DETROIT METRO • WILLOW RUN
WAYNE COUNTY AIRPORT AUTHORITY

FAR 139.329 Ground Vehicle Operations on Movement & Safety Areas
Tug and Tow/Run-Taxi Operators

Revised 12/2022

Could this happen to you?

Springfield-Branson Airport, June 27, 2018
(click here to play video)

Airport Movement Area Initial Training for Tug and Tow/Run Taxi Operators - Outline

- **Topics**
  - FAR 139/FAA and WCAA Letter of Agreement and Movement Areas
  - Prerequisites to Operate a Vehicle on Movement Areas
  - Airport Movement and Non-Movement Areas
  - Low Visibility/SMGCS
  - Runway Protected Areas
  - Airfield Markings, Lights, and Signs
  - Situational Awareness
  - Airfield Safety and Runway Incursion Awareness/Prevention
  - Airfield Radio Communications and Procedures
  - Airfield Familiarization
  - Ground Run-up Enclosure (GRE) Operations
- **Evaluations**
  - Airfield Safety Exam
  - Map Test

Why are we here? FAR 139

- FAR 139 states that airport operators (Wayne County Airport Authority) shall control access to the airport's movement area.
  - This includes tug and tow operations as well as aircraft taxiing without the intent of flight.
- It also states that training shall be conducted and completed before individuals can access the movement area.
  - Once the initial training is complete, recurrent training must be completed at least once every 12 consecutive calendar months.
  - The training curriculum for initial and recurrent training must include at least the following areas.
    - Airport familiarization, including airport marking, lighting, and signs system.
    - Procedures for access to, and operations in, movement areas and safety area.
    - Airport communications, including radio communication between the air traffic control tower and personnel, and procedures for reporting unsafe airport conditions.

Why are we here? Letter of Agreement (LOA) – Between the FAA and the Wayne County Airport Authority

- States that tug and tow/run taxi personnel must receive prior approval from ATC before accessing the AMA.
- The LOA states that tow and tug/run-taxi operators shall use the following communications procedures, structure, and phraseology when communicating with DTW ATC:
  - On initial contact state:
    - Who the operator is calling “Metro Ground”
    - Operator’s call sign. (wait for controller response)
    - Operator’s location.
    - Operator’s destination or request, if applicable purpose of request.
    - Keep all transmissions short, concise, and to the point.
    - Read back verbatim all runway hold short instructions and all other controller instructions and include the vehicle’s call sign.

What are the Prerequisites to Operate on the Movement Area?

Operators must have:

- a valid and current state-issued driver's license, not suspended or revoked.

- a valid and current airport security badge with the AMA icon on it issued by Airport Security, not suspended or revoked.
- a valid reason for entering the movement area (must be related to work duties that have to be performed on the movement area).
- a current training date (no more than 12 consecutive calendar months since date of previous training)

What are the Components of the Non-Movement Area?

- **Taxilanes – Provide routes for aircraft between ramps/aprons and movement areas. They are ONLY found in Non-Movement Areas.**

- **Ramps (Aprons) – Used for aircraft parking, loading, and servicing.**

- **De-Ice Pads – Used for the deicing of aircraft prior to takeoff.**

Aircraft and vehicle movements are NOT controlled by FAA Air Traffic Control Tower (ATCT).

- Permission from ATCT to enter non-movement areas is not required.

What are the Components of the Movement Area?

- **Runways** – Are protected areas used for aircraft taking off and landing.

- **Taxiways** – Provide routes between Non-Movement Areas and runways. They are like taxilanes but are found ONLY on Movement Areas.

Aircraft and vehicle movements ARE controlled by FAA Air Traffic Control Tower (ATCT)

Entering a Movement Area or a Runway without ATCT permission, will result in the person being charged with a SURFACE INCIDENT or RUNWAY INCURSION.

SMGCS Plan

- **What does "SMGCS" stand for:**

  Surface Movement Guidance and Control System

- **What is the SMGCS Plan:**

  A low visibility taxi plan required for any airport which has scheduled air carrier takeoff or landing operations with less than 1,200 feet runway visual range (RVR) visibility conditions.

- **This plan affects flight crew, tug/tow, run/taxi, and vehicle operators.**

- **It reduces the potential for runway incursions by improved signage, lighting and markings.**

- **Movement Area access is limited to those supporting the plan. <u>ALL tug and tow/run taxi operations are suspended.</u>**

Runway Protection Areas

- **Runway Safety Areas (RSA)**
- **Runway Protection Zone (RPZ)**
- **Instrument Landing System (ILS)**

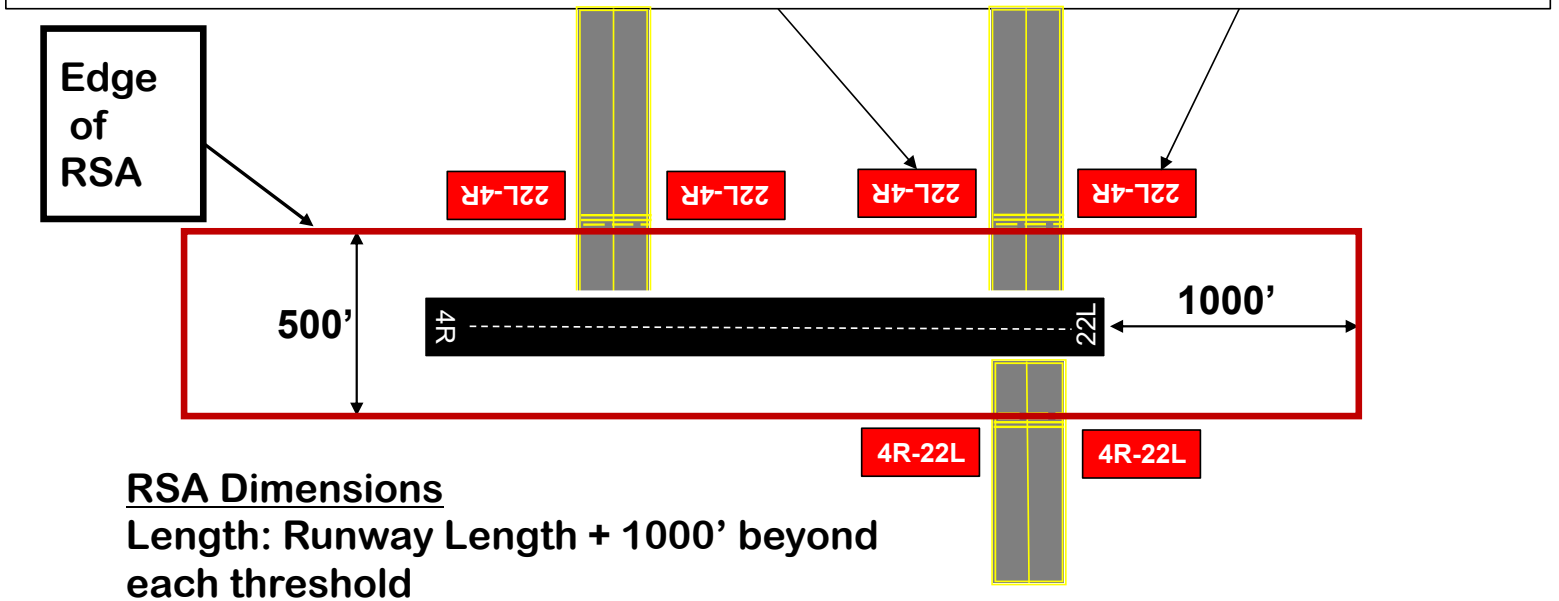
Runway Safety Area (RSA)

The RSA is an invisible imaginary surface but is made apparent by signs and markings, in most cases lights too.

DO NOT CROSS WITHOUT ATC PERMISSION

What does the RSA look like?

Runway Holding Position Signs and markings are always located at taxiways prior to entering a Runway Safety Area.



RSA Dimensions

Length: Runway Length + 1000' beyond each threshold

Width: 500' centered over runway

Instrument Landing System (ILS)

The ILS is an invisible imaginary surface but is made apparent by signs and markings.

DO NOT CROSS WITHOUT ATC PERMISSION

What do you need to know about the ILS?

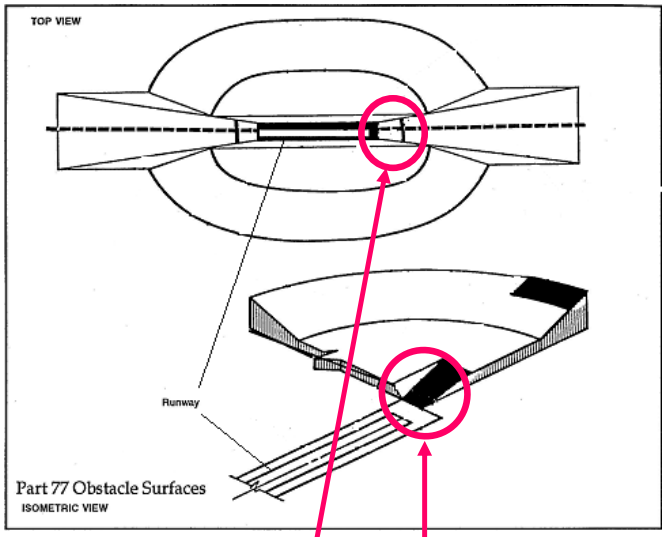
- **The ILS is used to assist aircraft in landing.**
- **An aircraft can use ILS signals to land at any time, regardless of weather conditions. Good weather is NOT an indication that an ILS is not being used.**
- **Vehicles, aircraft, equipment, or other objects in an ILS critical area could interfere with an ILS signal and pose a safety hazard to aircraft using the ILS.**
- **Operators have no way of knowing when an aircraft is using an ILS.**

Runway Protection Zone (RPZ)

The RPZ is an invisible imaginary surface but is made apparent by signs and markings.

DO NOT CROSS WITHOUT ATC PERMISSION

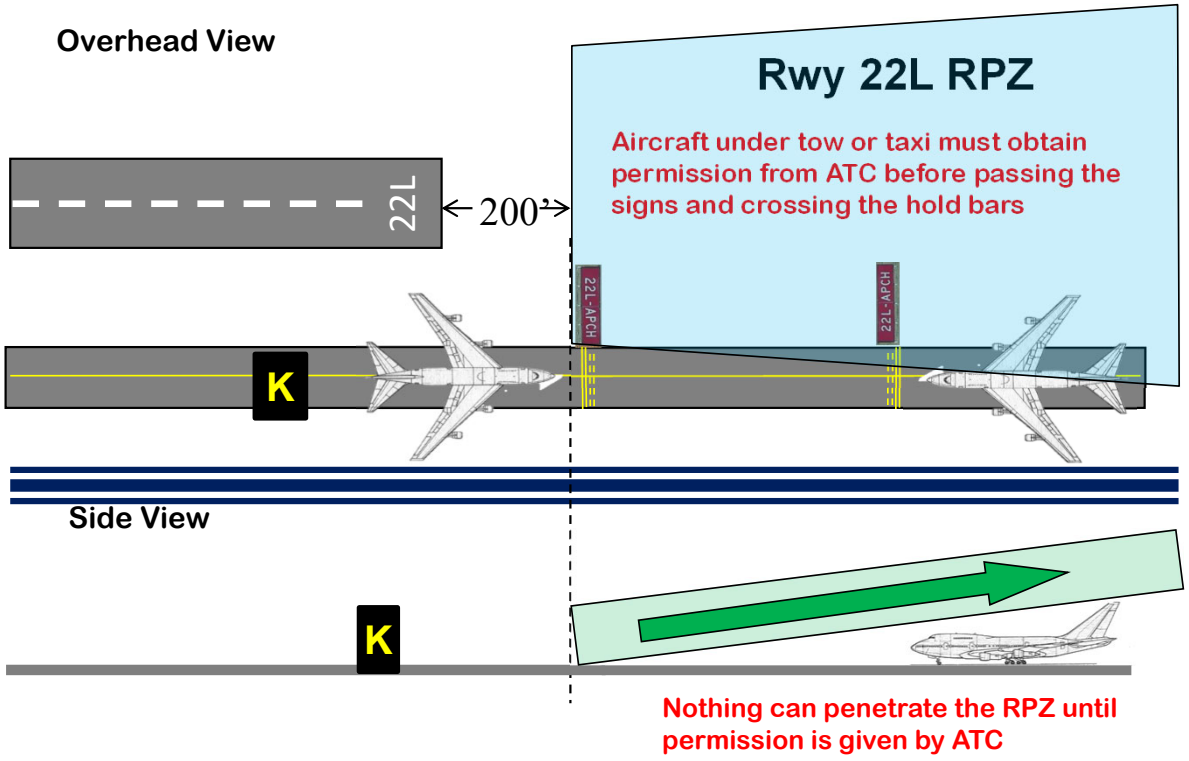
What is the RPZ?



RPZ: Do not penetrate this imaginary surface without ATCT clearance

- An RPZ is an area off the runway end used to help protect people and property under the approach to the runway. The RPZ is trapezoidal in shape and centered on the extended runway centerline.
- The approach above the RPZ is protected by an imaginary surface. The surface starts at ground level 200 feet from the threshold of the runway and slopes up and away from the runway.
- The surface cannot be penetrated by aircraft, vehicles, or other objects without ATC permission.

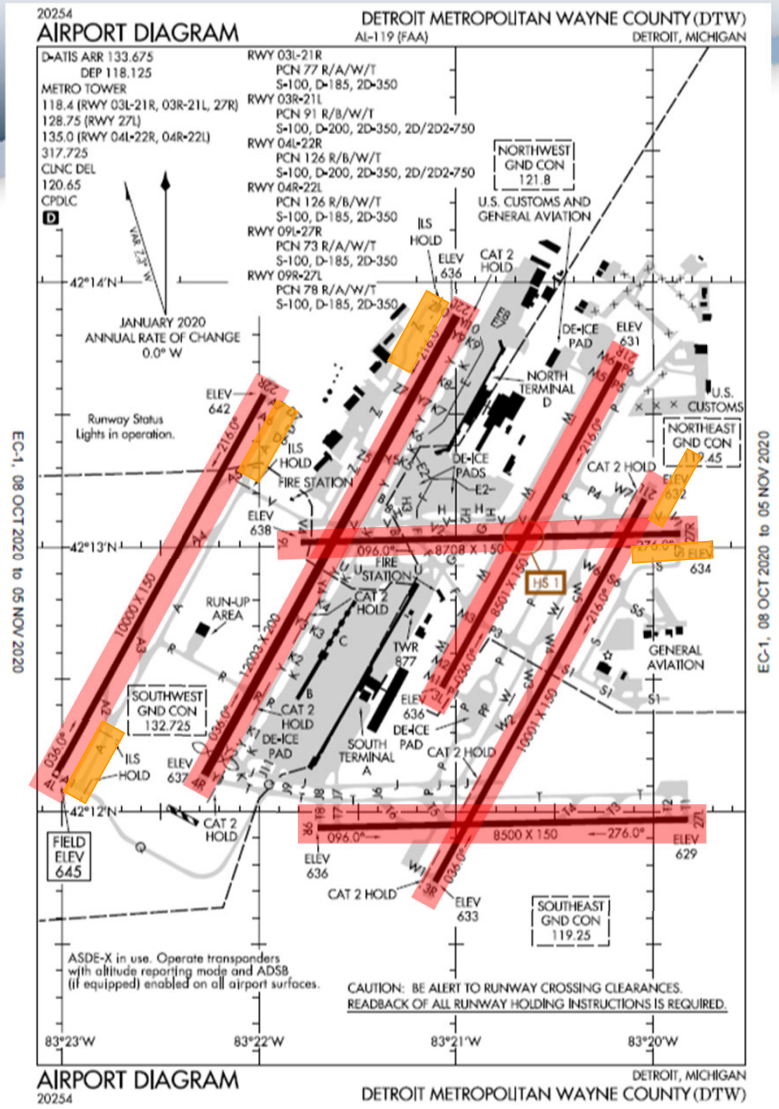
Where at DTW should I be concerned about an RPZ?



Overview of RSAs and ILSs

Runway Safety Areas

ILS Critical Areas

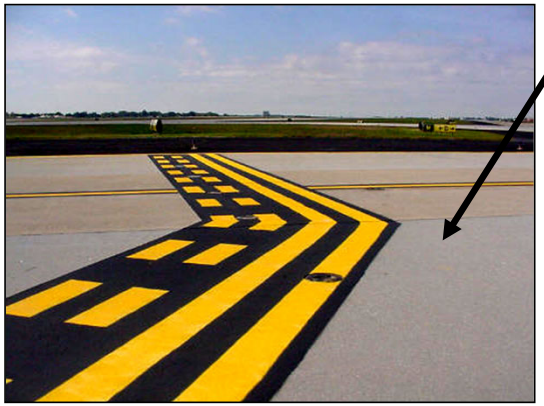


Airfield Markings

- Runway Holding Positions
- Movement/Non-movement
- ILS Critical Area Holding Position
- Taxiways
- Geographic Position Markings
- Runway

Runway Holding Position Marking

Hold Short on This Side



Identifies the position at which pilots and vehicle operators must hold short of a runway safety area or other protected area.

You must 

at the holding position until given permission to cross by ATC!

Which side do you hold short of?

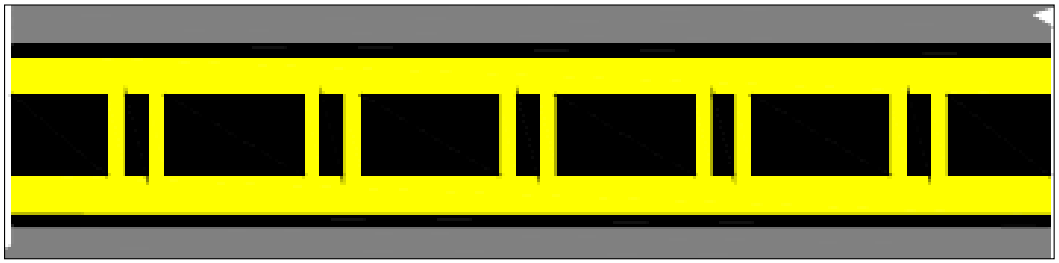
Movement/Non-Movement Boundary Marking

Non-movement side

Marks the boundary between movement and non-movement areas.

Which side is the non-movement side?

ILS Critical Area Holding Position Marking



Protects the area through which ILS signals are transmitted.

Vehicles and aircraft in the ILS critical area can interfere with the signals.

Taxiway Edge Line Marking

Continuous Taxiway Edge

No useable pavement for aircraft on the other side of the line.

Aircraft - yes

Aircraft - no

Dashed Taxiway Edge

Aircraft – OK both sides

Alt. Dashed Taxiway Edge

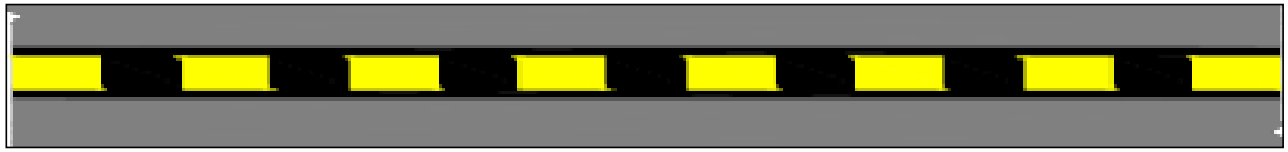
Dashed - aircraft can use pavement on both sides of the line.

OOPS!

Taxiway Edge Marking →

Photo on Airliners.net by SkyArts Aviation Photography

Taxiway Holding Position Marking



Can be seen approaching a taxiway intersection where ATC normally holds aircraft short of a taxiway intersection.

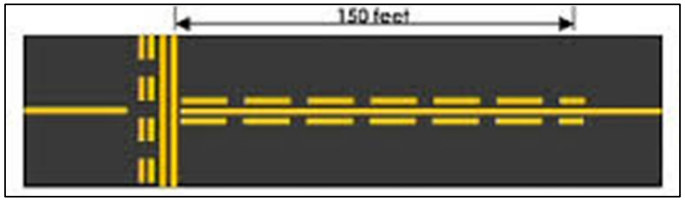
Allows adequate wingtip clearance for aircraft passing through the intersection.

Do not confuse this marking with movement/non-movement area boundary markings OR dashed taxiway edge lines.

Taxiway Centerline Marking

Provides pilots a visual cue to permit taxiing along a designated path.

Enhanced Taxiway Centerline Marking

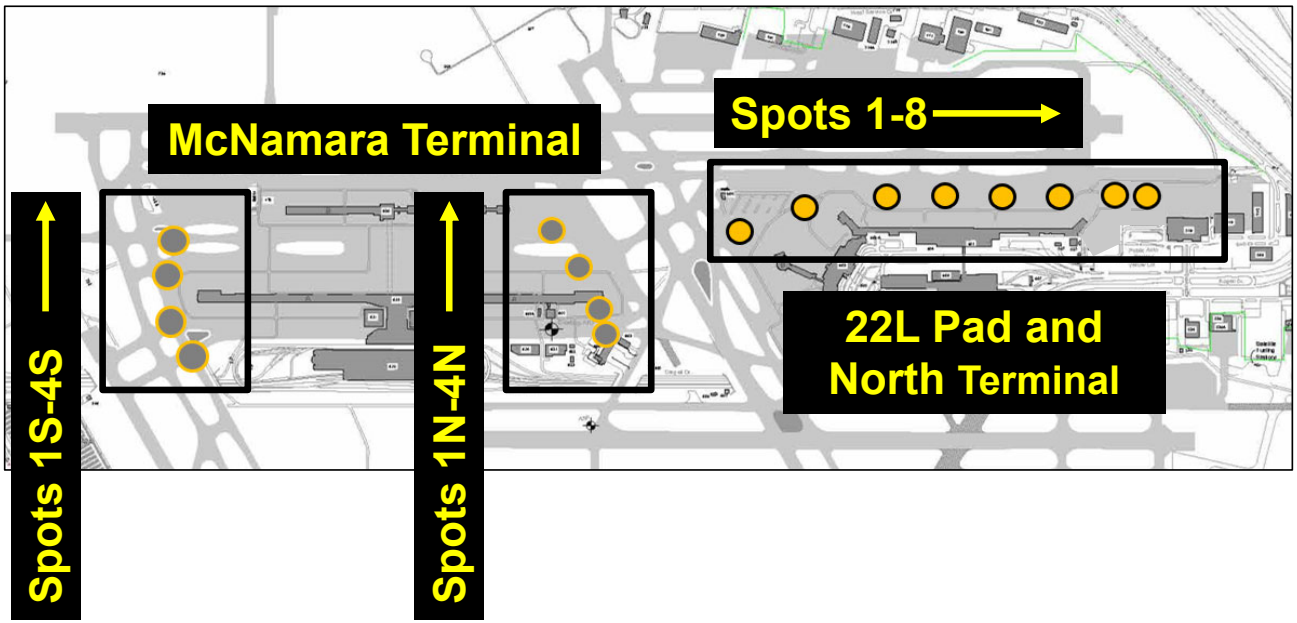


Gives warning that a runway hold short position marking is located ahead. Especially helpful during conditions of reduced visibility.

Be prepared to 

at the runway hold short position until cleared onto or across the runway by ATC.

Geographic Position Markings - Overview

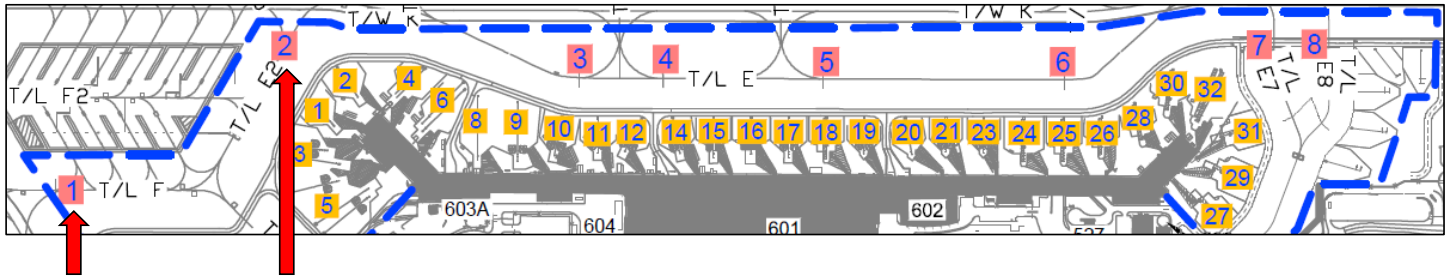


Geographic Position Marking – North Terminal

- Spots are “shorthand” for giving locations on selected taxilanes.
- Two spots are near the 22L deice pad.
- Four spots are parallel to and west of the North Terminal (Taxilane E).
- Two spots are at the north end of the North Terminal.
- Each spot at the North Terminal is a black number on yellow background.

Geographic Position Marking Locations at the North Terminal

Single-digit numbers, numbered south to north.



22L Deice Pad

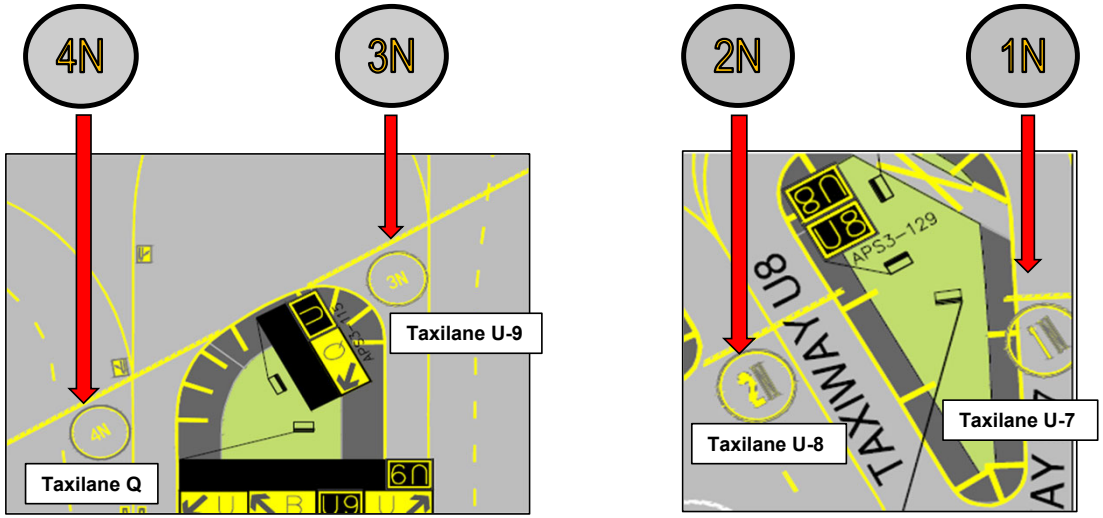
Geographic Position Marking – McNamara Terminal

- **Spots are “shorthand” for giving locations on selected taxilanes.**

- **Combination of a number and letter, numbered east to west.**

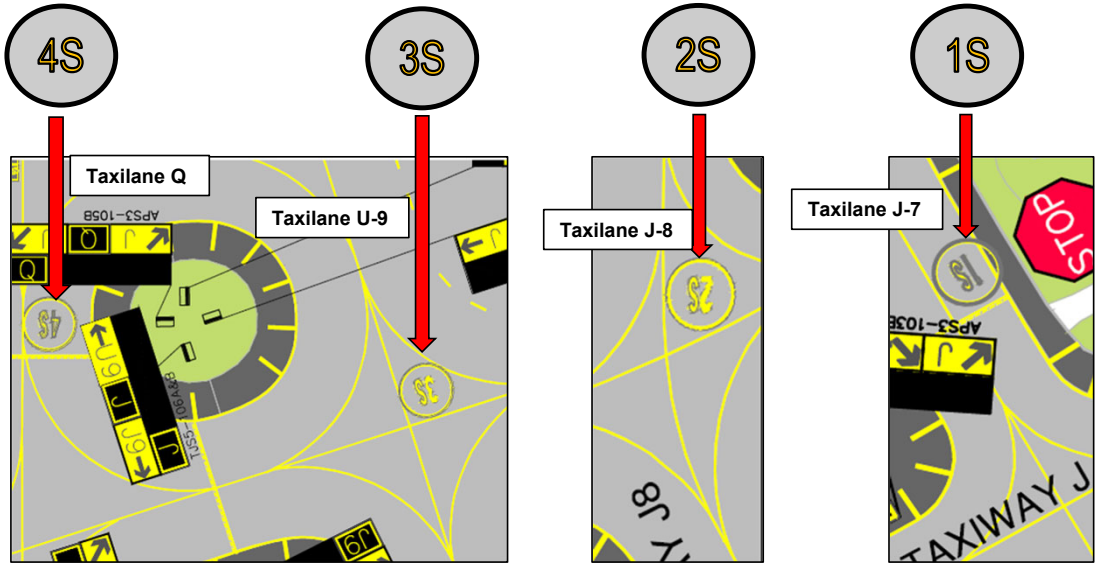
Geographic Position Marking Locations at the McNamara Terminal

North End

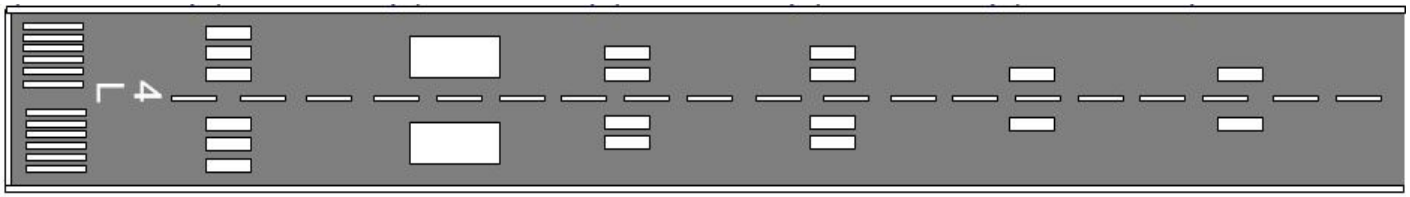


Geographic Position Marking Locations at the McNamara Terminal

South End



Runway Markings



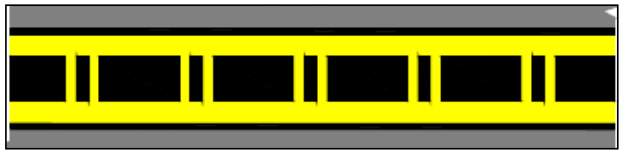
Runway markings come in a variety of sizes and shapes. They are all WHITE. If you are seeing white markings, YOU ENTERED A RUNWAY. If you did NOT receive permission from ATCT to be on the runway, EXIT IMMEDIATELY, call ATCT, and tell them where you are!

Airfield Markings - Review

Runway Holding Position

Movement/Non-Movement Area Boundary

Taxiway Holding Position



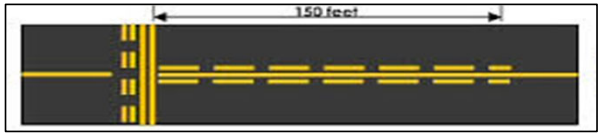
ILS Critical Area Holding Position

Continuous Taxiway Edge

Dashed Taxiway Edge

Dashed Taxiway Edge

Taxiway Centerline



Enhanced Taxiway Centerline

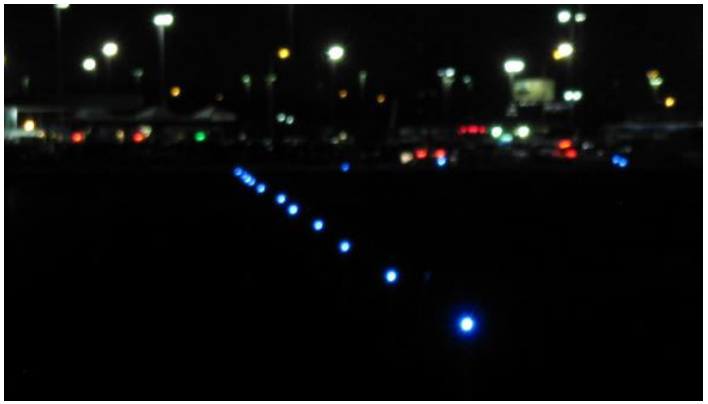
Airfield Lighting

- Taxiway Lights
- Runway Lights
- Runway Guard Lights
- Runway Status Light System

Taxiway Edge Lights

Taxiway edge lights identify the edge of the usable taxiway surface at night and during periods of low visibility.

Taxiway edge lighting is blue.



Taxiway Centerline Lights

Taxiway centerline lights are green.

They are placed on selected taxiways to assist pilots with taxiing at night and during periods of reduced visibility.

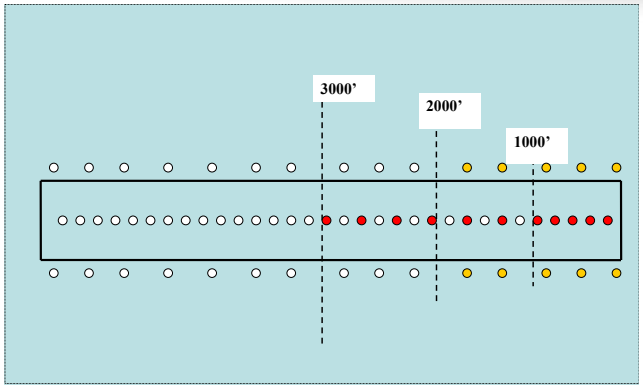
They are also placed on Rwy 9L/27R between 4R/22L and 3L/21R, since that section of runway is normally used as a taxiway.

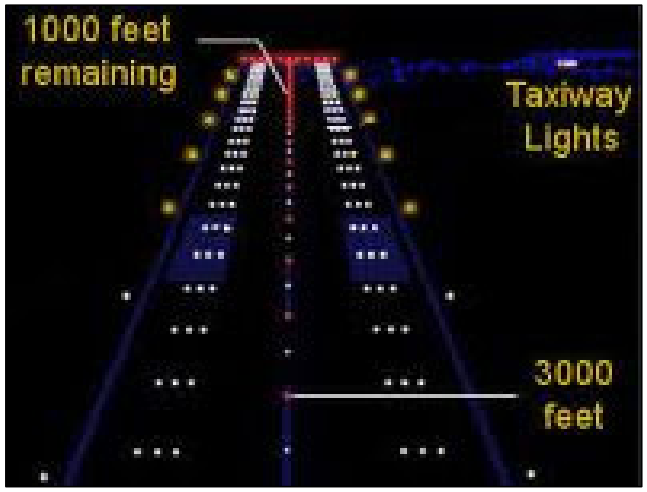
Runway Edge Lights

Runway edge lights Identify the edge of the usable runway surface at night and during periods of low visibility.

Runway edge lights are clear (or white), except for the last 2000’ of certain runways. The half of the lights facing the pilot are amber.

Runway Centerline Lights





Runway centerline lights give pilots a visual reference for the centerline.

They are clear (or white), except for the last 3000' of certain runways.

Starting at 3000' remaining, the lights are alternating red and white.

Starting at 1000' remaining, the lights are all red.

Runway Threshold Lights

Used to mark the end of useable runway pavement for aircraft.

Arranged in two sets of four lights.

Lights are split into two colors:

Green face away from runway

Red face towards the runway

Runway Guard Lights

Elevated Runway Guard Lights

Used to identify the holding position for a runway especially at night and during periods of low visibility.

Elevated runway guard lights are amber.

Runway Guard Lights

In-Pavement Runway Guard Lights

In-pavement runway guard lights are co-located with runway hold bars, above-ground runway guard lights, and hold position signs. These lights are yellow.

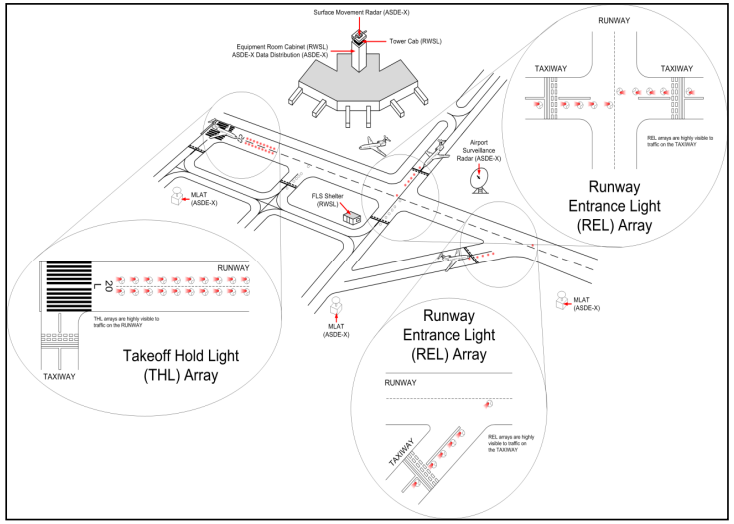
At this time, these lights are only installed at certain taxiway intersections at DTW.

Runway Guard Lights

In-Pavement and Elevated Runway Guard Lights at Night

Runway Status Light System

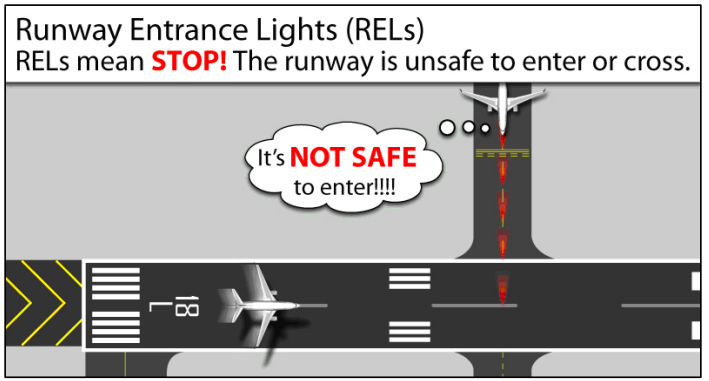
- Provides visual signal to pilots and vehicle operators that it is unsafe to enter, cross, or begin takeoff on a runway.
- Designed to reduce the number of runway incursions without interfering with normal and safe airport operations
- Automatic system that gives an added layer of safety for the runway environment
- Gives warning of a potential conflict on a runway between aircraft and/or vehicles
- Indicates runway status only



Does not give or imply clearance to cross a runway

Runway Status Light System

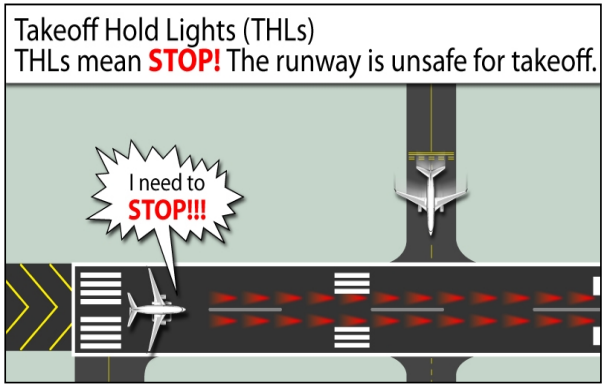
- **DO NOT PROCEED** after the lights go out until ATC <u>specifically tells you to.</u>
- If ATC tells you to proceed and the lights are “on”, DO NOT PROCEED – HOLD YOUR POSITION.
- Call ATC and tell them “[call sign] is holding short of Runway XX at Taxiway X due to red lights.”
- If ATC tells you to proceed and the lights come on after you cross the hold short position. CLEAR THE RUNWAY IMMEDIATELY AND CALL ATC.



Runway Status Light System

Takeoff Hold Lights (THLs)

- THLs tell pilots to STOP because of a potential conflict further down the runway.
- No action is required by vehicle operators, but know they are there.



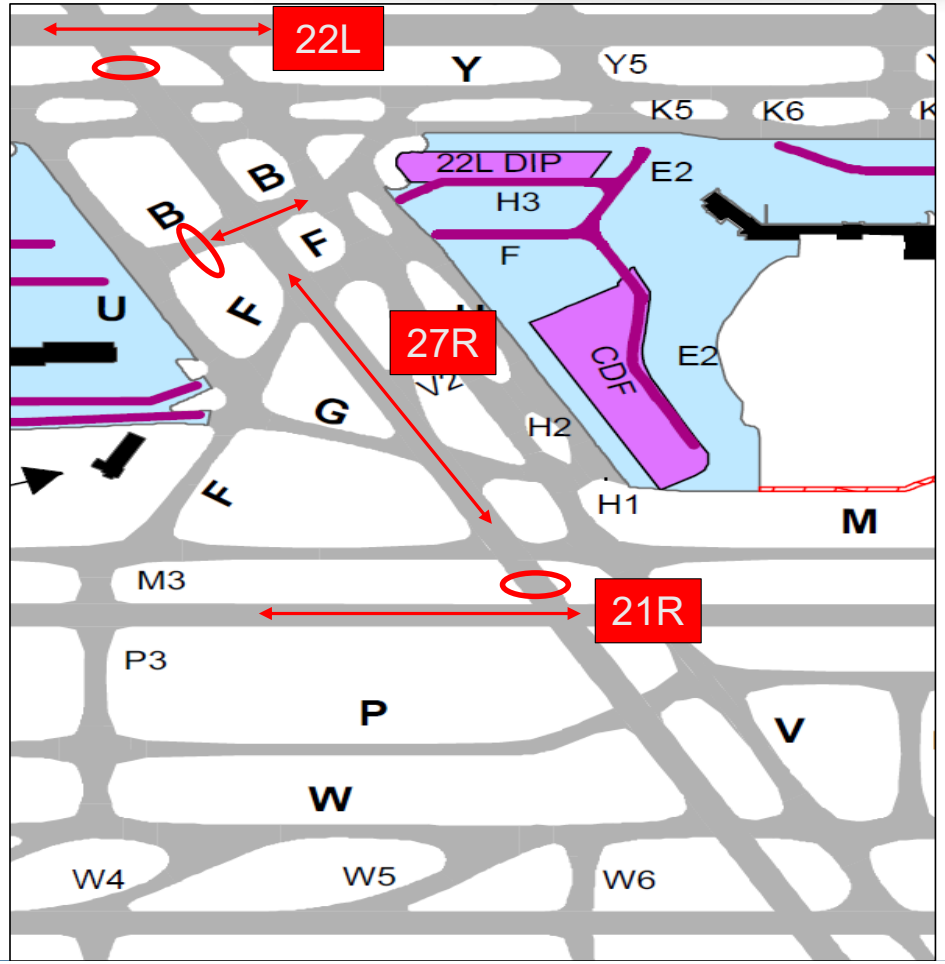
Runway Stop Bar Lights

- Can be placed at select runway/runway and taxiway/runway intersections to highlight potentially hazardous runway hold positions.
- Lights are uni-directional, steady red color (do not flash).
- There are two different types.

In-pavement located at all locations

Elevated located at certain locations

Runway Stop Bar Lights – Locations



There are three locations to be concerned with

- Two are located on Runway 27R:
- One at Runway 21R
- The other at Runway 22L
- The third one is located on Taxiway B on the south of Runway 27R

Airfield Signage

- Taxiway Location
- Taxiway Directional
- Surface Painted

Taxiway Location Signage

Identifies the taxiway on which the aircraft or vehicle is located.

The inscription is yellow with a black background.

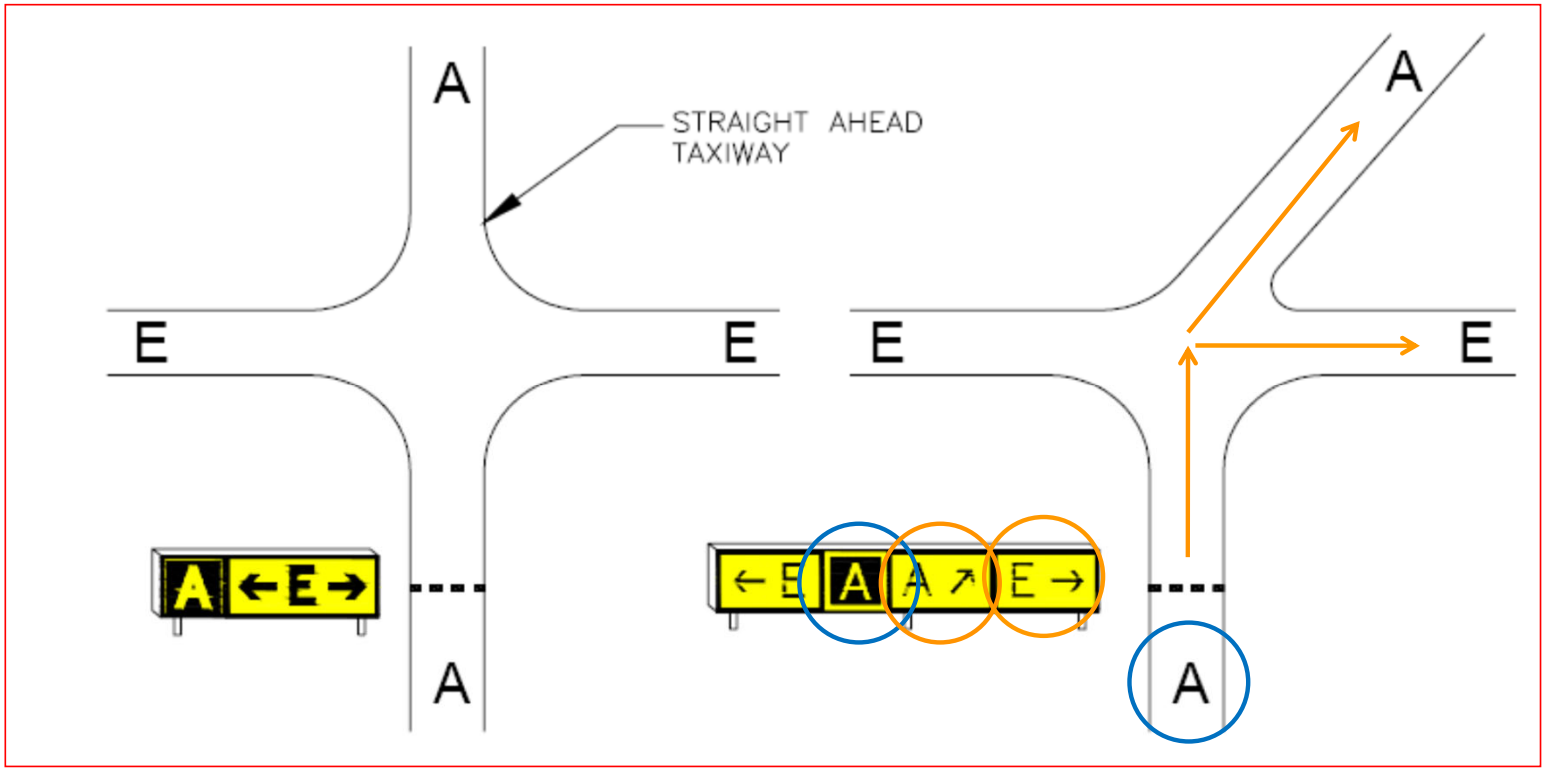
Taxiway Directional Signage

Identifies the direction(s) in which a taxiway goes.

The inscription is black with a yellow background.

Taxiway location and directional signs are often co-located together in a sign array.

Taxiway Signage Arrays



Arrows on yellow signs point in the direction of a turn ahead

Surface Painted Signage

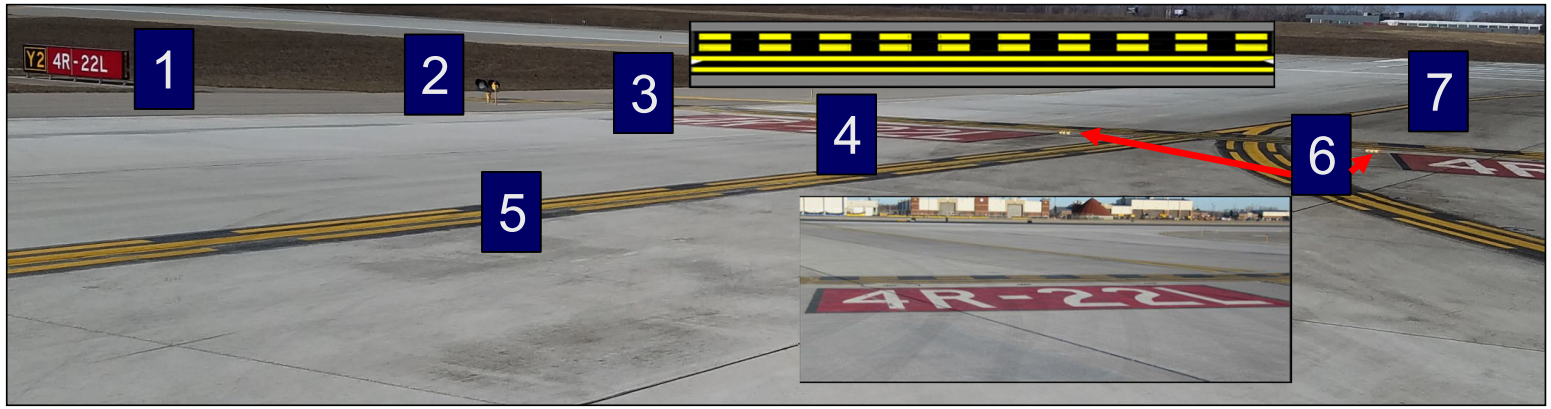
- Signs can also be painted on the pavement
- They look just like their physical counterparts

Surface Painted Runway Holding Position

Surface Painted Taxiway Location

Surface Painted Taxiway Directional

What are the 7 indications that you're approaching a runway hold position? (some are not at all intersections)



1. Mandatory Hold Position Sign
2. Elevated Runway Guard Lights
3. Runway Holding Position Bar
4. Surface Painted Hold Position Sign
5. Enhanced Taxiway Centerline
6. In-Pavement Runway Guard Lights
7. Runway Status Lights

Radio Communication and Procedures

Radio Communication the Basics

- **Always use standard FAA ATCT phraseology**
- **Know what you are going to say before you say it**
- **Listen to radio traffic before transmitting.**
- **Do not interrupt other radio transmissions**
- **Listen closely to all instructions**
- **Never make assumptions. If you are not sure of your instructions, then ask ATCT to say it again**
- **Read back all instructions, especially Hold Short instructions and other runway instructions**
- **Always monitor ground control while in the movement area**
- **Make sure equipment is working properly before entering the movement area**
- **IMPORTANT: if you need permission to enter or drive on the movement area, do <u>not</u> proceed without ATCT instructions.**
- **If you cannot contact a controller after repeated attempts:**
  - **<u>Lack of response from ATCT does not imply permission to proceed.</u>**

Radio Communication the Basics

- How can listening to the aviation (“FAA”) radio help me?

  SITUATIONAL AWARENESS

  - Let's you hear where aircraft are and where they’re going.
  - Helps you form a “mental map” of what’s going on.
- What am I listening for?
  - Pilots/ vehicle operators giving their location and requesting instructions to go somewhere.
  - Controllers telling pilots/vehicle operators what route or routes to take.
  - Potential conflicts between you and aircraft/vehicles.

FAA Phraseology

- **Roger** – I have received all of your transmission.
  Not to be used to answer "Yes" to a question.
- **Wilco** – I have received your transmission and I will comply.
- **Affirmative** – Yes
- **Negative** – No
- **Acknowledge** – Confirm that you have received my message.
- **Read back** – Repeat message.
- **Say Again** – Request a repeat of instructions.
- **Stand By –** Wait, controller is busy with other tasks. May require waiting several minutes.

FAA Phraseology

- **Go Ahead** – State your request.
- **Proceed** – Authorization to begin/continue driving
- **Advise intentions** – What do you plan to do.
- **Without Delay** – Proceed with approved instructions immediately.
- **Expedite** – Comply promptly with instruction.
- **Immediately** – NOW!
- **Unable** – Indicates inability to comply.
- **Hold** – Stay in place, do not move.
- **Hold Short** – Hold short of a specific point as instructed by the controller. Often at Runway/Taxiway intersections

Phonetics

Letters

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

What are the Radio Frequencies at DTW

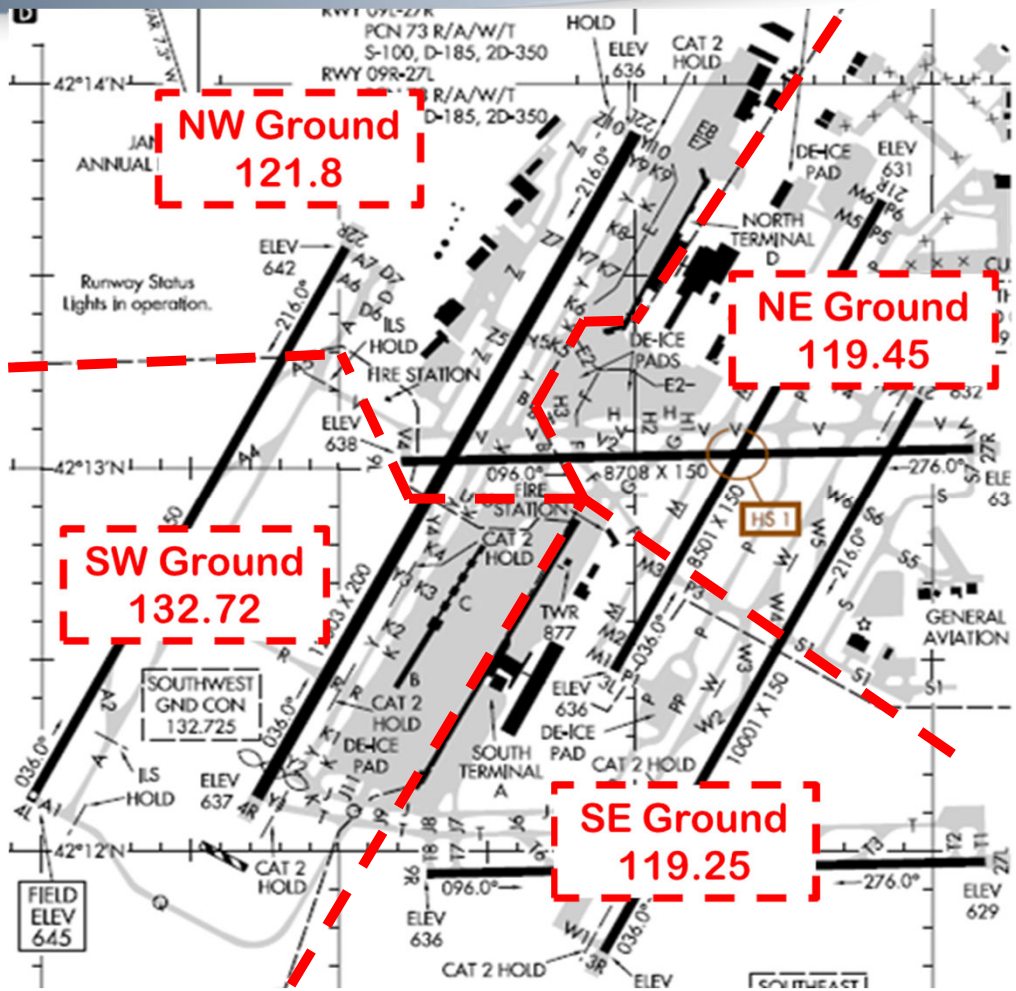
Ground Control Frequencies:

- 121.8 (North)West Ground
- 119.45 (North) East Ground
- 119.25 Southeast Ground
- 132.725 Southwest Ground

ATIS (Automated Terminal Information System)

- 133.675 ATIS Arrivals- Automated Terminal Information System
- 118.125 ATIS Departures

A Map View of the Radio Frequencies



What's a Read Back? AND What do you need to know about them?

- **What is a Read Back?**

  Repeating an ATCT instruction verbatim.
- **You will hear pilots and drivers reading back instructions.**
- **Readbacks give you a second chance to hear a controller's instructions and help you maintain "situational awareness."**
- **You are required to read back ALL runway instructions, especially HOLD SHORT instructions.**
- **Other Read Back instructions:**
  - **To drive requested routes.**
  - **To change frequencies.**
  - **That are changes to previous Instructions.**

What do ATCT Controllers expect to hear when you make initial contact with them?

1. Who you are calling (Metro Ground)
2. Who you are (your call sign)
3. Where you are (your location)
4. Where are you going

Communication Example #1 – SkyWest

Who you are calling and Who you are:

"Metro Ground SkyWest Maintenance"

Pause & wait for acknowledgement from ATCT:

ATCT response:

"SkyWest Maintenance Metro Ground"

Who are you, Where are you, and Where are you going (Request):

"SkyWest Maintenance, is at company hangar need reposition to B-5

ATCT response:

"SkyWest Maintenance proceed S-1, hold short of 21L"

Your Response:

"Skywest Maintenance proceeding S-1, hold short of 21L"

(continue)

Communication Example #1 (Continued) – SkyWest

You are on S-1 holding short of 21L:

ATCT states:

"SkyWest Maintenance cross 21L and proceed W-4, W, T, J-9, contact the ramp"

Your Response:

"SkyWest Maintenance, crossing 21L and proceeding W-4, W, T, J-9, contact the ramp"

You have crossed 21L:

You State:

"SkyWest Maintenance, is clear of 21L"

ATCT response:

"Roger SkyWest Maintenance"

Communication Example #2 – SkyWest

Who you are calling and Who you are:

"Metro Ground SkyWest Maintenance"

Pause & wait for acknowledgement from ATCT:

ATCT response:

"SkyWest Maintenance Metro Ground"

Who are you, Where are you, and Where are you going (Request):

"SkyWest Maintenance, is at 1S need reposition to company hangar"

ATCT response:

"SkyWest Maintenance proceed J, W, W-4, hold short of 21L"

Your Response:

"Skywest Maintenance proceeding J, W, W-4, hold short of 21L"

(continue)

Communication Example #2 (Continued) – SkyWest

You are on W-4 holding short of 21L:

ATCT states:

"SkyWest Maintenance cross 21L and proceed S-1 to the company hangar"

Your Response:

"SkyWest Maintenance, crossing 21L and proceeding S-1 to the company hangar"

You have crossed 21L:

You State:

"SkyWest Maintenance, is clear of 21L"

ATCT response:

"Roger SkyWest Maintenance"

What to do when you lose radio communication

- First stop and hold your location.
- Lack of response or direction does not imply permission.
- Attempt to resolve the issue.
- If you are unable to resolve the issue, turn your vehicle/aircraft towards the Tower, flash your lights, and follow light gun signals.
- If the edge lights for the runway or taxiway you are on start flashing, the ATCT is attempting to contact you. Call them on the radio! If your radio is not working, turn your vehicle towards the ATCT, flash your lights, and follow light gun signals.
- If all else fails, contact Airfield Operations at 734-942-3685. They will give you direction and if necessary, send a follow me vehicle to assist.

Understanding Light Gun Signals

COLOR AND TYPE OF SIGNAL	What is the tower telling you to do
Steady Green	Cleared to cross, proceed or go
Steady Red	Stop
Flashing Red	Clear the taxiway or runway
Alternating Green/Red	Exercise extreme caution
Flashing White	Return to starting point on airport

Runway Incursion Awareness and Airfield Safety

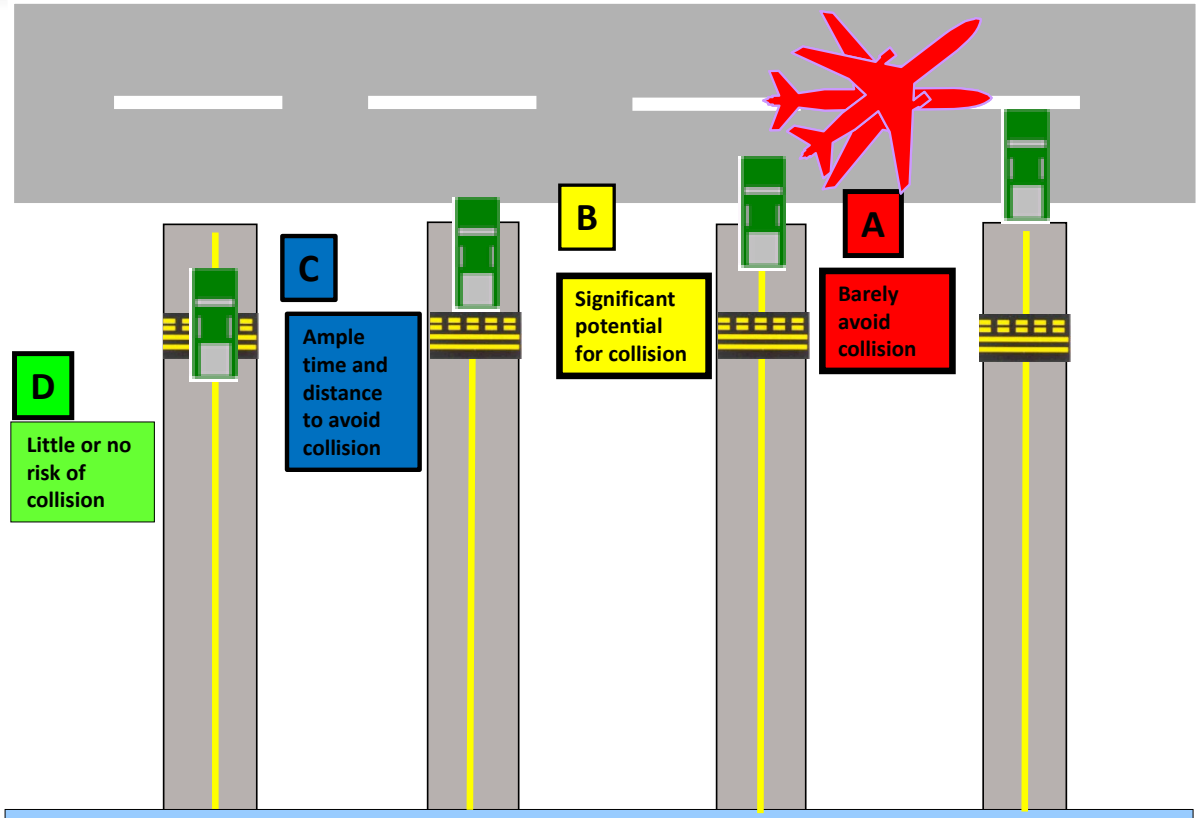
What is the FAAs Definition of a Surface Incident?

"Any event where unauthorized movement occurs within the movement area or an occurrence in the movement area associated with the operation of an aircraft that affects or could affect the safety of flight."

What is the FAAs Definition of a Runway Incursion?

"Any occurrence at an airport involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft."

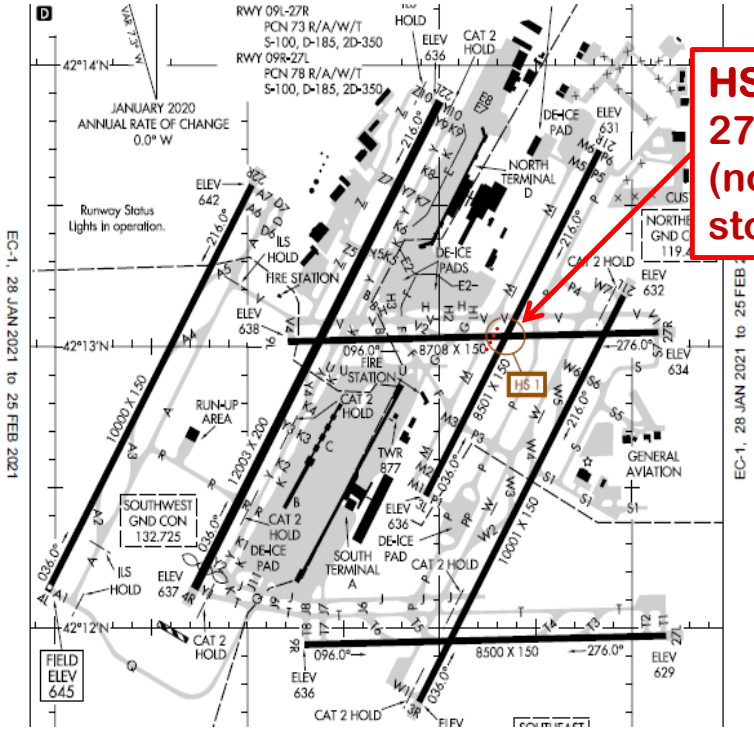
Runway Incursion Severity Categories



The above scenarios are all classified as runway incursions, but with different severity codes. In each case, the vehicle has penetrated the RUNWAY SAFETY AREA (crossed the hold position).

What is a Hot Spot and Where are they Located?

A “hot spot” is a location on the movement area with a high risk of collision or runway incursion, and where greater attention by pilots and drivers is necessary.



Situational Awareness

- Defined as “knowing what is going on so you can figure out what to do.”
- Can be broken down with answers to the following questions:
  - What is happening?
  - Why is it happening?
  - What could happen next?
  - What am I going to do about it?
- Another way to think of situational awareness while on the airfield:
  - Being aware of one's surroundings…
  - Identifying potential threats and dangerous situations…
  - And doing something about them.

What Factors can Cause you to Lose Situational Awareness?

- Complacency.
- Fixation on tasks.
- Pressure to hurry up and complete a task.
- Personal problems or other non-work events and situations that are on your mind.

What do all of these factors have in common?

They are DISTRACTIONS

3 Types of Distractions

- **Visual – Distractions that take your eyes off your surroundings.**
- **Physical – Distractions that take your hands off the steering wheel (if you are driving) or off the equipment you are operating.**
- **Mental – Distractions that take your mind off what you are doing or where you are.**

Here are some examples of visual distractions

- Fog
- Rain/Snow
- Darkness/Glare
- Obscured Pavement Markings
- Obscured Lights and Signs

What are the Consequences of a Runway Incursion?

1. **The individual's DTW Airport ID badge is immediately confiscated by WCAA.**
2. **The individual will not be allowed to re-enter the Airport Movement Area until the CEO receives a letter from the individual's supervisor indicating that the individual has been counseled and has received recurrent company training.**
3. **The individual's DTW Airport ID badge will not be returned until ground vehicle training and testing is conducted by the Airfield Operations Department.**
4. **Other discipline may be issued in accordance with individual company rules.**

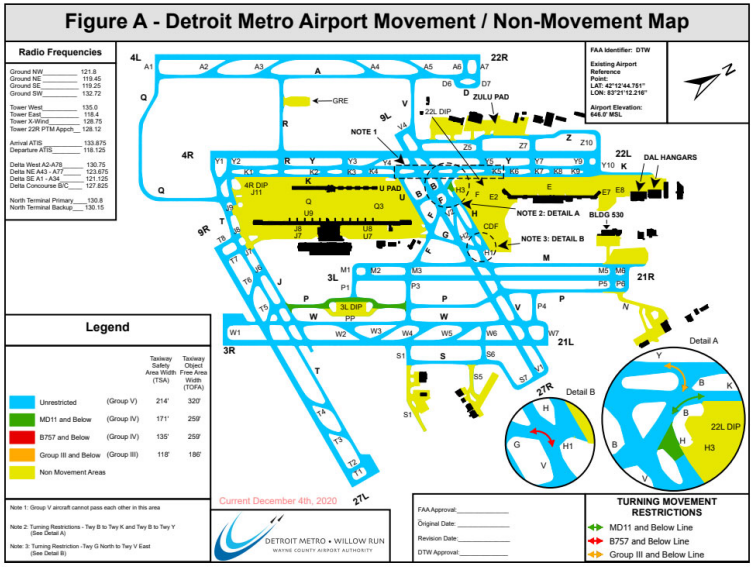
Consequences of a Runway Incursion

- The driver of this pickup truck, which was at the approach end of an open runway, saw a 747 on final approach.
- He jumped out of the vehicle and ran.
- The pilot reported feeling a “slight shudder” in the main gear just before landing.

Consequences of a Runway Incursion

- Two Boeing 747 jumbo jets collided head-on at the airport on Tenerife Island in 1977.
- Because of fog, missed communications, and one pilot's overconfidence and loss of situational awareness, one of the B-747's started its takeoff roll while the other was on the runway.
- In the resulting collision, 583 people died.
- For more details, Google "The True Story Behind the Deadliest Air Disaster of All Time".

Best Practices for Airfield Safety and Runway Incursion Prevention

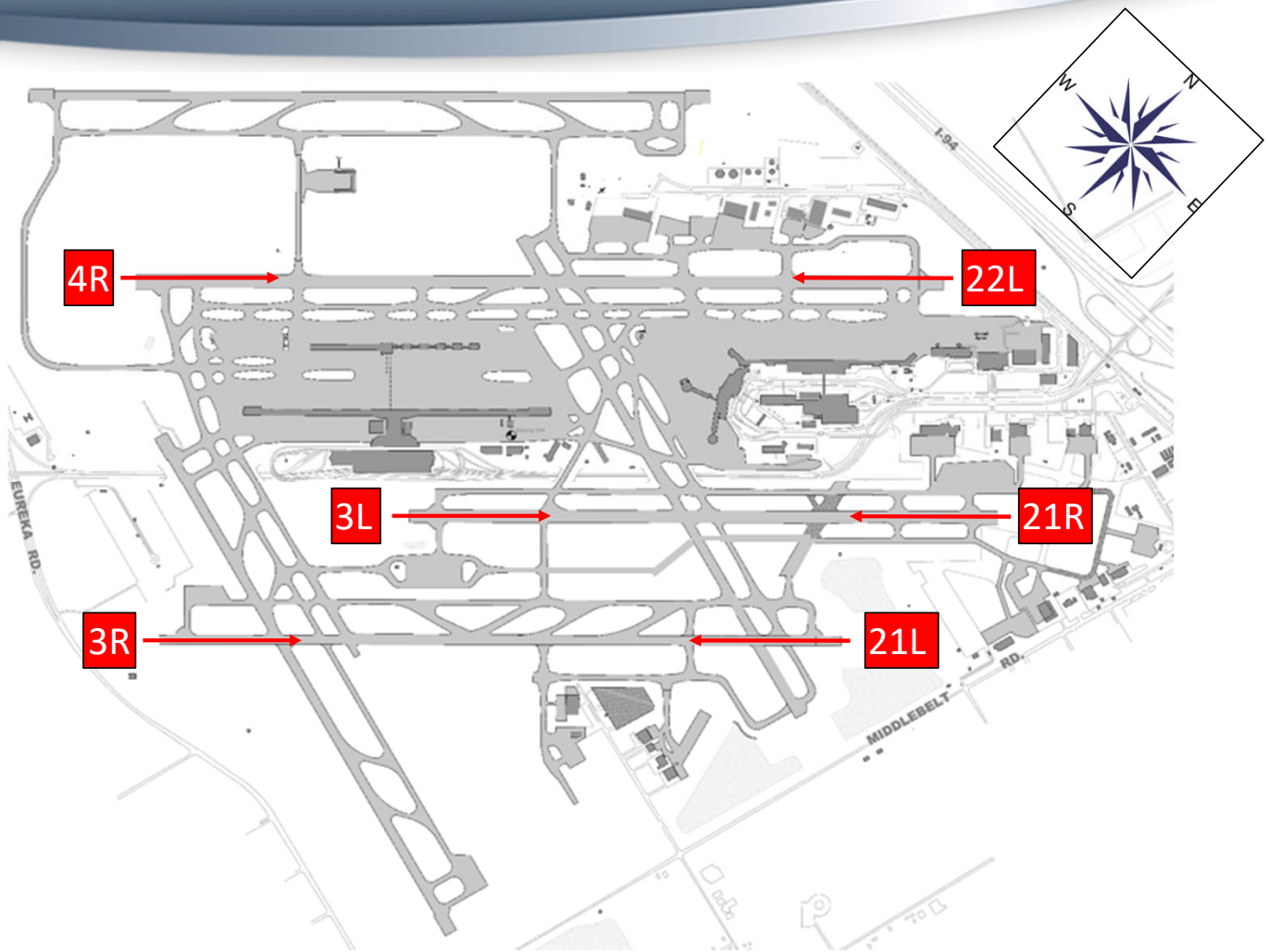


- Review and understand airfield signage and markings.
- Know the Airport Layout and have a copy of the movement map out and available.
- Follow established procedures.
- Never make assumptions while operating in the movement area.
- Use proper radio
- Read back all instructions verbatim.
- ASK QUESTIONS IF THINGS “JUST DON’T SEEM RIGHT!”

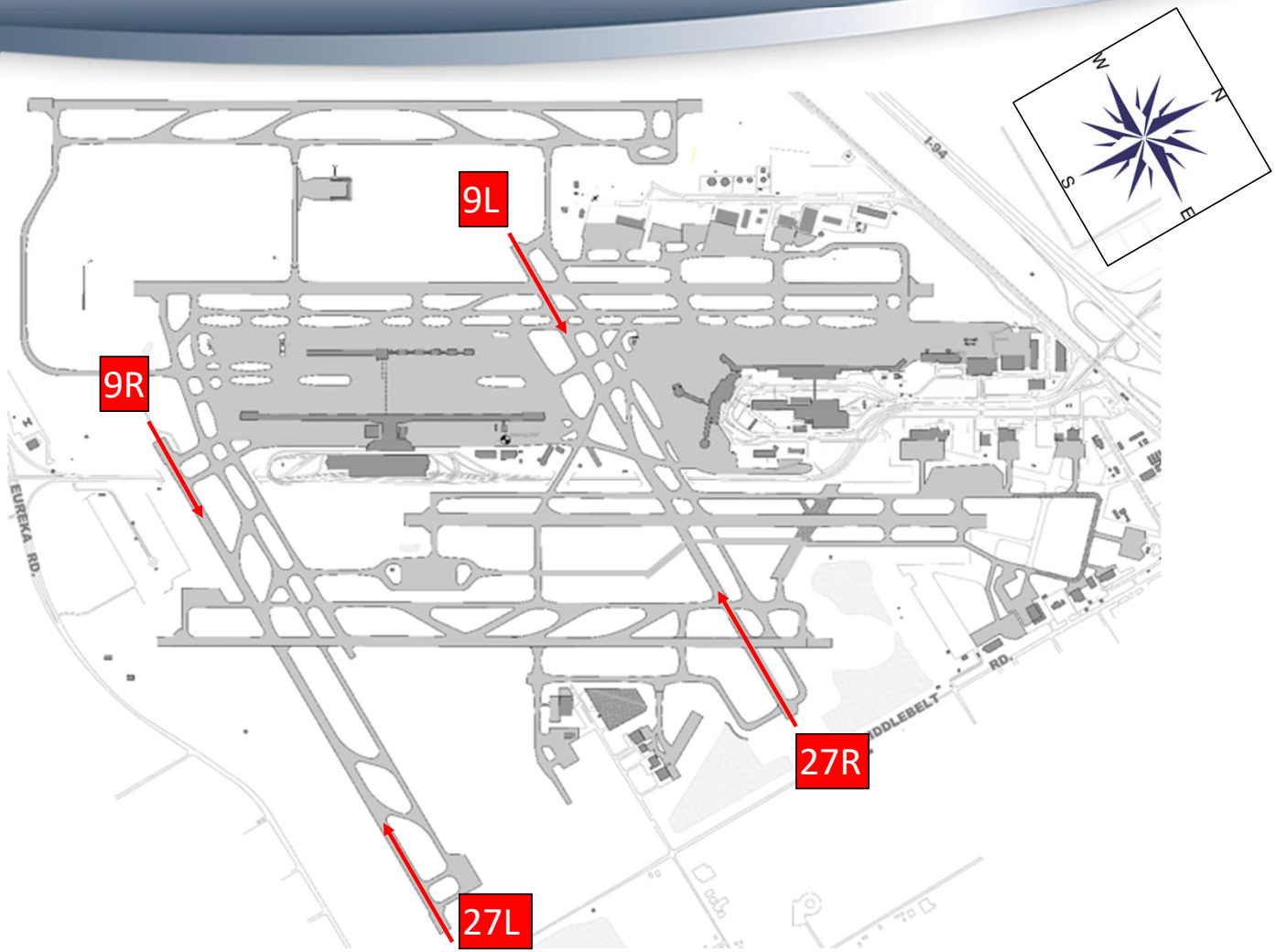
Airfield Familiarization

- Runways
- Taxiway and Taxilanes
- Fire Stations
- Deicing Pads
- RON Parking Locations

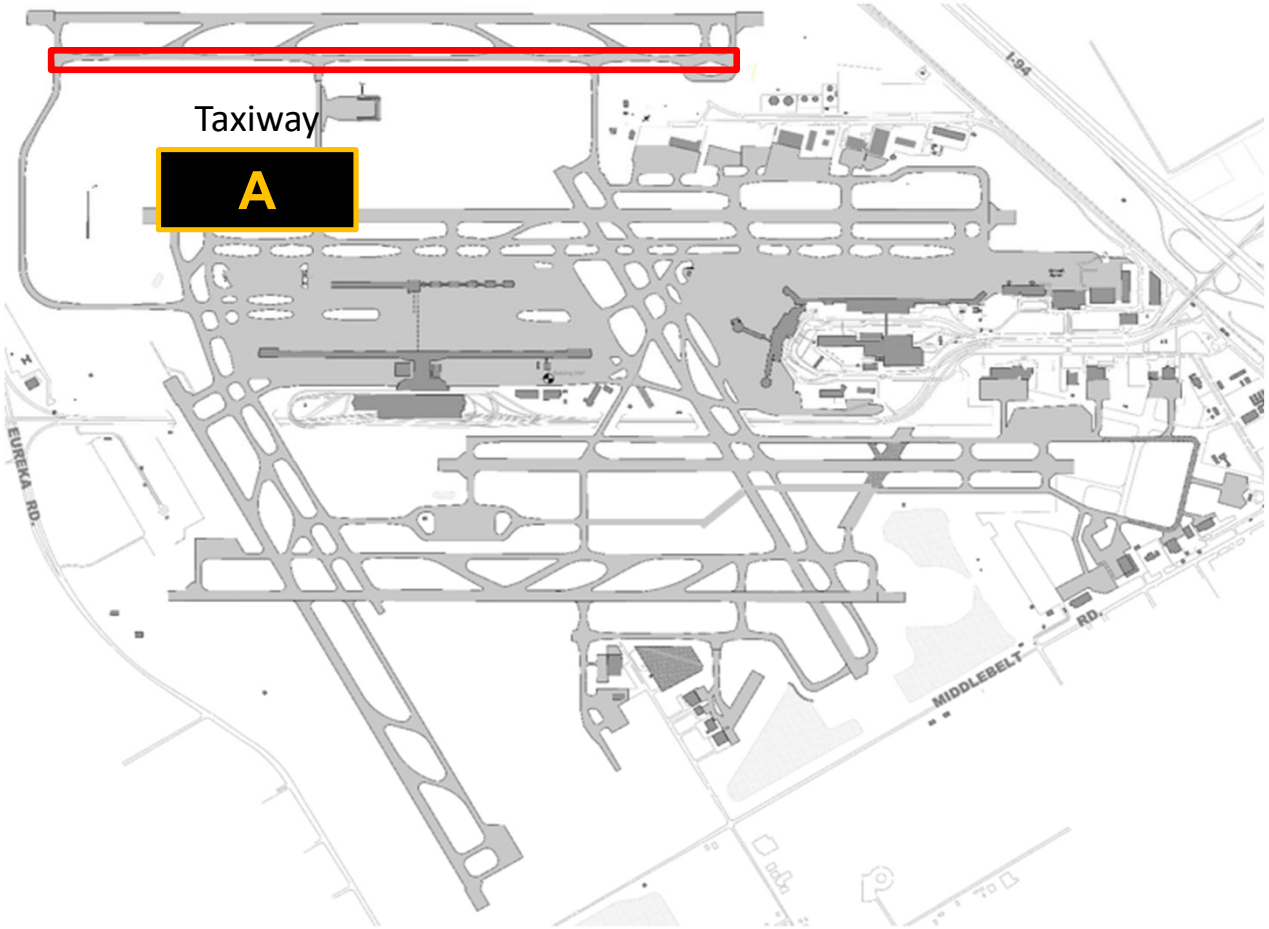
Northeast/Southwest Runways



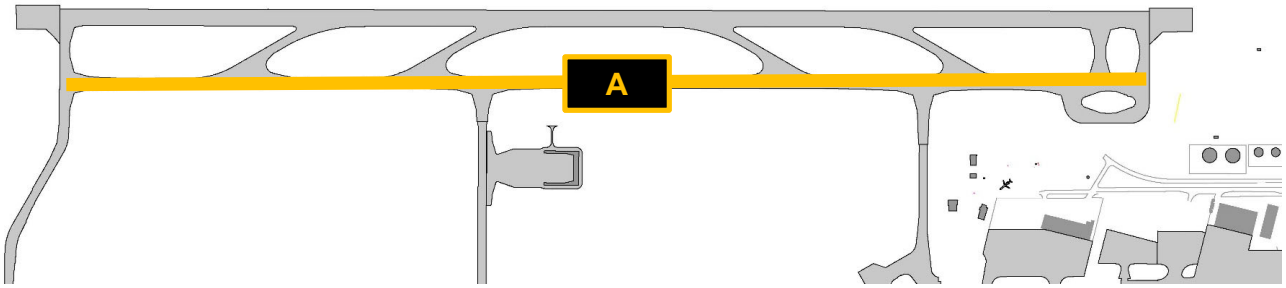
East/West Runways



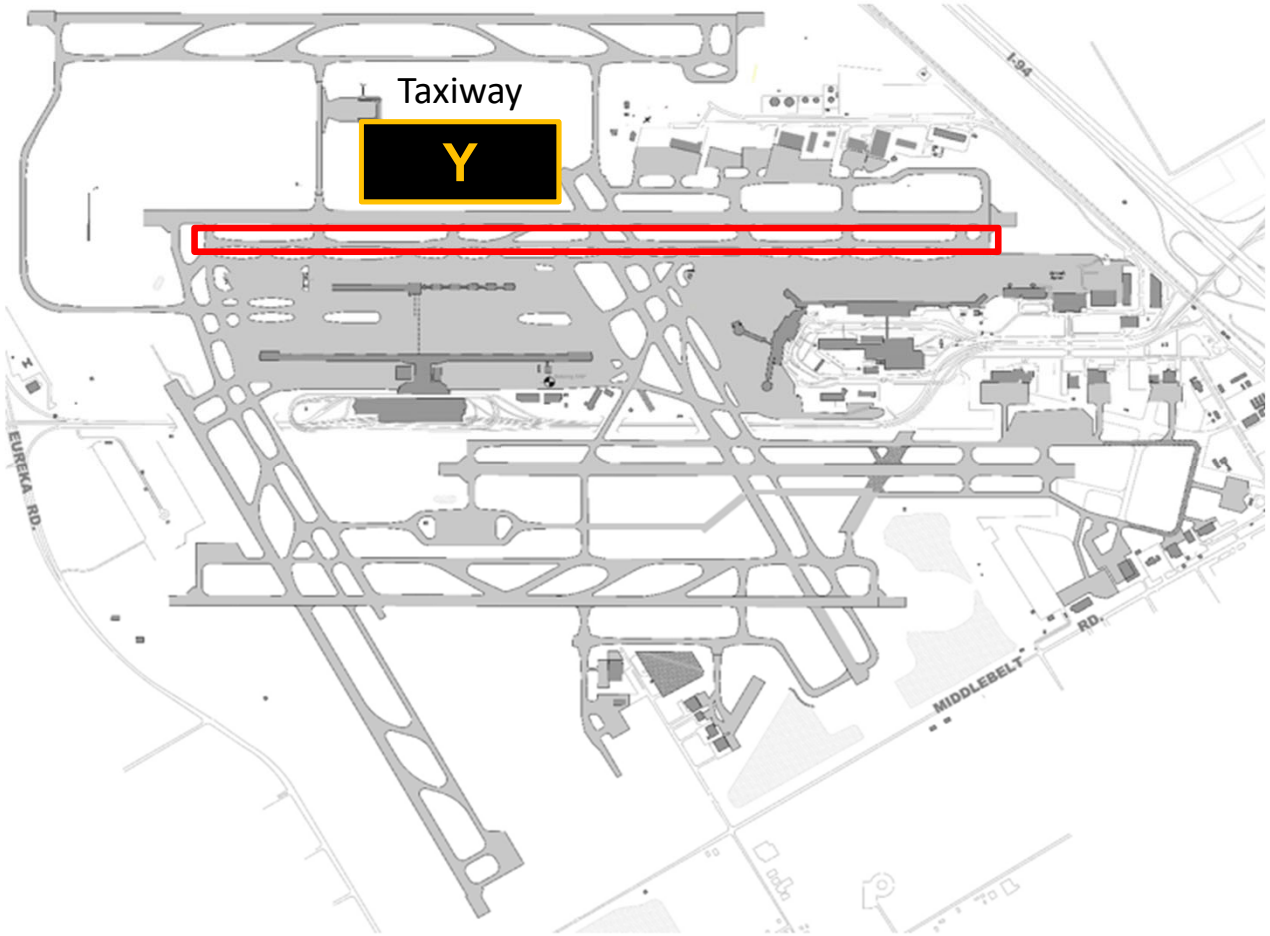
Taxiway A



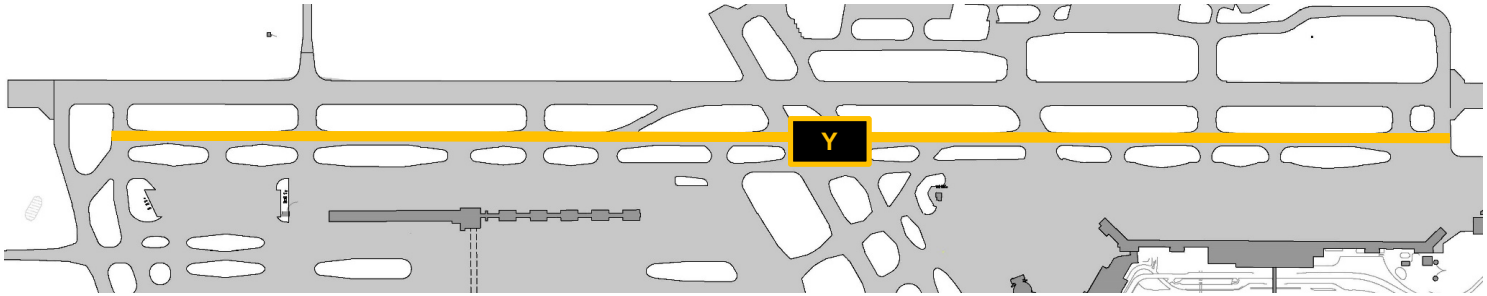
Taxiway A



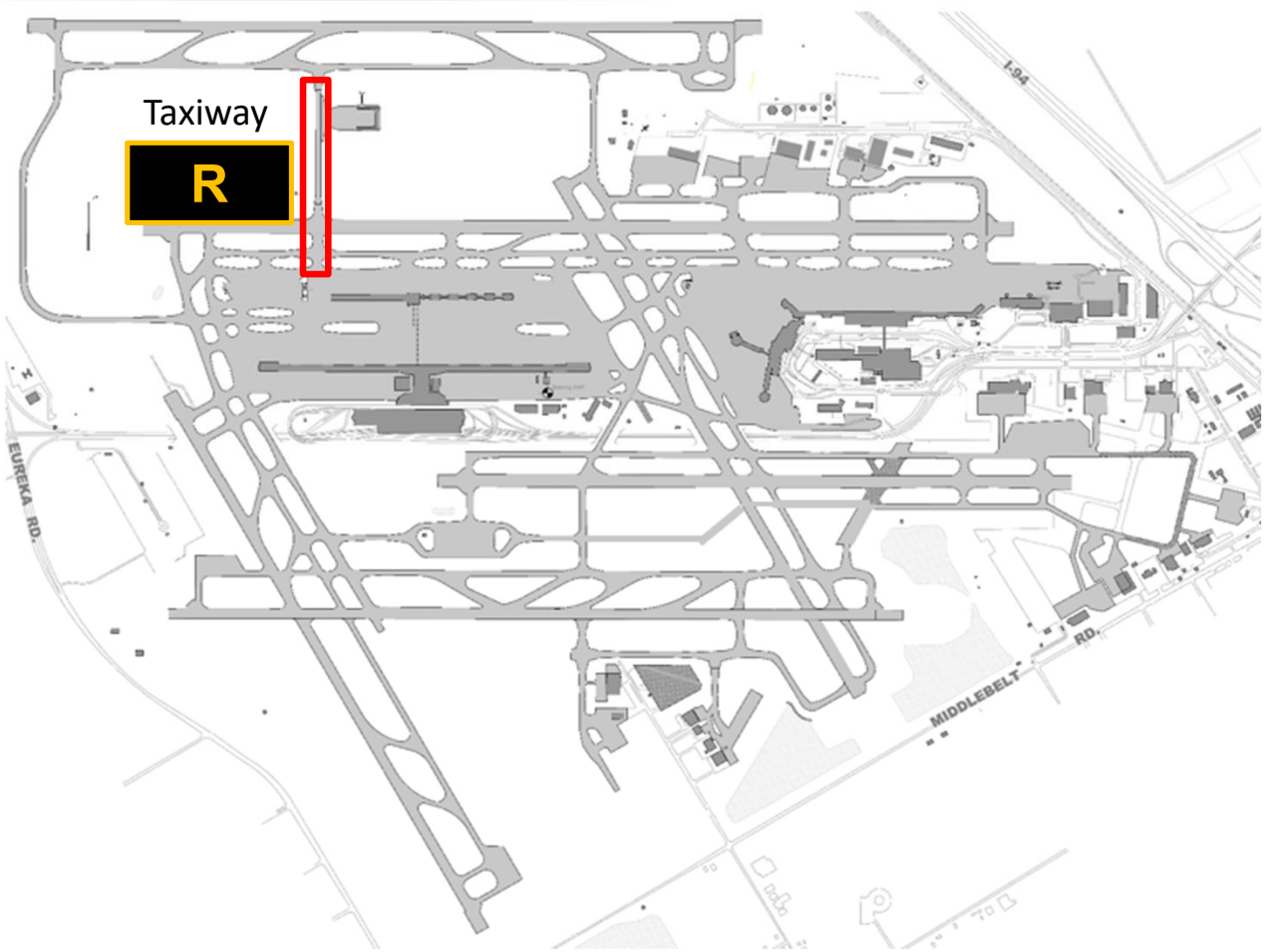
Taxiway Y



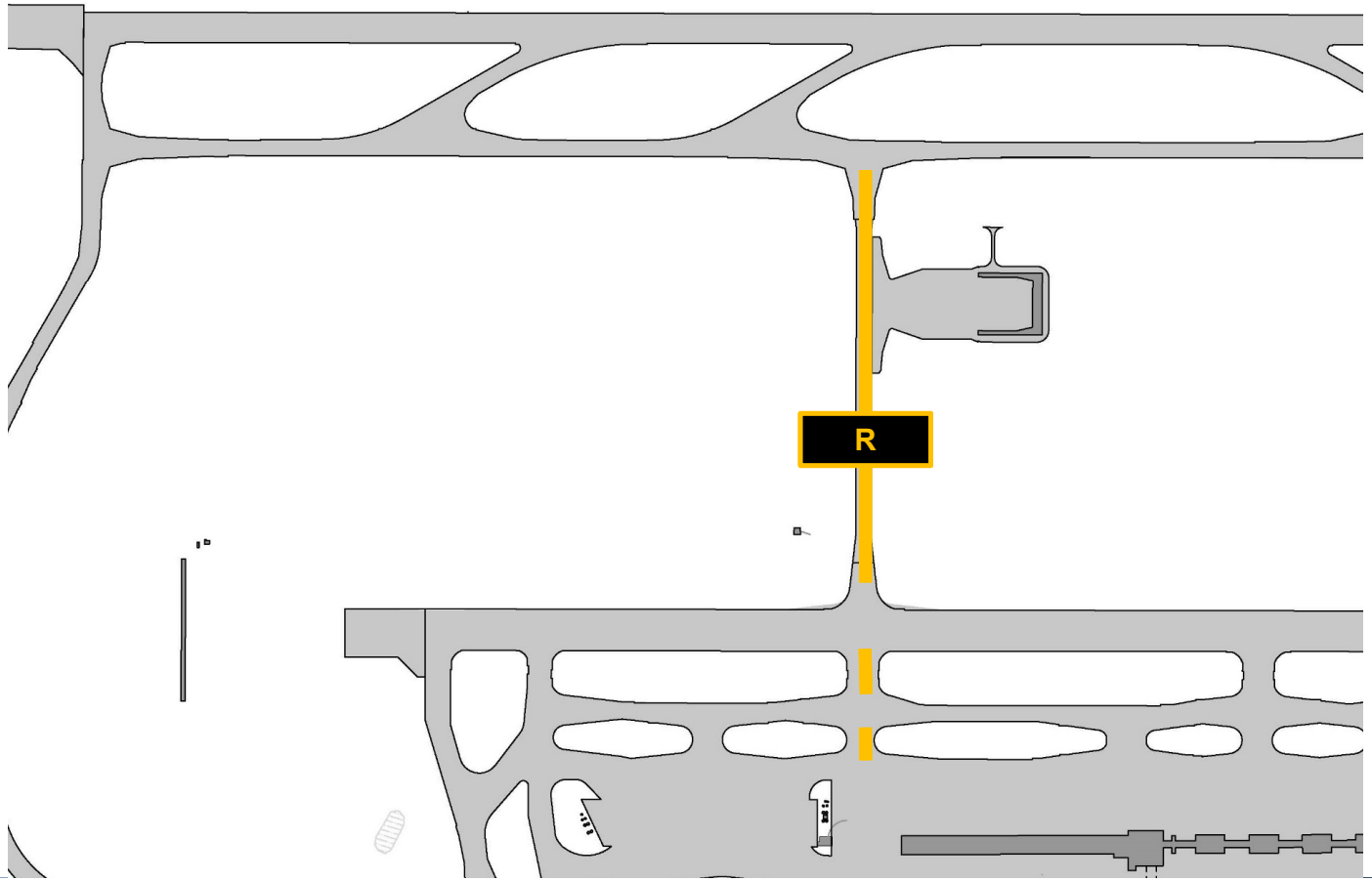
Taxiway Y



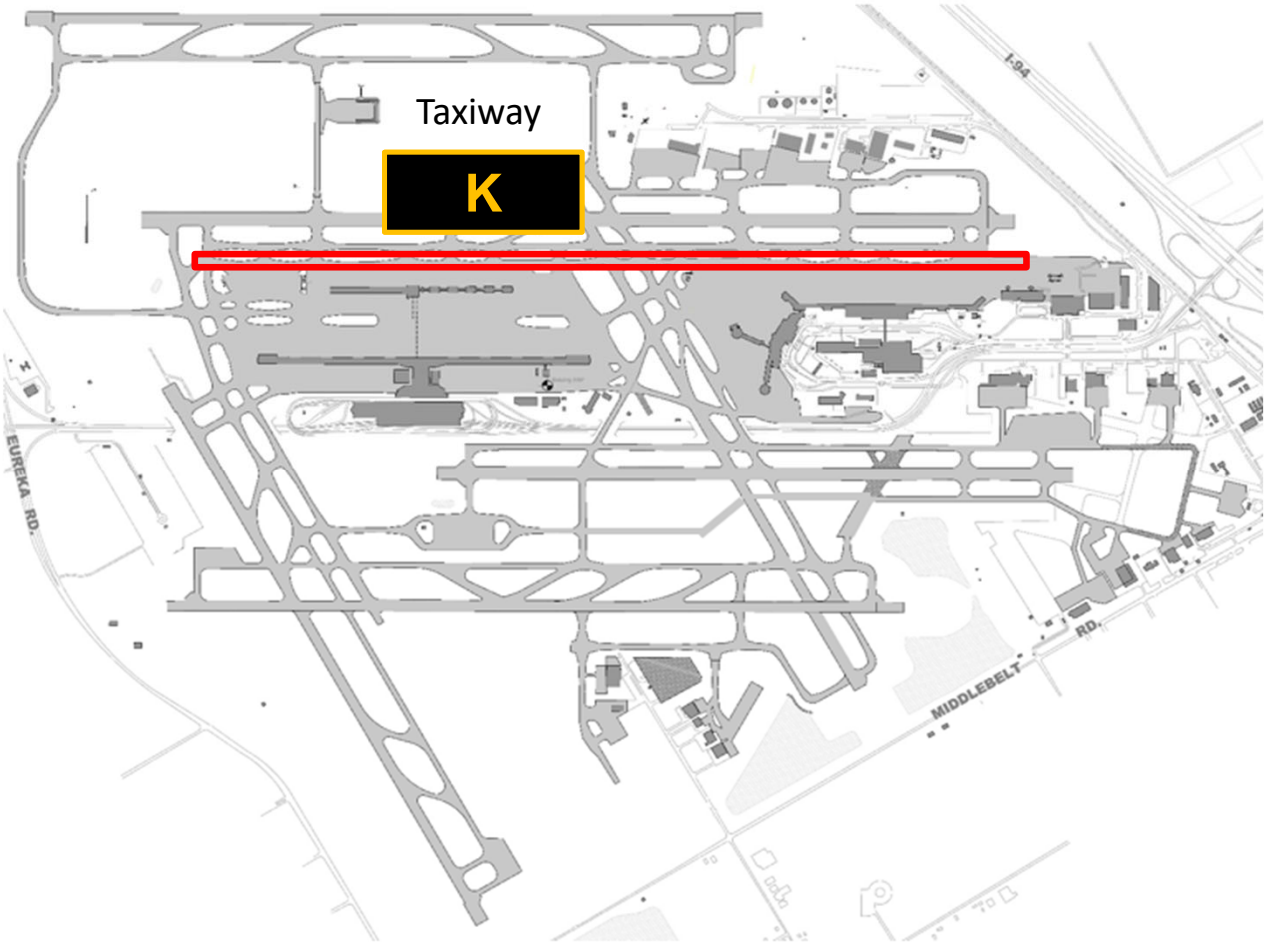
Taxiway R



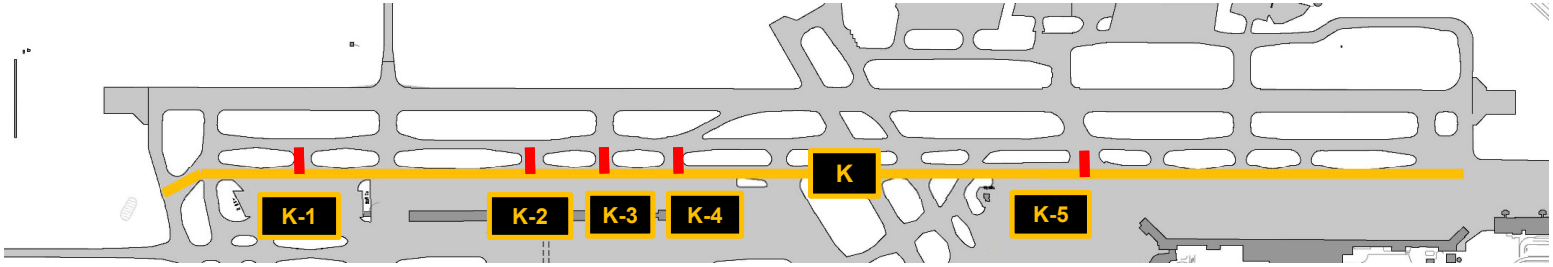
Taxiway R



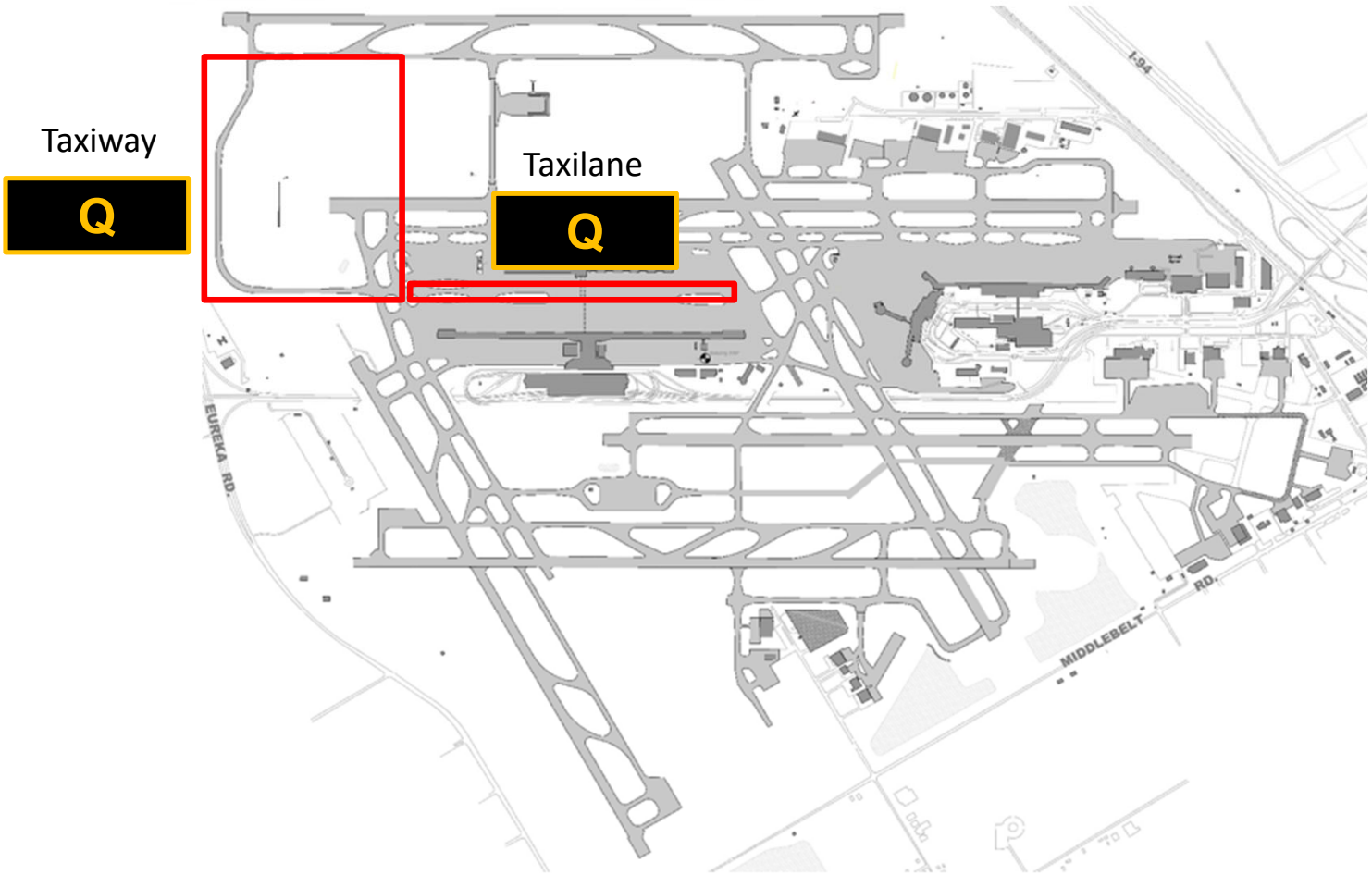
Taxiway K



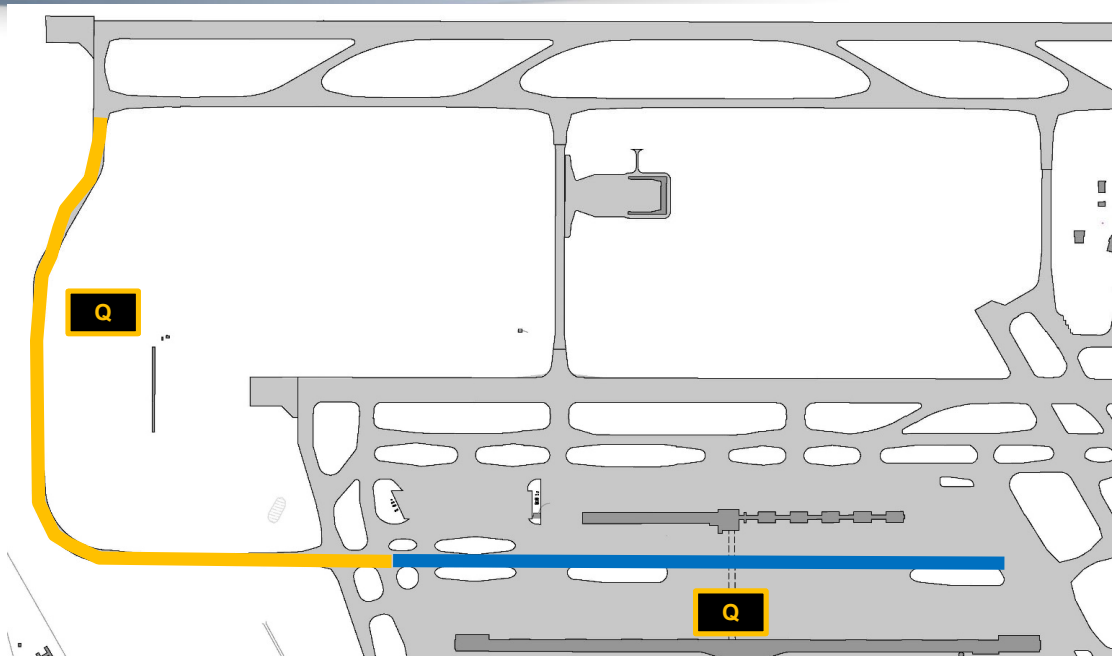
Taxiway K



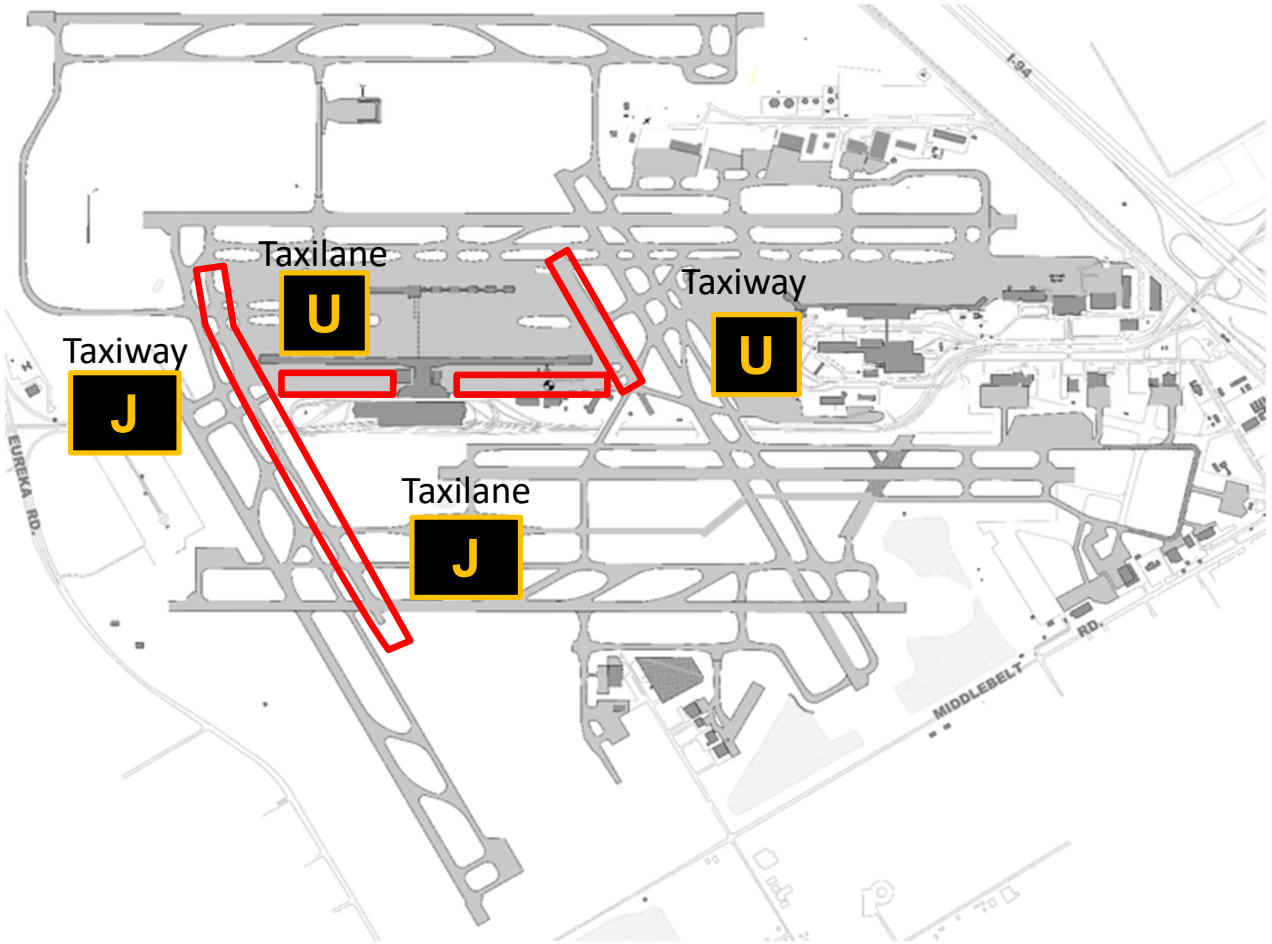
Taxiway and Taxilane Q



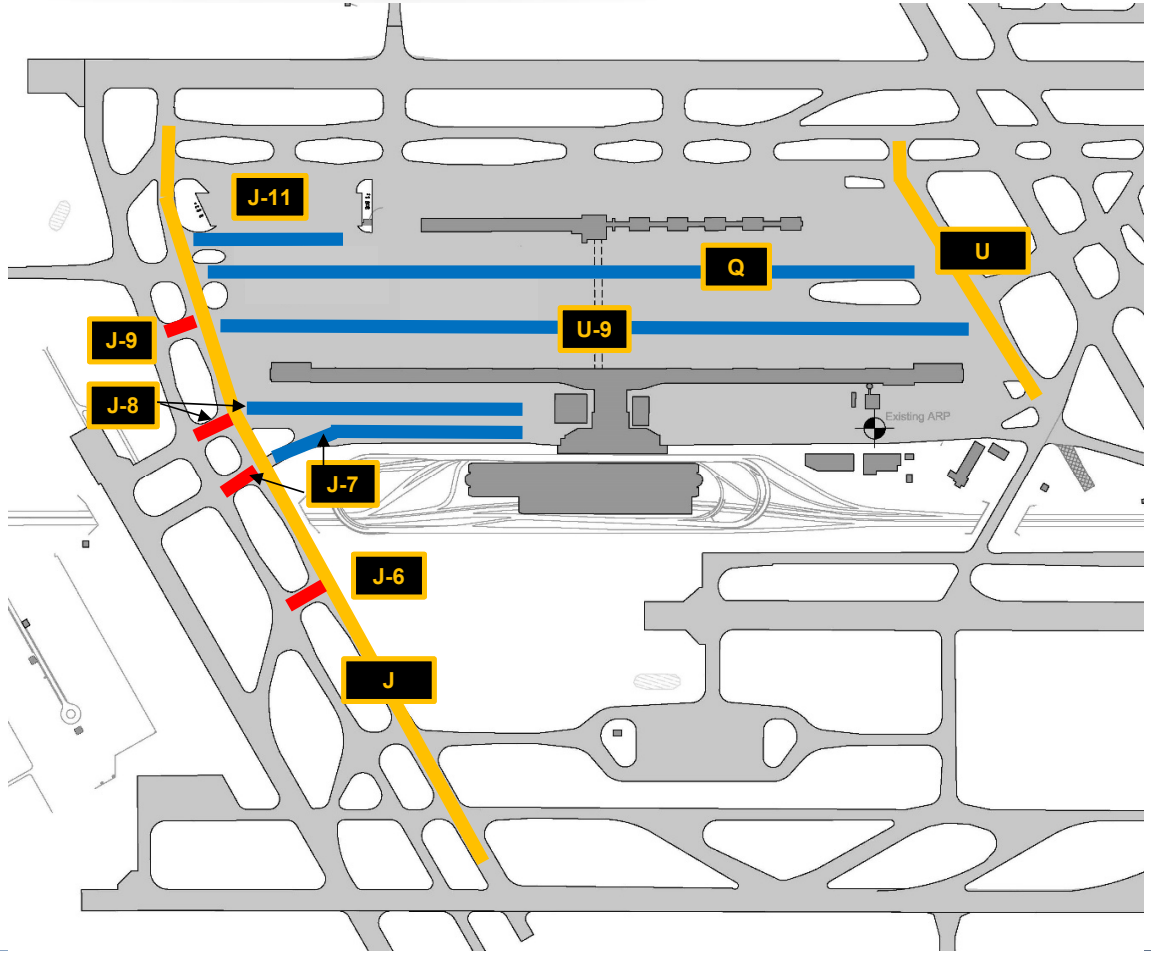
Taxiway and Taxilane Q



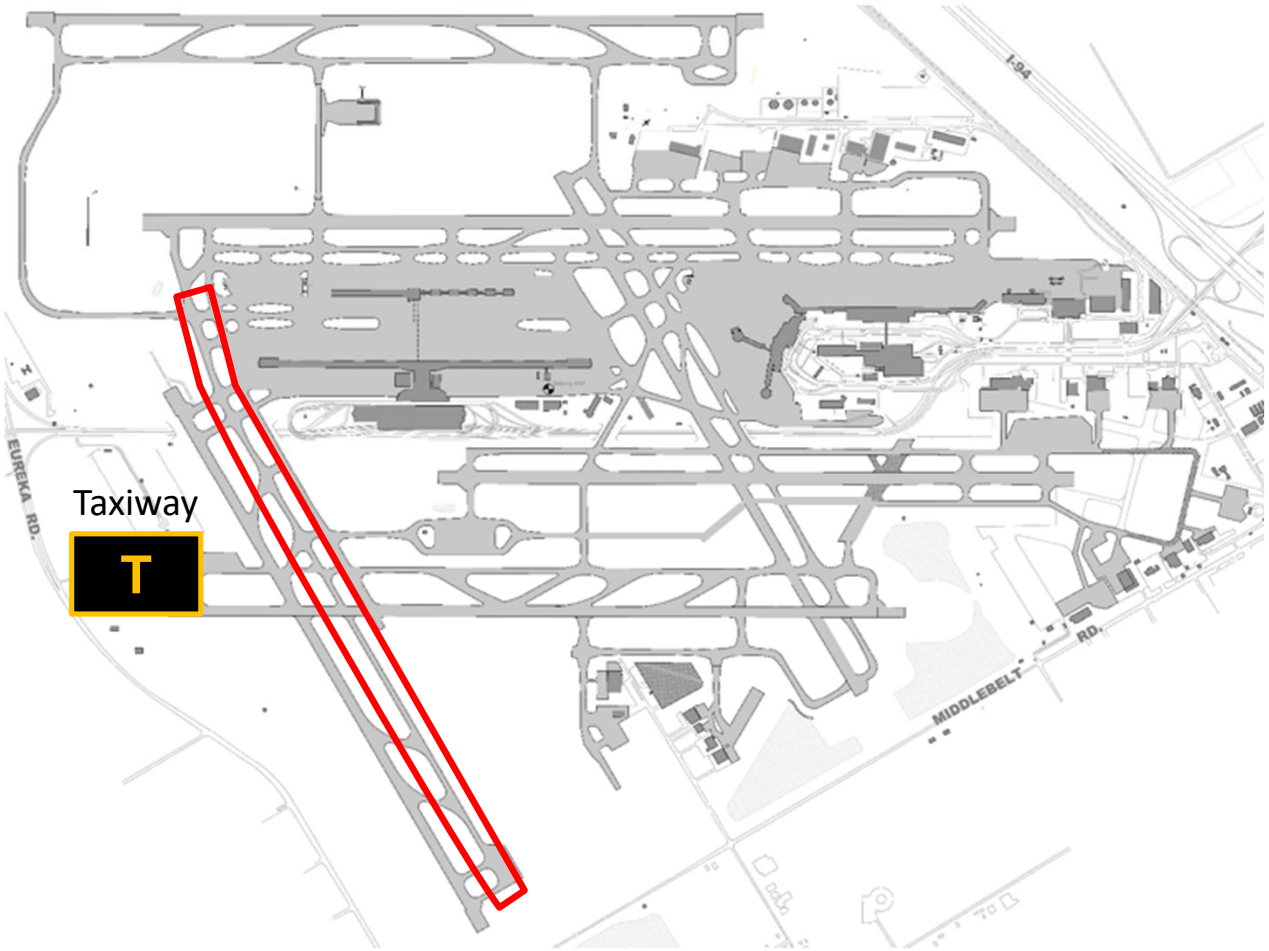
Taxiways and Taxilanes J and U



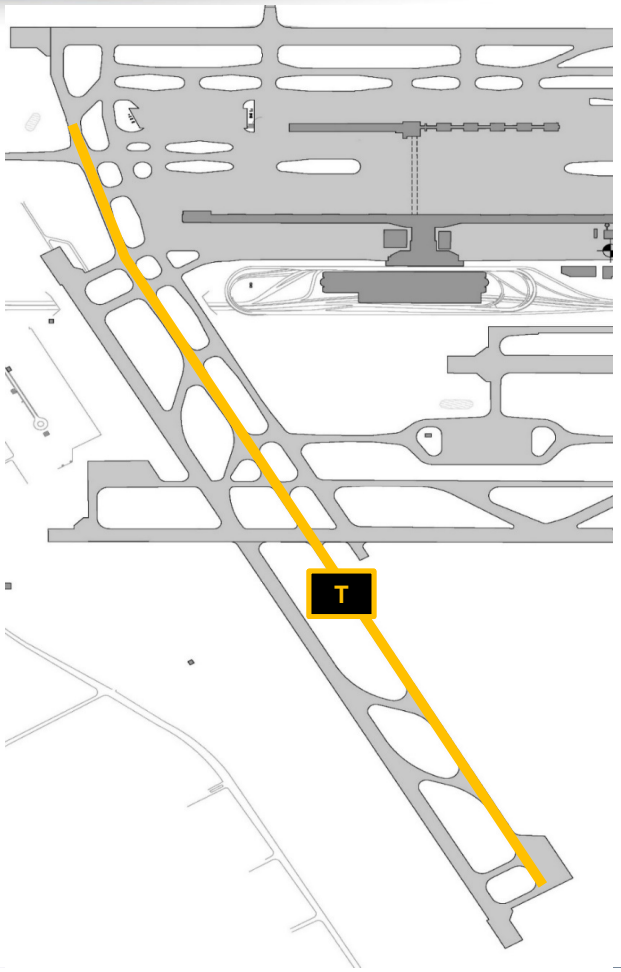
Taxiways and Taxilanes J and U



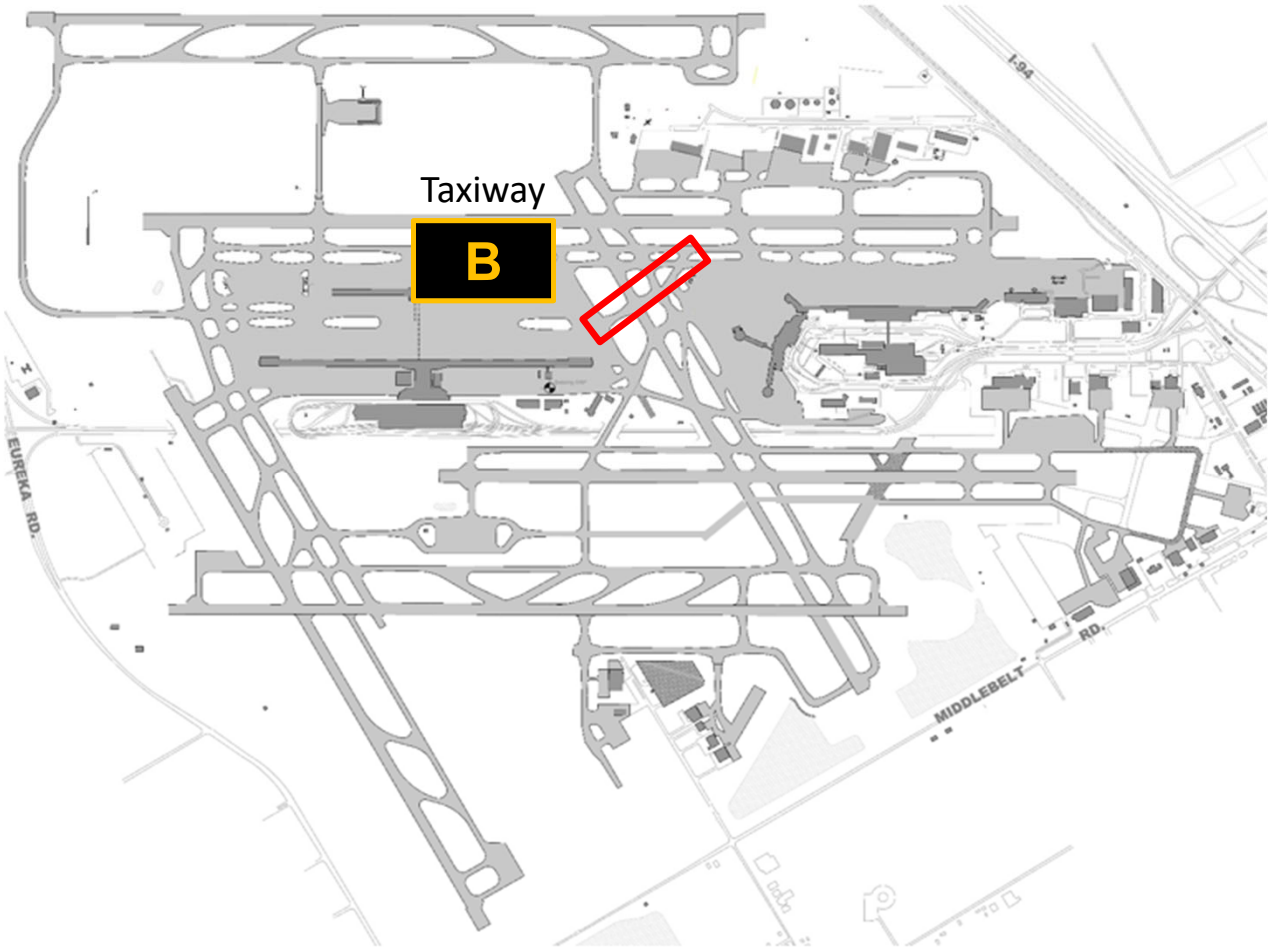
Taxiway T



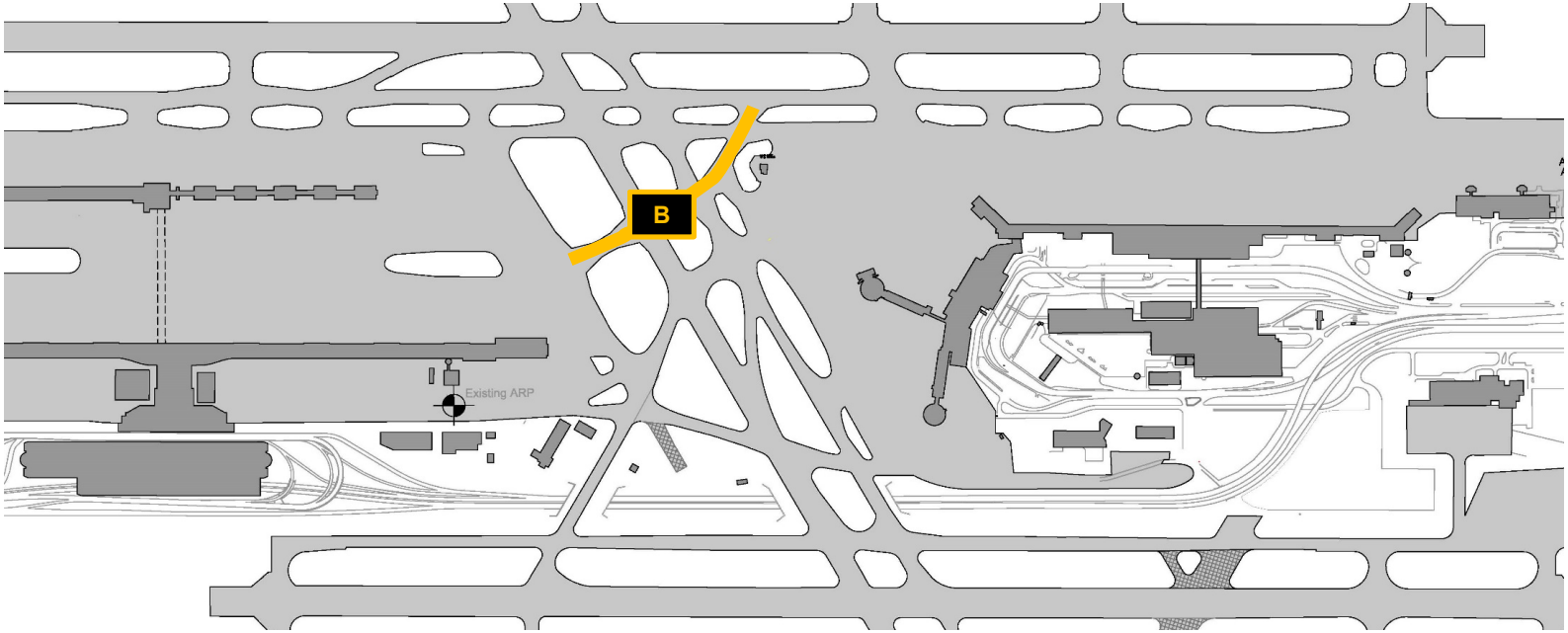
Taxiway T



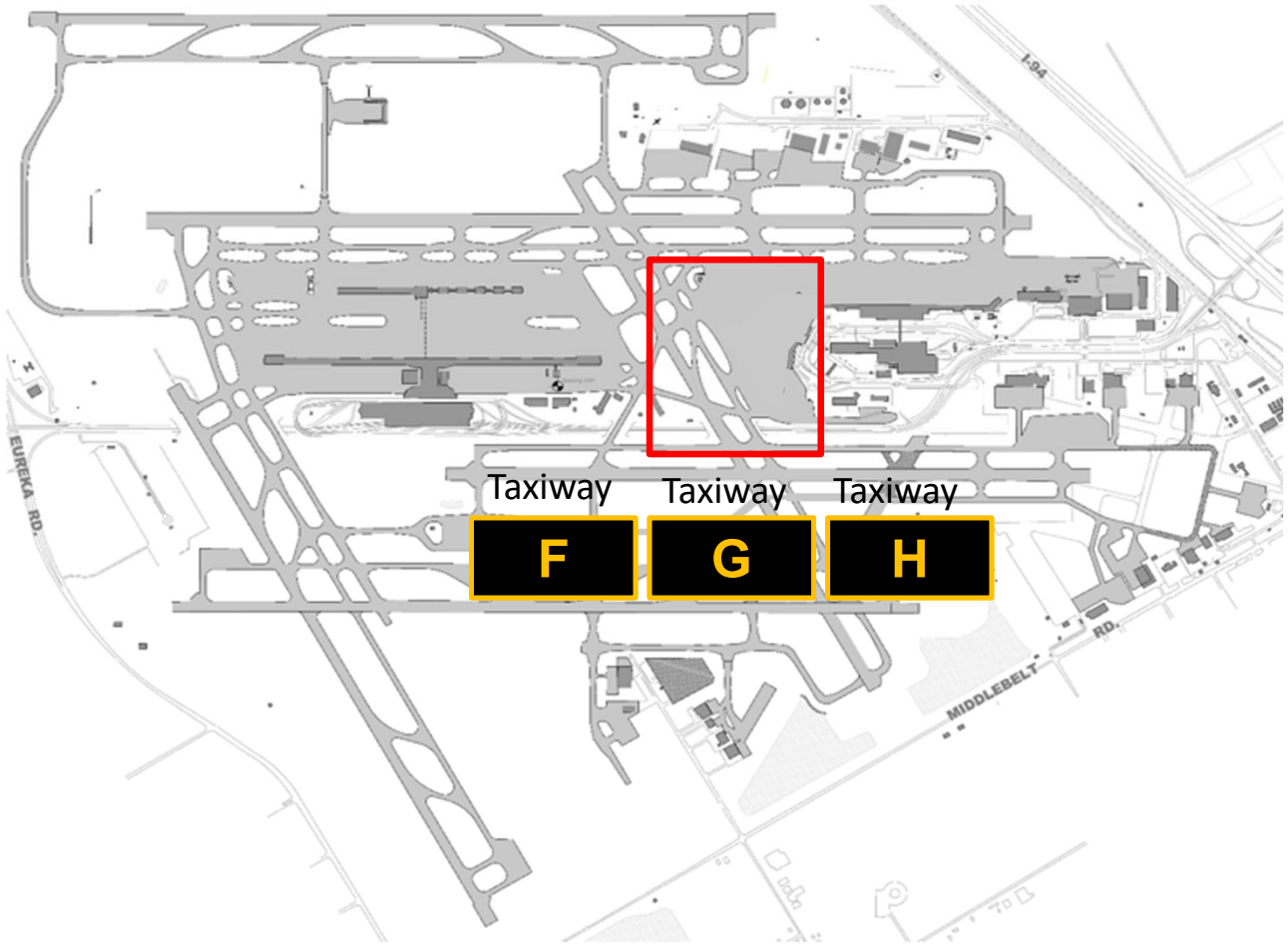
Taxiway B



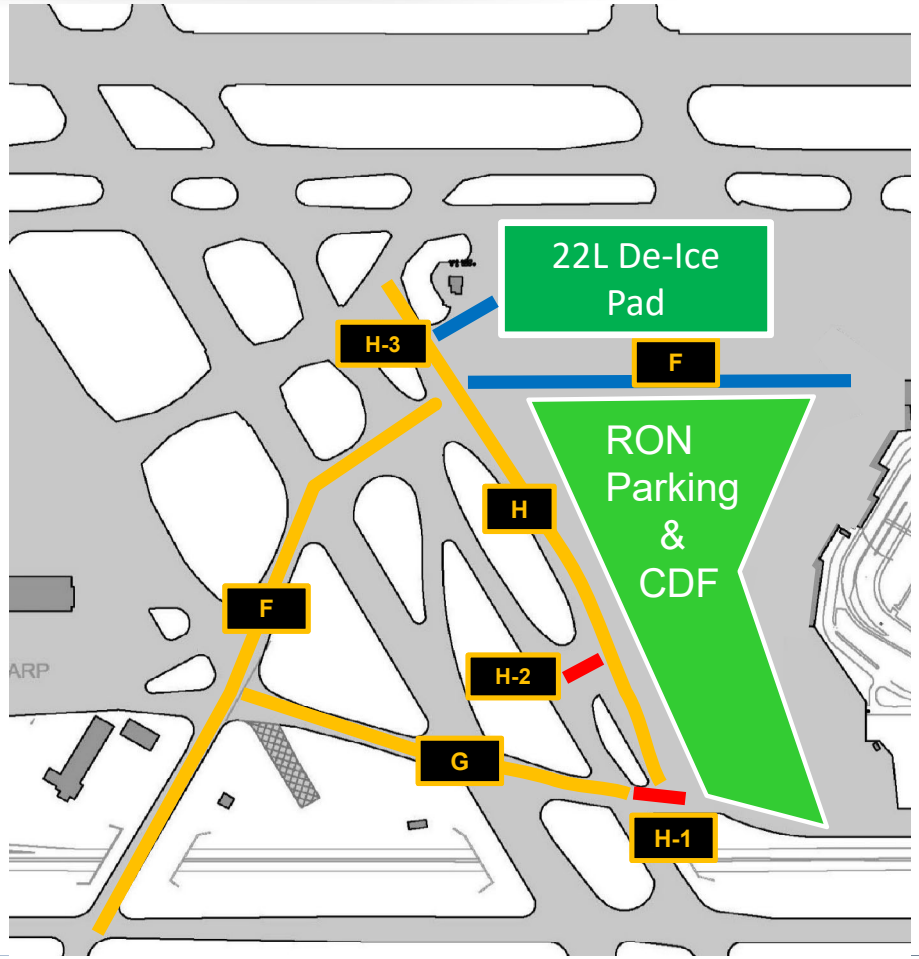
Taxiway B



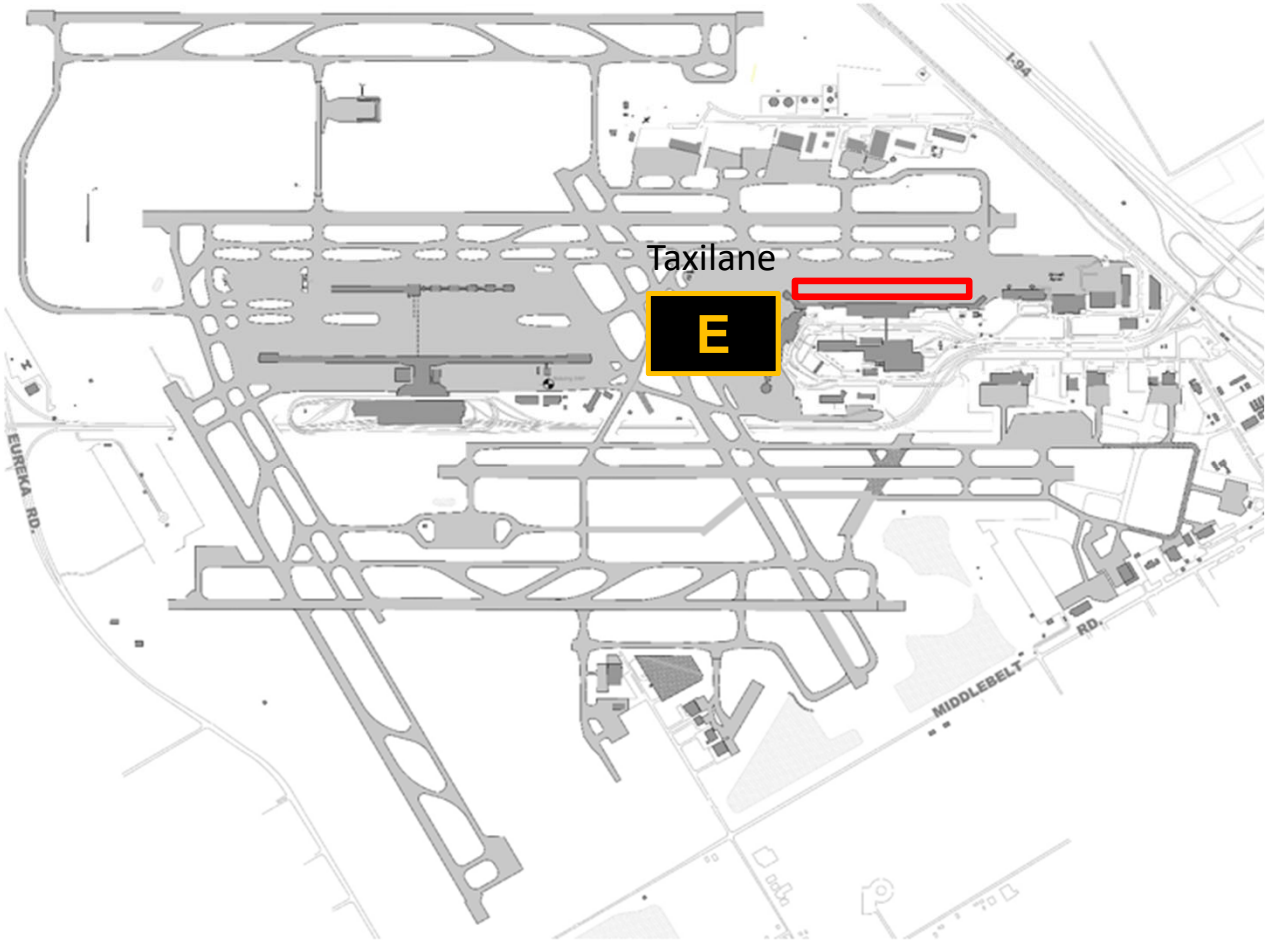
Taxiways F, G, and H



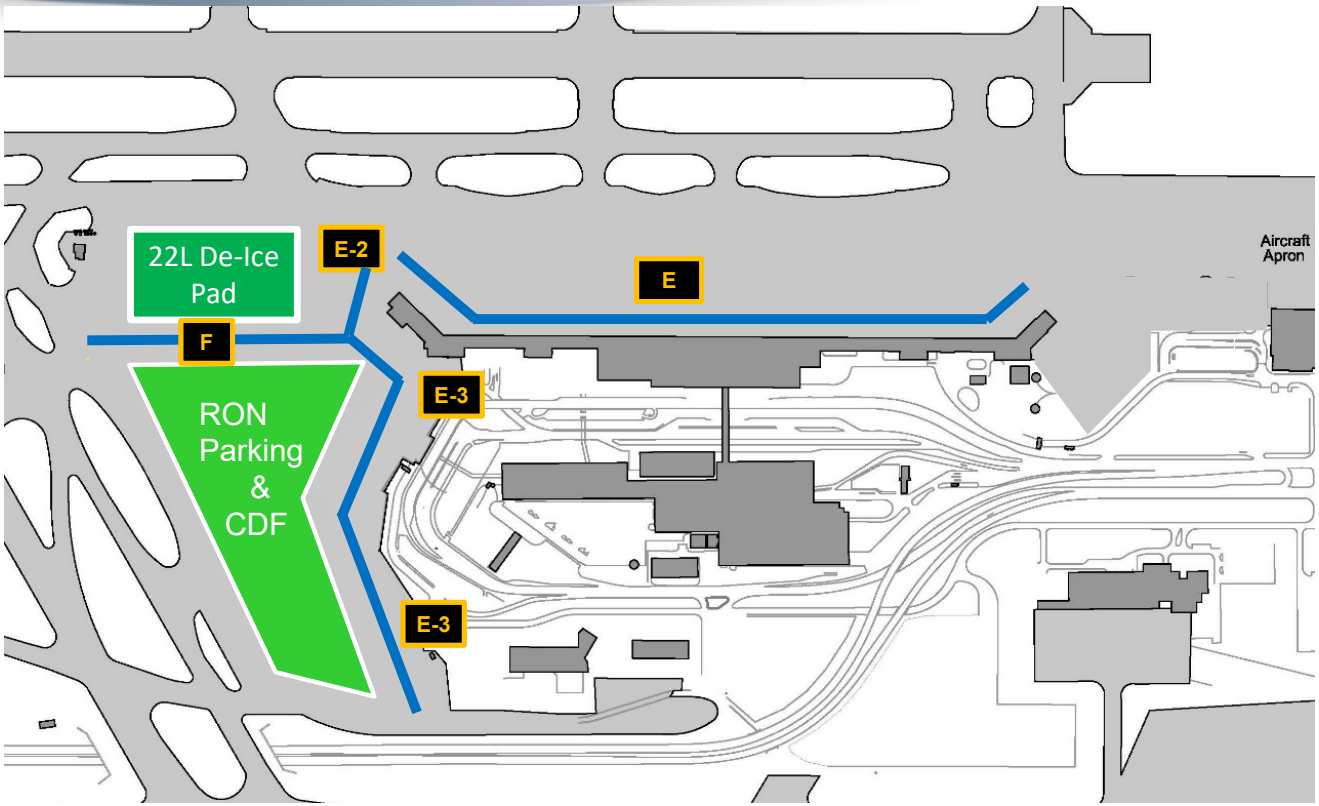
Taxiways F, G, and H



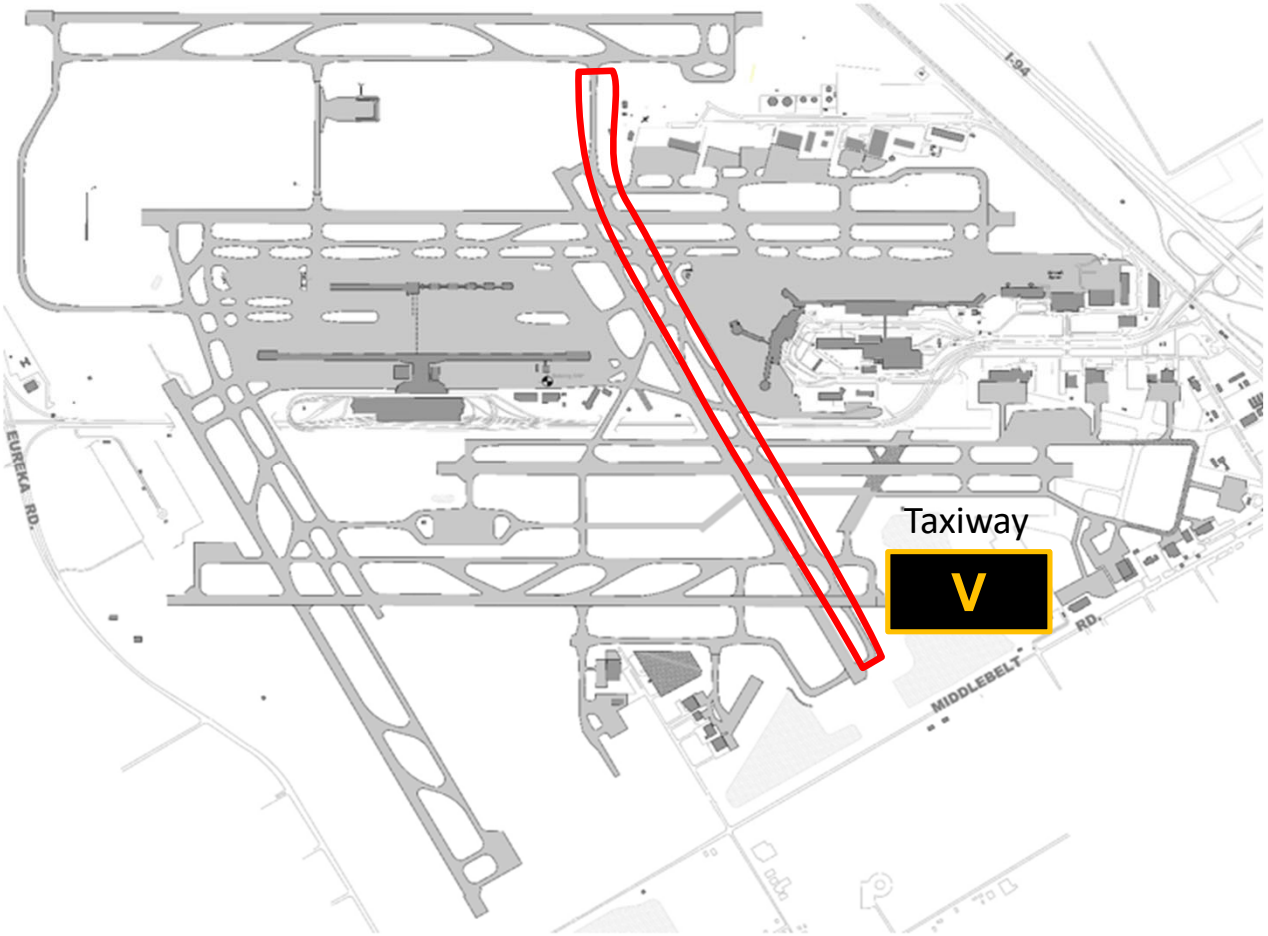
Taxilane E



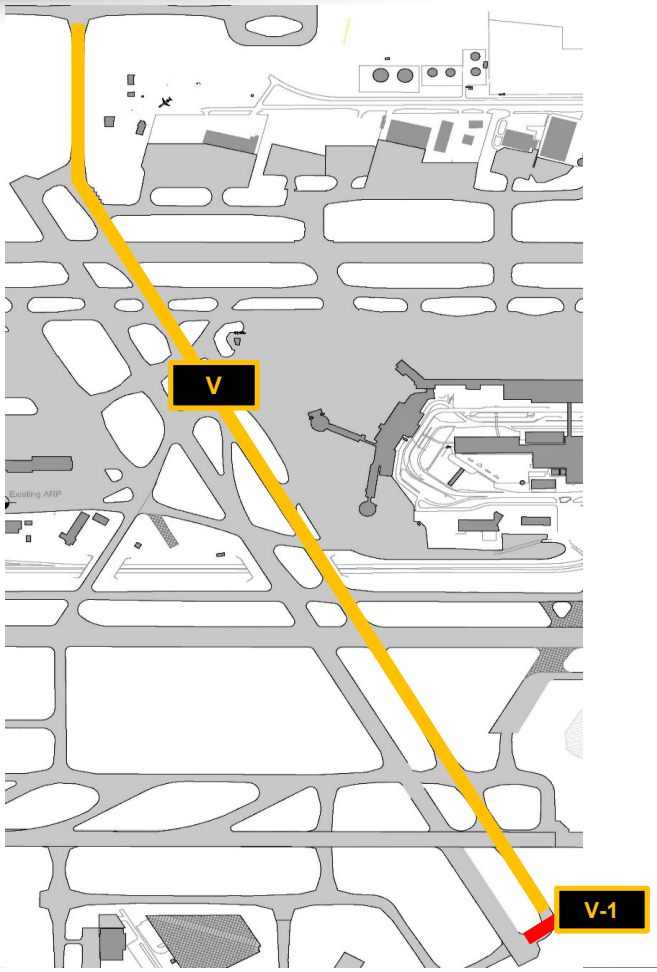
Taxilane E



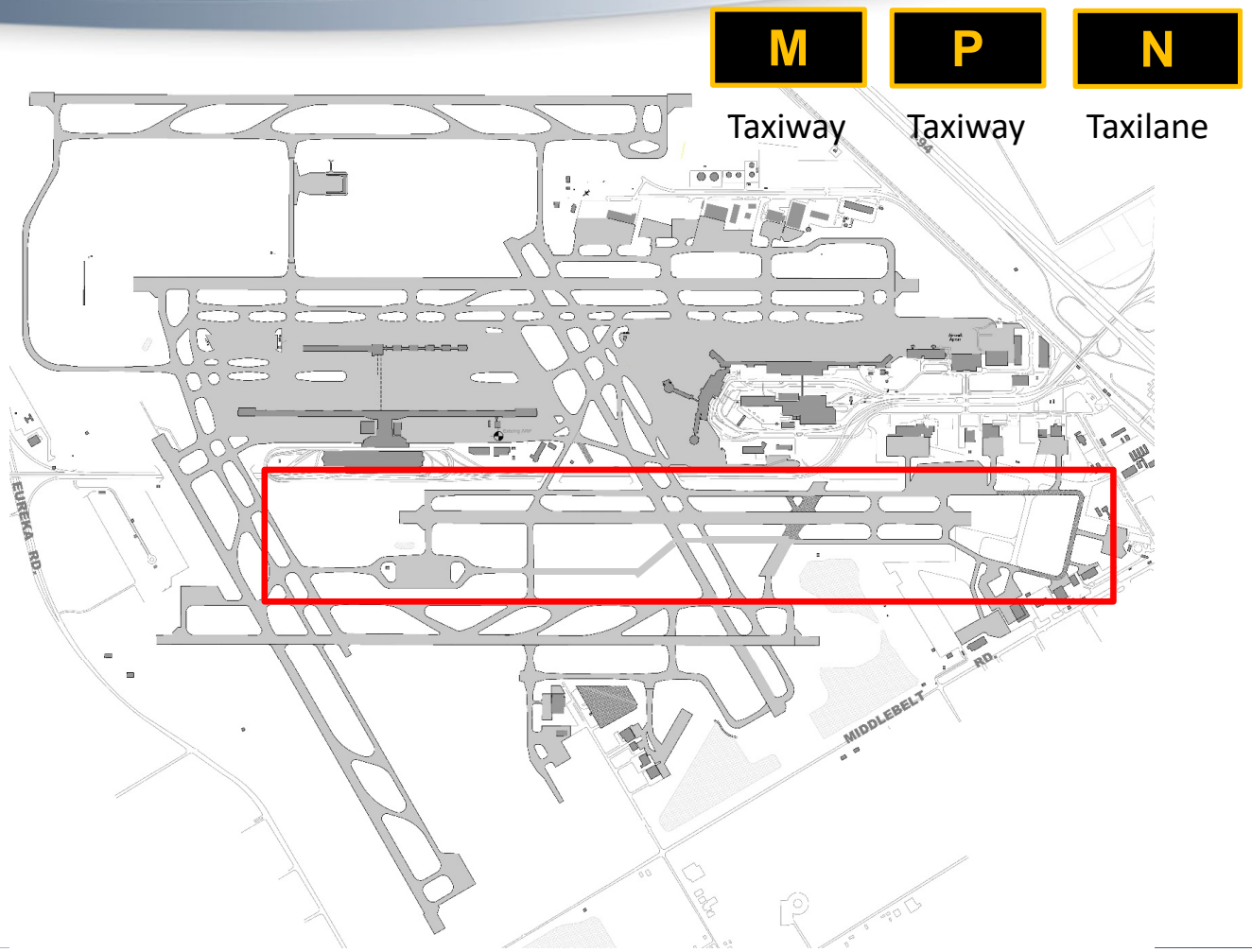
Taxiway V



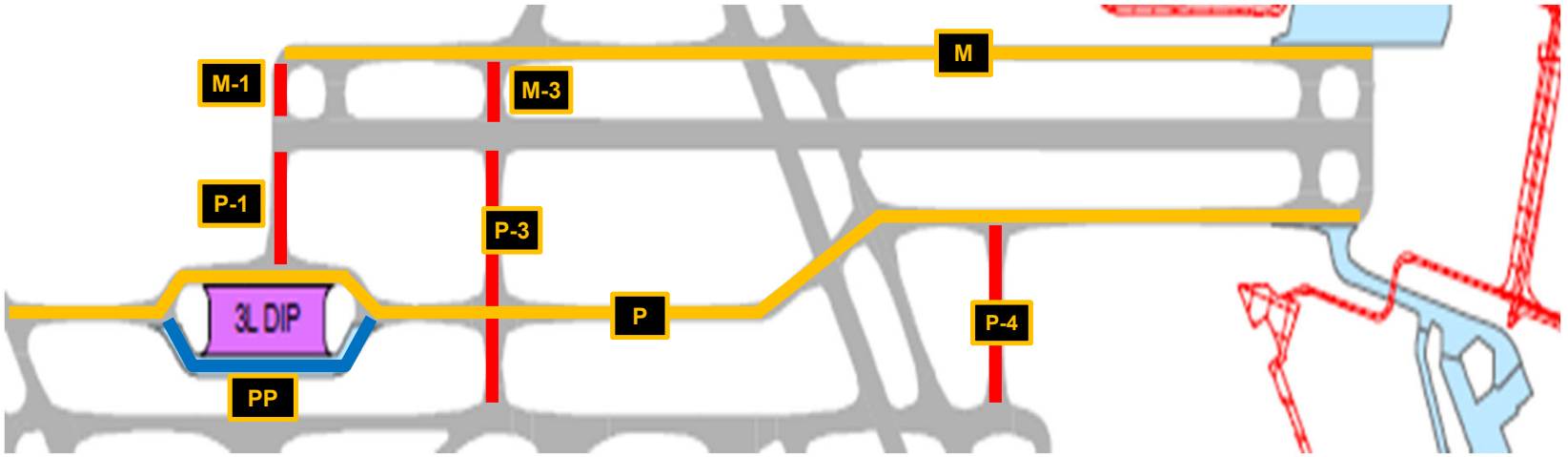
Taxiway V



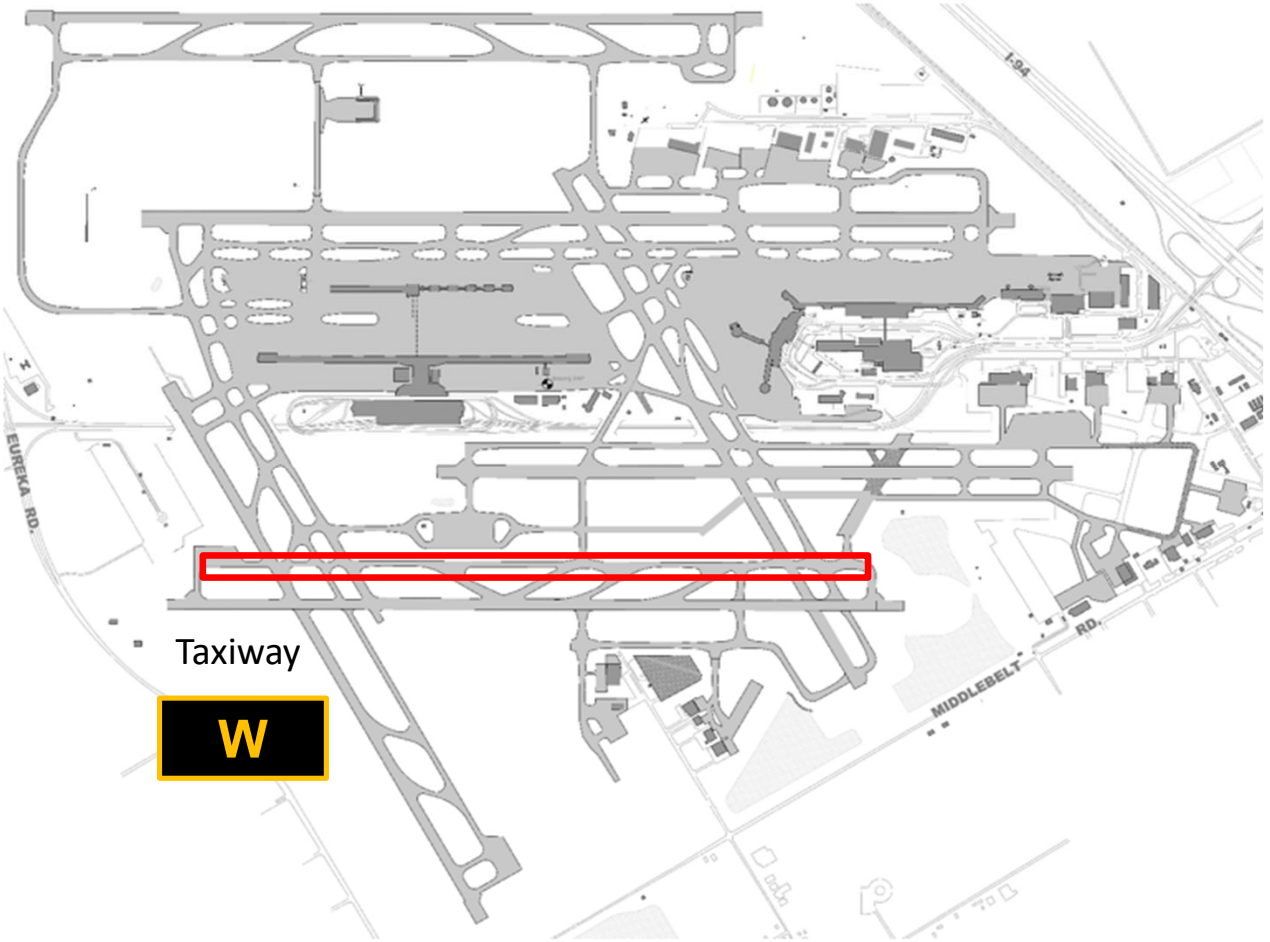
Taxiways M and P, Taxilane N



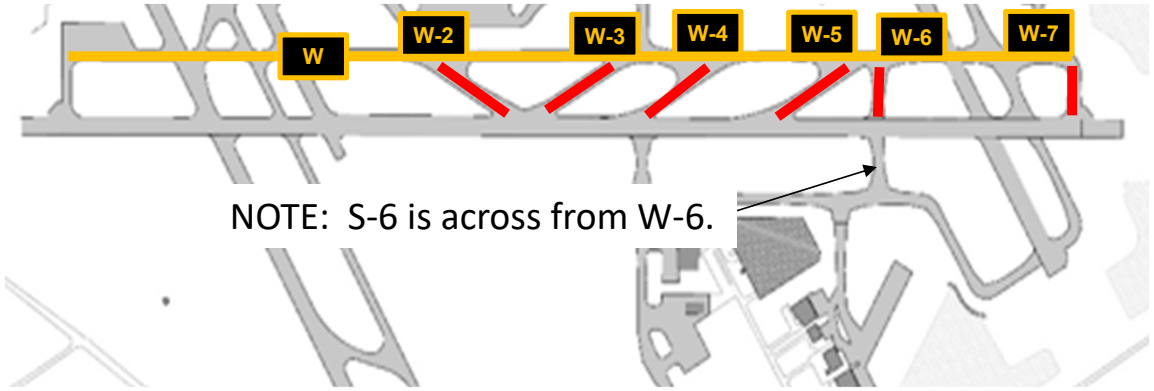
Taxiways M and P, Taxilane N



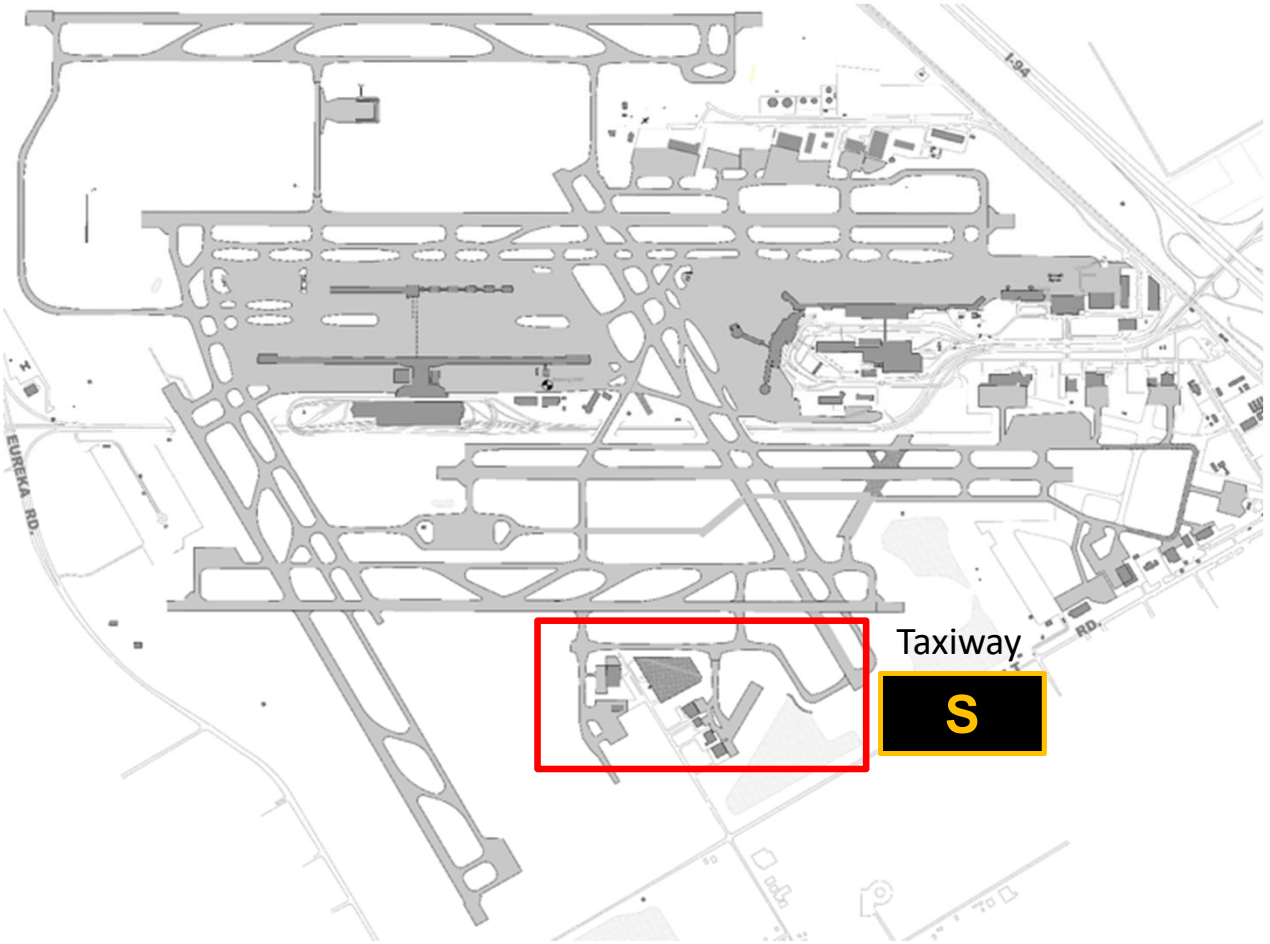
Taxiway W



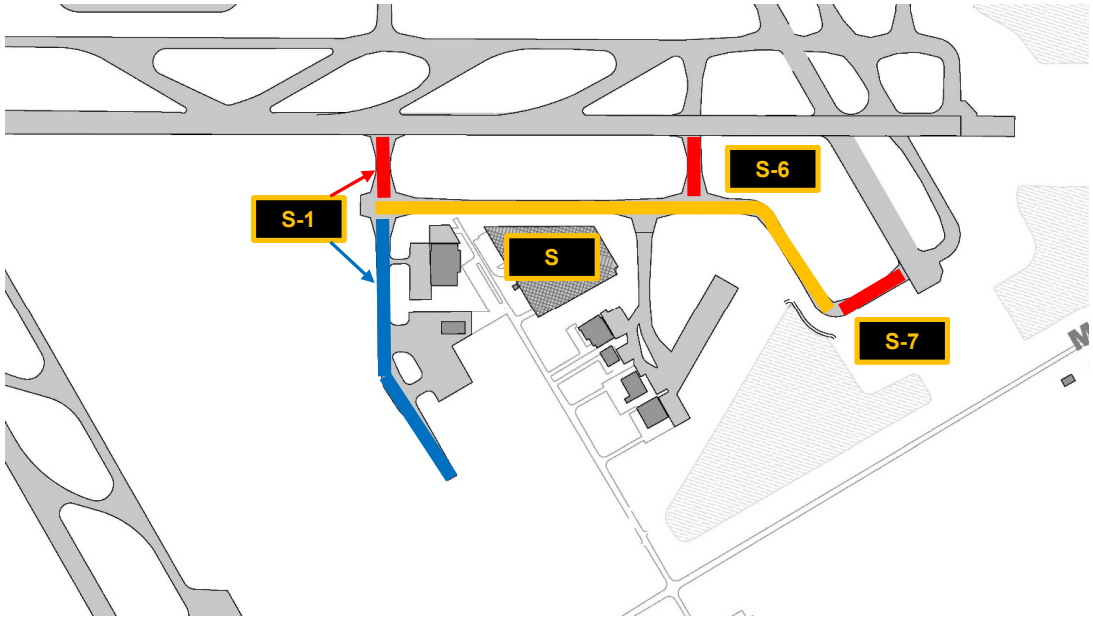
Taxiway W



Taxiway S and Taxilane S-1

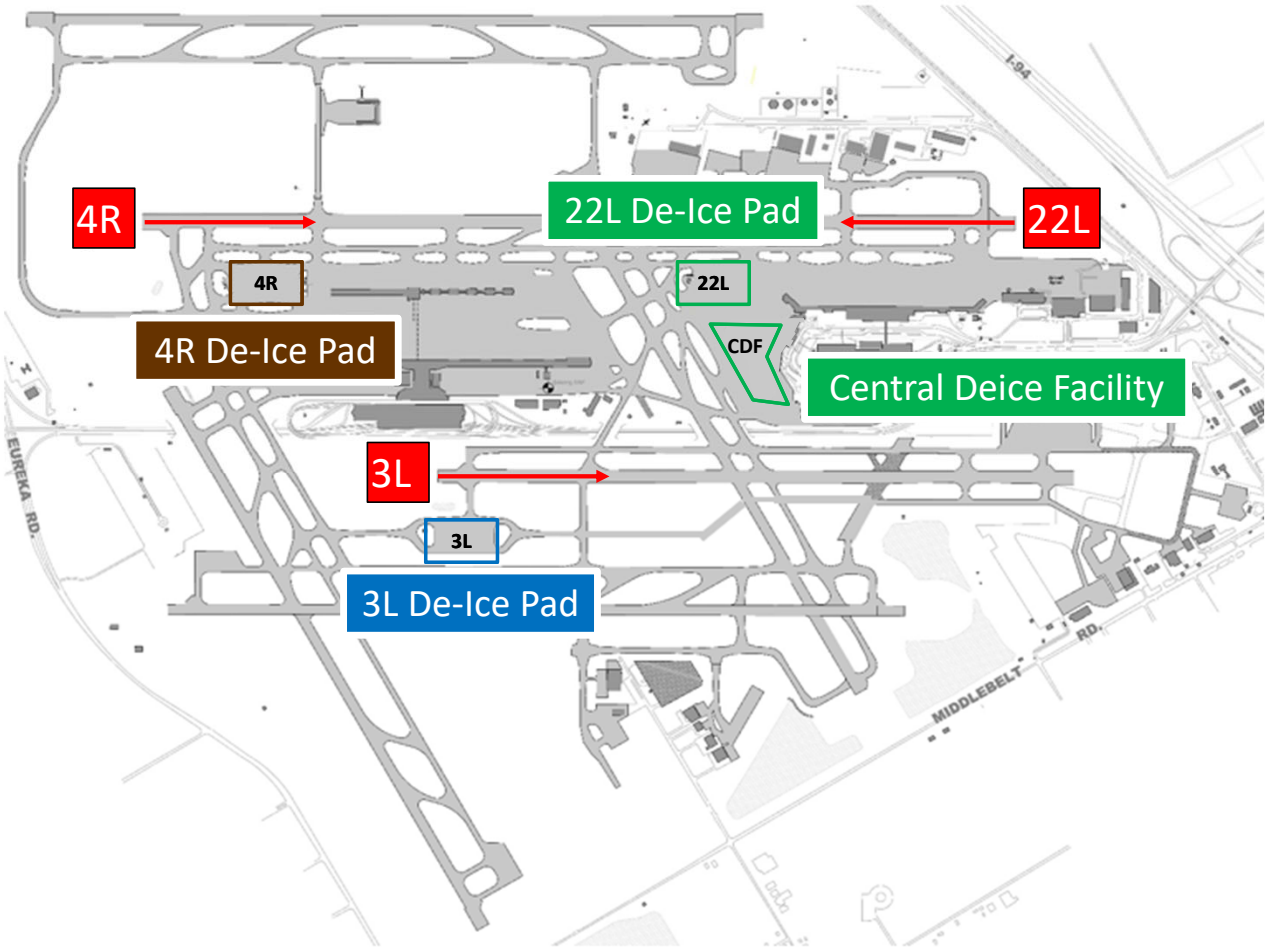


Taxiway S and Taxilane S-1

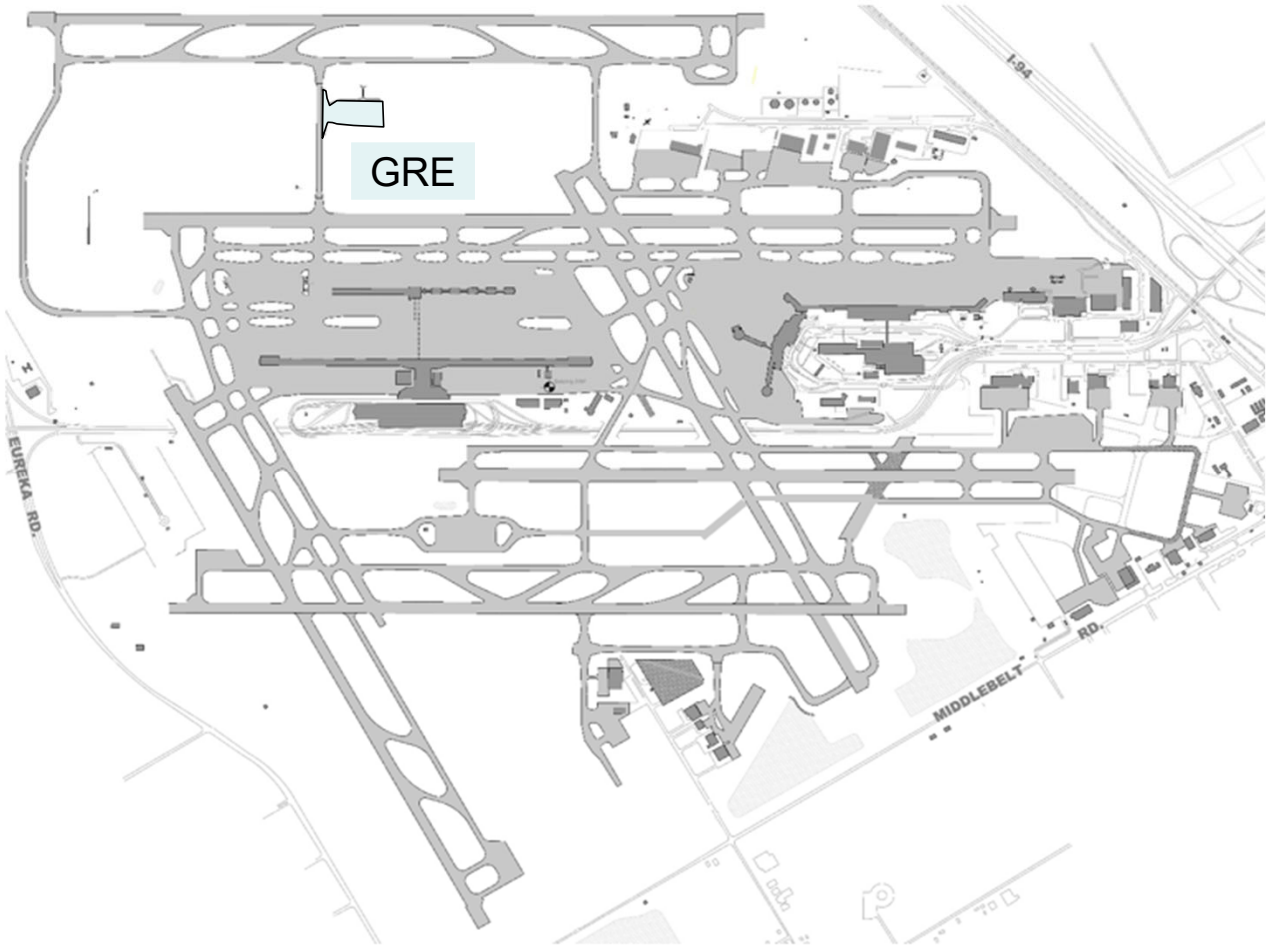


Fire Stations

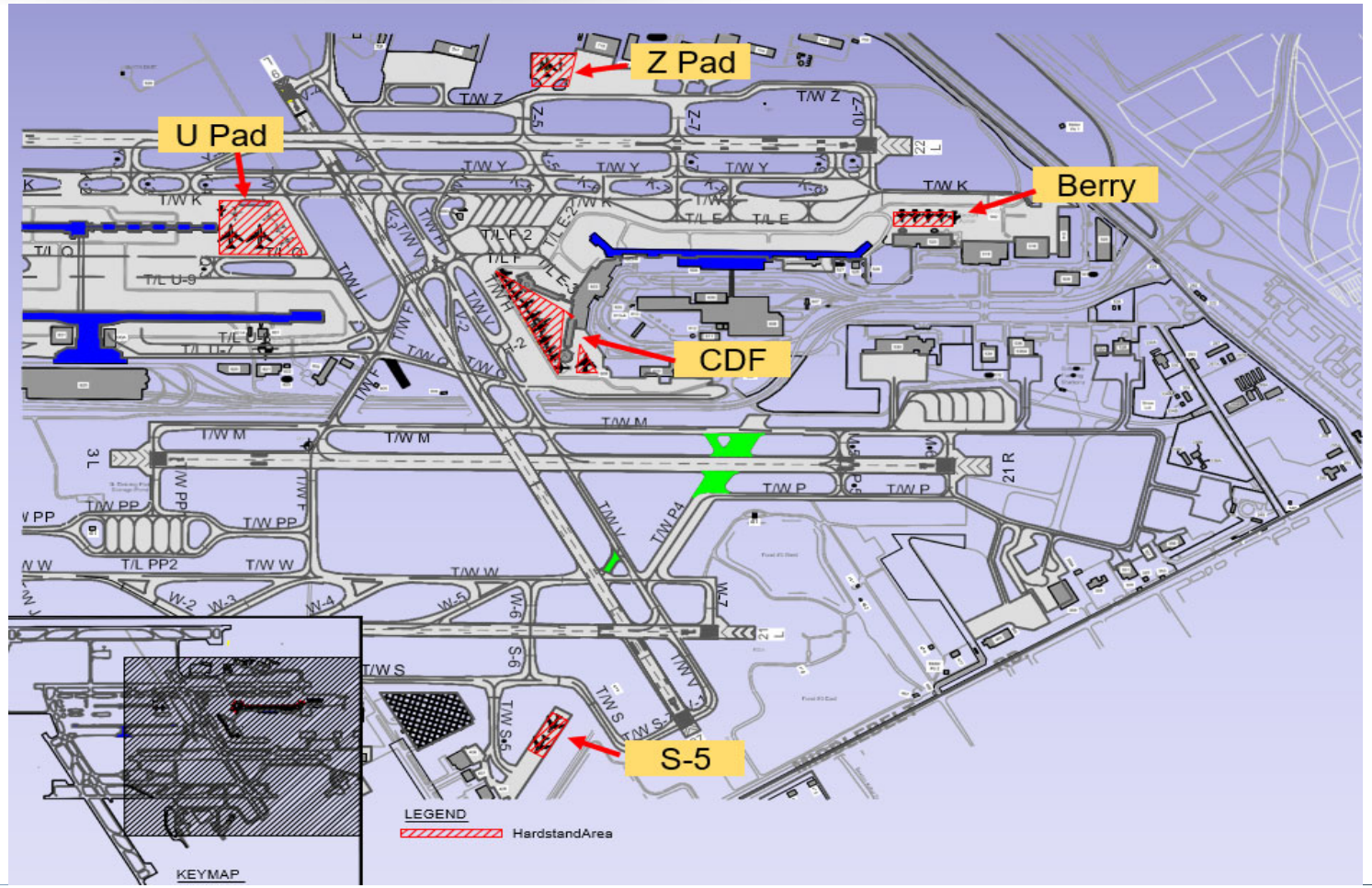
Deice Pads


4R
22L De-Ice Pad
22L
4R
22L
CDF
4R De-Ice Pad
Central Deice Facility
3L
3L
3L De-Ice Pad
I-94
EUREKA RD.
MIDDLEBELT
RD.

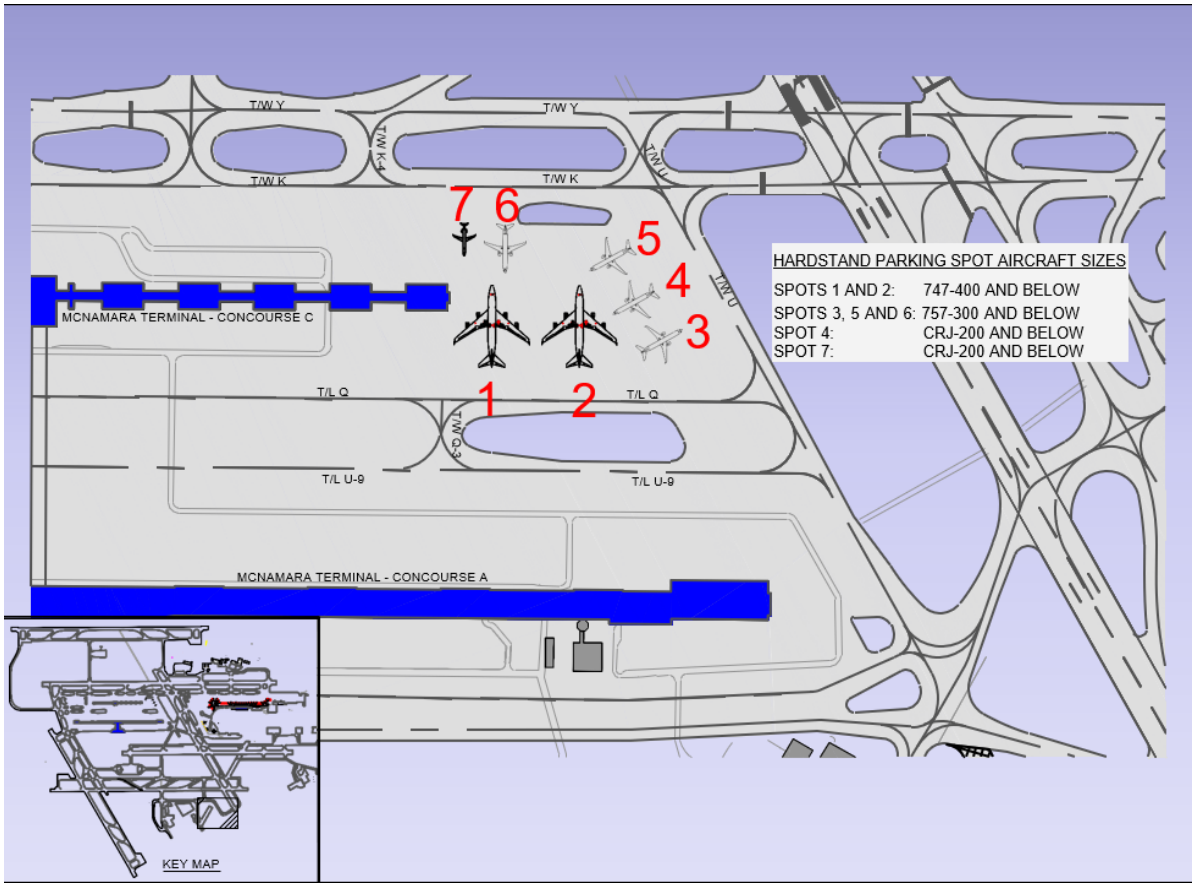
Ground Run-Up Enclosure (GRE)



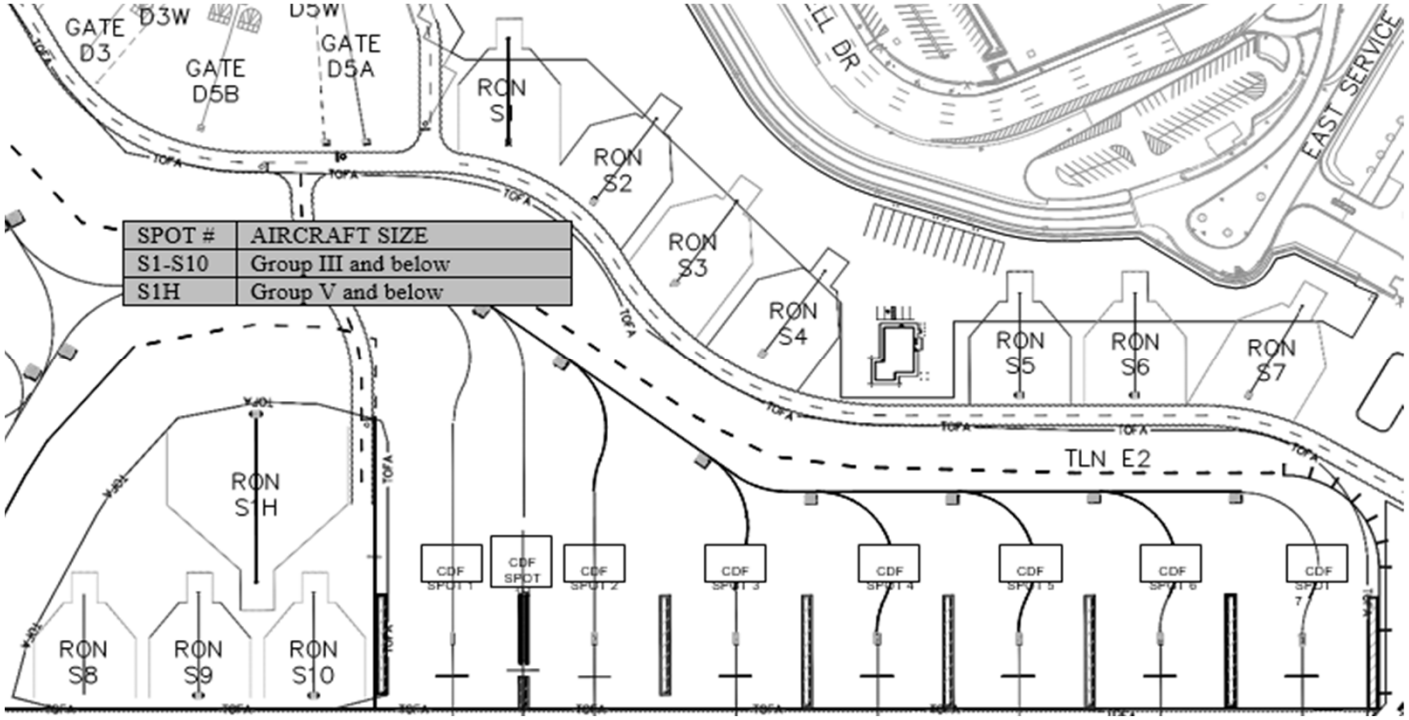
Overview RON Spot Parking



U Pad RON Parking



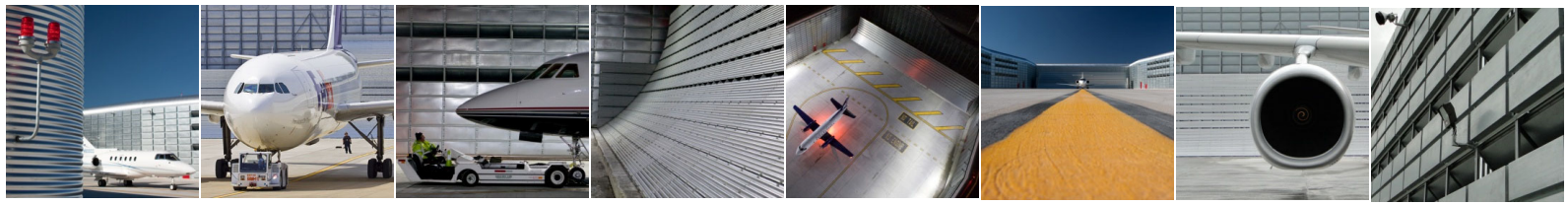
Central Deicing Facility (CDF) RON Parking



Ground Run-Up Enclosure (GRE) Operations

Ground Run-Up Enclosure (GRE) Topics

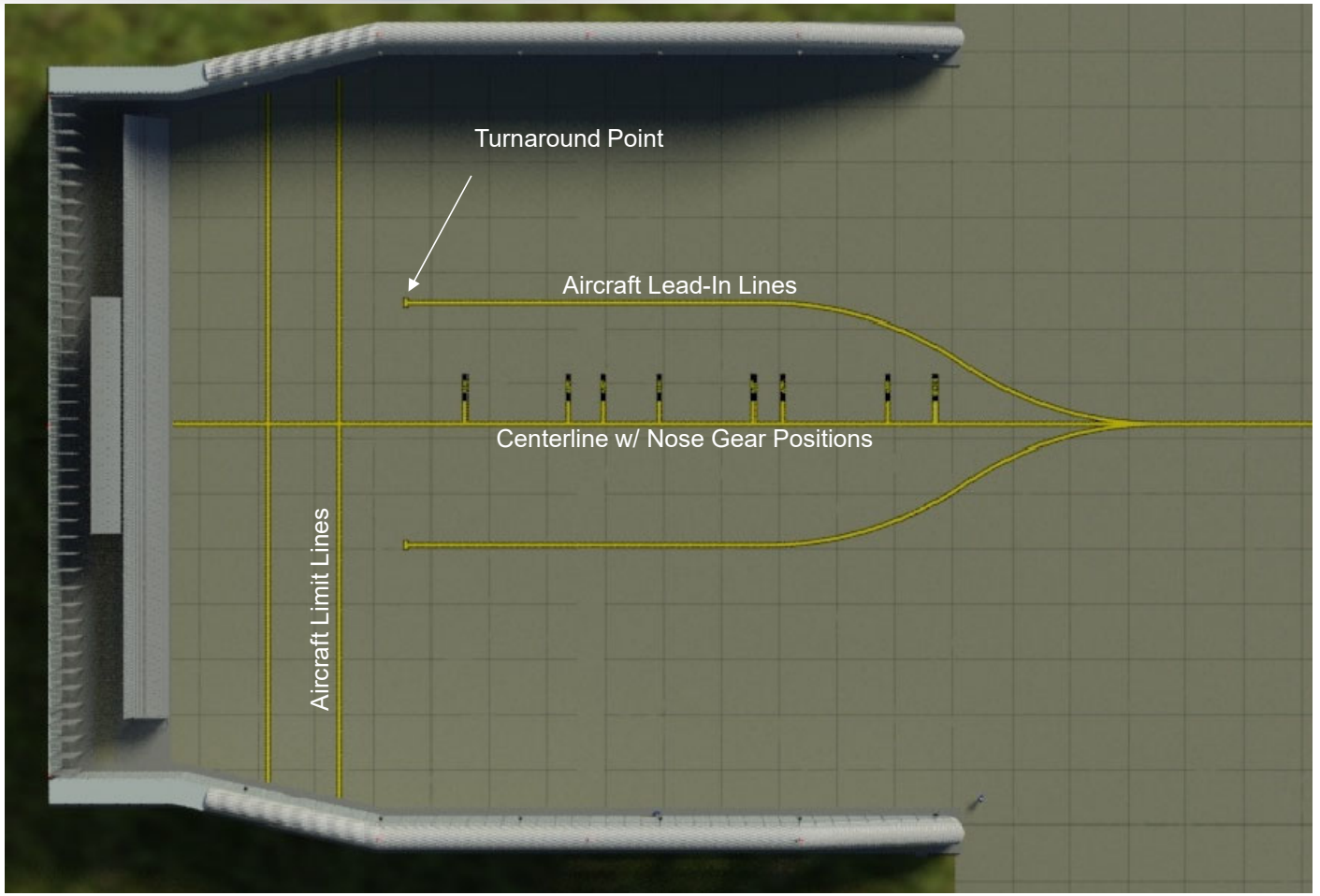
1. Introduction
2. Hours of Operation and Scheduling
3. Aircraft Access to the GRE
4. Aircraft Ingress to the GRE
5. Run-ups within the GRE
6. Run-ups at Alternate Locations
7. Safety
8. Other Features



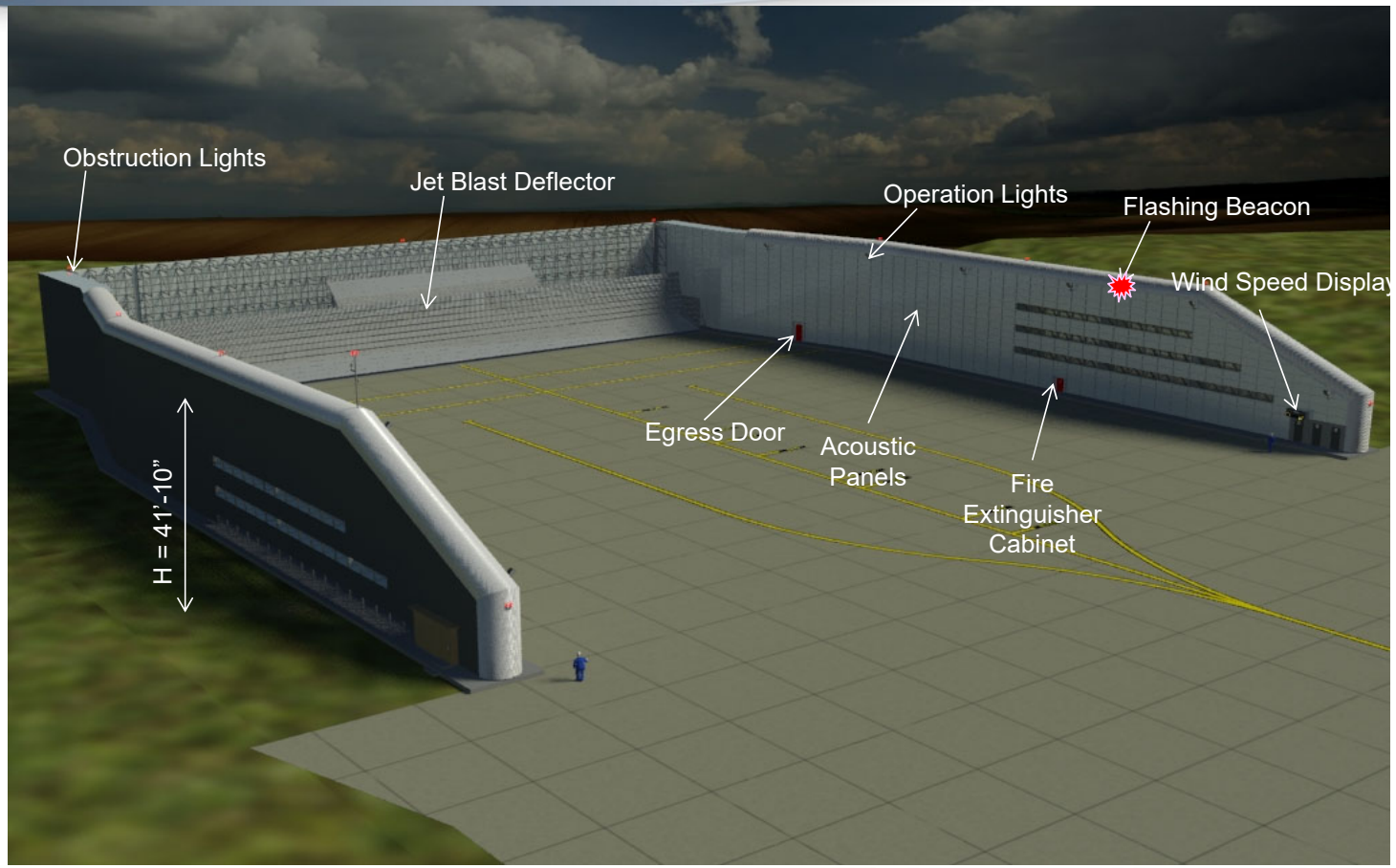
Introduction

- All run-ups should be conducted at the GRE
- Designed to minimize the acoustic impact of ground run-ups
- Lined with acoustic panels
- Can accommodate aircraft up to a B747-8

Introduction – Bird's Eye View



Introduction – Front View



Hours of Operations and Scheduling

- The GRE is available for use 24 hours per day.
- During snow events the GRE may be closed.
- Each run-up must be pre-arranged with Airfield Operations at 734-942-3685.
- First-come, first-served basis.

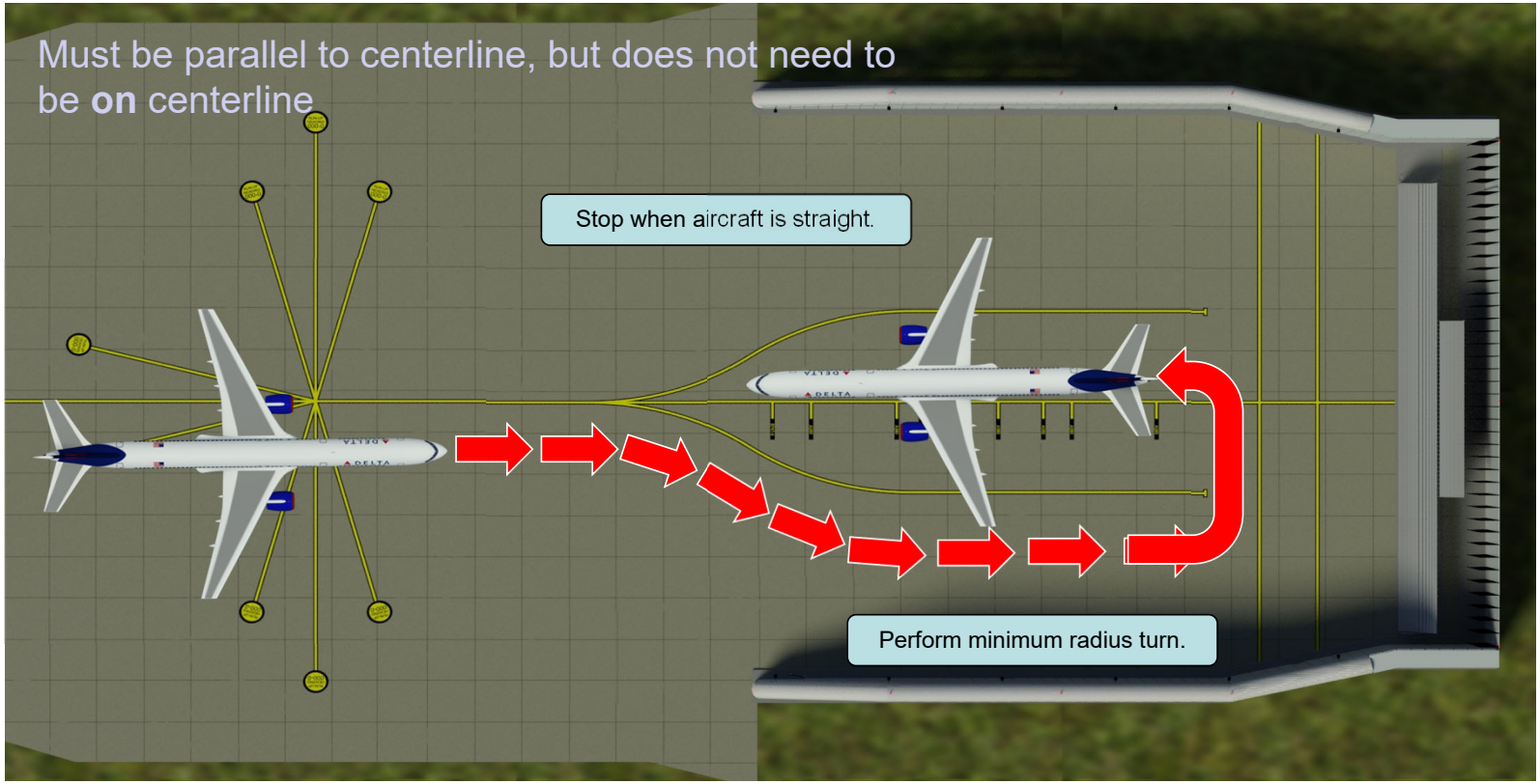
Aircraft Access – Run Taxi

A B757-300 or smaller or with an aircraft with a wingspan up to 125 feet may taxi into and out of the GRE.

- Call the FAA Control Tower for clearance to taxi to the GRE.
- Taxi to the GRE.
- Once the run-up is complete notify Airfield Operations at 734-942-3685.
- Call the FAA Control Tower for clearance to leave the GRE.
- Report any damage or unsafe conditions.

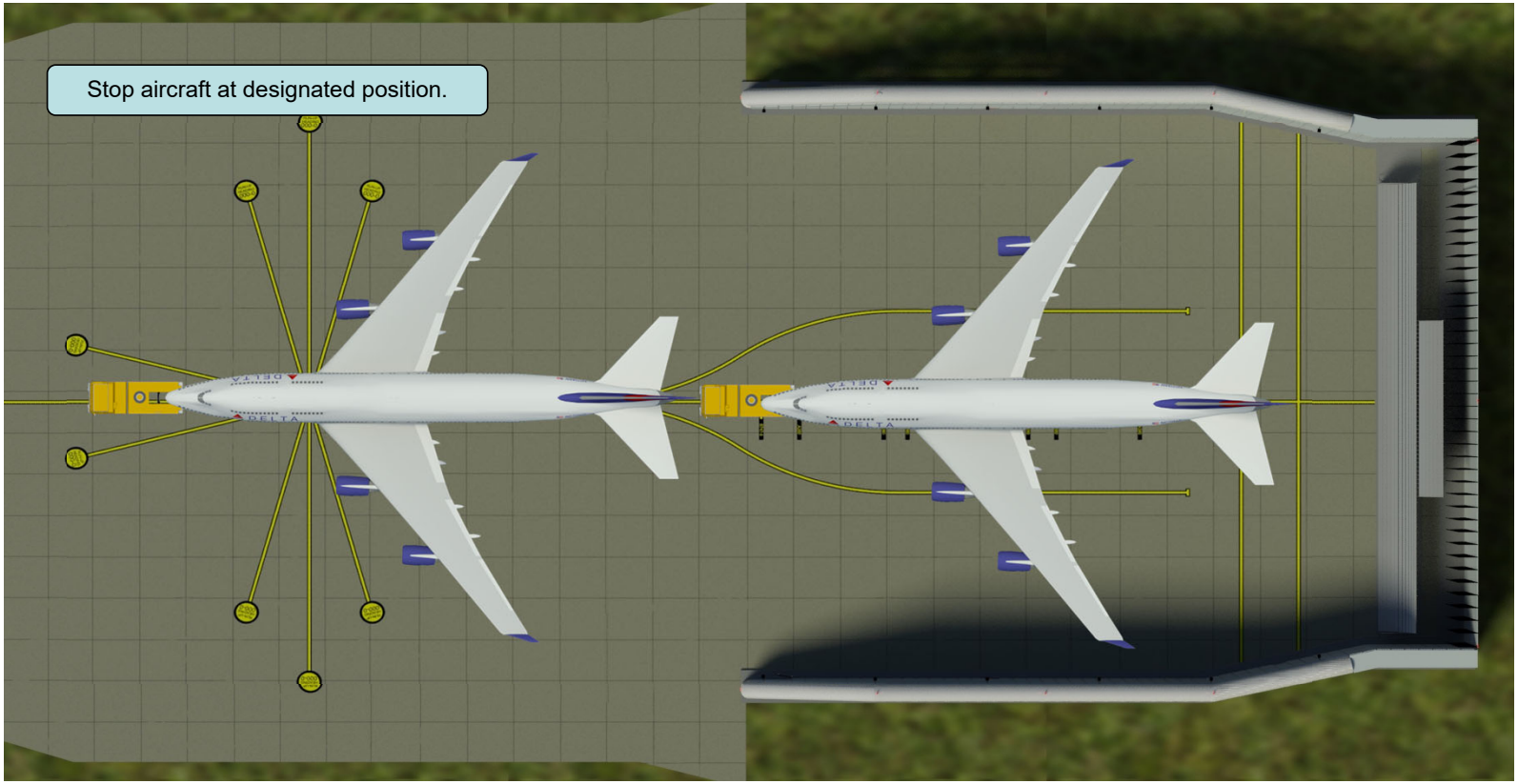
Aircraft Ingress – Taxi

B757-300, turnaround example

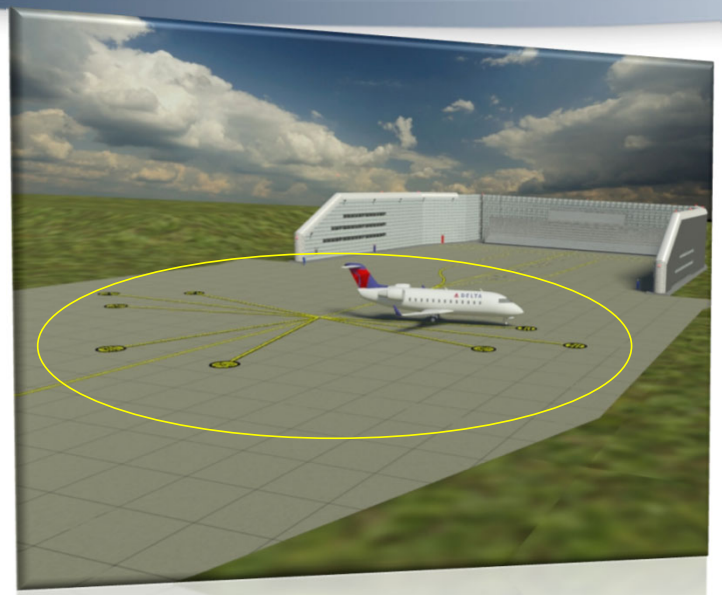


Aircraft Ingress – Tow

B747-400, pushback operation, GRE wing walkers

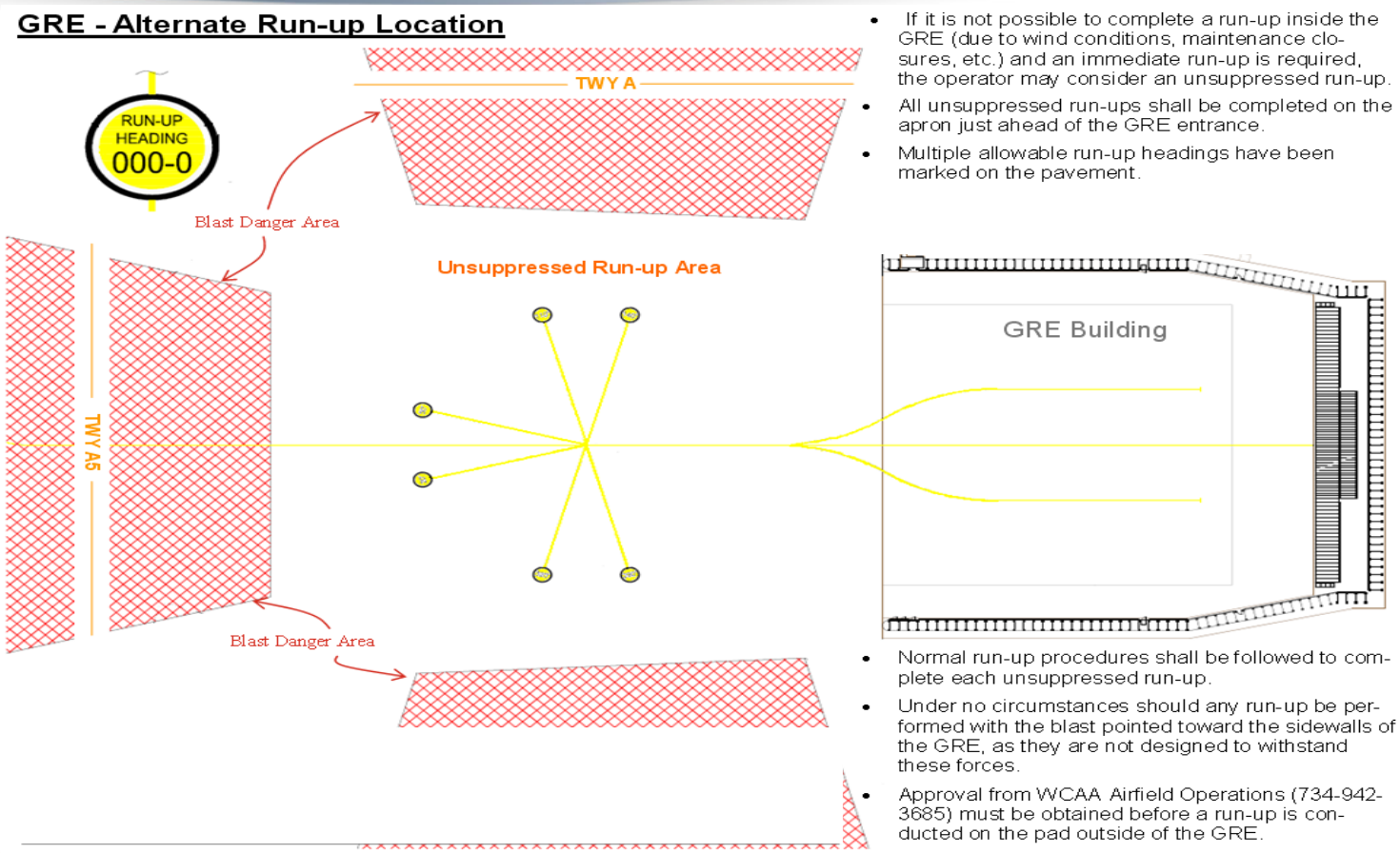


Run-ups at Alternate Locations



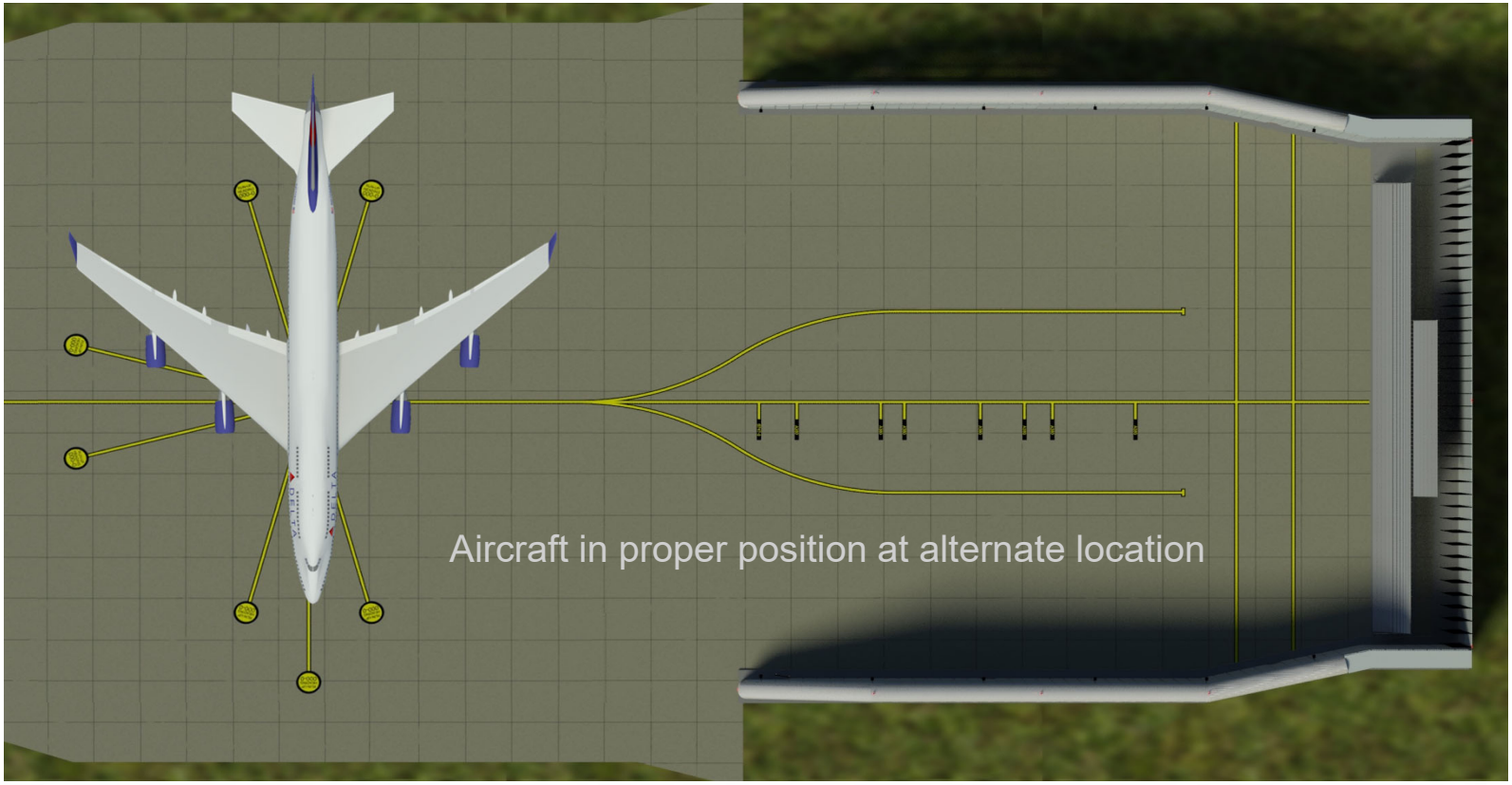
- If wind conditions do not allow the GRE to be used, the alternate run-up location is the apron immediately in front of the GRE.
- Under no circumstances should a run-up be performed with the engines pointed toward the GRE side walls.

Run-ups at Alternate Locations

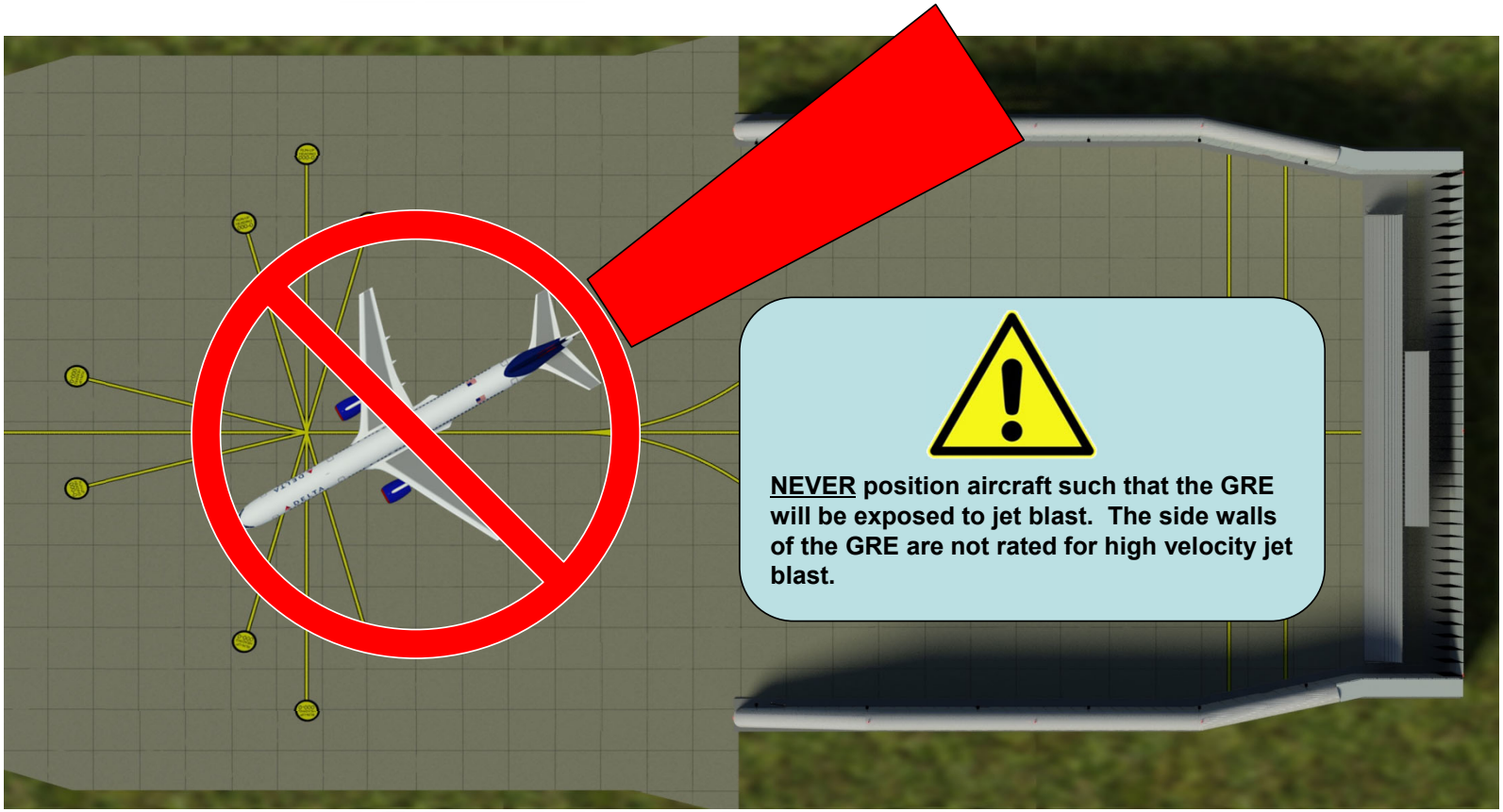


- If it is not possible to complete a run-up inside the GRE (due to wind conditions, maintenance closures, etc.) and an immediate run-up is required, the operator may consider an unsuppressed run-up.
- All unsuppressed run-ups shall be completed on the apron just ahead of the GRE entrance.
- Multiple allowable run-up headings have been marked on the pavement.
- Normal run-up procedures shall be followed to complete each unsuppressed run-up.
- Under no circumstances should any run-up be performed with the blast pointed toward the sidewalls of the GRE, as they are not designed to withstand these forces.
- Approval from WCAA Airfield Operations (734-942-3685) must be obtained before a run-up is conducted on the pad outside of the GRE.

Run-ups at Alternate Locations



Run-ups at Alternate Locations

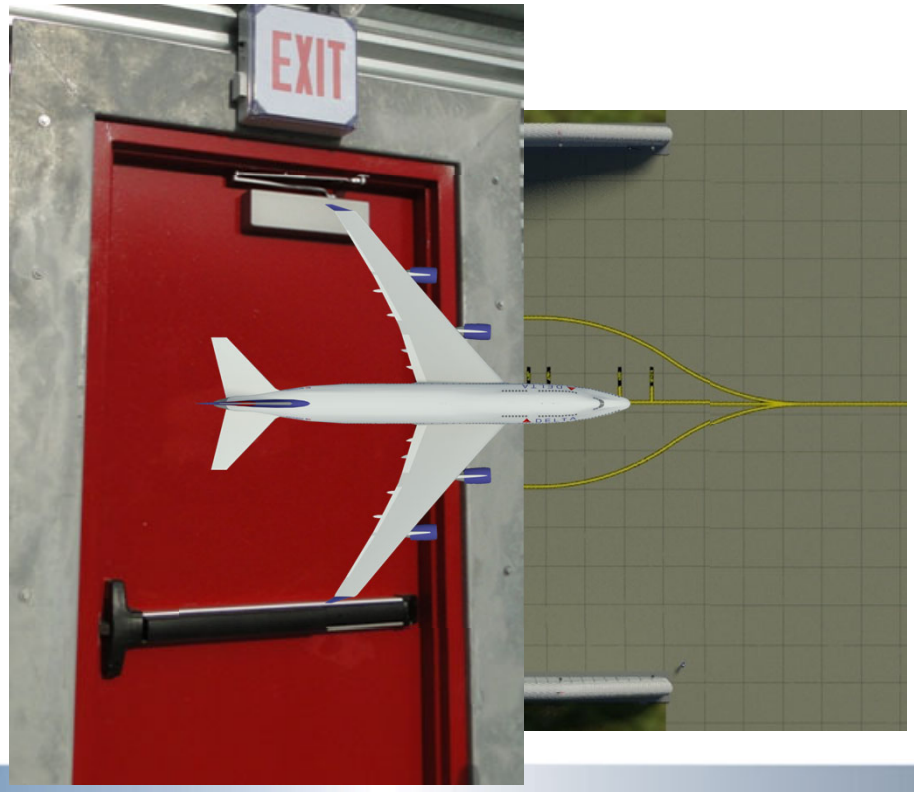


In the event of an emergency, dial 911.

EGRESS DOORS

- **The GRE features two egress doors.**
- **Each door has a panic bar and an illuminated "EXIT" sign.**

Emergency Egress Doors provide a quick escape route.

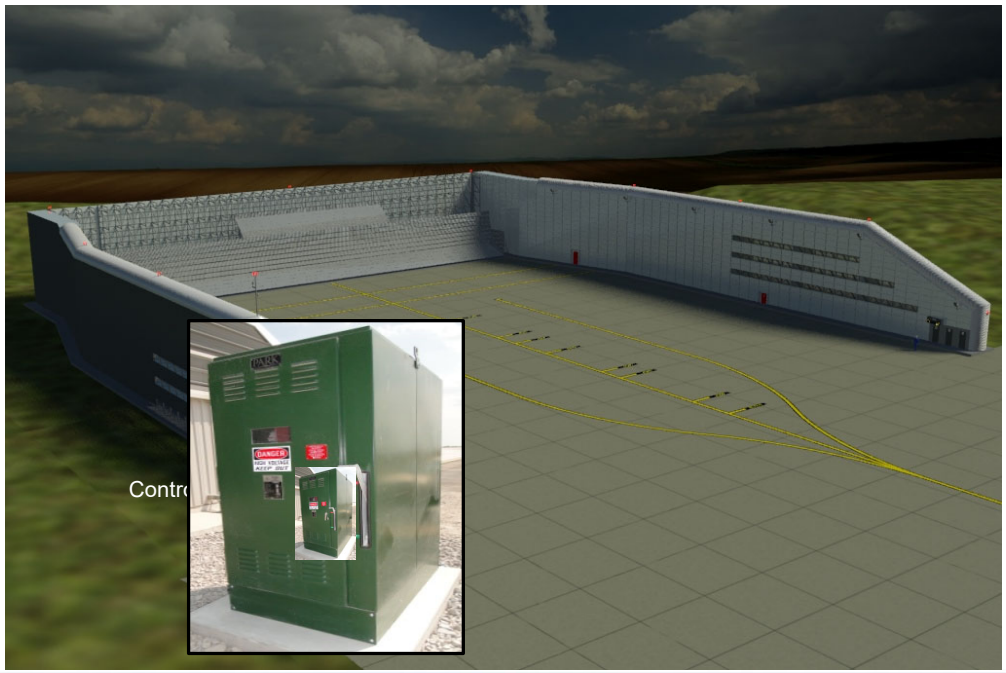


FIRE EXTINGUISHERS

Both side walls have a cabinet with a dry chemical fire extinguisher.

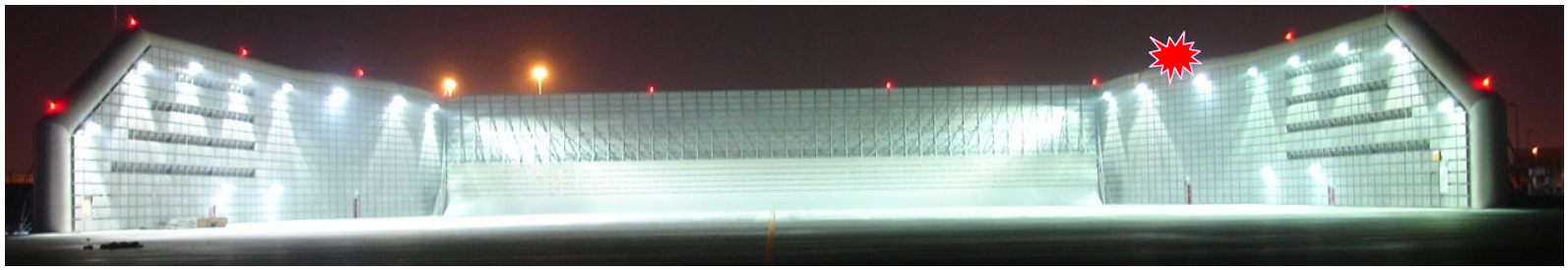
Safety

If necessary, shut off GRE's electrical power by utilizing the "emergency power shut off" switch located outside of the control room.



LIGHTING

- **Operational lights should be activated for all run-ups, 24h/day.**
- **Flashing beacon is activated whenever lights are on.**



Other Features

VEHICLE PARKING

Vehicles accompanying aircraft (security vehicles, miscellaneous autos, etc.) should park on the apron outside of the entrance of the facility as shown.

DETROIT METRO • WILLOW RUN
WAYNE COUNTY AIRPORT AUTHORITY

Thank you