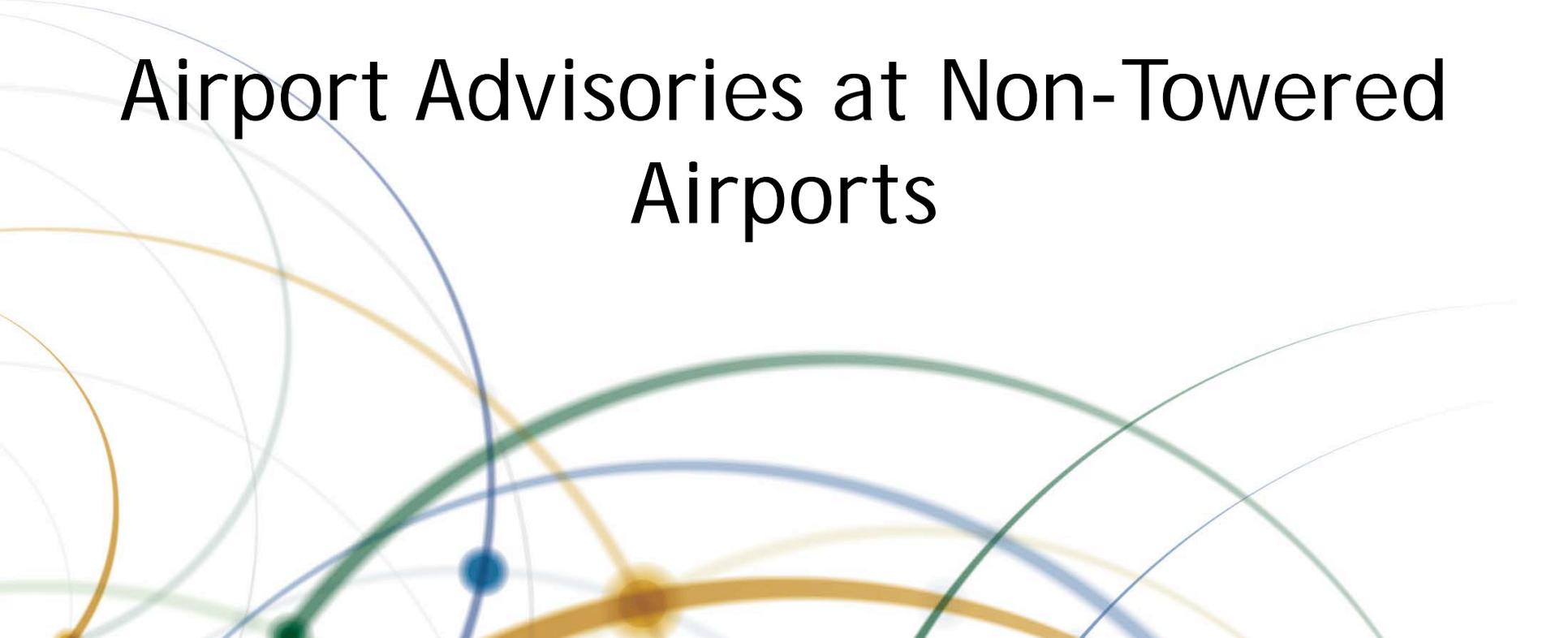
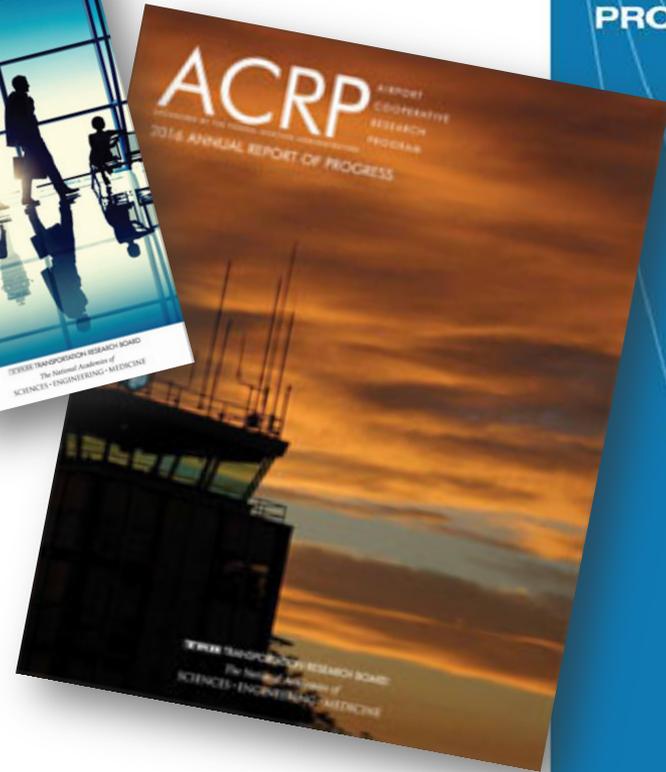


TRB Straight to Recording for All Airport Advisories at Non-Towered Airports



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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- ✈️ ACRP's Champion program is designed to help early- to mid-career, young professionals grow and excel within the airport industry.
- ✈️ Airport industry executives sponsor promising young professionals within their organizations to become ACRP Champions.
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Additional ACRP Publications Available

Report 32: Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports

Report 113: Guidebook on General Aviation Facility Planning

Report 138: Preventive Maintenance at General Aviation Airports

Legal Research Digest 23: A Guide for Compliance with Grant Agreement Obligations to Provide Reasonable Access to an AIP-Funded Public Use General Aviation Airport

Synthesis 3: General Aviation Safety and Security Practices

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Today's Speakers

Dr. Daniel Prather, A.A.E., CAM
DPrather Aviation Solutions, LLC

Presenting Synthesis 75

Airport Advisories at Non-Towered Airports

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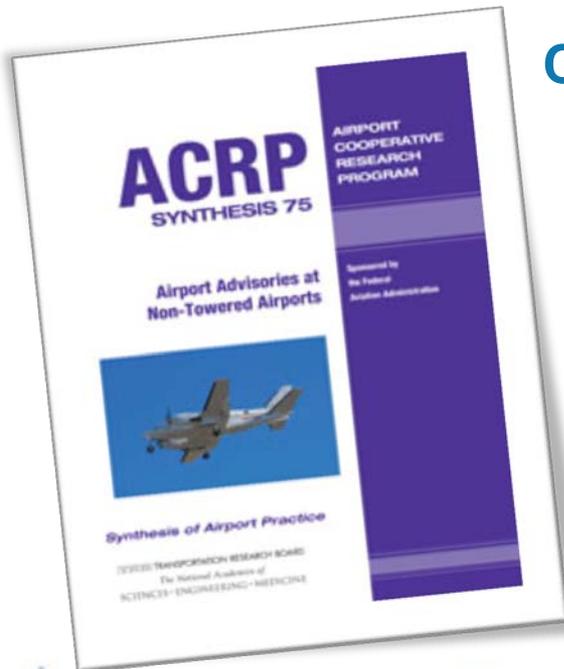
ACRP Synthesis 75: Airport Advisories at Non- Towered Airports

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C. Daniel Prather, Ph.D., A.A.E., CAM

Principal Investigator

- Founder, DPrather Aviation Solutions, LLC
- Current Founding Chair and Professor of Aviation Science, California Baptist University
- Former Assistant Director of Operations, Tampa International Airport
- Instrument-rated Private pilot



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Topic Panel

Kerry L. Ahearn, Boulder City Municipal Airport

Megan Barnes, Paragon Aviation Group

Shelly Lesiker DeZevallos, West Houston Airport

Becky Lutte, University of Nebraska

Brian McKeehan, Gresham Smith and Partners

Chris Rozansky, Naples Airport Authority

Rebecca Henry, Federal Aviation Administration (Liaison)

John L. Collins, AOPA Air Safety Institute (Liaison)

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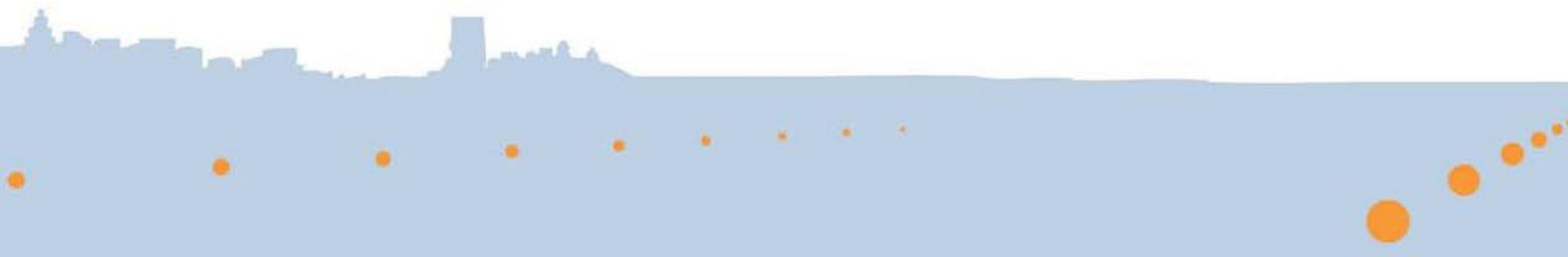
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ACRP Synthesis 75: Airport Advisories at Non-Towered Airports

- Documents the manner in which non-towered airports provide advisories to pilots regarding winds, traffic, and runways in use
- Presents a review of current literature
- Includes six case examples of actual airport practices
- Presents a number of conclusions, supported by research, to enhance safety at non-towered airports
- Published 2016

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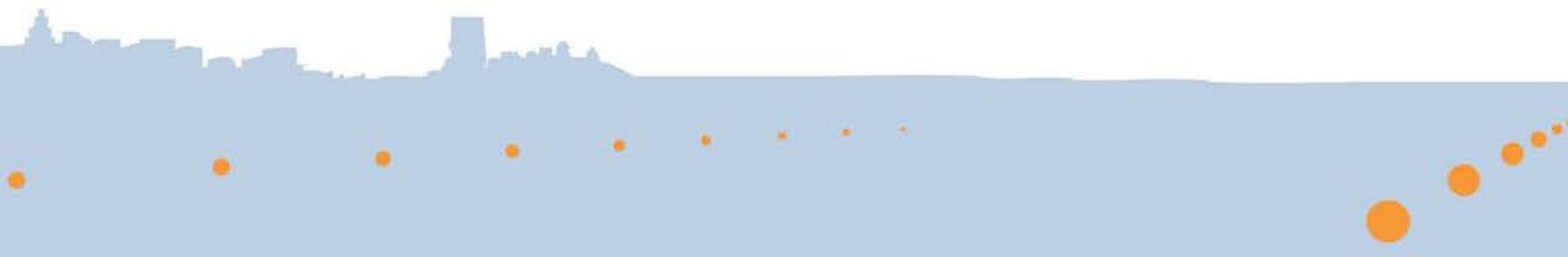


Part 1

Introduction
Methodology
Literature Review

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Introduction

14 CFR Part 91.103

Compliance is possible whether pilots plan to operate at towered or non-towered airports.

Consider FSS weather briefings

ATIS – at towered airports

AWOS/ASOS – at nontowered airports

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Introduction cont.

14 CFR Part 91.123

Of 13,112 public-use airports, only 123 have FAA ATCTs, whereas 252 have contract ATCTs.

As a result, pilots often operate into and out of non-towered airports without (a) ATC-provided information and (b) ATC instructions.

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Introduction cont.

The basic difference between operating at a tower-controlled airport and one without an operating control tower is the difference between instructions and advisories. Tower controllers issue taxi, departure, and arrival instructions for pilots to follow on specific air traffic control frequencies. At non-towered airports, you will hear [pilot] advisories on a CTAF [and possibly airport advisories on UNICOM], but the responsibility for collision avoidance, sequencing, and knowing the local procedures lies solely with the pilot (AOPA, 2003)

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Introduction cont.

