

## APPENDIX B

### SAMPLE GROUND VEHICLE OPERATIONS TRAINING MANUAL

**NOTE:** This sample training manual provides airport operators with a template for developing and implementing proposed policies or procedures for controlling ground vehicles and equipment accessing the airside of an airport. Airport operators may use the format below but adapt the requirements to specific conditions found on the airport. The first part of the appendix could serve as driving rules and regulations that could be adopted by the airport operator who would fill in the appropriate blanks or blocks of text or revise the document for a specific airport. Section 2 would serve as a suggested driver training manual. In this section, the airport operator could add or delete information as it applies to the airport. For example, if the airport has no instrument approach, reference to the ILS signs and protection of critical areas could be deleted. Also, the airport operator is encouraged to replace illustrations of signs with those found on the airport.

#### Section 1. Airport Driving Rules and Regulations

**1.1. Authority for Implementation of Rules and Regulations.** The (NAME) Airport operates under the authority of (JURDISTICTION). (CITY/COUNTY ORDINANCE OR STATE STATUTE) has granted the (AIRPORT OPERATOR) the authority to make bylaws for the management and supervision of its airport affairs.

**1.2. Applicability.** This regulation applies to all users of, and persons on any portion of, the property owned or controlled by (AIRPORT OPERATOR). No persons are exempt from airport operating training requirements for operating a vehicle on the airside of an airport. Tenant organizations shall be responsible for the dissemination of, accessibility to, and compliance with these rules and regulations by their employees.

These Rules and Regulations may be amended, changed, or modified by (AIRPORT OPERATOR), as necessary.

**1.3. Definitions.** The following terms are defined as indicated in this section for the purpose of this Ground Vehicle Operation Training Manual. *(The airport operator should include only those definitions applicable to its airport and conditions.)*

- 1.3.1 Accident**—a collision between one aircraft or vehicle and another aircraft, vehicle, person, or object that results in property damage, personal injury, or death.
- 1.3.2 Air Carrier Ramp**—a ramp for air carriers. Only authorized personnel and vehicles may operate on this ramp. Private vehicles and aircraft are prohibited from operating on it.
- 1.3.3 Airside**—those areas of an airport that support aircraft activities.
- 1.3.4 Airport Traffic Control Tower (ATCT)**—a service operated by an appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.
- 1.3.5 Aircraft**—a device that is used or intended to be used for flight in the air.
- 1.3.6 Airport**—(NAME) International Airport Facility, owned and operated by (AIRPORT OPERATOR), including all improvements and equipment existing or to be developed.
- 1.3.7 Apron or Ramp**—a defined area on an airport or heliport intended to accommodate aircraft for the purposes of parking, loading and unloading passengers or cargo, refueling, or maintenance.
- 1.3.8 Common Traffic Advisory Frequency (CTAF)**—radio frequency designed for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating ATCT or when the tower is closed. The CTAF may be a UNICOM, MULTICOM, FSS, or tower frequency and is identified in appropriate aeronautical publications. (See below for definitions of UNICOM, MULTICOM, and FSS.)
- 1.3.9 Fixed-Based Operator (FBO)**—a person, firm, or organization engaged in a business that provides a range of basic services to general aviation. Services may include the sale and dispensing of fuel, line services, aircraft parking and tie-down, pilot and passenger facilities, airframe and power plant maintenance, aircraft sales and rental, and pilot instruction.

- 1.3.10. Flight Service Station (FSS)**—air traffic facilities that provide pilot briefings, en route communications, and visual flight rules search and rescue services; assist lost aircraft and aircraft in emergency situations; relay air traffic control clearances; originate Notices to Airmen; broadcast aviation weather and National Airspace System information; receive and process instrument flight rules flight plans; and monitor NAVAIDS. In addition, at selected locations, FSSs provide En Route Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of transborder flights.
- 1.3.11. Foreign Object Debris (FOD)**—debris that can cause damage to aircraft engines, tires, or skin from rocks, trash, or the actual debris found on runways, taxiways, and aprons.
- 1.3.12. General Aviation (GA)**—that portion of civil aviation that encompasses all facets of aviation except air carriers holding a certificate of public convenience and necessity.
- 1.3.13. Ground Vehicle**—all conveyances, except aircraft, used on the ground to transport persons, cargo, fuel, or equipment.
- 1.3.14. ILS Critical Area**—an area provided to protect the signals of the localizer and glideslope.
- 1.3.15. Incursion**—any occurrence at an airport involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in loss separation with an aircraft taking off, intending to take off, landing, or intending to land.
- 1.3.16. Jet Blast**—jet engine exhaust or propeller wash (thrust stream turbulence).
- 1.3.17. Law Enforcement Officer (LEO)**—any person vested with police power of arrest under Federal, state, county, or city authority and identifiable by uniform, badge, and other indication of authority.
- 1.3.18. Light Gun**—a hand-held, directional light-signaling device that emits a bright narrow beam of white, green, or red light, as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot or vehicle actions where radio communication is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and on the airport movement area.
- 1.3.19. Mobile Fueler**—a vehicle owned and/or operated by authorized agents to pump and dispense Jet A and 100 LL fuel at (AIRPORT). This may include fuel tankers, in-to-plane fueling pumpers, and hydrant carts.
- 1.3.20. Movement Area**—the runways, taxiways, and other areas of an airport that aircraft use for taxiing, takeoff, and landing, exclusive of loading ramps and parking areas, and that are under the control of an air traffic control tower.
- 1.3.21. MULTICOM**—a mobile service not open to public correspondence used to provide communications essential to conduct the activities being performed or directed from private aircraft.
- 1.3.22. Non-movement Areas**—taxiways, aprons, and other areas not under the control of air traffic or at airports without an operating airport traffic control tower.
- 1.3.23. Operator**—any person who is in actual physical control of an aircraft or a motor vehicle.
- 1.3.24. Owner**—a person who holds the legal title of an aircraft or a motor vehicle.
- 1.3.25. Restricted Areas**—areas of the airport posted to prohibit or limit entry or access by the general public. All areas other than public areas.
- 1.3.26. Runway**—a defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length.
- 1.3.27. Runway in Use or Active Runway**—any runway or runways currently being used for takeoff or landing. When multiple runways are used, they are all considered active runways.
- 1.3.28. Runway Safety Area**—a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

- 1.3.29. Surface Movement Guidance and Control System (SMGCS)**—a system comprising the provisions for guidance to, and control or regulation of all aircraft, ground vehicles, and personnel of the airport during low-visibility operations. Guidance relates to facilities and information necessary for pilots and ground vehicle operators to find their way about the airport. Control or regulation means the measures necessary to prevent collisions and to ensure that traffic flows smoothly and efficiently.
- 1.3.30. Taxiways**—those parts of the airside designated for the surface maneuvering of aircraft to and from the runways and aircraft parking areas.
- 1.3.31. Tie Down Area**—an area used for securing aircraft to the ground.
- 1.3.32. Uncontrolled Airport**—an airport without an operating airport traffic control tower or when airport traffic control tower is not operating.
- 1.3.33. UNICOM**—a non-Federal communication facility that may provide airport information at certain airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications.
- 1.3.34. Vehicle Service Road**—a designated roadway for vehicles in a non-movement area.
- 1.3.35. Very High Frequency Omnidirectional Range (VOR)**—a ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the National Airspace System.
- 1.3.36. Wake Turbulence**—phenomenon resulting from the passage of an aircraft through the atmosphere. The term includes vortices, thrust stream turbulence, jet blast, jet wash, propeller wash, and rotor wash both on the ground and in the air.
- 1.4. Severability.** If any section, subsection, subdivision, paragraph, sentence, clause, or phrase of these Rules and Regulations or any part thereof is for any reason held to be unconstitutional, invalid, or ineffective by any court of competent jurisdiction or other competent agency, such decision will not affect the validity or effectiveness of the remaining portions of these Rules and Regulations.
- 1.5. Violation of Rules—Penalties and Suspension of Driving Privileges.** Any person who does not comply with any of the provisions of these Rules and Regulations, or any lawful order issued pursuant thereto, will be subject to progressive penalties for repeat violations. These penalties may include denied use of the Airport by (OPERATOR) in addition to the penalties described pursuant to Federal, state, or local authorities. *(The airport operator should tailor this section to discuss its enforcement policies.)*
- 1.5.1.** Penalties for failure to comply with the Airside Vehicular Traffic Regulations shall consist of written warnings, suspension of airside driving privileges, and/or revocation of airside driving privileges. Receipt of \_\_\_\_\_ written warnings by an operator of a vehicle in any 12-month period will automatically result in suspension of airside driving privileges. Receipt of \_\_\_\_\_ written warnings in any 12-month period will automatically result in revocation of airside driving privileges.
- 1.5.2.** Based on an evaluation of the circumstances or the severity of a particular incident or incidents, the (AIRPORT OPERATOR) reserves the exclusive right to assess any penalty it deems appropriate at any time to any individual authorized to operate a vehicle on the airside without regard to prior operating history.
- 1.5.3.** Suspension of airside driving privileges shall be no less than \_\_\_\_\_ calendar days and no greater than \_\_\_\_\_ calendar days.
- 1.5.4.** The (AIRPORT OPERATOR) will provide a copy of all written warnings issued to an operator to the local manager of the company owning or in possession and control of the vehicle or vehicles involved in the violation(s).
- 1.6.** The (AIRPORT OPERATOR) shall require any individual involved in a runway incursion or other vehicle incident to complete remedial airfield driver training.

**1.7. Driver Regulations on the Airside of an Airport.****1.7.1. Vehicle Operator Requirements.**

1. All applicants must satisfactorily complete the applicable driver's training class before receiving an airside driver's license.
2. All applicants must pass the written test with a grade of at least \_\_\_ percent. Applicants who do not pass the written test may retake the test after additional study and a \_\_\_ day period.
3. Applicants for movement area driving privileges shall be required to successfully complete an airside driving test by a designated representative of (AIRPORT OPERATOR).
4. No vehicle shall be operated on the airside unless—
  - a. The driver is authorized to operate the class of vehicle by an appropriate state-licensing agency or by the driver's employer through a company training/certification program.
  - b. The driver properly displays an approved, airport-issued ID card with the Authorized Driver designation (*if applicable*).
5. No person operating or driving a vehicle on any aircraft ramp shall exceed a speed greater than \_\_\_\_\_ miles per hour. Factors including, but not limited to, weather and visibility shall be taken into consideration when determining safe operating speed.
6. No vehicle shall pass another ground vehicle in a designated vehicle roadway.
7. No vehicle shall pass between an aircraft and passenger terminal or passenger lane when the aircraft is parked at a gate position except those vehicles servicing the aircraft. All other vehicles must drive to the rear of the aircraft and shall pass no closer than \_\_\_\_\_ feet (\_\_\_ m) from any wing or tail section.
8. Moving aircraft and passengers enplaning or deplaning aircraft shall have the right-of-way at all times over vehicular traffic. Vehicle drivers must yield the right-of-way.
9. No vehicle operator shall enter the airside unless authorized by (AIRPORT OPERATOR) or unless the vehicle is properly escorted.
10. No vehicle operator shall enter the movement area—
  - a. Without first obtaining permission of the (AIRPORT OPERATOR) and clearance from the ATCT to enter the movement area;
  - b. Unless equipped with an operable two-way radio in communication with the ATCT; or
  - c. Unless escorted by an (AIRPORT OPERATOR) vehicle and as long as the vehicle remains under the control of the escort vehicle.
11. No person shall operate any motor vehicle that is in such physical or mechanical condition as to endanger persons or property or that the (AIRPORT OPERATOR) considers an endangerment.
12. No person shall—
  - a. Operate any vehicle that is overloaded or carrying more passengers than for which the vehicle was designed.
  - b. Ride on the running board or stand up in the body of a moving vehicle.
  - c. Ride with arms or legs protruding from the body of a vehicle except when the vehicle was designed for such use.
13. A vehicle guide person is required whenever the vision of the vehicle operator is restricted.
14. No fuel truck shall be brought into, stored, or parked within 50 feet of a building. Fuel trucks must not be parked within 10 feet from other vehicles.

15. Container carriers and tugs shall tow no more carts, pods, or containers than are practical, under control, tracking properly, and safe.
16. When not serving aircraft or undertaking their intended functions, ramp vehicles and equipment shall be parked only in approved areas.
17. Vehicle operators shall not operate or park vehicles under any passenger loading bridge.
18. No person shall park a vehicle in an aircraft parking area, safety area, or gross area or in a manner that obstructs or interferes with operations in the aircraft movement area or apron area.
19. No person shall park, or leave unattended, vehicles or other equipment that interfere with the use of a facility by others or prevent movement or passage of aircraft, emergency vehicles, or other motor vehicles or equipment.
20. No person shall park a vehicle or equipment within \_\_\_\_ feet (\_\_\_ m) of a fire hydrant or in a manner that prohibits a vehicle from accessing the fire hydrant.
21. No person shall operate a vehicle or other equipment within the airside under the influence of alcohol or any drug that impairs, or may impair, the operator's abilities.
22. Each vehicle operator using an airport perimeter (security) gate shall ensure the gate closes behind the vehicle prior to leaving the vicinity of the gate. The vehicle operator shall also ensure no unauthorized vehicles or persons gain access to the airside while the gate is open.
23. Vehicle operators shall not operate vehicles in a reckless or careless manner. A reckless or careless manner is one that intentionally or through negligence threatens the life or safety of any person or threatens damage or destruction to property.
24. Vehicles shall not enter the movement area or cross runways unless the operator of the vehicle has received required training and authorization from the (AIRPORT OPERATOR) to operate on the movement area. Whenever possible, all airport vehicles shall utilize the airport perimeter and service roads to transition between areas on the airport.
25. Each vehicle operator is responsible for the activities of each vehicle passenger on the airside of the airport.

**1.7.2. Vehicle Regulations.**

1. No vehicle shall be operated on the airside unless it has proper registration in the (STATE) or is a qualified off-road vehicle that is not normally operated on public streets but has received the approval of the (AIRPORT OPERATOR).
2. All vehicles operated on the airside must have vehicle liability insurance, as required by the (AIRPORT OPERATOR).
3. The (AIRPORT OPERATOR) must approve tenant vehicles operated on the movement and non-movement areas. These vehicles must display a (AIRPORT OPERATOR) sticker or an airport-approved company logo that is at least \_\_\_\_ inches (\_\_\_ cm) in height on the passenger and operator's doors.
4. Carts or pieces of equipment being towed or carried after darkness must have side and rear reflectors or rear lights.
5. No vehicle shall be permitted on the airside unless—
  - a. It is properly marked, as outlined in FAA Advisory Circular 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*.
  - b. It is in sound mechanical condition with unobstructed forward and side vision from the driver's seat.

- c. It has the appropriately rated and inspected fire extinguishers (service vehicles and fuel trucks).
    - d. It has operable headlamps and brake lights.
  - 6. Vehicles operating on the movement area shall be equipped with operating amber rotating beacon or equivalent.
  - 7. All aircraft refueling vehicles and any other vehicle 8-foot or more in width shall be equipped with a flashing amber beacon and flashing front, tail, and clearance lights that are activated at all times when operating on the airside.
- 1.7.3. Vehicular Accidents.** Operators of vehicles involved in an accident on the airport that results in injury to a person or damage to an aircraft, airport property, or another vehicle shall—
- 1. Immediately stop and remain at the scene of the accident.
  - 2. Render reasonable assistance, if capable, to any person injured in the accident.
  - 3. Report the accident immediately to the (AIRPORT OPERATOR) before leaving the scene, if possible.
  - 4. Provide and surrender the following to any responding (AIRPORT OPERATOR) personnel: name and address, airport identification card, state driver's license, and any information such personnel need to complete a motor vehicle accident report.

## Section 2. Driving on the Non-Movement Areas

- 2.1.** Non-movement areas include taxiways, aprons, and other areas **not** under control of the ATCT. Anyone authorized to operate a motorized vehicle on the airside may do so on the non-movement areas without being in positive radio contact with the ATCT. These areas include—
- 2.1.1. Service roads
  - 2.1.2. Cargo aprons
  - 2.1.3. General aviation apron
  - 2.1.4. Air carrier apron(s)
- 2.2. Driving.** Operating within the ramp areas requires the vehicle driver to exercise extreme caution as aircraft are always moving, aircraft passengers may be walking from an aircraft to the gate, and noise levels are high. Vehicle drivers should—
- 2.2.1. Never drive between safety cones or across delineated passenger walkways.
  - 2.2.2. Watch cockpit blind spots—pilots typically cannot see behind or below the aircraft.
  - 2.2.3. Avoid jet blast or prop wash, which can blow debris or overturn vehicles.
  - 2.2.4. Be aware and avoid moving propellers that can cause damage, injury, or death.
  - 2.2.5. Be aware of other vehicle movements—you may not hear them approaching due to aircraft engine noise.
  - 2.2.6. Yield to aircraft, passengers, and emergency vehicles, which ALWAYS have the right-of-way on any portion of the airport.

When traveling on the apron, always use designated vehicle service roads. Driving close to buildings, around vehicles, or aircraft is prohibited. This policy helps to establish a predictable order to vehicle movements in congested areas and helps to ensure their visibility to aircraft and other vehicles.

Parked aircraft may still have their engines running, so be aware of the hazards of jet blast or prop wash, which may overturn vehicles. Before an aircraft engine is started, the aircraft's red flashing beacons must be on. In some instances, propellers and engine spinners are marked to indicate when the engine is operating. A pilot's ability to maneuver quickly on the ground is limited. Propellers and jet engines can cause significant damage and injury to personnel. In addition, cockpit visibility prohibits the pilot from seeing under the nose or behind the aircraft and limits the pilot's ability to avoid ground vehicles.

**2.3. Nighttime and Poor Weather Driving Conditions.** Poor weather conditions (snow, fog, rain, etc.) might obscure visual cues, roadway markings, and airport signs. Vehicle operators should remain vigilant of their surroundings and operating boundaries. Watch out for snow removal equipment and aircraft operating in the vicinity under low-visibility conditions. There are additional risks present under these conditions.

### Section 3. Driving on the Movement Areas

Drivers who are authorized to drive on the movement area require more training and vigilance since there are dangers associated with this area that are not present on non-movement areas. In addition to the principals for driving on the non-movement area, drivers who have access to the movement area must be cognizant of the meaning of airfield signs, markings, and lighting configurations. Additionally, they must be able to communicate with air traffic control (ATC) and be able to follow ATC directions.

**3.1. ATCT Control.** Movement areas are defined as the runways, taxiways, and other areas of the airport that are used for taxiing, hover taxiing, air taxiing, and takeoff and landing of aircraft, exclusive of loading ramps and aircraft parking areas. Movement areas are considered "positive control," meaning that all vehicle operators will need permission from ATC before entering the area.

**3.2. Authorized Vehicles.** Only those vehicles necessary for airport operations may enter a movement area. Therefore, fuel trucks, maintenance vehicles, tugs, catering trucks, and other nonessential vehicles should not be permitted to enter these areas. Exceptions may include (AIRPORT OPERATOR)-authorized vehicles with appropriately trained personnel. Airport Operations/Maintenance shall coordinate all other vehicle operations within the movement areas.

#### 3.3. Taxiways.

**3.3.1. Designations.** Aircraft use taxiways to move to and from the aprons and the runways.

Taxiways are designated by letters or by a letter/number combination such as A, B, G2, or B3. (The Airport Operator should include a diagram of the airport here with the taxiway and runway designations.)

**3.3.2. Lighting.** Taxiways are lighted with **blue** edge lighting and/or reflectors. Some taxiways are also lighted with **green** in-paved, centerline lighting. (*Use airport-specific example here.*)

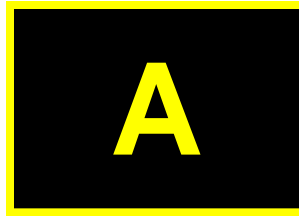
**3.3.3. Signs.** The signs used on taxiways are direction, destination, location, and taxiway ending marker signs.

**Direction and Designation Signs** have **black lettering** and a **directional arrow** or **arrows** on a **yellow background**. The arrow indicates the direction to that taxiway, runway, or destination.



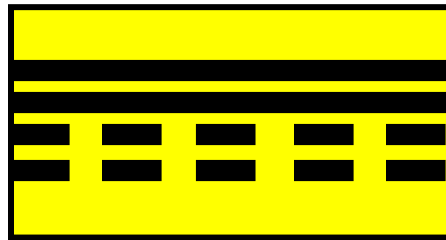
**Taxiway Directional Sign**

**Location Signs** have **yellow lettering** on a **black background**. The location sign below indicates that the operator of the vehicle/equipment is located on the named taxiway or runway.



**Taxiway Location Sign**

**Runway Safety Area/Object Free Zone (OFZ) and Runway Approach Area Boundary Signs**, when required, identify the boundary of the runway safety area/OFZ or the runway approach area to the pilot and vehicle operator. The driver can use these signs to identify when the vehicle is clear of the runway environment. It has a **black inscription** that depicts the holdline marking on a **yellow background**.



**Runway Safety Area/OFZ and Runway Approach Boundary Sign**

- 3.3.4. Markings.** Pavement markings on taxiways are always **yellow**. The taxiway centerline is painted on all taxiways. On the edges of some taxiways, there is a solid, double yellow line or double-dashed line. If pavements are usable on both sides of the line, the lines will be dashed; if not, the lines will be solid.

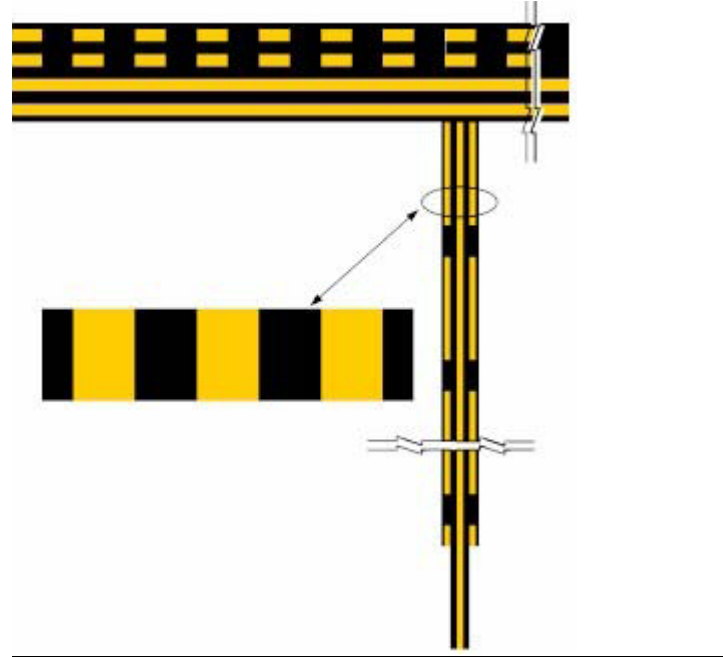
**Runway Holding Position Markings** are located across each taxiway that leads directly onto a runway. These markings are made up of **two solid lines** and **two broken yellow lines** and denote runway holding position markings. These markings are always co-located with a Runway Holding Position Sign. A vehicle operator must not cross from the solid-line side of the marking without first obtaining clearance.



**Runway Holding Position Marking**



**Enhanced Taxiway Centerline Markings** may be present at some airports, and will appear before a runway hold line, as illustrated below. These markings are intended to serve as an additional warning to flight crews that they are approaching the runway.



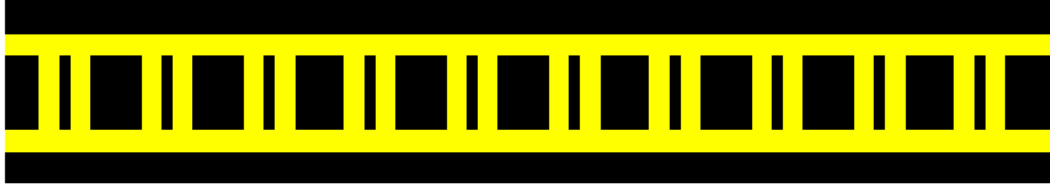
**Enhanced Taxiway Centerline Markings**

**Non-Movement Area Boundary Markings** consist of **two yellow lines** (one solid and one dashed). The solid line is located on the non-movement area side, while the dashed yellow line is located on the movement area side. A vehicle operator is not to cross from the solid-line side without first contacting the ATCT and obtaining a clearance to operate on the movement area.



**Non-Movement Area Boundary Marking**

**Instrument Landing System (ILS) Critical Area Holding Position Markings** are comprised of **two parallel yellow lines** with lines running perpendicular between the two parallel yellow lines. These markings identify the location on a taxiway where an aircraft or vehicle is to stop when it does not have clearance to enter ILS critical areas. The ILS critical area must remain clear, especially in inclement weather. If a vehicle proceeds past this ILS marking, it might cause a false signal to be transmitted to the landing aircraft.



**ILS Hold Position Marking**

### 3.4. Runways (*Use Airport Specific Examples*).

**3.4.1. Designations.** Runways are areas where aircraft land and take off. Runways are always designated by a number such as 1 or 19. The number indicates the compass heading of the runway. An aircraft taking off on runway 19 is headed 190 degrees. In the event of parallel runways, a letter designation is added to indicate either the right or left runway; e.g., **1L-19R, 1R-19L**.

**3.4.2. Lighting.** Runways are lighted with a variety of colored lights.

**Runway Edge-lights** are **white**. **If the runway has an instrument approach**, the last 2,000 feet of the runway will be yellow in color.

**Runway Centerline Lights** are **white** except for the last 3,000 feet of the runway, where they begin to alternate **red** and **white**. For the last 1,000 feet of runway the centerline lights are all **red**.

**Runway Touchdown Zone Lights** are **white**.

**Runway End/Threshold Lights** are split lenses that are **red/green**.

**3.4.3. Signs.**

**Mandatory Holding Position Signs for Runways** have **white numbering/lettering** on a **red background with a white border**. These are located at each entrance to a runway and at the edge of the runway safety area/obstacle-free zone and are co-located with runway holding position markings. **Do not proceed beyond these signs until clearance is given by the ATCT to enter onto the runway.**



**Runway Hold Sign**

**Instrument Landing System (ILS) Holding Position Signs** have **white letters** on a **red background with a white border**. These signs tell pilots and vehicle operators where to stop to avoid interrupting a type of navigational signal used by landing aircraft. This is a critical area, and a vehicle/equipment operator must remain clear of it (*use airport-specific policy*). If a vehicle proceeds past this microwave landing system/ILS marking, it may cause a false signal to be transmitted to the landing aircraft.



**ILS Hold Sign**

**Holding Position Signs for Runway Approach Areas.** The inscription on a sign for a runway approach area is the associated runway designation followed by a dash and the abbreviation APCH for approach. This sign has **white numbering** on a **red background** with a **white border**. The sign is installed on taxiways located in approach areas where an aircraft on a taxiway would either cross through the runway safety area or penetrate the airspace required for the approach or departure runway.



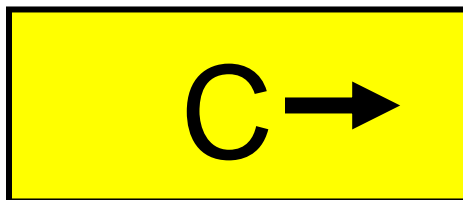
**Approach Sign**

**Runway Distance Remaining Signs** provide distance remaining information to pilots during takeoff and landing operations. They have **white numbering** on a **black background**. **The number on the sign provides the remaining runway length in 1,000-foot increments.**



**Runway Distance Remaining Signs**

**Runway Exit Sign** is a destination sign located prior to the runway/taxiway intersection on the side and in the direction of the runway where the aircraft is expected to exit. This sign has **black lettering** and a **directional arrow** on a **yellow background**.



**Runway Exit Sign**

#### 3.4.4. Markings.

**Pavement markings on a runway are white.** Runway Threshold Markings and Runway Threshold Bars, Runway Aiming Point Markings, Runway Designation Markings, Runway Touchdown Zone Markings, Runway Centerline Markings, Runway Side Stripes, and Displaced Threshold Markings are white. The only nonwhite lines on a runway are yellow lead-in/-off lines that extend from the runway centerline and holdlines for a specific operation known as land and hold short.

### Section 4. Communications

**4.1.** Any vehicle driving on the **movement areas (runways and taxiways) must** be in contact with the ATCT or capable of monitoring and transmitting on the CTAF. Vehicle operators must always monitor the appropriate radio frequency when in the movement areas on controlled airports. Permission must be requested and clearance given prior to driving on a movement area. A vehicle that is equipped with a radio may escort vehicles without radios. When a movement area is closed for construction, vehicles may traverse that area without ATCT contact but must be escorted if their travels require them to cross an active movement area.

**4.2.** The ATCT controller may use separate or common radio frequency to control all ground traffic, vehicle and aircraft, on the movement areas. The frequency is only to be used to get clearance onto and off the movement areas. When the ATCT is closed, the CTAF should be used to announce a driver's intentions when operating within the movement area.

**4.3. Phraseology.** Vehicle operators must contact the ATCT ground controller each and every time they proceed onto or leave the movement area. When proceeding onto a movement area, vehicle operators must tell the controller three things: **WHO you are, WHERE you are, and WHAT your intentions are.** Vehicle operators must always acknowledge all communications so ground control and other persons know that the message was received. **Vehicle operators must always give aircraft and ground control transmissions priority unless an emergency exists.** Very high frequency frequencies are for the primary use of aircraft and ATCT personnel. Some typical transmissions are as follows:

- (AIRPORT NAME) ground control, this is Airport 21 at Charlie 6. Request permission to cross Runway 30.”
- (AIRPORT NAME) ground control, this is Airport 21 at Taxiway Alpha. Request clearance south on runway 19 right for a light inspection.”

Reply transmissions may be brief, such as—

- ATCT: “Airport 21, hold short of runway 19 right.”
- Driver: “Airport 21 holding short of runway 19 right.”
- ATCT: “Airport 21 cleared south on runway 19 right.”  
“Please expedite, landing aircraft on a 10 mile final for runway 19 right.”
- Driver: “Airport 21 cleared south on runway 19 right, will expedite.”
- Driver: “Ground control, Airport 21 is clear of runway 19 right.

**NOTE:** If you are unsure what the controller has said, or if you don't understand an instruction, you should ask the controller to repeat it. Good communications only occur when each party knows and understands what the other is saying.

#### 4.4. Common Use Phrases.

##### What Is Said:

##### What It Means:

Acknowledge

Let me know you have received and understand this message.

Advise Intentions

Let me know what you plan to do.

Affirmative	Yes.
Correction	An error has been made in the transmission, and the correct version follows.
Go Ahead	Proceed with your message only.
Hold/Hold Short	Phrase used during ground operations to keep a vehicle or aircraft within a specified area or at a specified point while awaiting further clearance from air traffic control.
How do you hear me?	Question relating to the quality of the transmission or to determine how well the transmission is being received.
Immediately or without delay	Phrase used by ATC when such action compliance is required to avoid an imminent situation.
Negative	"No" or "permission not granted" or "that is not correct."
Out	The radio conversation is ended, and no response is expected.
Over	My radio transmission is ended, and I expect a response.
Read Back	Repeat my message to me.
Roger	I have received all of your last transmission.
Stand By	Means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. Also means to wait as in "stand by for clearance." The caller should reestablish contact if a delay is lengthy.
Unable	Indicates inability to comply with a specific instruction, request, or clearance.
Verify	Request confirmation of information.
Wilco	I have received your message, understand it, and will comply with it.

**4.5. Phonetic Aviation Alphabet.** Because some letters have similar sounds, like B and P, the international aviation industry uses the following words to reduce confusion. For example; Taxiway B would be referred to as Taxiway Bravo on the radio.

<b>A</b>	ALFA	<b>N</b>	NOVEMBER
<b>B</b>	BRAVO	<b>O</b>	OSCAR
<b>C</b>	CHARLIE	<b>P</b>	PAPA
<b>D</b>	DELTA	<b>Q</b>	QUEBEC
<b>E</b>	ECHO	<b>R</b>	ROMEO

<b>F</b>	FOX-TROT	<b>S</b>	SIERRA
<b>G</b>	GOLF	<b>T</b>	TANGO
<b>H</b>	HOTEL	<b>U</b>	UNIFORM
<b>I</b>	INDIA	<b>V</b>	VICTOR
<b>J</b>	JULIET	<b>W</b>	WHISKEY
<b>K</b>	KILO	<b>X</b>	X-RAY
<b>L</b>	LIMA	<b>Y</b>	YANKEE
<b>M</b>	MIKE	<b>Z</b>	ZULU

**4.6. ATCT Light Gun Signals.** Air traffic controllers have a backup system for communicating with aircraft or ground vehicles if their radios stop working. The controller has a light gun in the tower that can send out different colored lights to tell the pilot or driver what to do. If a vehicle operator experiences a radio failure on a runway or taxiway, the operator should vacate the runway as quickly and safely as possible and contact the ATCT by other means, such as a cellular telephone, and advise the ATCT of the situation. If this is not practical, then the driver, after vacating the runway, should turn the vehicle toward the tower and start flashing the vehicle headlights and wait for the controller to signal with the light gun.

Light gun signals, and their meaning, are as follows:

Steady Green	OK to cross runway or taxiway.
Steady Red	STOP!
Flashing Red	Move off the runway or taxiway.
Flashing White	Go back to where you started.
Alternating Red and Green	Use extreme caution.

**4.7. Safety.** The FAA defines runway incursion as “**Any occurrence at an airport involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take off of aircraft.**”

Runway incursions are primarily caused by error in one or more of the following areas:

- Pilot/ground vehicle/controller communications
- Airport familiarity
- Loss of situational awareness

An example of an incursion is a vehicle at an airport with an operating ATCT straying onto a runway in front of an aircraft causing the pilot to take an action to avoid a collision.

When driving on the airfield, vehicle operators need to always be aware of their location and the meaning of all pavement markings, lights, and signs. When on the aprons and taxiways, stay away and steer clear of aircraft. **Aircraft always have the right-of-way.**

**NOTE: Any individual involved in a runway incursion should receive remedial airfield driver’s training given by the (AIRPORT OPERATOR).**