiway C	150	31	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway C	150	31	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway C	150	04	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway C	150	04	LONGITUDINAL/TRANSVERSE CRACKING	125	Ft	M
Taxiway C	090	07	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	H
Taxiway C	090	07	LONGITUDINAL/TRANSVERSE CRACKING	525	Ft	M
Taxiway C	120	02	LONGITUDINAL/TRANSVERSE CRACKING	113	Ft	L
Taxiway C	120	02	LONGITUDINAL/TRANSVERSE CRACKING	38	Ft	M
Taxiway C	150	24	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Taxiway C	150	24	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway C	090	01	LONGITUDINAL/TRANSVERSE CRACKING	525	Ft	M
Taxiway C	130	03	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Taxiway C	090	04	LONGITUDINAL/TRANSVERSE CRACKING	450	Ft	M
Taxiway C	090	04	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway C	060	02	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	L
Taxiway C	090	10	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway C	090	10	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Taxiway C	040	06	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Taxiway C	040	06	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway C	140	04	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Taxiway C	130	02	LONGITUDINAL/TRANSVERSE CRACKING	125	Ft	L
Taxiway C	070	01	LONGITUDINAL/TRANSVERSE CRACKING	67	Ft	L
Taxiway C	110	01	LONGITUDINAL/TRANSVERSE CRACKING	70	Ft	L
Taxiway C	110	01	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway C	030	03	LONGITUDINAL/TRANSVERSE CRACKING	25	Ft	L
Taxiway C	030	03	LONGITUDINAL/TRANSVERSE CRACKING	15	Ft	M
Taxiway C	030	01	LONGITUDINAL/TRANSVERSE CRACKING	98	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway C	030	01	LONGITUDINAL/TRANSVERSE CRACKING	270	Ft	L
Taxiway C	020	04	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M
Taxiway C	080	01	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M
Taxiway C	020	02	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway C	020	02	LONGITUDINAL/TRANSVERSE CRACKING	37	Ft	M
Taxiway C	020	02	LONGITUDINAL/TRANSVERSE CRACKING	37	Ft	H
Taxiway C	110	02	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway C	110	02	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Taxiway C	100	03	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	L
Taxiway C	100	03	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Taxiway C	100	01	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Taxiway C	100	01	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
Taxiway C	100	01	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	M
Taxiway C	120	01	LONGITUDINAL/TRANSVERSE CRACKING	113	Ft	L
Taxiway C	120	01	LONGITUDINAL/TRANSVERSE CRACKING	38	Ft	M
Taxiway C	080	03	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	H
Taxiway C	080	03	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M
Taxiway C	080	03	LONGITUDINAL/TRANSVERSE CRACKING	125	Ft	L
Taxiway C	050	03	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	L
Taxiway C	050	03	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway C	060	01	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway C	060	01	LONGITUDINAL/TRANSVERSE CRACKING	240	Ft	L
Taxiway C	020	06	LONGITUDINAL/TRANSVERSE CRACKING	37	Ft	M
Taxiway C	020	06	LONGITUDINAL/TRANSVERSE CRACKING	37	Ft	H
Taxiway C	020	06	LONGITUDINAL/TRANSVERSE CRACKING	225	Ft	M
Taxiway C	050	02	LONGITUDINAL/TRANSVERSE CRACKING	15	Ft	L
Taxiway C	050	02	LONGITUDINAL/TRANSVERSE CRACKING	130	Ft	M
Taxiway C	040	09	LONGITUDINAL/TRANSVERSE CRACKING	375	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway C	040	03	LONGITUDINAL/TRANSVERSE CRACKING	525	Ft	M
Taxiway C	120	02	PATCHING	450	SqFt	L
Taxiway C	120	01	PATCHING	450	SqFt	L
Taxiway C	150	37	RAVELING	1406	SqFt	M
Taxiway C	130	03	RAVELING	1497	SqFt	L
Taxiway C	130	02	RAVELING	1968	SqFt	L
Taxiway C	100	03	RAVELING	2813	SqFt	M
Taxiway C	100	01	RAVELING	2619	SqFt	M
Taxiway C	070	02	SWELLING	5	SqFt	M
Taxiway C	070	01	SWELLING	7	SqFt	M
Taxiway C	110	01	SWELLING	6	SqFt	L
Taxiway C	060	01	SWELLING	50	SqFt	M
Taxiway C	150	42	WEATHERING	3,310.00	SqFt	L
Taxiway C	140	02	WEATHERING	5,667.00	SqFt	L
Taxiway C	010	04	WEATHERING	2812	SqFt	L
Taxiway C	150	18	WEATHERING	2812	SqFt	L
Taxiway C	150	18	WEATHERING	2812	SqFt	M
Taxiway C	070	02	WEATHERING	330	SqFt	L
Taxiway C	150	37	WEATHERING	4218	SqFt	M
Taxiway C	140	09	WEATHERING	3839	SqFt	L
Taxiway C	140	09	WEATHERING	1280	SqFt	M
Taxiway C	150	11	WEATHERING	2812	SqFt	L
Taxiway C	150	11	WEATHERING	2812	SqFt	M
Taxiway C	150	31	WEATHERING	2812	SqFt	M
Taxiway C	150	31	WEATHERING	2812	SqFt	L
Taxiway C	150	04	WEATHERING	2812	SqFt	M
Taxiway C	150	04	WEATHERING	2812	SqFt	L
Taxiway C	090	07	WEATHERING	5625	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway C	150	24	WEATHERING	2812	SqFt	M
Taxiway C	150	24	WEATHERING	2812	SqFt	L
Taxiway C	090	01	WEATHERING	5620	SqFt	L
Taxiway C	130	03	WEATHERING	2779	SqFt	L
Taxiway C	090	04	WEATHERING	5625	SqFt	L
Taxiway C	060	02	WEATHERING	963	SqFt	L
Taxiway C	090	10	WEATHERING	5625	SqFt	L
Taxiway C	040	06	WEATHERING	2812	SqFt	L
Taxiway C	140	04	WEATHERING	5629	SqFt	L
Taxiway C	130	02	WEATHERING	3654	SqFt	L
Taxiway C	140	07	WEATHERING	2810	SqFt	L
Taxiway C	070	01	WEATHERING	455	SqFt	L
Taxiway C	030	01	WEATHERING	2081	SqFt	L
Taxiway C	020	04	WEATHERING	2812	SqFt	L
Taxiway C	080	01	WEATHERING	4872	SqFt	L
Taxiway C	020	02	WEATHERING	2812	SqFt	L
Taxiway C	100	03	WEATHERING	2813	SqFt	M
Taxiway C	100	01	WEATHERING	2620	SqFt	M
Taxiway C	080	03	WEATHERING	5625	SqFt	L
Taxiway C	060	01	WEATHERING	901	SqFt	L
Taxiway C	020	06	WEATHERING	2812	SqFt	L
Taxiway C	040	09	WEATHERING	2812	SqFt	L
Taxiway C	040	03	WEATHERING	2580	SqFt	L
Taxiway C1	010	12	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway C1	010	12	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	L
Taxiway C1	010	16	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	L
Taxiway C1	010	16	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	M
Taxiway C1	010	9	LONGITUDINAL/TRANSVERSE CRACKING	80	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway C1	010	9	LONGITUDINAL/TRANSVERSE CRACKING	20	Ft	L
Taxiway C1	010	05	LONGITUDINAL/TRANSVERSE CRACKING	25	Ft	M
Taxiway C1	010	05	LONGITUDINAL/TRANSVERSE CRACKING	25	Ft	L
Taxiway C1	010	01	LONGITUDINAL/TRANSVERSE CRACKING	25	Ft	M
Taxiway C1	010	01	LONGITUDINAL/TRANSVERSE CRACKING	25	Ft	L
Taxiway C1	010	9	PATCHING	78	SqFt	L
Taxiway C1	010	9	PATCHING	120	SqFt	L
Taxiway C1	010	12	WEATHERING	857	SqFt	L
Taxiway C1	010	16	WEATHERING	846	SqFt	L
Taxiway C1	010	9	WEATHERING	766	SqFt	L
Taxiway C1	010	05	WEATHERING	766	SqFt	L
Taxiway C1	010	01	WEATHERING	688	SqFt	L
Taxiway C2	010	02	BLOCK CRACKING	2655	SqFt	L
Taxiway C2	020	04	BLOCK CRACKING	510	SqFt	M
Taxiway C2	030	05	BLOCK CRACKING	200	SqFt	M
Taxiway C2	020	07	BLOCK CRACKING	882	SqFt	M
Taxiway C2	030	02	BLOCK CRACKING	1368	SqFt	M
Taxiway C2	010	06	BLOCK CRACKING	200	SqFt	M
Taxiway C2	020	01	BLOCK CRACKING	100	SqFt	M
Taxiway C2	020	04	LONGITUDINAL/TRANSVERSE CRACKING	190	Ft	M
Taxiway C2	020	04	LONGITUDINAL/TRANSVERSE CRACKING	140	Ft	L
Taxiway C2	030	07	LONGITUDINAL/TRANSVERSE CRACKING	120	Ft	L
Taxiway C2	030	07	LONGITUDINAL/TRANSVERSE CRACKING	450	Ft	M
Taxiway C2	030	05	LONGITUDINAL/TRANSVERSE CRACKING	450	Ft	M
Taxiway C2	030	05	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	L
Taxiway C2	020	07	LONGITUDINAL/TRANSVERSE CRACKING	240	Ft	M
Taxiway C2	030	02	LONGITUDINAL/TRANSVERSE CRACKING	340	Ft	M
Taxiway C2	010	06	LONGITUDINAL/TRANSVERSE CRACKING	300	Ft	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway C2	020	01	LONGITUDINAL/TRANSVERSE CRACKING	340	Ft	M
Taxiway C2	020	01	LONGITUDINAL/TRANSVERSE CRACKING	140	Ft	L
Taxiway C2	010	04	LONGITUDINAL/TRANSVERSE CRACKING	450	Ft	M
Taxiway C2	030	07	PATCHING	115	SqFt	L
Taxiway C2	020	07	PATCHING	225	SqFt	L
Taxiway C2	010	02	RAVELING	2,212.00	SqFt	L
Taxiway C2	030	07	SWELLING	50	SqFt	L
Taxiway C2	010	02	WEATHERING	2,212.00	SqFt	L
Taxiway C2	010	02	WEATHERING	2,212.00	SqFt	M
Taxiway C2	020	04	WEATHERING	5770	SqFt	L
Taxiway C2	030	07	WEATHERING	5567	SqFt	L
Taxiway C2	030	05	WEATHERING	5263	SqFt	L
Taxiway C2	020	07	WEATHERING	5885	SqFt	L
Taxiway C2	030	02	WEATHERING	5474	SqFt	L
Taxiway C2	010	06	WEATHERING	1942	SqFt	L
Taxiway C2	010	06	WEATHERING	1941	SqFt	M
Taxiway C2	020	01	WEATHERING	7146	SqFt	L
Taxiway C2	010	04	WEATHERING	2795	SqFt	M
Taxiway C2	010	04	WEATHERING	2795	SqFt	L
Taxiway C3	010	07	BLOCK CRACKING	2117	SqFt	M
Taxiway C3	010	07	BLOCK CRACKING	2117	SqFt	L
Taxiway C3	010	05	BLOCK CRACKING	4330	SqFt	L
Taxiway C3	010	03	BLOCK CRACKING	1414	SqFt	M
Taxiway C3	010	03	BLOCK CRACKING	4241	SqFt	L
Taxiway C3	010	05	LONGITUDINAL/TRANSVERSE CRACKING	325	Ft	M
Taxiway C3	010	03	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway C3	010	07	WEATHERING	4235	SqFt	M
Taxiway C3	010	05	WEATHERING	5773	SqFt	M

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway C3	010	03	WEATHERING	4241	SqFt	L
Taxiway C3	010	03	WEATHERING	1414	SqFt	M
Taxiway C4	010	04	BLOCK CRACKING	4500	SqFt	L
Taxiway C4	010	07	BLOCK CRACKING	1399	SqFt	L
Taxiway C4	010	07	BLOCK CRACKING	1399	SqFt	M
Taxiway C4	010	01	BLOCK CRACKING	3759	SqFt	L
Taxiway C4	010	04	LONGITUDINAL/TRANSVERSE CRACKING	75	Ft	M
Taxiway C4	010	07	LONGITUDINAL/TRANSVERSE CRACKING	80	Ft	L
Taxiway C4	010	01	LONGITUDINAL/TRANSVERSE CRACKING	150	Ft	M
Taxiway C4	010	04	RAVELING	844	SqFt	L
Taxiway C4	010	07	RAVELING	2798	SqFt	L
Taxiway C4	010	01	RAVELING	1002	SqFt	L
Taxiway C4	010	04	WEATHERING	5625	SqFt	L
Taxiway C4	010	07	WEATHERING	2798	SqFt	L
Taxiway C4	010	01	WEATHERING	5012	SqFt	L
Taxiway C5	010	08	BLOCK CRACKING	3880	SqFt	L
Taxiway C5	010	05	BLOCK CRACKING	1972	SqFt	L
Taxiway C5	010	15	BLOCK CRACKING	2248	SqFt	L
Taxiway C5	010	11	BLOCK CRACKING	1237	SqFt	L
Taxiway C5	010	01	BLOCK CRACKING	3010	SqFt	L
Taxiway C5	010	08	LONGITUDINAL/TRANSVERSE CRACKING	80	Ft	M
Taxiway C5	010	05	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
Taxiway C5	010	15	LONGITUDINAL/TRANSVERSE CRACKING	50	Ft	M
Taxiway C5	010	15	LONGITUDINAL/TRANSVERSE CRACKING	15	Ft	L
Taxiway C5	010	11	LONGITUDINAL/TRANSVERSE CRACKING	65	Ft	M
Taxiway C5	010	01	LONGITUDINAL/TRANSVERSE CRACKING	60	Ft	M
Taxiway C5	010	08	WEATHERING	3880	SqFt	L
Taxiway C5	010	05	WEATHERING	3945	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
Taxiway C5	010	15	WEATHERING	3747	SqFt	L
Taxiway C5	010	11	WEATHERING	3750	SqFt	L
Taxiway C5	010	01	WEATHERING	501	SqFt	M
Taxiway C5	010	01	WEATHERING	4517	SqFt	L
	010	20	BLEEDING	85	SqFt	N
	010	01	BLOCK CRACKING	6950	SqFt	M
	010	17	BLOCK CRACKING	6527	SqFt	M
	010	24	BLOCK CRACKING	1335	SqFt	L
	010	24	BLOCK CRACKING	4005	SqFt	M
	010	12	BLOCK CRACKING	5000	SqFt	M
	010	39	BLOCK CRACKING	4539	SqFt	M
	010	39	BLOCK CRACKING	801	SqFt	L
	010	04	BLOCK CRACKING	5000	SqFt	M
	010	20	BLOCK CRACKING	6523	SqFt	M
	010	32	BLOCK CRACKING	4539	SqFt	M
	010	32	BLOCK CRACKING	801	SqFt	L
	010	09	BLOCK CRACKING	5000	SqFt	M
	010	39	LONGITUDINAL/TRANSVERSE CRACKING	100	Ft	M
	010	20	OIL SPILLAGE	6	SqFt	N
	010	01	PATCHING	615	SqFt	L
	010	17	PATCHING	75	SqFt	L
	010	24	PATCHING	25	SqFt	L
	010	39	PATCHING	115	SqFt	L
	010	32	PATCHING	115	SqFt	L
	010	01	RAVELING	1737	SqFt	L
	010	17	RAVELING	653	SqFt	L
	010	04	RAVELING	750	SqFt	L
	010	09	RAVELING	1250	SqFt	L

Name	Section ID	Sample Unit ID	Distress Description	Distress Quantity	Distress Quantity Units	Severity
	010	01	WEATHERING	3475	SqFt	M
	010	01	WEATHERING	3475	SqFt	H
	010	17	WEATHERING	4895	SqFt	M
	010	17	WEATHERING	1631	SqFt	H
	010	24	WEATHERING	5340	SqFt	M
	010	12	WEATHERING	4500	SqFt	M
	010	12	WEATHERING	500	SqFt	H
	010	39	WEATHERING	5340	SqFt	M
	010	04	WEATHERING	2500	SqFt	M
	010	04	WEATHERING	2500	SqFt	H
	010	20	WEATHERING	4892	SqFt	M
	010	20	WEATHERING	1630	SqFt	L
	010	32	WEATHERING	5340	SqFt	M
	010	09	WEATHERING	2500	SqFt	H
	010	09	WEATHERING	2500	SqFt	M

APPENDIX A.3.5 –

CORE LOCATIONS

Core sample data at Kalaeloa Airport provided below were taken from the 2000 Pavement Management System Report.

CORE #	LOCATION	DOCUMENTED LAYERS (inches)	DOCUMENTED THICKNESS (inches)	LABORATORY LAYERS (inches)	LABORATORY THICKNESS* (inches)	COMMENTS
1	TK-020	?/3/1.5	Unknown	2.5/2.5/1/5	6.5	Assume 0.5” mill and 2.5” overlay
2	R11-020	?/3/3.5/0.5	Unknown	2.5/2.5	5	Assume 0.5” mill and 2.5” overlay
3	TK-060	?/3/1.5	Unknown	2.5/2.5/1	6	Assume 0.5” mill and 2.5” overlay
4	A02-030	2.5	2.5	2.5/1.5	4	Assume 1” mill and 2.5” overlay. Establish date from field information/ PCI results.
5	A02-040	2.5	2.5	2.5/1.5	4	Assume 1” mill and 2.5” overlay. Establish date from field information/ PCI results.
6	TA-040K	3/1.5/2.5/2.5	9.5	3/4	7	Assume 2” mill (1986) and 1” overlay (1959)
7	RWY11-080	3/1.5/2.5	7	3/3	6	Assume top overlay occurred in concurrence with 1985 Runways 4R project, assume 1” in 1964 (Typ)
8	RWY04R-040K	3/0.5/2.5	6	2.5/1.5	4	Mill depth 2”
9	RWY11-110L	3/1.5/2.5	6	2.5/3	5.5	Assume top overlay occurred in concurrence with 1985 Runways 4R project, assume 1” in 1964 (Typ)
10	A01-040	2.5	2.5	3.25	3.25	Use core thickness for pavement thickness. Verify age by PCI comparison
11	A01-060	4	4	3	3	
12	A01-070	2.5	2.5	2.75	2.75	

*Lab thickness may not be full pavement thickness. Field determination was made as to when the ATB had been reached, and coring was halted at that depth.

TABLE 3.1: CORING LOCATIONS AT KALAELOA AIRPORT

APPENDIX A.4.1-

LOCALIZED MAINTENANCE

Distress	Distress Severity	Description	Work Type	Code	Work Unit
41	High	ALLIGATOR CR	Patching - AC Deep	PA-AD	SqFt
41	Medium	ALLIGATOR CR	Patching - AC Deep	PA-AD	SqFt
43	High	BLOCK CR	Crack Sealing - AC	CS-AC	Ft
43	Medium	BLOCK CR	Crack Sealing - AC	CS-AC	Ft
44	High	CORRUGATION	Patching - AC Shallow	PA-AS	SqFt
44	Medium	CORRUGATION	Patching - AC Shallow	PA-AS	SqFt
45	Medium	DEPRESSION	Patching - AC Shallow	PA-AS	SqFt
45	High	DEPRESSION	Patching - AC Deep	PA-AD	SqFt
47	High	JT REF. CR	Crack Sealing - AC	CS-AC	Ft
47	Medium	JT REF. CR	Crack Sealing - AC	CS-AC	Ft
48	Medium	L & T CR	Crack Sealing - AC	CS-AC	Ft
48	High	L & T CR	Crack Sealing - AC	CS-AC	Ft
49		OIL SPILLAGE	Patching - AC Shallow	PA-AS	SqFt
50	Medium	PATCHING	Patching - AC Deep	PA-AD	SqFt
50	High	PATCHING	Patching - AC Deep	PA-AD	SqFt
52	Medium	RAVELING	Patching - AC Shallow	PA-AS	SqFt
52	High	RAVELING	Patching - AC Shallow	PA-AS	SqFt
53	High	RUTTING	Patching - AC Deep	PA-AD	SqFt
53	Medium	RUTTING	Patching - AC Deep	PA-AD	SqFt
54	High	SHOVING	Patching - AC Shallow	PA-AS	SqFt
54	Medium	SHOVING	Patching - AC Shallow	PA-AS	SqFt
55		SLIPPAGE CR	Patching - AC Deep	PA-AD	SqFt
56	High	SWELLING	Patching - AC Deep	PA-AD	SqFt
56	Medium	SWELLING	Patching - AC Deep	PA-AD	SqFt
61	Low	BLOW-UP	Patching - PCC Full Depth	PA-PF	SqFt
61	Medium	BLOW-UP	Patching - PCC Full Depth	PA-PF	SqFt
61	High	BLOW-UP	Slab Replacement - PCC	SL-PC	SqFt
62	High	CORNER BREAK	Patching - PCC Full Depth	PA-PF	SqFt
62	Medium	CORNER BREAK	Patching - PCC Full Depth	PA-PF	SqFt
63	High	LINEAR CR	Crack Sealing - PCC	CS-PC	Ft
63	Medium	LINEAR CR	Crack Sealing - PCC	CS-PC	Ft
64	High	DURABIL. CR	Slab Replacement - PCC	SL-PC	SqFt
64	Medium	DURABIL. CR	Patching - PCC Full Depth	PA-PF	SqFt
65	High	JT SEAL DMG	Joint Seal (Localized)	JS-LC	Ft
65	Medium	JT SEAL DMG	Joint Seal (Localized)	JS-LC	Ft
66	Medium	SMALL PATCH	Patching - PCC Partial Depth	PA-PP	SqFt
66	High	SMALL PATCH	Patching - PCC Partial Depth	PA-PP	SqFt
67	High	LARGE PATCH	Patching - PCC Full Depth	PA-PF	SqFt
67	Medium	LARGE PATCH	Patching - PCC Full Depth	PA-PF	SqFt
70	High	SCALING	Slab Replacement - PCC	SL-PC	SqFt
70	Medium	SCALING	Patching - PCC Partial Depth	PA-PP	SqFt
71	Medium	FAULTING	Grinding (Localized)	GR-PP	Ft

Distress	Distress Severity	Description	Work Type	Code	Work Unit
71	High	FAULTING	Grinding (Localized)	GR-PP	Ft
72	Medium	SHAT. SLAB	Slab Replacement - PCC	SL-PC	SqFt
72	High	SHAT. SLAB	Slab Replacement - PCC	SL-PC	SqFt
74	High	JOINT SPALL	Patching - PCC Partial Depth	PA-PP	SqFt
74	Medium	JOINT SPALL	Patching - PCC Partial Depth	PA-PP	SqFt
75	Medium	CORNER SPALL	Patching - PCC Partial Depth	PA-PP	SqFt
75	High	CORNER SPALL	Patching - PCC Partial Depth	PA-PP	SqFt

APPENDIX A.4.2 –

STOP GAP MAINTENANCE

Distress	Distress Severity	Description	Work Type	Code	Work Unit
41	High	ALLIGATOR CR	Patching - AC Deep	PA-AD	SqFt
41	Medium	ALLIGATOR CR	Patching - AC Deep	PA-AD	SqFt
43	High	BLOCK CR	Crack Sealing - AC	CS-AC	Ft
44	High	CORRUGATION	Patching - AC Shallow	PA-AS	SqFt
45	High	DEPRESSION	Patching - AC Deep	PA-AD	SqFt
47	High	JT REF. CR	Crack Sealing - AC	CS-AC	Ft
48	High	L & T CR	Crack Sealing - AC	CS-AC	Ft
50	High	PATCHING	Patching - AC Deep	PA-AD	SqFt
52	High	RAVELING	Patching - AC Shallow	PA-AS	SqFt
53	High	RUTTING	Patching - AC Deep	PA-AD	SqFt
54	High	SHOVING	Patching - AC Shallow	PA-AS	SqFt
55		SLIPPAGE CR	Patching - AC Deep	PA-AD	SqFt
56	High	SWELLING	Patching - AC Deep	PA-AD	SqFt
61	Medium	BLOW-UP	Patching - PCC Full Depth	PA-PF	SqFt
61	High	BLOW-UP	Slab Replacement - PCC	SL-PC	SqFt
61	Low	BLOW-UP	Patching - PCC Full Depth	PA-PF	SqFt
62	High	CORNER BREAK	Patching - PCC Full Depth	PA-PF	SqFt
63	High	LINEAR CR	Crack Sealing - PCC	CS-PC	Ft
63	Medium	LINEAR CR	Crack Sealing - PCC	CS-PC	Ft
64	High	DURABIL. CR	Slab Replacement - PCC	SL-PC	SqFt
64	Medium	DURABIL. CR	Patching - PCC Full Depth	PA-PF	SqFt
65	Medium	JT SEAL DMG	Joint Seal (Localized)	JS-LC	Ft
65	High	JT SEAL DMG	Joint Seal (Localized)	JS-LC	Ft
66	High	SMALL PATCH	Patching - PCC Partial Depth	PA-PP	SqFt
66	Medium	SMALL PATCH	Patching - PCC Partial Depth	PA-PP	SqFt
67	High	LARGE PATCH	Patching - PCC Full Depth	PA-PF	SqFt
67	Medium	LARGE PATCH	Patching - PCC Full Depth	PA-PF	SqFt
70	High	SCALING	Slab Replacement - PCC	SL-PC	SqFt
71	High	FAULTING	Grinding (Localized)	GR-PP	Ft
72	High	SHAT. SLAB	Slab Replacement - PCC	SL-PC	SqFt
72	Medium	SHAT. SLAB	Slab Replacement - PCC	SL-PC	SqFt
74	High	JOINT SPALL	Patching - PCC Partial Depth	PA-PP	SqFt
74	Medium	JOINT SPALL	Patching - PCC Partial Depth	PA-PP	SqFt
75	High	CORNER SPALL	Patching - PCC Partial Depth	PA-PP	SqFt
75	Medium	CORNER SPALL	Patching - PCC Partial Depth	PA-PP	SqFt

APPENDIX A.4.3 –

UNIT COSTS

MAINTENANCE ACTION	SURFACE TYPE	UNIT COST	WORK UNIT	Notes
Crack Sealing	AC	$4.75	LF	HNL/OGG unit cost with MILCON escalation
Slurry Seal	AC	$1.49	SF	HNL/OGG unit cost with MILCON escalation
Patching Full Depth	AC	$36.78	SF	HNL/OGG unit cost with MILCON escalation
Patching Partial Depth	AC	$6.23	SF	HNL/OGG unit cost with MILCON escalation
Slab Replacement	PCC	$55.27	SF	HNL/OGG unit cost with MILCON escalation
Patching Partial Depth	PCC	$28.18	SF	HNL/OGG unit cost with MILCON escalation
Patching Full Depth	PCC	$87.64	SF	HNL/OGG unit cost with MILCON escalation
Localized Grinding	PCC	$4.08	LF	HNL/OGG unit cost with MILCON escalation
Localized Joint Seal	PCC	$9.69	LF	HNL/OGG unit cost with MILCON escalation
Crack Sealing	PCC	$4.94	LF	HNL/OGG unit cost with MILCON escalation
Crack Repair	PCC	$11.47	LF	HNL/OGG unit cost with MILCON escalation

TABLE 4.3: UNIT COST TABLE FOR KALAELOA AIRPORT

applied pavement
TECHNOLOGY
providing engineering solutions to improve pavement performance

115 West Main Street, Suite 400
Urbana, IL 61801
217.398.3977 tel
217.398.4027 fax
www.appliedpavement.com

MEMO

To: Greg Garcia, P.E. **From:** Kyle Potvin, P.E.
CC: Maggie Covalt, Jose Balignasay **Date:** 11/17/2015
Re: Unit Cost Recommendations for HNL and OGG APMS Updates

Greg,

This memo serves as a follow up to the previous memo dated September 28, 2015 and documents the comments received on the unit cost information for pavement maintenance and major rehabilitation/reconstruction at Honolulu International (HNL) and Kahului (OGG) Airports. Additionally, this memo identifies our final proposed costs after comments were taken into account. These costs are currently being used in the analysis to develop pavement maintenance and rehabilitation (M&R) estimates at HNL and OGG airports.

The unit cost review comments are listed below, along with the action that APTech utilized based on the additional information. For all unit cost revisions provided, unless the project completion year was provided with the associated unit cost, it was assumed that the costs provided were year 1 costs and were not inflated. Additionally, it was suggested that a reasonable safety factor be applied to all unit costs. A safety factor of 1.5-2 was suggested, however, since multiple bid tabs were utilized as the basis for the majority of the unit cost estimates, APTech only increased the proposed unit costs by a 10% escalation factor where it was known that only one bid (or the lowest bid) was used to determine the unit cost. Costs that were escalated by 10% are documented as such.

Preventive Maintenance Costs

Gary Takahashi (R.M. Towill Corporation) provided general comments about the preventive maintenance costs, which are listed below.

1) He noted that these repairs vary greatly with the depth of repair and that the unit cost should be based on thickness. Also, full-depth repairs may require reconstruction of the base. **Since bid tabs were utilized to determine the majority of the unit costs, repair thickness, along with reconstruction of the base where applicable, was taken into account. APTech recommends no change to the unit cost values based on these comments.**

2) Additionally, he inquired if this study was limited to runways and that shoulders should be considered as the airport has been experiencing problems with shoulders creating foreign object debris (FOD). **The study includes runways, taxiways, aprons, blast pads, and shoulders. A visual assessment of shoulder condition was conducted and recommendations for their M&R is included in the project. APTech recommends no change to the unit cost values based on this comment.**

Honolulu International Airport

Detailed comments were provided for several specific preventive maintenance actions at HNL. Om Das (AECOM) noted that in general APTech's estimated costs look reasonable.

1) For the crack sealing cost on asphalt-surfaced pavements, Om Das provided a unit cost of $8.00/Ft. Kaai Cobb-Adams (Engineers Surveyors Hawaii, Inc.) said the original unit cost estimate of $1.31/Ft seemed reasonable. **APTech's original cost estimate was based on RSMeans; APTech recommends using an average of the two available costs of $4.66/Ft.**
2) For slurry sealing on asphalt-surfaced pavement, Om Das provided a unit cost of $2.31/SqFt. Kaai Cobb-Adams noted that the original unit cost estimate of $0.61/SqFt (which came from a bid provided by Grace Pacific Corporation) seemed low and provided a cost of $5.40/SqFt that was used for a cost proposal for work at Hilo (he noted that Hilo is very rainy and can be difficult to seal coat). **APTech recommends excluding the cost provided for Hilo, and averaging the other two available costs for a value of $1.46/SqFt.**
3) Om Das provided a unit cost for PCC slab replacement of $121.60/SqFt, as compared to the original cost estimate of $42.96/SqFt, which was based on the average of six bid tabs. **APTech recommends averaging the additional cost with the other bid tabs for a value of $54.19/SqFt.**
4) Om Das provided a unit cost for PCC grinding of $4.00/SqFt, which is the same as original unit cost estimate. **APTech proposes to keep the same unit cost for grinding of $4.00/SqFt.**
5) Om Das provided unit costs for varying depths of AC cold plane grinding as follows: a cost of $10.00/SY for 4" AC, costs of $52.00/SY and $17.28/SY for 3" AC, and a cost of $8.49/SY for an unspecified depth of AC. **These costs are not applicable, as grinding is not considered for asphalt distress types in the localized maintenance policies. APTech recommends no change to the unit cost values based on these comments.**
6) Information was provided for work on the EVA concourse at HNL that shows a price of $49.00/SqFt for what appears to be partial-depth PCC patching based on the project description to "remove all unsound concrete until sound". **The original unit cost estimate for this work type was $27.63/SqFt based on the average of six bid tabs; APTech recommends keeping this value since it is unclear if other work items were completed as part of this additional project.**
7) Om Das provided a cost for PCC joint sealing of $9.50/Ft, as compared to the original unit cost estimate of $4.40/Ft. **A price was unavailable for this work type, and APTech had originally proposed using the cost for PCC crack sealing to estimate the cost for this work. APTech recommends using the provided cost of $9.50/Ft for joint sealing.**
8) No comments were provided for the remaining work types.

The updated costs that APTech recommends for preventive maintenance actions at HNL are shown below.

Work Type	Original 2015 Unit Costs	Modified 2015 Unit Costs	Notes	Work Unit
Crack Sealing - AC	$1.31	$4.66	Average of RSMeans and review comments	Ft
Slurry Seal - AC	$0.61	$1.46	Average of one Grace Bid 2013 (inflated to 2016) and review comments. Use on Shoulders and Blastpads	SqFt
Patching - AC Full Depth	$36.05	$36.05	Average of four Grace Bids 2013 (inflated to 2016)	SqFt
Patching - AC Partial Depth	$6.11	$6.11	Average of six 2013 Bid Tabs (inflated to 2016)	SqFt
Slab Replacement - PCC	$42.96	$54.19	Average of six 2013 Bid Tabs (inflated to 2016) and review comments	SqFt
Grinding - PCC (Localized)	$4.00	$4.00	Historical Estimate (agrees with review comments)	Ft
Patching - PCC Partial Depth	$27.63	$27.63	Average of six 2013 Bid Tabs; assumes 6" Depth (inflated to 2016)	SqFt
Patching - PCC Full Depth	$85.93	$85.93	Average of six 2013 Slab Repl. Bid Tabs x2 (inflated to 2016)	SqFt
Joint Seal (Localized)	$4.40	$9.50	Original cost was unavailable; updated cost is from review comments	Ft
Crack Sealing - PCC	$4.40	$4.84	RSMeans; **increased by 10% escalation factor**	Ft
Crack Repair - PCC	$10.23	$11.25	RSMeans (recommend for High Severity LTD Cracks); **increased by 10% escalation factor**	Ft

Kahului Airport

Detailed comments were provided by Brooks Aoki (SSFM International) for specific preventive maintenance actions at Kahului Airport based on work completed for a recent apron project.

