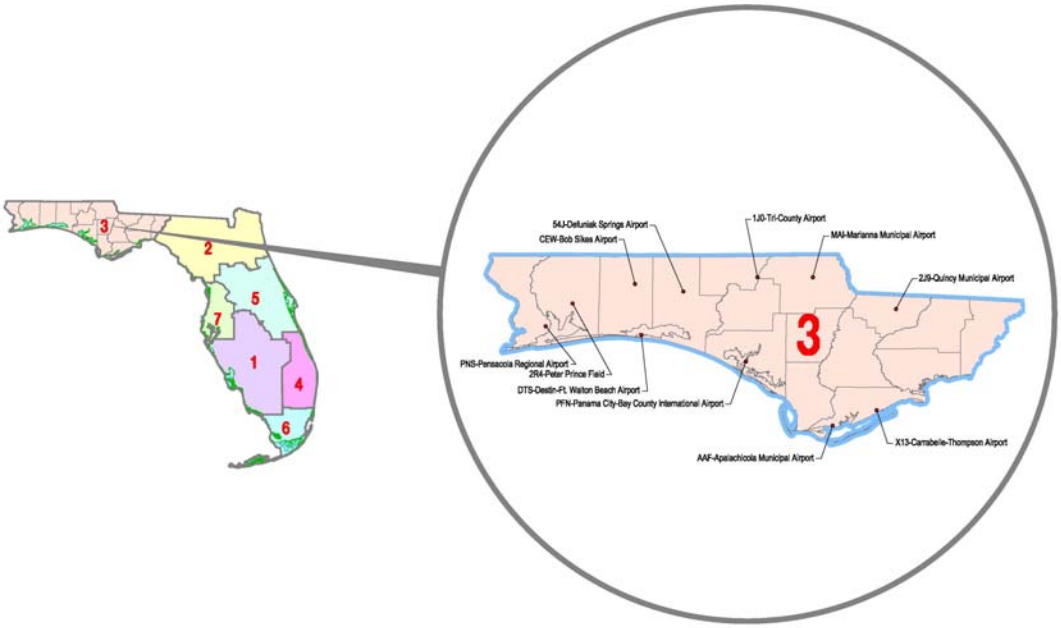
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
AVIATION OFFICE

Statewide Airfield Pavement Management Program

District 3 Report

June 13, 2008



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Florida Department of Transportation
Aviation Office

by:

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EXECUTIVE SUMMARY

URS Corporation, Inc. with team members MACTEC Engineering and Consulting, Inc. (MACTEC), Planning Technology, Inc. (PTI), and ASC Geosciences, Inc. (ASCG) was awarded a contract to provide services in support of the Florida Department of Transportation (FDOT) Aviation Office for Phase II of the Statewide Aviation Pavement Management Program. As part of this contract, MACTEC conducted pavement condition surveys for airside pavements for airports located in District 3, evaluated the conditions and developed a maintenance and rehabilitation program to improve conditions to prescribed minimum levels. District 3 has 2 Primary (PR) and 9 General Aviation (GA) airports participate in the Statewide Pavement Management Program.

Pavement Area and Use

The total pavement area in 2006/2007 for airports located in District 3 is approximately 24,645,443 square feet. The breakdown of pavement area for each pavement use is provided as follows:

Table E-1: Pavement Area by Pavement Use – District 3

Use	Area, SqFt
Runway	10,065,885
Taxiway	6,641,626
Apron	7,937,932
Total	**24,645,443**

Figure E-1: Pavement Area by Use – District 3

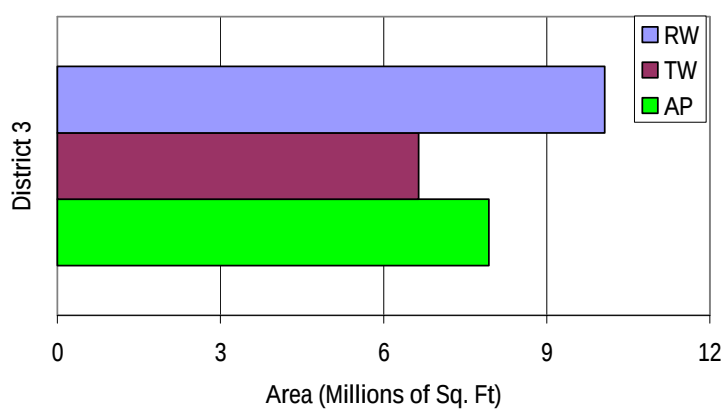

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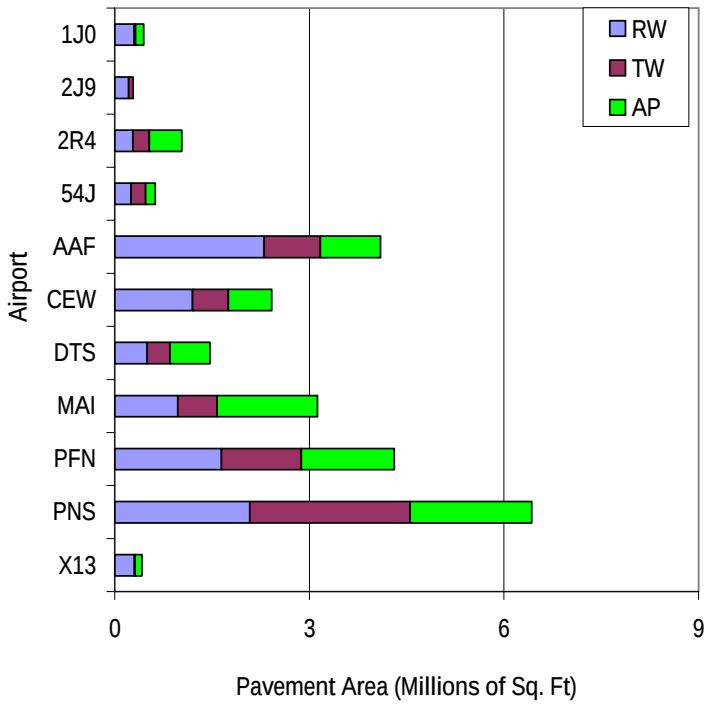
Figure E-2: Pavement Area by Use by Airport – District 3



Pavement Condition Index (PCI)

The overall area-weighted Pavement Condition Index (PCI) of the airports in District 3 in 2006/2007 is 74, representing a Satisfactory overall network condition.

Table E-2 provide list of participating airports within District 3 with weighted-PCI and pavement area.

Table E-3 and Figure E-3 provide the weighted-average PCI by pavement use for airports participating in the program from District 3. Figure E-4 provides the distribution PCI by pavement use by airport. Figure E-5 provides the area-weighted PCI by surface type.

The condition summary by pavement use table illustrates the area-weighted PCI computed individually for each use. On average, the runways and taxiways are in Satisfactory condition while the aprons are in Fair condition.

Table E-2: Participating Airports Summary– District 3

Airport	Area-Weighted PCI	Area, SqFt
1J0	86	444,455
2J9	75	283,250
2R4	88	1,032,651
54J	73	626,152
AAF	71	4,094,590
CEW	87	2,418,786
DTS	71	1,465,365
MAI	42	3,126,719
PFN	69	4,307,420
PNS	88	6,428,305
X13	91	417,750
District 3	**74**	**24,645,443**

Figure E-3: PCI by Pavement Use – District 3

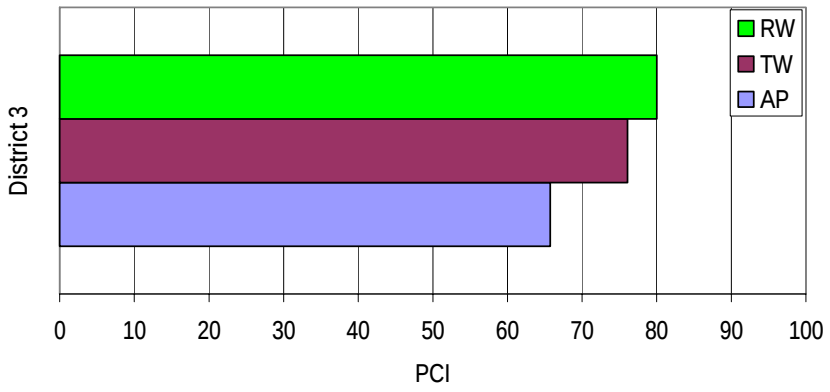


Table E-3: Condition Summary by Pavement Use – District 3

Use	Area-Weighted PCI
Runway	80
Taxiway	76
Apron	66
All	**74**

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Figure E-4: PCI by Use by Airport – District 3

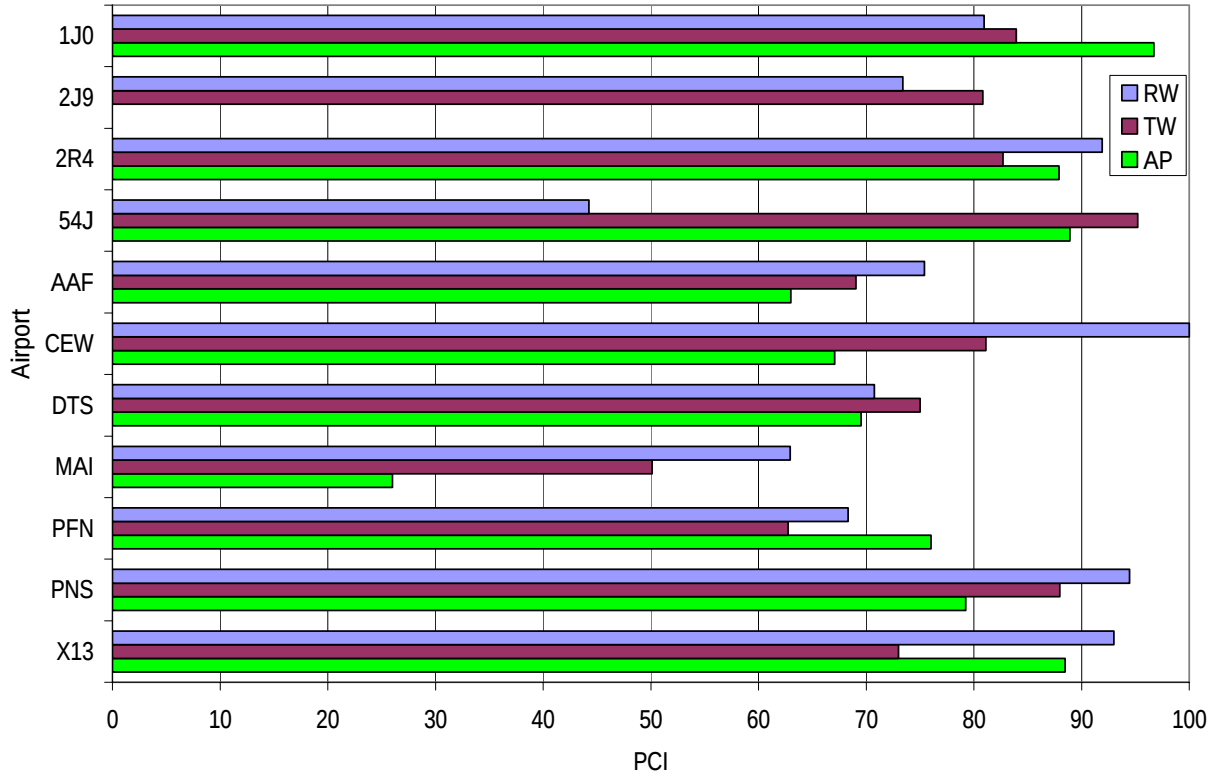
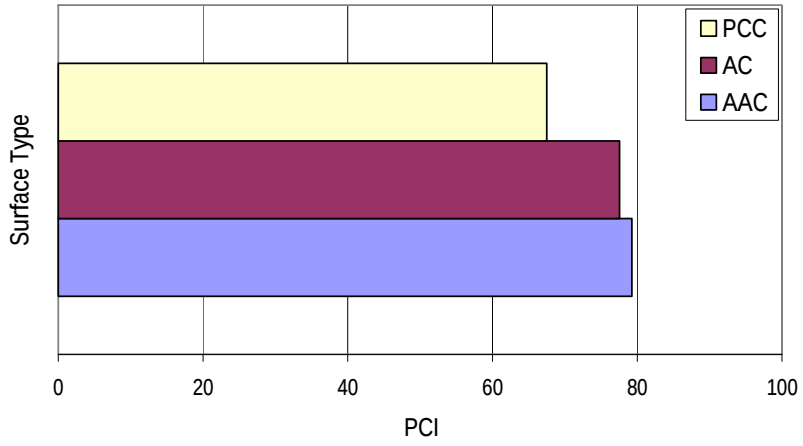


Figure E-5: PCI by Surface Type – District 3



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Maintenance and Rehabilitation Costs

Airports in District 3 with immediate M&R needs (2008 needs) include 2J9 (Quincy Municipal Airport), 2R4 (Peter Prince Field Airport), 54J (Defuniak Springs Airport), AAF (Apalachicola Municipal Airport), CEW (Bob Sikes Airport), DTS (Destin-Fort Walton Beach Airport), MAI (Marianna Municipal Airport), PFN (Panama City-Bay County International Airport), PNS (Pensacola Regional Airport), and X13 (Carrabelle-Thompson Airport). Some of these needs may not be the highest priority for funding but would need to be programmed over several years. These immediate needs based on FDOT criteria are summarized in the following table.

Table E-4: Immediate Major M&R Cost – District 3

Airport	Avg PCI - Before M&R	Immediate M&R Total **	Avg PCI -1st Year After M&R
1J0	86	$0	85
2J9	75	$37,000	75
2R4	88	$181,000	88
54J	73	$2,887,000	96
AAF	71	$4,526,000	86
CEW	87	$2,149,000	93
DTS	71	$822,000	77
MAI	42	$27,976,000	94
PFN	69	$14,669,000	87
PNS	88	$1,636,000	89
X13	91	$47,000	89
District 3	**74**	**$54,930,000**	**88**

* This table shows the area-weighted PCI before and after Major M&R and routine maintenance work for the first year of the 10-year plan. It includes all airports participating in the program from District 3.
** Cost figures are rounded to nearest $1000. Sum may be different. Costs are adjusted for inflation.

A forecast of Major M&R cost for a 10-year period was developed using an unlimited budget. The analysis identified ongoing maintenance needs and major M&R during that interval. This is summarized in Table E-4 and Figures E-5 and E-6.

Table E-5: 10 Year M&R Costs under Unlimited Funding Scenario - District 3

Year	Preventive	Major M&R >= Critical	Major M&R < Critical	Total
2008	$989,000	$257,000	$54,672,000	$55,918,000
2009	$1,727,000	$0	$754,000	$2,481,000
2010	$1,602,000	$0	$4,464,000	$6,066,000
2011	$1,743,000	$0	$1,353,000	$3,096,000
2012	$1,754,000	$0	$3,112,000	$4,866,000
2013	$1,893,000	$0	$1,785,000	$3,678,000
2014	$2,208,000	$0	$331,000	$2,539,000
2015	$2,444,000	$0	$1,151,000	$3,595,000
2016	$2,680,000	$0	$2,156,000	$4,836,000
2017	$3,048,000	$0	$615,000	$3,663,000
Total	**$20,088,000**	**$257,000**	**$70,392,000**	**$90,738,000**

Note: Cost figures are rounded to nearest $1000. Sum may be different. Costs are adjusted to inflation

The 10 year analysis suggests an annual budget on the order of $9 million would be expected to provide an improvement in the overall condition, where the area-weighted PCI would increase from 74 in 2006/2007 to 82 in 2017. However, as stated above, a number of large projects exist that would need to be programmed over multiple years.

It is important to note that although preventative and some major M&R activities would have to be conducted over several years, the area-weighted PCI value for all airport pavements in District 3 in 2017 may remain near 82. What is most important is that the pavement repair work (preventative and major M&R) that has been identified for airports in District 3 is conducted at some point in the 10-year plan.

Figure E-6: Immediate M&R Costs by Airport - District 3

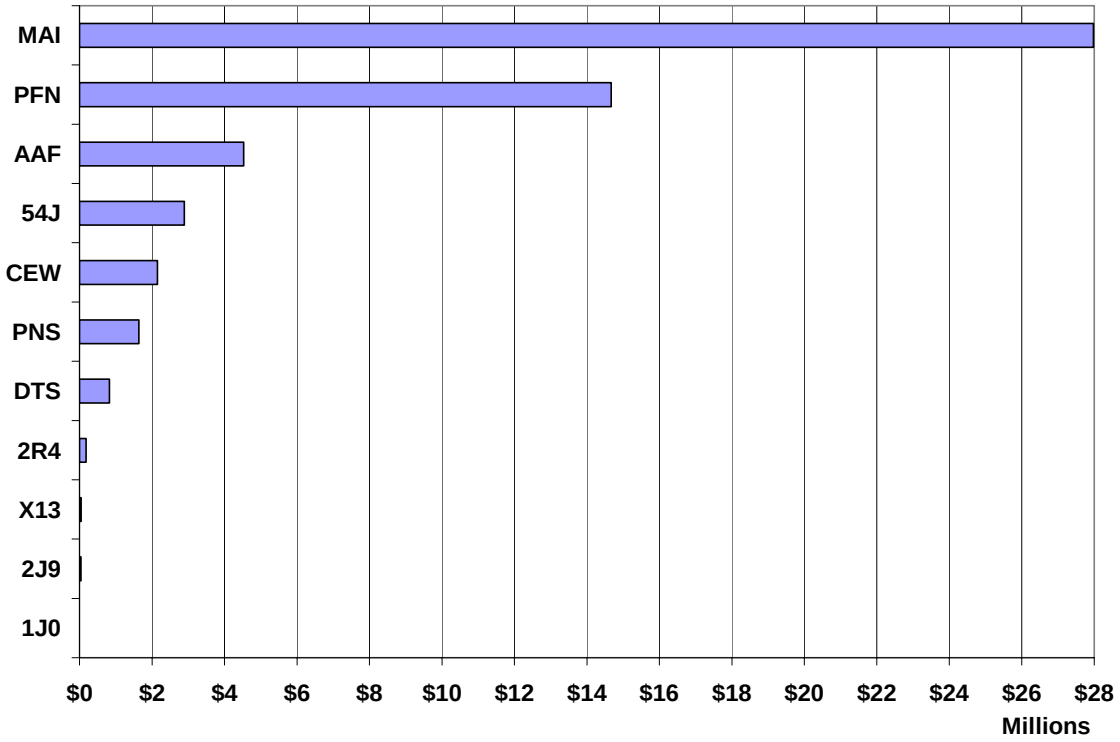
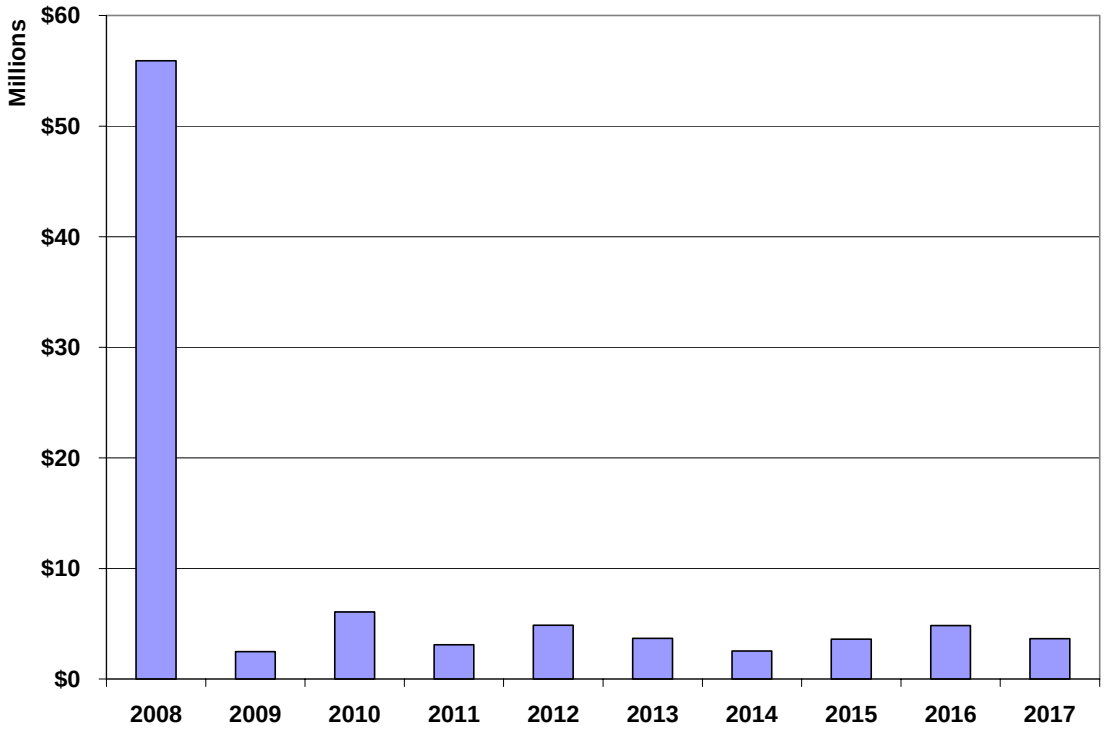


Figure E-7: Estimated Annual Costs (2008-2017) - District 3



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. These public airports range from small general aviation airports to large international hub airports. These airports serve business travelers, tourism, and cargo operations crucial to the daily life of the people of Florida.

There are millions of square yards of pavement for the runways, taxiways, aprons and other areas that support aircraft operations. The timely and proper maintenance and rehabilitation (M&R) of these pavements allows the airports to operate efficiently, economically and without excessive down time. In order to support the planning, scheduling, and design of the M&R activities, FDOT has implemented pavement management system technology.

This report describes the procedures used to develop the appropriate engineering and scientific standards of care, quality, budget, and schedule requirements implemented at airports in District 3 as a result of their participation in the Statewide Aviation Pavement Management Program.

1.1 Purpose

This Florida Airport Pavement Evaluation Report is intended to:

- Describe, briefly, the Florida Department of Transportation (FDOT) Aviation Office Statewide Pavement Management Program and the roles and responsibilities of the program's participants
- Provide background information on pavement management principles, objectives, and benefits to the participating airports
- Outline the procedures used to collect, evaluate and report pavement inspection results at the airports
- Present the findings from the inspection and analysis of the needs for maintenance and rehabilitation activities for the airports in District 3 in this report.

1.2 FDOT Aviation PMS Program

In 1992, FDOT implemented a Pavement Management System (PMS) program to improve the knowledge of pavement conditions at public airports in the State system, identify maintenance needs at individual airports, automate information management, and establish standards to address future needs.

The FDOT Aviation Office participated in the development of a proprietary software pavement management system and developed and populated a pavement management database that provided valuable information for establishing M&R policies, estimating M&R costs, and developing recommendations for performing routine pavement maintenance. This system was implemented and condition surveys performed in 1992 and 1993 and again updated in 1998 and 1999. The proprietary system, AIRPAV, is no longer supported.

In 2004, the FDOT Aviation Office undertook a project to update the PMS Program software utilized for the PMS program. The Aviation Office selected a consultant team consisting of URS Corporation, Inc., MACTEC Engineering and Consulting, Inc. (MACTEC), Planning Technology, Inc. (PTI), and ASC Geosciences, Inc. (ASCG) to aid with the implementation of the program update. This project involved a review of the AIRPAV software and other available

PMS software. As a result of this review, MicroPAVER was selected as the software for the update project. Condition data from the 1998/1999 surveys were converted to the MicroPAVER system.

The inventory of the pavement systems and drawings of the pavements were updated to reflect maintenance, rehabilitation, and construction activities since 1998/1999 to the extent that information was available. Detailed, specific procedures for the inspection and collection of pavement data were developed for this project. A web-site (www.floridaairportpavement.com) was developed for the input of data under secure procedures. The site also has a public section for dissemination of information to the general public.

1.3 Organization

The FDOT Aviation Office manages the day-to-day details of the Statewide PMS and the updates. The Aviation Office Airport Engineering Manager serves as the Program Manager (PM) monitoring the work of the Consultant. The Aviation Office has review and approval authority for each program task.

1.3.1 *Consultant Role*

The Consultant (MACTEC Engineering and Consulting/URS Corporation/Planning Technology/ASC Geosciences) developed the PMS based upon procedures outlined in FAA Advisory Circular 150/5380-6B Guidelines and Procedures for Maintenance of Airport Pavements (FAA/AC) and ASTM D 5340 Standard Test Method for Airport Pavement Condition Index Surveys (2004).

The Consultant provided technical and administrative assistance to the Aviation Office PM, during the execution of this program, which involves the continuing evaluation of airport pavements and updating of the PMS. A website is available to view and update airport information, including construction activities and pavement condition data. In addition, pavement evaluation reports will be available for viewing and download from the site (www.floridaairportpavement.com).

1.3.2 *Airport Role*

The airports are the ultimate client for each of the field inspections and reports. Individual airports were provided final deliverables prepared by the Consultant that have been reviewed and approved by the FDOT Aviation Office. The airport should review system inventory drawings in their folder in the pavement management website and add maintenance and rehabilitation activities conducted on airside pavements on the website system inventory form.

1.4 Pavement Types and Pavement Management

1.4.1 *Pavement basics*

A pavement is a prepared surface designed to provide a continuous smooth ride at a certain speed and to support an estimated amount of traffic for a certain number of years. Pavements are constructed of a combination of subgrade soils, subbases, bases and surfacing. There are mainly two types of pavements;

- Flexible pavement, composed of asphalt concrete (AC) surface, and
- Rigid pavement composed of Portland cement concrete (PCC) surface.

Both pavement types use a combination of layered materials and thicknesses in order to support the traffic loads and protect the underlying subgrade soil. Flexible pavements (AC) dissipate the load from layer to layer until the load magnitude is small enough to be supported by the subgrade soil. In rigid pavements (PCC), the Portland cement concrete supports most of the load, the base or subbase layer is mainly constructed to provide a smooth and continuous platform for the concrete.

Due to the different nature of both pavement types and their materials, flexible and rigid pavements have different distresses and failure mechanisms. Understanding the mechanics and failure modes of both pavement types will assist engineers in making adequate and long lasting repairs or rehabilitation to the pavement structures.

1.4.2 *Pavement Management System Concept*

A pavement management system (PMS) is a tool to assist engineers, planners and managing agencies in making decisions when planning pavement M&R. The management of pavements involves scheduling pavement maintenance and rehabilitation before pavements deteriorate to a condition where reconstruction (the most expensive alternative) is the only solution. Figure 1-1, taken from FAA/AC 5380-7A Pavement Management System, illustrates how a pavement generally deteriorates and the relative cost of rehabilitation at various times throughout its life. Note that during the first 75 percent of a pavement's life, it performs relatively well. After that, however, it begins to deteriorate rapidly.

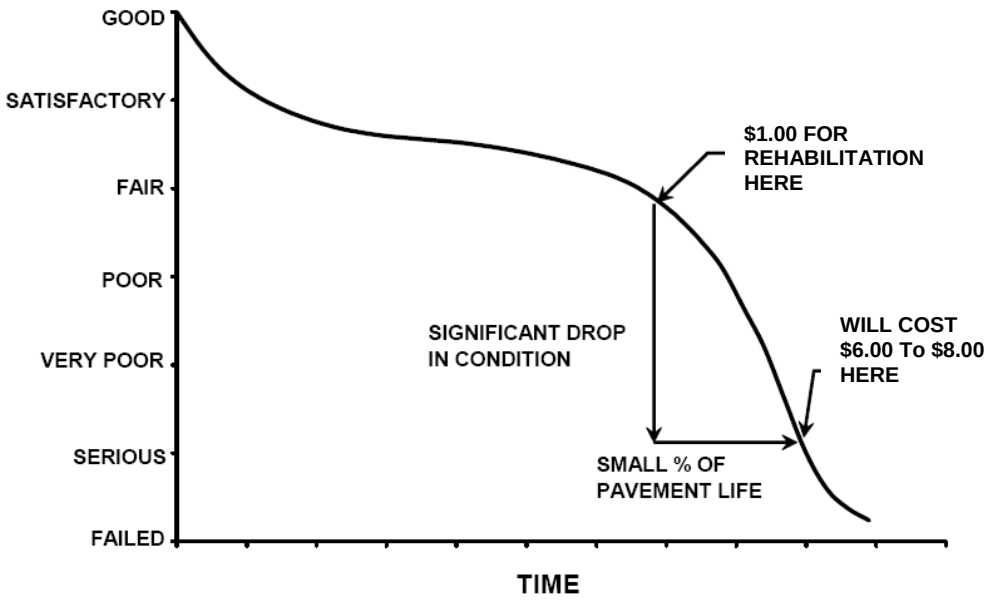
The number of years a pavement stays in "Satisfactory" condition depends on how well it is maintained. The illustration demonstrates the cost of maintaining the pavement above a critical condition before rapid deterioration occurs is much less compared to maintaining pavements after substantial deterioration has occurred.

Pavements deteriorate at an accelerated rate with increasing traffic and limited M&R resources. Planned maintenance and rehabilitation, essentially preventing pavements from reaching deteriorated conditions, helps managers/owners/ agencies stretch and maximize the use of their budgets and prolong the life of the pavements. A PMS provides a tool to schedule and plan maintenance and rehabilitation based on engineering information and existing and predicted conditions of pavements.

There are several components or elements that are essential to a PMS. The first steps in the implementation of a PMS are to know and clearly identify what needs to be managed, the limits

of the managing agency's responsibilities and the condition of the existing pavements. Once the cause and the extent of pavement problems are known, the appropriate maintenance and/or rehabilitation can be planned. By using local unit costs and expected yearly budgets, a multi year M&R plan can be developed.

Figure 1-1: Pavement Life Cycle



Pavements deteriorate even if they do not carry any traffic. Pavement distresses may be attributed to climate, environment, materials, construction or traffic. Knowing the cause, extent and predominance of pavement distresses helps determine the most appropriate maintenance or rehabilitation work needed. Planning and applying preventive maintenance prolongs pavement life and minimizes future pavement repair costs. By projecting the rate of deterioration, a life cycle cost analysis can be performed for various alternatives, and the optimal time of application of appropriate feasible alternatives can be determined. Such a decision is critical in order to avoid higher M&R costs at a later date.

A PMS enables the managing agency to identify and maintain the pavement conditions, keeping them at the upper end of the service life-condition curve. At this point, the total annual costs between maintaining a good pavement above a critical condition is much less than rehabilitating a poor pavement that has rapidly deteriorated beyond a critical condition level.

A PMS is a long-term planning tool that will result in an overall improvement of the pavement network condition and will also result in savings by applying the appropriate maintenance and rehabilitation activity at the appropriate time. Accurate estimates and timely M&R decisions and budgeting are of great importance when managing approximately 300 million square feet of Florida airside pavements.

1.4.3 *Pavement Inspection Methodology for PMS*

Pavement condition assessment is one of the primary decision variables in any airport pavement management system. Pavement condition assessments generally include visual surveys in accordance with ASTM D 5340, *Standard Test Method for Airport Pavement Condition Index Surveys* and structural evaluation. Pavement condition surveys assess the functional condition of the pavement surface. Typically, most problems within a pavement structure will eventually reflect to the pavement surface. The structural condition and relative support of the pavement layers can be assessed utilizing non-destructive deflection testing (NDT) as well as other in-depth engineering evaluation or sampling and testing methods.

