FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORT OFFICE

DUNNELLON/ MARION COUNTY AIRPORT (X35)

DISTRICT 5

GENERAL AVIATION AIRPORT

DECEMBER 2013

STATEWIDE Airfield Pavement Management PROGRAM

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

FLP Office of Freight, Logistics and Passenger Operations

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

142179022.13

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

EXECUTIVE SUMMARY

In 2012, the Florida Department of Transportation (FDOT) Aviation and Spaceport Office selected a team lead by ***Kimley-Horn and Associates, Inc.*** and including their subconsultants Peneul Consulting, LLC, Roy D. McQueen & Associates, LTD, and All About Pavements, Inc., to provide services in support of FDOT in the continued efforts of updating the existing Statewide Airfield Pavement Management Program (SAPMP). This work is to be completed over the fiscal years of 2013 and 2014.

The tasks required to achieve this objective at each participating airport specifically included the following:

- Obtain recent construction history from the airport to update the Pavement Network Definition Exhibits using CADD from the previous SAPMP update.
- Update the airport pavement inventory data (construction history, geometry, identification, and classification) based on airport information provided.
- Update the FDOT SAPMP MicroPAVER database files and system tables for the purpose of analyzing field data for Pavement Condition Index (PCI) calculation of current pavement condition
- Development of pavement performance models for the approximation of future pavement performance.
- Development of a maintenance and repair plan, and a 10-year major rehabilitation program to address the pavement needs based on condition.
- Development of planning level opinions of probable costs for pavement preservation and rehabilitation.

During June 2013, a PCI survey inspection was performed at Dunnellon / Marion County Airport. The results of the inspection indicate that, based on ASTM 5340-11, the airport's airfield pavement facilities had an overall area-weighted average PCI of 81, representing a Satisfactory overall network condition. **Table I** summarizes the overall condition summary by network level branch in comparison to the FDOT recommended minimum service level.

Table I: Condition Summary by Branch

Branch Name	Area Weighted PCI	PCI Range	Average Condition Rating	FDOT Minimum Service Level	MicroPAVER Minimum PCI	Action Required
APRON	63	63	FAIR	60	65	X
HANGAR APRON	75	26 - 100	SATISFACTORY	60	65	X
TERMINAL APRON	100	100	GOOD	60	65	
RUNWAY 10-28	76	76	SATISFACTORY	75	65	
RUNWAY 5-23	97	51 - 100	GOOD	75	65	X
EAST TAXIWAY	55	34 - 74	POOR	65	65	

For project level planning and inspection development; the airfield pavement facilities have been divided at the branch level based on facility use and designation, and at the section level based on pavement construction history, composition (e.g. asphalt versus concrete), aircraft traffic operations, and pavement surface conditions. **Table II** provides the overall area weighted condition of the pavement based on facility branch use.

Table II: Condition Summary by Pavement Facility Use

Use	Average Area-Weighted PCI	Condition Rating
Runway	89	GOOD
Taxiway	55	POOR
Apron	75	SATISFACTORY

Based on the inspection performed at the airport for this SAPMP update; the current conditions were determined using the collected PCI distress data. PCI values were computed and used to identify pavement facilities that were below the defined critical PCI as sections that would benefit from immediate major rehabilitation activity. These pavement sections that were determined to be below the critical PCI would most likely benefit from long-term major rehabilitative construction activity rather than localized, short-term maintenance and repairs.

The Year-1 Major Rehabilitation Needs, or projects that are recommended to be completed because the pavement is below the critical PCI, were developed on the assumption that there is an unlimited repair budget. These projects include:

- **Runway 5-23 –** Section 6215
  - PCC Restoration attributed to load repetition, overloading and pavement repair.
- **Hangar Apron –** Sections 4210, 4220 and 4230
  - Mill and Overlay along with Reconstruction attributed to load repetition, overloading, pavement repair, climate and age of pavement.
- **Apron –** Section 4105
  - Mill and Overlay attributed to climate and age of pavement.
- **Taxiway E –** Sections 110 and 115
  - Mill and Overlay along with Reconstruction attributed to subgrade quality, climate and age of pavement.

The section level projects that were identified as Year-1Major Rehabilitation Needs are in **Table III**.

Table III: Year-1 Major Rehabilitation Needs for Dunnellon / Marion County Airport

Branch ID	Section ID	Major Rehabilitation Costs	PCI Before M&R	Rehabilitation Activity	PCI After M&R
AP HANGAR	4210	$ 101,965.70	59	Mill and Overlay	100
AP HANGAR	4220	$ 190,930.79	62	Mill and Overlay	100
AP HANGAR	4230	$ 195,940.85	25	Reconstruction	100
RW 5-23	6215	$ 299,999.99	51	PCC Restoration	100
AP	4105	$ 1,273,665.84	63	Mill and Overlay	100
TW E	110	$ 1,675,818.32	53	Mill and Overlay	100
TW E	115	$ 56,250.01	33	Reconstruction	100
	Total =	$3,794,571.50			

The SAPMP uses historic pavement condition data from the previous inspections to develop pavement performance models. These pavement performance models are used to create PCI prediction curves to estimate future pavement conditions based on the historic trends. The section areas, prediction curves, and current condition data were used to develop a 10-year major rehabilitation program. Major rehabilitation costs for each year of the 10-year program are based on general unit costs for pavement repairs and not detailed cost estimates that are typically prepared for a construction set of bid documents. Additionally, preventative maintenance level repair budgets were estimated for a 10-year duration. Table IV provides an annual summary of the 10-year Preventative Maintenance and Major Rehabilitation planning level cost opinions for the airfield pavement facilities at the airport. Refer to Section 6 of this report for additional information.

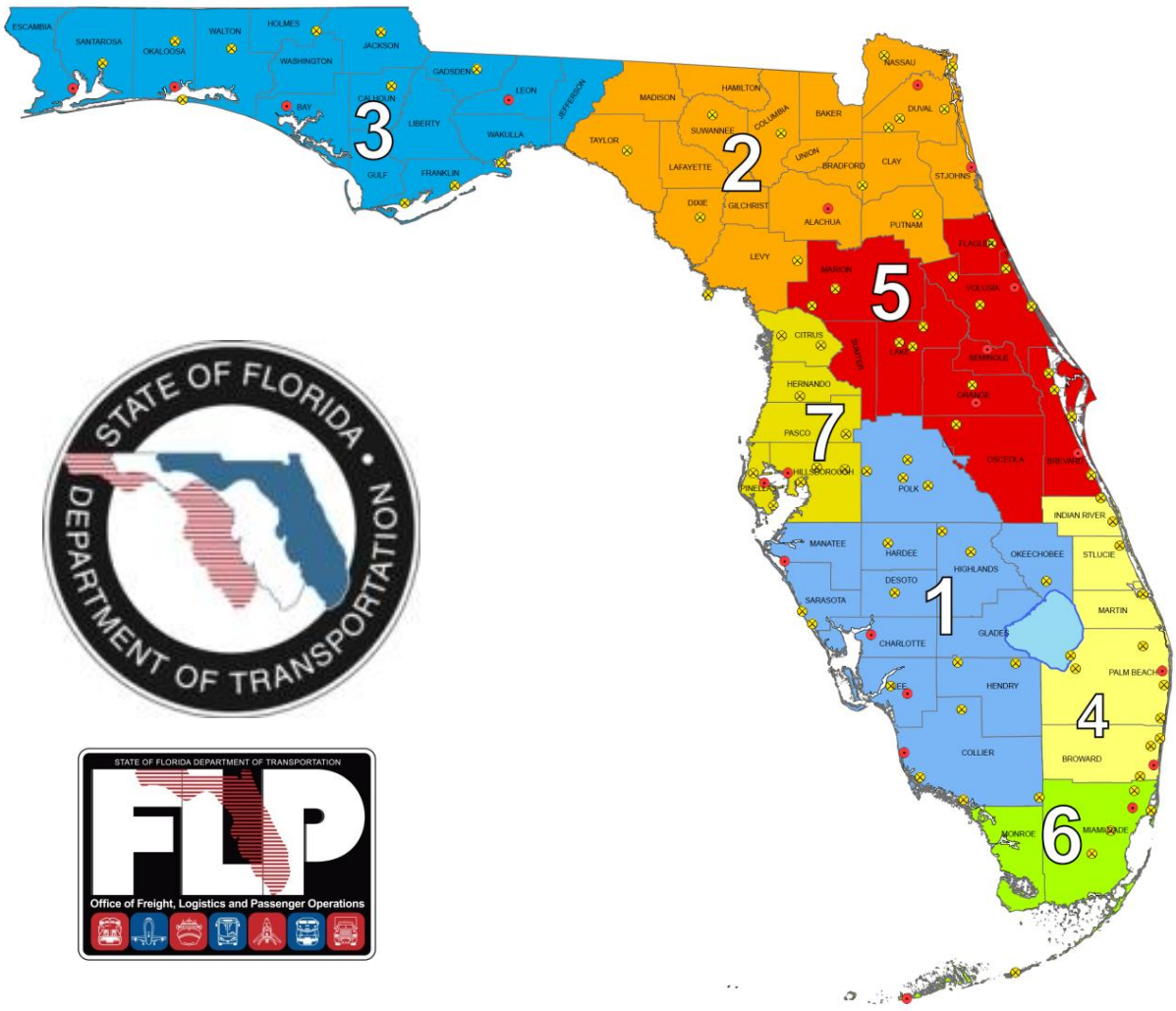
Table IV: 10-Year Preventative Maintenance and Major Rehabilitation

Year	Preventative	Major M&R	Total Year Cost
2014	$ 86,825.17	$ 3,794,571.49	$ 3,881,396.66
2015	$ 93,505.62	$ -	$ 93,505.62
2016	$ 127,151.14	$ -	$ 127,151.14
2017	$ 191,571.75	$ -	$ 191,571.75
2018	$ 264,807.66	$ -	$ 264,807.66
2019	$ 339,165.32	$ -	$ 339,165.32
2020	$ 398,620.42	$ -	$ 398,620.42
2021	$ 445,245.20	$ -	$ 445,245.20
2022	$ 491,458.00	$ -	$ 491,458.00
2023	$ 388,644.15	$ 3,570,311.50	$ 3,958,955.65
Total	**$2,826,994.43**	**$7,364,882.99**	**$ 10,191,877.42**

The success of the repair program for your airport depends on the timely implementation of preservation, localized maintenance and repairs, and major rehabilitation work activities. If work is completed as scheduled, your airport will probably experience an improvement to the overall area-weighted average PCI. Though this analysis was performed with the assumption of an "unlimited budget", the purpose has been to identify specific projects over the course of 10-years for each pavement section where the condition is projected to fall below the critical PCI. The costs depicted in this study are intended to aid the airports in planning level budgets. Prior to construction work, it is recommended that the airport perform additional investigation at the design level to better estimate costs associated with the maintenance, repair, and major rehabilitation activity discussed.

1. INTRODUCTION

The State of Florida has more than 100 public airports that are vital to the Florida economy as well as the economy of the United States. The aviation system in Florida allows the State to capitalize on an increasingly global marketplace. Florida's system of commercial service and general aviation airports are important to businesses throughout the entire State. Air travel is essential to tourism, Florida's number one industry.



There are millions of square feet of pavement infrastructure that consists of runways, taxiways, aprons, ramps, and other areas of airports that are vital to the support and safety of aircraft operations. Timely pavement maintenance repair and major rehabilitation of these pavements will support the airport in operating safely, efficiently, economically and without excessive down time.

The Florida Department of Transportation (FDOT) Aviation and Spaceport Office implemented the Statewide Airfield Pavement Management Program (SAPMP) in 1992. In 2012, the FDOT Aviation and Spaceport Office selected a team led by Kimley-Horn and Associates, Inc. and including Peneul Consulting, LLC, Roy D. McQueen & Associates, LTD, and All About Pavements, Inc., to provide services in support of the Aviation and Spaceport Office Program Manager. The continued evaluation and update of the existing SAPMP is to be completed over fiscal years 2013 and 2014.

This individual airport airfield pavement evaluation report discusses the work performed, a summary of findings, condition analysis results, and recommendations for maintenance repair and major rehabilitation planning associated with the SAPMP update. It also briefly describes the procedures used to ensure that the appropriate engineering and scientific standards of care, quality, budget, schedules, and safety requirements were implemented during the performance of this work.

1.1 Purpose of Pavement Evaluation Report

The purpose of this Airfield Pavement Evaluation Report is to:

- Describe, briefly, the SAPMP goals, procedures, and responsibilities of the program's participants.
- Provide a brief technical explanation on pavement management principles, standard practices, objectives, and benefits of implementation.
- Outline procedures used to coordinate, collect, evaluate and report pavement inspection results at this airport.
- Analyze and utilize condition results for the development of maintenance, repair, and major rehabilitation based on pavement performance trends.

1.2 FDOT Statewide Airfield Pavement Management Program

In 1992, the FDOT implemented the SAPMP to improve the knowledge of pavement conditions at public airports in the Florida Airports System, identify maintenance and rehabilitation needs at each airport, automate pavement infrastructure information management, and establish standards to address future needs. The 1992 SAPMP implementation provided the FDOT and the participating airports valuable information for establishing and performing timely and appropriate pavement rehabilitation.

During the 1992-1993 implementations and again during the 1998-1999 updates; the SAPMP performed the development of proprietary software for pavement

management system analysis. This development allowed for the creation of pavement management database file system populated with airport attributes and condition data. The pavement management database was used to establish maintenance, repair, and rehabilitation (M&R) policies, M&R budget costs, and the development of recommendations for performing routine pavement preservation maintenance. This system, known as AIRPAV, was initially developed during the 1992-1993 SAPMP implementation for the analysis of distress data. The AIRPAV system was used again in the 1998-1999 SAPMP update.

In 2004, the SAPMP update included the review of the AIRPAV software compared to other industry available non-proprietary software packages. As a result of this review, MicroPAVER was selected for implementation of the system update. MicroPAVER was developed by the U.S. Army Corps of Engineers Construction Engineering Research Laboratory for the purpose of pavement management. Data from the 1998-1999 FDOT SAPMP update, which was built upon the initial 1992-1993 implementation of AIRPAV, was reviewed and converted to be compatible with the MicroPAVER system. This data conversion included all documented pavement facility, classification, type, history, geometry, PCI condition data and pertinent attributes gathered from airport feedback at the time. This information was used to develop the inventory of each participating airport's pavement facilities in a consistent format. This was the development of Airfield Pavement Network Definition Exhibits. These inventory exhibits visually depicted the branch, section, and sample units that were based upon the pavement construction history and composition information provided by each airport.

In 2006-2008, the SAPMP was updated again with continued use of the MicroPAVER system. Based on the distress data collected, a maintenance repair and major rehabilitation planning program was developed for each airport. As part of this SAPMP update, the procedures for the inspection and the collection of the pavement distress data were documented, and an interactive website (http://www.dot.state.fl.us/aviation/pavement.shtm) was established for input of data.

In 2010-2012, the SAPMP was updated using new GPS integrated technology to digitally collect pavement distress data. Interactive GIS map files were developed from updated Airfield Pavement Network Definition Maps to aid pavement condition inspectors in the collection of sample distress data. The

data collected was utilized to develop pavement performance models to predict future pavement PCI values and make recommendations for major rehabilitation.

Currently, airports participating in the Airport Improvement Program (AIP) Grant Program are required by the Federal Aviation Administration (FAA) to develop and implement a pavement maintenance program to be eligible for funding (FAA Advisory Circular 150/5380-6B *Guidelines and Procedures for Maintenance of Airport Pavements*). This program requires detailed inspection of airfield pavement conditions by trained personnel. The inspections are required to be performed at least once a year or every three years, if the pavement is inspected in accordance to the PCI survey procedure (such as ASTM International D 5340 *Standard Test Method for Airport Pavement Condition Index Surveys*). The previous 2010-2012 SAPMP update utilized the ASTM D 5340-04 released in 2004, in lieu of the 2010/2011 edition, in order to maintain consistent database integrity and benefit of pavement performance models from previous inspections.

1.3 Organization

FDOT Aviation and Spaceport Office Program Manager

The FDOT Central Office Airport Engineering Manager serves as the Aviation Office Program Manager (AO-PM) for the SAPMP. The AO-PM monitors the work performed by the Consultant. The AO-PM has review and approval authority for each program task and manages the day-to-day details of the SAPMP and the pertinent updates.

The AO-PM reports updates and milestones to the FDOT State Aviation Manager and Aviation Development Administrator.

Consultant

The Consultant, Kimley-Horn and Associates, Inc. and their team consisting of Peneul Consulting, LLC, Roy D. McQueen & Associates, LTD, and All About Pavements, Inc. provide technical and administrative assistance to the AO-PM during the execution of the update to the SAPMP. The efforts include updating the airport pavement inventory data, performing the condition survey inspections, evaluating the airfield pavement conditions and updating the SAPMP based upon procedures outlined in the FAA Advisory Circular 150/5380-6B *Guidelines and Procedures for Maintenance of Airport Pavements* and ASTM D 5340.

Airport Role

The airports are the ultimate client for each condition survey inspection performed at their respective airfields as part of the SAPMP. The individual airports will be provided final deliverables prepared by the Consultant that have been reviewed and approved by the AO-PM. The airport should provide a current Airport Layout Plan (ALP) to the Consultant and, if they participated in the previous SAPMP, indicate any construction activity that has been performed since the previous inspections.

FDOT District Offices

The seven FDOT District Offices, specifically the Aviation Representatives, provide vital support to the SAPMP update and the AO-PM. Each District supports the SAPMP's on-going efforts of provided representative construction trend costs and practices through the Florida Airports System. Each District Office receives copies of individual Airfield Pavement Evaluation Reports for the airport facilities located within their respective districts.

1.4 Introduction to Pavement Types and Pavement Management

Pavement Basics

A pavement is a prepared surface designed to provide a continuous smooth ride at all taxi, takeoff, and landing speeds and to support an estimated amount of traffic loading for a certain number of years. Pavements are composed of a combination of constructed layers of subgrade soils, subbases, base course material, and surface level courses. There are mainly two types of pavements:

- Flexible Pavement, a composition of bituminous asphalt concrete (AC) surface, base, and subbase layers.
- Rigid Pavement, a composition of Portland Cement Concrete (PCC) surface, base, and subbase layers.

Both pavement types use a combination of layered materials and thicknesses in order to support the traffic loads (both magnitude and repeated application) and protect the underlying subgrade soil. Flexible pavements dissipate applied loads from layer to layer until the load magnitude is small enough to be supported by the subgrade soil. In rigid pavements, the PCC layer supports the majority of the structural load applied, and the base or subbase layer is constructed to provide a smooth, level, and continuous platform that provides uniform support for PCC slabs.

A small percentage of airfield pavements within the Florida Airports System are composed of hybrid 'composite pavement' sections that may include both AC pavement and PCC pavement. The two known composite pavements are AC surface over PCC (APC) and PCC over AC (White Topping).

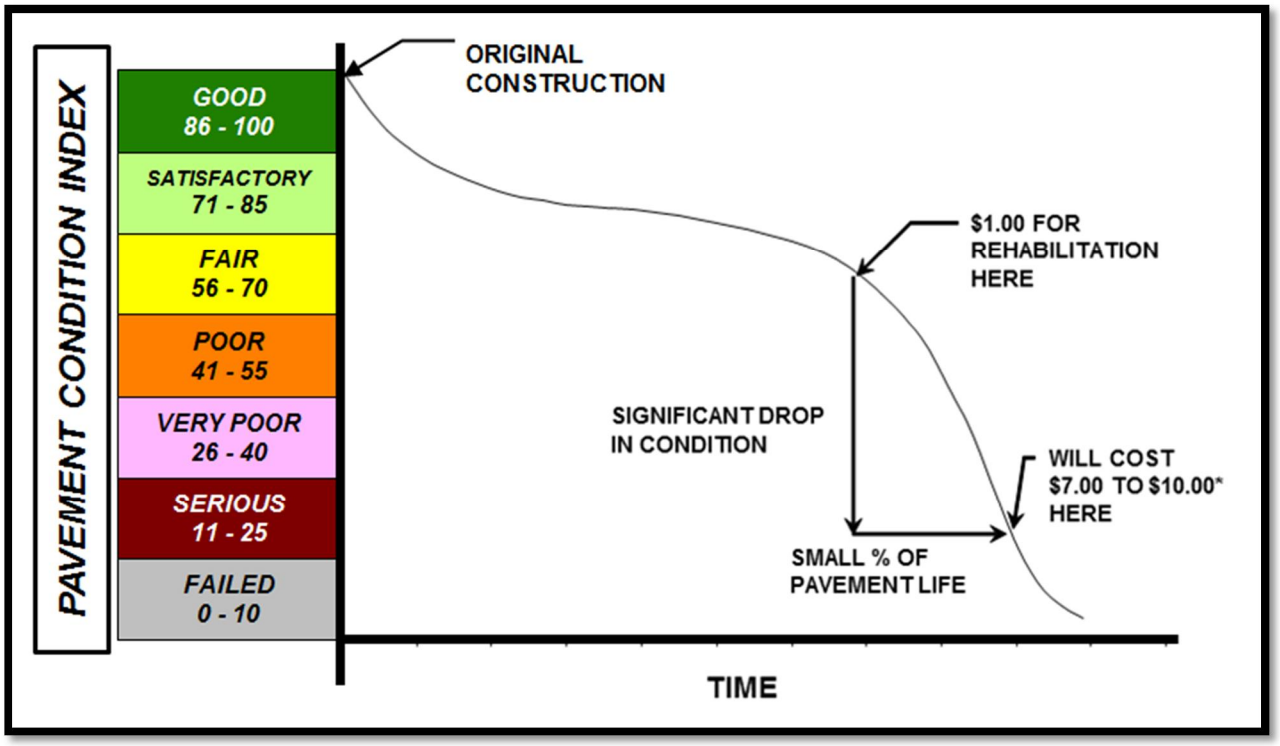
Due to the different nature of the pavement types, construction, and their materials; flexible and rigid pavements have different modes of failure and fatigue. This results in varying deterioration and distress development. Understanding the mechanics and modes of failure of the pavement types will assist the engineers in making timely, adequate, consistent, and economical maintenance repairs and major rehabilitation to the pavement structures at each airfield.

The Concept of an Airfield Pavement Management System

The SAPMP is a program that provides the Florida Airports System an opportunity to implement and/or maintain a proactive Airfield Pavement Management System (APMS) in a consistent manner at a regular schedule. The SAPMP Airfield Pavement Management System consists of pavement inventory, pavement construction and history, condition survey inspections, pavement performance modeling, maintenance recommendations, and major rehabilitation planning. The various elements of the APMS are used by experienced engineers to identify critical pavements, make pavement preservation or rehabilitation recommendations, and approximate pavement performance. The APMS as a whole is used by an airport's stakeholders, managing agencies, engineers, and planners as a tool in decision making for future project planning, budgeting, and scheduling of activities for its airfield pavement infrastructure.

A benefit of an active APMS is it provides an understanding of an airport's pavement performance trends for the purpose of project planning. Based on the performance trend of their pavements, an airport can schedule pavement maintenance and rehabilitation prior to when the pavement section has deteriorated to a condition that would require reconstruction. The use of pavement performance trends will help airports plan M&R and Rehabilitation projects in a manner and sequence that maximizes benefit and minimizes costs. **Figure 1-1**, which is based upon the FAA Advisory Circular 150 5380-7A *Airport Pavement Management Program*, illustrates how pavement generally deteriorates over time and the relative cost of rehabilitation and reconstruction throughout its life.

Figure 1-1: Pavement Life Cycle



Source: FAA Advisory Circular 150 5380-7A Airport Pavement Management Program

Note that during approximately the first 75% of a pavement's life, it performs relatively well. After that, however, it begins to deteriorate rapidly. The number of years a pavement stays in 'Good' and 'Satisfactory' conditions depends on how well it is proactively maintained. As the **Figure 1-1** demonstrates, the cost of maintaining the pavement above critical condition before rapid deterioration occurs is much less compared to maintaining pavements after substantial deterioration has occurred.

Pavements tend to deteriorate at an accelerated rate when actual traffic loading exceeds the original design assumptions and when limited resources are available for maintenance and repair (M&R) efforts. Planned maintenance and rehabilitation, essentially preserving pavements and delaying condition deterioration, help airport (managers, agencies, and engineers) maximize the use of their budgets and prolong the life of their pavements. An APMS provides a tool to schedule planned maintenance and major rehabilitation efforts based on a consistent methodology of condition assessment. This consistent methodology of pavement condition assessment allows for the development of pavement performance models to help forecast future pavement conditions.

Part of the implementation of the APMS is the clear identification and inventorying of pavement infrastructure that needs to be managed specifically within the airport (owner, manager, and agencies) responsibility. Another aspect of the APMS is development of maintenance, repair, and major rehabilitation policies that align with the expectations of pavement performance and are based on ability to fund the types of work identified. Once there is an understanding of the cause and extent of pavement distresses, appropriate maintenance and rehabilitation can be planned. By using representative construction costs based on historic bid trends; planning level budget costs can be developed on a multiyear duration.

Airfield Pavement Inspection Methodology for the SAPMP

Pavement condition assessment requires the application of professional judgments regarding the condition of the pavement. The SAPMP airfield pavement condition survey inspections assess pavement, comparing it to a set of standards in ASTM D 5340-*11*. As part of this update, SAPMP has adopted the changes made in updates to ASTM D 5340-11. These include the separation of Weathering and Raveling into two distinct flexible pavement distresses, and the addition of the Alkali-Silica Reactivity distress for rigid pavement distresses. The change in distress classification, as described in ASTM D 5340-11, may result in small variances in the PCI values from the previous inspection analysis.

The pavement condition surveys assess the functional condition of the pavement surface based on surface distresses as defined by the ASTM D 5340-11. Typically, deficiencies within a pavement structure will eventually reflect to the pavement surface as distresses described within ASTM D 5340-11. The SAPMP is specifically a visual evaluation and analysis based on the ASTM D 5340-11. The structural condition and relative support of the pavement layers can be directly quantified using non-destructive deflection testing (NDT) as well as other in-depth engineering evaluation or sampling and testing methods.

For the SAPMP update, only visual surveys were performed. Further structural and geotechnical testing should be conducted to determine design level rehabilitation and/or reconstruction needs should the airport proceed to the design process.

In preparation for the PCI survey inspections, the airfield pavements for each airport are divided into branches, sections, and sample units as established by FAA Advisory Circular 150/5380-6B and ASTM D 5340. Further discussion of the process of inventorying and categorizing pavement facilities by use,

composition, and history can be found in **SECTION 2 *AIRFIELD PAVEMENT NETWORK DEFINITION and PAVEMENT INVENTORY*.**

Sample units are uniformly divided areas of pavement that are defined for inspection. Sample unit sizes are approximately 5,000 ± 2,000 square feet for flexible AC pavements and 20 ± 8 slabs for rigid PCC pavements. Prior to conducting the field condition survey inspections, the sampling plan was developed for the airfield pavements based on updates to the previous inspection sampling based on the available knowledge of construction updates. The sample rate adopted for the SAPMP is depicted on **Table 1-1**.

Table 1-1: Sampling Rate Schedule for SAPMP PCI Survey Inspections

Flexible Pavements Asphalt Concrete		
Number of Sample Units in Section	Number of Sample Units to Inspect	
	Runway	***Taxiways, Aprons, Others***
1 - 4	1	1
5 - 10	2	1
11 - 15	3	2
16 - 30	5	3
31 - 40	7	4
41 - 50	8	5
≥ 51	20% but ≤ 20	10% but ≤ 10

Rigid Pavements Portland Cement Concrete		
Number of Sample Units in Section	Number of Sample Units to Inspect	
	Runway	***Taxiways, Aprons, Others***
1 - 3	1	1
4 - 6	2	1
7 - 10	3	2
11 - 15	4	2
16 - 20	5	3
21 - 30	7	3
31 - 40	8	4
41 - 50	10	5
≥ 51	20% but ≤ 20	10% but ≤ 10

The sample units to be inspected were determined through a systematic random sampling technique to provide an unbiased representation of sample units for each pavement facility. The sample unit locations had been determined in such a way that they are distributed evenly throughout each defined pavement section area. In certain cases when no representative distresses are observed in the field, additional sample units were added.

The distress quantities and severity levels from each inspected sample unit are used to compute the PCI value and rating for each Section using the ASTM D 5340-11 and MicroPAVER software. **Figures 1-2** and **1-3** depict graphical representations of the color ranges associated with PCI values and ranges with

a photograph of airfield pavement that exhibited the conditions for both flexible and rigid pavements respectively.

Figure 1-2: Flexible Pavement, Asphalt Concrete

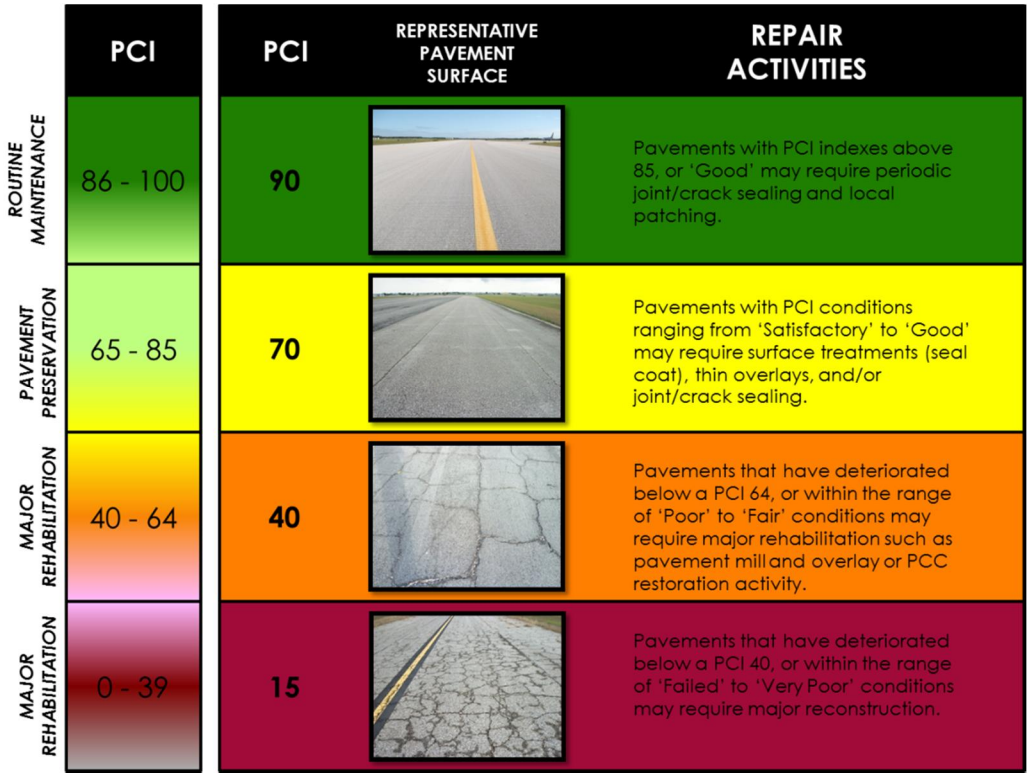
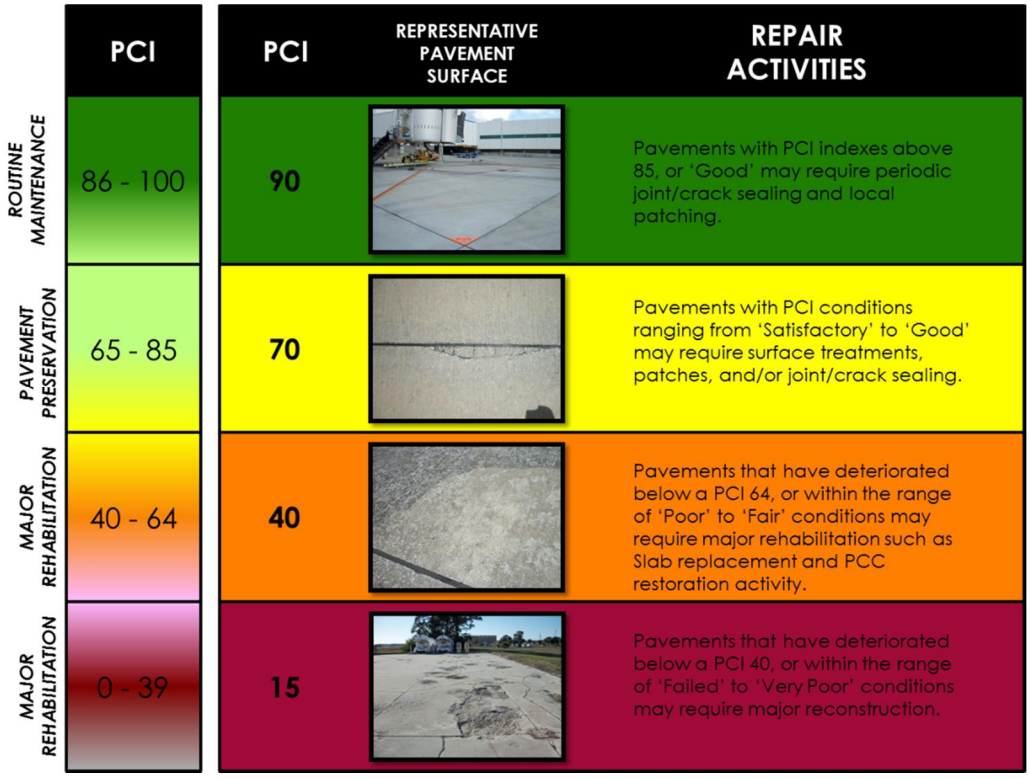


Figure 1-3: Rigid Pavement, Portland Cement Concrete



Using the ASTM D 5340-11 standard seven qualitative ranges, the SAPMP provides a PCI value and a standard qualitative condition rating for the pavement facilities inspected.

2. AIRFIELD PAVEMENT NETWORK DEFINITION AND PAVEMENT INVENTORY

Dunnellon / Marion County Airport (X35) is located in the City of Dunnellon, Florida. The airport is directly controlled by the County Board of Commissioners and is operated by the Parks and Recreation Department. Dunnellon / Marion County Airport focuses primarily on serving general aviation aircraft and is served by two intersecting runways. These runways are Runway 5-23 (Length = 4,941 feet) and Runway 10-28 (Length = 4,702 feet). Neither runway has a parallel taxiway, but both can be reached by an interconnecting taxiway that starts at the 23 end of Runway 5-23 goes to the 27 end of Runway 10-28.

It is important to note that the aforementioned runway data in addition to the remaining airfield pavement facilities geometric attributes may vary slightly from the geometry used in the condition exhibit in **Appendix B** and the major rehabilitation exhibit in **Appendix F** based on field measurements.

The airport was opened in 1942 by the United States Army Air Forces as Dunnellon Army Airfield for use as a training airfield. For the first year of operation, the airfield was used to train troop carrier groups. In 1943, the airfield was reassigned to the Air University's School of Applied Tactics tactical combat simulation school. The school's mission was to develop tactics and techniques for aerial warfare and establish proficiency requirements for combat units. Following the end of World War II, the airfield was deeded to Marion County.

Dunnellon / Marion County Airport is designated as a General Aviation (GA) airport and is located in District 5 of the Florida Department of Transportation.

2.1 Network Definition

The airfield pavements within each airport network are separated into manageable units within the FDOT SAPMP MicroPAVER database system, organizing pavement data by similar use and constructive history.

Branch and Section Identification

Each airport's airfield pavement network is generally subdivided into separate Branches (runways, taxiways, aprons/ramps, or others) that have distinctly different functional identifications and uses. Each Branch is further subdivided into Sections as defined by pavement location, composition, and construction history. A Section is typically understood to be a project level subdivision within a Branch feature. Sections are manageable units to organize data collection and

are treated individually during the maintenance and major rehabilitation planning process. A pavement rank (primary, secondary, or tertiary) is assigned to each Section based on its importance and type of use to airport operations. The pavement rankings designated for each section at this airport were defined by the previous SAPMP, unless changes were communicated by the airport. These Sections are further subdivided into condition survey sample units based on the methodology described in ASTM D 5340.

Airfield Pavement System Inventory and Network Definition Update

The Airfield Pavement System Inventory and Airfield Pavement Network Definition Exhibits are developed individually for each participating airport. Based on information requested of and provided by the airport, the airfield pavements are evaluated on designation updates, and recent or anticipated pavement construction activity. As mentioned previously, a Section is defined partially by its construction history; this variable that factored in the performance and condition of the pavement section.

The Airfield Pavement System Inventory Exhibit, Figure A-2 in **Appendix A**, is a snapshot of recent and anticipated airfield pavement construction activity communicated by the airport since the last SAPMP update. Construction activities identified include maintenance and repair activity, major rehabilitation, and airfield pavement expansion efforts. Maintenance and repair activity may include; surface treatments, crack sealing, patching, slab replacement, and others. Both maintenance and rehabilitation activities are identified at the pavement section level. This type of work may result in an increase in overall Section PCI since the last inspection. Major rehabilitation efforts may include; asphalt milling and overlay, and full depth pavement reconstruction. This type of effort will result in a resetting of the pavement section PCI value to 100 due to the nature of the work. Lastly, airfield pavement expansions are accounted for as new inventory and assigned a section PCI of 100. Typically the new pavement sections are not inspected due to its condition; however these pavements are incorporated into the SAPMP pavement database. When possible, these changes are reflected in the Airfield Pavement Network Definition Exhibit, in **Appendix A**, prior to the field inspection. The updates are typically discussed and confirmed with airport personnel at the beginning and end of condition survey inspections to ensure accuracy.

The Airfield Pavement Network Definition Exhibit depicts the airport's pavement limits with Branch and Section delineations. This exhibit also includes the

subdivision on Section areas into sample units and is used to identify those sample units that are to be inspected. The previous SAPMP Airfield Pavement Network Definition Exhibits were used as a base. Updates and information provided by each airport was reviewed and the exhibits were revised appropriately. Characteristics that are considered include; airfield configuration, branch designations (magnetic declination, Airport Layout Plan updates) and pavement composition. The exhibit serves not only as a primary guide for the airfield inspectors but also allows specific distresses found in the re-inspection report to be geographically located.

Due to recent and anticipated construction efforts; pavement area sections may have been consolidated and created which will affect the total number of sample units to be inspected based upon the methods described in ASTM D 5340 and from the sampling rate schedule. **Table 2-1** summarizes the recent and anticipated airfield pavement construction efforts communicated by the airport.

Table 2-1: Recent and/or Anticipated Airfield Pavement Construction

Construction Year	Section Location	Work Type/Pavement Section
2011	RUNWAY 5-23	MILL AND OVERLAY
2011	APRON HANGAR	NEW CONSTRUCTION / SECTION 4240
2011	RUNWAY 9-27	PAVEMENT REJUVENATOR/RW 9-27 RE-DESIGNATED TO RW 10-28
2013	NEW PARKING APRON	NEW CONSTRUCTION / SECTION 4305
2015	PARALLEL TAXIWAY TO RUNWAY 5-23	NEW CONSTRUCTION
2015	NORTH/SOUTH TAXIWAY AND PARKING APRON	REHABILITATION

Airfield Pavement Network Definition & Geographic Information System (GIS)

As part of this SAPMP update, geographic information system (GIS), global positioning system (GPS), and digital data collection were integrated into the Pavement Inspection Methodology at each airport. Using AutoCAD Civil 3D, ArcMap, ArcPad, and FDOT Survey and Mapping Office Aerial Photography; digital navigation maps have been developed for each airport to represent the SAPMP pavement inventory attributes. These navigation maps were used with field data tablets to assist survey teams as they performed condition inspections by navigating pavement infrastructure and collecting distress data.

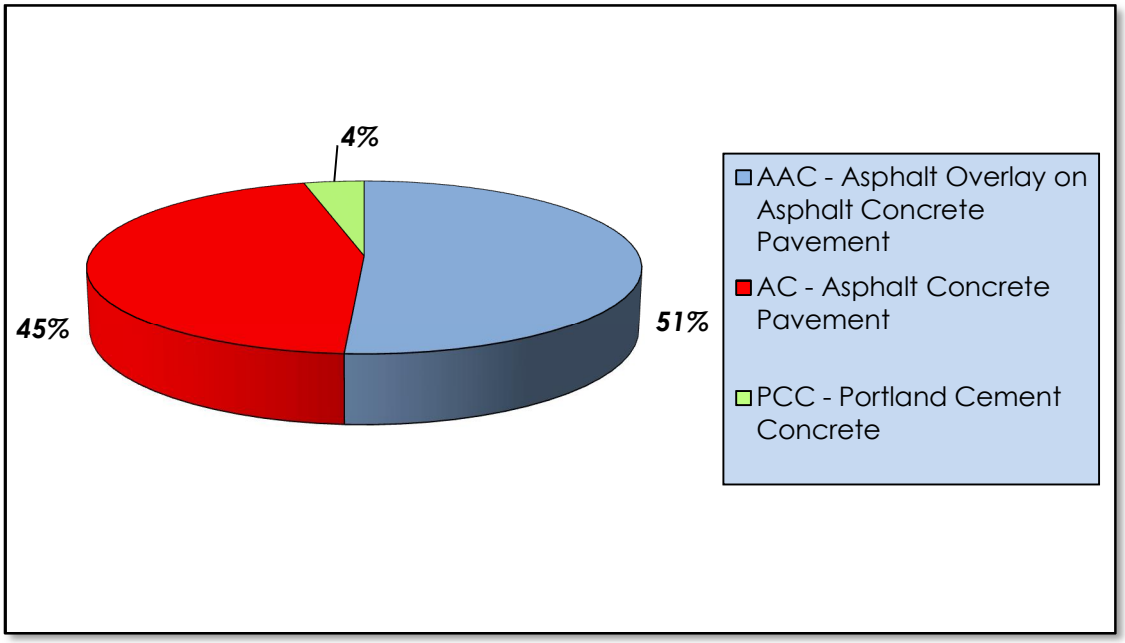
2.2 Pavement Inventory

The detailed pavement inventory database was updated to reflect the Airfield Pavement Network Definition Exhibit, in **Appendix A**, updates and field inspection results. **Table 2-2** and **Figure 2-1** provides a summary of the pavement inventory attributes at Dunnellon / Marion County Airport-(X35) for this SAPMP update.

Table 2-2: Pavement Inventory Summary

Airfield Pavement Network Definition		
Number of Branches	6	
Number of Sections	13	
Sample Units	57	
Airfield Pavement Use		
Use	**Area (SF)**	**Relative Area (%)**
Runway	773,635	62%
Taxiway	187,117	15%
Apron	280,025	23%
Total =	**1,240,778**	**100%**
Airfield Pavement Type		
Type	**Area (SF)**	**Relative Area (%)**
Asphalt Concrete (AC)	556,383	45%
Asphalt Overlay (AAC)	637,582	51%
Portland Cement Concrete (PCC)	46,813	4%
AC over PCC (APC)	0	0%

Figure 2-1: Airfield Pavement Type



Specific details to each Branch and Section such as; name, geometry, age, rank, surface type, and construction history are provided in **Table 2-3**.

Table 2-3: Airfield Pavement Inventory Details

Branch Name	Branch ID	Section ID	True Area (SF)	Section Rank	Surface Type	Last Const. Date	Total Samples Inspected	Total Samples
RUNWAY 5-23	RW 5-23	6215	30,000	P	PCC	1/1/1942	2	6
RUNWAY 5-23	RW 5-23	6210	428,000	P	AAC	12/1/2011	17	86
RUNWAY 5-23	RW 5-23	6205	42,000	P	AAC	12/1/2011	2	8
RUNWAY 10-28	RW 10-28	6105	273,635	S	AC	1/1/1993	18	90
TERMINAL APRON	AP TERM	4305	67,389	P	AC	7/1/2013	2	14
HANGAR APRON	AP HANGAR	4240	42,917	T	AC	1/1/2011	3	15
HANGAR APRON	AP HANGAR	4230	13,063	T	PCC	1/1/1999	1	2
HANGAR APRON	AP HANGAR	4220	19,093	T	AC	1/1/1999	2	6
HANGAR APRON	AP HANGAR	4210	10,197	T	AC	1/1/1999	1	3

Branch Name	Branch ID	Section ID	True Area (SF)	Section Rank	Surface Type	Last Const. Date	Total Samples Inspected	Total Samples
APRON	AP	4105	127,367	P	AC	1/1/1991	3	24
EAST TAXIWAY	TW E	115	3,750	P	PCC	1/1/1942	1	1
EAST TAXIWAY	TW E	110	167,582	P	AAC	1/1/1989	4	33
EAST TAXIWAY	TW E	105	15,785	P	AC	1/1/1993	1	3

Note: If new construction, then survey date = last construction date and PCI is set to 100 by MicroPAVER.
* Sections not surveyed due to reasons such as re-sectioning, no escort, not accessible at the time of survey.

3. AIRFIELD PAVEMENT CONDITION

Airfield pavement distresses and condition were surveyed in accordance with the methods outlined in FAA Advisory Circular 150/5380-6B and ASTM D 5340-11. These procedures define distress type, severity, and quantity for sampling areas within each defined pavement section area to analyze and determine the PCI value and condition rating.

The program has been updated from ASTM D 5340-04, released in 2004, to ASTM D 5340-11, released in 2011, for this SAPMP update. The primary updates include the separation of certain distress types and the addition of new types with corresponding changes to PCI calculation. These changes in distress classification may result in small variances in the PCI values from the previous inspection analyses.

3.1 Inspection Methodology

A pavement condition survey inspection is performed by measuring the amount and severity of defined pavement distresses observed within the boundaries of sample units. These distresses, as defined by ASTM D 5340, are generally caused by traffic fatigue loading, exposure to climate and elements, and other airfield specific factors. This data is collected by field personnel experienced in pavement condition survey inspection. Data collection is then transferred into the FDOT MicroPAVER database system. MicroPAVER is used to calculate PCI values using the methodology described in ASTM D 5340-11. The values are calculated for each sample and extrapolated on a Section level to determine an area-weighted PCI value ranging from 0 to 100 and one of seven condition ratings. **Tables 3-1** and **3-2** describe the distresses as defined by the ASTM D 5340-11 and adopted for the SAPMP procedures.

Table 3-1: Airfield Pavement Distresses for Asphalt Concrete

Code	Distress	Primary Mechanisms
41	Alligator Cracking	Load / Fatigue Failure
42	Bleeding	Construction Quality/ Mix Design
43	Block Cracking	Climate / Age
44	Corrugation	Load / Construction Quality
45	Depression	Subgrade Quality
46	Jet Blast	Aircraft
47	Joint Reflection - Cracking	Climate / Prior Pavement
48	Longitudinal/Transverse Cracking	Climate / Age
49	Oil Spillage	Aircraft / Vehicle
50	Patching	Utility / Pavement Repair
51	Polished Aggregate	Repeated Traffic Loading
52	Raveling	Climate / Load
53	Rutting	Repeated Traffic Loading
54	Shoving	PCC Pavement Growth / Movement
55	Slippage Cracking	Load / Pavement Bond
56	Swelling	Climate / Subgrade Quality
57	Weathering	Climate

Source: U.S. Army CERL, FDOT Airfield Inspection Reference Manual

Table 3-2: Airfield Pavement Distresses for Portland Cement Concrete

Code	Distress	Primary Mechanisms
61	Blow-up	Climate / Alkali Silica Reaction
62	Corner Break	Load Repetition / Curling Stresses
63	Linear Cracking	Load Repetition / Curling Stresses / Shrinkage Stresses
64	Durability Cracking	Freeze-Thaw Cycling
65	Joint Seal Damage	Material Deterioration / Construction Quality
66	Small Patch	Pavement Repair
67	Large Patch/Utility Cut	Utility / Pavement Repair
68	Popout	Freeze-Thaw Cycling
69	Pumping	Load Repetition / Poor Joint Sealant
70	Scaling/Crazing	Construction Quality / Freeze-Thaw Cycling
71	Faulting	Load Repetition / Subgrade Quality
72	Shattered Slab	Overloading
73	Shrinkage Cracking	Construction Quality / Load
74	Joint Spalling	Load Repetition / Infiltration of Incompressible Material
75	Corner Spalling	Load Repetition / Infiltration of Incompressible Material
76	Alkali-Silica Reaction	Construction Quality / Climate

Source: U.S. Army CERL, FDOT Airfield Inspection Reference Manual

3.2 Airfield Pavement Condition Index Rating Results

From the condition survey inspection performed in 2013 at Dunnellon / Marion County Airport, the overall weighted average PCI value is 81 representing a condition rating of Satisfactory.

Overall the airport exhibited pavement distresses associated with climate and age distress. The majority of the airfield was composed of AC pavement with isolated areas of PCC pavement.

Runway 5-23 recently underwent a mill and overlay rehabilitation in December of 2011 and was not inspected due to its recent construction. The first 300' of Runway 5-23 at the 23 end was not rehabilitated since it is the original PCC pavement constructed in 1942. This portion of the runway was inspected and

exhibited low and medium severity longitudinal/transverse cracking, low severity patching, shattered slab, and joint seal damage.

Runway 10-28 (previously 9-27) recently received a surface rejuvenation treatment with a product called PDC. This application appeared to be performing well at the time of inspection and the runway only exhibited low severity raveling and low severity longitudinal/transverse cracking.

The main taxiway exhibited a significant amount of low and medium severity longitudinal/transverse cracking, and low severity raveling, weathering, and swelling. These distresses observed are to be expected based on the pavements age and climate conditions.

The Apron AC pavements exhibited low, medium and high severity longitudinal/transverse cracking, and low severity weathering and raveling. The isolated PCC apron section exhibited a significant amount of distresses with the bulk of them being low severity shattered slabs, low, medium and high severity joint spalling, low and medium severity corner breaks. A new terminal apron is expected to be constructed before the end of 2013 and will be located on the east side of the main taxiway just across from the existing hangars. This section has been added to the network definition map so it is a part of the overall pavement network for future inspections.

Appendix B contains Table B-1 and an Airfield Pavement Condition Index Rating Exhibit, Figure B-1, which depicts the PCI results by Section, and **Appendix C** contains MicroPAVER reports of PCI results by Branch and Section. **Appendix H** includes detailed distress data generated by MicroPAVER for each inspected sample unit.

The pavement condition at Dunnellon / Marion County Airport is represented in **Figure 3-1** in accordance with the condition categories and PCI scale referenced in ASTM D 5340. Further detail is provided in **Table 3-3** which describes the breakdown of the airport's airfield conditions according to area and use.

Appendix B contains Table B-1 summarizes the Section Condition values and the Airfield Pavement Condition Index Rating Exhibit, Figure B-1, that depicts the PCI results by Section. **Appendix H** is dedicated to the reporting of the specific airfield pavement distress data collected at the time of the inspection for this update.

Figure 3-1: Airfield Pavement Condition Index Rating Summary

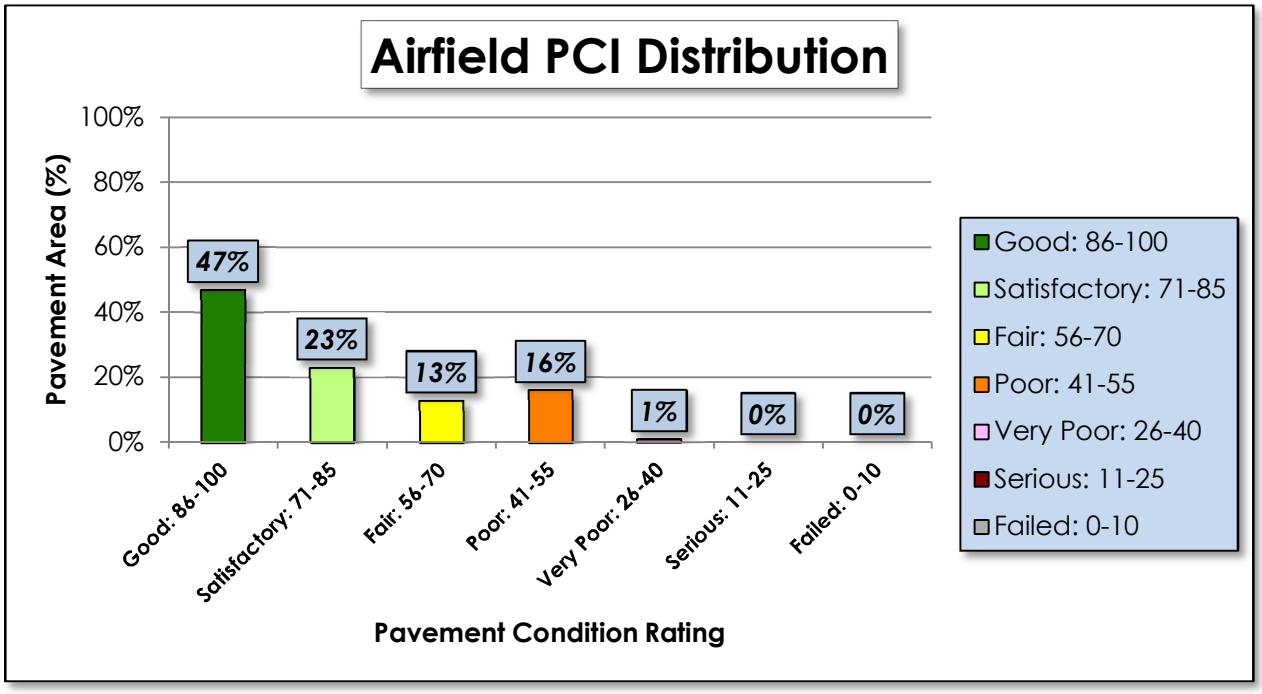


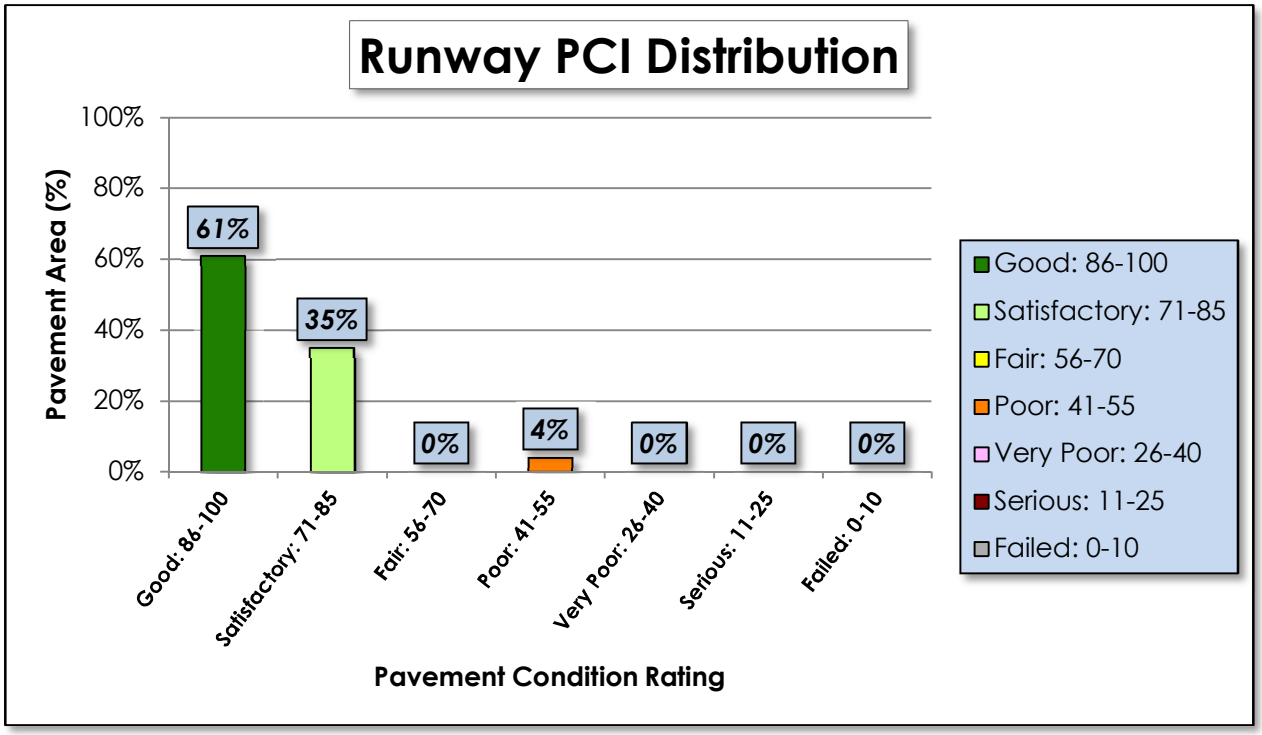
Table 3-3: Pavement Condition Index Rating Summary

Airfield Pavement Use		
Use	**Average Area-Weighted PCI**	**Condition Rating**
Runway	89	GOOD
Taxiway	55	POOR
Apron	75	SATISFACTORY
Condition Area		
Condition Rating	**Area (SF)**	**Relative Area (%)**
Good	580,307	47%
Satisfactory	289,420	23%
Fair	156,656	13%
Poor	197,582	16%
Very Poor	16,813	1%
Serious	-	0%
Failed	-	0%

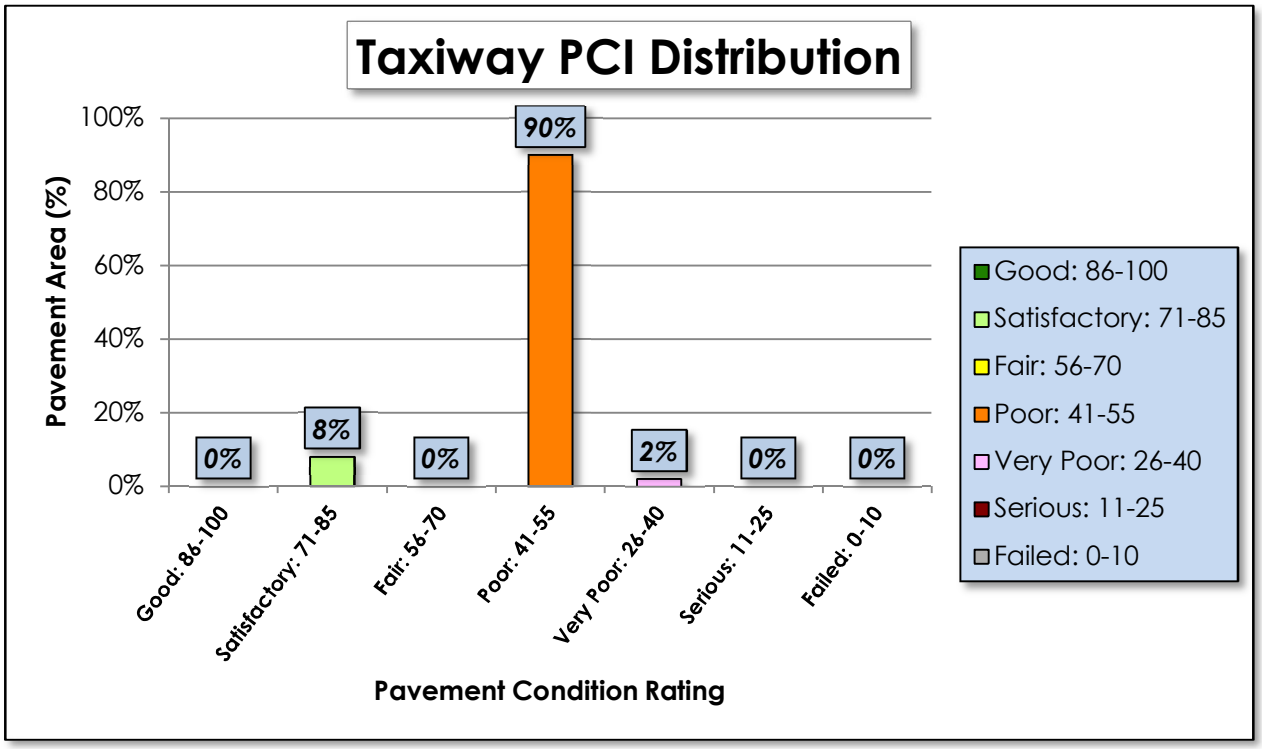
Approximately 70% of the airfield network is in Good and Satisfactory condition; while 17% of the network is in a Poor to Very Poor condition. **Table 3-3** provides a breakdown of total area for each pavement by condition rating. **Figures 3.2 a, b, c** depict the condition rating of the airfield pavement by Branch Use. Photographs taken during the condition survey inspection are included in **Appendix G**. The photographs included are intended to be representative of the distress observed.

Figure 3-2: Percentage of Pavement Area by Condition Rating by Use

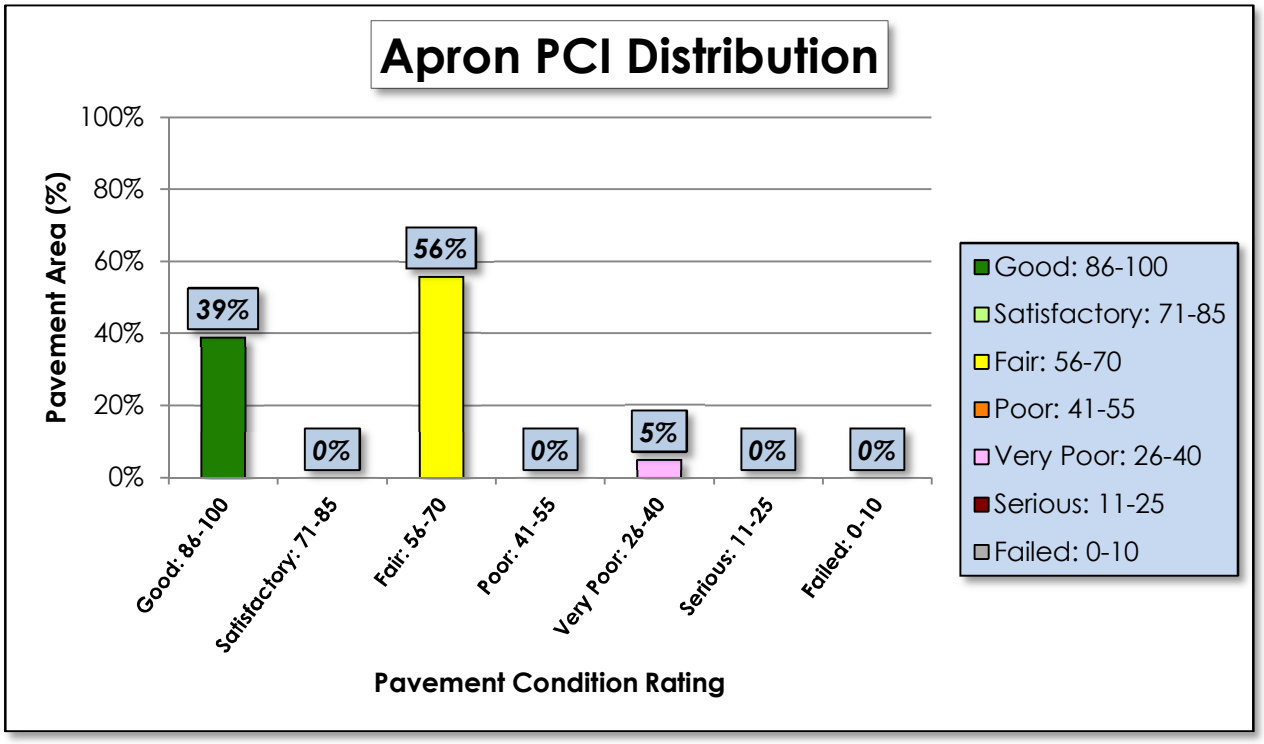
(a) Runway



(b) Taxiway



(c) Apron


Apron PCI Distribution
Pavement Area (%)
100%
80%
60%
40%
20%
0%
39%
0%
56%
0%
5%
0%
0%
Good: 86-100
Satisfactory: 71-85
Fair: 56-70
Poor: 41-55
Very Poor: 26-40
Serious: 11-25
Failed: 0-10
Pavement Condition Rating

4. PAVEMENT PERFORMANCE

Pavement performance models are developed from the distress data collected for the SAPMP for the Florida Airports System. This data is consolidated in a database and organized by inspection date, pavement type, age, pavement use, and airport category. The pavement performance models are used to develop broad prediction models, also known as pavement condition deterioration curves.

The consolidation of the Florida Airports System's pavement infrastructure within the FDOT SAPMP is based on data that have been collected in a consistent method of measurement. The historic pavement condition, or performance trend, has been compiled throughout the system with data from the inception of the SAPMP. This data is processed into models that have been analyzed and developed into prediction curves based upon pavement characteristics. These characteristics include; climate, construction material, and operations. Each model has been developed based on the following criteria:

AIRPORT TYPE (Primary, Regional Reliever, or General Aviation)

>FACILITY USE (Runway, Taxiway, or Apron)

>>FACILITY SURFACE TYPE (AC, AAC, APC, or PCC)

The historic trends of pavement performance at Florida airport facilities for all performance models are consolidated within the program database. This information is utilized in the prediction of pavement performance based on the current PCI determined from the inspections that took place between 2013 and 2014. Major rehabilitation is planned based on the predicted PCI. The intent of this is for both the individual airport and the FDOT District personnel to be aware of anticipated major rehabilitation work based on condition.

Each airport's airfield pavement section condition, for a given inspection year, is one data point that was used as the basis of each performance trend using a performance model based on pavements of similar background. **Figures 4-1, 4-2,** and **4-3** represent the pavement performance prediction at Dunnellon / Marion County Airport based on pavement use. Each figure depicts the FDOT recommended Minimum Service Level PCI value for each pavement type.

