Pavement Maintenance Management

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Presentation Approach

- Definitions
- Importance
- System Components
- Use of Technology
- Wrap-Up

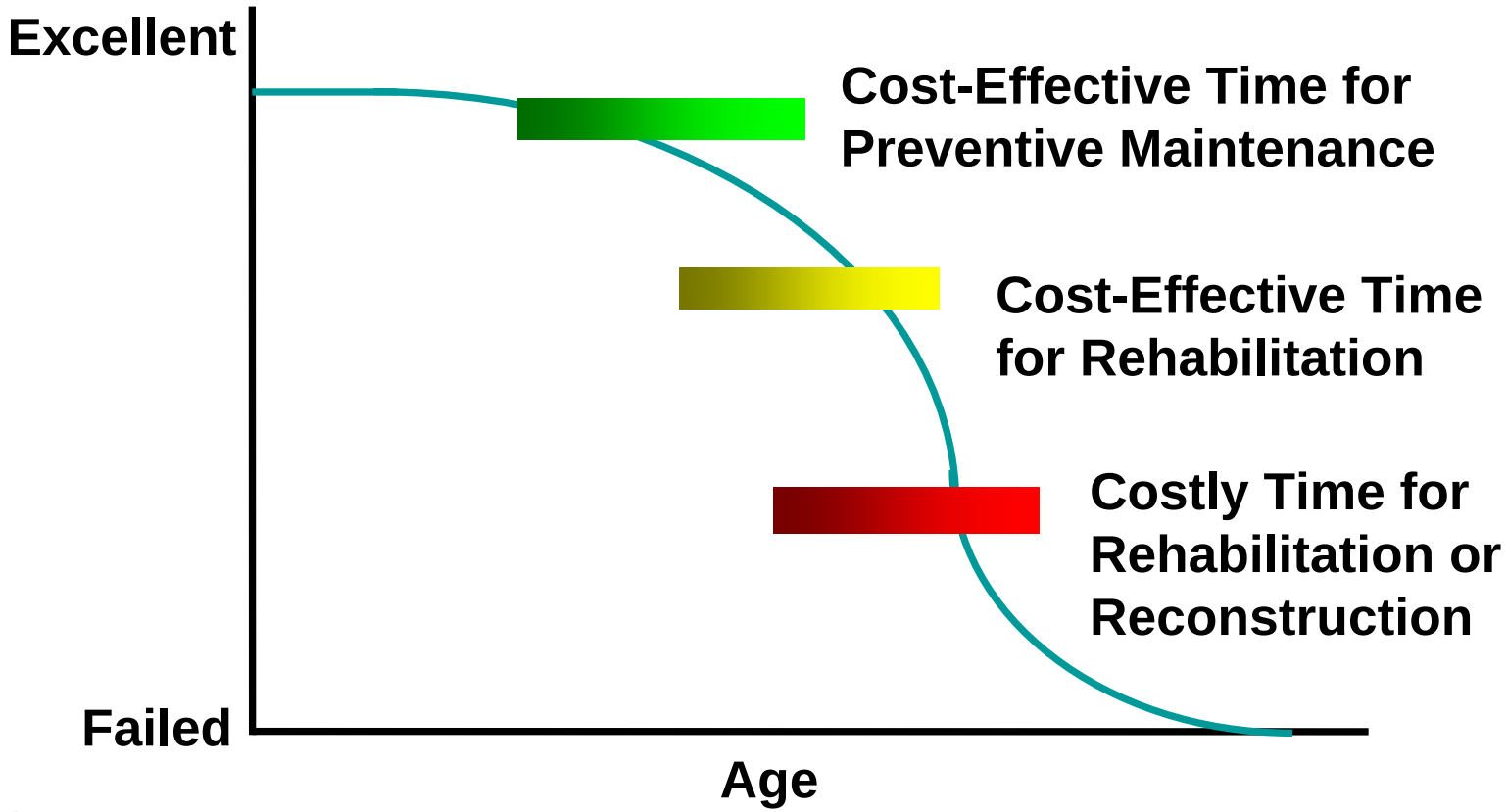
How Would You Describe These Terms?

- Pavement Management
- Maintenance Management

What Is Pavement Management?

- An objective process for:
  - Making the most effective use of available funding
  - Understanding the consequences of alternate strategies
  - Quantifying the value of your pavement assets
  - Determining your pavement-related needs
  - Communicating with decision makers

Pavement Management Philosophy



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Relationship to Maintenance Management

- Pavement management can provide:
  - Information on where maintenance is needed
  - Priorities for capital improvements
  - Data required to forecast future needs and budget requirements

Relationship to Pavement Management

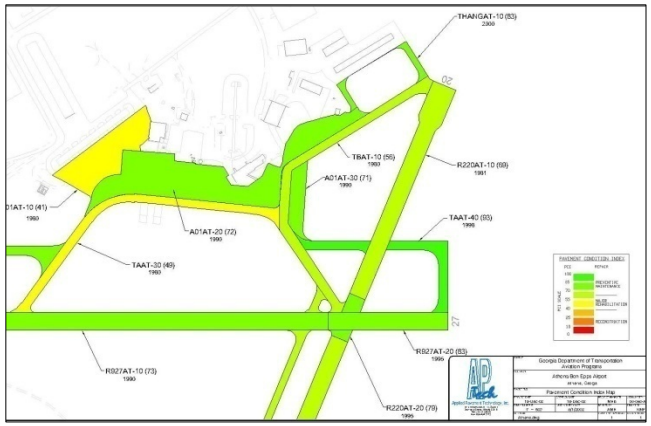
- Maintenance management can provide:
  - Information on where excessive repairs have been required
  - Data on treatment performance
  - Location of stop-gap measures when capital improvements are not being made
  - Information needed to confirm budget estimates

Why Bother?

- Investment
- Escalating Costs
- Uncertain Funding
- Safety
- Compliance

U.S. Maintenance Management Requirements

- Pavement Inventory
- Pavement Inspections
  - Detailed
  - Drive-by
- Record Keeping
- Information Retrieval
- Program Funding



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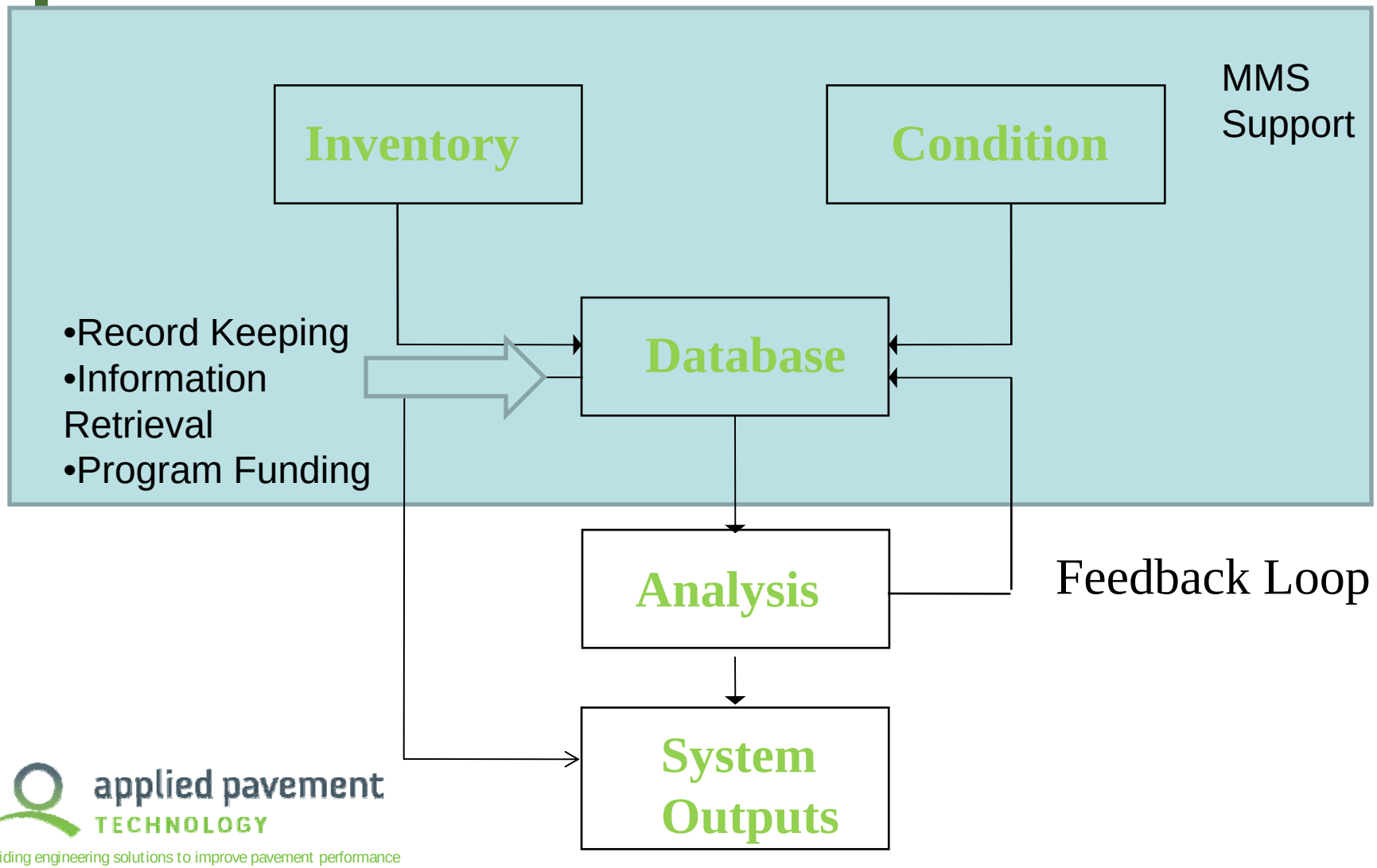
Pavement Management System Components



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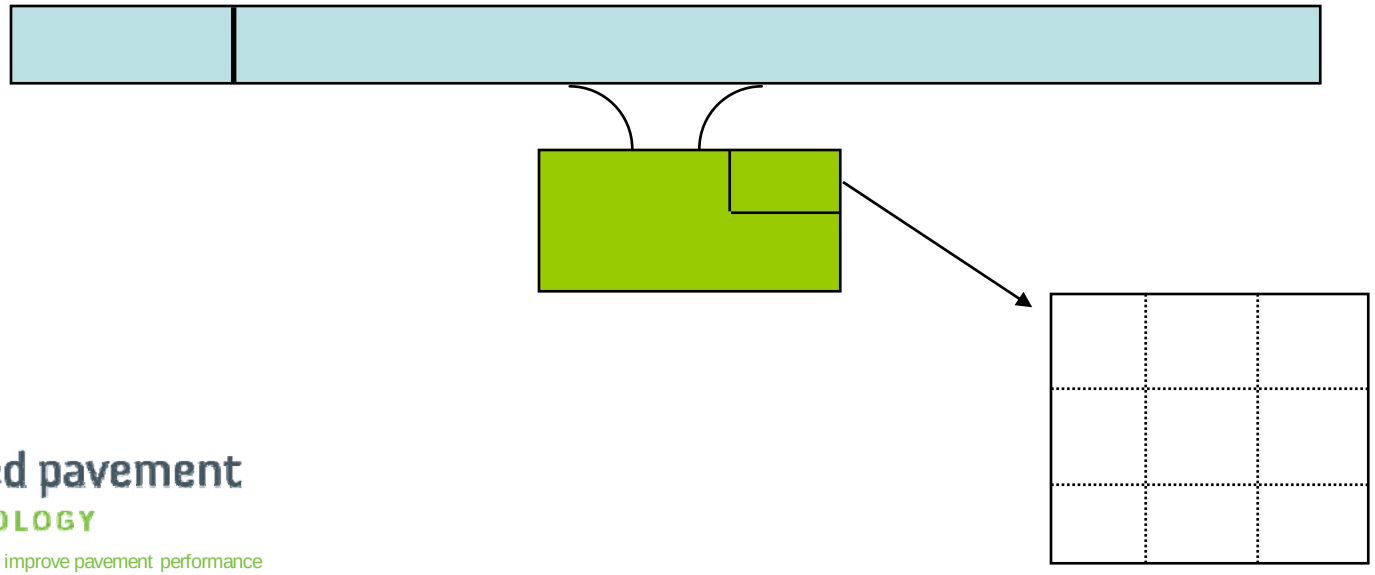
Pavement Inventory

- Location of all runways, taxiways, and aprons
- Dimensions
- Type of pavement

- Year of construction or of recent major rehabilitation
- Use of Federal financial assistance to construct, reconstruct, or repair the pavement

Network Definition

- Network
- Branches (facilities)
- Sections (features)
- Sample Units



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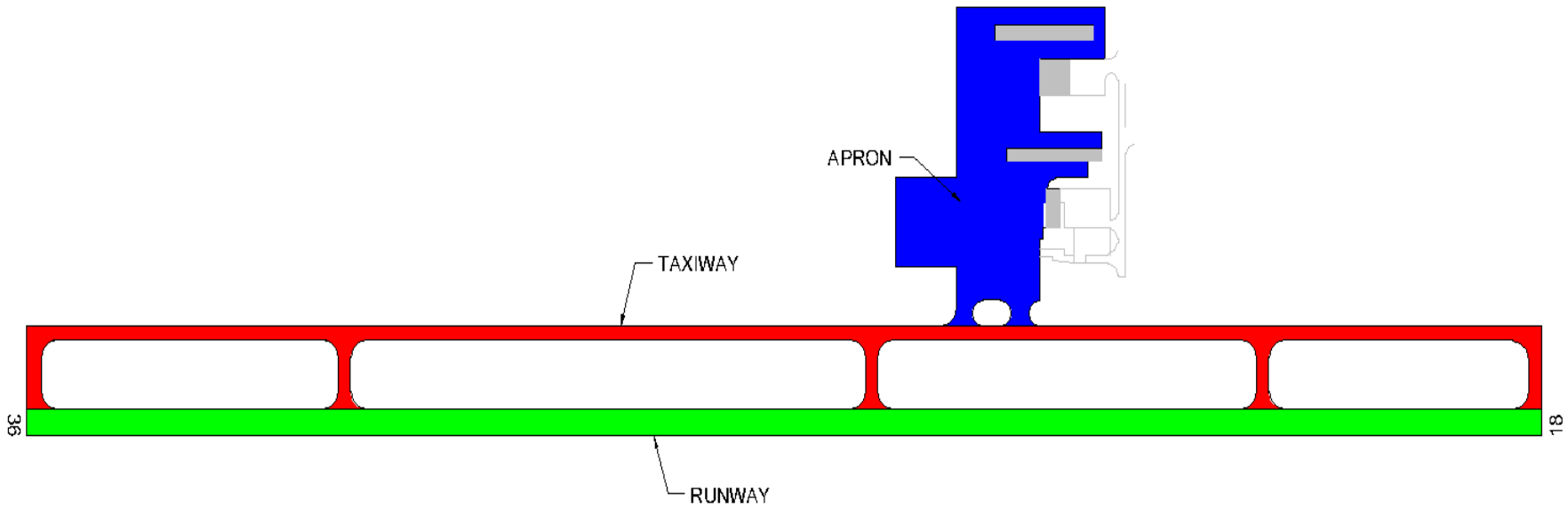
Branches (facilities)



