

Introduction to Micro PAVER V4.1

August 1998

Micro PAVER

Developed by:

The U.S. Army Construction
Engineering Research
Laboratories (CERL)

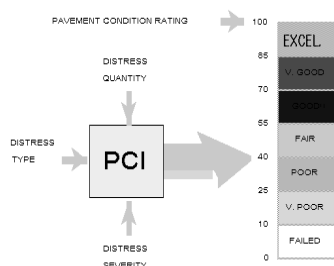
**Micro PAVER has been developed
and is continuously being upgraded
through funding by:**

- U.S. Army 
- U.S. Navy 
- U.S. Air Force 
- Federal Aviation Administration (FAA) 
- Federal Highway Administration (FHWA) 

Micro PAVER

- Is a pavement management system
- Provides a consistent method for pavement condition rating
- A tool for determining M&R needs and priorities
- Calculates optimal time for repair by predicting future pavement condition.

Pavement Condition Index (PCI) Concept

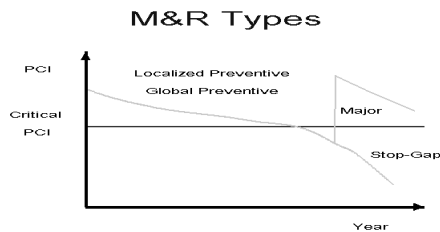


The PCI is used in Micro PAVER for pavement condition rating. It is determined based on existing distresses in the pavement. It agrees closely with the collective judgment of experienced pavement maintenance engineers.

ASTM Standard D 5340

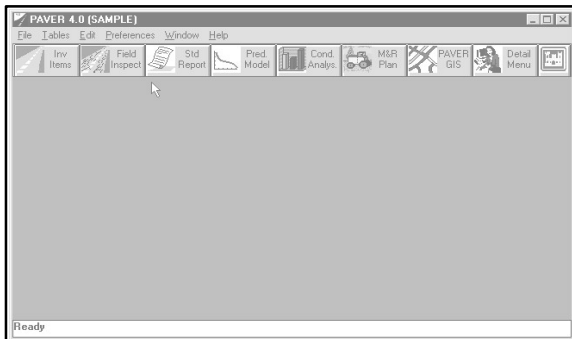
ASTM adopted the PCI as a condition standard for Airfield condition rating

By performing preventive maintenance while the pavement is still above the critical PCI, we avoid the high cost of reconstruction associated with increasing rates of deterioration at the end of a pavement's life cycle. The critical PCI concept is used to generate Work Plans and perform budget analysis.

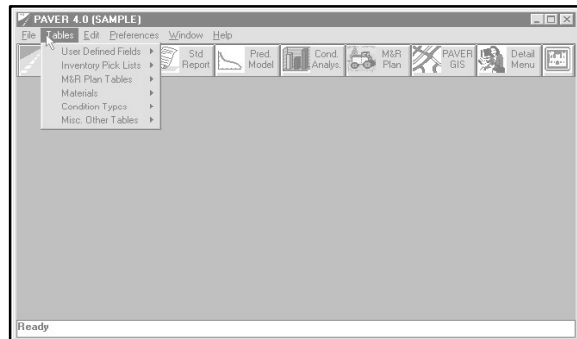


Features of Micro PAVER V4.1

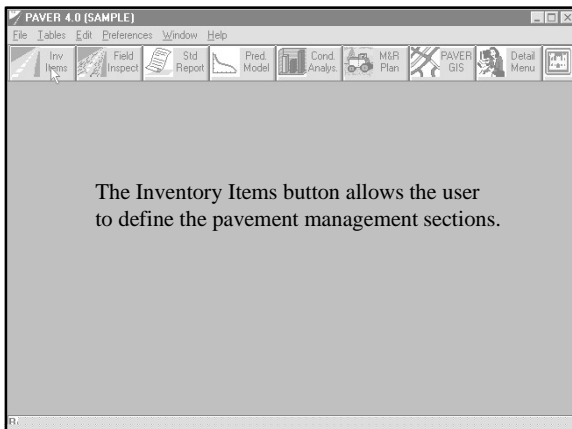
- Micro PAVER desktop
- Inventory Items
- Field inspection
- Standard Reports
- Prediction Modeling
- Condition Analysis
- Maintenance & Repair Work Planning
- PAVER - GIS interface
- Detail Menu



