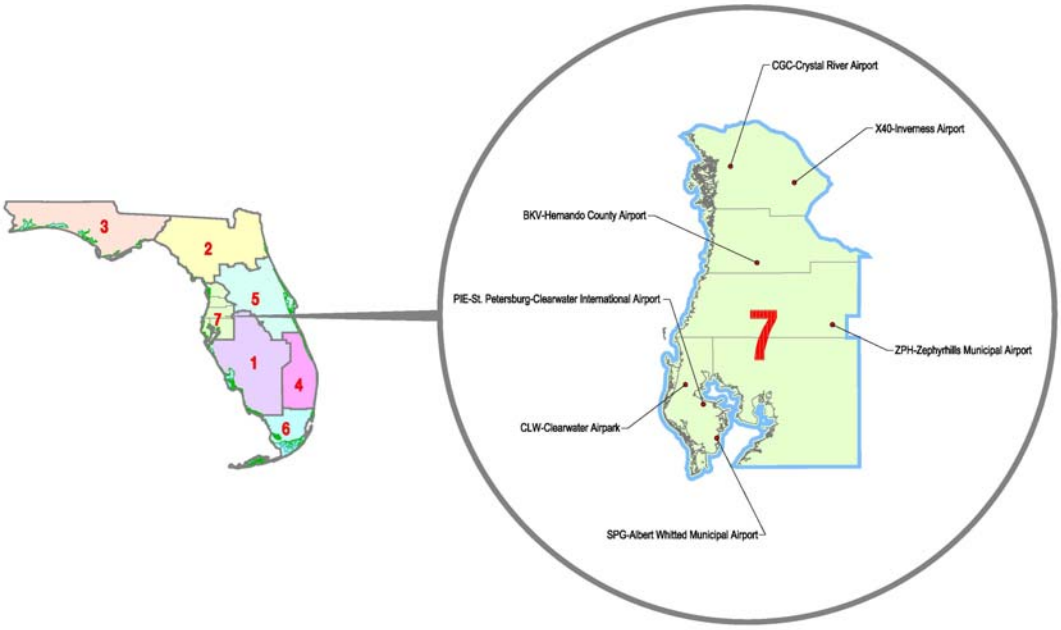
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
AVIATION OFFICE

Statewide Airfield Pavement Management Program

District 7 Report

May 22, 2008



Prepared for:
Florida Department of Transportation
Aviation Office

by:

URS Corporation Inc. / MACTEC Engineering & Consulting, Inc. / Planning Technology, Inc. / ASC Geosciences, Inc.

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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 7, evaluated the conditions and developed a maintenance and rehabilitation program to improve conditions to prescribed minimum levels. District 7 has 1 Primary (PR), 2 Regional Reliever (RL), and 4 General Aviation (GA) airports participating in the Statewide Pavement Management Program.

Pavement Area and Use

The total pavement area in 2006/2007 for airports located in District 7 is approximately 15,800,627 square feet. The breakdown of pavement area for each pavement use is provided as follows:

Table E-1: Pavement Area by Pavement Use – District 7

Use	Area, SqFt
Runway	7,585,075
Taxiway	4,550,121
Apron	3,665,431
Total	**15,800,627**

Figure E-1: Pavement Area by Use – District 7

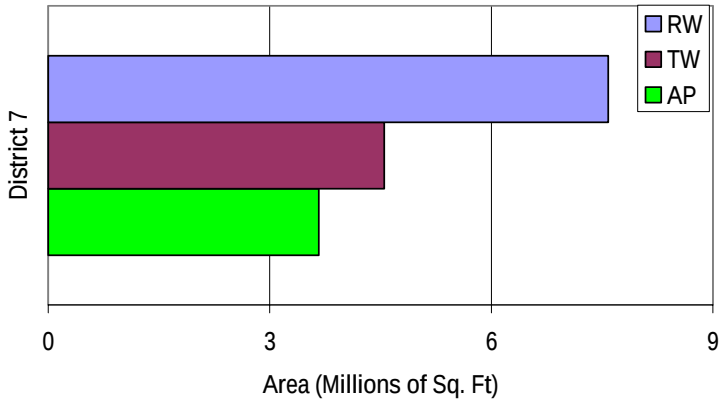

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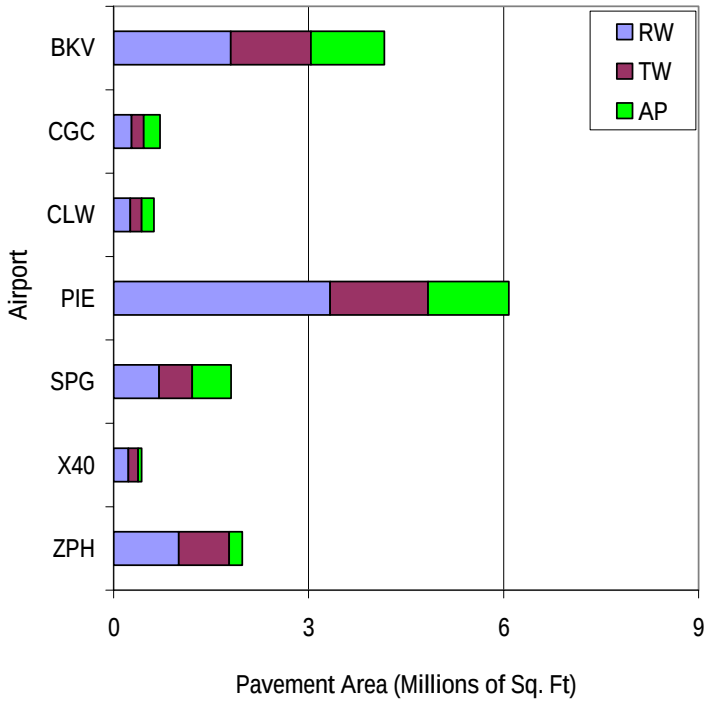
Figure E-2: Pavement Area by Use by Airport – District 7



Pavement Condition Index (PCI)

The overall area-weighted Pavement Condition Index (PCI) of the airports in District 7 in 2006/2007 is 66, representing a Fair overall network condition.

Table E-2 provide list of participating airports within District 7 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 7. 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, taxiways, and aprons are in Fair condition.

Table E-2: Participating Airports Summary – District 7

Airport	Area-Weighted PCI	Pavement Area, SqFt
BKV	57	4,164,908
CGC	84	716,470
CLW	63	620,166
PIE	65	6,079,183
SPG	71	1,809,415
X40	88	431,363
ZPH	73	1,979,122
District 7	**66**	**15,800,627**

Figure E-3: PCI by Pavement Use – District 7

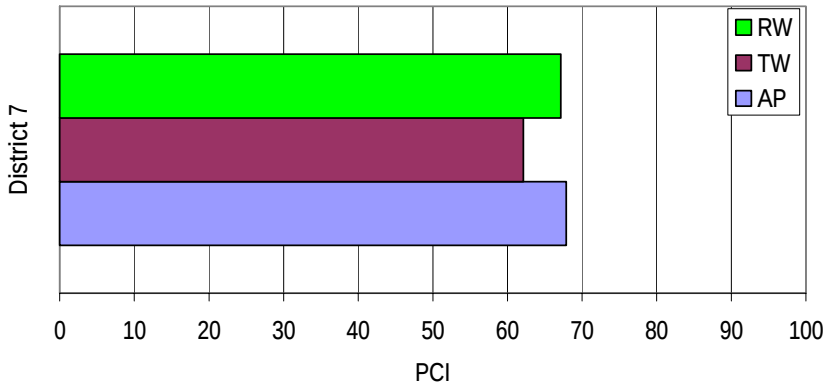


Table E-3: Condition Summary by Pavement Use – District 7

Use	Area-Weighted PCI
Runway	67
Taxiway	62
Apron	68
All	**66**

Tables, Figures Prepared by VVD, Checked by BX

Figure E-4: PCI by Use by Airport – District 7

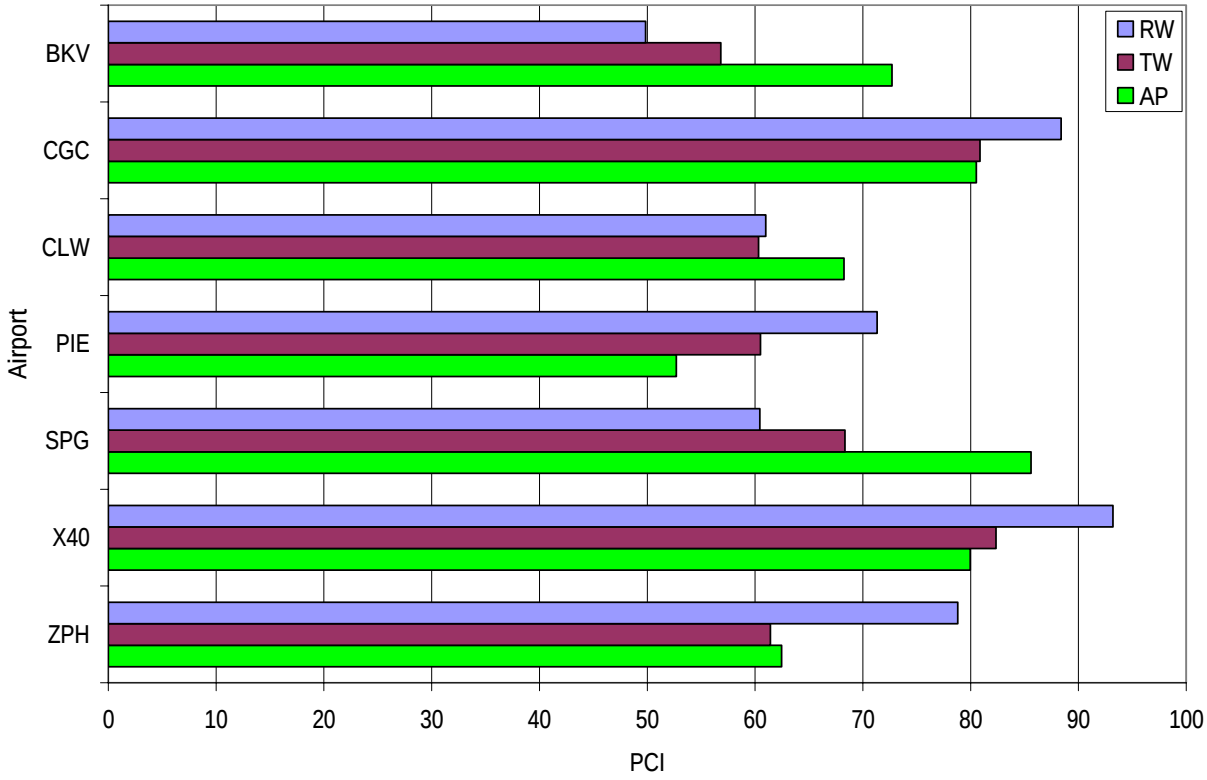
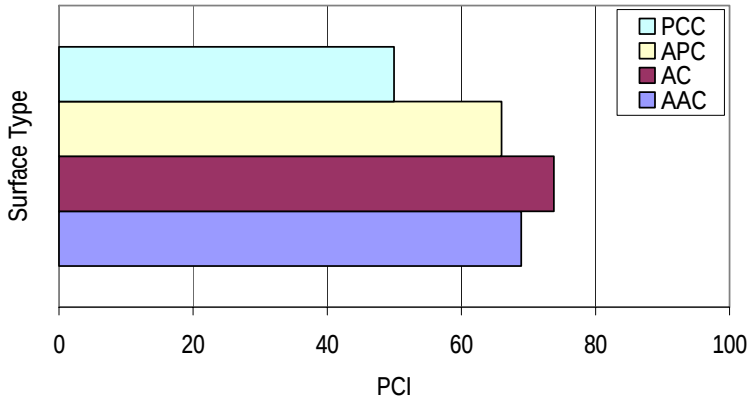