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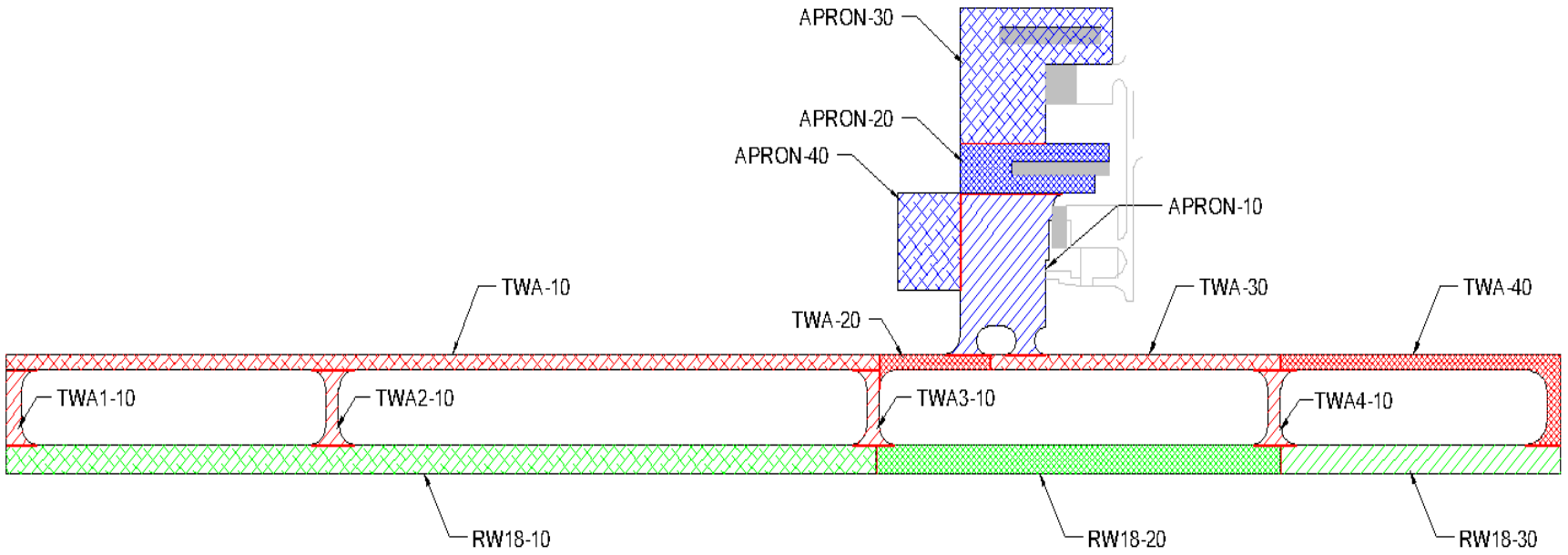
Sections (features)



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Sample Units

- Asphalt pavements: 5,000 sf ± 2,000 sf
- Portland cement concrete pavements: 20 ± 8 slabs

Pavement Inspections

- Detailed Inspections
  - Identify type of distress and estimate quantity of distress
  - If PCI as part of pavement management, every 3 years satisfactory
  - If not PCI, required annually
- Drive-By Inspections
  - Minimum once per month to detect unexpected changes in pavement condition

Visual Inspection Using Pavement Condition Index (PCI) Procedure

- Visual signs of distress are identified and measured.
- Documented in AC 150/5380-6B and ASTM D5340.

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PCI Scale

Preventive Maintenance

Major Rehabilitation

Reconstruction

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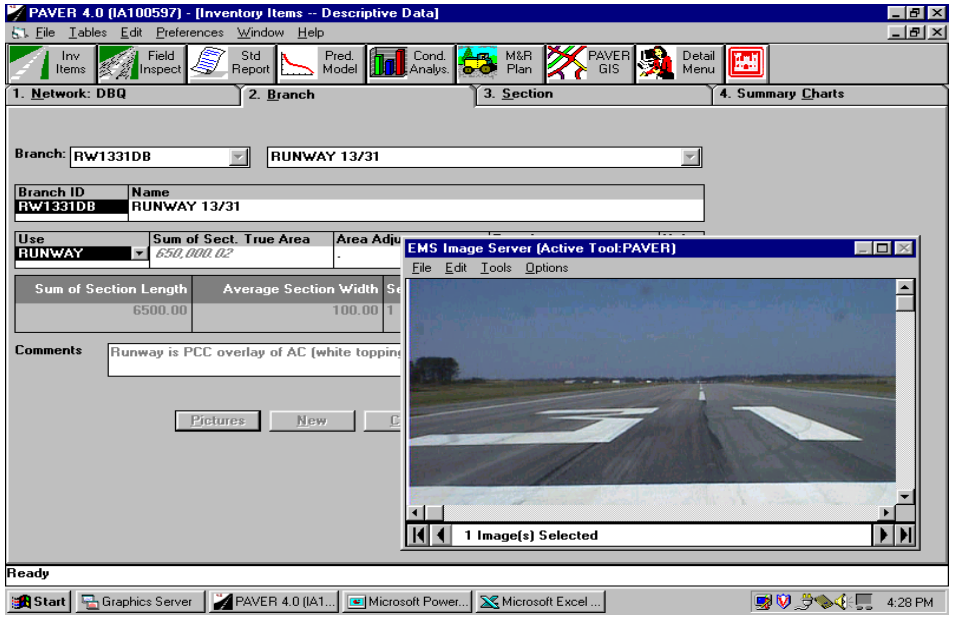
Record Keeping

- Detailed Inspection
  - Inspection date, location, distress types, maintenance scheduled or performed
- Drive-By Inspection
  - Inspection date and maintenance scheduled or performed
- Material and equipment used to perform maintenance
- Must keep on file minimum of 5 years

Information Retrieval

- You may use any form of record keeping you deem appropriate as long as you can retrieve the necessary information for the FAA.



