SESSION 9:
GA Pavement Study with GDOT

Moderator: Amber Clark, C.M., Airport Director, Columbus Airport (CSG)

Speakers: Nathan Coyle, Aviation Planner,
Georgia Department of Transportation

Laura Raczkowski P.E., Pavement Engineer, Applied Pavement Technology, Inc.

Georgia Airports Association

2025 GAA Annual Conference & Expo | Macon, Ga | October 15 – 17

2024-2025 Georgia Statewide Airport Pavement Management System (APMS) Update

Presented By:

Nathan Coyle, Aviation Planner, GDOT

Laura Raczkowski, P.E., Pavement Engineer, Applied Pavement Technology, Inc.

Presentation Overview

2024-2025 GDOT APMS

- Project background
- Project process
- Overview of the interactive pavement data visualization tool (IDEA)
- IDEA webinar
- Questions

Report:

Georgia Airport Pavement Management System Executive Summary

PREPARED FOR

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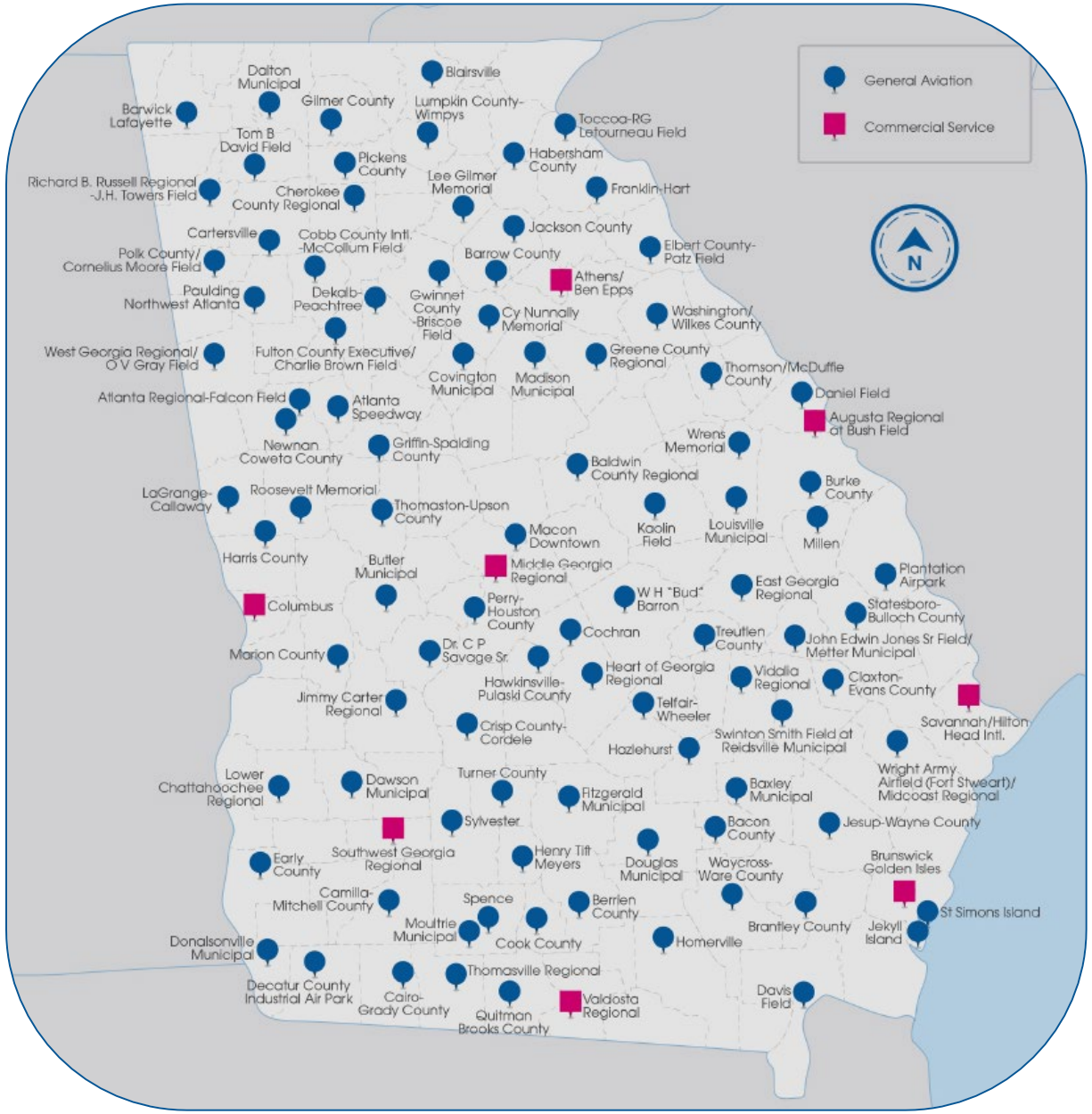
OCTOBER 2025

APMS Background

Overview

- GDOT implemented a statewide APMS in 1998
- Updated periodically since that time, with the current 2024-2025 update nearing completion
- Currently includes 102 airports:
  - 94 general aviation airports
  - 8 commercial service airports



