

Runway Safety Action Team

TEB RSAT Meeting

Presented to: TEB Airport Team Members

By: Jason Beim, FAA Tower Air Traffic
Manager (ATM)

Maria Sheridan, Airport
Manager

Scott Marsh,
Manager, Operations and
Security

Date: August 17, 2022



**Federal Aviation
Administration**

Agenda

- **Introductions and meeting purpose.**
- **Definitions and statistics.**
- **National focus areas and efforts.**
- **Local events, Concerns, Best Practices, Action Items:**
 - Tower Briefing
 - PANYNJ briefing; construction, weather, wildlife
 - Airports Division Office
- **Formulating this year's Action Plan.**

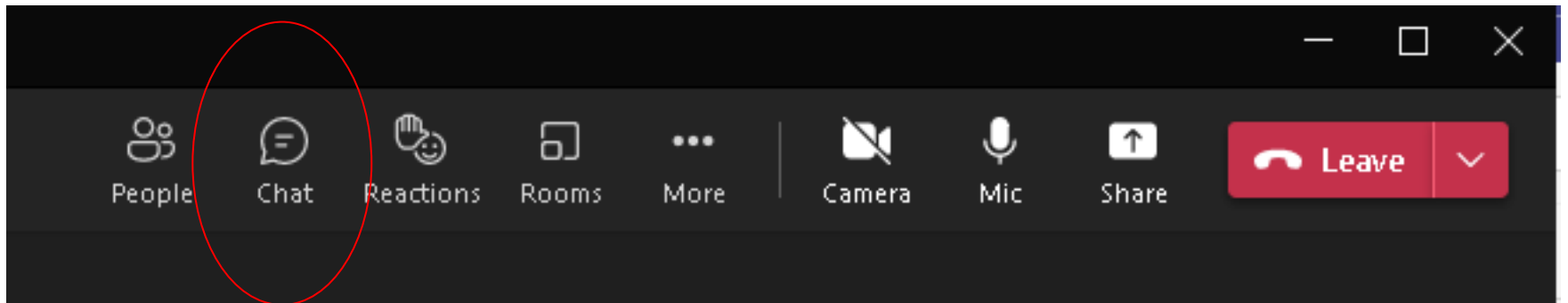


Introduction

- **Welcome to the Runway Safety Action Team (RSAT) meeting.**
 - Air Traffic Manager: Jason L. Beim
 - Maria Sheridan, Airport Manager
- **Please enter name, organization, and contact information in the ‘Chat’ section of the Teams meeting. (I’ll request phone participants and capture them)**
- **Introduction by all (who you are and who you represent).**



Introduction



RSAT Purpose

- **Purpose:**

To bring local stakeholders together at least once per year to identify and mitigate the risks of surface events at our airport.

At the end of this meeting, we will develop a plan to continue our safe operations as well as improve surface safety in the coming year.

Creating an aviation community.

An important aspect of safety is a fully functioning airport community that is accessible, communicates, informs, and makes decisions together.



Federal Aviation
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What part of the airfield are we discussing today?

The Movement Area:

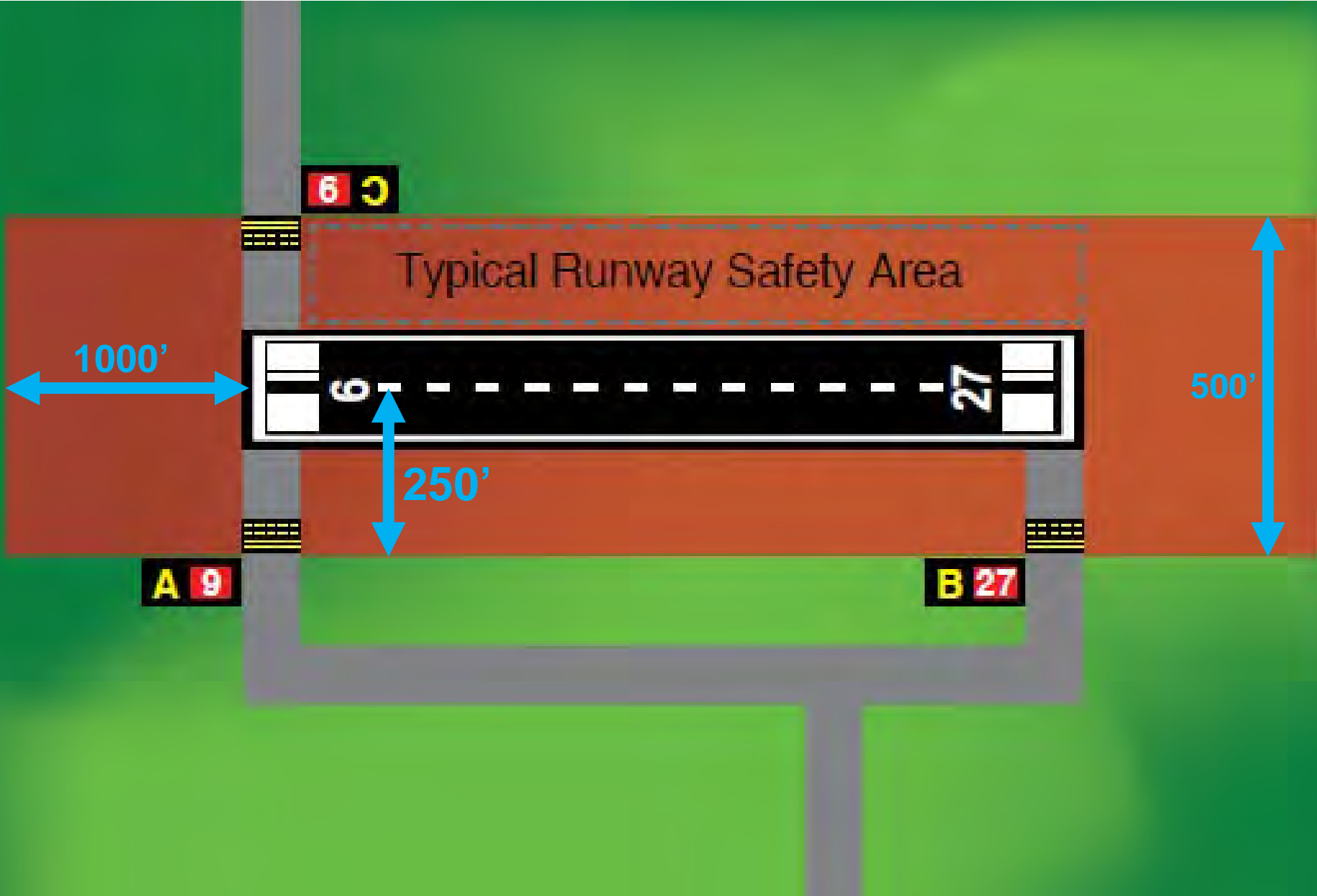
Anywhere on the airfield where you need permission from ATC to operate.

Generally speaking:

Taxiways and Runways



What is the RSA?



RSA Indicators (signs & markings)



Runway Incursion (RI)

- (ICAO): Any occurrence at an aerodrome 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.
- **Violating the Runway Safety Area (RSA)**



Crossing this line without permission from Air Traffic



Surface Incident (SI)

- **(ICAO):** An unauthorized or unapproved movement within the designated movement area (excluding runway incursions) or an occurrence in that same area associated with the operation of an aircraft that affects or could affect the safety of flight.
- **Entering a movement area / taxiway without Air Traffic approval.**



Runway Excursion (RE)

- A veer off or overrun from the runway surface (ICAO). These surface events occur while an aircraft is taking off or landing, and involve many factors ranging from unstable approaches to the condition of the runway.

RSAs are designed the way they are in order to protect airport users in the event of a Runway Excursion.





Engineered Material Arresting System (*EMAS*)

Aircraft can and do occasionally overrun the ends of runways, sometimes with devastating results.

The purpose of an EMAS is to stop an aircraft overrun with no human injury and minimal aircraft damage. The aircraft is slowed by the loss of energy required to crush the EMAS material.





The EMAS technology improves safety benefits in cases where land is not available, or not possible to have the standard 1,000-foot overrun.

A standard EMAS installation can stop an aircraft from overrunning the runway at approximately 80 miles per hour. An EMAS arrest or bed can be installed to help slow or stop an aircraft that overruns the runway, even if less than a standard RSA length is available.



