Portland International Jetport

Airfield Driver Training Program

July 2016

The Portland International Jetport has been authorized by the Federal Aviation Administration (FAA) to provide airport services to scheduled air carriers, more commonly known as "the airlines." One of the requirements that the Jetport must meet in order to retain this privilege, is to maintain continuous compliance with Federal Aviation Regulation Part 139: <u>Certification of Airports</u>

A primary requirement of this regulation is to ensure that any person granted authorization to operate a vehicle on the Jetport will be adequately trained to ensure familiarity with the Jetport's procedures for safely operating a vehicle and the consequences of noncompliance with the Jetport's driving and access rules. Much of this training is also applicable to pedestrian access to the same areas. For this reason, individuals with a need for "pedestrian access only" may also be required to complete this training in its entirety.

For clarification purposes, it should be understood that all driver training discussed in this manual relates to driving operations on the Jetport's SIDA Area (the entire portion of the Jetport that lies inside the Jetport's perimeter fence). This area is inclusive of all movement and non movement areas on the airfield, such as: taxiways, runways and aprons, but does not include public access areas like Jetport Boulevard, International Drive, the parking garages or the Loop Road that passes in front of the Terminal Building.

Table of Contents

Restricted Authorization:

Limited Authorization:

Unlimited Authorization:

Levels of Authorization for Operating a Vehicle at the Jetport

The Jetport's Driver Training Program is broken into three (3) classes of authorization based upon the candidate's operational need for access to the Jetport's airfield areas. These classes are:

a. **Restricted**: Individuals with restricted driver privileges are permitted to operate equipment on specified Non Movement Areas only.

b. **Limited:** Individuals with limited driver privileges are permitted to operate equipment on specified Non Movement Areas and specific portions of the Movement Area.

c. **Unlimited:** Individuals with unlimited driver privileges are permitted to operate equipment on all portions of the Non Movement and Movement Areas.

The Jetport's driver-training curriculum is progressive. An individual receiving Restricted Driver Training will receive the basic training needed to safely operate a vehicle on the Jetport's Secured Identification Display Area (SIDA), with special emphasis given to the non-movement areas. An individual receiving Limited Driver Training will receive all of the training that a Restricted Driver would receive, along with training specific to operating a vehicle on a specified Movement Area. An individual receiving Unlimited Driver Training will receive all of the training that both a Restricted and Limited driver would receive, plus additional training specific to operating a vehicle on any Movement Area of the Jetport.

The Training Process and the Areas of Required Knowledge for Driving Privileges

All potential drivers will be mentored through the Jetport's Driver Training Program by a Jetport authorized Driver Trainer. Early in the driver training process, drivers-in-training must read and familiarize themselves with those portions of this Driver Training Manual that apply to their expected driver authorization level. In conjunction with the use of this Driver Training Manual, all trainees will work with their designated driver trainer to obtain on the job training that includes actual training in a vehicle on those portions of the airfield that the individual is expected to drive upon as their job duties dictate.

After a trainee has completed the necessary training with their trainer, the trainee will present a completed training form to the Jetport Operations Center or Airport Operations representative. Upon receipt of this form the trainee will be permitted to sit for the Jetport's Interactive Employee Training (IET) session(s). The Jetport's IET sessions are a computer-based training tool that provide trainees with a review of the Jetport's Driver Training program, and will serve as the final test for trainees before being granted restricted or limited driving authorization.

Those individuals that are applying for Restricted Driver status will be required to successfully complete the Restricted Driver Training IET Session only. Those individuals that are applying for Limited Driver status will be required to complete the Restricted Driver Training Session and then the Limited Driver Training Session**. Successful completion of BOTH computer-based sessions will be required in order for a trainee to obtain a Limited or Unlimited Driver Authorization.** Candidates for an Unlimited driving authorization will also be required to successfully complete a written test proctored by an Airport Operations representative or their designee. Unlimited Driver status may also require a successful practical/ride-along portion of the test to be administered by Airport Operations.

Restricted Driving Authorization

Movement and Non-Movement Areas

There are two types of areas that aircraft and vehicles move upon on the airfield: Movement Areas and Non-Movement Areas. The biggest distinction between a Non-Movement area and a Movement Area is that a Movement Area is controlled by the FAA's Air Traffic Controllers, while the Non-Movement Areas are not.

Non-Movement Areas:

Non-Movement Areas include the Ramps where aircraft park, load, and unload passengers or cargo. These areas are where you will find most of the Jetport's activity and where the majority of people authorized to operate vehicles are permitted to drive. This is also the area where you are free to drive without a special clearance from the FAA control tower. **Vehicle operators in a Non-Movement area are not controlled by an air traffic controller and do not need a controller's permission to operate in that area.**

Non-Movement areas of the Jetport include:

1. The Main Terminal Ramp (including the West Ramp/Deicing Pad)
2. The North General Aviation (G.A.) Ramp
3. The FSDO ("Fiz-doe") Ramp
4. Most of the Perimeter/Access Road (The Runway 18 Threshold and Runway 36 Runway Object Free Area are both parts of a movement area.)

Non-Movement Area Boundary Marking:

A Non-Movement Area Boundary Marking, (Also known as the "Movement/Non-Movement Line") separates the Non-Movement Areas from the Movement Areas. The Non-Movement Area Boundary Marking is painted yellow and is made up of two lines that run parallel to each other. The line closest to the Non-movement Area will always be solid, while the line closest to the Movement Area will always be "broken" or dashed.

Do not cross this marking unless you have been authorized to do so by an FAA Air Traffic Controller. Refer to the section titled, "Common Traffic Advisory Frequency (CTAF) (Page 28) for guidance when operating during those hours when the Air Traffic Control Tower is not in operation. **A drawing of a Non-Movement Area Boundary Marking can be seen here:**

Non-Movement Area

Movement Area

1. On the Terminal Ramp, the non-movement area boundary marking can be found along the south and east edges of the ramp, just beyond the Perimeter/Access Road, separating the ramp from Taxiways Alpha and Charlie.

2. On the North General Aviation (G.A.) Ramp, the non-movement area boundary marking can be found along the east edge of the ramp, just beyond the Perimeter/Access Road, separating the ramp from Taxiway Charlie.

3. **CAUTION: THERE IS NO NON-MOVEMENT BOUNDARY MARKING ON THE FSDO RAMP!** The FSDO Ramp abuts the Runway 18-36 Safety Area. Therefore, the marking delineating the FSDO Ramp from the Runway 18-36 Safety Area is a Painted Runway Holding Position Marking. If you cross this marking without the appropriate clearance from Air Traffic Control, you will cause a runway incursion.

The picture to the right was taken from the western end of the Terminal Ramp.

➢ At the top of the picture is the Terminal and Terminal Ramp.

➢ In the center of the picture is the Perimeter/Access Road. (Marked in white paint.)

➢ At the bottom and right of the picture is the non-movement area boundary marking. (Marked in yellow paint.)

➢ In this picture, everything to the left of the /Non-Movement Boundary Marking is Non-Movement Area (Terminal Ramp.) Everything to the right is the Movement Area (Taxiway Alpha.)

Operating Vehicles On Non-Movement Areas:

Ramp areas are unique from most other parts of the airfield at the Jetport because they do not fall under the control of the Air Traffic Control Tower. This means that aircraft and vehicle operators are free to move around a ramp without being under the control of an Air Traffic Controller. This provides a vehicle operator the flexibility of movement needed to perform many of the tasks that occur on a ramp, but also requires the vehicle operator to be alert at all times.

Many activities take place on a ramp that can create a distraction or hazard: Aircraft are often moving, passengers may be walking between an aircraft and a gate, moving Jetways can limit visibility, and noise levels can be high enough to mask sounds that would normally provide a warning. For these reasons, the Jetport has several rules and procedures that must be followed when operating a vehicle on a ramp or any other location on the airfield.

Speed Limit:

The speed limit on all of the Jetport's ramps is **5 M.P.H**. **when within 100 feet of any aircraft or building** and **15 M.P.H.** anywhere else on the ramps. Elsewhere on the airfield including the Perimeter Road and the movement areas, it is the vehicle operator's responsibility to maintain a safe and prudent speed for the activities being conducted at all times. Jetport administration reserves the right to determine what is and is not a prudent speed in these areas.

Vehicle Height Considerations:

Use extreme caution when operating a vehicle inside the Terminal Building including the Baggage Make-Up and Baggage Claim Tug Drive areas. It is your responsibility as a vehicle operator to make sure that your vehicle can safely operate in these spaces and you must pay extra attention to your vehicle's height when operating indoors.

Perimeter/Access Road:

The Perimeter/Access Road circles the airfield inside the perimeter fence. It is also the primary route that should be used when traveling across the Terminal and North Ramps.

Terminal / North Ramp Operations:

The Perimeter/Access Road runs parallel to the west edge of Taxiway "C" (starting at the north end of the GA Ramp) and continues south toward the Air Rescue Fire Fighting (ARFF) station, it then turns west along the north side of Taxiway "A" along the Terminal Ramp before ending in front of the Terminal Ramp's Deice Pad. Restricted drivers with authorization to operate on the Terminal Ramp should not continue past the Deice Pad to the west, or past the Northeast Airmotive fueling station to the north, unless expressly authorized by Jetport administration to do so. (See the map and diagram on pages 7and 8.)