Pilot advisories

Airport advisories

For the purposes of this synthesis report,

“communicating intentions” is referred to as “pilot advisories,” which is not the subject of this report.

“Obtaining airport/traffic information” is referred to as “airport advisories,” which is the subject of this report.

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Introduction cont.

This report presents findings on the manner in which airports (whether airport, FBO, or other personnel) provide advisories to pilots in the form of winds, traffic, runways in use, etc.

Unlike pilot advisories, there is little guidance available for airport operators in providing airport advisories. This report attempts to aggregate available guidance on this topic.

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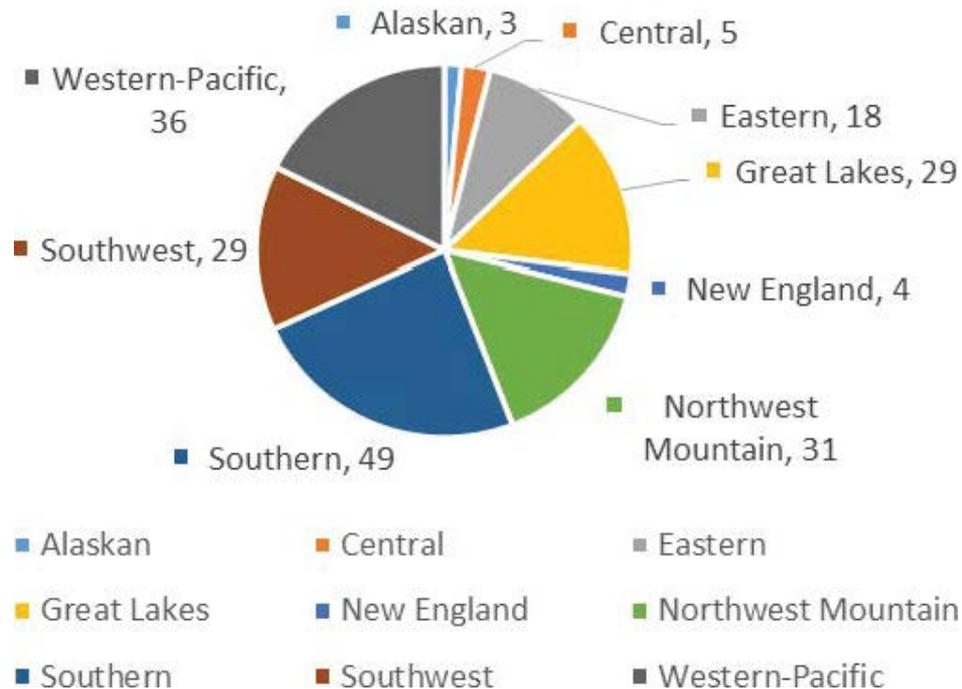
Methodology

Literature review completed.

Focus on non-towered airports with at least 50,000 annual operations.

Airport Master Record database defined the study population of 204 airports.

Airports by FAA Region



Methodology cont.

Telephone interview script was developed.

Airport manager for each airport was contacted during June-August 2015.

Total 165 responses were obtained – 81% response rate.

Second phase allowed contact with a select number of airports to develop case examples. This group was geographically diverse and had wither a stand-alone UNICOM or combined CTAF/UNICOM.

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Literature Review

CTAF: A designated frequency for the purpose of carrying out airport advisory practices while operating to or from an airport that does not have a control tower or an airport where the control tower is not operational. The CTAF is normally a UNICOM, MULTICOM, flight service station (FSS) frequency, or a tower frequency.

UNICOM: A nongovernment air/ground radio communication station which may provide airport information at public use airports where there is no tower or FSS. On pilot request, UNICOM stations may provide pilots with weather information, wind direction, the recommended runway, or other necessary information. If the UNICOM frequency is designated as the CTAF, it will be identified in appropriate aeronautical publications.

Literature Review

MULTICOM: A mobile service, not open to public correspondence use, used for essential communications in the conduct of activities performed by or directed from private aircraft. Not intended to be used for communication of airport advisories because it is a private frequency.

Flight Service Station: Air traffic facilities which provide pilot briefings, flight plan processing, inflight radio communications, search and rescue (SAR) services, and assistance to lost aircraft and aircraft in emergency situations. FSSs also relay Air Traffic Control (ATC) clearances, process NOTAMs, broadcast aviation meteorological and aeronautical information, and notify Customs and Border Protection of transborder flights.

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Options for Obtaining Airport Information

1. Observing the segmented circle
2. Communicating with FSS
3. Communicating with UNICOM operator
4. Communicating on CTAF
5. Communicating on a combined CTAF/UNICOM
6. Listening to AWOS/ASOS
7. Using automated UNICOM
8. Using Super AWOS Plus Automated UNICOM (Super AWOS)

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Segmented Circle

Consists of, at a minimum, a segmented circle with a conventional wind cone at the center.

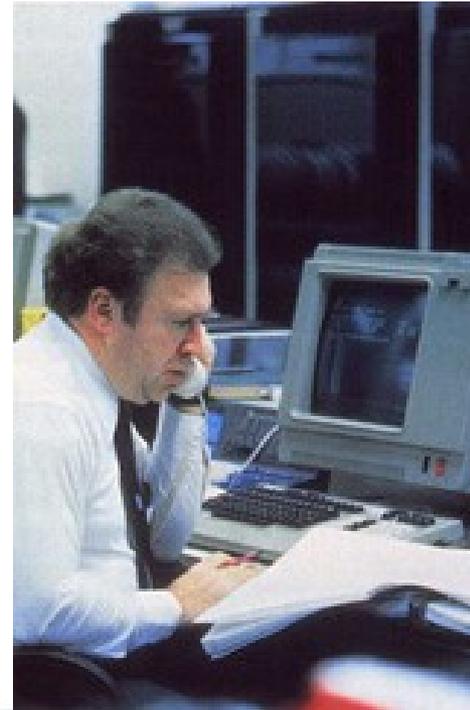
Additional components may include:

1. Landing direction indicator
2. Landing strip indicators
3. Traffic pattern indicators
4. Right-turn indicators
5. Closed field signal



Communicating with FSS

Once common for airports with on-field FSS, the consolidation of FSS has made this a much less common way to receive current airport information, such as traffic.



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Communicating with UNICOM operator

Very common (92% of participating airports)

UNICOM is a physical station, possibly an aeronautical radio in the airport manager's office or the FBO, and is staffed by one or more individuals. UNICOM, during operating hours, provides airport advisories, including winds and runway(s) in use. This frequency may also be used by pilots to request fuel, catering, courtesy car, etc.

UNICOM does not issue landing or takeoff clearances and is not ATC.



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Communicating on CTAF

Extremely common but generally not for the purposes of obtaining an airport advisory. This frequency is used by pilots to self-announce their intentions by communicating with other pilots in the vicinity of the airport.

Pilots monitoring CTAF can learn about the runway(s) in use by listening to position reports and intentions of other pilots, but likely will not gain information about current winds.



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Communicating on Combined CTAF/UNICOM

Occasionally exists at airports

The same frequency is shared by CTAF and UNICOM

When a pilot contacts a combined CTAF/UNICOM, who the pilot is speaking to depends on what is said.

If the pilot calls “traffic,” the pilot is speaking to pilots of other aircraft. This is common when self-reporting a position and intention. The pilot does not expect a response from other aircraft.

However, when the pilot calls “UNICOM,” the pilot is speaking to the UNICOM operator and expects a response from someone at a ground station.

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Listening to AWOS/ASOS

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AWOS/ASOS is common for obtaining current airport weather but generally not for obtaining an airport advisory. However, some airports are able to audibly append broadcasts with current information.

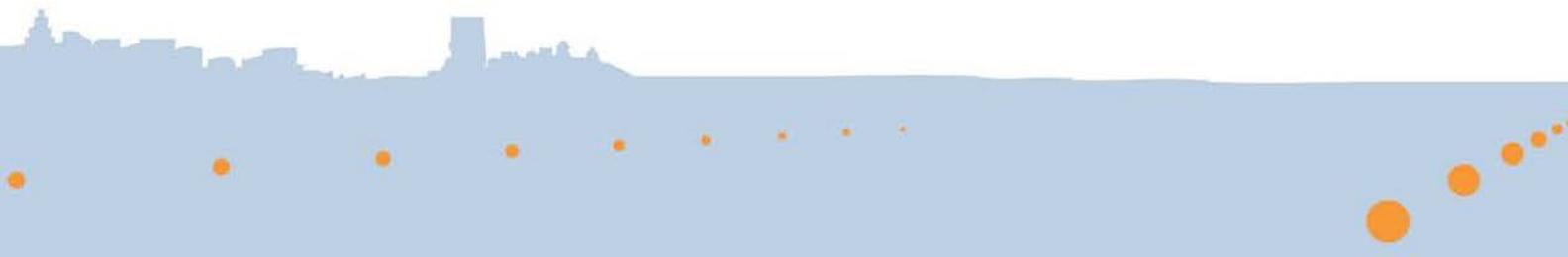
Information such as runway/taxiway closures, construction activity, wildlife activity, skydiving activity, unmanned aerial systems (drones) activity, and signs or lights out of service represent the types of information that may be broadcast by means of AWOS/ASOS in an appended fashion.



Using Automated UNICOM

An automated UNICOM generally provides weather (altimeter, visibility, wind, crosswinds, wind shear); preferred runway based on current conditions; and automatic radio “echo-check.” Pilots activate the automated UNICOM with radio clicks (three clicks for weather; four clicks for radio check).

This option allows a non-towered airport to provide the two most common components of an airport advisory (runway in use and radio check) in an automated fashion, negating the need to staff a UNICOM station.



Using AWOS Plus Automated UNICOM (Super AWOS)

Super AWOS provides all the services of a traditional AWOS but also greets pilots, provides runway-in-use advisories, provides radio “echo-check” capabilities, and advises pilots of traffic in the area. The Super AWOS is able to detect traffic in the local area and inform pilots of the Super AWOS, along with instructions on how to use it:

“Good Morning. Potomac Airfield, automated UNICOM. Click your mic three times for an advisory, four times for a radio check.”



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Emerging: Automated Micro Tower

Allows pilots to receive ATC-like services at a nontowered airport. This innovative self-contained system serves as an automated control tower and a weather service.

By means of artificial intelligence, a micro tower knows the airport's runways, approaches, and traffic patterns; is able to monitor the CTAF; and continually senses real-time weather conditions.

What makes this option unique is that the micro tower is able to listen to aircraft communications and respond appropriately.



Emerging: Remote Tower

Allows ATC-like services with remotely located controllers.

High-resolution digital video cameras, meteorological sensors, microphones, and other devices at the remote airport are linked in real time to the remote tower center.

At the staffed remote tower center, images from the remote airport are projected onto panoramic liquid crystal display screens that can provide a complete 360° view.