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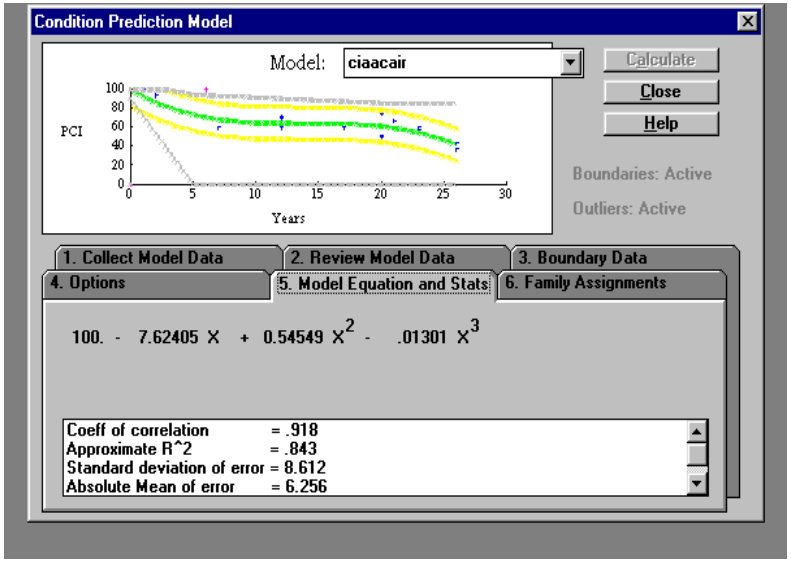
System Customization

- Database Fields
- Prioritization Rules
- Performance Models
- Repair Alternatives
- Unit Costs



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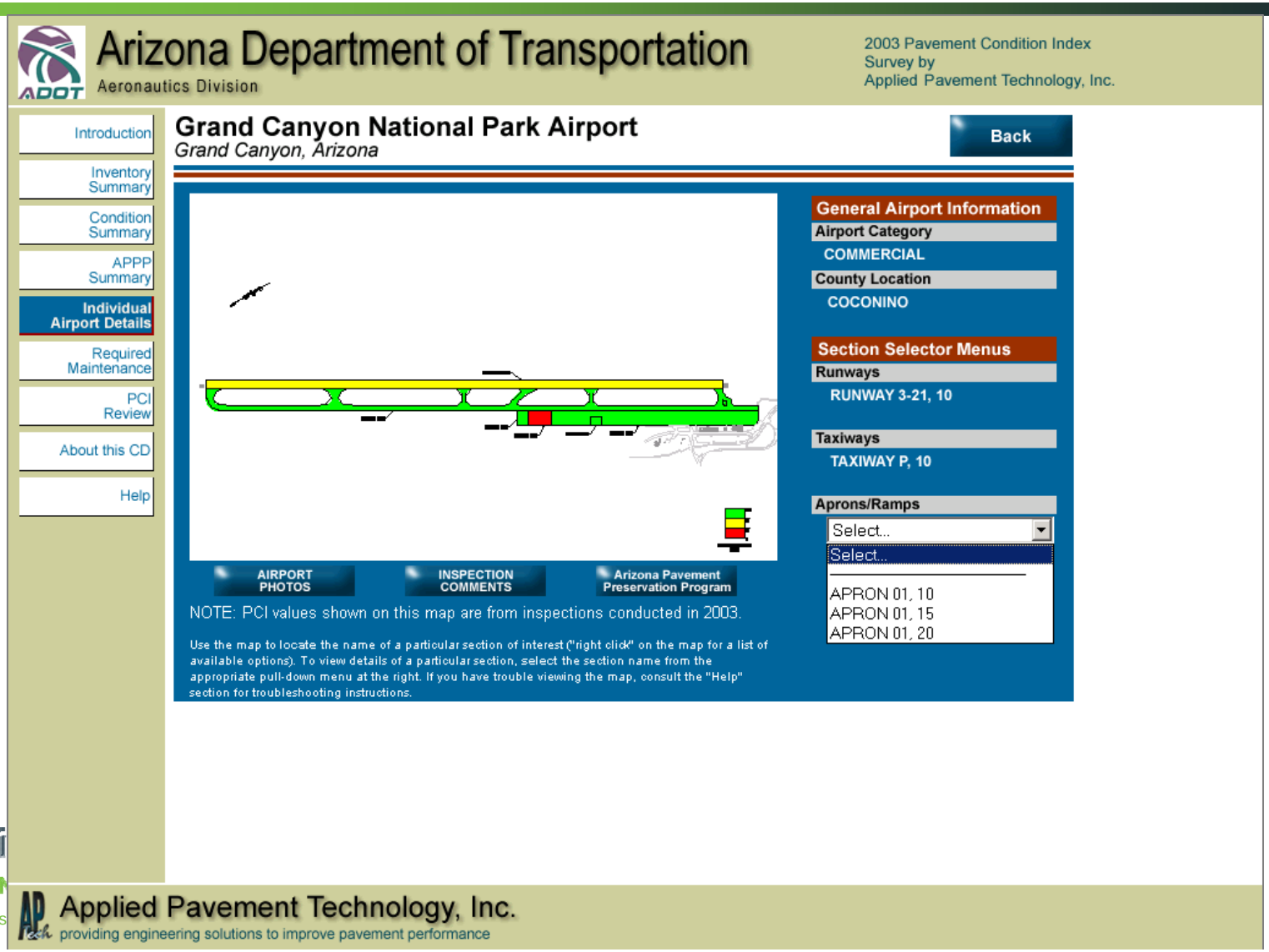
Development of a Pavement Program

- Assess current and projected future pavement conditions throughout the airport.
- Develop plan to address immediate “reactionary” needs, preservation needs, and long term rehabilitation needs.