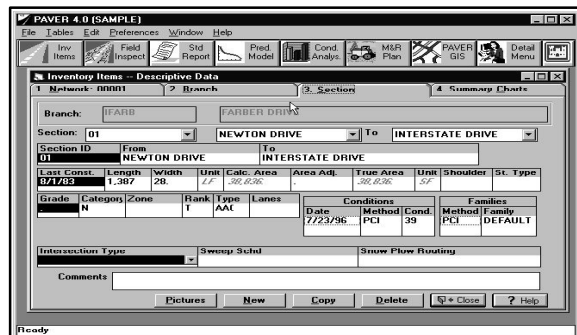
The Micro PAVER desktop design places the most frequently used options on menu buttons. Full system capabilities are listed in the Detail Menu button.



System tables are used across databases. Default tables are available with the Micro PAVER release, but additional tables can be added by users.



The Inventory Items button allows the user to define the pavement management sections.



In the PAVER hierarchy, a pavement management section is defined as part of a branch (street or runway), which in turn is defined as part of a network. The user is allowed to define up to three fields for each, at the section, branch, or network levels.

The summary chart allows for graph/table viewing of any X and Y variables. For example, Surface Type (X) VS. Average Condition (Y).

Surface	Sections	Avg Condition	Pct Alex	Pct Sections	Age at Report	Wt Age	Pavement Area	Unit
AAC	5	41	60.63%	62.50%	14	14	129,968	SF
AC	1	18	16.12%	12.50%	29	29	34,554	SF
PCC	2	60	23.25%	25.00%	19.5	19.78	49,840	SF

The Field Inspection option is used to enter/edit pavement condition data.

Pavement distress type, severity, and quantity can be entered for each inspected sample.

Distress	Severity	Quantity	Units	Comments
ALLIGATOR	M	90	SF	
ALLIGATOR	L	180	SF	
BUMPS/SAGS	L	3	LF	
EDGE CRACKING	M	17	LF	

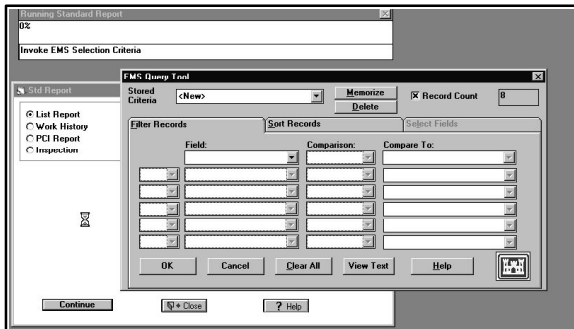
The user can calculate the PCI of a section at any time during the inspection. The calculation produces the PCI, extrapolated section distresses from sample data, and percentages of load, climate, and other related deduct values.

Sample	Distress	Description	Severity	Quantity	Units	Density	Deduct
10	1	ALLIGATOR CR	Low	180	SF	6.43	27.24
10	1	ALLIGATOR CR	Medium	90	SF	3.22	33.3
10	1	ALLIGATOR CR	Medium	90	SF	3.22	33.3
10	4	BUMPS/SAGS	Low	3	LF	.11	.62
10	7	EDGE CR	Low	99	LF	3.54	5.83
10	7	EDGE CR	Medium	17	LF	.61	6.44

By selecting the condition button on the inspection menu, the user can enter a condition rating method other than the PCI.

Method	Value
PCI	37
Hide	
SN	
Shoulder	
Overall	

The Standard Reports are preformatted reports generated from the information stored in the database.



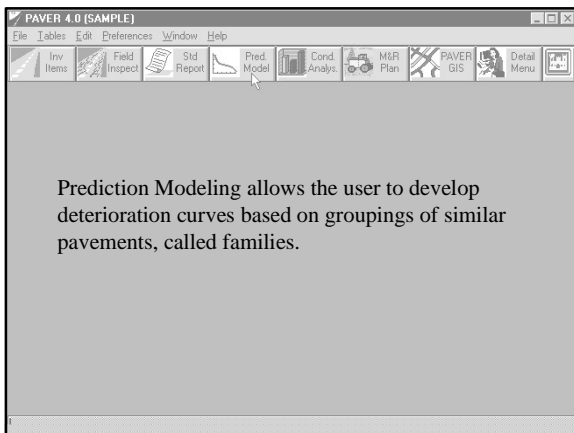
An EMS (Engineered Management System) query tool is available to customize the output of the reports to represent specific elements of the database. An EMS tool is a tool that is used throughout EMS's, such as RAILER and SEWER, to maintain a similar look and feel.

Branch Listing Report
Pavement Database: SAMPLE

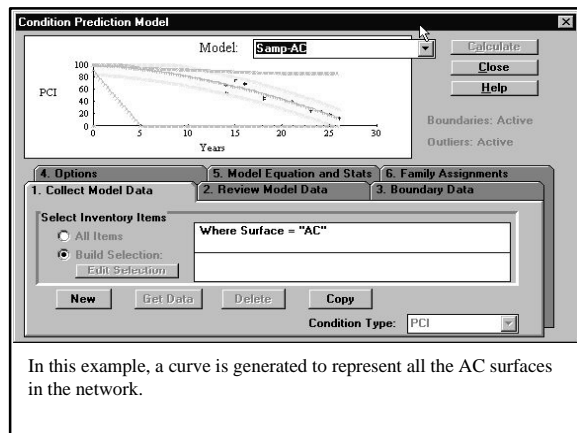
Report Date: 8/29/97
Site Name:
Selection Criteria: All
Sort Criteria: None

NETWORK ID	NAME	COMMENT	Branch ID	Name	Use	Sections	Area	Area
0001	USACEB							
			Adjustment	True Area	BranchArea	Units	Comments	
			IFAB	FARMER DRIVE	ROADWAY	1	39,936	
			IFAB	25,070	ST			
			INTE	INTERSTATE DRIVE	ROADWAY	0	51,256	
			INTE	62,040	ST			
			INER	HENRASS DRIVE	ROADWAY	1	34,554	
			INER	24,554	ST			
			INER	HEWTON DRIVE	ROADWAY	1	29,976	
			INER	29,976	ST			
			INER	49,840	ST			
			INER	RESEARCH ROAD	ROADWAY	2	49,840	
			Branch Count:	5				
			Branch Area:	214,360	ST			

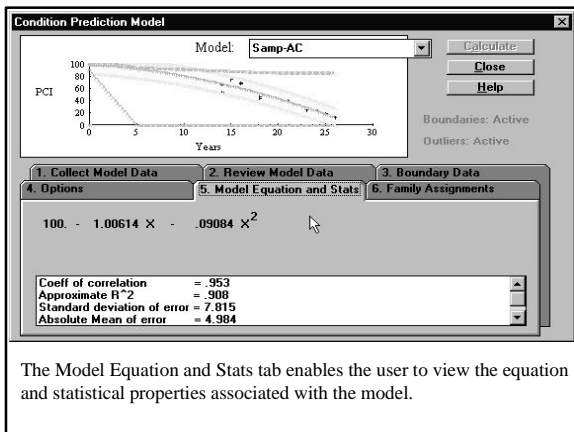
The standard reports that are generated can be viewed either as an Excel spreadsheet, or formatted as a printed page.



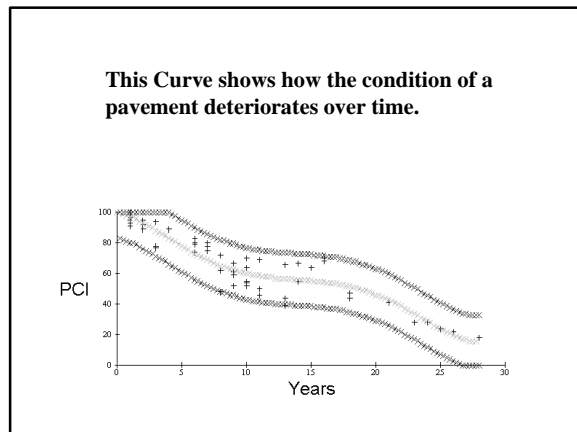
Prediction Modeling allows the user to develop deterioration curves based on groupings of similar pavements, called families.



