
2020 – 2021 Winter Weather Season Kick-Off Meeting

November 4, 2020



Winter Weather Season Kick-Off

2020 - 2021 Season

Welcome / Introductions

NWS Winter Forecast / historical data

DFW Snow/Ice Control Plan

Priority One and Priority Two Pavements

Snow/Ice Control Procedures

Emergency Operations Center Activation

Aircraft Deicing Operations

American Airlines Comments

Air Traffic Control Comments

Open Forum – Tenant Comments and Questions



D / FW Airport Winter Weather Meeting 2020

Lamont Bain

National Weather Service Fort Worth/Dallas

11/04/2020





Spring / Summer 2020 Weather Review

Season	Observed Average Temperature	Observed Average High Temperature	Observed Average Low Temperature
Winter 2019-2020	50.0	60.3	39.7
Spring 2020	67.3	77.5	57.0
Summer 2020	84.5	94.4	74.7

Total of 9, 100 degree day's at D/FW Airport during Summer of 2020---a little below the average of 18.

Season	Observed Precipitation (inches)
Winter 2019-2020	10.05
Spring 2020	16.19
Summer 2020	8.94



North Texas Fall / Winter Climatology --- Precipitation / Temperatures

Fall / Winter Weather Climatology (Temperature / Precipitation)

<u>Month</u>	<u>Normal High Temperature</u>	<u>Normal Low Temperature</u>	<u>Average Precipitation (in)</u>
November	66.9	56.6	2.71
December	57.1	37.1	2.55
January	56.4	35.5	2.13
February	60.4	39.4	2.66

Generally temperate across North Texas...but there can be warm stretches with cold snaps!

Fall / Winter Freeze Information for D / FW

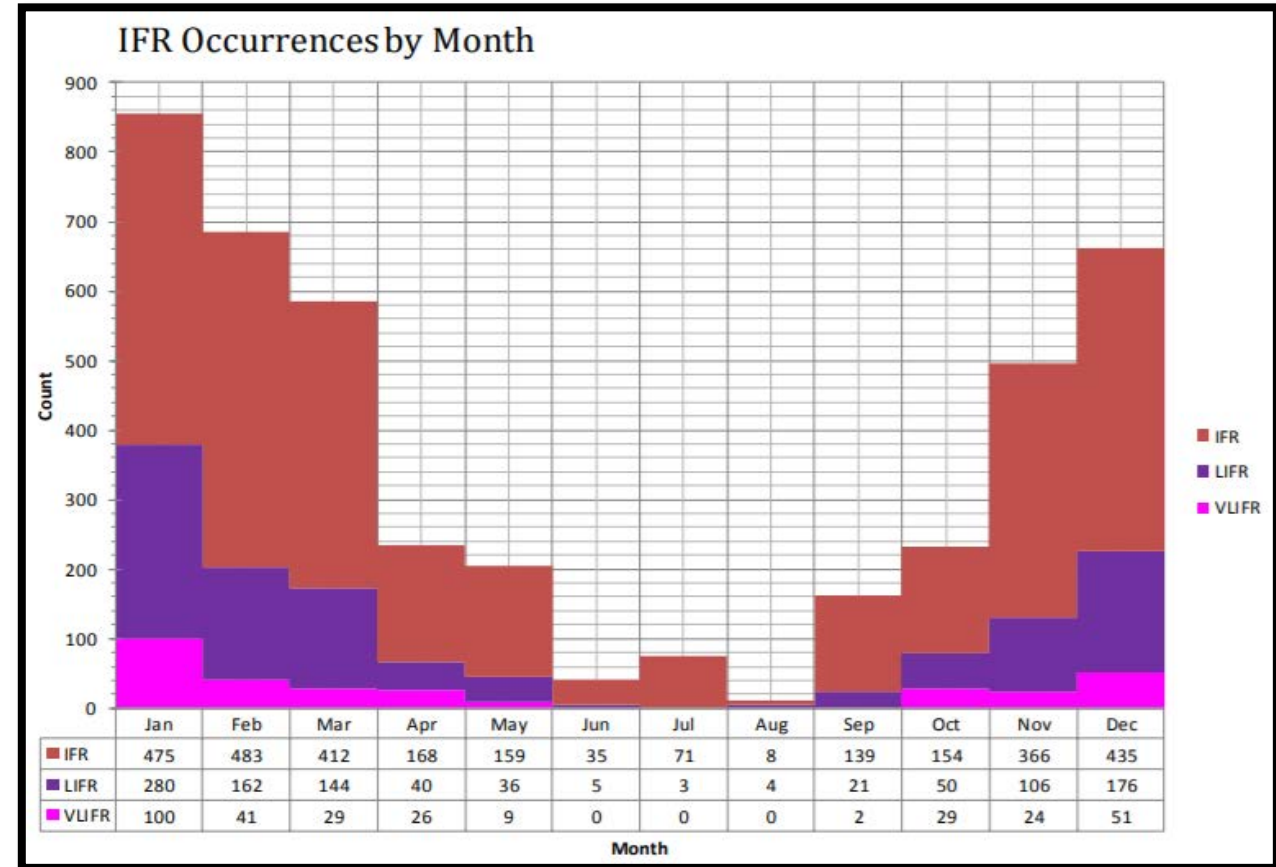
<u>Month</u>	<u>Average Number of Freezes</u>
November	2.3
December	9.7
January	12.1
February	6.8



North Texas Fall / Winter Climatology --- Instrument Flight Rules (IFR) Events

Occurrence of IFR ceilings is highest during the winter months/cool season.

- **Peak in January/February**
- **LIFR/VLIFR ceiling days probably coincide with lifting fog bank**
- **Diminished AAR and can be compounded during busy holiday travel season!**



10 Year IFR Occurrences at D/FW Airport



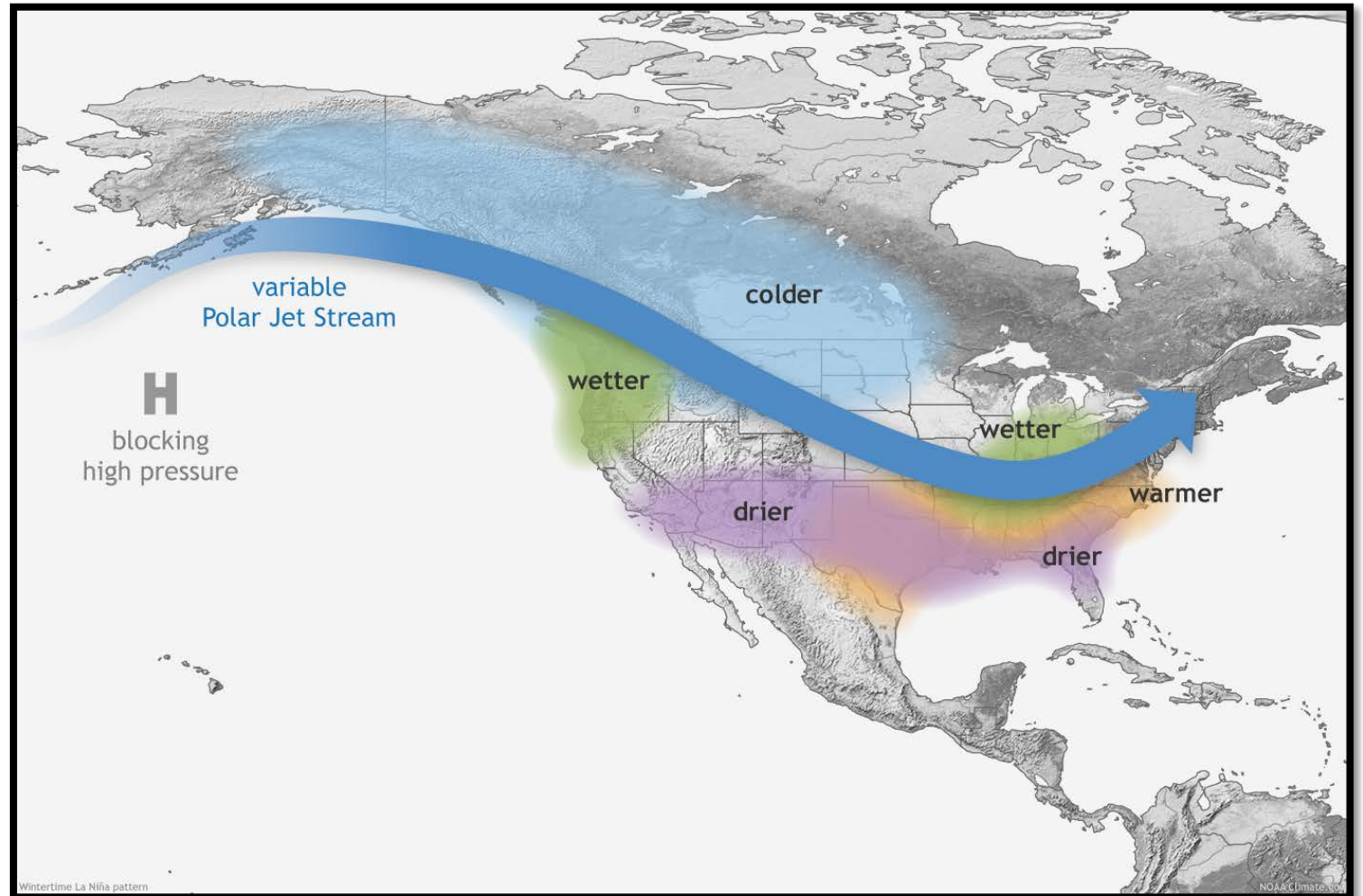
North Texas Fall / Winter 2020-2021 Outlook

A negative phase of El Nino Southern Oscillation (ENSO) is forecast through Winter 2020-2021 (La Nina)

Stronger than normal High Pressure across the Gulf of Alaska.