Outputs


Arizona Department of Transportation
Aeronautics Division
2003 Pavement Condition Index
Survey by
Applied Pavement Technology, Inc.
Introduction
Inventory Summary
Condition Summary
APPP Summary
Individual Airport Details
Required Maintenance
PCI Review
About this CD
Help
Grand Canyon National Park Airport
Grand Canyon, Arizona
Back
General Airport Information
Airport Category
COMMERCIAL
County Location
COCONINO
Section Selector Menus
Runways
RUNWAY 3-21, 10
Taxiways
TAXIWAY P, 10
Aprons/Ramps
Select...
Select...
APRON 01, 10
APRON 01, 15
APRON 01, 20
AIRPORT PHOTOS
INSPECTION COMMENTS
Arizona Pavement Preservation Program
NOTE: PCI values shown on this map are from inspections conducted in 2003.
Use the map to locate the name of a particular section of interest ("right click" on the map for a list of available options). To view details of a particular section, select the section name from the appropriate pull-down menu at the right. If you have trouble viewing the map, consult the "Help" section for troubleshooting instructions.
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Feedback Loop

- Feedback Used to Update System
  - Update inventory portion of database
  - Periodically reevaluate condition of pavements
  - Refine performance models
  - Update unit cost information, feasible repair strategies, and so on

Use of Technology to Support Maintenance Management

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GPS Referencing of Photos

Longitude Latitude Date Time

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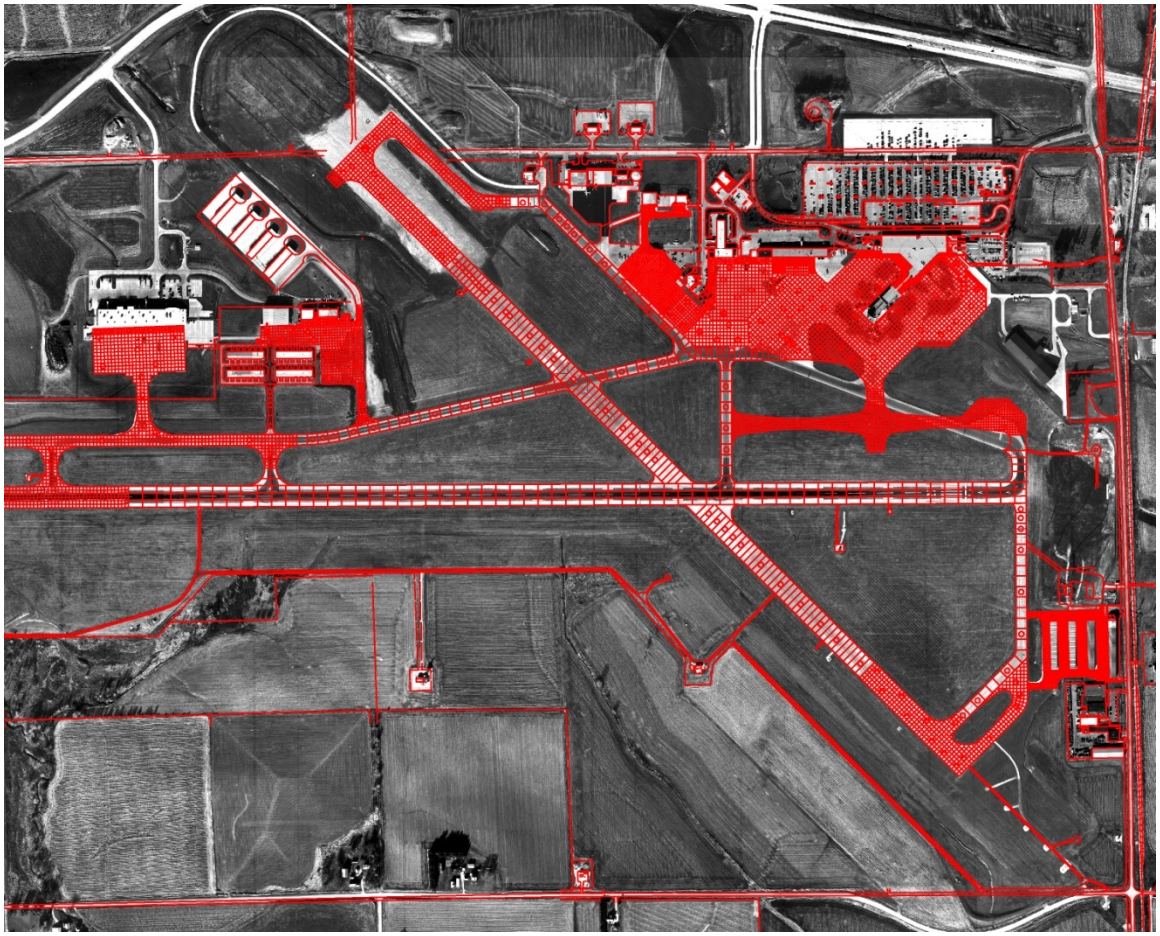
Sample Display of Results on Aerial Photo