Figure 4-1: Runway Pavement Performance Prediction Summary

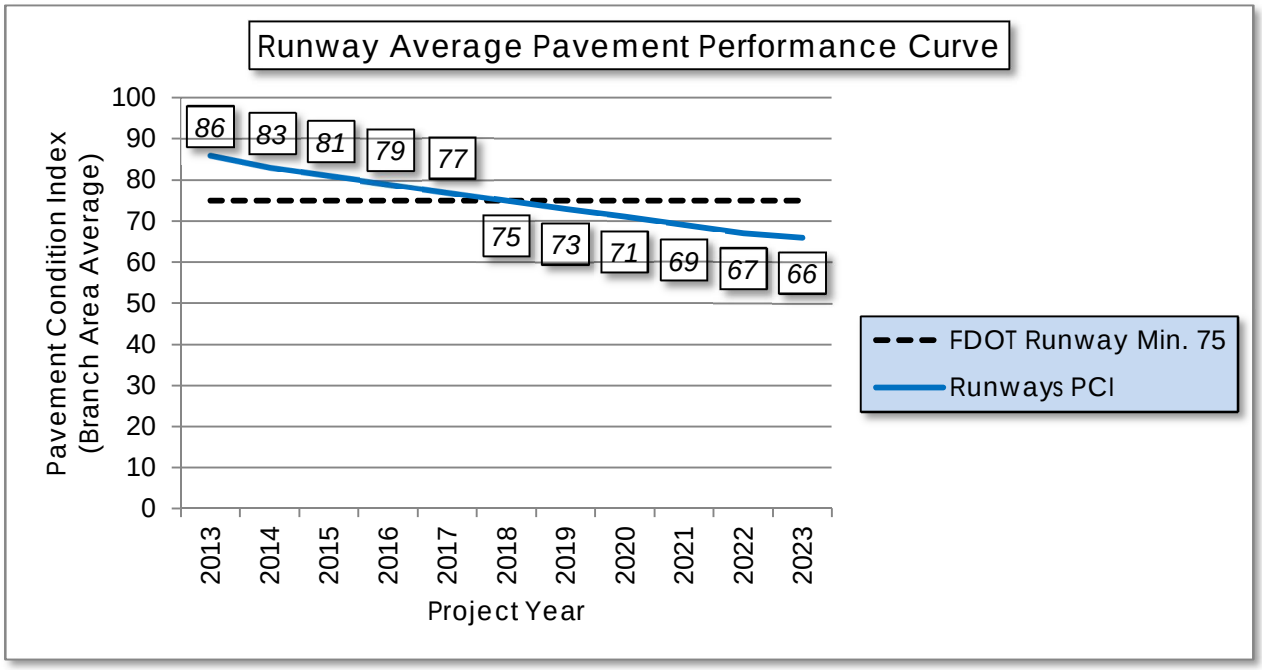


Figure 4-2: Taxiway Pavement Performance Prediction Summary

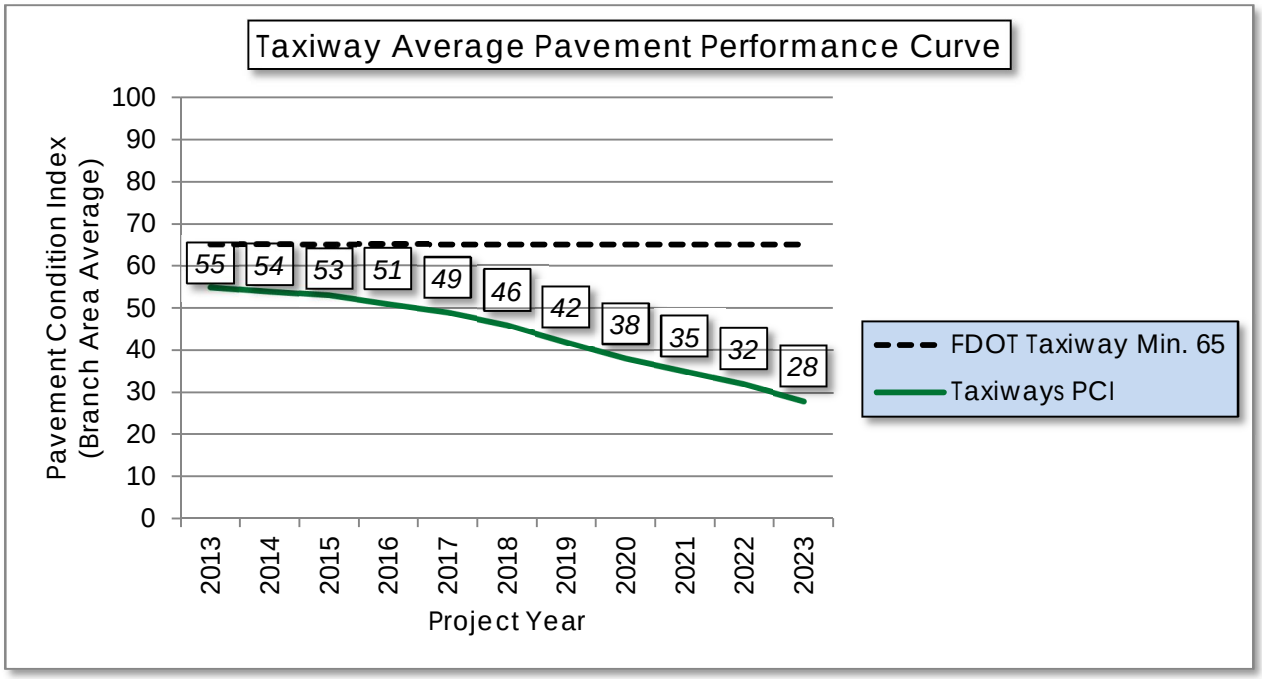
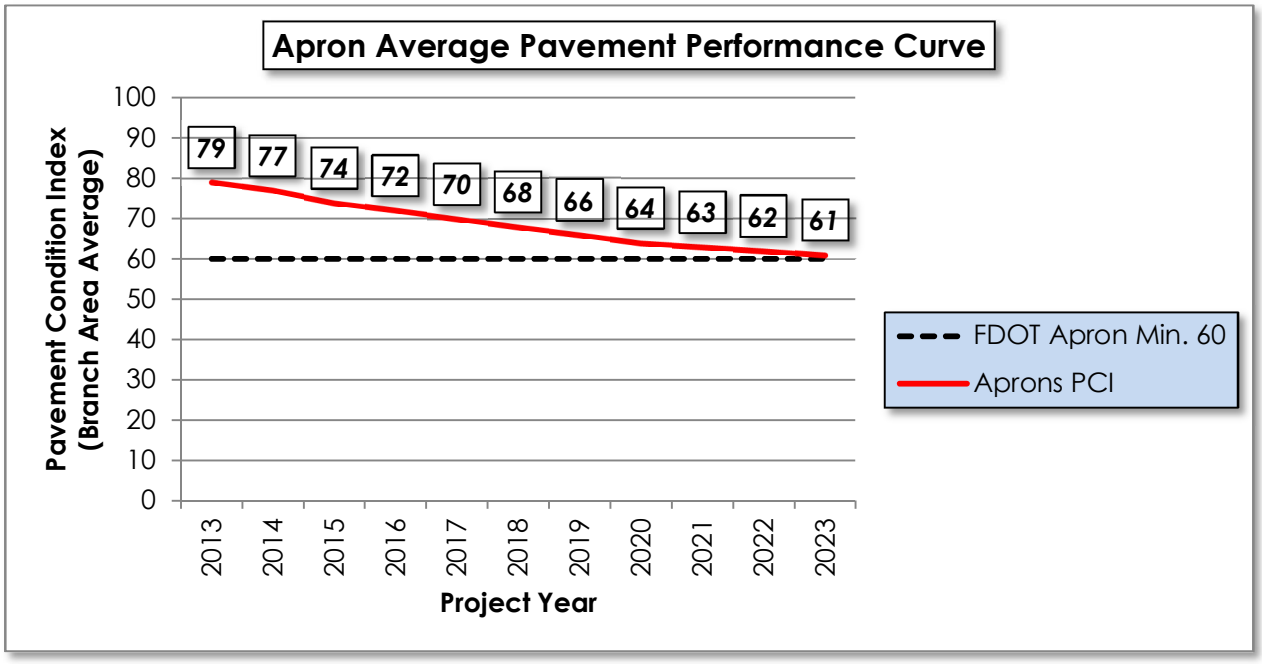


Figure 4-3: Apron Pavement Performance Prediction Summary



Pavement performance modeling to predict the future PCI is primarily done to predict PCI at the Section level for the purpose of planning Major Rehabilitation work. In **Appendix D**, **Table D-1** represents the predicted area-weighted PCI by Section for the airport's airfield pavement infrastructure.

5. AIRFIELD PAVEMENT MAINTENANCE POLICIES AND COSTS

5.1 Policies

Airfield Pavement Maintenance policies are guidance on pavement construction methods used to develop, maintain, repair, and rehabilitate pavement infrastructure based on distresses encountered during the condition surveys.

Maintenance refers to the repair and preservation-type activities that are applied locally to specific distress types on the pavement. These activities for the SAPMP are considered preventative and corrective in nature and are highly recommended to help improve pavement performance and extend pavement life. The SAPMP maintenance policies are based on the FAA Advisory Circular 150/5380-6B and guidance provided in the FDOT Airfield Pavement Repair Manual.

For the purpose of the SAPMP; the maintenance repair needs that are identified and quantified are based solely on the pavement distresses observed and recorded at the time of the inspection. Based on a specific distress type and severity observed, a particular repair work type is recommended and quantified based on the extrapolated section distresses. The repair program identified is specific to the current distresses. Future maintenance planning budgets are based on this initial determination. **Tables 5-1** and **5-2** provide the list of maintenance activities incorporated into the SAPMP MicroPAVER database to treat specific distress types and severities.

Table 5-1: Recommended AC, AAC, and APC Maintenance and Repair Policy

Surface Type	Distress Code	Distress Name	Severity	Maintenance Work Type	Work Unit
Flexible Asphalt Concrete (AC, AAC, APC)	41	Alligator Cracking	L, M, H	Full Depth Pavement Patch	Square Feet
	42	Bleeding	N/A	Partial Depth Pavement Patch	Square Feet
	43	Block Cracking	L	Seal Coat Treatment	Square Feet
	43	Block Cracking	M, H	Full Depth Pavement Patch	Square Feet
	44	Corrugation	L, M, H	Full Depth Pavement Patch	Square Feet
	45	Depression	L, M, H	Full Depth Pavement Patch	Square Feet
	46	Jet Blast Erosion	L, M, H	Full Depth Pavement Patch	Square Feet
	47	Joint Reflection Cracking	L	Crack Sealing	Linear Feet
	47	Joint Reflection Cracking	M, H	Full Depth Pavement Patch	Square Feet
	48	Longitudinal/Transverse Cracking	L, M, H	Crack Sealing	Linear Feet
	49	Oil Spillage	L, M	Seal Coat Treatment	Square Feet
	49	Oil Spillage	H	Full Depth Pavement Patch	Square Feet
	50	Patch and Utility Patching	M	Crack Sealing	Linear Feet
	50	Patch and Utility Patching	H	Full Depth Pavement Patch	Square Feet
	51	Polished Aggregate	L, M, H	Slurry Seal Coat Treatment	Square Feet
	52	Raveling	L, M	Slurry Seal Coat Treatment	Square Feet
	52	Raveling	H	Partial Depth Pavement Patch	Square Feet
	53	Rutting	L, M, H	Full Depth Pavement Patch	Square Feet
	54	Shoving	L, M, H	Grinding / Removal	Square Feet
	55	Slippage Cracking	L, M, H	Full Depth Pavement Patch	Square Feet
	56	Swelling	M, H	Full Depth Pavement Patch	Square Feet
	57	Weathering	M, H	Seal Coat Treatment	Square Feet

Table 5-2: Recommended PCC Maintenance and Repair Policy

Surface Type	Distress Code	Distress Name	Severity	Maintenance Work Type	Work Unit
Rigid Pavement (PCC)	61	Blowup	L, M, H	Slab Replacement / Full Depth Patch	Square Feet
	62	Corner Break	L, M, H	Partial Patch - PCC	Square Feet
	63	Longitudinal/Transverse/Diagonal Cracking	H	Crack Sealing - PCC	Linear Feet
	64	Durability Cracking	M, H	Slab Replacement / Full Depth Patch	Square Feet
	65	Joint Seal Damage	L, M, H	Joint Seal Repair (Local)	Linear Feet
	66	Patching, Small	M, H	Slab Replacement / Full Depth Patch	Square Feet
	67	Patching, Large	M, H	Slab Replacement / Full Depth Patch	Square Feet
	68	Popouts	L	Crack Sealing - PCC	Linear Feet
	69	Pumping	L, M, H	Slab Stabilization / Slab Jacking	Square Feet
	70	Scaling/Map Cracking/Crazing	L, M	Micro-mill and Seal - PCC	Square Feet
	70	Scaling/Map Cracking/Crazing	H	Slab Replacement / Full Depth Patch	Square Feet
	71	Settlement / Faulting	L	Micro-mill and Seal - PCC	Square Feet
	71	Settlement / Faulting	M, H	Slab Stabilization / Slab Jacking	Square Feet
	72	Shattered Slab	L, M, H	Slab Replacement / Full Depth Patch	Square Feet

Surface Type	Distress Code	Distress Name	Severity	Maintenance Work Type	Work Unit
	73	Shrinkage Cracks	N/A	Crack Sealing - PCC	Linear Feet
	74	Longitudinal/Transverse Joint Spalling	L, M, H	Partial Patch - PCC	Square Feet
	75	Corner Spalling	L, M, H	Partial Patch - PCC	Square Feet
	76	Alkali-Silica Reaction	L	Seal Coat Treatment	Square Feet
	76	Alkali-Silica Reaction	M	Micro-mill and Seal - PCC	Square Feet
	76	Alkali-Silica Reaction	H	Slab Replacement / Full Depth Patch	Square Feet

Though proactive pavement maintenance and preservation is highly recommended in an APMS; it is recognized that pavement that has deteriorated below a certain PCI will require a major rehabilitation rather than localized maintenance and repair work. Major rehabilitation is recommended when the pavement condition decreases below a critical point such that the deterioration is extensive or the rate of deterioration is so great that maintenance repair efforts are no longer cost-efficient. This critical point is called "Critical PCI". The critical PCI levels for different pavement and branch types were established by the FDOT and were used in this update to develop a maintenance and major rehabilitation plan for the airport. Sections that are above the "Critical PCI" levels will be recommended for maintenance, repair, and preservation treatments, assuming there are no significant load-related distresses. For those Sections below the Critical PCI, the recommended action will consist of major rehabilitation work. This approach is used for the current Section's PCI value and the predicted PCI value for future rehabilitation.

The FDOT has recommended minimum service level PCI for airports based on pavement facility use, airport type, and expected loading frequency. This minimum service level PCI is recommended to ensure the pavement provides a safe operational surface and efficiently uses maintenance and rehabilitation budgets. Separately, the Critical PCI is a value based on historic pavement performance trends and costs. It is at a PCI value of 65, for most airports, at which major rehabilitation is recommended over maintenance level efforts.

Table 5-3 identifies the FDOT recommended PCI by use and the critical PCI value for the most important pavements at the airport. This is due to the condition of the pavement and the cost effectiveness of the work. A very important concept of a good pavement management system is the proactive preservation of pavements that are above Critical PCI condition. Conversely, allowing pavement to deteriorate beyond maintenance and performing "worst first" major rehabilitation may cost much more over the life of a pavement.

Table 5-3: Critical and Minimum Service Level PCI for General Aviation Airports

Use	FDOT Recommended PCI	Critical PCI
Runway	75	65
Taxiway	65	65
Apron	60	65

Based on historic trends of pavement performance and industry standard practices in pavement maintenance and rehabilitation, the SAPMP included general guidance on construction activity based on condition PCI, as shown on **Table 5-4**. It is recommended that further investigation of underlying pavement conditions is performed at the design phase.

Table 5-4: Maintenance and Major Rehabilitation Activity Based on PCI

Category	Activity	PCI Range
Maintenance	▪ Crack Sealing (AC/PCC) ▪ Partial Depth Patching (AC) ▪ Full Depth Patching (AC/PCC) ▪ Surface Treatment (AC)	75 - 90
Rehabilitation	▪ Mill and Overlay (AC) ▪ Concrete Pavement Restoration (PCC)	40 - 74
	▪ Full Depth Pavement Reconstruction	0 - 39

The PCI standard scale ranges from a value of 0, typically representing a pavement in a failed condition, to a value of 100 which typically represents a pavement in new or good condition. Generally, airfield pavement sections with

a PCI of 75 or higher that are not exhibiting distresses due to aircraft loading will benefit from maintenance activities such as crack sealing, patching, and surface treatments. Pavement sections with PCI values within the range of 40 to 74 may require major rehabilitation, such as a mill and overlay. Lastly, pavement sections with a PCI value of 40 or less are recommended to undergo pavement reconstruction. Generally pavement reconstruction is the only practical means of restoration due to the substantial distresses observed in the pavement structure. Since PCI values are based solely on the visual determination of pavement distresses and deterioration, this method does not provide a direct measure of structural integrity.

5.2 Unit Costs

The FDOT SAPMP developed and updated the maintenance and major rehabilitation costs based on public cost databases for airport and highway pavement construction. Additionally, cost data collected from FDOT and FAA sponsored projects in the Florida Airports System were utilized to identify construction cost trends across the state.

The maintenance, repair, and preservation activity costs have been updated and developed using readily available construction cost data at the time of this update. The costs depicted in this report for both maintenance and major rehabilitation are intended for planning purposes.

5.3 Maintenance, Repair, and Major Rehabilitation

FDOT recognizes that although pavement mill and overlay is recommended for flexible asphalt concrete pavement within a PCI range from 40 to 74, it is conceivable that airports may not have adequate funding to perform this type of major rehabilitation. A comprehensive surface treatment; such as GSB-88 and Microsurfacing, as a maintenance rehabilitation activity, can be used in lieu of asphalt concrete pavement mill and overlay. However, it should be understood that these measures provide only a short term extension of pavement life. While the cost of surface treatments are significantly lower than that of pavement mill and overlay, it is not intended or implied to be a full rehabilitative measure for long term benefit. **Table 5-5** and **Table 5-6** provide budget costs associated with the work types shown in the table.

Table 5-5: AC Maintenance Unit Costs

Surface Type	Maintenance Work Type	Cost	Work Unit
Flexible Asphalt Concrete (AC, AAC, APC)	Full Depth Pavement Patch	$5.00	Square Feet
	Partial Depth Pavement Patch	$3.00	Square Feet
	Seal Coat Treatment	$0.55	Square Feet
	Crack Sealing	$2.75	Linear Feet
	Slurry Seal Coat Treatment	$0.55	Square Feet
	Grinding / Removal	$2.10	Square Feet

Table 5-6: PCC Maintenance Unit Costs

Surface Type	Maintenance Work Type	Cost	Work Unit
Rigid Pavement (PCC)	Slab Replacement / Full Depth Patch	$45.00	Square Feet
	Partial Patch - PCC	$19.10	Square Feet
	Crack Sealing - PCC	$4.25	Linear Feet
	Joint Seal Repair (Local)	$3.00	Linear Feet
	Slab Stabilization / Slab Jacking	$45.00	Square Feet
	Micro-mill and Seal - PCC	$1.00	Square Feet
	Seal Coat Treatment	$1.00	Square Feet

As part of the SAPMP update, the distress data observed at each airport during the inspection is extrapolated on a section basis to make maintenance recommendations. These recommendations are a direct result of the distress types, severities, and quantities observed at the time of inspection. The

maintenance recommendations and planning costs are correlated with the airport's airfield pavement network's overall area weighted PCI and used to plan future maintenance costs. Future maintenance costs are planning budgets that are not specific to a pavement section, but are estimates for the entire airfield. **Table 5-7** provides budget costs associated with the rehabilitation activities.

Table 5-7: Rehabilitation Activities and Unit Costs by Condition for General Aviation Airports

Category	Activity	PCI Range	Cost/SqFt
Rehabilitation	▪ Mill and Overlay (AC)	40 - 74	$8.00
	▪ Concrete Pavement Restoration (PCC)		$10.00
	▪ Full Depth Pavement Reconstruction	0 - 39	$15.00

A cost scale has been developed based on PCI to develop planning level budgets for the airfield pavements. The cost scale is adjusted by project year based on an assumed inflation rate of 3%. In **Appendix E**, **Table E-1** summarizes the Year-1 maintenance and repair recommendations based on the most recent inspection. The summary in **Table E-1** does not take into account any rehabilitation activities, but rather summarizes preventative activities for all PCI ranges, including below critical PCI sections.

6. MAJOR PAVEMENT REHABILITATION NEEDS

As part of the SAPMP, major pavement rehabilitation planning is developed based on current and predicted PCI in comparison with the Critical PCI. The Critical PCI has been determined based on the historic trends of pavement condition relative to the benefit of maintenance and repair activities. Pavement sections determined to have a PCI less than that of the Critical PCI are assumed to have deteriorated to a point at which maintenance and repair level activity would provide little benefit.

The objective of the major pavement rehabilitation needs analysis is to provide planning level projects within an airport's airfield pavement network. Major rehabilitation activities are recommended when a pavement section has deteriorated below the Critical PCI value from a functionality perspective. In addition, major rehabilitation is also recommended when the Section PCI is above the Critical PCI but the Section has load-related PCI distresses. However, most major rehabilitation work is recommended when the Section PCI is below the Critical PCI, which is when maintenance and repair level activities are not considered to be cost effective.

Major rehabilitation is identified within the SAPMP as major construction activity that would result in an improvement or "resetting" of the pavement section's PCI to a value of 100. Such activities could include; mill and hot-mix asphalt overlay and re-construction. This analysis was conducted with no constraints to budgets as a means to identify all pavement projects based on Critical PCI for a 10-year duration. It is recommended that the airport use this as a planning tool for future project development and prioritization. **Table 6-1** depicts the major rehabilitation work identified on the pavement section level based on current and predicted pavement PCI.