Figure E-5: PCI by Surface Type – District 7



Maintenance and Rehabilitation Costs

Airports in District 7 with immediate M&R needs (2008 needs) include BKV (Hernando County Airport), CGC (Crystal River Airport), CLW (Clearwater Airpark), PIE (St. Petersburg-Clearwater International Airport), SPG (Albert Whitted Airport), X40 (Inverness Airport), and

ZPH (Zephyrhills Municipal 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 7

Airport	Avg PCI - Before M&R	Immediate M&R Total **	Avg PCI -1st Year After M&R
BKV	57	$18,431,000	95
CGC	62	$56,000	94
CLW	63	$1,682,000	89
PIE	65	$34,038,000	94
SPG	71	$4,869,000	90
X40	88	$0	85
ZPH	73	$3,589,000	92
District 7	**66**	**$62,665,000**	**92**

* 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 7.
** 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 7

Year	Preventive	Major M&R >= Critical	Major M&R < Critical	Total
2008	$304,000	$119,000	$62,546,000	$62,968,000
2009	$510,000	$0	$3,205,000	$3,716,000
2010	$556,000	$0	$565,000	$1,122,000
2011	$571,000	$0	$1,485,000	$2,057,000
2012	$647,000	$0	$814,000	$1,461,000
2013	$797,000	$0	$393,000	$1,190,000
2014	$1,019,000	$0	$256,000	$1,275,000
2015	$1,216,000	$0	$1,026,000	$2,242,000
2016	$1,520,000	$0	$32,000	$1,552,000
2017	$1,771,000	$0	$844,000	$2,615,000
Total	**$8,912,000**	**$119,000**	**$71,167,000**	**$80,198,000**

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 $8 million would be expected to provide an improvement in the overall condition, where the area-weighted PCI would increase from 66 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 7 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 7 is conducted at some point in the 10-year plan.

Figure E-6: Immediate M&R Costs by Airport – District 7

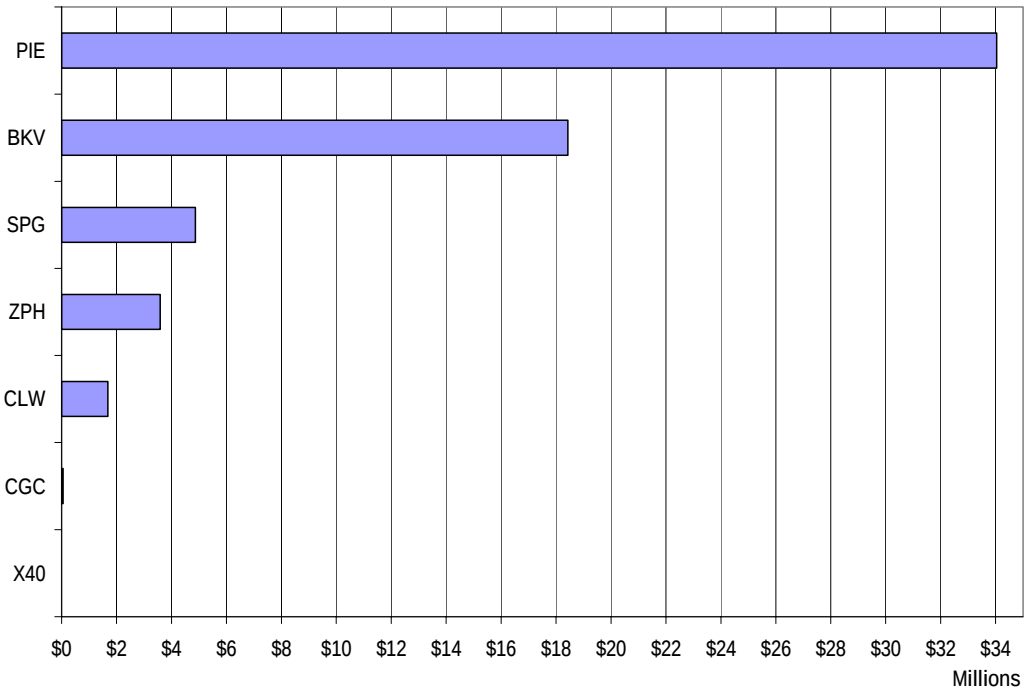
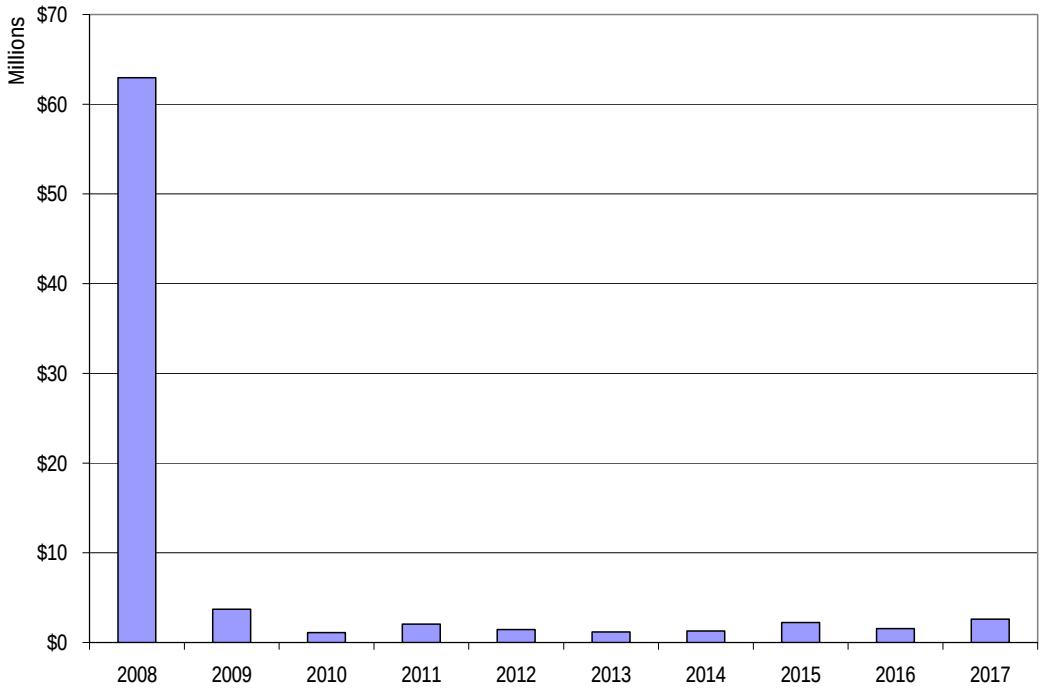


Figure E-7: Estimated Annual Costs (2008-2017) – District 7



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 7 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 7 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

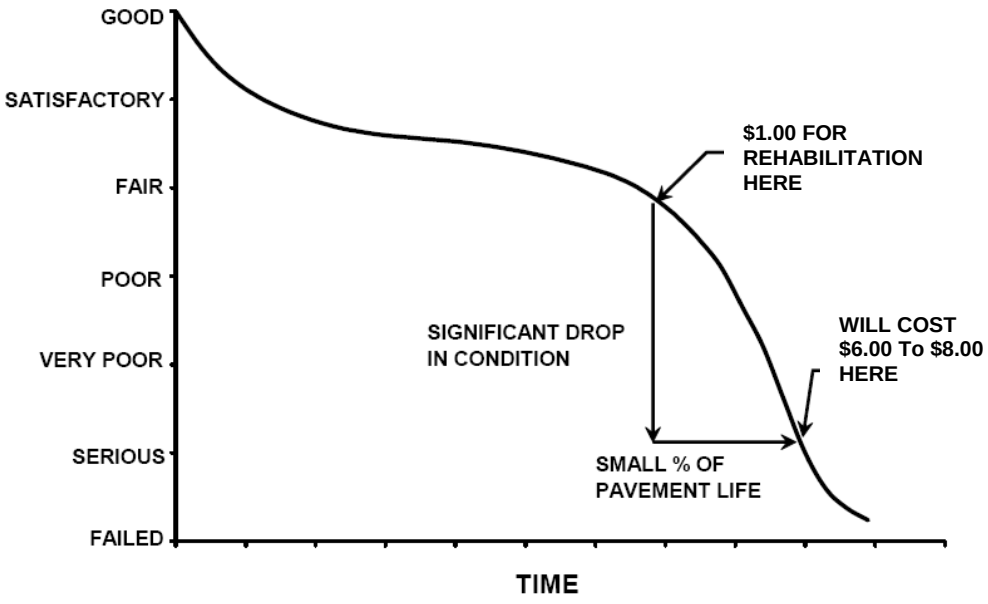
A pavement management system (PMS) is a tool to assist engineers, planners and managing agencies in making decisions when planning pavement M&R. The management of pavements involves scheduling pavement maintenance and rehabilitation before pavements deteriorate to a condition where reconstruction (the 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 7 include:

- Hernando County Airport (BKV)
- Crystal River Airport (CGC)
- Clearwater Airpark (CLW)
- St. Petersburg-Clearwater International Airport (PIE)
- Albert Whitted Airport (SPG)
- Inverness Airport (X40)
- Zephyrhills Municipal Airport (ZPH)

These airports are categorized as1 Primary (PR), 2 Regional Reliever (RL), and 4 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 7 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.

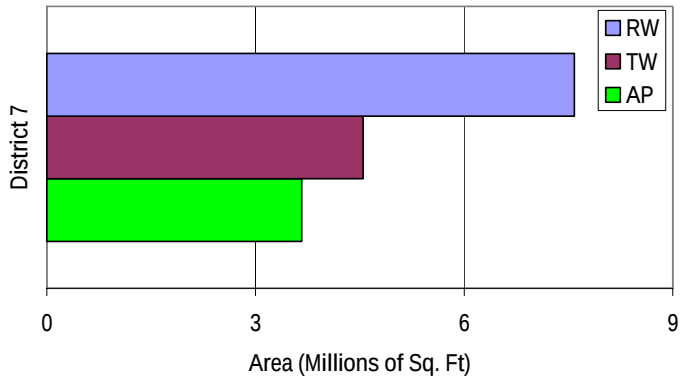
The total pavement area in 2006/2007 for airports participating in the program from District 7 is approximately 15,800,627 square feet. The breakdown of pavement area for each pavement use is provided in Table 3-1.

Table 3-1: Pavement Area by Pavement Use – District 7

Use	Area, SqFt
Runway	7,585,075
Taxiway	4,550,121
Apron	3,665,431
Total	**15,800,627**

Figure 3-1 presents the breakdown of the pavement area for airports in District 7 by pavement use.

Figure 3-1: Pavement Area by Use – District 7



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.

Tables, Figures Prepared by VVD, Checked by BX

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 7 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 7 is 66, representing a Fair overall network condition.

Table 4-1 and Figure 4 1 provide the PCI distribution by rating and surface type for District 7.

Table 4-1: Airport Pavement PCI by Use and Rating Category – District 7

Airport	RW	TW	AP	AVG PCI	PCI Category
BKV	50	57	73	57	Fair
CGC	88	81	81	84	Good
CLW	61	60	68	63	Fair
PIE	71	61	53	65	Fair
SPG	60	68	85	71	Satisfactory
X40	93	82	80	88	Good
ZPH	79	61	62	73	Satisfactory
District 7	**Fair**	**Fair**	**Fair**	**66**	**Fair**

Tables, Figures Prepared by VVD, Checked by BX

Figure 4-1: PCI by Surface Type – District 7

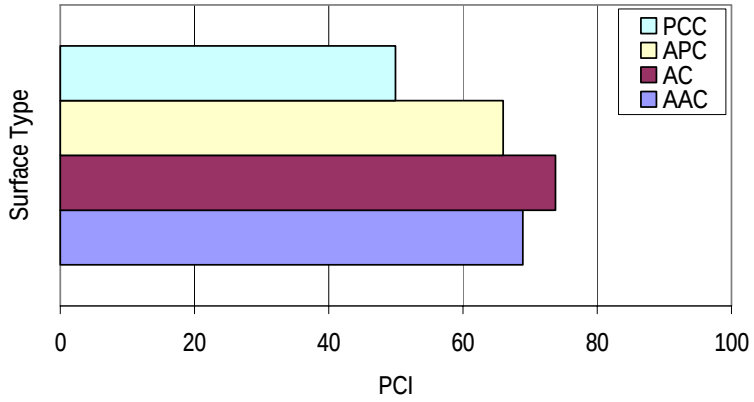


Table 4-2 illustrates the area-weighted PCI computed individually for each pavement use.

Table 4-2: Condition by Pavement Use – District 7

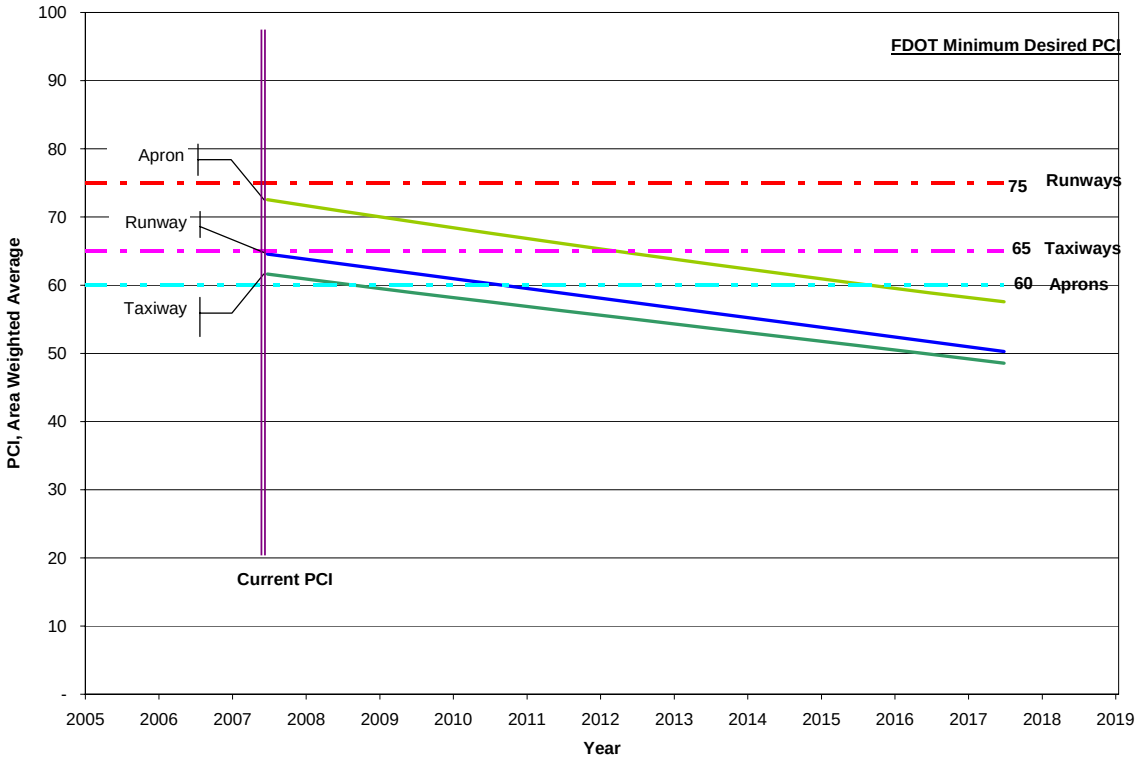
Use	Area-Weighted PCI
Runway	67
Taxiway	62
Apron	68
All	**66**

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

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 7 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 7 airports.

Figure 5-1: Predicted PCI for GA Airports by Pavement Use – District 7



Tables, Figures Prepared by VVD, Checked by BX

Figure 5-2: Predicted PCI for RL Airports by Pavement Use – District 7

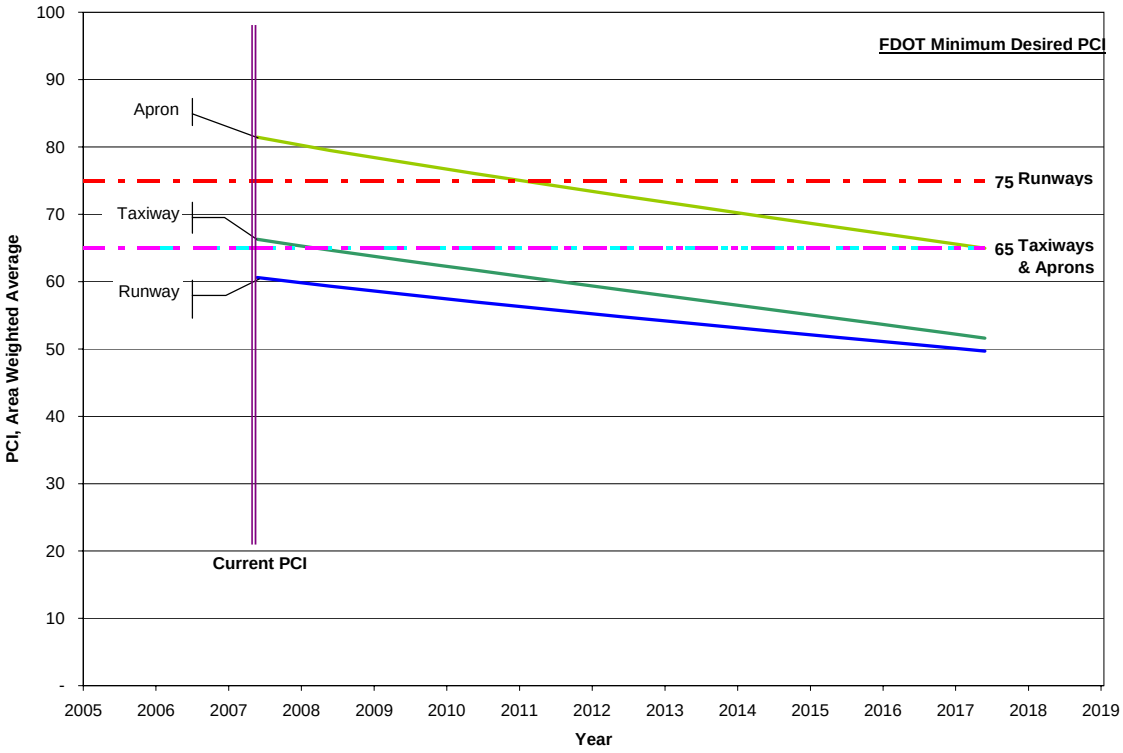
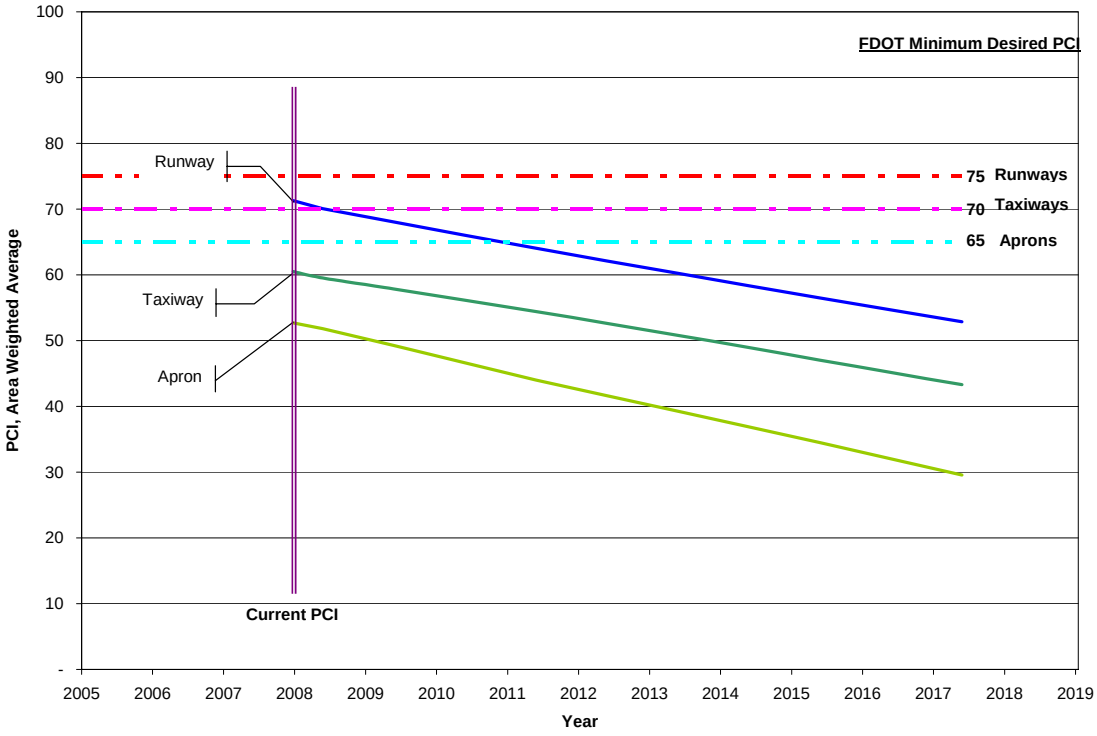


Figure 5-3: Predicted PCI for PR Airports by Pavement Use – District 7



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 values in Table 6-2 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 Patching	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

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 7 will deteriorate from 66 to 50 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 32 PCI points higher than a "No M&R" scenario. The total cost for Major M&R over this 10-year period is about $71 million.

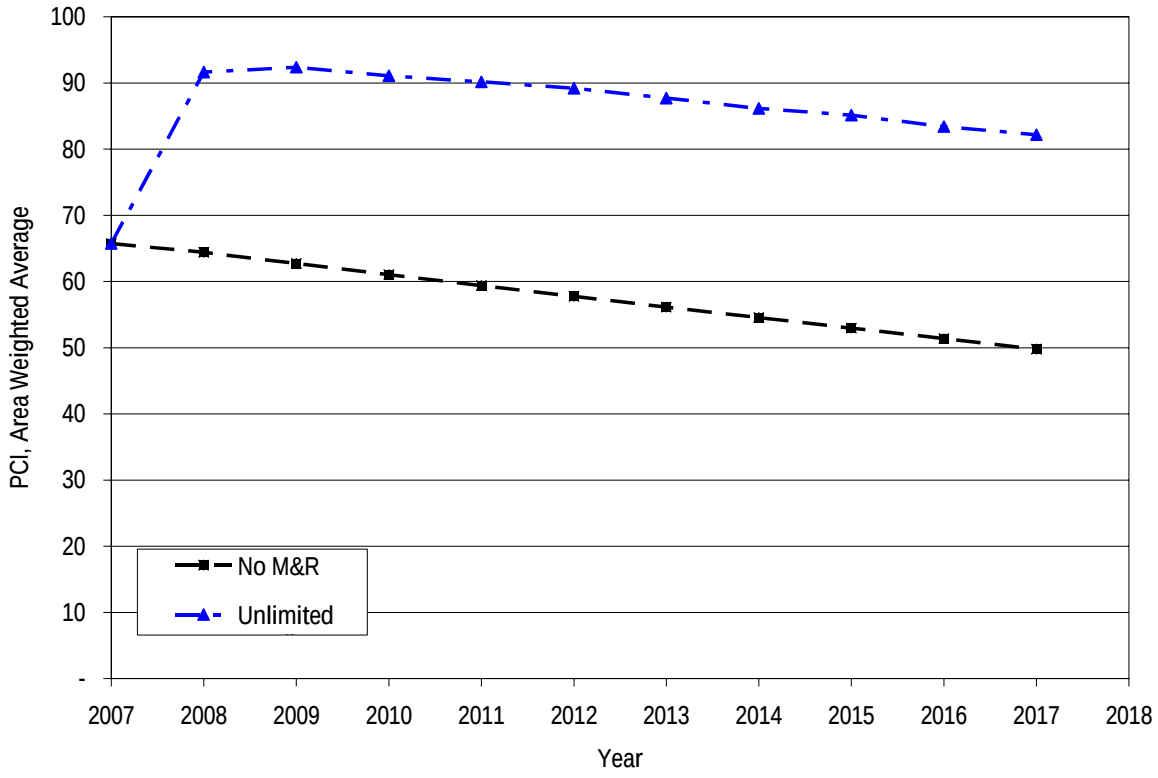
Table 7-1: Summary of Immediate Major M&R Needs – District 7

Airport	Avg PCI - Before M&R	Immediate M&R Total **	Avg PCI -1st Year After M&R
BKV	57	$18,431,000	95
CGC	62	$56,000	94
CLW	63	$1,682,000	89
PIE	65	$34,038,000	94
SPG	71	$4,869,000	90
X40	88	$0	85
ZPH	73	$3,589,000	92
District 7	**66**	**$62,665,000**	**92**

* 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 7.
** 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 7



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 88% 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 BKV (Hernando County Airport), CGC (Crystal River Airport), CLW (Clearwater Airpark), PIE (St. Petersburg-Clearwater International Airport), SPG (Albert Whitted Airport), and ZPH (Zephyrhills Municipal Airport).airports being below Critical PCI.

X40 (Inverness Airport) is currently in overall Good condition with an average PCI value of 88. CGC (Crystal River Airport), SPG (Albert Whitted Airport), and ZPH (Zephyrhills Municipal Airport) are currently in overall Satisfactory condition with an average PCI value of 84, 71 and 73 respectively, while BKV (Hernando County Airport), CLW (Clearwater Airpark), and PIE (St. Petersburg-Clearwater International Airport) airports are currently in Fair condition with an average PCI value of 57, 63, and 65, respectively. The majority of the repair needs in 2008 are identified from the following airports: PIE (St. Petersburg-Clearwater International Airport) and BKV (Hernando County Airport). 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 7

Year	Preventive	Major M&R >= Critical	Major M&R < Critical	Total
2008	$304,000	$119,000	$62,546,000	$62,968,000
2009	$510,000	$0	$3,205,000	$3,716,000
2010	$556,000	$0	$565,000	$1,122,000
2011	$571,000	$0	$1,485,000	$2,057,000
2012	$647,000	$0	$814,000	$1,461,000
2013	$797,000	$0	$393,000	$1,190,000
2014	$1,019,000	$0	$256,000	$1,275,000
2015	$1,216,000	$0	$1,026,000	$2,242,000
2016	$1,520,000	$0	$32,000	$1,552,000
2017	$1,771,000	$0	$844,000	$2,615,000
Total	**$8,912,000**	**$119,000**	**$71,167,000**	**$80,198,000**

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

Tables, Figures Prepared by VVD, Checked by BX

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

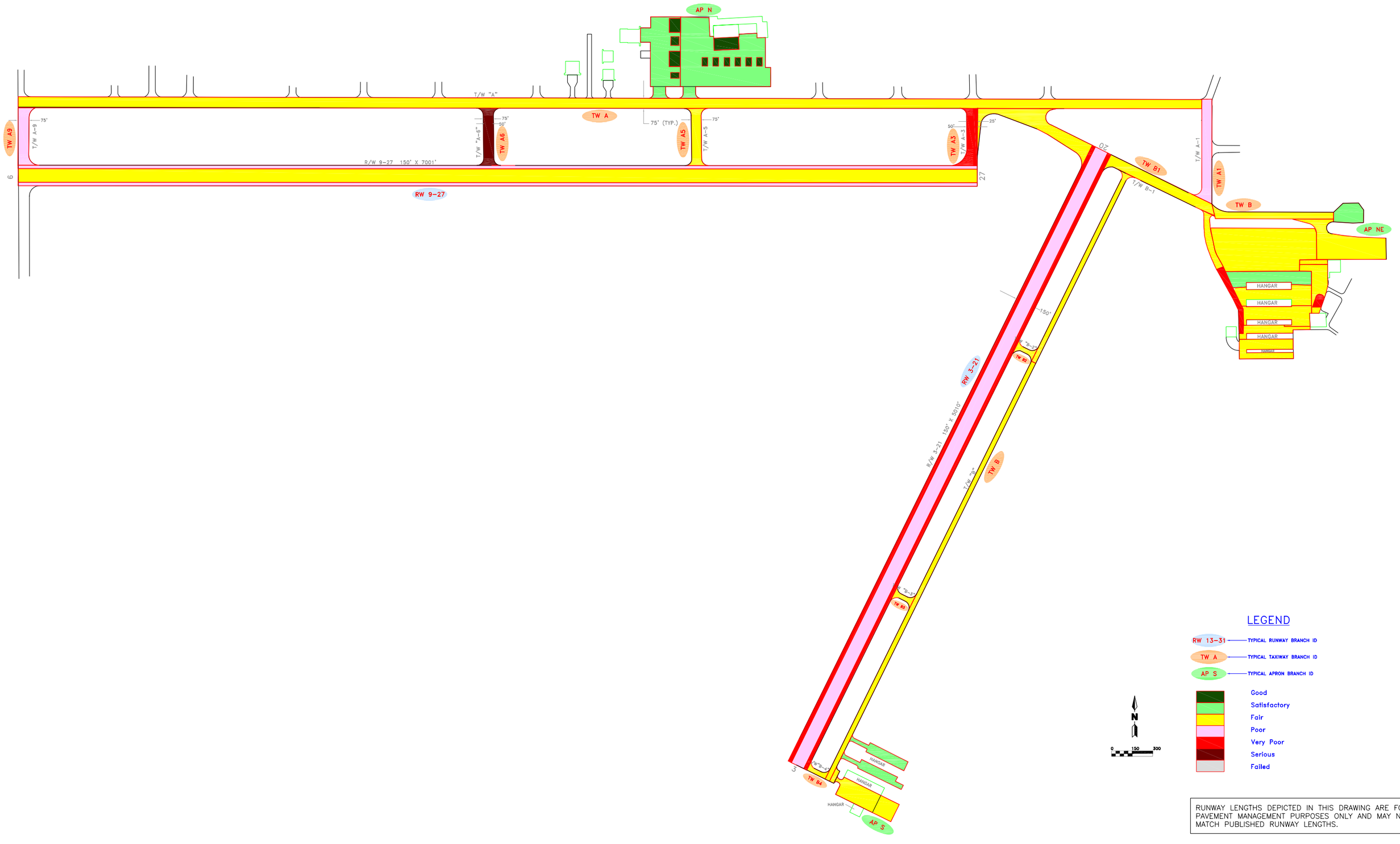
Pavement condition inspections were performed at airports participating in the program from District 7 and a 10-year M&R plan was developed based on the unlimited funding scenario.

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:

- BKV - Hernando County Airport: Runway 3-21, Runway 9-27, and Taxiway A
- CGC - Crystal River Airport: T-Hangar Apron
- CLW - Clearwater Airpark: Runway 16-34 and Taxiway A
- PIE - St. Petersburg-Clearwater International Airport: Runway 4-22 and Main Apron
- SPG - Albert Whitted Airport: Runway 6-24 and Runway 18-36
- X40 - Inverness Airport: None
- ZPH - Zephyrhills Municipal Airport: Runway 4-22 and Taxiway B

APPENDIX A

2006/2007 CONDITION MAPS



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

NUMBER	DATE	REVISIONS
1	Jan-28-08	Draft Report
0	Feb-06	Initial Submittal

DESIGNED: FL | DRAWN: GB | CHECKED: | DATE: 2-20-2006

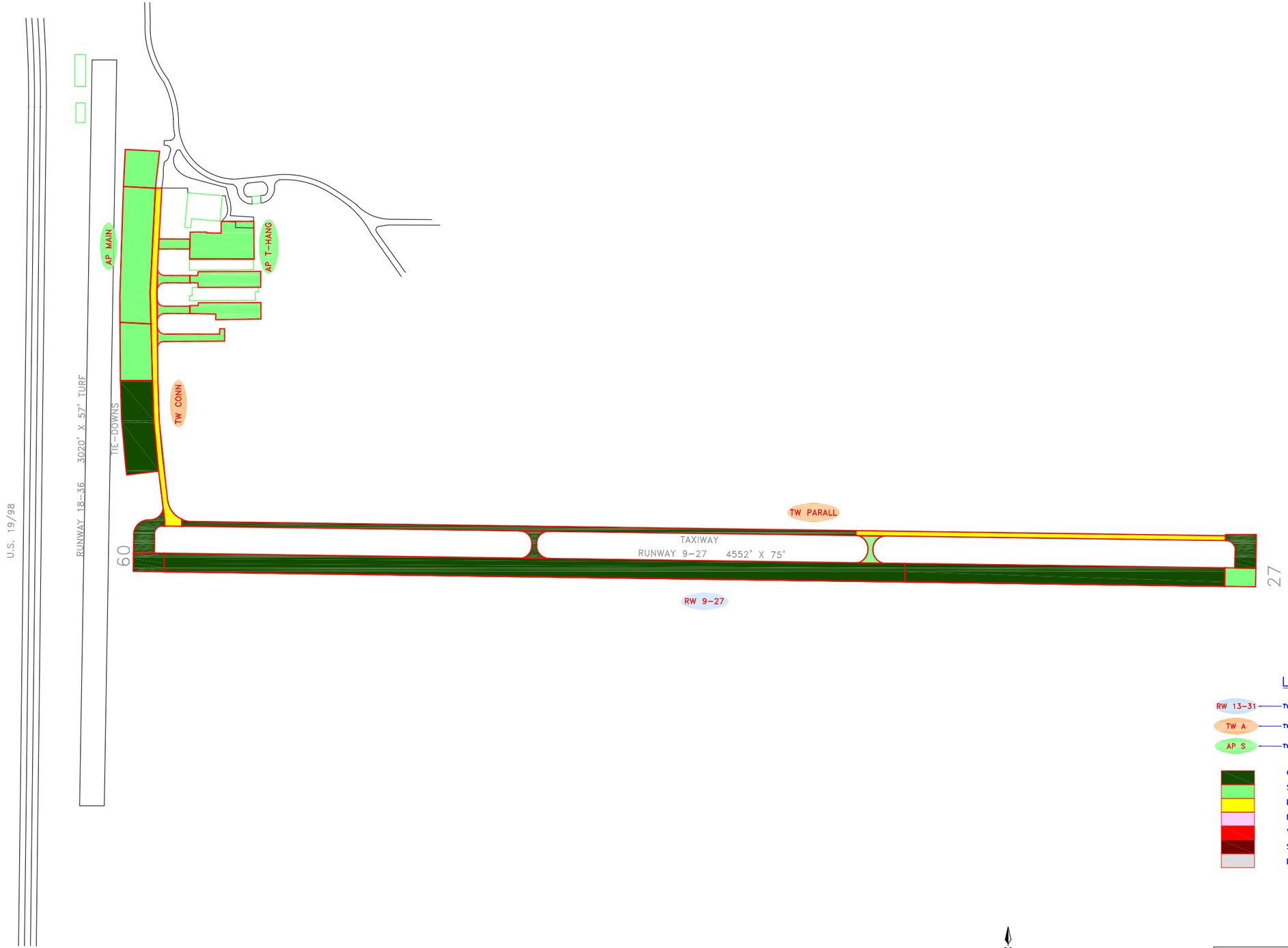
MACTEC
Engineering and Consulting, Inc.
Tallahassee, Florida
850-656-1293

2007 Condition Map

HERNANDO COUNTY AIRPORT
HERNANDO COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

IDENTIFIER: BKV
FDOT DISTRICT: 7



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 LENGHTS.

NUMBER	DATE	REVISIONS
0	Feb-06	Initial Submittal

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

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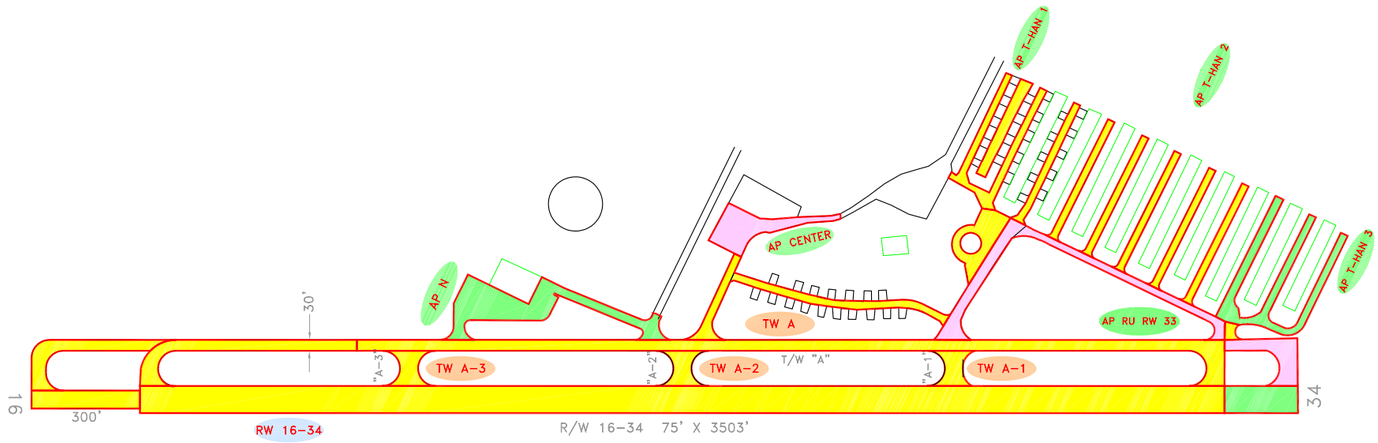
Tallahassee, Florida
850-656-1293

2006 Condition Map

CRYSTAL RIVER AIRPORT
CITRUS COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

IDENTIFIER: CGC
FDOT DISTRICT: 7



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

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
2	Feb-14	Draft Report
1	May-06	Revised per FDOT comments
0	Feb-06	Initial Submittal

DESIGNED: FL | DRAWN: BB | CHECKED: | DATE: 2-16-2006

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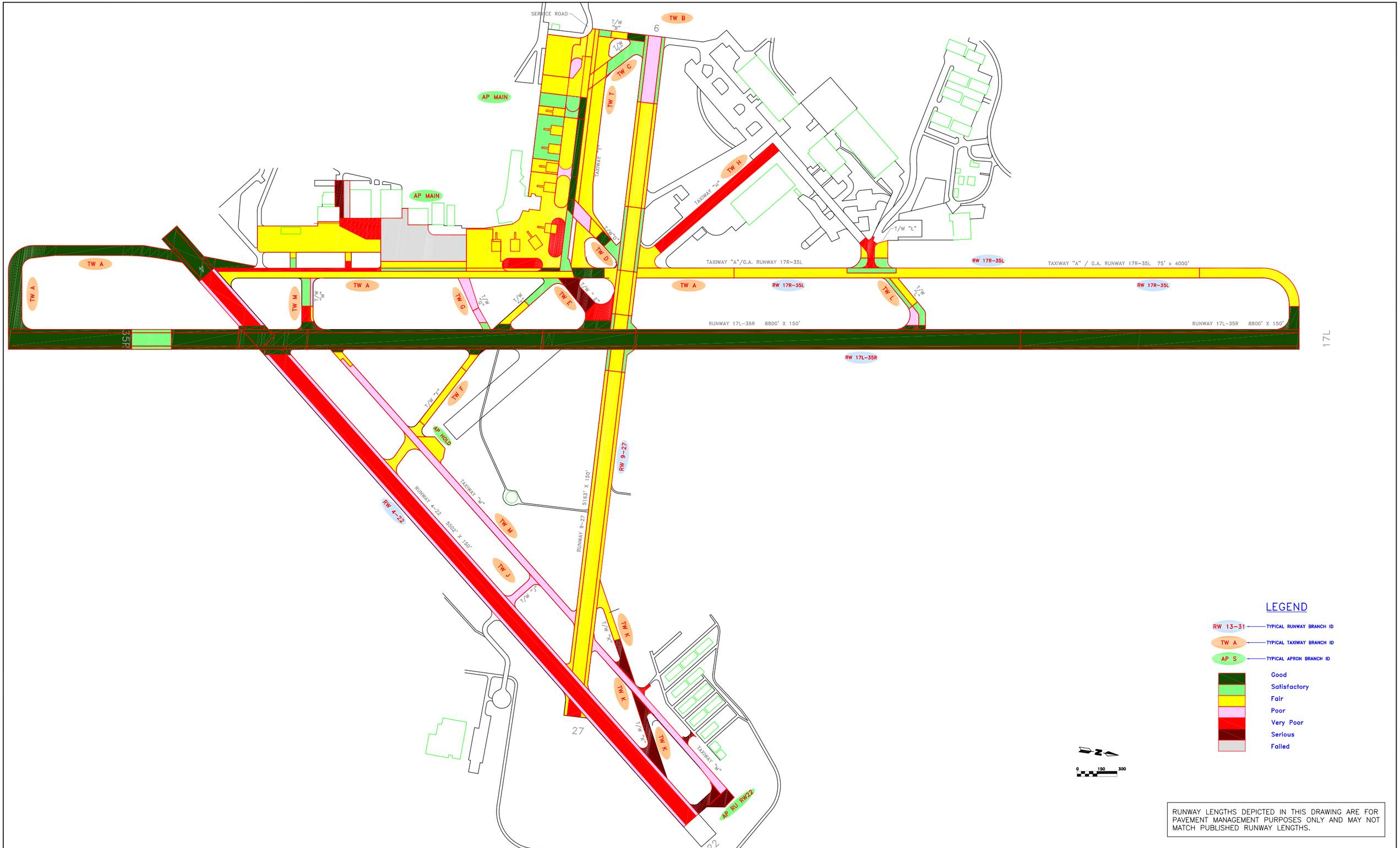
Engineering and Consulting, Inc.
Tallahassee, Florida
850-656-1293

2007 Condition Map

CLEARWATER AIRPARK
PINELLAS COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE | 14

IDENTIFIER: CLW | FDOT DISTRICT: 7



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

0 150 300

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

NUMBER	DATE	REVISIONS
1	Mar-11	Draft Report
0	Feb-06	Initial Submittal

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

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Tallahassee, Florida
850-656-1293

2008 Condition Map

ST. PETERSBURG-CLEARWATER INTERNATIONAL
ST. PETERSBURG/CLEARWATER, PINELLAS, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

IDENTIFIER PIE
FDOT DISTRICT 7

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

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	Feb-07-08	Draft Report
0	Feb-06	Initial Submittal

DESIGNED: FL | DRAWN: GB | CHECKED: | DATE: 2-15-2006

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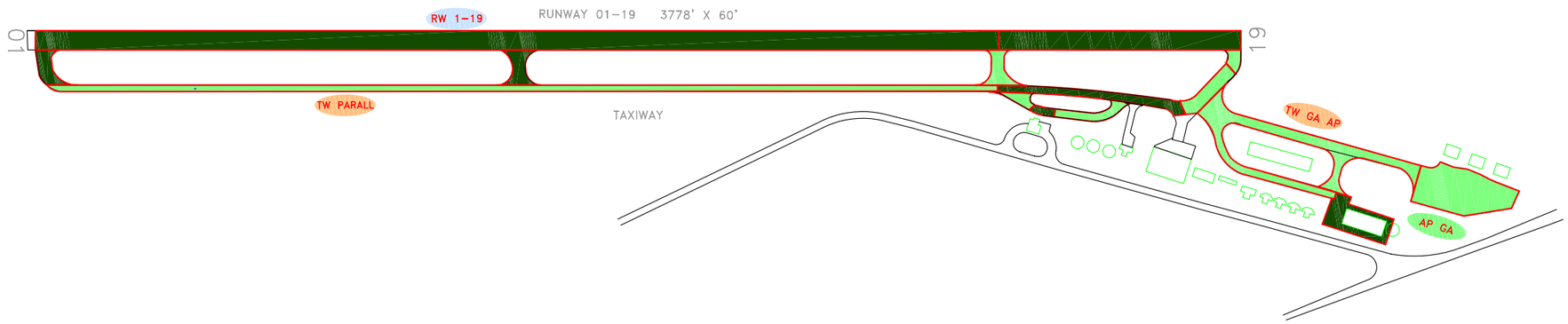
MACTEC
Engineering and Consulting, Inc.
Tallahassee, Florida
850-656-1293

2007 Condition Map

ALBERT WHITTED AIRPORT
PINELLAS COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE | 2

IDENTIFIER: SPG
FDOT DISTRICT: 7



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

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

0 100 200

NUMBER	DATE	REVISIONS
1	Mar-26	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

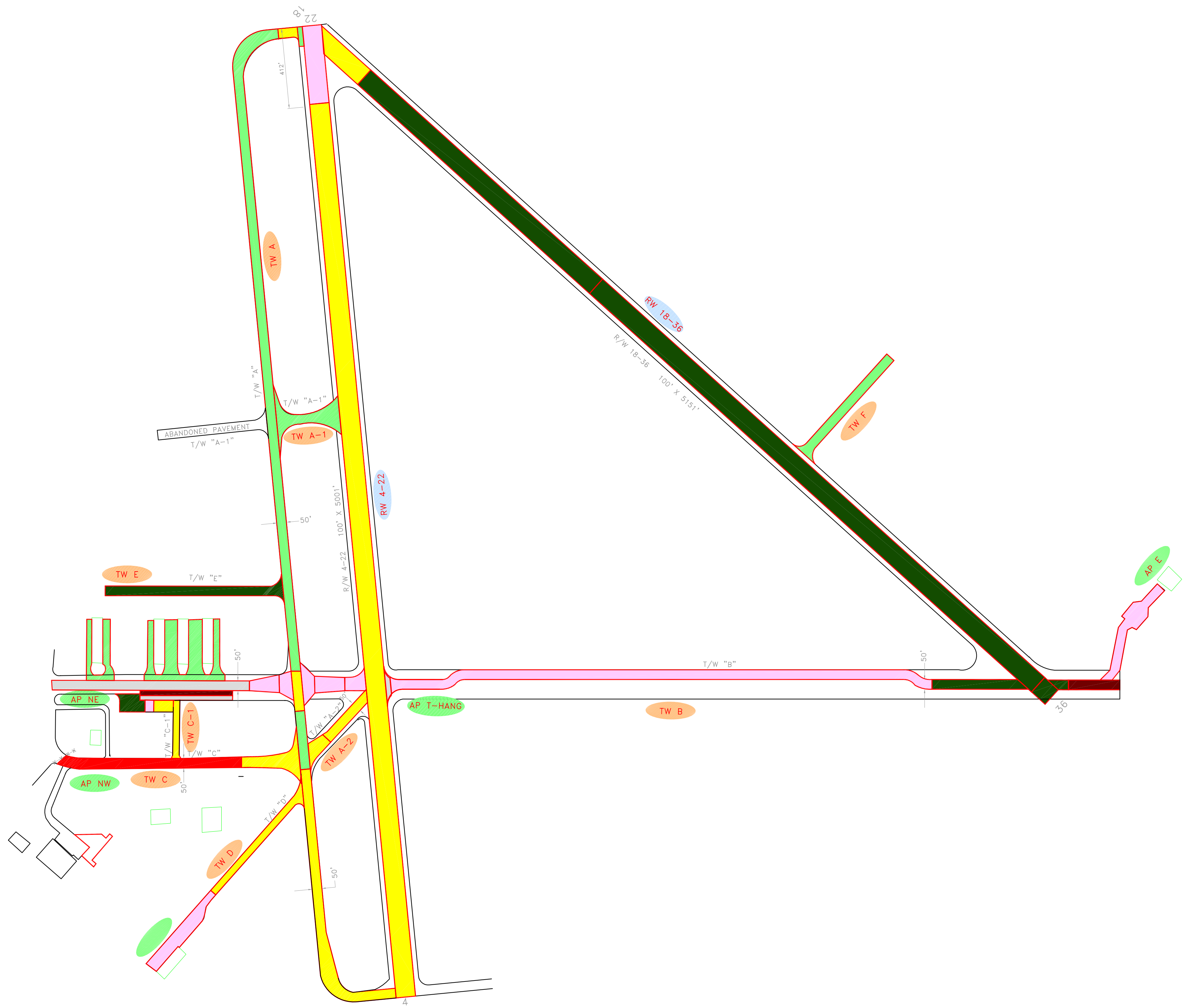
2006 PCI Condition Map

INVERNESS AIRPORT
CITRUS COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

IDENTIFIER: X40

FDOT DISTRICT: 7



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

0 150 300

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

NUMBER	DATE	REVISIONS
2	Feb-01-08	Draft Report
1	May-06	Revised per FDOT comments
0	Feb-06	Initial Submittal

DESIGNED: FL | DRAWN: GB | CHECKED: | DATE: 3-2-2006

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

2007 Condition Map

ZEPHYRHILLS MUNICIPAL AIRPORT PASCO COUNTY, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION - AVIATION OFFICE

96

IDENTIFIER: ZPH

FDOT DISTRICT: 7

APPENDIX B

MAJOR M&R PLAN

Table B-1: BKV 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
BKV	APRON	AP NE	4105	AC	38,500	2008	64	Microsurfacing	100	$89,628
BKV	APRON	AP NE	4110	AC	24,500	2008	61	Microsurfacing	100	$77,102
BKV	APRON	AP NE	4115	AC	36,000	2008	58	Microsurfacing	100	$143,784
BKV	APRON	AP NE	4120	AC	84,500	2008	61	Microsurfacing	100	$265,922
BKV	APRON	AP NE	4130	PCC	5,100	2008	37	PCC Restoration	100	$43,294
BKV	APRON	AP NE	4145	AC	96,250	2008	57	Microsurfacing	100	$412,046
BKV	APRON	AP NE	4147	AAC	14,000	2008	62	Microsurfacing	100	$40,236
BKV	APRON	AP S	4205	AC	3,600	2008	56	Microsurfacing	100	$16,445
BKV	RUNWAY	RW 3-21	6205	PCC	250,000	2008	25	Reconstruction	100	$3,405,001
BKV	RUNWAY	RW 3-21	6210	PCC	500,000	2008	52	PCC Restoration	100	$2,858,000
BKV	RUNWAY	RW 9-27	6105	PCC	350,000	2008	49	PCC Restoration	100	$2,201,500
BKV	RUNWAY	RW 9-27	6110	PCC	700,000	2008	55	PCC Restoration	100	$3,398,501
BKV	TAXIWAY	TW A	105	PCC	648,750	2008	56	PCC Restoration	100	$2,963,491
BKV	TAXIWAY	TW A	110	PCC	56,750	2008	40	PCC Restoration	100	$356,958
BKV	TAXIWAY	TW A	111	AAC	17,800	2008	62	Microsurfacing	100	$51,157
BKV	TAXIWAY	TW A	112	AC	18,200	2008	31	Mill & Overlay	100	$234,543
BKV	TAXIWAY	TW A	120	PCC	10,325	2008	27	Reconstruction	100	$140,627
BKV	TAXIWAY	TW A	125	AC	21,450	2008	36	Mill & Overlay	100	$197,812
BKV	TAXIWAY	TW A	130	PCC	32,533	2008	55	PCC Restoration	100	$157,948
BKV	TAXIWAY	TW A	135	AC	22,160	2008	18	Reconstruction	100	$301,819
BKV	TAXIWAY	TW A	140	PCC	33,000	2008	52	PCC Restoration	100	$188,628
BKV	TAXIWAY	TW A	145	AC	69,000	2008	64	Microsurfacing	100	$160,632
BKV	TAXIWAY	TW B	210	AC	118,125	2008	64	Microsurfacing	100	$274,995
BKV	TAXIWAY	TW B	215	PCC	60,750	2008	58	PCC Restoration	100	$242,636
BKV	TAXIWAY	TW B	216	AC	44,430	2008	58	Microsurfacing	100	$177,454
BKV	TAXIWAY	TW B	230	AC	8,315	2008	59	Microsurfacing	100	$30,824
BKV	APRON	AP NE	4140	AC	204,500	2009	63	Microsurfacing	100	$547,862
BKV	APRON	AP NE	4125	AAC	33,400	2010	64	Microsurfacing	100	$82,491
BKV	APRON	AP S	4210	AC	52,000	2010	64	Microsurfacing	100	$128,428

Table B-1: BKV 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
BKV	TAXIWAY	TW B	220	AC	8,758	2011	64	Microsurfacing	100	$22,279
BKV	TAXIWAY	TW B	225	AC	8,758	2011	63	Microsurfacing	100	$24,892
BKV	APRON	AP NE	4135	AC	62,500	2012	63	Microsurfacing	100	$182,966
BKV	TAXIWAY	TW B	205	AC	55,829	2012	64	Microsurfacing	100	$146,282
BKV	APRON	AP S	4220	AC	26,250	2013	64	Microsurfacing	100	$70,843
BKV	APRON	AP S	4215	AC	26,800	2014	64	Microsurfacing	100	$74,497

Table B-2: CGC 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
CGC	APRON	AP T-HANG	4205	AC	81,000	2008	70	Microsurfacing	100	$55,890
CGC	TAXIWAY	TW CONN	205	AC	30,800	2011	64	Microsurfacing	100	$78,351
CGC	TAXIWAY	TW PARALL	107	AC	45,000	2011	64	Microsurfacing	100	$114,474
CGC	APRON	AP MAIN	4115	AC	29,900	2012	64	Microsurfacing	100	$78,344
CGC	TAXIWAY	TW CONN	210	AC	21,315	2014	64	Microsurfacing	100	$59,250
CGC	TAXIWAY	TW PARALL	118	AC	7,392	2014	63	Microsurfacing	100	$22,958
CGC	APRON	AP MAIN	4105	AAC	68,750	2015	63	Microsurfacing	100	$219,925
CGC	RUNWAY	RW 9-27	6120	AC	9,000	2017	64	Microsurfacing	100	$27,338

Table B-3: CLW 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
CLW	APRON	AP CENTER	4405	AC	18,500	2008	48	Mill & Overlay	100	$140,785
CLW	APRON	AP CENTER	4410	AC	15,625	2008	63	Microsurfacing	100	$44,469
CLW	APRON	AP RU RW33	5105	AC	1,500	2008	62	Microsurfacing	100	$4,686
CLW	APRON	AP T-HAN 1	4305	AC	32,000	2008	64	Microsurfacing	100	$82,176
CLW	APRON	AP T-HAN 1	4310	AC	12,700	2008	63	Microsurfacing	100	$36,144
CLW	RUNWAY	RW 16-34	6110	AAC	225,000	2008	59	Microsurfacing	100	$916,425
CLW	RUNWAY	RW 16-34	6120	AC	15,000	2008	62	Microsurfacing	100	$46,860
CLW	TAXIWAY	TW A	110	AC	15,791	2008	63	Microsurfacing	100	$44,941
CLW	TAXIWAY	TW A	130	AC	28,000	2008	41	Mill & Overlay	100	$213,080
CLW	TAXIWAY	TW A	140	AC	12,000	2008	47	Mill & Overlay	100	$91,320
CLW	TAXIWAY	TW A-2	120	AAC	7,200	2008	55	Mill & Overlay	100	$40,644
CLW	TAXIWAY	TW A-3	125	AAC	7,200	2008	63	Microsurfacing	100	$20,491
CLW	TAXIWAY	TW A	105	AAC	78,750	2009	64	Microsurfacing	100	$208,297
CLW	APRON	AP T-HAN 2	4105	AC	36,000	2011	64	Microsurfacing	100	$101,020
CLW	RUNWAY	RW 16-34	6105	AC	15,000	2012	63	Microsurfacing	100	$48,048
CLW	TAXIWAY	TW A	135	AC	21,000	2012	63	Microsurfacing	100	$67,267
CLW	APRON	AP T-HAN 3	4205	AC	36,000	2015	64	Microsurfacing	100	$113,699
CLW	TAXIWAY	TW A-1	115	AAC	6,700	2015	64	Microsurfacing	100	$21,161

Table B-4: PIE 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
PIE	APRON	AP MAIN	4105	APC	62,500	2008	61	Microsurfacing	100	$246,687
PIE	APRON	AP MAIN	4112	AAC	9,000	2008	54	Mill & Overlay	100	$61,398
PIE	APRON	AP MAIN	4120	AAC	18,500	2008	64	Microsurfacing	100	$57,313
PIE	APRON	AP MAIN	4123	APC	45,000	2008	60	Microsurfacing	100	$190,350
PIE	APRON	AP MAIN	4145	APC	14,700	2008	63	Microsurfacing	100	$49,701
PIE	APRON	AP MAIN	4150	AAC	5,000	2008	45	Mill & Overlay	100	$42,750
PIE	APRON	AP MAIN	4155	AAC	171,950	2008	56	Microsurfacing	100	$1,024,477
PIE	APRON	AP MAIN	4160	AAC	21,600	2008	60	Microsurfacing	100	$91,368
PIE	APRON	AP MAIN	4162	AAC	25,050	2008	30	Reconstruction	100	$523,044
PIE	APRON	AP MAIN	4165	AAC	21,500	2008	38	Mill & Overlay	100	$236,844
PIE	APRON	AP MAIN	4170	AAC	65,700	2008	63	Microsurfacing	100	$222,132
PIE	APRON	AP MAIN	4175	PCC	165,000	2008	7	Reconstruction	100	$3,445,199
PIE	APRON	AP MAIN	4177	APC	32,500	2008	59	Microsurfacing	100	$151,515
PIE	APRON	AP MAIN	4180	AC	162,500	2008	58	Microsurfacing	100	$827,774
PIE	APRON	AP MAIN	4185	PCC	25,200	2008	38	PCC Restoration	100	$277,603
PIE	APRON	AP MAIN	4190	PCC	18,000	2008	15	Reconstruction	100	$375,840
PIE	APRON	AP MAIN	4195	PCC	12,375	2008	0	Reconstruction	100	$258,390
PIE	APRON	AP MAIN	4198	PCC	11,250	2008	32	PCC Restoration	100	$207,157
PIE	APRON	AP MAIN	4199	PCC	56,700	2008	62	PCC Restoration	100	$207,749
PIE	APRON	AP RU RW22	4305	AC	15,500	2008	18	Reconstruction	100	$323,640
PIE	RUNWAY	RW 17R-35L	6405	AAC	266,250	2008	61	Microsurfacing	100	$1,050,888
PIE	RUNWAY	RW 17R-35L	6410	AAC	14,500	2008	72	Microsurfacing	100	$18,560
PIE	RUNWAY	RW 4-22	6205	AAC	470,000	2008	27	Reconstruction	100	$9,813,598
PIE	RUNWAY	RW 4-22	6210	AAC	235,000	2008	45	Mill & Overlay	100	$2,009,249
PIE	RUNWAY	RW 4-22	6215	AAC	50,000	2008	38	Mill & Overlay	100	$550,800
PIE	RUNWAY	RW 4-22	6220	AAC	25,000	2008	51	Mill & Overlay	100	$202,950
PIE	RUNWAY	RW 9-27	6305	AC	7,250	2008	29	Reconstruction	100	$151,380
PIE	RUNWAY	RW 9-27	6310	AC	3,900	2008	61	Microsurfacing	100	$15,393
PIE	RUNWAY	RW 9-27	6315	AAC	235,000	2008	60	Microsurfacing	100	$994,049

Table B-4: PIE 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
PIE	RUNWAY	RW 9-27	6320	AAC	115,000	2008	64	Microsurfacing	100	$356,270
PIE	RUNWAY	RW 9-27	6325	AAC	28,500	2008	57	Microsurfacing	100	$157,491
PIE	RUNWAY	RW 9-27	6335	AAC	33,000	2008	55	Mill & Overlay	100	$210,870
PIE	RUNWAY	RW 9-27	6355	AAC	78,000	2008	64	Microsurfacing	100	$241,644
PIE	RUNWAY	RW 9-27	6365	AAC	50,000	2008	46	Mill & Overlay	100	$427,500
PIE	TAXIWAY	TW A	110	AAC	31,250	2008	39	Mill & Overlay	100	$305,719
PIE	TAXIWAY	TW A	117	AAC	2,250	2008	33	Mill & Overlay	100	$38,657
PIE	TAXIWAY	TW A	121	AAC	6,500	2008	61	Microsurfacing	100	$25,655
PIE	TAXIWAY	TW A	130	AAC	120,000	2008	60	Microsurfacing	100	$507,600
PIE	TAXIWAY	TW A	155	AAC	6,550	2008	56	Microsurfacing	100	$39,025
PIE	TAXIWAY	TW D	407	AAC	7,500	2008	64	Microsurfacing	100	$23,235
PIE	TAXIWAY	TW E	505	AAC	26,000	2008	31	Mill & Overlay	100	$510,822
PIE	TAXIWAY	TW E	510	AAC	27,700	2008	20	Reconstruction	100	$578,376
PIE	TAXIWAY	TW F	605	AAC	14,500	2008	58	Microsurfacing	100	$73,863
PIE	TAXIWAY	TW F	610	AAC	5,000	2008	59	Microsurfacing	100	$23,310
PIE	TAXIWAY	TW F	620	AAC	6,000	2008	58	Microsurfacing	100	$30,564
PIE	TAXIWAY	TW F	625	AAC	9,150	2008	60	Microsurfacing	100	$38,704
PIE	TAXIWAY	TW G	705	AAC	5,750	2008	48	Mill & Overlay	100	$49,162
PIE	TAXIWAY	TW G	710	AAC	13,750	2008	50	Mill & Overlay	100	$117,562
PIE	TAXIWAY	TW H	810	AC	88,500	2008	29	Reconstruction	100	$1,847,880
PIE	TAXIWAY	TW J	1005	AC	16,300	2008	43	Mill & Overlay	100	$139,365
PIE	TAXIWAY	TW K	1105	AC	25,500	2008	61	Microsurfacing	100	$100,648
PIE	TAXIWAY	TW K	1110	AAC	15,600	2008	16	Reconstruction	100	$325,728
PIE	TAXIWAY	TW K	1115	AAC	34,000	2008	24	Reconstruction	100	$709,920
PIE	TAXIWAY	TW K	1120	AC	1,600	2008	31	Mill & Overlay	100	$31,435
PIE	TAXIWAY	TW K	1125	AC	2,143	2008	23	Reconstruction	100	$44,746
PIE	TAXIWAY	TW L	1205	AC	18,250	2008	60	Microsurfacing	100	$77,197
PIE	TAXIWAY	TW L	1210	AC	12,000	2008	32	Mill & Overlay	100	$220,968
PIE	TAXIWAY	TW L	1220	AAC	4,125	2008	29	Reconstruction	100	$86,130

Table B-4: PIE 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
PIE	TAXIWAY	TW L	1230	AAC	13,000	2008	66	Microsurfacing	100	$32,916
PIE	TAXIWAY	TW L	1235	AAC	8,900	2008	41	Mill & Overlay	100	$76,095
PIE	TAXIWAY	TW L	1240	AAC	8,850	2008	72	Microsurfacing	100	$11,328
PIE	TAXIWAY	TW M	1310	AAC	6,825	2008	25	Reconstruction	100	$142,506
PIE	TAXIWAY	TW M	1315	AAC	7,190	2008	40	Mill & Overlay	100	$61,474
PIE	TAXIWAY	TW M	1320	AAC	3,000	2008	64	Microsurfacing	100	$9,294
PIE	TAXIWAY	TW M	1325	AC	212,000	2008	42	Mill & Overlay	100	$1,812,599
PIE	TAXIWAY	TW M	1330	AC	15,600	2008	17	Reconstruction	100	$325,728
PIE	TAXIWAY	TW T	2050	AC	135,000	2008	62	Microsurfacing	100	$494,640
PIE	TAXIWAY	TW T	2065	AAC	13,500	2008	52	Mill & Overlay	100	$103,761
PIE	APRON	AP MAIN	4103	AAC	15,000	2009	62	Microsurfacing	100	$56,609
PIE	APRON	AP MAIN	4110	AAC	12,500	2009	64	Microsurfacing	100	$39,887
PIE	APRON	AP MAIN	4115	APC	27,000	2009	63	Microsurfacing	100	$94,026
PIE	APRON	AP MAIN	4140	AAC	34,000	2009	62	Microsurfacing	100	$128,313
PIE	RUNWAY	RW 9-27	6345	AAC	49,500	2009	64	Microsurfacing	100	$157,951
PIE	TAXIWAY	TW M	1327	AAC	5,331	2009	64	Microsurfacing	100	$17,011
PIE	APRON	AP MAIN	4102	APC	10,000	2010	62	Microsurfacing	100	$38,871
PIE	APRON	AP MAIN	4132	AAC	7,700	2010	62	Microsurfacing	100	$29,931
PIE	TAXIWAY	TW A	123	AAC	6,875	2010	64	Microsurfacing	100	$22,596
PIE	TAXIWAY	TW F	615	AAC	25,750	2010	64	Microsurfacing	100	$84,632
PIE	APRON	AP MAIN	4130	AAC	10,000	2011	64	Microsurfacing	100	$33,853
PIE	APRON	AP MAIN	4135	APC	52,400	2011	63	Microsurfacing	100	$193,592
PIE	RUNWAY	RW 9-27	6340	AAC	16,500	2011	64	Microsurfacing	100	$55,857
PIE	RUNWAY	RW 9-27	6360	AAC	38,000	2011	63	Microsurfacing	100	$140,391
PIE	TAXIWAY	TW A	115	AAC	135,200	2011	63	Microsurfacing	100	$499,497
PIE	TAXIWAY	TW H	805	AAC	21,000	2011	63	Microsurfacing	100	$77,585
PIE	TAXIWAY	TW T	2060	AAC	13,500	2011	64	Microsurfacing	100	$45,701
PIE	APRON	AP MAIN	4122	AAC	24,000	2012	64	Microsurfacing	100	$83,684
PIE	APRON	AP MAIN	4125	APC	20,000	2012	62	Microsurfacing	100	$82,477

Table B-4: PIE 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
PIE	APRON	AP MAIN	4142	AAC	5,000	2012	62	Microsurfacing	100	$20,619
PIE	APRON	AP HOLD	4205	AC	20,000	2013	64	Microsurfacing	100	$71,829
PIE	RUNWAY	RW 9-27	6370	AAC	25,000	2013	63	Microsurfacing	100	$97,988
PIE	TAXIWAY	TW B	205	AC	6,250	2013	64	Microsurfacing	100	$22,446
PIE	TAXIWAY	TW C	305	AAC	26,250	2013	64	Microsurfacing	100	$94,275
PIE	TAXIWAY	TW A	114	AC	1,935	2014	64	Microsurfacing	100	$7,158
PIE	TAXIWAY	TW A	119	AC	3,150	2014	64	Microsurfacing	100	$11,652
PIE	TAXIWAY	TW L	1225	AAC	7,500	2014	63	Microsurfacing	100	$30,278
PIE	TAXIWAY	TW T	2055	AAC	5,000	2014	63	Microsurfacing	100	$20,185
PIE	RUNWAY	RW 9-27	6350	AAC	25,500	2015	64	Microsurfacing	100	$97,159
PIE	TAXIWAY	TW A	112	AAC	3,465	2016	64	Microsurfacing	100	$13,598
PIE	APRON	AP MAIN	4117	AAC	8,250	2017	64	Microsurfacing	100	$33,348
PIE	APRON	AP MAIN	4118	AAC	5,000	2017	64	Microsurfacing	100	$20,211
PIE	TAXIWAY	TW A	120	APC	16,250	2017	63	Microsurfacing	100	$71,686

Table B-5: SPG 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
SPG	APRON	AP	4120	AAC	54,506	2008	61	Microsurfacing	100	$185,429
SPG	APRON	AP	4145	AC	14,777	2008	37	Mill & Overlay	100	$161,040
SPG	RUNWAY	RW 18-36	6105	AAC	286,000	2008	59	Microsurfacing	100	$1,164,878
SPG	RUNWAY	RW 6-24	6207	AC	24,450	2008	27	Reconstruction	100	$454,036
SPG	RUNWAY	RW 6-24	6210	AC	187,050	2008	58	Microsurfacing	100	$835,366
SPG	RUNWAY	RW 6-24	6212	AC	6,400	2008	51	Mill & Overlay	100	$46,189
SPG	TAXIWAY	TW A	105	AAC	15,000	2008	59	Microsurfacing	100	$61,095
SPG	TAXIWAY	TW A	110	AAC	19,000	2008	59	Microsurfacing	100	$77,387
SPG	TAXIWAY	TW B	215	AC	3,704	2008	31	Mill & Overlay	100	$64,724
SPG	TAXIWAY	TW B	251	AAC	3,096	2008	47	Mill & Overlay	100	$23,561
SPG	TAXIWAY	TW B	253	AAC	2,662	2008	48	Mill & Overlay	100	$20,258
SPG	TAXIWAY	TW B	254	AC	3,256	2008	43	Mill & Overlay	100	$24,778
SPG	TAXIWAY	TW B	255	AC	1,500	2008	36	Mill & Overlay	100	$17,991
SPG	TAXIWAY	TW B1	150	AC	5,130	2008	63	Microsurfacing	100	$14,600
SPG	TAXIWAY	TW C	301	AAC	5,000	2008	48	Mill & Overlay	100	$38,050
SPG	TAXIWAY	TW C	305	AC	87,000	2008	38	Mill & Overlay	100	$852,774
SPG	TAXIWAY	TW C	307	AAC	12,500	2008	63	Microsurfacing	100	$35,575
SPG	TAXIWAY	TW C	310	AAC	22,200	2008	41	Mill & Overlay	100	$168,942
SPG	TAXIWAY	TW C	315	AAC	1,900	2008	11	Reconstruction	100	$35,283
SPG	TAXIWAY	TW CONN C	605	AC	25,600	2008	22	Reconstruction	100	$475,392
SPG	TAXIWAY	TW CONN C	609	AC	1,370	2008	40	Mill & Overlay	100	$10,426
SPG	TAXIWAY	TW CONN C	610	AAC	8,400	2008	36	Mill & Overlay	100	$100,750
SPG	RUNWAY	RW 18-36	6110	AAC	143,000	2009	64	Microsurfacing	100	$378,241
SPG	RUNWAY	RW 6-24	6205	AC	18,800	2009	63	Microsurfacing	100	$55,110
SPG	TAXIWAY	TW A	115	AAC	60,800	2010	64	Microsurfacing	100	$165,643
SPG	RUNWAY	RW 6-24	6215	AC	31,500	2011	63	Microsurfacing	100	$97,962
SPG	TAXIWAY	TW B	206	APC	2,400	2013	64	Microsurfacing	100	$7,145
SPG	TAXIWAY	TW B1	155	AC	9,653	2014	64	Microsurfacing	100	$29,598
SPG	TAXIWAY	TW A	160	AC	2,214	2015	64	Microsurfacing	100	$6,993
SPG	TAXIWAY	TW B	256	AAC	2,504	2015	64	Microsurfacing	100	$7,908
SPG	APRON	AP	4135	AAC	90,000	2017	63	Microsurfacing	100	$334,205

Table B-6: X40 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
X40	APRON	AP GA	4005	AC	40,000	2012	64	Microsurfacing	100	$104,807
X40	TAXIWAY	TW PARALL	125	AAC	10,400	2013	64	Microsurfacing	100	$28,067
X40	TAXIWAY	TW PARALL	120	AAC	5,393	2015	64	Microsurfacing	100	$15,441
X40	TAXIWAY	TW PARALL	130	AC	6,250	2016	64	Microsurfacing	100	$18,432
X40	TAXIWAY	TW GA AP	205	AC	43,000	2017	64	Microsurfacing	100	$130,613
X40	TAXIWAY	TW PARALL	105	AAC	60,000	2017	64	Microsurfacing	100	$182,251
X40	TAXIWAY	TW PARALL	126	AAC	3,478	2017	64	Microsurfacing	100	$10,564

Table B-7: ZPH 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
ZPH	APRON	AP E	5405	PCC	33,600	2008	41	PCC Restoration	100	$211,344
ZPH	APRON	AP NE	5105	AC	12,825	2008	12	Reconstruction	100	$174,677
ZPH	APRON	AP NE	5110	AC	12,825	2008	0	Reconstruction	100	$174,677
ZPH	APRON	AP NW	4105	PCC	2,112	2008	52	PCC Restoration	100	$12,072
ZPH	APRON	AP TW D	5205	AC	28,800	2008	49	Mill & Overlay	100	$181,152
ZPH	RUNWAY	RW 18-36	6215	PCC	28,000	2008	58	PCC Restoration	100	$111,832
ZPH	RUNWAY	RW 4-22	6110	PCC	41,200	2008	53	PCC Restoration	100	$223,675
ZPH	TAXIWAY	TW A	120	AAC	3,011	2008	60	Microsurfacing	100	$10,298
ZPH	TAXIWAY	TW A-2	310	AAC	9,500	2008	62	Microsurfacing	100	$27,303
ZPH	TAXIWAY	TW B	205	AC	52,450	2008	1	Reconstruction	100	$714,369
ZPH	TAXIWAY	TW B	210	AAC	140,000	2008	46	Mill & Overlay	100	$880,600
ZPH	TAXIWAY	TW B	212	AAC	17,600	2008	42	Mill & Overlay	100	$110,704
ZPH	TAXIWAY	TW B	215	AAC	8,000	2008	45	Mill & Overlay	100	$50,320
ZPH	TAXIWAY	TW B	230	PCC	14,250	2008	14	Reconstruction	100	$194,085
ZPH	TAXIWAY	TW B	235	AAC	2,280	2008	0	Reconstruction	100	$31,054
ZPH	TAXIWAY	TW C	320	AC	48,250	2008	38	Mill & Overlay	100	$374,227
ZPH	TAXIWAY	TW C-1	505	AC	10,325	2008	58	Microsurfacing	100	$41,238
ZPH	TAXIWAY	TW D	405	AC	25,200	2008	63	Microsurfacing	100	$65,545
ZPH	RUNWAY	RW 4-22	6105	AAC	459,000	2009	63	Microsurfacing	100	$1,229,676
ZPH	TAXIWAY	TW A	105	AAC	68,000	2009	63	Microsurfacing	100	$182,174
ZPH	TAXIWAY	TW A	107	AAC	7,500	2009	64	Microsurfacing	100	$17,984
ZPH	TAXIWAY	TW A-2	305	AAC	13,350	2009	64	Microsurfacing	100	$32,011
ZPH	TAXIWAY	TW C	315	AAC	22,500	2009	63	Microsurfacing	100	$60,278
ZPH	APRON	AP NW	4110	AC	4,600	2010	63	Microsurfacing	100	$12,693
ZPH	TAXIWAY	TW A	110	AC	190,000	2015	64	Microsurfacing	100	$543,998
ZPH	RUNWAY	RW 18-36	6220	AAC	10,000	2017	63	Microsurfacing	100	$33,937