



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: GROUND VEHICLE OPERATIONS ON AIRPORTS

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1. PURPOSE. This Advisory Circular (AC) and the attached appendices provide guidance to airport operators in developing training programs for safe ground vehicle operations and pedestrian control on the airside of an airport. This includes both movement and non-movement areas, ramps, and aprons. Not all the items addressed in this document will be applicable at every airport. The Federal Aviation Administration (FAA) recommends that each item be evaluated in terms of how it may apply to the size, complexity, and scope of operation of the airport. This AC contains recommended operating procedures, a sample training curriculum (Appendix A), and a sample training manual (Appendix B).

2. BACKGROUND. Every year there are accidents and incidents involving aircraft, pedestrians, and ground vehicles at airports that lead to property damage and injury, which may be fatal. Many of these events result from inadequate security measures, a failure to maintain visual aids, a lack of such aids, and inadequate vehicle operator training. Ground vehicle operation plans promote the safety of airport users by helping identify authorized areas of vehicle operation, outlining vehicle identification systems, addressing vehicle and operator requirements, and coordinating construction, maintenance, and emergency activities.

3. APPLICABILITY. The overall responsibility for the operation of vehicles on an airport rests with the airport operator. The airport operator is also responsible for compliance with the requirements of part 139 at certificated airports and with the provisions of any applicable Federal grant agreements. Adherence to the provisions contained in this AC may materially assist the airport operator in complying with these requirements.

a. All airport operators should establish procedures and policies concerning vehicle access and vehicle operations on the airside of the airport, including ramp and apron areas. These procedures and policies should address such matters as access, vehicle operator requirements, vehicle requirements, operations, and enforcement and should be incorporated into tenant leases and agreements.

b. Establishment of procedures for the safe and orderly access to the movement area and operation in that area is required at certificated airports, under 14 C.F.R. § 139.329(b). Initial and recurrent training in procedures for access to the movement area is required for airport personnel under § 139.303(c). Only initial training is required for tenant and contractor employees, under § 139.329(e). However, regular recurrent training is strongly recommended for all persons with access to the movement area.

c. Each bidding document (construction plans and/or specifications) for development work on an airport or for installation of an air navigation facility (NAVAID) should incorporate a section on ground vehicle operations on airports during construction activity. The airport operator should provide a copy of this plan to the local FAA Airways Facilities office for review. The construction plans and/or specifications should contain the appropriate provisions, as specified in Appendix 1 of AC 150/5370-2, *Operational Safety on Airports During Construction*.

4. RELATED READING MATERIAL. You will find additional information in the following publications:

- a. 14 CFR part 139, Certification of Airports
- b. Current editions of the following advisory circulars:
 - (1) AC 90-67, Light Signals from the Control Tower for Ground Vehicles, Equipment, and Personnel
 - (2) AC 120-57, Surface Movement Guidance and Control System
 - (3) AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport
 - (4) AC 150/5340-1, Standards for Airport Markings
 - (5) AC 150/5340-18, Standards for Airport Sign Systems
 - (6) AC 150/5370-2, Operational Safety on Airports During Construction
 - (7) AC 150/5210-18, Systems for Interactive Training of Airport Personnel
 - (8) AC 150/5200-30, Airport Winter Safety and Operations
- c. To view or download an electronic copy of this AC, visit the FAA website at <http://www.faa.gov>.

5. VEHICLE OPERATOR REQUIREMENTS. Vehicle operators on airports face conditions that are not normally encountered during highway driving. Therefore, those persons who have vehicular access to the movement area of the airport must have an appropriate level of knowledge of airport rules and regulations. Airport operators should require vehicle operators to maintain a current driver's license and should establish a means of identification that would permit the operation of a vehicle on the airside of an airport. Any person expected to operate on the movement area should demonstrate a functional knowledge of the English language.

