

XIII Seminario ALACPA de Pavimentos Aeroportuarios
XI Taller Federal Aviation Administration
VI Curso Rápido de Mantenimiento
de Pavimentos de Aeródromos
29/11 al 02/12 2016 – Ciudad de Panamá - Panamá



PCI Calculations using Software

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MicroPaver Example

Full featured MicroPAVER was funded by the Army, Air Force and FAA

Used at the local, regional and federal levels

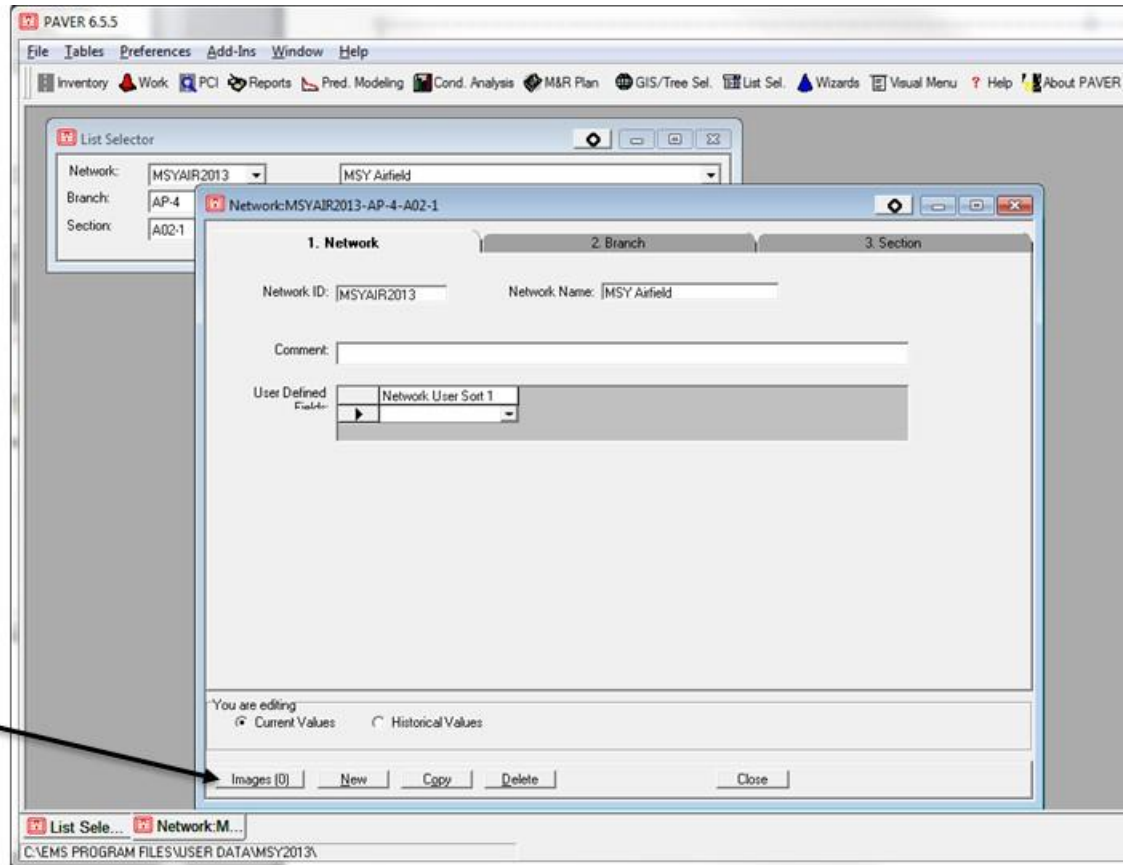
Used on roads and airfields

De facto PMS standard

Why so popular?

- DoD support
- Free software (not any more)

Network Definition Screen



Inventory Actions-Used
to add images and to
create new, copy
existing, or delete
Networks, Branches,
and Sections



Branch Definition Screen

PAVER 6.5.5

File Tables Preferences Add-Ins Window Help

Inventory Work PCI Reports Pred. Modeling Cond. Analysis M&R Plan GIS/Tree Sel. List Sel. Wizards Visual Menu Help About PAVER

List Selector

Network: MSYAIR2013 MSY Airfield

Branch: AP-4

Section: A02-1

Network:MSYAIR2013-AP-4-A02-1

1. Network 2. Branch 3. Section

Branch ID: AP-4 Branch Name: Ramp 4

Branch Use: APRDN Number of Sections in Branch: 4.00

Length (Sum of Sections): 1,025.00 Width (Avg. of Sections): 275.25 Ft

Calc. Area (Sum of Sections): 348,238.00 Area Adjustment: 0.00 True Area: 348,238.00 SqFt

Comment:

User Defined Fields:

Branch User Sort 1	Branch User Sort 3

You are editing
 Current Values Historical Values

Images (0) New Copy Delete Close

List Sele... Network:M...