1) A full-depth AC patching cost of $13.00/SqFt based on $125/Ton at a depth of 16" was provided. **APTech proposes using this cost.**
2) A partial-depth AC patching cost of $5.38/SqFt based on $138/Ton at a depth of 6" was provided. **APTech proposes using this cost.**
3) A PCC slab replacement cost of $33.16/SqFt based on $632/CY at a depth of 17" was provided. **APTech proposes using this cost.**
4) A cold planing cost of $58.50/CY was also provided. **It appears that this cost is for asphalt-surfaced pavements since it was not specified in the provided table that the grinding work was for PCC pavement. APTech will update the table to specify that grinding is to be completed on PCC pavements.**
5) No comments were provided for the remaining work types.

The updated costs that APTech recommends for preventive maintenance actions at OGG are shown below. Where costs were not available for work at OGG, the proposed unit cost for HNL is proposed.

Work Type	Original 2015 Unit Costs	Modified 2015 Unit Costs	Notes	Work Unit
Crack Sealing - AC	$1.31	$4.66	Proposed HNL Unit Cost	Ft
Slurry Seal - AC	$0.61	$1.46	Proposed HNL Unit Cost	SqFt
Patching - AC Full Depth	$36.05	$13.00	OGG Review Comment	SqFt
Patching - AC Partial Depth	$6.11	$5.38	OGG Review Comment	SqFt
Slab Replacement - PCC	$42.96	$33.16	OGG Review Comment	SqFt
Grinding - PCC (Localized)	$4.00	$4.00	Proposed HNL Unit Cost	Ft
Patching - PCC Partial Depth	$27.63	$27.63	Proposed HNL Unit Cost	SqFt
Patching - PCC Full Depth	$85.93	$85.93	Proposed HNL Unit Cost	SqFt
Joint Seal (Localized)	$4.40	$9.50	Proposed HNL Unit Cost	Ft
Crack Sealing - PCC	$4.40	$4.84	Proposed HNL Unit Cost	Ft
Crack Repair - PCC	$10.23	$11.25	Proposed HNL Unit Cost	Ft

Reconstruction and Major Rehabilitation Unit Costs

Honolulu International Airport

Except where noted, all major rehabilitation comments for HNL listed below are from Kaai Cobb-Adams. His comments are based on bid tab information for the major rehabilitation of RW 4R/26L.

1) The equivalent cost of a 3" asphalt overlay based on the cost of the RW 4R/26L work was $7.70/SqFt in 2013. Assuming an annual inflation rate of 4%, this would yield a 2016 cost of $8.66/SqFt. **The original unit cost estimate of $6.14/SqFt for a 3" asphalt overlay was determined from bid tabs. APTech proposes utilizing an average of the two costs of $7.40/SqFt for the 3" asphalt overlay price (PCI 70-100).**
2) Om Das provided a cost for 6" P-401 AC of $72.67/SY, which is roughly $8.07/SqFt. **The original unit cost estimate of $8.19/SqFt was determined from bid tabs. APTech proposes utilizing an average of the two costs of $8.13/SqFt for the cost of the 6" asphalt overlay (PCI 40-69).**
3) On non-runway pavement areas (where grooving will not be completed), the costs would be $0.50-0.60/SqFt cheaper.
4) He indicated that the $35.70/SqFt price for 6" AC seemed high. **The cost estimate of $35.70/SqFt was determined from bid tabs. APTech proposes leaving this cost as is, along with increasing it by the 10% escalation factor since the lowest bid was utilized for this unit cost estimate.**
5) A 76-22 binder would cost roughly $0.60 more for 3" AC and $1.20 more for 6" AC as compared to the readily available 64-16 binder. **Unless HDOT-A has determined that it wants to specify a 76-22 binder in the future APTech proposes leaving the cost as is.**
6) Additionally, it was suggested that an asphalt overlay not be used on PCC pavements. **APTech proposes that a representative cost by PCI be utilized for PCC pavements with PCIs between 40 and the critical PCI that is based on the cost of completing the localized preventive maintenance actions**

HDOT-A defined in the maintenance policies. These costs are based on the proposed unit costs for localized maintenance in this memo. Below a PCI of 40 reconstruction of the pavement is recommended.

7) It was recommended that the costs go no thinner than 2" for the asphalt overlay on blast pads and shoulders. **Adjusting the thickness of the overlay to 2" yields a cost of $4.51/SqFt. Increasing this cost by the 10% escalation factor yields a proposed cost of $4.96/SqFt for a 2" asphalt overlay thickness.**

The updated costs that APTech recommends are shown below.

PCI	Original 2015 Unit Costs ($/sf)			Modified 2015 Unit Costs ($/sf)		
	AC Pavements	PCC Pavements	Blast Pads & Shoulders	AC Pavements	PCC Pavements	Blast Pads & Shoulders
0	$35.70	$65.59	$6.75	$39.27	$72.15	$7.43
10	$35.70	$65.59	$6.75	$39.27	$72.15	$7.43
20	$35.70	$65.59	$6.75	$39.27	$72.15	$7.43
30	$35.70	$65.59	$3.38	$39.27	$72.15	$4.96
40	$8.19	$8.19	$3.38	$8.13	$3.45	$4.96
50	$8.19	$8.19	$3.38	$8.13	$2.90	$4.96
60	$8.19	$8.19	$0.61	$8.13	$2.30	$1.46
70	$8.19	$8.19	$0.61	$7.40	$1.75	$1.46
80	$6.14	$6.14	$0.00	$7.40	$1.20	$0.00
90	$6.14	$6.14	$0.00	$7.40	$0.65	$0.00
100	$6.14	$6.14	$0.00	$7.40	$0.10	$0.00

AC Pavements

0-39 AC Reconstruction Construction (6" AC Surface); cost is from 2014/15 Projects (inflated to 2016); the low bid was used; **increased by 10% escalation factor**.

40-69 AC Mill and Overlay (6" AC); cost is the average of two runway mill/overlay projects.

70-100 3" AC Mill and Overlay; cost from the average of several 2013 Bid Tabs (inflated to 2016) and review comments.

PCC Pavements

0-39 PCC Reconstruction Construction; cost is from 2014/15 Projects (inflated to 2016); the low bid was used; **increased by 10% escalation factor**.

40-100 Localized Preventive Maintenance; based on the cost of completing the localized preventive maintenance actions defined in the maintenance policies.

Blast Pads/Shoulders

0-29 AC Reconstruction Construction; cost is from one Grace Bid 2013 (inflated to 2016); **increased by 10% escalation factor**.

30-59 2" AC Mill and Overlay; cost is from one Grace Bid 2013 (inflated to 2016); **increased by 10% escalation factor**.

60-69 Costs more typical of a surface treatment; average of costs from one Grace Bid 2013 (inflated to 2016) and review comments.

Kahului Airport

No specific comments were provided for the major rehabilitation costs at OGG. **APTech recommends keeping these costs the same as originally proposed and shown below, except for the comments that were provided for HNL that are also applicable to OGG. These exceptions are listed below:**

1) Change the 1.5" overlay depth to 2" on shoulders and blast pads (PCI 30-59), which yields an updated unit cost estimate of $2.63/SqFt.

2) Update the slurry seal cost for shoulders and blast pads (PCI 60-69) to $1.46/SqFt, as determined for HNL.

3) APTech proposes that a representative cost by PCI be utilized for PCC pavements with PCIs between 40 and the critical PCI that is based on the cost of completing the localized preventive maintenance actions HDOT-A defined in the maintenance policies. These costs are based on the proposed unit costs for localized maintenance in this memo.

PCI	Original 2015 Unit Costs ($/sf)			Modified 2015 Unit Costs ($/sf)		
	AC Pavements	PCC Pavements	Blast Pads & Shoulders	AC Pavements	PCC Pavements	Blast Pads & Shoulders
0	$20.50	$70.48	$6.92	$20.50	$70.48	$6.92
10	$20.50	$70.48	$6.92	$20.50	$70.48	$6.92
20	$20.50	$70.48	$6.92	$20.50	$70.48	$6.92
30	$20.50	$70.48	$1.97	$20.50	$70.48	$2.63
40	$7.84	$7.84	$1.97	$7.84	$3.45	$2.63
50	$7.84	$7.84	$1.97	$7.84	$2.90	$2.63
60	$7.84	$7.84	$0.61	$7.84	$2.30	$1.46
70	$7.84	$7.84	$0.61	$3.94	$1.75	$1.46
80	$3.94	$3.94	$0.00	$3.94	$1.20	$0.00
90	$3.94	$3.94	$0.00	$3.94	$0.65	$0.00
100	$3.94	$3.94	$0.00	$3.94	$0.10	$0.00

AC Pavements

0-39 AC Reconstruction Construction (6" AC Surface from the actual cost of 2013 Bid Tab Taxiway A Project).

40-69 6" AC Mill and Overlay; cost shown is the average of five 2013 Bid Tabs for Taxiway A Project (inflated to 2016).

70-100 3" AC Mill and Overlay; cost shown is the average of five 2013 Bid Tabs for Taxiway A Project (inflated to 2016).

PCC Pavements

0-39 PCC Reconstruction Construction is Considered (17" PCC Surface from the actual cost of 2013 Bid Tab Taxiway A Project).

40-100 Localized Preventive Maintenance is Considered; based on the cost of completing the localized preventive maintenance actions defined in the maintenance policies.

Blast Pads/Shoulders

0-29 AC Reconstruction Construction is Considered (for 2" pavement estimated from Bid Tabs).

30-59 2" AC Mill and Overlay; based on cost from the 2013 Bid Tab Taxiway A Project.

60-69 Costs more typical of a surface treatment; average of costs from one Grace Bid 2013 (inflated to 2016) and review comments.

Please let me know if you have any questions regarding the information contained within this memo.

Thank you,

Applied Pavement Technology, Inc.

Kyle Rotvin, P.E.
Senior Engineer

cc:Maggie Covalt, P.E.

APPENDIX A.5.1 –
AIRPORT FLEET MIX

Class	Aircraft Type	Total Traffic	Departures	Total Traffic by Class	Gear Type	Widebody	Max Landing Weight (lbs)	Max Takeoff Weight (lbs)
*	Helicopter (Robinson)	36,000	18,000	44,580	*	No	2,500	2,500
	H-65	5,040	2,520		*	No	6,896	6,896
	H-60	2,940	1,470		*	No	23,500	23,500
	CH-47	600	300		*	No	50,000	50,000
1	Single Engine (Cessna 421A)	60,000	30,000	74,340	S	No	6,200	6,840
	Twin Engine (PA-31-350)	14,340	7,170		S	No	6,200	6,200
2	Air Taxi (Cessna 208)	1,524	762	1,824	S	No	8,500	8,750
	C-26	300	150		D	No	16,500	16,500
3	GLF-4/5 (GLF-5)	72	36	144	D	No	75,300	90,500
	B-737(200)	72	36		D	No	103,000	117,000
4	C-130	8,400	4,200	12,276	2S	No	139,500	155,000
	C-135	120	60		2D	No	322,500	322,500
	B-707	24	12		2D	No	257,000	257,000
	C-17	3,600	1,800		2T	No	585,000	585,000
6	C-5	132	66	132	C5	No	769,000	840,000

*Helicopter

Note: Traffic counts were taken from June 2016 and multiplied by 12 to determine an estimated total for 2016. Traffic counts were provided by JRF ATCT.

TABLE 5.1: KALAELOA AIRPORT FLEET MIX

APPENDIX A.5.2 –
20 YEAR AVERAGE
ANNUAL MOVEMENTS

AIRCRAFT TYPE	FY 2016 MOVEMENTS	2036 20 YEAR AVERAGE ANNUAL MOVEMENTS
Single Engine (Cessna 421A)	60,000	62,323
Twin Engine (PA-31-350)	14,340	14,895
Air Taxi (Cessna 208)	1,524	1,583
Helicopter (Robinson)	36,000	37,394
C-130	8,400	8,725
C-17	3,600	3,739
C-5	132	137
C-135	120	125
B-737	72	75
C-26	300	312
CH-47	600	623
B-707	24	25
H-65	5,040	5235
H-60	2,940	3054
GLF-4/5 (GLF-5)	72	75

Note: A Growth rate of 0.19 percent was used to determine the average annual movements in 2036.

TABLE 5.2: 20-YEAR AVERAGE ANNUAL MOVEMENTS

APPENDIX A.5.3 –

2015-2016 ATADS

AIRCRAFT OPERATIONS

MONTH	TOTAL ITINERANT				LOCAL	
	AIR CARRIER	AIR TAXI	GENERAL AVIATION	MILITARY	CIVIL	MILITARY
Jul-15	0	122	1,317	478	8,190	1,711
Aug-15	0	146	1,195	629	7,078	1,567
Sep-15	0	181	1,077	543	6,470	1,312
Oct-15	5	240	1,238	370	8,477	1,545
Nov-15	0	221	1,180	491	6,843	1,659
Dec-15	0	216	819	357	5,679	918
Jan-16	0	165	980	616	7,078	1,712
Feb-16	5	167	1,181	569	6,338	968
Mar-16	0	239	1,657	609	7,238	1,590
Apr-16	0	233	1,352	486	7,655	999
May-16	0	240	1,318	549	7,780	1,341
Jun-16	1	130	1,367	665	7,541	1,064
Total	11	2,300	14,681	6,362	86,367	16,386

TABLE 5.3: 2015-2016 ATADS AIRCRAFT OPERATIONS

APPENDIX A.6.1 –
HWD TESTING PATTERN

FEATURE	LANE	TESTING PATTERN	RANGE	FREQUENCY
Runway 04L-22R	1	10 ft right	0 to 4,300 ft	100 ft intervals
	2	10 ft left	50 to 4,250 ft	100 ft intervals
	3	35 ft right	50 to 4,250 ft	200 ft intervals
	4	35 ft left	100 to 4,300 ft	200 ft intervals
	5	50 ft right	0 to 4,350 ft	400 ft intervals
	6	50 ft left	0 to 4,350 ft	400 ft intervals
Runway 04R-22L	1	10 ft right	0 to 8,085 ft	100 ft intervals
	2	10 ft left	50 to 8,050 ft	100 ft intervals
	3	35 ft right	50 to 8,050 ft	200 ft intervals
	4	35 ft left	100 to 8,074 ft	200 ft intervals
	5	50 ft right	0 to 8,000 ft	400 ft intervals
	6	50 ft left	0 to 8,000 ft	400 ft intervals
Runway 11-29	1	10 ft right	0 to 8,100 ft	100 ft intervals
	2	10 ft left	50 to 8,050 ft	100 ft intervals
	3	35 ft right	50 to 8,076 ft	200 ft intervals
	4	35 ft left	100 to 8,100 ft	200 ft intervals
	5	50 ft right	0 to 7,800 ft	400 ft intervals
	6	50 ft left	0 to 7,820 ft	400 ft intervals

*NUI – Non uniform intervals

TABLE 6.1: HWD TESTING PATTERN FOR NETWORK - LEVEL DEFLECTION TESTING AT KALAELOA AIRPORT

APPENDIX A.6.2 - ESTIMATED MATERIAL PROPERTIES FROM NDT TESTING

BRANCH	SECTION	SUBGRARDE M_R (ksi)	SUBGRADE CBR (%)
Runway 11-29 (R11)	010K	15.9	148[1]
	010L	30.0	243[1]
	010R	27.9	229[1]
	020K	50	33
	020L	50	33
	020R	50	33
	030K	50	33
	030L	50	33
	030R	50	33
	040K	50	33
	050K	50	33
	050L	50	33
	050R	50	33
	060K	50	33
	070K	50	33
	070R	50	33
	080K	50	33
	090K	50	33
	110K	50	33
	120K	50	33
	120L	50	33
	120R	50	33
	130K	50	33
	130L	50	33
	130R	50	33
	140K	50	33
	140L	32.8	22
	140R	50	33
Runway 04R-22L (R4R)	010K	50	361[1]
	010L	50	361[1]
	010K	50	361[1]
	020K	50	33
	030K	50	33
	030L	33.1	22
	030R	50	33
	040K	50	33
	050K	50	33
	050L	50	33
	050R	32.6	22
	060K	50	33

BRANCH	SECTION	SUBGRARDE M_R (ksi)	SUBGRADE CBR (%)
Runway 04R-22L (R4R)	060L	50	33
	060R	50	33
	070K	50	33
	070L	50	33
	070R	33.4	22
Runway 04L-22R (R4L)	010K	50	33
	010L	50	33
	010R	50	33
	020K	50	33
	020L	23.0	15
	020R	13.1	9
	030K	15.4	10
	030L	29.6	20
	030R	20.5	14
	040K	50	33
	040L	50	33
	040R	31.4	21

[1] This pavement section is surfaced with Portland cement concrete. The subgrade strength is presented in terms of modulus of subgrade reaction, or k-eff, expressed in pounds per square inch per inch (pci).

TABLE 6.2: MATERIAL PROPERTIES ESTIMATED FROM THE NONDESTRUCTIVE DEFLECTION TESTING FOR PAVEMENT SECTIONS AT KALAELOA AIRPORT

APPENDIX A.6.3 - ACN VALUES FOR AIR TRAFFIC MIX

AIRCRAFT TYPE	MAX LANDING WEIGHT (lbs)	MAX TAKEOFF WEIGHT (lbs)	RIGID ACN				FLEXIBLE ACN			
			SUBGRADE CBR				SUBGRADE CBR			
			A (552)	B (295)	C (147)	D (74)	A (15)	B (10)	C (6)	D (3)
Single Engine (Cessna 421A)	6,200	6,840	3.4	4.0	4.3	4.3	2.6	3.5	4.6	5.4
Twin Engine (PA-31-350)	6,200	6,200	2.7	2.9	3.0	2.9	2.1	2.7	3.3	3.5
Air Taxi (Cessna 208)	8,500	8,750	2.8	2.9	3.0	2.9	2.3	2.8	3.3	3.4
C-26	16,500	16,500	3.6	4.0	4.3	4.5	2.3	3.2	4.3	5.0
GLF-4/5 (GLF-5)	75,300	90,500	30.0	31.0	31.9	32.6	25.8	27.9	29.4	30.6
B-737(200)	103,000	117,000	24.7	27.3	29.7	31.6	22.3	26.3	29.7	35.0
C-130	139,500	155,00	29.7	32.2	34.9	27.5	26.7	30.3	32.3	37.6
C-135	322,500	322,500	38.3	46.0	54.5	62.3	38.8	43.2	52.3	67.1
B-707	257,000	257,000	28.3	33.4	39.7	45.8	28.9	31.5	37.4	49.1
C-17	585,000	585,000	43.6	48.0	56.5	70.1	42.8	47.7	56.8	74.2
C-5	769,000	840,000	27.1	35.1	41.3	43.7	28.3	31.3	39.1	54.9

Helicopters were excluded

TABLE 6.3: ACN VALUES FOR REPRESENTATIVE TRAFFIC MIX AT KALAELOA AIRPORT

APPENDIX A.6.4 - PCN VALUES, REMAINING LIFE AND CURRENT PCI VALUES

BRANCH	SECTION	PCN NUMBER	PCN CODE	THEORETICAL STRUCTURAL REMAINING LIFE	CURRENT PCI
Runway 11-29 (R11)	010K	44	R/C/W/T	>10	80
	010L	39	R/B/W/T	>10	80
	010R	38	R/B/W/T	>10	82
	020K	27	F/A/W/T	>10	82
	020L	27	F/A/W/T	>10	75
	020R	27	F/A/W/T	>10	87
	030K	27	F/A/W/T	>10	54
	030L	27	F/A/W/T	>10	66
	030R	27	F/A/W/T	>10	63
	040K	27	F/A/W/T	>10	88
	050K	27	F/A/W/T	>10	48
	050L	30	F/A/W/T	>10	43
	050R	30	F/A/W/T	>10	69
	060K	30	F/A/W/T	>10	49
	070K	30	F/A/W/T	>10	50
	070R	30	F/A/W/T	>10	72
	080K	30	F/A/W/T	>10	35
	090	30	F/A/W/T	>10	58
	110K	30	F/A/W/T	>10	39
	120K	30	F/A/W/T	>10	59
	120L	30	F/A/W/T	>10	64
	120R	30	F/A/W/T	>10	62
	130K	30	F/A/W/T	>10	43
	130L	30	F/A/W/T	>10	62
	130R	30	F/A/W/T	>10	48
	140K	30	F/A/W/T	>10	45
	140L	**22**	**F/A/W/T**	**5-10**	**52**
	140R	30	F/A/W/T	>10	44
Runway 04R-22L (R4R)	010K	40	F/A/W/T	>10	65
	010L	40	F/A/W/T	>10	81
	010R	40	F/A/W/T	>10	75
	020K	32	F/A/W/T	<2	64
	030K	45	F/A/W/T	<2	65
	030L	**6**	**F/A/W/T**	**<2**	**53**
	030R	10	F/A/W/T	<2	43
	040K	45	F/A/W/T	<2	65
	050K	10	F/A/W/T	<2	73
	050L	19	F/A/W/T	<2	63

BRANCH	SECTION	PCN NUMBER	PCN CODE	THEORETICAL STRUCTURAL REMAINING LIFE	CURRENT PCI
	050R	**6**	**F/A/W/T**	**<2**	**65**
	060K	10	F/A/W/T	<2	68
	060L	10	F/A/W/T	<2	58
	060R	10	F/A/W/T	<2	50
	070K	10	F/A/W/T	<2	74
	070L	10	F/A/W/T	<2	55
	070R	**6**	**F/A/W/T**	**<2**	**50**
Runway 04L-22R (R4L)	**010K**	**9**	**F/A/W/T**	**>10**	**38**
	010L	**9**	**F/A/W/T**	**>10**	**45**
	010R	**9**	**F/A/W/T**	**>10**	**43**
	020K	**9**	**F/A/W/T**	**>10**	**40**
	020L	**9**	**F/A/W/T**	**>10**	**47**
	020R	**9**	**F/A/W/T**	**>10**	**50**
	030K	**9**	**F/A/W/T**	**>10**	**>10**
	030L	**9**	**F/A/W/T**	**>10**	**44**
	030R	**9**	**F/A/W/T**	**>10**	**43**
	040K	**9**	**F/A/W/T**	**>10**	**48**
	040L	**9**	**F/A/W/T**	**>10**	**43**
	040R	**9**	**F/A/W/T**	**>10**	**45**

Note: PCN values were calculated for sections that underwent nondestructive testing
*The most restrictive PCN for each runway is indicated in bold font.

TABLE 6.4: PCN VALUES, REMAINING LIFE AND CURRENT PCI AT KALAELOA AIRPORT

APPENDIX A.7.1 –

NO FUNDING

BUDGET SCENARIO

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF A01 010	479,993	Do Nothing Before:35.4 After:35.4	Do Nothing Before:31.67 After:31.67	Do Nothing Before:28.01 After:28.01	Do Nothing Before:24.35 After:24.35	Do Nothing Before:20.68 After:20.68
JRF A01 030	1,238,412	Do Nothing Before:82.24 After:82.24	Do Nothing Before:81.63 After:81.63	Do Nothing Before:80.94 After:80.94	Do Nothing Before:80.16 After:80.16	Do Nothing Before:79.28 After:79.28
JRF A01 040	196,106	Do Nothing Before:72.39 After:72.39	Do Nothing Before:71.67 After:71.67	Do Nothing Before:71.21 After:71.21	Do Nothing Before:70.96 After:70.96	Do Nothing Before:70.86 After:70.86
JRF A01 050	24,905	Do Nothing Before:14.54 After:14.54	Do Nothing Before:10.88 After:10.88	Do Nothing Before:7.22 After:7.22	Do Nothing Before:3.56 After:3.56	Do Nothing Before:0 After:0
JRF A01 060	149,726	Do Nothing Before:92.54 After:92.54	Do Nothing Before:89.97 After:89.97	Do Nothing Before:87.33 After:87.33	Do Nothing Before:84.72 After:84.72	Do Nothing Before:82.21 After:82.21
JRF A02 010	629,880	Do Nothing Before:28.54 After:28.54	Do Nothing Before:24.88 After:24.88	Do Nothing Before:21.22 After:21.22	Do Nothing Before:17.56 After:17.56	Do Nothing Before:13.89 After:13.89
JRF A02 020	100,323	Do Nothing Before:66.1 After:66.1	Do Nothing Before:63.97 After:63.97	Do Nothing Before:61.69 After:61.69	Do Nothing Before:59.25 After:59.25	Do Nothing Before:56.64 After:56.64
JRF A02 031	22,153	Do Nothing Before:92.54 After:92.54	Do Nothing Before:89.97 After:89.97	Do Nothing Before:87.33 After:87.33	Do Nothing Before:84.72 After:84.72	Do Nothing Before:82.21 After:82.21
JRF A02 035	4,510	Do Nothing Before:99.09 After:99.09	Do Nothing Before:97.64 After:97.64	Do Nothing Before:95.69 After:95.69	Do Nothing Before:93.39 After:93.39	Do Nothing Before:90.87 After:90.87
JRF A02 041	20,867	Do Nothing Before:79.51 After:79.51	Do Nothing Before:77.45 After:77.45	Do Nothing Before:75.66 After:75.66	Do Nothing Before:74.17 After:74.17	Do Nothing Before:72.98 After:72.98
JRF A02 045	4,567	Do Nothing Before:99.09 After:99.09	Do Nothing Before:97.64 After:97.64	Do Nothing Before:95.69 After:95.69	Do Nothing Before:93.39 After:93.39	Do Nothing Before:90.87 After:90.87
JRF A03 010	198,568	Do Nothing Before:91.37 After:91.37	Do Nothing Before:88.76 After:88.76	Do Nothing Before:86.12 After:86.12	Do Nothing Before:83.55 After:83.55	Do Nothing Before:81.11 After:81.11
JRF A04 010	216,338	Do Nothing Before:24.08 After:24.08	Do Nothing Before:18.78 After:18.78	Do Nothing Before:13.48 After:13.48	Do Nothing Before:8.18 After:8.18	Do Nothing Before:2.86 After:2.86
JRF R11 010K	80,000	Do Nothing Before:78.63 After:78.63	Do Nothing Before:77.59 After:77.59	Do Nothing Before:76.44 After:76.44	Do Nothing Before:75.17 After:75.17	Do Nothing Before:73.78 After:73.78
JRF R11 010L	56,400	Do Nothing Before:79.82 After:79.82	Do Nothing Before:78.91 After:78.91	Do Nothing Before:77.9 After:77.9	Do Nothing Before:76.78 After:76.78	Do Nothing Before:75.54 After:75.54
JRF R11 010R	60,000	Do Nothing Before:81.01 After:81.01	Do Nothing Before:80.24 After:80.24	Do Nothing Before:79.38 After:79.38	Do Nothing Before:78.42 After:78.42	Do Nothing Before:77.35 After:77.35
JRF R11 020K	60,000	Do Nothing Before:78.63 After:78.63	Do Nothing Before:76.68 After:76.68	Do Nothing Before:75.01 After:75.01	Do Nothing Before:73.64 After:73.64	Do Nothing Before:72.57 After:72.57
JRF R11 020L	74,531	Do Nothing Before:73.79 After:73.79	Do Nothing Before:72.69 After:72.69	Do Nothing Before:71.88 After:71.88	Do Nothing Before:71.33 After:71.33	Do Nothing Before:71.01 After:71.01
JRF R11 020R	70,000	Do Nothing Before:83.15 After:83.15	Do Nothing Before:80.75 After:80.75	Do Nothing Before:78.56 After:78.56	Do Nothing Before:76.62 After:76.62	Do Nothing Before:74.96 After:74.96
JRF R11 030K	66,600	Do Nothing Before:44.66 After:44.66	Do Nothing Before:39.36 After:39.36	Do Nothing Before:34.06 After:34.06	Do Nothing Before:28.76 After:28.76	Do Nothing Before:23.44 After:23.44
JRF R11 030L	127,468	Do Nothing Before:62.91 After:62.91	Do Nothing Before:58.88 After:58.88	Do Nothing Before:53.57 After:53.57	Do Nothing Before:46.9 After:46.9	Do Nothing Before:41.58 After:41.58

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R11 030R	133,200	Do Nothing Before:58.11 After:58.11	Do Nothing Before:52.58 After:52.58	Do Nothing Before:46.04 After:46.04	Do Nothing Before:40.74 After:40.74	Do Nothing Before:35.42 After:35.42
JRF R11 040K	8,000	Do Nothing Before:84.11 After:84.11	Do Nothing Before:81.64 After:81.64	Do Nothing Before:79.36 After:79.36	Do Nothing Before:77.32 After:77.32	Do Nothing Before:75.55 After:75.55
JRF R11 040L	16,000	Do Nothing Before:39.85 After:39.85	Do Nothing Before:34.55 After:34.55	Do Nothing Before:29.25 After:29.25	Do Nothing Before:23.95 After:23.95	Do Nothing Before:18.63 After:18.63
JRF R11 040R	16,000	Do Nothing Before:85.08 After:85.08	Do Nothing Before:82.56 After:82.56	Do Nothing Before:80.2 After:80.2	Do Nothing Before:78.06 After:78.06	Do Nothing Before:76.18 After:76.18
JRF R11 050K	8,000	Do Nothing Before:42.13 After:42.13	Do Nothing Before:36.83 After:36.83	Do Nothing Before:31.53 After:31.53	Do Nothing Before:26.23 After:26.23	Do Nothing Before:20.91 After:20.91
JRF R11 050L	16,000	Do Nothing Before:37.08 After:37.08	Do Nothing Before:31.78 After:31.78	Do Nothing Before:26.48 After:26.48	Do Nothing Before:21.18 After:21.18	Do Nothing Before:15.86 After:15.86
JRF R11 050R	16,000	Do Nothing Before:66.39 After:66.39	Do Nothing Before:63.63 After:63.63	Do Nothing Before:59.84 After:59.84	Do Nothing Before:54.82 After:54.82	Do Nothing Before:48.34 After:48.34
JRF R11 060K	4,822	Do Nothing Before:40.59 After:40.59	Do Nothing Before:35.29 After:35.29	Do Nothing Before:29.99 After:29.99	Do Nothing Before:24.69 After:24.69	Do Nothing Before:19.37 After:19.37
JRF R11 060L	7,912	Do Nothing Before:44.66 After:44.66	Do Nothing Before:39.36 After:39.36	Do Nothing Before:34.06 After:34.06	Do Nothing Before:28.76 After:28.76	Do Nothing Before:23.44 After:23.44
JRF R11 060R	3,340	Do Nothing Before:47.69 After:47.69	Do Nothing Before:42.24 After:42.24	Do Nothing Before:36.94 After:36.94	Do Nothing Before:31.64 After:31.64	Do Nothing Before:26.32 After:26.32
JRF R11 070K	17,320	Do Nothing Before:41.34 After:41.34	Do Nothing Before:36.04 After:36.04	Do Nothing Before:30.74 After:30.74	Do Nothing Before:25.44 After:25.44	Do Nothing Before:20.12 After:20.12
JRF R11 070L	17,534	Do Nothing Before:56.57 After:56.57	Do Nothing Before:50.59 After:50.59	Do Nothing Before:44.42 After:44.42	Do Nothing Before:39.12 After:39.12	Do Nothing Before:33.8 After:33.8
JRF R11 070R	23,716	Do Nothing Before:71.21 After:71.21	Do Nothing Before:70.96 After:70.96	Do Nothing Before:70.86 After:70.86	Do Nothing Before:70.84 After:70.84	Do Nothing Before:70.77 After:70.77
JRF R11 080K	10,346	Do Nothing Before:29.08 After:29.08	Do Nothing Before:23.78 After:23.78	Do Nothing Before:18.48 After:18.48	Do Nothing Before:13.18 After:13.18	Do Nothing Before:7.86 After:7.86
JRF R11 080L	15,796	Do Nothing Before:38.08 After:38.08	Do Nothing Before:32.78 After:32.78	Do Nothing Before:27.48 After:27.48	Do Nothing Before:22.18 After:22.18	Do Nothing Before:16.86 After:16.86
JRF R11 080R	7,911	Do Nothing Before:41.34 After:41.34	Do Nothing Before:36.04 After:36.04	Do Nothing Before:30.74 After:30.74	Do Nothing Before:25.44 After:25.44	Do Nothing Before:20.12 After:20.12
JRF R11 090	2,608	Do Nothing Before:49.14 After:49.14	Do Nothing Before:43.3 After:43.3	Do Nothing Before:38 After:38	Do Nothing Before:32.7 After:32.7	Do Nothing Before:27.38 After:27.38
JRF R11 100	2,608	Do Nothing Before:49.14 After:49.14	Do Nothing Before:43.3 After:43.3	Do Nothing Before:38 After:38	Do Nothing Before:32.7 After:32.7	Do Nothing Before:27.38 After:27.38
JRF R11 110K	13,336	Do Nothing Before:31.08 After:31.08	Do Nothing Before:25.78 After:25.78	Do Nothing Before:20.48 After:20.48	Do Nothing Before:15.18 After:15.18	Do Nothing Before:9.86 After:9.86
JRF R11 110L	14,910	Do Nothing Before:34.08 After:34.08	Do Nothing Before:28.78 After:28.78	Do Nothing Before:23.48 After:23.48	Do Nothing Before:18.18 After:18.18	Do Nothing Before:12.86 After:12.86
JRF R11 110R	17,597	Do Nothing Before:34.08 After:34.08	Do Nothing Before:28.78 After:28.78	Do Nothing Before:23.48 After:23.48	Do Nothing Before:18.18 After:18.18	Do Nothing Before:12.86 After:12.86