When operating on the Terminal Ramp, **use the Perimeter Road/Access Road whenever traveling any distance greater than two gates and make all turns perpendicular to the Terminal Building (90 degrees).** Do not drive along the Terminal Building and Jetways or around vehicles and aircraft. **Do not take short cuts.** These procedures help to establish a predictable order to vehicle movements in congested areas and help to ensure your visibility to aircraft and other vehicles.

Be aware that operating near parked aircraft can be just as hazardous as operating near moving aircraft. Watch your distance around an aircraft's wings and fuselage. Nicks and dents are expensive in many ways – cost of repairs, canceled flights and lost revenue just to name a few. Parked aircraft may still have their engines running even though they are at the gate. Always consider the hazards from jet blast or prop wash, which may cause injury to you or damage to your vehicles and equipment. As a rule of thumb, an aircraft may be starting its engines or already have them running if their red flashing beacons above and and/or below the fuselage are operating.

Jetways:

Jetways are pieces of equipment located on the Terminal Ramp that are used to load and unload passengers. They are the moveable "bridges" that people walk through to go between an aircraft and the Terminal Building. When operating a vehicle close to the Terminal Building or the Jetways, use caution and be alert to all that is going on around you. That portion of the Terminal Ramp closest to the Terminal Building and the Jetways can become congested easily. Parked or idle equipment including aircraft, fuel trucks, airline tugs, baggage carts, lavatory carts, and ground power units (GPUs) may all be found in that area. Tug Drives, doorways to gates, stairways and building access points are also located in this area.

With all of the equipment, aircraft, tug drives and Jetways so close to the Terminal Building, visibility can be limited. Use extreme caution in these areas as someone could walk into your path with little or no warning.

Driving Under a Jetway:

Emergency response equipment, Jetport Maintenance and Communication Center vehicles and Jetport snow removal equipment are permitted to operate under any Jetway as needed to perform their tasks at the discretion of the vehicle operator. For all other equipment, **operating under a Jetway is never allowed without the express consent of Jetport Administration.** If you believe that your company needs to operate a vehicle under a Jetway please refer to "Appendix A: Procedures for Operating Under Jetways" at the end of this manual.

Night Time and Poor Weather Conditions:

During poor weather conditions (snow, fog, rain, etc) visual cues, roadway markings, and airport signage may be obscured. Be aware of your surroundings and operating boundaries. Use caution for snow removal equipment and aircraft operating in your vicinity during low visibility conditions. It is your responsibility to know your location on the airfield at all times. If you cannot discern a painted marking or sign due to visibility or snow coverage stop your progress and return to an area where you are sure of your location immediately.

In order to minimize the potential for injuries and damage to occur, the following rules are to be followed whenever operating on the airfield:

1. **Vehicle operators must always yield to aircraft, passengers, and emergency vehicles**. They have the right-of-way on any portion of the Jetport.

2. **Smoking is not allowed anywhere inside the perimeter fence** of the Jetport.

3. Never drive between safety cones placed on the ramp, the cones delineate passenger walkways. Also, never drive between a safety cone and a parked aircraft.

Push-back Operations Beyond the Non-Movement Boundary Marking

While it is understood that vehicle operators with a Restricted Driving Authorization should not operate beyond the non-movement boundary marking, there is one important exception to this rule: When a push-back tug operator is pushing a crewed aircraft off from a gate and a crew member onboard has received permission from a ground controller to enter onto Taxiway Alpha, it is permissible for the tug operator to operate over the non-movement boundary marking in order to push the aircraft out onto Taxiway Alpha.

During this push-back operation, the crewmembers inside the aircraft must be in communication with the ground controller, and the tug operator must be in communication with the aircraft crew. Immediately upon disconnecting from the aircraft, the tug operator shall retrace his or her route back over the non-movement boundary marking as quickly as possible while maintaining safety.

If the aircraft has a "brake rider" on board instead of a crew member, such as when the plane is being repositioned to the west-end of the Terminal Ramp to remain over night (RON), the push-back tug operator must possess a Limited Driving authorization.

Operating Vehicles On Movement Areas:

Movement Areas include the runways and taxiways of the Jetport that are used for taxiing and the takeoff or landing of aircraft. They do not include the ramp, cargo or aircraft parking areas. Movement areas are considered "controlled" or "under positive control," meaning that you will need permission from air traffic control before you enter them.

Only those vehicles needed to keep the Jetport operating may enter onto a Movement Area. Therefore, fuel trucks, FBO Maintenance vehicles, tugs and other nonessential vehicles are prohibited from crossing over a non-movement boundary marking and entering onto a movement area.

The only exception for air carrier or FBO employees is the operation of aircraft-tug equipment conducting towing operations for the relocation of aircraft. Airport Management authorizes the drivers of these vehicles to enter onto a Movement Area and in some cases, to cross a runway, but only with additional training and a clearance from the FAA Control Tower. All other vehicle operations on the Movement Areas shall be approved and coordinated with Airport Operations/Maintenance in advance.

On most ramps at the Jetport, including the Terminal Ramp and most of the North General Aviation Ramp, the Perimeter/Access Road lies only a couple of feet from the non-movement boundary marking. Under no circumstances should a vehicle deviate over the non-movement boundary marking without first receiving clearance from the Air Traffic Control Tower. Always be aware of your vehicle's location and proximity to these markings.

NOTE: If an aircraft becomes disabled on any portion of a movement area and consequently requires the services of air carrier or FBO personnel, those air carrier or FBO vehicles will be escorted to the aircraft by Jetport Maintenance, Operations, or Communication Center personnel. **You will not be issued a limited driving authorization if your only reason for possessing one will be to respond to disabled aircraft.** In those circumstances, expect to be escorted from a non-movement area by a Jetport authorized escort.

Requirements for Operating on a Movement Area

Before you are allowed to operate on a Movement Area, you must have the following:

1.	**Appropriate authorization from Air Traffic Control.**
2.	**An operational need to be there.**
3.	**A working beacon.**
4.	**A working Tower/Ground radio.**
5.	**A proper airport ID and vehicle pass.**

If you or your vehicle cannot meet these requirements, you will need to be escorted by someone that can.

Authorized Areas of Operation:

The following map depicts the most likely areas of operation for both Restricted and Limited driving operations:

Red: Restricted   **Yellow: Limited**   **Green (not shown): Unlimited**

> Restricted Access permits a vehicle operator to drive on a specific ramp. A restricted driver never has permission to enter onto a Movement Area, so they are permitted to operate only on the FSDO, Terminal or North G.A. Ramp.

> Limited Access permits a vehicle operator to drive on specified ramps and allows them to operate a vehicle on certain Movement Areas under specific conditions.

> Unlimited Access permits a vehicle operator to drive anywhere on the airfield under specific conditions.

Airfield Familiarization Diagram

The following diagram identifies taxiways, runways, ramps, select buildings, NAVAIDs, antennae, critical areas, and other visual reference points specific to the airfield.

PORTLAND INTERNATIONAL JETPORT
PORTLAND, MAINE

13

Airport Signage Markings and Lighting:

The following information will discuss the different painted markings and signs that will be encountered on the movement areas of the Jetport. It is important for all vehicle operators to be familiar with these markings and signs even if you are not authorized to operate on the movement areas (Restricted Authorization). By ensuring that everybody knows what the markings and signs mean, we hope that all drivers will be able to avoid ending up in a location that they are not supposed to be in.

The Jetport's Taxiways:

Taxiways are areas used by aircraft and vehicles to go between the ramps and the runways, or to get from one part of the airport to another. They are paved surfaces that act as "road ways" for aircraft. Taxiways are labeled with an identifying letter from the alphabet. Think of these assigned letters as the taxiway's name, in much the same way that a street for automobiles would have a route number or a name. You will find the following taxiways here at the Portland Jetport: **A, B, C, D, E, F, G, J, Y and Z.**

Prior to entering onto a taxiway you must obtain a clearance (authorization) from the FAA Control Tower. Remember, the point where a movement area meets a non-movement area is indicated by a non-movement area boundary marking as shown here:

Non-Movement Area Boundary Marking

Painted Taxiway Markings:

Taxiway markings are always painted **YELLOW**. The Jetport uses two types of taxiway markings, a taxiway centerline marking and a taxiway edge line marking.

Taxiway Centerline Markings

Taxiway centerline markings are a single solid line down the middle of a taxiway that inform a pilot or a vehicle operator of where the middle of the taxiway is. Most aircraft are taxied (driven) down the middle of the taxiway to ensure that they have the most wingtip clearance available on either side.

Enhanced Taxiway Centerline Markings

Enhanced taxiway centerline markings can be found on all taxiway centerlines that intersect a runway holding-position marking. These enhanced markings include additional dashed

14

lines on either side of the solid centerline, and are intended to provide a visual cue to help identify and warn a vehicle operator of their proximity to a runway. Enhanced taxiway centerline markings extend 150 feet from all runway holding-position markings. An example of enhanced taxiway centerline markings can be seen in the picture to the left.

Taxiway Edge Markings

A taxiway edge marking is always painted as a double yellow line. They are used to advise a pilot of where the taxiway edge is located. When a plane is not permitted to turn off from a taxiway, the edge lines will be solid. When a plane is permitted to turn off from a taxiway and onto another paved area, like a ramp for instance, the edge lines will be dashed (broken). In the picture above, the dashed taxiway edge line means that a driver can cross over it and proceed onto an adjoining piece of pavement. A solid line would indicate that a driver could not cross over the edge line.

Taxiway/Taxiway Intermediate Holding Position Markings

A taxiway intermediate holding position marking is painted as a broken yellow line across a taxiway that is perpendicular to the taxiway's centerline. At the Jetport taxiway intermediate holding position markings are located at the intersection of Taxiways A and C. They are used to advise a pilot or driver where to hold short on a taxiway, when instructed by the air traffic control tower to "hold short of either: Taxiway A (when on Taxiway C), or Taxiway C (when on Taxiway A).

Surface Painted Taxiway Direction Signs

Surface painted taxiway direction signs have a yellow background with a black inscription, and are provided when it is not possible to provide taxiway direction signs at intersections, or when necessary to supplement such signs. These markings are located adjacent to the centerline.
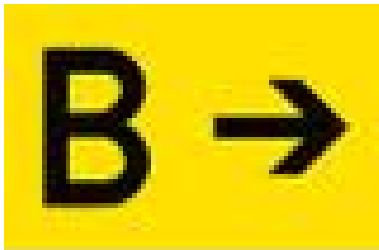
Taxiway Signage:

Taxiway signs are always painted with yellow writing on a black background or black writing on a yellow background. They are used to tell a pilot or vehicle operator where they presently are and where they can go from that location.

Taxiway Location Signs

Taxiway Location Signs have yellow letters on a black background with a yellow outlined border. These signs help to determine your current location by telling you which taxiway you are on. The taxiway location sign to the left tells you that you are presently on "Taxiway Charlie."

Taxiway Directional Signs

Taxiway Directional Signs have black letters with a black arrow on a yellow background. These signs help to indicate the location and direction of other taxiways. It is easy to remember which signs are which if you remember that Taxiway Directional Signs always have a black arrow on them.   The taxiway directional sign to the left tells you that a turn to the right would put you on "Taxiway Bravo."

Taxiway Edge Lighting:

Taxiway edge lights are always blue in color. These lights are used at night and during bad weather conditions to illuminate the taxiway's route and to delineate where the edges are located.

The Jetport's Runways:

Runways are designated with a number. Since each runway can be landed upon or taken off from in one of two directions, each runway has two runway designations: one for each end. Portland has two (2) runways, which means (4) runway designations. Portland's Runways are: 11, 29 and 18, 36. The runway designators match the runway's magnetic heading. Therefore, when a plane or vehicle enters onto Runway 29 and is pointed in the direction that an airplane would take off, they are facing 290 degrees as read on a magnetic compass.   Likewise, Runway 11 would be facing 110 degrees.

Runway Elevated Guard Lights

Runway guard lights are located within the vicinity of runway holding position markings and runway holding position signs, where taxiways intersect a runway. These lights provide additional warning to a driver that he or she is about to enter onto a runway. Runway guard lights are yellow in color, and are comprised of two lights that alternate on and off in sequence. These lights are located on both sides of a taxiway when that taxiway intersects a runway.

Surface Painted Holding Position Signs

A surface painted holding position sign provides supplemental visual cues that alert pilots and vehicle drivers of an upcoming holding position location and the associated runway designator(s) as another method to minimize the potential for a runway incursion.

Painted Runway Markings:

Runway markings that are actually located on the runways are painted white. There are other markings that are required for runways, but are actually located on the taxiways, or carry over from a taxiway onto a runway. Since these markings are located on a taxiway, or begin on a taxiway, they are painted yellow.

Runway Holding Position Markings

Runway Holding Position Markings are painted surface markings used to denote the entrance of a runway from a taxiway. These markings also show you where to "hold-short" for a runway when instructed to do so.
These markings are found at least once on every taxiway at the Jetport. They are yellow in color and are painted across the taxiways, parallel to the runway that you are approaching.

 Runway holding position markings consist of two solid lines found on the taxiway side, and two broken lines found on the runway side.

During the hours that the Air Traffic Control Tower is in operation, vehicle operators may not operate a vehicle beyond this marking without receiving permission from Air Traffic Control. A drawing of a Runway Holding Position Marking can be seen here:

Taxiway Side

Runway Side

Markings found on the runways are painted white. There are several different markings found on runways that provide a pilot with visual cues and reference points during take off and landings. For driver training purposes, it is not necessary that you know what all of these markings mean, but **it is necessary that you understand that the only white painted markings on any movement area are located on a runway.** (Although the Perimeter/Access Road is also painted white, it is not located on a movement area.)

The following pictures demonstrate some of the white painted markings that can be found on the Jetport's runways:

Touchdown Zone Markings: Runway 11-29
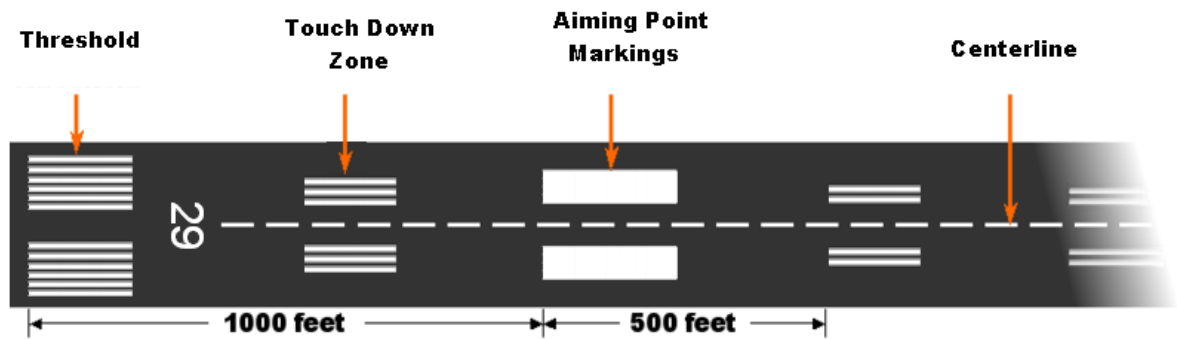

Runway Designator Marking for "11"

Edge Stripe on Runway11-29

Runway Centerlines are on 11-29 & 18-36

This [ ] mat[ ] hway markings:

Runway Signage:

There are several signs that are located on, or just before a runway. Some of the signs are Directional Signs and provide the same information as the Directional Signs found on taxiways. Other signs provide pilots with information on how much distance remains from a specified point on the runway to the runway's end. The most important runway signs for driver training purposes however, are the Runway Holding-Position Signs.

Runway Holding-Position Signs

Runway Holding Position Signs display the Runway's Designator Numbers in white, over a red background, with the numbers outlined in black. They are located in line with the painted runway holding-position markings discussed above. Like those markings, the runway holding-position signs are used to alert drivers and pilots that they are approaching a runway.

Runway Holding-Position Sign: This sign would inform a driver that he/she is on Taxiway Charlie, holding short of Runway 11-29.

It is critical that all drivers understand that they will need **an additional** FAA Control Tower clearance to proceed beyond a runway holding-position marking or a runway holding-position sign to access a runway. **Just because you have received permission to operate on a taxiway does not grant you permission to enter onto a runway.** No vehicle operator shall cross a runway holding-position marking unless permission from air traffic control has been expressly given to do so.

Runway Lighting:

The Jetport's runways are available for use 24 hours a day and are illuminated during the darkness and low visibility hours. For driver training purposes, it is not necessary that you know what all of these lights signify but you should know what light colors are only found on runways.

Runway Edge Lights

Runway edge lights are either white or amber in color. These colors can only be found on a runway, which helps distinguish them from other areas of the movement Area. They are used at night and during bad weather conditions to define the runway's borders and to delineate where the edges are located.

Runway edge lights are white in color for all but the last 2,000 feet of the runway's length. For those last 2,000 feet, the color changes from white to amber. This change in color informs a runway user that they have 2,000 feet of runway left before reaching the end.

Threshold Identifier Lights

Threshold Identifier Lights are red and green in color and are located at both ends (Thresholds) of a runway. They are used to inform a runway user of the beginning or ending point of the runway. Threshold Identifier Lights will appear to be red or green, depending on which side of the lights you are viewing them from.

If you are on the runway and are looking toward a threshold (like a plane ready for take-off), the Threshold Identifier Lights would be red and would inform you of where the runway ended in front of you. However, if you were beyond the end of the runway, looking towards the threshold (like a landing airplane), those same lights would be green and would inform you of where the runway begins.

Touch Down Zone and Center Line Lighting
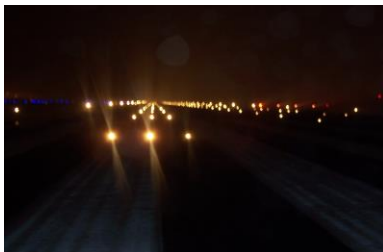
The Jetport has equipped Runway 11-29 with in-pavement lighting that provides additional visual references for departing and landing aircraft. For driver training purposes, know that these lights are actually flush with the runway's surface and are white or red in color.

Accident or Incident Reporting:

Vehicle accidents:

If you are involved in an accident involving another vehicle, aircraft, pedestrian or stationary item (Such as a building, Jetway, fence, ground power unit, etc.) notification of the accident needs to be made to Jetport Administration immediately. This notification can come from you as the operator, or from your supervisor, and should be made to the Jetport Communication Center at **(207) 756-8310**. This notification should be separate from any police report and should include at a minimum: your name, employer, date and time of the incident or accident and the circumstances surrounding the event.

Special Consideration for Accidents involving Parked Aircraft:

If you are involved in an accident involving a parked aircraft, it is critical that the aircraft not be flown until any damage to the aircraft can be assessed and repaired as needed. Remember that by not reporting, you are putting someone else's life in jeopardy.

Medical Emergencies:

If there are injuries as a result of an accident that need medical attention, **dial 9-1-1** immediately. Do not call the Jetport Communication Center to request medical assistance if you have the ability to call 9-1-1 directly. By dialing direct you will save time and get a quicker response from emergency personnel. If you do not have a phone to call directly but have a radio that is capable of reaching the Communication Center, use it. They will then make the request for you.

Spills:

Spills on the airport can have far-reaching safety and environmental impacts. Regardless of where they occur on the Jetport, they need to be dealt with safely, quickly, and effectively.

Fire Prevention:

The first consideration when dealing with a spill is safety. If the spilled product is flammable in nature like avgas, Jet-A, diesel fuel or gasoline, then precautions need to be taken to minimize the potential for fire. Any potential source of ignition near the spill should be removed or disabled immediately. Fuel spills should be reported to the Jetport's Aircraft Rescue Fire Fighting (ARFF) Station by dialing: **9-1-1**. The Jetport's Communication Center should also be notified as soon as possible at: **(207) 756-8310**.

Environmental Concerns:

After the threat of fire has been dealt with, the environmental impact of the spill needs to be taken into consideration. Fuels, lavatory cart spills and anti-freeze are just a few of the products that could be spilled or leaked. It is extremely important that any product be kept from reaching a storm drain or unpaved area whenever possible.

Lavatory cart spills should never be washed down storm drains. These spills need to be cleaned in the same manner as a fuel spill and disposed of properly.

 Materials including loose absorbents, absorbent diapers, pads, mats or booms can all be used to stop or detain a spill from leaving a paved area or from reaching a storm drain. It is your responsibility to know where and what you are supposed to do in the event of a vehicle spill, so check with your supervisor if you are unsure of what actions you are to take, where your supplies are kept, and how to dispose of any used absorbent materials resulting from the clean up.

1. Fuel spills should be reported to the ARFF Department by dialing **9-1-1**.

2. All spills should be contained, cleaned, and reported to the Jetport Communication Center at: **(207) 756-8310.**

3. Lavatory cart spills are not to be washed down storm drains. Each lavatory spill should be cleaned with proper absorbent materials.

4. Storage tanks, vehicles, aircraft, etc. that appear to be leaking fuel, antifreeze, hydraulic or other hazardous fluids need to be reported immediately and the spills directed away from storm drains if possible.

5. Cleaning of all spills is the responsibility of the company that is in charge of the leaking equipment.   All materials used to contain spills are to be disposed of properly by the owner of the leaking equipment.

Vehicle/Pedestrian Deviations and Incursions:

Driving anywhere on the airfield is a job related privilege that should be taken seriously. Safely operating a vehicle on any of the airport surfaces requires concentration and vigilance. Moving aircraft, high noise levels, bad weather conditions and crowded ramp areas are just a few of the factors that you may face when operating equipment at the Jetport. Extreme caution must be exercised at all times.

Vehicle/Pedestrian Deviations:

A *vehicle/pedestrian deviation (V/PD)* occurs when vehicles or pedestrians enter any portion of the airport movement areas (runways/taxiways) without authorization from air traffic control. V/PD's are very serious and may result in vehicle and/or aircraft accidents.

Runway Incursions:

A *runway incursion* is any unauthorized intrusion onto a runway, regardless of whether or not an aircraft presents a potential conflict. This is the international standard, adopted by the International Civil Aviation Organization. Runway incursions are extremely dangerous and can result in catastrophic accidents involving both aircraft and vehicle operators. Runway incursions caused by vehicles or pedestrians are also vehicle/pedestrian deviations.

There are four categories of runway incursions:

Category D	Category C	Category B	Category A	Accident
Incident that meets the definition of runway incursion such as incorrect presence of a single vehicle/person/aircraft on the protected area of a surface designated for the landing and take-off of aircraft but with no immediate safety consequences.	An incident characterized by ample time and/or distance to avoid a collision.	An incident in which separation decreases and there is a significant potential for collision, which may result in a time critical corrective/evasive response to avoid a collision.	A serious incident in which a collision was narrowly avoided.	An incursion that resulted in a collision

If you are involved in any vehicle/pedestrian deviation including a runway incursion, notify your supervisor and Jetport Administration immediately. You can notify Jetport Administration through the Jetport's Communication Center at **(207) 756-8310,** or by contacting a member of the Jetport's Operations Department.

Incursion Prevention Operator Procedures:

In order to help prevent runway incursions at the Jetport, the following procedures must be adhered to when operating on or crossing runways:

- Do Not cross any runway at PWM unless it is necessary as part of your job function to do so and you have been permitted in advance by Airport Operations.

- If you are required to enter onto or cross a runway, STOP at every taxiway/runway intersection, and every runway/runway intersection…regardless of what access your last ATC instruction permitted you. The picture below denotes those areas where you will be expected to stop prior to proceeding onto or across a runway. These rules will be modified for snow removal equipment while in the act of removing snow or ice. The operators of those vehicles will be required to undergo additional training prior to conducting snow and ice removal operations at the Jetport.

- When stopping at a runway intersection, make sure to provide yourself with a "buffer" between the front of your vehicle, and the runway holding position marking. There is a little more than 20 feet in spacing from the end of the second enhanced centerline marking to the holding position marking and makes for an easy spacing tool.

- Do not begin to move your vehicle towards a runway until you have completely finished reading back the instructions given to you from ATC and have allowed a pause for them to make a correction if necessary.

Vehicle Access Control and Security:

The ability to maintain an effective level of security depends on the people that work and operate inside the Jetport's perimeter fence. For this reason, the Jetport takes a team-approach to dealing with security. Anybody granted a SIDA privilege becomes part of the overall security effort. It is important that all vehicle operators with access to the airfield understand that they play an integral role in the overall security of the Jetport.

Only those vehicles that are necessary for the continued operation of the airport or for the support of airport related activities may be located and operated inside the Jetport's perimeter fence. All other vehicles shall remain outside of the fence and personal vehicles are never permitted to operate inside the Jetport's perimeter fence with the exception of those vehicles with ramp passes that are approved to access the private hangars of the FSDO Ramp.

Perimeter Security:

The airfield is completely surrounded by chain-link fencing or buildings with controlled access points. At certain points along the fence line there are vehicle and pedestrian gates to provide access to the field. All of these gates have locking mechanisms that require a swipe from a badge, a key, or a "pin" number to make them work. These gates and doors must always be secured when not in use.

Gate and Doorway Access Control:

It is your responsibility as a vehicle operator or pedestrian to secure a gate or door after passing through it. If the gate is operated electrically, it is your responsibility to maintain a direct line of sight with the gate until it has been completely closed. Remember that it is your responsibility to ensure that nobody follows you through a gate or doorway without your permission.

If you do find an unsecured gate, hole in the fence, open door, or other unintended/unsecured point of access to the airfield, it is your responsibility to maintain a direct line of sight with the area at all times, and to report it. Reports should be made to the Jetport Communication Center at **(207) 756-8310** (24 hours per day). Under no circumstances should you leave the area unattended until a Jetport representative or Police Officer has arrived at the location.

Challenging Procedures:

Whenever you come upon a person or vehicle on the airfield that is not displaying proper identification, you should ask to see their airport identification immediately. This is referred to as a "challenge." If the individual cannot provide the proper identification(s), attempt to escort them outside of the perimeter fence and report the incident to the Communication Center at **(207) 756-8310**. If the individual is uncooperative, hostile, or will not leave the area, report the individual and attempt to maintain a direct line of sight with them until a Jetport representative or Police Officer arrives.

Required Identification and Ramp Passes

Vehicle / Ramp Passes:

Vehicles operating on the airfield do so under the consent of the Jetport's Administration. This Administration has the final say on which vehicles are permitted to operate within the airfield's boundaries. The Jetport issues vehicle passes to those vehicles that have been granted this authorization.

An approved escort shall accompany all vehicles without a pass that have a temporary need to access the airfield. (Approved escorting procedures are discussed later in this manual.) Vehicle passes shall be obtained on an as-needed basis from the Jetport Communication Center.

Portland Jetport Vehicle Ramp Pass
(Some information has been omitted from this ramp pass for security reasons.)

Licensing and Driving Authorization Display Media:

Portland Jetport SIDA Badge

Any person operating a vehicle on the airfield shall be in possession of a current and valid state issued Driver License. Additionally, all drivers must display their Jetport issued Security Identification Display Area (SIDA) Badge, with the appropriate colored "D" designating their driving authorization level.

Expired, suspended or revoked licenses or badges are not a valid form of identification. Identification badges are to be worn at all times while on the airfield, and shall be displayed above the waste and outside of the wearer's outermost garment.

The "Yellow D" on the SIDA badge pictured here indicates that the individual has been granted "Limited Driving privileges."

Foreign Objects and Debris / Damage (FOD)

As defined by the FAA (AC 150/5210-24), Foreign Object Debris or "FOD," is any object, live or not, located in an inappropriate location in the airport environment that has the capacity to injure airport or air carrier personnel and damage aircraft.

FOD is a continuous concern at the Jetport and is a term used to describe anything that has the potential to cause damage to aircraft or people when moved by forces like the wind, jet blast, prop-wash, or an engine's intake. Like security, the Jetport takes a team approach to dealing with FOD. Anybody operating anywhere on the airfield has the responsibility to keep the area free of FOD.

Some examples of FOD that have been found at the Jetport include sand and small stones, misplaced tools nuts and bolts, coffee cups, food wrappers, small locks and luggage zippers, fuel tank caps, newspaper pages, airplane or vehicle parts and any and all garbage. Any of these items or anything else fitting the description of FOD should be removed from the airfield or placed in a designated FOD container immediately.

FOD can easily become a projectile when positioned in the path of a jet's exhaust or a propeller's prop-wash. For your own safety and for the safety of those around you, always pick it up and properly dispose of it. If you see FOD, remove it regardless of where it came from or

who was originally responsible for it. It is your safety, and the safety of your coworkers and traveling public that are at risk if you do not take care of it.

In addition to the potential for causing bodily harm, FOD also causes millions of dollars worth of damage to aircraft each year. A bag, box, or piece of luggage that falls from a cart becomes FOD. Be sure that items are secure on all vehicles and carts whenever you are operating them and after you have parked them.

FOD AND MAINTENANCE COSTS

The effect of Foreign Object Debris (FOD) on maintenance costs can be significant. For example, the cost to repair a FOD-damaged engine can easily exceed $1 million. FOD can also incur extensive indirect costs, including:

- Flight delays and cancellations, leading to a loss of customers.
- Schedule disruptions caused by the need to reposition airplanes and crews.
- Potential liability because of injury.
- Additional work for airline management and staff.

The cost of repairing FOD damage to an engine can easily exceed 20 percent of its original purchase price.

Purchase cost of MD-11 engine	$8-10 million
Purchase cost of MD-80 engine	$3-4 million
MD-11 engine overhaul to correct FOD damage	$500,000-1.6 million
MD-80 engine overhaul to correct FOD damage	$250,000-1.0 million
MD-11 fan blades (per set*)	$25,000
MD-80 fan blades (per set*)	$7,000

*Fan blades are balanced and replaced as a set

Source: http://www.boeing.com/commercial/aeromagazine/aero_01/textonly/s01txt.html

Consequences of Non Compliance:

Jetport Administration will enforce any and all of the rules stated within this manual. The following progressive disciplinary steps are a guideline and it should be understood that additional legal actions beyond the consequences stated in this manual may be pursued at the discretion of Jetport Administration depending on the nature, detail, and severity of an infraction.

Penalty Process:

Airport Management, Portland Police and Airline Station Managers all have the authority to revoke the badge/privileges of any employee violating the policies governing vehicle operations. The consequences for violating these rules and regulations are as follows:

1. The **first violation** will result in the suspension of driving privileges on the airfield for 7 days. During those 7 days or before the employee is permitted to retest, the employee must also receive recurrent training from their company's authorized trainer. This training must be documented and signed-off as completed by that trainer. The employee will then have to schedule a re-test with Jetport Administration and receive a passing grade prior to having their privileges reinstated.

2. A **second violation** (of any rule) will result in the suspension of driving privileges on the airfield for 14 days. During those 14 days or before the employee is permitted to retest, the employee must also receive recurrent training from their company's authorized trainer. This training must be documented and signed-off as completed by that trainer. The employee will then have to schedule a re-test with Jetport Administration and receive a passing grade prior to having their privileges reinstated.

3. A third violation will result in **permanent revocation** of Jetport driving privileges.

Penal Fines:

1. The FAA has the right to levy fines of up to $50,000 against any individual that is found to be the cause for a Runway Incursion. (An incursion is when a vehicle or person enters the movement Area (taxiway or runway) without proper clearance from ATC creating a collision hazard or results in loss of separation of an aircraft during landing or takeoff.)

2. The TSA has the right to levy fines of up to $11,000 against any individual that is found to be the cause for a breach of the Jetport's secured perimeter, including gates, doorways, or any other unintended point of access.

Limited Driving Authorization

Communications – Phraseology

One of the biggest differences between operating on a movement area and a non movement area is the requirement to effectively communicate your intentions over a radio. When the Air Traffic Control Tower is open, any vehicle operating on the movement area must be in contact with, and under the control of the Airport Traffic Control Tower.   After hours, there are procedures in place to have all vehicle operators use radios to state their intentions and report their locations before entering onto a movement area.

Proper Phraseology:

All drivers will need to familiarize themselves with the proper phrases and words used when speaking on the Jetport's frequencies. Letters and numbers are used often and need to be pronounced appropriately.   All radio transmissions should use the phonetic alphabet. Likewise, one must know when and how to use the frequencies and radios.

Numbers:

All numbers greater than Nine (9) are broken down to their individual parts. For example, "Runway 11- 29" would be pronounced as "Runway One-One,Two-Nine (or Two-Niner)." Not "Runway Eleven-Twenty-Nine." Likewise, "Runway 18- 36" would be called, "Runway One-Eight, Three-Six" Not "Runway Eighteen, Thirty-Six."

Letters:

The "Phonetic Alphabet" is used when expressing individual letters or when spelling out a word over the radio. Since a single letter is used to designate each taxiway, all taxiways are referred to using their Phonetic Alphabet letter. To give an example, "Taxiway A" would be spoken as "Taxiway Alpha," and not "Taxiway A." Likewise, a tail-number on an aircraft might be "N615AC," and would be spoken as "November-Six-One-Five-Alpha-Charlie." (A complete listing of the Phonetic Alphabet can be found on Page 43.)

Key Phrases:

There are several terms and phrases that are used repeatedly in airport phraseology, so make sure to familiarize yourself with these terms and phrases and their meanings. (A list of some of the more common terms and phrases can be found on Page 41).

Read Back: One term that you should be familiar with is: **"Read back."** A "read back" is the act of repeating a radio instruction given to you by an air traffic controller, back to the controller that gave it to you. This is done to ensure that both the "message giver" and the "message receiver" are in agreement with exactly what the message is.

 Read-backs should be made every time a controller grants you permission to move. For example, if the controller says, "*Vehicle Seven, Cross Runway One-Eight, then proceed to the*

Terminal Ramp." You should read back the message to the controller by saying, "*Vehicle Seven, crossing Runway One-Eight then to the Terminal Ramp.*"

 Hold-Short: A command that you must know is the "**Hold Short**," or "**Hold Short Of…**" command. If you are instructed to "Hold Short of" a specific area, you are being told not to cross that area. An example would be, "*Vehicle Eight, proceed up to, hold short of Runway One-Eight.*" In this case, the controller has authorized you to move from your current location up to Runway 18. You are NOT permitted to enter onto, or to cross, Runway 18 however. **You are always required to read back a hold short command.**

Report Off: After making a runway crossing, you must report "off the runway" after you have crossed the runway holding-position marking on the other side. If you have just crossed Runway 29 in Vehicle # 3 for example, you would advise the ground controller of the following: "Ground, Vehicle # 3 is off Runway 29."

Air traffic control has requested that all ground vehicles refrain from using the word "clear" when speaking on the radio since it may be confused as a "cleared for take-off" instruction by a pilot on the frequency. For this reason, you should report "off the runway" instead of "clear of the runway."

Composing a Radio Message

When you speak on the radio, use the proper procedure for calling an air traffic ground controller**.** All initial radio requests to move somewhere should be comprised of four (4) distinct pieces of information, which should be stated in a specific order and in one transmission. These four pieces of information are:

> 1. **Who you are calling.** Example: "Portland Ground, or Ground."
> 2. **Who you are.** Example: "Vehicle One."
> 3. **Where you are.** (Example: "On the Terminal Ramp."
> 4. **What your request is.** Example: "Would like to go to the FSDO Ramp."

Before you key the microphone to begin talking, take a moment to think about what you are going to say and to make sure that nobody else is already talking. Also make sure that if somebody has just finished speaking, there is no response required from another user. And *never use Citizen's Band (CB) lingo or law enforcement "ten" codes when speaking to the Air Traffic Control Tower.*

Once you have made your request, wait for the Controller's response and then read it back as appropriate.

An example of a typical conversation between a vehicle operator and a Portland Ground Controller might read something like this:

Vehicle: *"Portland Ground, Vehicle One is on the North General Aviation Ramp and would like to go to the FSDO Ramp."* Wait for the controller's response. They will either approve or deny your request, or issue special instructions.

Controller: *"Vehicle One, Ground, proceed up to, and hold short of Runway One-Eight."* Always read back the Controllers instructions, and pay extra attention to all instructions involving a runway.

Vehicle: "Vehicle One proceeding up to, and will hold short of Runway One-Eight." If your read back matches what the controller has instructed, you will not hear anything from them and you may proceed to the next destination. However, if your read back is different from what the controller told you, they will repeat the original instructions to you once again and request that you read them back once more. In this way both the controller and the vehicle operator can be sure that they understand what was said.

Controller: "Vehicle One, cross Runway One-Eight to the FSDO Ramp." Since this is a new instruction, read it back to the controller once again.

Vehicle: "Vehicle One crossing Runway One-Eight to the FSDO Ramp." Proceed across Runway 18 to the FSDO Ramp.

Communicating on the radio is not difficult with a little practice. If you are ever unsure of what the controller said or if you do not understand an instruction, ask the controller to repeat it by saying, *"SAY AGAIN?"* A controller would rather take the time to repeat something than to have a misunderstanding lead to an accident or runway incursion. **Do not proceed thinking that the instructions will become clearer to you once you go a little further.**

Air Traffic Control Hours of Operation and Frequencies:

The Portland International Jetport is under the control of an operating air traffic control tower during the hours of 5:45 AM to 12:00 AM. During its hours of operation, the airport is considered a "controlled" airport. This means that anyone wanting to fly into or out of the airport must first receive permission from the FAA Air Traffic Control Tower to do so. Vehicles and aircraft on the ground must likewise receive permission from the controllers prior to operating on the movement areas.

When the tower closes at midnight (12:00 AM), vehicles must monitor and announce their position and intentions over the **Common Traffic Advisory Frequency** (CTAF): 120.90 MHz. This is done until the tower re-opens at 5:45 AM on the following morning.

Normal Hours of Air Traffic Control Tour Operation:	**0545AM to 12:00AM Daily.**
Portland Air Traffic Control **Ground Frequency**:	**121.90MHz.**
Portland Air Traffic Control **Tower Frequency**:	**120.90MHz.**
CTAF (**Common Traffic Advisory Frequency)**:	**120.90 MHz.**

Be aware that on rare occasions the Tower may close later than 12:00 AM or open earlier than 5:45 AM. An example of when this may occur would be bad or unexpected weather. Always be sure that you KNOW if the tower is operating or closed before you operate a vehicle beyond the non-movement boundary marking.

Common Traffic Advisory Frequency (CTAF)

The air traffic control tower is closed every night from 12:00 A.M. (Midnight) to 5:45 A.M. Hours may be modified due to weather, delayed flights, or as other situations dictate. When the Tower is closed, the airport is called "non-towered," or "uncontrolled," and the procedures for entering onto a movement area change slightly.

CTAF Procedures:

Instead of requesting permission from a controller to drive onto a taxiway or cross a runway like you would when the air traffic control tower is operational, all vehicle operators must announce their intentions on the Common Traffic Advisory Frequency (CTAF) of 120.90 MHz during the "uncontrolled" hours. This frequency is the same as the Tower frequency when the control tower is open. (Do not confuse this with the Ground Control frequency of 121.90 MHz.)

 Prior to entering onto a movement area, you must make an announcement on the CTAF frequency stating your intentions. It is a good habit to end your transmission with the word, "Portland." This procedure is called **"Broadcasting into the Blind,"** because you are making an announcement over the frequency without knowing whom, if anybody, is monitoring that frequency at that moment.

 Understand that there is a good chance that nobody is going to answer you when you "Broadcast into the blind." This is because there may not be anybody in the area to hear you. Think of your announcement as a warning to anyone else in the area, letting him or her know that you are planning to move onto a movement area**. Always make a specific announcement before crossing a runway**, even if you have already announced yourself onto another movement area.

If there is another vehicle or aircraft in the area, they should also be monitoring the Common Traffic Advisory Frequency (120.90 MHz) and will hear your announcement. Likewise, if they are planning to use a movement area, they should announce themselves on the same frequency, thus providing you with their warning. Keep in mind that the person listening or transmitting may not be on the ground; so be sure to look up into the sky and at both runway approaches before crossing a runway.

Finally, a word of caution on this subject: "Broadcasting into the Blind" is an airport requirement and shall be expected of all vehicle operators that have been issued Jetport driving privileges. The FAA only considers it a "good operating practice" however, which means that it is not a rule for aircraft pilots. So, while it may be a dangerous way to operate, there is no requirement for an aircraft pilot to "Broadcast into the Blind" before operating his/her aircraft onto, or off from, a movement area.

Stated more simply: A plane can taxi from a ramp, travel over the taxiways, get onto a runway and take off without making a single radio call! OR, they could fly to the airport, land on a runway, taxi over taxiways then park on a ramp without making a single radio call as well! With that in mind, never assume that a quiet radio means that you are the only person operating in the area. Be vigilant and remain alert at all times.

If you know that an aircraft is on approach or departing from a runway that you need to cross, STOP and wait for the aircraft. Don't take unnecessary chances by thinking that you "can make it," or "that you have plenty of time."

Some examples of what a radio transmission may sound like when broadcasting into the blind are:

1. *"Portland Traffic, FBO Tug is on the North GA Ramp, crossing Taxiway Charlie and Runway One-Eight / Three-Six with an aircraft in tow, to the FSDO Ramp, Portland."*

2. *"Portland Traffic, Yellow -Three (Maintenance Vehicle) is on Taxiway Golf to cross Runway One-Eight / Three-Six and proceed to the One-One Run-up Area via Taxiway Alpha, Portland."*

3. *"Portland Traffic, Red-Two (ARFF Truck) proceeding from the North GA Ramp to the Terminal Ramp via Taxiway Charlie, Portland."*

If an aircraft on the CTAF frequency announces their intent to land on a runway or to taxi in or out of a ramp area, you should announce on the frequency that you are no longer using any part of the movement area that might affect them. An example might sound like this:

"*Portland Traffic, Vehicle1 is off of Runway One-Eight, Three-Six, Portland."*

On occasion, it is possible that a pilot on frequency may ask you to, "Say again" Or "Repeat" your transmission. He or she may be unclear of your location and intentions. Be alert to a request like this and respond to the pilot on the frequency as needed. Keep your radio ON while operating on the movement areas at all times.

Remember, prior to entering onto a taxiway or runway, slow down, look both ways, then look UP for aircraft that may be landing or departing. Remember that aircraft have the right-of-way over ALL vehicles. If an aircraft is on the same taxiway that you are on and is heading toward you, try to position yourself onto another taxiway or ramp until it has passed. If you can't give the plane the whole taxiway, then move to the side and allow room for wing tip clearance between you and the aircraft.

Use of a Unique Call Sign:

Each vehicle or person operating on any portion of the SIDA should have a "unique" call sign to identify themselves. A "unique" call-sign helps to prevent confusion and accidents on the

airfield by making sure that a controller doesn't confuse one vehicle with another, or that a driver doesn't confuse a message meant for another operator as one meant for themselves. If you are in need of an identifying call sign, contact Airport Operations through the Jetport's Communication Center at (207) 756-8310.

Communication Failure and Light Gun Signals

What do you do if you are on a movement area and you realize that your radio no longer works?

If you discover that your radio is inoperative prior to entering onto a movement area, do not enter that movement area until you have fixed the radio / communications problem. If you find that your radio has failed after you have actually entered onto the movement area, you should first attempt the following:

> ➢ Vacate the movement area by moving onto a ramp or the Access Road if possible. **Do not cross a runway to do so.**

> ➢ Try another frequency. Use 120.90 MHz or 121.90 MHz.

> ➢ Use a cell phone if you have access to one.

If you are unable to call for help or exit the area without crossing a runway, you will have to use the backup method – Light Gun Signals. Controllers use a light gun with different colors to tell pilots or vehicles what to do in the event that their vehicle loses radio communications.

Upon radio failure, you should proceed to the next point where an air traffic control clearance would be required. Once there, position your vehicle so that it is facing the air traffic control tower and then flash your headlights at the tower. After you have gained the controller's attention, they will signal you with the light gun.

Be patient as the controller's attention may be directed toward another part of the airport when you start flashing your lights. Eventually, they will see you and will signal you with a light gun. As a vehicle operator on the airfield, you are expected to know the meaning of the following Light Gun Signals:

LIGHT GUN SIGNALS	
COLOR AND TYPE OF SIGNAL	**MOVEMENT OF VEHICLES, EQUIPMENT AND PERSONNEL**
STEADY GREEN	Cleared to cross, proceed or go
STEADY RED	STOP
FLASHING RED	Clear the taxiway/runway
FLASHING WHITE	Return to starting point on airport
ALTERNATING RED AND GREEN	Exercise Extreme Caution!!!!

Safety Areas

Runway safety areas are a defined area of land that surrounds a runway. Their purpose is to provide a suitable area for reducing the risk of damage to aircraft in the event of an overshoot, undershoot, or excursion from the actual runway surface. They must remain clear, free of obstacles including vehicles, and maintained to allow for aircraft to pass through them on occasion without causing major damage to the plane.

Entering a runway safety area requires a clearance from air traffic control whether you are operating within the grassy infield or on a paved surface (taxiway or paved overrun). You may be asked to vacate this area during air carrier operations since the safety area is required to be free of objects (including vehicles) during these activities.

If you access the runway safety area off pavement, remember that the runway safety area begins 175 feet from the runway edge stripe (250 feet from the painted centerline) and extends up to 1000 beyond a runway's end. You will still need to coordinate your entry with the air traffic control tower even if you are off pavement.

Runway 18 Threshold and Runway 36 Object Free Area

There are two locations on the Jetport's Perimeter / Access Road that need to be given special consideration. Both the "18 Threshold" and the "36 Runway Object Free Area" require authorization from an air traffic controller prior to entering/crossing.

Runway 18 Threshold:

The Perimeter / Access Road crosses over Runway 18 at the northern most point of that Runway, which is called the "18 Threshold." In order to cross this portion of the Perimeter / Access Road, you will need to receive permission from an air traffic controller. If you are traveling on the Perimeter/ Access Road on the east side of that Runway, you will have to "hold short" at the stop sign prior to reaching the actual 18 Threshold because the Perimeter Road crosses into the Runway Safety Area before it reaches the Threshold.

Runway 36 Object Free Area:

The Perimeter / Access Road crosses through the Runway 36 Object Free Area well before you reach the Runway 36 Threshold. In order to cross this portion of the Perimeter / Access Road, you will have to receive permission from an air traffic controller. The boundaries begin at the stop signs located on the Perimeter Road.

Instrument Landing System (ILS) Critical Area

An Instrument Landing System (ILS) is a system of antennae producing radio signals that provide guidance to an aircraft toward a runway in preparation for landing. They are commonly used during periods of low visibility.

When an ILS is in use, vehicles operating within an "ILS Critical Area" may disrupt the radio signals.   This disruption of signal could cause an aircraft's navigational system to become unreliable, making its approach to a runway unsafe.

An ILS Critical Area is an area on an airfield where navigational radio signals have the potential to be disrupted by objects like vehicles, when operating within their boundaries.

There is an ILS Critical Area located on Taxiway Alpha, east of Runway 18-36. This Critical Area begins at the Runway 29 Glide Slope Antenna and extends eastward through the Runway 29 Holding Apron. During periods of low visibility, the ILS may be in use. If so, you will need to get additional clearance from air traffic control to operate within this area. You may also be asked to vacate this area as conditions change. If asked to exit this area, proceed to the west side of the ILS Critical Area Holding Position Markings and Signage on Taxiway Alpha until given permission to return, or exit to the Perimeter Road via the connector on the north side of the 29 Holding Apron. If the Tower cannot see you, you may be asked to advise the Tower once you are out of this Critical Area.

The ILS Critical Area Holding Position marking looks like a ladder painted across the taxiway as shown here:

Note: The Perimeter Road just east of the 29 Threshold does not penetrate the ILS critical area since it is below the horizontal surface of the runway.

Airfield Familiarization and Authorized Routes of Travel

Each vehicle operator receiving Limited Driving Authorization will be given an "authorized route of travel." This will be a detailed description of the specific movement area(s) that a vehicle operator is permitted to drive on. The driver will only be authorized to drive upon those approved movement areas only.

For example, an employee for one of the airline's ground service providers may need to reposition an aircraft from their gate to the west end of the Terminal Apron for remaining over-night parking (RON parking). In this case, the tug driver may be authorized to travel onto Taxiway Alpha from the gate to the RON Parking area to reposition the airplane. However, with a limited driving authorization, they would not be authorized to operate on any other movement areas.

Failure to remain only in the authorized routes of travel will result in disciplinary actions as described in the section titled, "Consequences of Non-Compliance" found on Page 29 of this manual.

A Limited Access Driver will be expected to know the location and identification of all taxiways, runways and ramps along the approved route, as well as those portions of the Jetport that adjoin the authorized route.

No driver shall be permitted to operate a vehicle at the Jetport without first receiving company training specific to the vehicle that they will be expected to operate. This training should include ride-along training for the new driver, allowing them to observe an authorized driver prior to having them operate the vehicle.

No new driver shall be permitted to operate a vehicle on any port of the Jetport without having traveled the route in advance with an authorized driver. During this portion of training, the driver-in-training should be made aware of all hazards and considerations that are found along the route. Non-movement area boundary markings, Taxiways, Runway Holding Position Markings and Signs are just a few of the details that should be pointed out during this training.

Disabled Aircraft Operations

A limited driving authorization **DOES NOT** permit you to operate a vehicle on any movement area outside of those specified for your company by airport operations. In the event that your company is requested to assist in the recovery or relocation of a disabled aircraft, or in the case that your company has an aircraft that has become disable on the airfield, remember that you are not permitted to traverse movement areas outside of your specified area without a

properly appointed vehicle escort. If you need to travel to an aircraft located on a movement area outside of your specified area, contact the Jetport Communication Center at **207-756-8310** and request an escort. Jetport Maintenance, Communications Center, or Operations staff provide the requested escort as needed.

Low Visibility Operations on a Movement Area

Some of the Jetport's runways are equipped to allow aircraft to land and take-off even during low visibility conditions such as heavy fog or snowfall. The Jetport has procedures in place to minimize the potential for aircraft and vehicle accidents during these low visibility operations. One of these procedures calls for Air Traffic Control to limit/prohibit the access of vehicles onto movement areas during periods of low visibility. As a result, Air Traffic Control may deny a vehicle operator's request to gain entry onto any movement area once the airfield's visibility has dropped below a predetermined limit.

If this happens to you, you should stay clear of all movement areas and wait for visibility to improve before attempting to obtain authorization from Air Traffic Control for movement area access.

Check-ride with Trainer

Any new driver will be required to pass a check-ride with an approved Jetport representative, or an approved Driver-Trainer, prior to being granted Limited Access Privileges onto any movement area.

Unlimited Driving Authorization

A vehicle operator with unlimited access to the Jetport is permitted to operate on any movement area. In order to minimize the risk of accidents and to limit the amount of traffic on the movement areas, the Jetport only issues unlimited access privileges to those people that require unlimited access in order to ensure the safe and continuous operation of the Jetport.

Extensive Airfield Familiarization

Prior to granting a vehicle operator Unlimited Access to the Jetport, the individual will be expected to have undergone extensive training with their company's trainer(s). This training shall include vehicle training specific to the vehicles that the driver will be operating and airfield familiarization training. Each driver will be expected to know the designation and location of each ramp, taxiway and runway on the Jetport.

Unlimited Access Drivers will also be expected to know the location of, and have some understanding of the various taxiways, runways, ramps, select buildings, NAVAIDs, antennae, Critical Areas, and other visual reference points specific to the airfield. A map displaying all of the facilities and locations that should be known by an Unlimited Access Driver can be found on the Airfield Familiarization Diagram located on page 8 of this manual.

Jetport Specific Areas of Caution

When operating a vehicle at the Portland International Jetport, be aware of the following locations and their potential hazards:

1. Aircraft and vehicles at opposite ends of Runway 18-36 may not see each other due to gradients between locations. It is also difficult to see aircraft in position at the Runway 18 Threshold while crossing Runway18-36 on Taxiway Golf. Be alert when operating or crossing on this runway.

2. When using the connector road at the northern end of the North G.A. Ramp to access Taxiway Charlie, understand that the road enters the taxiway beyond the Runway 18 Holding Position Marking on Taxiway Charlie. As a result, should you enter onto Taxiway Charlie from this roadway without the appropriate clearance from air traffic control, you will have created a runway incursion.

3. If you are traveling from Taxiway Charlie southbound to Taxiway Alpha, be mindful of the fact that Runway 11-29 is immediately beyond the intersection of these two

taxiways. Failure to make the turn onto Taxiway Alpha from Charlie will result in a vehicle encountering the Runway 11-29 Holding Position Marking. Should you cross this marking on Taxiway Charlie without the appropriate clearance from air traffic control, you will have created a runway incursion.

4. It is in your best interest to stay visible to the Control Tower whenever possible. However, there are a couple of locations on the Jetport where a vehicle could be hidden from a Controller's view. Understand that the Tower may not see you in the following locations:

   A. The 11 Run-Up Area on Taxiway Alpha, near the Blast Fence.

   B. The Connector Road that links the northern end of the North/GA Ramp to Taxiway Charlie. To gain access to Taxiway Charlie from the North/GA Ramp in this area, contact air traffic control while still at the top of the hill.

Aviation Phraseology and Commonly Used Words and Their Definitions

Being able to communicate safely and efficiently over the radio is a key component to the overall safe operation of the Jetport and its Movement Areas. Informed, educated drivers will have a better understanding of what to expect, and what is expected of them, when driving on the field. The following information provides a general overview of the more common phrases spoken over the radios, and lists the phonetic alphabet. Any operator possessing Unlimited Driving Privileges on the Jetport's movement areas should be familiar with all of these terms and phrases.

Common Aviation Terms and Phrases

"**Acknowledge**" - Let me know you have received and understand this message.
 "**Advise" or "state intentions**" - tell me what you plan to do.
 "**Affirmative**" - Yes.
"**Correction**" - An error has been made in the transmission and the correct version follows.
"**Go ahead**" - State your request (this never means "proceed").
"**Hold**" - Stop where you are.
"**Hold short of**..." - Proceed to, but do not cross a specific point.
"**Negative**" - No, or Permission not granted, or that is not correct.
"**Proceed**" - You are authorized to begin or continue moving.
"**Read back**" - Repeat my message back to me.
"**Roger**" - I have received all of your last transmission. (It should not be used to answer a yes or no question.)
"**Say again**" - Repeat what you just said.
"**Standby**" - Wait...I will get back to you. (Standby is not an approval or a denial. The caller should reestablish contact if the delay is lengthy.)
"**Unable**" - I can't do it.
"**Verify**" - Request confirmation of information.
"**Wilco**" - I have received your message, understand it, and will comply. (Short for "Will Comply.")

Commonly used Words and their Definitions

1. **Air Rescue** – Airport based fire fighting services. Comprised of specially designed firefighting equipment used by specially trained fire fighters.
2. **ARFF**- Aircraft Rescue and Fire Fighting. Same as "Air Rescue."
3. **Challenge** – Confronting an individual that appears to be without proper authorization and/or identification.
4. **Clearance** – special permission and instructions from the Air Traffic Control Tower (ATCT).
5. **Deicing Pad** – A portion of the West Ramp that is used for the deicing/anti-icing of aircraft.
6. **FBO** – Fixed Base Operator: Companies at the airport offering fueling and/or other aviation services for hire. For the purposes of this manual, it will include the following companies: Northeast Airmotive, Maine Aviation, and Maine Aviation Sales.
7. **FOD** – Foreign Object Damage/Debris - Any items that are unintentionally left on a Movement or Non Movement area with the potential to be blown or ingested and cause damage to an aircraft engine or injury to a person.
8. **FSDO Ramp** – (Pronounced "Fiz-doe Ramp") A ramp located east of Runway 18-36 and Taxiway G. The FAA's Flight Standards District Office (FSDO) is located on this ramp.
9. **North General Aviation Ramp (North G.A. Ramp)** Ramp located west of Taxiway C and north of the Northeast Airmotive Maintenance Hangar. (The fuel pumps are located on this ramp)
10. **Ground Control** – Air traffic control function that coordinates and issues ground movement instructions.
11. **Incursion** – Entering portions of the Movement Area without proper air traffic control clearance.
12. **Jetway(s)** - Equipment located on the Terminal Ramp used to load and unload passengers. They are the "bridges" that are attached to the Terminal Building, which people walk through to go between an aircraft and the building.
13. **Limited Authorization** – driver authorization allowing airport employees to drive on specific portions of the Movement Area.
14. **Tower, or Tower Control** – Air traffic control function that issues landing or take off clearances to approaching and departing aircraft.
15. **Movement Area** – Area where an air traffic control clearance is needed to operate (runways, taxiways and safety areas).
16. **Non-Movement Area** – Area where vehicle movements do not require air traffic control clearance (Ramps and most of the Perimeter Road).
17. **Perimeter/ Access Road** - The Perimeter/Access Road is a vehicle roadway that circles the airfield inside the perimeter fence. It is also the primary route that should be used when traveling across the Terminal and General Aviation (GA) Ramps.
18. **Ramp** – An area reserved for aircraft loading/unloading, fueling operation, deicing, etc.
19. **Restricted Authorization** – Driver authorization allowing airport employees to drive within the Non-Movement area only.
20. **Runway** – An area of pavement where aircraft landing or depart from.

21. **Runway Safety Area** – An area extending 125 feet beyond the runway edge stripe250 feet from runway centerline) and 1000 feet beyond the runway thresholds (depending on terrain). They are maintained to support aircraft in the event of an accident.
22. **Safety Area** – A defined area surrounding a runway or taxiway that is prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from a runway or the unintentional departure from a taxiway.
23. **Terminal Ramp** – The ramp located north of Taxiway A and west of Taxiway C. This ramp is used only by the Air Carriers and provides access to the Jetport Terminal Building
24. **Taxiway** – An area of pavement leading from a runway to a ramp/parking area. These paved areas act as roadways for planes and vehicles to use to move around the airport, and between ramps and runways.
25. **Threshold** – The approach or departure end of a runway.
26. **West Ramp** – Ramp located north of Taxiway A and west of the Terminal Ramp. This ramp is a continuation of the Terminal Ramp and is used for remote and overnight parking of Air Carrier aircraft as well as the storage of some air carrier equipment. This ramp is also the location for the Jetport's deicing pad.

The Phonetic (Aviation) Alphabet:

Because some letters sound similar, the following words are used to reduce confusion. For example, taxiway B would be referred to as "Taxiway Bravo".

A - Alpha	H - Hotel		
B - Bravo	I - India	O - Oscar	U - Uniform
C - Charlie	J - Juliet	P - Papa	V - Victor
D - Delta	K - Kilo	Q - Quebec	W - Whisky
E - Echo	L - Lima	R - Romeo	X - X-ray
F - Foxtrot	M - Mike	S - Sierra	Y -Yankee
G - Golf	N - November	T - Tango	Z – Zulu

Aircraft Traffic and Pattern Phraseology:

The diagram to the right explains pilot phraseology as aircraft operate within the vicinity of the airport. As you listen to Air Traffic Control or monitor the CTAF during non-towered operations, you will probably hear these terms being used.
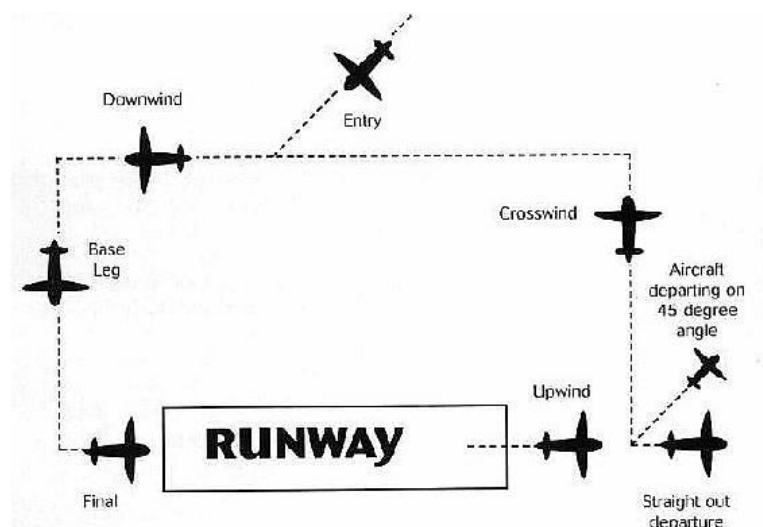
Check Ride with Trainer

Any new driver will be required to pass a check-ride with an approved Jetport representative prior to being granted Unlimited Access Privileges onto any of the Jetport's movement areas.

Important Phone Numbers

Airport Operations Center	**756-8310**
Airport Manager's Office	**874-8877**
Airport Operations	**842-9296 or 772-0466**
Airport Maintenance	**772-3546**
Airport Fire Rescue	**Dial 911 for all emergencies**
Paramedic & Medical Requests	**Dial 911**
Police	**Dial 911 for emergencies**
FAA Tower	**775-0602**

About This Information

This handbook is provided by the City of Portland to acquaint all employees with the local procedures for operating vehicles on the airport. These rules and regulations are subject to change should circumstances dictate. It is the responsibility of Airport Management to disseminate pertinent changes and additions to this handbook while it is the responsibility of your trainer to instruct and train you on any changes. Well-trained and informed employees make for safer airports. Please review this guidebook as needed to refresh yourself on the Jetport's procedures, phraseology, and safety issues presented. Ask your supervisor or trainer questions on areas that you are unsure of. Your safe actions and practices dictate the success of the Jetport's overall operation.

Specific questions regarding this material and the procedures presented can be directed to the Airport Operations Office.

Bibliography for this Document:

1. _Airport Ground Vehicle Operations_ published U.S. Department of Transportation, FAA – Document #ASY-300 98/001
2. _Standards for Airport Markings_ – FAA Advisory Circular 150/5340-1J
3. _Portland International Jetport Rules and Regulations_
4. _Portland International Jetport Airport Certification Manual_

A complete copy of the Jetport's Rules and Regulations, and Tab 15 of the Jetport's Airport Certification Manual: Pedestrian and Ground Vehicles, can be obtained by request through the Airport Director's Office during normal business hours.

Other FAA Recommended Resources:

1. Airport Facility Directory
2. Airman's Information Manual
3. Advisory Circular AC 5370-2E – _Operational Safety on Airports During Construction_
4. Runway Incursions – FAA/ASY-300 97 / 002
5. FAA Video – Runway Incursions, "_The Unseen Danger_"

Other information and answers to questions can be directed to the Portland Jetport's Management Office.