C:\VEMS PROGRAM FILES\USER DATA\MSY2013\



Section Definition Screen

PAVER 6.5.5

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GIS/Tree Sel. List Sel. Wizards Visual Menu Help About PAVER

Network:MSYAIR2013-AP-4-A02-1

1. Network 2. Branch 3. Section

Properties Conditions / Families

Section ID: A02-1 From: A02-3 To: A03-2

Surface Type: PCC Rank: S Last Constr. Date: 1/1/1994
 Date was back-calculated

Length: 630.00 Width: 460.00 Ft True Area: 290,736.00 SqFt
 Calculate

Calc. Area: 289,800.00 Area Adjustment: 936.00 SqFt
 Calculate

Slab Length (Typ): 25.00 Width: 25.00 Ft

Total Slabs: 465.00 Joint Length: 22,094.00 Ft

Category: Zone: Lanes/ Spaces: 0

Shoulder: Street Type: Grade: 0

Comment:

User Defined Fields:

Section User	Section User	Section User	CATCODE	FACILITY NUMBER	SITE ID

You are editing
 Current Values Historical Values

Images (0) New Copy Delete Close

List Sele... Network:M...
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Sample Units

Creates
Sample Units

Enter Sample
Size

Summary data at time of inspection

Branch Use: APRON Section Length: 630 Ft. Surface Type: PCC Section True Area: 290,736 SqFt Section Width: 460 Ft

Inspection Date: 2/28/2013

Sample Unit: 02

Sample Unit Size: 20.00 Slabs

Distress Type

- 61 BLOW-UP
- 62 CORNER BREAK
- 63 LINEAR CR
- 64 DURABL. CR
- 65 JT SEAL DMG
- 66 SMALL PATCH
- 67 LARGE PATCH
- 68 POPOUTS
- 69 PUMPING
- 70 SCALING
- 71 FAULTING
- 72 SHAT. SLAB
- 73 SHRINKAGE CR
- 74 JOINT SPALL
- 75 CORNER SPALL
- 76 ASR

Distress Severity: Low Medium High N/A

Distress Quantity: 20 Slabs

Distress	Description	Severity	Quantity	Unit
65	JOINT SEAL	M	20	Slab
74	JOINT	L	1	Slab
74	JOINT	M	1	Slab
75	CORNER	L	1	Slab

Enter Sample
Number

Enter
Additional
Comments



Construction History

Work

Construction Date

Work Type

Construction Material

PAVER 6.5.5

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List Selector

Network: MSYAIR2013 MSY Airfield

Branch: AP-4 Ramp 4

MSYAIR2013-AP-4-A02-1

Work

History

Date	Project	Phase	Work	Work Code	Quantity	Quantity Units	Cost	Material Type	Material Code	Thickness	Thickness Units	Comments
1/1/1994			New Construction - Initial (Major MR)	NU-IN		5 sqft	\$0.00				in	

New Delete Close

List Sele... MSYAIR2...

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Entering Data into MicroPAVER

Data must be entered into MicroPAVER in a systematic manner

Have all data ready when new data or changes are made

MicroPAVER automatically saves any data changes

In order to protect the database, first use the Pavement Management Tool to export the database; the exported version can be later imported if necessary

Changes to maintenance policies, budgets, and M&R cost tables are easiest made by renaming existing tables and then making changes



Inspection Data Entry

Sample unit identification

Distress entry

Define inspections

Calculate Condition

PAVER 6.5.5

File Tables Preferences Add-Ins Window Help

Inventory Work PCI Reports Pred. Modeling Cond. Analysis M&R Plan

GIS/Tree Sel. List Sel. Wizards Visual Menu Help About PAVER

List Selector

Network: MSYAIR2013 MSY Airfield

Branch: AP-4 Ramp 4

Section: A02-1 From: A02-3 To: A03-2

PCI:MSYAIR2013-AP-4-A02-1

Summary data at time of inspection

Branch Use: APRON Section Surface Type: PCC Section True Area: 290,736 SqFt

Section Length: 630 Ft Section Width: 460 Ft

Inspection Date: 2/28/2013 Edit Inspections Detailed Inspection Comments Calculate Conditions

Sample Unit: 02 Edit Sample Units

Sample Unit Size: 20.00 Slabs No distresses found during inspection. Remaining Samples Have No Distress

Distress Type

61 BLOW-UP 66 SMALL PATCH 71 FAULTING 76 ASR

62 CORNER BREAK 67 LARGE PATCH 72 SHAT. SLAB

63 LINEAR CR 68 POPOUTS 73 SHRINKAGE CR

64 DURABIL. CR 69 PUMPING 74 JOINT SPALL

65 JOINT SEAL DMG 70 SCALING 75 CORNER SPALL

Distress Severity Low Medium High N/A

Distress Quantity 20 Slabs

Distress	Description	Severity	Quantity	Unit
65	JOINT SEAL	M	20	Sla
74	JOINT	L	1	Sla
74	JOINT	M	1	Sla
75	CORNER	L	1	Sla

Previous Sample Unit Next Sample Unit Smp Images (0)

Insp Images (0) Close

List Sele... PCI:MSYA...

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Online User Guide

PAVER 6.5.5

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List Selector

Network: MSYAIR2013 MSY Airfield

PCMSYAIR2013-AP-4-A02-1

Summary data at time of inspection

Branch Use: APRON Section Sur Section Len

Inspection Date: 2/28/2013

Sample Unit: 02

Sample Unit Size: 20.00 Slabs

Distress Type

- 61 BLOW-UP
- 62 CORNER BREAK
- 63 LINEAR CR
- 64 DURABIL CR
- 65 JT SEAL DMG
- 66 S
- 67 L
- 68 P
- 69 S
- 70 S

Distress Severity

Low Medium High

Distress	Description
65	JOINT SEA
74	JOINT
74	JOINT
75	CORNER

Previous Sample Unit Next Sample

Insp Images (0)

List Sele... PCI:MSYA...

C:\VMS PROGRAM FILES\USER DATA\MSY2013

Distress Help

JOINT SEAL DAMAGE (65)

Description

Joint seal damage is any condition which enables soil or rocks to accumulate in the joints or allows significant infiltration of water. Accumulation of incompressible materials prevents the slabs from expanding and may result in buckling, shattering, or spalling. A pliable joint filler bonded to the edges of the slabs protects the joints from accumulation of materials and also prevents water from seeping down and softening the foundation supporting the slab. Typical types of joint seal damage are (a) stripping of joint sealant, (b) extrusion of joint sealant, (c) weed growth, (d) hardening of the filler (oxidation), (e) loss of bond to the slab edges, and (f) lack or absence of sealant in the joint.

Severity Levels

- L** Joint sealer is in generally good condition throughout the section. Sealant is performing well, with only a minor amount of any of the above types of damage present.
- M** Joint sealer is in generally fair condition over the entire surveyed section, with one or more of the above types of damage occurring to a moderate degree. Sealant needs replacement within 2 years.

LOW

MEDIUM

OK



PCI Results

Displays all section data calculated for PCI

Summary data at time of inspection

Branch Use: APRON Section Surface Type: PCC Section True Area: 290,736 SqFt
 Section Length: 630 Ft Section Width: 460 Ft

Inspection Date: 2/28/2013 **Calculate Conditions**

Sample Unit: Sample Unit Size:

Distress Type

- 81 BLOW-UP
- 82 CORNER
- 83 LINEAR CR
- 84 DURABL
- 65 JT SEAL

Distress Severity

- Low
- High

Assessment Results

Network ID: MSYAIR2013 Branch ID: AP-4 Branch Name: Ramp 4 Section Area: 290,736 SqFt
 Section ID: A02-1 Section Length: 630 Ft Section Width: 460 Ft

Index: PCI Date: 2/28/2013 Condition: 90 **Good** Std Dev.: 6.71

Condition Indices | Sample Distresses | Sample Conditions | Section Extrapolated Distresses

Distress	Description	Severity	Quantity	Units
63	LINEAR CR	L	1.4	Slabs
65	JT SEAL DMG	M	181.5	Slabs
65	JT SEAL DMG	L	283.5	Slabs
66	SMALL PATCH	L	2.8	Slabs
67	LARGE PATCH	M	2.8	Slabs
70	SCALING	L	1.4	Slabs
71	FAULTING	L	2.8	Slabs

Distress Classification (percent of extrapolated distress deduct)

Load **6** Climate **48** Other **46**

Print Close

Tabs display data for Section Condition, Sample Distresses, Sample Conditions, and Section Extrapolated Distresses



Section Condition Report

The screenshot shows the PAVER 6.5.5 software interface. The 'Reports' menu is open, and the 'PAVER Standard Reports' dialog box is displayed. In this dialog, the 'Section Condition Report' option is selected. The 'Methods' list includes 'FOD' and 'IRI', with 'PCI' selected in the 'Selected' list. Below the dialog, the main report window is visible, showing a table titled 'Section Condition Report' for the date 3/31/2005. The report is for 'Pavement Database: NetworkID: Kadena04' and is page 1 of 9. The table contains one data row for 'Apron K/G (Taxiways K & G)' with a PCI value of 3.00.

Branch and Section

Sections in Report

Branch ID	Section ID	Last Const. Date	Surface	Use	Rank	Lanes	True Area (SqFt)	Last Inspection Date	Age At Inspection	PCI
Apron K/G (Taxiways K & G)	A39B	06/01/1958	PCC	APRON	P	0	14,240.45	07/17/2004	46	3.00



QUESTIONS?

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