U.S. example: Leesburg (VA) Executive Airport

<https://www.nbaa.org/ops/airspace/regional/northeast/maneuvering-area-remains-in-effect-during-remote-tower-testing-at-leesburg.php>



Guidance

Grant Assurance 19: Operation and Maintenance

14 CFR Part 91.113: Right-of-Way Rules

AC 150/5210-20: Ground Vehicle Operations on Airports

FAA Guide to Ground Vehicle Operations

AC 90-66A: Recommended Standard Traffic Patterns and Practices for Aeronautical Operations at Airport Without Operating Control Towers

AC 90-42F: Traffic Advisory Practices at Airports Without Operating Control Towers

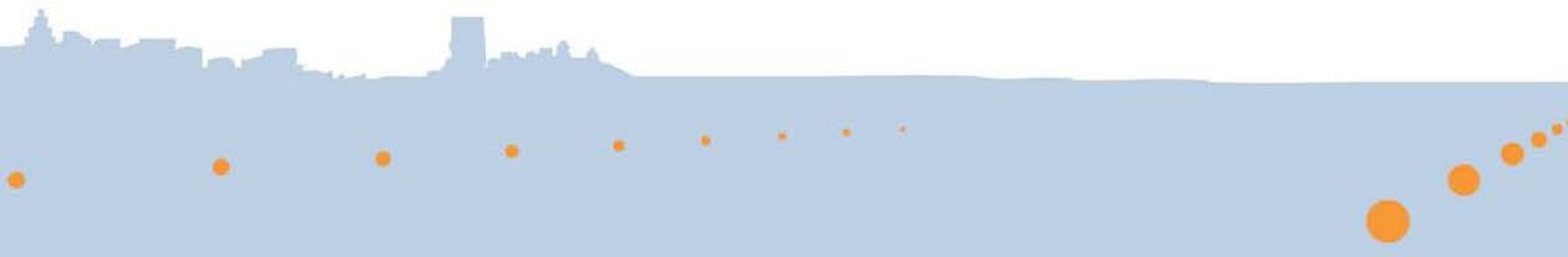
Aircraft Owners and Pilots Association Safety Advisor

FAA Pilot Handbook, Chapter 13 – Airport Operations

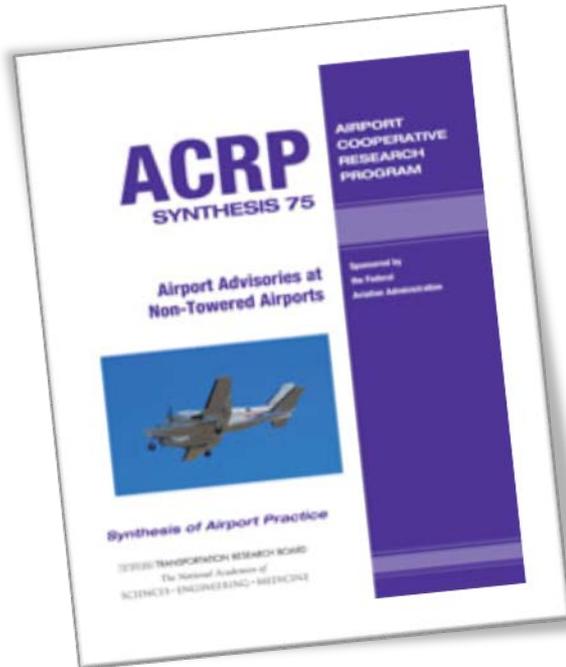
47 CFR Part 87.213: Scope of Service (UNICOM)

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For additional information:



ACRP Synthesis 75 *Airport Advisories at Non-Towered Airports*

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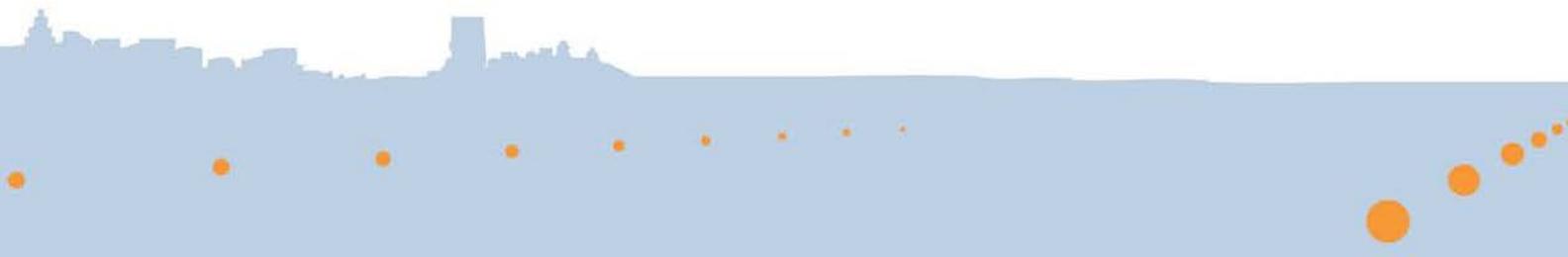
<http://www.trb.org/Publications/Blurbs/174840.aspx>

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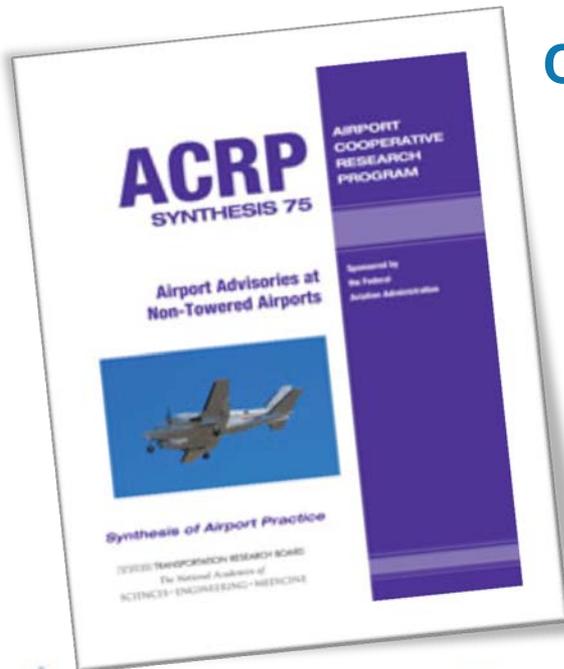
ACRP Synthesis 75: Airport Advisories at Non- Towered Airports

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DPrather Aviation Solutions, LLC
California Baptist University



Part 2

Survey Results
Case Examples
Conclusions

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Survey Results



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Methods of Advisories

35% of airports provide audible advisories to pilots upon request.

91% of airports provide AWOS or ASOS.

97% of airports provide wind sock or segmented circle.

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Audible Advisories

Of the airports providing audible airport advisories, most provide them only upon request by a pilot.

Even if airport advisories are available upon request, some airports reported low utilization of this service.

This low utilization at some airports has been associated with lack of formal training of personnel and an underlying fear of liability by airports in providing airport advisories.

When provided, the advisories generally are designed to convey winds, runway in use (or favored), and NOTAMs affecting the airfield.

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Difference Between Actual and Published Procedures

85% of airports indicate there is no difference between what is published and what is actually followed by pilots.

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Airport Operations/Maintenance/Aircraft Rescue Firefighting Vehicle Procedures

89% of airports report that ground vehicle operators routinely monitor the radio.

81% report that these ground vehicle operators utilize lights/flags on the vehicle.

20% of airports report that ground vehicle operators self-announce before entering the movement area.

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Role of CTAF

100% of airports with CTAF use CTAF as UNICOM.

Stand-alone UNICOM frequency requires knowledge of another frequency, although it minimizes frequency congestion.

Combined CTAF/UNICOM requires knowledge of only one frequency, but pilots must address “Traffic” or “UNICOM”

96% of airports do not have automated advisory information on CTAF.

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Common Traffic Advisory Frequency

Three most common CTAF frequencies:

122.80 (24%)

123.00 (22%)

122.70 (19%)

35% of airports commonly experience frequency congestion or bleed over with nearby airports sharing the same frequency.

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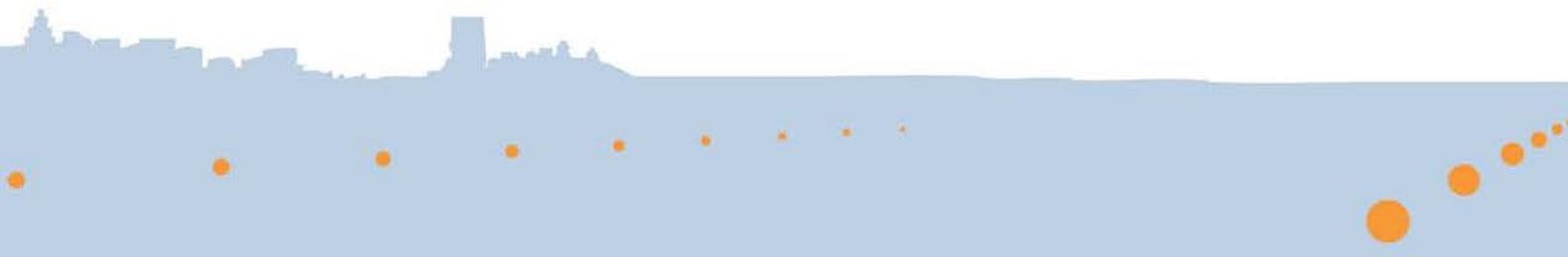
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Pilot Consistency

97% of airports report that pilots consistently communicate their intentions over CTAF.

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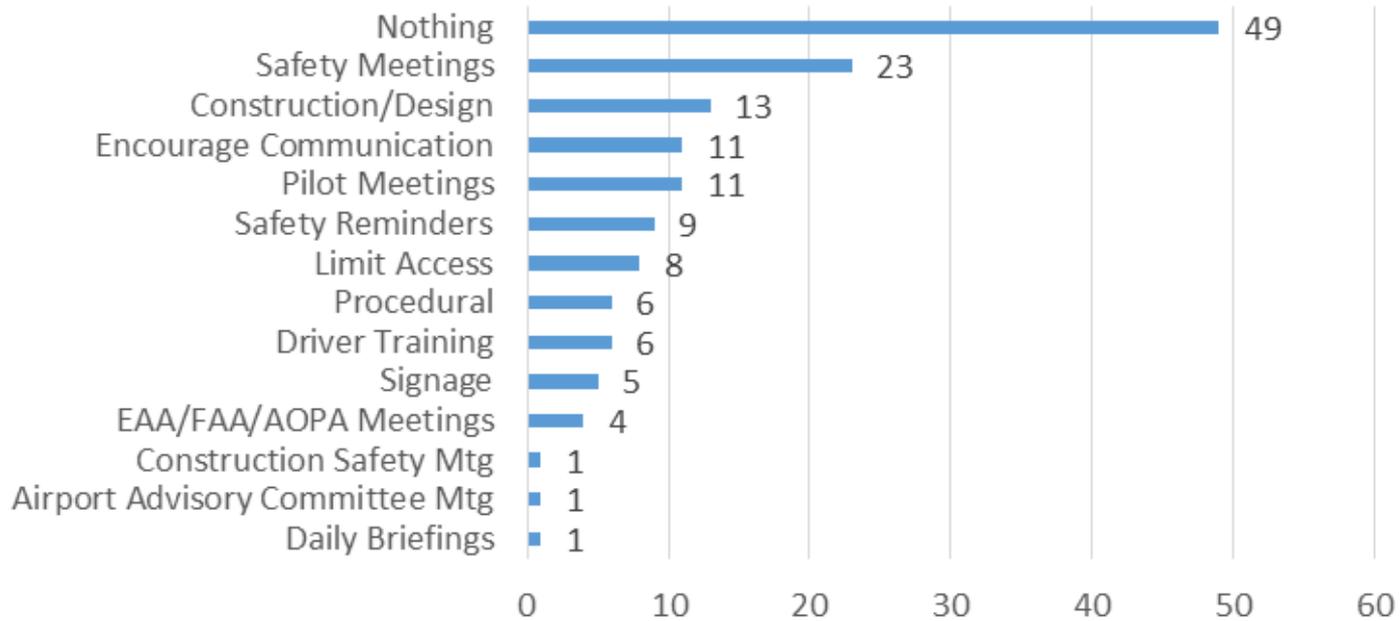


Efforts to Minimize Incursions

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What are you doing to minimize incidents/incursions at your airport?

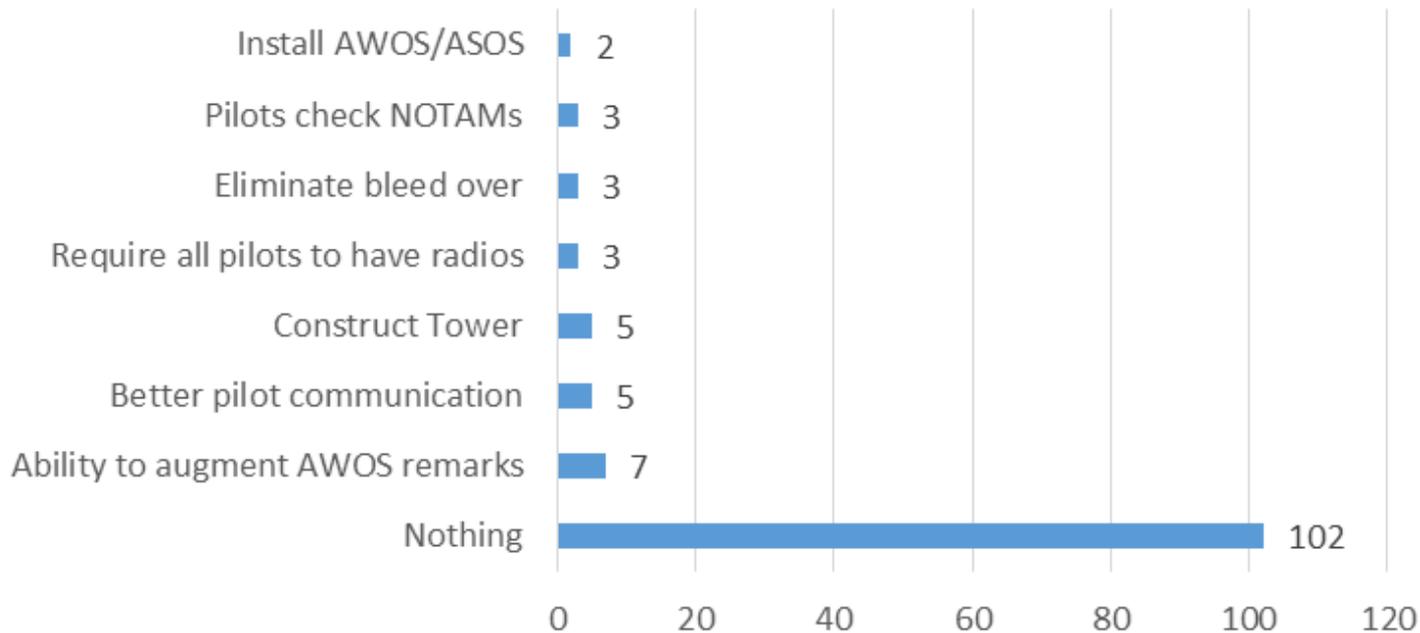


Improvements to Airfield Safety

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How do you feel airfield safety related to airport advisories could be improved at your airport?



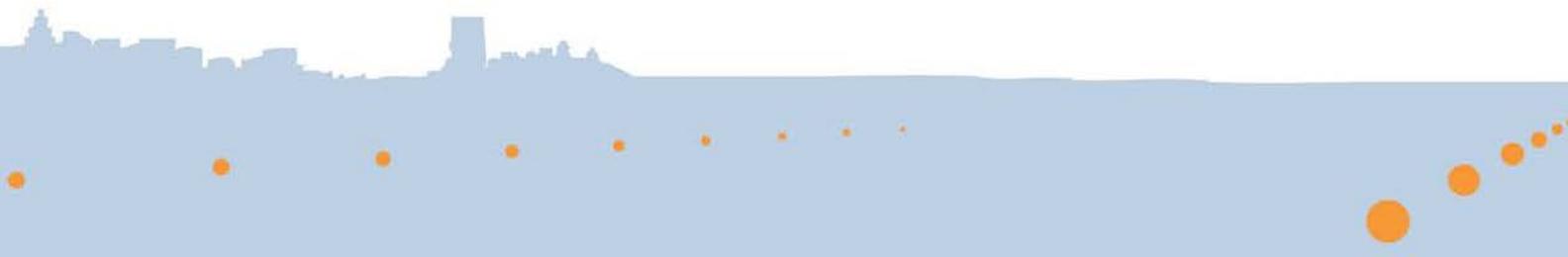
Necessity of Airport Advisories

96% of airports believe that airport advisories are necessary at non-towered airports.

There is a general belief among participating airports in the value of airport advisories for enhancing airport safety.

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How Could Advisories be Improved?

Have the ability to append/augment AWOS/ASOS broadcasts

Use proper phraseology on UNICOM

Minimize frequency interference/bleed over

Make more UNICOM frequencies available

Require mandatory radios by pilots

Ensure NOTAMs are made available on UNICOM and/or AWOS/ASOS

Enhance situational awareness on the part of all airport users

Improve training for those providing advisories

Improve education of pilots on proper communication and the role of UNICOM

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Case Example 1

Shelbyville (TN) Municipal Airport

Combined CTAF/UNICOM frequency, with the UNICOM station operated by the FBO.

Line service personnel usually staff the UNICOM station. The FBO provides on-the-job training for line personnel, including instruction in the operation of the UNICOM station.

Less than 5% of pilots actually request an airport advisory, although 60% of aircraft operations are transient.

When asked to pinpoint why there were so few requests for airport advisories, the airport manager pointed to the on-field AWOS and CTAF frequency.

Airport UNICOM station enhances airport safety.

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Case Example 2

Carson (NV) Airport

Combined CTAF/UNICOM frequency.

FBO Sterling Air handles UNICOM in the morning.

FBO handles UNICOM in the afternoons.

On-the-job training is provided.

Although the airport is equipped with an AWOS station, which is used quite commonly among pilots, a larger percentage of pilots also request airport advisories by the combined CTAF/UNICOM frequency.

The airport manager recommends that all non-towered airports “get on the same page” to avoid midair collisions and ensure a safe operating environment with well-informed pilots. UNICOM can play a key role with this initiative.

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Case Example 3

Bremerton (WA) National Airport

Separate UNICOM frequency.

The airport's FBO, Avian Flight Service, has entered into an agreement with the Port of Bremerton to operate the UNICOM station.

Employees are taught that "we can't fly the airplane for them from the ground.

Only about 20% of pilots request an airport advisory through the UNICOM. With AWOS on the field and a separate CTAF frequency, most pilots are able to obtain the information needed, thus negating the need for an airport advisory

In the past, UNICOM personnel have served as a "tie-breaker" among two pilots arguing on which runway to use. In these instances, the UNICOM operator can respond, "Traffic is using . . . ," or "The preferred calm wind runway is. . . ."

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Case Example 4

West Houston (TX) Airport

Combined CTAF/UNICOM frequency, which is operated by the airport-owned FBO.

FBO personnel, either customer service or line service, respond to calls for airport advisory on the combined CTAF/UNICOM frequency.

On-the-job training is required for personnel.

The airport manager estimates that 50% of pilots request airport advisories through the UNICOM frequency.

The manager said that UNICOM is helpful for pilots in avoiding confusion as to which runway to use.



Case Example 5

Caldwell (ID) Industrial Airport

Combined CTAF/UNICOM frequency. Although the airport has several

FBOs, the airport operates the UNICOM base station

The airport manager operates the UNICOM station during most hours; he even has an aeronautical radio in his personal car.

The airport is fortunate to have an on-field AWOS. The AWOS provides most information that pilots need, including information on winds. According to the airport manager, between the CTAF and AWOS, pilots are able to determine the runway in use (direction of landing), thus negating the need for an airport advisory.

Not having a UNICOM can be a “crippling weakness.”

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Case Example 6

Meadow Lake (CO) Airport

Combined CTAF/UNICOM frequency

The airport does not generally issue airport advisories but can convey hazards to pilots. In general, UNICOM is simply monitored.

The two flight schools on airport teach student pilots to think and keep their eyes and ears open. Students are taught to expect the unexpected



Summary Findings from Case Examples

Being a pilot is beneficial. Many airports prefer pilots to operate UNICOM.

Prepare accordingly. Expect that pilots may not know standard procedures at non-towered airports

UNICOM is for advisories, not commands. For example, the pilot in command determines which runway to use.

The priority on UNICOM is for airport advisories. Operational business requests (fuel, cars, parking, etc.) should not take priority—except in an emergency situation.

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Summary Findings from Case Examples

Proper training including phraseology for UNICOM personnel is imperative. Otherwise, the UNICOM operator may lose credibility with pilots (and the airport if UNICOM is operated by the FBO).

Having an on-field AWOS/ASOS is effective at enhancing safety at non-towered airports.

A separate UNICOM frequency necessitates the need to educate pilots about two separate frequencies—CTAF and UNICOM—to avoid inadvertent use by pilots of the wrong frequency.

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Conclusions

1. Non-towered airports benefit from having a combined CTAF/UNICOM frequency or separate UNICOM frequency upon which airport advisories may be transmitted.
2. Non-towered airports equipped with an on-field AWOS or ASOS receive fewer requests for airport advisories. Having an AWOS or ASOS on the field appears to reduce the need for audible airport advisories because pilots can obtain current winds and select the appropriate runway based on that information.
3. Airport advisories are only advisory in nature; they are not required instructions that convey control. The pilot in command remains in command of the aircraft.

Conclusions cont.

4. Although a combined CTAF/UNICOM frequency has been known to cause confusion with pilots, airports with separate CTAF/UNICOM frequencies also reported confusion on the part of pilots. It is important to inform pilots fully about frequencies in use.
5. To enhance the use of UNICOM and ensure pilots benefit from available airport advisory services, more education of pilots, ground vehicle operators, and UNICOM operators is warranted.
6. Airports may enhance safety by minimizing vehicle/pedestrian traffic on the movement area and ensuring that vehicle operators communicate on the appropriate frequency to announce intentions.

Conclusions cont.

7. The low rate of airports issuing audible airport advisories may be the result of a lack of formal training of personnel and an underlying fear of liability by airports. In addition, airports offering ASOS/AWOS (whether appended or not) and/or wind sock/segmented circle generally consider these to be advisories.
8. It is beneficial to provide on-the-job training for UNICOM operation and proper phraseology to personnel staffing the UNICOM station.
9. There is limited guidance available and little innovation on the delivery of airport advisories at non-towered airports.

Conclusions cont.

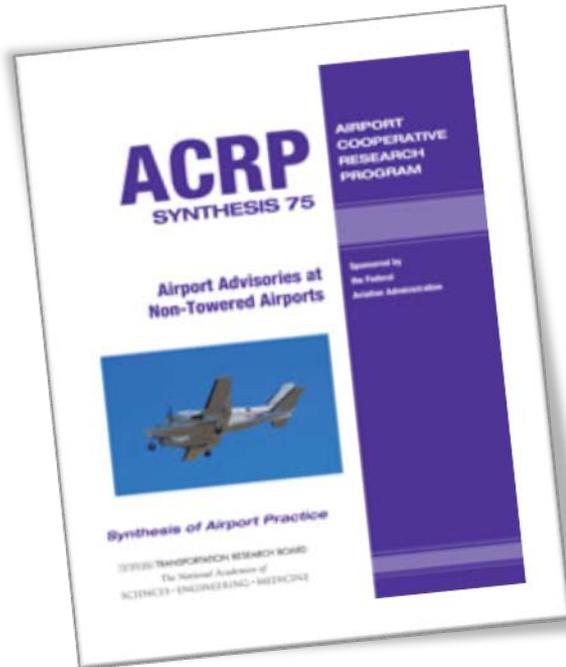
10. Everyone at the airport can contribute to airport safety, including pilots, UNICOM operators, airport operators, FBOs, and flight schools. All stakeholders have a vested interest in ensuring airport safety.

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For additional information:



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