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R11 120K	42,000	Do Nothing Before:50.6 After:50.6	Do Nothing Before:44.43 After:44.43	Do Nothing Before:39.13 After:39.13	Do Nothing Before:33.83 After:33.83	Do Nothing Before:28.51 After:28.51
JRF R11 120L	49,000	Do Nothing Before:59.67 After:59.67	Do Nothing Before:54.6 After:54.6	Do Nothing Before:48.08 After:48.08	Do Nothing Before:42.52 After:42.52	Do Nothing Before:37.2 After:37.2
JRF R11 120R	49,000	Do Nothing Before:55.05 After:55.05	Do Nothing Before:48.65 After:48.65	Do Nothing Before:42.94 After:42.94	Do Nothing Before:37.64 After:37.64	Do Nothing Before:32.32 After:32.32
JRF R11 130K	60,000	Do Nothing Before:35.08 After:35.08	Do Nothing Before:29.78 After:29.78	Do Nothing Before:24.48 After:24.48	Do Nothing Before:19.18 After:19.18	Do Nothing Before:13.86 After:13.86
JRF R11 130L	70,000	Do Nothing Before:56.57 After:56.57	Do Nothing Before:50.59 After:50.59	Do Nothing Before:44.42 After:44.42	Do Nothing Before:39.12 After:39.12	Do Nothing Before:33.8 After:33.8
JRF R11 130R	70,000	Do Nothing Before:39.85 After:39.85	Do Nothing Before:34.55 After:34.55	Do Nothing Before:29.25 After:29.25	Do Nothing Before:23.95 After:23.95	Do Nothing Before:18.63 After:18.63
JRF R11 140K	83,345	Do Nothing Before:37.08 After:37.08	Do Nothing Before:31.78 After:31.78	Do Nothing Before:26.48 After:26.48	Do Nothing Before:21.18 After:21.18	Do Nothing Before:15.86 After:15.86
JRF R11 140L	96,956	Do Nothing Before:43.79 After:43.79	Do Nothing Before:38.49 After:38.49	Do Nothing Before:33.19 After:33.19	Do Nothing Before:27.89 After:27.89	Do Nothing Before:22.57 After:22.57
JRF R11 140R	97,022	Do Nothing Before:36.08 After:36.08	Do Nothing Before:30.78 After:30.78	Do Nothing Before:25.48 After:25.48	Do Nothing Before:20.18 After:20.18	Do Nothing Before:14.86 After:14.86
JRF R4L 010K	49,500	Do Nothing Before:30.08 After:30.08	Do Nothing Before:24.78 After:24.78	Do Nothing Before:19.48 After:19.48	Do Nothing Before:14.18 After:14.18	Do Nothing Before:8.86 After:8.86
JRF R4L 010L	57,750	Do Nothing Before:37.08 After:37.08	Do Nothing Before:31.78 After:31.78	Do Nothing Before:26.48 After:26.48	Do Nothing Before:21.18 After:21.18	Do Nothing Before:15.86 After:15.86
JRF R4L 010R	57,750	Do Nothing Before:35.08 After:35.08	Do Nothing Before:29.78 After:29.78	Do Nothing Before:24.48 After:24.48	Do Nothing Before:19.18 After:19.18	Do Nothing Before:13.86 After:13.86
JRF R4L 020K	132,000	Do Nothing Before:32.08 After:32.08	Do Nothing Before:26.78 After:26.78	Do Nothing Before:21.48 After:21.48	Do Nothing Before:16.18 After:16.18	Do Nothing Before:10.86 After:10.86
JRF R4L 020L	154,000	Do Nothing Before:39.85 After:39.85	Do Nothing Before:34.55 After:34.55	Do Nothing Before:29.25 After:29.25	Do Nothing Before:23.95 After:23.95	Do Nothing Before:18.63 After:18.63
JRF R4L 020R	154,000	Do Nothing Before:41.34 After:41.34	Do Nothing Before:36.04 After:36.04	Do Nothing Before:30.74 After:30.74	Do Nothing Before:25.44 After:25.44	Do Nothing Before:20.12 After:20.12
JRF R4L 030K	28,500	Do Nothing Before:31.08 After:31.08	Do Nothing Before:25.78 After:25.78	Do Nothing Before:20.48 After:20.48	Do Nothing Before:15.18 After:15.18	Do Nothing Before:9.86 After:9.86
JRF R4L 030L	33,600	Do Nothing Before:36.08 After:36.08	Do Nothing Before:30.78 After:30.78	Do Nothing Before:25.48 After:25.48	Do Nothing Before:20.18 After:20.18	Do Nothing Before:14.86 After:14.86
JRF R4L 030R	33,600	Do Nothing Before:35.08 After:35.08	Do Nothing Before:29.78 After:29.78	Do Nothing Before:24.48 After:24.48	Do Nothing Before:19.18 After:19.18	Do Nothing Before:13.86 After:13.86
JRF R4L 040K	60,000	Do Nothing Before:39.85 After:39.85	Do Nothing Before:34.55 After:34.55	Do Nothing Before:29.25 After:29.25	Do Nothing Before:23.95 After:23.95	Do Nothing Before:18.63 After:18.63
JRF R4L 040L	70,951	Do Nothing Before:35.08 After:35.08	Do Nothing Before:29.78 After:29.78	Do Nothing Before:24.48 After:24.48	Do Nothing Before:19.18 After:19.18	Do Nothing Before:13.86 After:13.86
JRF R4L 040R	69,042	Do Nothing Before:37.08 After:37.08	Do Nothing Before:31.78 After:31.78	Do Nothing Before:26.48 After:26.48	Do Nothing Before:21.18 After:21.18	Do Nothing Before:15.86 After:15.86

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R4R 010K	50,000	Do Nothing Before:61.65 After:61.65	Do Nothing Before:59.21 After:59.21	Do Nothing Before:56.6 After:56.6	Do Nothing Before:53.82 After:53.82	Do Nothing Before:50.86 After:50.86
JRF R4R 010L	75,000	Do Nothing Before:79.82 After:79.82	Do Nothing Before:78.91 After:78.91	Do Nothing Before:77.9 After:77.9	Do Nothing Before:76.78 After:76.78	Do Nothing Before:75.54 After:75.54
JRF R4R 010R	75,000	Do Nothing Before:72.86 After:72.86	Do Nothing Before:71.27 After:71.27	Do Nothing Before:69.55 After:69.55	Do Nothing Before:67.69 After:67.69	Do Nothing Before:65.68 After:65.68
JRF R4R 020K	15,000	Do Nothing Before:58.11 After:58.11	Do Nothing Before:52.58 After:52.58	Do Nothing Before:46.04 After:46.04	Do Nothing Before:40.74 After:40.74	Do Nothing Before:35.42 After:35.42
JRF R4R 020L	22,500	Do Nothing Before:41.34 After:41.34	Do Nothing Before:36.04 After:36.04	Do Nothing Before:30.74 After:30.74	Do Nothing Before:25.44 After:25.44	Do Nothing Before:20.12 After:20.12
JRF R4R 020R	22,500	Do Nothing Before:38.08 After:38.08	Do Nothing Before:32.78 After:32.78	Do Nothing Before:27.48 After:27.48	Do Nothing Before:22.18 After:22.18	Do Nothing Before:16.86 After:16.86
JRF R4R 030K	115,940	Do Nothing Before:59.67 After:59.67	Do Nothing Before:54.6 After:54.6	Do Nothing Before:48.08 After:48.08	Do Nothing Before:42.52 After:42.52	Do Nothing Before:37.2 After:37.2
JRF R4R 030L	171,155	Do Nothing Before:43.79 After:43.79	Do Nothing Before:38.49 After:38.49	Do Nothing Before:33.19 After:33.19	Do Nothing Before:27.89 After:27.89	Do Nothing Before:22.57 After:22.57
JRF R4R 030R	176,269	Do Nothing Before:36.08 After:36.08	Do Nothing Before:30.78 After:30.78	Do Nothing Before:25.48 After:25.48	Do Nothing Before:20.18 After:20.18	Do Nothing Before:14.86 After:14.86
JRF R4R 040K	11,193	Do Nothing Before:59.67 After:59.67	Do Nothing Before:54.6 After:54.6	Do Nothing Before:48.08 After:48.08	Do Nothing Before:42.52 After:42.52	Do Nothing Before:37.2 After:37.2
JRF R4R 040L	16,790	Do Nothing Before:55.05 After:55.05	Do Nothing Before:48.65 After:48.65	Do Nothing Before:42.94 After:42.94	Do Nothing Before:37.64 After:37.64	Do Nothing Before:32.32 After:32.32
JRF R4R 040R	16,790	Do Nothing Before:53.55 After:53.55	Do Nothing Before:46.88 After:46.88	Do Nothing Before:41.58 After:41.58	Do Nothing Before:36.28 After:36.28	Do Nothing Before:30.96 After:30.96
JRF R4R 050K	28,025	Do Nothing Before:71.76 After:71.76	Do Nothing Before:71.26 After:71.26	Do Nothing Before:70.98 After:70.98	Do Nothing Before:70.86 After:70.86	Do Nothing Before:70.84 After:70.84
JRF R4R 050L	44,395	Do Nothing Before:56.57 After:56.57	Do Nothing Before:50.59 After:50.59	Do Nothing Before:44.42 After:44.42	Do Nothing Before:39.12 After:39.12	Do Nothing Before:33.8 After:33.8
JRF R4R 050R	39,680	Do Nothing Before:59.67 After:59.67	Do Nothing Before:54.6 After:54.6	Do Nothing Before:48.08 After:48.08	Do Nothing Before:42.52 After:42.52	Do Nothing Before:37.2 After:37.2
JRF R4R 060K	146,246	Do Nothing Before:64.61 After:64.61	Do Nothing Before:61.17 After:61.17	Do Nothing Before:56.57 After:56.57	Do Nothing Before:50.59 After:50.59	Do Nothing Before:44.4 After:44.4
JRF R4R 060L	219,369	Do Nothing Before:49.14 After:49.14	Do Nothing Before:43.3 After:43.3	Do Nothing Before:38 After:38	Do Nothing Before:32.7 After:32.7	Do Nothing Before:27.38 After:27.38
JRF R4R 060R	219,368	Do Nothing Before:41.34 After:41.34	Do Nothing Before:36.04 After:36.04	Do Nothing Before:30.74 After:30.74	Do Nothing Before:25.44 After:25.44	Do Nothing Before:20.12 After:20.12
JRF R4R 070K	50,000	Do Nothing Before:72.39 After:72.39	Do Nothing Before:71.67 After:71.67	Do Nothing Before:71.21 After:71.21	Do Nothing Before:70.96 After:70.96	Do Nothing Before:70.86 After:70.86
JRF R4R 070L	75,000	Do Nothing Before:45.58 After:45.58	Do Nothing Before:40.28 After:40.28	Do Nothing Before:34.98 After:34.98	Do Nothing Before:29.68 After:29.68	Do Nothing Before:24.36 After:24.36
JRF R4R 070R	75,000	Do Nothing Before:41.34 After:41.34	Do Nothing Before:36.04 After:36.04	Do Nothing Before:30.74 After:30.74	Do Nothing Before:25.44 After:25.44	Do Nothing Before:20.12 After:20.12

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF STA 010	6,322	Do Nothing Before:36.08 After:36.08	Do Nothing Before:30.78 After:30.78	Do Nothing Before:25.48 After:25.48	Do Nothing Before:20.18 After:20.18	Do Nothing Before:14.86 After:14.86
JRF STA 020	69,087	Do Nothing Before:5.08 After:5.08	Do Nothing Before:0 After:0	Do Nothing Before:0 After:0	Do Nothing Before:0 After:0	Do Nothing Before:0 After:0
JRF STC 010	18,807	Do Nothing Before:33.08 After:33.08	Do Nothing Before:27.78 After:27.78	Do Nothing Before:22.48 After:22.48	Do Nothing Before:17.18 After:17.18	Do Nothing Before:11.86 After:11.86
JRF TA 010K	90,000	Do Nothing Before:36.08 After:36.08	Do Nothing Before:30.78 After:30.78	Do Nothing Before:25.48 After:25.48	Do Nothing Before:20.18 After:20.18	Do Nothing Before:14.86 After:14.86
JRF TA 010L	105,000	Do Nothing Before:39.85 After:39.85	Do Nothing Before:34.55 After:34.55	Do Nothing Before:29.25 After:29.25	Do Nothing Before:23.95 After:23.95	Do Nothing Before:18.63 After:18.63
JRF TA 010R	105,000	Do Nothing Before:41.34 After:41.34	Do Nothing Before:36.04 After:36.04	Do Nothing Before:30.74 After:30.74	Do Nothing Before:25.44 After:25.44	Do Nothing Before:20.12 After:20.12
JRF TA 020K	93,000	Do Nothing Before:34.08 After:34.08	Do Nothing Before:28.78 After:28.78	Do Nothing Before:23.48 After:23.48	Do Nothing Before:18.18 After:18.18	Do Nothing Before:12.86 After:12.86
JRF TA 020L	108,500	Do Nothing Before:35.08 After:35.08	Do Nothing Before:29.78 After:29.78	Do Nothing Before:24.48 After:24.48	Do Nothing Before:19.18 After:19.18	Do Nothing Before:13.86 After:13.86
JRF TA 020R	108,500	Do Nothing Before:40.59 After:40.59	Do Nothing Before:35.29 After:35.29	Do Nothing Before:29.99 After:29.99	Do Nothing Before:24.69 After:24.69	Do Nothing Before:19.37 After:19.37
JRF TA 030K	15,074	Do Nothing Before:32.08 After:32.08	Do Nothing Before:26.78 After:26.78	Do Nothing Before:21.48 After:21.48	Do Nothing Before:16.18 After:16.18	Do Nothing Before:10.86 After:10.86
JRF TA 030L	15,294	Do Nothing Before:32.08 After:32.08	Do Nothing Before:26.78 After:26.78	Do Nothing Before:21.48 After:21.48	Do Nothing Before:16.18 After:16.18	Do Nothing Before:10.86 After:10.86
JRF TA 030R	19,894	Do Nothing Before:34.08 After:34.08	Do Nothing Before:28.78 After:28.78	Do Nothing Before:23.48 After:23.48	Do Nothing Before:18.18 After:18.18	Do Nothing Before:12.86 After:12.86
JRF TA 040K	13,440	Do Nothing Before:40.59 After:40.59	Do Nothing Before:35.29 After:35.29	Do Nothing Before:29.99 After:29.99	Do Nothing Before:24.69 After:24.69	Do Nothing Before:19.37 After:19.37
JRF TA 040L	15,680	Do Nothing Before:40.59 After:40.59	Do Nothing Before:35.29 After:35.29	Do Nothing Before:29.99 After:29.99	Do Nothing Before:24.69 After:24.69	Do Nothing Before:19.37 After:19.37
JRF TA 040R	15,680	Do Nothing Before:39.08 After:39.08	Do Nothing Before:33.78 After:33.78	Do Nothing Before:28.48 After:28.48	Do Nothing Before:23.18 After:23.18	Do Nothing Before:17.86 After:17.86
JRF TA 050K	17,982	Do Nothing Before:39.85 After:39.85	Do Nothing Before:34.55 After:34.55	Do Nothing Before:29.25 After:29.25	Do Nothing Before:23.95 After:23.95	Do Nothing Before:18.63 After:18.63
JRF TA 050L	23,273	Do Nothing Before:40.59 After:40.59	Do Nothing Before:35.29 After:35.29	Do Nothing Before:29.99 After:29.99	Do Nothing Before:24.69 After:24.69	Do Nothing Before:19.37 After:19.37
JRF TA 050R	18,698	Do Nothing Before:34.08 After:34.08	Do Nothing Before:28.78 After:28.78	Do Nothing Before:23.48 After:23.48	Do Nothing Before:18.18 After:18.18	Do Nothing Before:12.86 After:12.86
JRF TA1 010	82,390	Do Nothing Before:69.47 After:69.47	Do Nothing Before:67.6 After:67.6	Do Nothing Before:65.59 After:65.59	Do Nothing Before:63.43 After:63.43	Do Nothing Before:61.11 After:61.11
JRF TA1 020	4,908	Do Nothing Before:42.94 After:42.94	Do Nothing Before:37.64 After:37.64	Do Nothing Before:32.34 After:32.34	Do Nothing Before:27.04 After:27.04	Do Nothing Before:21.72 After:21.72
JRF TA2 010	36,831	Do Nothing Before:44.66 After:44.66	Do Nothing Before:39.36 After:39.36	Do Nothing Before:34.06 After:34.06	Do Nothing Before:28.76 After:28.76	Do Nothing Before:23.44 After:23.44

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF TB 010	67,790	Do Nothing Before:52.07 After:52.07	Do Nothing Before:45.61 After:45.61	Do Nothing Before:40.31 After:40.31	Do Nothing Before:35.01 After:35.01	Do Nothing Before:29.69 After:29.69
JRF TB 020	25,131	Do Nothing Before:39.85 After:39.85	Do Nothing Before:34.55 After:34.55	Do Nothing Before:29.25 After:29.25	Do Nothing Before:23.95 After:23.95	Do Nothing Before:18.63 After:18.63
JRF TB 030	11,067	Do Nothing Before:54.3 After:54.3	Do Nothing Before:47.7 After:47.7	Do Nothing Before:42.25 After:42.25	Do Nothing Before:36.95 After:36.95	Do Nothing Before:31.63 After:31.63
JRF TB 040	222,601	Do Nothing Before:49.14 After:49.14	Do Nothing Before:43.3 After:43.3	Do Nothing Before:38 After:38	Do Nothing Before:32.7 After:32.7	Do Nothing Before:27.38 After:27.38
JRF TB 050	18,949	Do Nothing Before:52.07 After:52.07	Do Nothing Before:45.61 After:45.61	Do Nothing Before:40.31 After:40.31	Do Nothing Before:35.01 After:35.01	Do Nothing Before:29.69 After:29.69
JRF TB 060	25,762	Do Nothing Before:52.07 After:52.07	Do Nothing Before:45.61 After:45.61	Do Nothing Before:40.31 After:40.31	Do Nothing Before:35.01 After:35.01	Do Nothing Before:29.69 After:29.69
JRF TB 070	86,817	Do Nothing Before:55.05 After:55.05	Do Nothing Before:48.65 After:48.65	Do Nothing Before:42.94 After:42.94	Do Nothing Before:37.64 After:37.64	Do Nothing Before:32.32 After:32.32
JRF TB1 010	62,122	Do Nothing Before:50.6 After:50.6	Do Nothing Before:44.43 After:44.43	Do Nothing Before:39.13 After:39.13	Do Nothing Before:33.83 After:33.83	Do Nothing Before:28.51 After:28.51
JRF TB1 020	87,519	Do Nothing Before:47.69 After:47.69	Do Nothing Before:42.24 After:42.24	Do Nothing Before:36.94 After:36.94	Do Nothing Before:31.64 After:31.64	Do Nothing Before:26.32 After:26.32
JRF TB2 010	30,719	Do Nothing Before:52.07 After:52.07	Do Nothing Before:45.61 After:45.61	Do Nothing Before:40.31 After:40.31	Do Nothing Before:35.01 After:35.01	Do Nothing Before:29.69 After:29.69
JRF TB3 010	31,005	Do Nothing Before:49.14 After:49.14	Do Nothing Before:43.3 After:43.3	Do Nothing Before:38 After:38	Do Nothing Before:32.7 After:32.7	Do Nothing Before:27.38 After:27.38
JRF TB4 011	9,817	Do Nothing Before:34.08 After:34.08	Do Nothing Before:28.78 After:28.78	Do Nothing Before:23.48 After:23.48	Do Nothing Before:18.18 After:18.18	Do Nothing Before:12.86 After:12.86
JRF TB4 013	26,073	Do Nothing Before:91.37 After:91.37	Do Nothing Before:88.76 After:88.76	Do Nothing Before:86.12 After:86.12	Do Nothing Before:83.55 After:83.55	Do Nothing Before:81.11 After:81.11
JRF TB4 020	20,569	Do Nothing Before:87.08 After:87.08	Do Nothing Before:84.48 After:84.48	Do Nothing Before:81.99 After:81.99	Do Nothing Before:79.68 After:79.68	Do Nothing Before:77.6 After:77.6
JRF TB4 030	35,427	Do Nothing Before:87.08 After:87.08	Do Nothing Before:84.48 After:84.48	Do Nothing Before:81.99 After:81.99	Do Nothing Before:79.68 After:79.68	Do Nothing Before:77.6 After:77.6
JRF TB4 040	40,674	Do Nothing Before:28.08 After:28.08	Do Nothing Before:22.78 After:22.78	Do Nothing Before:17.48 After:17.48	Do Nothing Before:12.18 After:12.18	Do Nothing Before:6.86 After:6.86
JRF TB4 050	29,246	Do Nothing Before:62.91 After:62.91	Do Nothing Before:58.88 After:58.88	Do Nothing Before:53.57 After:53.57	Do Nothing Before:46.9 After:46.9	Do Nothing Before:41.58 After:41.58
JRF TB4 060	37,830	Do Nothing Before:61.27 After:61.27	Do Nothing Before:56.7 After:56.7	Do Nothing Before:50.76 After:50.76	Do Nothing Before:44.55 After:44.55	Do Nothing Before:39.23 After:39.23
JRF TC 010	28,252	Do Nothing Before:73.07 After:73.07	Do Nothing Before:72.15 After:72.15	Do Nothing Before:71.51 After:71.51	Do Nothing Before:71.11 After:71.11	Do Nothing Before:70.91 After:70.91
JRF TC 020	42,792	Do Nothing Before:58.11 After:58.11	Do Nothing Before:52.58 After:52.58	Do Nothing Before:46.04 After:46.04	Do Nothing Before:40.74 After:40.74	Do Nothing Before:35.42 After:35.42
JRF TC 030	20,714	Do Nothing Before:78.63 After:78.63	Do Nothing Before:76.68 After:76.68	Do Nothing Before:75.01 After:75.01	Do Nothing Before:73.64 After:73.64	Do Nothing Before:72.57 After:72.57

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF TC 040	52,695	Do Nothing Before:52.07 After:52.07	Do Nothing Before:45.61 After:45.61	Do Nothing Before:40.31 After:40.31	Do Nothing Before:35.01 After:35.01	Do Nothing Before:29.69 After:29.69
JRF TC 050	21,030	Do Nothing Before:76.94 After:76.94	Do Nothing Before:75.23 After:75.23	Do Nothing Before:73.82 After:73.82	Do Nothing Before:72.71 After:72.71	Do Nothing Before:71.89 After:71.89
JRF TC 060	9,371	Do Nothing Before:68.35 After:68.35	Do Nothing Before:66.45 After:66.45	Do Nothing Before:63.72 After:63.72	Do Nothing Before:59.96 After:59.96	Do Nothing Before:54.96 After:54.96
JRF TC 070	7,855	Do Nothing Before:79.51 After:79.51	Do Nothing Before:77.45 After:77.45	Do Nothing Before:75.66 After:75.66	Do Nothing Before:74.17 After:74.17	Do Nothing Before:72.98 After:72.98
JRF TC 080	21,749	Do Nothing Before:49.14 After:49.14	Do Nothing Before:43.3 After:43.3	Do Nothing Before:38 After:38	Do Nothing Before:32.7 After:32.7	Do Nothing Before:27.38 After:27.38
JRF TC 090	61,870	Do Nothing Before:50.6 After:50.6	Do Nothing Before:44.43 After:44.43	Do Nothing Before:39.13 After:39.13	Do Nothing Before:33.83 After:33.83	Do Nothing Before:28.51 After:28.51
JRF TC 100	22,507	Do Nothing Before:35.08 After:35.08	Do Nothing Before:29.78 After:29.78	Do Nothing Before:24.48 After:24.48	Do Nothing Before:19.18 After:19.18	Do Nothing Before:13.86 After:13.86
JRF TC 110	9,374	Do Nothing Before:76.94 After:76.94	Do Nothing Before:75.23 After:75.23	Do Nothing Before:73.82 After:73.82	Do Nothing Before:72.71 After:72.71	Do Nothing Before:71.89 After:71.89
JRF TC 120	7,918	Do Nothing Before:72.39 After:72.39	Do Nothing Before:71.67 After:71.67	Do Nothing Before:71.21 After:71.21	Do Nothing Before:70.96 After:70.96	Do Nothing Before:70.86 After:70.86
JRF TC 130	22,299	Do Nothing Before:71.21 After:71.21	Do Nothing Before:70.96 After:70.96	Do Nothing Before:70.86 After:70.86	Do Nothing Before:70.84 After:70.84	Do Nothing Before:70.77 After:70.77
JRF TC 140	50,319	Do Nothing Before:49.14 After:49.14	Do Nothing Before:43.3 After:43.3	Do Nothing Before:38 After:38	Do Nothing Before:32.7 After:32.7	Do Nothing Before:27.38 After:27.38
JRF TC 150	232,055	Do Nothing Before:45.58 After:45.58	Do Nothing Before:40.28 After:40.28	Do Nothing Before:34.98 After:34.98	Do Nothing Before:29.68 After:29.68	Do Nothing Before:24.36 After:24.36
JRF TC1 010	73,949	Do Nothing Before:76.94 After:76.94	Do Nothing Before:75.23 After:75.23	Do Nothing Before:73.82 After:73.82	Do Nothing Before:72.71 After:72.71	Do Nothing Before:71.89 After:71.89
JRF TC2 010	30,089	Do Nothing Before:45.58 After:45.58	Do Nothing Before:40.28 After:40.28	Do Nothing Before:34.98 After:34.98	Do Nothing Before:29.68 After:29.68	Do Nothing Before:24.36 After:24.36
JRF TC2 020	49,776	Do Nothing Before:52.07 After:52.07	Do Nothing Before:45.61 After:45.61	Do Nothing Before:40.31 After:40.31	Do Nothing Before:35.01 After:35.01	Do Nothing Before:29.69 After:29.69
JRF TC2 030	47,512	Do Nothing Before:43.79 After:43.79	Do Nothing Before:38.49 After:38.49	Do Nothing Before:33.19 After:33.19	Do Nothing Before:27.89 After:27.89	Do Nothing Before:22.57 After:22.57
JRF TC3 010	35,292	Do Nothing Before:37.08 After:37.08	Do Nothing Before:31.78 After:31.78	Do Nothing Before:26.48 After:26.48	Do Nothing Before:21.18 After:21.18	Do Nothing Before:15.86 After:15.86
JRF TC4 010	37,992	Do Nothing Before:41.34 After:41.34	Do Nothing Before:36.04 After:36.04	Do Nothing Before:30.74 After:30.74	Do Nothing Before:25.44 After:25.44	Do Nothing Before:20.12 After:20.12
JRF TC5 010	65,345	Do Nothing Before:50.6 After:50.6	Do Nothing Before:44.43 After:44.43	Do Nothing Before:39.13 After:39.13	Do Nothing Before:33.83 After:33.83	Do Nothing Before:28.51 After:28.51

APPENDIX A.7.2 – MINIMUM CONDITION BUDGET SCENARIO

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF A01 010	479,993	Major Below Critical $20089475.11 Before:34.41 After:100	Do Nothing Before:98.31 After:98.31	Do Nothing Before:96.75 After:96.75	Do Nothing Before:95.31 After:95.31	Do Nothing Before:94 After:94
JRF A01 030	1,238,412	Do Nothing Before:82.09 After:82.09	Do Nothing Before:81.47 After:81.47	Do Nothing Before:80.76 After:80.76	Do Nothing Before:79.96 After:79.96	Do Nothing Before:79.06 After:79.06
JRF A01 040	196,106	Do Nothing Before:72.18 After:72.18	Do Nothing Before:71.53 After:71.53	Do Nothing Before:71.12 After:71.12	Do Nothing Before:70.92 After:70.92	Do Nothing Before:70.85 After:70.85
JRF A01 050	24,905	Major Below Critical $1796904.74 Before:13.62 After:100	Do Nothing Before:98.31 After:98.31	Do Nothing Before:96.75 After:96.75	Do Nothing Before:95.31 After:95.31	Do Nothing Before:94 After:94
JRF A01 060	149,726	Do Nothing Before:91.91 After:91.91	Do Nothing Before:89.31 After:89.31	Do Nothing Before:86.67 After:86.67	Do Nothing Before:84.08 After:84.08	Do Nothing Before:81.61 After:81.61
JRF A02 010	629,880	Major Below Critical $45446069.2 Before:27.62 After:100	Do Nothing Before:98.31 After:98.31	Do Nothing Before:96.75 After:96.75	Do Nothing Before:95.31 After:95.31	Do Nothing Before:94 After:94
JRF A02 020	100,323	Do Nothing Before:65.58 After:65.58	Do Nothing Before:63.42 After:63.42	Do Nothing Before:61.1 After:61.1	Do Nothing Before:58.62 After:58.62	Do Nothing Before:55.96 After:55.96
JRF A02 031	22,153	Do Nothing Before:91.91 After:91.91	Do Nothing Before:89.31 After:89.31	Do Nothing Before:86.67 After:86.67	Do Nothing Before:84.08 After:84.08	Do Nothing Before:81.61 After:81.61
JRF A02 035	4,510	Do Nothing Before:98.77 After:98.77	Do Nothing Before:97.18 After:97.18	Do Nothing Before:95.13 After:95.13	Do Nothing Before:92.77 After:92.77	Do Nothing Before:90.2 After:90.2
JRF A02 041	20,867	Do Nothing Before:78.96 After:78.96	Do Nothing Before:76.97 After:76.97	Do Nothing Before:75.26 After:75.26	Do Nothing Before:73.84 After:73.84	Do Nothing Before:72.72 After:72.72
JRF A02 045	4,567	Do Nothing Before:98.77 After:98.77	Do Nothing Before:97.18 After:97.18	Do Nothing Before:95.13 After:95.13	Do Nothing Before:92.77 After:92.77	Do Nothing Before:90.2 After:90.2
JRF A03 010	198,568	Do Nothing Before:90.72 After:90.72	Do Nothing Before:88.1 After:88.1	Do Nothing Before:85.47 After:85.47	Do Nothing Before:82.93 After:82.93	Do Nothing Before:80.54 After:80.54
JRF A04 010	216,338	Major Below Critical $8495618.14 Before:22.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 010K	80,000	Do Nothing Before:78.38 After:78.38	Do Nothing Before:77.31 After:77.31	Do Nothing Before:76.13 After:76.13	Do Nothing Before:74.83 After:74.83	Do Nothing Before:73.41 After:73.41
JRF R11 010L	56,400	Do Nothing Before:79.59 After:79.59	Do Nothing Before:78.66 After:78.66	Do Nothing Before:77.62 After:77.62	Do Nothing Before:76.47 After:76.47	Do Nothing Before:75.2 After:75.2
JRF R11 010R	60,000	Do Nothing Before:80.83 After:80.83	Do Nothing Before:80.04 After:80.04	Do Nothing Before:79.15 After:79.15	Do Nothing Before:78.16 After:78.16	Do Nothing Before:77.07 After:77.07
JRF R11 020K	60,000	Do Nothing Before:78.12 After:78.12	Do Nothing Before:76.24 After:76.24	Do Nothing Before:74.64 After:74.64	Do Nothing Before:73.35 After:73.35	Do Nothing Before:72.35 After:72.35
JRF R11 020L	74,531	Do Nothing Before:73.49 After:73.49	Do Nothing Before:72.46 After:72.46	Do Nothing Before:71.72 After:71.72	Do Nothing Before:71.23 After:71.23	Do Nothing Before:70.97 After:70.97
JRF R11 020R	70,000	Do Nothing Before:82.53 After:82.53	Do Nothing Before:80.18 After:80.18	Do Nothing Before:78.04 After:78.04	Do Nothing Before:76.17 After:76.17	Do Nothing Before:74.59 After:74.59
JRF R11 030K	66,600	Major Below Critical $541454.35 Before:43.33 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 030L	127,468	Do Nothing Before:62 After:62	Do Nothing Before:57.67 After:57.67	Major Below Critical $1036307.83 Before:52 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R11 030R	133,200	Do Nothing Before:56.84 After:56.84	Major Below Critical $1082908.7 Before:50.95 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R11 040K	8,000	Do Nothing Before:83.47 After:83.47	Do Nothing Before:81.05 After:81.05	Do Nothing Before:78.82 After:78.82	Do Nothing Before:76.85 After:76.85	Do Nothing Before:75.15 After:75.15
JRF R11 040L	16,000	Major Below Critical $204317.28 Before:38.51 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 040R	16,000	Do Nothing Before:84.43 After:84.43	Do Nothing Before:81.94 After:81.94	Do Nothing Before:79.64 After:79.64	Do Nothing Before:77.57 After:77.57	Do Nothing Before:75.76 After:75.76
JRF R11 050K	8,000	Major Below Critical $65039.56 Before:40.79 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 050L	16,000	Major Below Critical $341832.35 Before:35.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 050R	16,000	Do Nothing Before:65.78 After:65.78	Do Nothing Before:62.79 After:62.79	Do Nothing Before:58.71 After:58.71	Major Below Critical $130079.12 Before:53.35 After:100	Do Nothing Before:99.57 After:99.57
JRF R11 060K	4,822	Major Below Critical $50464.41 Before:39.25 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 060L	7,912	Major Below Critical $64324.13 Before:43.33 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 060R	3,340	Major Below Critical $27154.02 Before:46.21 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 070K	17,320	Major Below Critical $140810.65 Before:40.01 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 070L	17,534	Do Nothing Before:55.2 After:55.2	Major Below Critical $142550.46 Before:48.84 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R11 070R	23,716	Do Nothing Before:71.13 After:71.13	Do Nothing Before:70.92 After:70.92	Do Nothing Before:70.85 After:70.85	Do Nothing Before:70.84 After:70.84	Do Nothing Before:70.81 After:70.81
JRF R11 080K	10,346	Major Below Critical $406288.62 Before:27.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 080L	15,796	Major Below Critical $288284.98 Before:36.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 080R	7,911	Major Below Critical $64316 Before:40.01 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 090	2,608	Major Below Critical $21202.9 Before:47.3 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 100	2,608	Major Below Critical $26877.6 Before:47.3 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 110K	13,336	Major Below Critical $523706.25 Before:29.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 110L	14,910	Major Below Critical $457834.86 Before:32.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 110R	17,597	Major Below Critical $540343.4 Before:32.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R11 120K	42,000	Major Below Critical $341457.7 Before:48.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 120L	49,000	Do Nothing Before:58.52 After:58.52	Major Below Critical $398367.31 Before:53.11 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R11 120R	49,000	Major Below Critical $398367.31 Before:53.58 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 130K	60,000	Major Below Critical $1655553.4 Before:33.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 130L	70,000	Do Nothing Before:55.2 After:55.2	Major Below Critical $569096.17 Before:48.84 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R11 130R	70,000	Major Below Critical $893888.08 Before:38.51 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 140K	83,345	Major Below Critical $1780626.08 Before:35.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 140L	96,956	Major Below Critical $788246.95 Before:42.45 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 140R	97,022	Major Below Critical $2374956.8 Before:34.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 010K	49,500	Major Below Critical $1943870.72 Before:28.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 010L	57,750	Major Below Critical $1233801.16 Before:35.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 010R	57,750	Major Below Critical $1593470.12 Before:33.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 020K	132,000	Major Below Critical $4875368.23 Before:30.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 020L	154,000	Major Below Critical $1966553.78 Before:38.51 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 020R	154,000	Major Below Critical $1252011.57 Before:40.01 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 030K	28,500	Major Below Critical $1119198.29 Before:29.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 030L	33,600	Major Below Critical $822478.91 Before:34.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 030R	33,600	Major Below Critical $927109.88 Before:33.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 040K	60,000	Major Below Critical $766189.78 Before:38.51 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 040L	70,951	Major Below Critical $1957719.43 Before:33.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 040R	69,042	Major Below Critical $1475049.32 Before:35.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R4R 010K	50,000	Do Nothing Before:61.05 After:61.05	Do Nothing Before:58.57 After:58.57	Do Nothing Before:55.92 After:55.92	Major Below Critical $135719.27 Before:53.1 After:100	Do Nothing Before:98.3 After:98.3
JRF R4R 010L	75,000	Do Nothing Before:79.59 After:79.59	Do Nothing Before:78.66 After:78.66	Do Nothing Before:77.62 After:77.62	Do Nothing Before:76.47 After:76.47	Do Nothing Before:75.2 After:75.2
JRF R4R 010R	75,000	Do Nothing Before:72.47 After:72.47	Do Nothing Before:70.85 After:70.85	Do Nothing Before:69.09 After:69.09	Do Nothing Before:67.19 After:67.19	Do Nothing Before:65.14 After:65.14
JRF R4R 020K	15,000	Do Nothing Before:56.84 After:56.84	Major Below Critical $121949.18 Before:50.95 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4R 020L	22,500	Major Below Critical $182923.76 Before:40.01 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 020R	22,500	Major Below Critical $410636.36 Before:36.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 030K	115,940	Do Nothing Before:58.52 After:58.52	Major Below Critical $942585.83 Before:53.11 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4R 030L	171,155	Major Below Critical $1394716.46 Before:42.45 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 030R	176,269	Major Below Critical $4314807.58 Before:34.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 040K	11,193	Do Nothing Before:58.52 After:58.52	Major Below Critical $90998.47 Before:53.11 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4R 040L	16,790	Major Below Critical $136501.78 Before:53.58 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 040R	16,790	Major Below Critical $136501.78 Before:51.99 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 050K	28,025	Do Nothing Before:71.61 After:71.61	Do Nothing Before:71.17 After:71.17	Do Nothing Before:70.94 After:70.94	Do Nothing Before:70.85 After:70.85	Do Nothing Before:70.84 After:70.84
JRF R4R 050L	44,395	Do Nothing Before:55.2 After:55.2	Major Below Critical $360928.91 Before:48.84 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4R 050R	39,680	Do Nothing Before:58.52 After:58.52	Major Below Critical $322596.22 Before:53.11 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4R 060K	146,246	Do Nothing Before:63.84 After:63.84	Do Nothing Before:60.12 After:60.12	Do Nothing Before:55.19 After:55.19	Major Below Critical $1188971.94 Before:48.83 After:100	Do Nothing Before:99.57 After:99.57
JRF R4R 060L	219,369	Major Below Critical $1783457.91 Before:47.3 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 060R	219,368	Major Below Critical $1783449.78 Before:40.01 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 070K	50,000	Do Nothing Before:72.18 After:72.18	Do Nothing Before:71.53 After:71.53	Do Nothing Before:71.12 After:71.12	Do Nothing Before:70.92 After:70.92	Do Nothing Before:70.85 After:70.85
JRF R4R 070L	75,000	Major Below Critical $609745.88 Before:44.24 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 070R	75,000	Major Below Critical $609745.88 Before:40.01 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF STA 010	6,322	Major Below Critical $31357.71 Before:34.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF STA 020	69,087	Major Below Critical $513343.02 Before:3.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF STC 010	18,807	Major Below Critical $93284.47 Before:31.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 010K	90,000	Major Below Critical $2203068.56 Before:34.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 010L	105,000	Major Below Critical $1340832.12 Before:38.51 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 010R	105,000	Major Below Critical $853644.25 Before:40.01 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 020K	93,000	Major Below Critical $2855710.49 Before:32.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 020L	108,500	Major Below Critical $2993792.39 Before:33.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 020R	108,500	Major Below Critical $1135501.69 Before:39.25 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 030K	15,074	Major Below Critical $556752.26 Before:30.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 030L	15,294	Major Below Critical $564877.88 Before:30.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 030R	19,894	Major Below Critical $610876.38 Before:32.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 040K	13,440	Major Below Critical $140655.69 Before:39.25 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 040L	15,680	Major Below Critical $164098.31 Before:39.25 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 040R	15,680	Major Below Critical $237340.14 Before:37.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 050K	17,982	Major Below Critical $229627.07 Before:38.51 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 050L	23,273	Major Below Critical $243562.5 Before:39.25 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 050R	18,698	Major Below Critical $574151.33 Before:32.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA1 010	82,390	Do Nothing Before:69.01 After:69.01	Do Nothing Before:67.1 After:67.1	Do Nothing Before:65.05 After:65.05	Do Nothing Before:62.85 After:62.85	Do Nothing Before:60.49 After:60.49
JRF TA1 020	4,908	Major Below Critical $39901.77 Before:41.6 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA2 010	36,831	Major Below Critical $299434.01 Before:43.33 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF TB 010	67,790	Major Below Critical $551128.99 Before:50.41 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 020	25,131	Major Below Critical $320918.58 Before:38.51 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 030	11,067	Major Below Critical $89974.1 Before:52.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 040	222,601	Major Below Critical $1809733.89 Before:47.3 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 050	18,949	Major Below Critical $154054.33 Before:50.41 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 060	25,762	Major Below Critical $209443.64 Before:50.41 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 070	86,817	Major Below Critical $705817.44 Before:53.58 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB1 010	62,122	Major Below Critical $505048.46 Before:48.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB1 020	87,519	Major Below Critical $711524.68 Before:46.21 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB2 010	30,719	Major Below Critical $249743.79 Before:50.41 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB3 010	31,005	Major Below Critical $252068.95 Before:47.3 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB4 011	9,817	Major Below Critical $301446.33 Before:32.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB4 013	26,073	Do Nothing Before:90.72 After:90.72	Do Nothing Before:88.1 After:88.1	Do Nothing Before:85.47 After:85.47	Do Nothing Before:82.93 After:82.93	Do Nothing Before:80.54 After:80.54
JRF TB4 020	20,569	Do Nothing Before:86.41 After:86.41	Do Nothing Before:83.83 After:83.83	Do Nothing Before:81.38 After:81.38	Do Nothing Before:79.13 After:79.13	Do Nothing Before:77.11 After:77.11
JRF TB4 030	35,427	Do Nothing Before:86.41 After:86.41	Do Nothing Before:83.83 After:83.83	Do Nothing Before:81.38 After:81.38	Do Nothing Before:79.13 After:79.13	Do Nothing Before:77.11 After:77.11
JRF TB4 040	40,674	Major Below Critical $1597272.66 Before:26.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB4 050	29,246	Do Nothing Before:62 After:62	Do Nothing Before:57.67 After:57.67	Major Below Critical $237768.37 Before:52 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42
JRF TB4 060	37,830	Do Nothing Before:60.24 After:60.24	Do Nothing Before:55.34 After:55.34	Major Below Critical $307555.83 Before:49.02 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42
JRF TC 010	28,252	Do Nothing Before:72.81 After:72.81	Do Nothing Before:71.97 After:71.97	Do Nothing Before:71.39 After:71.39	Do Nothing Before:71.05 After:71.05	Do Nothing Before:70.89 After:70.89
JRF TC 020	42,792	Do Nothing Before:56.84 After:56.84	Major Below Critical $347896.61 Before:50.95 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF TC 030	20,714	Do Nothing Before:78.12 After:78.12	Do Nothing Before:76.24 After:76.24	Do Nothing Before:74.64 After:74.64	Do Nothing Before:73.35 After:73.35	Do Nothing Before:72.35 After:72.35

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF TC 040	52,695	Major Below Critical $428407.45 Before:50.41 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 050	21,030	Do Nothing Before:76.48 After:76.48	Do Nothing Before:74.85 After:74.85	Do Nothing Before:73.51 After:73.51	Do Nothing Before:72.48 After:72.48	Do Nothing Before:71.73 After:71.73
JRF TC 060	9,371	Do Nothing Before:67.94 After:67.94	Do Nothing Before:65.85 After:65.85	Do Nothing Before:62.88 After:62.88	Do Nothing Before:58.84 After:58.84	Major Below Critical $76185.71 Before:53.5 After:100
JRF TC 070	7,855	Do Nothing Before:78.96 After:78.96	Do Nothing Before:76.97 After:76.97	Do Nothing Before:75.26 After:75.26	Do Nothing Before:73.84 After:73.84	Do Nothing Before:72.72 After:72.72
JRF TC 080	21,749	Major Below Critical $176818.17 Before:47.3 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 090	61,870	Major Below Critical $502999.7 Before:48.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 100	22,507	Major Below Critical $621025.66 Before:33.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 110	9,374	Do Nothing Before:76.48 After:76.48	Do Nothing Before:74.85 After:74.85	Do Nothing Before:73.51 After:73.51	Do Nothing Before:72.48 After:72.48	Do Nothing Before:71.73 After:71.73
JRF TC 120	7,918	Do Nothing Before:72.18 After:72.18	Do Nothing Before:71.53 After:71.53	Do Nothing Before:71.12 After:71.12	Do Nothing Before:70.92 After:70.92	Do Nothing Before:70.85 After:70.85
JRF TC 130	22,299	Do Nothing Before:71.13 After:71.13	Do Nothing Before:70.92 After:70.92	Do Nothing Before:70.85 After:70.85	Do Nothing Before:70.84 After:70.84	Do Nothing Before:70.81 After:70.81
JRF TC 140	50,319	Major Below Critical $409090.71 Before:47.3 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 150	232,055	Major Below Critical $1886594.39 Before:44.24 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC1 010	73,949	Do Nothing Before:76.48 After:76.48	Do Nothing Before:74.85 After:74.85	Do Nothing Before:73.51 After:73.51	Do Nothing Before:72.48 After:72.48	Do Nothing Before:71.73 After:71.73
JRF TC2 010	30,089	Major Below Critical $244621.92 Before:44.24 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC2 020	49,776	Major Below Critical $404676.15 Before:50.41 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC2 030	47,512	Major Below Critical $386269.96 Before:42.45 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC3 010	35,292	Major Below Critical $753996.72 Before:35.75 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC4 010	37,992	Major Below Critical $308872.88 Before:40.01 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC5 010	65,345	Major Below Critical $531251.26 Before:48.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

APPENDIX A.7.3 –

STATE BUDGET SCENARIO

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF A01 010	479,993	Stopgap $185880.66 Before:35.4 After:35.4	Stopgap $219811.33 Before:31.67 After:31.67	Stopgap $262780.96 Before:28.01 After:28.01	Do Nothing Before:24.35 After:24.35	Do Nothing Before:20.68 After:20.68
JRF A01 030	1,238,412	Do Nothing Before:82.24 After:82.24	Do Nothing Before:81.63 After:81.63	Do Nothing Before:80.94 After:80.94	Do Nothing Before:80.16 After:80.16	Do Nothing Before:79.28 After:79.28
JRF A01 040	196,106	Do Nothing Before:72.39 After:72.39	Do Nothing Before:71.67 After:71.67	Do Nothing Before:71.21 After:71.21	Do Nothing Before:70.96 After:70.96	Do Nothing Before:70.86 After:70.86
JRF A01 050	24,905	Do Nothing Before:14.54 After:14.54	Stopgap $30323.78 Before:10.88 After:10.88	Stopgap $33593.57 Before:7.22 After:7.22	Stopgap $36515.14 Before:3.56 After:3.56	Do Nothing Before:0 After:0
JRF A01 060	149,726	Do Nothing Before:92.54 After:92.54	Preventive $9.74 Before:89.97 After:90.36	Do Nothing Before:87.73 After:87.73	Do Nothing Before:85.11 After:85.11	Do Nothing Before:82.58 After:82.58
JRF A02 010	629,880	Stopgap $335131.26 Before:28.54 After:28.54	Stopgap $402169.21 Before:24.88 After:24.88	Do Nothing Before:21.22 After:21.22	Do Nothing Before:17.56 After:17.56	Do Nothing Before:13.89 After:13.89
JRF A02 020	100,323	Do Nothing Before:66.1 After:66.1	Stopgap $7868.21 Before:63.97 After:63.97	Stopgap $10843.25 Before:61.69 After:61.69	Stopgap $13572.24 Before:59.25 After:59.25	Do Nothing Before:56.64 After:56.64
JRF A02 031	22,153	Do Nothing Before:92.54 After:92.54	Preventive $1.44 Before:89.97 After:90.36	Do Nothing Before:87.73 After:87.73	Do Nothing Before:85.11 After:85.11	Do Nothing Before:82.58 After:82.58
JRF A02 035	4,510	Do Nothing Before:99.09 After:99.09	Do Nothing Before:97.63 After:97.63	Do Nothing Before:95.68 After:95.68	Do Nothing Before:93.38 After:93.38	Do Nothing Before:90.85 After:90.85
JRF A02 041	20,867	Do Nothing Before:79.51 After:79.51	Do Nothing Before:77.45 After:77.45	Do Nothing Before:75.66 After:75.66	Do Nothing Before:74.17 After:74.17	Do Nothing Before:72.98 After:72.98
JRF A02 045	4,567	Do Nothing Before:99.09 After:99.09	Do Nothing Before:97.63 After:97.63	Do Nothing Before:95.68 After:95.68	Do Nothing Before:93.38 After:93.38	Do Nothing Before:90.85 After:90.85
JRF A03 010	198,568	Do Nothing Before:91.37 After:91.37	Do Nothing Before:88.76 After:88.76	Do Nothing Before:86.12 After:86.12	Do Nothing Before:83.55 After:83.55	Do Nothing Before:81.11 After:81.11
JRF A04 010	216,338	Stopgap $26614.38 Before:24.08 After:24.08	Stopgap $34569.35 Before:18.78 After:18.78	Stopgap $34569.35 Before:13.48 After:13.48	Stopgap $37348.96 Before:8.18 After:8.18	Do Nothing Before:2.86 After:2.86
JRF R11 010K	80,000	Do Nothing Before:78.63 After:78.63	Preventive $106628.17 Before:77.59 After:77.67	Do Nothing Before:76.52 After:76.52	Do Nothing Before:75.26 After:75.26	Do Nothing Before:73.88 After:73.88
JRF R11 010L	56,400	Do Nothing Before:79.82 After:79.82	Preventive $71109.45 Before:78.9 After:78.97	Do Nothing Before:77.96 After:77.96	Do Nothing Before:76.85 After:76.85	Do Nothing Before:75.62 After:75.62
JRF R11 010R	60,000	Do Nothing Before:81.01 After:81.01	Do Nothing Before:80.24 After:80.24	Do Nothing Before:79.38 After:79.38	Do Nothing Before:78.42 After:78.42	Do Nothing Before:77.35 After:77.35
JRF R11 020K	60,000	Do Nothing Before:78.63 After:78.63	Preventive $2022.31 Before:76.68 After:77.03	Do Nothing Before:75.31 After:75.31	Do Nothing Before:73.88 After:73.88	Do Nothing Before:72.75 After:72.75
JRF R11 020L	74,531	Do Nothing Before:73.79 After:73.79	Preventive $3699.58 Before:72.69 After:72.88	Do Nothing Before:72.01 After:72.01	Do Nothing Before:71.42 After:71.42	Do Nothing Before:71.06 After:71.06
JRF R11 020R	70,000	Do Nothing Before:83.15 After:83.15	Preventive $1323.4 Before:80.75 After:81.19	Do Nothing Before:78.96 After:78.96	Do Nothing Before:76.97 After:76.97	Do Nothing Before:75.25 After:75.25
JRF R11 030K	66,600	Stopgap $1691.62 Before:44.66 After:44.66	Stopgap $2150.1 Before:39.36 After:39.36	Stopgap $3560.2 Before:34.06 After:34.06	Stopgap $5384.84 Before:28.76 After:28.76	Stopgap $8577.51 Before:23.44 After:23.44
JRF R11 030L	127,468	Stopgap $1847.38 Before:62.91 After:62.91	Stopgap $2605.28 Before:58.88 After:58.88	Stopgap $2605.28 Before:53.57 After:53.57	Stopgap $2972.38 Before:46.9 After:46.9	Stopgap $3602.39 Before:41.58 After:41.58

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R11 030R	133,200	Stopgap $2722.43 Before:58.11 After:58.11	Stopgap $2722.43 Before:52.58 After:52.58	Stopgap $3212.47 Before:46.04 After:46.04	Stopgap $3868.33 Before:40.74 After:40.74	Stopgap $6396.47 Before:35.42 After:35.42
JRF R11 040K	8,000	Do Nothing Before:84.11 After:84.11	Preventive $136.68 Before:81.64 After:82.09	Do Nothing Before:79.78 After:79.78	Do Nothing Before:77.69 After:77.69	Do Nothing Before:75.86 After:75.86
JRF R11 040L	16,000	Stopgap $485.18 Before:39.85 After:39.85	Stopgap $824.09 Before:34.55 After:34.55	Stopgap $1223.05 Before:29.25 After:29.25	Stopgap $1987.23 Before:23.95 After:23.95	Stopgap $2556.69 Before:18.63 After:18.63
JRF R11 040R	16,000	Do Nothing Before:85.08 After:85.08	Preventive $243.33 Before:82.56 After:83.02	Do Nothing Before:80.63 After:80.63	Do Nothing Before:78.45 After:78.45	Do Nothing Before:76.52 After:76.52
JRF R11 050K	8,000	Stopgap $222 Before:42.13 After:42.13	Stopgap $339.13 Before:36.83 After:36.83	Stopgap $508.51 Before:31.53 After:31.53	Stopgap $829.22 Before:26.23 After:26.23	Stopgap $1212.72 Before:20.91 After:20.91
JRF R11 050L	16,000	Stopgap $662.36 Before:37.08 After:37.08	Stopgap $1001.12 Before:31.78 After:31.78	Stopgap $1622.31 Before:26.48 After:26.48	Stopgap $2386.49 Before:21.18 After:21.18	Stopgap $2556.69 Before:15.86 After:15.86
JRF R11 050R	16,000	Stopgap $118.02 Before:66.39 After:66.39	Stopgap $208.25 Before:63.63 After:63.63	Stopgap $327.02 Before:59.84 After:59.84	Stopgap $327.02 Before:54.82 After:54.82	Stopgap $351.69 Before:48.34 After:48.34
JRF R11 060K	4,822	Stopgap $140.71 Before:40.59 After:40.59	Stopgap $234.07 Before:35.29 After:35.29	Stopgap $336.43 Before:29.99 After:29.99	Stopgap $566.74 Before:24.69 After:24.69	Stopgap $770.52 Before:19.37 After:19.37
JRF R11 060L	7,912	Stopgap $200.96 Before:44.66 After:44.66	Stopgap $255.43 Before:39.36 After:39.36	Stopgap $422.95 Before:34.06 After:34.06	Stopgap $639.71 Before:28.76 After:28.76	Stopgap $1019 Before:23.44 After:23.44
JRF R11 060R	3,340	Stopgap $75.43 Before:47.69 After:47.69	Stopgap $92.34 Before:42.24 After:42.24	Stopgap $140.13 Before:36.94 After:36.94	Stopgap $210.85 Before:31.64 After:31.64	Stopgap $343.5 Before:26.32 After:26.32
JRF R11 070K	17,320	Stopgap $493.34 Before:41.34 After:41.34	Stopgap $788.93 Before:36.04 After:36.04	Stopgap $1155.64 Before:30.74 After:30.74	Stopgap $1918.51 Before:25.44 After:25.44	Stopgap $2748.95 Before:20.12 After:20.12
JRF R11 070L	17,534	Stopgap $358.37 Before:56.57 After:56.57	Stopgap $358.37 Before:50.59 After:50.59	Stopgap $449.27 Before:44.42 After:44.42	Stopgap $582.84 Before:39.12 After:39.12	Stopgap $955.55 Before:33.8 After:33.8
JRF R11 070R	23,716	Do Nothing Before:71.21 After:71.21	Preventive $1341.14 Before:70.96 After:70.99	Do Nothing Before:70.87 After:70.87	Do Nothing Before:70.84 After:70.84	Do Nothing Before:70.77 After:70.77
JRF R11 080K	10,346	Stopgap $806.62 Before:29.08 After:29.08	Stopgap $1300.76 Before:23.78 After:23.78	Stopgap $1653.22 Before:18.48 After:18.48	Stopgap $1653.22 Before:13.18 After:13.18	Stopgap $1809.51 Before:7.86 After:7.86
JRF R11 080L	15,796	Stopgap $590.81 Before:38.08 After:38.08	Stopgap $925.26 Before:32.78 After:32.78	Stopgap $1459.28 Before:27.48 After:27.48	Stopgap $2213.72 Before:22.18 After:22.18	Stopgap $2524.09 Before:16.86 After:16.86
JRF R11 080R	7,911	Stopgap $225.34 Before:41.34 After:41.34	Stopgap $360.35 Before:36.04 After:36.04	Stopgap $527.85 Before:30.74 After:30.74	Stopgap $876.29 Before:25.44 After:25.44	Stopgap $1255.6 Before:20.12 After:20.12
JRF R11 090	2,608	Stopgap $55.39 Before:49.14 After:49.14	Stopgap $69.54 Before:43.3 After:43.3	Stopgap $98.37 Before:38 After:38	Stopgap $153.59 Before:32.7 After:32.7	Stopgap $243.28 Before:27.38 After:27.38
JRF R11 100	2,608	Stopgap $70.21 Before:49.14 After:49.14	Stopgap $88.15 Before:43.3 After:43.3	Stopgap $124.7 Before:38 After:38	Stopgap $194.69 Before:32.7 After:32.7	Stopgap $308.4 Before:27.38 After:27.38
JRF R11 110K	13,336	Stopgap $871.73 Before:31.08 After:31.08	Stopgap $1436.32 Before:25.78 After:25.78	Stopgap $2073.27 Before:20.48 After:20.48	Stopgap $2131 Before:15.18 After:15.18	Stopgap $2144.14 Before:9.86 After:9.86
JRF R11 110L	14,910	Stopgap $795.93 Before:34.08 After:34.08	Stopgap $1202.76 Before:28.78 After:28.78	Stopgap $1914.88 Before:23.48 After:23.48	Stopgap $2382.52 Before:18.18 After:18.18	Stopgap $2382.52 Before:12.86 After:12.86
JRF R11 110R	17,597	Stopgap $939.36 Before:34.08 After:34.08	Stopgap $1419.51 Before:28.78 After:28.78	Stopgap $2259.97 Before:23.48 After:23.48	Stopgap $2811.88 Before:18.18 After:18.18	Stopgap $2811.88 Before:12.86 After:12.86

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R11 120K	42,000	Stopgap $858.42 Before:50.6 After:50.6	Stopgap $1075.76 Before:44.43 After:44.43	Stopgap $1394.55 Before:39.13 After:39.13	Stopgap $2283.8 Before:33.83 After:33.83	Stopgap $3490.27 Before:28.51 After:28.51
JRF R11 120L	49,000	Stopgap $1001.49 Before:59.67 After:59.67	Stopgap $1001.49 Before:54.6 After:54.6	Stopgap $1088.9 Before:48.08 After:48.08	Stopgap $1342 Before:42.52 After:42.52	Stopgap $2004.81 Before:37.2 After:37.2
JRF R11 120R	49,000	Stopgap $1001.49 Before:55.05 After:55.05	Stopgap $1062.95 Before:48.65 After:48.65	Stopgap $1322.88 Before:42.94 After:42.94	Stopgap $1918.77 Before:37.64 After:37.64	Stopgap $2959.87 Before:32.32 After:32.32
JRF R11 130K	60,000	Stopgap $2963.24 Before:35.08 After:35.08	Stopgap $4299.37 Before:29.78 After:29.78	Stopgap $7165.05 Before:24.48 After:24.48	Stopgap $9587.59 Before:19.18 After:19.18	Stopgap $9587.59 Before:13.86 After:13.86
JRF R11 130L	70,000	Stopgap $1430.71 Before:56.57 After:56.57	Stopgap $1430.71 Before:50.59 After:50.59	Stopgap $1793.59 Before:44.42 After:44.42	Stopgap $2326.85 Before:39.12 After:39.12	Stopgap $3814.78 Before:33.8 After:33.8
JRF R11 130R	70,000	Stopgap $2122.65 Before:39.85 After:39.85	Stopgap $3605.38 Before:34.55 After:34.55	Stopgap $5350.84 Before:29.25 After:29.25	Stopgap $8694.15 Before:23.95 After:23.95	Stopgap $11185.53 Before:18.63 After:18.63
JRF R11 140K	83,345	Stopgap $3450.28 Before:37.08 After:37.08	Stopgap $5214.91 Before:31.78 After:31.78	Stopgap $8450.71 Before:26.48 After:26.48	Stopgap $12431.39 Before:21.18 After:21.18	Stopgap $13317.97 Before:15.86 After:15.86
JRF R11 140L	96,956	Stopgap $2541.02 Before:43.79 After:43.79	Stopgap $3466.99 Before:38.49 After:38.49	Stopgap $5519.8 Before:33.19 After:33.19	Stopgap $8599.47 Before:27.89 After:27.89	Stopgap $13247.34 Before:22.57 After:22.57
JRF R11 140R	97,022	Stopgap $4404.06 Before:36.08 After:36.08	Stopgap $6458.27 Before:30.78 After:30.78	Stopgap $10711.81 Before:25.48 After:25.48	Stopgap $15345.72 Before:20.18 After:20.18	Stopgap $15503.46 Before:14.86 After:14.86
JRF R4L 010K	49,500	Stopgap $3433.39 Before:30.08 After:30.08	Stopgap $5777.35 Before:24.78 After:24.78	Stopgap $7909.76 Before:19.48 After:19.48	Stopgap $7909.76 Before:14.18 After:14.18	Do Nothing Before:8.86 After:8.86
JRF R4L 010L	57,750	Stopgap $2390.71 Before:37.08 After:37.08	Stopgap $3613.43 Before:31.78 After:31.78	Stopgap $5855.53 Before:26.48 After:26.48	Stopgap $8613.75 Before:21.18 After:21.18	Do Nothing Before:15.86 After:15.86
JRF R4L 010R	57,750	Stopgap $2852.11 Before:35.08 After:35.08	Stopgap $4138.14 Before:29.78 After:29.78	Stopgap $6896.36 Before:24.48 After:24.48	Stopgap $9228.06 Before:19.18 After:19.18	Do Nothing Before:13.86 After:13.86
JRF R4L 020K	132,000	Stopgap $8101.07 Before:32.08 After:32.08	Stopgap $13027.2 Before:26.78 After:26.78	Stopgap $19331.71 Before:21.48 After:21.48	Stopgap $21092.71 Before:16.18 After:16.18	Do Nothing Before:10.86 After:10.86
JRF R4L 020L	154,000	Stopgap $4669.83 Before:39.85 After:39.85	Stopgap $7931.84 Before:34.55 After:34.55	Stopgap $11771.86 Before:29.25 After:29.25	Stopgap $19127.12 Before:23.95 After:23.95	Do Nothing Before:18.63 After:18.63
JRF R4L 020R	154,000	Stopgap $4386.55 Before:41.34 After:41.34	Stopgap $7014.76 Before:36.04 After:36.04	Stopgap $10275.34 Before:30.74 After:30.74	Stopgap $17058.32 Before:25.44 After:25.44	Do Nothing Before:20.12 After:20.12
JRF R4L 030K	28,500	Stopgap $1862.95 Before:31.08 After:31.08	Stopgap $3069.52 Before:25.78 After:25.78	Stopgap $4430.72 Before:20.48 After:20.48	Stopgap $4554.11 Before:15.18 After:15.18	Stopgap $4582.17 Before:9.86 After:9.86
JRF R4L 030L	33,600	Stopgap $1525.19 Before:36.08 After:36.08	Stopgap $2236.58 Before:30.78 After:30.78	Stopgap $3709.64 Before:25.48 After:25.48	Stopgap $5314.43 Before:20.18 After:20.18	Do Nothing Before:14.86 After:14.86
JRF R4L 030R	33,600	Stopgap $1659.41 Before:35.08 After:35.08	Stopgap $2407.65 Before:29.78 After:29.78	Stopgap $4012.43 Before:24.48 After:24.48	Stopgap $5369.05 Before:19.18 After:19.18	Do Nothing Before:13.86 After:13.86
JRF R4L 040K	60,000	Stopgap $1819.41 Before:39.85 After:39.85	Stopgap $3090.33 Before:34.55 After:34.55	Stopgap $4586.44 Before:29.25 After:29.25	Stopgap $7452.12 Before:23.95 After:23.95	Do Nothing Before:18.63 After:18.63
JRF R4L 040L	70,951	Stopgap $3504.08 Before:35.08 After:35.08	Stopgap $5084.07 Before:29.78 After:29.78	Stopgap $8472.8 Before:24.48 After:24.48	Stopgap $11337.49 Before:19.18 After:19.18	Do Nothing Before:13.86 After:13.86
JRF R4L 040R	69,042	Stopgap $2858.17 Before:37.08 After:37.08	Stopgap $4319.97 Before:31.78 After:31.78	Stopgap $7000.47 Before:26.48 After:26.48	Stopgap $10298.02 Before:21.18 After:21.18	Do Nothing Before:15.86 After:15.86