Pavement sections are broken down into sample units as established in FAA AC 150/5380-6B and ASTM D 5340. Sample unit sizes are approximately 5000 ± 2000 square feet (3000 to 7000 square feet) for AC-surfaced pavements and 20 ± 8 slabs (12 to 28 slabs) for PCC-surfaced pavements. Before the field inspections, the sampling plan was developed based on previous sampling and modified based on the available knowledge of branches, sections, use patterns, construction types and history. The sampling rate used for FDOT Statewide Pavement Management Program is provided in Table 1-1 below.

Table 1-1: Sampling Rate for FDOT Condition Surveys

AC Pavements			PCC Pavements		
N	n		N	n	
	Runway	Others		Runway	Others
1-4	1	1	1-3	1	1
5-10	2	1	4-6	2	1
11-15	3	2	7-10	3	2
16-30	5	3	11-15	4	2
31-40	7	4	16-20	5	3
41-50	8	5	21-30	7	3
≥51	20% but ≤20	10% but ≤10	31-40	8	4
			41-50	10	5
			≥51	20% but ≤20	10% but ≤10

Where *N = total number of sample units in section*
n = number of sample units to inspect

The sample units to inspect are determined by a systematic random sampling technique. This means that the locations are determined such that they are distributed evenly throughout the section. In the case when nonrepresentive distresses are observed in the field, additional sample units were added.

The distress quantities and severity levels from the sample units are used to compute the PCI value for each section. PCI values range from 0 to 100. MicroPAVER provides a rating scale that relates PCI to pavement condition, with a PCI between 0 and 10 considered 'Failed'

pavement and a PCI between 86 and 100 considered 'Good' pavement, with five other conditions for PCI values between 11 and 85. Figure 1-2 shows the PCI scale.

Figure 1-2: PCI Rating Scale

1.5 Definitions

Aviation Office - The Aviation Office is charged with responsibility for promoting the safe development· of aviation to serve the people of the State of Florida. The Aviation Office worked closely with FDOT District Aviation Specialists, during development of this project. District Aviation Specialists will consult with airport owners in implementation of project recommendations.

Base Course - Base Course is a layer of manufactured material, usually crushed rock (aggregate) or stabilized material (asphalt or concrete or Florida Limerock), immediately beneath the surface course of a pavement, which provides support to the surface course.

Branch – (Facility in prior system) - A runway, taxiway or apron is called a Branch. This is an easy reference to a recognizable component of airport pavement. In this report, Branch ID maintains the original AirPAV identification where 100 series through 3000 series facilities are taxiways, 4000 and 5000 series facilities are aprons (the 5000 series represent runup aprons and turnarounds), and 6000 series facilities are runways. It also includes the common designation for the item e.g. RW 18-36.

Category - The Category classifies the airport according to the type and volume of aircraft traffic, as follows:

- GA – for general aviation or community airports
- RL – for regional relievers or small hubs
- PR – for primary

Critical PCI – The PCI value considered to be the threshold for M&R decisions. PCI above the Critical generate economical activities expected to preserve and prolong acceptable condition. M&R for PCI values less than Critical make sense only for reasons of safety or to maintain a pavement in operable condition. A pavement section is expected to deteriorate very quickly once it reaches the Critical PCI and the unit cost of repair increases significantly.

Distress Type - A distress type is a defined visible defect in pavement evidenced by cracking, vertical displacement or deterioration of material. In PCI technology, 16 distinct distress types for asphalt surfaced and 15 for Portland cement concrete surfaced pavements have been described and rated according to the impact their presence has on pavement condition.

Florida DOT (FDOT) - Florida Department of Transportation was represented in this project by the Office of Aviation.

Localized M&R (Maintenance and Repair) – Localized M&R is a temporizing activity performed on existing pavement to extend its serviceability and/or to improve rideability. Localized M&R can be applied either as a safety (stop-gap) measure or preventive measure. Common localized maintenance methods include crack sealing, joint sealing, and patching.

Global M&R- Global M&R is defined as activities applied to entire pavement sections with the primary objective of slowing the rate of deterioration. These activities are primary for asphalt surfaced pavements, e.g. surface treatments.

MicroPAVER – A commercially available software subsidized by FAA and agencies in the US Department of Defense developed to support engineered management of pavement assets using a condition based approach. This software has the functionality such that if properly implemented, maintained and operated it meets the pavement management system requirements described by FAA in Advisory Circular 150/5380-7A.

Minimum Condition Level - A threshold PCI value established by FDOT to represent the targeted minimum pavement condition that is desirable in the Florida Airport System. These values were established with consideration of pavement function and airport type. For instance, runways have higher minimum condition levels than aprons, and Primary airports have higher minimum condition levels than General Aviation airports.

Major M&R (e.g. Rehabilitation) – Activities performed over the entire area of a pavement section that are intended to restore and/or maintain serviceability. This includes asphalt overlays, milling and replacing asphalt pavement, reconstruction with asphalt, reconstruction with Portland Cement Concrete (PCC) pavements, and PCC overlays.

Network Definition – (Airport Sketch in prior system) – A Network Definition is a CAD drawing which shows the airport pavement outline with Branch and Section boundaries. This sketch is intended to assist the user of the report to quickly associate information from the text to a location on the airport. This drawing also includes the PCI sample units and is used to identify

those sample units to be surveyed, i.e. the sampling plan. The Network Definition for the airport in this report is in Appendix A along with a table of inventory data.

Pavement Condition Index (PCI) – The Pavement Condition Index is a number which represents the condition of a pavement segment at an instant in time. It is based on visual identification and measurement of specific distress types commonly found in pavement which has been in service for a period of time. The definitions and procedures for determining the PCI are found in ASTM D 5340-04, "Standard Test Method for Airport Pavement Condition Index Surveys," published by ASTM International.

Pavement Evaluation – A systematic approach undertaken by trained and experienced personnel intended for determination of the condition, serviceability, and best corrective action for pavement. Techniques to standardize pavement evaluation include the Pavement Condition Index procedures.

Pavement Management – Pavement management is a broad function that uses pavement evaluation and pavement performance trends as a basis for planning, programming, financing, and maintaining a pavement system.

Rank – Pavement rank in MicroPAVER determines the priority to be assigned to a pavement section when developing an M&R plan. Pavement sections are ranked as follows according to their use:

- P – for Primary pavements, such as primary runways, primary taxiways, and primary aprons
- S – or Secondary pavements, such as secondary runways, secondary taxiways, and secondary aprons
- T – for Tertiary pavements such as "T' hangars and slightly used aprons

Reconstruction – Reconstruction includes removal of existing pavement, preparation of subgrade, and construction of new pavement with new, or recycled materials. Reconstruction is indicated when distress types evident at the surface indicate failure in the pavement structure or subgrade of a type, and to an extent, not correctable by less extensive construction.

Rehabilitation – Rehabilitation represents construction using existing pavement for a foundation. Rehabilitation most commonly consists of an overlay of existing pavement with a new asphalt or concrete surface. Recently, technology has expanded the options to include recycling of existing pavement, and incorporating engineering fabrics or thin layers of elasticized materials to retard reflection of distress types through the new surface.

Sample Unit – Uniformly sized portions of a Section as defined in ASTM D 5340. Sample units are a means to reduce the total amount of pavement actually surveyed using statistics to select and survey enough area to provide a representative measure of Section PCI. Sample Unit sizes are 5,000 ± 2,000 square feet for AC-surfaced pavements and 20 ± 8 slabs for PCC-surfaced pavements.

Section – (Feature in prior system) - Sections subdivide Branches into portions of similar pavement. Sections are prescribed by pavement structure, age, condition and use. Sections are identified on the airport Network Definition. They are the smallest unit used for determining M&R requirements based on condition.

Section ID – A short form identification for the pavement Section that maintains the original AirPAV identification where 100 series through 3000 series sections are taxiways, 4000 and 5000 series sections are aprons (the 5000 series represent run-up aprons and turnarounds), and 6000 series sections are runways.

Use – In MicroPAVER use is the term for the function of the pavement area. This is either Runway, Taxiway, or Apron for purposes of the FDOT Statewide Aviation Pavement Management System.

2. NETWORK DEFINITION

The airports inspected in District 3 include:

- Tri-County Airport (1J0)
- Quincy Municipal Airport (2J9)
- Peter Prince Field Airport (2R4)
- Defuniak Springs Airport (54J)
- Apalachicola Municipal Airport (AAF)
- Bob Sikes Airport (CEW)
- Destin-Fort Walton Beach Airport (DTS)
- Marianna Municipal Airport (MAI)
- Panama City-Bay County International Airport (PFN)
- Pensacola Regional Airport (PNS)
- Carrabelle-Thompson Airport (X13)

These airports are categorized as 2 Primary (PR) and 9 General Aviation (GA) airports.

The pavements within each airport network are defined in MicroPAVER in terms of manageable units that help to organize the data into similar groups. An organizational hierarchy is used to establish these units. The airport pavement network is subdivided into separate branches (runways, taxiways, or aprons) that have distinctly different uses. Branches are then divided into sections with similar pavement construction and performance that may share other common attributes. Sections are manageable units used to organize the data collection and are treated individually during the rehabilitation planning stage.

The network definition was used to identify changes in the network since the most recent update in 1998/1999 and also to plan the field inspection activities for 2006/2007 surveys. Prior to the field inspection process, the network definition drawing was updated. The purpose of this update is to compare the previous airport configuration and history with the current airport configuration and history and update the existing drawing showing network branch, section and sample unit designations to match the current configuration. This drawing serves not only as a primary guide for the airfield inspectors but also as an important history record.

The updated network definition fields and network definition drawings for airports participating from District 3 are included in Appendix A of each individual airport report.

3. PAVEMENT INVENTORY

The detailed pavement inventory was updated to reflect the network definition update and field inspection results.

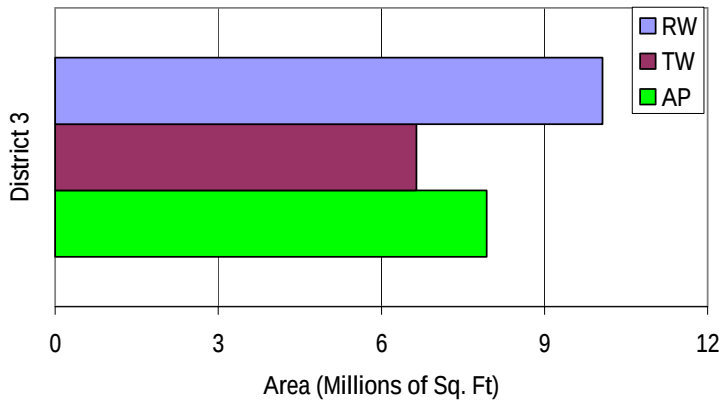
The total pavement area in 2006/2007 for airports participating in the program from District 3 is approximately 24,645,443 square feet. The breakdown of pavement area for each pavement use is provided in Table 3-1.

Table 3-1: Pavement Area by Pavement Use - District 3

Use	Area, SqFt
Runway	10,065,885
Taxiway	6,641,626
Apron	7,937,932
Total	**24,645,443**

Figure 3-1 presents the breakdown of the pavement area for airports in District 3 by pavement use.

Figure 3-1: Pavement Area by Use - District 3



Details of pavement section information including section dimensions, rank, surface type, last construction date and last inspection date are given in Appendix A of each individual airport report.

4. PAVEMENT CONDITION

Pavement conditions were inspected in accordance with the methods outlined in FAA AC 150/5380-6B and ASTM D 5340 "Standard Practice for Airport Pavement Condition Index Surveys." These procedures define distress type, severity and quantity for sampling areas within each section to determine the Pavement Condition Index (PCI).

Pavement condition inspections for airports in District 3 were performed in 2006/2007. Data were recorded in the field using hand-held PDA (personal digital assistant) technology. The identifying information for each sample unit was pre-loaded into the PDA, and the survey results were entered directly, at the time of inspection. This simplified data handling and management.

During the inspections Global Positioning System (GPS) coordinates were recorded at the centroid of each sample unit. The centroid is usually the geometric center of the area but in cases where sample units are irregular in shape this is the center of mass. These data are presented in tables on updated Network Definition drawings available from the website.

After the completion of data collection, the data were imported into MicroPAVER and PCI values were calculated for the pavement sections.

According to the 2006/2007 survey, the overall the average area-weighted PCI for airports in District 3 is 74, representing a Satisfactory overall network condition.

Table 4-1 and Figure 4-1 provide the PCI distribution by rating and surface type category for District 3.

Table 4-1: Airport Pavement PCI by Use and Rating Category - District 3

AIRPORT	RW	TW	AP	AVG PCI	PCI Category
1J0	81	84	97	86	Good
2J9	73	82		75	Satisfactory
2R4	83	92	88	88	Good
54J	44	95	89	73	Satisfactory
AAF	75	69	63	71	Satisfactory
CEW	100	81	67	87	Good
DTS	71	75	70	71	Satisfactory
MAI	63	50	26	42	Poor
PFN	68	63	76	69	Fair
PNS	94	88	79	88	Good
X13	93	73	88	91	Good
District 3	**80**	**76**	**66**	**74**	**Satisfactory**

Figure 4-1: PCI by Surface Type - District 3

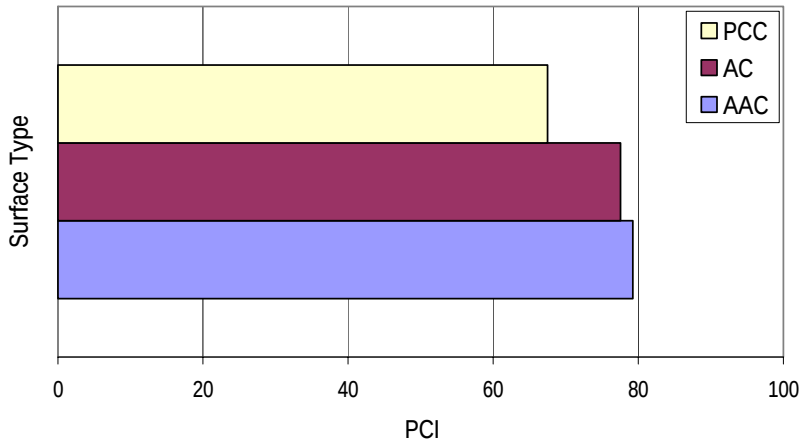


Table 4-2 illustrates the area-weighted PCI computed individually for each pavement use.

Table 4-2: Condition by Pavement Use - District 3

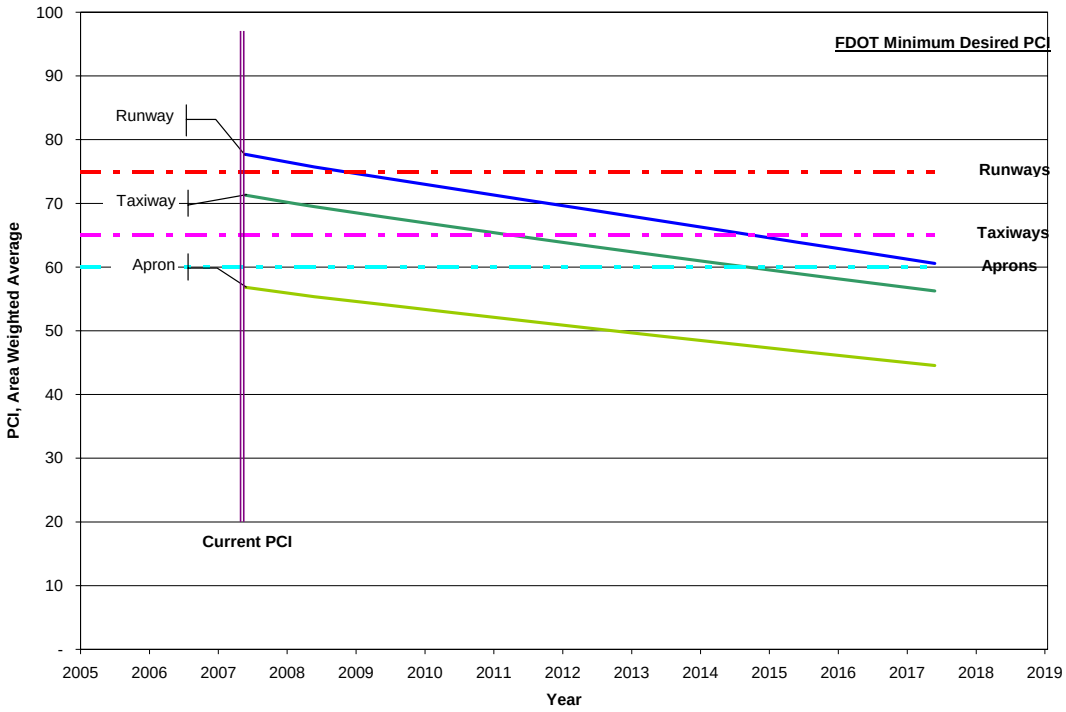
Use	Area-Weighted PCI
Runway	80
Taxiway	76
Apron	66
All	**74**

On average, the runways, taxiways, and aprons are in Satisfactory, Satisfatory, and Fair condition, respectively.