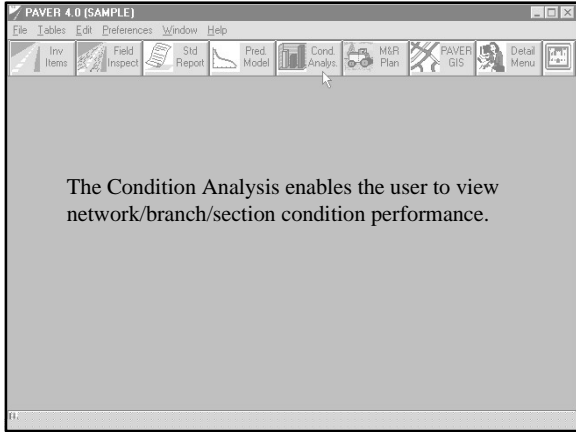
In this example, a curve is generated to represent all the AC surfaces in the network.



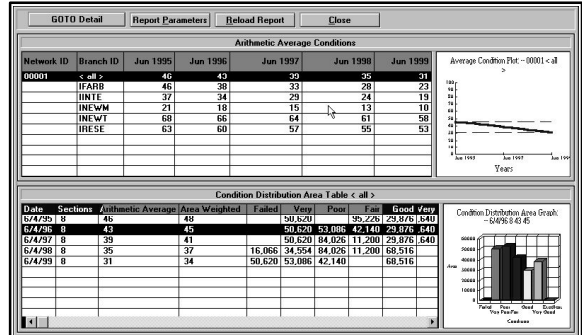
The Model Equation and Stats tab enables the user to view the equation and statistical properties associated with the model.



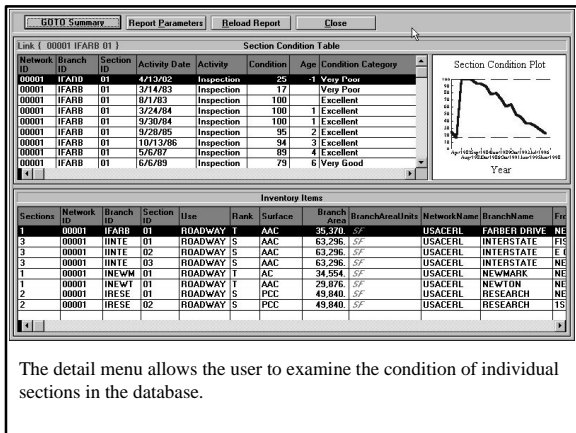
This Curve shows how the condition of a pavement deteriorates over time.



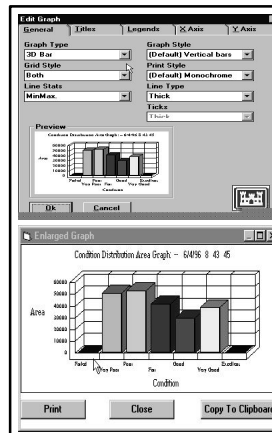
The Condition Analysis enables the user to view network/branch/section condition performance.



The summary menu option displays the network and branch information in table and graph format.

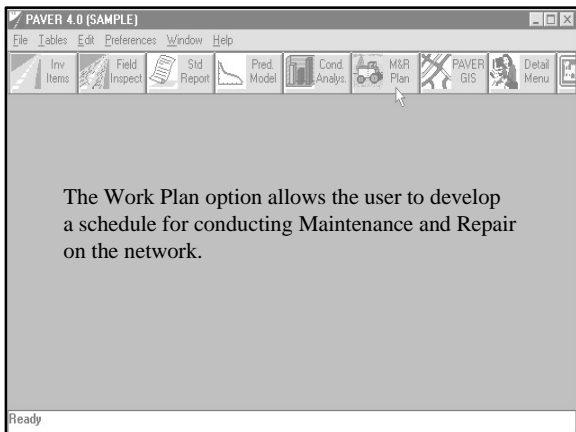


The detail menu allows the user to examine the condition of individual sections in the database.

