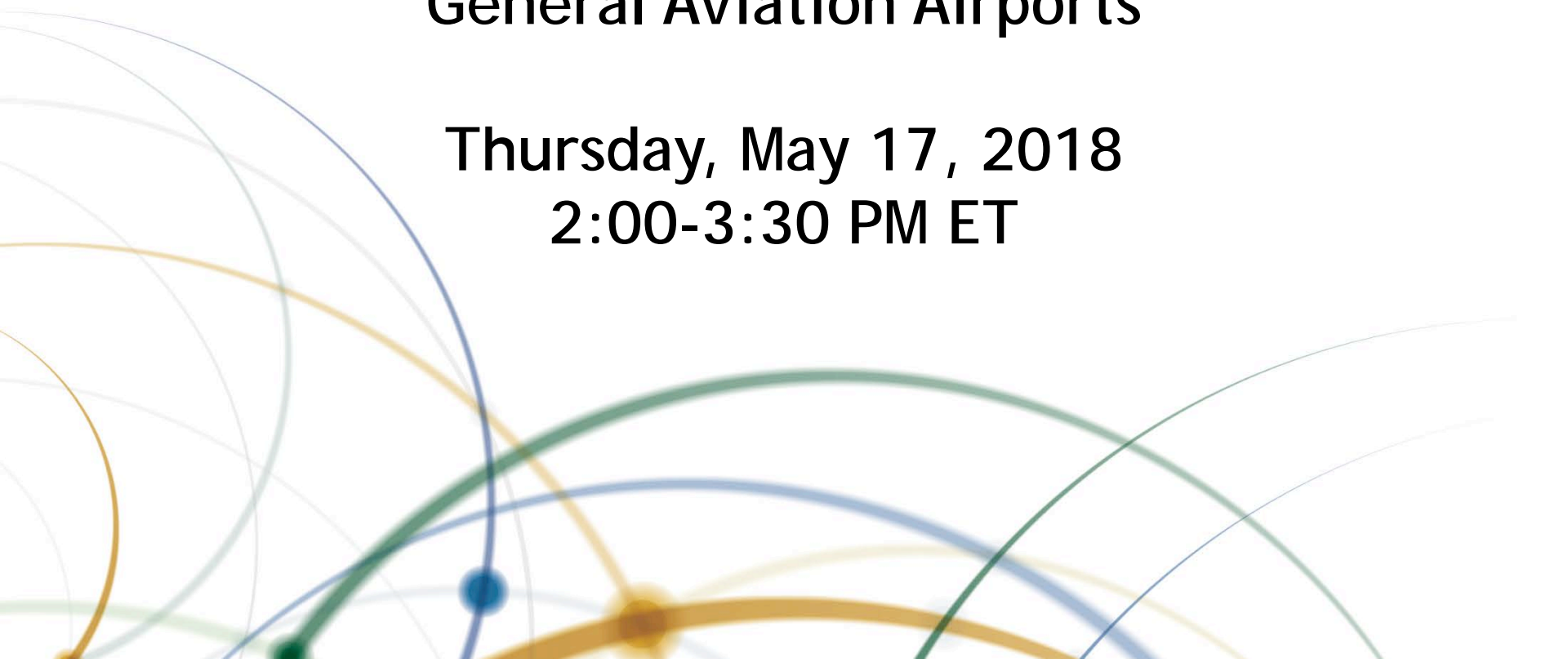


TRANSPORTATION RESEARCH BOARD

**Preventative Maintenance at
General Aviation Airports**

**Thursday, May 17, 2018
2:00-3:30 PM ET**



Purpose

Discuss research from the [Airport Cooperative Research Program](#) (ACRP)'s Report 138 Preventive Maintenance at General Aviation Airports [Volume 1](#): Primer and [Volume 2](#): Guidebook.

Learning Objectives

At the end of this webinar, you will be able to:

- Understand why preventive maintenance is important
- Describe how to establish a preventative maintenance program
- Understand the key elements of a preventative maintenance program for general aviation airports



ACRP is an Industry-Driven Program

- ✈ Managed by TRB and sponsored by the Federal Aviation Administration (FAA).
- ✈ Seeks out the latest issues facing the airport industry.
- ✈ Conducts research to find solutions.
- ✈ Publishes and disseminates research results through free publications and webinars.



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Five Ways to Get Involved!

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Other Ways to Participate

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Upcoming ACRP Webinars

July 18

Preparing and Using Airport
Design Day Flight Schedules

**Stay Tuned for More Information on
ACRP's 2018 Summer and Fall Webinar Series**

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Additional ACRP Publications Available on Today's Topic

Report 92: [Guidebook to Creating a Collaborative Environment Between Airport Operations and Maintenance](#)

Report 113: [Guidebook on General Aviation Facility Planning](#)

Report 155: [Guidebook for Advanced Computerized Maintenance Management System Integration at Airports](#)

Report 159: [Pavement Maintenance Guidelines for General Aviation Airport Management](#)

Web-Only Document 23: [Guidance on Successful Computer Maintenance Management System \(CMMS\) Selection and Practices](#)

Synthesis 49: [Helping New Maintenance Hires Adapt to the Airport Operating Environment](#)

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Today's Speaker

Rusty Chapman, PE
Delta Airport Consultants, Inc.

Presenting

**Report 138: Preventative Maintenance at
General Aviation Airports —
Volume 1: Primer and Volume 2: Guidebook**

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ACRP Report 138: Preventive Maintenance at General Aviation Airports

Robert “Rusty” B. Chapman, P.E., C.M.
Delta Airport Consultants, Inc.

David C. Ploeger, CM Principal Investigator

- Delta Airport Consultants, Inc.
- Former Airport Manager (Virginia, New Mexico)
- Former New Mexico State Aviation Director
- Retired Navy Officer, Chief of Naval Operations



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Rusty Chapman, PE, CM Co-Principal Investigator

- Project Manager, Delta Airport Consultants, Inc.
- FAA, Southern Region Airports Division Manager (retired)
- Program Manager, Department of Defense (Europe)



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Research Team

Delta Airport Consultants, Inc. – David C. Ploeger and Robert “Rusty” B. Chapman

Applied Pavement Technology, Inc. – David G. Peshkin

Sightline, LC – Donna J. Speidel

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ACRP Report 138

Oversight Panel

Kerry L. Ahearn, Boulder City Municipal Airport, Boulder City, NV , Panel Chair

Qingbin Cui, University of Maryland, College Park, MD

Charles T. “Skip” Miller, Louisville Regional Airport Authority, Louisville, KY

William J. Potter, Emerald Airport Consulting, LLC, Santa Rosa Beach, FL

Casey W. Ries, Gerald R. Ford International Airport, Grand Rapids, MI

Gary Shafer, Southern Illinois Airport, Carbondale, IL

Randy Moseng, FAA Liaison

James W. Bryant, Jr., TRB Liaison

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ACRP Report 138: *Preventive Maintenance at General Aviation Airports*

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- A two-volume primer/guidebook on preventive maintenance for general aviation airports
- Identifies principles of a preventive maintenance program
- Provides steps for the establishment and implementation of a preventive maintenance program
- Provides hands-on tips and checklists for the preventive maintenance of 20 types of airfield infrastructure systems
- Published 2015



Today

- What is preventive maintenance and why research it?
- Our research approach
- Research observations/results
- Application of research

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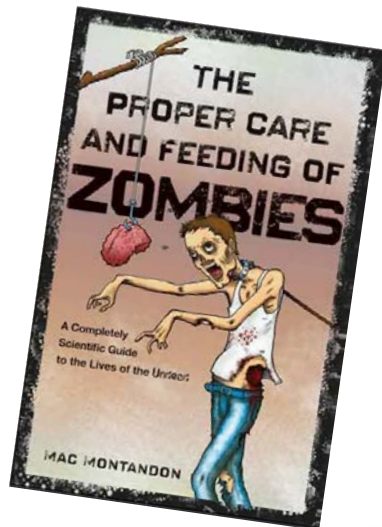
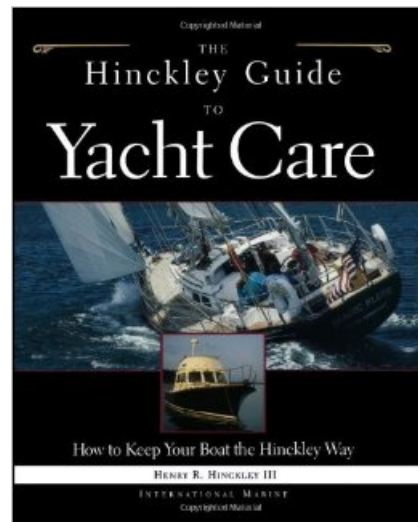


What is Preventive Maintenance?

Maintenance at general aviation airports is frequently broken into four types:

1. Operational
2. Reactive
3. Preventive
4. Predictive





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Airport Infrastructure

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- Electrical vault
- Lighting
- Marking
- Pavements
- Airfield signs
- Visual/navigational aids
- Utilities
- Deicing facilities
- Drainage system
- Fencing and gates
- Fueling facilities
- Hangars
- Landside infrastructure
- Maintenance equipment
- Storage buildings
- Obstructions
- Terminals/admin buildings
- Turf and safety areas
- Vehicles



Our Approach

1. Literature Review and Industry Outreach
2. Data Collection (Field Visits)
3. General Observations
4. Draft Outlines of Primer and Guidebook
5. Prepare Primer/Guidebook

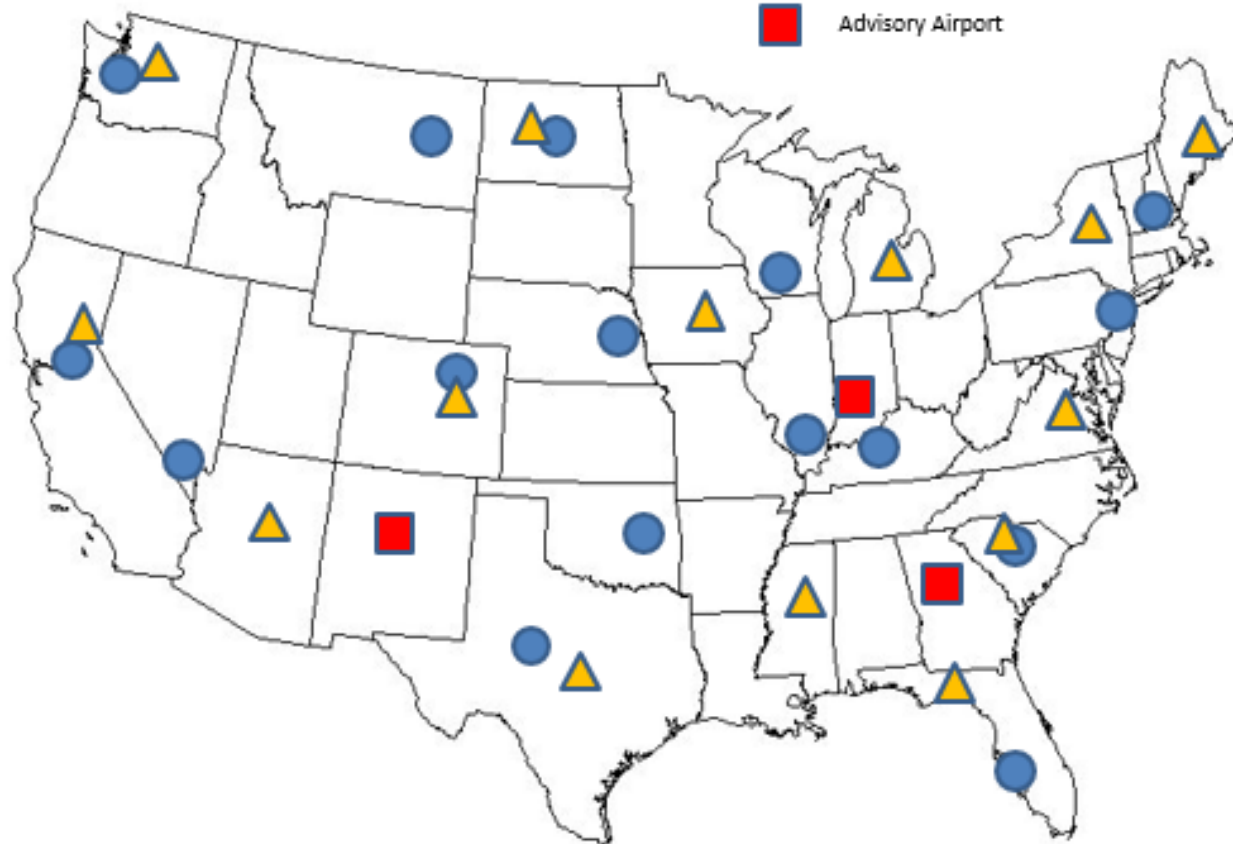


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Data Collection (Field Visits)

-  Airport Case Study
-  State Program Review
-  Advisory Airport



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General Observations - Airports

- Lack of guidance
- “When it breaks, we fix it”
- Routine maintenance vs. PM
- “No crack is left behind”
- Corporate knowledge
- Limited staffs
- Climatic considerations
- Infrastructure anecdotes
- Tenant relationships

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General Observations – Airports continued

- Use of contracts
- Wildlife impacts
- Original construction/purchase
- Changing the maintenance culture
- Funding challenges
- Percent of budget
- Regular inspections
- Front door to community

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General Observations – State Aviation Agencies

- Lack of guidance
- Statewide pavement management
- Grant programs - various
- State-owned equipment
- Statewide contracts
- State inspections
- State grant assurances
- Use of other state agencies
- State leadership is critical

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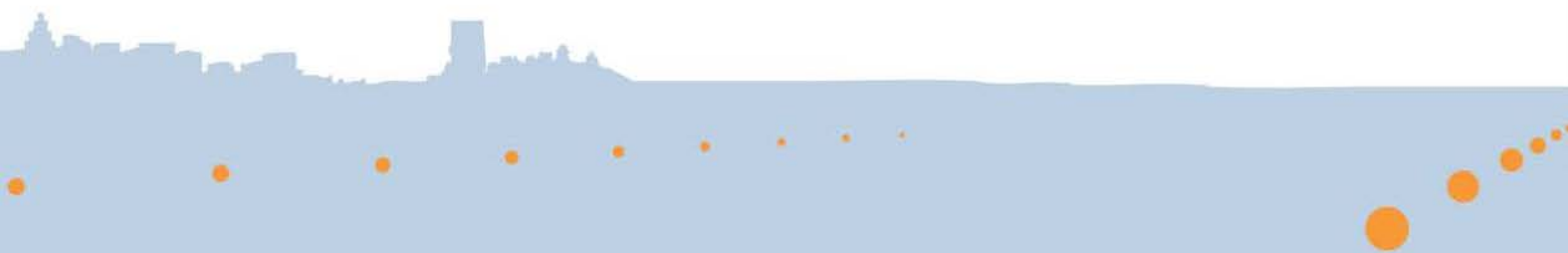
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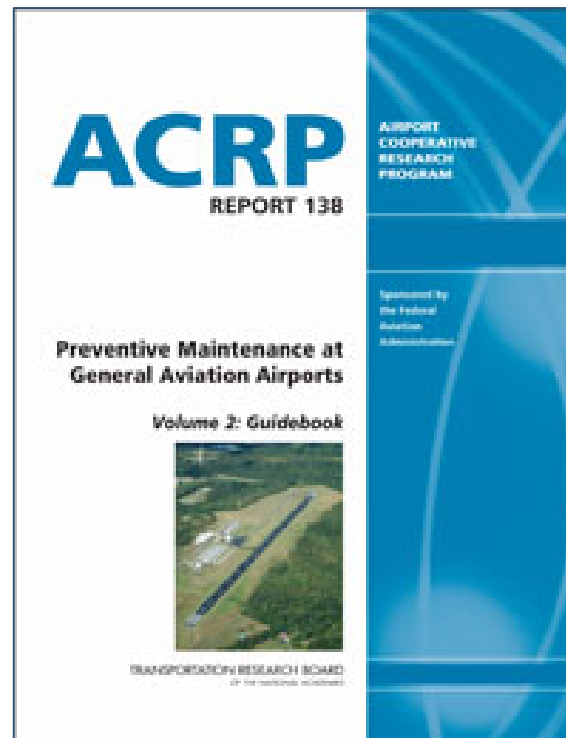
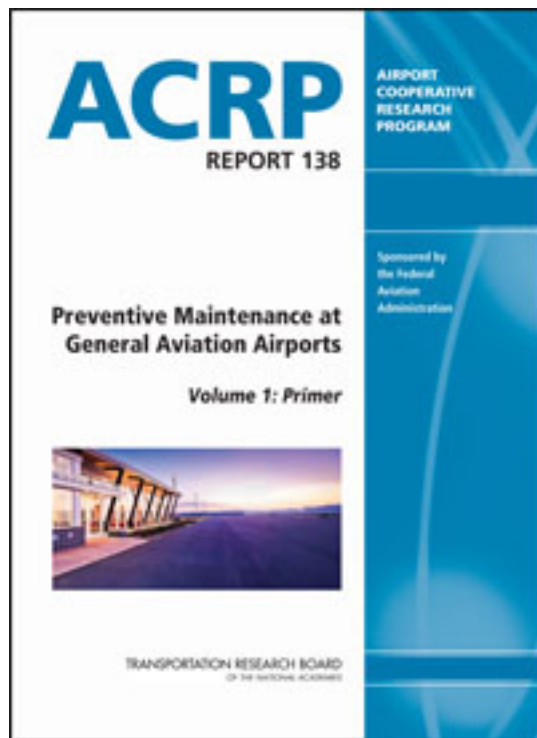


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Two Documents Two Audiences



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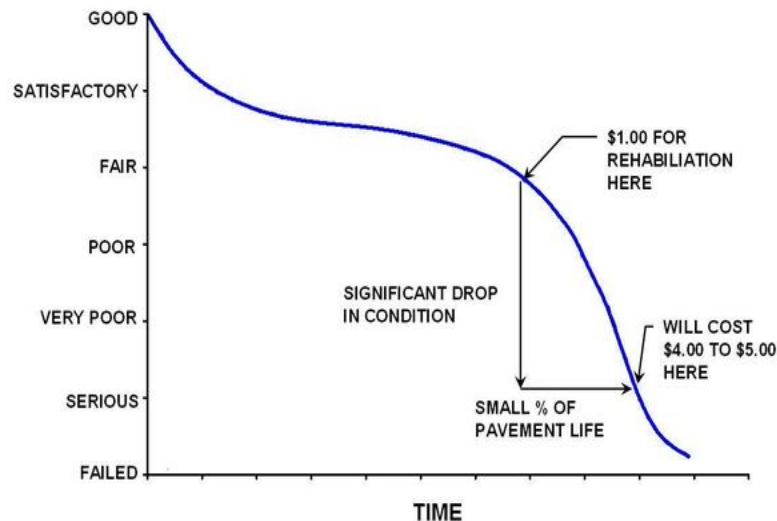
Why is Preventive Maintenance Important?

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Objectives

- Safety
- Economics
- Energy usage
- System longevity
- Legal/regulatory
- Environmental
- Community



Principles Airport Preventive Maintenance Program

- Understand the value of the airport and its infrastructure
- Focus on safety, system longevity, economics, legal agreements
- Integrate PM with airport objectives, mission, and plans
- Establish maintenance standards for each facility
- Dedicate resources
- Involve maintenance staff in decision-making
- Meet legal/regulatory compliance requirements

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Who is Involved?

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- **Airport owners and policy makers** – approve and appropriate resources
- **Airport managers** – manage and staff appropriately
- **Airport staff** – carry out the program
- **State/FAA** – provide funding and establish standards



Airports with little or no preventive maintenance program can develop and improve their program in six steps

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Basic Steps Airport Preventive Maintenance Program

1. Understand and embrace important guiding principles
2. Establish a baseline for the airport's infrastructure and condition
3. Identify PM needed for each infrastructure and develop schedule
4. Prioritize maintenance
5. Obtain resources needed for a program; obtain policymaker support
6. Implement the program (can be phased)

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For each type of facility.....

- Components
- Tips for construction
- Problem areas
- Inspection checklists



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Airport Infrastructure: Runway and Taxiway Lights



- Components
- Construction tips
- Problem areas

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Airport Infrastructure: Hangars

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- **Components**
- **Construction tips**
- **Problem areas**



Airport Infrastructure: Fueling Facilities

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- **Components**
- **Construction tips**
- **Problem areas**

Airport Infrastructure: Fencing and Gates



- Components
- Construction tips
- Problem areas

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Airport Infrastructure: Vehicles/Equipment



- **Components**
- **Construction tips**
- **Problem areas**

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Airport Infrastructure: Airfield Marking



- Components
- Construction tips
- Problem areas

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Airport Infrastructure

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- Electrical vault
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- Fencing and gates
- Fueling facilities
- Hangars
- Landside infrastructure
- Maintenance equipment
- Storage buildings
- Obstructions
- Terminals/admin buildings
- Turf and safety areas
- Vehicles



Closing Remarks



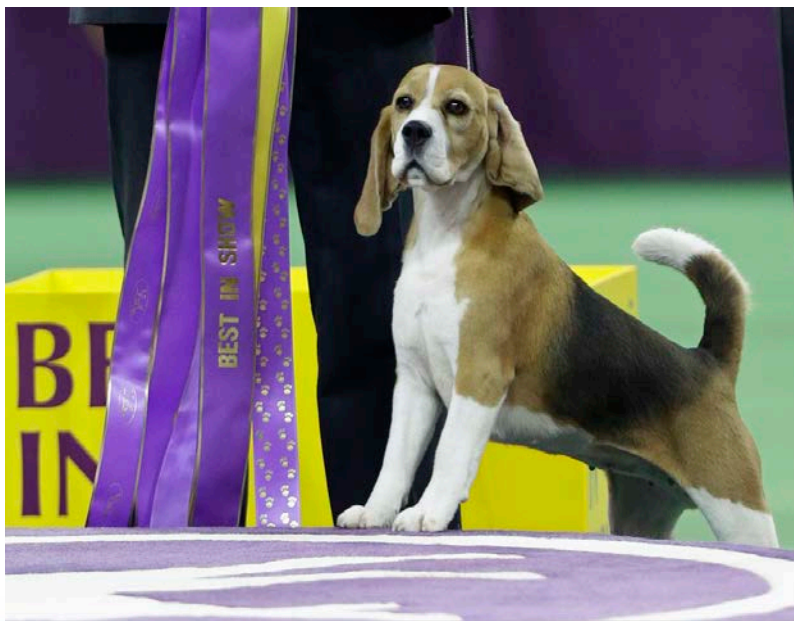


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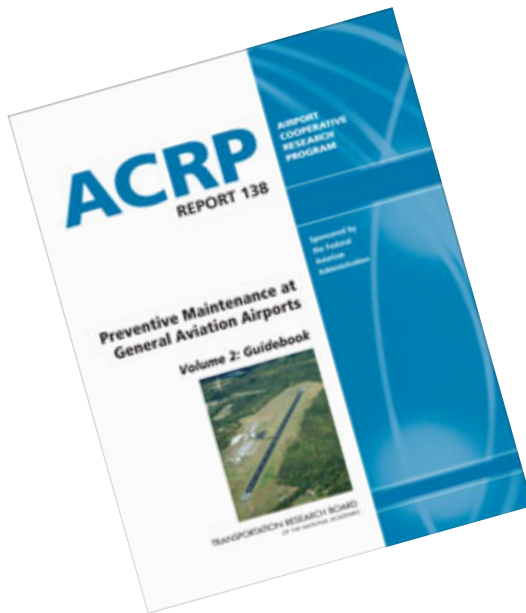
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For additional information:

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ACRP Report 138

Preventive Maintenance at General Aviation Airports

- Rusty Chapman
 - rchapman@deltaairport.com

<http://www.trb.org/Publications/Blurbs/172853.aspx>

Today's Participants

- Kerry Ahearn, *IEM*, kerry.ahearn@yahoo.com
- Rusty Chapman, *Delta Airport Consultants, Inc.*, rchapman@deltaairport.com



Panelists Presentations

<http://onlinepubs.trb.org/onlinepubs/webinars/180517.pdf>

*After the webinar, you will receive a follow-up email
containing a link to the recording*

Get Involved in ACRP

- Submit a research idea to ACRP.
- Volunteer to participate on a project panel.
- Prepare a proposal to conduct research.
- Get involved in TRB's Aviation Group of committees.
- Take part in the Champion or Ambassador Programs.

For more information:

<http://www.trb.org/acrp/acrp.aspx>