5. PAVEMENT CONDITION PREDICTION

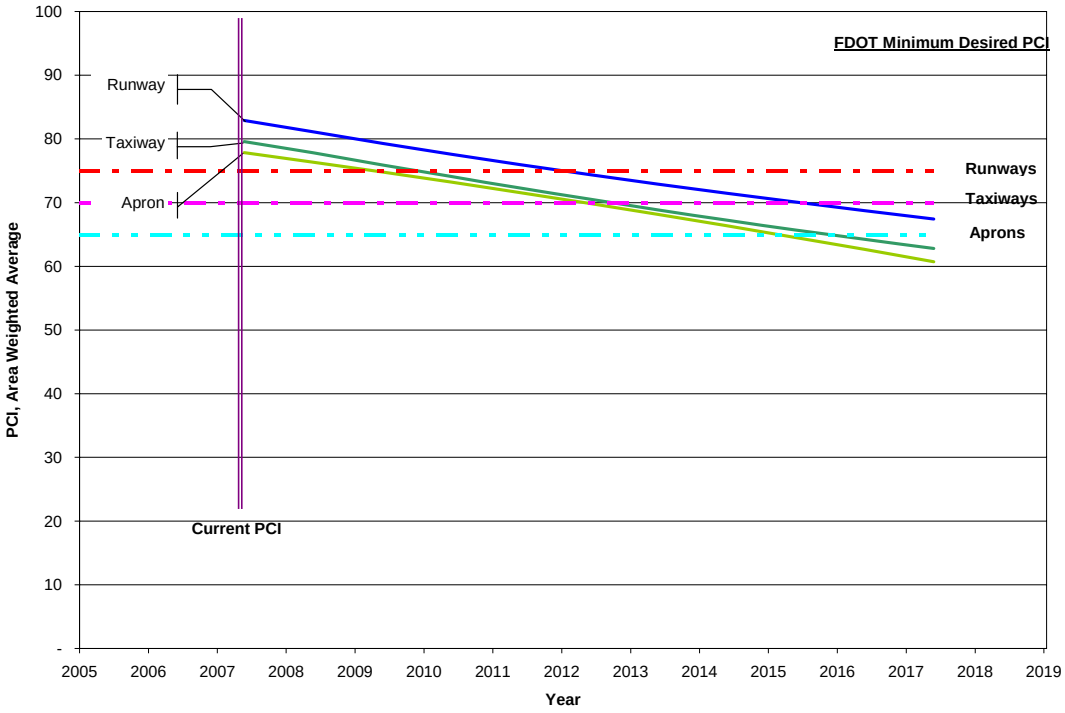
Performance prediction models or deterioration curves for PCI were used to develop a condition forecast. The performance models were developed for combinations of variables such as pavement use (runway, taxiway or apron), surface type (AC or PCC) and airport category (GA, RL, or PR). Figures 5-1 to 5-3 illustrate the predicted performance of pavements at airports participating in the program from District 3 based on current condition, age since last construction and the deterioration model appropriate for the type of pavement. The figure presents the forecast for each pavement use and displays the FDOT minimum condition criteria for District 3 airports.

Figure 5-1: Predicted PCI for GA Airports by Pavement Use – District 3



Tables, Figures Prepared by VVD, Checked by BX

Figure 5-2: Predicted PCI for PR Airports by Pavement Use – District 3



Tables, Figures Prepared by VVD, Checked by BX

6. MAINTENANCE POLICIES AND COSTS

6.1 Policies

Maintenance and rehabilitation (M&R) policies are sets of rules used to develop repair recommendations for distresses encountered during the visual inspections.

Maintenance refers to repair-type activities that are applied to specific distress types on the pavement. These activities are preventative and/or corrective in nature, and are recommended to help achieve the performance goal.

Table 6-1 provides the list of the maintenance activities used in MicroPAVER to treat specific distress types. These repairs are used in an analysis only if there is an inspection within one year prior to the first year of the analysis period. MicroPAVER applies repairs to these distresses and adjusts the PCI based on specific rules.

Table 6-1: Routine Maintenance Activities for Airfield Pavements

Surface	Distress	Severity*	Work Type	Code	Work Unit
AC	Alligator Crack	M, H	Patching - AC Deep	PA-AD	SqFt
	Bleeding	N/A	No Localized M&R	NONE	SqFt
	Block Crack	M, H	Crack Sealing – AC	CS-AC	SqFt
	Corrugation	L, M, H	Patching - AC Deep	PA-AD	SqFt
	Depression	M, H	Patching - AC Deep	PA-AD	SqFt
	Jet Blast	N/A	Patching - AC Deep	PA-AD	SqFt
	Joint Ref. Crack	M, H	Crack Sealing – AC	CS-AC	Ft
	L & T Crack	M, H	Crack Sealing – AC	CS-AC	Ft
	Oil Spillage	N/A	Patching - AC Shallow	PA-AS	SqFt
	Patching	M, H	Patching - AC Deep	PA-AD	SqFt
	Polished Agg.	N/A	No Localized M&R	NONE	SqFt
	Raveling	L	Surface Sealing - Rejuvenating	SS-RE	SqFt
		M	Surface Seal - Coal Tar	SS-CT	SqFt
		H	Microsurfacing	MI-AC	SqFt
	Rutting	M, H	Patching - AC Deep	PA-AD	SqFt
	Shoving	M, H	Grinding (Localized	GR-LL	SqFt
	Slippage Crack	N/A	Patching - AC Shallow	PA-AS	SqFt
	Swelling	M, H	Patching - AC Deep	PA-AD	SqFt
PCC	Blow-Up	L, M, H	Patching - PCC Full Depth	PA-PF	SqFt
	Corner Break	M, H	Patching - PCC Full Depth	PA-PF	SqFt
	Linear Crack	M, H	Crack Sealing – PCC	CS-PC	Ft
	Durability Crack	H	Slab Replacement – PCC	SL-PC	SqFt
		M	Patching - PCC Full Depth	PA-PF	SqFt
	Jt. Seal Damage	M, H	Joint Seal (Localized)	JS-LC	Ft
	Small Patch	M, H	Patching - PCC Partial Depth	PA-PP	SqFt
	Large Patch	M, H	Patching - PCC Full Depth	PA-PF	SqFt
	Popouts	N/A	No Localized M&R	NONE	SqFt
	Pumping	N/A	No Localized M&R	NONE	SqFt
	Scaling	H	Slab Replacement – PCC	SL-PC	SqFt
	Faulting	M, H	Grinding (Localized)	GR-PP	Ft
	Shattered Slab	M, H	Slab Replacement – PCC	SL-PC	SqFt
	Shrinkage Crack	N/A	No Localized M&R	NONE	Ft
	Joint Spall	M, H	Patching - PCC Partial Depth	PA-PP	SqFt
	Corner Spall	M, H	Patching - PCC Partial Depth	PA-PP	SqFt

*L = Low, M = Medium, H = High

Tables, Figures Prepared by VVD, Checked by BX

Rehabilitation is warranted when the pavement condition decreases below a critical point such that the deterioration is extensive or rate of deterioration is so great that routine maintenance is no longer cost-efficient. This critical point is called "Critical PCI." The Critical PCI levels for different pavement and branch types established in Phase I of Statewide Pavement Management Program were reviewed and updated for development of the M&R plan for the airport. Sections above critical PCI levels receive routine maintenances while pavements predicted to deteriorate below their respective critical PCI level during the analysis period will be identified for Major M&R. Based on the existing condition, the Critical PCI levels for all pavements are set at 65.

It should be noted that critical PCI is not the same as Minimum PCI or Minimum Condition. The Minimum PCI is a value set by the user so pavement sections are rehabilitated before they fall below the set minimum. Table 6-2 gives the targeted, or desired, Minimum PCI values for runways, taxiways, and aprons of the three categories of airports.

Table 6-2: Desired Minimum PCI for Airports By Pavement Use

Use	Minimum PCI		
	GA	RL	PR
Runway	75	75	75
Taxiway	65	65	70
Apron	60	65	65

Typical Major M&R activities range from overlays to reconstruction. Based on the critical PCI value and our experience with pavement management systems, the PCI trigger range when the likely activity would be a mill and resurface was 31 to 55 and reconstruction at a PCI of 30 or lower. One important concept of pavement management systems is that it is cost effective to maintain pavements that are already in good condition rather than wait for them to get worse and require more expensive rehabilitation. With this objective, microsurfacing has been recommended to maintain pavements that have a PCI from 56 and 79. Microsurfacing is a surface treatment suggested for pavements in Fair to Satisfactory condition to extend the pavement life by five to seven years.

Crack sealing and full-depth patching are the M&R activities recommended to repair pavements with PCI values between 80 and 90. MicroPAVER considers these as preventative M&R with their primary objective being to slow the rate of pavement deterioration. While the trigger PCI for mill and overlay has been set to 55, MicroPAVER also assigns mill and overlay to sections with a PCI greater than 55 if they exhibit some structural distress. Table 6-3 summarizes the M&R activities for the three categories of airports based on PCI value.

Table 6-3: M&R Activities for Airports

	Activity	PCI Range
Maintenance	Crack Sealing and Full-Depth Patch-ing	80 and 90
Rehabilitation	Microsurfacing (AC) or Concrete Pavement Restoration (PCC)	56 to 79
	Mill and Overlay (AC) or Concrete Pavement Restoration (PCC)	31 to 55
	Reconstruction	30 and less

Tables, Figures Prepared by VVD, Checked by BX

6.2 Unit Costs

FDOT cost databases for airports and highway pavement maintenance and rehabilitation were reviewed in Phase I of Statewide Pavement Mangement Program in order to determine meaningful costs for the program. Table 6-4 presents the unit costs summary.

Table 6-4: Maintenance Unit Costs for FDOT

Code	Name	Cost	Unit
PA-AL	Patching – AC Leveling	$2.00	SqFt
PA-AS	Patching – AC Shallow	$4.00	SqFt
PA-PF	Patching – PCC Full Depth	$50.00	SqFt
PA-PP	Patching – Partial Depth	$35.00	SqFt
SL-PC	Slab Replacement	$15.00	SqFt
CS-PC	Crack Sealing – PCC	$2.00	Ft
UN-PC	Undersealing – PCC	$3.00	Ft
CS-AC	Crack Sealing – AC	$2.00	Ft
GR-PP	Grinding (Localized for PCC)	$20.00	Ft
GR-LL	Grinding (Localized for AC)	$6.00	SqFt
JS-LC	Joint Seal (Localized)	$1.75	Ft
JS-SI	Joint Seal – Silicon	$2.50	Ft
PA-AD	Patching – AC Deep	$7.00	SqFt
OL-AT	Overlay – AC Thin	$1.50	SqFt
SS-CT	Surface Seal – Coal Tar	$0.20	SqFt
SS-RE	Surface Seal – Rejuvenating	$0.15	SqFt
ST-SS	Surface Treatment – Slurry Seal	$0.25	SqFt
ST-ST	Surface Treatment – Sand Tar	$0.25	SqFt
MI-AC	Microsurfacing	$0.90	SqFt

The improvement in condition due to maintenance actions applied to specific distresses is only performed when an inspection is recent and only in the first year of the M&R analysis. In subsequent years MicroPAVER calculates M&R costs based on expected unit costs for pavements in a range of PCI. That is, for low PCI it is expected that the repair would be significant (e.g. reconstruction) and therefore very costly. Using available unit cost data the Major M&R Cost By Condition table was set up as shown in Table 6-5. The cost assigned to each range of PCI is based on a Transportation Cost Report provided by Office of Planning Policy of FDOT where the unit costs of reconstruction and resurfacing of airfield pavements were included. These costs were then assigned to the appropriate PCI range to arrive at a cost per square foot necessary to restore pavements at that PCI level to new condition, i.e. a PCI of 100.

A 3% inflation rate per year was applied to the unit costs during the M&R analysis.

Table 6-5: M&R Activities and Unit Costs by Condition for Airports

	Activity	PCI Trigger	Cost/SqFt		
			GA	RL	PR
Maintenance	Crack Sealing and Full-Depth Patching	90	$0.06	$0.10	$0.20
		80	$0.24	$0.40	$0.80
Rehabilitation	Microsurfacing (AC) or Concrete Pavement Restoration (PCC)	70	$0.69	$0.90	$1.40
		60	$3.42	$3.68	$4.23
	Mill and Overlay (AC) or Concrete Pavement Restoration (PCC)	50	$6.29	$7.61	$8.55
		40	$6.29	$7.61	$8.55
	Reconstruction	30	$13.62	$18.57	$20.88
		20	$13.62	$18.57	$20.88

7. PAVEMENT REHABILITATION NEEDS ANALYSIS

Maintenance and Rehabilitation (M&R) analyses were performed after the condition data were calculated and MicroPAVER was customized with the maintenance policies and cost settings described in the previous section.

The objective of the M&R analysis is to observe the effect of different fiscal scenarios on the network condition, over a period of ten years. The analysis was conducted using an unlimited budget. An unlimited budget allows all M&R needs to be identified along with the associated cost regardless of priority.

Table 7-1 presents the M&R needs list of immediate needs for Major M&R, i.e. Year 1 of the forecast. The importance of this listing is that it points out the major activities triggered by the current condition of the pavements.

The 10 year forecast results are shown in Figure 7-1, illustrating the effect on pavement condition (PCI) of doing no maintenance versus having unlimited funds and performing all M&R actions based on the policies.

The following network level observations can be made from the figure above:

- The average PCI for airports in District 3 will deteriorate from 74 to 58 in ten years if no M&R activities are performed.
- The PCI will remain at or above 82 through the 10-year analysis period under the unlimited budget scenario. A 2017 PCI of 82 with this scenario is 24 PCI points higher than a "No M&R" scenario. The total cost for Major M&R over this 10-year period is about $70 million.