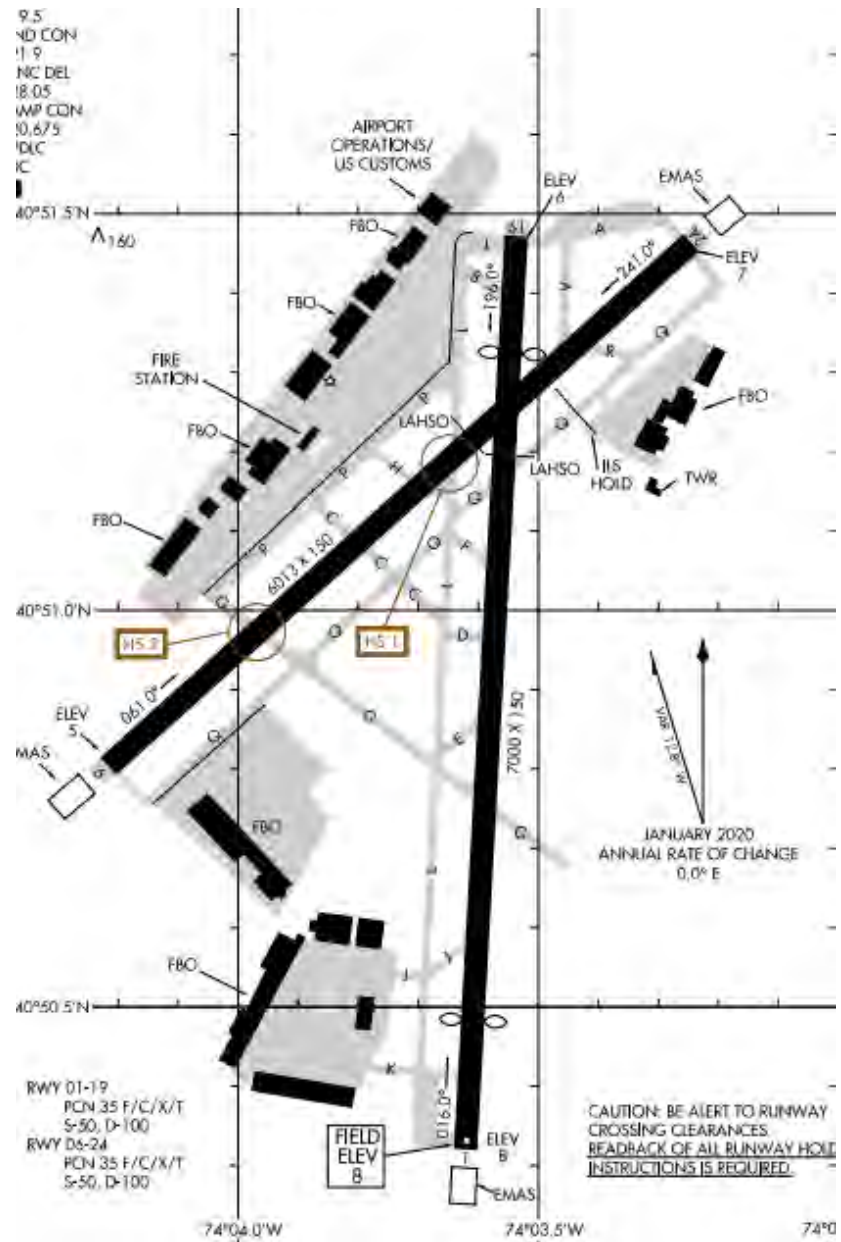


There are two types of EMAS systems: EMASMAX and greenEMAS

- **EMASMAX** is the latest, most durable version of block based EMAS, developed with and technically accepted by the FAA. EMASMAX arrestor beds are composed of blocks of lightweight, crushable cellular cement material designed to safely stop airplanes that overshoot runways.
- **greenEMAS** is a foamed silica bed which is made from recycled glass and is contained within a high-strength plastic mesh system anchored to the pavement at the end of the runway. The foamed silica is poured into lanes bounded by the mesh and covered with a poured cement layer and treated with a topcoat of sealant.

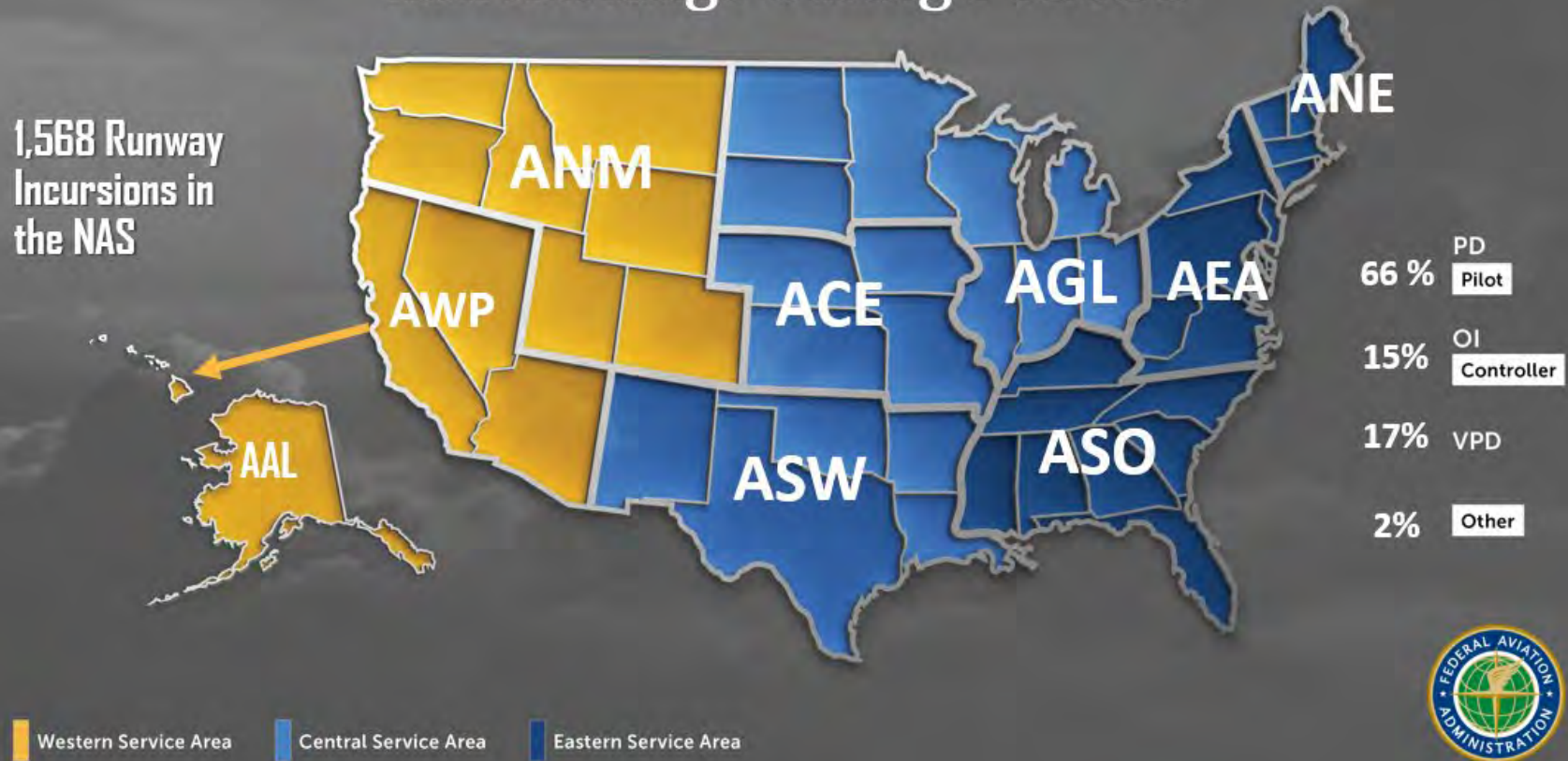


TEB Airport Diagram



Over 44,000,000 take-offs and landings during FY2021

1,568 Runway Incursions in the NAS





FY2021

Surface Incidents in the NAS: 550

- 14 surface incidents involved aircraft attempting to depart from a taxiway instead of a runway.
- 24 incidents involved aircraft lining up for a taxiway when attempting to land.
- 4 incidents involved aircraft landing at the wrong airport
- 508 are events where an aircraft or vehicle entered a taxiway incorrectly or without authorization.





FY2021

Runway Excursions in the NAS

Number of Runway Excursions: 450

Number of commercial aircraft: 37

Number of general aviation aircraft: 409

Number of military aircraft: 4

Main contributing factor:

Aircraft problem, loss of control, exited the runway.





NAS-Wide Focus Area



Wrong Surface Landings



Traffic Advisories / Safety Alerts



Altitude Compliance



Pilot Report (PIREP) Solicitation / Dissemination



Notices to Airmen (NOTAMs)

Wrong Surface Operations have become a focus area for the FAA.

- Landing risks include landing on the wrong runway, landing on a taxiway or landing at the wrong airport.
- Takeoff risks include departing from the wrong runway (to include the wrong direction from an intersection) or from a taxiway.



237

WRONG SURFACE DEPARTURES

Reflects FY2017 – FY2021 Events

Includes:

103

Misalignments to the wrong surface but did not depart

134

Actual departures from the wrong surface



939

WRONG SURFACE ARRIVALS

Reflects FY2017 – FY2021 Events

Includes:

473

Aircraft that mis-aligned to the wrong surface and went around

466

Aircraft that mis-aligned to the wrong surface and landed



NAS-Wide Focus Area

The Top 5 are:



1. Traffic Advisories/Safety Alerts

Lack of issuance of traffic advisories and/or safety alerts where required



2. Altitude Compliance

Aircraft operating at unexpected or unintended altitude



3. Wrong Surface Landings

Aircraft lands on the wrong runway or on a taxiway



4. Pilot Report (PIREP) Solicitation/Dissemination

Air traffic control did not meet the requirement to solicit and/or disseminate PIREP information



5. Operational Risk Management (Coordination)

NAS status or interruption information was not formally coordinated with impacted parties

Wrong Surface Operations have become a focus area for Runway Safety.

Landing risks include landing on the wrong runway, landing on a taxiway or landing at the wrong airport.

Takeoff risks include departing from the wrong runway (to include the wrong direction from an intersection) or from a taxiway.



Educational Videos

- One effort the FAA is undertaking to raise awareness and combat these errors is our new “From the Flight Deck” video series.
- https://www.faa.gov/airports/runway_safety/videos/
- TEB video: <https://www.youtube.com/watch?v=oXRf7-SSE-8>
- Initially conceived to address wrong surface operations, we plan to capture hot spots and challenges at all of our towered airports.
- All videos are also available on our YouTube channel. Just search “FAA From the Flight Deck”

Educational Videos



Wrong Surface Risks

Primary risk factors include:

- Parallel runways, especially with offset thresholds or irregular spacing (either very far apart or very close together).
- Closely aligned runway ends.
- Parallel taxiway that looks a lot like a runway.
- Nearby airports with similar runway configurations.