Jet stream takes weather systems across Pacific Northwest and into the Ohio River Valley.

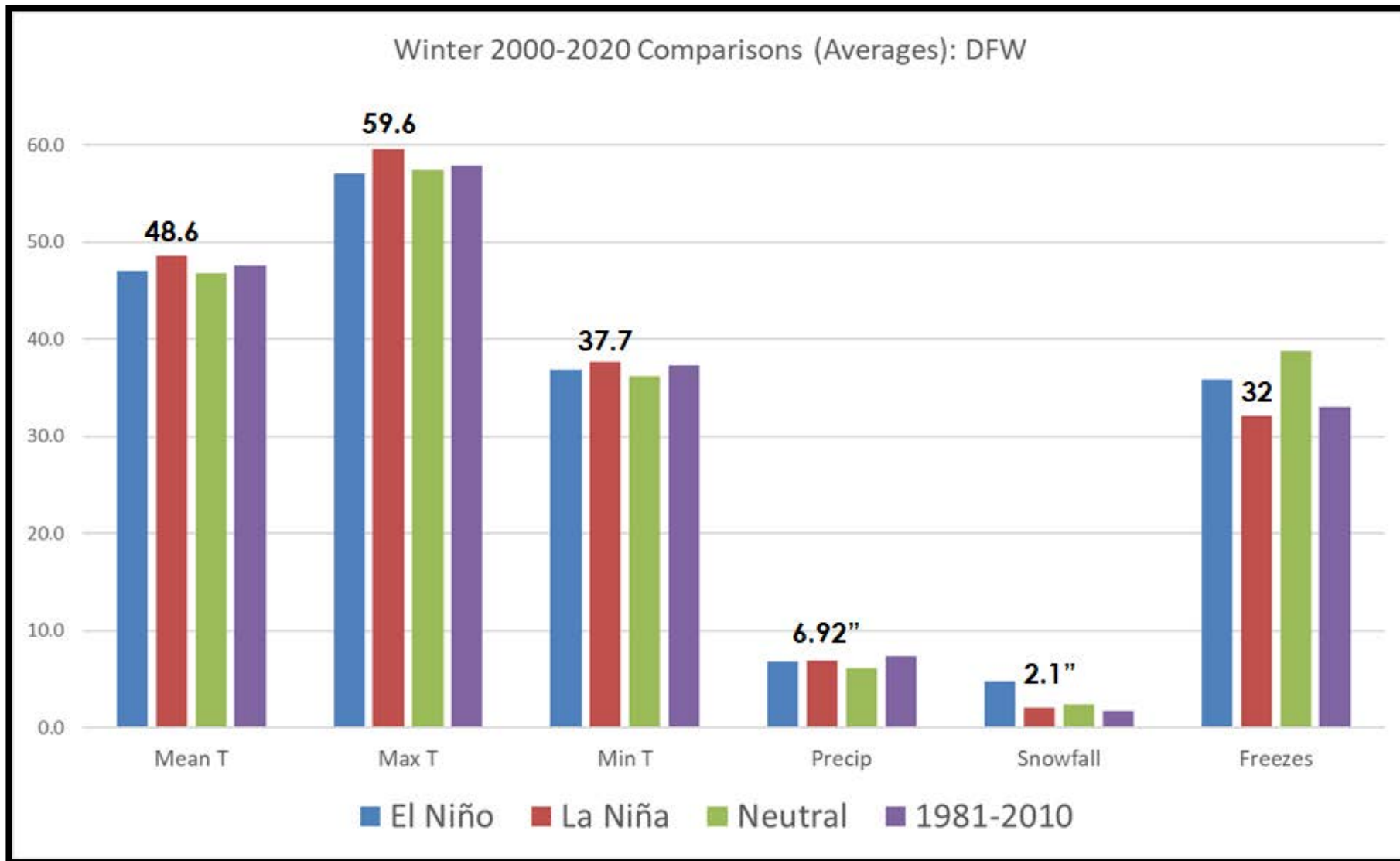
Southern Portions of the U.S. typically stay drier and warmer than normal.





North Texas Fall / Winter 2020-2021 Outlook

What does a La Nina mean for North Texas???



Greatest average temperatures (high and low) during La Nina

Fewest number of freezes and lowest average snowfall totals during La Nina

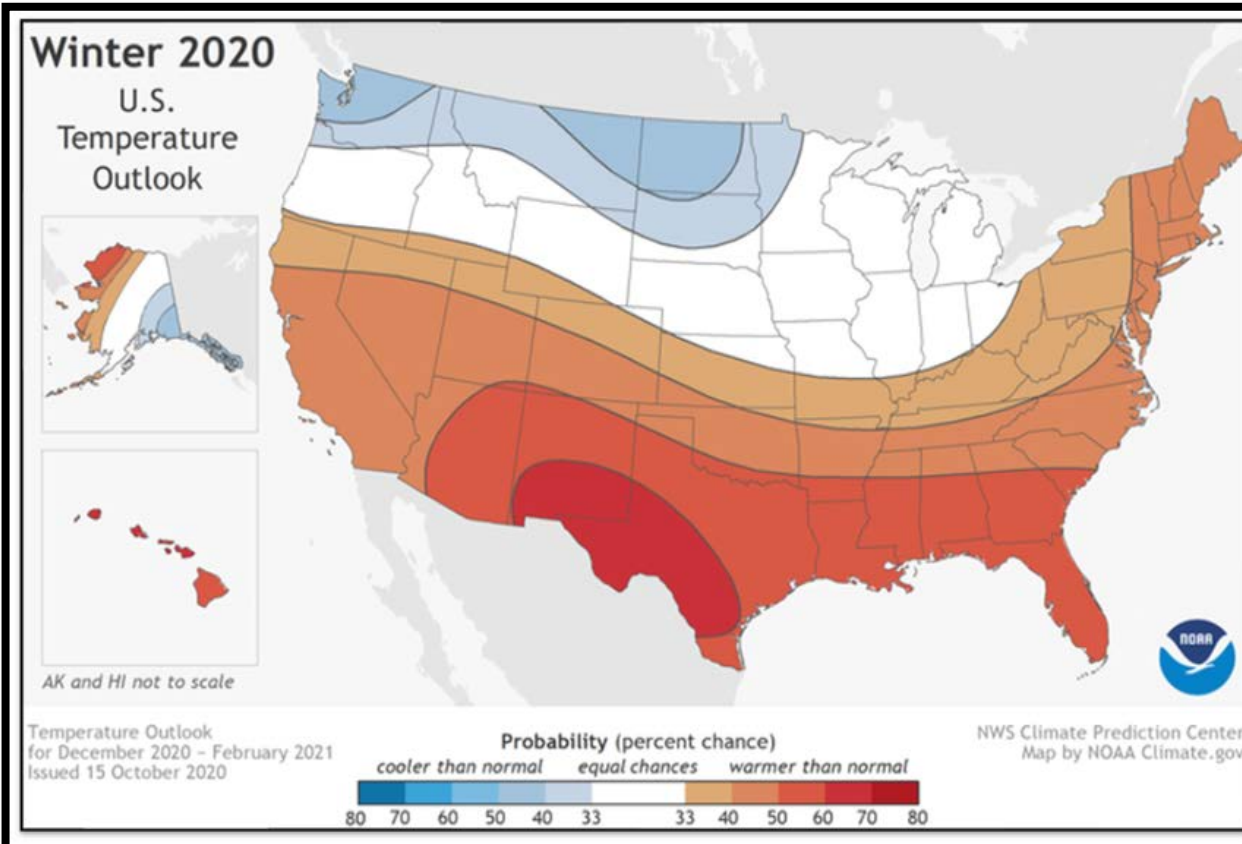
Total precipitation (rain, snow, sleet, freezing rain) near the top.