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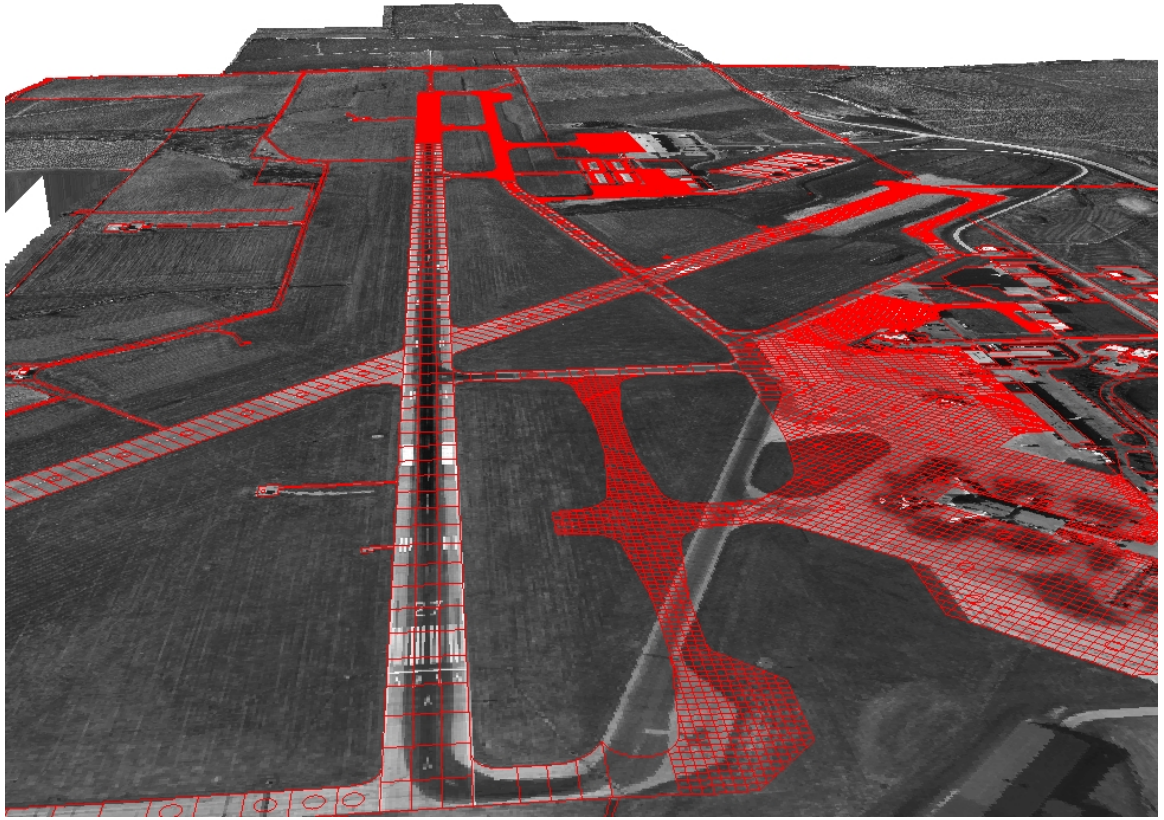

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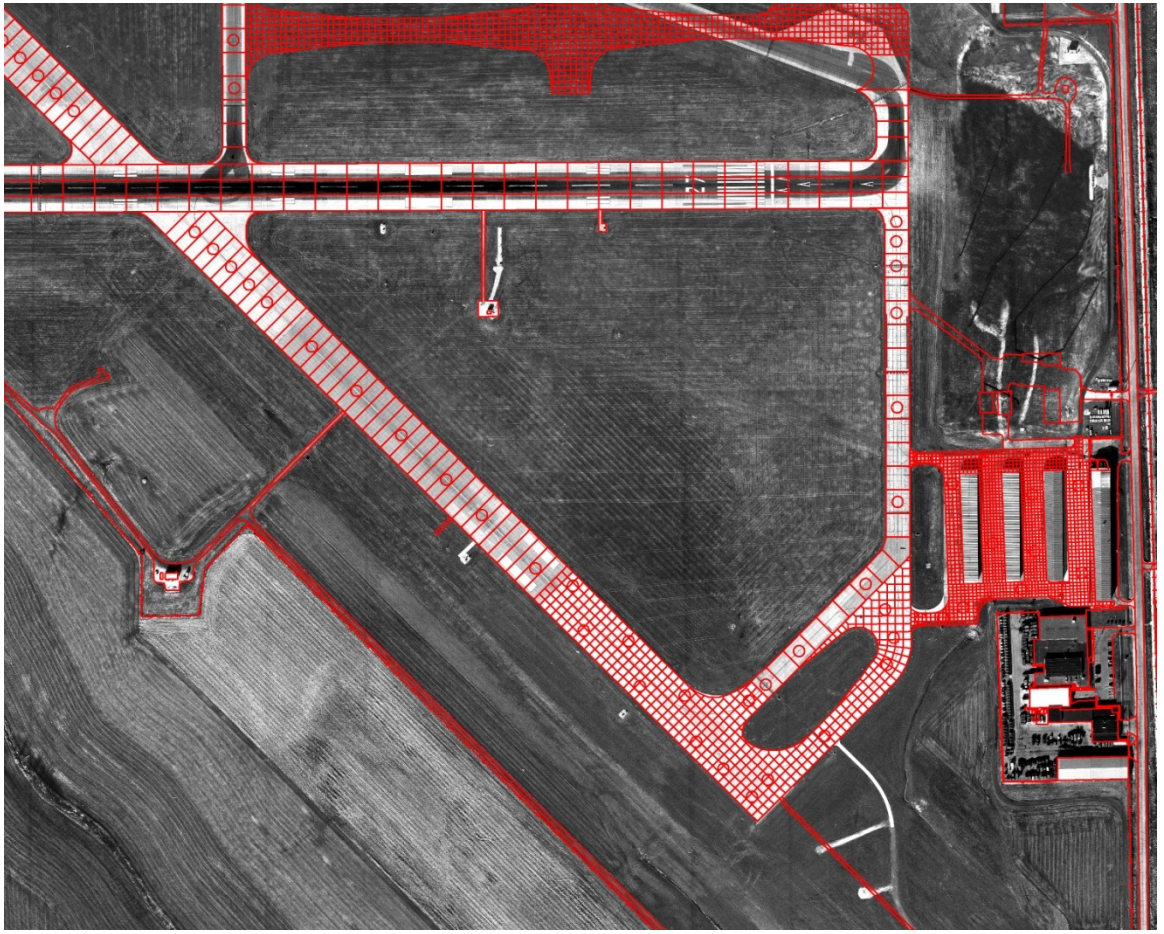

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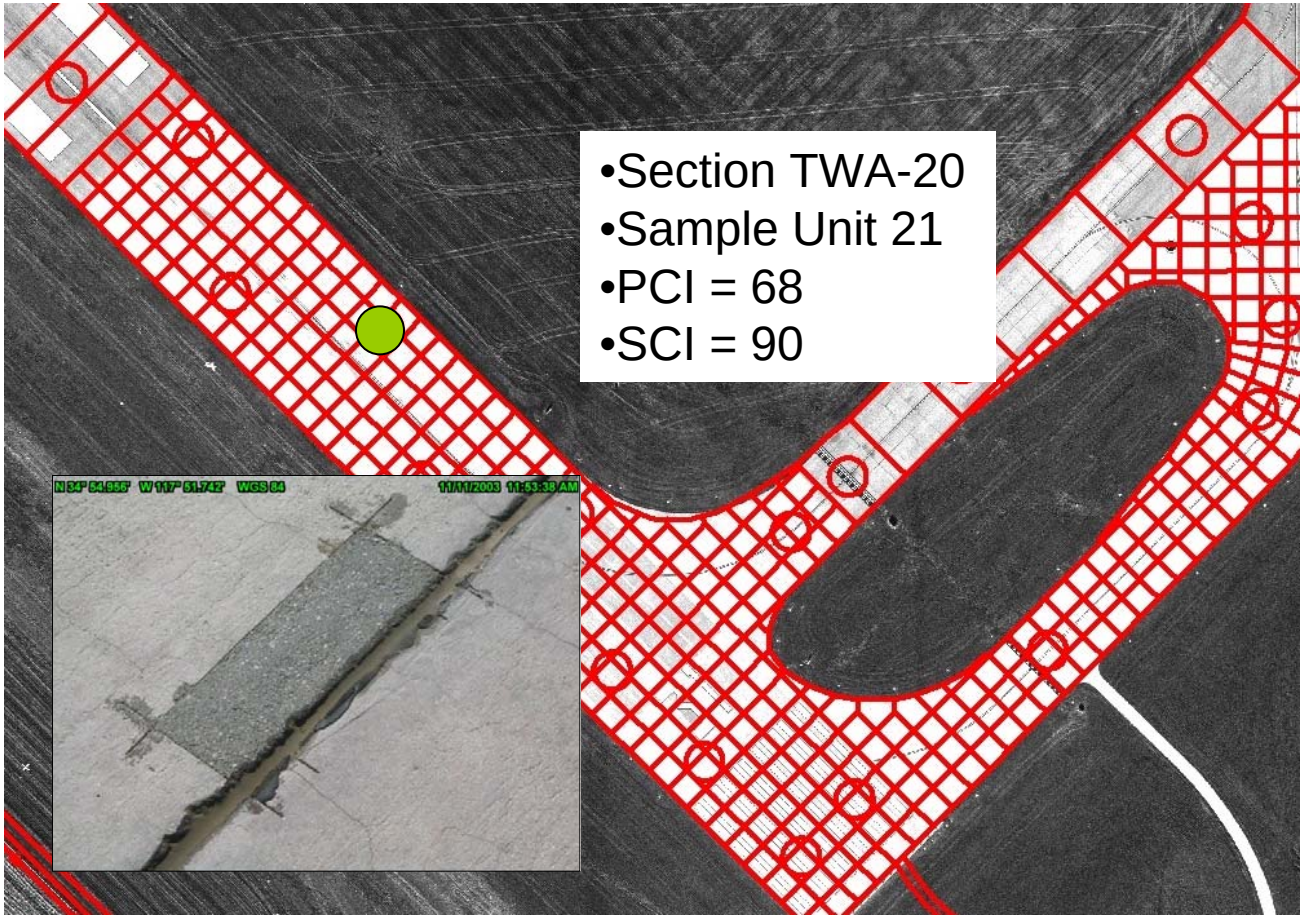

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Wrap-Up

- Airports have a significant investment in their pavements
- The use of pavement management and maintenance management techniques can lead to a coordinated, cost-effective strategy for maintaining pavements
- Technology exists to support these efforts

Thank you!

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