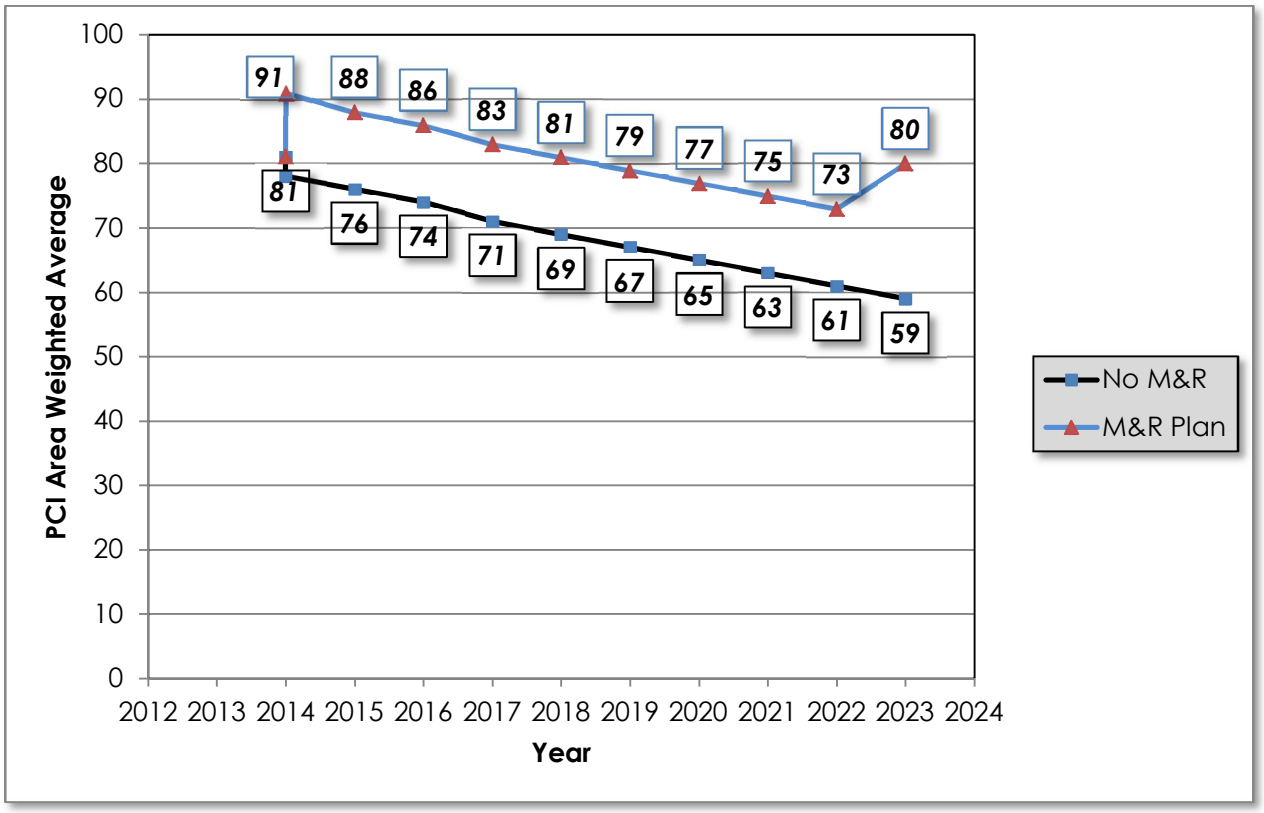
Table 6-1: Summary of Major Rehabilitation

Year	Branch ID	Section ID	Major M&R Costs*	PCI Before M&R	M&R Activity	PCI After M&R
2014	AP HANGAR	4210	$ 101,965.70	59	Mill and Overlay	100
2014	AP HANGAR	4220	$ 190,930.79	62	Mill and Overlay	100
2014	AP HANGAR	4230	$ 195,940.85	25	Reconstruction	100
2014	RW 5-23	6215	$ 299,999.99	51	PCC Restoration	100
2014	AP	4105	$ 1,273,665.84	63	Mill and Overlay	100
2014	TW E	110	$ 1,675,818.32	53	Mill and Overlay	100
2014	TW E	115	$ 56,250.01	33	Reconstruction	100
2023	RW 10-28	6105	$ 3,570,311.50	64	Mill and Overlay	100
		Total =	**$ 7,364,883.00**			

**Costs are adjusted for inflation at 3%.*

The 10-year major rehabilitation program addresses those pavement sections that have a current or project PCI that is below the Critical PCI of 65 during the 10-year analysis period. The unconstrained or "unlimited budget" Major Rehabilitation Program is compared to a "No Major Rehabilitation Program" scenario in **Figure 6-1**. As shown, if no major rehabilitation work is completed in the next 10 years at your airport, the average PCI may be 21 points less than a plan that provides timely repairs to the airfield pavements.

Figure 6-1: 10-Year Major Rehabilitation Budget Scenario Analysis



7. PREVENTATIVE AND MAJOR REHABILITATION PLANNING

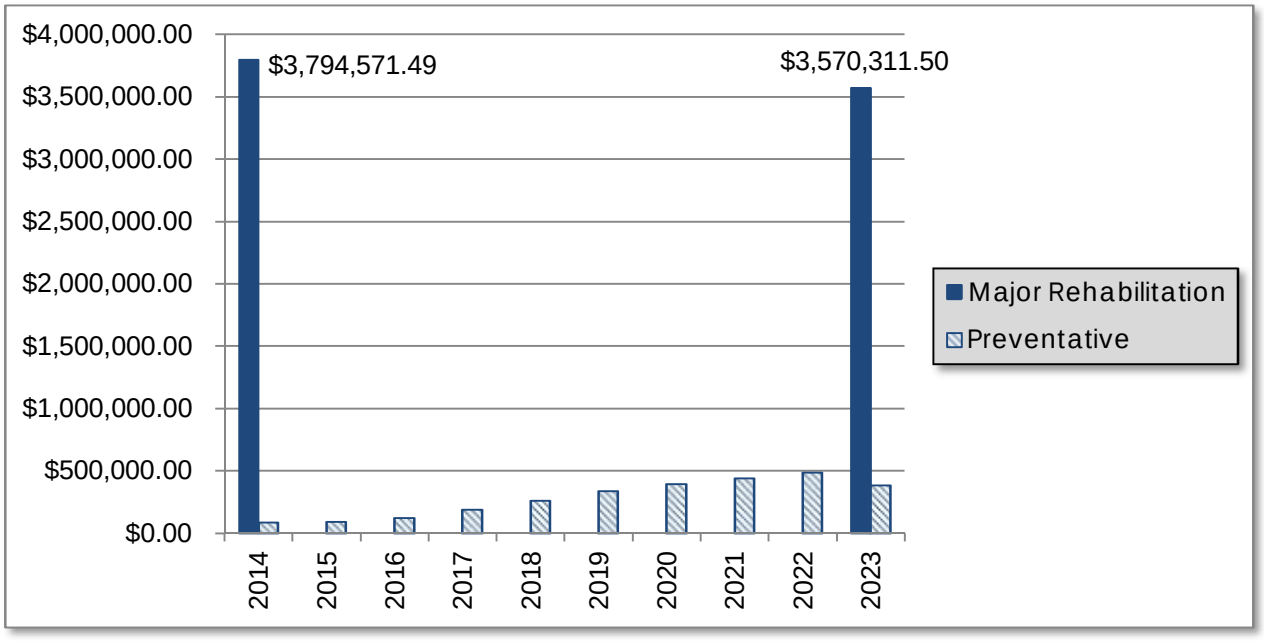
The preventative and major rehabilitation results include activities that are based on distresses observed and unconstrained by budget limits. FDOT recognizes that the projects identified as Year-1 needs in 2013, based on condition, may exceed a typical annual budget level. It is recommended that each airport further evaluate each project's feasibility and desirability based on the airport's future development plans and budgeting scenarios.

In an effort to identify appropriate budget levels, the 10-year Preventative and Major Rehabilitation analysis evaluated projected budget needs based on predicted PCI of each pavement section. **Table 7-1** and **Figure 7-1**provides a summary of the expected preventative and major rehabilitation for each program year.

Table 7-1: 10-Year Preventative and Major Rehabilitation Summary

Program Year	Maintenance & Repair	Major Rehabilitation	Total Year Costs
2014	$ 86,825.17	$ 3,794,571.49	$ 3,881,396.66
2015	$ 93,505.62	$ -	$ 93,505.62
2016	$ 127,151.14	$ -	$ 127,151.14
2017	$ 191,571.75	$ -	$ 191,571.75
2018	$ 264,807.66	$ -	$ 264,807.66
2019	$ 339,165.32	$ -	$ 339,165.32
2020	$ 398,620.42	$ -	$ 398,620.42
2021	$ 445,245.20	$ -	$ 445,245.20
2022	$ 491,458.00	$ -	$ 491,458.00
2023	$ 388,644.15	$ 3,570,311.50	$ 3,958,955.65
		Total =	**$ 10,191,877.42**

Figure 7-1: 10-Year Preventative and Major Rehabilitation Summary



According to the most recent inspections at the time of this update; the following pavement sections were identified as a Year-1 need for major rehabilitation:

- Runway 5-23 – Section 6215
  - PCC Restoration attributed to load repetition, overloading and pavement repair.
- Hangar Apron – Sections 4210, 4220 and 4230
  - Mill and Overlay along with Reconstruction attributed to load repetition, overloading, pavement repair, climate and age of pavement.
- Apron – Section 4105
  - Mill and Overlay attributed to climate and age of pavement.
- Taxiway E – Sections 110 and 115
  - Mill and Overlay along with Reconstruction attributed to subgrade quality, climate and age of pavement.

Appendix E summarizes the preventative repair recommendations for Year-1 and Appendix F provides an exhibit, Airfield Pavement Major Rehabilitation, that depicts the recommended major rehabilitation on the airfield pavement network according to work type and year.

8. VISUAL AID EXHIBITS

8.1 Airfield Pavement Network Definition Exhibit

The Airfield Pavement Network Definition Exhibit in **Appendix A** depicts the airfield layout in a manner that defines the airfield pavement infrastructure as branches, sections, and sample units in accordance with the ASTM D 5340-11. The exhibits are prepared and updated with information provided by the airport and from aerial imagery from the FDOT Surveying and Mapping publications.

8.2 Airfield Pavement System Inventory Exhibit

The Airfield Pavement System Inventory Exhibit in **Appendix A** depicts any recent airfield pavement construction activity reported by the airport. The exhibit is intended to identify pavement sections that may have changed in geometry and pavement composition that would affect the section delineation. The information provided in the Airport Response Form was used as the basis of the changes and confirmed with the airport personnel at the time of inspection.

8.3 Airfield Pavement Condition Index Rating Exhibit

The Airfield Pavement Condition Index Rating Exhibit in **Appendix B** has been prepared based on the section condition analysis of the distress data collected during the recent condition index rating survey. The exhibit graphically depicts the inventory with associated condition rating colors and PCI values.

8.4 Airfield Pavement Major Rehabilitation Exhibit

The Airfield Pavement Major Rehabilitation Exhibit in **Appendix F** has been prepared based on the section pavement performance model and major rehabilitation analysis. The exhibit graphically depicts the inventory with associated rehabilitation activity, program year, and the planning level costs.

8.5 Airfield Pavement Condition Survey Inspection Photographs

During the field condition survey inspection; inspectors photographed representative distress types observed. Select photographs are provided in **Appendix G** to provide visual support to special pavement conditions or distresses observed.

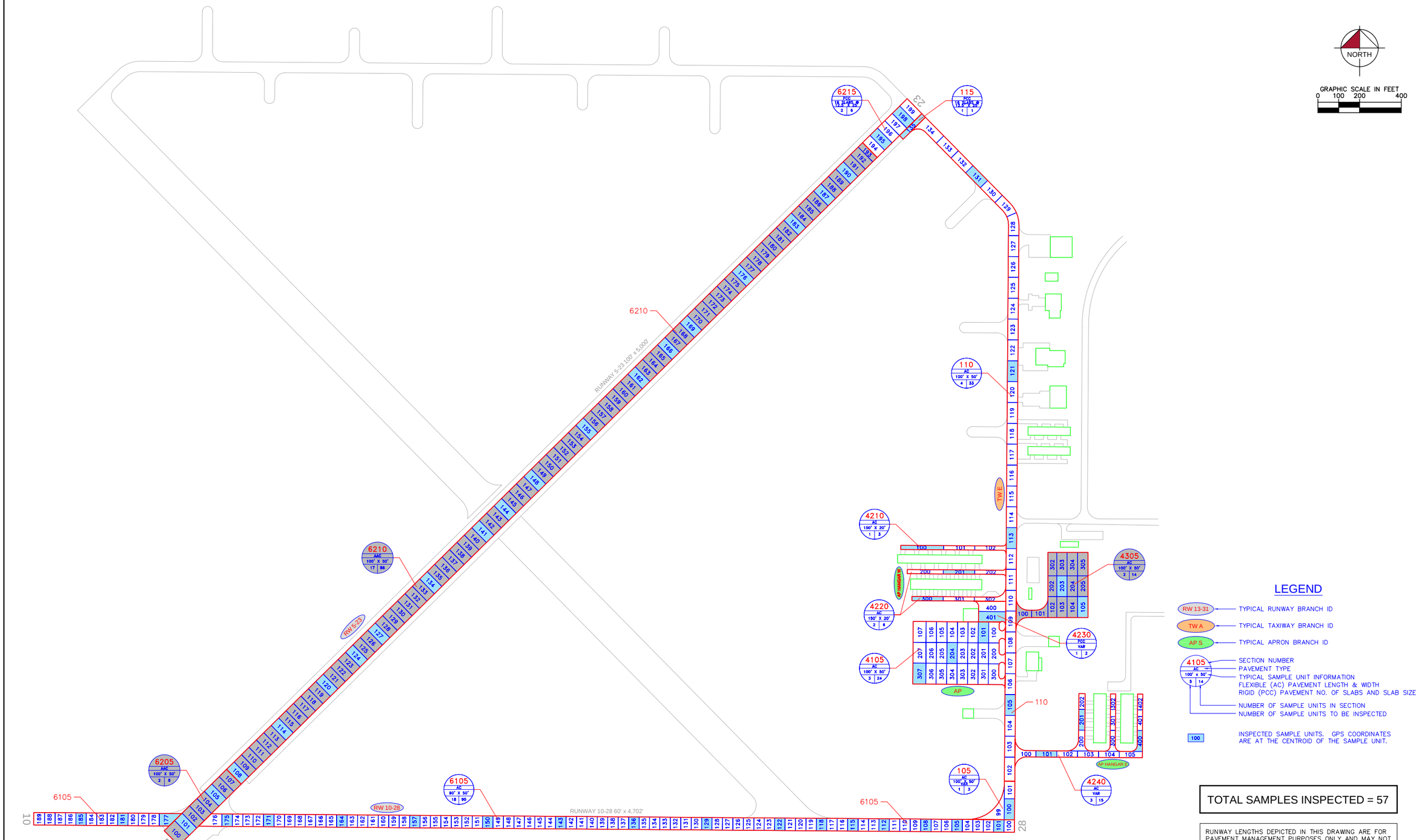
9. RECOMMENDATIONS

The following recommendations were made based on the 2013 condition survey inspection, condition analysis, and maintenance/rehabilitation analysis results:

- **Runway 5-23 –** Section 6215
  - PCC Restoration attributed to load repetition, overloading and pavement repair.
- **Runway 10-28 –** Section 6105
  - Mill and Overlay attributed to load climate and age of pavement.
- **Hangar Apron –** Sections 4210, 4220 and 4230
  - Mill and Overlay along with Reconstruction attributed to load repetition, overloading, pavement repair, climate and age of pavement.
- **Apron –** Section 4105
  - Mill and Overlay attributed to climate and age of pavement.
- **Taxiway E –** Sections 110 and 115
  - Mill and Overlay along with Reconstruction attributed to subgrade quality, climate and age of pavement.

APPENDIX A

- AIRFIELD PAVEMENT NETWORK DEFINITION EXHIBIT
- AIRFIELD PAVEMENT SYSTEM INVENTORY EXHIBIT
- PAVEMENT GEOMETRY INVENTORY
- WORK HISTORY REPORT



NUMBER	DATE	REVISIONS

DESIGNED:	KHA	DRAWN:	KHA	CHECKED:	KHA	DATE:	2013

K:\SPB_Aviation\AIRPRINT\CADD\PLANSHEETS\X35 - DANIELSEN-MARION COUNTY AIRPORT\EXHIBITS\X35-1X35-DEFINITION.dwg PLOTTED: November 19, 2013 - 3:02 PM, BY: Bishop, Art

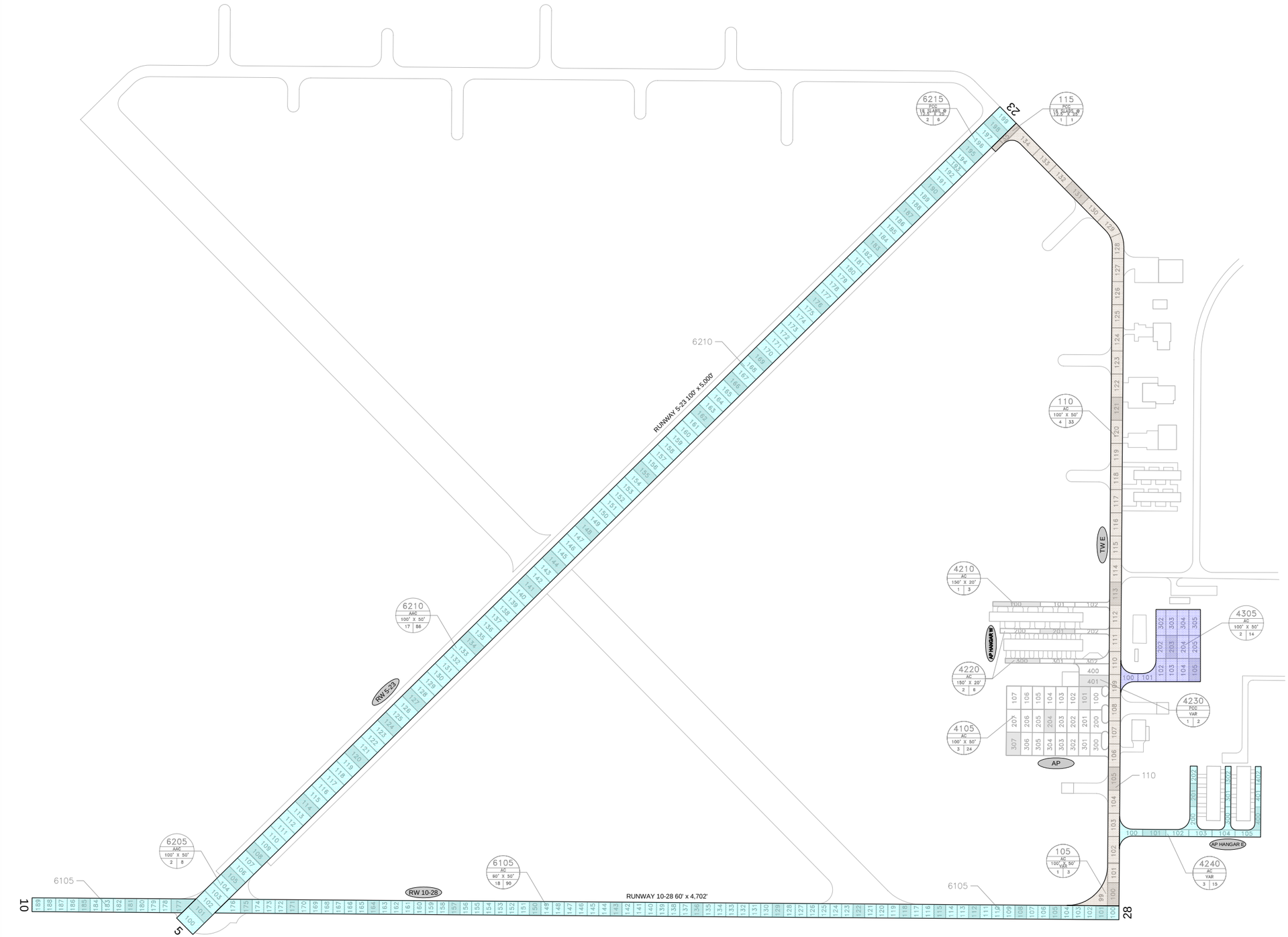
OFFICE OF FREIGHT, LOGISTICS & PASSENGER OPERATIONS

AIRFIELD PAVEMENT NETWORK DEFINITION EXHIBIT

MARION COUNTY AIRPORT
MARION COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION AND SPACEPORT OFFICE

IDENTIFIER
X35
FDOT DISTRICT
5



CONSTRUCTION SINCE LAST INSPECTION & ANTICIPATED CONSTRUCTION ACTIVITY

CONSTRUCTION YEAR	LOCATION	WORK TYPE / PAVEMENT SECTION
2011	RUNWAY 5–23	MILL AND OVERLAY
2011	APRON HANGAR	NEW CONSTRUCTION /SECTION 4240
2011	RUNWAY 9–27	PAVEMENT REJUVENATOR/RW 9–27 RE–DESIGNATED TO RW 10–28
2013	NEW PARKING APRON	NEW CONSTRUCTION/SECTION 4305
2015	PARALLEL TAXIWAY TO RUNWAY 5–23	NEW CONSTRUCTION
2015	NORTH/SOUTH TAXIWAY AND PARKING APRON	REHABILITATION

LEGEND

- PROJECTS YEAR 2010
- PROJECTS YEAR 2011
- PROJECTS YEAR 2012
- PROJECTS YEAR 2013
- PROJECTS YEAR 2014
- PROJECTS YEAR 2015
- PROJECTS YEAR 2016
- PROJECTS YEAR 2017
- PROJECTS YEAR 2018
- PROJECTS YEAR 2019

RUNWAY LENGTHS DEPICTED IN THIS DRAWING ARE FOR PAVEMENT MANAGEMENT PURPOSES ONLY AND MAY NOT MATCH PUBLISHED RUNWAY LENGTHS.

NUMBER	DATE	REVISIONS

DESIGNED: KHA | DRAWN: KHA | CHECKED: KHA | DATE: 2013

K:\SPS_Aviation\2437802\CADD\PLANSHEET.DGN - DUNNELLON-MARION COUNTY AIRPORT\SHEETS\X35-100-INVENTORY.dwg[LATTER] November 19, 2013 - 3:03 PM, BY: Brice, Art

OFFICE OF FREIGHT, LOGISTICS & PASSENGER OPERATIONS

AIRFIELD PAVEMENT SYSTEM INVENTORY EXHIBIT

MARION COUNTY AIRPORT
MARION COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION AND SPACEPORT OFFICE

IDENTIFIER: X35

DOT DISTRICT: 5

Table A-1: Pavement Geometry Inventory

Branch Name	Branch ID	Branch Use	Section ID	Length (FT)	Width (FT)	True Area (FT^2)	Section Rank	Surface Type	Last Const. Date	Last Insp. Date	Total Samples
RUNWAY 5-23	RW 5-23	RUNWAY	6215	300	100	30,000	P	PCC	1/1/1942	6/12/2013	6
RUNWAY 5-23	RW 5-23	RUNWAY	6210	4,300	100	428,000	P	AAC	12/1/2011	12/1/2011	86
RUNWAY 5-23	RW 5-23	RUNWAY	6205	375	100	42,000	P	AAC	12/1/2011	12/1/2011	8
RUNWAY 10-28	RW 10-28	RUNWAY	6105	4,550	60	273,635	S	AC	1/1/1993	6/12/2013	90
TERMINAL APRON	AP TERM	APRON	4305	200	350	67,389	P	AC	7/1/2013	7/1/2013	14
HANGAR APRON	AP HANGAR	APRON	4240	1,460	30	42,917	T	AC	1/1/2011	6/12/2013	15
HANGAR APRON	AP HANGAR	APRON	4230	130	100	13,063	T	PCC	1/1/1999	6/12/2013	2
HANGAR APRON	AP HANGAR	APRON	4220	940	35	19,093	T	AC	1/1/1999	6/12/2013	6
HANGAR APRON	AP HANGAR	APRON	4210	505	35	10,197	T	AC	1/1/1999	6/12/2013	3
APRON	AP	APRON	4105	400	300	127,367	P	AC	1/1/1991	6/12/2013	24
EAST TAXIWAY	TW E	TAXIWAY	115	150	25	3,750	P	PCC	1/1/1942	6/12/2013	1
EAST TAXIWAY	TW E	TAXIWAY	110	3,350	50	167,582	P	AAC	1/1/1989	6/12/2013	33
EAST TAXIWAY	TW E	TAXIWAY	105	230	50	15,785	P	AC	1/1/1993	6/12/2013	3

Note: If new construction, then survey date = last construction date and PCI is set to 100 by MicroPAVER.
* Sections not surveyed due to reasons such as re-sectioning, no escort, not accessible at the time of survey.

Network: X35 **Branch**: AP (APRON) **Section:** 4105 **Surface:** AC
L.C.D.: 01/01/1991 **Use:** APRON **Rank** P **Length:** 400.00 Ft **Width:** 300.00 Ft **True Area:** 127,366.59 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
01/01/1991	IMPORTED	BUILT		2.00	True	1991: 2" P-401 ON 6" P-211

Network: X35 **Branch**: AP HANGAR (HANGAR APRON) **Section:** 4210 **Surface:** AC
L.C.D.: 01/01/1999 **Use:** APRON **Rank** T **Length:** 505.00 Ft **Width:** 35.00 Ft **True Area:** 10,196.57 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
01/01/1999	INITIAL	Initial Construction	$0	0.00	True	

Network: X35 **Branch**: AP HANGAR (HANGAR APRON) **Section:** 4220 **Surface:** AC
L.C.D.: 01/01/1999 **Use:** APRON **Rank** T **Length:** 940.00 Ft **Width:** 35.00 Ft **True Area:** 19,093.08 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
01/01/1999	INITIAL	Initial Construction	$0	0.00	True	

Network: X35 **Branch**: AP HANGAR (HANGAR APRON) **Section:** 4230 **Surface:** PCC
L.C.D.: 01/01/1999 **Use:** APRON **Rank** T **Length:** 130.00 Ft **Width:** 100.00 Ft **True Area:** 13,062.72 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
01/01/1999	INITIAL	Initial Construction	$0	0.00	True	

Network: X35 **Branch**: AP HANGAR (HANGAR APRON) **Section:** 4240 **Surface:** AC
L.C.D.: 01/01/2011 **Use:** APRON **Rank** T **Length:** 1,460.00 Ft **Width:** 30.00 Ft **True Area:** 42,917.05 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
01/01/2011	NC-AC	New Construction - AC	$0	0.00	True	

Network: X35 **Branch**: AP TERM (TERMINAL APRON) **Section:** 4305 **Surface:** AC
L.C.D.: 07/01/2013 **Use:** APRON **Rank** P **Length:** 200.00 Ft **Width:** 350.00 Ft **True Area:** 67,389.30 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
07/01/2013	NU-IN	New Construction - Initial	$0	4.00	True	4" P-401, 6" P-211 LIMEROCK, 12" P-152 SUBGRADE

Network: X35 **Branch**: RW 10-28 (RUNWAY 10-28) **Section:** 6105 **Surface:** AC
L.C.D.: 01/01/1993 **Use:** RUNWAY **Rank** S **Length:** 4,550.00 Ft **Width:** 60.00 Ft **True Area:** 273,634.66 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
01/01/1993	IMPORTED	BUILT		2.00	True	1993: 2" P-401 AC ON 7" P-211 ON 12" STAB. SUBGRADE P-160

Network: X35 **Branch**: RW 5-23 (RUNWAY 5-23) **Section:** 6205 **Surface:** AAC
L.C.D.: 12/01/2011 **Use:** RUNWAY **Rank** P **Length:** 375.00 Ft **Width:** 100.00 Ft **True Area:** 42,000.00 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
12/01/2011	ML-OV	Mill and Overlay	$0	0.00	True	
01/01/1993	IMPORTED	BUILT		2.00	True	1993: 2" P-401 ON EXISTING AC

Network: X35 **Branch**: RW 5-23 (RUNWAY 5-23) **Section:** 6210 **Surface:** AAC
L.C.D.: 12/01/2011 **Use:** RUNWAY **Rank** P **Length:** 4,300.00 Ft **Width:** 100.00 Ft **True Area:** 428,000.48 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
12/01/2011	ML-OV	Mill and Overlay	$0	0.00	True	
01/01/1989	IMPORTED	BUILT		3.00	True	1989: 3" P-401 ON EX FLEX. PAVEMENT

Network: X35 **Branch**: RW 5-23 (RUNWAY 5-23) **Section:** 6215 **Surface:** PCC
L.C.D.: 01/01/1942 **Use:** RUNWAY **Rank** P **Length:** 300.00 Ft **Width:** 100.00 Ft **True Area:** 30,000.00 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
01/01/1942	IMPORTED	BUILT			True	ESTIMATE 1942 PCC PAVEMENT

Network: X35 **Branch**: TW E (EAST TAXIWAY) **Section:** 105 **Surface:** AC
L.C.D.: 01/01/1993 **Use:** TAXIWAY **Rank** P **Length:** 230.00 Ft **Width:** 50.00 Ft **True Area:** 15,785.29 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
01/01/1993	IMPORTED	BUILT			True	ASSUME: 1993 AC PAVEMENT

Network: X35 **Branch**: TW E (EAST TAXIWAY) **Section:** 110 **Surface:** AAC
L.C.D.: 01/01/1989 **Use:** TAXIWAY **Rank** P **Length:** 3,350.00 Ft **Width:** 50.00 Ft **True Area:** 167,581.84 SqF

Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
01/01/1989	IMPORTED	BUILT		3.00	True	1989: 3" P-401 ON EX FLEX PAVEMENT

Network: X35 **Branch**: TW E (EAST TAXIWAY) **Section:** 115 **Surface:** PCC
L.C.D.: 01/01/1942 **Use:** TAXIWAY **Rank** P **Length:** 150.00 Ft **Width:** 25.00 Ft **True Area:** 3,750.00 SqF

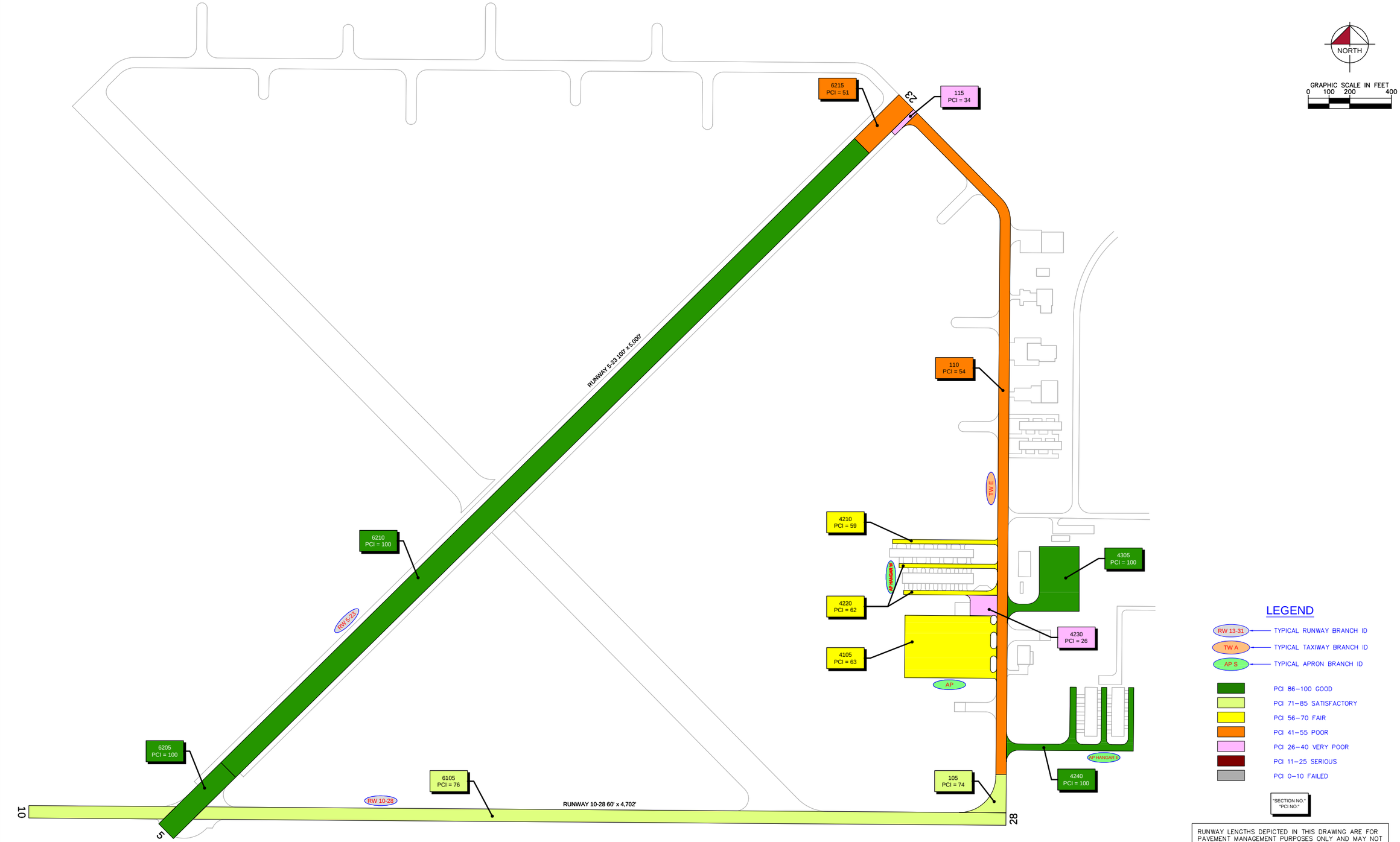
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
01/01/1942	IMPORTED	BUILT			True	ESTIMATE: 1942 PCC PAVEMENT

Summary:

Work Description	Section Count	Area Total (SqFt)	Thickness Avg (in)	Thickness STD (in)
BUILT	8	1,088,118.86	2.40	.55
Initial Construction	3	42,352.37	.00	.00
Mill and Overlay	2	470,000.48	.00	.00
New Construction - AC	1	42,917.05	.00	
New Construction - Initial	1	67,389.30	4.00	

APPENDIX B

- AIRFIELD PAVEMENT CONDITION INDEX RATING EXHIBIT
- PAVEMENT CONDITION INDEX INVENTORY



NUMBER	DATE	REVISIONS

DESIGNED:	KHA	DRAWN:	KHA	CHECKED:	KHA	DATE:	2013

K:\APW_Aviation\14277002\CADD\PLANSHEET\X35 – DUNNELLON-MARION COUNTY AIRPORT\SHEET\X35-125-CONDITION.dwg PLOTTED: November 19, 2013 – 3:03 PM, BY: Bahia, Art

OFFICE OF FREIGHT, LOGISTICS & PASSENGER OPERATIONS

AIRFIELD PAVEMENT CONDITION INDEX RATING EXHIBIT

MARION COUNTY AIRPORT
MARION COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION AND SPACEPORT OFFICE

IDENTIFIER: X35

FDOT DISTRICT: 5

Table B-1: Pavement Condition Index Inventory

Branch Name	Branch ID	Branch Use	Section ID	True Area (FT^2)	Section Rank	Surface Type	PCI	PCI Category	Total Samples Inspected	Total Samples
RUNWAY 5-23	RW 5-23	RUNWAY	6215	30,000	P	PCC	51	Poor	2	6
RUNWAY 5-23	RW 5-23	RUNWAY	6210	428,000	P	AAC	100	Good	17	86
RUNWAY 5-23	RW 5-23	RUNWAY	6205	42,000	P	AAC	100	Good	2	8
RUNWAY 10-28	RW 10-28	RUNWAY	6105	273,635	S	AC	76	Satisfactory	18	90
TERMINAL APRON	AP TERM	APRON	4305	67,389	P	AC	100	Good	2	14
HANGAR APRON	AP HANGAR	APRON	4240	42,917	T	AC	100	Good	3	15
HANGAR APRON	AP HANGAR	APRON	4230	13,063	T	PCC	26	Very Poor	1	2
HANGAR APRON	AP HANGAR	APRON	4220	19,093	T	AC	62	Fair	2	6
HANGAR APRON	AP HANGAR	APRON	4210	10,197	T	AC	59	Fair	1	3
APRON	AP	APRON	4105	127,367	P	AC	63	Fair	3	24
EAST TAXIWAY	TW E	TAXIWAY	115	3,750	P	PCC	34	Very Poor	1	1
EAST TAXIWAY	TW E	TAXIWAY	110	167,582	P	AAC	54	Poor	4	33
EAST TAXIWAY	TW E	TAXIWAY	105	15,785	P	AC	74	Satisfactory	1	3

Note: If new construction, then survey date = last construction date and PCI is set to 100 by MicroPAVER.
* Sections not surveyed due to reasons such as re-sectioning, no escort, not accessible at the time of survey.

APPENDIX C

- BRANCH CONDITION REPORT
- SECTION CONDITION REPORT

Date: 7 /3/2013

Branch Condition Report

Pavement Database: FDOT NetworkID: X35

Branch ID	Number of Sections	Sum Section Length (Ft)	Avg Section Width (Ft)	True Area (SqFt)	Use	Average PCI	PCI Standard Deviation	Weighted Average PCI
AP (APRON)	1	400.00	300.00	127,366.59	APRON	63.00	0.00	63.00
AP HANGAR (HANGAR APRON)	4	3,035.00	50.00	85,269.42	APRON	61.75	26.21	75.25
AP TERM (TERMINAL APRON)	1	200.00	350.00	67,389.30	APRON	100.00	0.00	100.00
RW 10-28 (RUNWAY 10-28)	1	4,550.00	60.00	273,634.66	RUNWAY	76.00	0.00	76.00
RW 5-23 (RUNWAY 5-23)	3	4,975.00	100.00	500,000.48	RUNWAY	83.67	23.10	97.06
TW E (EAST TAXIWAY)	3	3,730.00	41.67	187,117.13	TAXIWAY	54.00	16.33	55.29

Use Category	Number of Sections	Total Area (SqFt)	Arithmetic Average PCI	Average PCI STD.	Weighted Average PCI
APRON	6	280,025.31	68.33	25.67	75.64
RUNWAY	4	773,635.14	81.75	20.28	89.61
TAXIWAY	3	187,117.13	54.00	16.33	55.29
All	13	1,240,777.58	69.15	24.38	81.28

Date: 7 /3/2013

Section Condition Report

Pavement Database: FDOT NetworkID: X35

Branch ID	Section ID	Last Const. Date	Surface	Use	Rank	Lanes	True Area (SqFt)	Last Inspection Date	Age At Inspection	PCI
AP (APRON)	4105	01/01/1991	AC	APRON	P	0	127,366.59	06/12/2013	22	63.00
AP HANGAR (HANGAR APRON)	4210	01/01/1999	AC	APRON	T	0	10,196.57	06/12/2013	14	59.00
AP HANGAR (HANGAR APRON)	4220	01/01/1999	AC	APRON	T	0	19,093.08	06/12/2013	14	62.00
AP HANGAR (HANGAR APRON)	4230	01/01/1999	PCC	APRON	T	0	13,062.72	06/12/2013	14	26.00
AP HANGAR (HANGAR APRON)	4240	01/01/2011	AC	APRON	T	0	42,917.05	06/12/2013	2	100.00
AP TERM (TERMINAL APRON)	4305	07/01/2013	AC	APRON	P	0	67,389.30	07/01/2013	0	100.00
RW 10-28 (RUNWAY 10-28)	6105	01/01/1993	AC	RUNWAY	S	0	273,634.66	06/12/2013	20	76.00
RW 5-23 (RUNWAY 5-23)	6205	12/01/2011	AAC	RUNWAY	P	0	42,000.00	12/01/2011	0	100.00
RW 5-23 (RUNWAY 5-23)	6210	12/01/2011	AAC	RUNWAY	P	0	428,000.48	12/01/2011	0	100.00
RW 5-23 (RUNWAY 5-23)	6215	01/01/1942	PCC	RUNWAY	P	0	30,000.00	06/12/2013	71	51.00
TW E (EAST TAXIWAY)	105	01/01/1993	AC	TAXIWAY	P	0	15,785.29	06/12/2013	20	74.00
TW E (EAST TAXIWAY)	110	01/01/1989	AAC	TAXIWAY	P	0	167,581.84	06/12/2013	24	54.00
TW E (EAST TAXIWAY)	115	01/01/1942	PCC	TAXIWAY	P	0	3,750.00	06/12/2013	71	34.00

Section Condition Report

Pavement Database: FDOT

Age Category	Average Age At Inspection	Total Area (SqFt)	Number of Sections	Arithmetic Average PCI	PCI Standard Deviation	Weighted Average PCI
0-02	**0.50**	**580,306.83**	**4**	**100.00**	**0.00**	**100.00**
11-15	**14.00**	**42,352.37**	**3**	**49.00**	**19.97**	**50.17**
16-20	**20.00**	**289,419.95**	**2**	**75.00**	**1.41**	**75.89**
21-25	**23.00**	**294,948.43**	**2**	**58.50**	**6.36**	**57.89**
over 40	**71.00**	**33,750.00**	**2**	**42.50**	**12.02**	**49.11**
All	**20.92**	**1,240,777.58**	**13**	**69.15**	**25.37**	**81.28**