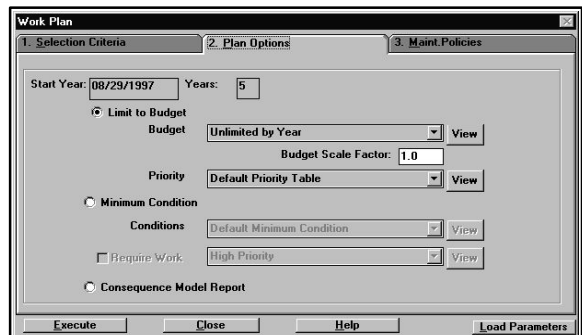


The graphs produced by PAVER can be customized to best illustrate the users desired information.

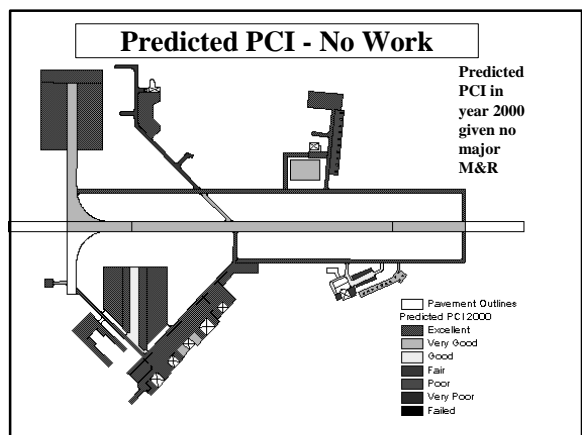
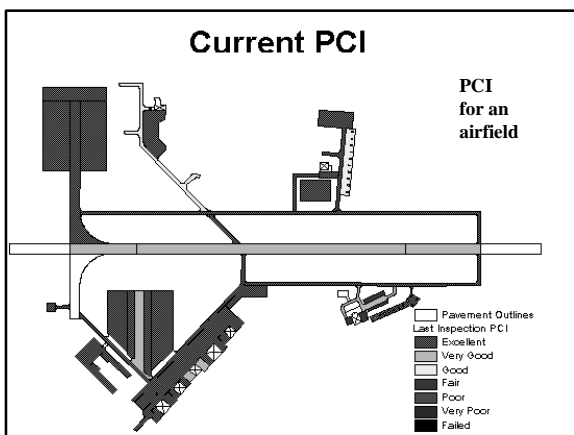
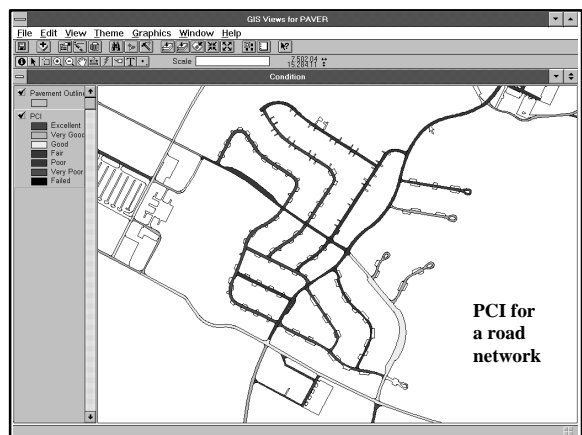
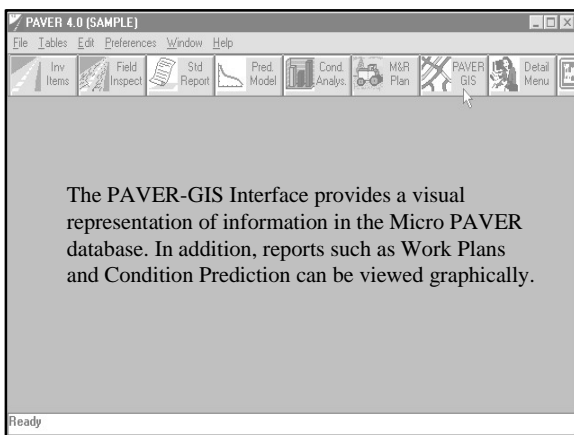
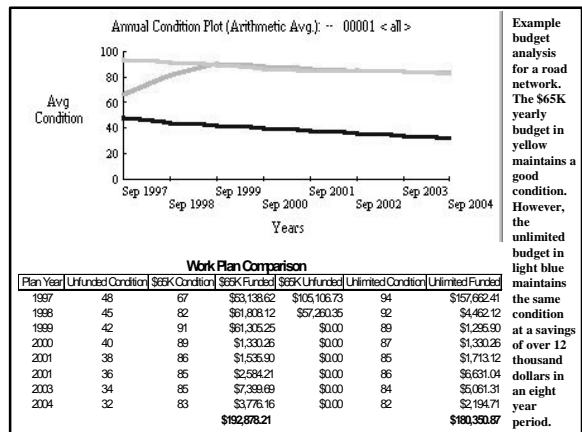
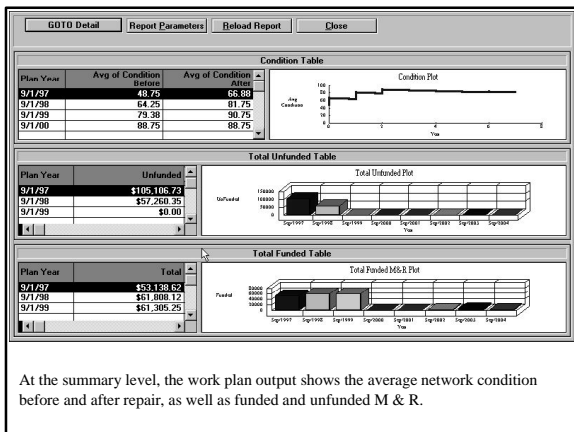
In addition, the graphs can be printed separately or copied to the clipboard to be imported into other presentation software.

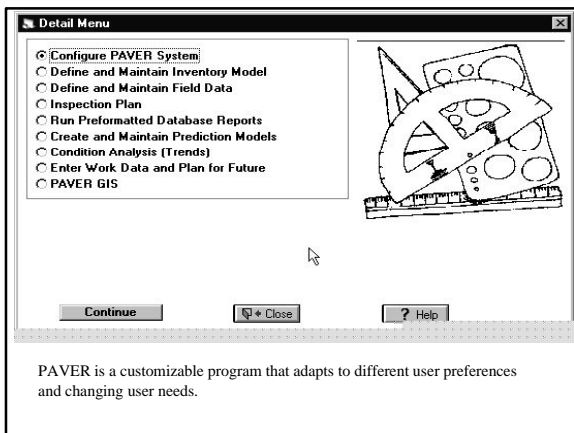
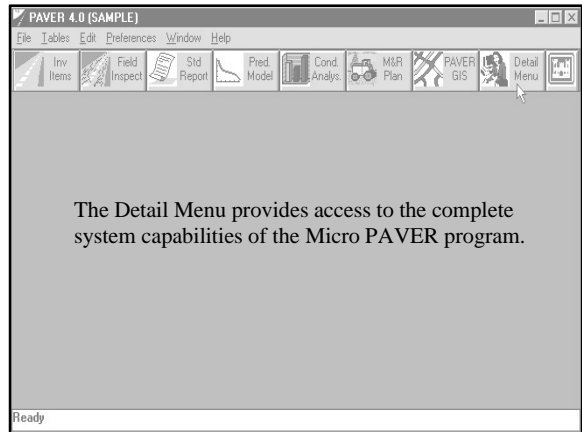
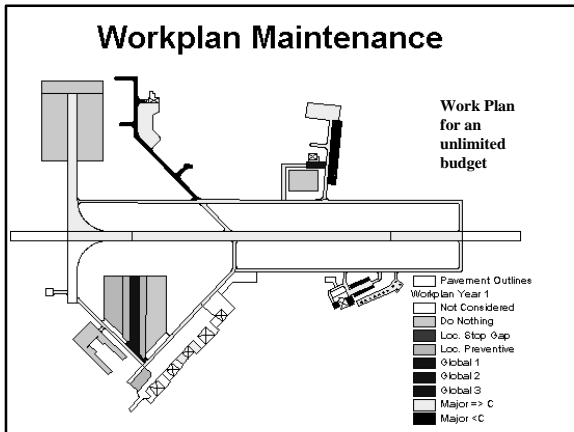


The Work Plan option allows the user to develop a schedule for conducting Maintenance and Repair on the network.



The Work Plan allows the users to develop maintenance and repair strategies for different budget scenarios.





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