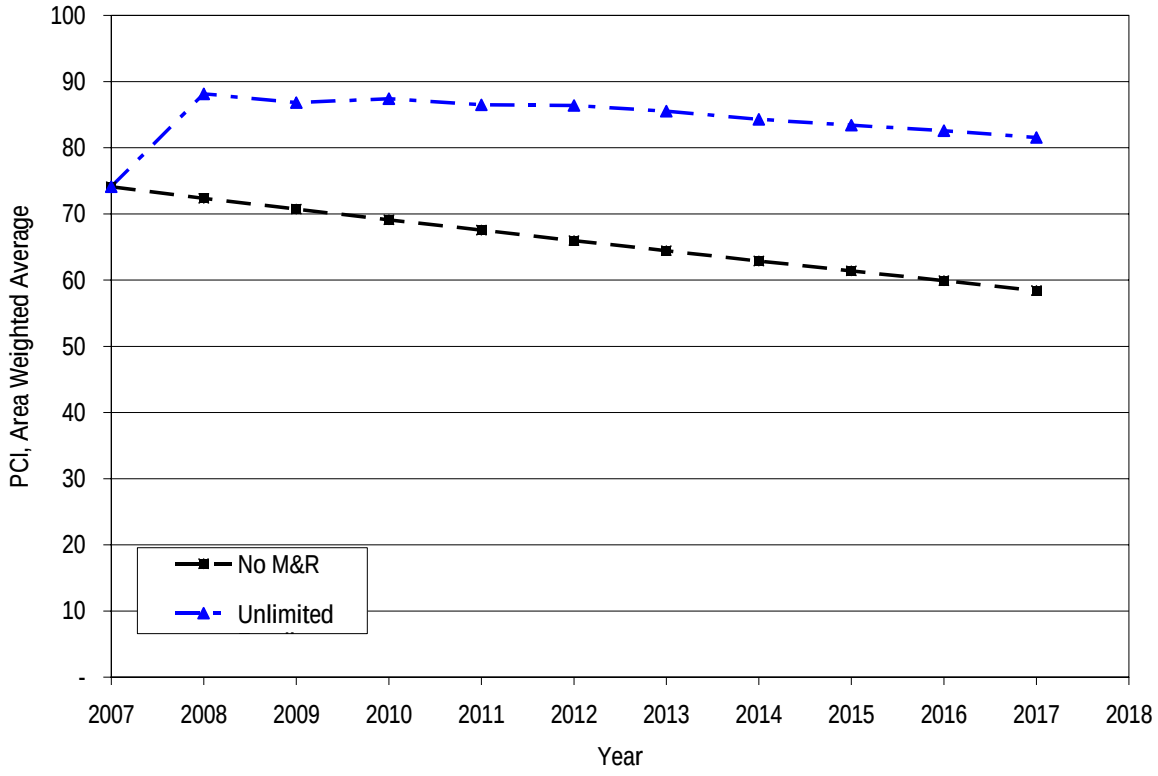
Table 7-1: Summary of Immediate Major M&R Needs - District 3

Airport	Avg PCI - Before M&R	Immediate M&R Total **	Avg PCI -1st Year After M&R
1J0	86	$0	85
2J9	75	$37,000	75
2R4	88	$181,000	88
54J	73	$2,887,000	96
AAF	71	$4,526,000	86
CEW	87	$2,149,000	93
DTS	71	$822,000	77
MAI	42	$27,976,000	94
PFN	69	$14,669,000	87
PNS	88	$1,636,000	89
X13	91	$47,000	89
District 3	**74**	**$54,930,000**	**88**

* This table shows the area-weighted PCI before and after Major M&R and routine maintenance work for the first year of the 10-year plan. It includes all airports participating in the program from District 3.
** Cost figures are rounded to nearest $1000. Sum may be different. Costs are adjusted for inflation.

Tables, Figures Prepared by VVD, Checked by BX

Figure 7-1: Budget Scenario Analysis - District 3



Tables, Figures Prepared by VVD, Checked by BX

8. MAINTENANCE AND REHABILITATION PLAN

The M&R analysis results include activities that likely exceed a typical annual budget level. These activities would need to be evaluated for feasibility and desirability based on the district's future plans. In an effort to identify appropriate budget levels the 10 year M&R analysis was evaluated to determine levels needed to address several specific areas: preventive maintenance, major activities for pavements in poor condition (Major M&R for PCI less than Critical), and activities that would be desirable to preserve good pavement conditions where they exist (Major M&R for PCI greater than or equal to Critical).

Table 8-1 provides the summary results under the critical PCI scenario.

Approximately 78% of the total Major M&R cost is required in the first year (2008). This is a consequence of several large areas of pavement at 2J9 (Quincy Municipal Airport), 2R4 (Peter Prince Field Airport), 54J (Defuniak Springs Airport), AAF (Apalachicola Municipal Airport), CEW (Bob Sikes Airport), DTS (Destin-Fort Walton Beach Airport), MAI (Marianna Municipal Airport), PFN (Panama City-Bay County International Airport), PNS (Pensacola Regional Airport), and X13 (Carrabelle-Thompson Airport) airports being below Critical PCI.

1J0 (Tri-County Airport), 2R4 (Peter Prince Field Airport), CEW (Bob Sikes Airport), PNS (Pensacola Regional Airport), and X13 (Carrabelle-Thompson Airport) are currently in overall Good condition with an average PCI value of 86, 88, 87, 88 and 91 respectively, while 2J9 (Quincy Municipal Airport), 54J (Defuniak Springs Airport), AAF (Apalachicola Municipal Airport), and DTS (Destin-Fort Walton Beach Airport) airports are currently in Satisfactory condition with an average PCI value of 75, 73, 71 and 71, respectively. PFN (Panama City-Bay County International Airport) is currently in overall Fair condition with an average PCI value of 69, while MAI (Marianna Municipal Airport) is currently in Poor condition with an average PCI value of 42. MAI (Marianna Municipal Airport) and PFN (St. Panama City-Bay County International Airport) will have need for major repair in 2008. The unlimited budget scenario provides the basis for estimating the total repair cost. In reality, it is neither operationally nor fiscally prudent.

Appendix B provides details of M&R plan by year under the unlimited funding scenario. It is important to understand that a PMS is a network level tool and the M&R costs provided in this report are only for planning purposes.

Table 8-1: M&R Costs under Unlimited Funding Scenario - District 3

Year	Preventive	Major M&R >= Critical	Major M&R < Critical	Total
2008	$989,000	$257,000	$54,672,000	$55,918,000
2009	$1,727,000	$0	$754,000	$2,481,000
2010	$1,602,000	$0	$4,464,000	$6,066,000
2011	$1,743,000	$0	$1,353,000	$3,096,000
2012	$1,754,000	$0	$3,112,000	$4,866,000
2013	$1,893,000	$0	$1,785,000	$3,678,000
2014	$2,208,000	$0	$331,000	$2,539,000
2015	$2,444,000	$0	$1,151,000	$3,595,000
2016	$2,680,000	$0	$2,156,000	$4,836,000
2017	$3,048,000	$0	$615,000	$3,663,000
Total	**$20,088,000**	**$257,000**	**$70,392,000**	**$90,738,000**

Note: Cost figures are rounded to nearest $1000. Sum may be different. Costs are adjusted to inflation

9. VISUAL AIDS

9.1 GIS Linked Shape File

The pavement inventory data and pavement condition were linked to the airport's shape file to graphically show the inventory and condition of the airport via color coding shown on the shape file. The coding provides a visual representation that illustrates the PCIs for each pavement section.

During the inspections Global Positioning System (GPS) coordinates were recorded at the centroid of each sample unit. The centroid is usually the geometric center of the area but in cases where sample units are irregular in shape this is the center of mass. These data are presented in tables on updated Network Definition drawings of each individual airport report.

Selected digital photographs taken during the pavement inspection were provided in Appendix G of each individual airport report. These photographs may provide visual support to special pavement conditions or distress observed during the inspection of the facility. As requested by the Aviation Office, these photographs are not linked to the airport's database.

10. RECOMMENDATIONS

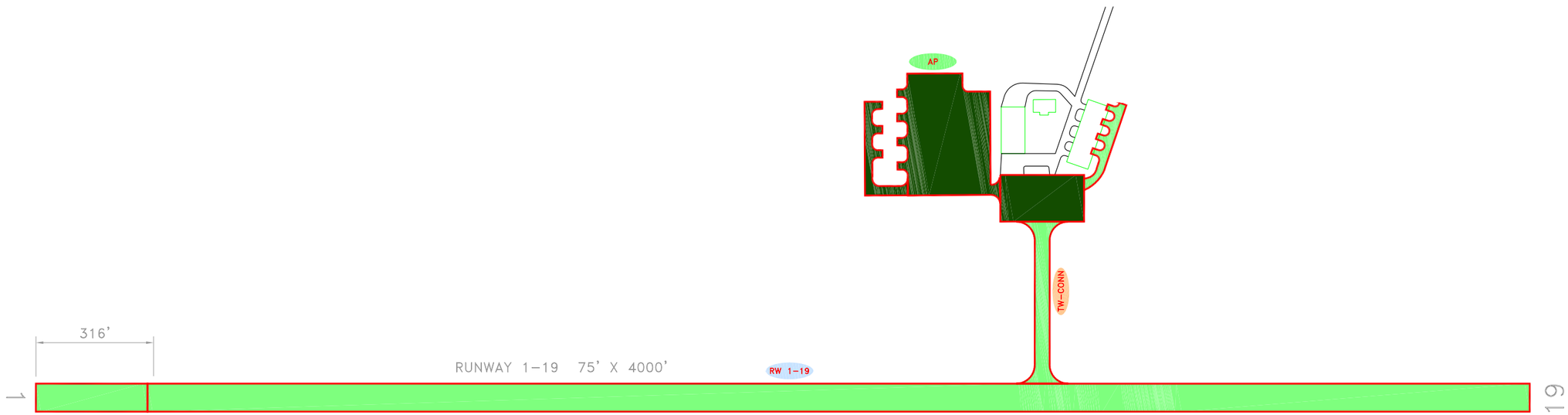
Pavement condition inspections were performed at airports participating in the program from District 3 and a 10-year M&R plan was developed based on the unlimited funding scenario.

Based on 2006/2007 condition inspections and M&R analysis results, some key M&R repair projects identified for each airport for the next 3 years are:

- 1J0 – Tri-County Airport: Apron
- 2J9 – Quincy Municipal Airport: Runway 14-32
- 2R4 – Peter Prince Field Airport: West Apron
- 54J – Defuniak Springs Airport: Runway 9-27
- AAF – Apalachicola Municipal Airport: Runway 13-31 and Apron
- CEW – Bob Sikes Airport: Apron
- DTS – Destin-Fort Walton Beach Airport: Apron
- MAI – Marianna Municipal Airport: Runway 8R-26L, Parallel Taxiway to RWS, and Apron
- PFN – Panama City-Bay County International Airport: Runway 5-23, Taxiway D, and Sowell Aviation Apron
- PNS – Pensacola Regional Airport: GA Apron
- X13 – Carrabelle-Thompson Airport: Apron

APPENDIX A

2006/2007 CONDITION MAPS



LEGEND

- RW 13-31 — TYPICAL RUNWAY BRANCH ID
- TW A — TYPICAL TAXIWAY BRANCH ID
- AP S — TYPICAL APRON BRANCH ID

- Good
- Satisfactory
- Fair
- Poor
- Very Poor
- Serious
- Failed

N

0 75 150

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

NUMBER	DATE	REVISIONS
1	Mar-18	Draft Report
0	Feb-06	Initial Submittal

DESIGNED: FL | DRAWN: GB | CHECKED: | DATE: 9-06-2007

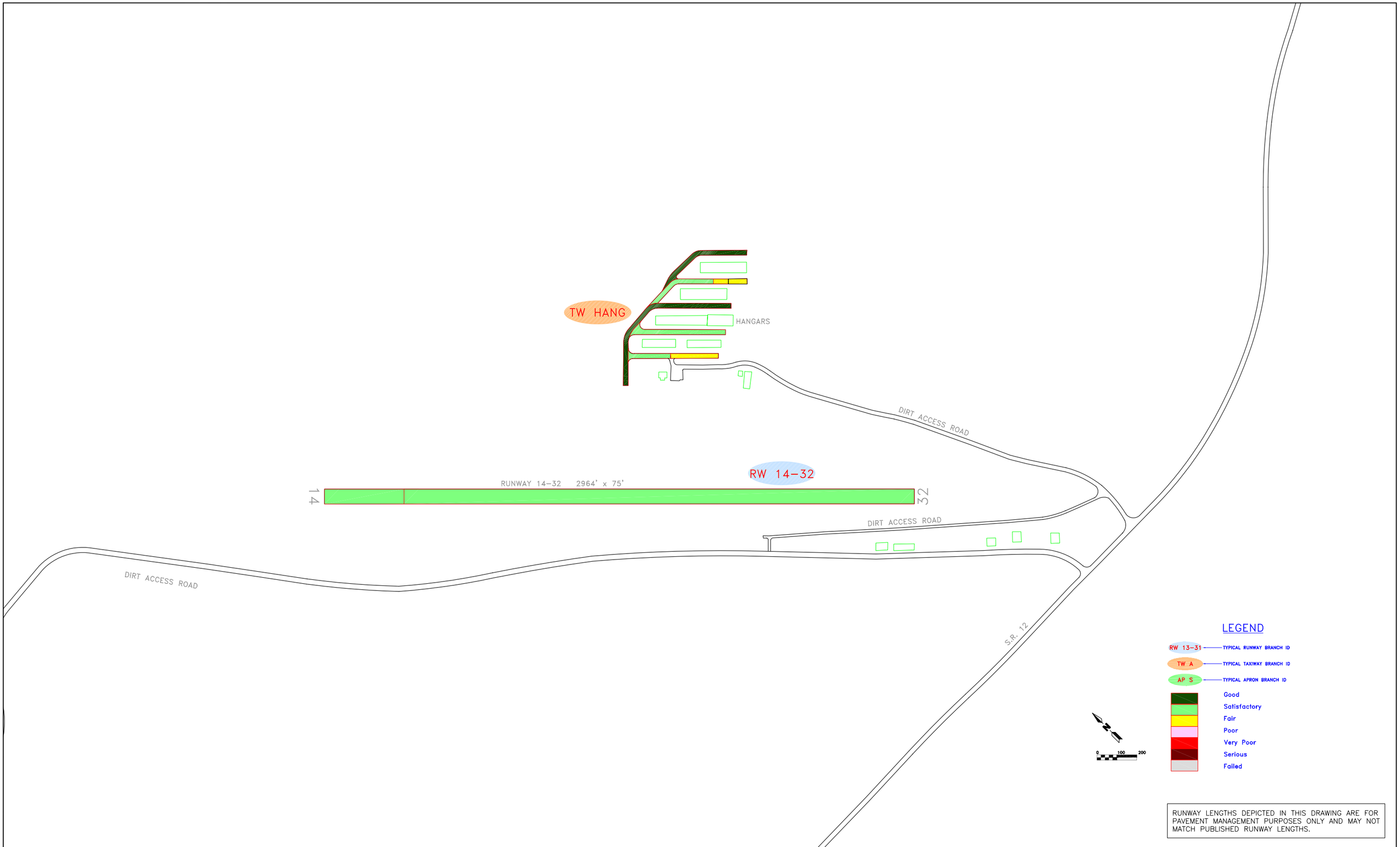
MACTEC
Engineering and Consulting, Inc.
Tallahassee, Florida
850-656-1293

2006 Condition Map

TRI-COUNTY AIRPORT
HOLMES COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

IDENTIFIER: 1J0
FDOT DISTRICT: 3



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

NUMBER	DATE	REVISIONS
2	Mar-11	Draft Report
1	May-06	Revised per FDOT comments
0	Feb-06	Initial Submittal

DESIGNED: JCB DRAWN: JCB CHECKED: DATE: 9-06-2007

URS

ascendsciences ENGINEERING A BETTER WORLD

PLANNING TECHNOLOGY INC PANTHER INTERNATIONAL, LLC

MACTEC
Engineering and Consulting, Inc.
Tallahassee, Florida
850-656-1293

2006 Condition Map

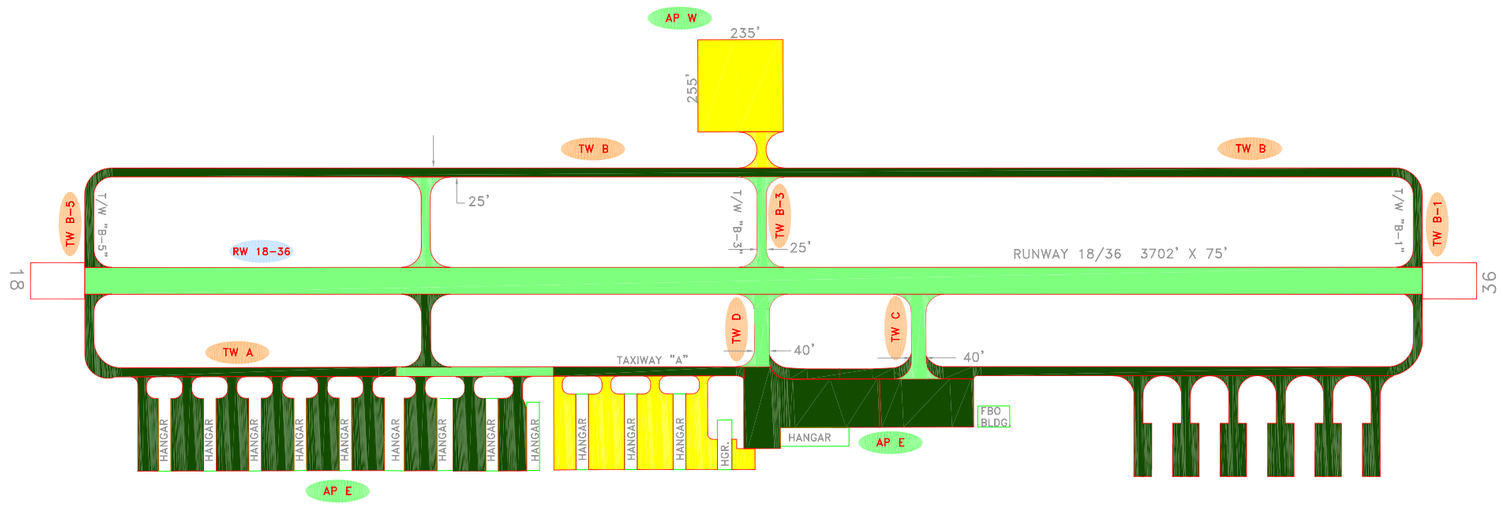
QUINCY MUNICIPAL AIRPORT
QUINCY, GADSDEN, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

73

IDENTIFIER **2J9**

FDOT DISTRICT 3



LEGEND

RW 13-31 — TYPICAL RUNWAY BRANCH ID

TW A — TYPICAL TAXIWAY BRANCH ID

AP S — TYPICAL APRON BRANCH ID

- Good
- Satisfactory
- Fair
- Poor
- Very Poor
- Serious
- Failed

N

0 100 200

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

NUMBER	DATE	REVISIONS
1	Dec-07	Draft Report
0	Feb-06	Initial Submittal

DESIGNED: JCB DRAWN: JCB CHECKED: DATE: 9-06-2007

URS

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PLANNING TECHNOLOGY INC PANTHER INTERNATIONAL, LLC

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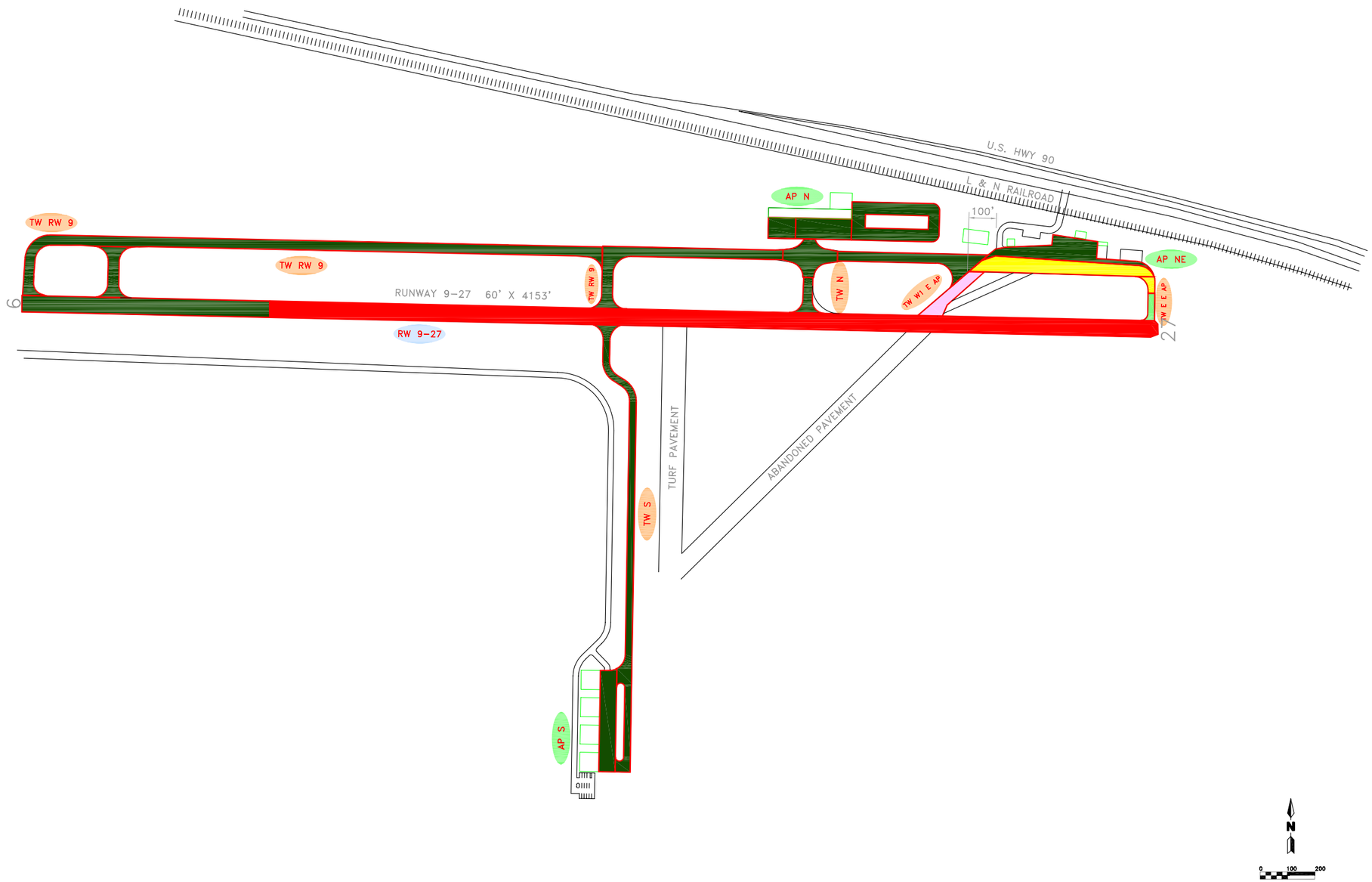
2007 Condition Map

PETER PRINCE FIELD AIRPORT
MILTON, SANTA ROSA , FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE 70

IDENTIFIER 2R4

FDOT DISTRICT 3



LEGEND

RW 13-31 — TYPICAL RUNWAY BRANCH ID

TW A — TYPICAL TAXIWAY BRANCH ID

AP S — TYPICAL APRON BRANCH ID

- Good
- Satisfactory
- Fair
- Poor
- Very Poor
- Serious
- Failed

N

0 100 200

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

NUMBER	DATE	REVISIONS					
1	Apr-10	Draft Report					
0	Feb-06	Initial Submittal					
DESIGNED:	FL	DRAWN:	BB	CHECKED:		DATE:	9-06-2007

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Tallahassee, Florida
850-656-1293

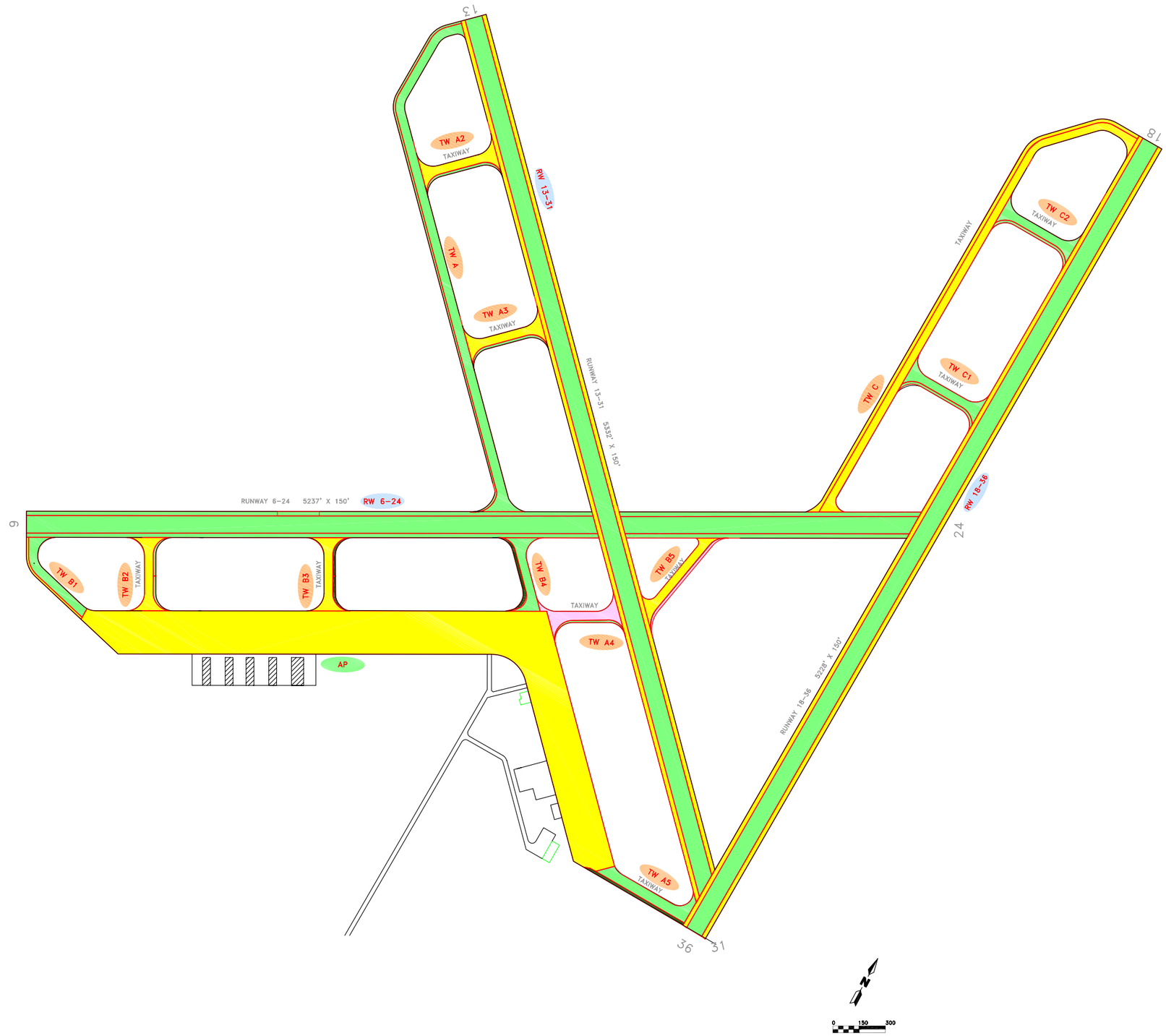
2006 Condition Map

DEFUNIAK SPRINGS AIRPORT
WALTON COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

IDENTIFIER 54J

FDOT DISTRICT 3



LEGEND

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NUMBER	DATE	REVISIONS
1	Mar-18	Draft Report
0	Feb-06	Initial Submittal

DESIGNED: FL DRAWN: VC CHECKED: DATE: 9-06-2007

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APALACHICOLA MUNICIPAL AIRPORT
FRANKLIN COUNTY, FLORIDA

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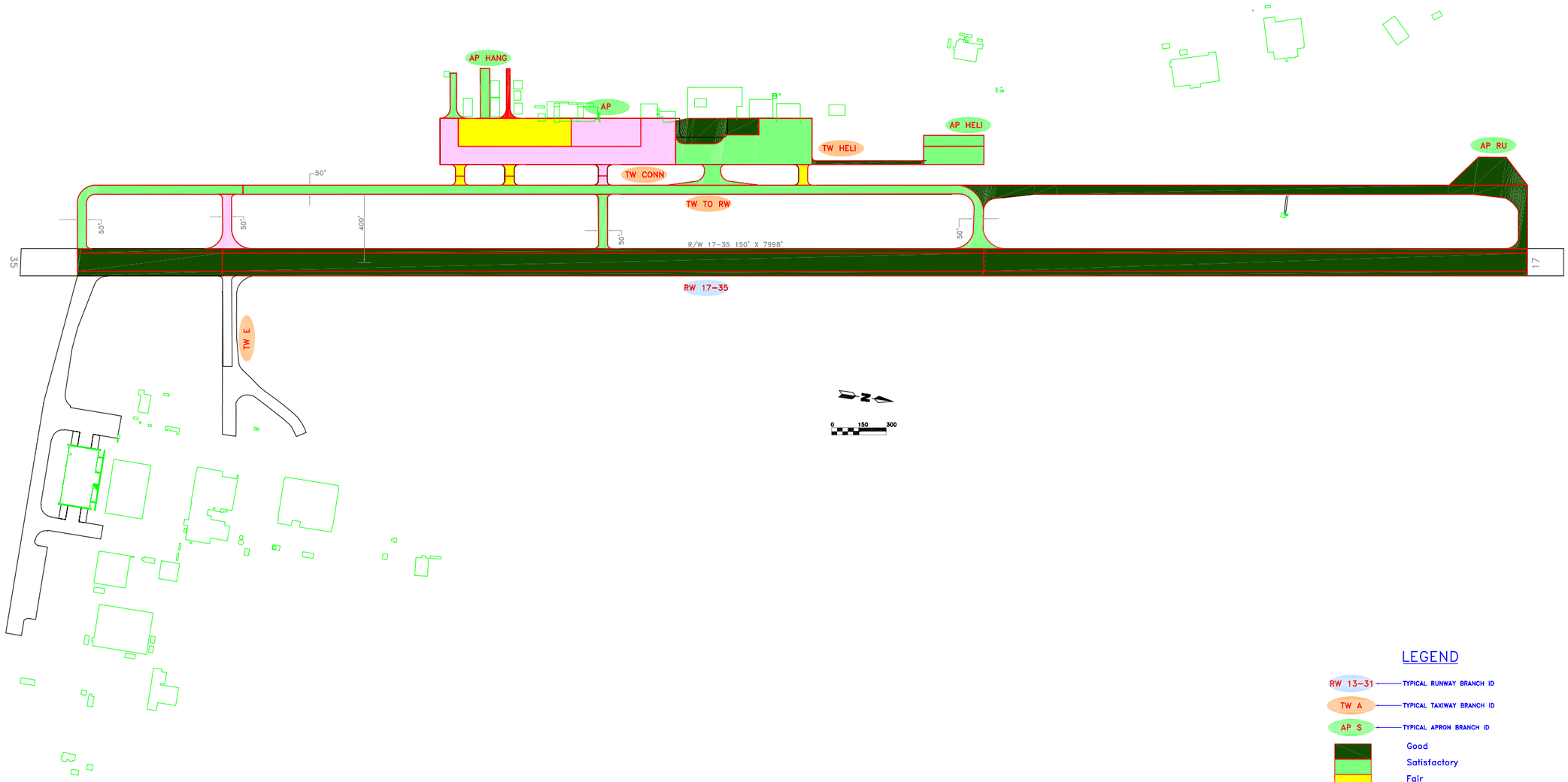
3

IDENTIFIER AAF

FDOT DISTRICT 3



LEGEND

RW 13-31	TYPICAL RUNWAY BRANCH ID
TW A	TYPICAL TAXIWAY BRANCH ID
AP S	TYPICAL APRON BRANCH ID

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

NUMBER	DATE	REVISIONS
1	Mar-04	Draft Report
0	Feb-06	Initial Submittal

DESIGNED:	FL	DRAWN:	GB	CHECKED:		DATE:	9-06-2007

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Tallahassee, Florida
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2007 Condition Map

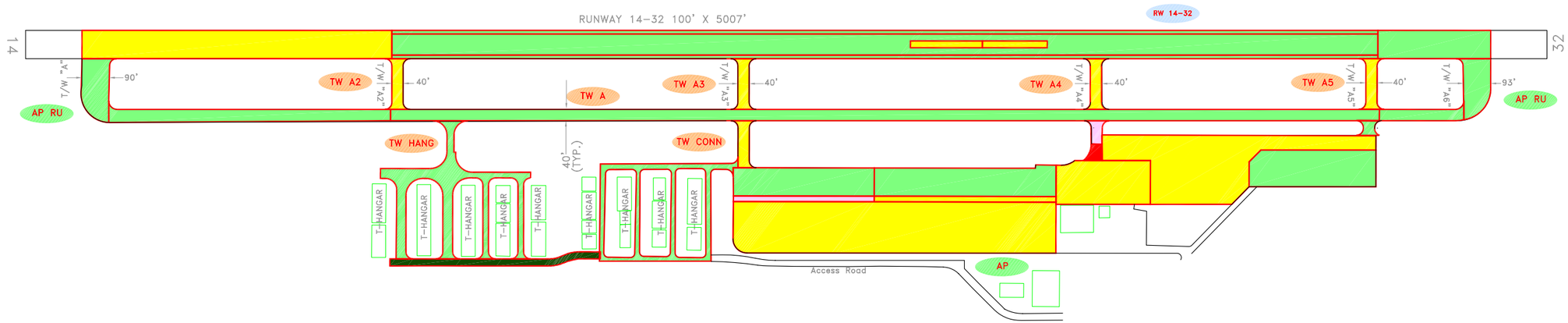
BOB SIKES AIRPORT
OKALOOSA COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

9

IDENTIFIER CEW

FDOT DISTRICT 3



LEGEND

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NUMBER	DATE	REVISIONS
1	Mar-10	Draft Report
0	Feb-06	Initial Submittal

DESIGNED: FL DRAWN: GB CHECKED: DATE: 9-06-2007

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2008 Condition Map

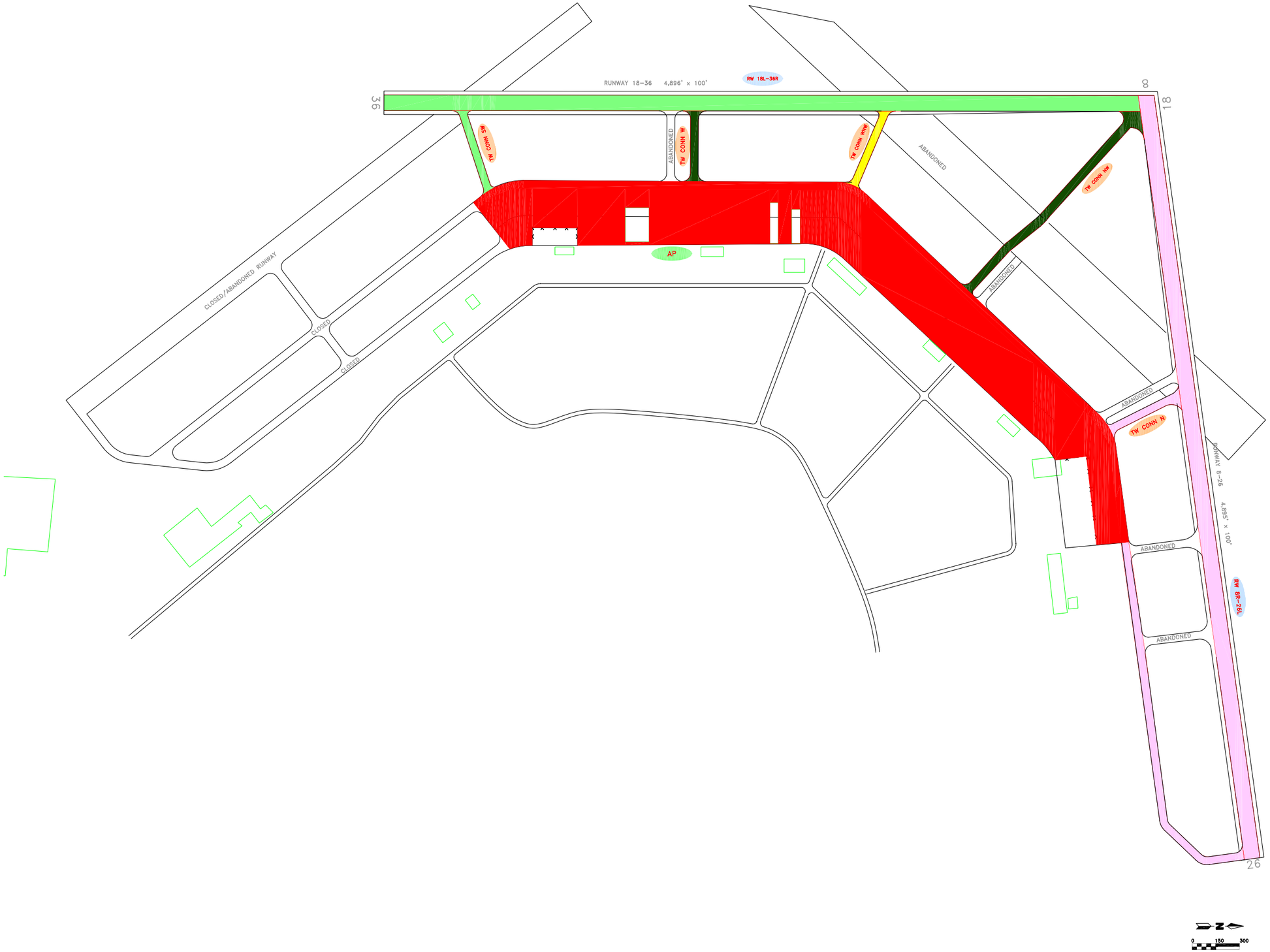
DESTIN - FT. WALTON BEACH AIRPORT
OKALOOSA COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

22

IDENTIFIER DTS

FDOT DISTRICT 3



LEGEND

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NUMBER	DATE	REVISIONS
1	Mar-19	Draft Report
0	Feb-06	Initial Submittal

DESIGNED: FL DRAWN: GB CHECKED: DATE: 9-06-2007

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Tallahassee, Florida
850-656-1293

2006 Condition Map

MARIANNA MUNICIPAL AIRPORT
JACKSON COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

IDENTIFIER **MAI**

FDOT DISTRICT 3

LEGEND

RW 13-31	TYPICAL RUNWAY BRANCH ID
TW A	TYPICAL TAXIWAY BRANCH ID
AP S	TYPICAL APRON BRANCH ID

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

NUMBER	DATE	REVISIONS
1	Dec-24	Draft Report
0	Feb-06	Initial Submittal

DESIGNED: JCB | DRAWN: RWF | CHECKED: | DATE: 9-07-2007

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Tallahassee, Florida
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2007 Condition Map

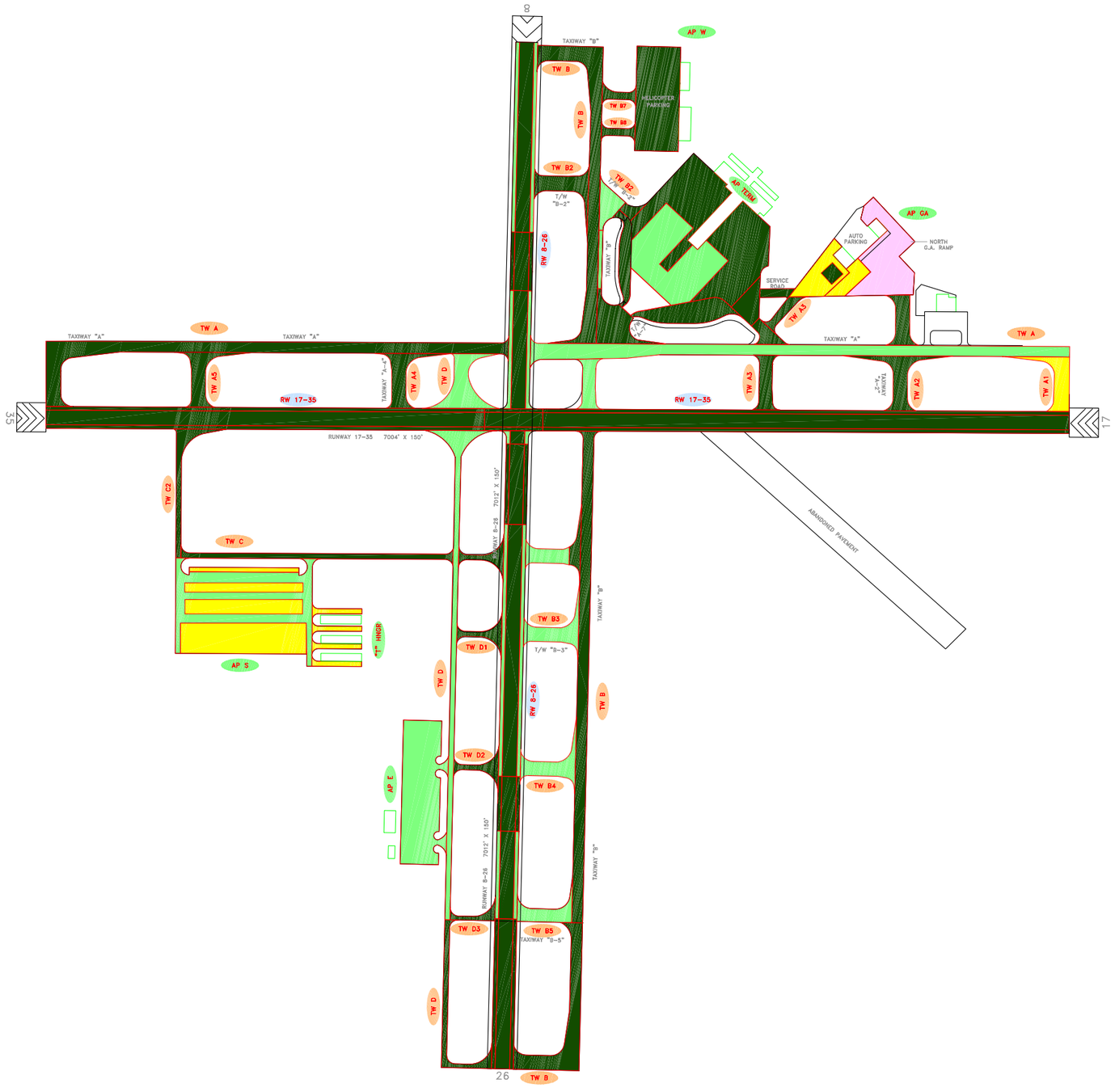
PANAMA CITY-BAY COUNTY INTERNATIONAL
PANAMA CITY, BAY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

66

IDENTIFIER **PFN**

FDOT DISTRICT 3



LEGEND

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

NUMBER	DATE	REVISIONS
2	Mar-04	Draft Report
1	May-06	Revised per FDOT comments
0	Feb-06	Initial Submittal

DESIGNED:	JCB	DRAWN:	RWF	CHECKED:		DATE:	2-22-2006

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Tallahassee, Florida
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2007 Condition Map

PENSACOLA REGIONAL AIRPORT
ESCAMBIA COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

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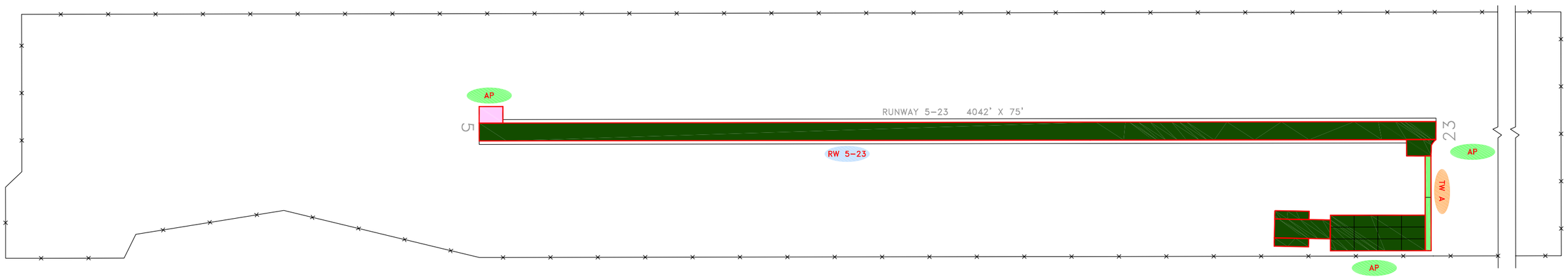
IDENTIFIER: PNS

FDOT DISTRICT: 3



LEGEND

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

NUMBER	DATE	REVISIONS
1	Mar-12	Draft Report
0	Feb-06	Initial Submittal

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2006 Condition Map

CARRABELLE-THOMPSON AIRPORT
FRANKLIN COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

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IDENTIFIER **X13**

FDOT DISTRICT 3

APPENDIX B

MAJOR M&R PLAN

Table B-1: 1J0 Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
1J0	APRON	AP	4110	PCC	7,540	2016	64	PCC Restoration	100	$22,236

Table B-2: 2J9 Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
2J9	RUNWAY	RW 14-32	6110	AC	29,625	2008	74	Microsurfacing	100	$15,109
2J9	TAXIWAY	TW HANGAR	120	AC	5,375	2008	58	Microsurfacing	100	$21,468
2J9	TAXIWAY	TW HANGAR	130	AC	4,125	2009	64	Microsurfacing	100	$9,891
2J9	RUNWAY	RW 14-32	6105	AAC	187,875	2010	64	Microsurfacing	100	$464,009
2J9	TAXIWAY	TW HANGAR	110	AC	10,000	2013	64	Microsurfacing	100	$26,988

Table B-3: 2R4 Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
2R4	APRON	AP W	4205	AC	57,500	2008	61	Microsurfacing	100	$180,953
2R4	TAXIWAY	TW B	250	AC	3,800	2009	64	Microsurfacing	100	$9,112
2R4	APRON	AP E	4105	AC	79,819	2010	63	Microsurfacing	100	$220,253
2R4	RUNWAY	RW 18-36	6105	AAC	281,250	2015	63	Microsurfacing	100	$899,692
2R4	TAXIWAY	TW CONN E	305	AC	10,800	2016	64	Microsurfacing	100	$31,850
2R4	TAXIWAY	TW CONN CT	405	AAC	6,943	2017	64	Microsurfacing	100	$21,089
2R4	TAXIWAY	TW CONN CT	410	AAC	2,670	2017	63	Microsurfacing	100	$9,061

Table B-4: 54J Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
54J	APRON	AP NE	4105	AC	32,500	2008	62	Microsurfacing	100	$93,405
54J	RUNWAY	RW 9-27	6105	AC	1,200	2008	26	Reconstruction	100	$16,344
54J	RUNWAY	RW 9-27	6110	AC	199,500	2008	28	Reconstruction	100	$2,717,191
54J	TAXIWAY	TW E E AP	110	AC	1,890	2008	63	Microsurfacing	100	$4,916
54J	TAXIWAY	TW W1 E AP	305	AC	8,760	2008	40	Mill & Overlay	100	$55,100
54J	TAXIWAY	TW E E AP	105	AC	3,120	2017	64	Microsurfacing	100	$9,477

Table B-5: AAF Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
AAF	APRON	AP	4105	PCC	923,000	2008	62	PCC Restoration	100	$2,652,704
AAF	APRON	RW 13-31	6110	PCC	260,000	2008	64	PCC Restoration	100	$605,280
AAF	APRON	TW A	220	PCC	169,696	2008	73	PCC Restoration	100	$94,181
AAF	RUNWAY	TW A2	250	PCC	27,000	2008	58	PCC Restoration	100	$107,838
AAF	RUNWAY	TW A3	240	PCC	27,000	2008	58	PCC Restoration	100	$107,838
AAF	RUNWAY	TW A4	230	PCC	34,400	2008	44	PCC Restoration	100	$216,376
AAF	TAXIWAY	TW B2	315	PCC	25,000	2008	66	PCC Restoration	100	$44,550
AAF	TAXIWAY	TW B3	325	PCC	25,000	2008	55	PCC Restoration	100	$121,375
AAF	TAXIWAY	TW B5	335	PCC	32,000	2008	57	PCC Restoration	100	$136,992
AAF	TAXIWAY	TW B5	340	PCC	8,750	2008	46	PCC Restoration	100	$55,038
AAF	TAXIWAY	TW C	105	PCC	165,000	2008	64	PCC Restoration	100	$384,120
AAF	TAXIWAY	TW B1	310	PCC	8,000	2009	64	PCC Restoration	100	$19,183
AAF	TAXIWAY	TW C	110	PCC	82,500	2009	64	PCC Restoration	100	$197,822
AAF	APRON	RW 18-36	6310	PCC	261,000	2013	64	PCC Restoration	100	$704,385
AAF	TAXIWAY	TW B1	305	PCC	32,200	2014	64	PCC Restoration	100	$89,508
AAF	TAXIWAY	TW C2	150	PCC	25,000	2014	64	PCC Restoration	100	$69,494
AAF	RUNWAY	TW A3	245	PCC	6,250	2017	64	PCC Restoration	100	$18,984

Table B-6: CEW Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
CEW	APRON	AP	4105	AAC	57,600	2008	54	Mill & Overlay	100	$296,179
CEW	APRON	AP	4110	AC	89,700	2008	56	Microsurfacing	100	$409,750
CEW	APRON	AP	4115	AC	189,700	2008	50	Mill & Overlay	100	$1,193,213
CEW	APRON	AP HANG	4210	AC	6,800	2008	36	Mill & Overlay	100	$62,710
CEW	TAXIWAY	TW CONN	305	AC	3,170	2008	61	Microsurfacing	100	$9,976
CEW	TAXIWAY	TW CONN	315	AC	1,560	2008	60	Microsurfacing	100	$5,335
CEW	TAXIWAY	TW CONN	320	AAC	2,255	2008	60	Microsurfacing	100	$7,712
CEW	TAXIWAY	TW CONN	325	AC	3,170	2008	53	Mill & Overlay	100	$17,210
CEW	TAXIWAY	TW CONN	330	AAC	3,920	2008	51	Mill & Overlay	100	$23,532
CEW	TAXIWAY	TW CONN	340	AC	5,090	2008	62	Microsurfacing	100	$14,629
CEW	TAXIWAY	TW TO RW	115	AAC	20,000	2008	53	Mill & Overlay	100	$108,580
CEW	TAXIWAY	TW CONN	310	AAC	3,000	2009	63	Microsurfacing	100	$8,037
CEW	APRON	AP HANG	4205	AC	24,000	2012	64	Microsurfacing	100	$62,884
CEW	TAXIWAY	TW TO RW	110	AAC	220,000	2012	63	Microsurfacing	100	$644,039
CEW	APRON	AP HELI	4342	AC	16,600	2013	63	Microsurfacing	100	$50,054
CEW	TAXIWAY	TW TO RW	120	AAC	20,295	2013	63	Microsurfacing	100	$61,195
CEW	APRON	AP	4120	AC	150,820	2016	63	Microsurfacing	100	$496,932
CEW	APRON	AP HELI	4340	AC	36,520	2016	63	Microsurfacing	100	$120,329
CEW	TAXIWAY	TW TO RW	105	AAC	58,850	2016	64	Microsurfacing	100	$173,551

Table B-7: DTS Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
DTS	APRON	AP	4107	AAC	10,000	2008	49	Mill & Overlay	100	$62,900
DTS	APRON	AP	4112	AC	12,800	2008	63	Microsurfacing	100	$33,293
DTS	APRON	AP	4125	AC	206,100	2008	62	Microsurfacing	100	$592,332
DTS	RUNWAY	RW 14-32	6112	AC	12,096	2008	61	Microsurfacing	100	$38,066
DTS	TAXIWAY	TW A3	120	AAC	7,750	2008	57	Microsurfacing	100	$33,178
DTS	TAXIWAY	TW A4	125	AAC	7,750	2008	61	Microsurfacing	100	$24,389
DTS	TAXIWAY	TW CONN	209	AAC	3,025	2008	47	Mill & Overlay	100	$19,027
DTS	TAXIWAY	TW CONN	210	AAC	2,620	2008	39	Mill & Overlay	100	$18,400
DTS	APRON	AP	4120	AC	127,825	2009	64	Microsurfacing	100	$306,504
DTS	TAXIWAY	TW A2	110	AAC	7,750	2009	64	Microsurfacing	100	$18,583
DTS	TAXIWAY	TW A5	130	AAC	7,750	2010	64	Microsurfacing	100	$19,141
DTS	TAXIWAY	TW CONN	205	AAC	7,015	2010	64	Microsurfacing	100	$17,325
DTS	APRON	AP	4115	AAC	52,550	2011	64	Microsurfacing	100	$133,680
DTS	RUNWAY	RW 14-32	6105	AAC	250,404	2011	64	Microsurfacing	100	$636,995
DTS	RUNWAY	RW 14-32	6115	AC	110,000	2011	63	Microsurfacing	100	$312,640
DTS	TAXIWAY	TW A	115	AAC	140,600	2012	64	Microsurfacing	100	$368,398
DTS	APRON	AP RU	5110	AAC	16,650	2013	64	Microsurfacing	100	$44,935
DTS	RUNWAY	RW 14-32	6110	AC	87,500	2013	64	Microsurfacing	100	$236,144
DTS	RUNWAY	RW 14-32	6120	AC	39,500	2013	63	Microsurfacing	100	$119,103
DTS	APRON	AP	4105	AAC	50,000	2015	64	Microsurfacing	100	$143,157
DTS	TAXIWAY	TW CONN	212	AAC	2,530	2015	63	Microsurfacing	100	$8,093
DTS	TAXIWAY	TW A	150	AAC	40,000	2016	63	Microsurfacing	100	$131,795
DTS	APRON	AP	4110	AC	64,000	2017	64	Microsurfacing	100	$194,401
DTS	APRON	AP	4150	AC	56,650	2017	64	Microsurfacing	100	$172,075
DTS	APRON	AP RU	5105	AAC	18,000	2017	63	Microsurfacing	100	$61,087

Table B-8: MAI Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
MAI	APRON	AP	4105	PCC	1,547,444	2008	25	Reconstruction	100	$21,076,194
MAI	RUNWAY	RW 8R-26L	6105	AC	490,000	2008	51	Mill & Overlay	100	$2,941,470
MAI	TAXIWAY	TW CONN N	305	AC	20,000	2008	47	Mill & Overlay	100	$125,800
MAI	TAXIWAY	TW PARALL	105	AC	96,000	2008	40	Mill & Overlay	100	$603,840
MAI	TAXIWAY	TW PARALL	150	PCC	324,375	2008	35	PCC Restoration	100	$3,229,154
MAI	RUNWAY	RW 18L-36R	6205	AAC	484,800	2010	64	Microsurfacing	100	$1,197,348
MAI	TAXIWAY	TW CON WNW	505	AAC	27,500	2010	63	Microsurfacing	100	$75,884
MAI	TAXIWAY	TW CONN SW	705	AAC	27,500	2011	64	Microsurfacing	100	$69,956

Table B-9: PFN Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
PFN	APRON	AP N GA	4305	PCC	14,000	2008	49	PCC Restoration	100	$119,700
PFN	APRON	AP SOWELL	4405	AC	365,000	2008	54	Mill & Overlay	100	$2,490,029
PFN	APRON	AP SOWELL	4410	AC	8,500	2008	42	Mill & Overlay	100	$72,675
PFN	APRON	AP SOWELL	4415	AC	13,000	2008	11	Reconstruction	100	$271,440
PFN	APRON	AP SOWELL	4420	AAC	33,700	2008	22	Reconstruction	100	$703,656
PFN	APRON	AP SOWELL	4430	AC	13,200	2008	30	Reconstruction	100	$275,616
PFN	APRON	AP SOWELL	4435	AAC	49,000	2008	64	Microsurfacing	100	$151,802
PFN	APRON	AP SOWELL	4455	AC	16,500	2008	57	Microsurfacing	100	$91,179
PFN	RUNWAY	RW 5-23	6205	AAC	45,000	2008	44	Mill & Overlay	100	$384,750
PFN	RUNWAY	RW 5-23	6215	AAC	300,000	2008	57	Microsurfacing	100	$1,657,799
PFN	RUNWAY	RW 5-23	6220	AAC	150,000	2008	60	Microsurfacing	100	$634,499
PFN	RUNWAY	RW 5-23	6225	AAC	26,250	2008	50	Mill & Overlay	100	$224,437
PFN	RUNWAY	RW 5-23	6230	AAC	13,125	2008	56	Microsurfacing	100	$78,199
PFN	RUNWAY	RW 5-23	6235	AAC	17,000	2008	45	Mill & Overlay	100	$145,350
PFN	RUNWAY	RW 5-23	6250	AAC	7,500	2008	46	Mill & Overlay	100	$64,125
PFN	RUNWAY	RW 5-23	6255	AAC	23,500	2008	26	Reconstruction	100	$490,680
PFN	RUNWAY	RW 5-23	6260	AAC	13,000	2008	43	Mill & Overlay	100	$111,150
PFN	RUNWAY	RW 5-23	6265	AC	40,000	2008	59	Microsurfacing	100	$203,760
PFN	RUNWAY	RW 5-23	6270	AC	20,000	2008	59	Microsurfacing	100	$101,880
PFN	TAXIWAY	TW A	115	AC	17,200	2008	59	Microsurfacing	100	$80,186
PFN	TAXIWAY	TW A	120	AAC	9,900	2008	47	Mill & Overlay	100	$84,645
PFN	TAXIWAY	TW A	160	AC	8,199	2008	58	Microsurfacing	100	$41,766
PFN	TAXIWAY	TW A	165	AC	8,700	2008	19	Reconstruction	100	$181,656
PFN	TAXIWAY	TW A	170	AC	4,350	2008	18	Reconstruction	100	$90,828
PFN	TAXIWAY	TW A	175	AC	8,700	2008	19	Reconstruction	100	$181,656
PFN	TAXIWAY	TW B	205	AC	21,000	2008	51	Mill & Overlay	100	$170,478
PFN	TAXIWAY	TW D	405	AC	10,000	2008	44	Mill & Overlay	100	$85,500
PFN	TAXIWAY	TW D	410	AC	225,500	2008	32	Mill & Overlay	100	$4,152,356
PFN	TAXIWAY	TW D	415	AAC	6,015	2008	30	Reconstruction	100	$125,593

Table B-9: PFN Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
PFN	TAXIWAY	TW D	420	AC	19,100	2008	47	Mill & Overlay	100	$163,305
PFN	TAXIWAY	TW E	515	AC	20,200	2008	45	Mill & Overlay	100	$172,710
PFN	TAXIWAY	TW F	605	AC	2,400	2008	60	Microsurfacing	100	$10,152
PFN	TAXIWAY	TW F	610	AAC	17,500	2008	61	Microsurfacing	100	$69,072
PFN	TAXIWAY	TW G	710	AC	17,000	2008	60	Microsurfacing	100	$71,910
PFN	TAXIWAY	TW H	805	AC	8,050	2008	64	Microsurfacing	100	$24,939
PFN	TAXIWAY	TW I	905	AAC	12,000	2008	57	Microsurfacing	100	$66,312
PFN	TAXIWAY	TW K	1105	AAC	60,000	2008	45	Mill & Overlay	100	$513,000
PFN	TAXIWAY	TW L	1205	AC	10,000	2008	38	Mill & Overlay	100	$110,160
PFN	APRON	AP N GA	4310	AC	33,500	2009	64	Microsurfacing	100	$106,896
PFN	RUNWAY	RW 5-23	6210	AAC	22,500	2009	63	Microsurfacing	100	$78,355
PFN	APRON	AP HOLD D	4605	AC	22,600	2010	64	Microsurfacing	100	$74,279
PFN	APRON	AP TERM	4110	PCC	42,000	2010	64	PCC Restoration	100	$138,040
PFN	RUNWAY	RW 14-32	6150	AAC	67,500	2010	63	Microsurfacing	100	$242,116
PFN	RUNWAY	RW 14-32	6165	AAC	210,000	2010	63	Microsurfacing	100	$753,249
PFN	TAXIWAY	TW A	110	AAC	352,200	2010	64	Microsurfacing	100	$1,157,564
PFN	RUNWAY	RW 14-32	6130	AAC	42,500	2011	64	Microsurfacing	100	$143,874
PFN	RUNWAY	RW 5-23	6245	AAC	15,000	2011	63	Microsurfacing	100	$55,418
PFN	RUNWAY	RW 14-32	6145	AAC	67,500	2012	63	Microsurfacing	100	$256,861
PFN	RUNWAY	RW 14-32	6155	AAC	20,000	2012	64	Microsurfacing	100	$69,737
PFN	RUNWAY	RW 14-32	6170	AAC	105,000	2012	63	Microsurfacing	100	$399,561
PFN	RUNWAY	RW 14-32	6115	AAC	15,000	2014	63	Microsurfacing	100	$53,871
PFN	RUNWAY	RW 14-32	6142	AAC	17,500	2014	63	Microsurfacing	100	$62,850
PFN	RUNWAY	RW 14-32	6160	AAC	10,000	2014	64	Microsurfacing	100	$395,057
PFN	RUNWAY	RW 14-32	6175	AAC	110,000	2014	63	Microsurfacing	100	$30,527
PFN	RUNWAY	RW 5-23	6240	AAC	8,500	2014	63	Microsurfacing	100	$40,371
PFN	TAXIWAY	TW E	520	AC	22,600	2014	64	Microsurfacing	100	$83,601
PFN	TAXIWAY	TW J, HANG	1020	PCC	4,500	2014	64	PCC Restoration	100	$16,646
PFN	RUNWAY	RW 14-32	6140	AAC	26,250	2015	64	Microsurfacing	100	$100,016

Table B-9: PFN Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
PFN	TAXIWAY	TW A	102	AC	23,600	2016	64	Microsurfacing	100	$92,617
PFN	TAXIWAY	TW G	705	AC	9,750	2016	64	Microsurfacing	100	$38,263
PFN	TAXIWAY	TW G	715	AC	118,000	2017	64	Microsurfacing	100	$463,085

Table B-10: PNS Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
PNS	APRON	AP GA	4325	AC	156,650	2008	39	Mill & Overlay	100	$1,532,506
PNS	TAXIWAY	TW A1	120	AC	46,000	2008	67	Microsurfacing	100	$103,454
PNS	APRON	AP GA	4320	AAC	27,000	2010	62	Microsurfacing	100	$104,953
PNS	APRON	AP GA	4310	AC	52,000	2012	64	Microsurfacing	100	$181,315
PNS	APRON	AP S	4505	AC	11,900	2012	64	Microsurfacing	100	$41,493
PNS	APRON	AP S	4510	AC	311,820	2012	64	Microsurfacing	100	$1,087,262
PNS	APRON	AP E	4405	AC	114,625	2016	64	Microsurfacing	100	$449,840
PNS	TAXIWAY	TW B	210	AC	34,500	2016	64	Microsurfacing	100	$135,394
PNS	TAXIWAY	TW B2	212	AC	31,800	2017	64	Microsurfacing	100	$128,542

Table B-11: X13 Major M&R Plan by Year

Network	Branch Use	Branch ID	Section ID	Surface	Area, SqFt	Year	PCI Before Maint.	Activities	PCI After Maint.	Cost
X13	APRON	AP	4105	AAC	7,500	2008	46	Mill & Overlay	100	$47,175
X13	TAXIWAY	TW A	105	AC	10,000	2014	63	Microsurfacing	100	$31,057

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