6. TRAINING. Appendix A includes a sample training curriculum. This curriculum should include initial and/or remedial instruction of all personnel who have access to the airside of the airport. The curriculum should also include annual recurrent instruction for all personnel who have access to the movement area. The airport operator should retain records of this training as long as this person is authorized to operate on the airport. Escorted access

does not normally require training. Airport operators may modify these documents to meet their individual needs. It may also be advantageous to develop customized programs for vehicle operators who only access ramp areas and those who operate on the movement area.

Initial training is the training provided to a new employee or airport user that would enable that person to demonstrate the ability to operate a vehicle safely and in accordance with established procedures while functioning independently on the airside. Recurrent training is the training provided to an employee or airport user as often as necessary to enable that person to maintain a satisfactory level of proficiency. Appropriate schedules for recurrent training will vary widely from airport to airport and from one employee to another, however, under no circumstances should recurrent training intervals for personnel authorized to drive on the movement area extend beyond one year. Airport operators might consider requiring annual recurrent training when a vehicle operator renews an expired airport ID badge or when a tenant renews a lease agreement. A sample Ground Vehicle Operating Familiarization Program Training Record is included in Appendix B.

Airports use a variety of methods for training ground vehicle operators. In some cases, airport operators delegate the requirement of employee training to airport tenants or a contractor. Some airport operators choose to include training manuals or vehicle-operating requirements as part of tenant lease or use agreements. An airport operator may choose to distribute training manual information via a Web page, videos, or booklets. Formal classroom instruction provided by the airport operator or tenant can include either personal instruction or a computer-based interactive training system. (See AC 150/5210-18.)

Airport operators should provide a means of testing trainees on the information presented. In addition to standard question and answer classroom testing methods, the airport operators should have potential ground vehicle operators demonstrate their proficiency in operating a vehicle on the airside before authorizing driving privileges. The FAA also recommends on-the-job training before personnel have unescorted access to the airside of the airport.

7. VEHICLES ON AIRPORTS. Airport operators should keep vehicular and pedestrian activity on the airside of the airport to a minimum. Vehicles on the airside of the airport should be limited to those vehicles necessary to support the operation of aircraft services, cargo and passenger services, emergency

services, and maintenance of the airport. Vehicles on the movement area should be limited to those necessary for the inspection and maintenance of the movement areas and emergency vehicles responding to an aircraft emergency on the movement area. Vehicles should use service roads or public roads in lieu of crossing movement areas whenever possible. Where vehicular traffic on airport operation areas cannot be avoided, it should be carefully controlled.

When necessary, runway crossing should occur at the departure runway end rather than the midpoint. In the event of a runway incursion, an aircraft would have more time and runway length to react if the vehicle incursion is at the end of the runway.

Some aspects of vehicle control and identification are discussed below; however, every airport presents different vehicle requirements and problems. Every airport will require individualized solutions to prevent vehicle or pedestrian traffic from endangering aircraft operations. It should be stressed that aircraft ALWAYS have the right-of-way over vehicles when maneuvering on non-movement areas. Aircraft also have the right-of-way on the movement areas, except when the Airport Traffic Control Tower (ATCT) has specifically instructed an aircraft to hold or give way to vehicle(s) on a runway or taxiway.

Vehicles that routinely operate on the airside should be marked/flagged for high daytime visibility and, if appropriate, lighted for nighttime operations. Vehicles that are equipped with marking and lighting devices should escort vehicles that are not marked and lighted. (See AC 150/5210-5.) Vehicles needing intermittent identification should be marked with magnetically attached markers, which are commercially available.

8. VEHICULAR ACCESS CONTROL. The control of vehicular activity on the airside of an airport is of the highest importance. The airport operator is responsible for developing procedures, procuring equipment, and providing training regarding vehicle operations to ensure aircraft and personnel safety. At airports with an operating ATCT, controllers and vehicle operators should use two-way radios to control vehicles when on the movement area. To accomplish this task, the airport operator and the ATCT should develop a letter of agreement outlining standard operating procedures. When there is construction on an airport, whether federally funded or not, the airport operator should follow the ground vehicle practices contained in AC 150/5370-2.

At airports without an operating ATCT, two-way radio control between vehicles and fixed-based operators or other airport users should avoid frequencies used by aircraft. Even with the most sophisticated procedures and equipment, vehicle operators need training to achieve the proficiency to operate safely. The airport operator should give special consideration to training temporary operators, such as construction workers, even if escort service is being provided.

Inadvertent entry by vehicles onto movement and non-movement areas of an airport poses a danger to both the vehicle operator and aircraft that are attempting to land or take off or that are maneuvering on the airport. Methods for controlling access to the airside will vary depending on the type and location of the airport. The Airport Layout Plan is a useful tool for accomplishing this. Airports may erect a fence or provide for other natural or physical barriers around the entire airport in addition to providing control measures at each access gate, such as guards, magnetic card activated locks, or remotely controlled locks. Gates may either be opened/closed electronically or secured by lock and chain. Physical barriers might include natural objects, such as earthen berms, large boulders, tree trunks, and manmade culverts that could help control remote vehicle access points.

9. VEHICLE REQUIREMENTS. Requirements for vehicles will vary depending on the airport, the type of vehicle, and where the vehicle will be operated on the airport. An airport operator should limit vehicle operations on the movement areas of the airport to only those vehicles necessary to support the operational activity of the airport. Airport operators might find it beneficial to have separate requirements for vehicles operated solely on a ramp area as opposed to those vehicles that operate on movement areas.

Some airports have benefited from establishing their own vehicle inspection program to assure that all vehicles are maintained in a safe operating condition. In establishing vehicle requirements, some items to consider include—

- a. Marking and identification of vehicles
- b. Minimum equipment requirements
- c. Inclusion in all vehicles of a placard diagram depicting the airport's movement area. The diagram should display prominent landmarks and/or perimeter roads. Vehicles intended to operate within the movement area should also include a placard

showing the meaning of ATCT light gun signals and airfield sign and marking information.

d. Vehicle condition requirements and inspection

e. Insurance coverage

10. VEHICLE OPERATIONS. The rules and regulations pertaining to vehicle operations should provide adequate procedures for the safe and orderly operation of vehicles on the airside of the airport. In developing such procedures, airport operators should consider—

a. Requirements that vehicles operating on movement areas be radio equipped or escorted by a radio-equipped vehicle

b. Specific procedural requirements for vehicle operations on airports without an operating ATCT

c. Advance notice/approval for operating a non-airport owned vehicle on the movement area

d. Speed limits

e. Prohibitions on—

(1) Passing other vehicles and taxiing aircraft

(2) Leaving a vehicle unattended and running

(3) Driving under an aircraft except when servicing the aircraft

(4) Driving under passenger bridges

f. Requirements stipulating when vehicle lights must be operated

g. Requirements for the use of dedicated vehicle lanes and perimeter roads whenever possible

h. Locations where vehicles may and may not park

i. Rules of right-of-way (e.g. for aircraft, emergency vehicles, other vehicles)

j. Areas where vehicles may be serviced

k. Procedures for inoperative radios while on a movement area

l. Requirements to report all accidents involving ground vehicles on the airside

m. Requirements making the vehicle operator responsible for passengers in the vehicle

11. EMERGENCY OPERATIONS AND OTHER NON-ROUTINE OPERATIONS. Airport operators allow a number of non-routine operations to occur on the airside of the airport. Such non-routine activities include airfield construction, airshows, aircraft static displays, VIP arrivals/departures, commercial photo shoots, or a host of other activities. In addition to security requirements, airport operators should recognize and prepare for the unique challenges that arise during non-routine operations as they relate to vehicle operations.

Airport operators should review non-routine operations that involve ground vehicles and develop vehicle operation procedures to accommodate these special operations. Planning meetings associated with such activities offer an opportunity to review driving rules and regulations, communications and procedures, and air traffic control procedures as well as other important operational issues.

These meetings should pay special attention to the following activities:

a. **Airside Construction.** The airport operator should develop procedures, procure equipment, and provide training on vehicle operations to ensure aircraft safety during construction as specified in AC 150/5340-2.

b. **Emergency Response/Mutual Aid.** Many airports rely on local emergency services to provide aircraft rescue and firefighting or emergency medical services. Airport operators should ensure that such emergency service providers receive initial and recurrent training in the subject areas identified in paragraph 10, Vehicle Operations, and maintain records of such training. In addition, any mutual aid agreement between the local emergency service providers and the airport operator should specify vehicle operations training requirements.

c. **Snow and Ice Removal.** Airport Operators who use contractors for snow and ice control operations should ensure agreements with such contractors include vehicle operations procedures, including training requirements, consequences of non-compliance, and vehicle communications requirements. The FAA recommends that, when possible, airport operators limit contractors to non-movement areas. When an ATCT is not in operation, or there is no ATCT, procedures should be developed to advise air traffic on the Common Traffic Advisory Frequency (CTAF) of any intentions to remove snow and ice in the movement area.

d. **Low-Visibility Operations.** Additional consideration should be given to vehicle operations

during low visibility. Poor weather conditions (snow, fog, rain, etc.) may obscure visual cues, roadway markings, and airport signs.

Some airports have a Surface Movement Guidance and Control System (SMGCS), which provides guidance to, and control or regulation of, all aircraft and ground vehicles on the movement area of an airport. Guidance relates to facilities, information, and advice necessary to enable pilots of aircraft, or drivers of ground vehicles, to find their way on the airport and keep the aircraft or vehicles on the surfaces and areas intended for their use. Control or regulation means the measures necessary to prevent collisions and to ensure that the traffic flows safely. For additional information on the SMGCS and the SMGCS Plan, refer to AC 120-57.

12. SITUATIONAL AWARENESS. There are a number of factors that hamper vehicle operator situational awareness. Situational awareness declines as a driver's attention is drawn into the vehicle or is focused on any one thing to the exclusion of everything else. Other such factors include vague or incomplete communications or a vehicle operator's personal conflicts, which may involve fatigue and stress. Running behind schedule or being over-tasked also contributes to a reduction in situational awareness. Certainly, degraded operating conditions, such as equipment malfunctions, rain, fog, or snow, may also diminish a vehicle operator's situational awareness.

There are ways to enhance situational awareness. As part of a ground vehicle operator's training program, airport operators may concentrate on having vehicle operators visually scan fixed and moving objects that may be converging into the vehicle's path. Airport operators should also promote the use of clear and concise communications by vehicle operators. Most important, airport operators should alert vehicle operators to distractions caused by social interactions while operating a vehicle on the airside.



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Airport operators may also be able to increase situational awareness for vehicle operators with enhancements on the airside. Such enhancements may include establishing dedicated marked routes for vehicles that avoid high activity, congested areas, or blind spots. The elimination or relocation of fixed objects that hinder a vehicle operator's line of sight or block radio transmissions may also enhance safety.

13. ENFORCEMENT AND CONTROL. Airport operators should establish procedures for enforcing the consequences of non-compliance, including penalties for violations. Tenant lease or use agreements may include these enforcement provisions. Listed below are control issues that airport operators should address as part of a ground vehicle control program:

- a. Implementation of a tiered identification badging system that permits easy recognition of a vehicle operator's permitted driving area privileges
- b. Prohibition against transfer of registration media to a vehicle other than the one for which originally issued
- c. Policies for surrendering permits to airport management when a vehicle is no longer authorized entry into a facility
- d. Periodic checks to ensure that only properly authorized persons operate vehicles on the airside.
- e. System to control the movement of commercial trucks and other goods conveyances onto and out of the airside of an airport
- f. Briefing or training for delivery drivers if they are permitted direct access to the airside
- g. Implementation of a progressive penalty policy