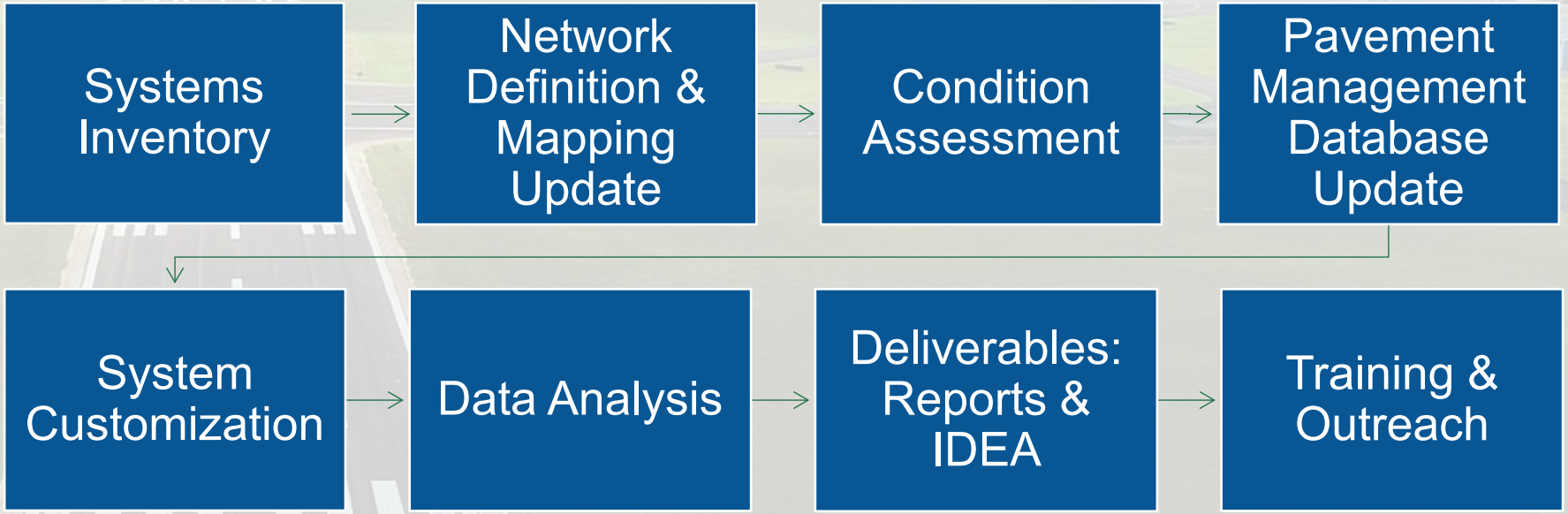
APMS Background

Purpose of the APMS

- Track pavement condition of system airports
- Communicate the financial needs of the system
- Assist in making optimal and cost-effective decisions about maintenance and rehabilitation of airfield pavement infrastructure
- Fulfill majority of Grant Assurance 11 and Public Law 103-305 requirements for NPIAS airports for maintaining a pavement maintenance management system
    - Airport Sponsors still responsible for daily inspections of pavement condition and tracking pavement related maintenance activities

APMS Background

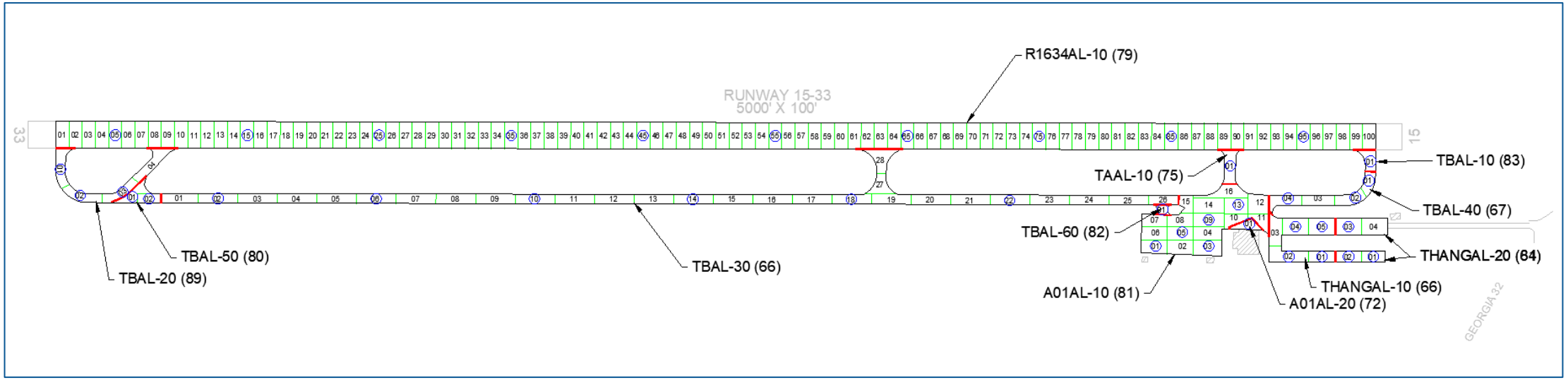
APMS Process



APMS Process

Systems Inventory, Network Definition, & Mapping Update

- Gathered and reviewed records for pavement-related work completed since 2018
- Updated the branch, section, and sample units for each airport



APMS Process

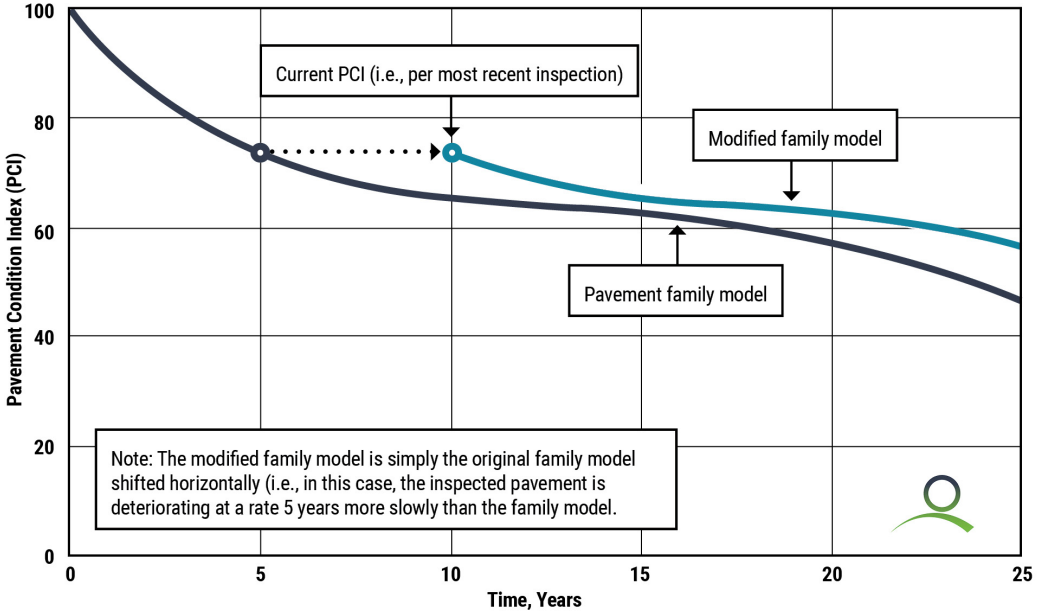
Condition Assessment

- Visual pavement condition assessment completed in accordance with the PCI procedure (ASTM D5340).
- Involved identifying the type, severity, and extent of distress visible on the pavement surface
- Distress data were used to calculate an index, that ranged from 0 (failed) to 100 (new pavement)
- Observed distresses give an indication of the underlying cause of deterioration

APMS Process

Database Update & System Customization

- PAVER database updated with:
  - Changes to the network definition
  - Pavement work history information
  - Collected PCI data
- Pavement deterioration models were developed using PCI data from project airports
- Maintenance and rehabilitation policies and associated unit costs were updated



APMS Process

Data Analysis

- Assessed the current and projected future pavement condition for the pavement areas at each of the project airports.
- Developed 5-year M&R plans

PCI Range	Repair
86-100	Preventive Maintenance
71-85	
56-70	
41-55	Major Rehabilitation
26-40	Reconstruction
11-25	
0-10	

APMS Process

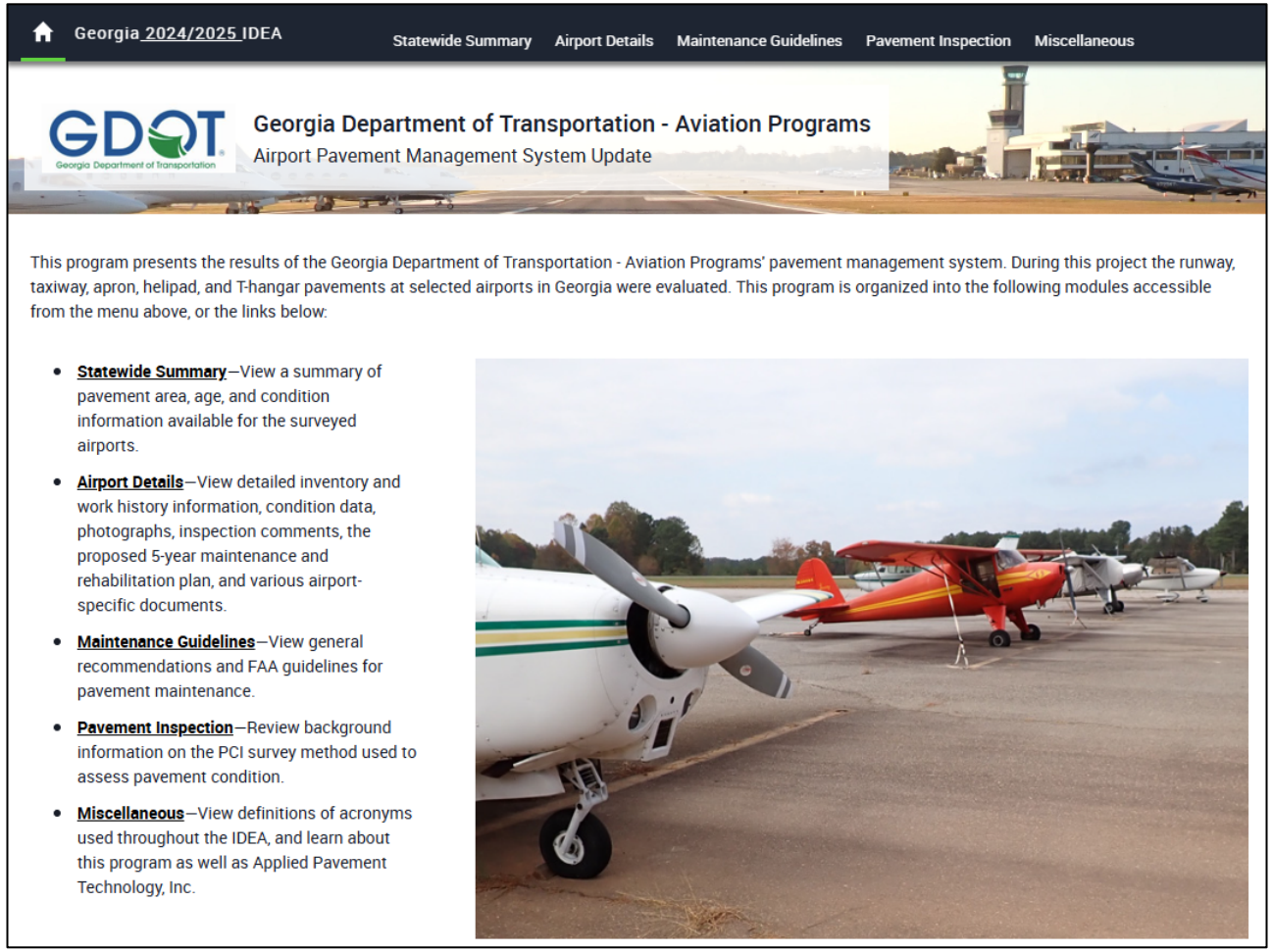
Deliverables: Reports and IDEA

- Goal was to present the APMS data and M&R plan in a manner that was useful for all stakeholders (airports, GDOT, FAA, and consultants)
- Results will be presented in a variety of formats:
  - Executive summary and statewide reports
  - Individual airport reports
  - Interactive website
- Reports are currently in development

IDEA

Overview

- Interactive, web-based reporting tool customized for GDOT's use during this project
- Provides instant access to commonly requested pavement management information



IDEA

Overview (Continued)

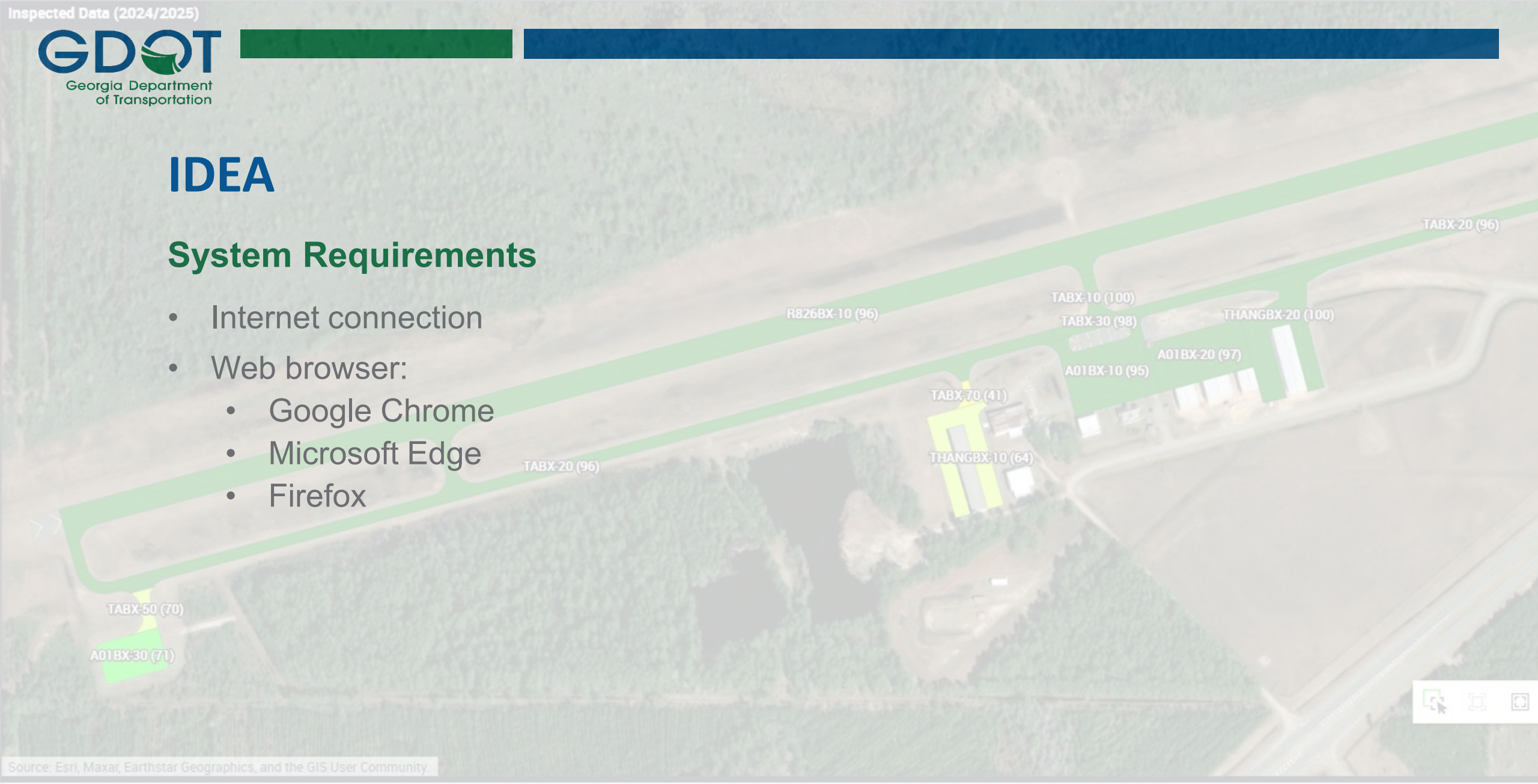
- Uses graphs, tables, maps, photographs, and hyperlinks that display:
  - Statewide statistics
  - Pavement inventory information
  - Past, current, and future PCI results
  - Georeferenced inspection photographs
  - Color-coded airport maps with underlying aerial imagery
  - Maintenance and rehabilitation recommendations
  - Report documents
  - Detailed information on the PCI procedure

Georgia Department of Transportation

IDEA

System Requirements

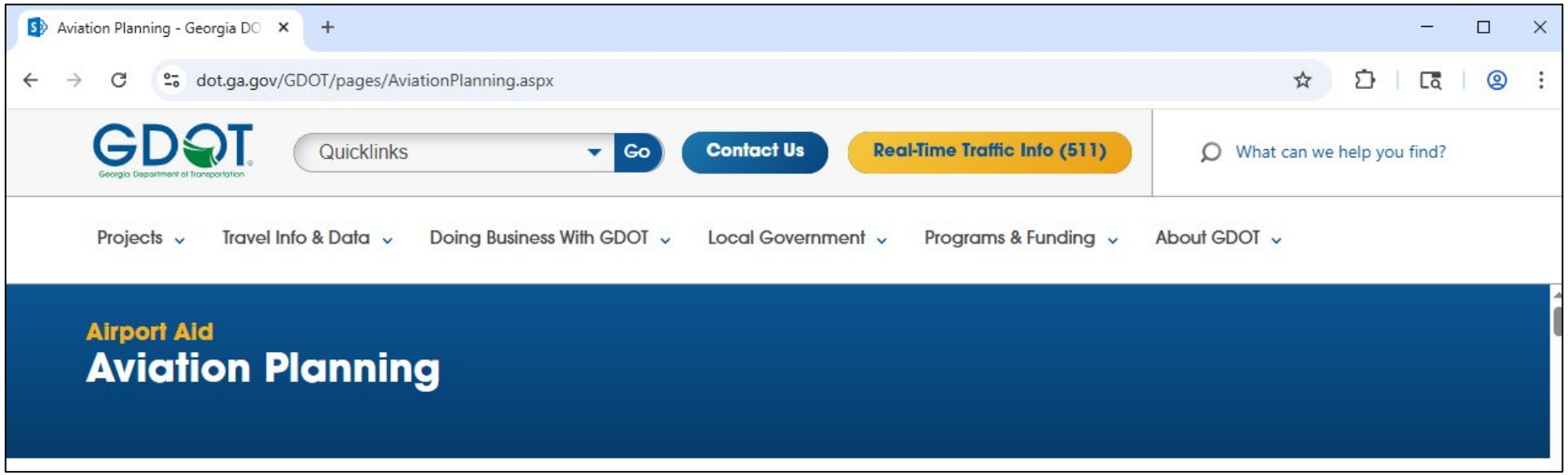
- Internet connection
- Web browser:
  - Google Chrome
  - Microsoft Edge
  - Firefox



IDEA

Access Information

- A link to the IDEA will be available on the GDOT Aviation Planning Page



IDEA Webinar

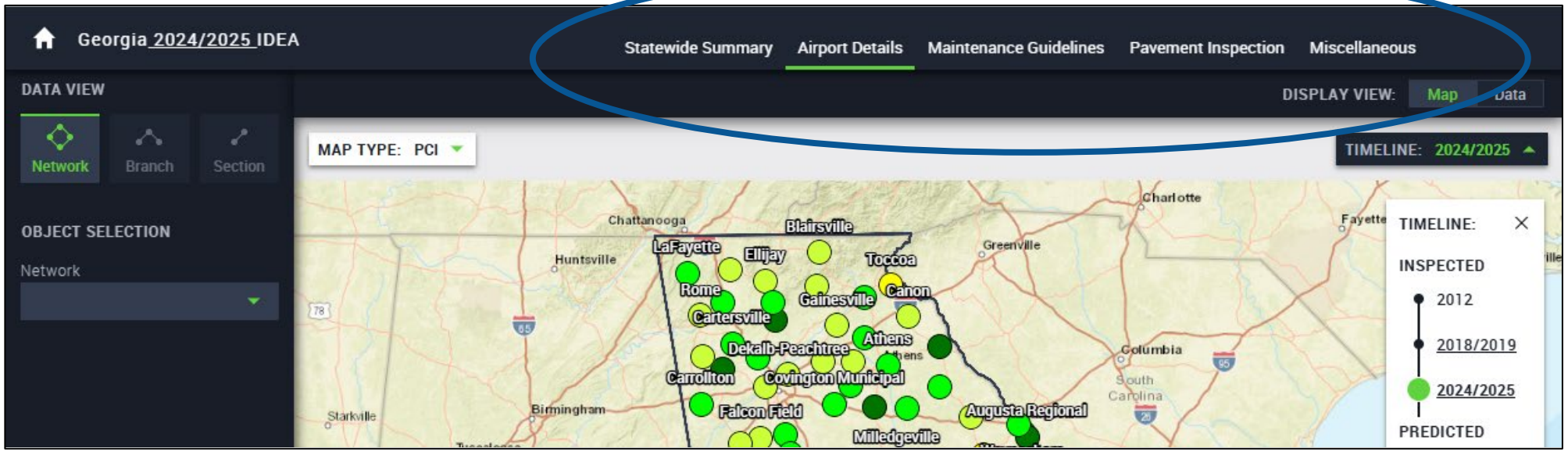
Virtual IDEA Webinar

- **Date to be determined**
- Announcement and virtual link for access will be sent via email

IDEA

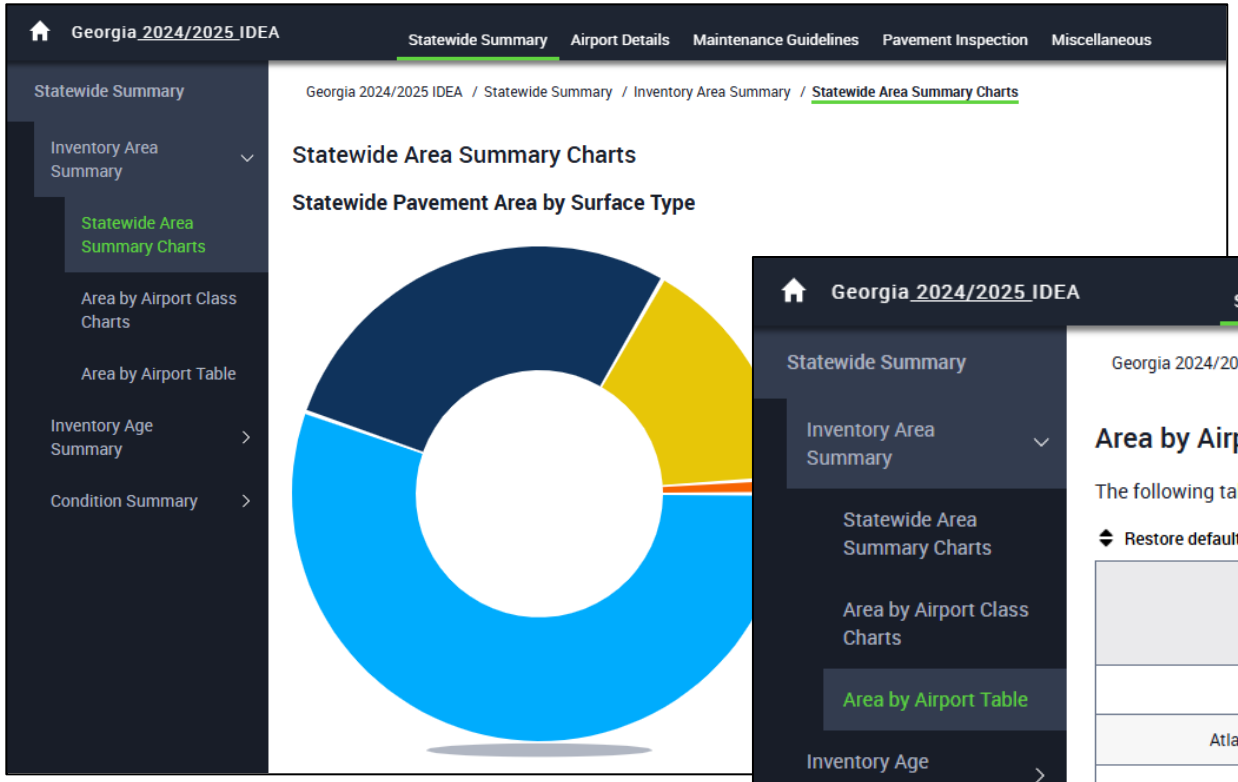
Structure

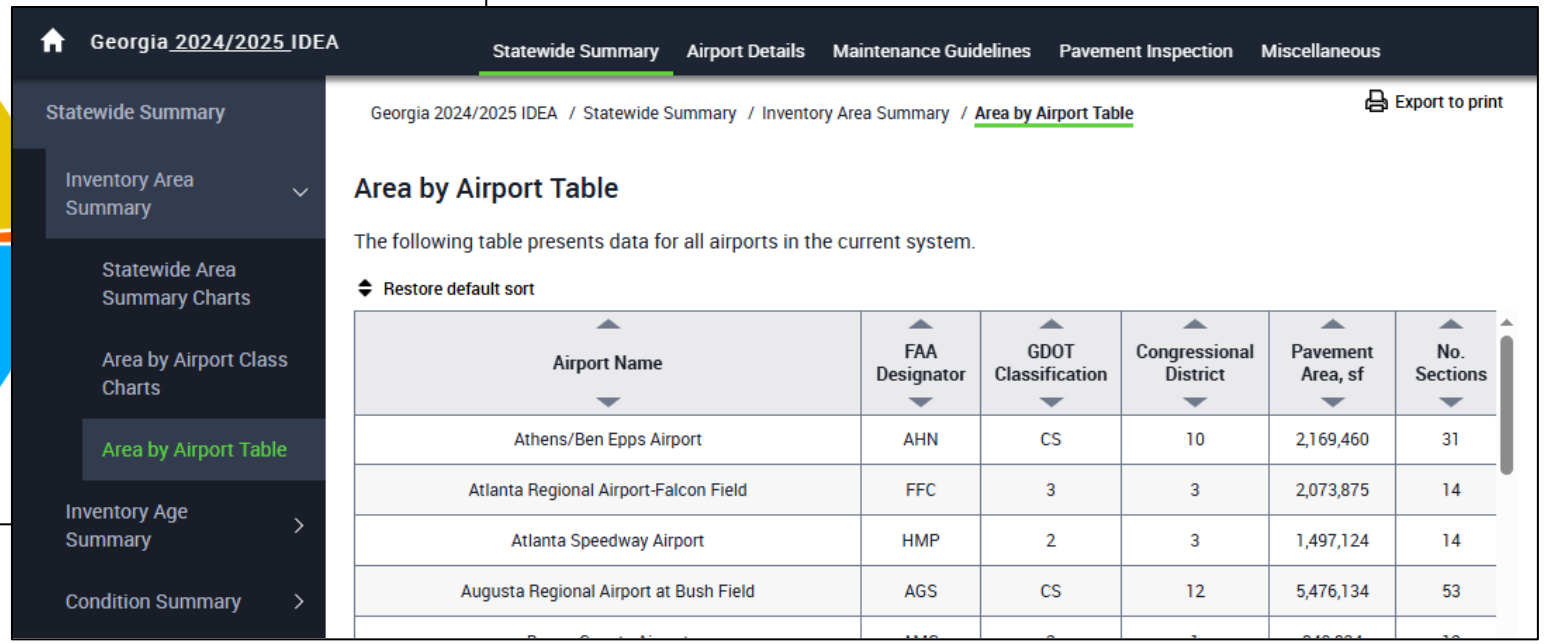
- Statewide Summary
- Airport Details
- Maintenance Guidelines
- Pavement Inspection



IDEA

Statewide Summary

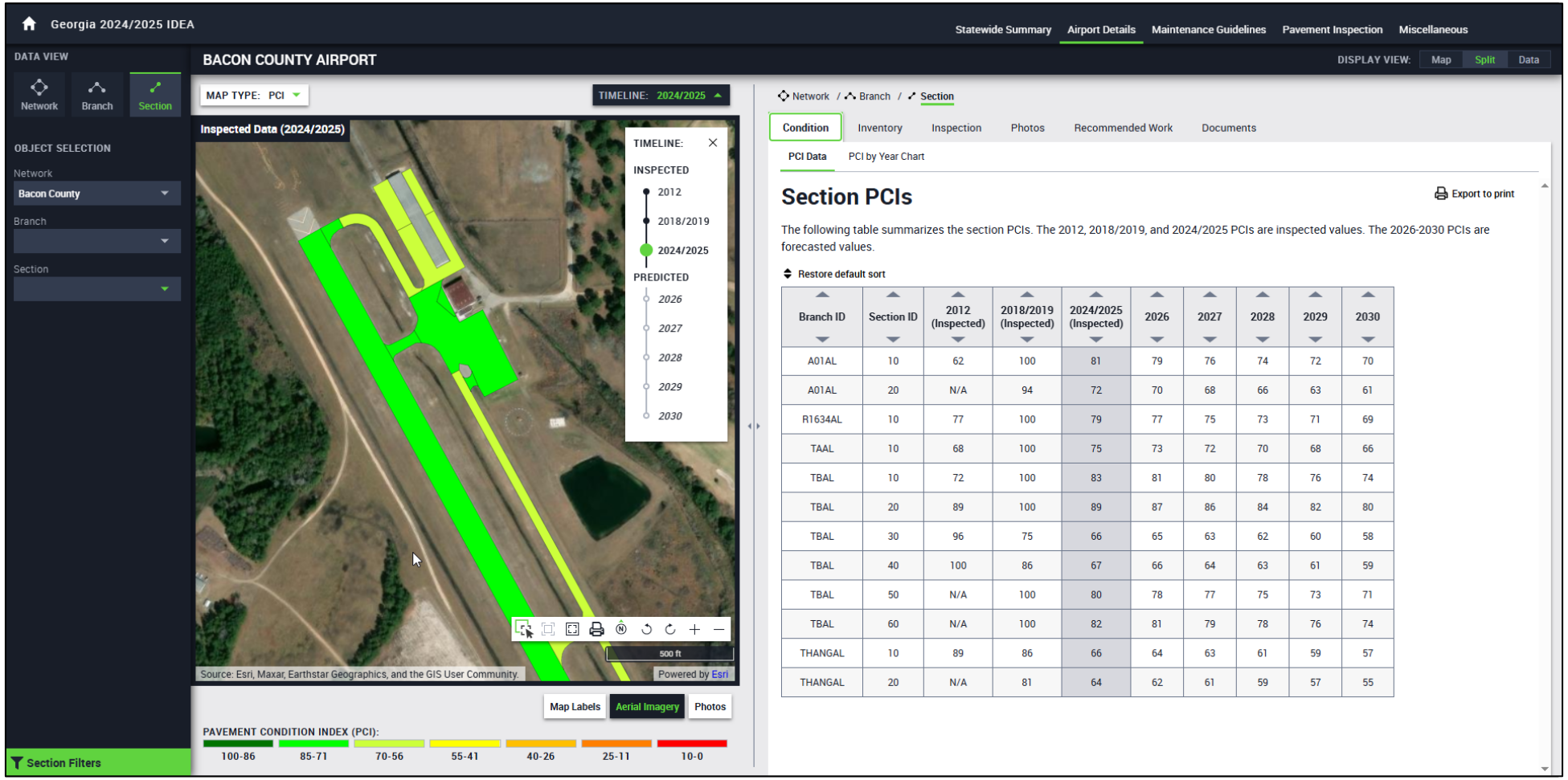




Airport Name	FAA Designator	GDOT Classification	Congressional District	Pavement Area, sf	No. Sections
Athens/Ben Epps Airport	AHN	CS	10	2,169,460	31
Atlanta Regional Airport-Falcon Field	FFC	3	3	2,073,875	14
Atlanta Speedway Airport	HMP	2	3	1,497,124	14
Augusta Regional Airport at Bush Field	AGS	CS	12	5,476,134	53

IDEA

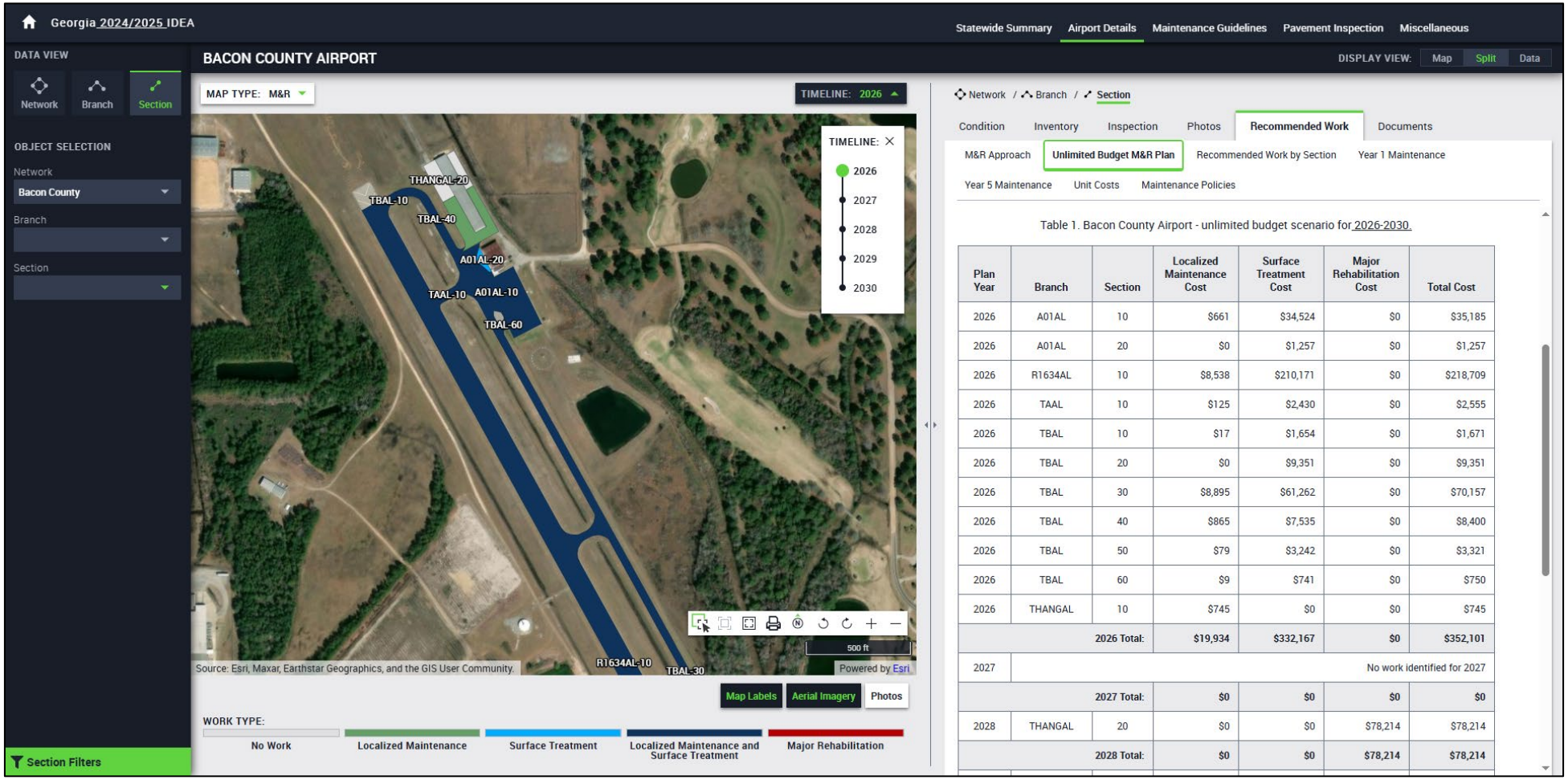
Airport Details



Branch ID	Section ID	2012 (Inspected)	2018/2019 (Inspected)	2024/2025 (Inspected)	2026	2027	2028	2029	2030
A01AL	10	62	100	81	79	76	74	72	70
A01AL	20	N/A	94	72	70	68	66	63	61
R1634AL	10	77	100	79	77	75	73	71	69
TAAL	10	68	100	75	73	72	70	68	66
TBAL	10	72	100	83	81	80	78	76	74
TBAL	20	89	100	89	87	86	84	82	80
TBAL	30	96	75	66	65	63	62	60	58
TBAL	40	100	86	67	66	64	63	61	59
TBAL	50	N/A	100	80	78	77	75	73	71
TBAL	60	N/A	100	82	81	79	78	76	74
THANGAL	10	89	86	66	64	63	61	59	57
THANGAL	20	N/A	81	64	62	61	59	57	55

IDEA

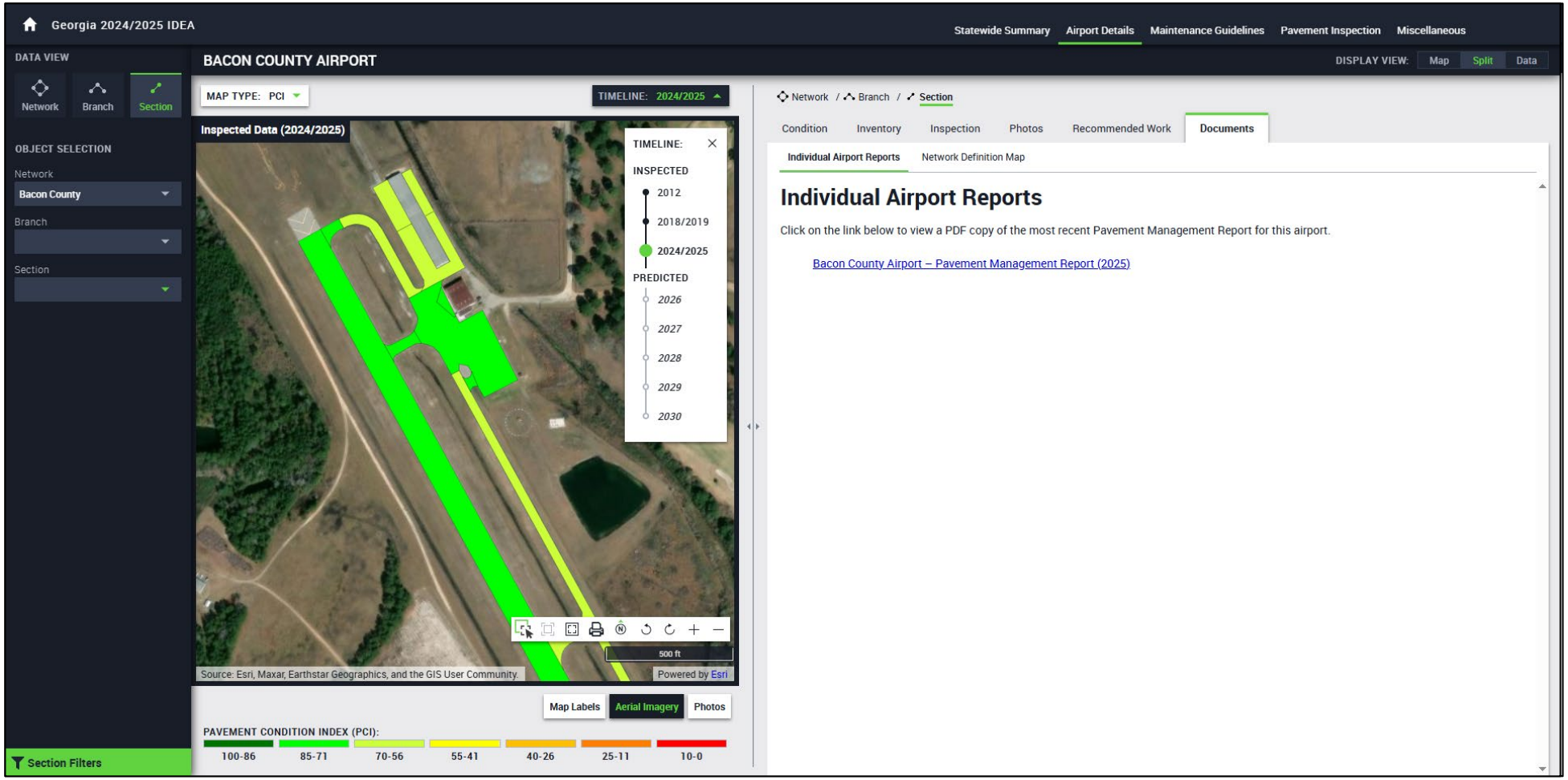
Airport Details (Continued)



Plan Year	Branch	Section	Localized Maintenance Cost	Surface Treatment Cost	Major Rehabilitation Cost	Total Cost
2026	A01AL	10	$661	$34,524	$0	$35,185
2026	A01AL	20	$0	$1,257	$0	$1,257
2026	R1634AL	10	$8,538	$210,171	$0	$218,709
2026	TAAL	10	$125	$2,430	$0	$2,555
2026	TBAL	10	$17	$1,654	$0	$1,671
2026	TBAL	20	$0	$9,351	$0	$9,351
2026	TBAL	30	$8,895	$61,262	$0	$70,157
2026	TBAL	40	$865	$7,535	$0	$8,400
2026	TBAL	50	$79	$3,242	$0	$3,321
2026	TBAL	60	$9	$741	$0	$750
2026	THANGAL	10	$745	$0	$0	$745
		2026 Total:	**$19,934**	**$332,167**	**$0**	**$352,101**
2027	No work identified for 2027					
		2027 Total:	**$0**	**$0**	**$0**	**$0**
2028	THANGAL	20	$0	$0	$78,214	$78,214
		2028 Total:	**$0**	**$0**	**$78,214**	**$78,214**

IDEA

Airport Details (Continued)



IDEA

Maintenance Guidelines

Georgia 2024/2025 IDEA

Statewide Summary | Airport Details | Maintenance Guidelines | Pavement Inspection | Miscellaneous

Maintenance Guidelines

Routine Maintenance Guidelines

FAA Maintenance Guidelines

Georgia 2024/2025 IDEA / Maintenance Guidelines / FAA Maintenance Guidelines

FAA Maintenance Guidelines

The FAA has prepared guidelines and procedures for the maintenance of airport pavements. FAA Advisory Circular 150/5380-6C and FAA Advisory Circular 150/5380-7B provide detailed guidance and procedures for the maintenance of airport pavements along with information on airport pavement management programs. Links to ea

FAA Advisory Circular 150/5380-6C: Guidelines and Procedures for

FAA Advisory Circular 150/5380-7B: Airport Pavement Managemen

Georgia 2024/2025 IDEA

Statewide Summary | Airport Details | Maintenance Guidelines | Pavement Inspection | Miscellaneous

Maintenance Guidelines

Routine Maintenance Guidelines

FAA Maintenance Guidelines

Georgia 2024/2025 IDEA / Maintenance Guidelines / Routine Maintenance Guidelines

Routine Maintenance Guidelines

In addition to the specific maintenance actions presented in the M&R plan, it is recommended that the following strategies are considered for prolonging pavement life.

- Regularly inspect all safety areas of the airport, and document all inspection activity.
- Provide a method of tracking all maintenance activities that occur as a result of inspections.
- Conduct an aggressive campaign against weed growth through timely herbicide applications and mowing programs of the safety areas. Vegetation growth in pavement cracks is destructive and significantly increases the rate of pavement deterioration.
- Implement a periodic crack and joint sealing program. Keeping water and debris out of the pavement system by sealing cracks and joints is a proven and cost-effective method of extending the life of the pavement system.
- Ensure that dirt does not build up along the edges of the pavements. This can create a “bathtub” effect, reducing the ability of water to drain away from the pavement system.
- Closely monitor the movement of heavy equipment (particularly farming, construction, and fueling equipment) to make sure it is only operating on pavements that are designed to accommodate heavy loads. Failure to restrict heavy equipment to appropriate areas may result in the premature failure of airport pavements.

IDEA

Pavement Inspection

Georgia 2024/2025 IDEA

Statewide Summary | Airport Details | Maintenance Guidelines | Pavement Inspection | Miscellaneous

Pavement Inspection

- Overview
- AC Distress Measurement
  - Alligator Cracking
  - Bleeding
  - Block Cracking
  - Corrugation
  - Depression
  - Jet-Blast Erosion
  - Joint Reflection Cracking
  - Longitudinal and Transverse (L&T) Cracking
  - Oil Spillage
  - Patching
  - Polished Aggregate
  - Raveling
  - Rutting

Georgia 2024/2025 IDEA / Pavement Inspection / AC Distress Measurement / Longitudinal and Transverse (L&T) Cracking

Longitudinal and Transverse (L&T) Cracking

Longitudinal cracks are parallel to the pavement's center line or lay down direction. They may be caused by (1) a poorly constructed paving lane joint, (2) shrinkage of the AC surface due to low temperatures or hardening of the asphalt, or (3) a reflective crack caused by cracks beneath the surface course, including cracks in PCC slabs (but not at PCC joints). Transverse cracks extend across the pavement at approximately right angles to the pavement's center line or direction of lay down. They may be caused by points (2) or (3) described above. These types of cracks are not usually load associated. If the pavement is fragmented along a crack, the crack is said to be spalled.

Severity	Distress Example	Description
Low		Cracks have only light spalling (little or no FOD potential) or no spalling, and can be filled or non-filled. If non-filled, the cracks have a mean width of 1/4 in (6 mm) or less. Filled cracks are of any width, but their filler material is in satisfactory condition. **Porous Friction Courses:** Average raveled area around the crack is less than 1/4 in (6 mm) wide.
Medium		One of the following conditions exists: (1) cracks are moderately spalled (some FOD potential) and can be either filled or non-filled of any width; (2) filled cracks are not spalled or are lightly spalled, but filler is in unsatisfactory condition; (3) non-filled cracks are not spalled or are only lightly spalled, but the mean crack width is greater than 1/4 in (6 mm); (4) light random cracking exists near the crack or at the corners of intersecting cracks. **Porous Friction Courses:** Average raveled area around the crack is 1/4 in to 1 in (6 mm to 25 mm).

Georgia 2024/2025 IDEA

Statewide Summary | Airport Details | Maintenance Guidelines | Pavement Inspection | Miscellaneous

Pavement Inspection

- Overview
- AC Distress Measurement
- Causes of AC Distress
- PCC Distress Measurement
- Causes of PCC Distress

Georgia 2024/2025 IDEA / Pavement Inspection / Causes of AC Distress

Causes of AC Distress

The following table summarizes the types of distresses that may be identified during a PCI survey of asphalt pavements, as well as brief descriptions and probable causes of each distress type.

Distress Type	Distress Description	Probable Cause of Distress
Alligator Cracking	A series of interconnected or parallel cracks, frequently in a wheel path.	Fatigue failure of the asphalt concrete surface under repeated traffic loading.
Bleeding	A film of bituminous material on the pavement surface.	Excessive amounts of asphalt cement or tars in the mix and/or low air void content.
Block Cracking	Extensive interconnected cracks intersecting at approximately right angles, at a 1- to 10-ft spacing.	(1) Shrinkage of the asphalt concrete and daily temperature cycling (it is not load associated), or (2) a progression of longitudinal and transverse cracking.
Corrugation	A series of closely spaced ridges and valleys at regular intervals perpendicular to the traffic direction.	Traffic action combined with an unstable pavement layer.
Depression	A localized area at a lower elevation than the surrounding pavement.	Settlement of the foundation soil, or can be "built up" during construction.
Jet-Blast Erosion	Darkened and carbonized areas of pavement.	Bituminous binder has been burned or carbonized.
Joint Reflection Cracking	Cracks caused by underlying movement at PCC joints.	Movement of the concrete slab beneath the asphalt surface because of thermal and moisture changes.
Longitudinal and Transverse (L&T) Cracking	Any cracking on the pavement surface that does not fall into any other category.	(1) poorly constructed paving lane joint, (2) shrinkage of the AC surface due to low temperatures or hardening of the asphalt, or (3) reflective cracks caused by cracks in an underlying concrete slab.
Oil Spillage	Localized softening of the pavement surface.	Spilling of oil, fuel, or other solvents.
Patching	Removal and replacement of material for a repair or a utility cut.	A patch is often used to repair pavement distresses, or repair the pavement after a utility cut has been made.

Questions?

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