Know before you go and remain vigilant:

- Become familiar with the airport diagram and keep a copy with you.
- Check out a satellite image of the airport for a realistic picture of what you will be looking for.
- Double check your compass heading – make sure it matches your assigned runway.



TEB: Incidents



Surface Incidents, Runway Incursions and Excursions summary:

Map of August 10th, 2021 to present:

5 Pilot Deviations

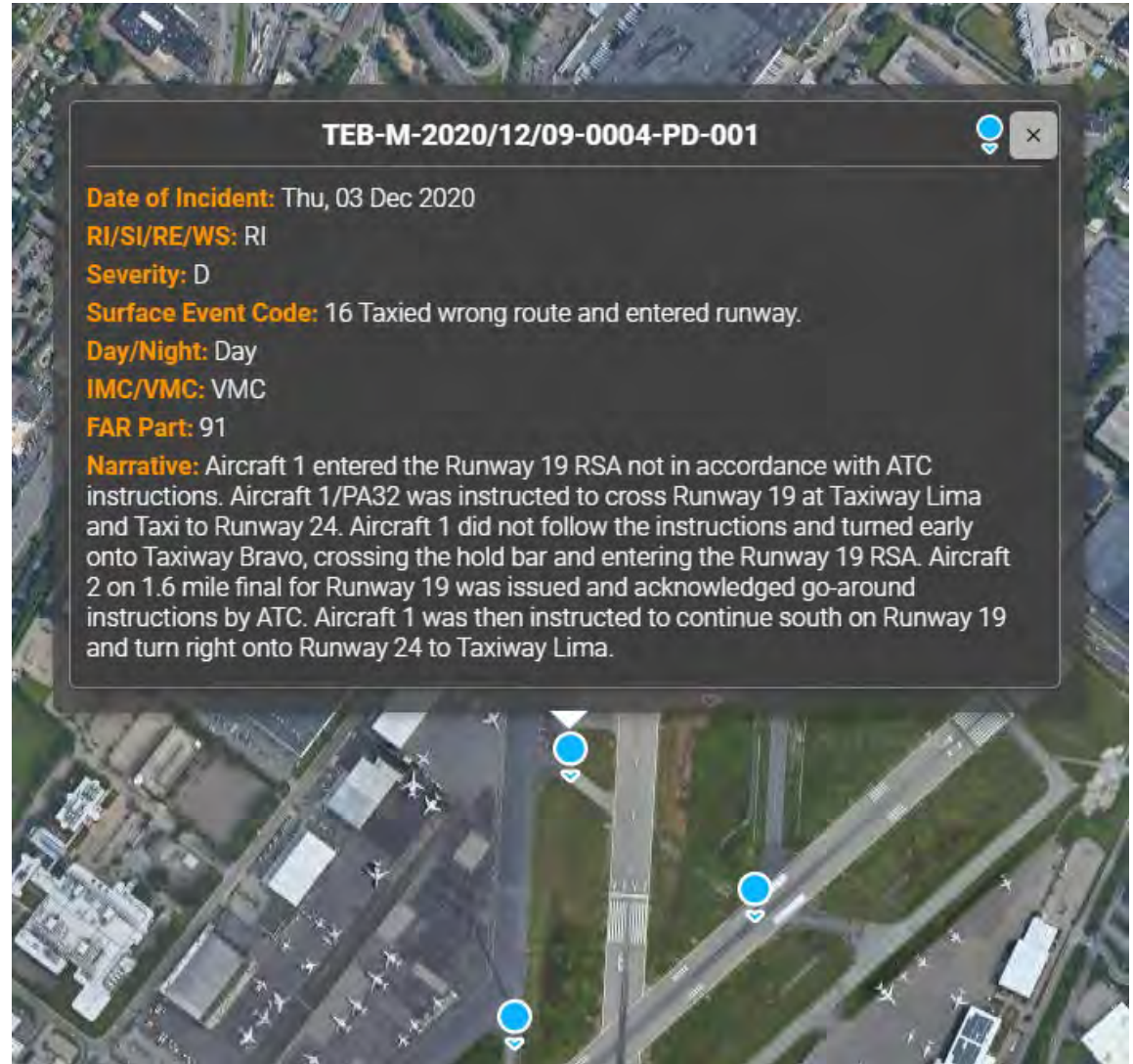
(4 on this map with one more recent Pilot Deviation not demonstrated in this view.)

1 Vehicle/Pedestrian Deviation (merged with another location dot on the map)



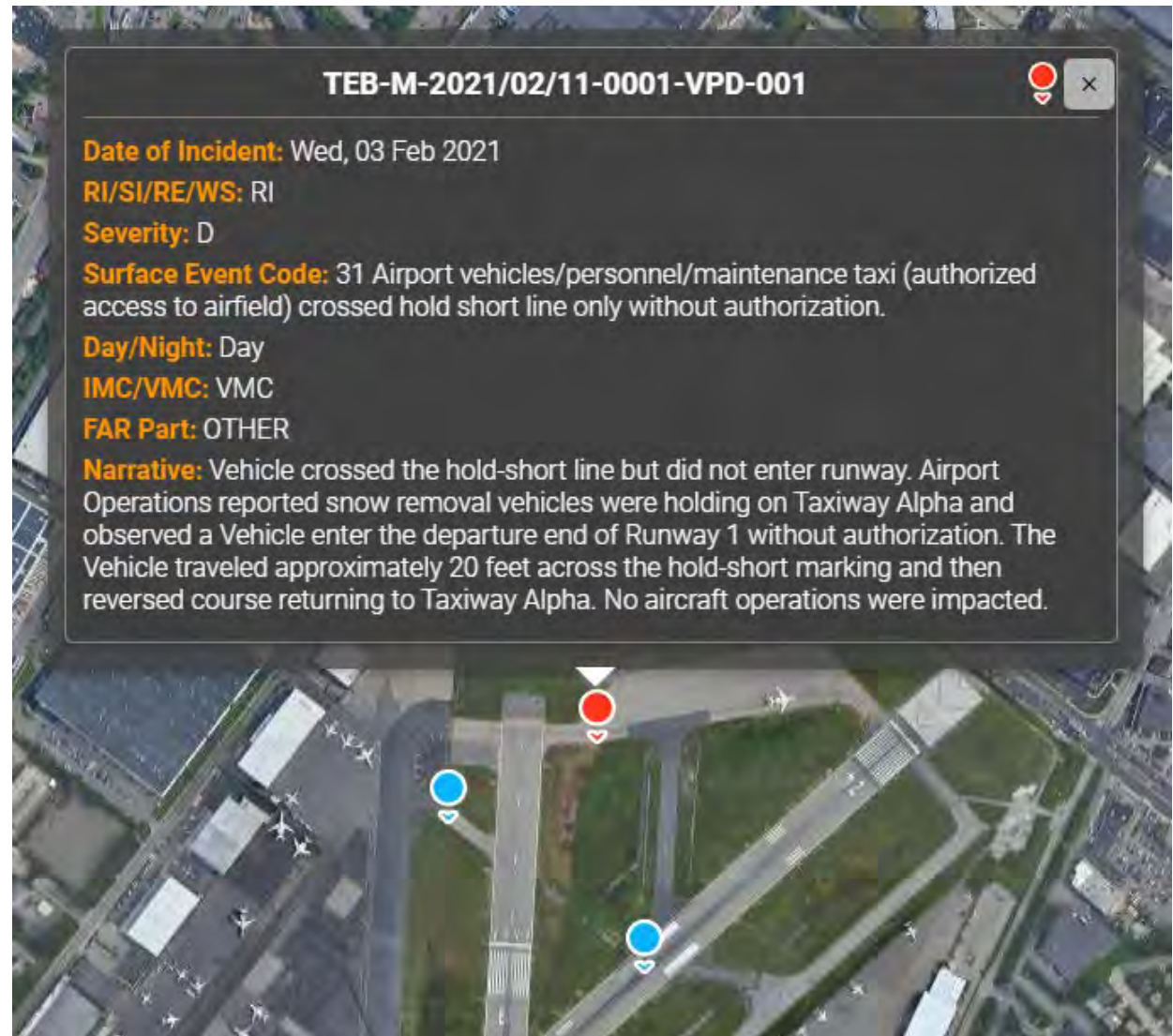
Surface Incidents, Runway Incursions and Excursions

FY20 Pilot Deviation Runway Incursion



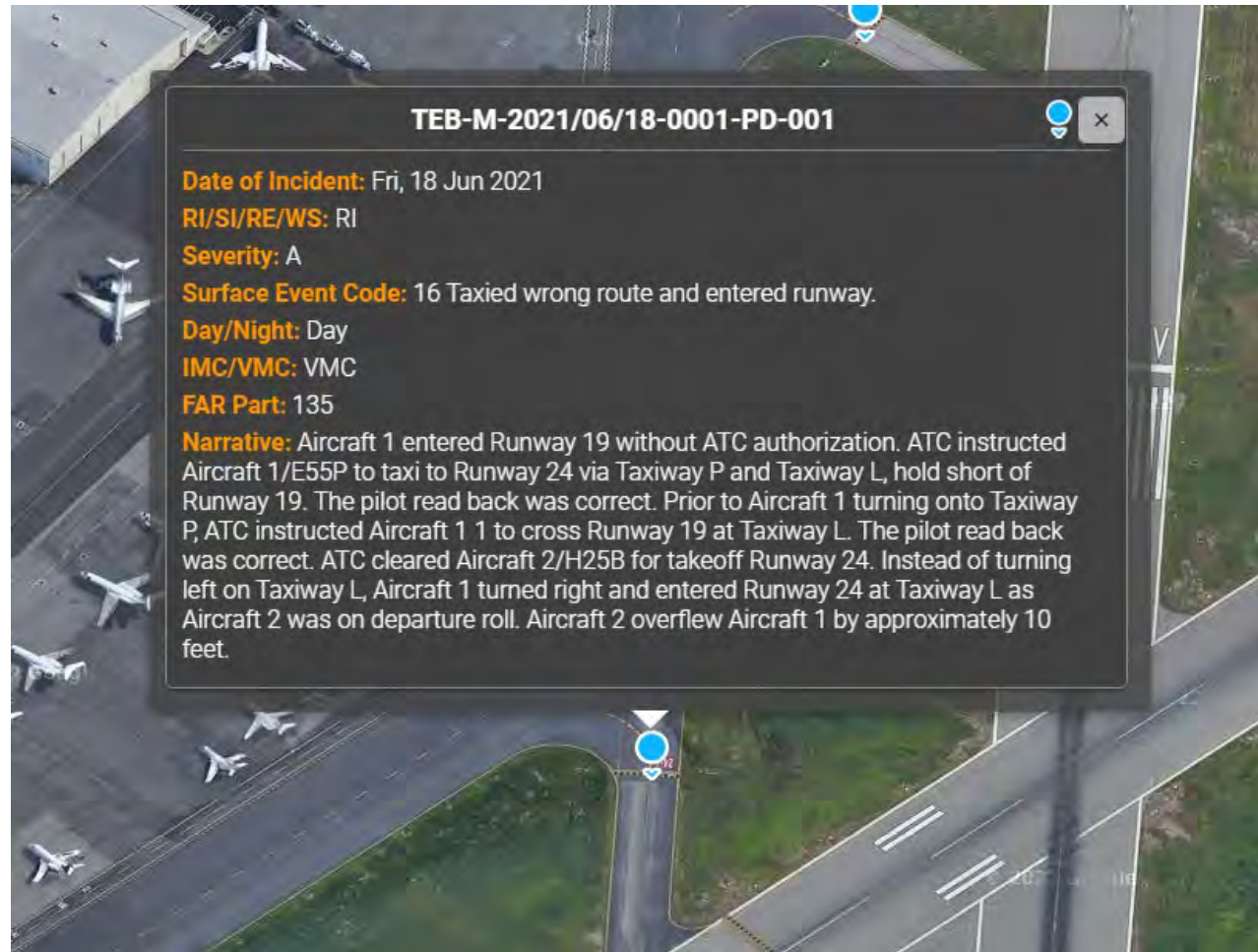
Surface Incidents, Runway Incursions and Excursions

FY21 Vehicle Deviation Runway Incursion



Surface Incidents, Runway Incursions and Excursions

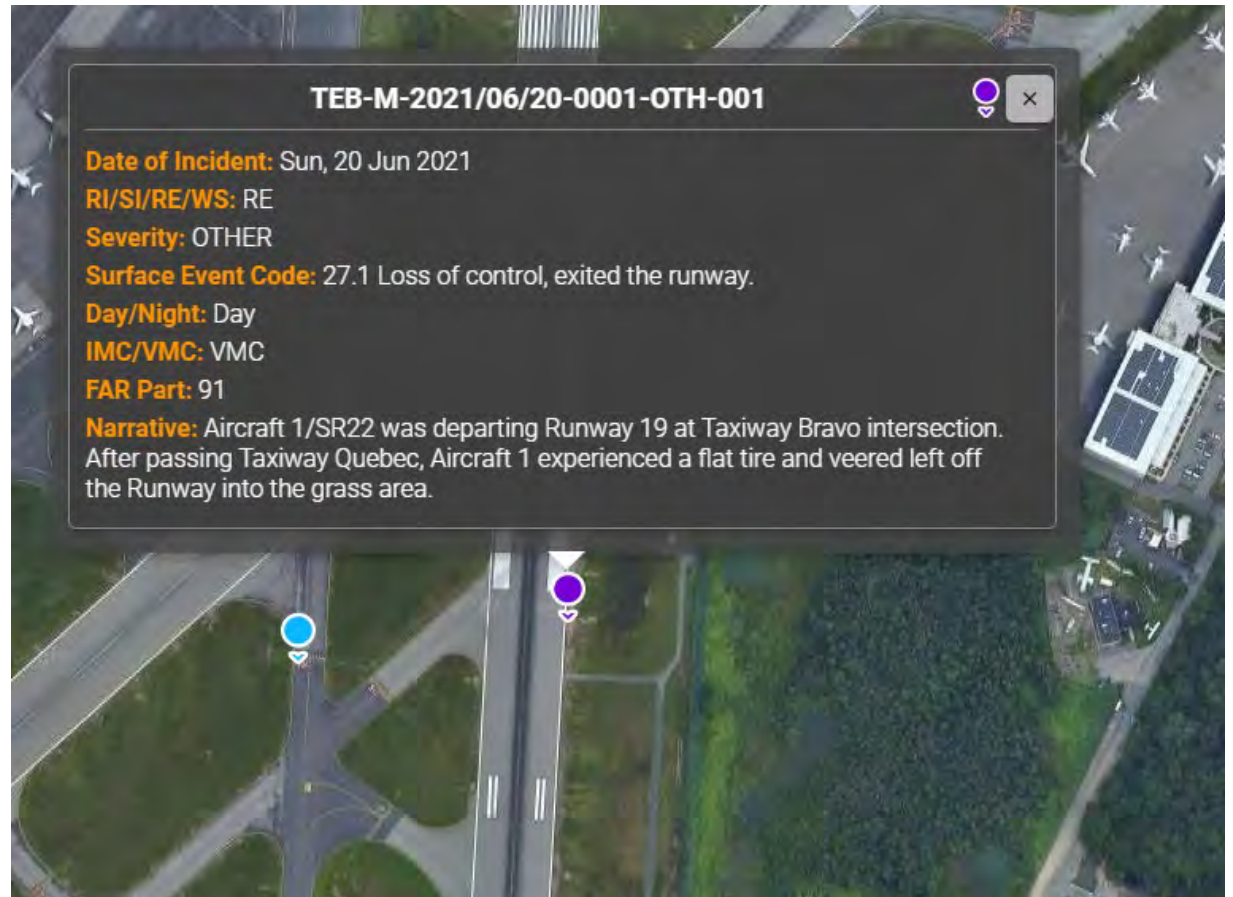
FY21 Pilot Deviation Runway Incursion



Surface Incidents, Runway Incursions and Excursions

FY21

Runway Excursion



Surface Incidents, Runway Incursions and Excursions

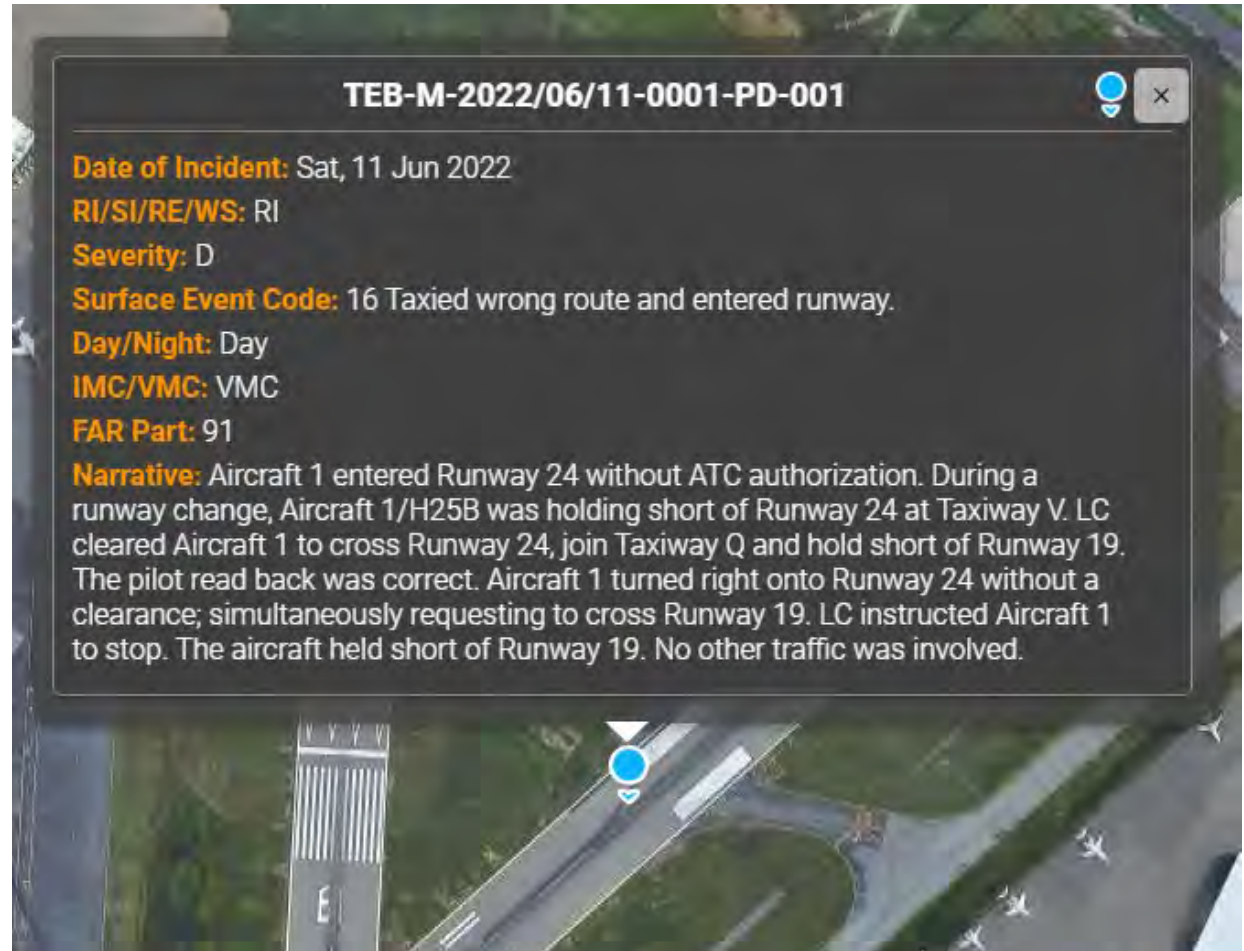
FY22 Pilot Deviation Runway Incursion



Surface Incidents, Runway Incursions and Excursions

FY22 Pilot Deviation

Runway Incursion



Review of previous Action Items and Open Action Items:

- **Airfield enhancements due to June 18, 2021, aircraft incursion.**



Recommended Airfield Enhancements

Short-Term Plan

- Installation of an outbound runway destination sign on the east side of the Papa where Papa and Lima intersect.



Recommended Airfield Enhancements

Short-Term Plan

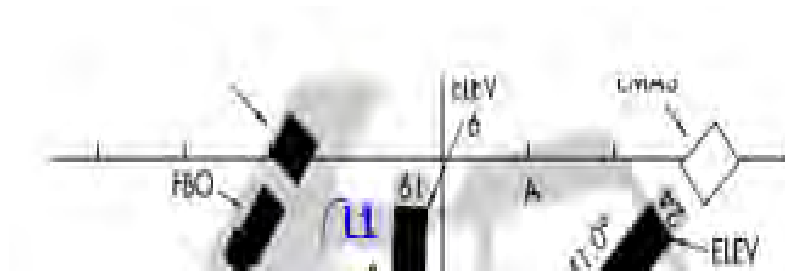
- Installation of surface painted direction sign on Papa prior to Lima
- Remove the tangent portion of the curved taxiway centerline from Papa to Lima heading south and make this centerline intersect with Papa at a 90° angle.
- Adding a curved centerline from Papa to Lima heading north.



Recommended Airfield Enhancements

Short-Term Plan

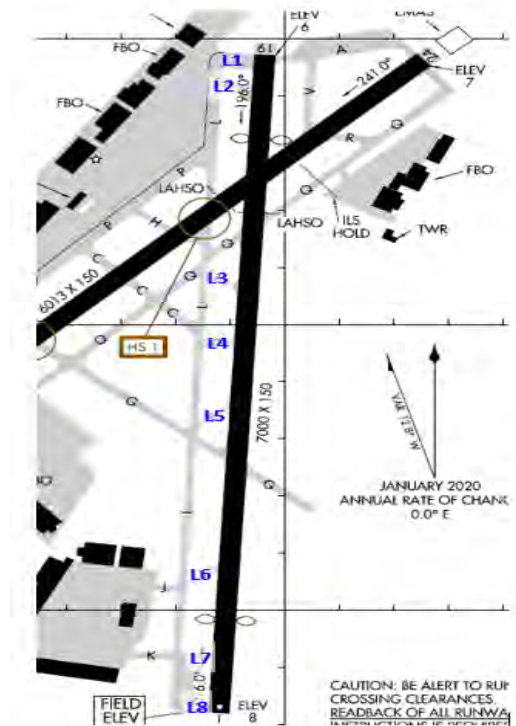
- Re-designate the entrance taxiway at the intersection of Lima and Rwy 19 to L1.



Recommended Airfield Enhancements

Long-Term

- Phased re-designation of entrance/exit taxiways from parallel and surrounding taxiways to both runways.



PANYNJ: Airfield Enhancements



Temporary unlit sign installed July 20, 2022, and will be upgraded to internally illuminated sign in 2024.



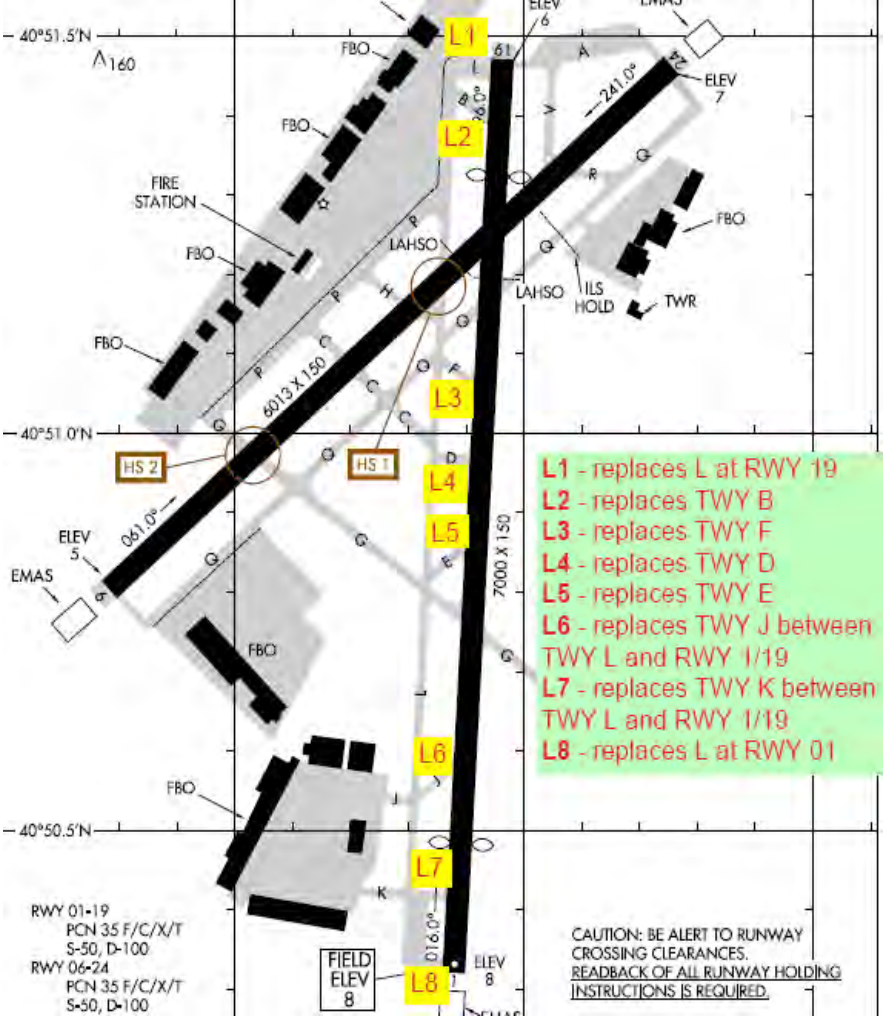
PANYNJ: Airfield Enhancements



Supplemental Surface Painted directional sign and taxiway centerline with a radius to aid in guidance will be installed, Aug. 2022.



PANYNJ: Airfield Enhancements



Renaming of Taxiway Stubs between RWY 1/19 and TWY 'L' during the 2024 Runway 1/19 Rehabilitation Project.

PANYNJ: Construction Briefing

RWY 6/24 Rehabilitation – 2022 - 2023

Runway 6-24 Closures:

Weeknights: (April 2022 thru April 2023)

- Sunday, Tuesday, Wednesday, and Thursday - 10:30 pm to 6:30 am the following morning
- Monday 10:30 pm to 8:30 am Tuesday

Weekends: (May 2nd – Nov 30th)

- 38-hour closures – Friday 10:00 pm to noon Sunday (May 2nd thru August 31st – total of 7)
- 12-hour closures – Sunday 12:01 am to noon Sunday (Oct 1st thru Nov 30th – total of 6)

Airport Closures - Weekends:

- 38-hour closures – Friday 10:00 pm to noon Sunday (July 1st thru Aug 31st – total of 7)
- Weather Impacts require an additional weekend closure
- 12-hour closures – Sunday 12:01 am to noon Sunday (Oct 1st thru Nov 30th – total of 2)



PANYNJ: Construction Briefing

FAA Construction

- ILS RWY 19 System Upgrade
 - Full ILS OTS; July 11th – November 7th
 - PAPI (RWY 19) OTS; July 11th – August 30th
 - RWY 06 Rollout RVR OTS; July 11th – August 30th

Maintenance Runway Closures

Each week runways are scheduled for a 4.5 – 5 Hr. closure during the morning hours.



PANYNJ: Planned Construction

2023

FAA Construction

- RWY 01 VASI upgraded to PAPI (2023)
- Power Distribution Upgrades to: (2023)
 - RWY 01 VASI/PAPI
 - RWY 01 REILs
 - RWY 06 GS
 - RWY 06 LOC
 - RWY 24 PAPI
 - ASOS

Airport Construction

- Runway 1/19 Interim Repairs
- Drainage System Rehabilitation project



PANYNJ: Planned Construction

2024

Airport Construction

- Runway 1/19 Full Rehabilitation
- Drainage System Rehabilitation project

FAA Construction

- New ATCT Commissioning



PANYNJ: Special Events

No Special events



PANYNJ: Best Practices

- PANYNJ: (Open discussion of best practices)
 - Cert Alert: compliant

Date: 2/25/2020

No. 20-01

To: All Title 14 CFR Part 139 Airport Operators

Subject: Required Training for Vehicle Operators Prior to Accessing the Movement Area

- PANYNJ: All aircraft tugs are escorted by Airport Ops if a runway crossing required.
- Runway Incursion Warning System (RIWS)
- Airfield Briefing card
- Port Authority Construction Standards



PANYNJ: Best Practices

TEB Pre-Airfield Work Briefing Card / Safety Risk Assessment					
Situational Awareness					
Date				Time	
Briefing From (99)				Briefing To	
Runways Closed	RWY 6/24	RWY 1/19	Opening Time		
Arriving RWY				Departing RWY	
Taxiway Closures					
Weather Condition	IFR	VFR	ILS Critical Areas Active?	Yes	No
Construction Locations					

Mission	
Who (Department/Call Sign)	
What (Specific Task Assigned)	
When (Timeframe, Including Breaks)	
Where (Specific Work Area)	
Why (To ensure safety and Part 139 Compliance)	
How will I get there? Is a Runway Crossing Required?	
Risks Ex: RWY Crossings, Working near open RWYs, electrical, etc.	
Risk Mitigation Ex: RWY X's, guards, barricades, lighting, etc.	

Important Reminders

1. Always contact Airport Operations prior to accessing and leaving the Aeronautical Movement Area. Failure to do so can/will result in the revoking of your DR2 access privileges
2. Verify that your rotating beacon and two-way radio are operational before entering the movement area
3. A runway or taxiway must never be used as a shortcut. You should only access the movement area when it is necessary to the performance of your duties
4. When in doubt, turnabout or ask the status of the runway on PA Ops or Tower Frequency
5. ALWAYS confirm the status of a runway with OPS or the Tower before entering the runway safety area
6. Be aware of construction sites and do not enter the site without a construction briefing first
7. Keep in mind that during snow, markings can be obscured and may not be visible
8. A runway incursion can kill so utilize your six indicators that let you know you are approaching a runway



Date: 9/3/2019

Rev. 4



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PANYNJ: Best Practices

TEB Pre-Airfield Work Briefing Card / Safety Risk Assessment					
Situational Awareness					
Date				Time	
Briefing From (99)				Briefing To	
Runways Closed	RWY 6/24	RWY 1/19	Opening Time		
Arriving RWY				Departing RWY	
Taxiway Closures					
Weather Condition	IFR	VFR	ILS Critical Areas Active?	Yes	No
Construction Locations					

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PANYNJ: Best Practices

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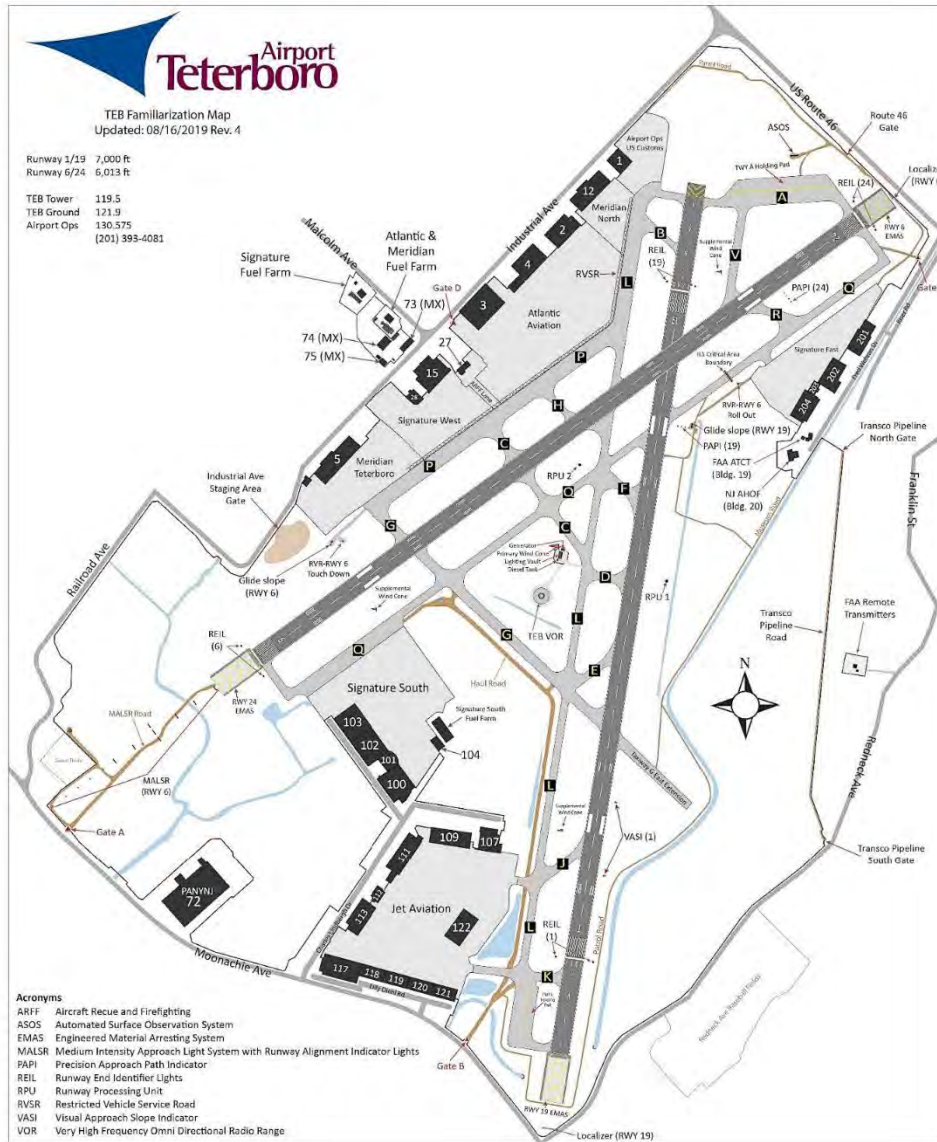
Date: 9/3/2019

Rev. 4



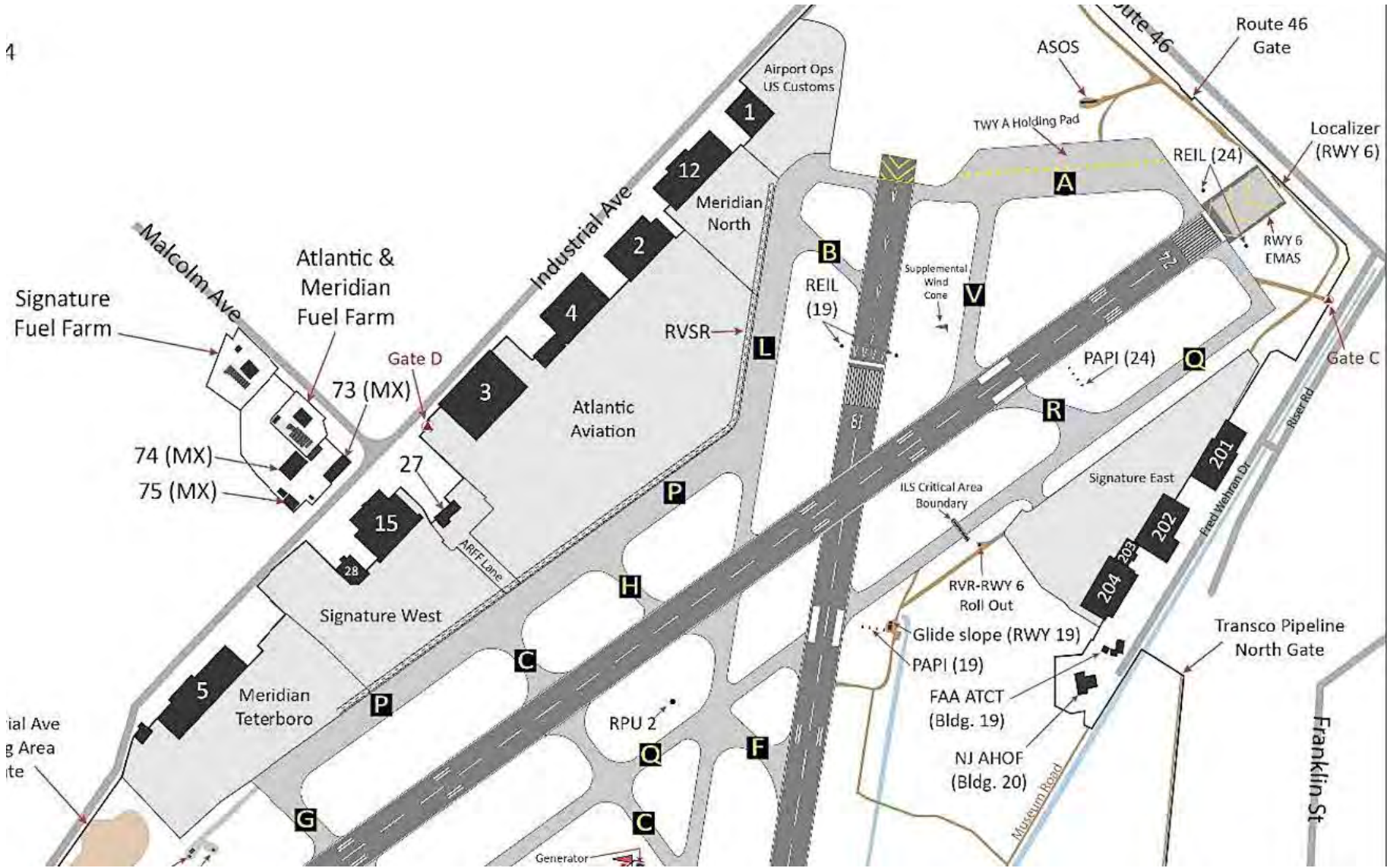
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PANYNJ: Best Practices



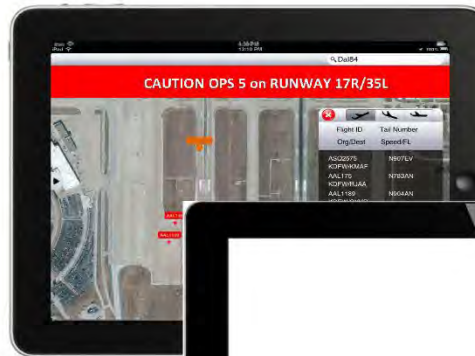
PANYNJ: Best Practices

4



PANYNJ: Best Practices

OpsBOSS Digital Runway Incursion Warning System (RIWS) – Apple iOS



PANYNJ: Best Practices

To ensure compliance with FAA guidance and implement industry "best practices" at our airports, the Aviation Department has adopted the following policies to be utilized at all Port Authority Aviation facilities.



Airfield Lighting



Construction Site Delineation-Hazard Marking and Lighting



Limits of Construction



Site Safety Observer



X Boards



Escorted Vehicles and Individuals



Construction Safety Phasing Plan (CSPP)



**Runway
Holding
Position
Markings
Signs
Lights**



PANYNJ: Best Practices



PANYNJ: Best Practices



Tower Best Practices

- **PANYNJ and FAA Tower have completed a Runway Safety Area (RSA) Letter of Agreement**
- **FAA Tower very successfully employs Runway use Memory Aids to help ensure Runway Safety**



Tower Letters of Agreement

- **PANYNJ and FAA Tower have a Movement / Non Movement Area LOA, that is current and relevant.**
- **RSA LOA – complete!**



Tower Reported Issues/User Concerns

Have there been any surface safety issues reported to the ATCT or airport within the past year?

Comments from the 'Digital, virtual floor'? Does anyone in the room have concerns to bring up at this point?

Events reported:

- **QC:** No surface-related 'Public Inquiries' within 191 TEB Occurrence Reports



PANYNJ: Reported Issues/User Concerns

- **None reported**



PANYNJ: Wildlife

Discuss wildlife hazards specific to your airport.

- Deer
- Coyotes
- Geese

Discuss specific times of year or other conditions that precipitate the risk and what you currently do to mitigate and spread awareness:

- (Spring/Summer Kestrels) (trapping and relocating)(Monthly Managers meetings keep awareness up)

Personnel dedicated to Wildlife efforts? Airport Operations and USDA work together

Point of contact for reports? Airport Operations 201-393-4081



Tower: Weather

- **No reports of ponding of water, deicing fluid, etc.**



Tower : Hot Spots

The ICAO definition of a Hot Spot is:

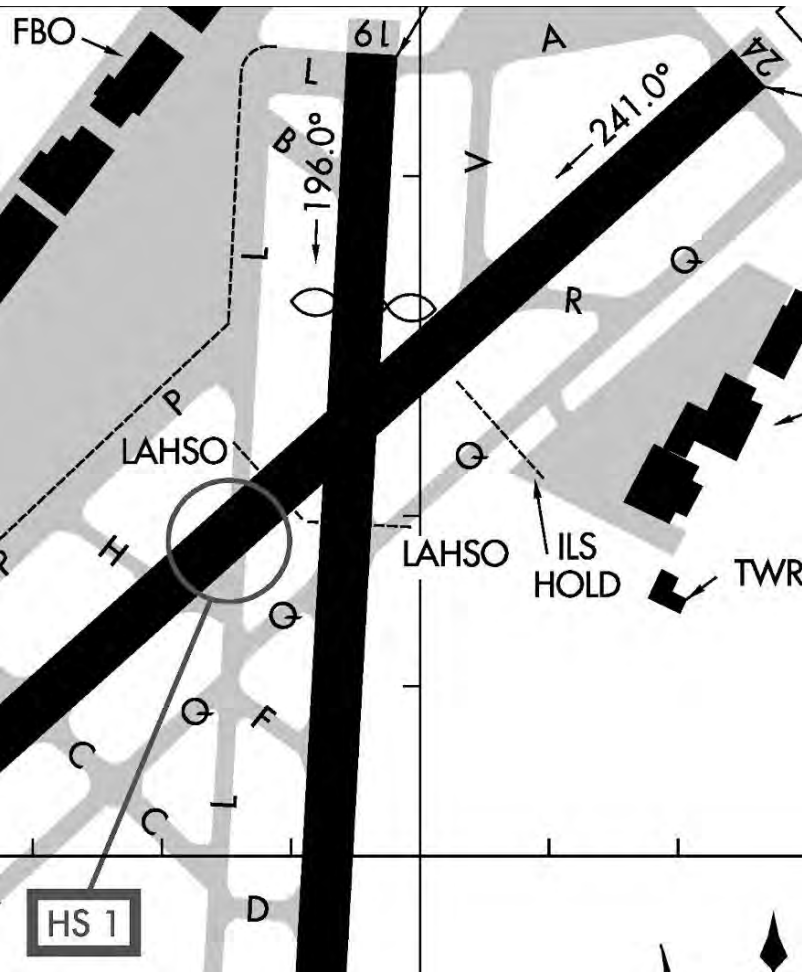
“A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.”

There are 2 TEB Hot Spots. Are there any areas you think a Hot Spot might be needed?



Tower: Hot Spots

Discussion of HS1:

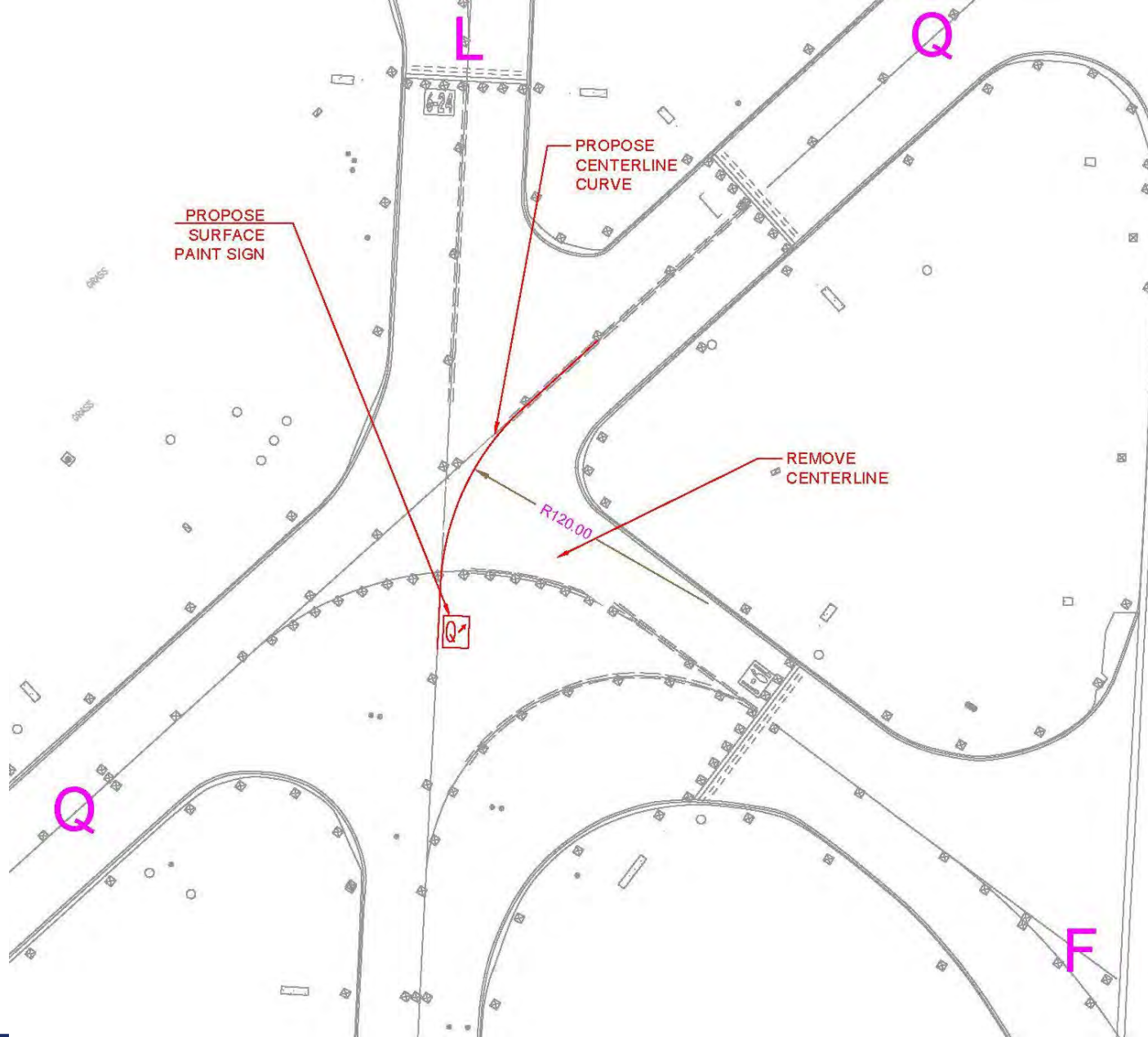


HS 1 Maintain vigilance on Twy L at Rwy 06-24. High t/c area.



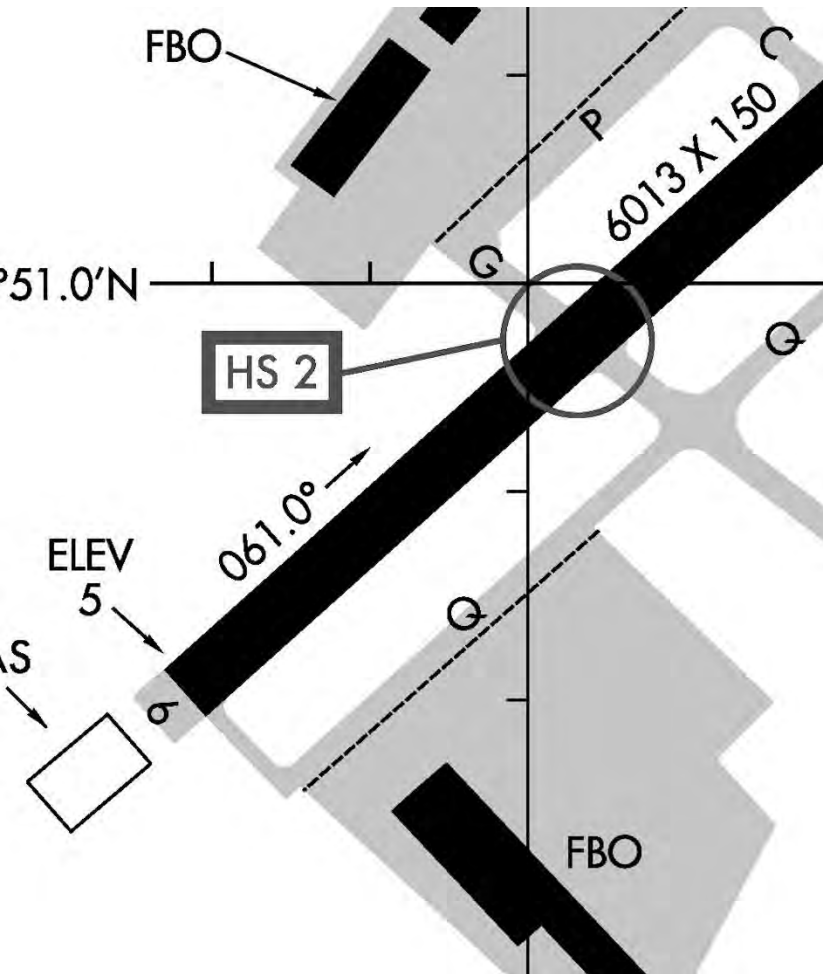
PANYNJ: Discussion of / work in progress of Hot Spot ONE





Tower: Hot Spots

Discussion of HS2:

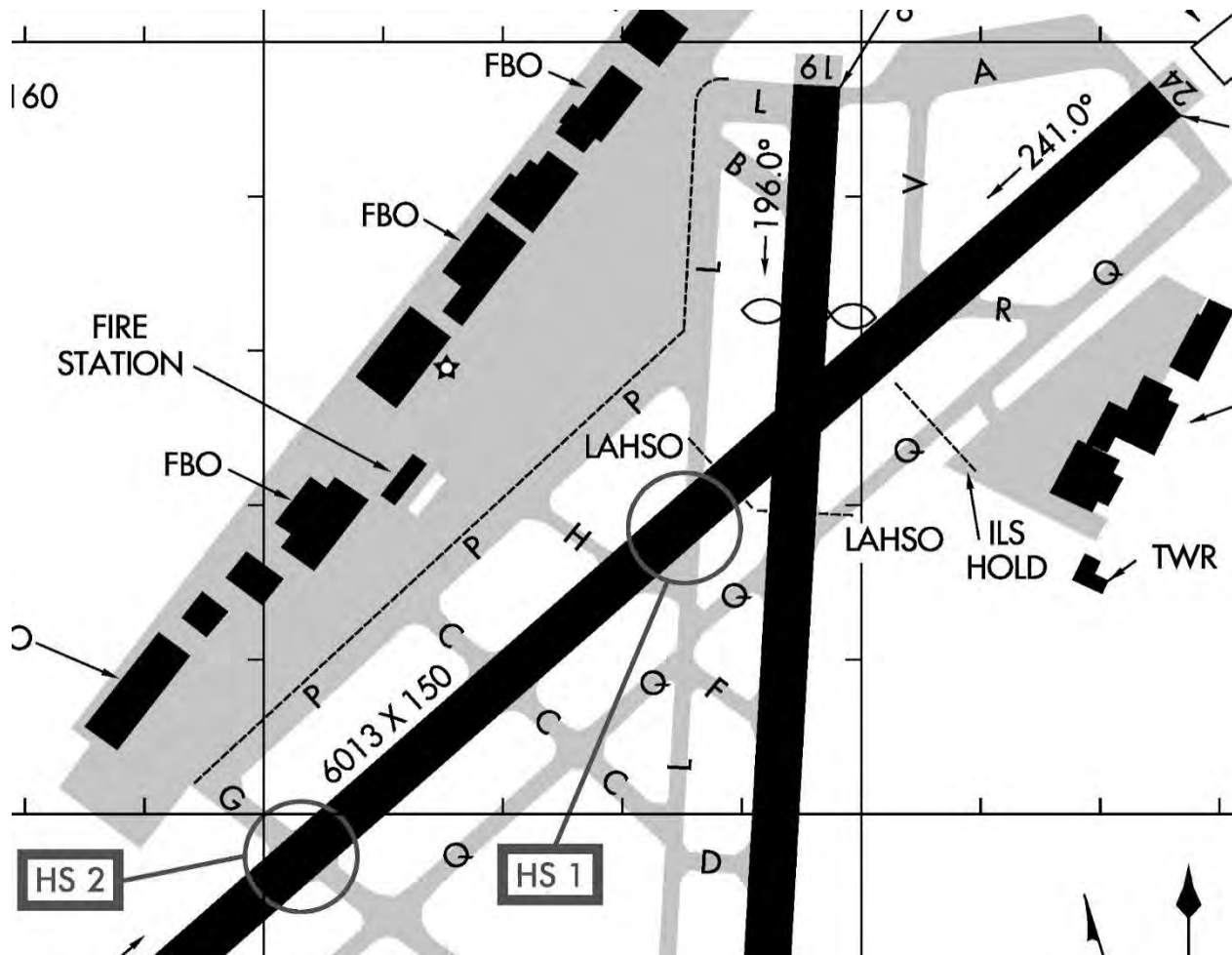


HS 2 Maintain vigilance on Twy G at Rwy 06-24. High tfc area.



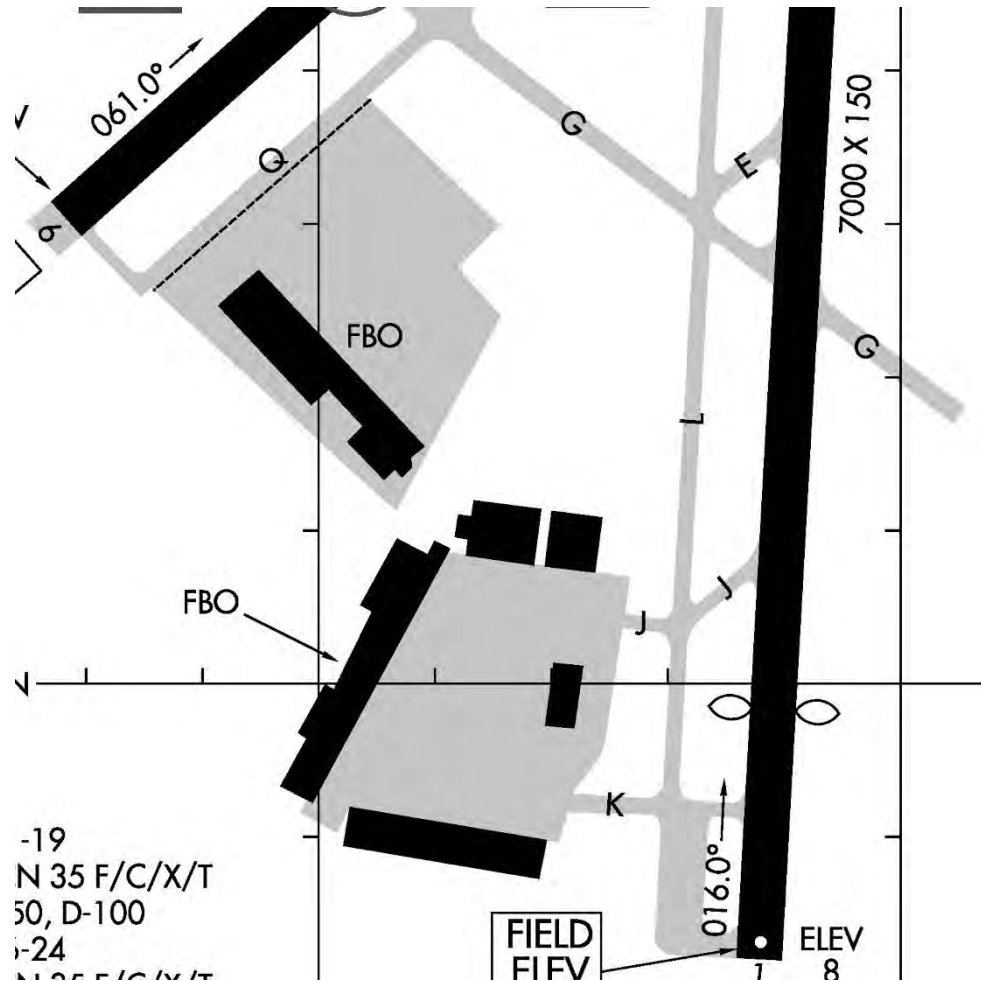
Tower: New Hot Spots?

Are there any areas you think a Hot Spot might be needed?



Tower: New Hot Spots?

Are there any areas you think a Hot Spot might be needed?



Tower: Action Plan for the Year

- **Action Items** are non-regulatory, voluntary, and flexible.
- The party responsible for implementing and/or funding the action item **must be in agreement** with the Action Item.
- Each action item should be specific and include a point of contact and anticipated completion date.
- **Recommendations** are also an option.



Tower: Action Plan for the Year

- **Recommendations** are proposed action items where consensus is not reached and/or the action office is not willing to accept the item.
- **Recommendations** are documented at the discretion of the Regional Runway Safety Program Manager or ATCT manager.



Tower: Action Plan for the Year

- **Specific Action Item:**
- **point of contact:**
- **anticipated completion date:**



Tower: Action Plan for the Year

- **Recommendations:**



Send general questions:

Jason.L.Beim@faa.gov



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Helpful web site and email address

Construction status Web Site:

- https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/Apt_Constr_Notices/

FAA's Airport Construction Advisory Council email address:

- Constructioncouncil@faa.gov



Educational Videos

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Thank you!

