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IMPROVING SURFACE SAFETY.

Northwest Mountain Region (ANM) Runway Safety Plan FY20

RUNWAY SAFETY COUNCIL (RSC) #45



**Federal Aviation
Administration**

www.faa.gov

Executive Summary

The Federal Aviation Administration's (FAA) top priority is maintaining safety in the National Airspace System (NAS). The FAA's long-term goal for runway safety is to improve safety by decreasing the number and severity of runway incursions (RI), runway excursions (RE) and serious surface incidents (SI). FAA's National Runway Safety Plan (NRSP) 2018-2020 aligns our strategic priorities with established Safety Risk Management principles. The plan defines how the FAA, airports, and industry partners collaborate and use data-driven, risk-based decision-making to enhance the safety of the National Airspace System. The NRSP outlines the FAA's strategy to adapt its runway safety efforts through enhanced collection and integrated analysis of data, development of new safety metrics, and leveraged organizational capabilities in support of meeting this goal.

In response to the agency goal and the NRSP, the Northwest Mountain Region (ANM) has developed this Regional Runway Safety Plan (RRSP) to provide a roadmap with added regional emphasis for FY2020. [FAA ORDER 7050.1](#), signed by the FAA Administrator, prescribes FAA's Runway Safety Program (RSP). This cross-organizational directive establishes policy, assigns responsibility, and delegates authority for ensuring compliance with this order within each organization.

The ANM Regional Runway Safety Governance Council (RGC) is chaired by the Regional Administrator and composed of the Regional Runway Safety Program Manager (RRSPM) and executives or designees from the Airports Division, Flight Standards Service and Air Traffic Organization Western Service Area and Western Service Center. Each council member identified and designated their Line of Business (LOB) expert representative on the Regional Runway Safety Team (RRST). [APPENDIX F](#) lists the members of the RRST.

As directed by the RSP, the RRST is tasked with identifying regional priorities and working through their executive representative to ensure that issues are properly vetted through their respective LOBs for prior coordination before each RGC quarterly meeting. The RRST has aligned this plan with agency priorities, Runway Safety Program (FAA Order 7050.1) and methodologies to include Safety Management Systems (SMS). In concert with these, the RRST identified FY2020 priorities to include seven Priority Airports, four of which are Core 30/Busiest 50 airports. Additional ANM Airports of Interest were identified based on various categories defined in the matrix in Appendix D, Data Table, and as further described in the Methodology section within this plan.

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FAA Safety Management System (SMS)

FAA is employing and evolving a Safety Management System (SMS), which provides a formalized and proactive approach to system safety in order to find, analyze and address risk in the NAS. The SMS is comprised of four main components (Figure 1) which combine to create a systemic approach to managing and ensuring safety.

These components are: Safety Policy, Safety Risk Management, Safety Assurance, and Safety Promotion. Presently, the ATO and Airports Division utilize SMS as a systemic approach to managing the safety of airport operations. Through the NRSP, the Runway Safety Program is transitioning to assimilate runway safety activities into FAA's SMS.

The NRSP builds on the achievements of the National Runway Safety Plan 2015-2017. The most fundamental impact of the first plan has been the successful integration of the Safety Management System principles into the Runway Safety strategy. The goals for the 2018-2020 NRSP are expected to continue the efforts and

successes put forth by the 2015-2017 NRSP: namely to leverage new processes, sources of safety data, and integrated safety analysis to continue to reduce serious runway safety events, and to identify, mitigate and monitor the conditions and factors that combine to create risk before serious events occur. These efforts are both local and national in scope. We can pinpoint problems at an airport to a single intersection at a specific time of day, or use millions of data points to identify a systemic problem.

Our Runway Safety Enhancement Initiatives apply strategic efforts to mitigate the identified risk. To that end, this regional plan endeavors to align its activities with the principles and components of FAA's current SMS to the greatest extent possible.

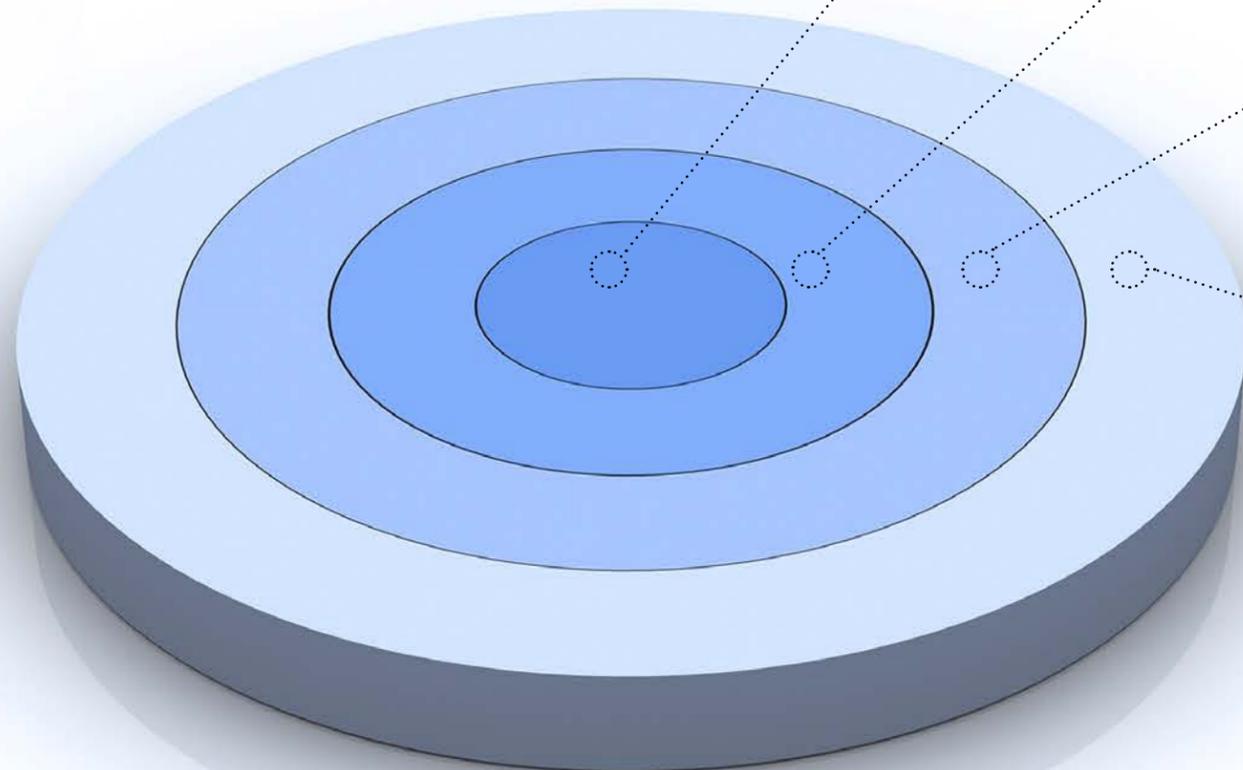


Figure 1

FY18-FY20 NRSP Objectives

SAFETY ASSURANCE

Remain the global leader in assuring runway safety enhancement initiatives are effective in maintaining an acceptable level of safety at U.S. airports with an air traffic control tower.

- Identify Operating Hazards
- Program Data
- Voluntary Safety Reporting
- Investigations
- Safety Risk Monitoring
- Data Analysis
- Partnership for Safety
- Audits and Evaluations

SAFETY RISK MANAGEMENT

Implement Runway Safety Enhancement Initiatives that manage or reduce the risk of airport operations.

- Analyze, Assess, Mitigate, and Accept Risk
- Develop Monitoring Plan
- Safety Risk Management Documents

SAFETY POLICY

Establish and maintain policies and procedures to ensure adequate resources are available to accomplish the FAA's near-term and strategic objectives.

- SMS Orders
- Safety Guidance
- FAA/ATO Safety Orders
- SMS Manual

SAFETY PROMOTION

Relentlessly promote best practices, lessons learned, and actionable information obtained from data analysis to our global runway safety stakeholders.

- Outreach and Education
- Products
- Lessons Learned
- Workshops
- Safety Communication

Regional Runway Safety Plan (RRSP) Methodology

To focus surface safety activities for FY2020, the RRST attempted to identify locations experiencing the greatest risk of serious surface events. The team discussed several factors that indicate potential risk including number and type of surface events, rate of events, volume of operations, traffic mix, and existing safety barriers. A high number of events indicate that there may be current issues at a certain location that merit attention. A high number of surface events compared to airports of similar size may help to identify uncharacteristic challenges at certain locations. High traffic volume increases complexity for pilots, controllers, and vehicle operations, and increases likelihood that multiple aircraft may be involved in a surface event. Similarly, a traffic mix that includes a larger percentage of air carrier aircraft such as at the Core 30 airports increases the likelihood that many people could be exposed to an elevated risk in a single serious event. For this reason, the region's busiest air carrier airports, Denver (DEN), Salt Lake (SLC), Seattle (SEA) and Portland (PDX), which have substantially more air carrier traffic than the region's other airports, were considered to be priority airports by default.

To determine which other locations present the most potential risk, surface event data was collected for the 12-month period ending June 30, 2019 for all ANM airports. Using this data to represent FY2019 data provided a larger data set than if data from only the first three quarters of FY2019 were used and should not significantly affect the analysis. As this RRSP is a living

ANM FY2020 Candidate Airports

Ranked by RI Events								
Loc ID	RIs	RI Rate /100k	Airport Ops	Incident Type				Wrg Sfc Evt
				OI	PD	VPD	OTH	
APA	21	6.05	346,922	2	18	1	0	2
BFI	17	9.33	182,267	1	14	2		3
BOI	16	11.66	137,198	1	14	1		6
HIO	11	5.83	188,728		10	1		
BJC	9	5.21	172,598		9			3
SLE	5	12.76	39,186		3	2		
ASE	5	12.48	40,057		4	1		
RDM	5	6.90	72,510	2	2	1		
BIL	5	5.51	90,747	1	2	2		1
PAE	5	4.05	123,503		4	1		

Ranked by RI Rate								
Loc ID	RIs	RI Rate /100k	Airport Ops	Incident Type				Wrg Sfc Evt
				OI	PD	VPD	OTH	
SLE	5	12.76	39,186		3	2		
ASE	5	12.48	40,057		4	1		
BOI	16	11.66	137,198	1	14	1		6
CRP	4	11.18	35,770	1	3			
BFI	17	9.33	182,267	1	14	2		3
SUN	2	8.59	23,273		2			
IDA	2	7.53	26,567		2			
RDM	5	6.90	72,510	2	2	1		
OTH	1	6.44	15,537		1			
APA	21	6.05	346,922	2	18	1	0	2

■ Top 10 RI Rate
 ■ Top 10 RI Events
 ■ On Both Lists

Figure 2

ANM Priority Airports

- Boise Air Terminal /Gowen Field Airport (BOI)
- Centennial Airport (APA)
- King County International /Boeing Field Airport (BFI)
- Denver International Airport (DEN)*
- Portland International Airport (PDX)*
- Seattle-Tacoma International Airport (SEA)*
- Salt Lake City International Airport (SLC)*

*Core 30/Busiest 50

ANM Airports of Interest

- Rocky Mountain Metropolitan (BJC)
- Portland-Hillsboro Airport (HIO)
- Aspen-Pitkin Co/Sardy Field (ASE)
- Roberts Field (RDM)

The RRST established a three-tier support structure for ANM airports:

- Seven Priority Airports
- Four Airports of Interest
- All remaining ANM airports

Specific activities and initiatives within this plan directly address the first two tiers noted above. The RRSPM(s) will take appropriate action to monitor Tier 3 airports, address increasing surface error trends and/or raise the attention within the RRST.

document, this information may be updated if subsequent data shows a significant change. The data for all ANM airports is contained in **APPENDIX D**. Two lists were created, one ranking airports according to the number of runway incursions (RIs), and the other ranking the airports by the RI rate (number of RIs per 100,000 operations). The top 10 airports on each list were identified as candidates to be considered for designation as priority airports and airports of interest. These airports are listed in Figure 2.

Note: RNT had seven RIs during the period; however, four were related to the same incident (repeated touch-and-goes), so it was not included in the candidate list.

The Regional Runway Safety Team (RRST) met to evaluate the candidate airports and select the remaining priority airports and airports of interest. The primary factor considered was the number of RIs, since each RI represents the potential for a collision. The second major factor considered was the RI rate, since

a high rate may indicate issues specific to that airport. The team gave additional consideration to airports that had experienced two or more wrong surface events and/or substantial air carrier operations. Finally, the team took into account increases in each type of RI—pilot deviations (PDs), operational incidents (OIs), and vehicle/pedestrian deviations (VPDs) at each airport.

Six of the 15 candidate airports were common to both lists, including the three with most RIs (APA, BFI and BOI). Additionally, those three airports each had two or more wrong surface events. These airports were selected to join the Core 30/50 Busiest airports to complete the list of priority airports.

From the remaining candidate airports, four (BJC, HIO, ASE, and RDM) were selected to be airports of interest. See **APPENDIX C** for a complete list of Airport Codes.



FY20 Regional Runway Safety Plan Initiatives

To assist with the implementation process of this plan, the RRST has developed the initiatives noted below as its primary focus. The RRST will be working in concert with the appropriate field office manager within each respective Line of Business to implement the initiatives as outlined.

In addition to these priorities and currently identified initiatives, the RRST will monitor and elevate appropriate impromptu issues to the RGC. The RRST will monitor additional Airports of Interest that may not have risen to the level of RGC coordination at the time this plan was developed. This is a living document and the RRST reserves the right to update the issues if deemed necessary by them or the council. All major lines of business have collaborated in the development of this plan, which will be updated annually by the RRST and with concurrence from the RGC. The purpose of this plan is to document Northwest Mountain Region priorities for FY20.

The following initiatives are addressed in this plan:

- 1.1 Incorporation of Trend Information
- 1.2 Hot Spot Validation and Review
- 2.1 Local RSAT Support—General
- 2.2 Local RSAT Support
Priority Airports:
APA BOI BFI DEN PDX SEA SLC
- 2.3 Local RSAT Support
Airports of Interest: BJC HIO ASE RDM
- 3.1 Runway Safety—SMS Continuity
- 4.1 Wrong Surface Operations
- 4.2 Reduce Pilot Surface Errors
- 4.3 Runway Incursion Mitigation (RIM) Program Support

1. Safety Assurance

FY18-FY20 NRSP Safety Assurance Objective: Remain the global leader in assuring Runway Safety enhancement initiatives are effective in maintaining an acceptable level of safety at U.S Airports with an air traffic control tower.

1.1 – ANM RRSP FY19 INITIATIVE: Incorporation of Trend Information

Runway Safety efforts are an ongoing process; therefore, trend assessment and monitoring plans must continue to be evaluated. All ANM Airport trends will be routinely monitored, and if the RRST deems airports that were not placed on the Priority list in this RRSP worthy of more focused attention, they may be added to the RRSP and appropriate mitigations and monitoring plans developed.

Action Item:

1.1a RRST members will review and assess regional trend data during each monthly team meeting. If any new trends emerge that the team determines merit extra monitoring, mitigation, and/or addition to this plan, the changes will be made to this document as required.

MILESTONES



1.1a RRST members will review and assess regional trend data during each monthly team meeting to analyze any new trends.

Target Date:
September 30, 2020

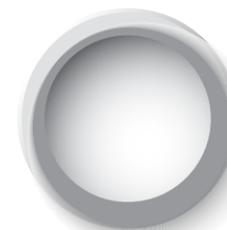
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NATCA SUPCOM



1.2a RRST will systematically review published Hot Spots in the region to determine if they accurately represent current surface safety issues and take action as appropriate.

Target Date:
March 31, 2020

LOB:
RS AFX ATO ARP ANM-1
NATCA SUPCOM



1.2b RRST members will advocate for action beyond the publication of hot spots, such as procedural changes, phraseology changes, signs and marking changes, and outreach to local users and operators.

Target Date:
September 30, 2020

LOB:
RS AFX ATO ARP ANM-1
NATCA SUPCOM

1.2 – ANM RRSP FY20 INITIATIVE: Hot Spot Validation and Review

The baseline data generated by Runway Safety as ANM FY2018 Initiative 1.2 Hot Spot Validation and Review, Action Item 1.2b, showed minor effects from the publication of hot spots alone. At locations that experienced a positive change in hot spot incidents, some action was taken by a local entity – air carrier, airport sponsor, or air traffic – that affected the change.

For example, at Hot Spot 1 in Boise, events were increasing until the tower reached out to several air carriers that fly into Boise, informed them of the nature of the problem and that their carrier had posted events at the hot spot, which led to two carriers listing the Hot Spot information on the 10-7 page for pilots. Additionally, Boise Airport repainted the taxiway centerlines, installed surface-painted signs, and refocused elevated runway guard lights to be more visible to pilots. Events since these steps were taken have significantly decreased. Similar decreases in event rates have been seen at Seattle as a result of either geometry or procedural changes, and at Denver as a result of Jeppesen inserting a zoomed in image of the hot spot on their DEN chart.

Action Items:

1.2a The RRST will undertake a systematic review of published Hot Spots in the region. RRST will review published hot spots to determine if they accurately represent a current surface safety issue and take action to eliminate or modify hot spots, as appropriate. This activity will take place annually. ARP will report on any physical modifications to ANM Hot Spot locations during the monthly RRST meetings.

1.2b RRST Members will advocate for action beyond the publication of hot spots. These actions may include procedural changes, phraseology changes, signs and marking changes, geometry changes, and outreach to local users and operators.

2. Safety Risk Management (SRM)

FY18-FY20 NRSP Safety Risk Management Objective: Implement Runway Safety Enhancement Initiatives (RSEI) that manage or reduce the risk of airport operations.

2.1 - ANM RRSP FY19 INITIATIVE: Local RSAT Support—General

Local Runway Safety Action Team (LRSAT) meetings provide the foundation of the Runway Safety Program and are the primary means to identify and address site-specific surface risk. The technical expertise provided by Runway Safety and its LOB partners help to ensure the most appropriate and effective outcomes from Local RSAT meetings. In addition to the specific ANM RRSP Initiatives below, participation by RRST members or their designees in all LRSAT meetings in the region is highly encouraged.

Action Items:

2.1a ANM Runway Safety will provide an updated list of upcoming LRSAT meetings in the region.

2.1b ANM Runway Safety will promote Pilot/Controller Forums that coincide with annual LRSAT meetings.

2.2 - ANM RRSP FY20 INITIATIVE: Local RSAT Support - Priority Airports: DEN, PDX, SEA, APA, BOI, BFI, SLC

The airports listed above have been named by the RRST as having the most pervasive

and challenging surface risks in the region. To support the identification of, and the most appropriate and effective mitigations to, surface safety risks, the RRST core members (or their representative) from each LOB are requested to participate in the LRSAT meetings at ANM FY20 Priority Airports. The RRST member will be the subject matter expert for runway safety-related issues pertaining to their LOB and will proactively solicit input from field managers to obtain locally possible solutions to identified surface safety concerns. A pre-RSAT meeting will be held in the preceding 30 days among RRST members to discuss site-specific concerns. This meeting may be in conjunction with an RRST meeting. The facility and airport sponsor should be invited to participate in this meeting as well.

Action Item:

2.2a Core RRST members, or their delegates, will participate in the following activities on behalf of the FY20 RRSP Priority Airports DEN, PDX, SEA, SLC, APA, BOI, and BFI:

- Remain actively engaged with the Priority Airports and maintain awareness of their runway safety related issues and concerns
- Coordinate with appropriate parties within their LOB to be aware of the Priority Airports and attendant activities within the RRSP
- Coordinate for appropriate LOB representatives to participate in the pre-RSAT meeting
- Coordinate for appropriate LOB representatives to participate in person at the annual RSAT meeting
- Actively track action items that have been accepted by their LOB/organization

In addition, Runway Safety will accomplish the following:

- Work with Priority Airports to schedule RSAT meetings at least 60 days in advance
- Track surface event trending at Priority Airports

- Track progress overall toward completing action items
- Facilitate additional activities where mitigations are not showing positive results
- Be prepared to brief ANM Runway Safety Governance Council on all matters pertaining to priority airports

2.3 - ANM RRSP FY19 INITIATIVE: Local RSAT Support Airports of Interest: BJC, HIO, ASE, RDM

Airports identified by the RRST as Airports of Interest will receive elevated attention in addressing airport surface risks. At least one person from each LOB is requested to participate in the annual LRSAT meetings for these airports to support the reduction of surface risk. The additional support of regional and service area entities will have a positive influence in reducing the number and severity of surface events at the airport through the direct and informative support of the RSAT.

Action Item:

2.3a RRST members will participate in the following activities on behalf of the FY2020 RRSP Airports of Interest BJC, HIO, ASE and RDM:

- Coordinate with appropriate parties within their LOB to be aware of the Airports of Interest and attendant activities within the RRSP
- Coordinate for LOB participation at the annual LRSAT meeting, at least virtually
- Actively track action items that have been accepted by their LOB/organization

In addition, Runway Safety will accomplish the following:

- Track surface event trending at Airports of Interest
- Track progress overall toward completing action items
- Facilitate additional activities where mitigations are not showing positive results.

MILESTONES



2.1b ANM Runway Safety will promote Pilot/Controller Forums that coincide with annual RSAT meetings.

Target Date:
September 30, 2020

LOB:
RS AFX ATO ARP ANM-1
NATCA SUPCOM



2.2a Core RRST members, or their delegates, will provide technical knowledge and experience and participate in activities to support the reduction of risk at FY20 RRSP Priority Airports DEN, PDX, SEA, SLC, APA, BOI, and BFI.

Target Date:
September 30, 2020

LOB:
RS AFX ATO ARP ANM-1
NATCA SUPCOM



2.3a Local RRST members will provide additional support and participation in activities to reduce the number and severity of surface events at Airports of Interest BJC, HIO, ASE, and RDM.

Target Date:
September 30, 2020

LOB:
RS AFX ATO ARP ANM-1
NATCA SUPCOM

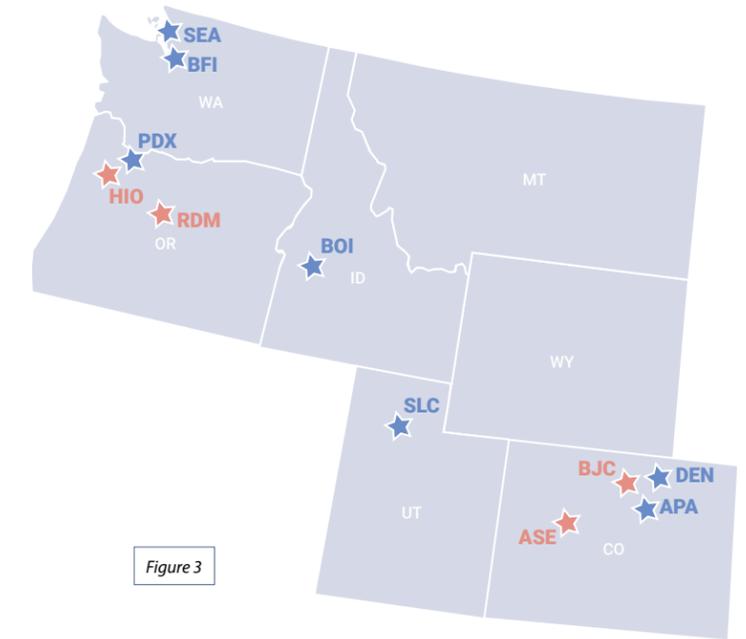


Figure 3

Priority Airports and Airports of Interest in the Northwest Mountain Region

ANM Priority Airports

- Boise Air Terminal /Gowen Field Airport (BOI)
- Centennial Airport (APA)
- King County International /Boeing Field Airport (BFI)
- Denver International Airport (DEN)*
- Portland International Airport (PDX)*
- Seattle-Tacoma International Airport (SEA)*
- Salt Lake City International Airport (SLC)*

*Core 30/Busiest 50

ANM Airports of Interest

- Rocky Mountain Metropolitan (BJC)
- Portland-Hillsboro Airport (HIO)
- Aspen-Pitkin Co/Sardy Field (ASE)
- Roberts Field (RDM)



3. Safety Policy

FY18-FY20 NRSP Safety Policy Objective: Establish and maintain policies and procedures to ensure adequate resources are available to accomplish the FAA’s near-term and strategic objectives.

3.1 - ANM RRSP FY19 INITIATIVE: Runway-Safety and SMS Continuity

Beginning with the FY2015–2017 NRSP, the Runway Safety Group committed to align its activities with the FAA Safety Management System. This plan presents a portfolio-based approach to risk management by addressing the diverse initiatives associated with each SMS component. Policy, responsibility and accountability that bear on surface safety, and the organizations charged with risk mitigation and safety improvement, are put forth in FAA JO 7050.1B Runway Safety Program (RSP) and the National Runway Safety Plan.

RSP: The RSP is intended to improve surface safety by decreasing the number and severity of runway incursions (RI), runway excursions (RE), and other surface incidents (SI).

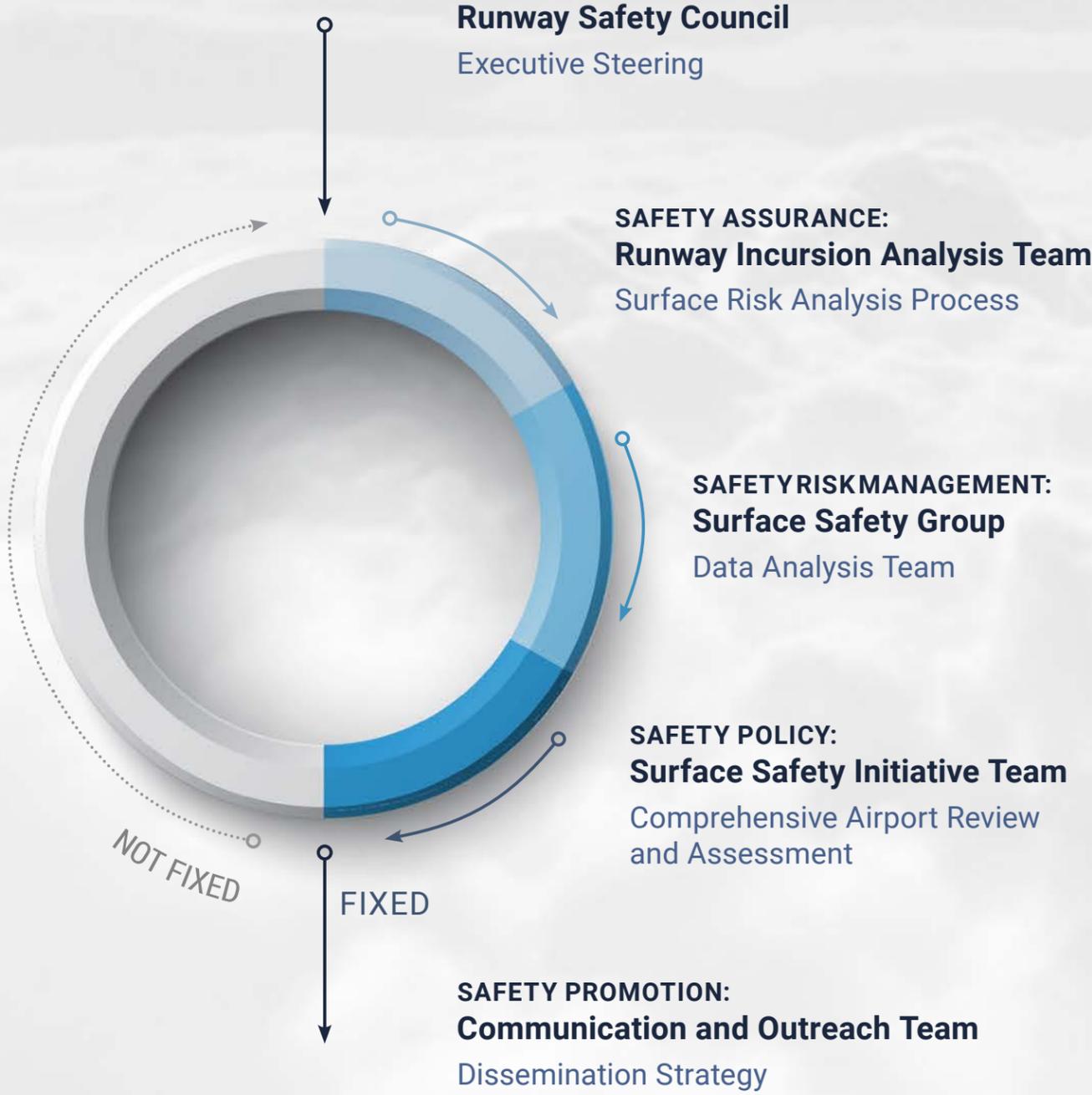
NRSP: The FY2018-2020 NRSP builds on the achievements of the NRSP FY2015-2017, most fundamentally through the integration of

the Safety Management System principles into the Runway Safety strategy. The current plan favors iterative steps in support of datadriven, risk-based decision-making. It outlines methods and collaboration opportunities to identify and mitigate safety risks. Three strategic steps include data collection and analysis, plans and policy, and communicating change.

Within the FY19 Northwest Mountain Region (ANM) RRSP, the RRST used a methodology and process to objectively determine the priorities with which its collective efforts would have the most potential for surface safety improvement and severity reduction amongst ANM airports. This process is described in the RRSP Methodology section and in [APPENDIX D](#).

The FY20 ANM RRST, in accordance with the NRSP, leverages and combines the expertise of Office of Airports, Flight Standards Service, Runway Safety Group, and Air Traffic Technical Operations and Terminal Services, toward the mutual goal of surface risk reduction.

How We Are Collaborating



4. Safety Promotion

FY18-FY20 NRSP Safety Promotion Objective: Promote best practices, lessons learned, and actionable information obtained from data analysis to our global runway safety stakeholders.

4.1 – ANM RRSP FY20 INITIATIVE: Wrong Surface Operations

Wrong Surface Landings were an ATO Top Five safety issue for FY2017 and FY2018. Additionally, during the FY2017 RRSP plan year, Western Service Area (WSA) Quality Assurance Group (QAG) identified an increasing trend in Wrong Surface Landings at airports within the service area. This resulted in an analysis of WSA events and QA Bulletin issued to the field in June 2017 to educate air traffic controllers about contributing factors in wrong surface events. Other activities toward Wrong Surface Operations (WSO) have ensued, including production of a Wrong Surface Landing video and most recently convening a high-level Safety Summit to engage and energize all stakeholders within and outside of FAA around the issue.

In FY2019, Wrong Surface Operations was incorporated into the FAA Strategic Plan and Special-Focus Runway Safety Action Team (RSAT) meetings were held at various airports with a history of wrong-surface operations, including Boise Airport (BOI).

Action Item:

4.1a Follow, develop, promote and participate in activities throughout FY20 aimed at reduction of Wrong Surface Operations. Combine efforts with other LOBs regionally and/or nationally as appropriate. Report on WSO initiatives and progress toward risk reduction to the RGC quarterly.

4.2 - ANM RRSP FY19 INITIATIVE: Reduce Pilot Surface Errors

Historically, pilot deviations (PD) remain the

prevalent contributor of runway incursions within the NAS. For FY18, as of July 1, approximately 60 percent of RIs are categorized as PDs. Of those, 75 percent were incurred by FAR Part 91 operators.

In late 2017, the ATO identified runway incursions as one of the “high-priority safety issues” that needed to be addressed across LOBs. [Runway Incursion Safety Issue, Safety Risk Management Document Version 1.0, dated September 22, 2017]. One of the hazards determined by this panel was the “incorrect presence of aircraft in the protected area designated for takeoff or landing of an aircraft” (Hazard 16-RI-PD).

In the Safety Requirements section addressing this hazard, Item 5 calls for “a Runway Safety Action Team [scheduled] in conjunction with pilot/controller forums.” Consequently, the FAAST FY19 National Performance Plan item NPP05 provides direction and guidance to FPMs for promoting and directly supporting Pilot/Controller Forums in conjunction with the annual RSAT. A Pilot/Controller Forum is a safety seminar attended by the Air Traffic Manager (ATM) and local pilots for the purpose promoting communications between ATO and National Airspace System (NAS) users.

The purpose of the annual LRSAT meeting is to identify and mitigate hazards and risks that lead to human errors that result in runway incursions and/or excursions. Often air traffic managers, particularly those at smaller facilities, are challenged to gain the participation of local pilot users and stakeholders who are critical for

providing their perspective on runway safety related issues at their airport. Pilots willingly

and regularly participate in Pilot Controller Forums supported by FAA’s FFAST/Wings program.

ATMs can leverage the pilot participation characteristically present at Pilot Controller Forums to obtain valuable user feedback toward their annual LRSAT meeting. Ideally, these seminars are scheduled just prior to the LRSAT in order to obtain timely information from the pilot community that pertains to surface safety.

Action Items:

4.2a At the beginning of the fiscal year, Runway Safety will address all Air Traffic Managers and FFAST Program Managers in the region to encourage the use of a Pilot/Controller Forum in the days prior to the annual LRSAT meeting or to include surface safety in other Pilot/Controller Forums during the year.

4.2b Provide resources such as data and recommended best practices for use at pilot/controller forums to heighten pilot awareness of surface error trends and encourage use of pilot best practices during surface operations.

4.3 - ANM RRSP 2019 INITIATIVE: Support Runway Incursion Mitigation (RIM) Program

The RIM program identifies locations on airports with a history of runway incursions that are a result of airport geometry, for improvements to airfield layout, and/or airfield lighting, signs, and markings, with the goal of reducing runway incursions.

RIM locations differ from Hot Spots. The RIM program is data driven. Locations on an airport that experience three or more runway incursions in a year, or an average of one or more incursions per year over the study period, are added to the list. Hot Spots may be identified based on previous runway incursions, or on the existence of factors which stakeholders feel may lead to incursions. The differences between the two programs have sometimes caused confusion on the part of airport sponsors and others.

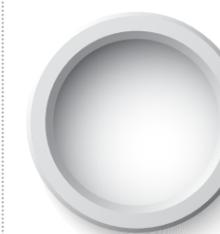
Runway incursions can be the result of various factors, such as air traffic control procedures, pilot/controller communications, pilot

deficiencies, etc. Runway Safety possesses the information and expertise to help determine whether or not the factors involved in a runway incursion at a given RIM location relate to airport geometry.

Action Item:

4.3a Runway Safety will provide data and analysis on runway incursions, as needed, to help determine if airport infrastructure contributed to an incursion.

MILESTONES



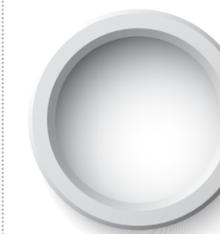
4.1a Reduce the risk of wrong surface operations through activities and combined efforts with other LOBs regionally and nationally.

Target Date:

Quarterly by December 31, 2019; March 31, 2020; June 30, 2020; and September 30, 2020

LOB:

RS AFX ATO ARP ANM-1 NATCA SUPCOM.



4.2a Runway Safety will provide data and analysis on RIs, as needed, to help determine if airport infrastructure contributed to an incursion.

Target Date:

September 30, 2020

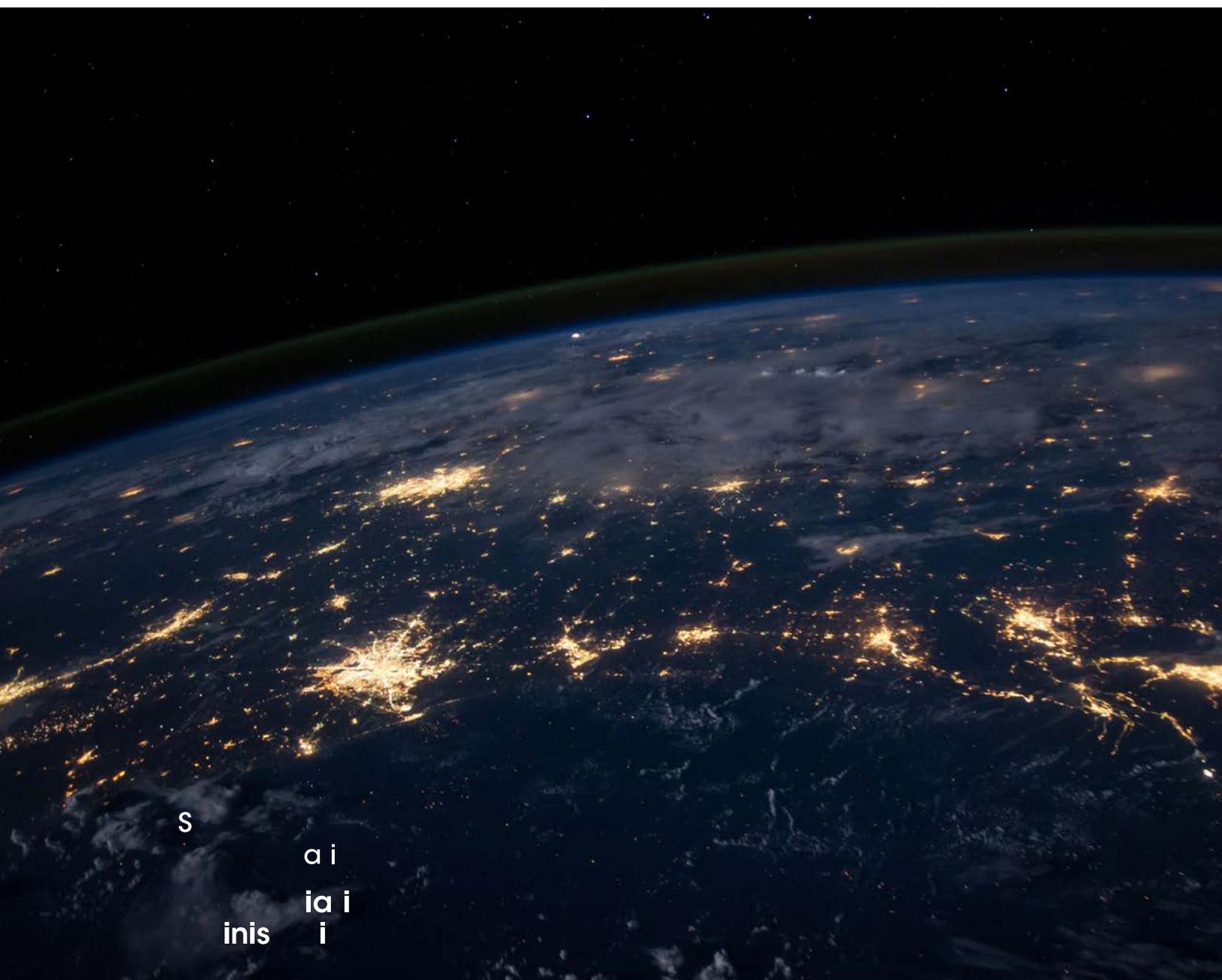
LOB:

RS ARP

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Appendix A.

Regional Runway Safety Plan: Activity Tracker

Regional Runway Safety Plan Activity Tracking Tool

1.1 ANM RRSP FY2020 INITIATIVE: *Incorporation of Trend Information*

Objective	Action Item / Activity	Milestone(s)	LOB
<p>Objective:</p> <p>Continued monitoring, evaluation, and adjustment of the ANM Priority Airports.</p>	<p>Action Item:</p> <p>RRST members will review and assess regional trend data during each monthly team meeting.</p>	<p>Target Date:</p> <p>Monthly, during RRST meetings</p>	<ul style="list-style-type: none"> ✗ RS ✗ AFX ✗ ATO ✗ ARP ✗ NATCA ✗ SUPCOM ✗ ANM-1
Status Update:			

1.2 ANM RRSP FY2020 INITIATIVE: *Hot Spot Validation and Review*

Objective	Action Item / Activity	Milestone(s)	LOB
<p>Objective:</p> <p>Ensure effectiveness of Hot Spots in ANM.</p>	<p>Action Item 1:</p> <p>The RRST will undertake a systematic review of published Hot Spots in the region. This activity will take place annually.</p>	<p>Target Date:</p> <p>September 30, 2020</p>	<ul style="list-style-type: none"> ✗ RS ✗ AFX ✗ ATO ✗ ARP NATCA SUPCOM ANM-1
	<p>Action Item 2:</p> <p>RRST member will advocate for action beyond the publication of hot spots. These actions may include procedural changes, phraseology changes, signs and marking changes, geometry changes and outreach to local users and operators.</p>	<p>Target Date:</p> <p>September 30, 2020</p>	<ul style="list-style-type: none"> ✗ RS AFX ATO ARP NATCA SUPCOM ANM-1
Status Update:			

2.1 ANM RRSP FY2020 INITIATIVE:*Local RSAT Support—General*

Objective	Action Item / Activity	Milestone(s)	LOB
Objective: Provide advanced in-depth technical knowledge and experience of the NAS to support the reduction of risk at airports in ANM.	Action Item 1: ANM Runway Safety will provide an updated list of upcoming RSAT meetings in the region.	Target Date: Monthly	X RS X AFX X ATO X ARP X NATCA X SUPCOM X ANM-1
	Status Update:		
	Action Item 2: ANM Runway Safety will promote Pilot Controller Forums that coincide with annual RSAT meetings (See Initiative 5.2).	Target Date: September 30, 2020	
Status Update:			

2.2 ANM RRSP FY2020 INITIATIVE:*Local RSAT Support*

Priority Airports: APA, BOI, BFI, DEN, PDX, SEA, SLC

Objective	Action Item / Activity	Milestone(s)	LOB
Objective: Provide advanced in-depth technical knowledge and experience of the NAS to support the reduction of risk at Priority Airports	Action Item: RRST members will participate in the activities listed in Initiative 2.2 on behalf of the FY2020 RRSP Priority Airports APA, BOI, BFI, DEN, PDX, SEA, SLC	Target Date: Estimated Priority Airports RSAT dates for FY2020, based on FY2019 dates <ul style="list-style-type: none"> • APA—May • BOI—July • BFI—April • DEN—June • PDX—May • SEA—April • SLC—July 	X RS X AFX X ATO X ARP X NATCA X SUPCOM X ANM-1
Status Update:			

2.3 ANM RRSP FY2020 INITIATIVE:

Local RSAT Support

Airports of Interest: ASE, BJC, HIO, RDM

Objective	Action Item / Activity	Milestone(s)	LOB
<p>Objective:</p> <p>Provide additional support and participation by regional and service area entities to reduce the number and severity of surface events at Airports of Interest.</p>	<p>Action Item:</p> <p>RRST members will participate in the activities listed in Initiative 2.3 on behalf of the FY2020 RRSP Airports of Interest: ASE, BJC, HIO, RDM</p>	<p>Milestone:</p> <p>RRST representative participation at FY20 RSAT Meetings.</p> <p>Target Date:</p> <p>September 30, 2020</p> <p>Estimated RSAT Dates for FY2020 based on FY2019 RSATs:</p> <ul style="list-style-type: none"> • ASE—April • BJC—May • HIO—February • RDM (did not hold FY2019 RSAT) 	<ul style="list-style-type: none"> ✗ RS ✗ AFX ✗ ATO ✗ ARP ✗ NATCA ✗ SUPCOM ✗ ANM-1
Status Update:			

4.1 ANM RRSP FY2020 INITIATIVE:

Wrong Surface Operations

Objective	Action Item / Activity	Milestone(s)	LOB
<p>Objective:</p> <p>Reduce the risk of wrong surface landings in ANM.</p>	<p>Action Item:</p> <p>Follow, develop, promote and participate in activities throughout FY2020 aimed at reduction of Wrong Surface Operations. Combine efforts with other LOB's regionally and / or nationally as appropriate. Report on WSO initiatives and progress toward risk reduction to the RGC quarterly.</p>	<p>Target Date:</p> <p>Quarterly by December 31, 2019, March 31, 2020, June 30, 2020, September 30, 2020.</p>	<ul style="list-style-type: none"> ✗ RS ✗ AFX ✗ ATO ✗ ARP ✗ NATCA ✗ SUPCOM ✗ ANM-1
Status Update:			

4.2 ANM RRSP FY2020 INITIATIVE:*Reduce Pilot Surface Errors*

Objective	Action Item / Activity	Milestone(s)	LOB
Objective: Elevate stakeholder awareness of pilot surface error trends, and pilot best practices toward reduction of surface events.	Action Item 1: Encourage a Pilot/ Controller forum, which is primarily runway safety oriented, to be conducted in a similar time period as that facility's annual LRSAT.	Target Date: December 31, 2019	X RS X AFX X ATO ARP NATCA SUPCOM ANM-1
	Status Update:		
	Action Item 2: Provide resources such as data and recommended best practices for use at Pilot/ Controller Forums to heighten pilot awareness of surface error trends and encourage use of pilot best practices during surface operations.	Target Date: September 30, 2020	X RS X AFX X ATO X ARP NATCA SUPCOM ANM-1
Status Update:			



Appendix B. FAA Programs & Definitions

Airport Construction Advisory Council (ACAC): ACAC is dedicated to ensuring the safety of all stakeholders operating in the National Airspace System (NAS) during all runway and taxiway construction projects. The ACAC is tasked with developing strategies and risk mitigations, for Air Traffic Managers (ATMs) to employ, that will enhance surface safety and ensure that communication is complete and consistent. The ACAC strives to serve as a conduit for sharing good operating practices between managers throughout the NAS. The ACAC is responsible for transforming appropriate strategies and best practices into future Air Traffic Organization policy to perpetuate operational safety during all construction projects.

Airports Division: The Airports Division is involved in a number of programs and initiatives focused on improving airport and runway safety and reducing the number and severity of runway incursions. Provided below is a brief synopsis of these programs:

- **Airport Improvement Program (AIP):** The Airports Division administers the Airport Improvement Program (AIP) which provides grant funds to airport operators for airport planning and improvements. Airfield projects designed to reduce runway incursions may be eligible for AIP funding. These may include airfield geometry changes, certain Runway Safety Action Plan (RSAP) Action Items, certain airfield marking, lighting, and signage projects. All questions and discussions regarding AIP projects or eligibility must be referred to the appropriate Airports District Office (ADO).
- **Part 139 Airport Certification Safety Program:** The Airports Division certifies airports serving air carriers utilizing aircraft over nine passenger seats. Part 139 contains a number of regulations relevant to runway safety. These include requirements and minimum standards for airport pavement; runway safety areas; airfield marking, lighting, and signage; limiting access to airport movement areas; and airfield driver training. Airport Certification Safety Inspectors conduct airfield inspections on a regular basis to ensure compliance with these and other applicable requirements. In addition, all Runway Incursions involving ground vehicles or pedestrian deviations (V/PGDs) are formally investigated by the Airports Division. Any questions and discussions about compliance with Part 139 must be referred to the Airport Safety and Standards Branch (ASO-620).
- **Local Runway Safety Action Teams (LRSAT):** The Airports Division Strives to participate in as many RSAT meetings as possible. Airports Division utilizes a Regional Tracking System to monitor Airports Division Action Items in Runway Safety Action Plans and report on the status as part of Business Plan reporting.
- **Runway Incursion Mitigation Program (RIM):** In 2014, the Office of Airport launched the Runway Incursion Mitigation (RIM) Program to address non-standard geometry at airports. RIM initially mapped the location of all runway incursions occurring in 2007 through 2013. The data for 2014 and 2016 has since been added. This information was then overlaid upon locations where airfield geometry appeared to not meet current FAA design standards. Locations with multiple runway incursions and non-standard geometry were identified as priority RIM

locations and discussions were initiated with the airport operators regarding possible changes to the airfield to address the runway incursion risks. The RIM is a dynamic and continuing program using risk-based decision making to focus resources on the planning and construction of projects to reduce the potential for runway incursions where airfield geometry may be a contributing factor.

Air Traffic Organization Technical Operations (AJW): Technical Operations is responsible for maintaining and repairing National Airspace System (NAS) equipment. This may include but is not limited to Instrumental Landing Systems (ILS). Typically, the ILS is located in between or near runways. The Airway Transportation System Specialists (ATSS) attend required instruction annually to traverse in those areas. If a deviation has occurred involving Technical Operations, a “Lessons Learned” is completed and a review of driver training records is conducted. If need be, a briefing or Service Rendered Telecom (SRT) will take place involving the parties.

Air Traffic Services (ATS): The primary purpose of the ATC system is to prevent a collision between aircraft operating in the system and to provide a safe, orderly and expeditious flow of traffic. ATS provides safe, efficient and secure air traffic control and traffic management services to system stakeholders.

Air Traffic Services Quality Control Group (QCG): The purpose of quality control, as defined in the ATO, is to assess the output (whether a product or service) of a particular process or function and identify any deficiencies or problems that need to be addressed. Within this quality control concept, it is a primary responsibility to take action, particularly at the Service Delivery Point (SDP), to ensure that these products or services meet the requirements of the SDP and the ATO organizationally. Quality Control directives outline the processes and steps utilized to ensure the quality of products and services provided at the SDP level on an ongoing basis.

Anti-Runway Incursion Device (A-RID): Any device that is used to provide a reminder to a controller that the runway surface is in use and therefore not safe to be crossed, landed upon, used for takeoff, etc.

Compliance Program: The FAA relies on voluntary compliance with aviation safety regulations by certificated airmen and organizations operating in the NAS. The FAA Flight Standards Organization investigates reports of noncompliance and has a statutory responsibility to take appropriate corrective action up to and including punitive enforcement when necessary to ensure that certificated entities are meeting regulatory safety standards. In FY16, the FAA adopted a program named Compliance Philosophy (since renamed Compliance Program) that, for Flight Standards, mandates that Aviation Safety Inspectors finding any airman or organization not meeting the minimum regulatory requirements related to their certificate, evaluate underlying cause, airman/organizational attitude, and implement corrective action that promptly and effectively restores full compliance. Such actions are taken in a cooperative process involving specific compliance actions such as airman counseling, remedial training, or other specific program related to the problem(s) identified in the investigation. If the deviation does not involve intentional, reckless, or criminal behavior and the airman/organization is qualified and willing to cooperate, AFX should resolve the issue through use of compliance tools, techniques, concepts, and programs.

Beyond Flight Standards, Compliance Program exists throughout the FAA and is supported by the Safety Management System (SMS) approach to aviation safety.

Comprehensive Electronic Data Analysis and Reporting Tool (CEDAR): Refers to the Comprehensive Electronic Data Analysis and Reporting Tool used by ATO to report occurrences in the National Airspace System (NAS).

Construction Notice Diagrams: Construction Notice Diagrams are created for airports that are undergoing major construction projects. They currently are manually created Monday thru Friday and uploaded to the following site:

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

FAA Safety Team (FAAST): The FAASTeam supports the Administrator's Runway Safety initiatives by participating at LRSATs and providing Runway Safety outreach to pilots. FAASTeam employees working within (Flight Standards District Offices) FSDOs are engaged in the following efforts related to Runway Safety:

- Carry out tasks in the FAASTeam National Performance Plan (NPP) related to Runway Safety.
- Coordinate FAA outreach with airmen and aviation organizations in association with local ATC facilities and airport operators.
- Assist FSDO Inspectors in investigation of PDs to the extent that useful safety information is discovered and acted upon.
- Draft formal Safety Recommendations if applicable.
- Draft educational programs and/or products appropriate to local Runway Safety issues.
- Aviation English Language Educational Outreach (AELEO): Flight Standards' program to reduce the frequency of operations affected by Aviation English Language Proficiency (AELP).
- Utilize volunteer FAASTeam Representatives including CFIs and DPEs in all aspects of Runway Safety Promotion.
- Assist FSDO Inspectors in implementation of airman remedial training and counselling per the Compliance Philosophy.
- Report and analyze local safety issues and trends as a section of the annual FSDO Report to the FSDO Manager.

Flight Standards District Office (FSDO): On August 20, 2017, the Flight Standards Service was reorganized from a regionally (geographically) based organization to a functionally based organization employing the Safety Management System (SMS) principles of safety assurance, safety standards, Safety Risk Management (SRM), and safety promotion. Flight Standards Service has four offices:

- Office of Air Carrier Safety Assurance
- Office of General Aviation Safety Assurance

- Office of Safety Standards
- Office of Foundational Business

FSDOs are aligned with the Office of General Aviation Safety Assurance.

The Office of General Aviation Safety Assurance is comprised of functionally aligned divisions, which share responsibilities and balance the level of work identified below:

- Provides all certification and oversight activities of all aviation entities that are not under the purview of the Office of Air Carrier Safety Assurance's purview.
- Ensures consistency and standardization in application of oversight activities by the workforce, applies RBDM for enhanced and focused utilization of certification and surveillance resources, and works across the Service to ensure stakeholder and public needs are proactively and expeditiously met.
- Conducts or assists in investigating accidents, incidents, and possible violations of 14 CFR and ensures the adequacy of operators' flight procedures, operating methods, airmen qualifications and proficiency, and aircraft maintenance not under the Office of Air Carrier Safety Assurance's purview.

General Aviation and Commercial Division. The General Aviation and Commercial Division is responsible for regulations and policy development governing the training, certification, inspection, and surveillance of General Aviation (GA) airmen, flight instructors, GA air agencies (pilot schools), commercial operations (rotorcraft, external-load, agricultural, banner tow, Title 14 of the Code of Federal Regulations (14 CFR) part 125 operators, part 91, corporate, business, personal and recreational (aviation events, experimental aircraft, parachute, and ultralight operations), part 91subpart K (part 91K) fractional ownership), and public aircraft operations.

- **Commercial Operations Branch.** The Commercial Operations Branch (AFS-820) is responsible for the operational aspects of 14 CFR part [91](#) (except for air traffic and aircraft maintenance rules). Additional operational responsibilities include aerial work and public aircraft operations (PAO), UAS policy and processing under part 107, private and commercial (non-air carrier) flights conducted in piston and turbine aircraft by individuals and companies under parts [91](#) and [125](#), fractional ownership program managers under part [91K](#), helicopter external load operators under part [133](#), agricultural aircraft operators under part [137](#).
- **General Aviation Operations Branch.** The General Aviation Operations Branch (AFS-830) is responsible for policy and regulatory development related to the GA operational aspects of part 91 (except for air traffic and aircraft maintenance rules) as pertaining to amateur-built/recreational/personal operations aircraft, aerobatic practice, areas air shows and aviation events (including airshows, balloon events, air races, parachute demonstrations, aerobatic contests and fly-overs), civil operations of surplus military aircraft, and operations under 14 CFR parts 103 and

105. This branch also provides guidance and regulatory support for parts 101, 103, 105, and 91.

Hotspot: An airport surface hotspot is a location on an airport movement area with a history of potential risk of collision or runway incursion, and where heightened attention by pilots/drivers/controllers is necessary.

Incorrect Presence: Presence inside the movement or protected area caused by non-compliance with a requirement or instruction.

Mandatory Occurrence Report (MOR): An occurrence involving air traffic services for which the collection of associated safety-related data and conditions is mandatory. CEDAR is the preferred method of submitting MOR's.

Movement Area: The runways, taxiways, and other surface areas of an airport/heliport which are used for taxiing/hover taxiing, air taxiing, and/or takeoff and landing of aircraft, and which are under control of the operating ATCT. The movement area is typically defined in a local letter of agreement between the ATCT and airport operator.

NASAO Runway Safety Initiative (FAA/NASAO Runway Safety Initiative): As put forth in a Memorandum of Understanding (MOU) between FAA and NASAO (National Association of State Aviation Officials) both parties will explore methods of working collaboratively, to provide and disseminate information on runway safety in order to reduce both incursion and excursions at towered controlled airports. The focus will be on providing educational outreach and subject matter expertise to the aviation community regarding Runway Safety operations, regulations, and related issues. The MOU is considered an ongoing commitment, until both FAA and NASAO determine the objectives of the MOU have been satisfactorily achieved.

Protected Area: The protected area of a surface intended for landing or takeoff includes the area inside the runway hold position markings (e.g., hold line) on paved taxiways or ramps and the designated runway safety area.

Runway Safety Council (RSC): The mission of the RSC is to provide government and industry leadership to develop and focus implementation of an integrated, data-driven strategy to reduce the number and severity of runway incursions. The vision to develop a world-class methodology for achieving the highest levels of runway safety. To enable the data-driven approach to runway safety, the RSC chartered a joint government and industry team to analyze key runway safety events, conduct integrated causal and human performance analyses from a systems perspective, and recommend intervention strategies.

Regional Runway Safety Governance Council (RSGC): Chaired by the Regional Administrator or designee, and composed of the RRSPM and executives or designees from Airports, Flight Standards, and ATO Terminal Operations. Northwest Mountain Region established the council, based on the needs of the region and the judgment of the Regional Administrator. The council is responsible for ensuring that regional initiatives and actions are being accomplished in the appropriate manner and timeframe, and to approve/concur or provide resources, if necessary, as recommended by the RRST.

Regional Runway Safety Program Managers (RSPM): Represents the Runway Safety Group in activities within the region. Chairs the RRST, develops and implements the Regional Runway Safety Plan. For a complete description of responsibilities, please see Order 7050.1B.

Regional Runway Safety Team (RRST): The Northwest Mountain RRST is comprised of Runway Safety staff and at least one designated representative of Service Area Terminal Operations, Service Area Technical Operations, and the Flight Standards and Airports regional divisions. Advisory members of the team may include designees from each of the Air Traffic and Tech-Ops districts. Appendix F lists the members of the RRST. RRST is charged with identifying regional priorities and working through their executive representative on the RSGC to ensure that issues are properly vetted through their respective LOB and for prior coordination before RSGC meetings.

Runway Excursion (RE): A veer-off or overrun off the runway surface.

Runway Incursion (RI): 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 Prevention Shortfall Analysis (RIPSA): Runway Incursion Reduction Program (RIRP) has initiated the Runway Incursion Prevention Shortfall Analysis (RIPSA). RIPSA was created in response to NTSB Safety Recommendation A-00-66 and is also a Call to Action NextGen Technology Initiative. Initial candidate airports were selected from a list of 484 airports that reported runway incursions over a 10-year period ending FY 2014. The candidate airports were reevaluated and the list adjusted due to changes in RI trending. RIPSA focuses on small to medium airports that do not have existing surface surveillance systems.

Runway Incursion Warning System (RIWS): The RIWS system has been proven to prevent incursions by alerting a driver – visually and audibly, prior to the vehicle entering a runway safety area (RSA) or other airport defined hazard zones. The system meets the technical requirements for accuracy, frequency of positional updates, prediction of vehicle position, and alerting set forth by the FAA on windows or Apple iOS based systems. This is accomplished through proprietary software algorithms and precision WAAS enabled GPS modules on each device. The combination of software and hardware make it possible to calculate the position of the vehicle, its speed and direction of travel ten times per second and to predict if the vehicle will make entry into a protected area and alert the driver with sufficient time to take corrective action if not authorized to make entry. The system has demonstrated its capability to prevent runway incursions and improve situational awareness at airports like Dallas Fort-Worth, Baltimore Washington International, Tampa and Centennial International Airports.

The RIWS solution provides airports of all sizes with an added layer of safety for vehicle movements by:

- Preemptively alerting a driver of a potential incursion into a Runway Safety Area or protected space.
- Improving situational awareness by displaying a highly accurate location of the vehicle over the airports own geographical information system maps.
- Displaying the position of aircraft and other vehicles in near real-time from sources such as the FAA ASDE-X/ASSC systems.
- Broadcasting the position of the vehicle through FAA certified vehicle movement area transponder units to air traffic controllers and pilots.
- Displaying of static, airport pre-defined routes to common locations, to further assist in mitigating disorientation of a driver in reduced visibility or at night.

Runway Safety Action Team (RSAT): An RSAT convenes to discuss surface movement issues and concerns at a particular airport and formulate a Runway Safety Action Plan (RSAP) to address those concerns. Regional and local RSATs must include personnel from the ATCT and airport operator and may include personnel from various FAA lines of business (including Runway Safety) and interested users of the airport. Composition of special focus teams may vary. All attendees at the RSAT meeting are considered part of the RSAT. A Regional RSAT is led by Runway Safety and a local RSAT is led by the ATCT manager.

Runway Safety Service Area Manager: Located in the Western Service Center in Des Moines, Washington, the manager manages the Regional Runway Safety Program Managers and interacts with the ATO Service area offices, Regional LOBs Managers, and Regional Administrators. For a complete description of responsibilities, please see Order 7050.1B.

Runway Safety Group (RSG): RSG is the focal point for runway safety initiatives in the NAS. RSG works with other FAA organizations and the aviation community to improve runway safety by reducing the frequency and severity of Runway Incursions (RI) Runway Excursion (RE) and Surface Incidents (SI). RSG responsibilities are set forth by FAAO 7050.1B, Runway Safety Program.

Runway Safety Program (RSP): RSP is a cross lines of business program focused on improving runway safety by decreasing the number and severity of runway incursion, runway excursions, and other surface incidents. The FAA lines of business are guided by FAA Order 7050.1B, Runway Safety Program. The order establishes policy, assigns responsibilities and delegates authority for ensuring compliance with this order within each organization.

Runway Safety Tracking System (RSTS): The RSTS is a web based database application employed by the RSG to track events, action items, documents and other information pertinent to FAA's runway safety mission. The primary data sources are regional and local Runway Safety Action Team meetings.

Severity Classifications: Runway Incursions are assessed by Runway Safety and classified by the severity of the event. The Severity Classifications are:

- Accident. An incursion that results in a collision. For the purposes of tracking incursion performance, an accident will be treated as a Category A runway incursion.
- Category A. A serious incident in which a collision was narrowly avoided.
- Category B. 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. An incident characterized by ample time and/or distance to avoid a collision.
- Category D. An incident that meets the definition of a 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.
- Category E. An incident in which insufficient or conflicting evidence of the event precludes assigning another category.

Surface Event: An occurrence at an airport involving a pedestrian, vehicle, or aircraft on the defined airport movement area that involves either a runway excursion, or an incorrect presence, unauthorized movement, or occurrence that affects or could affect the safety of flight of an aircraft.

Surface Incident (SI): 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.

Types of Surface Events: Surface events are classified into the following types:

- Operational Incident (OI). A surface event attributed to ATCT action or inaction.
- Pilot Deviation (PD). A surface event caused by a pilot or other person operating an aircraft under its own power (see FAA Order 8020.11, Aircraft Accident and Incident Notification, Investigation and Reporting, for the official definition).
- Vehicle or Pedestrian Deviation (VPD). A surface event caused by a vehicle driver or pedestrian (see FAA Order 8020.11, Aircraft Accident and Incident Notification, Investigation and Reporting, for the official definition).
- Other. Surface events that cannot clearly be attributed to a mistake or incorrect action by an air traffic controller, pilot, driver, or pedestrian will be classified as "other." These events would include incursions caused by equipment failure or other factors

Western Service Area Safety Working Group (WSA SWG): A number of groups in each Service Area are focused on the identification and resolution of NAS safety

concerns. These groups include Quality Assurance, Quality Control Group, Runway Safety, Technical Operations and the Air Traffic Safety Action Program (ATSAP) Event Review Committee. Each group has their own defined procedures and sources of safety data. The Service Area Safety Council provides an opportunity for these groups to share information and provide mutual support for efforts to mitigate identified safety risks. The council has the following specific purposes: share information on possible safety concerns across programs, ensuring that all parties are knowledgeable about the types of safety issues being reported in the field; provide mutual support to each other in mitigating safety risks identified in each program area and ensure safety efforts are well coordinated between organizations; provide a consolidated picture for the Directors of Operations on the highest priority NAS safety issues in the Service Area. Participation in the council does not prevent any individual member from taking action to address safety risks in their own program area using the tools available to them

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Appendix C. Airport Codes

Airport Codes

Code	Airport Name
ALW	Walla Walla Regional, WA
APA	Centennial Airport, Denver, CO
ASE	Sardy Field, Aspen, CO
BFI	Boeing Field/King CO Intl, Seattle, WA
BIL	Billings Logan International, MT
BJC	Rocky Mountain Metro, Denver, CO
BLI	Bellingham International, WA
BOI	Boise Air Terminal/Gowen Field, ID
BZN	Gallatin Field, Bozeman, MT
COS	City of Colorado Springs Muni, CO
CPR	Natrona CO International, Casper, WY
CYS	Cheyenne Regional/Jerry Olsen Field, WY
DEN	Denver International, CO
EGE	Eagle CO Regional, CO
EUG	Mahlon Sweet Field Airport, Eugene, OR
FTG	Front Range Airport, Denver, CO
GEG	Spokane International, WA
GJT	Walker Field, Grand Junction, CO
GPI	Glacier Park Intl, Kalispell, MT
GTF	Great Falls International, MT
HIO	Portland-Hillsboro Airport, Portland, OR
HLN	Helena Regional, MT
IDA	Idaho Falls Regional, ID
JAC	Jackson Hole Airport, Jackson, WY
LMT	Klamath Falls Airport, OR
LWS	Lewiston-Nez Perce CO Airport, Lewiston, ID

Code	Airport Name
MFR	Rogue Valley International-Medford Airport, Medford, OR
MSO	Missoula International, MT
MWH	Grant CO Intl, Moses Lake, WA
OGD	Ogden-Hinckley Airport, Ogden, UT
OLM	Olympia Regional, WA
OTH	Southwest Oregon Regional, North Bend, OR
PAE	Snohomish CO (Paine Field), Everett, WA
PDT	Eastern Oregon Regional at Pendleton, OR
PDX	Portland International, OR
PIH	Pocatello Regional, ID
PSC	Tri-Cities Airport, Pasco, WA
PUB	Pueblo Memorial Airport, CO
PVU	Provo Municipal, UT
RDM	Roberts Field, Redmond, OR
RNT	Renton Municipal, WA
SEA	Seattle-Tacoma International, WA
SFF	Felts Field, Spokane, WA
SLC	Salt Lake City International, UT
SLE	McNary Field, Salem, OR
SUN	Friedman Memorial Airport, Hailey, ID
TIW	Tacoma Narrows Airport, WA
TTD	Portland-Troutdale Airport, Portland, OR
TWF	Joslin Field- Magic Valley Regional, Twin Falls, ID
UAO	Aurora State, Aurora, OR
YKM	Yakima Air Terminal/McAllister Field, WA



Appendix D. Data Table

July 2018 – June 2019 Data

Loc ID	RIs	RI Rate per 100K	Incident Type				Wrong Surface Events	REMARKS
			OI	PD	VPD	OTH		
ALW	0	0.00						
APA	21	6.05	2	18	1	0	2	
ASE	5	12.48		4	1			
BFI	17	9.33	1	14	2		2	
BIL	5	5.51	1	2	2		1	
BJC	9	5.21		9			2	
BLI	1	1.40		1				
BOI	16	11.66	1	14	1		4	
BZN	4	4.11		3	1			
COS	1	0.78	1				1	
CPR	4	11.18	1	3				
DEN	11	1.79	5	4	2			
EGE	0	0.00						
EUG	1	1.54		1				
FTG	1	1.27		1				
GEG	0	0.00						
GJT	0	0.00						
GPI	0	0.00						
GTF	2	5.80		1	1			
HIO	11	5.83		10	1			
HLN	3	5.68		3				
IDA	2	7.53		2				
JAC	0	0.00						
LWS	0	0.00						

Pink cells indicate parameters increased by 2 or more events over previous 12-month period.

Wrong Surface Events include wrong surface alignments caught and corrected by controllers

Loc ID	RIs	RI Rate per 100K	Incident Type				Wrong Surface Events	REMARKS
MFR	0	0.00						
MSO	2	5.25		2				
MWH	2	2.44		2			1	
OGD	1	0.93		1				
OLM	1	1.70		1				
OTH	1	6.44		1				
PAE	5	4.05		4	1			
PDT	0	0.00						
PDX	6	2.55	2	3	1		1	
PIH	0	0.00						
PSC	2	4.08		2			2	
PUB	3	1.44		2	1			
PVU	0	0.00						
RDM	5	6.90	2	2	1			
RNT	7	4.96		6	1			4 were repeated T&Gs
SEA	17	3.84	3	9	3	2		
SFF	0	0.00						
SLC	9	2.64	3	6			3	
SLE	5	12.76		3	2			
SUN	2	8.59		2				
TIW	1	1.14		1				
TTD	0	0.00						
TWF	2	5.91		1	1			
UAO	3	4.92		3			1	
YKM	0	0.00						

Data sources

The data in figure above was generated from the FAA Runway Safety Tool, which is the official data source for nationwide runway incursion information. Data was pulled on July 31, 2019. Final data is expected at the end of November 2019. Additional input was provided by Regional Runway Safety Team members for the “Comments Received and Notes” column.

Discussion

From Figure 2 in the *Methodology* section of the RRSP, two lists, one showing the top 10 airports by number of runway incursions, the other showing the top 10 airports by runway incursion rate, were presented to RRST members for discussion on August 8,

2019. The airports agreed upon as FY2019 Priority Airports and Airports of Interest by the RRST, and presented to the Regional Governance Council for concurrence on September 18, 2019.

There is no official benchmark for SIs. SI rate numbers are not currently reported nationally. SIs include low risk events, such as a pilot taxiing without clearance that does not conflict with any other aircraft or vehicle on the surface. SIs also include events such as taxiway landings that can be high risk. Because of this wide variation in events that are considered surface incidents, the Runway Safety Group does not compare or evaluate number or rate of surface events as a common practice.

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Appendix E. Discussion of FY2019 RRSP Airports

Priority Airports

- **Boise Airport (BOI)**

Boise has an ongoing pattern of wrong runway landings and alignments. There were three wrong runway landings in FY2018, one involved a Part 121 operator landing on a closed runway that was occupied by vehicle. In FY2019, there were two wrong runway landings. Additionally, there were at least two instances where controllers identified that an aircraft was lined up on the wrong runway in time to take corrective action and another event where an aircraft mistakenly landed on the assault strip southeast of the airport. Total wrong surface landings are down from five in FY2017; however, the number of wrong surface events remains high, indicating continued wrong surface confusion. A Special-Focus RSAT was held in July, 2019 to address Boise's wrong surface landing issue.

- **Centennial Airport (APA)**

Centennial is a busy general aviation airport with a mixture of traffic ranging from primary training aircraft to business jets. The airport experienced two wrong runway landings in FY2019. This was a decrease from five wrong runway landings in FY2018; however it is greater than FY2017 (1), FY2016 (0) and FY2015 (1).

Centennial continues to experience a high number of runway incursions, with 11 in FY2019, down from 16 in FY2018 and 12 in FY2017. In three of the FY2019 events, Ground Control instructed the pilots to "monitor tower", with two of the aircraft departing without a clearance, and the other taxiing onto the runway. There three "monitor tower" events in FY2018.

- **King County International Airport "Boeing Field" (BFI)**

BFI is a busy general aviation airport with a mixture of traffic ranging from primary training aircraft to heavy jets. The airport's runway incursion numbers seem to be slowly increasing with five in FY2016, six in FY2017, 12 in FY2018, and 15 in FY2019.

Two incursions involved aircraft exiting Runway 32L and not holding short of Runway 32R as instructed. The limited space between the runways likely contributed to the events since there is only 10 ft. between the hold lines between the runways.

Five events involved aircraft taxiing for departure on Runway 16R passing Taxiway B1 (which leads to the end of Runway 16R) and crossing the runway hold line at the entrance to Taxiway Z. Use of Taxiway Z requires 72-hours prior permission from the airport sponsor. In the Spring of 2019, the tower instituted a new

procedure whereby aircraft are instructed to taxi to Runway 16R at B1. This appears to have significantly reduced the number of these events.

- **Denver International Airport (DEN)**

Denver is a Core 30 airport and the busiest in ANM. DEN had 9 runway incursions in FY2019, down from 12 in FY2018. While the number of incursions is high, the rate of incursions is relatively low due to the large number of operations.

The number of events involving inadequate arrival/arrival separation increased to five in FY2019, compared to three in FY2018. DEN has historically had an issue with the aircraft taxiing to Runway 17L not holding short of the Runway 17R Approach Hold on Taxiway ED as instructed. Following the Jeppesen's publication of an enhanced depiction of the area around the approach hold and standardization of ground control instructions, incidents have dropped, with only three in FY2019. Runway Safety will continue to monitor this hot spot.

- **Portland International Airport (PDX)**

PDX is a Regional Administrator's 50 airport. The airport had five runway incursions in FY2019, down one from FY2018. The incursions were due to a variety of reasons, with no particular issues that stand out.

- **Seattle-Tacoma International Airport (SEA)**

SEA is a Core 30 airport. The airport has experienced 14 runway incursions in FY2019, up slightly from 13 in FY2018. Four runway incursions involved aircraft taxiing to the terminal after landing. One factor is the airport's geometry. At SEA, all three runways are on the same side of the terminal. Aircraft that land on the outer Runway (16R/34L) have to cross two runways to get to the terminal, increasing the opportunity for runway incursions.

- **Salt Lake City International Airport (SLC)**

SLC is a Core 30 airport. The number of runway incursions has varied year to year, with 11 in FY2019, compared to four in FY2018 and 14 in FY2017. Six of the incursions involved general aviation aircraft. There were five operational incidents, four of which involved arrival/arrival or arrival/departure separation.

Airports of Interest

- **Aspen-Pitkin County Airport (ASE)**

ASE had the region's second highest runway incursion rate in FY2019. The airport has more regular service from major carriers than any other regional ski town airport in North America. In the winter, its regular, weekly flights number more than 170 (not including extra flights often run during busy holiday seasons).

Due to mountainous terrain, aircraft normally land on Runway 15 and take off on Runway 33. The airport's layout creates the potential for runway incursions. The parallel taxiway/taxi lane runs along the edge of the ramp and there are several direct access taxiways. The runway hold lines are adjacent to the parallel taxiway and, at the south end, located on the curve leading to the runway.

- **Roberts Field Airport (RDM)**

RDM is the only air carrier airport in central Oregon and traffic at the airport has increased significantly over the last few years. While the number and rate of runway incursions are not particularly high, the airport has experienced a number of events which show the potential for a serious incident. Some of the events might, at least partially, be to the airport's intersecting runways and the lack of a radar display in the control tower.

- **Rocky Mountain Metropolitan Airport (BJC)**

Runway incursions at BJC increased from two in FY2016 to five in FY2017 to eight in FY2018 and 11 in FY2019. Pilot deviations jumped from one in FY2017 to eight in FY2018 to date.

The airport had two wrong runway landings in FY2019, compared to four in FY2018. BJC's runway configuration is similar to APA's – offset parallel runways with a crosswind runway – as are the circumstances of the wrong runway landings.

BJC continues to experience issues with aircraft not holding short of Runway 12R/30L when taxiing eastbound on Taxiway B or Runway 3 from Taxiway D. Additionally, some aircraft don't hold short of Runway 12L/30R as instructed.

- **Portland-Hillsboro Airport (HIO)**

Hillsboro experienced a substantial drop in runway incursions, with 9 in FY2019, compared to 24 in FY2018 and 17 in FY2017. There is a lot of flight training at HIO. Hillsboro Aero Academy trains a significant number of foreign students and Aviation English Language Proficiency (AELP) could be a factor.

HIO has three RIM locations, two of which correlate with HS-1 and HS-2, with the

other at the entrance taxiway A9. The update of the airport's master plan is expected to address mitigations for the hot spot locations.



Appendix F. Regional Runway Safety Team Roster

Positions and Contact Information

NAME	POSITION/ (ORGANIZATION REPRESENTING)	TEAM ROLE	PHONE
	Airports Division		
Bauer, John	Manager, Denver ADO		303-342-1259
Briggs, Joelle	Manager, Seattle ADO		206-231-4126
TBD	Lead Airport Certification Safety Inspector		206-231-4118
Garrison, William "Chuck"	Manager, Helena ADO		406-441-5404
TBD	Manager, Safety & Standards Branch	Core	206-231-
	Air Traffic Services		
Abbey, Peter	General Manager, Anchorage / Seattle District		206-351-3813
Ralph, Michael	General Manager, Salt Lake / Denver District (A)		303-684-5010
Johnson, Brian J	Team Manager, WSA QCG		206-231-2254
Powers, Craig F	Operational Evaluation Specialist, QCG		206-231-2342
Johnson, Brian J	Group Manager, WSA QCG (A)	Core	206-231-2311
Wilhelm, Glen	WSA OSG		
	Regional Administrator's Office		
Martin, Richard	Senior Advisor, ANM-002		206-231-2004

NAME	POSITION/ (ORGANIZATION REPRESENTING)	TEAM ROLE	PHONE
	Flight Standards Service		
Bosley, Natalie	Supervisory Aviation Safety Inspector AFG-700 NM-01		206-231-3829

Gillmor, Justin	(All Weather Ops)		206-231-3739
Thomas, Ken	ANM FFAST Regional POC	Core	907-474-0276
NATCA			
Johnson, Brandon	NATCA Regional Representative		386-299-6201
Quality Assurance			
Meigs, Mike	WSA QA Manager	Core	206-321-2056
Schimpf, Brian	WSA QA Team Manager		206-231-2055
Runway Safety			
Kent Koran	ANM Runway Safety Program Manager	Core	206-231-2485
Banuelos, Emily	WSA Runway Safety Team Manager		206-231-2054
Fee, James	Runway Safety Group Manager		202-267-4572
SUPCOM			
Thomas, Kyle	SUPCOM Safety		330-492-3817
Technical Operations			
Stewart, Kevin	Deputy Director, WSA Tech Ops	Core	206-231-2355