NORTH TEXAS REGIONAL AIRPORT

VEHICLE OPERATORS GUIDE

CATCH THE OPPORTUNITY
BEFORE IT TAKES OFF

% Growth

80
70
60
50
40
30
10
0

1/1 1/6   2/1 2/6   3/1 3/6   4/1 4/6   5/1 5/6   6/1 6/6

Semi-Annual Performance Data

www.northtexasregionalairport.com

A MESSAGE TO VEHICLE OPERATORS

This guide in conjunction with the online "Airfield Safety and Incursion Prevention" course will teach you about the unique aspects and safety requirements of working and driving a vehicle on North Texas Regional Airport. If you have never worked on an airport before, it can be a confusing experience. This guide explains some of the things you will see, how things work, and some of the rules you will have to follow when working on an airport. If you already have experience working on an airport, this guide may teach you some things you did not know, or remind you of some things you may have forgotten.

The online "Airfield Safety and Incursion Prevention" course offered through the American Association of Airport Executives (AAAE) and the North Texas Regional Airport via the ANTN Digicast video training system will make it easy to learn the necessary information and provide a record of your training.

ANTN Digicast has been providing thousands of airport employees with on-demand video training on every aspect needed to run an airport: operations, maintenance, security, customer service, human resources, and more.

ANTN Digicast programming is accessible online via any Web-enabled computer. Go to http://www.antndigicast.com for more information. See Exhibit C for instructions on signing up and watching the required courses and taking the online test.

SAFETY IS THE FIRST PRIORITY!

One overriding rule that must be observed all the time at all airports is:

AIRCRAFT ALWAYS HAVE THE RIGHT OF WAY!!!

Airports are different than any other place you have ever worked. The potential for injury, not only to you, but also to pilots and their passengers, is great. Each of us must make safety our first priority. One careless mistake could result in death or injury. It's up to each one of us to make sure we do everything we can to make the airport as safe as possible.

One way to do that is to know how the airport operates, what the signs and markings mean, the types of problems and safety hazards that may occur, and any special rules that may apply to your work. This guide talks about those things and your responsibilities as a vehicle or equipment operator.

At the back of this manual (Exhibits A and B) are airport diagrams for the North Texas Regional Airport. The diagrams identify the airfield pavement numbering and lettering system and the Movement Area of the Airport. Following the diagrams is information on signing up and taking the online "Airfield Safety and Incursion Prevention" course offered through AAAE and the North Texas Regional Airport via the ANTN Digicast video training system (Exhibit C).

The final section is the FAA Fact Sheet on Runway Safety (Exhibit D), which goes into more detail on the FAA's program in reducing runway incursions. The *Guide to Airport Signs and Markings* attached to inside back cover may be removed and used separately as a handy reference.
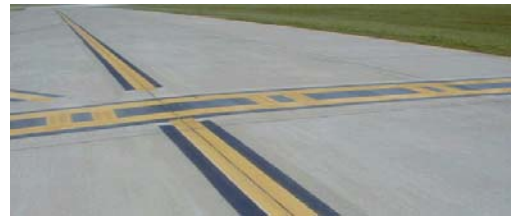
THE BASIC PARTS OF AN AIRPORT

If you have never worked on an airport before, the names and functions of everything your employer wants you to remember can be confusing. In addition to learning your new job, you need to know some important things about the airport itself.

RUNWAYS A runway is the area where an aircraft lands or takes off. The most important thing for you to remember about a runway is that it is meant for aircraft use. **Never** drive your vehicle on a runway unless you have completed the "Airfield Safety and Incursion Prevention" course offered through North Texas Regional Airport and passed all test and you are authorized to do so by **Ground Control when the tower is open or airport management when the tower is closed**.

Painted runway markings. This is runway 13.

TAXIWAYS Taxiways are areas used by the aircraft to get to and from their parking place and the runway. Taxiways look a lot like runways, but they usually are not as wide as the runway. Like runways, taxiways are meant for aircraft use. **Never** drive your vehicle on a taxiway unless you have completed the "Airfield Safety and Incursion Prevention" course offered through North Texas Regional Airport and passed all test and you are authorized to do so by **Ground Control when the tower is open or airport management when the tower is closed**.

Painted taxiway centerline marking crossed by painted ILS hold markings

APRONS Aircraft aprons are the areas where the aircraft park. Aprons are also sometimes called ramps. They vary in size, from areas that may hold five or ten small planes, to very large areas. Unlike the runways or taxiways, vehicles can use aprons without contacting Ground Control. Your work may require you to drive on an apron. If so, be very careful in these areas. Watch out for aircraft that are moving and yield the right of way to them. Do not assume the pilot will see you and stop. He or she may be busy with other things like radio communications or checking the aircraft instruments. Every year there are many accidents involving vehicles and aircraft that result in property damage, personal injury, and in some cases - death. Do not let this happen to you!

In addition to watching out for moving aircraft, be careful not to get too close to a parked one. You should also be aware of the problem of jet blast or prop wash. This occurs when an aircraft engine is running. If you are near the aircraft, especially behind one, you can be hit by a

strong blast of air that can knock you onto the ground, and in some cases burn you. There have been several cases where vehicles have been overturned by jet blast. One way to tell if an aircraft is about to start its engine, or if the engine is already running is to look for a flashing light on the body of the aircraft on the top, bottom or both. An aircraft just starting to move will generate considerably more jet blast or prop wash than one that is stopped and idling. Consequently a vehicle that may be in a safe position for idle thrust may be subject to a mishap when higher thrust is applied. Other situations to be aware of include aircraft turns, or use of reverse thrust to back up the aircraft.

AND ALL THE EXTRA LITTLE THINGS

Let's look at the signs, markings, lights, and navigational aids that are on airports.

SIGNS   The signs near the runways and taxiways come in different sizes and colors. If the sign has white numbers on a red background, it is called a runway holding position sign. This is the airport version of **STOP** sign. What you should remember is that a sign like this (red background-white numbers) means that you are on the edge of the protected area around a runway and you should not go any farther without special permission!

Runway holding position sign

If you see a yellow sign with black letters (indicates the taxiway you are approaching), or a black sign with yellow letters on it (indicates the taxiway you are on), that is called a guidance sign. These signs are to help guide the pilot in getting from one place to another while the plane is on the ground (similar to street signs).

Taxiway guidance sign

There are many other kinds of signs. 'Distance remaining' signs are placed next to the runway to tell the pilot how much runway length is left. The large "4" in the picture at right means that the pilot has used 5,000 feet and has 4,000 feet of runway remaining until the end.

LIGHTS The runways and taxiways have lights on their edges. The lights along the sides of the runway are white. Near the ends of instrument runways, each individual light fixture will have two colors - white on one side and amber on the other. You will see some lights across the end of the runway as well. These are called runway threshold lights and are green on one side and red on the other. Lights along taxiways are blue.

One other light that you will see is on buildings or poles and is called an obstruction light. It is a bright red light and warns pilots that there is an object or structure underneath it.

MARKINGS Runway markings are always white. As a minimum, the runways have numbers on each end and a broken stripe down the middle (the centerline stripe).
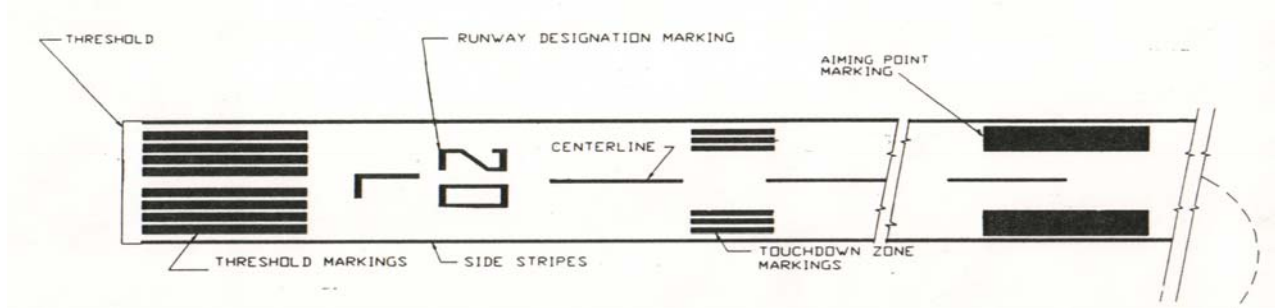
Diagram of typical runway painted markings

Taxiways have yellow markings. The center of the taxiway has a solid yellow stripe. As the taxiway comes up to the edge of the runway, you may see what pilots call a 'hold' line. It is two solid yellow stripes followed by two broken yellow stripes. This is the airport's version of a STOP sign for pilots and vehicle drivers. It means you are about to go onto a runway. Along the side of the taxiway next to the hold line should be a runway holding position sign (the red and white sign we talked about earlier). Remember, you should never go onto a runway except

Runway hold position marking

with permission from the control tower when the tower is open or airport management when the tower is closed. So if you see a hold line, stop and do not go any closer to the runway without specific permission.

Aprons have markings as well. Aircraft parking spaces, called tiedowns, may be marked on the apron. Vehicle roadways may also be marked on the apron. If the aprons on your airport have roadway markings, you should drive your vehicle within those marked areas. Taxilanes are also included on the apron. They are on the outer edge of the apron and provide access to the aircraft parking areas. Taxilanes are also marked with yellow centerline stripes.

Vehicle roadway marking

Movement/Non-Movement Area Boundary Line

At the exit of the aprons to the taxiways, there will be a painted marking call a movement/non-movement area boundary line. It is one solid line and one dashed line. To cross this line, you must first contact ground control and get permission to enter the movement area when the tower is open and airport management when the tower is closed.

NAVIGATIONAL AIDS

Navigational aids are various pieces of equipment that send out electronic signals to help guide aircraft in the air to the airport and a safe landing. An Instrument Landing System, or ILS, is one example of a navigational aid and is located close to a runway.

When driving near this
electronic signal equipment, you must stay out of the protected areas around them to avoid interfering with their signals. If a taxiway is close enough to an ILS to affect it, there should be a red ILS holding position sign like you read about and referred to earlier to show you where to stop. Service roads have a slightly different ILS critical area sign will show you where to stop. If your work might affect the performance of a navigational aid, stop and get clearance from ground control.

ILS glide slope antenna

ILS localizer antenna

AT WHAT KIND OF AIRPORT DO YOU WORK?

There are three different types of airports: airports that are used by the military, airports that are used only by general aviation and airports that are used by both general aviation and the airlines.

GENERAL AVIATION (GA) Most airports in this country are general aviation airports. General aviation is defined as everything except military and commercial airline aircraft. GA aircraft range in size from the small propeller driven planes up to the larger jets similar to those used by the airlines. North Texas Regional Airport is a General Aviation airport.

AIR CARRIER Air carrier airports are the ones that the airlines use. An air carrier airport may have just one small commuter airline that comes in a few times a day, or it may have hundreds of airline flights a day. D/FW Airport and Dallas Love Field Airport are air carrier airports.

AIR TRAFFIC CONTROL TOWER (ATCT) An air traffic control tower directs the airplanes in the air and on the ground. Controllers in the tower may use radar and other equipment to guide aircraft and provide a safe separation between them.

North Texas Regional Airport has an air traffic control tower that operates 12-hours a day from 7 a.m. until 7 p.m., seven days per week.

When control towers are operating, the airport is a "**controlled**" airport - that means that anyone wanting to fly into or out of the airport must first get permission from the controller. An aircraft on the ground must also get permission from the controller to be on the runway or taxiways. (Controllers call these areas "**movement areas**".) As an operator of a vehicle or piece of equipment, if you ever have to go onto a runway or taxiway, the associated safety areas or any other part of the movement area, **you must get the controller's permission first**. The airport map for North Texas Regional Airport on Exhibit B identifies the movement areas.

When the tower is closed or there is no tower, the airport is called uncontrolled. Procedures to follow for going onto the runway at a controlled and uncontrolled airport are discussed in the next section.

North Texas Regional Airport ATCT

WHAT IF I HAVE TO GO ON A RUNWAY OR TAXIWAY?

There may be times when your work requires you to go onto a runway or taxiway. It may be for maintenance work such as sweeping, snow removal or mowing along the edge of a runway, or to tow a disabled aircraft. If you have to go onto a runway or taxiway, or onto the safety areas along the sides of them you must do certain things.

AT AN UNCONTROLLED AIRPORT North Texas Regional Airport is an **"uncontrolled"** airport when the tower is closed between 7 p.m. and 7 a.m. At an uncontrolled airport, you do not have to get a controller's permission before going onto a runway or taxiway, but you must get airport management's permission first. You should have an air-to-ground radio tuned into the airport's common traffic advisory frequency (usually called CTAF), and using proper radio procedures (described later) say where you are and what you will be doing, especially when you are about to cross a runway. If you cannot carry an air-to-ground radio, let someone in authority (the airport management) know where you will be, and for how long. When you get near the runway-taxiway system, SLOW DOWN. Look both ways for taxiing aircraft, and then look UP for aircraft that are landing or taking off. Always yield the right of way to any aircraft, and give them plenty of room to pass by you. If the aircraft is on the same taxiway as you are and is headed in your direction, back up and move out of its way or exit the taxiway onto the grass, if necessary. If you are about to cross or go onto a runway, stop before crossing the hold short line and look both ways and then look again. If an aircraft that is about to land is close enough that you can see it, stop and wait for it to land and go past you **before** going onto the runway. If you cannot see both ends of the runway from where you are, go to a place where you can before crossing. Whenever possible, cross at the end of a runway. If your vehicle has a rotating beacon, use it whenever you are driving on the airfield or turn on your headlights.

AT A CONTROLLED AIRPORT If you work at North Texas Regional Airport (between 7 a.m. and 7 p.m.), you must get the Control Tower's permission before going onto the movement area, which includes any runway or taxiway, or onto the protected areas next to them. Whenever possible, try to cross a runway at its end.

RADIO COMMUNICATIONS

HOW TO TALK TO THE TOWER At a controlled airport, you must get permission from the air traffic ground controller to go onto the movement area, the taxiways and runways. To get permission, you must use the same procedures and terminology that pilots use. These are the steps you should follow:

1. Use an air-to-ground radio with the airport's ground control frequency (**124.125**), and make certain your radio is tuned to that frequency. Each vehicle should have a call sign identifying the vehicle (like "Airport 14") or ("Company name & number," such as "Texoma Jet Center 1"). This call sign may be displayed on the dashboard of the vehicle. If you do not know your radio call sign, contact your supervisor or someone on the airport staff.

2. Know the proper phrases that controllers and pilots use. Some basic procedures follow.

(Note: Controllers do not use the 'ten' codes, such as "ten-four".)

3. Know what you are going to say before you call the controller. If you are uncomfortable talking on the radio, practice a few times by yourself before calling the controller.

4. Use the proper sequence in calling the controller. Before you start talking on the radio, make certain that no one else is already talking on that frequency. Then, if the radio is clear, you should:

    a. Say who you are calling, then who you are. "(**Name of Airport**) Ground, this is (**Your vehicle call sign**)," for example, "Grayson Ground, this is Airport 1."

    b. Wait for the controller to respond. It may take the controller a little while to call you back if they are very busy. When the controller calls back **"(Your vehicle call sign), this is (Name of Airport) Ground,"** tell the controller who you are again, where you are, and what you want to do. "**(Your vehicle call sign) is on the _____apron by XYZ Aviation and would like to proceed down Taxiway Alpha and cross Runway 17L to the east side."** Then wait for the controller to answer you.

    c. The controller will either approve or deny your request, or issue special instructions. **"(Your vehicle call sign), proceed down Taxiway Alpha and cross Runway 17L",** or **"(Your vehicle call sign), proceed down Taxiway Alpha and hold short of Runway 17L."** Acknowledge that you have heard the controller's instructions. **"Roger, briefly restate instructions, (your vehicle call sign)."** If the controller gives you special instructions (such as hold short), repeat the instructions briefly to the controller to show that you have heard and understand the order. **"(Your vehicle call sign), Roger, Hold short of Runway 17L."** The next section goes over the phrases that controllers use. You should know these phrases and what they mean before going onto any runway or taxiway.

    d. If there is ever any doubt what you are suppose to do, ask for clarification.

    e. Once you have acknowledged the controller, follow the instructions he/she just gave you.

SOME COMMON PHRASES
USED BY PILOTS, CONTROLLERS, AND VEHICLE OPERATORS

WHAT IS SAID	*WHAT IT MEANS*
Acknowledge	Let me know you have received and understand this message
Advise Intentions	Tell me what you plan to do
Affirmative	Yes or that is correct
Confirm	My version is.... is that correct?
Correction	Mistake! This is what I should have said...
Go Ahead	Continue speaking/begin your message
Hold	Stay where you are
Hold Short	Stop at the hold line at the intersection of the taxiway and the runway... DO NOT PROCEED ONTO THE RUNWAY
How do you hear me?	How well is this radio working?
Immediately / Expedite	RIGHT NOW
Negative	No, or permission not granted, or that is not correct
Proceed	You are authorized to begin, or to continue moving
Read Back	Repeat my message to me.
Roger	I have received all of your last transmission
Say again	Repeat what you just said
Speak slower	Speak slower
Stand by	Wait a moment, I will call you back
That is correct	The understanding you have is correct
Unable	I cannot do it
Verify	Request confirmation of information. Also, check and transmit correct information
Wilco	I have received your message, understand it, and will comply (this is a phrase you may hear occasionally, but it really shouldn't be used).

LIGHT SIGNALS Air traffic controllers have a backup system for communicating with pilots and drivers if the radios stop working. The controller has a light gun in the tower that sends out different colored lights to tell the pilot or driver what to do. If you are ever working on a runway or taxiway and your radio quits working, you should turn your vehicle toward the Tower, start flashing your headlights and the controller will signal you with the light gun. The signals and what they mean are listed below. The *Guide to Airport Signs and Markings* attached to inside back cover may be removed and used separately as a handy reference.

COLOR & TYPE OF SIGNAL	*MOVEMENT OF VEHICLES, EQUIPMENT & PERSONNEL*
Steady Green	Cleared to cross; proceed; go
Steady Red	STOP
Flashing Red	Clear the taxiway/runway
Flashing White	Return to starting point on airport
Alternating Red & Green	Exercise extreme caution

THE AVIATION ALPHABET Because some letters have similar sounds, like B and P, the aviation industry uses the following words to reduce confusion. For example, Taxiway B would be referred to as Taxiway Bravo on the radio.

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

OTHER IMPORTANT THINGS

TRASH AND ROCKS CAN BE A REAL PROBLEM! Trash can be sucked into a jet engine and cause it to quit, which could be deadly if the aircraft is just starting to takeoff. Trash can puncture tires, and dent or puncture wings and other parts of an aircraft, making the aircraft unsafe.

Rocks can be just as serious. A rock sucked into a jet engine can shred parts of the engine in seconds. A rock caught by a propeller can damage the propeller, as well as become a deadly projectile that can hurt anyone standing nearby. In aviation language, rocks and other debris is called 'FOD' - Foreign Object Debris.

Examples of FOD

You can help make the airport a safer place by following these basic rules: Put all your trash in a covered container that won't be blown over. Get in the habit of picking up any trash and rocks lying around on the pavement. Keep an eye out for nails, bolts and other small metal pieces that can puncture tires easily. Also pick up plastic bags instead of letting them blow across the field. Always try to avoid tracking mud and rocks onto the pavement surfaces. Drive along the edge of shoulders to get mud off tires before getting onto runways or taxiways. Ruts are not allowed by FAA regulation and should be fixed immediately or reported to airport management for repair.

VEHICLE/AIRCRAFT ACCIDENTS Across the country several collisions between vehicles and aircraft happen each year, and each of them could have been avoided by using some common sense precautions. Aircraft have the right of way, so it is up to you to stay out of their way. Give the aircraft plenty of room to pass by you. The pilot has a limited view from the cockpit. (In a large airplane, a pilot's view of the ground areas immediately in front and adjacent to the sides of the aircraft is limited and the view to any areas behind the wings is non-existent.) Never assume that the pilot sees you and will wait to let you go first. If you must work near or next to a parked aircraft, approach the aircraft slowly and remain far enough away from it that you do not block its path or the path of other vehicles, especially airport fire trucks and other emergency vehicles. Look UP also, so that you don't hit any overhanging wing tips. If you do accidentally hit an aircraft, or another vehicle or other property, **STOP IMMEDIATELY** and report it in accordance with your airport's rules and regulations.

HOW TO REPORT AN EMERGENCY Each airport has its own rules and regulations about how to report an emergency. Ask your employer for the procedures to follow to report an emergency at your airport. The most important thing to remember is to TELL SOMEONE IMMEDIATELY, whether you see an emergency happen, or if you are involved in one, so that the proper emergency personnel can be called for help.

NIGHTTIME DRIVING - IT LOOKS SO DIFFERENT! If you haven't seen the airport at

night yet, the first time may be surprising. If the airport's runways and taxiways aren't lighted, the airport may look like a big black emptiness. If the runways and taxiways are lighted, the airport may look like a confusing array of blue, white, red and green lights.

It's much easier to get lost or confused when driving on the airport at night. Your vision changes at night so that the lights may seem to blur together. It's a good idea to take someone who is familiar with how the airport looks at night with you the first couple of times. If that is not possible, allow yourself a little extra time to get to wherever you are going, and drive slower than you normally would. Watch for signs and markings like those we talked about earlier. And if you're not absolutely sure, ASK someone.

BAD WEATHER DRIVING Have you ever been in a 'whiteout' - when the wind is blowing snow so badly that you cannot see ten feet in front of you? If you have, then you know bad weather can be a real hazard to try to drive in. Snow, rain, freezing rain, and even fog can affect the operation of the airport as well as affecting your work. Here are a few precautions to remember when driving in bad weather.

> ➢ GIVE YOURSELF PLENTY OF TIME TO GET WHEREVER YOU ARE GOING.
>
> ➢ DRIVE SLOWER THAN YOU NORMALLY WOULD.
>
> ➢ IF YOUR VEHICLE HAS A ROTATING BEACON, USE IT AND YOUR HEADLIGHTS- IT HELPS OTHERS SEE YOU.
>
> ➢ IF POSSIBLE, PLAN YOUR ROUTE TO AVOID STEEP OR SLIPPERY AREAS.
>
> ➢ TELL SOMEONE WHICH ROUTE YOU ARE GOING, AND WHEN YOU WILL BE BACK.
>
> ➢ TEST THE BRAKES, HEADLIGHTS AND WINDSHIELD WIPERS ON THE VEHICLE BEFORE YOU LEAVE.
>
> ➢ IF EQUIPPED WITH A RADIO TO COMMUNICATE WITH TOWER, VERIFY IT IS WORKING PROPERLY.
>
> ➢ AIRCRAFT ARE EXTREMELY HARD TO SEE IN BAD WEATHER AND AT NIGHT. EXERCISE CAUTION.

SPECIALIZED EQUIPMENT

AIRCRAFT RESCUE AND FIREFIGHTING (ARFF)
North Texas Regional Airport has specially trained firefighters for aircraft rescue and firefighting. It is important for you to know where the fire station is (south of the Airport Terminal Building and annotated on Exhibit A). If you see a fire truck driving with its flashing lights on, pull over out of the truck's way and do not proceed until it is well clear of you, and you can see that other trucks are not behind it.

NTRA ARFF Vehicle

MOWERS AND OTHER MAINTENANCE EQUIPMENT
Grass has to be cut, the pavement occasionally needs to be swept and lights and other equipment need repairing. If you are the person who has to do these things, then you will be working on or next to the taxiways and runways, and you need to be extra careful. When working in these areas, follow the information given in the previous section "What if I have to go on a runway or taxiway?"

Keep alert. Just because you have permission to be on the runway to make check the lights does not mean someone else might not make a mistake, either another vehicle or an aircraft. If the airport control tower is open, keep the controller informed on the status of what you are doing. If the tower is closed, turn your air-to-ground radio to the common traffic advisory frequency (Usually called CTAF), and announce where you are and what you are doing every few minutes or so. Let someone in authority know where you are and when you will be back. Also, make sure your vehicle is in good operating condition before you go out onto the runway. Remember to turn your lights on.

FUEL TRUCKS AND SERVICE VEHICLES
Your job may require you to fuel or service aircraft. If so, you probably will never need to go onto a runway or taxiway. However, some accidents have occurred because the driver (who normally only drove on the apron and roadways) became confused or was not paying attention and accidentally drove onto the runway or taxiway. Other accidents have occurred on the ramp areas where the driver was authorized to drive, either because the pilot and/or driver failed to see each other and did not stop in time, or because a moving object (either a plane or a vehicle) ran into a parked one. So follow the rules we talked about earlier, as well as the airport's rules and regulations.

Lake Texoma Jet-A Fuel truck

SECURITY At the North Texas Regional Airport the security systems vary from fencing, to keypad controlled automatic gates and nighttime security patrols. The Airport Director is

responsible for security. Regardless of who is responsible for providing the overall security for the airport, each person who works on the airport is responsible for participating in the security procedures. If you see a gate left open or unlocked - close it and lock it. Then report it to the Airport management or airport security. If you see a strange vehicle on the apron that does not look like it belongs there, or appears lost, stop it and offer assistance or directions. If you are uncertain, check with your supervisor.

WHAT IF I MAKE A MISTAKE?

As hard as we try not to, all of us make mistakes once in a while. What will happen to you if you make a mistake while operating a piece of equipment or a vehicle on the airport? That depends on the type of mistake you make, whether any one is hurt or property damaged, and on the Airport's policy.

The owner of the airport, the County, has certain rules (see Exhibit C) anyone who is on the airport must follow. The rules cover a wide range of subjects, depending on the size and complexity of the airport. Breaking any of the rules may be punishable by a fine or other penalty.

It is up to the Airport Director to determine what rules have been broken and what the punishment will be. Most airports look at each mistake on a case-by-case basis. At a minimum, you and your company would be responsible for any injury or property damage.

If you operate a vehicle or piece of equipment on the airport, it is your duty to report ANY accident, even minor dents or scratches, to your employer in accordance with your airport's rules and regulations. Even a small dent in the wrong place on an aircraft can make that aircraft unsafe to fly. Please, do your part to make the airport a safe place.

EXHIBIT A

AIRPORT DIAGRAM

AWOS-3
118.775
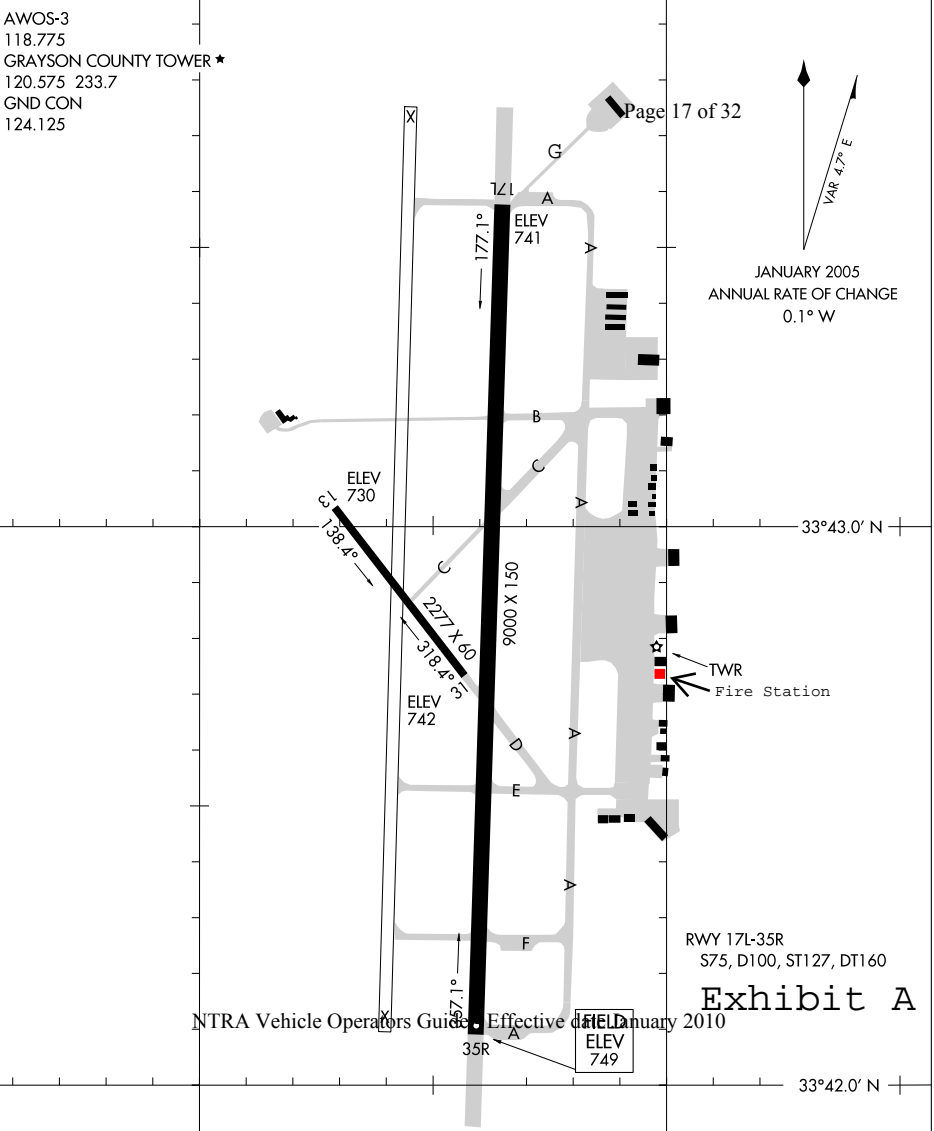GRAYSON COUNTY TOWER ★
120.575 233.7
GND CON
124.125

VAR 4.7° E

JANUARY 2005
ANNUAL RATE OF CHANGE
0.1° W

33°43.0′ N

G

A

17L

ELEV
741

177.1°

A

A

B

C

A

ELEV
730

138.4°

C

2277 X 60

318.4°

9000 X 150

ELEV
742

D

A

E

TWR
Fire Station

A

F

357.1°

35R

A

ELEV
749

FIELD
ELEV
749

RWY 17L-35R
S75, D100, ST127, DT160

Exhibit A

NTRA Vehicle Operators Guide - Effective date January 2010

33°42.0′ N

Page 18 of 32

EXHIBIT B

AIRPORT MOVEMENT AREA

NTRA Vehicle Operators Guide - Effective date January 2010

North Texas Regional Airport

NORTH

🔴 Emergency Response Vehicle standby positions

All areas shaded in light red are within the Movement Area Boundary (MAB).

The MAB markings will be two 6" yellow stripes (one solid and one dashed). Painted on top of an 18" black background.

No one is authorized to be in the MAB without first obtaining permission from Grayson Ground at 124.125.

Exhibit B: Airport Movement Area

EXHIBIT C

AIRFIELD SAFETY AND INCURSION PREVENTION COURSE INSTRUCTIONS

Welcome aboard!

ANTN Digicast is:

- **Flexible.** It's available 24/7/365, allowing employees to train when it's convenient for you AND them.

- **Traceable.** It's Automated Airport Training and Safety Institute (ATSI) feature tracks and logs employee training credits, allowing Part 139 airports to use ANTN Digicast as part of their required recurrent training program.

- **Affordable.** One low subscription price covers all of your employees, tenants and contractors.

- **Resourceful.** The On-Demand Training Video Library, with thousands of hours of programming, is always just a few mouse clicks away.

- **Educational.** A.A.E.s can earn CEU credits.

ANTN Digicast is updated regularly with high quality training programs, industry conference highlights and industry-related breaking news. For more information on the system, visit www.antndigicast.com or contact Trina Hadden, ANTN Digicast assistant manager, at (703) 824 0500, ext. 162, or trina.hadden@aaae.org.

Digicast Sign Up Instructions:

GYI's Digicast account is ready for use. Below are instructions for anyone and everyone who works at GYI (contractors and tenants included!) who is required to take Airfield Safety and Incursion Prevention before they are allowed to drive on the Airport Movement Area.

The only software you will need is the Microsoft Internet Explorer 6.0 or higher and Windows Media Player Version 9 (for Windows 2000 users) or Version 10 (for Windows XP users). These are both freely available at www.windowsupdate.com.

Sign-up instructions are as follows:

1. Go to this link: http://www.antndigicast.com/index.cfm?fuseaction=createAcct
2. Fill out the required information to create your account
   a. User Name/ID: This will be your login name or ID
   b. Enter your first name
   c. Enter your middle name (optional)
   d. Enter your last name
   e. Enter your email address and confirm on the next line
   f. Enter **GYI** as the Airport ID
   g. Select the Department name that best suits your organization, i.e. FBO, Public Safety, Airport Tenant, etcetera.
   h. Enter a password for your use only and then confirm on the next line

3. Wait for an email confirmation
4. ****Click on the link in the email confirmation to activate your account**(You will not gain access unless you do this step)**
5. Start using the system!

If you do not receive an email confirmation within a reasonable amount of time (30 minutes max), contact Digicast Support (DigicastSupport@aaae.org). They sometimes have issues getting our automated emails through, and can activate accounts manually if necessary.

Below is the list of videos that must be viewed and the test successfully passed before you can obtain permission to drive on the Airport Movement Area. Please feel free to watch and test on any of the subjects listed in the ANTN video catalog.

Airfield Safety & Incursion Prevention

Airfield Safety & Incursion Prevention: Review
Review the fundamentals of operating a vehicle safely on the airfield as discussed in 14 CFR Part 139.329 and the lighting, signs and markings included in Part 139.311. Part 6 of 6.

Release Date: 08/10/2007
Duration: 3 min
Video Watched: Yes - on 11/23/2009
ATSI Test Status: Test taken and passed.
Tape Number: 1161-077

More From:
Police/Public Safety/Security
Operations/Maintenance
Aircraft Rescue & Fire Fighting

Airfield Safety & Incursion Prevention: Airfield at Night
This video discusses the challenges of driving on the airfield at night and in poor visibility, such as during winter storms. Part 5 of 6.

Release Date: 08/09/2007
Duration: 3 min
Video Watched: Yes - on 11/23/2009
ATSI Test Status: Test taken and passed.
Tape Number: 1161-077

More From:
Police/Public Safety/Security
Operations/Maintenance
Aircraft Rescue & Fire Fighting

Airfield Safety & Incursion Prevention: Non-movement Area
This video discusses an airfield's non-movement area and provides 14 CFR Part 139.329-related rules and guidance for operating a vehicle on the non-movement area. Part 4 of 6.

Release Date: 08/08/2007
Duration: 6 min
Video Watched: Yes - on 11/23/2009
ATSI Test Status: Test taken and passed.
Tape Number: 1161-077

More From:
Police/Public Safety/Security
Operations/Maintenance
Aircraft Rescue & Fire Fighting

Airfield Safety & Incursion Prevention: Airfield Markings and Lighting

This video details the different airfield markings, signs and lighting as discussed in 14 CFR Part 139.311. Specific topics include the runway numbering and taxiway naming systems, taxiway markings/signs/lighting and runway markings/signs/lighting, and the hold line/hold bar. Part 3 of 6.

Release Date: 08/07/2007
Duration: 8 min
Video Watched: Yes - on 11/23/2009
ATSI Test Status: Test taken and passed.
Tape Number: 1161-077

More From:
Police/Public Safety/Security
Operations/Maintenance
Aircraft Rescue & Fire Fighting

Airfield Safety & Incursion Prevention: Movement Area

Learn about the 14 CFR Part 139.329-related rules and guidelines for operating a vehicle in an airport movement area, with special emphasis on the importance of proper radio communications. Part 2 of 6.

Release Date: 08/06/2007
Duration: 6 min
Video Watched: Yes - on 11/19/2009
ATSI Test Status: Test taken and passed.
Tape Number: 1161-077

More From:
Police/Public Safety/Security
Operations/Maintenance
Aircraft Rescue & Fire Fighting

Airfield Safety & Incursion Prevention: Airfield Basics

This video covers 14 CFR Part 139.329 airfield driving safety basics, including these topics: the non-movement area, movement area, aircraft having the right of way at all times on the airfield, runway incursions, and surface incidents. Part 1 of 6.

Release Date: 08/03/2007
Duration: 6 min
Video Watched: Yes - on 11/19/2009
ATSI Test Status: Test taken and passed.
Tape Number: 1161-077

More From:
Police/Public Safety/Security
Operations/Maintenance
Aircraft Rescue & Fire Fighting

EXHIBIT D

FAA FACT SHEET ON RUNWAY SAFETY

Federal Aviation Administration

Fact Sheet
For Immediate Release

October 8, 2009

Contact: Tammy Jones or Paul Takemoto
Phone: (202) 267-3883

Runway Safety

The reduction in the number and severity of runway incursions is one of the FAA's top priorities. The number of serious runway incursions — classified as Categories A and B — dropped by more than 63 percent from fiscal year 2000 through fiscal year 2008. In fiscal year 2009 — which ended Sept. 30 — there were 12 serious runway incursions, 50 percent fewer than the previous fiscal year. Two of the serious incursions involved commercial aircraft and were considered operational errors. All categories of runway incursions were down by six percent in fiscal year 2009 versus fiscal year 2008 — 951 in 2009 compared to 1009 in 2008.

Total A and B Incursions	# Involving Commercial Aircraft	Fiscal Year
67	34	2000
53	26	2001
37	11	2002
32	10	2003
28	9	2004
29	9	2005
31	10	2006
24	8	2007
25	9	2008
12	2	2009

What is a Runway Incursion?

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, as defined by the International Civil Aviation Organization and adopted by the FAA in fiscal year 2008.

It is important to note that the FAA formerly tracked incidents that did not involve potential aircraft conflicts as surface incidents. These incidents were not classified as "runway incursions" and were tracked and monitored separately. Most of these events are now considered Category

C or D incursions, which are low-risk incidents with either no conflict potential or ample time or distance to avoid a collision. This means that the total number of runway incursion reports increased primarily because surface incidents are now classified as runway incursions.

There are four categories of runway incursions:

Category A is a serious incident in which a collision was narrowly avoided.

Category B is 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.

Category C is an incident characterized by ample time and/or distance to avoid a collision.

Category D is an 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.

Background

Pilots made more than 50 million takeoffs and landings in fiscal year 2009 at U.S. airports with air traffic control towers. These operations were handled by about 15,000 air traffic controllers at more than 500-towered airports. Adding to this complex choreography are the hundreds of thousands of individuals who drive vehicles on airport grounds.

The sheer number of flights, people and vehicles moving across airport runways and taxiways means there is no single way to reduce runway incursions. Runway safety is a shared responsibility among pilots, controllers and vehicle drivers. Automated warning systems enhance runway safety, but education and situational awareness are the keys to preventing incursions.

FAA's Runway Safety Management Strategy

To address the errors committed by pilots, air traffic controllers and airport-authorized vehicle operators and pedestrians, the FAA is focusing on outreach, awareness, improved infrastructure and technology.

Outreach to Pilots

The majority of runway incursions are caused by pilots in violation of regulations and air traffic control instructions — also known as pilot deviations. The FAA completed an analysis of taxi clearances and found that more explicit instructions are needed from controllers to pilots. The FAA has issued new requirements for controllers to give explicit directions to pilots on precise routes to travel from the gate to the runway. The FAA has also issued new requirements for aircraft to have crossed all intervening runways prior to receiving a takeoff clearance. Future requirements will cover runway crossing clearances, take off and landing clearances and the adaptation of international surface phraseology.

Other outreach efforts:

- The FAA published a booklet for pilots, which highlights communication procedures for safe surface operations at towered and non-towered airports.

- The agency, in association with the Aircraft Owners and Pilots Association (AOPA), created two online courses that educate pilots on runway safety. One is tailored for commercial aviation pilots and the other for general aviation pilots.

- Every year, the FAA conducts hundreds of safety seminars across the country to encourage safe practices on the airfield.

- The role of Flight Service Station specialists was expanded to provide runway safety information to pilots using towered and non-towered airports.

- FAA Aviation Safety Inspectors now verify that pilots have current surface movement charts (airport diagrams) available and that they are in use.

- The FAA, in conjunction with AOPA and the National Association of Flight Instructors, recently sent a runway safety brochure and a DVD with four relevant runway safety videos to U.S. pilots and flight instructors.

Situational Awareness

- The FAA-produced DVDs to highlight safe surface operations and proper communications procedures for both general aviation and commercial pilots.

- To enhance air traffic supervisor and controller discussions of serious runway incursions during team briefings, the FAA is developing simulated re-creations of actual incursions.

- Airport managers and fixed-base operators participate in Runway Safety Action Teams to address airport-specific factors (e.g., procedures, environment and infrastructure) that affect runway safety. The FAA requires driver-training programs for all airport operators who access the airfield movement areas at commercial airports.

- The agency developed and initiated controller training to enhance their skills in teamwork, communication, problem solving, situational awareness and managing workloads.

Technology

- Airport Movement Area Safety System (AMASS). AMASS is a radar-based system that tracks ground movements and provides an automatic visual and audio alert to controllers when it detects potential collisions on airport runways and taxiways. The FAA has installed AMASS at the nation's top 34 airports.

- Airport Surface Detection Equipment, Model X (ASDE-X) provides more precise surface detection technology. While the AMASS is based on non-cooperative sensor technology, ASDE-X integrates data from a variety of sources, including radars, transponder multilateration systems and Automatic Dependent Surveillance – Broadcast (ADS-B) to provide accurate target position and identification information and thus give controllers a more reliable view of airport operations. When augmented with safety logic, ASDE-X provides tower controllers a surface traffic situation display with visual and audible alerting of traffic conflicts and potential collisions. ASDE-X is being deployed at 35 of the busiest airports in the U.S. For more information, see the ASDE-X fact sheet dated June 2009.

- Runway Status Lights (RWSL) – The FAA has developed RWSL technology to increase situational awareness for aircrews and airport vehicle drivers and thus serve as an added layer of runway safety. A RWSL system derives traffic information from surface and approach surveillance systems and illuminates red in-pavement airport lights to signal a potentially unsafe situation. Runway Entrance Lights (REL) are deployed at a taxiway/runway crossing and illuminate red when there is high-speed traffic on or approaching the runway to signal that it is unsafe to enter the runway. Takeoff Hold Lights (THL) are deployed in the runway by the departure hold zone and illuminate red when there is an aircraft in position for departure and the runway is occupied by another aircraft or vehicle. RWSL technology is currently under evaluation at three test airports, Dallas-Ft. Worth, San Diego and Los Angeles. The FAA will deploy RWSL at the following 22 airports: Atlanta; Boston; Charlotte; Chicago (O'Hare); Dallas-Ft. Worth; Denver; Detroit; Ft. Lauderdale; Houston (George Bush); Las Vegas; Los Angeles; Minneapolis; New York (JFK, LaGuardia and Newark); Orlando; Philadelphia; Phoenix; San Diego; Seattle; and Washington (BWI and Dulles).

- Final Approach Runway Occupancy Signal (FAROS). Like RWSL, FAROS is designed to provide a visual alert of runway status to pilots intending to use a runway. Arriving aircraft approaching a runway for landing are provided runway occupancy alerting by flashing the Precision Approach Path Indicator (PAPI) lights. As with RWSL, the system derives traffic information from approach and surface surveillance systems and uses safety logic to activate the alerting signal (flashing the PAPI) when appropriate. The system is being tested at both Dallas-Ft. Worth and Long Beach/Daugherty Field Airports in California.

- Electronic Flight Bag (EFB) with Moving Map Displays. The FAA reached agreements with several U.S. airlines to fund in-cockpit runway safety systems in exchange for critical operational data. With Moving Map Displays and Own-Ship Position, pilots will see exactly where their aircraft is on the airfield, thus reducing the chances of losing situational awareness and being in the wrong place. The data will help the FAA evaluate the safety impact of the technology and is expected to accelerate key safety capabilities necessary for the transition to NextGen. The FAA will provide up to $600,000 to each airline to invest in surface moving maps with own-ship position on an Electronic Flight Bag for flights to or from 21 test bed airports. Each agreement will remain in effect through September 2011.

Low Cost Ground Surveillance (LCGS) Systems. The agency is moving forward with the evaluation of low-cost, commercially available radar surveillance systems at certain small and medium-sized airports. A low-cost system would further reduce the risk of ground incidents or accidents, especially during periods of low visibility by providing ASDE-X/AMASS-like capabilities. It would be installed at airports that do not have either ASDE-3 or ASDE-X. Spokane International Airport was chosen as a test bed for the evaluation of two potential LCGS technologies. The LCGS are also scheduled to be installed at four pilot facilities: Manchester Boston Regional, San Jose International, Reno/Tahoe International and Long Beach International airports. Testing is expected to last from one to three years.

Other Initiatives

The FAA's Call to Action

FAA and industry leaders have identified short-term steps to improve runway safety. These initiatives focused on improved procedures, increased training for airport and airline personnel, and enhanced airport signs and markings. Another short-term initiative is an agreement with the National Air Traffic

Controllers Association (NATCA) for a voluntary reporting system. Mid- and long-term goals are being pursued to address maximizing situational awareness, minimizing pilot distraction, and eliminating runway incursions using procedures and technologies. For a detailed status report, see Call to Action fact sheet.

The Runway Safety Council

Formed in October 2008, the Runway Safety Council is a joint effort between the FAA and the aviation industry to look into the root causes of runway incursions. The Council is comprised of representatives from various parts of the aviation industry. A working group integrates investigations of severe runway incursions and conducts a root cause analysis. The working group then presents its root cause analysis to the council and makes recommendations on ways to improve runway safety. The council reviews the recommendations. If accepted, they are assigned to the part of the FAA and/or the industry that is best able to control the root cause and prevent further runway incursions. The council tracks recommendations to make sure appropriate action is taken.

Improved Management Oversight

The FAA established Regional Runway Safety Program Manager positions for each region. Additionally, Runway Safety Action Teams conduct safety reviews and hold meetings at hundreds of airports around the country.

Airfield Changes

- The FAA developed standards for end-round taxiways, which can keep aircraft from having to cross runways being used for takeoffs and landings at the busiest airports. New end-round taxiways at Atlanta and Dallas-Fort Worth will eliminate more than 2,000 runway crossings each day.

The FAA encourages operators to build perimeter roads around the airfield so that vehicles do not have to be driven across taxiways and runways.

Airport Signs, Marking and Lighting

The FAA updated standards for runway marking and signs, eliminating confusion on airfields. Some of those updates include:

- Changing the airfield markings (paint) standard for taxiway centerlines at 75 airports (based on enplanements) to require new markings that will alert pilots when they are approaching hold short lines.

- Working with airport operators to install stop bars at certain runway/taxiway intersections. A stop bar is a series of in-pavement and elevated red lights that indicate to pilots that they may not cross.

Recommending that airports improve how they provide information on rapidly changing runway and taxiway construction and closings. The FAA wants airports to provide airlines and pilots with diagrams giving the latest information on runway construction and closings. This would be

distributed by email, on a web site or hand-delivery. It would supplement Notices to Airmen (NOTAMS), which are printed as text or delivered verbally, and thus do not have diagrams.

Runway Safety Areas

- Since the late 1980's the FAA has had in effect standards for runway safety areas that exceed ICAO standards.

- The FAA accelerated the improvement of runway safety areas that do not meet agency design standards. Since 2000, 78 percent of the runway safety areas identified as "high priority" have been improved as of October 2009. The FAA expects to make all practicable improvements made by 2015.

- The FAA, in partnership with industry and airport operators, conducted research to develop a soft-ground arrestor system, to quickly stop aircraft that overrun the end of a runway. On the basis of that research, the FAA issued a specification for Engineered Material Arresting Systems, or EMAS. An EMAS bed provides a safety enhancement on runway ends where there is not enough level, cleared land for a standard runway safety area. EMAS has been installed at more than 44 runway ends at 28 airports with plans to install 16 additional EMAS systems at 11 additional airports in the United States.

Pilot Guide to Airport Signs and Markings

Airport Signs — Action or Purpose

4-22 **TWY/RWY HOLD POSITION:** Hold Short of Runway on Taxiway

Also . . . **RWY/RWY HOLD POSITION:** Hold Short of Intersecting Runway

8-APCH **RWY APCH HOLD POSITION:** Hold Short for Acft on Approach

ILS **ILS HOLD POSITION:** Hold Short of ILS Critical Area

⊖ **NO ENTRY:** Identifies Paved Areas Where <u>Aircraft</u> Entry is Prohibited

B **TAXIWAY LOCATION:** Identifies Taxiway on Which Aircraft is Located

22 **RUNWAY LOCATION:** Identifies Runway on Which Aircraft is Located

4 **RUNWAY DISTANCE REMAINING:** Identifies Runway Length Remaining

RUNWAY BOUNDARY: Exit Boundary of Rwy Protected Areas

ILS CRITICAL AREA BOUNDARY: Exit Boundary of ILS Critical Area

L→ **RUNWAY EXIT:** Defines Direction & Designation of Exit Twy from Rwy

Also . . . **TWY DIRECTION:** Defines Direction & Designation of Intersecting Taxiway(s)

22↑ **OUTBOUND DESTINATION:** Defines Directions to Take-Off Runways

↖MIL **INBOUND DESTINATION:** Defines Directions for Arriving Aircraft

TAXIWAY ENDING MARKER: Identifies Twy Does Not Continue

↙A G L→ **DIRECTION SIGN ARRAY:** Identifies Location in conjunction with Multiple Intersecting Taxiways

Read back instructions to enter a runway, "hold short," or "position and hold." Read back ENTIRE instruction!

If in Doubt, **ASK!**

ATCT Light Gun Signals

Color and Type of Signal	Aircraft on the Ground
STEADY GREEN	**Cleared for Takeoff**
FLASHING GREEN	**Cleared to Taxi**
STEADY RED	**STOP**
FLASHING RED	**Taxi Clear of the Runway in Use**
FLASHING WHITE	**Return to Starting Point on Airport**
ALTERNATING RED/GREEN	**Exercise Extreme Caution**

Elevated Guard Lights Hold Short

In-Pavement Guard Lights Hold Short

Help Prevent Runway Incursions!

Pilot Guide to Airport Signs and Markings

Airport Markings

HOLDING POSITION:
Hold Short of Intersecting Rwy
Also Land and Hold Short Marking

MOVEMENT AREA BOUNDARY:
Defines Boundary of Movement
Area and Non-Movement Area

ATC permission is ALWAYS required to cross from the solid side to the dashed side

HOLDING POSITION with ENHANCED TAXIWAY CENTERLINE

TAXIWAY/TAXIWAY HOLDING POSITION: Hold Short of Intersecting Taxiway When Directed by ATC
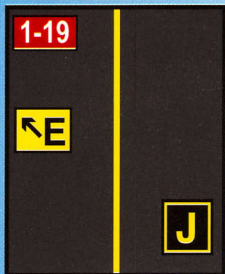
TAXIWAY EDGE: Defines Edge of Usable Full Strength Taxiway Pavement. Adjoining Pavement NOT Usable

ILS CRITICAL AREA: Hold Short During IMC Conditions

DASHED TAXIWAY EDGE: Defines Edge Taxiway Where Adjoining Pavement or Apron IS Available for Taxi

1-19

↖E

J

SURFACE PAINTED HOLDING POSITION: Hold Short of Intersecting Runway on Twy

SURFACE PAINTED TAXIWAY DIRECTION: Direction & Designation of Intersecting Twy

SURFACE PAINTED TAXIWAY LOCATION: Identifies Twy on Which Aircraft is Located

Help Prevent Runway Incursions!

(Graphics not to scale)