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R4R 010K	50,000	Stopgap $5430.18 Before:61.65 After:61.65	Stopgap $6778.21 Before:59.21 After:59.21	Stopgap $7687.73 Before:56.6 After:56.6	Stopgap $8656.24 Before:53.82 After:53.82	Stopgap $9687.46 Before:50.86 After:50.86
JRF R4R 010L	75,000	Do Nothing Before:79.82 After:79.82	Do Nothing Before:78.91 After:78.91	Do Nothing Before:77.9 After:77.9	Do Nothing Before:76.78 After:76.78	Do Nothing Before:75.54 After:75.54
JRF R4R 010R	75,000	Do Nothing Before:72.86 After:72.86	Preventive $126033.66 Before:71.27 After:71.39	Stopgap $312.15 Before:69.68 After:69.68	Stopgap $2116.8 Before:67.83 After:67.83	Stopgap $4067.76 Before:65.83 After:65.83
JRF R4R 020K	15,000	Stopgap $306.58 Before:58.11 After:58.11	Stopgap $306.58 Before:52.58 After:52.58	Stopgap $361.76 Before:46.04 After:46.04	Stopgap $435.62 Before:40.74 After:40.74	Stopgap $720.32 Before:35.42 After:35.42
JRF R4R 020L	22,500	Stopgap $640.89 Before:41.34 After:41.34	Stopgap $1024.88 Before:36.04 After:36.04	Stopgap $1501.27 Before:30.74 After:30.74	Stopgap $2492.29 Before:25.44 After:25.44	Stopgap $3571.1 Before:20.12 After:20.12
JRF R4R 020R	22,500	Stopgap $841.56 Before:38.08 After:38.08	Stopgap $1317.95 Before:32.78 After:32.78	Stopgap $2078.61 Before:27.48 After:27.48	Stopgap $3153.25 Before:22.18 After:22.18	Stopgap $3595.35 Before:16.86 After:16.86
JRF R4R 030K	115,940	Stopgap $2369.66 Before:59.67 After:59.67	Stopgap $2369.66 Before:54.6 After:54.6	Stopgap $2576.47 Before:48.08 After:48.08	Stopgap $3175.34 Before:42.52 After:42.52	Stopgap $4743.63 Before:37.2 After:37.2
JRF R4R 030L	171,155	Stopgap $4496.05 Before:43.79 After:43.79	Stopgap $6134.46 Before:38.49 After:38.49	Stopgap $9766.68 Before:33.19 After:33.19	Stopgap $15215.81 Before:27.89 After:27.89	Stopgap $23439.72 Before:22.57 After:22.57
JRF R4R 030R	176,269	Stopgap $8001.28 Before:36.08 After:36.08	Stopgap $11733.35 Before:30.78 After:30.78	Stopgap $19461.15 Before:25.48 After:25.48	Stopgap $27880.01 Before:20.18 After:20.18	Stopgap $28166.59 Before:14.86 After:14.86
JRF R4R 040K	11,193	Stopgap $228.77 Before:59.67 After:59.67	Stopgap $228.77 Before:54.6 After:54.6	Stopgap $248.74 Before:48.08 After:48.08	Stopgap $306.55 Before:42.52 After:42.52	Stopgap $457.96 Before:37.2 After:37.2
JRF R4R 040L	16,790	Stopgap $343.17 Before:55.05 After:55.05	Stopgap $364.22 Before:48.65 After:48.65	Stopgap $453.29 Before:42.94 After:42.94	Stopgap $657.47 Before:37.64 After:37.64	Stopgap $1014.21 Before:32.32 After:32.32
JRF R4R 040R	16,790	Stopgap $343.17 Before:53.55 After:53.55	Stopgap $391.83 Before:46.88 After:46.88	Stopgap $474.5 Before:41.58 After:41.58	Stopgap $748.72 Before:36.28 After:36.28	Stopgap $1105.46 Before:30.96 After:30.96
JRF R4R 050K	28,025	Do Nothing Before:71.76 After:71.76	Preventive $1551.23 Before:71.26 After:71.34	Do Nothing Before:71.02 After:71.02	Do Nothing Before:70.88 After:70.88	Do Nothing Before:70.84 After:70.84
JRF R4R 050L	44,395	Stopgap $907.37 Before:56.57 After:56.57	Stopgap $907.37 Before:50.59 After:50.59	Stopgap $1137.52 Before:44.42 After:44.42	Stopgap $1475.72 Before:39.12 After:39.12	Stopgap $2419.39 Before:33.8 After:33.8
JRF R4R 050R	39,680	Stopgap $811.01 Before:59.67 After:59.67	Stopgap $811.01 Before:54.6 After:54.6	Stopgap $881.79 Before:48.08 After:48.08	Stopgap $1086.75 Before:42.52 After:42.52	Stopgap $1623.49 Before:37.2 After:37.2
JRF R4R 060K	146,246	Stopgap $1611.38 Before:64.61 After:64.61	Stopgap $2639.9 Before:61.17 After:61.17	Stopgap $2989.07 Before:56.57 After:56.57	Stopgap $2989.07 Before:50.59 After:50.59	Stopgap $3749.93 Before:44.4 After:44.4
JRF R4R 060L	219,369	Stopgap $4658.88 Before:49.14 After:49.14	Stopgap $5849.07 Before:43.3 After:43.3	Stopgap $8274.3 Before:38 After:38	Stopgap $12918.91 Before:32.7 After:32.7	Stopgap $20463.61 Before:27.38 After:27.38
JRF R4R 060R	219,368	Stopgap $6248.49 Before:41.34 After:41.34	Stopgap $9992.29 Before:36.04 After:36.04	Stopgap $14636.88 Before:30.74 After:30.74	Stopgap $24299.02 Before:25.44 After:25.44	Stopgap $34817.11 Before:20.12 After:20.12
JRF R4R 070K	50,000	Do Nothing Before:72.39 After:72.39	Preventive $2685.83 Before:71.67 After:71.79	Do Nothing Before:71.28 After:71.28	Do Nothing Before:70.99 After:70.99	Do Nothing Before:70.87 After:70.87
JRF R4R 070L	75,000	Stopgap $1840.87 Before:45.58 After:45.58	Stopgap $2210.16 Before:40.28 After:40.28	Stopgap $3734.01 Before:34.98 After:34.98	Stopgap $5441.8 Before:29.68 After:29.68	Stopgap $9037.84 Before:24.36 After:24.36
JRF R4R 070R	75,000	Stopgap $2136.31 Before:41.34 After:41.34	Stopgap $3416.28 Before:36.04 After:36.04	Stopgap $5004.22 Before:30.74 After:30.74	Stopgap $8307.62 Before:25.44 After:25.44	Stopgap $11903.67 Before:20.12 After:20.12

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF STA 010	6,322	Stopgap $286.97 Before:36.08 After:36.08	Stopgap $420.82 Before:30.78 After:30.78	Stopgap $697.99 Before:25.48 After:25.48	Stopgap $999.93 Before:20.18 After:20.18	Do Nothing Before:14.86 After:14.86
JRF STA 020	69,087	Stopgap $13439.47 Before:5.08 After:5.08	Stopgap $15917.61 Before:0 After:0	Stopgap $15917.61 Before:0 After:0	Do Nothing Before:0 After:0	Do Nothing Before:0 After:0
JRF STC 010	18,807	Stopgap $1079.09 Before:33.08 After:33.08	Stopgap $1686.6 Before:27.78 After:27.78	Stopgap $2584.85 Before:22.48 After:22.48	Stopgap $3005.23 Before:17.18 After:17.18	Do Nothing Before:11.86 After:11.86
JRF TA 010K	90,000	Stopgap $4085.32 Before:36.08 After:36.08	Stopgap $5990.85 Before:30.78 After:30.78	Stopgap $9936.54 Before:25.48 After:25.48	Stopgap $14235.07 Before:20.18 After:20.18	Stopgap $14381.39 Before:14.86 After:14.86
JRF TA 010L	105,000	Stopgap $3183.97 Before:39.85 After:39.85	Stopgap $5408.07 Before:34.55 After:34.55	Stopgap $8026.27 Before:29.25 After:29.25	Stopgap $13041.22 Before:23.95 After:23.95	Stopgap $16778.29 Before:18.63 After:18.63
JRF TA 010R	105,000	Stopgap $2990.83 Before:41.34 After:41.34	Stopgap $4782.79 Before:36.04 After:36.04	Stopgap $7005.91 Before:30.74 After:30.74	Stopgap $11630.67 Before:25.44 After:25.44	Stopgap $16665.13 Before:20.12 After:20.12
JRF TA 020K	93,000	Stopgap $4964.53 Before:34.08 After:34.08	Stopgap $7502.1 Before:28.78 After:28.78	Stopgap $11943.91 Before:23.48 After:23.48	Stopgap $14860.77 Before:18.18 After:18.18	Stopgap $14860.77 Before:12.86 After:12.86
JRF TA 020L	108,500	Stopgap $5358.52 Before:35.08 After:35.08	Stopgap $7774.69 Before:29.78 After:29.78	Stopgap $12956.81 Before:24.48 After:24.48	Stopgap $17337.57 Before:19.18 After:19.18	Stopgap $17337.57 Before:13.86 After:13.86
JRF TA 020R	108,500	Stopgap $3166.12 Before:40.59 After:40.59	Stopgap $5266.79 Before:35.29 After:35.29	Stopgap $7570.07 Before:29.99 After:29.99	Stopgap $12752.18 Before:24.69 After:24.69	Stopgap $17337.57 Before:19.37 After:19.37
JRF TA 030K	15,074	Stopgap $925.12 Before:32.08 After:32.08	Stopgap $1487.67 Before:26.78 After:26.78	Stopgap $2207.62 Before:21.48 After:21.48	Stopgap $2408.72 Before:16.18 After:16.18	Stopgap $2408.72 Before:10.86 After:10.86
JRF TA 030L	15,294	Stopgap $938.62 Before:32.08 After:32.08	Stopgap $1509.38 Before:26.78 After:26.78	Stopgap $2239.84 Before:21.48 After:21.48	Stopgap $2443.88 Before:16.18 After:16.18	Stopgap $2443.88 Before:10.86 After:10.86
JRF TA 030R	19,894	Stopgap $1061.98 Before:34.08 After:34.08	Stopgap $1604.8 Before:28.78 After:28.78	Stopgap $2554.97 Before:23.48 After:23.48	Stopgap $3178.93 Before:18.18 After:18.18	Stopgap $3178.93 Before:12.86 After:12.86
JRF TA 040K	13,440	Stopgap $392.19 Before:40.59 After:40.59	Stopgap $652.4 Before:35.29 After:35.29	Stopgap $937.71 Before:29.99 After:29.99	Stopgap $1579.63 Before:24.69 After:24.69	Stopgap $2147.62 Before:19.37 After:19.37
JRF TA 040L	15,680	Stopgap $457.56 Before:40.59 After:40.59	Stopgap $761.14 Before:35.29 After:35.29	Stopgap $1094 Before:29.99 After:29.99	Stopgap $1842.9 Before:24.69 After:24.69	Stopgap $2505.56 Before:19.37 After:19.37
JRF TA 040R	15,680	Stopgap $523.84 Before:39.08 After:39.08	Stopgap $855.82 Before:33.78 After:33.78	Stopgap $1307.26 Before:28.48 After:28.48	Stopgap $2056.16 Before:23.18 After:23.18	Stopgap $2505.56 Before:17.86 After:17.86
JRF TA 050K	17,982	Stopgap $545.28 Before:39.85 After:39.85	Stopgap $926.17 Before:34.55 After:34.55	Stopgap $1374.56 Before:29.25 After:29.25	Stopgap $2233.4 Before:23.95 After:23.95	Stopgap $2873.4 Before:18.63 After:18.63
JRF TA 050L	23,273	Stopgap $679.13 Before:40.59 After:40.59	Stopgap $1129.71 Before:35.29 After:35.29	Stopgap $1623.76 Before:29.99 After:29.99	Stopgap $2735.31 Before:24.69 After:24.69	Stopgap $3718.87 Before:19.37 After:19.37
JRF TA 050R	18,698	Stopgap $998.14 Before:34.08 After:34.08	Stopgap $1508.32 Before:28.78 After:28.78	Stopgap $2401.37 Before:23.48 After:23.48	Stopgap $2987.81 Before:18.18 After:18.18	Stopgap $2987.81 Before:12.86 After:12.86
JRF TA1 010	82,390	Do Nothing Before:69.47 After:69.47	Do Nothing Before:67.6 After:67.6	Do Nothing Before:65.59 After:65.59	Do Nothing Before:63.43 After:63.43	Do Nothing Before:61.11 After:61.11
JRF TA1 020	4,908	Stopgap $132.5 Before:42.94 After:42.94	Stopgap $192.19 Before:37.64 After:37.64	Stopgap $296.11 Before:32.34 After:32.34	Stopgap $472.88 Before:27.04 After:27.04	Do Nothing Before:21.72 After:21.72
JRF TA2 010	36,831	Stopgap $935.5 Before:44.66 After:44.66	Stopgap $1189.04 Before:39.36 After:39.36	Stopgap $1968.85 Before:34.06 After:34.06	Stopgap $2977.92 Before:28.76 After:28.76	Stopgap $4743.52 Before:23.44 After:23.44

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF TB 010	67,790	Stopgap $1385.54 Before:52.07 After:52.07	Stopgap $1662.02 Before:45.61 After:45.61	Stopgap $1995.8 Before:40.31 After:40.31	Stopgap $3366.86 Before:35.01 After:35.01	Stopgap $4912.99 Before:29.69 After:29.69
JRF TB 020	25,131	Stopgap $762.06 Before:39.85 After:39.85	Stopgap $1294.38 Before:34.55 After:34.55	Stopgap $1921.03 Before:29.25 After:29.25	Stopgap $3121.32 Before:23.95 After:23.95	Stopgap $4015.76 Before:18.63 After:18.63
JRF TB 030	11,067	Stopgap $226.19 Before:54.3 After:54.3	Stopgap $249.84 Before:47.7 After:47.7	Stopgap $305.88 Before:42.25 After:42.25	Stopgap $463.8 Before:36.95 After:36.95	Stopgap $699.04 Before:31.63 After:31.63
JRF TB 040	222,601	Stopgap $4727.52 Before:49.14 After:49.14	Stopgap $5935.25 Before:43.3 After:43.3	Stopgap $8396.21 Before:38 After:38	Stopgap $13109.25 Before:32.7 After:32.7	Stopgap $20765.1 Before:27.38 After:27.38
JRF TB 050	18,949	Stopgap $387.29 Before:52.07 After:52.07	Stopgap $464.57 Before:45.61 After:45.61	Stopgap $557.88 Before:40.31 After:40.31	Stopgap $941.12 Before:35.01 After:35.01	Stopgap $1373.3 Before:29.69 After:29.69
JRF TB 060	25,762	Stopgap $526.54 Before:52.07 After:52.07	Stopgap $631.61 Before:45.61 After:45.61	Stopgap $758.46 Before:40.31 After:40.31	Stopgap $1279.49 Before:35.01 After:35.01	Stopgap $1867.07 Before:29.69 After:29.69
JRF TB 070	86,817	Stopgap $1774.42 Before:55.05 After:55.05	Stopgap $1883.31 Before:48.65 After:48.65	Stopgap $2343.85 Before:42.94 After:42.94	Stopgap $3399.63 Before:37.64 After:37.64	Stopgap $5244.23 Before:32.32 After:32.32
JRF TB1 010	62,122	Stopgap $1269.69 Before:50.6 After:50.6	Stopgap $1591.15 Before:44.43 After:44.43	Stopgap $2062.67 Before:39.13 After:39.13	Stopgap $3377.96 Before:33.83 After:33.83	Stopgap $5162.45 Before:28.51 After:28.51
JRF TB1 020	87,519	Stopgap $1976.59 Before:47.69 After:47.69	Stopgap $2419.72 Before:42.24 After:42.24	Stopgap $3671.86 Before:36.94 After:36.94	Stopgap $5524.87 Before:31.64 After:31.64	Stopgap $9000.77 Before:26.32 After:26.32
JRF TB2 010	30,719	Stopgap $627.86 Before:52.07 After:52.07	Stopgap $753.14 Before:45.61 After:45.61	Stopgap $904.4 Before:40.31 After:40.31	Stopgap $1525.69 Before:35.01 After:35.01	Stopgap $2226.32 Before:29.69 After:29.69
JRF TB3 010	31,005	Stopgap $658.47 Before:49.14 After:49.14	Stopgap $826.69 Before:43.3 After:43.3	Stopgap $1169.47 Before:38 After:38	Stopgap $1825.92 Before:32.7 After:32.7	Stopgap $2892.27 Before:27.38 After:27.38
JRF TB4 011	9,817	Stopgap $524.05 Before:34.08 After:34.08	Stopgap $791.91 Before:28.78 After:28.78	Stopgap $1260.79 Before:23.48 After:23.48	Stopgap $1568.69 Before:18.18 After:18.18	Stopgap $1568.69 Before:12.86 After:12.86
JRF TB4 013	26,073	Do Nothing Before:91.37 After:91.37	Preventive $66.13 Before:88.76 After:89.2	Do Nothing Before:86.56 After:86.56	Do Nothing Before:83.97 After:83.97	Do Nothing Before:81.51 After:81.51
JRF TB4 020	20,569	Do Nothing Before:87.08 After:87.08	Do Nothing Before:84.48 After:84.48	Do Nothing Before:81.99 After:81.99	Do Nothing Before:79.68 After:79.68	Do Nothing Before:77.6 After:77.6
JRF TB4 030	35,427	Do Nothing Before:87.08 After:87.08	Do Nothing Before:84.48 After:84.48	Do Nothing Before:81.99 After:81.99	Do Nothing Before:79.68 After:79.68	Do Nothing Before:77.6 After:77.6
JRF TB4 040	40,674	Stopgap $3537.65 Before:28.08 After:28.08	Stopgap $5480.3 Before:22.78 After:22.78	Stopgap $6499.43 Before:17.48 After:17.48	Stopgap $6499.43 Before:12.18 After:12.18	Stopgap $7401.04 Before:6.86 After:6.86
JRF TB4 050	29,246	Stopgap $423.86 Before:62.91 After:62.91	Stopgap $597.75 Before:58.88 After:58.88	Stopgap $597.75 Before:53.57 After:53.57	Stopgap $681.98 Before:46.9 After:46.9	Stopgap $826.52 Before:41.58 After:41.58
JRF TB4 060	37,830	Stopgap $675.14 Before:61.27 After:61.27	Stopgap $773.19 Before:56.7 After:56.7	Stopgap $773.19 Before:50.76 After:50.76	Stopgap $964.74 Before:44.55 After:44.55	Stopgap $1240.98 Before:39.23 After:39.23
JRF TC 010	28,252	Do Nothing Before:73.07 After:73.07	Preventive $1463.27 Before:72.15 After:72.28	Do Nothing Before:71.6 After:71.6	Do Nothing Before:71.16 After:71.16	Do Nothing Before:70.93 After:70.93
JRF TC 020	42,792	Stopgap $874.61 Before:58.11 After:58.11	Stopgap $874.61 Before:52.58 After:52.58	Stopgap $1032.04 Before:46.04 After:46.04	Stopgap $1242.74 Before:40.74 After:40.74	Stopgap $2054.94 Before:35.42 After:35.42
JRF TC 030	20,714	Do Nothing Before:78.63 After:78.63	Preventive $698.17 Before:76.68 After:76.98	Do Nothing Before:75.27 After:75.27	Do Nothing Before:73.85 After:73.85	Do Nothing Before:72.73 After:72.73

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF TC 040	52,695	Stopgap $1077.02 Before:52.07 After:52.07	Stopgap $1291.93 Before:45.61 After:45.61	Stopgap $1551.39 Before:40.31 After:40.31	Stopgap $2617.15 Before:35.01 After:35.01	Stopgap $3819 Before:29.69 After:29.69
JRF TC 050	21,030	Do Nothing Before:76.94 After:76.94	Preventive $830.54 Before:75.23 After:75.49	Do Nothing Before:74.03 After:74.03	Do Nothing Before:72.87 After:72.87	Do Nothing Before:72 After:72
JRF TC 060	9,371	Do Nothing Before:68.35 After:68.35	Preventive $664.52 Before:66.46 After:66.82	Stopgap $110.3 Before:64.24 After:64.24	Stopgap $178.73 Before:60.67 After:60.67	Stopgap $191.53 Before:55.89 After:55.89
JRF TC 070	7,855	Do Nothing Before:79.51 After:79.51	Do Nothing Before:77.45 After:77.45	Do Nothing Before:75.66 After:75.66	Do Nothing Before:74.17 After:74.17	Do Nothing Before:72.98 After:72.98
JRF TC 080	21,749	Stopgap $461.9 Before:49.14 After:49.14	Stopgap $579.9 Before:43.3 After:43.3	Stopgap $820.34 Before:38 After:38	Stopgap $1280.83 Before:32.7 After:32.7	Stopgap $2028.83 Before:27.38 After:27.38
JRF TC 090	61,870	Stopgap $1264.54 Before:50.6 After:50.6	Stopgap $1584.7 Before:44.43 After:44.43	Stopgap $2054.3 Before:39.13 After:39.13	Stopgap $3364.25 Before:33.83 After:33.83	Stopgap $5141.51 Before:28.51 After:28.51
JRF TC 100	22,507	Stopgap $1111.56 Before:35.08 After:35.08	Stopgap $1612.76 Before:29.78 After:29.78	Stopgap $2687.73 Before:24.48 After:24.48	Stopgap $3596.47 Before:19.18 After:19.18	Stopgap $3596.47 Before:13.86 After:13.86
JRF TC 110	9,374	Do Nothing Before:76.94 After:76.94	Preventive $370.21 Before:75.23 After:75.49	Do Nothing Before:74.03 After:74.03	Do Nothing Before:72.87 After:72.87	Do Nothing Before:72 After:72
JRF TC 120	7,918	Do Nothing Before:72.39 After:72.39	Preventive $425.33 Before:71.67 After:71.77	Do Nothing Before:71.27 After:71.27	Do Nothing Before:70.98 After:70.98	Do Nothing Before:70.86 After:70.86
JRF TC 130	22,299	Do Nothing Before:71.21 After:71.21	Preventive $1261.01 Before:70.96 After:70.99	Do Nothing Before:70.87 After:70.87	Do Nothing Before:70.84 After:70.84	Do Nothing Before:70.77 After:70.77
JRF TC 140	50,319	Stopgap $1068.66 Before:49.14 After:49.14	Stopgap $1341.66 Before:43.3 After:43.3	Stopgap $1897.96 Before:38 After:38	Stopgap $2963.35 Before:32.7 After:32.7	Stopgap $4693.95 Before:27.38 After:27.38
JRF TC 150	232,055	Stopgap $5695.79 Before:45.58 After:45.58	Stopgap $6838.39 Before:40.28 After:40.28	Stopgap $11553.26 Before:34.98 After:34.98	Stopgap $16837.28 Before:29.68 After:29.68	Stopgap $27963.68 Before:24.36 After:24.36
JRF TC1 010	73,949	Do Nothing Before:76.94 After:76.94	Preventive $2920.47 Before:75.23 After:75.49	Do Nothing Before:74.03 After:74.03	Do Nothing Before:72.87 After:72.87	Do Nothing Before:72 After:72
JRF TC2 010	30,089	Stopgap $738.53 Before:45.58 After:45.58	Stopgap $886.69 Before:40.28 After:40.28	Stopgap $1498.03 Before:34.98 After:34.98	Stopgap $2183.18 Before:29.68 After:29.68	Do Nothing Before:24.36 After:24.36
JRF TC2 020	49,776	Stopgap $1017.36 Before:52.07 After:52.07	Stopgap $1220.36 Before:45.61 After:45.61	Stopgap $1465.45 Before:40.31 After:40.31	Stopgap $2472.17 Before:35.01 After:35.01	Stopgap $3607.45 Before:29.69 After:29.69
JRF TC2 030	47,512	Stopgap $1245.19 Before:43.79 After:43.79	Stopgap $1698.95 Before:38.49 After:38.49	Stopgap $2704.9 Before:33.19 After:33.19	Stopgap $4214.05 Before:27.89 After:27.89	Stopgap $6491.68 Before:22.57 After:22.57
JRF TC3 010	35,292	Stopgap $1461 Before:37.08 After:37.08	Stopgap $2208.23 Before:31.78 After:31.78	Stopgap $3578.41 Before:26.48 After:26.48	Stopgap $5264.01 Before:21.18 After:21.18	Do Nothing Before:15.86 After:15.86
JRF TC4 010	37,992	Stopgap $1082.17 Before:41.34 After:41.34	Stopgap $1730.55 Before:36.04 After:36.04	Stopgap $2534.94 Before:30.74 After:30.74	Stopgap $4208.31 Before:25.44 After:25.44	Do Nothing Before:20.12 After:20.12
JRF TC5 010	65,345	Stopgap $1335.56 Before:50.6 After:50.6	Stopgap $1673.71 Before:44.43 After:44.43	Stopgap $2169.69 Before:39.13 After:39.13	Stopgap $3553.21 Before:33.83 After:33.83	Stopgap $5430.29 Before:28.51 After:28.51

APPENDIX A.7.4 – UNLIMITED FUNDING BUDGET SCENARIO

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF A01 010	479,993	Major Below Critical $16824902.46 Before:35.4 After:100	Preventive $92775.34 Before:98.31 After:98.41	Preventive $131580 Before:96.84 After:96.94	Preventive $167218.57 Before:95.49 After:95.58	Preventive $200217.25 Before:94.24 After:94.33
JRF A01 030	1,238,412	Preventive $1333904.16 Before:82.24 After:82.28	Preventive $1372043.98 Before:81.68 After:81.72	Preventive $1415637.27 Before:81.04 After:81.09	Preventive $1463993.73 Before:80.33 After:80.38	Preventive $1518482.47 Before:79.53 After:79.59
JRF A01 040	196,106	Preventive $9969.35 Before:72.39 After:72.52	Preventive $10463.08 Before:71.76 After:71.85	Preventive $10807.42 Before:71.32 After:71.38	Preventive $11027.87 Before:71.04 After:71.08	Preventive $11137.18 Before:70.9 After:70.92
JRF A01 050	24,905	Major Below Critical $1796904.74 Before:14.54 After:100	Preventive $4813.76 Before:98.31 After:98.41	Preventive $6827.18 Before:96.84 After:96.94	Preventive $8676.33 Before:95.49 After:95.57	Preventive $10402.16 Before:94.23 After:94.31
JRF A01 060	149,726	Do Nothing Before:92.54 After:92.54	Preventive $9.74 Before:89.97 After:90.36	Preventive $694.11 Before:87.73 After:88.12	Preventive $1379.87 Before:85.49 After:85.88	Preventive $2047.55 Before:83.31 After:83.68
JRF A02 010	629,880	Major Below Critical $45446069.2 Before:28.54 After:100	Preventive $121746.22 Before:98.31 After:98.42	Preventive $172323.12 Before:96.85 After:96.95	Preventive $219090.52 Before:95.5 After:95.6	Preventive $262048.42 Before:94.26 After:94.34
JRF A02 020	100,323	Preventive $197113.41 Before:66.1 After:66.24	Major Below Critical $207982.76 Before:64.13 After:100	Preventive $19390.91 Before:98.31 After:98.42	Preventive $27446.45 Before:96.85 After:96.95	Preventive $34895.25 Before:95.5 After:95.59
JRF A02 031	22,153	Do Nothing Before:92.54 After:92.54	Preventive $1.44 Before:89.97 After:90.36	Preventive $102.7 Before:87.73 After:88.12	Preventive $204.16 Before:85.49 After:85.88	Preventive $302.95 Before:83.31 After:83.68
JRF A02 035	4,510	Do Nothing Before:99.09 After:99.09	Do Nothing Before:97.63 After:97.63	Do Nothing Before:95.68 After:95.68	Do Nothing Before:93.38 After:93.38	Do Nothing Before:90.86 After:90.86
JRF A02 041	20,867	Preventive $467.4 Before:79.51 After:79.83	Preventive $614.93 Before:77.74 After:78.03	Preventive $746.56 Before:76.16 After:76.42	Preventive $859.97 Before:74.8 After:75.02	Preventive $956.7 Before:73.64 After:73.83
JRF A02 045	4,567	Do Nothing Before:99.09 After:99.09	Do Nothing Before:97.63 After:97.63	Do Nothing Before:95.68 After:95.68	Do Nothing Before:93.38 After:93.38	Do Nothing Before:90.86 After:90.86
JRF A03 010	198,568	Do Nothing Before:91.37 After:91.37	Preventive $503.62 Before:88.76 After:89.17	Preventive $1407.55 Before:86.53 After:86.93	Preventive $2300.41 Before:84.33 After:84.73	Preventive $3158.22 Before:82.22 After:82.59
JRF A04 010	216,338	Major Below Critical $8495618.14 Before:24.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 010K	80,000	Preventive $102052.13 Before:78.63 After:78.7	Preventive $106276.62 Before:77.67 After:77.74	Preventive $110940.35 Before:76.61 After:76.69	Preventive $116044.08 Before:75.45 After:75.54	Preventive $121587.79 Before:74.19 After:74.29
JRF R11 010L	56,400	Preventive $68255.89 Before:79.82 After:79.88	Preventive $70892.52 Before:78.97 After:79.04	Preventive $73776.99 Before:78.04 After:78.11	Preventive $76941.27 Before:77.02 After:77.1	Preventive $80446.12 Before:75.89 After:75.98
JRF R11 010R	60,000	Preventive $68685.63 Before:81.01 After:81.07	Preventive $71028.46 Before:80.3 After:80.36	Preventive $73635.51 Before:79.51 After:79.58	Preventive $76506.21 Before:78.64 After:78.71	Preventive $79707.47 Before:77.67 After:77.74
JRF R11 020K	60,000	Preventive $1554.64 Before:78.63 After:79.03	Preventive $1938.14 Before:77.03 After:77.39	Preventive $2278.73 Before:75.61 After:75.93	Preventive $2570.81 Before:74.39 After:74.65	Preventive $2817.75 Before:73.36 After:73.58
JRF R11 020L	74,531	Preventive $3372.06 Before:73.79 After:74.03	Preventive $3643.49 Before:72.88 After:73.07	Preventive $3860.22 Before:72.15 After:72.3	Preventive $4021.55 Before:71.61 After:71.72	Preventive $4131.64 Before:71.24 After:71.31
JRF R11 020R	70,000	Preventive $980.03 Before:83.15 After:83.63	Preventive $1260.32 Before:81.19 After:81.64	Preventive $1609.55 Before:79.36 After:79.77	Preventive $2076.48 Before:77.69 After:78.06	Preventive $2499.18 Before:76.18 After:76.52
JRF R11 030K	66,600	Major Below Critical $541454.35 Before:44.66 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R11 030L	127,468	Major Below Critical $1009221.25 Before:62.91 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 030R	133,200	Major Below Critical $1082908.7 Before:58.11 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 040K	8,000	Preventive $96.32 Before:84.11 After:84.59	Preventive $129.32 Before:82.09 After:82.55	Preventive $160.24 Before:80.2 After:80.63	Preventive $213.01 Before:78.45 After:78.84	Preventive $263.84 Before:76.86 After:77.21
JRF R11 040L	16,000	Major Below Critical $137552.69 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 040R	16,000	Preventive $160.83 Before:85.08 After:85.57	Preventive $228.32 Before:83.02 After:83.49	Preventive $292.09 Before:81.07 After:81.51	Preventive $375.03 Before:79.25 After:79.66	Preventive $481.76 Before:77.58 After:77.95
JRF R11 050K	8,000	Major Below Critical $65039.56 Before:42.13 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 050L	16,000	Major Below Critical $275566.03 Before:37.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 050R	16,000	Major Below Critical $122613.43 Before:66.39 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 060K	4,822	Major Below Critical $39202.59 Before:40.59 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 060L	7,912	Major Below Critical $64324.13 Before:44.66 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 060R	3,340	Major Below Critical $27154.02 Before:47.69 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 070K	17,320	Major Below Critical $140810.65 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 070L	17,534	Major Below Critical $142550.46 Before:56.57 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 070R	23,716	Preventive $1317.57 Before:71.21 After:71.28	Preventive $1338.28 Before:70.99 After:71.03	Preventive $1348.85 Before:70.88 After:70.9	Preventive $1351.72 Before:70.85 After:70.85	Preventive $1352.6 Before:70.84 After:70.84
JRF R11 080K	10,346	Major Below Critical $406288.62 Before:29.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 080L	15,796	Major Below Critical $222863.55 Before:38.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 080R	7,911	Major Below Critical $64316 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 090	2,608	Major Below Critical $21202.9 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 100	2,608	Major Below Critical $26877.6 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 110K	13,336	Major Below Critical $478855.47 Before:31.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 110L	14,910	Major Below Critical $396083.07 Before:34.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R11 110R	17,597	Major Below Critical $467463.03 Before:34.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 120K	42,000	Major Below Critical $341457.7 Before:50.6 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 120L	49,000	Major Below Critical $398367.31 Before:59.67 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 120R	49,000	Major Below Critical $398367.31 Before:55.05 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 130K	60,000	Major Below Critical $1407054.67 Before:35.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 130L	70,000	Major Below Critical $569096.17 Before:56.57 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 130R	70,000	Major Below Critical $601793.02 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 140K	83,345	Major Below Critical $1435440.64 Before:37.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 140L	96,956	Major Below Critical $788246.95 Before:43.79 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 140R	97,022	Major Below Critical $1973126.08 Before:36.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 010K	49,500	Major Below Critical $1931539.3 Before:30.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 010L	57,750	Major Below Critical $994621.13 Before:37.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 010R	57,750	Major Below Critical $1354290.1 Before:35.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 020K	132,000	Major Below Critical $4328671.03 Before:32.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 020L	154,000	Major Below Critical $1323944.64 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 020R	154,000	Major Below Critical $1252011.57 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 030K	28,500	Major Below Critical $1023348.9 Before:31.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 030L	33,600	Major Below Critical $683319.62 Before:36.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 030R	33,600	Major Below Critical $787950.59 Before:35.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 040K	60,000	Major Below Critical $515822.59 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 040L	70,951	Major Below Critical $1663865.55 Before:35.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R4L 040R	69,042	Major Below Critical $1189101.84 Before:37.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 010K	50,000	Major Below Critical $110476.58 Before:61.65 After:100	Preventive $9664.24 Before:98.31 After:98.42	Preventive $13679.04 Before:96.85 After:96.96	Preventive $17364.04 Before:95.51 After:95.61	Preventive $20774.05 Before:94.27 After:94.36
JRF R4R 010L	75,000	Preventive $90765.81 Before:79.82 After:79.88	Preventive $94271.97 Before:78.97 After:79.04	Preventive $98107.7 Before:78.04 After:78.11	Preventive $102315.51 Before:77.02 After:77.1	Preventive $106976.23 Before:75.89 After:75.98
JRF R4R 010R	75,000	Preventive $119474.94 Before:72.86 After:72.97	Preventive $125538.26 Before:71.39 After:71.51	Major Below Critical $132096.98 Before:69.8 After:100	Preventive $14496.36 Before:98.31 After:98.42	Preventive $20518.57 Before:96.85 After:96.96
JRF R4R 020K	15,000	Major Below Critical $121949.18 Before:58.11 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 020L	22,500	Major Below Critical $182923.76 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 020R	22,500	Major Below Critical $317449.34 Before:38.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 030K	115,940	Major Below Critical $942585.83 Before:59.67 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 030L	171,155	Major Below Critical $1394716.46 Before:43.79 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 030R	176,269	Major Below Critical $3584763.88 Before:36.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 040K	11,193	Major Below Critical $90998.47 Before:59.67 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 040L	16,790	Major Below Critical $136501.78 Before:55.05 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 040R	16,790	Major Below Critical $136501.78 Before:53.55 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 050K	28,025	Preventive $1495.25 Before:71.76 After:71.88	Preventive $1542.38 Before:71.34 After:71.42	Preventive $1573.62 Before:71.06 After:71.11	Preventive $1590.54 Before:70.91 After:70.94	Preventive $1597.31 Before:70.85 After:70.86
JRF R4R 050L	44,395	Major Below Critical $360928.91 Before:56.57 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 050R	39,680	Major Below Critical $322596.22 Before:59.67 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 060K	146,246	Major Below Critical $1139740.54 Before:64.61 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 060L	219,369	Major Below Critical $1783457.91 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 060R	219,368	Major Below Critical $1783449.78 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 070K	50,000	Preventive $2541.83 Before:72.39 After:72.56	Preventive $2661.67 Before:71.79 After:71.91	Preventive $2749.93 Before:71.35 After:71.44	Preventive $2805.67 Before:71.07 After:71.13	Preventive $2835.4 Before:70.92 After:70.94
JRF R4R 070L	75,000	Major Below Critical $609745.88 Before:45.58 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R4R 070R	75,000	Major Below Critical $609745.88 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF STA 010	6,322	Major Below Critical $31357.71 Before:36.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF STA 020	69,087	Major Below Critical $513343.02 Before:5.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF STC 010	18,807	Major Below Critical $93284.47 Before:33.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 010K	90,000	Major Below Critical $1830320.46 Before:36.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 010L	105,000	Major Below Critical $902689.53 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 010R	105,000	Major Below Critical $853644.25 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 020K	93,000	Major Below Critical $2470538.32 Before:34.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 020L	108,500	Major Below Critical $2544423.85 Before:35.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 020R	108,500	Major Below Critical $882099.06 Before:40.59 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 030K	15,074	Major Below Critical $494321.1 Before:32.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 030L	15,294	Major Below Critical $501535.55 Before:32.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 030R	19,894	Major Below Critical $528482.67 Before:34.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 040K	13,440	Major Below Critical $109266.46 Before:40.59 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 040L	15,680	Major Below Critical $127477.54 Before:40.59 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 040R	15,680	Major Below Critical $172399.14 Before:39.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 050K	17,982	Major Below Critical $154592.03 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 050L	23,273	Major Below Critical $189208.22 Before:40.59 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 050R	18,698	Major Below Critical $496711.01 Before:34.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA1 010	82,390	Preventive $146608.58 Before:69.47 After:69.58	Preventive $154538.42 Before:67.72 After:67.85	Preventive $162966.55 Before:65.86 After:65.99	Preventive $172029.21 Before:63.86 After:64	Preventive $181726.42 Before:61.72 After:61.87
JRF TA1 020	4,908	Major Below Critical $39901.77 Before:42.94 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF TA2 010	36,831	Major Below Critical $299434.01 Before:44.66 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 010	67,790	Major Below Critical $551128.99 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 020	25,131	Major Below Critical $216052.29 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 030	11,067	Major Below Critical $89974.1 Before:54.3 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 040	222,601	Major Below Critical $1809733.89 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 050	18,949	Major Below Critical $154054.33 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 060	25,762	Major Below Critical $209443.64 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 070	86,817	Major Below Critical $705817.44 Before:55.05 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB1 010	62,122	Major Below Critical $505048.46 Before:50.6 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB1 020	87,519	Major Below Critical $711524.68 Before:47.69 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB2 010	30,719	Major Below Critical $249743.79 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB3 010	31,005	Major Below Critical $252068.95 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB4 011	9,817	Major Below Critical $260787.89 Before:34.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB4 013	26,073	Do Nothing Before:91.37 After:91.37	Preventive $66.13 Before:88.76 After:89.2	Preventive $183.37 Before:86.56 After:86.99	Preventive $298.91 Before:84.39 After:84.81	Preventive $410.33 Before:82.3 After:82.7
JRF TB4 020	20,569	Preventive $122.68 Before:87.08 After:87.51	Preventive $214.41 Before:84.9 After:85.32	Preventive $303.07 Before:82.79 After:83.19	Preventive $387.15 Before:80.79 After:81.17	Preventive $508.31 Before:78.93 After:79.28
JRF TB4 030	35,427	Preventive $211.3 Before:87.08 After:87.51	Preventive $369.28 Before:84.9 After:85.32	Preventive $522 Before:82.79 After:83.19	Preventive $666.81 Before:80.79 After:81.17	Preventive $875.48 Before:78.93 After:79.28
JRF TB4 040	40,674	Major Below Critical $1597272.66 Before:28.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB4 050	29,246	Major Below Critical $231553.68 Before:62.91 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB4 060	37,830	Major Below Critical $304047.63 Before:61.27 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 010	28,252	Preventive $1359.59 Before:73.07 After:73.25	Preventive $1448.83 Before:72.28 After:72.42	Preventive $1515.24 Before:71.69 After:71.79	Preventive $1561.69 Before:71.28 After:71.35	Preventive $1590.83 Before:71.02 After:71.06
JRF TC 020	42,792	Major Below Critical $347896.61 Before:58.11 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF TC 030	20,714	Preventive $536.71 Before:78.63 After:78.98	Preventive $673.35 Before:76.98 After:77.29	Preventive $793.24 Before:75.53 After:75.8	Preventive $896.77 Before:74.28 After:74.51	Preventive $982.79 Before:73.24 After:73.43
JRF TC 040	52,695	Major Below Critical $428407.45 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 050	21,030	Preventive $686.94 Before:76.94 After:77.25	Preventive $808.66 Before:75.49 After:75.76	Preventive $912.79 Before:74.25 After:74.48	Preventive $999.34 Before:73.22 After:73.41	Preventive $1068.31 Before:72.4 After:72.54
JRF TC 060	9,371	Preventive $611.85 Before:68.35 After:68.6	Preventive $654.51 Before:66.82 After:67.16	Major Below Critical $72949.02 Before:64.73 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42
JRF TC 070	7,855	Preventive $175.94 Before:79.51 After:79.87	Preventive $230.53 Before:77.77 After:78.1	Preventive $279.13 Before:76.22 After:76.51	Preventive $321.53 Before:74.87 After:75.12	Preventive $357.29 Before:73.73 After:73.93
JRF TC 080	21,749	Major Below Critical $176818.17 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 090	61,870	Major Below Critical $502999.7 Before:50.6 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 100	22,507	Major Below Critical $527809.64 Before:35.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 110	9,374	Preventive $306.2 Before:76.94 After:77.25	Preventive $360.45 Before:75.49 After:75.76	Preventive $406.87 Before:74.25 After:74.48	Preventive $445.45 Before:73.22 After:73.41	Preventive $476.19 Before:72.4 After:72.54
JRF TC 120	7,918	Preventive $402.52 Before:72.39 After:72.53	Preventive $422.16 Before:71.77 After:71.88	Preventive $436.07 Before:71.33 After:71.41	Preventive $444.97 Before:71.05 After:71.1	Preventive $449.38 Before:70.91 After:70.93
JRF TC 130	22,299	Preventive $1238.84 Before:71.21 After:71.27	Preventive $1258.32 Before:70.99 After:71.02	Preventive $1268.26 Before:70.88 After:70.89	Preventive $1270.95 Before:70.85 After:70.85	Preventive $1271.78 Before:70.84 After:70.84
JRF TC 140	50,319	Major Below Critical $409090.71 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 150	232,055	Major Below Critical $1886594.39 Before:45.58 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC1 010	73,949	Preventive $2415.52 Before:76.94 After:77.25	Preventive $2843.53 Before:75.49 After:75.76	Preventive $3209.7 Before:74.25 After:74.48	Preventive $3514.05 Before:73.22 After:73.41	Preventive $3756.56 Before:72.4 After:72.54
JRF TC2 010	30,089	Major Below Critical $244621.92 Before:45.58 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC2 020	49,776	Major Below Critical $404676.15 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC2 030	47,512	Major Below Critical $386269.96 Before:43.79 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC3 010	35,292	Major Below Critical $607829.77 Before:37.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC4 010	37,992	Major Below Critical $308872.88 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC5 010	65,345	Major Below Critical $531251.26 Before:50.6 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

APPENDIX A.7.5 - BACKLOG ELIMINATION BUDGET SCENARIO

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF A01 010	479,993	Stopgap $185880.66 Before:35.4 After:35.4	Stopgap $219811.33 Before:31.67 After:31.67	Stopgap $262780.96 Before:28.01 After:28.01	Major Below Critical $34631667.23 Before:24.35 After:100	Preventive $93038.44 Before:98.3 After:98.41
JRF A01 030	1,238,412	Preventive $1333904.16 Before:82.24 After:82.28	Preventive $1372043.98 Before:81.68 After:81.72	Preventive $1415637.27 Before:81.04 After:81.09	Preventive $1463993.73 Before:80.33 After:80.38	Preventive $1518482.47 Before:79.53 After:79.59
JRF A01 040	196,106	Preventive $9969.35 Before:72.39 After:72.52	Preventive $10463.08 Before:71.76 After:71.85	Preventive $10807.42 Before:71.32 After:71.38	Preventive $11027.87 Before:71.04 After:71.08	Preventive $11137.18 Before:70.9 After:70.92
JRF A01 050	24,905	Stopgap $25954.26 Before:14.54 After:14.54	Major Below Critical $1796904.74 Before:10.88 After:100	Preventive $4813.76 Before:98.31 After:98.41	Preventive $6827.18 Before:96.84 After:96.94	Preventive $8689.98 Before:95.48 After:95.57
JRF A01 060	149,726	Do Nothing Before:92.54 After:92.54	Preventive $9.74 Before:89.97 After:90.36	Preventive $694.11 Before:87.73 After:88.12	Preventive $1379.87 Before:85.49 After:85.88	Preventive $2047.55 Before:83.31 After:83.68
JRF A02 010	629,880	Stopgap $335131.26 Before:28.54 After:28.54	Stopgap $402169.21 Before:24.88 After:24.88	Major Below Critical $45446069.2 Before:21.22 After:100	Preventive $121746.22 Before:98.31 After:98.42	Preventive $172668.38 Before:96.84 After:96.95
JRF A02 020	100,323	Preventive $197113.41 Before:66.1 After:66.24	Major Below Critical $207982.76 Before:64.13 After:100	Preventive $19390.91 Before:98.31 After:98.42	Preventive $27446.45 Before:96.85 After:96.95	Preventive $34895.25 Before:95.5 After:95.59
JRF A02 031	22,153	Do Nothing Before:92.54 After:92.54	Preventive $1.44 Before:89.97 After:90.36	Preventive $102.7 Before:87.73 After:88.12	Preventive $204.16 Before:85.49 After:85.88	Preventive $302.95 Before:83.31 After:83.68
JRF A02 035	4,510	Do Nothing Before:99.09 After:99.09	Do Nothing Before:97.63 After:97.63	Do Nothing Before:95.68 After:95.68	Do Nothing Before:93.38 After:93.38	Do Nothing Before:90.86 After:90.86
JRF A02 041	20,867	Preventive $467.4 Before:79.51 After:79.83	Preventive $614.93 Before:77.74 After:78.03	Preventive $746.56 Before:76.16 After:76.42	Preventive $859.97 Before:74.8 After:75.02	Preventive $956.7 Before:73.64 After:73.83
JRF A02 045	4,567	Do Nothing Before:99.09 After:99.09	Do Nothing Before:97.63 After:97.63	Do Nothing Before:95.68 After:95.68	Do Nothing Before:93.38 After:93.38	Do Nothing Before:90.86 After:90.86
JRF A03 010	198,568	Do Nothing Before:91.37 After:91.37	Preventive $503.62 Before:88.76 After:89.17	Preventive $1407.55 Before:86.53 After:86.93	Preventive $2300.41 Before:84.33 After:84.73	Preventive $3158.22 Before:82.22 After:82.59
JRF A04 010	216,338	Stopgap $26614.38 Before:24.08 After:24.08	Stopgap $34569.35 Before:18.78 After:18.78	Stopgap $34569.35 Before:13.48 After:13.48	Major Below Critical $8495618.14 Before:8.18 After:100	Do Nothing Before:99.57 After:99.57
JRF R11 010K	80,000	Preventive $102052.13 Before:78.63 After:78.7	Preventive $106276.62 Before:77.67 After:77.74	Preventive $110940.35 Before:76.61 After:76.69	Preventive $116044.08 Before:75.45 After:75.54	Preventive $121587.79 Before:74.19 After:74.29
JRF R11 010L	56,400	Preventive $68255.89 Before:79.82 After:79.88	Preventive $70892.52 Before:78.97 After:79.04	Preventive $73776.99 Before:78.04 After:78.11	Preventive $76941.27 Before:77.02 After:77.1	Preventive $80446.12 Before:75.89 After:75.98
JRF R11 010R	60,000	Preventive $68685.63 Before:81.01 After:81.07	Preventive $71028.46 Before:80.3 After:80.36	Preventive $73635.51 Before:79.51 After:79.58	Preventive $76506.21 Before:78.64 After:78.71	Preventive $79707.47 Before:77.67 After:77.74
JRF R11 020K	60,000	Preventive $1554.64 Before:78.63 After:79.03	Preventive $1938.14 Before:77.03 After:77.39	Preventive $2278.73 Before:75.61 After:75.93	Preventive $2570.81 Before:74.39 After:74.65	Preventive $2817.75 Before:73.36 After:73.58
JRF R11 020L	74,531	Preventive $3372.06 Before:73.79 After:74.03	Preventive $3643.49 Before:72.88 After:73.07	Preventive $3860.22 Before:72.15 After:72.3	Preventive $4021.55 Before:71.61 After:71.72	Preventive $4131.64 Before:71.24 After:71.31
JRF R11 020R	70,000	Preventive $980.03 Before:83.15 After:83.63	Preventive $1260.32 Before:81.19 After:81.64	Preventive $1609.55 Before:79.36 After:79.77	Preventive $2076.48 Before:77.69 After:78.06	Preventive $2499.18 Before:76.18 After:76.52
JRF R11 030K	66,600	Major Below Critical $541454.35 Before:44.66 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 030L	127,468	Major Below Critical $1009221.25 Before:62.91 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R11 030R	133,200	Major Below Critical $1082908.7 Before:58.11 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 040K	8,000	Preventive $96.32 Before:84.11 After:84.59	Preventive $129.32 Before:82.09 After:82.55	Preventive $160.24 Before:80.2 After:80.63	Preventive $213.01 Before:78.45 After:78.84	Preventive $263.84 Before:76.86 After:77.21
JRF R11 040L	16,000	Major Below Critical $137552.69 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 040R	16,000	Preventive $160.83 Before:85.08 After:85.57	Preventive $228.32 Before:83.02 After:83.49	Preventive $292.09 Before:81.07 After:81.51	Preventive $375.03 Before:79.25 After:79.66	Preventive $481.76 Before:77.58 After:77.95
JRF R11 050K	8,000	Major Below Critical $65039.56 Before:42.13 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 050L	16,000	Major Below Critical $275566.03 Before:37.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 050R	16,000	Major Below Critical $122613.43 Before:66.39 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 060K	4,822	Major Below Critical $39202.59 Before:40.59 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 060L	7,912	Major Below Critical $64324.13 Before:44.66 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 060R	3,340	Major Below Critical $27154.02 Before:47.69 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 070K	17,320	Major Below Critical $140810.65 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 070L	17,534	Major Below Critical $142550.46 Before:56.57 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 070R	23,716	Preventive $1317.57 Before:71.21 After:71.28	Preventive $1338.28 Before:70.99 After:71.03	Preventive $1348.85 Before:70.88 After:70.9	Preventive $1351.72 Before:70.85 After:70.85	Preventive $1352.6 Before:70.84 After:70.84
JRF R11 080K	10,346	Major Below Critical $406288.62 Before:29.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 080L	15,796	Major Below Critical $222863.55 Before:38.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 080R	7,911	Major Below Critical $64316 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 090	2,608	Major Below Critical $21202.9 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 100	2,608	Major Below Critical $26877.6 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 110K	13,336	Major Below Critical $478855.47 Before:31.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 110L	14,910	Major Below Critical $396083.07 Before:34.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 110R	17,597	Major Below Critical $467463.03 Before:34.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R11 120K	42,000	Major Below Critical $341457.7 Before:50.6 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 120L	49,000	Major Below Critical $398367.31 Before:59.67 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 120R	49,000	Major Below Critical $398367.31 Before:55.05 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 130K	60,000	Major Below Critical $1407054.67 Before:35.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 130L	70,000	Major Below Critical $569096.17 Before:56.57 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 130R	70,000	Major Below Critical $601793.02 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 140K	83,345	Major Below Critical $1435440.64 Before:37.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 140L	96,956	Major Below Critical $788246.95 Before:43.79 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R11 140R	97,022	Major Below Critical $1973126.08 Before:36.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4L 010K	49,500	Stopgap $3433.39 Before:30.08 After:30.08	Major Below Critical $1943870.72 Before:24.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 010L	57,750	Stopgap $2390.71 Before:37.08 After:37.08	Major Below Critical $1947743.9 Before:31.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 010R	57,750	Stopgap $2852.11 Before:35.08 After:35.08	Major Below Critical $2267849.17 Before:29.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 020K	132,000	Stopgap $8101.07 Before:32.08 After:32.08	Major Below Critical $5183655.31 Before:26.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 020L	154,000	Stopgap $4669.83 Before:39.85 After:39.85	Major Below Critical $3865606.81 Before:34.55 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 020R	154,000	Stopgap $4386.55 Before:41.34 After:41.34	Major Below Critical $3151063.17 Before:36.04 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 030K	28,500	Stopgap $1862.95 Before:31.08 After:31.08	Major Below Critical $1119198.29 Before:25.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 030L	33,600	Stopgap $1525.19 Before:36.08 After:36.08	Major Below Critical $1237863.77 Before:30.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 030R	33,600	Stopgap $1659.41 Before:35.08 After:35.08	Major Below Critical $1319475.86 Before:29.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 040K	60,000	Stopgap $1819.41 Before:39.85 After:39.85	Major Below Critical $1506080.58 Before:34.55 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 040L	70,951	Stopgap $3504.08 Before:35.08 After:35.08	Major Below Critical $2786253.93 Before:29.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF R4L 040R	69,042	Stopgap $2858.17 Before:37.08 After:37.08	Major Below Critical $2328591.04 Before:31.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF R4R 010K	50,000	Major Below Critical $110476.58 Before:61.65 After:100	Preventive $9664.24 Before:98.31 After:98.42	Preventive $13679.04 Before:96.85 After:96.96	Preventive $17364.04 Before:95.51 After:95.61	Preventive $20774.05 Before:94.27 After:94.36
JRF R4R 010L	75,000	Preventive $90765.81 Before:79.82 After:79.88	Preventive $94271.97 Before:78.97 After:79.04	Preventive $98107.7 Before:78.04 After:78.11	Preventive $102315.51 Before:77.02 After:77.1	Preventive $106976.23 Before:75.89 After:75.98
JRF R4R 010R	75,000	Preventive $119474.94 Before:72.86 After:72.97	Preventive $125538.26 Before:71.39 After:71.51	Major Below Critical $132096.98 Before:69.8 After:100	Preventive $14496.36 Before:98.31 After:98.42	Preventive $20518.57 Before:96.85 After:96.96
JRF R4R 020K	15,000	Major Below Critical $121949.18 Before:58.11 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 020L	22,500	Major Below Critical $182923.76 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 020R	22,500	Major Below Critical $317449.34 Before:38.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 030K	115,940	Major Below Critical $942585.83 Before:59.67 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 030L	171,155	Major Below Critical $1394716.46 Before:43.79 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 030R	176,269	Major Below Critical $3584763.88 Before:36.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 040K	11,193	Major Below Critical $90998.47 Before:59.67 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 040L	16,790	Major Below Critical $136501.78 Before:55.05 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 040R	16,790	Major Below Critical $136501.78 Before:53.55 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 050K	28,025	Preventive $1495.25 Before:71.76 After:71.88	Preventive $1542.38 Before:71.34 After:71.42	Preventive $1573.62 Before:71.06 After:71.11	Preventive $1590.54 Before:70.91 After:70.94	Preventive $1597.31 Before:70.85 After:70.86
JRF R4R 050L	44,395	Major Below Critical $360928.91 Before:56.57 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 050R	39,680	Major Below Critical $322596.22 Before:59.67 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 060K	146,246	Major Below Critical $1139740.54 Before:64.61 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 060L	219,369	Major Below Critical $1783457.91 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 060R	219,368	Major Below Critical $1783449.78 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 070K	50,000	Preventive $2541.83 Before:72.39 After:72.56	Preventive $2661.67 Before:71.79 After:71.91	Preventive $2749.93 Before:71.35 After:71.44	Preventive $2805.67 Before:71.07 After:71.13	Preventive $2835.4 Before:70.92 After:70.94
JRF R4R 070L	75,000	Major Below Critical $609745.88 Before:45.58 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF R4R 070R	75,000	Major Below Critical $609745.88 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF STA 010	6,322	Major Below Critical $31357.71 Before:36.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF STA 020	69,087	Stopgap $13439.47 Before:5.08 After:5.08	Major Below Critical $513343.02 Before:0 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF STC 010	18,807	Major Below Critical $93284.47 Before:33.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 010K	90,000	Major Below Critical $1830320.46 Before:36.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 010L	105,000	Major Below Critical $902689.53 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 010R	105,000	Major Below Critical $853644.25 Before:41.34 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 020K	93,000	Stopgap $4964.53 Before:34.08 After:34.08	Major Below Critical $3652120.79 Before:28.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF TA 020L	108,500	Stopgap $5358.52 Before:35.08 After:35.08	Major Below Critical $4260807.58 Before:29.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF TA 020R	108,500	Major Below Critical $882099.06 Before:40.59 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 030K	15,074	Stopgap $925.12 Before:32.08 After:32.08	Major Below Critical $591957.71 Before:26.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF TA 030L	15,294	Stopgap $938.62 Before:32.08 After:32.08	Major Below Critical $600597.14 Before:26.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF TA 030R	19,894	Major Below Critical $528482.67 Before:34.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 040K	13,440	Major Below Critical $109266.46 Before:40.59 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 040L	15,680	Major Below Critical $127477.54 Before:40.59 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 040R	15,680	Major Below Critical $172399.14 Before:39.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 050K	17,982	Major Below Critical $154592.03 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 050L	23,273	Major Below Critical $189208.22 Before:40.59 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA 050R	18,698	Stopgap $998.14 Before:34.08 After:34.08	Major Below Critical $734272.61 Before:28.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF TA1 010	82,390	Preventive $146608.58 Before:69.47 After:69.58	Preventive $154538.42 Before:67.72 After:67.85	Preventive $162966.55 Before:65.86 After:65.99	Preventive $172029.21 Before:63.86 After:64	Preventive $181726.42 Before:61.72 After:61.87
JRF TA1 020	4,908	Major Below Critical $39901.77 Before:42.94 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TA2 010	36,831	Major Below Critical $299434.01 Before:44.66 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF TB 010	67,790	Major Below Critical $551128.99 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 020	25,131	Major Below Critical $216052.29 Before:39.85 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 030	11,067	Major Below Critical $89974.1 Before:54.3 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 040	222,601	Major Below Critical $1809733.89 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 050	18,949	Major Below Critical $154054.33 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 060	25,762	Major Below Critical $209443.64 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB 070	86,817	Major Below Critical $705817.44 Before:55.05 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB1 010	62,122	Major Below Critical $505048.46 Before:50.6 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB1 020	87,519	Major Below Critical $711524.68 Before:47.69 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB2 010	30,719	Major Below Critical $249743.79 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB3 010	31,005	Major Below Critical $252068.95 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB4 011	9,817	Major Below Critical $260787.89 Before:34.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB4 013	26,073	Do Nothing Before:91.37 After:91.37	Preventive $66.13 Before:88.76 After:89.2	Preventive $183.37 Before:86.56 After:86.99	Preventive $298.91 Before:84.39 After:84.81	Preventive $410.33 Before:82.3 After:82.7
JRF TB4 020	20,569	Preventive $122.68 Before:87.08 After:87.51	Preventive $214.41 Before:84.9 After:85.32	Preventive $303.07 Before:82.79 After:83.19	Preventive $387.15 Before:80.79 After:81.17	Preventive $508.31 Before:78.93 After:79.28
JRF TB4 030	35,427	Preventive $211.3 Before:87.08 After:87.51	Preventive $369.28 Before:84.9 After:85.32	Preventive $522 Before:82.79 After:83.19	Preventive $666.81 Before:80.79 After:81.17	Preventive $875.48 Before:78.93 After:79.28
JRF TB4 040	40,674	Stopgap $3537.65 Before:28.08 After:28.08	Major Below Critical $1597272.66 Before:22.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF TB4 050	29,246	Major Below Critical $231553.68 Before:62.91 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TB4 060	37,830	Major Below Critical $304047.63 Before:61.27 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 010	28,252	Preventive $1359.59 Before:73.07 After:73.25	Preventive $1448.83 Before:72.28 After:72.42	Preventive $1515.24 Before:71.69 After:71.79	Preventive $1561.69 Before:71.28 After:71.35	Preventive $1590.83 Before:71.02 After:71.06
JRF TC 020	42,792	Major Below Critical $347896.61 Before:58.11 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 030	20,714	Preventive $536.71 Before:78.63 After:78.98	Preventive $673.35 Before:76.98 After:77.29	Preventive $793.24 Before:75.53 After:75.8	Preventive $896.77 Before:74.28 After:74.51	Preventive $982.79 Before:73.24 After:73.43

Network/ Branch/ Section	Section Area (SF)	2016	2017	2018	2019	2020
JRF TC 040	52,695	Major Below Critical $428407.45 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 050	21,030	Preventive $686.94 Before:76.94 After:77.25	Preventive $808.66 Before:75.49 After:75.76	Preventive $912.79 Before:74.25 After:74.48	Preventive $999.34 Before:73.22 After:73.41	Preventive $1068.31 Before:72.4 After:72.54
JRF TC 060	9,371	Preventive $611.85 Before:68.35 After:68.6	Preventive $654.51 Before:66.82 After:67.16	Major Below Critical $72949.02 Before:64.73 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42
JRF TC 070	7,855	Preventive $175.94 Before:79.51 After:79.87	Preventive $230.53 Before:77.77 After:78.1	Preventive $279.13 Before:76.22 After:76.51	Preventive $321.53 Before:74.87 After:75.12	Preventive $357.29 Before:73.73 After:73.93
JRF TC 080	21,749	Major Below Critical $176818.17 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 090	61,870	Major Below Critical $502999.7 Before:50.6 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 100	22,507	Major Below Critical $527809.64 Before:35.08 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 110	9,374	Preventive $306.2 Before:76.94 After:77.25	Preventive $360.45 Before:75.49 After:75.76	Preventive $406.87 Before:74.25 After:74.48	Preventive $445.45 Before:73.22 After:73.41	Preventive $476.19 Before:72.4 After:72.54
JRF TC 120	7,918	Preventive $402.52 Before:72.39 After:72.53	Preventive $422.16 Before:71.77 After:71.88	Preventive $436.07 Before:71.33 After:71.41	Preventive $444.97 Before:71.05 After:71.1	Preventive $449.38 Before:70.91 After:70.93
JRF TC 130	22,299	Preventive $1238.84 Before:71.21 After:71.27	Preventive $1258.32 Before:70.99 After:71.02	Preventive $1268.26 Before:70.88 After:70.89	Preventive $1270.95 Before:70.85 After:70.85	Preventive $1271.78 Before:70.84 After:70.84
JRF TC 140	50,319	Major Below Critical $409090.71 Before:49.14 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC 150	232,055	Major Below Critical $1886594.39 Before:45.58 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC1 010	73,949	Preventive $2415.52 Before:76.94 After:77.25	Preventive $2843.53 Before:75.49 After:75.76	Preventive $3209.7 Before:74.25 After:74.48	Preventive $3514.05 Before:73.22 After:73.41	Preventive $3756.56 Before:72.4 After:72.54
JRF TC2 010	30,089	Stopgap $738.53 Before:45.58 After:45.58	Major Below Critical $244621.92 Before:40.28 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF TC2 020	49,776	Major Below Critical $404676.15 Before:52.07 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC2 030	47,512	Major Below Critical $386269.96 Before:43.79 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55
JRF TC3 010	35,292	Stopgap $1461 Before:37.08 After:37.08	Major Below Critical $1190299.19 Before:31.78 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF TC4 010	37,992	Stopgap $1082.17 Before:41.34 After:41.34	Major Below Critical $777371.37 Before:36.04 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.69 After:96.69
JRF TC5 010	65,345	Major Below Critical $531251.26 Before:50.6 After:100	Do Nothing Before:99.58 After:99.58	Do Nothing Before:98.42 After:98.42	Do Nothing Before:96.7 After:96.7	Do Nothing Before:94.55 After:94.55

APPENDIX B

Kalaeloa Airport Infrastructure Improvements – Project Definition Report

KALAELOA AIRPORT:

INFRASTRUCTURE IMPROVEMENTS

Preliminary Report
August 2021

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY 1
II. EXISTING CONDITIONS 3
III. PROJECT DESCRIPTION 8
IV. PROJECT JUSTIFICATION 10
V. SPECIAL REQUIREMENTS (N/A= not applicable) 10
VI. SITE SELECTION BASIS (N/A= not applicable) 11
VII. ENVIRONMENTAL (N/A= not applicable) 11
VIII. COST ESTIMATE 12
VIII. PROJECT SCHEDULE 13
IX. BENEFIT-COST ANALYSIS 13
IX. PROJECTED OPERATIONS AND MAINTENANCE COSTS 14
X. MINUTES OF MEETING 14

APPENDICES

A. Project Definition Checklist
B. Meeting Minutes

I. EXECUTIVE SUMMARY

Current Situation

Currently the water, sewer, and electrical infrastructure servicing within the Kalaeloa Airport is the original system installed for the Barbers Point Naval Air Station. The majority of the existing water, sewer and electrical infrastructure were initially installed in the 1930s. Over time the water, sewer and electrical infrastructure have been requiring repair.

The existing electrical system for the Kalaeloa Airport is fed from the existing Navy 11.5kV and 4.16kV Electrical Distribution system. The Navy no longer has an active military mission at Kalaeloa therefore the Navy will be discontinuing operations, and maintenance of the existing Navy Electrical System. Tenants in Kalaeloa were advised of the Navy's decision and need to accommodate other means of electrical service to their property.

Kalaeloa Water Company (KWC) owns and operates the existing water and sewer systems at Kalaeloa. The existing water lines are located under airport apron. KWC has requested a review of the water meters, backflow preventers, and easement design for the existing Airport water system.

The sewer system within Kalaeloa Airport consists or truck sewer lines owned by KWC and small DOTA owned sewer lateral that connect to the KWC sewer lines. DOTA has requested KWC to remove all their lines from Airport property.

Recommendations

The recommendation is to replace the Barbers Point NAS water, sewer, and electrical infrastructure under the jurisdiction of DOT Airports.

Replace existing water mains and address KWC concerns with meters, backflow preventers, and easement.

Replace existing DOTA sewer mains and remove sewer lateral connections to KWC sewer lines located on Airport Property. Provide sewer pump stations to connect to KWC sewer lines located in Midway Road.

HCDA completed a project installing Hawaiian Electric Company (HECO), Hawaiian Telcom (HTCO) and Charter Communications (Charter) duct lines on Enterprise Street and Midway Road, terminating in front of Hangar 111. Our recommendation is to extend the HECO duct lines down Midway Street, to approximately Boxer Road, to provide connection points along Kalaeloa Airport property to transfer electrical service from the Navy Electrical Distribution system to HECO. Since HECO duct lines will be extended, we recommend extending HTCO and Charter duct lines as well to provide communication service connection points along Midway Road. New infrastructure will include duct lines, handholes/manholes, HECO meters, switchgear and transformers. Additional switchboard may also be necessary to replace existing deteriorating equipment.

Estimated Project Costs:

Item	Description	Cost
1	Replace Water Infrastructure	$ 3,000,000
2	Replace Sewer Infrastructure	$ 1,720,000
3	Replace Electrical Infrastructure	$ 8,400,000
4	**Total Items 1-3**	$ 13,120,000
5	Contingency @ 20%	$ 2,624,000
6	**Total**	$ 15,744,000

Funding Sources

- Design: 100% State
- Construction: 100% State

II. EXISTING CONDITIONS

Kalaeloa Airport, formerly a portion of Barber's Point Naval Air Station (BPNAS), was owned and maintained by the US Navy. The facility was originally constructed in the 1930's. In 1999, BPNAS was turned over to the State and Department of Transportation (DOT) took ownership of the airfield. Easements was created for water, sewer, and electrical utility traversing Kalaeloa Airport property. The existing water and sewer systems in Kalaeloa is owned by Kalaeloa Water Company.

Existing Kalaeloa Airport Water System:

The water system is the former water system providing water for Barber's Point Naval Air Station. The only major improvements to the original water distribution system within the Kalaeloa Airport property is in the area around Hangar 110. The infrastructure supporting Hangar 110 was replaced several years ago. The facilities currently service by the water system is listed below.

- Control Tower – Water provided via a water meter connected to Midway Road.
- Hangar 110- Water provided via a water meter connected to Midway Road, this line was replaced recently.
- Hangar 111- Water provided via a water meter connected to Midway Road.
- Maintenance building – Water provided via a water meter connected to Midway Road.
- Air Rescue Fire Facility (ARFF)- Water provided via a water meter connected to Midway Road.
- Fuel Farm – Water provided via a water meter on the north side of Midway Road.
- Paint Shop – Water connection to existing KWC 12" water line.

Existing Kalaeloa Airport Sewer System:

The existing Kalaeloa sewer system flows to the main sewer pump station located near the Coast Guard Station makai of Kalaeloa Airport. The 36" diameter trunk sewer line traverses the Kalaeloa Airport property under the existing runway. The Control Tower and the maintenance building sewer connect to the existing Kalaeloa Water Company sewer lines on the Kalaeloa Airport property. The existing Kalaeloa Airport sewer facilities are listed below.

- Control Tower - One sewer lateral connection to KWC 36" sewer main that crosses under the airport runway.
- Hangar 110- Connects to sewer main in Midway Road, this line was replaced recently.
- Hangar 111- Connects to sewer main in Midway Road.
- Maintenance building – Sewer lateral connects to KWC 24" sewer main located on airport property.
- Air Rescue Fire Facility - Assumes the sewer lateral connects to the sewer main in Midway Road.
- Fuel Farm – Assumes the sewer lateral connects to the sewer main in Midway Road. The fuel

farm is not an original Barbers Point faculty.

- Paint Shop – Has a sewer pump station that pumps the sewage to Midway Road. The paint shop is not an original Barbers Point facility.

Existing Electrical System:

Hangar 110 Substation

Hangar 110 Substation is currently located on the east side of Hangar 110, facing Midway Street, in a fenced area, see Figure 2.1. The substation is fed by circuits D2 and A-D of the Navy's 11.5kV underground electrical system along Midway Street. The original substation, 6 sections on the right side of Figure 2.1, was installed around 1981 to feed Hangar 110 via a 1500kVA 3-phase 480Y/277V Secondary Substation Transformer. In 2009, an addition to the substation was constructed to provide provisions to provide power to the Airport Control Tower and maintenance building as well as continue to feed Hangar 110. A 11.5kV feed from the substation to a 1000kVA 3-phase, 480Y/277V pad mounted transformer was constructed for the Airport Tower. Due to the age of the substation, it is starting to show signs of corrosion and is recommended to be replaced.



Figure 2.1 – Hangar 110 Substation

West Electrical Building

The West Electrical Building is located on the western end of the Airport, just west of the existing fuel farm and former Naval Air Museum and is adjacent to the

building currently occupied by Straube's Aircraft Services Hawaii, Inc. (aka as the paint shop). The West Electrical Building is fed by circuit P2 of the Navy's 4.16kV overheard electrical system and provides power to Straube's Aircraft Services Hawaii, Inc, and the T-Hangars via a 225kVA 3-phase, 480Y/277V dry-type transformer.

.



Figure 2.2 – West Electrical Building

Aircraft Rescue and Fire Fighting (ARFF)

The Aircraft Rescue and Fire Fighting building is located near the intersection of Midway Street and Card Street in the DOT Airport property. It is fed by circuit P1 of the Navy's 4.16kV underground electrical system via a 75kVA transformer coming from Midway Street and running through the Airport property.

Hangar 111

Hangar 111 is located just west of Hangar 110. It has a dedicated 750kVA 3-phase, 480Y/277V transform fronting the building and fed by circuits D2 and A-D of the Navy's 11.5kV underground electric system along Midway Street. See Figure 2.3.



Figure 2.3 – Hangar 111 Building

Maintenance

Water, Sewer, and Electrical Systems:

All existing Kalaeloa Airport utility systems within Kalaeloa Airport property are maintained DOT Airport. Doonwood is the contractor responsible for maintaining the utilities at the Airport.

Deficiencies

Water System:

- The existing water system is old and has experienced water line breaks.
- The exiting water meters are located on airport property, easements are required.
- Existing fire hydrants along Midway Road requires an easement if maintained by KWC or requires a detector check meter if maintained by DOT.

Sewer System:

- The existing sewer lines are old and requires replacement.
- DOT Airports is requesting KWC to remove all sewer lines on Kalaeloa Airport Property. All airport facilities should connect to the KWC sewer system located in Midway Road.

Electrical System:

- Power to Kalaeloa Airport is provided by the old Navy electrical system which will be discontinuing operations soon. Connection to the new HECO system is required

III. PROJECT DESCRIPTION

Water System Improvements

- Control Tower – Provide new water line from existing water meter.
- Hangar 110 - No Improvements required.
- Hangar 111 – Replace existing water lines.
- Maintenance Building – Provide new water lateral and water meter.
- ARFF - Provide new water lateral and water meter. Provide new detector check meter, water line, and new fire hydrant.
- Fuel Farm – Provide new water meter and water connection to existing fire hydrant.
- Paint Shop (Straub's)- Modify water piping to allow KWC to utilize W12.
- Backflow Preventers – Provide as required by KWC.
- Fire Hydrants – Provide detector check meter, as needed.
- Easements – Create easements for water meters and fire hydrants as needed.

Sewer System Improvements

Control Tower – Provide sewer pump station and force main to connect to sewer line in Midway Road.

- Hangar 110 - No Improvements required.
- Hangar 111 – Replace existing sewer lines.
- Maintenance Building – Provide sewer pump station and force main to connect to sewer line in Midway Road.
- ARFF - Provide new sewer lateral.
- Fuel Farm – No improvements required.
- Paint Shop (Straub's)- No improvements required.

Electrical Improvements

Midway Road

Provide new HECO, HTCO and Charter duct lines along Midway Road (City ROW) to provide connection points for the facilities at the western end of Kalaeloa Airport. This improvement also allows the other properties along Midway Road to connect to the public utility service and disconnect from the existing Navy system. With potential future leases at the airport, stub outs along Midway into the airport property provides the flexibility to obtain service for future utility demands.

Hangar 110 Substation

The existing Hangar 110 substation shows signs of corrosion and should be replaced with a new HECO substation. The HECO substation will transfer electrical service to the airport from the Navy Electrical Distribution system to HECO. The current feeds from the existing Hangar 110 substation should be reconnected to the new HECO substation.

The existing ARFF building is located in an isolated location on Midway Road and trenching in the roadway to extend utility service would be very costly. We recommend the new HECO substation also have provisions to service the ARFF building. New underground duct lines will be installed to the Maintenance building and will be extended to the ARFF building. Additional provisions for breaker should be provided in the HECO substation to allow DOT Airports to expand in the future. The duct lines to the ARFF site should be oversized with stub outs provided at manholes to provide DOT Airport with connection points for future expansion/leases. Communication duct lines should also be provided with the new electrical duct lines.

West Electrical Building

A New HECO substation should be installed along Midway Street on the western portion of Kalaeloa Airport to service the West Electrical Building and transfer electrical service form the Navy Electrical Distribution system to HECO. The new HECO substation should be constructed along Midway Road so no utility easement is needed through the airport. Additional provisions for breakers should be provided in the HECO substation to allow DOT Airports to expand in the future. The duct lines from the HECO substation to the West Electrical Building should be oversized with stub outs provided at manholes to provide DOT Airports with connections points for future expansion/leases.

Hangar 111

A new HECO transformer and meter should be installed to replace the existing Hangar 111 Navy fed transformer to transfer electrical service from the Navy Electrical Distribution system to HECO. The future use of Hangar 111 has not been determined. The new HECO transformer and meter is included in the scope of this project

IV. PROJECT JUSTIFICATION

Water: The existing lines are old and are experiencing pipe failures. Water meters, fire hydrant maintenance, addition of easements improvements required to comply with Kalaeloa Water Company requirements. Project will reduce interruptions and costs resulting from water line breaks.

Sewer: Sewer lines are old and should be replaced. Sewer connections to KWC sewer system should be removed and replaced with sewer connections in Midway Road.

Electrical: Connection to HECO System is required. The existing electrical system will no longer be (no longer be what?)

V. SPECIAL REQUIREMENTS (N/A= not applicable)

- Real estate acquisition – N/A
- Easements – Yes, extinguish selected existing easements and create additional easements.
- Construction permits – Work with city ROW
- NPDES Yes, required.
- Environmental Assessment or Environmental Impact Statement – N/A
- Other projects required prior to this project due to project impact or conflicts with adjacent or nearby facilities– N/A
- Tenant relocations, temporary facilities required– N/A
- Tenant commitments or letters of interest – N/A
    1. Requires coordination with Hangar 110 improvement project to confirm the electrical demands at Hangar 110.
    2. Coordinate with Million Aire Improvements.
    3. The addition of the HECO transform at Hangar 111 must be confirmed.

VI. SITE SELECTION BASIS (N/A= not applicable)

- Verification of suitability of site selected **– N/A**
  1. Description of all options considered
  2. Comparison and recommendation of sites
- Constraints **– N/A**
  1. Airfield clearance criteria
  2. Noise criteria or sound attenuation requirements
  3. Building height limitations
  4. Set back criteria from roads, airfield, curbs, sidewalks, etc.
  5. Environmental contamination – during excavation and during operations of facilities
  6. Established pedestrian and vehicular traffic patterns
  7. Flood plain maps
  8. Future construction in the area

VII. ENVIRONMENTAL (N/A= not applicable)

- Environmental Permits **– N/A**
- Potential abatement considerations such as asbestos, lead based paint, etc. **– N/A**
- Utility Requirements such as: Underground storage tanks, Oil-water separators, Water main connections, Sanitary sewer connections or wastewater treatment facilities, Electrical, Drainage, Fire protection requirements, etc. **– Required**

VIII. COST ESTIMATE

The following cost estimate is broken down by X. Included is the water, sewer, and electrical distribution system. Reference Part III Project Description for related scope of work.

Preliminary Cost Estimate	
Description	**Cost**
Water Improvements	
Water Main Replacements	$2,100,000
8" Water	$560,000
Maintenance Building	$40,000
ARFF	$10,000
Fuel Farm	$50,000
Straubies	$120,000
Misc.- DC meters, Backflow Preventers	$120,000
Subtotal	**$3,000,000**
Sewer Improvements	
Hangar 111	$990,000
Control Tower - SPS and SFM	$450,000
2 SPS	$100,000
ARFF	$180,000
Subtotal	**$1,720,000**
Electrical Improvements	
Midway Road HECO Line	$3,100,000
Hangar 110/Control Tower	$1,200,000
West Substation	$1,000,000
Maintenance Building/ARFF	$1,800,000
HECO Cable Cost	$1,300,000
Subtotal	**$8,400,000**
SUBTOTAL	**$13,120,000**
Contingency @20%	$2,624,000
TOTAL	**$15,744,000**
ROUNDED	**$15,800,000**

VIII. PROJECT SCHEDULE

Task	Q3 '20	Q4 '20	Q1 '21	Q2 '21	Q3 '21	Q4 '21	Q1 '22	Q2 '22	Q3 '22	Q4 '22	Q1 '23	Q2 '23	Q3 '23	Q4 '23	Q1 '24	Q2 '24
Concept Development	**270 Days**															
Design and Permits				**365 Days**												
Bid & Procure								**90 Days**								
Implement									**630 Days**							

Notes:

1. Days are elapsed days.
2. Quarters are calendar quarters.

IX. BENEFIT-COST ANALYSIS

Since this is a direct investment in airport infrastructure, this project is a cost of "doing business".

Applicable impact measures from the FAA's *Assessing the Economic Impact of Transportation Projects: How to Choose the Appropriate Technique for Your Project* include, but remain difficult to quantify for an infrastructure project:

- User Impacts
  1. Money cost of travel: N/A
  2. Travel time: N/A
  3. Safety: N/A
  4. Comfort, reliability, etc.: Reduce likelihood of service disruption.
- Economic Impacts – Design, project management, and construction activities should benefit local service providers.
- Government Fiscal Impacts – Source of project funding is the State of Hawaii.
- Other Societal Impacts – N/A

IX. PROJECTED OPERATIONS AND MAINTENANCE COSTS

- Rule-of-thumb for annual maintenance budget: 8 to 10% of installed equipment

Identified Equipment Costs	**$**	**2,000,000**
Annual Maintenance Costs @ 10% of Identified Equipment Costs	**$**	**200,000**

X. MINUTES OF MEETING

Meeting Minutes for the meeting conducted for this project are attached in Appendix B.

- HECO
  Meetings
- KWC Meetings

Appendix A

Project Definition Checklist

Bold italic = comments in response to review of checklist.

I. Executive Summary of Final Report

II. Existing Conditions

A. Deficiencies
B. Site conditions

III. Project Description

A. Narrative description of project scope
   1. Stakeholder input
   2. Assumptions made
B. Location Map
C. Site Plan

IV. Justification for Project

A. Explain existing deficiencies or capacity enhancement
B. Impact if project is not done

V. Special Requirements

A. Real estate acquisition
B. Easements
C. Construction permits:
D. Environmental Assessment or Environmental Impact Statement
E. Other projects required prior to this project due to project impact or conflicts with adjacent or nearby facilities
G. Tenant relocations, temporary facilities required
H. Tenant commitments or letters of interest

VI. Site Selection Basis

A. Verification of suitability of site selected
   1. Description of all options considered
   2. Comparison and recommendation of sites

B. Constraints
   1. Airfield clearance criteria
   2. Noise criteria or sound attenuation requirements
   3. Building height limitations
   4. Set back criteria from roads, airfield, curbs, sidewalks, etc.
   5. Environmental contamination – during excavation and during operations of facilities
   6. Established pedestrian and vehicular traffic patterns
   7. Flood plain maps
   8. Future construction in the area

VII. Environmental

A. Environmental Permits

B. Potential abatement considerations such as asbestos, lead based paint, etc.

C. Utility Requirements such as: Underground storage tanks, Oil-water separators, Water main connections, sanitary sewer connections or wastewater treatment facilities, Electrical, Drainage, Fire protection requirements, etc.

VIII. Cost Estimate

A. Design
B. Construction to include utility breakdown as well as breakdown by discipline (civil, architectural, mechanical, electrical)
C. Construction management
D. Works of art (if applicable)
E. Travel
F. Contingencies

IX. Project schedule by number of days in Microsoft Project schedule format

A. For design
B. For construction, including phasing, if required

X. Benefit-Cost analysis for 20 year and 30-year payback period

A. For State-maintained portion of the project
B. For tenant leased portion of the project

XI. Projected operations and maintenance costs, include any additional personnel required

Minutes of meetings including attendance sheet and invitation list

Appendix B

Meeting Minutes

BELT COLLINS

MEETING MINUTES

PROJECT:	JOB NUMBER/REFERENCE NUMBER:
Kalaeloa Airport Utility Systems Improvements	2019-70-0200/AO5021-17
CLIENT/OWNER:	DATE OF MEETING:
Department of Transportation- Airports Division	August 30, 2019, 12:30pm
PREPARED BY:	DATE OF MEETING MINUTES:
Kristen Yoshida, Cary Kondo	September 4, 2019

IN ATTENDANCE:

Jeffery Sawyer, DOT-Airports (AIR) AIR-OKA
Wade Hirano, AIR-OKA
Evan Kimoto (EK), AIR-EM
George Takase, Ron Ho & Associates (RNSHA)
Cary Kondo, Belt Collins Hawaii (BCH)
Kristen Yoshida (BCH)

ITEMS DISCUSSED:

ITEM	ACTION ITEM	Resp. Party	Deadline	REMARKS
1.	Introductions were made	None		
2.	Project Background	None		Kalaeloa Airport Master Plan is from 1998. Doesn't reflect current airport projects/uses
3.	Project Objectives			Connect JRF to public utilities
				Consolidate utility connections
				Submeter tenants or allow for future submetering
				If possible, reroute utilities to get rid of easements
4.	Electrical	RNSHA		HECO bringing new distribution line down Enterprise, ending at the intersection with Midway. Will be completed next year (2020).
				At least 3 electrical ducts cross under runway, service DHHL and Coast Guard
5.	Telephone			Service is adequate. Already connected to Hawaiian Telcom thru vault in bldg across Midway St.
	Water			2 water connections- ARFF and Hanger 110/Control Tower. 2 tenants connected to Control Tower connection. Tenants are billed on sq footage basis, not actual usage
	Sewer			36" gravity sewer collecting all of Barbers Point crosses under runway, goes to WWPS to Honouliuli.
				Kalealoa Water Company proposing to turn DOTA maintenance building

				into a small WWTP vs pumping to Honouliuli.
6.	Water and sewer connections	BCH		Contact Doonwood, they performed recent improvements at JRF
7.	Future water and sewer improvements			Contact Kalaeloa Water Company or Hunt to discuss expansion plans
8.	Other improvements since 2012	AIR-EM		EK to send BCH any other available T-Hangers, Hanger 110 improvements, ARFF, etc.

BELTCOLLINS

MEETING MINUTES

Schedule:
Completed:

Upcoming/Ongoing:
Site Visit with Kalaeloa Water Company

Distribution:
All attendees
Jay Stone
File

BELT COLLINS

MEETING MINUTES

PROJECT:	JOB NUMBER/REFERENCE NUMBER:
Kalaeloa Airport Utility Systems Improvements	2018-70-0200/AO5021-17
CLIENT/OWNER:	DATE & TIME OF MEETING:
Department of Transportation- Airports Division	November 20, 2019, 1:30 pm
PREPARED BY:	DATE OF MINUTES:
Riesa Okano	December 11, 2019

IN ATTENDANCE:

Evan Kimoto, AIR-EM
Mitch Silver, Kalaeloa Water Company (KWC)
Alex Dosen, KWC
Roy Shull, Pural Water
Ian Ichimura, Pural Water
Steve Sakai, Ron Ho & Associates (RNSHA)
George Takase, Ron Ho & Associates (RNSHA)
Cary Kondo, Belt Collins Hawaii (BCH)
Riesa Okano, Belt Collins Hawaii (BCH)

ITEM	DISCUSSION ITEMS
1.	Introductions
2.	**Project Background:** Kalaeloa Airport Master Plan from 1998 is no longer valid. Doesn't reflect current airport projects/uses. No updated schedule.
3.	**Project Objectives:** a. Get everyone involved and work together to eliminate utilities/easements across runways. b. Create masterplan and update DOT utilities, connection to HECO. Estimated bid date is early 2021.
4.	**Electrical:** a. Construction of HECO ducts along Enterprise is estimated to complete work around the middle to the end of next year. Paul's electric's work is accepted by HECO as construction proceeds. b. HECO to pull cables one the ducts are completed. No estimate for HECO to energize the Enterprise line. c. DOTA to confirm payment to HECO. d. Air National Guard plans to build new connection to HECO. e. Kalaeloa Airport to design new service from HECO. RNSHA to confirm the scope for electrical improvements at Kalaeloa Airport. f. Existing T hangar will need to convert to PV. g. NAVFAC (NFH) needs to shut down the electrical system ASAP. Current estimated to shut down is Summer of 2021. BCH to prepare letter to NFH to request assistance for removing easements. h. Coast Guard is working on connection to HECO line at the Aloha Solar plant. i. KWC is working with NFH to develop approach to install overhead lines to connect to HECO. KWC also working with Coast Guard to obtain HECO power.

ITEM	DISCUSSION ITEMS
	j. Hunt Planning to develop areas 45, 46 and 47 into 1000 residential homes. Underground HECO line to service under Kamakila Street, could possibly service DHHL. The challenge is that the existing line going to the existing PV farm does not have a permanent easement.
5.	Airport will not maintain electrical lines under runway. May grant permission to utilize existing conduits but will not permit dig up runway if lines require repair.
6.	**Water**: a. KWC is currently PUC regulated company. b. Waterline located under runway is no longer used. c. Existing Waterlines servicing DOTA property may need new water meters, and backflow preventers. d. KWC has not plans currently to upgrade the existing water distribution system.
7.	**Sewer:** a. KWC also owns and maintains the PUC regulated wastewater system. b. Sewage pumps communicates via SCADA. Not telephone lines are used. c. Currently, there is no plan to terminate use of the existing 30" sewer main running across runway.
8.	Future water and sewer improvements: a. KWC has meet with DOTA in the past to discuss the option of to build a wastewater treatment plant in the Maintenance Building but no plans have been developed.
9.	**Next Meetings:** Schedule meeting with AIR – EP and O'ahu District to obtain comments regarding the proposed Kalaeloa Master Plan Layout, and Electrical, Water and Sewer improvements.

Attachment – Meeting Agenda
Sign in Sheet
Distribution – All Attendees
O'ahu District
AIR- EP

AGENDA

Land Use and Utility Master Plan
Kalaeloa Airport
Project No. AO5021-17

Meeting Date: 1:30 to 2:30 PM November 20, 2019 at HNL Airport 7th floor, Conference Room F

Project Objectives

The Department of Transportation, Airports Division(DOTA) desires the following improvements at Kalaeloa Airport:

1. Develop acceptable Land Use Plan.
2. Upgrade the water, sewer, electrical and telephone systems.
3. Eliminate/remove all non-DOT utilities and easements with the DOTA boundaries.

Background

1. Kalaeloa Water Company (KWC) owns the water and sewer systems in Kalaeloa.
   .
2. The NAVFAC Pacific (NFP) operates the existing electrical system but plans to terminate the operations of the electrical system by the end of 2020 if possible.

Discussion Items:

1. Opening Remarks	Belt Collins Hawai‘i (BCH)
2. Introductions	All attendees
3. Proposed Land Use Plan	BCH
A. HCDA Permits	
4. Water and Sewer System Plans	KWC
A. Proposed Kalaeloa Airport Water and Sewer Plan	BCH
5. Electrical System	BCH/RNSHA
A. Existing Conditions	
B. Kalaeloa Electrical Projects Ongoing and Planned (Enterprise, Aloha Solar, Coast Guard, KWC(?). Pasha/DHHL)	

C. Proposed Kalaeloa Airport Electrical Plan
D. Request NFP assistance

6. Next Steps

ADJOURN

Land Use and Utility Master Plan, Kalaeloa Airport

Location: HNL Airport, Conf. Room F
Date: Nov. 20, 2019, 1:30 pm.

	Attend.	Affiliation	Position/Code	Email Address	Phone No.
Evan Kimoto				evan.k.kimoto@hawaii.gov	
Herman Tuiolosega				herman.tuiolosega@hawaii.gov	
Roy Sakata				roy.sakata@hawaii.gov	
Jeffrey Sawyer				jeffrey.d.sawyer@hawaii.gov	
Wade Hirano				wade.k.hirano@hawaii.gov	
Mitch Silver				mitch.silver@huntcompanies.com	808-542-1064
Alex Dosen	X	KWG/Hunt		alex.dosen@huntcompanies.com	
George Takase				gtakase@rnsha.com	
Ian Ichimura	✓	PURAL	OPERATIONS	ian.ichimura@puralwater.com	220.3943
Cary Kondo	X	Belt Collins	Project Manager	ckondo@bchdesign.com	521-5361
Riesa Okano	X	Belt Collins	Civil Designer	rokano@bchdesign.com	846-3350
Rob Shu II		Pural water	operator	Rob.Shu II@Pural water.com	958-0149
Steve Sakai	✓	Ron Hd Assoc	Elec Eng	ssakai@rnsha.com	941-0577
Mitch Silver	✓	Hunt Devpt.	VP	mitch.silver@huntcompanies.com	949 697-7661

BELT COLLINS

MEETING MINUTES

PROJECT:	JOB NUMBER/REFERENCE NUMBER:
Kalaeloa Airport Utility Systems Improvements	2018-70-0200/AO5021-17
CLIENT/OWNER:	DATE & TIME OF MEETING:
Department of Transportation- Airports Division	January 21, 2020, 1:00 pm
PREPARED BY:	DATE OF MINUTES:
Riesa Okano	February 4, 2020

IN ATTENDANCE:

Evan Kimoto, AIR-EM
Herman Tuiolosega, Air-EM
Agnes Fisher, Air-EM
Roy Sakata, Oahu District
Mitch Silver, Kalaeloa Water Company (KWC)
Steve Sakai, Ron Ho & Associates (RNSHA)
George Takase, Ron Ho & Associates (RNSHA)
Cary Kondo, Belt Collins Hawaii (BCH)
Riesa Okano, Belt Collins Hawaii (BCH)

No.	Summary of DISCUSSION ITEMS	Action Req'd
1.	**Project Objectives:**	
1a.	Upgrade the infrastructure to support the existing and future uses at Kalaeloa. Replace aged pipe and other infrastructure.	See below.
1b.	Update the land use master plan.	Done.
1c.	Eliminate all utilities and easements crossing Kalaeloa Airport.	See below.
2.	**AIR – EP update**	
2a.	Kalaeloa Airport Master Plan expired in 1998 and is no longer valid. No update is currently planned.	Noted
2b.	The layout of the future t-hangar shown on the BCH proposed plan is acceptable.	None
3.	**Electrical:**	
3a.	**Enterprise Energy Corridor:** **a.** Conduit construction is estimated to be complete in April 2020.	Noted.
	b. HECO will install cables after the conduits and completed.	
	c. Cable installation may require 6 to 8 months.	
	d. The date the HECO line will be energized will depend on HECO.	

3b.	**Coast Guard Electrical Improvements:**	Noted
	a. Aloha Solar is installing a new HECO line along Coral Sea to connect to solar farm.	
	b. Coast Guard is designing new electrical system that connects to the Aloha Solar HECO line.	
	c. KWC pump stations will connect to the new Coast Guard electrical system.	
	d. Coast Guard electrical improvements may be complete by end 2021.	
3c.	**Navfac Hawai'i (NFH):**	
	a. NFH is the owner of the existing electrical system	Noted.
	b. NFH is required to discontinue operation of the Kalaeloa Electrical system as soon as possible.	Noted
	c. Currently, there are 22 electrical meters remaining. Likely more than 22 customers receiving power from NFH.	Request information.
	d. NFH has retained the right to create easement.	
	e. NFH has several electrical conduits and easement crossing Kalaeloa Airport. DOT would like to have easements extinguished.	BCH to submit letter to NFH to request.
3d.	**Hunt Electrical Improvements:**	
	a. Hunt has requested Navfac Hawai'i (NFH) to create electrical easements within Kalaeloa for a HECO overhead line that would service Hunt properties and perhaps other facilities. HCDA only permits underground electrical service.	Monitor updates.
3e.	**Dept. of Transportation – Airports Division**	
	a. HECO connection to Control Tower needed.	Prepare Design.
	b. Existing power to paint shop, T-hangars, DOTA fuel farm, restroom and museum is serviced by electrical lines along Midway Street.	Rho to develop alternatives to provide power.
	c. Power source to the Hangar 110 and110 needs to be confirmed.	Rho to develop alternatives to provide power.
	d. Maintenance building receives power from the control building.	Rho to develop alternatives to provide power.
	e. AARF receives power from NFH system, perhaps from Station P on Mission Street.	Rho to develop alternatives to provide power.

3f.	**Oahu District Manager Update:**	
	a. Currently the State owns control tower, hangar 111, maintenance building, AARF, restroom building and museum.	Noted.
	b. The museum tenant has been evicted. A 30-day notice was given on 1/20/20, DOTA is working to remove the military vehicles parked on the apron. The museum will be dismantled in the next few months.	Noted
	c. An area in the museum area will be auctioned.	DOTA to provide Auction information.
	d. Million Air helicopter company plans to build a new fuel farm and hangar and may be built where the museum is located. A new fuel farm and hanger is proposed.	DOTA to provide information of lease, loads, utility needs.
	e. Hangar 110 improvements is almost completed. Hangar 110 is leased to Dept. of Health and Human Services.	Confirm existing conditions.
	f. Hangar 111 is currently controlled by USDOE and leased to RCUH. RCUH has no use for the hangar, and Hangar 111 may return to HDOTA. Wing Spirit would like to use the hangar for a school for aircraft training and dorms. Perhaps a jet ambulance service.	Confirm existing conditions.
	g. Access control to DOTA property is needed. A perimeter fence around the property exists however, there are no interior controls. Internal roads need to be designated and fences installed. Plans are for 2 guarded entry points: 1- 24/7 and 1 during the daytime.	DOTA to advise if can include in project scope.
	h. The Army also wants to connect into the taxiway and use airfield.	Noted.
	i. Repair to runway lighting required?	DOTA to confirm.
4.	**Water**:	
4a.	KWC has been acquired by Hawaiian Water Company (subdivision of California Water Company.). Ownership change is being processed with PUC. Change may be approved by summer 2020. Pural will continue to maintain water system.	Noted.
4b.	Existing Waterlines servicing DOTA property may need new water meters, and backflow preventers.	BCA to confirm condition.
4c.	Existing apron hydrant system.	Evan will contact AARF to verify hydrants along the apron still required.
4d.	KWC has no plans currently to upgrade the existing water distribution system.	Noted.

5.	**Sewer:**	
5a.	KWC has conducted a study to investigate the conditions of the 36" sewer line running beneath the DOTA runway.	KWC to provide copy of study to DOTA.
5b	In the past, KWC requested permission to install a wastewater treatment plant in the maintenance building. Request was not approved.	Noted.
5c.	KWC has no plans to improve the sewer lines crossing Kalaeloa Airport.	DOTA is concerned with all pipes crossing the runways.

6.	**Future Work**	
6a.	BCH to submit suggested topographic survey limit to AIR-EM for approval and obtain proposal for topographic survey.	Cost proposal requested.
6b.	RHO to develop alternatives providing permanent and possibly temporary power to existing and future DOT A Facilities at Kalaeloa Airport.	Rho to develop study.
6c.	BCH to coordinate removal of easement with NFH.	Ongoing.
6d.	Once topo survey obtained BCH, RHO, DOTA and KWS to conduct site investigations to validate the existing water, sewer, and electrical service to Kalaeloa Airport.	Pending receipt of topo.
6e.	BCH/RHO prepare proposal to provide approved DOTA Improvements.	Once scope confirmed.
7.	**Next Meetings:** Schedule next meeting.	Next meeting scheduled for Feb. 21??

Attachment – Sign in Sheet

Distribution – All Attendees

Land Use and Utility Master Plan, Kalaeloa Airport

Location: HNL Airport, Conf. Room F

Date: ~~Nov. 20, 2019, 1:30 pm.~~ January 21, 2020, 1:00 PM

	Attend.	Affiliation	Position/Code	Email Address	Phone No.
Evan Kimoto	✓	AIR-EM		evan.k.kimoto@hawaii.gov	
Herman Tuiolosega	✓	AIR-EM		herman.tuiolosega@hawaii.gov	
Roy Sakata	✓	~~AIR-EM~~ oahu/dstnct		roy.sakata@hawaii.gov	
Jeffrey Sawyer	✓	AIR-EM		jeffrey.d.sawyer@hawaii.gov	
Wade Hirano		AIR-EM		wade.k.hirano@hawaii.gov	
Mitch Silver	✗	KWC/Hunt		mitch.silver@huntcompanies.com	949-60 7-7660
Alex Dosen		KWC/Hunt		alex.dosen@huntcompanies.com	
Steve Sakai	X	Ronald N.S. Ho and Associates		ssakai@rnsha.com	941-0577
George Takase	X	Ronald N.S. Ho and Associates		gtakase@rnsha.com	941-0577
Ian Ichimura		Pural		ian.ichimura@puralwater.com	
Karli Miyata		Pural		karli.miyata@puralwater.com	
Cary Kondo	X	Belt Collins	Project Manager	ckondo@bchdesign.com	521-5361
Riesa Okano	X	Belt Collins	Civil Designer	rokano@bchdesign.com	846-3350
AGNES FISHER	X	DOTA Planning	Planner	agnes.o.fisher@hawaii.gov	838-8097

BELT COLLINS

MEETING MINUTES

PROJECT:	JOB NUMBER/REFERENCE NUMBER:
Kalaeloa Airport Utility Systems Improvements	2018-70-0200/AO5021-17
CLIENT/OWNER:	DATE & TIME OF MEETING:
Department of Transportation- Airports Division	March 21, 2020, 1:30 pm
PREPARED BY:	DATE OF MINUTES:
Riesa Okano	March 21, 2020

IN ATTENDANCE:

January 21, 2020
Evan Kimoto, AIR-EM
Herman Tuiolosega, Air-EM
Jeffrey Sawyer
Agnes Fisher, Air-EM
Roy Sakata, Oahu District
Mitch Silver, Kalaeloa Water Company (KWC)
Steve Sakai, Ron Ho & Associates (RNSHA)
George Takase, Ron Ho & Associates (RNSHA)
Cary Kondo, Belt Collins Hawaii (BCH)
Riesa Okano, Belt Collins Hawaii (BCH)

March 21, 2020
Evan Kimoto, AIR-EM
Benton Ho, AIR-EM
Guy Ichinotsubo, AIR-EM
Jeffrey Sawyer, AIR-EM
Roy Sakata, Oahu District
Mitch Silver, Kalaeloa Water Company (KW
Alex Dosen, Kalaeloa Water Company (KW
George Takase, Ron Ho & Associates (RNSI
Cary Kondo, Belt Collins Hawaii (BCH)
John Chung, Belt Collins Hawaii (BCH)
Riesa Okano, Belt Collins Hawaii (BCH)
Tesha Malama, HCDA
Germaine

No.	Summary of DISCUSSION ITEMS	Action Req'd
1.	**Project Objectives:**	
1a.	Upgrade the infrastructure to support the existing and future uses at Kalaeloa. Replace aged pipe and other infrastructure.	See below.
1b.	Update the land use master plan.	Done.
1c.	Eliminate all utilities and easements crossing Kalaeloa Airport.	See below.
2.	**AIR – EP update**	
2a.	Kalaeloa Airport Master Plan expired in 1998 and is no longer valid. No update is currently planned.	Noted
2b.	The layout of the future t-hangar shown on the BCH proposed plan is acceptable.	None
3.	**Electrical:**	
3a.	**Enterprise Energy Corridor:** **a.** Conduit construction is estimated to be complete in April 2020.	Noted.
	b. HECO will install cables after the conduits and completed.	

	c. Cable installation may require 6 to 8 months.	
	d. The date the HECO line will be energized will depend on HECO.	
3b.	**Coast Guard Electrical Improvements:**	Noted
	a. Aloha Solar is installing a new HECO line along Coral Sea to connect to solar farm.	
	b. Coast Guard is designing new electrical system that connects to the Aloha Solar HECO line.	
	c. KWC pump stations will connect to the new Coast Guard electrical system.	
	d. Coast Guard electrical improvements may be complete by end 2021.	
3c.	**Navfac Hawai'i (NFH):**	
	a. NFH is the owner of the existing electrical system	Noted.
	b. NFH is required to discontinue operation of the Kalaeloa Electrical system as soon as possible.	Noted
	c. Currently, there are 22 electrical meters remaining. Likely more than 22 customers receiving power from NFH.	Request information.
	d. NFH has retained the right to create easement.	
	e. NFH has several electrical conduits and easement crossing Kalaeloa Airport. DOT would like to have easements extinguished.	BCH to submit letter to NFH to request.
3d.	**Hunt Electrical Improvements:**	
	a. Hunt has requested Navfac Hawai'i (NFH) to create electrical easements within Kalaeloa for a HECO overhead line that would service Hunt properties and perhaps other facilities. HCDA only permits underground electrical service.	Monitor updates.
3e.	**Dept. of Transportation – Airports Division**	
	a. HECO connection to Control Tower needed.	Prepare Design.
	b. Existing power to paint shop, T-hangars, DOTA fuel farm, restroom and museum is serviced by electrical lines along Midway Street.	Rho to develop alternatives to provide power.
	c. Power source to the Hangar 110 and110 needs to be confirmed.	Rho to develop alternatives to provide power.
	d. Maintenance building receives power from the control building.	Rho to develop alternatives to provide power.
	e. AARF receives power from NFH system, perhaps from Station P on Mission Street.	Rho to develop alternatives to provide power.

3f.	**Oahu District Manager Update:**	
	a. Currently the State owns control tower, hangar 111, maintenance building, AARF, restroom building and museum.	Noted.
	b. The museum tenant has been evicted. A 30-day notice was given on 1/20/20, DOTA is working to remove the military vehicles parked on the apron. The museum will be dismantled in the next few months.	Noted
	c. An area in the museum area will be auctioned.	DOTA to provide Auction information.
	d. Million Air helicopter company plans to build a new fuel farm and hangar and may be built where the museum is located. A new fuel farm and hanger is proposed.	DOTA to provide information of lease, loads, utility needs.
	e. Hangar 110 improvements is almost completed. Hangar 110 is leased to Dept. of Health and Human Services.	Confirm existing conditions.
	f. Hangar 111 is currently controlled by USDOE and leased to RCUH. RCUH has no use for the hangar, and Hangar 111 may return to HDOTA. Wing Spirit would like to use the hangar for a school for aircraft training and dorms. Perhaps a jet ambulance service.	Confirm existing conditions.
	g. Access control to DOTA property is needed. A perimeter fence around the property exists however, there are no interior controls. Internal roads need to be designated and fences installed. Plans are for 2 guarded entry points: 1- 24/7 and 1 during the daytime.	DOTA to advise if can include in project scope.
	h. The Army also wants to connect into the taxiway and use airfield.	Noted.
	i. Repair to runway lighting required?	DOTA to confirm.
4.	**Water**:	
4a.	KWC has been acquired by Hawaiian Water Company (subdivision of California Water Company.). Ownership change is being processed with PUC. Change may be approved by summer 2020. Pural will continue to maintain water system.	Noted.
4b.	Existing Waterlines servicing DOTA property may need new water meters, and backflow preventers.	BCA to confirm condition.
4c.	Existing apron hydrant system.	Evan will contact AARF to verify hydrants along the apron still required.
4d.	KWC has no plans currently to upgrade the existing water distribution system.	Noted.

5.	**Sewer:**	
5a.	KWC has conducted a study to investigate the conditions of the 36" sewer line running beneath the DOTA runway.	KWC to provide copy of study to DOTA.
5b	In the past, KWC requested permission to install a wastewater treatment plant in the maintenance building. Request was not approved.	Noted.
5c.	KWC has no plans to improve the sewer lines crossing Kalaeloa Airport.	DOTA is concerned with all pipes crossing the runways.
6.	**Future Work**	
6a.	BCH to submit suggested topographic survey limit to AIR-EM for approval and obtain proposal for topographic survey.	Cost proposal requested.
6b.	RHO to develop alternatives providing permanent and possibly temporary power to existing and future DOT A Facilities at Kalaeloa Airport.	Rho to develop study.
6c.	BCH to coordinate removal of easement with NFH.	Ongoing.
6d.	Once topo survey obtained BCH, RHO, DOTA and KWS to conduct site investigations to validate the existing water, sewer, and electrical service to Kalaeloa Airport.	Pending receipt of topo.
6e.	BCH/RHO prepare proposal to provide approved DOTA Improvements.	Once scope confirmed.
7.	4 areas of connection for DOTA -The communication tower in front of Hangar 110 -AARF -Millionaire and fuel farm -Paint shop Electrical options for DOTA -1st option: 1 HECO meter at Hangar 110. Install all overhead lines along midway which will be maintained by HECO. HDOT is ok with OH lines in their property hugging the property line. -2nd option: 2a: Install underground lines from proposed meter going through the airport property. 2b: Obtain easements in midway and install underground through midway. -3rd option: obtain easement in midway and extend HECO stub out down midway. HECO will maintain lines and will install multiple meters. This option has the most flexibility. Clear zone issues for overhead lines -Fill out 7460 form. Note: All underground lines will only be accessible for DOTA, no tie ins.	

	The capacity of power provided will be dependent on master plan. Enterprise has a duct line sized to accommodate whole Kalaeloa. The circuiting is only enough for airport (to be confirmed). HDOT to inform us of their current and future electrical loads to convey to HECO. HDOT's Airport Master plan has a projected electrical load of 2 to 3 times the current usage. 1 meter is preferred instead of separate meters for DOTA. Million Air will have to obtain power from HECO, airports do not want to distribute power. HDOT would like a central HECO meter but they are open to multiple meters. Million Air and fuel farm is currently in design and plans to build a hangar. There is interested parties in building 1 more hangar. Master plan still includes building more hangars. Paint Shop (straube) is currently on Navy power and will get cut off once DOTA is connected with HECO service. Hangar 110 will be a medical storage facility and hospital. 10 million dollars in improvements were done. Leased to the Health and Human Services. The facility will have 1000 beds and airports will provide meter/power to the hospital. Hangar 110 will be electrical service from HDOT meter. Hangar 111 is not HDOT's yet, but if acquired, HDOT will need to convert this to HECO service. 15 megawatts between DHHL and Hunt. Pauls electric is expected to finish duct line and paving end of April. HECO overhead design will take around 4-5 months. The underground option within airport will take less than a month however the approval process might be long. Airports will meet with HECO to discuss options. Coast guard will install lines underground and will start construction soon. Estimated to finish in 2022. Once coast guard if off navy power, the navy will most likely shut down power. Midway is currently under the City right of way. Hunts environmental assessment will be adopted as new rule. Enterprise had an EA done since it was in the City's easement. Midway needs to be brought up to standards.	

	Tesha will send gernsey report. The meeting to finalize gernsey report will take place in April. Hunt and HECO will be have a telecon on Friday (3/20) to discuss options in Kalaeloa, RNSHA will also call in. Navy will have a telecon next Monday (3/23) with all entities in Kalaeloa to discuss necessary actions for Navy to discontinue their electrical distribution service.	

Attachment – Sign in Sheet

Distribution – All Attendees

Land Use and Utility Master Plan, Kalaeloa Airport

Location: HNL Airport, Conf. Room F

Date: ~~Nov. 20, 2019, 1:30 pm~~. January 21, 2020, 1:00 PM

	Attend.	Affiliation	Position/Code	Email Address	Phone No.
Evan Kimoto	✓	AIR-EM		evan.k.kimoto@hawaii.gov	
Herman Tuiolosega	✓	AIR-EM		herman.tuiolosega@hawaii.gov	
Roy Sakata	✓	~~AIR-EM~~ Oahu district		roy.sakata@hawaii.gov	
Jeffrey Sawyer	✓	AIR-EM		jeffrey.d.sawyer@hawaii.gov	
Wade Hirano		AIR-EM		wade.k.hirano@hawaii.gov	
Mitch Silver	✓	KWC/Hunt		mitch.silver@huntcompanies.com	949-691-7460
Alex Dosen		KWC/Hunt		alex.dosen@huntcompanies.com	
Steve Sakai	X	Ronald N.S. Ho and Associates		ssakai@rnsha.com	941-0577
George Takase	X	Ronald N.S. Ho and Associates		gtakase@rnsha.com	941-0577
Ian Ichimura		Pural		ian.ichimura@puralwater.com	
Karli Miyata		Pural		karli.miyata@puralwater.com	
Cary Kondo	X	Belt Collins	Project Manager	ckondo@bchdesign.com	521-5361
Riesa Okano	X	Belt Collins	Civil Designer	rokano@bchdesign.com	846-3350
AGNES FISHER	X	DOTA Planning	Planner	agnes.o.fisher@hawaii.gov	838-8097

BELT COLLINS

MEETING MINUTES

PROJECT:	JOB NUMBER/REFERENCE NUMBER:
Kalaeloa Airport Utility Systems Improvements	2018-70-0200/AO5021-17
CLIENT/OWNER:	DATE & TIME OF MEETING:
Department of Transportation- Airports Division	May 8 2020, 10:30 am
PREPARED BY:	DATE OF MINUTES:
Riesa Okano	May 11 2020

IN ATTENDANCE:

Guy Ichinotsubo, AIR-EM
Evan Kimoto, AIR-EM
Roy Sakata, Oahu District
Jefferey Sawyer, AIR-EM
Hannah Hayes, AIR-EM
Agnes Fisher, AIR-EM
Lynette Kawaoka, AIR-EM
Steve Sakai, Ron Ho & Associates (RNSHA)
George Takase, Ron Ho & Associates (RNSHA)
Cary Kondo, Belt Collins Hawaii (BCH)
John Chung, Belt Collins Hawaii (BCH)
Riesa Okano, Belt Collins Hawaii (BCH)

No.	Summary of DISCUSSION ITEMS	Action Req'd
1.	Enterprise design load was based off existing facilities on DOTA property 7 years ago.	
2.	National guard and Hunt might be interested in sharing cost/price difference between options 1 and 2.	Belt Collins will set up meeting between Hunt, National Guard and HECO.
3.	Fiscal year 2022 is the estimated date the Navy will shut off the power.	
4.	DOTA is unsure which option to select.	Belt Collins will put together pros and cons for each option.
5.	DOTA EA is not needed for the HECO option since the project will not exceed the original Kalaeloa EA demand. However unsure about HCDA requirements	Belt Collins will call HCDA for more information.
6.	DOTA has 2 major concerns for the HECO option on Midway: 1. Once the line on Midway is built anyone can put in a service request to use line and consume capacity. 2. The timeline to finish the HECO option might not complete project before the Navy 2022 shut off deadline and/or Million Air's fuel farm lease start date.	Belt Collins to investigate options on how to connect future fuel farm to power, HTEL and Spectrum.

		Ron Ho to estimate schedule for project.
7.	Million Air fuel farm will drive timeline.	

Attachment – N/A

Distribution – N/A

BELT COLLINS

MEETING MINUTES

PROJECT:	JOB NUMBER/REFERENCE NUMBER:
Kalaeloa Airport Utility Systems Improvements	2018-70-0200/AO5021-17
CLIENT/OWNER:	DATE & TIME OF MEETING:
Department of Transportation- Airports Division	April 17 2020, 10:00 am
PREPARED BY:	DATE OF MINUTES:
Riesa Okano	April 20 2020

IN ATTENDANCE:

Guy Ichinotsubo, AIR-EM
Evan Kimoto, AIR-EM
Keith Wong, Hawaiian Electric Company (HECO)
Kevin Magoto, Hawaiian Electric Company (HECO)
Gary Fukumoto, Hawaiian Electric Company (HECO)
George Takase, Ron Ho & Associates (RNSHA)
Cary Kondo, Belt Collins Hawaii (BCH)
John Chung, Belt Collins Hawaii (BCH)
Riesa Okano, Belt Collins Hawaii (BCH)

No.	Summary of DISCUSSION ITEMS	Action Req'd
1.	During construction of new electrical lines possible contaminated soil will be exposed. Therefore, there is a possibility that all electrical options may require an EA. Permits may need to be obtained as well.	BCH to figure out which permits, and EA's are required.
2.	HECO requests electrical capacity for DOTA to determine if there is enough capacity for DOTA property.	BCH to set up another meeting to discuss.
3.	Old design load is based on a load 7-8 years ago. Service request including updated design load must be submitted to HECO.	George will submit
4.	DOTA is interested in options 1 and 3. DOTA has requested to see costs for each option.	George to provide
5.	Advance payment DOTA made on enterprise will be offset in the future (10-year payback).	Noted

Attachment – Sign in Sheet

Distribution – All Attendees

Land Use and Utility Master Plan, Kalaeloa Airport

Location: HNL Airport, Conf. Room F

Date: ~~Nov. 20, 2019, 1:30 pm~~. January 21, 2020, 1:00 PM

	Attend.	Affiliation	Position/Code	Email Address	Phone No.
Evan Kimoto	✓	AIR-EM		evan.k.kimoto@hawaii.gov	
Herman Tuiolosega	✓	AIR-EM		herman.tuiolosega@hawaii.gov	
Roy Sakata	✓	~~AIR-EM~~ oahu/dstnct		roy.sakata@hawaii.gov	
Jeffrey Sawyer	✓	AIR-EM		jeffrey.d.sawyer@hawaii.gov	
Wade Hirano		AIR-EM		wade.k.hirano@hawaii.gov	
Mitch Silver	✗	KWC/Hunt		mitch.silver@huntcompanies.com	949-60 7-7666
Alex Dosen		KWC/Hunt		alex.dosen@huntcompanies.com	
Steve Sakai	X	Ronald N.S. Ho and Associates		ssakai@rnsha.com	941-0577
George Takase	X	Ronald N.S. Ho and Associates		gtakase@rnsha.com	941-0577
Ian Ichimura		Pural		ian.ichimura@puralwater.com	
Karli Miyata		Pural		karli.miyata@puralwater.com	
Cary Kondo	X	Belt Collins	Project Manager	ckondo@bchdesign.com	521-5361
Riesa Okano	X	Belt Collins	Civil Designer	rokano@bchdesign.com	846-3350
AGNES FISHER	X	DOTA Planning	Planner	agnes.o.fisher@hawaii.gov	838-8097

BCH
A Bowers + Kubota Company

MEETING MINUTES

PROJECT: Kalaeloa Airport Utility Systems Improvements	JOB NUMBER/REFERENCE NUMBER: 2018-70-0200/AO5021-17
CLIENT/OWNER: Department of Transportation- Airports Division	DATE & TIME OF MEETING: April 15, 2021, 9:30 am
PREPARED BY: Riesa Okano	DATE OF MINUTES: April 21, 2021
IN ATTENDANCE: Karli Miyata Roy Schull Cary Kondo. Riesa Okano	Distribution: All Attendees Evan Kimoto Wade Nakayama

No.	Summary of DISCUSSION ITEMS	Action Req'd
1.	KWC prefers to keep fire hydrants along Midway outside of the airport fence accessible to service the public. KWC will maintain fire hydrants Nos. 122, 118, 124, 126 and 127 126 is currently behind customers meter, so will be owned/maintained by DOT Airport until it is relocated prior to meter.	DOT to provide easements for the FHs.
2.	All meter vaults are meters only. No BFP.	Add BFP's after vaults.
	Water line at existing fuel farm is service by a water meter located on the east side of Midway. This meter services both FH 126 and the fuel Farm. The existing meter shall be abandoned and and a new water meter installed on the west side of Midway. FH 126 shall be connected before the water meter.	DOT to provide new water meter/BFP, and provide easements for FH 126 and new water meter.
3.	The water lines at the west end of the airport property including the area in the vicinity of Strabies in not clear. There are no construction drawings for this area. KWC would like to maintain the existing W12" in this area to service the areas north of Kalaeloa Airport. Additional information is being collected by Million Aire in this area and should assist with clarifying the water system in this area. FH and water meter issues must be reviewed. Million Air will need to request a water meter.	BCH to send topo survey of the Sraubies area to assist KWC investigation of the exist ing water system. Provide additional info obtained by Million Aire.
4.	Plural is requesting removal of FH 128 near Straubies	DOT to review.
5.	There is a 6" meter feeding the W12" waterline for the fuel farm. Pural suggests using a 10" or 12" meter.	The water requirements are not known for all water meters. Meter size shall remain the same unless DOT

No.	Summary of DISCUSSION ITEMS	Action Req'd
		provides the basis for the new water meters.
6.	The layout of the future T-hangar shown on the BCH proposed plan is acceptable.	DOT to provide easement for the water meter and add BFP.
7.	Standard easement width is 25' wide.(Karli)	DOT to review.
8.	Use BWS standard details for meter boxe, BFP's & DCDA's.	DOT to review.
9.	KWS requests removal of all smaller KWC water meters.	DOT to decide if sub-meters is acceptable.
11.	Building 115/Maintenance building water provided by 2" water line from Midway main line. A 4" BFP in front of building.	DOT to revise water connections.
12.	Water meter is required for Building 115/Maintenance building.	DOT to provide.
13.	12" line between Hangar 111 and 110 is not in use and can be abandoned	Abandon existing W12".
14.	Open valve on W12" between Hangar 111 and 110 to provide a looped water line. Metering must be reviewed.	DOT to revise design.
15.	Send Karli T-hangar plans with meter, topo of Straubies area.	BCH.
16	Review water meter sizes the DCAC meter locations with DOTA. Also review need for DOT sub meters.	DOTA/BCH.

Appendix C

APPENDIX C

Instrument Approach and Departure Procedures

(JELIE1.JELIE) 24193

JELIE ONE DEPARTURE (RNAV)

KALAELOA (JOHN RODGERS FLD) (JRF)(PHJR)
AL-761 (FAA)
KAPOLEI, HAWAII

PAC, 12 JUN 2025 to 07 AUG 2025

PAC, 12 JUN 2025 to 07 AUG 2025

JELIE ONE DEPARTURE (RNAV)
KALAELOA (JOHN RODGERS FLD) (JRF)(PHJR)
KAPOLEI, HAWAII

(JELIE1.JELIE) 25FEB21

HN LOM	APP CRS	Rwy Idg	7989
242	037°	TDZE	17
		Apt Elev	30

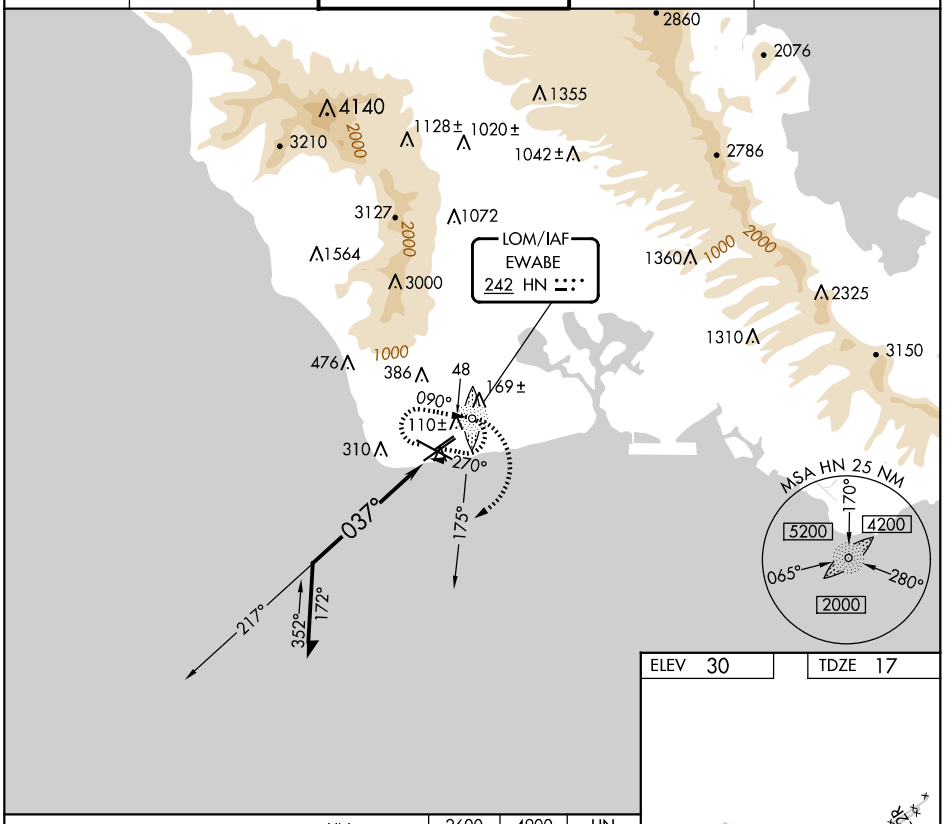
NDB RWY 4R

KALAELOA (JOHN RODGERS FLD) (JRF)(PHJR)

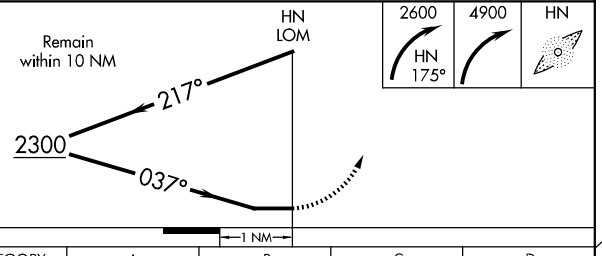
Circling not authorized north of Rwys 11 and 22R.

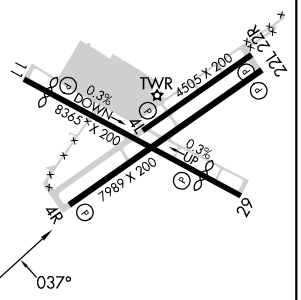
MISSED APPROACH: Climbing right turn to 2600 via 175° bearing from HN LOM, then climbing right turn to 4900 direct HN LOM and hold.

ATIS	HCF APP CON	KALAELOA TOWER ★	GND CON	CLNC DEL
119.8	118.3 269.0	132.6 (CTAF) L 340.2	123.8 336.4	121.7 380.5



ELEV 30 TDZE 17





CATEGORY	A	B	C	D
S-4R	800-1 783 (800-1)	800-1¼ 783 (800-1¼)	800-2¼ 783 (800-2¼)	800-2½ 783 (800-2½)
CIRCLING	800-1 770 (800-1)	800-1¼ 770 (800-1¼)	800-2¼ 770 (800-2¼)	800-2½ 770 (800-2½)

MIRL Rwys 4L-22R, 4R-22L and 11-29 L

PAC, 12 JUN 2025 to 07 AUG 2025
PAC, 12 JUN 2025 to 07 AUG 2025

APP CRS	Rwy Idg	7989
044°	TDZE	17
	Apt Elev	30

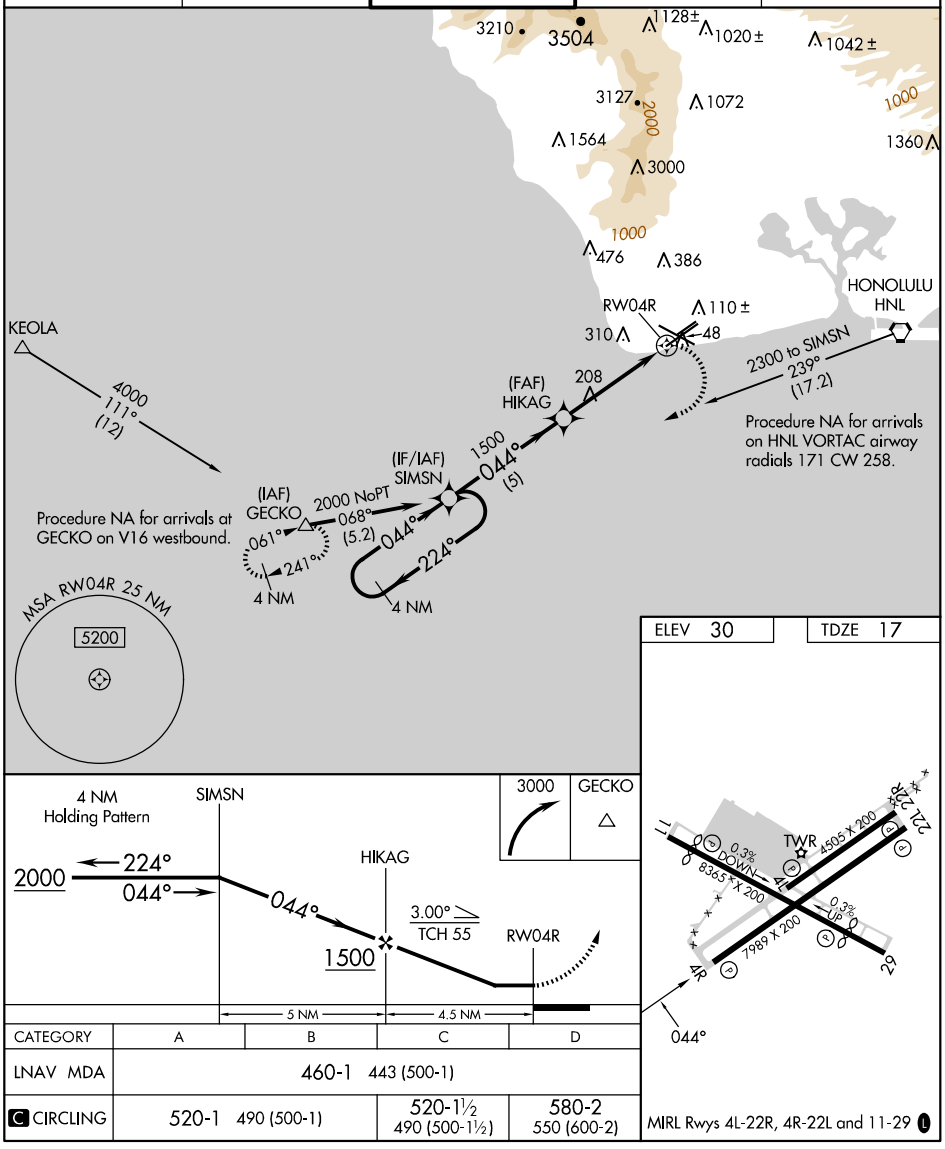
RNAV (GPS) RWY 4R

KALAELOA (JOHN RODGERS FLD) (JRF)(PHJR)

Circling NA north of Rwy 4R-22L. DME/DME RNP-0.3 NA. When local altimeter setting not received, use Honolulu altimeter setting and increase all MDA 40 feet. For inop MALSR, increase LNAV Cat C/D visibility to 1⅜ miles. For inop MALSR when using Honolulu altimeter setting increase LNAV Cat C/D visibility to 1⅜ miles. Helicopter visibility reduction below 1 SM NA. Procedure NA at night.

MISSED APPROACH: Climbing right turn to 3000 direct GECKO and hold.

ATIS	HCF APP CON	KALAELOA TOWER★	GND CON	CLNC DEL
119.8	118.3 269.0	132.6 (CTAF) L 340.2	123.8 336.4	121.7 380.5



ELEV 30 TDZE 17

CATEGORY	A	B	C	D
LNAV MDA	460-1 443 (500-1)			
C CIRCLING	520-1 490 (500-1)		520-1½ 490 (500-1½)	580-2 550 (600-2)

MIRL Rwys 4L-22R, 4R-22L and 11-29 L

PAC, 12 JUN 2025 to 07 AUG 2025
PAC, 12 JUN 2025 to 07 AUG 2025

VORTAC HNL	APP CRS	Rwy Idg	7989
114.8	074°	TDZE	17
Chan 95		Apt Elev	30

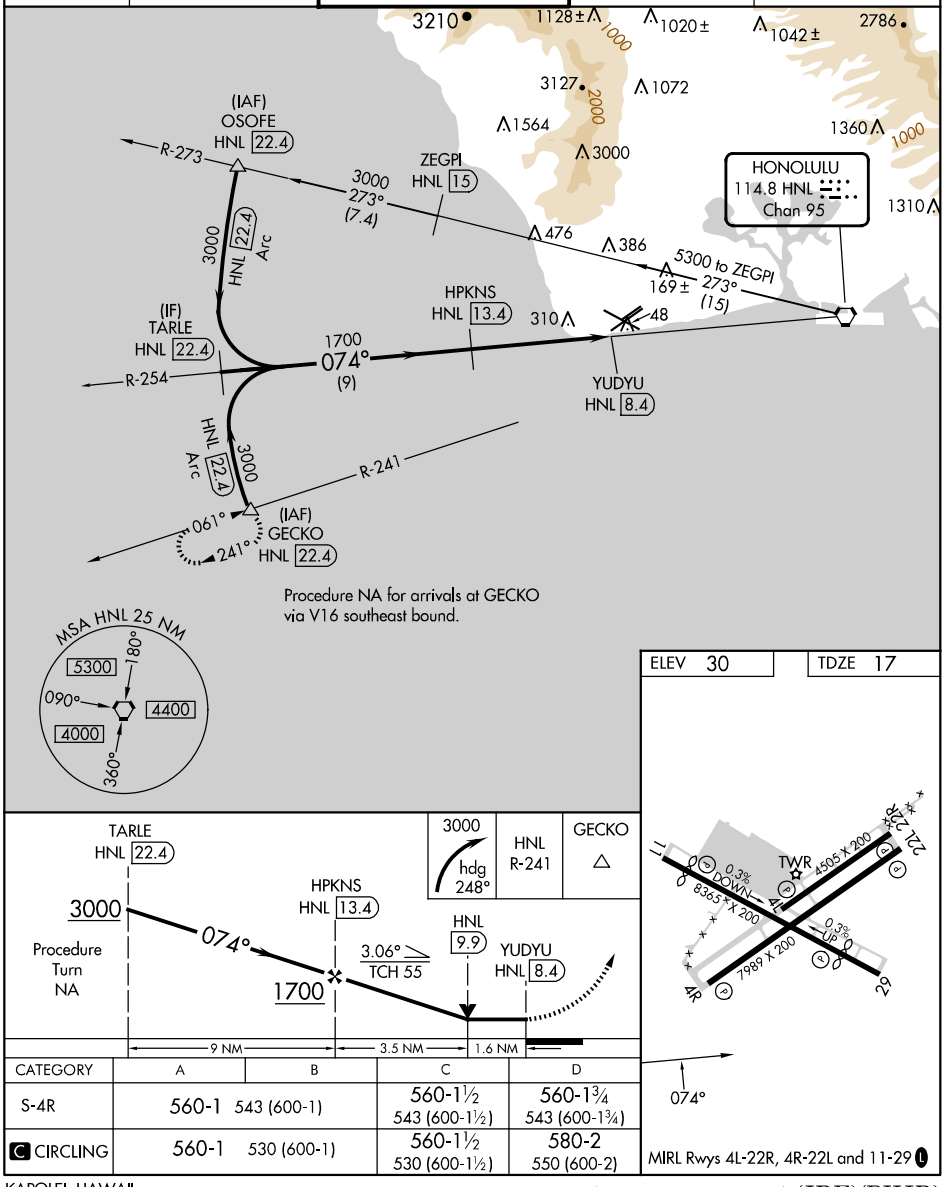
VOR/DME RWY 4R

KALAELOA (JOHN RODGERS FLD) (JRF)(PHJR)

Circling NA north of Rwy 4R-22L.
Inop table does not apply.

MISSED APPROACH: Climbing right turn to 3000 via heading 248° and HNL VORTAC R-241 to GECKO/HNL 22.4 DME and hold.

ATIS	HCF APP CON	KALAELOA TOWER ★	GND CON	CLNC DEL
119.8	118.3 269.0	132.6 (CTAF) 340.2	123.8 336.4	121.7 380.5



CATEGORY	A	B	C	D
S-4R	560-1	543 (600-1)	560-1½ 543 (600-1½)	560-1¾ 543 (600-1¾)
C CIRCLING	560-1	530 (600-1)	560-1½ 530 (600-1½)	580-2 550 (600-2)

MIRL Rwys 4L-22R, 4R-22L and 11-29 L

PAC, 12 JUN 2025 to 07 AUG 2025
PAC, 12 JUN 2025 to 07 AUG 2025