APPENDIX D

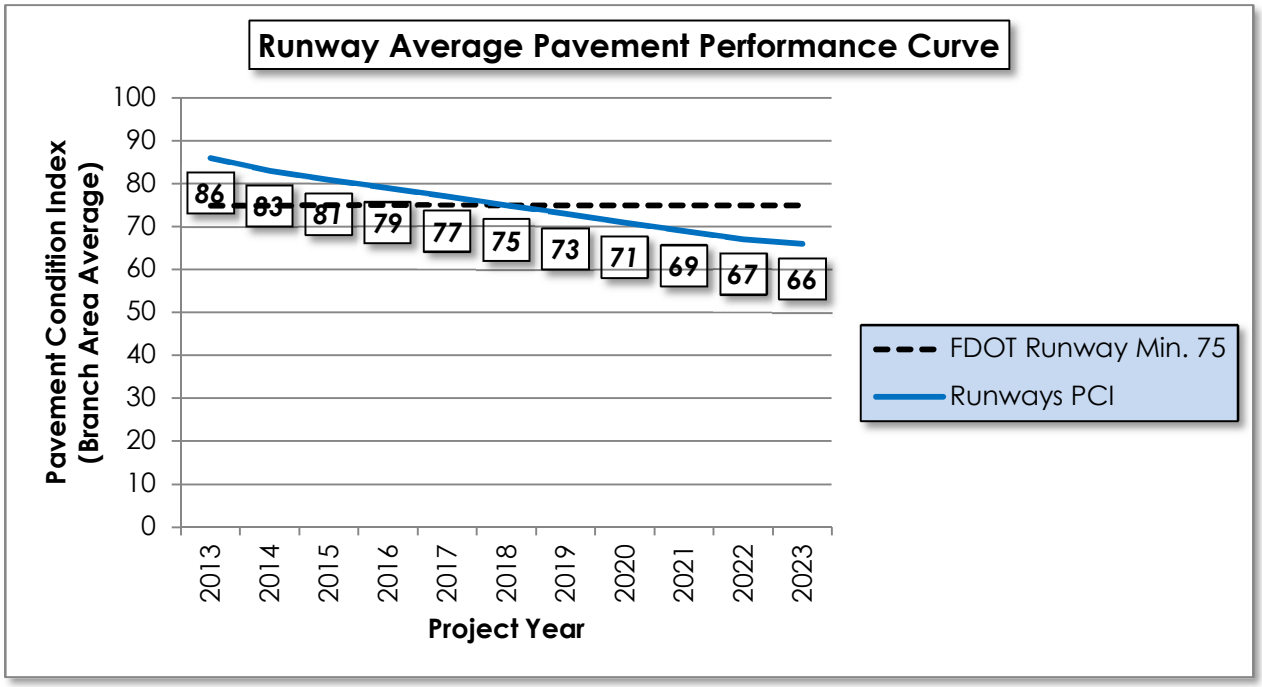
- PAVEMENT PERFORMANCE PREDICTION
- PAVEMENT PERFORMANCE BY PAVEMENT USE

Table D-1: Pavement Performance Prediction

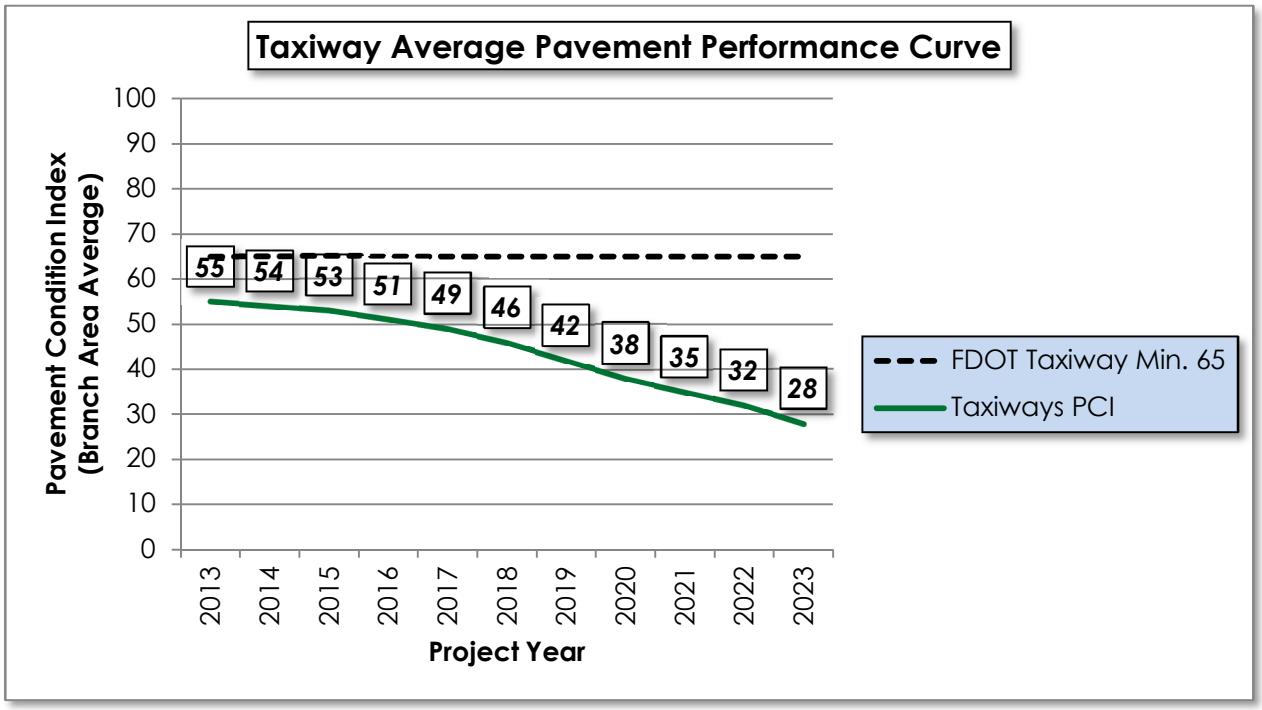
Branch ID	Section ID	Current PCI	Pavement Performance Model - PCI									
			2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
RW 5-23	6215	51	51	50	50	49	49	49	49	48	48	48
RW 5-23	6210	100	94	91	89	86	83	80	78	75	73	71
RW 5-23	6205	100	94	91	89	86	83	80	78	75	73	71
RW 10-28	6105	76	75	74	72	71	69	68	66	65	64	63
AP TERM	4305	100	97	92	88	84	81	78	76	74	72	71
AP HANGAR	4240	100	97	92	87	84	80	78	76	74	72	71
AP HANGAR	4230	59	26	26	26	26	25	25	25	25	25	25
AP HANGAR	4220	26	62	61	60	59	58	58	57	56	55	54
AP HANGAR	4210	62	59	58	57	56	55	54	53	52	51	50
AP	4105	63	63	62	61	60	60	59	58	57	56	55
TW E	115	34	34	33	33	32	32	32	31	31	30	30
TW E	110	54	53	52	50	48	45	41	36	33	29	26
TW E	105	74	73	72	70	69	68	67	66	66	65	65

Figure D-1: Pavement Performance by Pavement Use

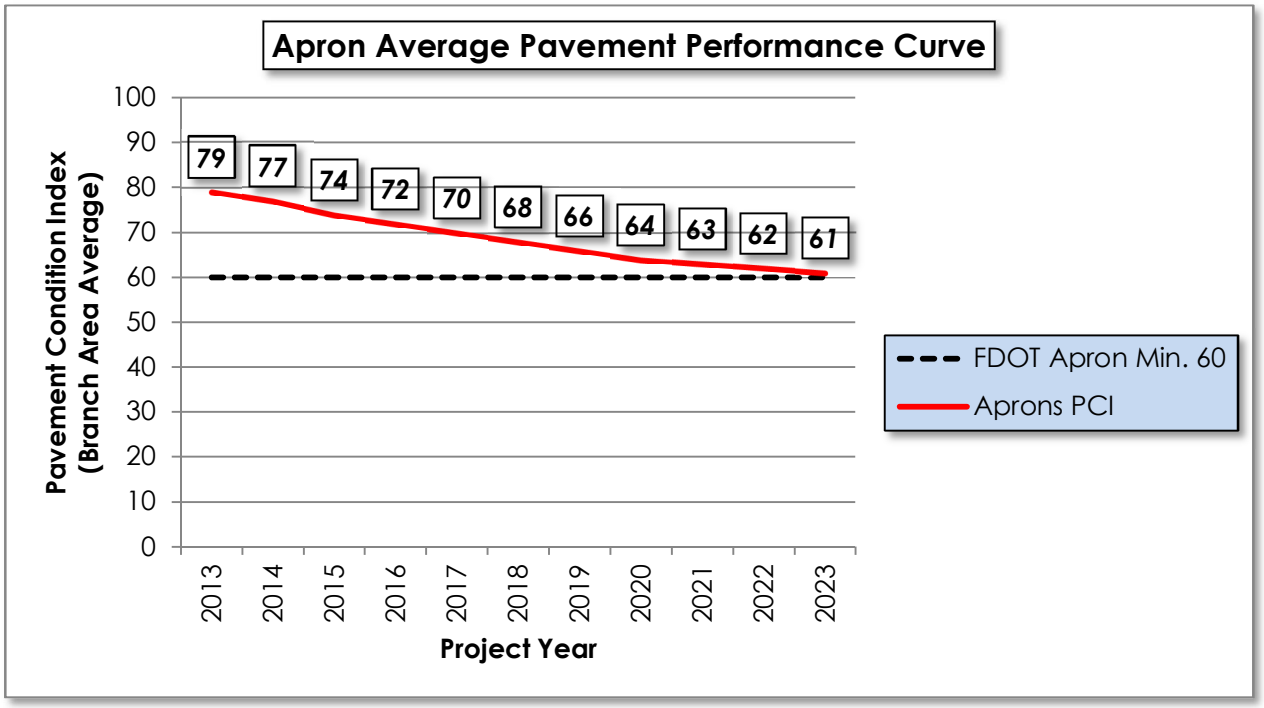
(a) Runway



(b) Taxiway



(c) Apron


Apron Average Pavement Performance Curve
Pavement Condition Index (Branch Area Average)
100
90
80
70
60
50
40
30
20
10
0
79
77
74
72
70
68
66
64
63
62
61
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Project Year
FDOT Apron Min. 60
Aprons PCI

APPENDIX E

- YEAR-1 PREVENTATIVE ACTIVITIES

Table E-1: Year-1 Preventative Activities

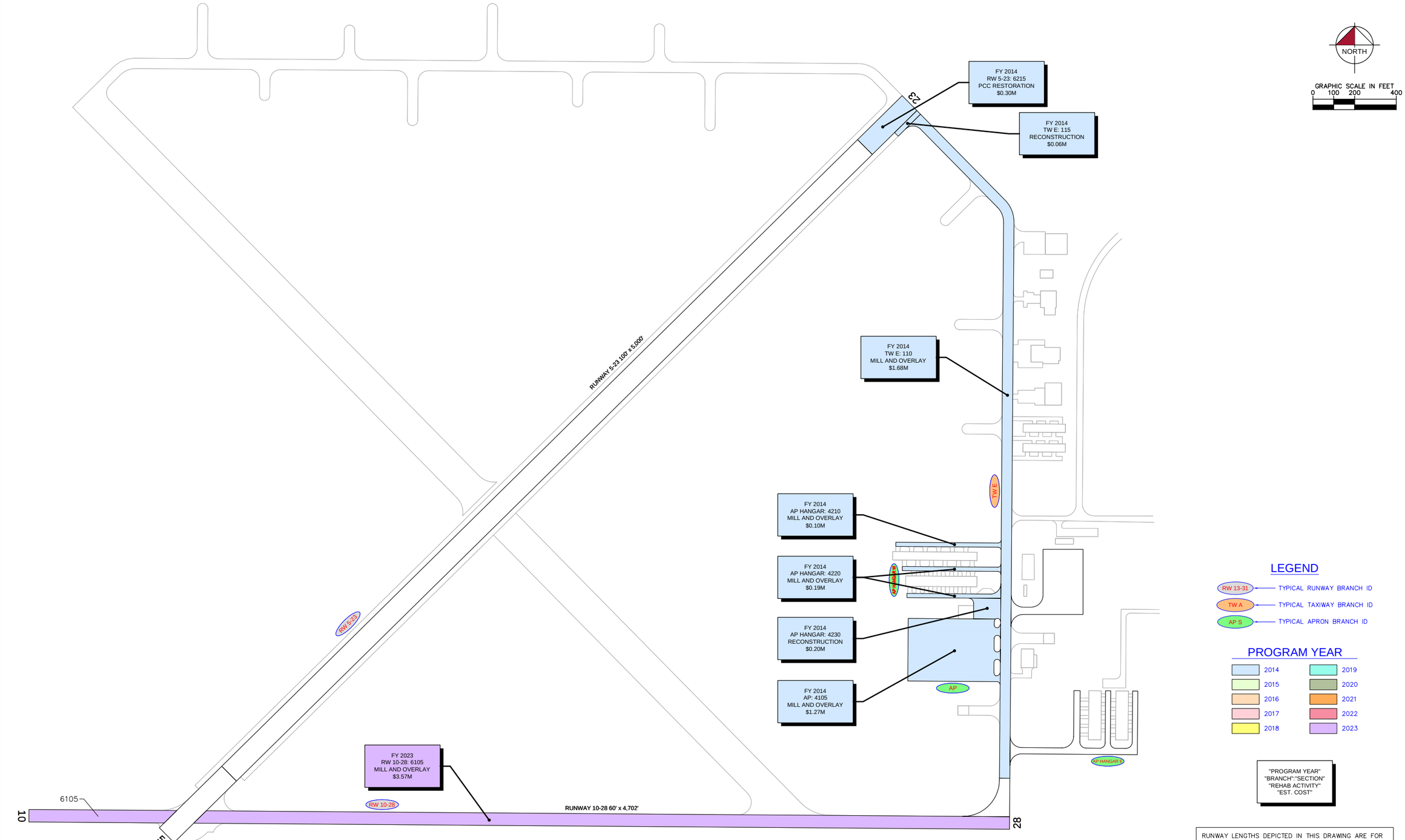
Branch Name	Branch ID	Section ID	Distress Description	Distress Severity	Work Description	Work Quantity	Work Unit	Unit Cost	Work Cost
RUNWAY 5-23	RW 5-23	6215	JT SEAL DMG	L	Joint Seal - PCC	1,600.00	Ft	$3.00	$ 4,799.99
RUNWAY 5-23	RW 5-23	6215	SHAT. SLAB	L	Slab Replacement - PCC	937.50	SqFt	$45.00	$ 42,187.50
RUNWAY 5-23	RW 5-23	6215	SHRINKAGE CR	N	Crack Sealing - PCC	29.50	Ft	$4.25	$ 125.49
RUNWAY 10-28	RW 10-28	6105	L & T CR	L	Crack Sealing - AC	17,144.10	Ft	$2.75	$ 47,146.15
RUNWAY 10-28	RW 10-28	6105	RAVELING	L	Surface Seal	33,137.00	SqFt	$0.55	$ 18,225.51
HANGAR APRON	AP HANGAR	4230	CORNER BREAK	M	Patching - PCC Partial Depth	118.40	SqFt	$19.10	$ 2,261.50
HANGAR APRON	AP HANGAR	4230	CORNER BREAK	L	Patching - PCC Partial Depth	236.80	SqFt	$19.10	$ 4,523.00
HANGAR APRON	AP HANGAR	4230	JT SEAL DMG	M	Joint Seal - PCC	1,290.60	Ft	$3.00	$ 3,871.72
HANGAR APRON	AP HANGAR	4230	SMALL PATCH	M	Slab Replacement - PCC	1,100.00	SqFt	$45.00	$ 49,500.00
HANGAR APRON	AP HANGAR	4230	SCALING	L	Patching - PCC Partial Depth	300.70	SqFt	$19.10	$ 5,744.20
HANGAR APRON	AP HANGAR	4230	SHAT. SLAB	L	Slab Replacement - PCC	5,500.00	SqFt	$45.00	$ 247,500.02
HANGAR APRON	AP HANGAR	4230	SHRINKAGE CR	N	Crack Sealing - PCC	36.10	Ft	$4.25	$ 153.38
HANGAR APRON	AP HANGAR	4230	JOINT SPALL	L	Patching - PCC Partial Depth	19.70	SqFt	$19.10	$ 376.92
HANGAR APRON	AP HANGAR	4230	JOINT SPALL	M	Patching - PCC Partial Depth	23.70	SqFt	$19.10	$ 452.30

Branch Name	Branch ID	Section ID	Distress Description	Distress Severity	Work Description	Work Quantity	Work Unit	Unit Cost	Work Cost
HANGAR APRON	AP HANGAR	4230	JOINT SPALL	H	Patching - PCC Partial Depth	29.60	SqFt	$19.10	$ 565.37
HANGAR APRON	AP HANGAR	4230	CORNER SPALL	L	Patching - PCC Partial Depth	9.90	SqFt	$19.10	$ 188.46
HANGAR APRON	AP HANGAR	4220	L & T CR	M	Crack Sealing - AC	63.60	Ft	$2.75	$ 175.02
HANGAR APRON	AP HANGAR	4220	L & T CR	L	Crack Sealing - AC	661.90	Ft	$2.75	$ 1,820.21
HANGAR APRON	AP HANGAR	4220	L & T CR	H	Crack Sealing - AC	63.60	Ft	$2.75	$ 175.02
HANGAR APRON	AP HANGAR	4220	RAVELING	L	Surface Seal	14,319.80	SqFt	$0.55	$ 7,875.96
HANGAR APRON	AP HANGAR	4210	L & T CR	L	Crack Sealing - AC	94.50	Ft	$2.75	$ 259.89
HANGAR APRON	AP HANGAR	4210	RAVELING	M	Surface Seal	721.20	SqFt	$0.55	$ 396.67
HANGAR APRON	AP HANGAR	4210	RAVELING	L	Surface Seal	10,196.60	SqFt	$0.55	$ 5,608.16
APRON	AP	4105	L & T CR	L	Crack Sealing - AC	10,236.40	Ft	$2.75	$ 28,149.95
APRON	AP	4105	L & T CR	M	Crack Sealing - AC	940.60	Ft	$2.75	$ 2,586.52
APRON	AP	4105	RAVELING	L	Surface Seal	111,690.70	SqFt	$0.55	$ 61,430.40
EAST TAXIWAY	TW E	115	JT SEAL DMG	L	Joint Seal - PCC	275.00	Ft	$3.00	$ 825.00
EAST TAXIWAY	TW E	110	BLOCK CR	L	Surface Seal	8,379.10	SqFt	$0.55	$ 4,608.54
EAST TAXIWAY	TW E	110	L & T CR	L	Crack Sealing - AC	21,760.50	Ft	$2.75	$ 59,841.32

Branch Name	Branch ID	Section ID	Distress Description	Distress Severity	Work Description	Work Quantity	Work Unit	Unit Cost	Work Cost
EAST TAXIWAY	TW E	110	L & T CR	M	Crack Sealing - AC	3,410.30	Ft	$2.75	$ 9,378.29
EAST TAXIWAY	TW E	110	RAVELING	L	Surface Seal	20,109.80	SqFt	$0.55	$ 11,060.49
EAST TAXIWAY	TW E	105	L & T CR	L	Crack Sealing - AC	315.70	Ft	$2.75	$ 868.19
EAST TAXIWAY	TW E	105	RAVELING	L	Surface Seal	4,419.90	SqFt	$0.55	$ 2,430.95
								Total =	$ 625,112.09

APPENDIX F

- AIRFIELD PAVEMENT 10-YEAR MAJOR REHABILITATION EXHIBIT
- AIRFIELD PAVEMENT 10-YEAR MAJOR REHABILITATION TABLE



NUMBER	DATE	REVISIONS

DESIGNED:	KHA	DRAWN:	KHA	CHECKED:	KHA	DATE:	2013

K:\APW_Aviation\1427\0027\CADD\PLANSHEETS\X35 – DUNNELLON-MARION COUNTY AIRPORT\EXHIBIT\X35-X35-REHAB.dwg PLOTTED: November 19, 2013 – 3:04 PM, BY: Bahia, Art

OFFICE OF FREIGHT, LOGISTICS & PASSENGER OPERATIONS

AIRFIELD PAVEMENT 10-YEAR REHABILITATION EXHIBIT

MARION COUNTY AIRPORT
MARION COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION AND SPACEPORT OFFICE

IDENTIFIER: X35

FDOT DISTRICT: 5

Table F-1: Airfield Pavement 10-Year Major Rehabilitation Table

Year	Branch Name	Section ID	Major M&R Costs*	PCI Before M&R	M&R Activity	PCI After M&R
2014	AP HANGAR	4210	$ 101,965.70	59	Mill and Overlay	100
2014	AP HANGAR	4220	$ 190,930.79	62	Mill and Overlay	100
2014	AP HANGAR	4230	$ 195,940.85	25	Reconstruction	100
2014	RW 5-23	6215	$ 299,999.99	51	PCC Restoration	100
2014	AP	4105	$ 1,273,665.84	63	Mill and Overlay	100
2014	TW E	110	$ 1,675,818.32	53	Mill and Overlay	100
2014	TW E	115	$ 56,250.01	33	Reconstruction	100
2023	RW 10-28	6105	$ 3,570,311.50	64	Mill and Overlay	100
		Total =	**$ 7,364,883.00**			

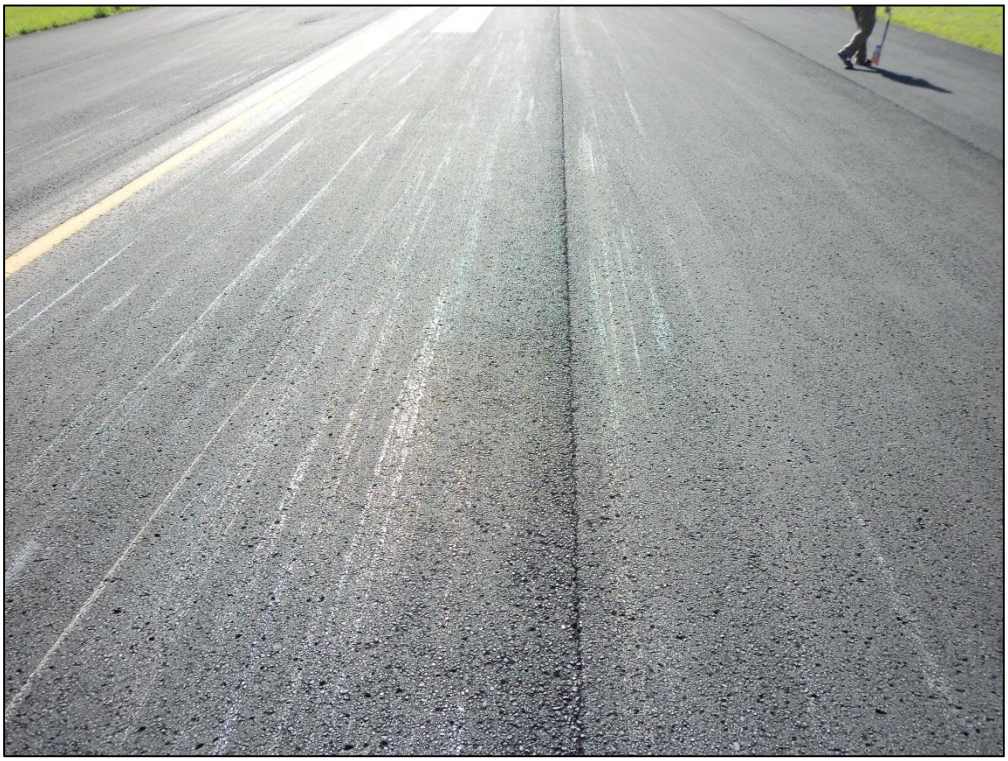
* Costs are adjusted for inflation AT 3%

APPENDIX G

- PHOTOGRAPHS

Runway 10-28, Section 6105, Sample Unit 185 – Low Severity (48) Longitudinal and Transverse Cracking, Low Severity (52) Raveling

Runway 10-28, Section 6105, Sample Unit 157 – Low Severity (48) Longitudinal and Transverse Cracking, Low Severity (52) Raveling



Runway 10-28, Section 6105, Sample Unit 105 – Low Severity (48) Longitudinal and Transverse Cracking, Low Severity (52) Raveling

Runway 10-28, Section 6105, Sample Unit 101 –Low Severity (52) Raveling

Taxiway East, Section 110, Sample Unit 105 – Low and Medium Severity (48) Longitudinal and Transverse Cracking, Low Severity (52) Raveling, Low Severity (57) Weathering

Taxiway East, Section 110, Sample Unit 113 – Medium Severity (48) Longitudinal and Transverse Cracking, Low Severity (52) Raveling, Low Severity (57) Weathering

Taxiway East, Section 110, Sample Unit 113 – Low Severity (48) Longitudinal and Transverse Cracking, Low Severity (52) Raveling, Low Severity (57) Weathering, Low Severity (43) Block Cracking

Taxiway East, Section 115, Sample Unit 135 – Low Severity (63) Longitudinal, Transverse, Diagonal Cracking, Low Severity (65) Joint Seal Damage

Runway 5-23, Section 6215, Sample Unit 195 – Low Severity (63) Longitudinal, Transverse, Diagonal Cracking

Apron Hangar, Section 4210, Sample Unit 100 – Low Severity (48) Longitudinal and Transverse Cracking, Low and Medium Severity (52) Raveling, Low Severity (57) Weathering

Apron Hangar, Section 4220, Sample Unit 300 – High Severity (48) Longitudinal and Transverse Cracking, Low and Medium Severity (52) Raveling, Low Severity (57) Weathering

Apron, Section 4105, Sample Unit 204 – Low and Medium Severity (48) Longitudinal and Transverse Cracking, Low and Medium Severity (52) Raveling, Low Severity (57) Weathering

Apron Hangar, Section 4230, Sample Unit 401 – Medium Severity (65) Joint Seal Damage, Low Severity (72) Shattered Slab

Apron Hangar, Section 4230, Sample Unit 401 – Medium Severity (65) Joint Seal Damage, High Severity (74) Joint Spalling, Low Severity (63) Longitudinal, Transverse, Diagonal Cracking, Low Severity (62) Corner Break

Apron Hangar, Section 4230, Sample Unit 401 – Medium Severity (65) Joint Seal Damage, Medium Severity (62) Corner Break

APPENDIX H

- DISTRESS DATA – RE-INSPECTION REPORT

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: AP Name: APRON Use: APRON Area: 127,366.59SqFt

Section: 4105 of 1 From: - To: - Last Const.: 01/01/1991
Surface: AC Family: FDOT-GA-AP-AC Zone: Category: Rank: P
Area: 127,366.59SqFt Length: 400.00Ft Width: 300.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: 06/12/2013 Total Samples: 24 Surveyed: 3
Conditions: PCI : 63
Inspection Comments:

Sample Number: 101 Type: R Area: 5,000.00SqFt PCI = 66
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	L	312.00 Ft	Comments:
57	WEATHERING	L	5,000.00 SqFt	Comments:
52	RAVELING	L	4,000.00 SqFt	Comments:

Sample Number: 204 Type: R Area: 5,000.00SqFt PCI = 60
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	M	100.00 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	M	20.00 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	L	361.00 Ft	Comments:
57	WEATHERING	L	5,000.00 SqFt	Comments:
52	RAVELING	L	4,000.00 SqFt	Comments:

Sample Number: 307 Type: R Area: 6,250.00SqFt PCI = 63
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	L	633.00 Ft	Comments:
57	WEATHERING	L	6,250.00 SqFt	Comments:
52	RAVELING	L	6,250.00 SqFt	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: AP HANGAR Name: HANGAR APRON Use: APRON Area: 85,269.42SqFt

Section: 4210 of 4 From: To: Last Const.: 01/01/1999
Surface: AC Family: FDOT-GA-AP-AC Zone: Category: Rank: T
Area: 10,196.57SqFt Length: 505.00Ft Width: 35.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: 06/12/2013 Total Samples: 3 Surveyed: 1
Conditions: PCI : 59
Inspection Comments:

Sample Number: 100 Type: R Area: 4,100.00SqFt PCI = 59
Sample Comments:

52 RAVELING	M	290.00	SqFt	Comments:
52 RAVELING	L	4,100.00	SqFt	Comments:
57 WEATHERING	L	3,810.00	SqFt	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	L	38.00	Ft	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: AP HANGAR Name: HANGAR APRON Use: APRON Area: 85,269.42SqFt

Section: 4220 of 4 From: To: Last Const.: 01/01/1999
Surface: AC Family: FDOT-GA-AP-AC Zone: Category: Rank: T
Area: 19,093.08SqFt Length: 940.00Ft Width: 35.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: 06/12/2013 Total Samples: 6 Surveyed: 2
Conditions: PCI : 62
Inspection Comments:

Sample Number: 201 Type: R Area: 3,000.00SqFt PCI = 64
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	L	100.00 Ft	Comments:
57	WEATHERING	L	3,000.00 SqFt	Comments:
52	RAVELING	L	3,000.00 SqFt	Comments:

Sample Number: 300 Type: R Area: 3,000.00SqFt PCI = 60
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	M	20.00 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	H	20.00 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	L	108.00 Ft	Comments:
57	WEATHERING	L	3,000.00 SqFt	Comments:
52	RAVELING	L	1,500.00 SqFt	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: AP HANGAR Name: HANGAR APRON Use: APRON Area: 85,269.42SqFt

Section: 4230 of 4 From: To: Last Const.: 01/01/1999
Surface: PCC Family: FDOT-GA-PCC Zone: Category: Rank: T
Area: 13,062.72SqFt Length: 130.00Ft Width: 100.00Ft
Slabs: 44 Slab Width: 20.00Ft Slab Length: 15.00Ft Joint Length: 1,286.67Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: 06/12/2013 Total Samples: 2 Surveyed: 1
Conditions: PCI : 26
Inspection Comments:

Sample Number: 401 Type: R Area: 12.00Slabs PCI = 26
Sample Comments:

62 CORNER BREAK	L	2.00 Slabs	Comments:
62 CORNER BREAK	M	1.00 Slabs	Comments:
66 SMALL PATCH	M	1.00 Slabs	Comments:
72 SHATTERED SLAB	L	5.00 Slabs	Comments:
70 SCALING/CRAZING	L	1.00 Slabs	Comments:
73 SHRINKAGE CRACKING	N	2.00 Slabs	Comments:
74 JOINT SPALLING	L	2.00 Slabs	Comments:
74 JOINT SPALLING	M	1.00 Slabs	Comments:
74 JOINT SPALLING	H	1.00 Slabs	Comments:
75 CORNER SPALLING	L	1.00 Slabs	Comments:
65 JOINT SEAL DAMAGE	M	12.00 Slabs	Comments:
63 LINEAR CRACKING	L	7.00 Slabs	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: AP HANGAR Name: HANGAR APRON Use: APRON Area: 85,269.42SqFt

Section: 4240 of 4 From: To: Last Const.: 01/01/2011
Surface: AC Family: FDOT-GA-AP-AC Zone: Category: Rank: T
Area: 42,917.05SqFt Length: 1,460.00Ft Width: 30.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: 06/12/2013 Total Samples: 15 Surveyed: 3
Conditions: PCI : 100
Inspection Comments:

Sample Number: 101 Type: R Area: 3,000.00SqFt PCI = 100
Sample Comments:
<NO DISTRESSES>

Sample Number: 201 Type: R Area: 3,000.00SqFt PCI = 100
Sample Comments:
57 WEATHERING L 16.00 SqFt Comments:

Sample Number: 400 Type: R Area: 2,693.00SqFt PCI = 100
Sample Comments:
<NO DISTRESSES>

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: AP TERM Name: TERMINAL APRON Use: APRON Area: 67,389.30SqFt

Section: 4305 of 1 From: - To: - Last Const.: 07/01/2013
Surface: AC Family: FDOT-GA-AP-AC Zone: Category: Rank: P
Area: 67,389.30SqFt Length: 200.00Ft Width: 350.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: Total Samples: 0 Surveyed: 0
Conditions:

Sample Number: Type: Area: 0.00
<NO VALID INSPECTIONS>

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: RW 10-28 Name: RUNWAY 10-28 Use: RUNWAY Area: 273,634.66SqFt

Section: 6105 of 1 From: - To: - Last Const.: 01/01/1993
Surface: AC Family: FDOT-GA-RW-AC Zone: Category: Rank: S
Area: 273,634.66SqFt Length: 4,550.00Ft Width: 60.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: 06/12/2013 Total Samples: 90 Surveyed: 18
Conditions: PCI : 76
Inspection Comments:

Sample Number: 101 Type: R Area: 3,000.00SqFt PCI = 74
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	250.00 Ft	Comments:	
52 RAVELING	L	275.00 SqFt	Comments:	
52 RAVELING	L	161.00 SqFt	Comments:	
52 RAVELING	L	300.00 SqFt	Comments:	

Sample Number: 105 Type: R Area: 3,000.00SqFt PCI = 77
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	204.00 Ft	Comments:	
52 RAVELING	L	400.00 SqFt	Comments:	

Sample Number: 108 Type: R Area: 3,000.00SqFt PCI = 79
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	162.00 Ft	Comments:	
52 RAVELING	L	300.00 SqFt	Comments:	

Sample Number: 112 Type: R Area: 3,000.00SqFt PCI = 78
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	185.00 Ft	Comments:	
52 RAVELING	L	400.00 SqFt	Comments:	

Sample Number: 115 Type: R Area: 3,000.00SqFt PCI = 80
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	150.00 Ft	Comments:	
52 RAVELING	L	300.00 SqFt	Comments:	

Sample Number: 118 Type: R Area: 3,000.00SqFt PCI = 75
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	150.00 Ft	Comments:	
48 LONGITUDINAL/TRANSVERSE CRACKING	L	78.00 Ft	Comments:	
52 RAVELING	L	400.00 SqFt	Comments:	

Sample Number: 122 Type: R Area: 3,000.00SqFt PCI = 74
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	250.00 Ft	Comments:	
52 RAVELING	L	400.00 SqFt	Comments:	

Sample Number: 129 Type: R Area: 3,000.00SqFt PCI = 77
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	200.00 Ft	Comments:	
52 RAVELING	L	300.00 SqFt	Comments:	

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Sample Number: 136 Type: R Area: 3,000.00SqFt PCI = 77
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	200.00	Ft	Comments:
52 RAVELING	L	400.00	SqFt	Comments:

Sample Number: 143 Type: R Area: 3,000.00SqFt PCI = 77
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	200.00	Ft	Comments:
52 RAVELING	L	400.00	SqFt	Comments:

Sample Number: 150 Type: R Area: 3,000.00SqFt PCI = 77
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	200.00	Ft	Comments:
52 RAVELING	L	400.00	SqFt	Comments:

Sample Number: 157 Type: R Area: 3,000.00SqFt PCI = 77
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	200.00	Ft	Comments:
52 RAVELING	L	300.00	SqFt	Comments:

Sample Number: 164 Type: R Area: 3,000.00SqFt PCI = 77
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	200.00	Ft	Comments:
52 RAVELING	L	400.00	SqFt	Comments:

Sample Number: 171 Type: R Area: 3,000.00SqFt PCI = 77
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	200.00	Ft	Comments:
52 RAVELING	L	400.00	SqFt	Comments:

Sample Number: 175 Type: R Area: 3,000.00SqFt PCI = 75
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	241.00	Ft	Comments:
52 RAVELING	L	400.00	SqFt	Comments:

Sample Number: 177 Type: R Area: 4,623.70SqFt PCI = 62
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	163.00	Ft	Comments:
52 RAVELING	L	300.00	SqFt	Comments:
50 PATCHING	L	2,000.00	SqFt	Comments:

Sample Number: 181 Type: R Area: 3,000.00SqFt PCI = 82
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	125.00	Ft	Comments:
52 RAVELING	L	250.00	SqFt	Comments:

Sample Number: 185 Type: R Area: 3,000.00SqFt PCI = 82
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	127.00	Ft	Comments:
52 RAVELING	L	250.00	SqFt	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: RW 5-23 Name: RUNWAY 5-23 Use: RUNWAY Area: 500,000.48SqFt

Section: 6205 of 3 From: - To: - Last Const.: 12/01/2011
Surface: AAC Family: FDOT-GA-RW-AAC Zone: Category: Rank: P
Area: 42,000.00SqFt Length: 375.00Ft Width: 100.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

NOTE: * Pre-Construction PCI *****
Last Insp. Date: 10/23/2006 Total Samples: 8 Surveyed: 2
Conditions: PCI : 66
Inspection Comments:

Sample Number: 101 Type: R Area: 5,000.00SqFt PCI = 70
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	L	559.14 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	M	83.02 Ft	Comments:

Sample Number: 105 Type: R Area: 5,000.00SqFt PCI = 62
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	L	550.14 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	M	40.01 Ft	Comments:
56	SWELLING	L	550.00 SqFt	Comments:
52	RAVELING	L	80.00 SqFt	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: RW 5-23 Name: RUNWAY 5-23 Use: RUNWAY Area: 500,000.48SqFt

Section: 6210 of 3 From: - To: - Last Const.: 12/01/2011
Surface: AAC Family: FDOT-GA-RW-AAC Zone: Category: Rank: P
Area: 428,000.48SqFt Length: 4,300.00Ft Width: 100.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

NOTE: * Pre-Construction PCI *****
Last Insp. Date: 10/23/2006 Total Samples: 86 Surveyed: 17
Conditions: PCI : 68
Inspection Comments:

Sample Number: 108 Type: R Area: 5,000.00SqFt PCI = 66
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	541.14 Ft	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	50.01 Ft	Comments:
52 RAVELING	L	400.00 SqFt	Comments:

Sample Number: 114 Type: R Area: 5,000.00SqFt PCI = 62
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	563.14 Ft	Comments:
52 RAVELING	L	400.00 SqFt	Comments:
56 SWELLING	L	45.00 SqFt	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	30.01 Ft	Comments:

Sample Number: 120 Type: R Area: 5,000.00SqFt PCI = 62
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	518.13 Ft	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	50.01 Ft	Comments:
52 RAVELING	L	400.00 SqFt	Comments:
56 SWELLING	L	70.00 SqFt	Comments:

Sample Number: 124 Type: R Area: 5,000.00SqFt PCI = 72
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	453.12 Ft	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	50.01 Ft	Comments:
52 RAVELING	L	10.00 SqFt	Comments:

Sample Number: 127 Type: R Area: 5,000.00SqFt PCI = 76
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	458.12 Ft	Comments:
56 SWELLING	L	25.00 SqFt	Comments:

Sample Number: 134 Type: R Area: 5,000.00SqFt PCI = 72
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	484.12 Ft	Comments:
56 SWELLING	L	35.00 SqFt	Comments:
52 RAVELING	L	10.00 SqFt	Comments:
50 PATCHING	L	1.00 SqFt	Comments:

Sample Number: 141 Type: R Area: 5,000.00SqFt PCI = 63
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	515.13 Ft	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	50.01 Ft	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

52 RAVELING	L	100.00	SqFt	Comments:
56 SWELLING	L	80.00	SqFt	Comments:

Sample Number: 144 Type: R Area: 5,000.00SqFt PCI = 66
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	596.15	Ft	Comments:
50 PATCHING	L	596.15	SqFt	Comments:
52 RAVELING	L	60.00	SqFt	Comments:

Sample Number: 148 Type: R Area: 5,000.00SqFt PCI = 71
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	429.11	Ft	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	50.01	Ft	Comments:
56 SWELLING	L	35.00	SqFt	Comments:

Sample Number: 155 Type: R Area: 5,000.00SqFt PCI = 60
Sample Comments:

52 RAVELING	L	230.00	SqFt	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	L	552.14	Ft	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	50.01	Ft	Comments:
56 SWELLING	L	112.00	SqFt	Comments:

Sample Number: 162 Type: R Area: 5,000.00SqFt PCI = 72
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	474.12	Ft	Comments:
52 RAVELING	L	45.00	SqFt	Comments:
56 SWELLING	L	44.00	SqFt	Comments:
42 BLEEDING	N	2.00	SqFt	Comments:

Sample Number: 166 Type: R Area: 5,000.00SqFt PCI = 70
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	486.12	Ft	Comments:
56 SWELLING	L	75.00	SqFt	Comments:
52 RAVELING	L	65.00	SqFt	Comments:

Sample Number: 169 Type: R Area: 5,000.00SqFt PCI = 69
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	424.11	Ft	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	50.01	Ft	Comments:
56 SWELLING	L	86.00	SqFt	Comments:

Sample Number: 176 Type: R Area: 5,000.00SqFt PCI = 65
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	683.17	Ft	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	50.01	Ft	Comments:
56 SWELLING	L	35.00	SqFt	Comments:

Sample Number: 183 Type: R Area: 5,000.00SqFt PCI = 63
Sample Comments:

48 LONGITUDINAL/TRANSVERSE CRACKING	L	497.13	Ft	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	50.01	Ft	Comments:
56 SWELLING	L	75.00	SqFt	Comments:
52 RAVELING	L	500.00	SqFt	Comments:

Sample Number: 187 Type: R Area: 5,000.00SqFt PCI = 68
Sample Comments:

56 SWELLING	L	84.00	SqFt	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	L	453.12	Ft	Comments:
48 LONGITUDINAL/TRANSVERSE CRACKING	M	50.01	Ft	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Sample Number: 190 Type: R Area: 5,000.00SqFt PCI = 70
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	L	488.12	Ft	Comments:
56	SWELLING	L	25.00	SqFt	Comments:
52	RAVELING	L	300.00	SqFt	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: RW 5-23 Name: RUNWAY 5-23 Use: RUNWAY Area: 500,000.48SqFt

Section: 6215 of 3 From: - To: - Last Const.: 01/01/1942
Surface: PCC Family: FDOT-GA-PCC Zone: Category: Rank: P
Area: 30,000.00SqFt Length: 300.00Ft Width: 100.00Ft
Slabs: 96 Slab Width: 25.00Ft Slab Length: 12.50Ft Joint Length: 3,200.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: 06/12/2013 Total Samples: 6 Surveyed: 2
Conditions: PCI : 51
Inspection Comments:

Sample Number: 195 Type: R Area: 16.00Slabs PCI = 47
Sample Comments:

63 LINEAR CRACKING	L	7.00 Slabs	Comments:
63 LINEAR CRACKING	M	4.00 Slabs	Comments:
66 SMALL PATCH	L	4.00 Slabs	Comments:
72 SHATTERED SLAB	L	1.00 Slabs	Comments:
73 SHRINKAGE CRACKING	N	2.00 Slabs	Comments:

Sample Number: 198 Type: R Area: 16.00Slabs PCI = 55
Sample Comments:

65 JOINT SEAL DAMAGE	L	16.00 Slabs	Comments:
63 LINEAR CRACKING	L	12.00 Slabs	Comments:
63 LINEAR CRACKING	M	3.00 Slabs	Comments:
66 SMALL PATCH	L	2.00 Slabs	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: TW E Name: EAST TAXIWAY Use: TAXIWAY Area: 187,117.13SqFt

Section: 105 of 3 From: - To: - Last Const.: 01/01/1993
Surface: AC Family: FDOT-GA-TW-AC Zone: Category: Rank: P
Area: 15,785.29SqFt Length: 230.00Ft Width: 50.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: 06/12/2013 Total Samples: 3 Surveyed: 1
Conditions: PCI : 74
Inspection Comments:

Sample Number: 100 Type: R Area: 5,000.00SqFt PCI = 74
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	L	100.00 Ft	Comments:
57	WEATHERING	L	5,000.00 SqFt	Comments:
52	RAVELING	L	1,400.00 SqFt	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: TW E Name: EAST TAXIWAY Use: TAXIWAY Area: 187,117.13SqFt

Section: 110 of 3 From: - To: - Last Const.: 01/01/1989
Surface: AAC Family: FDOT-GA-TW-AAC Zone: Category: Rank: P
Area: 167,581.84SqFt Length: 3,350.00Ft Width: 50.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: 06/12/2013 Total Samples: 33 Surveyed: 4
Conditions: PCI : 54
Inspection Comments:

Sample Number: 105 Type: R Area: 5,000.00SqFt PCI = 49
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	M	140.00 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	L	350.00 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	L	544.00 Ft	Comments:
57	WEATHERING	L	5,000.00 SqFt	Comments:
52	RAVELING	L	500.00 SqFt	Comments:
56	SWELLING	L	260.00 SqFt	Comments:

Sample Number: 113 Type: R Area: 5,000.00SqFt PCI = 49
Sample Comments:

43	BLOCK CRACKING	L	1,000.00 SqFt	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	M	200.00 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	L	345.00 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	L	100.00 Ft	Comments:
57	WEATHERING	L	5,000.00 SqFt	Comments:
52	RAVELING	L	500.00 SqFt	Comments:
56	SWELLING	L	162.00 SqFt	Comments:

Sample Number: 121 Type: R Area: 5,000.00SqFt PCI = 55
Sample Comments:

57	WEATHERING	L	5,000.00 SqFt	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	L	629.00 Ft	Comments:
52	RAVELING	L	600.00 SqFt	Comments:
56	SWELLING	L	116.00 SqFt	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	L	200.00 Ft	Comments:

Sample Number: 131 Type: R Area: 5,000.00SqFt PCI = 62
Sample Comments:

48	LONGITUDINAL/TRANSVERSE CRACKING	M	67.00 Ft	Comments:
48	LONGITUDINAL/TRANSVERSE CRACKING	L	429.00 Ft	Comments:
57	WEATHERING	L	5,000.00 SqFt	Comments:
52	RAVELING	L	800.00 SqFt	Comments:
56	SWELLING	L	12.00 SqFt	Comments:

Re-inspection Report

FDOT
Report Generated Date: July 03, 2013

Network: X35 Name: MARION COUNTY AIRPORT

Branch: TW E Name: EAST TAXIWAY Use: TAXIWAY Area: 187,117.13SqFt

Section: 115 of 3 From: - To: - Last Const.: 01/01/1942
Surface: PCC Family: FDOT-GA-PCC Zone: Category: Rank: P
Area: 3,750.00SqFt Length: 150.00Ft Width: 25.00Ft
Slabs: 12 Slab Width: 25.00Ft Slab Length: 12.50Ft Joint Length: 275.00Ft
Shoulder: Street Type: Grade: 0.00 Lanes: 0

Section Comments:

Last Insp. Date: 06/12/2013 Total Samples: 1 Surveyed: 1
Conditions: PCI : 34
Inspection Comments:

Sample Number: 135 Type: R Area: 12.00Slabs PCI = 34
Sample Comments:

65 JOINT SEAL DAMAGE	L	12.00 Slabs	Comments:
63 LINEAR CRACKING	L	2.00 Slabs	Comments:
63 LINEAR CRACKING	M	10.00 Slabs	Comments:
66 SMALL PATCH	L	3.00 Slabs	Comments: