



Identification of the Requirements and Training to Obtain Driving Privileges on Airfields

DETAILS

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ACRP SYNTHESIS 15

**Identification of the Requirements
and Training to Obtain Driving
Privileges on Airfields**

A Synthesis of Airport Practice

CONSULTANT
BEN CASTELLANO
Airport Safety Consultants, LLC
Gambrills, Maryland

SUBJECT AREAS
Aviation

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TRANSPORTATION RESEARCH BOARD

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2009
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Airports are vital national resources. They serve a key role in transportation of people and goods and in regional, national, and international commerce. They are where the nation's aviation system connects with other modes of transportation and where federal responsibility for managing and regulating air traffic operations intersects with the role of state and local governments that own and operate most airports. Research is necessary to solve common operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the airport industry. The Airport Cooperative Research Program (ACRP) serves as one of the principal means by which the airport industry can develop innovative near-term solutions to meet demands placed on it.

The need for ACRP was identified in *TRB Special Report 272: Airport Research Needs: Cooperative Solutions* in 2003, based on a study sponsored by the Federal Aviation Administration (FAA). The ACRP carries out applied research on problems that are shared by airport operating agencies and are not being adequately addressed by existing federal research programs. It is modeled after the successful National Cooperative Highway Research Program and Transit Cooperative Research Program. The ACRP undertakes research and other technical activities in a variety of airport subject areas, including design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration. The ACRP provides a forum where airport operators can cooperatively address common operational problems.

The ACRP was authorized in December 2003 as part of the Vision 100-Century of Aviation Reauthorization Act. The primary participants in the ACRP are (1) an independent governing board, the ACRP Oversight Committee (AOC), appointed by the Secretary of the U.S. Department of Transportation with representation from airport operating agencies, other stakeholders, and relevant industry organizations such as the Airports Council International-North America (ACI-NA), the American Association of Airport Executives (AAAE), the National Association of State Aviation Officials (NASAO), and the Air Transport Association (ATA) as vital links to the airport community; (2) the TRB as program manager and secretariat for the governing board; and (3) the FAA as program sponsor. In October 2005, the FAA executed a contract with the National Academies formally initiating the program.

The ACRP benefits from the cooperation and participation of airport professionals, air carriers, shippers, state and local government officials, equipment and service suppliers, other airport users, and research organizations. Each of these participants has different interests and responsibilities, and each is an integral part of this cooperative research effort.

Research problem statements for the ACRP are solicited periodically but may be submitted to the TRB by anyone at any time. It is the responsibility of the AOC to formulate the research program by identifying the highest priority projects and defining funding levels and expected products.

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FOREWORD

Airport administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to the airport industry. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire airport community, the Airport Cooperative Research Program authorized the Transportation Research Board to undertake a continuing project. This project, ACRP Project 11-03, "Synthesis of Information Related to Airport Practices," searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute an ACRP report series, *Synthesis of Airport Practice*.

This synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems.

PREFACE

*By Gail Staba
Senior Program Officer
Transportation
Research Board*

It is an accepted fact that airfield driver training programs are necessary to help prevent and reduce runway incursions that may be caused by vehicle drivers on the movement areas (taxiways and runways) of an airport. Many airport operators also require drivers who are not authorized to drive on the movement area to go through a driver training course for the non-movement area (ramps and aprons). Basically, airport operators know that, owing to congestion and distractions on the ramps and aprons, the best way to promote safety is to ensure that there are rules and regulations to help prevent accidents, and that personnel who work on those ramps and aprons are aware of the dangers that exist. The purpose of this report is to provide airport operators with information on the requirements and training required to obtain driving privileges on airport airfields, and the differences and similarities that might exist among the various airports throughout the country. The report also contains information on the types of training programs available to airport employees based on where the employees were authorized to drive.

Information used in this study was acquired through a review of the literature and interviews with airport operators and industry experts.

Ben Castellano, Airport Safety Consultants, LLC, Gambrills, Maryland, collected and synthesized the information and wrote the report. The members of the topic panel are acknowledged on the preceding page. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.

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IDENTIFICATION OF THE REQUIREMENTS AND TRAINING TO OBTAIN DRIVING PRIVILEGES ON AIRFIELDS

SUMMARY Airfield driver training programs vary from one airport to another. However, there are more similarities than there are differences. This appears to be the case whether the airport is a large hub primary airport or a small general aviation airport. Each airport operator has designed its program to fit its individuality and complexity. It is accepted that airfield driver training programs are necessary to help prevent and reduce runway incursions that may be caused by vehicle drivers on the movement areas (taxiways and runways) of an airport. Many airport operators also require drivers who are not authorized to drive on the movement area to complete a driver training course for the non-movement area (ramps and aprons). Basically, airport operators know that, owing to congestion and distractions on the ramps and aprons, the best way to promote safety is to ensure that there are rules and regulations to help prevent accidents and that personnel who work on those ramps and aprons are aware of the dangers that exist.

A survey was developed that contained 60 questions on driving requirements adopted by airport operators. The purpose was to review what differences and similarities might exist among the various airports throughout the country. There were also questions on the type of training programs available to airport employees to see if there were differences in these programs based on where the employees were authorized to drive. Other questions dealt with initial training programs as well as recurrent training program requirements. One hundred and five airports were selected to participate in the survey. These airports included very large airports, medium and small airports, and general aviation airports. The survey was sent electronically to each of the airport operators with an introductory letter from ACRP. Of the 105 surveys distributed, 76 were returned for a response rate of 72%. Although the survey did not solicit comments, several respondents included them either on the survey or in the return e-mail. The data in the report are based on the results of the survey.

Although many airport operators require all personnel who drive on the non-movement areas of an airport to complete the airport's driver training program, some do not. At some of the very large airports, there can be upward of 20,000 individuals who have authorization to drive on the non-movement areas. At smaller airports, the number drops significantly, to fewer than 100. Depending on the layout of the airfield, many airport operators limit access to the movement area to their employees only, which significantly reduces the number of people accessing the movement area. Many airports have designed their driver training programs so that there are two separate curriculums, one for those employees who have access to the non-movement area only, and one for those who need access to the movement area. The program for access to movement areas is more comprehensive and detailed. A training program for non-movement areas may consist of issues such as speed limits and the dangers of aircraft jet blast. Programs for movement areas include such issues as communications with air traffic and the meaning of airfield signage and marking.

Many airports also have recurrent training requirements, primarily for those employees who are authorized to drive on the movement area, but also, in some cases, for drivers on non-movement areas. One of the primary reasons for this is for the prevention of runway incursions. Ensuring that employees are constantly reminded of the dangers of driving in areas that

are used by aircraft and emphasizing the driving rules, regulations, and procedures can only reinforce that runway incursion prevention and safety are top priorities of the airport operator. In August 2007, the FAA sponsored a “Call to Action” workshop to improve airport safety where it is threatened by runway incursions. All certificated airports were asked to voluntarily develop plans to require annual recurrent training for all individuals with access to movement areas such as runways and taxiways. According to the June 2008 *Runway Safety Report*, 91% of certificated airports agreed to step up to the “Call to Action” challenge.

Airport operators also use a variety of training methods. Some have prepared driver training manuals, similar to those found in state departments of motor vehicles; some provide classroom training; some use computers; and some implement combinations of these different methods. A written test is not uncommon, nor is on-the-job training, especially for movement area driving privileges. Surprisingly, the number of airports that teach the driver training program in languages other than English is relatively small; only 4 of 75 airports that responded to this question present the option of learning the driver training program in Spanish. However, 21 airport operators allowed interpreters to assist employees whose primary language is not English in taking the required tests.

Ultimately, in some areas, driver training programs are diverse, such as, for example, the length of time for the initial training and the requirement for recurrent training, how often their driver training programs are updated, and whether recurrent driver training is required, whereas in other areas, driver training programs are quite similar, such as the type of subjects contained in these programs and who conducts the movement area training on the airport.

Further research needs include follow-up studies to compare costs of training personnel using computer-based programs and classroom-type training. Training programs of this magnitude do not come without cost to the airport operators and to the tenants. This research could also focus on the strengths and weaknesses of the different types of training and determine if one is more beneficial than another.

Also, with the recent emphasis on ramp and apron safety, additional research may be needed to study the viability of instituting a voluntary reporting system for accidents and incidents that occur on ramps and aprons. In this way, it would be possible to achieve a better understanding of the magnitude of the dangers of operating on these areas of an airport, as well as a better understanding of the causes of such problems.

INTRODUCTION

BACKGROUND

Over the years, as airports have become more complex and busier, there has developed a need to train all personnel who have the need to drive on the airfield side of the airport. As aircraft have increased in size, and speeds of these aircraft have increased significantly, there is an ever decreasing amount of time for pilots or vehicle drivers on taxiways and runways to make split second decisions when on a collision course. As a result, there has been an increase in the number of runway incursions involving not just aircraft, but, in many cases, vehicles, pedestrians, and aircraft. Even on ramps and aprons with aircraft of all sizes moving to and from parking positions, it is essential for all personnel to be ever observant, whether walking or driving in the vicinity of aircraft. Although it has been recognized that airport operators need to train personnel who are required to be on runways and taxiways, it has not always been acknowledged that drivers on ramps and aprons needed to be trained as well. However, this perspective is beginning to change as airport operators and air carriers realize that the congestion on ramps and aprons can be a primary cause of accidents involving vehicles and aircraft.

As part of their training, pilots are required to know the meaning of markings and signs found on runways and taxiways. In 1990, as a result of an accident in Detroit, Michigan, the FAA, along with private industry and the airport community, revamped the airfield signing system and modified some airfield markings. The purpose of these changes was to help pilots maintain situational awareness, especially in certain weather conditions when visibility is limited. As a result of the new signing system requirements, in particular, the airport community spent millions of dollars in the early to mid-1990s to meet the new requirements. Although the emphasis was on pilot situational awareness, there was little to no emphasis on training airport employees, airport tenants, and others whose jobs took them onto runways and taxiways, sometimes under adverse conditions, except for on-the-job training, which they may or may not have received at some point in their career. The airport community has gradually begun to realize that there is a need to train its employees because of the inherent dangers associated with working on runways and taxiways, ramps, and aprons.

Since 1990, with the air carrier accident in Detroit, Michigan, the FAA, in conjunction with the aviation industry, has placed a major emphasis on the reduction of the risk

of runway incursions. Table 1 and Figure 1 show the number of runway incursions that occurred from 2004 through 2007. The FAA's June 2008 *Runway Safety Report* defines a pilot deviation as an action of a pilot that violates any Federal Aviation Regulation, and an operational deviation as an occurrence attributable to an element of the air traffic system in which applicable separation minima were maintained, but an aircraft, vehicle, equipment, or personnel encroached upon a landing area that was delegated to another position of operation without prior coordination and approval. Finally, the report defines a vehicle or pedestrian deviation as one that includes pedestrians, vehicles, or other objects interfering with aircraft operations by entering or moving on the movement area without authorization from air traffic control. Vehicle or pedestrian deviations account for approximately 15% to 20% of the annual number of incursions.

Airport operators have the overall responsibility for determining who receives driving privileges on the airport operational areas; that is, the airside, and therefore are directly connected to efforts to reduce vehicle or pedestrian deviation. Organizations, such as the AAAE and ACI-NA, as well as the FAA, have begun a major effort to push training of airport personnel to improve safety on the airfield side of the airport.

OBJECTIVE OF STUDY

The first objective of this study was to identify the requirements that airport operators place on airport personnel to receive permission to drive on the airfield side of an airport. The second objective was to review the similarities and the differences in the various airfield driver training programs. The airport operator is responsible for the overall operation of the airport and all of its environments. It is very much like governing a small city with all of the inherent problems. It is incumbent on airport management to adopt rules and regulations to ensure that the airport remains safe for the passengers, as well as the employees of the airport operator and the tenants and other operators at the facility. One of the primary areas that currently require attention is on the airfield side and involves the control of ground vehicles. Today, owing to the size and types of aircraft, there is more ground equipment moving around the ramps and aprons, including catering trucks, baggage tugs, fueling trucks, lavatory trucks, and air carts. In addition to the air carrier and fixed-base operator (FBO)

TABLE 1
RUNWAY INCURSIONS FISCAL YEARS 2004 THROUGH 2007

	2004	2005	2006	2007	Total	%
Pilot Deviations	173	169	190	209	741	55
Operational Errors	97	105	89	105	396	29
Vehicle/Pedestrian Deviations	56	53	51	56	216	16
Total					1353	100

Source: Runway Safety Report (June 2008).

equipment, there are vehicles that belong to the airport operator, such as aircraft rescue and firefighting vehicles, police vehicles, and maintenance vehicles travelling to and from their work sites.

How is all this controlled and handled safely? Each airport is different and unique. Some very large airports have training programs for drivers on ramps and aprons in addition to programs for drivers on runways and taxiways. Some airports use computer-based training as part of their curriculums. Some small airports require pilots who have aircraft based on its airport to undergo driver training if they wish to drive to their hangar. Although there are many differences in the types of training programs used by airport operators, there are also many similarities to be found throughout the programs.

LITERATURE AND DATA SEARCH

An Internet search revealed little information on airfield driver training requirements, but did reveal many specific airport driver manuals. Many of the manuals are the basis for obtaining an airport driving permit. There also can be found the changes and improvements that airport operators are taking to improve safety. As an example, the web contained an article on an airport operator that procured and was installing a computer-based system for airfield driver training, which was to be available 24 hours a day, 7 days a week. The system consists of workstations where employees can access several computer programs administered using touch screen monitors for individualized training, including security training that is necessary to complete identification badging requirements. The system automatically records and stores results in a centralized database that authorized personnel can access at any time.

Also available on the Internet are FAA documents that airport operators have used to modify airfield driver training programs for their use. One of the major documents is Advisory Circular (AC) 150/5210-20, *Ground Vehicle Operations on Airports*, June 21, 2002, and change 1 to the AC, dated March 31, 2008. Additionally, there are several CertAlerts on the FAA site. A CertAlert is an informational bulletin aimed at airports certificated under 14 CFR Part 139. It carries no regulatory status and is not enforceable. Some of the CertAlerts found on the FAA site concerned with the subject of airfield driver training and requirements include CertAlert 07-10, Vehicle Pedestrian Deviation Runway Incursions; CertAlert 07-02, U.S Government Employees/Contractors Seeking Unescorted Motor Vehicle Access to the Movement Area at a Part 139 Certificated Airport Are Required to Meet the Specific Airport’s Movement Area Access Requirements; and CertAlert 02-05, Driver Training Simulators (see Appendix D). The FAA’s airports line of business website is: www.faa.gov/airports_airtraffic/airports.

SURVEY

A survey was developed in concert with the ACRP topic panel. It contained 60 questions on driving requirements adopted by airport operators. The purpose was to determine what differences and similarities exist among the various airports throughout the country. There were also questions on the type of training programs available to airport employees to see if there were differences in these programs based on where the employees were authorized to drive. Other questions dealt with initial training programs as well as recurrent training program requirements. A copy of the survey can be found in Appendix A.

A draft of the survey was reviewed by the topic panel. Incorporating their comments and suggestions, a final survey was developed and then validated by a separate airport operator.

One hundred and five airports were selected to participate in the survey. These airports included large, medium, and small commercial service airports, and general aviation airports. Driver training programs are more associated with airports certificated under Part 139, Airport Certification, which requires that certain airports meet specific safety standards. General aviation airports, depending on the size and the number of operations, would be less likely to have driver training programs. However, several general aviation airports were included to get an overview of what these airports may do to

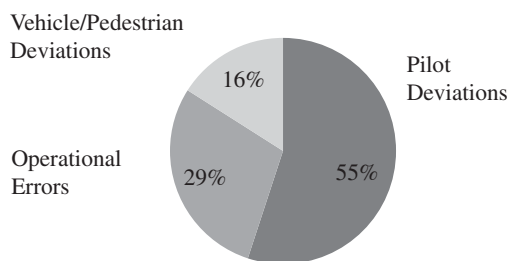


FIGURE 1 Runway incursions 2004–2007.

train employees. The survey was distributed electronically to each of the airport operators with an introductory letter from ACRP. Those airport operators that did not respond initially were sent a reminder with a second copy of the survey. Of the 105 surveys transmitted, 76 were returned (72%). A complete list of the respondents can be found in Appendix B. The responses were aggregated and can be found in Appendix E. In some cases, respondents did not answer all questions; in others, they may have selected several answers depending on the circumstances of their individual airports.

The survey did not inquire about the cost of the various training programs or the comparison of the effectiveness of classroom training versus computerized training. It also did not consider the content of air carriers, FBOs, and other tenants' driver training programs that may go beyond that required by the airport operator.

CLASSIFICATION OF AIRPORTS

Driver training varies from airport to airport although there are common features, as well as major differences, to each program. However, it is difficult to compare these programs unless one has a basic knowledge of airport classification. This synthesis uses the following classification of airports, because the FAA's National Plan of Integrated Airport Systems (NPIAS) already defines the airport universe and it is widely accepted (see Table 2). Basically, there are two types of airports: commercial service airports and general aviation airports. Commercial service airports are defined as public airports receiving scheduled passenger service and having 2,500 or more enplaned passengers per year. Airports that do not meet the criteria of commercial service are considered general aviation (including those general aviation airports considered reliever airports).

Commercial service airports, of which there are 522, are further defined into primary airports and non-primary airports. Of the 522 commercial service airports, 383 have more than 10,000 annual passenger enplanements (also referred to as boardings) and are classified as primary airports. Primary airports receive an annual apportionment of a certain amount of Airport Improvement Program funds, with the amount

determined by the number of enplaned passengers (i.e., calendar year 2006 enplaned passengers determined fiscal year 2008 passenger apportionments).

Primary airports are grouped into four categories: large, medium, and small hubs, and non-hub airports. The FAA uses the term "hub" to identify very busy commercial service airports.

- Large Hub Airports—those airports that each account for at least 1% of total U.S. passenger enplanements. There are 30 large hub airports.
- Medium Hub Airports—airports that each account for between 0.25% and 1% of the total passenger enplanements. There are 37 medium hub airports.
- Small Hub Airports—airports that account for 0.05% to 0.25% of the total passenger enplanements. Seventy-two airports are considered small hub airports.
- Non-hub Primary Airports—commercial service airports that account for less than 0.05% of all commercial passenger enplanements, but that have more than 10,000 annual enplanements are categorized as non-hub primary airports. There are 244 non-hub primary airports.
- Non-primary Commercial Service Airports—commercial service airports that have from 2,500 to 10,000 annual passenger enplanements. There are 139 non-primary commercial service airports.
- General Aviation Airports—airports that are not commercial service airports. Although the NPIAS includes only 2,834 general aviation airports (total of reliever and general aviation airports), there are approximately 5,190 that are open to the public in the United States.

The NPIAS can be found on the web at www.faa.gov/airports_airtraffic/airports.

AIRPORTS AND PART 139, AIRPORT CERTIFICATION

In addition to the classification of airports as contained in the NPIAS, there is also classification of airports based on the Code of Federal Regulations, Title 14, Part 139. This regulation,

TABLE 2
DISTRIBUTION OF NPIAS ACTIVITY (2009)

No. of Airports	Airport Type	Percentage of All Enplanements
30	Large hub primary	68.7
37	Medium hub primary	20.0
72	Small hub primary	8.1
244	Non-hub primary	3.0
139	Non-primary commercial service	0.1
270	Relievers	0.0
2,564	General aviation	0.0

Source: 2009–2013 NPIAS (National Plan of Integrated Airport Systems).

14 CFR Part 139, Airport Certification, defines the safety requirements that airports with commercial air carrier service must meet. This regulation requires certain airports to have safety areas, aircraft rescue and fire fighting personnel and equipment, and a self-inspection program, to name a few. Although there is reference to access to movement areas by vehicles and pedestrians, it does not, in and of itself, require a driver training program. However, it is generally accepted that the only way to comply with this Part 139 requirement is to implement a driver training program (see Appendix C for Section 139.329).

Under Part 139, commercial service airports are classified by the type of air carrier service that exists at that airport (see Table 3). To understand the organization of this regulation, one must understand the differences between large and small passenger air carrier aircraft, as defined in Part 139, as well as the definition of unscheduled operation. Section 139.5 notes that “Air carrier aircraft means an aircraft that is being operated by an air carrier and is categorized as either a large air carrier aircraft if designed for at least 31 passenger seats or a small air carrier aircraft if designed for more than 9 passenger seats but less than 31 passenger seats.” Unscheduled operation means any common carriage passenger-carrying operation for compensation or hire, using aircraft designed for at least 31 passenger seats, conducted by an air carrier for which the departure time, departure location, and arrival location are specifically negotiated with the customer or the customer’s representative. It also defines the categories of air carrier airports:

Class IV airport means an airport certificated to serve unscheduled passenger operations of large air carrier aircraft. A Class IV airport cannot serve scheduled large or small air carrier aircraft.

For example, an airport that receives scheduled passenger air carrier service with large and small air carrier aircraft and unscheduled (charter) passenger air carrier service with air carrier aircraft with more than 30 passenger seats is classified as a Class I airport. An airport that receives scheduled passenger air carrier service with small air carrier aircraft and unscheduled (charter) passenger air carrier service with air carrier aircraft with more than 30 passenger seats is classified as a Class II airport. An airport that receives only scheduled passenger air carrier service with small air carrier aircraft is classified as a Class III airport. Finally, an air carrier airport that receives only unscheduled air carrier aircraft with more than 30 passenger seats is classified as a Class IV airport.

The Class I, II, and III airports are subject to the requirements of Section 139.329, with such airports required to limit access to movement areas and safety areas to those vehicles and pedestrians needed for airport operations. These airports are also required to establish and implement procedures for the safe and orderly access to, and operation in, movement areas and safety areas by pedestrians and ground vehicles, including provisions identifying the consequences of non-compliance with the procedures by an employee, tenant, or contractor. One of the ways that airport operators use to meet the requirements of this section is to implement a driver training program. To assist airport operators in developing a driver training program, the FAA issued Advisory Circular 150/5210-20, *Ground Vehicle Operations on Airports*. This circular provides information and encourages airport operators to establish driver training programs on their airports for safety and for runway incursion prevention. Title 14 CFR Part 139, *Airport Certification*, can be found at: www.faa.gov/airports_airtraffic/airports/airport_safety/part139_cert.

Class I airport means an airport certificated to serve scheduled operations of large air carrier aircraft that can also serve unscheduled passenger operations of large air carrier aircraft and/or scheduled operations of small air carrier aircraft.

Class II airport means an airport certificated to serve scheduled operations of small air carrier aircraft and the unscheduled passenger operations of large air carrier aircraft. A Class II airport cannot serve scheduled large air carrier aircraft.

Class III airport means an airport certificated to serve scheduled operations of small air carrier aircraft. A Class III airport cannot serve scheduled or unscheduled large air carrier aircraft.

NON-MOVEMENT AND MOVEMENT AREAS

Section 139.305 (14 CFR Part 139) defines Movement Area as “an area that means the runways, taxiways, and other areas of an airport that are used for the taxiing, takeoff, and

TABLE 3
PART 139 AIRPORT CLASSES

Type of Air Carrier Operation	Class I	Class II	Class III	Class IV
Scheduled Large Air Carrier	X			
Unscheduled Larger Air Carrier	X	X		X
Scheduled Small Air Carrier	X	X	X	

landing of aircraft, exclusive of loading ramps and aircraft parking areas.”

In the Pilot/Controller Glossary of the *Aeronautical Information Manual* (2007), Movement Area is defined as “the runways, taxiways, and other areas of an airport/heliport which are utilized for taxiing/hover taxiing, air taxiing, take-off, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with a tower, specific approval for entry onto the movement area must be obtained from ATC.”

The same Pilot/Controller Glossary defines non-movement area as “. . . taxiways and apron (ramp) areas not under the control of air traffic.”

For purposes of this study, then, the movement area of an airfield contains the runways, taxiways, and other areas under the control of air traffic. Non-movement areas include ramps and aprons and some taxiways not under the control of air traffic. Letters of Agreement between the airport operator and the FAA may further define the boundary between movement and non-movement areas.

Based on comments from the topic panel, there appears to be some confusion as to the requirements for recurrent training for persons authorized only in the non-movement area and for persons authorized in the movement area. This confusion stems from the interpretation of Section 139.303, Personnel, paragraph (c), which states that each certificate holder must “train all personnel who access movement areas and safety areas and perform duties in compliance with the requirements of the Airport Certification Manual (ACM) and the requirements of this part. This training must be completed prior to the initial performance of such duties and at least once every 12 consecutive calendar months . . .” Several

airport operators interpret this to mean that all ramp personnel must have initial and recurrent training because they technically have access to the movement areas. Based on the wording in the preamble to Part 139 and because the regulation indicates “personnel who access movement areas” and not “personnel who have access to the movement areas,” Section 139.303 applies only to the airport operator’s personnel. For air carriers’ and other tenants’ employees who access the movement area within their job function, recurrent training is also not required under Part 139 unless the employee performs duties in compliance with the airport’s Airport Certification Manual, such as those contracted to perform self-inspection. There has been some discussion to amend Part 139 to require recurrent training for all personnel (not just airport operator personnel) that access the movement area. Currently, however, this does not prevent an airport operator from adopting a rule or regulation requiring such training.

In August 2007, the FAA sponsored a “Call to Action” workshop to improve airport safety resulting from runway incursions. More than 40 leaders of the aviation industry met and agreed on an ambitious plan that included providing additional airport surface movement training to everyone who works on the airport taxiways, runways, and other operational areas. All certificated airports were asked to voluntarily develop plans to require annual recurrent training for all individuals with access to movement areas such as runways and taxiways. According to the FAA *Runway Safety Report* (June 2008), 91% of certificated airports agreed to step up to the “Call to Action” challenge.

Additionally, the FAA issued a change to AC 150/5210-20, *Ground Vehicle Operations on Airports*, which strongly recommends regular recurrent training to all personnel who access the movement area.

AIRFIELD DRIVER TRAINING PROGRAMS

Although among each and every airport there are certain similarities, such as runways and taxiways, aprons and ramps, terminals, and cargo areas, there are no two airports that are alike. Each airport has its own unique mix of aircraft, weather patterns and wind conditions, terminal layout, and operational movements. Some airports may have preferential runways used during certain times of the day or during certain seasons of the year. However, it is the similarities that become paramount in promoting safety on ramps and on runways and taxiways. Many airports have developed rules and regulations regarding speed limits, the number of baggage carts that can be towed at any one time, the mechanical condition of vehicles that operate on the airfield side of the airport, right-of-way requirements, and so forth.

As results from the survey show, many airports have adopted airfield driver requirements and airfield driver training programs that are similar regardless of the size of the airport, although the driver training programs may differ in that each program addresses unique situations on a particular airport, such as who may cross runways and taxiways and when a vehicle operator must contact air traffic control when traversing roadways in the movement area.

Although most surveyed airports require drivers restricted to the non-movement areas to pass a driver training program, many had non-movement area training programs that differed from movement area training programs. The non-

movement area training programs for all the airports are comprised of airport rules and regulations; speed limits; and recognizing aircraft dangers, such as jet blast and right-of-way. Movement area training included the meaning of markings, lighting, and airport signage, communications procedures, and so forth.

Although at most airports, much of the training was the responsibility of the airport operator, there were some that allow the FBOs or air carriers to train their own personnel. However, FBOs and tenants were more likely to conduct training for driving on the non-movement areas than for driving on the movement areas.

The biggest differences between airport operators appeared to be the method of instruction given to the driver trainees. For non-movement area driver training, only 1 of 8 large hub primary airports used classroom training (12%), whereas 6 of 13 medium hub primary airports did so (46%). For movement area training, 6 of 8 large hub primary airports used classroom training (75%), and 7 of 13 did so for medium hub primary airports (54%).

All in all, there were more similarities in airfield driver requirements and airfield driver training than there were major differences. Organizations such as AAAE, ACI-NA, and the FAA have distributed material to assist airport operators in developing driver training programs.

SURVEY RESULTS

Surveys were sent to 105 different airports, of which 76 were completed and returned for a response rate of 72% (see Table 4).

All commercial service airports that responded had some type of driver training program, as did 12 of the 13 responding general aviation airports. Although the type of driver training program varied among airports, it was encouraging that the vast majority of the airport operators had instituted a program. This is especially true of general aviation airports that may have a lot of activity and that allow pilots to drive onto the ramp and apron areas of the airport.

SECTION 1. GENERAL

Number of Drivers on Airfield Side of an Airport

Non-Movement Area

The number of drivers authorized to drive on the airfield side of an airport varies according to the size of the airport (see Table 5). It is common to have air carrier personnel, caterers, FBO personnel, airport personnel, government personnel, etc., driving on ramps and aprons. On some airports, these same types of personnel may also have driving privileges on runways and taxiways to a more limited extent. Over the years, the FAA has promoted perimeter roads around airfields to keep the vehicular traffic limited on taxiways and runways to those individuals necessary for the maintenance and operation of taxiways and runways. This is helped to reduce the number of runway incursions and to provide a safer environment for ground personnel working on taxiways and runways and for passengers on aircraft.

Based on the survey, the number of personnel authorized to drive on the ramps and aprons of airports varied significantly from airport to airport. At the large hub primary airports, the number varied from 2,000 to 12,000, with an average of almost 8,000, based on the 7 airports that responded to this question. The eighth large hub primary airport did not have a count of the number of authorized personnel because it did not have a requirement in place to train those individuals that have access to the non-movement areas only.

At the medium hub primary airports, the number of individuals authorized to drive on the non-movement area ranged

from 300 to almost 4,000. The average for the 13 airports was 1,875. For the small hub primary airports, the 16 responding airports reported a range from approximately 300 to 1,600. This resulted in an average for the small hubs of approximately 767 individuals authorized to drive in non-movement areas. For the responding non-hub primary airports, the number of personnel authorized to drive on non-movement areas ranged from a low of 30 to a high of 1,200, with an average of 244. For four of the non-primary commercial service airports reporting, the number of personnel ranged from a low of 18 to a high of 100, for an average of 56 drivers authorized to drive on the non-movement areas of the airfield. The fifth non-primary commercial service had no training program for the non-movement areas and, therefore, did not record these numbers. Finally, the 9 general aviation airports responding to this question indicated that as few as 100 individuals to a high of 2,200 had non-movement area driving privileges for an overall average of 654 drivers. This group of airports was more likely to allow vehicular access by pilots to the airside than the other groups of airports.

Movement Area

For the movement area, the numbers of authorized drivers dropped substantially, as one might have suspected. For large hub primary airports, the responding airport operators reported a low of 200 personnel authorized to drive on the movement area to a high of 2,500. The overall average for the large hub primary airports was 854. Although this appears high, the total number of people authorized in the movement area includes the airport operator's personnel but, in some instances, FBO and air carrier personnel (see Table 6).

At the medium hub primary airports, the number of personnel authorized to drive on the movement area ranged from 50 to 1,500. For the 13 reporting medium hub primary airports, the average number of drivers on the movement area was 425. There were 16 small hub primary airports reporting anywhere from 48 to 292 drivers authorized to be on the movement area, for an overall average of 132. For non-hub primary airports, 21 airports responded with a low of 8 authorized to drive on the movement area to a high of 603, an overall average of 95. For non-primary commercial service airports, 5 airports responded indicating a low of 8 to a high of 100 individuals were authorized to drive on the movement area, an average of 53. Of the 11 airport operators responding for the general

TABLE 4
NUMBER OF AIRPORT RESPONSES

Airport Type	Total Sent	Total Responses	%
Large Hub Primary	9	8	89
Medium Hub Primary	14	13	93
Small Hub Primary	23	16	70
Non-hub Primary	33	21	64
Non-primary Commercial Service	10	5	50
General Aviation	16	13	81
Total	105	76	72

aviation airports, there was a low of 14 people to a high 200, with an average of 84.

English or Other Languages

According to the results of the survey, only 4 of the 75 respondents taught driver training in a language other than English. None of the large hub primary airports that responded taught driver training in other than English. Two of the medium hub primary, one small hub primary, and one general aviation airport taught driver training in Spanish. Three of four of these airports are located in the southwest and one is on the east coast. The general aviation airport started its Spanish program within the last 2 years, whereas the other three instituted their programs within the last 4 years. Even though only 4 responders taught their driver training programs in Spanish, 21 of the 71 airport operators that responded “no” to the question on whether they taught the program in a foreign language did allow interpreters to assist employees whose primary language is not English. This number included three large hub primary, four medium hub primary, eight small hub primary, three non-hub primary, one commercial service, and two general aviation airports.

Education Level of Training Programs

The survey contained several questions seeking information in the education level that the training programs sought. Of the airport operators that responded (75) to the question asking at approximately what grade level the material in the driver training curriculum was aimed, the majority (38) responded “unknown.” This is probably because many of the driver training programs are put together by the airport operator personnel and not by professionals who prepare curriculum and test materials. There were 14 responders who answered that the training material was prepared for 5th to 8th grade comprehension and 23 responders who answered that it was prepared for 9th to 12th grade comprehension. No one who responded reported that the material was prepared for lower than 5th grade comprehension (see Table 7).

Updating the Airport’s Driver Training Program

It is not enough to develop an airfield driver training program and continue to use that program indefinitely. To be effective, a program must be updated and revised to reflect the actual airport environment, such as new construction, new

TABLE 5
NUMBER OF AUTHORIZED DRIVERS—NON-MOVEMENT AREAS

Responding Airports	Minimum	Maximum	Average
Large Hub Primary	3,098	12,000	7,957
Medium Hub Primary	300	4,500	1,875
Small Hub Primary	296	1,600	767
Non-hub Primary	30	1,200	244
Non-primary Commercial Service	18	100	56
General Aviation	100	2,200	654

TABLE 6
NUMBER OF AUTHORIZED DRIVERS—MOVEMENT AREAS

Responding Airports	Minimum	Maximum	Average	Median
Large Hub Primary	200	2,500	854	340.5
Medium Hub Primary	50	1,500	425	262
Small Hub Primary	48	292	132	100
Non-hub Primary	8	603	95	49
Non-primary Commercial Service	8	100	53	50
General Aviation	14	200	84	75

TABLE 7
GRADE LEVEL COMPREHENSION

Comprehension	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Below 5th grade	0	0	0	0	0	0
5th to 8th grade	3	3	4	2	1	1
9th to 12th grade	1	3	5	9	2	3
Unknown	4	7	7	10	2	8

aircraft serving the airport, or the amount of traffic serving the airport. According to the survey, 54 responders indicated that they update the program whenever there is a need to do so, whereas 22 update their program at least once a year. Five responding airport operators said that they update their programs approximately once every 2 years. One non-hub primary airport operator updated its program every 6 months. On the survey, no airport operator selected “never” for their response. Another interesting item here was that many of the airports indicated that whereas they update their program on a scheduled basis, such as once a year, they also update it “whenever there is a need” (see Table 8).

Owing to the emphasis on preventing runway incursions and surface incidents, many airports believe it is important to review the airport’s driver training program for correcting any shortcomings in the program when there has been a runway incursion or surface incident caused by a vehicle operator who has been approved to be in the movement area. Fifty-nine airports indicated that they do review the program when this happens. Fourteen airport operators do not review the program after such an incident.

Initial Qualification of Drivers Seeking Airfield Driving Privileges

When an individual applies for driving privileges on the airfield side of the airport, there has always been some question

about the licensing of that person to drive a vehicle off the airport. Is the applicant licensed or in possession of a valid driver’s license? Of 74 responses to a question on whether drivers are required to possess a valid driver’s license issued by a state, 72 respondents indicated that the applicant was required to possess a valid driver’s license. Two non-hub primary airports said that they did not have such a requirement (see Table 9).

Although 60 responding airport operators maintained that the driving privileges on the airfield ceased automatically when the airport operator became aware that a driver had his or her state driving license suspended, only 19 reported that there was a mechanism in place for the airport authority to be made aware of this. Fifty-four of the responders said that they had no mechanism in place to be informed of the current status of a person authorized to drive on the airfield.

Enforcement of Rules and Regulations

Rules and regulations without enforcement are meaningless; there must be some type of enforcement that is fair and non-partial. Several questions on the survey were designed to elicit what type of enforcement policy airport operators used on their airports. There are many different types of enforcement policies as well as many different combinations of these policies. Seventy-five airport operators had some sort of enforcement policy, whereas one general aviation airport did not have enforcement capabilities but rather relied solely on local police

TABLE 8
UPDATING THE DRIVER TRAINING PROGRAM

Updating the Training Program	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Every 6 Months	0	0	0	1	0	0
Once a Year	3	3	5	6	3	2
Once Every 2 years	2	1	2	0	0	0
As Needed	4	9	13	16	3	9
Never	0	0	0	0	0	0

TABLE 9
REQUIRING A VALID DRIVER’S LICENSE

Requires Valid Driver’s License	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Yes	8	13	16	19	5	11
No	0	0	0	2	0	0

TABLE 10
ENFORCEMENT MEASURES

Enforcement	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Suspend or Revoke	7	13	16	21	5	9
Levy a Fine	3	5	6	11	0	6
Graduated Penalty	1	6	3	6	0	2
Remedial Training	7	13	15	20	1	7
Other	5	7	11	9	1	3
No Enforcement	0	0	0	0	0	1

enforcing county codes. Fully 71 responders or 91% can suspend or revoke the driving privileges on an airport. Although 31 responding airport operators or 41% indicated that they can levy a fine, only 18 (24%) maintained a graduated penalty system. Sixty-three airport operators reported that they require remedial driver training in case of violations of rules and regulations or in the case of a runway incursion (see Table 10).

Who is responsible for enforcing the airport’s rules and regulations varies from airport to airport. In some cases, airports do not have police forces of their own and, therefore, rely on local police agencies to enforce the rules and regulations. In some cases, the rules and regulations are not enforceable in municipal courts. In the majority of situations, airport operations personnel are tasked with enforcement responsibilities along with the airport police. Several airports also employ dedicated ramp safety personnel who are tasked with, among other responsibilities, enforcement. Several airports, across the spectrum, use all three organizations (airport police, operations personnel, and dedicated ramp safety personnel) for enforcement purposes.

Vehicular rules and regulations on an airport are important owing to the nature of the airfield with taxiing aircraft, cargo containers, baggage containers, trucks of all different sizes and shapes, conveyor belts, etc. One large hub primary airport admitted to 11 or more driving incidents of non-compliance with the airport’s rules and regulations during a one-week time period. Five airport operators (two large hub primary, two medium hub primary, and one small hub primary) responded that they get anywhere from 6 to 10 non-compliance incidents a week. Fifty-nine reported only 1 to 5 noncompliance incidents a week (5 large hub, 11 medium hub, 14 small hub, 18 non-hub primary, 2 non-primary commercial service, and 9 general aviation). Four non-primary commercial service airports indicated that they receive less

than 1 driving incident of noncompliance within a week’s time frame.

SECTION 2. NON-MOVEMENT AREA REQUIREMENTS

Based on one of the choices in Question 5, 11 of the 76 responding airport operators do not have driver training requirements for non-movement areas. This includes one large hub primary airport, two non-hub primary airports, one non-primary commercial service, and seven general aviation airports. However, at the large hub primary airport, according to a representative from that airport, the air carriers, as well as the FBOs, have training programs for their personnel that include many of the driving requirements that are usually in an airport operator’s driving program.

Sixty airport operators differentiate training requirements between the movement and the non-movement areas. Table 11 shows the breakdown of these airports. Twelve airport operators responded that they do not differentiate between the training requirements.

Of those airports that have non-movement area driver training programs, 13 do not issue any type of non-movement area driving permits. The remaining 51 airports issue a ramp drivers permit (11 responders) and 36 have some sort of notation on the airport ID or color code the ID to indicate driving privileges or a combination of the two.

Auditing Tenant Programs

There are some airport operators who have opted to have the air carriers, FBOs, and other tenants perform the non-movement

TABLE 11
DIFFERENTIATE BETWEEN TRAINING REQUIREMENTS FOR NON-MOVEMENT AREA AND MOVEMENT AREA

Differentiates Between Non-Movement and Movement Areas	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Yes	8	12	15	14	3	8
No	0	1	1	6	2	2

area driver training. There were 66 responses to the question dealing with who does the initial driver training for non-movement areas. Nineteen airports (two large hub, two medium hub, three small hub, six non-hub, two non-primary commercial service, and four general aviation airports) indicated that they allow others to perform this type of training. Approximately 63% (12 airport operators) of those that allowed other organizations to perform the training periodically monitored and reviewed the training that was being provided. This 63% consist of two medium hub, three small hub, five non-hub, one non-primary commercial service, and one general aviation airport. The two large hub primary airports that allow tenants to perform the training neither periodically monitored nor reviewed the training taking place.

One of the questions in the survey asked how often the airport operator monitored or audited the tenant’s or air carrier’s driver training program. Nine of the 12 airport operators monitored the program at least annually. One indicated that it monitors the program every two years, whereas one non-hub primary does this every 6 months. The 12th airport operator, a non-primary commercial service airport, indicated “other” on the survey.

Non-Movement Area Driver Training

The driver training programs for non-movement areas consist of several different methods, many of which are combined by the airport operator. In some cases, airport operators have prepared driver manuals for all perspective drivers to study, similar to manuals prepared by state motor vehicle administrations. Fewer than half of the responders (46%) offer classroom instruction for non-movement area driver training. Twenty-nine airports employed computer-based training. One airport uses a computer simulator for driver training purposes. The simulator differs from computer-based training in that it has a digitized map of the airfield that allows a student to maneuver around the airfield under varying conditions. Many of the airports surveyed also use on-the-job training (actual driving under the supervision of a qualified driver or trainer) (see Table 12).

Forty-two airports that responded to the survey question on what constituted the driver training program for the non-movement area required the employees to take a written test for the non-movement area. Of the 19 airports that allowed tenants and air carriers to train their own employees, 5 administered a written exam to the students, whereas 11 allowed the tenant or air carrier to administer the written test. Two airport operators indicated that no test was given to the students and one airport operator did not answer the question.

Additionally, there were five airports that also require a driving test that the employee had to pass before being able to receive a permit to drive on the non-movement area. No large hub primary airport required a driving test for the non-movement area. In some cases (5), the airport operator used oral exams to qualify employees for driving privileges.

For the 35 airports that used classroom instruction, the length of the initial training generally lasted somewhere between 30 minutes and 2 hours. The length for most airports was one hour. However, there is a commercial service airport that has an 8-hour program for non-movement area driver training.

The following subjects were covered in the non-movement area training: Airport rules and regulations, speed limits, the meaning of airfield signs and markings (including the non-movement area boundary lines and their locations), the dangers of aircraft jet blast, and right-of-way. Some airport operators taught the meaning of airfield signs and markings even though the drivers would be limited to ramps and aprons (see Table 13).

At today’s airports, it is not uncommon to see construction taking place at many locations on the airfield, both in the movement area as well as the non-movement area. In the non-movement area, the types of construction can vary significantly from the building of a hangar to rehabilitating aprons and ramps. Although the chances of a runway incursion may be low in an instance where the contractor is limited to the non-movement area, there is still a need to ensure that there is sufficient protection through training and/or through isolating

TABLE 12
METHODS OF NON-MOVEMENT AREA TRAINING

Methods of Training	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Reading Manual	4	9	12	11	2	8
Classroom Instruction	1	6	7	14	3	4
Computer-Based Training	5	8	9	7	0	0
Computer Simulator	1	0	0	0	0	0
Written Test	5	8	12	12	2	3
Driving Test	0	1	1	1	2	0
Oral Exam	0	1	0	1	2	1
On-the-Job Training	3	6	6	8	3	2
Other	2	0	2	2	1	1

TABLE 13
TYPES OF SUBJECTS FOR NON-MOVEMENT AREA TRAINING

Subject Areas	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Airport Rules and Regulations	7	13	16	16	3	9
Speed Limits	7	13	16	17	3	8
Meaning of Airfield Signs	5	13	9	10	3	6
Meaning of Airfield Markings	6	13	13	13	3	7
Aircraft Dangers	7	13	16	16	3	8
Right-of-Way	7	13	16	18	3	8
Others	5	7	14	12	1	6

the construction area. Although some airports ensure that all contractors are escorted to and from the construction site, other airport operators will cordon off the worksite. Sixty-two survey responders indicated that they require all contractors that work in the non-movement area to attend a driver training program. Eight responders (primarily small hub and non-hub primary airports) do not have such a requirement. In the majority of cases (58 of the 62) in which the contractor is required to attend an airfield driver training program, the airport operator is responsible for providing this training. Four airport operators require the contracting party to do the training. In several cases, even though the contractor’s drivers have gone through the airport operator’s driver training program, they are still required to be escorted, even in the non-movement area.

Non-Movement Area Recurrent Driver Training

The survey also contained several questions on non-movement area recurrent driver training requirements. Although basic training for the non-movement area is an accepted practice at most airports, there has always been some question regarding the need for recurrent training. As mentioned previously in chapter one, there is no requirement at this time to provide recurrent training to personnel that are authorized to drive only on the non-movement areas. Of the 72 responses to the question of the requirement for recurrent training for the non-movement area, 36 airports responded that they did have such a requirement. The 36 airports included 4 large hub primary airports, 8 medium hub primary airports, 9 small hub primary airports, 9 non-hub primary airports, 2 commercial service airports, and 4 general aviation airports. With regard to the frequency of the recurrent training programs, 15 airports required the recurrent training at least annually, 2 airports

between 1 and 2 years, 18 airports every 2 years, and 1 airport more than 2 years (see Table 14).

The length of time for these recurrent driver training programs, as with the length of time for the basic training, varied considerably from one airport to another. The shortest program was approximately 15 minutes in duration, with the longest program being 8 hours. The majority of recurrent driver training programs are between 1 and 2 hours long.

The content of the recurrent driver training consists primarily of reviewing the driver manual (20 airports), classroom instruction (21 airports), discussion of past driving incidents in the non-movement area (16 airports), and on-the-job training at 4 of the responding airports. At four airports, the classroom training included computer simulators.

SECTION 3. MOVEMENT AREA REQUIREMENTS

Use of Perimeter Roads

The greatest need for driver training programs on an airport is to prevent or reduce runway incursions. A vehicle on or crossing a runway at the wrong time can have devastating consequences. No airport operator wants this to happen and should take appropriate steps to ensure that the airfield remains safe at all times. Many airport operators have established perimeter roads around the airfield and require drivers to stay on these perimeter roads when moving from one side of the airfield to the other. This applies to employees of the airport operator when they have no immediate need to be on the taxiway and runways. The FAA has encouraged the building of perimeter roads to help reduce runway incursions; however, there are airports that have chosen to not

TABLE 14
REQUIREMENT FOR RECURRENT TRAINING FOR NON-MOVEMENT AREAS

Requires Recurrent Training	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Yes	4	8	9	9	2	4
No	3	5	7	9	2	5

construct such a road as well as airports where such a road cannot be built for various reasons. These airports, then, have not only airport personnel, but air carriers and other tenants crossing runways and taxiways many times a day. Although it is essential that the airport operator have its own personnel given access to the movement areas, it is not uncommon for FBOs, air carrier personnel, FAA technical operations personnel, contractors, and other government agencies to seek authorization to drive on these areas.

Access to the Movement Area

It is incumbent on an airport operator to evaluate requests for various groups to access the movement area. In many cases, the airport operator has been able to restrict this access to those that absolutely need the access, such as its own operations staff, the aircraft rescue and firefighting personnel, and maintenance personnel. Of the eight large hub primary airports surveyed, only 2 authorize the airport police to drive on the movement area, whereas 11 of 13 medium hub airport operators authorize the airport police to drive on taxiways and runways. There are non-primary commercial service airports and general aviation airports that do not have police stationed at the airport on a continuing basis. At many airports, FBOs and air carrier personnel are only allowed on the movement area while under escort, as are contractors (see Table 15).

Who Conducts Movement Area Training

For all the various categories of airports in the survey, the movement area driver training for the airport operator staff is primarily the function of airport operations. However, one of the large hub airports, one medium hub airport, three small hub airports, seven non-hub airports, and two general aviation airports also employ a public safety department as well. (A public safety department is usually under a public safety director and includes both the police and the fire fighters, who may or may not be cross trained as police and firefighters.) At one non-hub airport and two general aviation airports, the movement area

training for the airport operator’s personnel was performed by a tenant or FBO.

At times, as stated previously, it is necessary for tenants and air carriers to access the movement area on a recurring basis. Again, the primary instructors for non-airport staff are in airport operations (56 responding airports), followed by public safety personnel (11 responders). At seven of the responding airports, the FBOs or air carriers are responsible for the training.

What Constitutes Movement Area Training

Movement area driver training is more comprehensive than non-movements area training. It may incorporate the training subjects included in non-movement area training but also include subjects that deal solely with the movement area environment. All responding airports include content on runway and taxiway markings and lighting, location of air navigation-critical areas, proper communications with Air Traffic Control, and runway incursion awareness. The great majority of responding airports also included radio-out procedures with their movement area training curriculum, although two medium hub primary airports did not include this type of training. Many airport operators also include a segment on nighttime driving (see Table 16). Airports that have land and hold short procedures included training in that area as did airports that have low visibility operations, known as surface movement guidance and control systems. Although not many airports have such a system, those that do or have partial systems know that driving in low visibility can be dangerous.

In covering these different topics in the movement area training program, airport operators use a variety of different methods. Seventy-five percent of the responding airports had prepared a driver manual for their employees. Seventy-six percent use classroom instruction compared with the 46% that use classroom instruction for non-movement training. Computer-based training is also used by many airport operators, with

TABLE 15
AUTHORIZED ACCESS TO THE MOVEMENT AREA

Authorized Access to Movement Area	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Airport Police	2	11	12	13	2	6
ARFF	8	13	16	21	5	10
Airport Operations	8	13	16	20	5	10
Maintenance	7	13	15	21	5	11
FBO Employees	2	6	8	13	4	9
Air Carrier Employees	3	8	0	3	2	2
Airport Vendors	0	2	0	0	0	2
Contractors	2	6	11	10	5	5
FAA Tech Operations	7	13	15	21	5	9
Other Federal Government Agency Personnel	1	3	3	3	1	2

ARFF = Airport Rescue Fire Fighting.

TABLE 16
COURSE CONTENT FOR INITIAL MOVEMENT AREA TRAINING

Course Content for Initial Movement Area Training	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Runway and Taxiway Markings	6	11	10	12	4	8
Runway and Taxiway Lighting	6	11	10	12	4	8
Land and Hold Short Procedures	1	5	5	3	1	0
SMGCS	4	6	1	3	0	0
Nighttime Driving Training	6	8	7	7	4	6
Location of Critical Areas for Navigational Equipment	6	11	9	11	4	7
Proper Communications with Air Traffic Control	6	11	10	13	3	7
Radio-Out Procedures	6	9	10	12	4	8

SMGCS = surface movement guidance and control system.

some using the computer-based training offered by trade organizations, such as the AAAE. Others use stand-alone systems. Some airport operators make these computer-based training programs available 24 hours a day. In some cases, the computer-based training is also combined with classroom training. One of the large hub primary airport operators uses a computer simulator for its driver training (see Table 17).

Many airport operators require that employees take a written test on airfield driving. Approximately 80% indicated that they require a written test. This figure included 9 of the 13 general aviation airport operators. Forty-seven percent (35 of the responding airports) require a driving test as well as a written test.

The use of on-the-job training for driver education is also a requirement of many of the airport operators for movement area training. Seventy-three percent of the respondents indicated that they require on-the-job training as part of the movement area training. All 8 of the large hub primary airports, 9 of 13 medium hub primary airports, 13 of 16 small hub primary airports, 16 of 21 non-hub primary airports, 4 of 5 non-primary commercial service, and 5 of 13 general aviation airports require such training for employees seeking to drive on the movement areas of an airport.

Although 76% of the surveyed airports require classroom training, the length of the training varied considerably from airport to airport. Overall, the length of time ranged from 30 minutes to 8 hours. Most of the training sessions lasted from 1 hour to 3 or 4 hours.

Driving on the movement area of any airport can be stressful. While trying to remember the location of the vehicle, the driver is also in communication with the air traffic controller. In many cases, there are aircraft simultaneously landing and taking off or moving between the terminal and the runway. When the environment is also added into the mix, be it rain, fog, snow, and/or nighttime, the problems are compounded. To assist new drivers in adapting to this dangerous environment, some airport operators have included nighttime familiarization as part of the training. This helps a driver to understand that an airfield as seen during the daylight hours is one thing, but as seen during the night is something completely different, which can be disorienting. Of 74 airport operators responding to the question on training to include nighttime familiarization, 70% (52 respondents) indicated that such training was part of their curriculum.

Once a driver completes the movement area driver training, 14 of the surveyed airport operators issue an airfield driver

TABLE 17
METHODS OF MOVEMENT AREA TRAINING

Methods of Training	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Reading Manual	8	10	13	13	3	8
Classroom Instruction	6	7	12	19	4	9
Computer-Based Training	4	7	8	6	1	3
Computer Simulator	1	0	0	0	0	0
Written Test	7	9	14	18	4	9
Driving Test	7	5	8	9	2	4
Oral Exam	1	2	6	5	2	3
On-the-Job Training	8	9	13	16	4	5

permit. Fifty-eight of the respondents issue either a notation on the airport identification badge or color code the badge in a way to identify such drivers. However, there are several airport operators that do not issue any sort of movement area driving permit or identification. This is true of one large hub primary airport, one small hub, seven non-hub primary airports, two commercial service airports, and three of the general aviation airports.

Movement Area Recurrent Driver Training

During the last several years, the FAA has emphasized the importance of recurrent training for airfield drivers. The survey contained several questions on recurrent training both in the non-movement and movement areas. As mentioned in chapter one, the “Call to Action” workshop recommended that recurrent training for all personnel that accessed the movement area be initiated at all airports. For 74 airport operators that responded to the questions on recurrent training, 68 (about 92%) indicated that they do require recurrent driver training for drivers authorized in the movement area; 7 large hub primary, 12 medium hub, 15 small hub, 21 non-hub primary, 5 commercial service, and 8 general aviation airports (see Table 18). One of the commercial service airports indicated that the recurrent training was for airport operator personnel only, not for tenants or air carrier personnel who may be authorized to drive on the movement area. The time between initial (or recurrent) training and recurrent training varied from “At least annual” for 59 of the airport operators, to “between 1 and 2 years” for four airport operators, to “every 2 years” for 5 airports.

For the most part, it appears that recurrent driving training programs follow closely the type of programs used for initial training. At 39 of the responding airports, the drivers review the driver manual. Forty-three airports have classroom training. Twenty-six use computer-based training in their recurrent training program. Forty-eight require their employees to take a written test and 13 require a driving test. Nine of the responding airports indicated that they also require an oral exam and 11 airport operators use the on-the-job training as part of their recurrent training curriculum.

The length of time dedicated to recurrent training is generally less than that for initial training. The type of airport did not appear to make any difference in the length of time for recurrent training anymore than it does for initial training. For the seven large hub primary airports that required recurrent training, the length of time expended was from 1 to 4 hours. Two of the airports reported their recurrent training programs lasted about 1 hour; another two that their programs lasted approximately 2 hours, and one indicated that its program for recurrent training lasted 4 hours. The remaining 2 large hub primary airports indicated that their program times varied. All seven of these airports required the recurrent training at least annually.

For the medium hub primary airports, recurrent training programs lasted from 35 minutes to 3 hours. One airport operator noted that its program was approximately 35 minutes, one 45 minutes, three reported the time as 1 hour, two indicated their programs lasted for 1.5 hours, two have designed their programs for 2 hours, and one for 2.5 hours. The remaining two airport operators’ recurrent training programs were 3 hours. Eleven of the 12 airports required recurrent training at least annually, whereas the 12th airport put its at “between 1 and 2 years.”

Fifteen small hub primary airports require recurrent training programs for the movement area. One of the airports has the drivers view a video that takes approximately 30 minutes. Eight of the airports indicated that their recurrent training programs last for 1 hour, one that its program was about 45 minutes, three that theirs lasts 1.5 hours, with the remaining two airports lasting 2 hours. All 15 airports required their employees to undergo recurrent training at least annually.

All 21 non-hub primary airports reported that they require recurrent training for drivers authorized in the movement area. One of the programs lasts for 30 minutes, 16 for 1 hour, and 4 last for 2 hours. Whereas 17 of the non-hub primary airports require annual recurrent training, 2 require the training every 1 and 2 years. The remaining two airports require recurrent training every 2 years.

TABLE 18
METHODS OF RECURRENT MOVEMENT AREA TRAINING

Methods for Recurrent Training	Medium					General Aviation
	Large Hub	Hub	Small Hub	Non-hub	Non-primary	
Reviewing Driver Manual	3	9	8	9	4	6
Classroom Instruction	2	5	10	15	3	8
Computer-Based Training	6	7	7	5	1	0
Computer Simulator	1	0	0	0	0	0
Written Test	5	8	10	15	4	6
Driving Test	1	1	3	5	2	1
Oral Exam	0	2	2	3	1	2
On-the-Job Training	0	1	2	6	2	0
Discussion of Past Driving Incidents	2	5	8	13	2	4
Other	0	1	3	5	2	0

TABLE 19
USE OF CELL PHONES FOR COMMUNICATIONS WITH AIR TRAFFIC CONTROL

Allows Cell Phones with ATC	Large Hub	Medium Hub	Small Hub	Non-hub	Non-Primary	General Aviation
Yes	1	4	3	4	2	1
No	7	9	13	16	1	10

ATC = Air Traffic Control.

Of the 5 non-primary commercial service airports responding to the questionnaire, all 5 required recurrent driver training for movement areas. Three of the five programs are for 1 hour and one for 2 hours; however, the fifth program is 8 hours in duration, which is the same time as that airport’s initial training for movement areas. All five of these airport operators require annual recurrent training.

Of the 13 general aviation airports that responded to this question, eight require recurrent training for drivers in the movement area. The length of the training program, as with the other categories of airports, varied from 1 hour (for three of the responding airports) to 1.5 hours (for two of the airports) to 2 hours (for the three remaining airports). Four of the eight airports have a requirement for annual recurrent training, one airport for between 1 and 2 years, and three airports require it every 2 years.

Communications Between the Airport Traffic Control Tower and Drivers on the Movement Area

At controlled airports, there is a requirement that anyone in the movement area must be in contact with the airport traffic control tower at all times. If the airport is certificated under 14 CFR Part 139, Airport Certification, there is an explicit requirement to establish and maintain communications with the tower while anywhere in the movement area (see 14 CFR 139.329). This has historically been done by two-way radio communications on published frequencies. There are also procedures set out between Airport Traffic Control and the airport operator for using emergency procedures when there is an interruption of radio communications. Under rare circumstances, light gun signals may be used when radios are not working properly. However, today’s technology has evolved to allow for better and more reliable communications. In this light, the survey posed a question regarding the permissibility, on an airport, to use cell phones in place of normal communications. Of 71 towered facilities, 15 airport operators, or 21%, had agreements that allowed their drivers on the movement area to communicate with Airport Traffic Control by means of cell phones (see

Table 19). The remaining 56 airports, or 79%, did not have any such agreement. Of those that were allowed to use cell phones, one is a large hub primary airport, four are medium hubs, three are small hubs, four are non-hub primary, two are non-primary commercial service, and one is a general aviation airport.

Contractors Working in the Movement Area

Today, construction is very common place in and around the movement areas of airports. Some airports are completely reorienting their runway and taxiway configurations for greater efficiency. Others are building new runways or extending existing ones to handle newer, larger aircraft. The result of this is that there are contractors and subcontractors who need to be in the movement areas of these airports. There are hundreds of pieces of construction equipment being used, some small and some very large. For many of these drivers, it may be the first time they have been on an airfield in some capacity other than as a passenger on an aircraft. To ensure that these drivers do not cause any problematic situations, many airports require them to be trained to drive on the airfield. Some contracts call for the prime contractor to train its employees, as well as the employees of all the subcontractors. Some airport operators require the contractors to be escorted at all times when on the airfield and to cordon off the area where the work is to take place. In many cases, these different methods are used in combination.

Based on the survey results, 51 airport operators, of the 74 that responded to Question 52, require contractors who work on the movement area to attend an airport driver training program even if the area that they are restricted to is cordoned off. Twenty of the respondents indicated that they do not require such training (see Table 20). This is probably because the operators require the construction area to be cordoned off at all times. In 49 of 51 responses, the airport operator is responsible for the training; however, there are several airports that place that responsibility on the contractor. Some airport operators maintain that the contractor is always under escort; therefore, there is no need to train them.

TABLE 20
CONTRACTOR REQUIREMENTS FOR DRIVER TRAINING IN THE MOVEMENT AREA

Requires Contractors Training	Large Hub	Medium Hub	Small Hub	Non-hub	Non-primary	General Aviation
Yes	5	11	11	13	3	8
No	3	1	3	8	2	3

Equipping Vehicles with Airport Diagrams

In response to a question on whether the airport operator required that all vehicles operating in the movement area have a diagram of the airport accessible to the vehicle operator, only 24 respondents indicated that there was such a requirement at their airport (49 airport operators did not require an airport diagram). The distribution of the 49 airports that indicated it was not a requirement is as follows: 7 large hub primary, 7 medium hub primary, 9 small hub primary, 15 non-hub primary, 3 non-primary commercial service, and 8 general aviation airports. The thinking behind this is that a driver should always be aware of his or her location, day or night, and many of the driver training programs train specifically for this. The distribution of those airports that did require an airport diagram is: one large hub primary, six medium hub, six small hub, six non-hub, two non primary commercial service, and three general aviation airports.

SECTION 4. OTHER

Included in the survey were several questions that did not lend themselves to a clear distinction between requirements in the non-movement area and the movement area.

Emergency Responders

There are situations that occur on an airport to where emergency responders from off the airport may be called. Whereas in most situations these emergency personnel respond to the street side of the airport, there are occasions where they are needed on the airfield side. An example of this would be the need for an ambulance with paramedics. For a general aviation airport, it may be a call for the local fire department to respond to a fire in a piece of equipment on the airfield or on an aircraft. Many of these airports do not have emergency responders or may have them only on a part-time basis. The questions then are how can they get on the airfield and have they been trained to drive on the non-movement or movement areas. Twenty-six airports answering the question concerning emergency responders reported that there is a training program for such responders. However, 51 of the airports noted that escorts were always provided for such responders. Many of these 51 airports also trained the emergency responders as part of the mutual aid agreements they enter into with the local communities. Although seven airport operators answered that they did not have such a training program for emergency responders, they also answered that they did provide escorts for them.

Pilots and Access to the Airside of the Airport

Many of the large primary airports control access for pilots through the FBOs on the airport. Additionally, there are not that many non-air carrier pilots at the top 75 busiest facilities. As the size of the air carrier airport gets smaller, the number

of private pilots increases. Many of these pilots want access to their aircraft or hangar with few to no limitations. This includes being able to drive their vehicle out to their aircraft. Of the 74 airports responding to the question of pilot access, 49 airport operators allowed pilots to drive vehicles onto the airside to go to their hangar or to their aircraft; 25 indicated that pilots were not allowed to drive on the airside. The group of airport operators that did not permit pilots to drive on the airside is broken down as follows: seven large hub primary, seven medium hub, six small hub, and five non-hub primary airports. Of the 5 non-primary commercial service and 13 general aviation airports, not one prohibited pilots from driving their vehicles to their hangar or aircraft. This is not to imply however that the pilots were allowed to drive onto the movement area. Each airport has its own rules and regulations dealing with access to various parts of the airfield.

Those airports that allowed pilots to drive onto the airfield are broken down as follows: 1 large hub primary, 6 medium hub, 10 small hub, 16 non-hub, 5 non-hub commercial service, and 11 general aviation airports.

When asked whether the airport operator required these pilots to take the airfield driver training course, 22 of the 49 airports answered in the affirmative, with the remaining 27 indicating that it was not a requirement. Those airports that did require pilots to take the driver training course consisted of one large hub primary, two medium hub primary, six small hub primary, seven non-hub primary, one non-primary commercial service, and five general aviation airports. Not requiring pilots to take the driver training course were four medium hub, four small hub, nine non-hub primary, four non-primary commercial service airports, and six general aviation airports.

At 18 of the 22 airports that require pilots to take the driver training program, the airport operator does the training. At 7 of these 22 airports, FBOs are allowed to train the pilots. Some of these airports use both the airport operator and FBO.

Training Programs for Pedestrians

The last two questions dealt with training programs specifically designed for pedestrians that must be undertaken before they are allowed into the respective areas. Forty-nine airport operators do not have a specific program for pedestrians that are allowed in the non-movement areas. Twenty-one airport operators consider such a program as part of the Security Identification Display Area (SIDA) training. Four airports have stand-alone programs for pedestrians that are not part of the SIDA program.

Fifty-six airport operators do not have a specific program for pedestrians accessing the movement area, with 14 airports having a program for pedestrians that is part of the SIDA training program. Lastly, four airports have a stand-alone program for pedestrians that is not part of the SIDA program.

CONCLUSIONS

Airport operators, on a whole, have taken the subject of runway incursion prevention and safety very seriously. Airfield driver training programs are indicative of the willingness of the airport community to keep the aviation system safe and efficient. Based on the survey results, there is no lack of driver training for those authorized to drive on an airport's movement area. For those driving on the non-movement area only, most airport operators have also initiated driver training programs, although such programs may be limited in scope. Virtually all commercial service airports have an airfield driver training program for at least the employees that access the movement area of the airfield. Even many of the general aviation airports, especially those with the greater number of operations, have initiated some type of driver training program. Many commercial service airports also have driver training programs for people restricted to the non-movement area of the airport. It is estimated that at the larger air carrier airports there may be as many as 20,000 individuals licensed to drive on the non-movement areas. Training this number of people can be a daunting task. Some airports have allowed the air carriers and the fixed-base operators to train their own employees. Good practice would be for the airport authority to retain oversight of the program and audit it periodically. The survey showed that this is done at many but not all airports.

The curriculum taught in airfield driver training programs is relatively standard. For non-movement area driver training, it normally consists of topics that one would expect, given the circumstances of operating on ramps and aprons. These topics include speed limits, the meaning of the non-movement area boundary lines and their locations, yielding or giving right-of-way to aircraft, and the dangers of aircraft jet blast. For movement area driving programs, the topics normally include runway and taxiway signing and marking, as well as airfield lighting, critical areas for instrument navigation equipment, and proper radio communications. At airports that also have low visibility operations, the curriculum includes the principles of surface movement guidance and controls systems and the lighting and marking that are required for such low visibility operation. If an airport also has land and hold short operations, the markings and lighting for this type of operation are included in the training program.

Many of the airports that responded to the survey already have implemented recurrent driver training programs for

both the non-movement and the movement areas of the airport. These training sessions for recurrent training, usually not as long as initial training, last about 1 to 1.5 hours. More use of computer-based learning most likely will help reduce the overall cost of maintaining a recurrent training program and will make it easier for employees working at the airport to receive the training.

Contractors working on an airport are a challenge to the airport operator. In many cases there are subcontractors who work alongside of the contractors. Large equipment is used extensively and the work may take the contractors/subcontractors close to active runways and taxiways. It is relatively easy to get disoriented and to move outside of the approved work area. It is also difficult to keep track of the many workers and ensure that they have the appropriate knowledge to work on an airfield. Although many airport operators use escort services for contractors, this does not guarantee that an errant contractor may not cause a runway incursion.

From the results of the survey, one can conclude that the airport operators have done a good job in developing driver training courses. The same subjects and methods appear to be used across airport categories. Regardless of whether the airport is a large hub primary airport or a non-hub commercial service airport, the training follows the same general trends.

Further research could include follow-up studies to be done comparing costs of training personnel using computer-based programs with classroom-type training. Training programs of this magnitude do not come without a cost to the airport operators and to the tenants. This research could also focus on the strengths and weaknesses of the different types of training and determine if one is more beneficial than another.

Also, with the recent emphasis on ramp and apron safety, further research may be needed to study the viability of instituting a voluntary reporting system for accidents and incidents that occur on ramps and aprons. In this way, it would be possible to get a better understanding of the magnitude of the dangers of operating on these areas of an airport as well as a better understanding of the causes of such problems. The Flight Safety Foundation estimates that 27,000 ramp accidents and incidents occur worldwide every year at a cost of \$10 billion annually. Driver training is only one way to help reduce that number and cost.

REFERENCES

- Advisory Circular on Ground Vehicle Operations on Airports*, AC 150/5210-20, Federal Aviation Administration, Washington, D.C., June 21, 2002 and change 1 to the AC, Mar. 31, 2008.
- Aeronautical Information Manual, Pilot/Controller Glossary*, Federal Aviation Administration, Washington, D.C., Feb. 2008.
- “Ground Accident Prevention Program,” Flight Safety Foundation, Alexandria, Va. [Online]. Available: www.flight-safety.org/gap.html.
- Report to Congress: National Plan of Integrated Airport Systems (NPIAS) 2009–2013*, Federal Aviation Administration, Washington, D.C. [Online]. Available: www.faa.gov/airports_airtraffic/airports/planning_capacity/npias/reports.
- Runway Safety Report*, Federal Aviation Administration, Washington, D.C., June 2008, Table 1, p. 17.
- Title 14, Code of Federal Regulations, Part 139, *Airport Certification*, Federal Aviation Administration, Washington, D.C., 2006.

APPENDIX A

Survey Questionnaire

SURVEY FOR AIRPORT OPERATORS TO IDENTIFY THE REQUIREMENTS AND TRAINING TO OBTAIN DRIVING PRIVILEGES ON AIRFIELDS

The Transportation Research Board’s Airport Cooperative Research Program has commissioned a study to identify the requirements and training to obtain driving privileges on airfields. The goal of the research is to synthesize the salient information on different methods and programs presently in use in a single document which can be used as a reference by airport authorities. As someone with experience in this area, we would like to have your input on this subject.

Please be assured that your responses will be kept in strictest confidence, to be aggregated with all other responses. It is estimated that this questionnaire will take approximately 30 minutes to 45 minutes to complete.

Airport: _____ LOC ID: _____

Name: _____

Title: _____

Phone No: _____

E-mail Address: _____

SECTION 1. GENERAL

1. Approximately how many new driver authorizations to drive on the airside (i.e., the **movement** or the **non-movement** areas) does your airport issue every year?
 - a. **Non-movement** area _____
 - b. **Movement** area _____

2. Approximately how many people are authorized to drive on the **movement** area (i.e., taxiways or runways) of your airport? _____

3. In addition to those people identified in Question 2, approximately how many other people are authorized to drive on the **non-movement** area (i.e., ramp/apron and perimeter roads) of your airport? _____

4. Do you have driver training requirements for drivers that are required to drive on the airside (i.e., the **movement** or the **non-movement** areas)?

Yes	No	N/A
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5. If you answered “yes” to Question 4, does the driver training requirement include training for (check all that apply):
 - a. Airport staff (Police, ARFF, Operations, Maintenance)
 - b. Air carrier personnel and air carrier support services (e.g., Caterers)
 - c. FBO personnel
 - d. Military
 - e. FAA Technical Operations personnel
 - f. Other government agencies (e.g., TSA, Customs)
 - g. Other tenants
 - h. We do not require driver training for drivers limited to the **non-movement** areas of the airfield.

6. Does the required training differ between **movement** area and the **non-movement** area of the airfield?

Yes	No	N/A
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7. Approximately what grade level is the material used in the driver training curriculum aimed at?

- a. Lower than 5th grade comprehension
- b. 5th to 8th grade comprehension
- c. 9th to 12th grade comprehension
- d. unknown

8. Do you teach driver training in any language(s) other than English?

Yes No N/A

9. If the answer to Question 8 is yes, what language(s)?

10. If the training is taught only in English, do you allow interpreters to assist any employee whose primary language is not English in taking the test?

Yes No N/A

11. If the training is taught in a language other than English, approximately how many years ago was this instituted:

- a. Within the last 2 years
- b. 2 to 4 years
- c. 4 to 6 years
- d. More than 6 years ago

12. How often is the airport's driver training program updated?

- a. Approximately every 6 months
- b. Approximately once a year
- c. Approximately once every 2 years
- d. Whenever there is a need
- e. Never

13. For how long does the airport operator maintain an individual's driver training record?
(Check only one.)

- a. As long as the person continues to drive on the airfield.
- b. At least 6 months after the person leaves the airport.
- c. At least 12 months after the person leaves the airport.
- d. At least 2 years after the person leaves the airport.

14. Are all drivers required to possess a valid driver's license (including commercial drivers licenses) issued by a state (not necessarily the state in which the airport is located)?

Yes No N/A

15. Is there a mechanism in place for the airport authority to be made aware of when a driver, who has driving privileges on the airport, has had his/her state driving license suspended?

Yes No N/A

16. Does the airport driving permit automatically cease when a driver has had his/her state driving license suspended for any reason?

Yes No N/A

17. What enforcement provisions are in the airport's driver program that can be used to effect compliance with the driving rules and regulations? (Check all that apply.)

- a. The airport operator can suspend or revoke the driving privileges.
- b. The airport operator can levy a fine.
- c. There is a graduated penalty system (e.g., \$25 for the first offense, \$50 for the 2nd offense, suspension for the 3rd offense).
- d. The airport operator requires remedial driver training in case of violations of the rules and regulations or in case of a runway incursion.
- e. Other enforcement provisions
- f. We have no enforcement provisions

18. Who is responsible for ensuring that drivers, authorized to drive on the airside of the airport, comply with the airport's driving rules program? (This includes speed limits, driving under jet bridges, number of carts that can be towed at one time by a tug, operating outside of traffic lanes, etc.) (Check all that apply.)
 - a. The airport police
 - b. Airport operations personnel
 - c. Dedicated ramp safety personnel
 - d. All of the above

19. How often are the personnel identified in the question above required to observe the driving practices on the airside of the airport? (Check only one.)
 - a. Daily
 - b. At least once a month
 - c. At least once every 3 months
 - d. At least once every 6 months
 - e. Other
 - f. Never

20. Generally speaking, how many driving incidents of noncompliance with the airport operators drivers training program are identified during a typical week? (Check only one.)
 - a. 1 to 5
 - b. 6 to 10
 - c. 11 or more

SECTION 2. NON-MOVEMENT AREA

21. Does the airport operator allow FBOs, air carriers, or other tenants to train their own employees or to contract out to a 3rd party for non-movement area driver training?

Yes	No	N/A
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22. If the answer to Question 21 is "yes," does the airport operator periodically monitor and review the training being provided?

Yes	No	N/A
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23. If the answer to Question 22 is "yes," how often does the airport operator monitor or audit the tenant's or air carrier's program? (Check only one.)
 - a. At least every 6 months
 - b. At least annually
 - c. At least every 2 years
 - d. Other

24. If the answer to Question 21 is "yes," who administers the examination to the students? (Check only one.)
 - a. The airport operator
 - b. The FBO, air carrier, or other tenants
 - c. No test is administered

25. The Driver Training program for non-movement area driving privileges consists of: (Check all that apply.)
 - a. Reading manual
 - b. Classroom instruction
 - c. Computer-based training
 - d. Computer simulator
 - e. Written test
 - f. Driving test
 - g. Oral exam
 - h. On-the-job training (actual driving under the supervision of a qualified driver or trainer)
 - i. Other

26. If classroom instruction is used for non-movement area driver training, how many hours is the training?

27. If a driver is limited to certain areas of the airfield (e.g., the ramp/apron), how does the driver know where the driving area is restricted? (Check all that apply.)
- There is a movement/non-movement area boundary line
 - There are signs telling the driver that only official vehicles may proceed beyond this point
 - No signs or markings—the boundary is explained in the training program
28. If the airport operator issues actual **non-movement** area driver permits (some sort of physical permit) to all who successfully complete the training program, please check the appropriate box.
- A ramp drivers permit
 - Notation on the airport ID badge
 - Color coding of the airport ID badge
 - Other
 - Does not issue any type of **non-movement** area driving permit
29. What topics are covered in **non-movement** area training? (Check all that apply.)
- Airport rules and regulations
 - Speed limits
 - Meaning of airfield signs
 - Meaning of airfield markings
 - Aircraft dangers (jet blast)
 - Right-of-way
 - Others
30. Does the airport operator require recurrent training for those drivers that have **non-movement** area privileges?
- | | | |
|-----|----|-----|
| Yes | No | N/A |
|-----|----|-----|
31. If the answer to Question 30 is “yes,” how often is recurrent training required? (Check one only.)
- At least annual
 - Between 1 and 2 years
 - More than 2 years
32. If the airport operator has a recurrent training program for the **non-movement** area, approximately how many hours is the training program?
33. The recurrent driver training program for the **non-movement** area consists of (check all that apply):
- Reviewing the driver manual
 - Classroom instruction
 - On-the-job training (actual driving under the supervision of a qualified driver or trainer)
 - Computer simulator
 - Discussion of past driving incidents on **non-movement** areas
 - Other
34. Are contractors who work on the **non-movement** area required to attend an airport driver training program?
- | | | |
|-----|----|-----|
| Yes | No | N/A |
|-----|----|-----|
35. If the answer to Question 34 is “yes,” who provides the driver training for contractors that will be working on the **non-movement** area?
- Airport operator does the training
 - Contracting party is required to do the training
 - All contractors are under escort
 - The area in which the contractor is working is cordoned off

SECTION 3. MOVEMENT AREA

36. Who are authorized to drive on the **movement** area at your airport (check all that apply):
- Airport police
 - Aircraft rescue and fire fighter personnel
 - Airport operations personnel

- d. Maintenance personnel
- e. FBO employees
- f. Air carrier personnel
- g. FAA technical operations personnel
- h. Contractors/airport vendors
- i. Other federal government agency personnel (TSA, Customs, etc.)

37. Are there perimeter roads on your airport that drivers can use that would eliminate the need for crossing runways?

Yes No N/A

38. Are drivers required to use the perimeter roads when they have no reason to be on a taxiway or runway?

Yes No N/A

39. Who conducts **movement** area driver training for the airport staff?

- a. Public safety personnel (such as the Airport Police)
- b. Operations
- c. Tenant or FBO acting as an agent of the airport operator
- d. Other

40. Who conducts **movement** area driver training for non-airport staff?

- a. Public safety personnel (such as the Airport Police)
- b. Operations
- c. FBOs, air carriers, or other tenants
- d. Other

41. The course content for initial (as opposed to recurrent) **movement** area driving privileges consists of which of the following (check all that apply):

- a. Runway and taxiway markings
- b. Runway and taxiway lighting
- c. Land and hold short procedures
- d. Surface Movement Guidance Control System procedures
- e. Nighttime driving training
- f. Location of critical areas for navigational equipment
- g. Proper communications with Air Traffic Control
- h. Radio-out procedures
- i. Runway incursion awareness
- j. Other

42. The initial Driver Training program for **movement** area driving privileges consists of (check all that apply):

- a. Reading manual
- b. Classroom instruction
- c. Computer-based training
- d. Computer simulator
- e. Written test
- f. Driving test
- g. Oral exam
- h. On-the-job training (actual driving under the supervision of a qualified driver or trainer)

43. If classroom instruction is used for **movement** area driver training, how many hours is the instruction?

44. Does the **movement** area driver training program include nighttime familiarization for drivers?

Yes No N/A

45. If the airport operator issues actual **movement** area driver permits (some sort of physical permit) to all who successfully complete the training program, please check the appropriate box.

- a. An airfield drivers permit
- b. Notation on the airport ID badge
- c. Color coding of the airport ID badge
- d. Other
- e. Does not issue any sort of **movement** area driving permit

46. Does the airport operator require recurrent training for those drivers that have movement area privileges?
- | | | |
|-----|----|-----|
| Yes | No | N/A |
|-----|----|-----|
47. If there is a recurrent training program for drivers in the movement area, approximately how many hours is the recurrent training program?
48. If there is a recurrent driver training program for drivers on the movement area, how often is recurrent training required of those drivers? (Check one only.)
- a. At least annual
 - b. Between 1 and 2 years
 - c. More than 2 years
49. The recurrent driver training program for the movement area consists of (check all that apply):
- a. Reviewing the driver manual
 - b. Classroom instruction
 - c. Computer-based training
 - d. Computer simulator
 - e. Written test
 - f. Driving test
 - g. Oral exam
 - h. On-the-job training (actual driving under the supervision of a qualified driver or trainer)
 - i. Discussion of past driving incidents on an airfield (which may have led to a runway incursion or surface incident)
 - j. Other
50. When the Tower is operational, there is a requirement to have 2-way communication between the Tower and a driver in the movement area. Do the airport operator and Air Traffic Control allow cell phones to be used for this communication?
- | | | |
|-----|----|-----|
| Yes | No | N/A |
|-----|----|-----|
51. If your airport were to have a runway incursion or surface incident caused by a vehicle operator who has been approved to be in the movement area, do you, as a matter of course, have your driver training program reviewed for correcting any shortcomings that may be in the program?
- | | | |
|-----|----|-----|
| Yes | No | N/A |
|-----|----|-----|
52. Are contractors who work on the movement area required to attend an airport driver training program?
- | | | |
|-----|----|-----|
| Yes | No | N/A |
|-----|----|-----|
53. If the answer to Question 52 is “yes,” who provides the driver training for contractors that will be working on the movement area?
- a. Airport operator does the training
 - b. Contracting party is required to do the training
 - c. All contractors are under escort
 - d. The area in which the contractor is working is cordoned off
54. Does the airport operator require that all vehicles operating in the movement area have a diagram of the airport accessible to the vehicle operator?
- | | | |
|-----|----|-----|
| Yes | No | N/A |
|-----|----|-----|

SECTION 4. OTHER

55. Does the airport operator have a driver training program to train off-airport emergency responders that may respond to an emergency on the airside (i.e. the non-movement or the movement areas)?
- | | | |
|-----|----|-----|
| Yes | No | N/A |
|-----|----|-----|
56. Are pilots allowed to drive their vehicles onto the airside to their hangars or aircraft?
- | | | |
|-----|----|-----|
| Yes | No | N/A |
|-----|----|-----|

57. If the answer to Question 56 is “yes,” does the airport operator require these pilots to take the airfield driver training course before allowing them access to the airfield?

Yes No N/A

58. If the answer to Question 57 is “yes,” who conducts the driver training for the pilots?

- a. Airport operator does the training
- b. FBOs do the training

59. Does the airport operator have a training program specifically designed for pedestrians (non-drivers) before they are allowed access to the non-movement area?

Yes No N/A

60. Does the airport operator have a training program specifically designed for pedestrians (non-drivers) before they are allowed access to the movement area?

Yes No N/A

APPENDIX B

Survey Respondents

RESPONDING AIRPORTS FOR DRIVER TRAINING SURVEY

ACRP SYNTHESIS S04-03

	Name	Loc ID	Hub	139 Class	State	ATCT
	Primary Large Hub					
1	Baltimore–Washington	BWI	P/L	1D	MD	Y
2	Chicago Midway	MDW	P/L	1D	IL	Y
3	Dallas/Ft. Worth	DFW	P/L	1E	TX	Y
4	Denver International	DEN	P/L	1E	CO	Y
5	McCarran International	LAS	P/L	1D	NV	Y
6	Minneapolis–St. Paul International	MSP	P/L	1E	MN	Y
7	Phoenix Sky Harbor	PHX	P/L	1D	AZ	Y
8	Seattle–Tacoma International	SEA	P/L	1E	WA	Y
	Primary Medium Hub					
1	Austin–Bergstrom International	AUS	P/M	1D	TX	Y
2	Bob Hope–Burbank	BUR	P/M	1C	CA	Y
3	Bradley International	BDL	P/M	1D	CT	Y
4	Cleveland Hopkins International Airport	CLE	P/M	1C	OH	Y
5	Indianapolis International	IND	P/M	1D	IN	Y
6	Lambert–St. Louis	STL	P/M	1D	MO	Y
7	Memphis International	MEM	P/M	1C	TN	Y
8	Raleigh–Durham International	RDU	P/M	1D	NC	Y
9	Reno/Tahoe International	RNO	P/M	1C	NV	Y
10	Sacramento International	SMF	P/M	1C	CA	Y
11	San Antonio	SAT	P/M	1C	TX	Y
12	Ted Stevens Anchorage International	ANC	P/M	1E	AK	Y
13	Tucson International	TUS	P/M	1C	AZ	Y
	Primary Small Hub					
1	Adams Field (Little Rock)	LIT	P/S	1C	AR	Y
2	Akron Canton Regional	CAK	P/S	1B	OH	Y
3	Billings Logan International	BIL	P/S	1C	MT	Y
4	Birmingham International	BHM	P/S	1C	AL	Y
5	Boise Air Terminal/Gowen Field	BOI	P/S	1B	ID	Y
6	Colorado Springs Municipal	COS	P/S	1C	CO	Y
7	Columbia Metropolitan	CAE	P/S	1C	SC	Y
8	Gerald R. Ford Int'l. Airport Grand Rapids	GRR	P/S	1C	MI	PT
9	Greenville–Spartanburg International	GSP	P/S	1C	SC	PT
10	Gulfport–Biloxi International	GPT	P/S	1B	MS	PT
11	Long Beach/Daugherty Field	LGB	P/S	1C	CA	PT
12	Long Island MacArthur	ISP	P/S	1B	NY	Y
13	Quad City International–Moline	MLI	P/S	1B	IL	PT
14	Richmond International	RIC	P/S	1C	VA	Y
15	The Eastern Iowa–Cedar Rapids	CID	P/S	1B	IA	PT
16	Will Rogers World	OKC	P/S	1C	OK	Y
	Primary Non-hub					
1	(Latrobe) Arnold Palmer Regional	LBE	P/N	1A	PA	PT
2	(Meridian) Key Field	MEI	P/N	1A	MS	PT
3	Asheville	AVL	P/N	1A	NC	PT
4	Bismarck Municipal	BIS	P/N	1B	ND	PT
5	Central Wisconsin	CWA	P/N	1A	WI	PT
6	Chicago/Rockford International	RFD	P/N	1A	IL	Y
7	Daytona Beach International	DAB	P/N	1C	FL	Y
8	Fargo	FAR	P/N	1C	ND	Y
9	Fort Smith Regional	FSM	P/N	1A	AR	PT
10	Gillette–Campbell County	GCC	P/N	2	WY	PT
11	Great Falls International	GTF	P/N	1C	MT	Y

12	Helena Regional	HLN	P/N	1B	MT	PT
13	Lincoln	LNK	P/N	1B	NE	PT
14	Melbourne International	MLB	P/N	1C	FL	PT
15	Missoula International	MSO	P/N	1B	MT	PT
16	Outagamie County Regional	ATW	P/N	1B	WI	PT
17	Roberts Field	RDM	P/N	1B	OR	PT
18	Shreveport Regional	SHV	P/N	1B	LA	Y
19	St. George Municipal	SGU	P/N	3	UT	N
20	Teterboro	TEB	P/N	4	NJ	Y
21	Tri-Cities Regional	TRI	P/N	1B	TN	PT
	Commercial Service					
1	(Hot Springs) Memorial Field	HOT	CS	2	AR	N
2	Alpena County Regional	APN	CS	1A	MI	PT
3	Devils Lake Regional	DVL	CS	1A	ND	N
4	Eastern Oregon Regional at Pendleton	PDT	CS	1A	OR	PT
5	Santa Fe Municipal	SAF	CS	1A	NM	PT
	General Aviation					
1	Addison	ADS	GA		TX	PT
2	Beverly Municipal	BVY	GA		MA	PT
3	Centennial Airport	APA	GA		CO	Y
4	Chicago Executive (Palwaukee)	PWK	GA		IL	PT
5	Dekalb-Peachtree	PDK	GA		GA	PT
6	Frederick Municipal	FDK	GA		MD	N
7	Ft. Lauderdale Executive	FXE	GA		FL	Y
8	Ft. Worth Meacham Field	FTW	GA	4	TX	Y
9	Johnson County Executive	OJC	GA		KS	PT
10	Lakeland Linder Regional	LAL	GA	4	FL	PT
11	Merrill Field	MRI	GA		AK	PT
12	Phoenix-Mesa Gateway Airport	IWA	GA	1B	AZ	Y
13	Rocky Mountain Metropolitan	BJC	GA		CO	PT

Code:

Hub P/L = Primary Large Hub (30 Total)
 P/M = Primary Medium Hub (37 Total)
 P/S = Primary Small Hub (72 Total)
 P/N = Primary Non-hub (244 Total)
 CS = Commercial Service (139 Total)
 GA = General Aviation

TOTAL PRIMARY/ COMMERCIAL SERVICE AIRPORTS 522 Airports

Part 139

1A = Class 1 Index A
 1B = Class 1 Index B
 1C = Class 1 Index C
 1D = Class 1 Index D
 1E = Class 1 Index E
 2 = Class 2
 3 = Class 3
 4 = Class 4

ATCT—AIRPORT TRAFFIC CONTROL TOWER

Y = Yes
 N = No
 PT = Part-Time Tower

APPENDIX C

14 Code of Federal Regulations Part 139

§ 139.303 Personnel.

In a manner authorized by the Administrator, each certificate holder must—

- (a) Provide sufficient and qualified personnel to comply with the requirements of its Airport Certification Manual and the requirements of this part.
- (b) Equip personnel with sufficient resources needed to comply with the requirements of this part.
- (c) Train all personnel who access movement areas and safety areas and perform duties in compliance with the requirements of the Airport Certification Manual and the requirements of this part. This training must be completed prior to the initial performance of such duties and at least once every 12 consecutive calendar months. The curriculum for initial and recurrent training must include at least the following areas:
 - (1) Airport familiarization, including airport marking, lighting, and signs system.
 - (2) Procedures for access to, and operation in, movement areas and safety areas, as specified under § 139.329.
 - (3) Airport communications, including radio communication between the air traffic control tower and personnel, use of the common traffic advisory frequency if there is no air traffic control tower or the tower is not in operation, and procedures for reporting unsafe airport conditions.
 - (4) Duties required under the Airport Certification Manual and the requirements of this part.
 - (5) Any additional subject areas required under §§ 139.319, 139.321, 139.327, 139.329, 139.337, and 139.339, as appropriate.
- (d) Make a record of all training completed after June 9, 2004, by each individual in compliance with this section that includes, at a minimum, a description and date of training received. Such records must be maintained for 24 consecutive calendar months after completion of training.
- (e) As appropriate, comply with the following training requirements of this part:
 - (1) § 139.319, Aircraft rescue and firefighting: Operational requirements;
 - (2) § 139.321, Handling and storage of hazardous substances and materials;
 - (3) § 139.327, Self-inspection program;
 - (4) § 139.329, Pedestrians and ground vehicles;
 - (5) § 139.337, Wildlife hazard management; and
 - (6) § 139.339, Airport condition reporting.
- (f) Use an independent organization, or designee, to comply with the requirements of its Airport Certification Manual and the requirements of this part only if—
 - (1) Such an arrangement is authorized by the Administrator;
 - (2) A description of responsibilities and duties that will be assumed by an independent organization or designee is specified in the Airport Certification Manual; and
 - (3) The independent organization or designee prepares records required under this part in sufficient detail to assure the certificate holder and the Administrator of adequate compliance with the Airport Certification Manual and the requirements of this part.

§ 139.329 Pedestrians and ground vehicles.

In a manner authorized by the Administrator, each certificate holder must—

- (a) Limit access to movement areas and safety areas only to those pedestrians and ground vehicles necessary for airport operations;
- (b) Establish and implement procedures for the safe and orderly access to, and operation in, movement areas and safety areas by pedestrians and ground vehicles, including provisions identifying the consequences of noncompliance with the procedures by an employee, tenant, or contractor;
- (c) When an air traffic control tower is in operation, ensure that each pedestrian and ground vehicle in movement areas or safety areas is controlled by one of the following:
 - (1) Two-way radio communications between each pedestrian or vehicle and the tower;
 - (2) An escort with two-way radio communications with the tower accompanying any pedestrian or vehicle without a radio; or
 - (3) Measures authorized by the Administrator for controlling pedestrians and vehicles, such as signs, signals, or guards, when it is not operationally practical to have two-way radio communications between the tower and the pedestrian, vehicle, or escort;
- (d) When an air traffic control tower is not in operation, or there is no air traffic control tower, provide adequate procedures to control pedestrians and ground vehicles in movement areas or safety areas through two-way radio communications or prearranged signs or signals;
- (e) Ensure that each employee, tenant, or contractor is trained on procedures required under paragraph (b) of this section, including consequences of noncompliance, prior to moving on foot, or operating a ground vehicle, in movement areas or safety areas; and
- (f) Maintain the following records:
 - (1) A description and date of training completed after June 9, 2004, by each individual in compliance with this section. A record for each individual must be maintained for 24 consecutive months after the termination of an individual's access to movement areas and safety areas.
 - (2) A description and date of any accidents or incidents in the movement areas and safety areas involving air carrier aircraft, a ground vehicle, or a pedestrian. Records of each accident or incident occurring after June 9, 2004, must be maintained for 12 consecutive calendar months from the date of the accident or incident.

APPENDIX D

Examples of CertAlerts

ADVISORY CAUTIONARY NON-DIRECTIVE
FOR INFORMATION, CONTACT Bruce Landry, AAS-300 (202) 267-8729, Bruce.Landry@faa.gov

DATE:	August 10, 2007	No. 07-10
TO:	Airport Operators, FAA Airport Certification Safety Inspectors, General Aviation Airport Operators	
TOPIC:	Vehicle Pedestrian Deviation Runway Incursions	
Link to Supplemental Safety Training Powerpoint: http://www.faa.gov/airports_airtraffic/airports/airport_safety/media/vpd_briefing.pdf		

Runway Incursions and Surface Incidents at Part 139 airports have risen appreciably during the fiscal year 2007. To date, the number of reported incursions exceeds the numbers recorded by the FAA in July of 2006. Part 139 requires Airport Operators to properly train and/or inform each individual with access to the movement and safety areas of the airport. During the fiscal year 2006, the Airport Certification Program investigated approximately 300 surface incidents. Not all of these surface incidents resulted in Runway Incursions, but these numbers are increasing rather than decreasing. Through the end of July 2007, there have been 49 Runway Incursions caused by vehicles and/or pedestrians compared to 43 for the same month in 2006. A large number of Runway Incursions involve airport employees, to include ARFF, law enforcement, and airport operations staff, and these incursions are preventable with proper training and supervision. The FAA Airport Safety and Operations Office recommends Airport Operators review the following recommendations and suggestions and implement those measures that may be useful tools to reduce Runway Incursions and/or Surface Incidents.

1. Audit vehicle operator movement area permits for airport employees, air carrier employees, tenants and contractors to insure only those individuals whose duties and responsibilities require access to the ramp area or movement area are authorized.
2. Review the airports movement area drivers training program, particularly if the airport has changed its physical configuration, new roadways, new terminal buildings, hangars, movement/safety areas, etc. If the airport operator has authorized a tenant or air carrier to provide ramp/movement area training the airport operator should regularly audit these programs to ensure compliance with Part 139.
3. Require not only an administrative testing for "movement area" access but also a practical or OJT exercise so the individual can demonstrate competency in radio communications and driving skills.
4. Insure all personnel who access movement areas and safety areas and perform duties in compliance with the ACM receive recurrent movement/safety area drivers training.
5. AC 150/5210-20 Ground Vehicle Operations on Airports recommends that Airport Operators should establish procedures for enforcing consequences of non-compliance, including penalties for violations. Remedial drivers training is not considered a "consequence of non-compliance" but is highly recommended as part of the Airport Operators overall drivers training program.
6. Each AIP project involving construction on the airside requires a Safety During Construction Plan (SDC). The SDC Plan requires aggressive oversight by each airport operator to insure runway incursions and surface incidents are addressed.
7. Recommends any tenant, contractor or FBO with routine access to movement/safety areas, also be subject to recurrent movement area driver training similar to personnel covered under 139.303. This recommendation includes FAA personnel and their contractors.
8. Airport Operations Officers, as well as Airport Police or local law enforcement should be used to monitor ramp vehicle safety operations and take positive actions to increase vehicle safety awareness in both the ramp and movement areas.

We have placed on the web at http://www.faa.gov/airports_airtraffic/airports/airport_safety/media/vpd_briefing.pdf, a Runway Incursion PowerPoint, which was developed by the Lead Inspector, FAA Central Region. This presentation is an excellent supplemental training program.

OSB

Benedict D. Castellano, Acting Manager
Airport Safety and Operations Division, AAS-300

8/10/2007

Date

ADVISORY CAUTIONARY NON-DIRECTIVE

FOR INFORMATION, CONTACT Bruce Landry, AAS-300 (202) 366-2337, Bruce.Landry@faa.gov

DATE:	1/10/2007	No. 07-02
TO:	Airport Operators, FAA Airport Certification Safety Inspectors, U.S. Government Employees/Contractors	
TOPIC:	U.S Government Employees/Contractors Seeking Unescorted Motor Vehicle Access to the Movement Area at a Part 139 Certificated Airport, are Required to Meet the Specific Airport's Movement Area Access Requirements.	

This is to clarify the requirement for Airport Operators that are certificated under Part 139, to insure that each U.S. Government employee/contractor, seeking unescorted motor vehicle access to the airport operator's Movement Area, complete the airport's movement area drivers training program prior to operating a motor vehicle in the airport's movement area. Federal employees/contractors, regardless of agency affiliation, are not exempt from the Airport Operator's movement area access requirements under Part 139.329. All federal employees/contractors whose responsibilities require unescorted motor vehicle access to the movement area at multiple Part 139 Certificated airports are required to comply with each airport's movement area access requirements. These requirements, usually in the form of a driver's training program, are not universal from one airport to the next, but require the federal employee/contractor, seeking unescorted motor vehicle access to the movement area, to first obtain appropriate training from each Part 139 Certificated airport.

Federal Aviation Administration (FAA) employees/contractors, requiring motor vehicle access to an airport Movement Area, must also comply with FAA Order 5200.7A, Airfield Driver Training for FAA Employees, prior to driving on the airfield of any airport. This FAA Order also requires FAA employees/contractors to comply with all driving regulations imposed by an airport operator.

 Benedict D. Castellano, Manager
 Airport Safety and Operations Division, AAS-300

1/10/2007
 Date

CERTALERT

=====

ADVISORY * CAUTIONARY * NON-DIRECTIVE

AIRPORT SAFETY AND OPERATIONS DIVISION AAS-300

=====

DATE: 08/26/2002

NO. 02-05

TO: AIRPORT CERTIFICATION SAFETY INSPECTORS

TOPIC: DRIVER TRAINING SIMULATORS.

Recently the FAA issued Advisory Circular 150/5210-20, Ground Vehicle Operations on Airports, encouraging airport operators to set up driver training programs on their airports. The training programs could be very simple, such as requiring drivers authorized to drive on the airside to read the airport rules and regulations that pertain to driving on ramps and aprons. These programs could also be more elaborate, with formal training sessions, examinations, and a requirement for demonstrating driver proficiency. In actuality, most programs will be somewhere in between.

The purposes of these programs are to help avoid runway incursions and to protect the drivers of vehicles and their passengers, as well as the flying public. The training programs can benefit airline and tenant employees, as well as the airport owner's/operator's employees.

Because of the seriousness of appropriate driver training, several companies have developed driver-training simulators. These come in 2 types—mobile and stationary. Both have advantages and disadvantages. A mobile simulator that was demonstrated to the FAA can be used not only for driver training, but also for training aircraft rescue and fire fighters in the proper handling of their vehicles and for airport maintenance personnel to train on snow removal equipment. The simulator can be modified to simulate ARFF equipment, snow removal equipment, as well as a variety of other types of vehicles. All in all, it was quite realistic and challenging.

We would encourage airport owners and operators to consider the use of such a simulator to help train personnel and, in so doing, to help vehicle operators recognize and avoid conditions that lead to runway incursions.

OSB
Benedict D. Castellano, Manager
Airport Safety and Operations Division

08/26/2002
Date

APPENDIX E

Survey Results

SECTION 1. GENERAL

1. Approximately how many new driver authorizations to drive on the airside (i.e., the **movement** or the **non-movement** areas) does your airport issue every year?

	LH	MH	SM	NH	CS	GA
a. Non-movement area	2,680	457	303	74	9	173
b. Movement area	59	101	36	15	12	50

2. Approximately how many people are authorized to drive on the **movement** area (i.e., taxiways or runways) of your airport?

	LH	MH	SM	NH	CS	GA
Average	854	425	132	95	53	84

3. In addition to those people identified in Question 2, approximately how many other people are authorized to drive on the **non-movement** area (i.e., ramp/apron and perimeter roads) of your airport?

	LH	MH	SM	NH	CS	GA
Average	7,957	1,875	767	244	56	654

4. Do you have driver training requirements for drivers that are required to drive on the airside (i.e., the **movement** or the **non-movement** areas)?

	LH	MH	SM	NH	CS	GA	Total
Yes	8	13	16	21	5	12	75
No	0	0	0	0	0	1	1

5. If you answered “yes” to Question 4, does the driver training requirement include training for (check all that apply):

	LH	MH	SM	NH	CS	GA	Total
Airport staff	8	13	16	21	4	12	74
Air carrier personnel	6	13	16	14	3	7	59
FBO personnel	6	13	16	20	4	11	70
Military	3	7	7	4	1	2	24
FAA tech. operations	7	12	16	20	3	8	66
Other government agencies	5	13	14	8	0	4	44
Other tenants	6	12	16	14	3	8	59
Do not require driver training for non-movement area	1	0	0	2	1	7	11

6. Does the required training differ between **movement** area and the **non-movement** area of the airfield?

	LH	MH	SM	NH	CS	GA	Total
Yes	8	12	15	14	3	8	60
No	0	1	1	6	2	2	12
N/A	0	0	0	1	0	2	3

7. Approximately what grade level is the material used in the driver training curriculum aimed at?

	LH	MH	SM	NH	CS	GA	Total
a. Lower than 5th grade	0	0	0	0	0	0	0
b. 5th to 8th grade	3	3	3	2	1	1	13
c. 9th to 12th grade	1	3	5	9	2	3	23
d. Unknown	4	7	7	10	2	8	38

8. Do you teach driver training in any language(s) other than English?

	LH	MH	SM	NH	CS	GA	Total
Yes	0	2	1	0	0	1	4
No	8	11	15	21	5	11	71

9. If the answer to Question 8 is “yes,” what language(s)? Spanish—4 responses

10. If the training is taught only in English, do you allow interpreters to assist any employee whose primary language is not English in taking the test?

	LH	MH	SM	NH	CS	GA	Total
Yes	3	4	8	3	1	2	21
No	5	4	8	18	4	10	49

11. If the training is taught in a language other than English, approximately how many years ago was this instituted:

	LH	MH	SM	NH	CS	GA	Total
a. Within last 2 yrs	0	0	0	0	0	1	1
b. 2 to 4 yrs	0	2	1	0	0	0	3
c. 4 to 6 yrs	0	0	0	0	0	0	0
d. More than 6 yrs	0	0	0	0	0	0	0

12. How often is the airport’s driver training program updated?

	LH	MH	SM	NH	CS	GA	Total
a. Approx. 6 mo	0	0	0	1	0	0	1
b. Approx. 1 yr	3	3	5	6	3	2	22
c. Approx. 2 yrs	2	1	2	0	0	0	5
d. Whenever a need	4	9	13	16	3	9	54
e. Never	0	0	0	0	0	0	0

13. For how long does the airport operator maintain an individual’s driver training record? (Check only one.)

	LH	MH	SM	NH	CS	GA	Total
a. As long as the person continues to drive on the airfield	2	1	4	4	1	4	16
b. At least 6 months after the person leaves the airport	2	1	2	5	0	1	11
c. At least 12 months after the person leaves the airport	1	2	2	4	1	1	11
d. At least 2 years after the person leaves the airport	3	9	9	8	3	4	36

14. Are all drivers required to possess a valid driver’s license (including commercial drivers licenses) issued by a state (not necessarily the state in which the airport is located)?

	LH	MH	SM	NH	CS	GA	Total
Yes	8	13	16	19	5	11	72
No	0	0	0	2	0	0	2

15. Is there a mechanism in place for the airport authority to be made aware of when a driver, who has driving privileges on the airport, has had his/her state driving license suspended?

	LH	MH	SM	NH	CS	GA	Total
Yes	1	5	7	4	1	1	19
No	7	7	9	17	4	10	54

16. Does the airport driving permit automatically cease when the airport operator becomes aware that a driver has had his/her state driving license suspended for any reason?

	LH	MH	SM	NH	CS	GA	Total
Yes	7	13	13	17	2	8	60
No	1	0	2	3	2	3	11

17. What enforcement provisions are in the airport’s driver program that can be used to effect compliance with the driving rules and regulations? (Check all that apply.)

	LH	MH	SM	NH	CS	GA	Total
a. Suspend or revoke	7	13	16	21	5	9	71
b. Levy a fine	3	5	6	11	0	6	31
c. Graduated penalty	1	6	3	6	0	2	18
d. Remedial training	7	13	15	20	1	7	63
e. Other	5	7	11	9	1	3	36
f. No enforcement	0	0	0	0	0	1	1

18. Who is responsible for ensuring that drivers, authorized to drive on the airside of the airport, comply with the airport’s driving rules program? (This includes speed limits, driving under jet bridges, number of carts that can be towed at one time by a tug, operating outside of traffic lanes, etc.) (Check all that apply.)

	LH	MH	SM	NH	CS	GA	Total
a. Airport Police	6	10	13	9	1	2	41
b. Airport Ops.	5	12	13	15	5	8	58
c. Dedicated Ramp Safety	0	0	0	1	0	0	1
d. All of the above	1	1	1	4	0	2	9

19. How often are the personnel identified in the question above required to observe the driving practices on the airside of the airport? (Check only one.)

	LH	MH	SM	NH	CS	GA	Total
a. Daily	7	13	12	18	4	8	62
b. Monthly	0	0	0	1	0	0	1
c. Every 3 months	0	0	0	0	0	0	0
d. Every 6 months	0	0	0	0	0	0	0
e. Other	1	0	2	2	1	1	7
f. Never	0	0	2	0	0	2	4

20. Generally speaking, how many driving incidents of noncompliance with the airport operators drivers training program are identified during a typical week? (Check only one.)

	LH	MH	SM	NH	CS	GA	Total
a. 1 to 5	5	11	14	18	2	9	59
b. 6 to 10	2	2	1	0	0	0	5
c. 11 or more	1	0	0	0	0	0	1

SECTION 2. NON-MOVEMENT AREA

21. In lieu of the airport operator training tenant employees, does it allow FBOs, air carriers, or other tenants to train their own employees or to contract out to a 3rd party for **non-movement** area driver training?

	LH	MH	SM	NH	CS	GA	Total
Yes	2	2	3	6	2	4	19
No	6	10	13	11	2	5	47
N/A	0	1	0	4	1	2	8

22. If the answer to Question 21 is “yes,” does the airport operator periodically monitor and review the training being provided?

	LH	MH	SM	NH	CS	GA	Total
Yes	0	2	3	5	1	1	12
No	2	0	0	1	1	3	7
Total							19

23. If the answer to Question 22 is “yes,” how often does the airport operator monitor or audit the tenant’s or air carrier’s program? (Check only one.)

	LH	MH	SM	NH	CS	GA	Total
a. Every 6 months	0	0	0	1	0	0	1
b. Annually	0	1	3	4	0	1	9
c. Every 2 years	0	1	0	0	0	0	1
d. Other	0	0	0	0	1	0	1
Total							12

24. If the answer to Question 21 is “yes,” who administers the examination to the students? (Check only one.)

	LH	MH	SM	NH	CS	GA	Total
a. Airport operator	0	1	2	2	0	0	5
b. FBO, air carriers, or other tenants	1	1	1	4	1	3	11
c. No test	1	0	0	0	1	0	2
Total							18

25. The Driver Training program for **non-movement** area driving privileges consists of (check all that apply):

	LH	MH	SM	NH	CS	GA	Total
a. Reading manual	4	9	12	11	2	8	46
b. Classroom instruction	1	6	7	14	3	4	35
c. Computer-based training	5	8	9	7	0	0	29
d. Computer simulator	1	0	0	0	0	0	1
e. Written test	5	8	12	12	2	3	42
f. Driving test	0	1	1	1	2	0	5
g. Oral exam	0	1	0	1	2	1	5
h. On-the-job training	3	6	6	8	3	2	28
i. Other	2	0	2	2	1	1	8

26. If classroom instruction is used for **non-movement** area driver training, how many hours is the training?

27. If a driver is limited to certain areas of the airfield (e.g., the ramp/apron), how does the driver know where the driving area is restricted? (Check all that apply.)

	LH	MH	SM	NH	CS	GA	Total
a. Movement/non-movement area boundary line	8	9	15	16	3	9	60
b. Signs that only official vehicles may proceed beyond this point	3	5	5	6	1	7	27
c. No signs or markings—the boundary is explained in the training program	0	3	0	8	2	3	16

28. If the airport operator issues actual **non-movement** area driver permits (some sort of physical permit) to all who successfully complete the training program, please check the appropriate boxes. (More than one may apply.)

	LH	MH	SM	NH	CS	GA	Total
a. Ramp drivers permit	0	1	4	1	1	4	11
b. Notation on the airport ID badge	4	10	13	7	0	2	36
c. Color coding of the airport ID badge	3	3	5	4	0	3	18
d. Other	0	1	1	3	1	2	8
e. Does not issue any type of non-movement area driving permit	1	0	1	7	3	1	13

29. What topics are covered in **non-movement** area training? (Check all that apply.)

	LH	MH	SM	NH	CS	GA	Total
a. Airport rules and regulations	7	13	16	16	3	9	64
b. Speed limits	7	13	16	17	3	8	64
c. Meaning of airfield signs	5	13	9	10	3	6	46
d. Meaning of airfield markings	6	13	13	13	3	7	55
e. Aircraft dangers	7	13	16	16	3	8	63
f. Right-of-way	7	13	16	18	3	8	65
g. Others	5	7	14	12	1	6	45

30. Does the airport operator require **recurrent** training for those drivers that have **non-movement** area privileges?

	LH	MH	SM	NH	CS	GA	Total
Yes	4	8	9	9	2	4	36
No	3	5	7	9	2	5	31

31. If the answer to Question 30 is “yes,” how often is **recurrent** training required? (Check one only.)

	LH	MH	SM	NH	CS	GA	Total
a. Annually	1	3	4	5	2	0	15
b. Between 1 & 2 yrs	0	1	0	1	0	0	2
c. Every 2 yrs	2	4	5	3	0	4	18
d. More than 2 yrs	1	0	0	0	0	0	1

32. If the airport operator has a **recurrent** training program for the **non-movement** area, approximately how many hours is the training program?

33. The **recurrent** driver training program for the **non-movement** area consists of (check all that apply):

	LH	MH	SM	NH	CS	GA	Total
a. Reviewing the driver manual	2	4	6	3	2	3	20
b. Classroom instruction	1	4	4	8	2	2	21
c. On-the-job training	0	2	0	0	2	0	4
d. Computer simulator	0	1	2	1	0	0	4
e. Discussion of past driving incidents on non-movement areas	0	3	5	4	2	2	16
f. Other	3	3	8	2	1	2	19

34. Are contractors who work on the **non-movement** area required to attend an airport driver training program?

	LH	MH	SM	NH	CS	GA	Total
Yes	7	13	14	15	3	10	62
No	0	0	2	5	1	0	8

35. If the answer to Question 34 is “yes,” who provides the driver training for contractors that will be working on the **non-movement** area?

	LH	MH	SM	NH	CS	GA	Total
a. Airport operator	5	13	14	15	3	8	58
b. Contracting party	1	1	1	0	0	3	6
c. Contractors are under escort	1	2	1	0	0	1	5
d. Area cordoned off	0	1	1	2	1	2	7

SECTION 3. MOVEMENT AREA

36. Who are authorized to drive on the **movement** area at your airport (check all that apply):

	LH	MH	SM	NH	CS	GA	Total
a. Airport police	2	11	12	13	2	6	46
b. ARFF	8	13	16	21	5	10	73
c. Airport ops.	8	13	16	20	5	10	72
d. Maintenance	7	13	15	21	5	11	72
e. FBO employees	2	6	8	13	4	9	42
f. Air carrier employees	3	8	0	3	2	2	18
g. Airport vendors	0	2	0	0	0	2	4
h. Contractors	2	6	11	10	5	5	39
i. FAA tech. ops.	7	13	15	21	5	9	70
j. Other fed. government agency personnel	1	3	3	3	1	2	13

37. Are there perimeter roads on your airport that drivers can use that would eliminate the need for crossing runways?

	LH	MH	SM	NH	CS	GA	Total
Yes	6	13	15	18	4	7	63
No	3	0	1	3	1	4	12

38. Are drivers required to use the perimeter roads when they have no reason to be on a taxiway or runway?

	LH	MH	SM	NH	CS	GA	Total
Yes	6	13	15	18	4	9	65
No	1	0	0	1	1	0	3
N/A	0	0	1	2	0	2	5

39. Who conducts **movement** area driver training for the airport staff?

	LH	MH	SM	NH	CS	GA	Total
a. Public safety personnel	1	1	3	7	0	2	14
b. Operations	8	13	15	13	4	10	63
c. Tenant or FBO acting as an agent of the airport operator	0	0	0	1	0	2	3
d. Other	1	0	0	2	1	0	4

40. Who conducts **movement** area driver training for non-airport staff?

	LH	MH	SM	NH	CS	GA	Total
a. Public safety personnel	0	1	2	6	0	2	11
b. Operations	8	12	15	11	3	7	56
c. FBOs, air carriers, or other tenants	1	1	0	1	1	3	7
d. Other	1	0	0	4	2	2	9

41. The course content for initial (as opposed to recurrent) **movement** area driving privileges consists of which of the following (check all that apply):

	LH	MH	SM	NH	CS	GA	Total
a. Runway and taxiway markings	6	11	10	12	4	8	51
b. Runway and taxiway lighting	6	11	10	12	4	8	51
c. Land and hold short procedures	1	5	5	3	1	0	15

d. SMGCS	4	6	1	3	0	0	14
e. Nighttime driving training	6	8	7	7	4	6	38
f. Location of critical areas for navigational equipment	6	11	9	11	4	7	48
g. Proper communications with Air Traffic Control	6	11	10	13	3	7	50
h. Radio-out procedures	6	9	10	12	4	8	49
i. Runway incursion awareness	6	11	10	12	4	8	51
j. All of the above	2	2	7	9	1	3	24

42. The initial Driver Training program for **movement** area driving privileges consists of (check all that apply):

	LH	MH	SM	NH	CS	GA	Total
a. Reading manual	8	10	13	13	3	8	55
b. Classroom instruction	6	7	12	19	4	9	57
c. Computer-based training	4	7	8	6	1	3	29
d. Computer simulator	1	0	0	0	0	0	1
e. Written test	7	9	14	18	4	9	61
f. Driving test	7	5	8	9	2	4	35
g. Oral exam	1	2	6	5	2	3	19
h. On-the-job training	8	9	13	16	4	5	55

43. If classroom instruction is used for **movement** area driver training, how many hours is the instruction?

44. Does the **movement** area driver training program include nighttime familiarization for drivers?

	LH	MH	SM	NH	CS	GA	Total
Yes	8	9	12	13	4	6	52
No	0	4	4	8	1	5	22

45. If the airport operator issues actual **movement** area driver permits (some sort of physical permit) to all who successfully complete the training program, please check the appropriate boxes. (More than one may apply.)

	LH	MH	SM	NH	CS	GA	Total
a. An airfield drivers permit	1	2	3	2	2	3	13
b. Notation on the airport ID badge	6	10	13	9	0	3	41
c. Color coding of the airport ID badge	2	2	5	5	0	4	18
d. Other	0	1	2	0	0	1	4
e. Does not issue any sort of movement area driving permit	1	0	1	7	2	3	14

46. Does the airport operator require **recurrent** training for those drivers that have **movement** area privileges?

	LH	MH	SM	NH	CS	GA	Total
Yes	7	12	15	21	5	8	68
No	1	1	1	0	0	3	6

47. If there is a **recurrent** training program for drivers in the **movement** area, approximately how many hours is the **recurrent** training program?

48. If there is a **recurrent** driver training program for drivers on the **movement** area, how often is **recurrent** training required of those drivers? (Check one only.)

	LH	MH	SM	NH	CS	GA	Total
a. At least annual	7	11	15	17	5	4	59
b. Between 1 and 2 years	0	1	0	2	0	1	4
c. Every 2 years	0	0	0	2	0	3	5
d. More than 2 years	0	0	0	0	0	0	0

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49. The recurrent driver training program for the **movement** area consists of: (Check all that apply.)

	LH	MH	SM	NH	CS	GA	Total
a. Reviewing driver manual	3	9	8	9	4	6	39
b. Classroom instruction	2	5	10	15	3	8	43
c. Computer-based training	6	7	7	5	1	0	26
d. Computer simulator	1	0	0	0	0	0	1
e. Written test	5	8	10	15	4	6	48
f. Driving test	1	1	3	5	2	1	13
g. Oral exam	0	2	2	3	1	2	10
h. On-the-job training	0	1	2	6	2	0	11
i. Discussion of past driving incidents	2	5	8	13	2	4	34
j. Other	0	1	3	5	2	0	11

50. When the Tower is operational, there is a requirement to have 2-way communication between the Tower and a driver in the **movement** area. Do the airport operator and Air Traffic Control allow cell phones to be used for this communication?

	LH	MH	SM	NH	CS	GA	Total
Yes	1	4	3	4	2	1	15
No	7	9	13	16	1	10	56

51. If your airport were to have a runway incursion or surface incident caused by a vehicle operator who has been approved to be in the **movement** area, do you, as a matter of course, have your driver training program reviewed for correcting any shortcomings that may be in the program?

	LH	MH	SM	NH	CS	GA	Total
Yes	5	11	13	19	4	7	59
No	3	2	3	2	0	4	14

52. Are contractors who work on the **movement** area required to attend an airport driver training program even if they are restricted to a cordoned-off area?

	LH	MH	SM	NH	CS	GA	Total
Yes	5	11	11	13	3	8	51
No	3	1	3	8	2	3	20

53. If the answer to Question 52 is "yes," who provides the driver training for contractors that will be working on the **movement** area?

	LH	MH	SM	NH	CS	GA	Total
a. Airport operator	4	11	11	14	2	7	49
b. Contracting party	2	0	0	0	1	1	4
c. Contractors are under escort	0	0	1	1	1	2	5
d. Area cordoned off	0	0	2	0	1	1	4

54. Does the airport operator require that all vehicles operating in the movement area have a diagram of the airport accessible to the vehicle operator?

	LH	MH	SM	NH	CS	GA	Total
Yes	1	6	6	6	2	3	24
No	7	7	9	15	3	8	49

SECTION 4. OTHER

55. Does the airport operator have a driver training program to train off-airport emergency responders that may respond to an emergency on the airside (i.e., the **non-movement** or the **movement** areas) when there is no escort service available?

	LH	MH	SM	NH	CS	GA	Total
a. Training program is available	1	3	3	5	5	9	26
b. Training program is not available	1	1	2	3	0	0	7
c. Escorts are always provided	7	10	13	15	2	4	51

56. Are pilots allowed to drive their vehicles onto the airside to their hangars or aircraft?

	LH	MH	SM	NH	CS	GA	Total
Yes	1	6	10	16	5	11	49
No	7	7	6	5	0	0	25

57. If the answer to Question 56 is “yes,” does the airport operator require these pilots to take the airfield driver training course before allowing them access to the airfield?

	LH	MH	SM	NH	CS	GA	Total
Yes	1	2	6	7	1	5	22
No	0	4	4	9	4	6	27
Total							49

58. If the answer to Question 57 is “yes,” who conducts the driver training for the pilots?

	LH	MH	SM	NH	CS	GA	Total
a. Airport operator	1	1	5	6	1	4	18
b. FBOs	0	1	2	2	0	2	7

59. Does the airport operator have a training program specifically designed for pedestrians (non-drivers) before they are allowed access to the **non-movement** area?

	LH	MH	SM	NH	CS	GA	Total
a. Part of the SIDA training program	3	4	7	6	0	1	21
b. Stand-alone program	0	1	0	3	0	0	4
c. No, no such program for pedestrians	5	8	9	12	5	10	49

60. Does the airport operator have a training program specifically designed for pedestrians (non-drivers) before they are allowed access to the **movement** area?

	LH	MH	SM	NH	CS	GA	Total
a. Part of the SIDA training program	2	2	5	4	0	1	14
b. Stand-alone program	0	0	0	4	0	0	4
c. No, no such program for pedestrians	6	11	11	13	5	10	56

Abbreviations used without definitions in TRB publications:

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI-NA	Airports Council International-North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	Air Transport Association
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation