All Users:

Annotated on the attached sheets are changes made to the Aeronautical Information Manual (AIM) as part of the Takeoff and Landing Performance Assessment (TALPA) workgroup. Only those paragraphs which were changed are included in this document (4-1-14, 4-3-8, and 4-3-9).

The Runway Condition Assessment Matrix (RCAM) has been added as a "new" Figure 4-3-7 to the directive. **All** additional Figures in Chapter 4 have been renumbered accordingly (i.e., current 4-3-7 is now 4-3-8, etc.).

These changes are effective October 1, 2016 throughout the National Airspace System. The AIM will be updated with these changes on the next scheduled publication of **April 27, 2017.**

This document is not intended to replace the current pages in the AIM.

made on the broadcast, "the weather is better than 5000 and 5," or the existing weather may be broadcast.

f. Controllers will issue pertinent information to pilots who do not acknowledge receipt of a broadcast or who acknowledge receipt of a broadcast which is not current.

g. To serve frequency limited aircraft, FSSs are equipped to transmit on the omnirange frequency at most en route VORs used as ATIS voice outlets. Such communication interrupts the ATIS broadcast. Pilots of aircraft equipped to receive on other FSS frequencies are encouraged to do so in order that these override transmissions may be kept to an absolute minimum.

h. While it is a good operating practice for pilots to make use of the ATIS broadcast where it is available, some pilots use the phrase "have numbers" in communications with the control tower. Use of this phrase means that the pilot has received wind, runway, and altimeter information ONLY and the tower does not have to repeat this information. It does not indicate receipt of the ATIS broadcast and should never be used for this purpose.

4-1-14. Automatic Flight Information Service (AFIS) – Alaska FSSs Only

a. Alaska FSSs AFIS is the continuous broadcast of recorded non-control information at airports in Alaska where a FSS provides local airport advisory service. Its purpose is to improve FSS **s**pecialist efficiency by reducing frequency congestion on the local airport advisory frequency.

1. The AFIS broadcast will automate the repetitive transmission of essential but routine information (weather, favored runway, **braking** action, airport NOTAMs, other applicable information). The information is continuously broadcast over a discrete VHF radio frequency (usually the ASOS frequency).

2. Use of AFIS is not mandatory, but pilots who choose to utilize two−way radio communications with the FSS are urged to listen to AFIS, as it relieves frequency congestion on the local airport advisory frequency. AFIS broadcasts are updated upon the receipt of any official hourly and special weather, worsening braking action reports, and changes in other pertinent data.

3. When a pilot acknowledges receipt of the AFIS broadcast, FSS specialists may omit those items contained in the broadcast if they are current. When rapidly changing conditions exist, the latest ceiling, visibility, altimeter, wind or other conditions may be omitted from the AFIS and will be issued by the FSS specialist on the appropriate radio frequency.

CHANGES TO PARA 4-1-14:

1. **Changed "specialist" to lowercase in opening paragraph.**
2. **Editorial correction of the term "breaking" to reflect "braking."**
3. **Created sub-paragraphs a1, a2, and a3 for easier reading.**

NO FURTHER CHANGES TO PARAGRAPH 4-1-14 MADE

4−3−7. Low Level Wind Shear/Microburst Detection Systems

Low Level Wind Shear Alert System (LLWAS), Terminal Doppler Weather Radar (TDWR), Weather System Processor (WSP), and Integrated Terminal Weather System (ITWS) display information on hazardous wind shear and microburst activity in the vicinity of an airport to air traffic controllers who relay this information to pilots.

a. LLWAS provides wind shear alert and gust front information but does not provide microburst alerts. The LLWAS is designed to detect low level wind shear conditions around the periphery of an airport. It does not detect wind shear beyond that limitation. Controllers will provide this information to pilots by giving the pilot the airport wind followed by the boundary wind.

EXAMPLE−
Wind shear alert, airport wind 230 at 8, south boundary wind 170 at 20.

b. LLWAS "network expansion," (LLWAS NE) and LLWAS Relocation/Sustainment (LLWAS−RS) are systems integrated with TDWR. These systems provide the capability of detecting microburst alerts and wind shear alerts. Controllers will issue the appropriate wind shear alerts or microburst alerts. In some of these systems controllers also have the ability to issue wind information oriented to the threshold or departure end of the runway.

EXAMPLE−
Runway 17 arrival microburst alert, 40 knot loss 3 mile final.

REFERENCE−
AIM, Paragraph 7−1−25 , Microbursts

c. More advanced systems are in the field or being developed such as ITWS. ITWS provides alerts for microbursts, wind shear, and significant thunderstorm activity. ITWS displays wind information oriented to the threshold or departure end of the runway.

d. The WSP provides weather processor enhancements to selected Airport Surveillance Radar (ASR)−9 facilities. The WSP provides Air Traffic with detection and alerting of hazardous weather such as wind shear, microbursts, and significant thunderstorm activity. The WSP displays terminal area 6 level weather, storm cell locations and movement, as well as the location and predicted future position and intensity of wind shifts that may affect airport operations. Controllers will receive and issue alerts based on Areas Noted for Attention (ARENA). An ARENA extends on the runway center line from a 3 mile final to the runway to a 2 mile departure.

e. An airport equipped with the LLWAS, ITWS, or WSP is so indicated in the Chart Supplement U.S. under Weather Data Sources for that particular airport.

4-3-8. Braking Action Reports and Advisories

a. When available, ATC furnishes pilots the quality of braking action received from pilots. The quality of braking action is described by the terms "good," "**good to medium**," "**medium**," "**medium to poor**," "poor," and "nil." When pilots report the quality of braking action by using the terms noted above, they should use descriptive terms that are easily understood, such as, "braking action poor the first/last half of the runway," together with the particular type of aircraft.

b. Braking action FICON NOTAMs will only be issued for non-paved runway surfaces, taxiways, aprons. These NOTAMs are classified according to the most critical term ("**good to medium**," **medium**," "**medium to poor**," and "poor").

1. FICON NOTAM reporting of a braking condition for paved runway surfaces is not permissible by Federally Obligated Airports or those airports certificated under 14 CFR part 139.

2. A "NIL" braking condition at these airports must be mitigated by closure of the affected surface. Do not include the type of vehicle in the FICON NOTAM.

c. When tower controllers receive runway braking action reports which include the terms **medium**, poor or nil, or whenever weather conditions are conducive to deteriorating or rapidly changing runway braking conditions, the tower will include on the ATIS broadcast the statement, *"BRAKING ACTION ADVISORIES ARE IN EFFECT."*

d. During the time that braking action advisories are in effect, ATC will issue the **most recent** braking action report for the runway in use to each arriving and departing aircraft. Pilots should be prepared for deteriorating braking conditions and should request current runway condition information if not issued by controllers. Pilots should also be prepared to provide a descriptive runway condition report to controllers after landing.

4-3-9. Runway Condition Reports

a. **Aircraft braking coefficient is dependent upon the surface friction between the tires on the aircraft wheels and the pavement surface. Less friction means less aircraft braking coefficient and less aircraft braking response.**

b. **Runway condition code** values range from 1 **(poor)** to **6 (dry).** For frozen contaminants on runway surfaces, a **runway condition code reading of 4 indicates the level when braking deceleration or directional control is between good and medium.**

NOTE -
A RwyCC of "0" is used to delineate a braking action report of NIL and is prohibited from being reported in a FICON NOTAM.

c. **A**irport management should conduct **runway condition assessments** on **wet** runways or **runways** covered with compacted snow and/or ice.

1. Numerical readings may be obtained by using **the Runway Condition Assessment Matrix (RCAM). The RCAM provides a report that includes the following:**

(a) **Runway(s) in use.**

(b) **Time of the assessment.**

(c) **Runway condition codes for each zone (touchdown, mid-point, roll-out).**

(d) **Pilot-reported braking action report (if available).**

(e) **The contaminant, for example, wet snow, dry snow, slush, ice, etc.**

2. **Assessments for each zone (see 4-3-9c1(c)) will be issued in the direction of takeoff and landing on the runway, ranging from "1" to "6" to describe contaminated surfaces.**

NOTE -
A RwyCC of "0" is used to delineate a braking action report of NIL and is prohibited from being reported in a FICON NOTAM.

3. **When any 1 or more runway condition codes are reported as less than 6, airport management must notify ATC for dissemination to pilots.**

4. **Controllers will not issue runway condition codes when all 3 segments of a runway are reporting values of 6.**

c. When **runway condition code** reports are provided by airport management, the ATC facility providing approach control or local airport advisory **must** provide the report to **all** pilots.

d. Pilots should use **runway condition code** information with other knowledge including aircraft performance characteristics, type, and weight, previous experience, wind conditions, and aircraft tire type (**such as,** bias ply vs. radial constructed) to determine runway suitability.

e. **The Runway Condition Assessment Matrix identifies** the descriptive terms "good," **"good to medium," "medium," "medium to poor,"** "poor," and "nil" used in braking action reports.

REFERENCE -
Advisory Circular AC 91-79A (Revision 1), Appendix 1, Mitigating the Risks of a Runway Overrun Upon Landing.

FIG 4-3-7
Runway Condition Assessment Matrix (RCAM)

(On Next Page)

CHANGES TO PARA 4-3-8:

1. Added new braking action categories of "Good to Medium," "Medium," "Medium to Poor."

2. Added new braking action FICON NOTAM information about paved runways.

3. Included information about NIL braking reports (runway closure). Also, vehicles no longer conducting braking action reports by vehicles.

NO FURTHER CHANGES TO PARAGRAPH 4-3-8

CHANGES TO PARA 4-3-9:

1. Changed title of paragraph – no longer using friction to assess braking conditions.

2. Introduction of Runway Condition Codes (RwyCC) and the Runway Condition Assessment Matrix (RCAM).

NO FURTHER CHANGES TO PARAGRAPH 4-3-9

Figure 4-3-7
Runway Condition Assessment Matrix (RCAM)

Assessment Criteria		Control/Braking Assessment Criteria	
Runway Condition Description	RwyCC	Deceleration or Directional Control Observation	Pilot Reported Braking Action
• Dry	6	—	—
• Frost • Wet (Includes damp and 1/8 inch depth or less of water) ***1/8 inch (3mm) depth or less of:*** • Slush • Dry Snow • Wet Snow	5	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	Good
-15ºC and Colder outside air temperature: • Compacted Snow	4	Braking deceleration OR directional control is between Good and Medium.	Good to Medium
• Slippery When Wet (wet runway) • Dry Snow or Wet Snow (any depth) over Compacted Snow ***Greater than 1/8 inch (3 mm) depth of:*** • Dry Snow • Wet Snow ***Warmer than -15ºC outside air temperature:*** • Compacted Snow	3	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	Medium
Greater than 1/8 inch(3 mm) depth of: • Water • Slush	2	Braking deceleration OR directional control is between Medium and Poor.	Medium to Poor
• Ice	1	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	Poor
• Wet Ice • Slush over Ice • Water over Compacted Snow • Dry Snow or Wet Snow over Ice	0	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	Nil