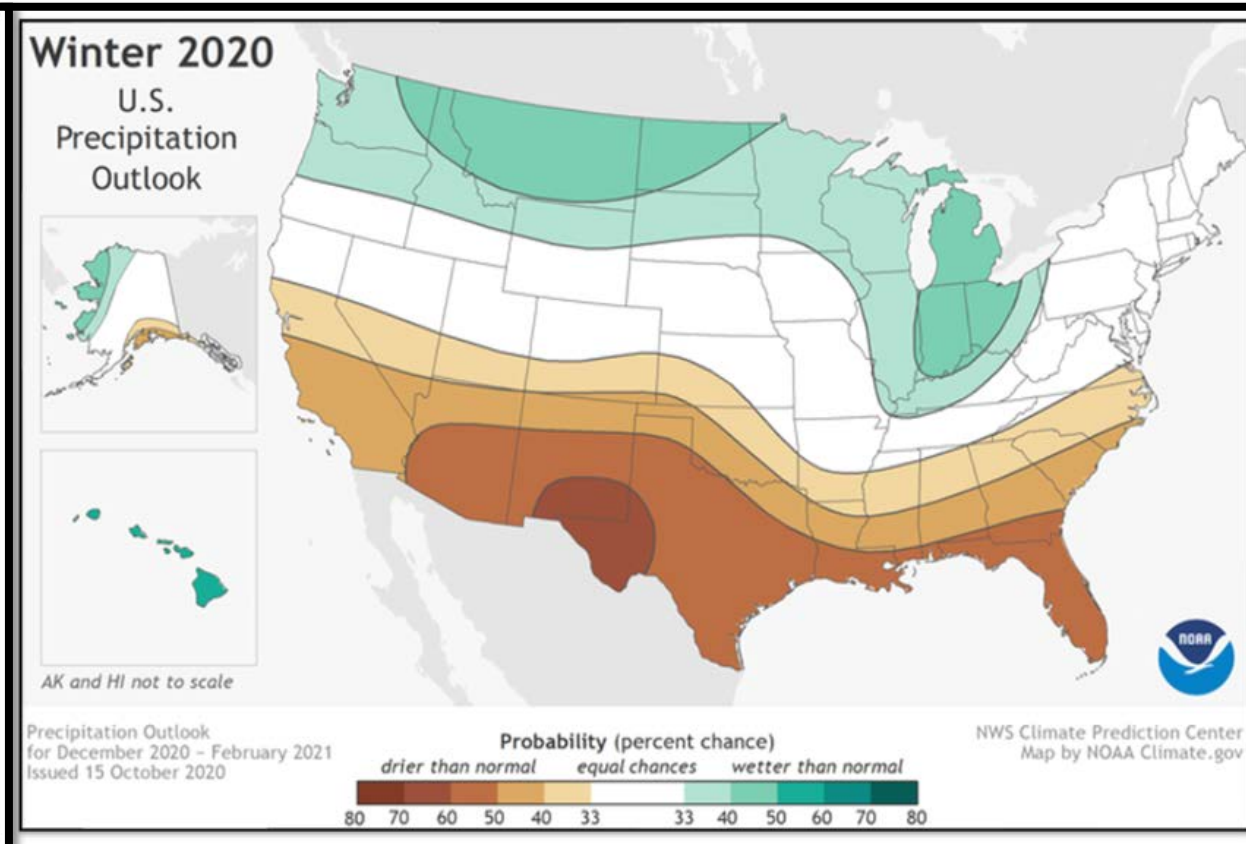
December through February Temperature & Precipitation Outlook

Winter 2020-2021 Temperature Outlook

Winter 2020-2021 Precipitation Outlook



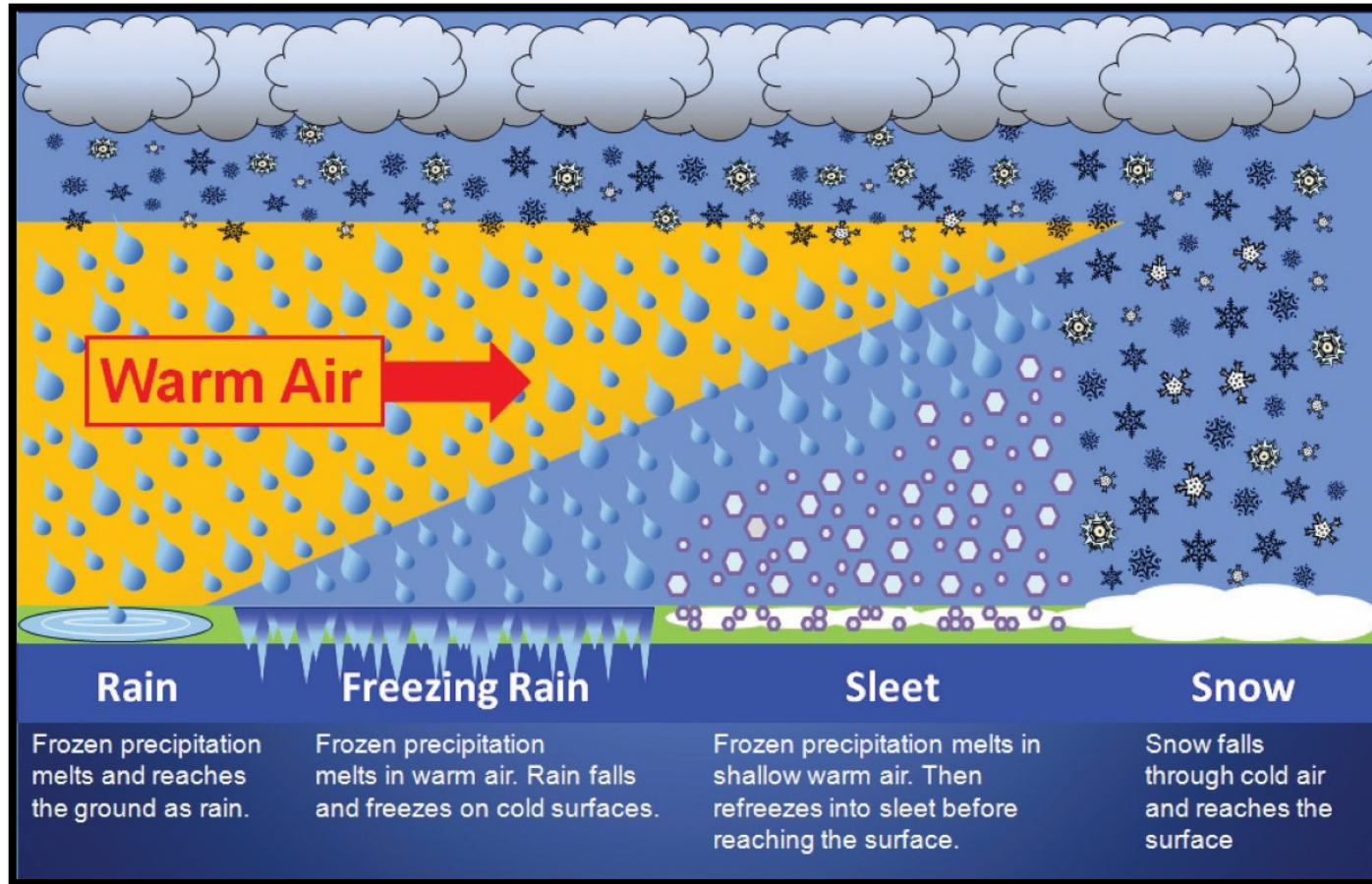
**60-70% chance that “average”
temperatures will be greater than
normal**



**60-70% chance that “average”
precipitation (rain/snow) will be lower
than normal**



Know Your Precipitation Types!



- **Rain- Lowest impact, but could still see issues due to potential de-icing.**
- **Freezing Rain- Worst precipitation type. Can become difficult to almost IMPOSSIBLE to remove if 1) heavy 2) if blanketed with snow and/or sleet combination.**
- **Sleet- Can become difficult to remove if compacts. Increased de-icing times. Reduced AAR due to poorer visibility/ceilings. If heavy enough, can quickly shut down runways.**
- **Snow- Relatively easy to remove if not compacted. Reduced visibility/ceilings can hurt AAR, however. If heavy enough, can shut down runways.**



North Texas Fall / Winter Climatology --- Weather Patterns (Type I)

- Cold air filters southward behind a strong front.
- Upper Low across Baja California.
- Ample mid/upper level moisture streams in from the Pacific Southwest .
- Long event/significant winter weather events over North Texas with “wet” snow or freezing rain/sleet depending on depth of cold air.
- *Forecast Uncertainty: Depth and magnitude of Cold Air!*

Upper Level



**Fetch of Pacific
Moisture**

Cold Air

DFW

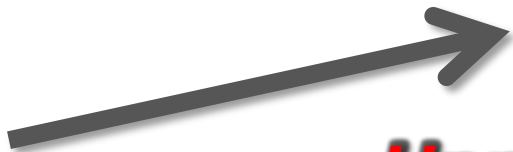


North Texas Fall / Winter Climatology --- Weather Patterns (Type II)

- Cool but not cold at the surface (sometimes in the 40s). Very cold aloft!
- A powerful upper level low (sometimes very compact) moves quickly to the east into North Texas.
- Typically a 3-4 hour window of very wet heavy snow. Even if surface temps are above “freezing” accumulation CAN still occur due to large snow rates (2”/hr). Sometimes sleet can occur if warm nose aloft exists.
- *Forecast Uncertainty: Track of the upper level low center!*



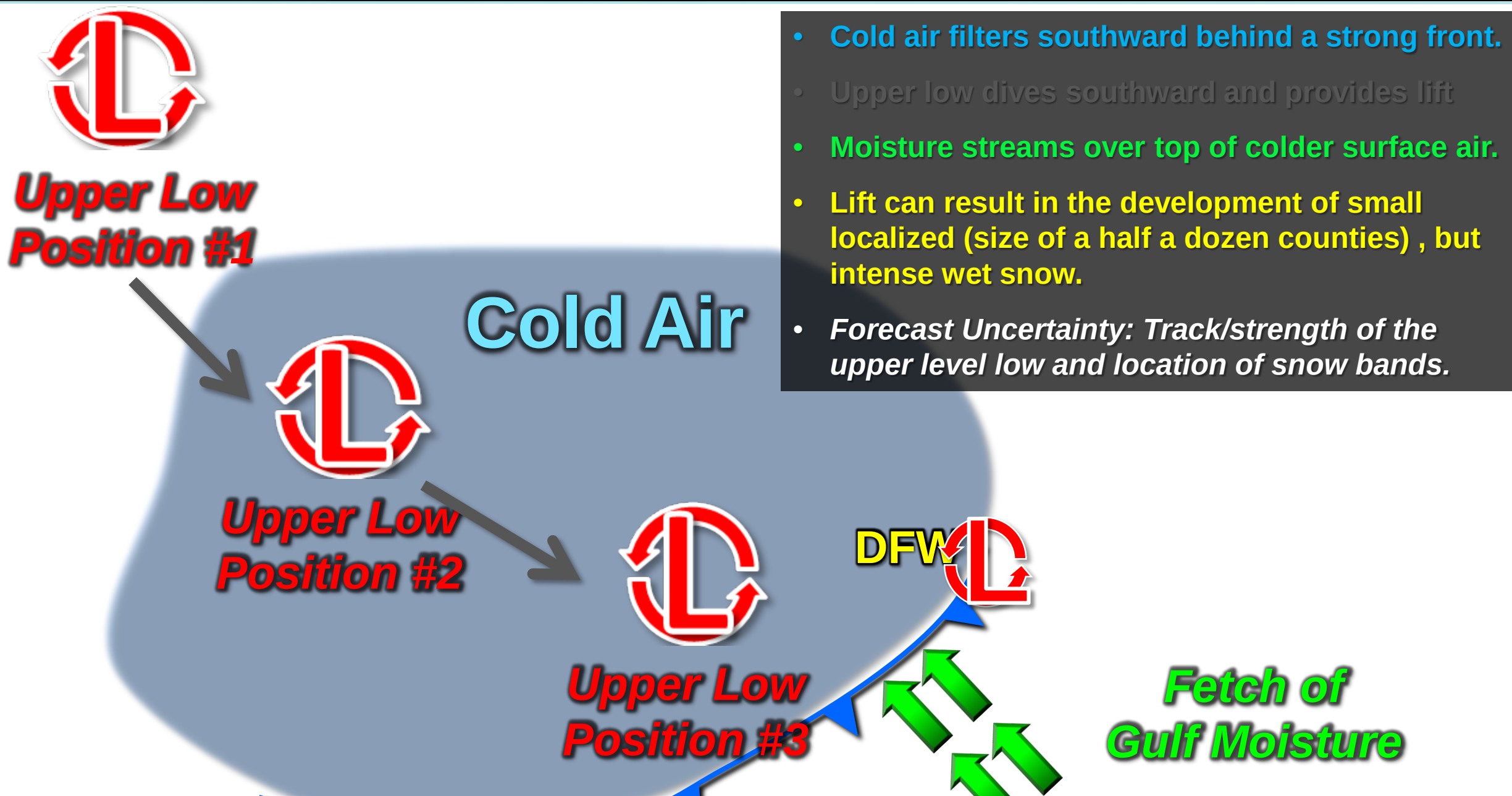
Upper Low Position #1



Upper Low Position #2



North Texas Fall / Winter Climatology --- Weather Patterns (Type III)





North Texas Winter Weather Products

<u>Product</u>	<u>Criteria</u>
Winter Storm Watch	50 % Probability that Warning Criteria will be met
Winter Weather Advisory	Sleet Accum. < 1/2 in. <i>and/or</i> Snow Accum. < 4 in. <i>and/or</i> Ice Accum. < 1/4 in. Blowing/Drifting snow with ¼ mile visibility & winds < 35 mph
Winter Storm Warning	Snow Accumulation $\geq$ 4 in. <i>and/or</i> Freezing Rain Accumulation $\geq$ 1/4 in. <i>and/or</i> Sleet Accumulation $\geq$ 1/2 in.
Ice Storm Warning	Freezing Rain Accumulation $\geq$ 1/4 in. (<u>Ice Exclusively</u>)
Blizzard Warning	Sustained Winds or Frequent Gusts > 35 MPH accompanied by falling <i>and/or</i> blowing snow with visibility of < 1/4 mile
NWS UPDATE EMAIL	Issued whenever there is the potential for hazardous weather. This will <i>usually</i> be issued <u>BEFORE</u> any Watches, Warnings or Advisories

Airport Weather Warnings (AWWs) are issued:

- **Onset of ANY winter precipitation**
- **Winter Weather Advisory or Winter Weather Warning for Dallas/Tarrant**
- **Thunderstorms (Lightning, Wind and/or Hail)**
- **Tornadoes (YES, these occur in the winter too!)**
- **Non-Thunderstorm Winds $\geq$ 40 MPH (35 knots)**



National Weather Service
3401 Northern Cross Blvd.
Fort Worth, TX 76137
817-429-2631
weather.gov/fwd

Photo: Randy Berger

Email: Tom.Bradshaw@noaa.gov
Email: Lamont.Bain@noaa.gov



@NWSFortWorth
weather.gov/FortWorth

Winter Weather Season Kick-Off Meeting

Historical Perspective - Weather

Typical Precipitation

- Events start with rain
- Transitions to freezing rain/sleet
- Transition to all snow is typically brief



North Flow Operations

- Wind generally from the North or Northwest
- Wind speed of 25 to 35 mph, gusts to 45 mph, are typical with frontal passage

Frequency of Events

- None to 6 times a year

Duration of Event(s)

- Few hours to 1 week



Winter Weather Season Kick-Off Meeting

Responsibilities

Airlines and contractors

- Aircraft deicing operations



DFW Airport Board

- In-house crews: All airside runways and taxiways
- Contractor for central terminal ramp clearing operations



Tenants/Service Providers

- Snow and ice control in leased properties
- Terminal Contractors
 - Terminal and other building sidewalks and entrance

Winter Weather Season Kick-Off Meeting

Planning

Planning for weather events – close monitoring of forecasts

- National Weather Service is primary forecaster for DFW
- Airfield Operations/ETAM teams prepare for 12 hour shifts
- Emergency Operations Center (EOC) activation
 - Type of event will determine level of activation

Preparations for possible airfield pre-treatment operations

- Application of E36 (potassium acetate) to key runways/taxiways

During the event - field reports, pavement temperature, weather conditions, aircraft operations – creates an extremely dynamic environment

Winter Weather Season Kick-Off Meeting

Planning

Primary focus to sustain east side runways and associated taxiways as Priority 1 pavement

- Several options available

Airfield pavement clearing priorities can be shifted, if needed, to prioritize the optimal pavement necessary to maintain operations. E.g., east complex priority, or runways 31R and 31L for arrivals and departures due to “west flow” conditions

- Maintain associated taxiways with these runways

Maintain taxi routes to central terminal area, aircraft deice pads, cargo ramps, hangar ramps

- Maintenance of ARFF Roads a regulatory requirement

Winter Weather Season Kick-Off Meeting

Snow and Ice Control Plan – Inspections/Condition Reporting

- Continuous inspections of the airfield are required to monitor and report on pavement conditions and to coordinate for clearing actions
- Runway/taxiway inspections are coordinated and conducted to minimize impact to operations
 - When frozen precipitation begins to accumulate – NOTAMs are issued describing that condition
 - Runways are typically **closed** when accumulation of more than ½” of wet slush or snow is observed – clearing action to be initiated
 - Runways are typically **closed** when accumulation of more than 2” of dry snow is observed – clearing action to be initiated
 - Runways are **closed** if NIL braking action report is received
 - NOTAMs/Field Condition Reports are continuously updated and disseminated throughout the weather event

Winter Weather Season Kick-Off Meeting

Snow and Ice Control Plan – Inspections/Condition Reporting

- Airfield status, field condition reports, RCAM data, and NOTAMs reported back to the EOC
- NOTAMs / Field Condition Reports (FICONs) are continuously updated and disseminated throughout the weather event
- Information processing and management is key to the airport's overall strategy of not only managing the event but planning next steps to restore full airport capabilities as soon as possible



Winter Weather Season Kick-Off Meeting

Snow and Ice Control Plan - Priority Pavements

- As required by FAA Advisory Circular 150/5200-30D, “Airport Field Condition Assessments and Winter Operations Safety,” DFW has established priority areas based on airport safety requirements and annual aircraft operations volume
- Priority area size and scope will take into account airport resource capabilities and aircraft operational needs
- “Areas appropriate for this category are those that directly contribute to safety and the re-establishment of aircraft operations at a minimum acceptable level of service. Priority one pavements will generally consist of the primary runway(s) with taxiway turnoffs and associated taxiways leading to the terminal, portions of the terminal ramp, portions of the cargo ramp, airport rescue and fire fighting (ARFF) station ramps and access roads, mutual aid access points (including gates), emergency service roads, access to essential NAVAID, and centralized deicing facilities.”

Winter Weather Season Kick-Off Meeting

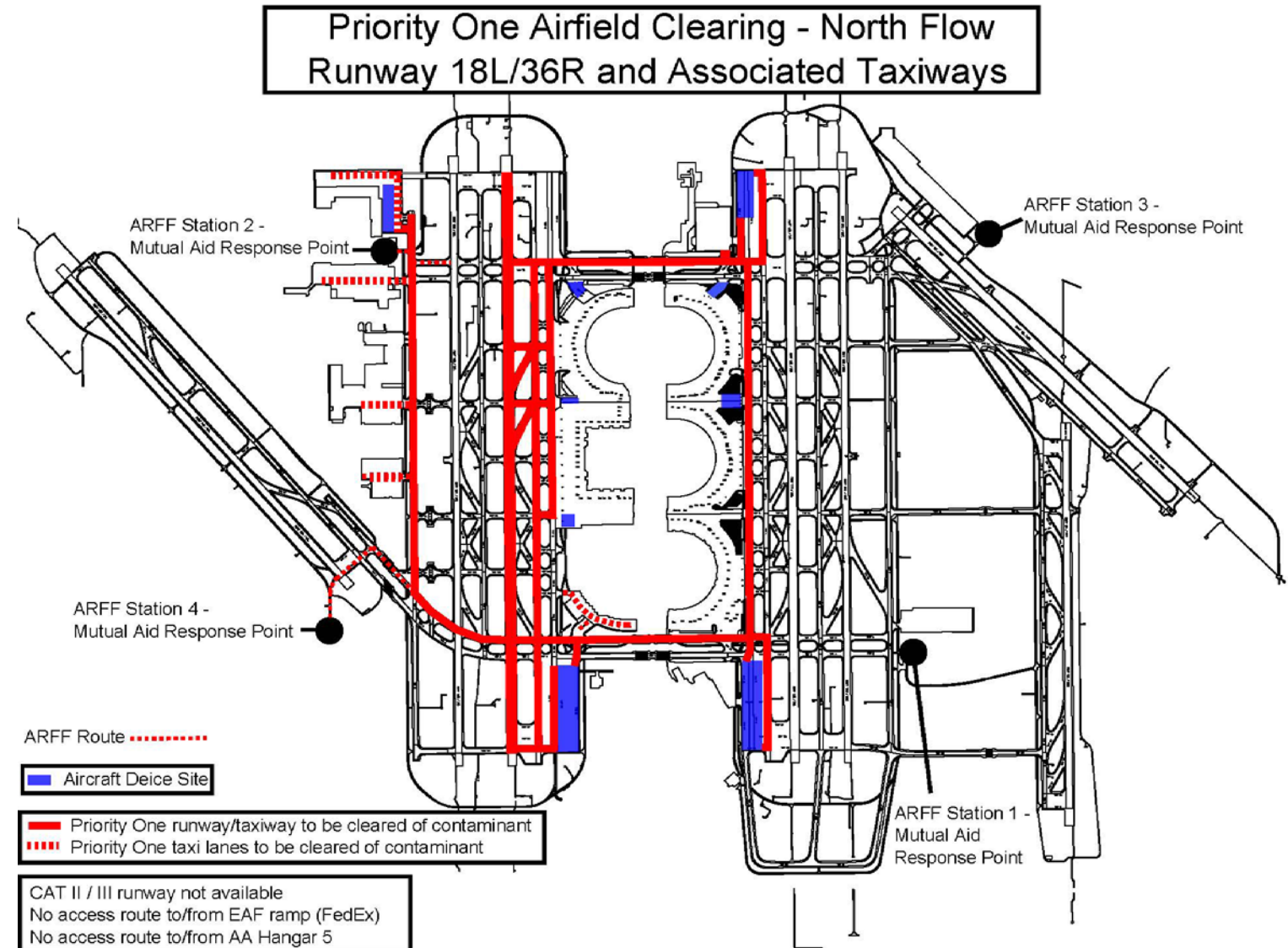
Snow and Ice Control Plan - Priority One Pavements

For airports with 40,000 or more annual aircraft operations, the FAA time standard for clearance of **priority one pavements is 30 minutes.**



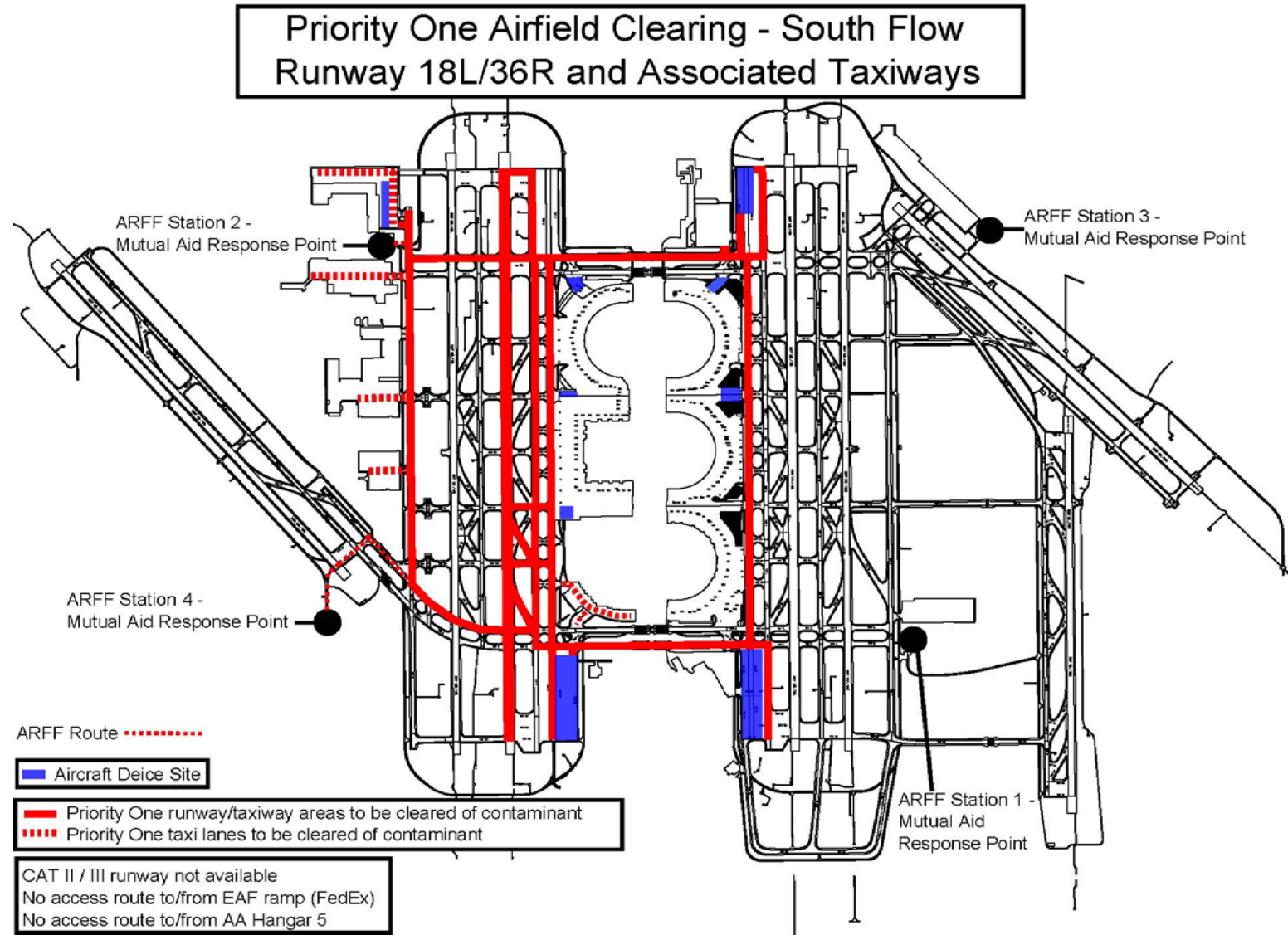
Winter Weather Season Kick-Off Meeting

Snow and Ice Control Plan - Priority One Pavements



Winter Weather Season Kick-Off Meeting

Snow and Ice Control Plan - Priority One Pavements



Winter Weather Season Kick-Off Meeting

Snow and Ice Control Plan - Priority Two Pavements

- “Areas appropriate for Priority Two are those not essential to re-establishing a minimum acceptable level of service for aircraft operations. Items in this category normally include crosswind/secondary runways and their supportive taxiways, terminal and cargo apron areas not cleared under Priority One, commercial ramp areas, overnight parking, access roads to secondary facilities, and airfield facilities not essential to flight operations or not used on a daily basis.”
- Priority Two pavements are to be cleared **in addition** to the Priority One pavements to be cleared. Determination on which Option to execute will be dependent on several factors and will be a collaborative effort involving DFW Staff, FAA ATC, and key stakeholders

Winter Weather Season Kick-Off Meeting

Snow and Ice Control Plan – Taxilane Clearing

Airport Board ramps and common use taxilanes are monitored during winter weather events for accumulation of frozen contaminants

Airport Board, through its designated contractor, is responsible for clearing of terminal gates and taxilanes

- Airport Board is responsible for the clearing of the common use taxilanes:
 - International Cargo Phase 1 – taxilane WK
 - International Cargo Phase 2, Phase 3 – taxilane C9
 - West Cargo – taxilane Z
 - Corporate Aviation/1E ramp
 - Former General Aviation ramp taxilane
 - East Air Freight Taxilane

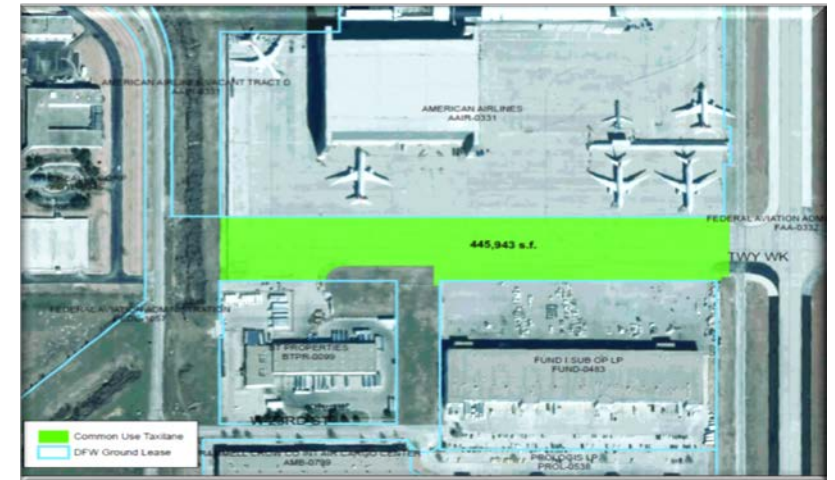
Airport Board is not responsible for the clearing of the lease areas within the hangar and cargo ramps

Winter Weather Season Kick-Off Meeting

Snow and Ice Control Plan – Taxilane Clearing



International Cargo Phase II/III Ramp Taxilane



International Cargo Phase I Ramp Taxilane



East Air Freight Ramp Taxilane

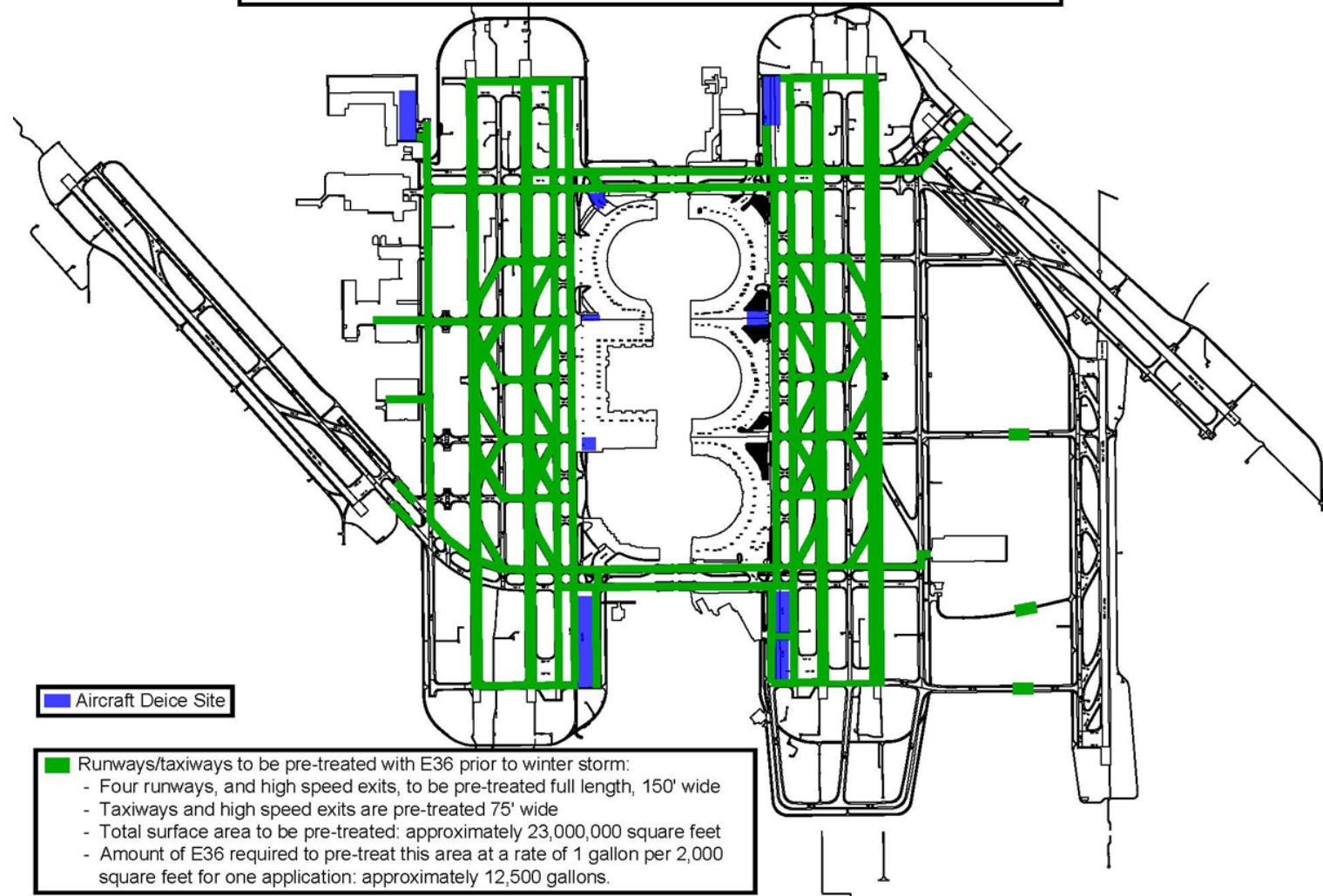


Former GA Ramp Taxilane

Snow and Ice Control Plan

Runways/Taxiways Pre-Treatment

Runway/Taxiway Snow and Ice Control Operations
Application of E36 Prior to Winter Storm



ETAM Winter Season

Airside Preparations



- Area of responsibility of ETAM in-house staff
- All airfield taxiways, runways, ARFF roads and stations, taxi-lanes into cargo areas, FAA service roads,
 - No terminal or cargo ramps

Equipment

- 24 Multifunction (Plow/Broom/Blower)
- 12 Brooms
- 9 Deicing Tanker Sprayers
- 8 Blowers
- 3 Sand Spreaders

Personnel

- A and B Teams work 12 hour shifts
- Field personnel and administrative staff operate equipment



ETAM Winter Season

Airside Preparations

Training of responsibility

- Began September
- Day and night practice sessions



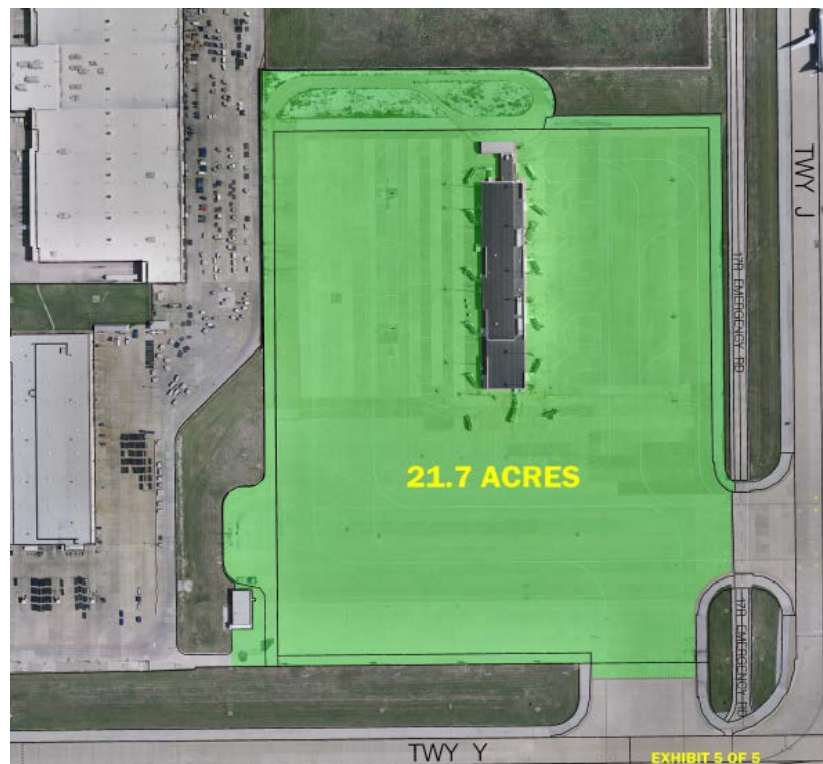
ETAM Winter Season

Aero Snow Ramp Clearing Contract



Area of responsibility

- All terminal ramps
- Corporate Aviation



ETAM Winter Season

Aero Snow Ramp Contract



Equipment

- 15 Komatsu with 10 ft
- 8 Skid steer with broom
- 10 Komatsu with 20 ft blades
- 5 4x4 truck with plow
- 3 skid steer with buckets
- 8 trucks with spreader/plows/sprayers
- 3 tanker sprayers plus other equipment
- Access to motor graders for ice



ETAM Winter Season

Landside Preparations



Area of responsibility of in-house staff

- All landside roadways, bridges, parking areas
- No terminal sidewalks, tenant properties

Equipment

- 9 pickup spreader/plows
- 7 2½ ton dump truck spreader/plows
- 4 5-ton dump truck spreader/plow/brooms
- 2 tanker deicing sprayers
- 6 Multihogs

Personnel

- A and B Teams work 12 hour shifts
- Field personnel and administrative staff operate equipment
- No landside contract with AeroSnow this year

ETAM Winter Season

Landside Preparations

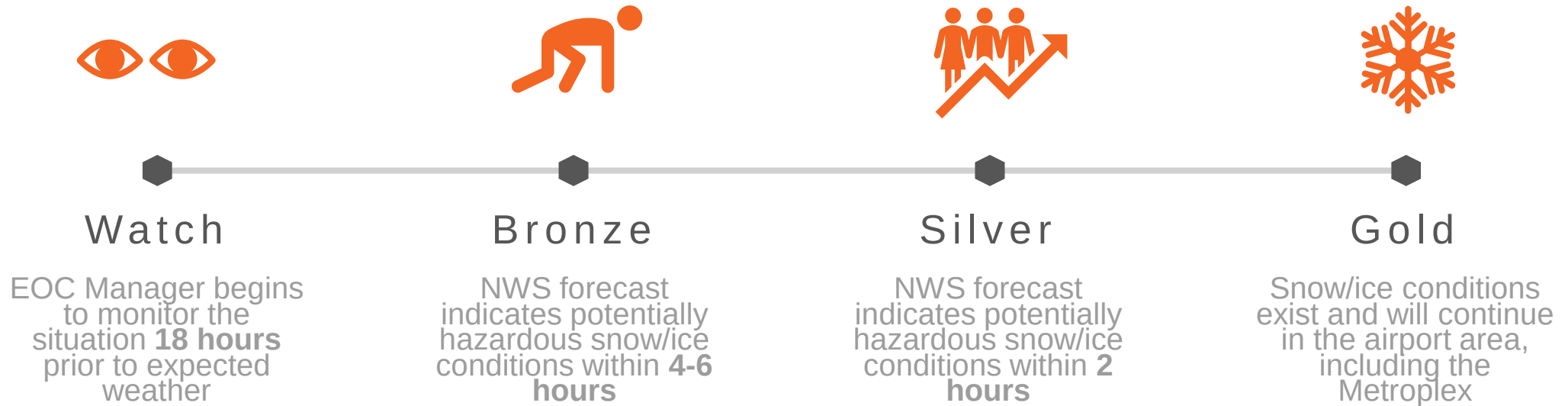


Training

- Began September
- Weekly training sessions
- Creative training scenarios



EOC Activation Timeline



EOC Staffing Levels

	Bronze	Silver	Gold
Airport Support Function (ASF)	• EOC Manager (ASF #5) • Crisis Communications (ASF #15) • Customer Care & Services (ASF #6) • Air-Ops (ASF #11) • Infrastructure (ASF #3) • Planning Section Chief (ASF #5)	All Bronze staffing plus: • Transportation (ASF #1) • EMS & Fire (ASF #8) • HazMat & Environmental (ASF#10) • Law Enforcement & Security (ASF #13) • EOC Support Team (ASF #5) • Resource Management (ASF #7) • Utilities (ASF#12) • ITS (ASF #2) • Safety & Documentation (ASF #4)	Bronze & Silver Level Staffing plus: • Executive Team Leadership and Full 24-Hour Teams

EOC Activation Procedures

The airport will use regular EOC Procedures for Winter Weather advisories and Notifications

EOC Staffing

All ASFs will stage staff on the airport within an hour of the onset of precipitation, with consideration for 24-hour staffing

Operational Periods and Briefings

EOC will staff for 12 hour Operational Periods

EOC will provide Ops Briefs no less than every 4 hours

Winter Weather Season Kick-Off Meeting

Aircraft Deicing Operations

Regulatory Background & Justification

The release of pollutants into designated waters of the United States is regulated by the Federal Water Pollution Control Act of 1972, commonly referred to as the Clean Water Act

The Texas Commission on Environmental Quality (TCEQ) is the regulatory body responsible for administering the Texas Pollutant Discharge Elimination System (TPDES) program. The goal of the TPDES program is to control the discharge of pollutants into Waters of the US (WOTUS)

The discharge of aircraft deicing fluid is not considered an allowable non-storm water discharge and must be appropriately collected and disposed of

Winter Weather Season Kick-Off Meeting

Aircraft Deicing Operations

DFW Airport has constructed Source Isolation Deicing Systems (SIDS) to capture Spent Aircraft Deicing Fluids (SADF) and prevent unauthorized discharges (i.e. *glycol-contaminated runoff from deicing activities*) from entering the airport's storm sewer system.

DFW Airport operates 9 SIDS for Airlines to use in order to conduct full-blown aircraft deicing, and DFW Airport is capable of storing approximately 21 million gallons of spent glycol fluid and impacted storm water runoff from airport deicing pads.

Design of the collection system limits capacity of fluid collection at a maximum precipitation rate of 0.50"/hour precipitation

Preservation of airport's total deicing capacity - critical priority each winter season

Winter Weather Season Kick-Off Meeting

Aircraft Deicing Operations

Capacity to preserve readiness for back-to-back storm events

- Collection of deicing fluid for two consecutive storm events; and
- Collection of Industrial Waste for two consecutive storm events

Winter operations procedures and processes are on the airport website and available for download in .pdf format:

www.DFWairport.com/Operations
(resource section)

DFW Airport Snow and Ice Control Plan
DFW Airport Aircraft Deice Operations Plan

American Airlines DFW Deicing 2020-2021

October 26, 2020

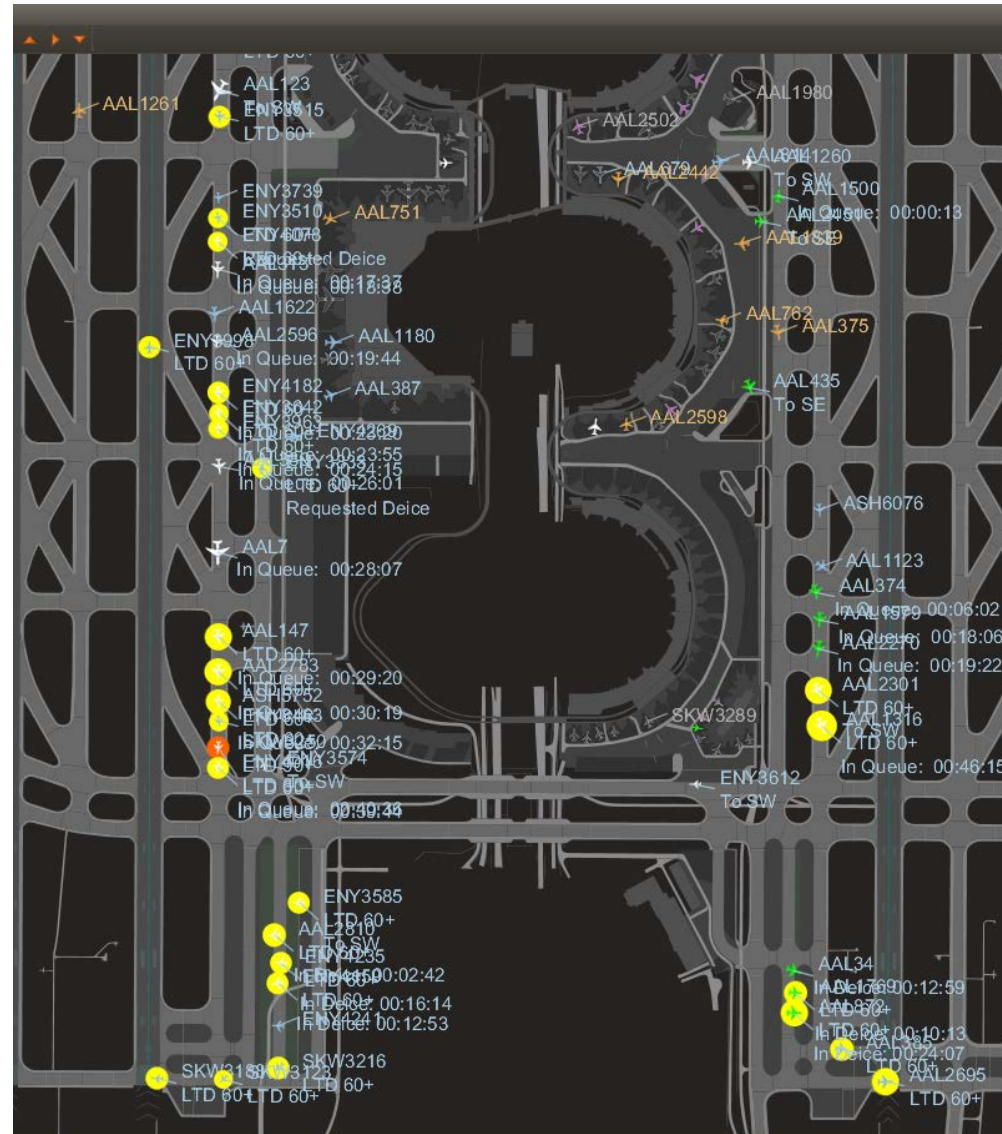


Last year's deicing season was busy but the events were relatively minor.

We saw our largest
deicing operations
on Saturday

January 11th with a
early morning snow
shower that began
at the start of one
of our busiest
banks.

28 total days with
deicing – a total of
405 aircraft deiced.
10 days with 10 or
more aircraft
deiced.



Date	Deice Count
31-Oct	1
1-Nov	8
11-Nov	47
13-Nov	8
15-Nov	6
16-Nov	1
23-Nov	10
24-Nov	3
11-Dec	6
12-Dec	2
17-Dec	13
18-Dec	27
19-Dec	2
23-Dec	5
27-Dec	1
4-Jan	1
11-Jan	115
12-Jan	33
23-Jan	1
31-Jan	1
1-Feb	2
5-Feb	58
6-Feb	39
8-Feb	4
12-Feb	1
14-Feb	3
21-Feb	4
27-Feb	3

	2017-2018		2018-2019		2019-2020	
	Events	A/C Deiced	Events	A/C Deiced	Events	A/C Deiced
Oct					1	1
Nov			6	141	7	83
Dec	5	453	5	46	7	56
Jan	7	344	9	165	5	151
Feb	8	293	6	220	8	114
Mar			4	32		
Apr						
	20	1,090	30	604	28	405

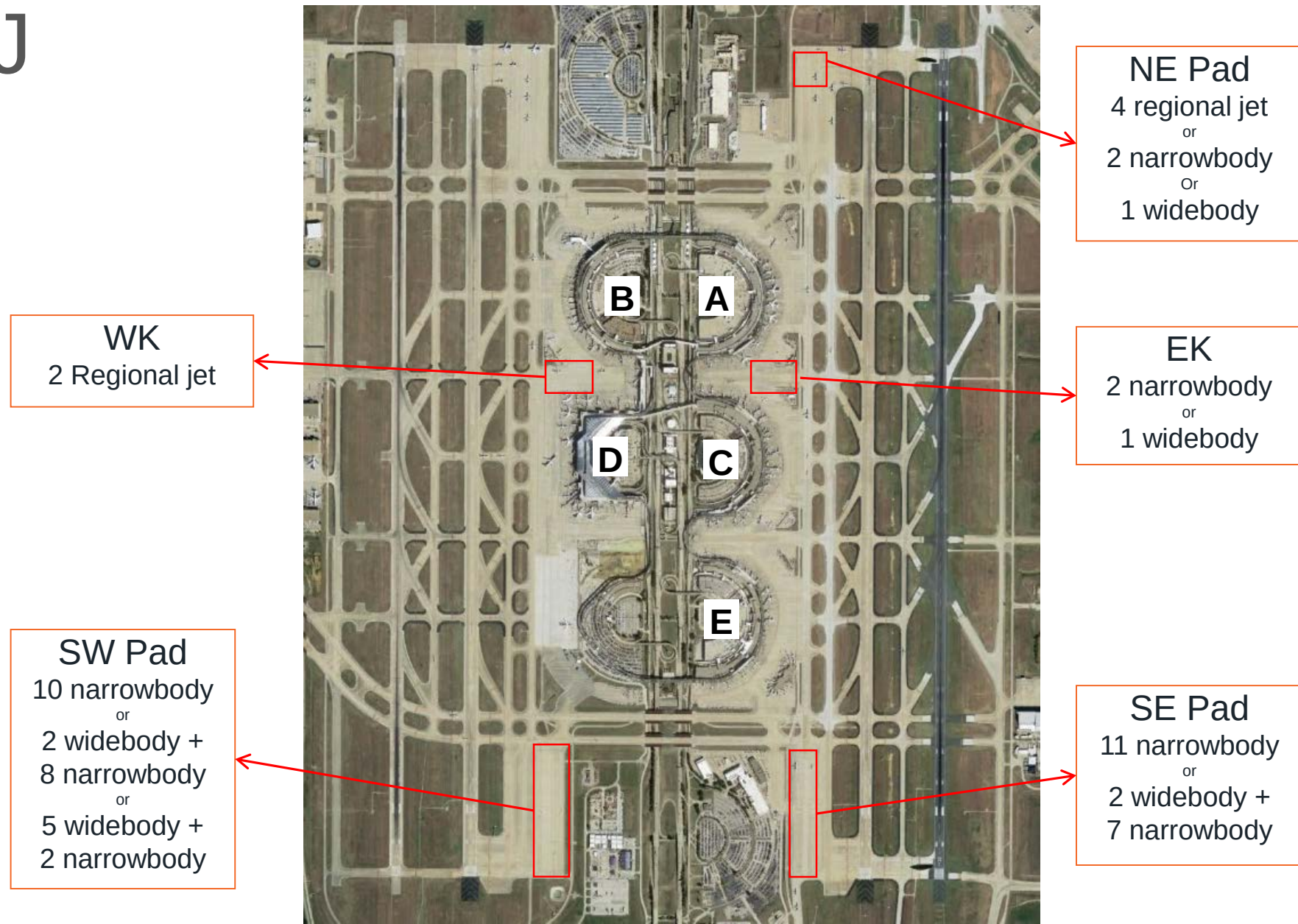
2017-2018 season was busiest in terms of aircraft sprayed, but last 2 seasons we have seen more individual days where we deiced. 2019-2020 had the lowest number of total aircraft deiced over last 3 seasons.

Last year first deicing day (1 a/c) was in October and in 2018/2019 we deiced all the way thru March.

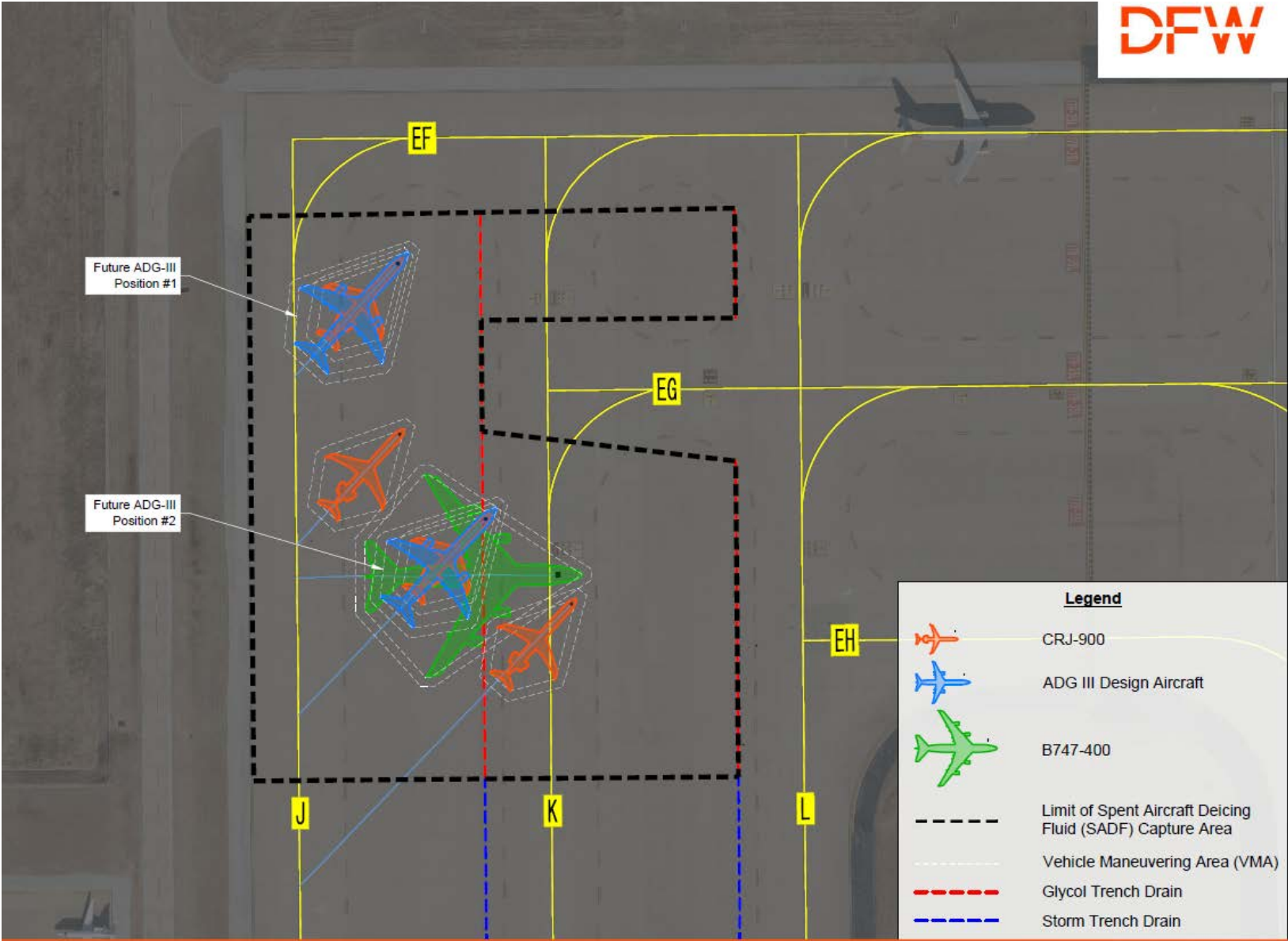


Jon Savage	Project Manager	jons@idsllc.aero	(704) 621-1921
Mike Cook	General Manager	mcook@idsllc.aero	(817) 875-5315
Israel Massa	Maintenance Supervisor	Imassa@idsllc.aero	(214) 601-8538
Sam Tilley	Regional Director of Operations	samt@idsllc.aero	(612) 741-5908
Mike Grantz	Vice President of Operations	mikeg@idsllc.aero	(734) 748-8729
Jason Stuebgen	Regional Director of Maintenance	jasons@idsllc.aero	(412) 527-6596
Jonathan Hunt	Vice President of Engineering and Maintenance	jhunt@inlandgroup.ca	(902) 814-0463
Karen Fortin	Vice President Operational Finance	kfortin@qasllc.aero	(603) 606-4356
Dan Young	Director of Sales, Marketing and Customer Relations	dany@idsllc.aero	(603) 315-7687

DFW - Deicing Locations – 25 Narrowbody/ 29 RJ



DFW Deicing Pad Locations – NE Deice Pad



Aircraft Parking | Northeast Holdpad/Deicing Positions

DRAFT
For Discussion Purposes Only



IDS planning to staff 2 lines / spots on the SE and SW pad locations for frost deicing. ML and Envoy will utilize these pads for frost deicing. EK will not be utilized for frost deicing. Plan is to only utilize EK and WK in a full blown deicing event.

Winter Weather Season Kick-Off

2020 - 2021 Season

Welcome / Introductions

NWS Winter Forecast / historical data

DFW Snow/Ice Control Plan

Priority One and Priority Two Pavements

Snow/Ice Control Procedures

Emergency Operations Center Activation

Aircraft Deicing Operations

American Airlines Comments

Air Traffic Control Comments

Open Forum – Tenant Comments and Questions

2020 – 2021 Winter Weather Season Kick-Off Meeting

Winter weather documents available at
www.dfwairport.com/operations