

# How Can a Weather Forecasting Service Help You Do Your Job?

Illinois Public Works Mutual Assistance Network

October 16, 2018

Presented by:  
Shawn Truelson, Transportation Industry Manager, DTN



# Agenda

- Introduction to DTN
- Using DTN Weather Services for Efficient Operational Decision-Making
  - 10-15 days before an event
  - 5 days before an event
  - 3 days before an event
  - 2 days before an event
  - 1 day before an event
  - During the event
  - After the event
- Questions – please ask any time!



# Introduction to DTN

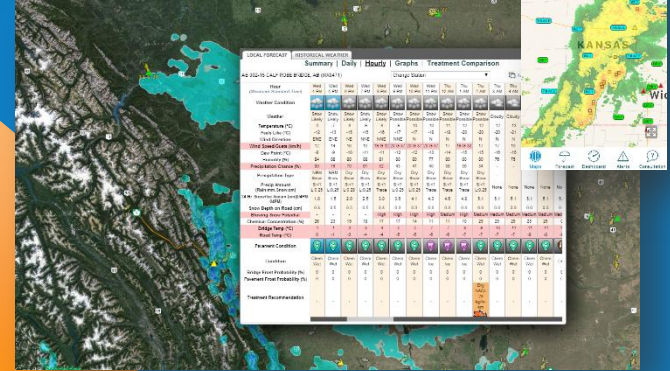


# Holistic Weather Decision Support



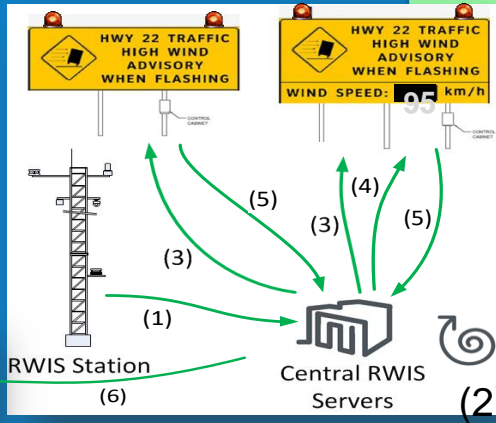
Weather Consultation  
-- 75 Mets

Actionable  
Decision  
Support



ITS  
Integration

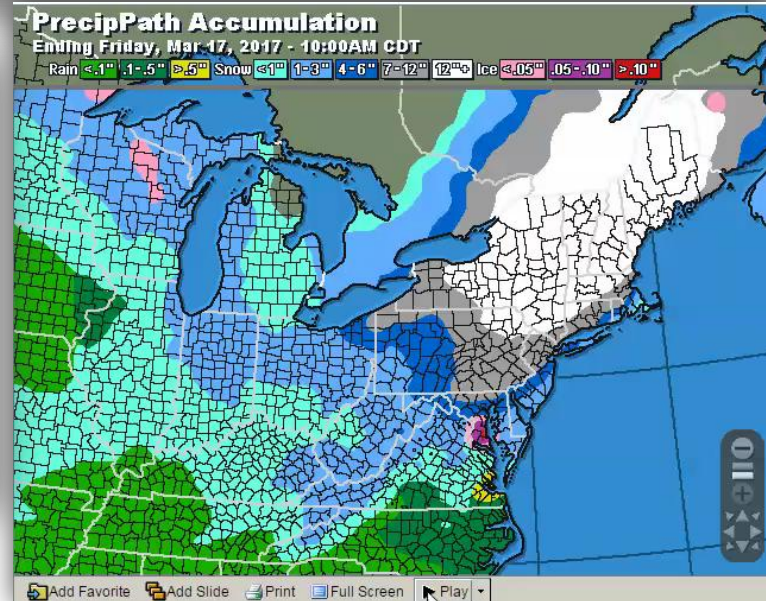
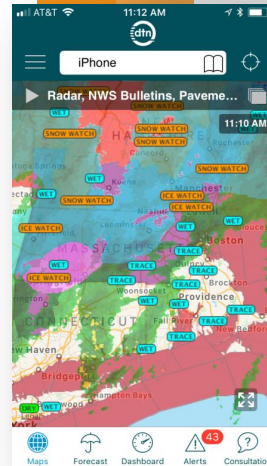
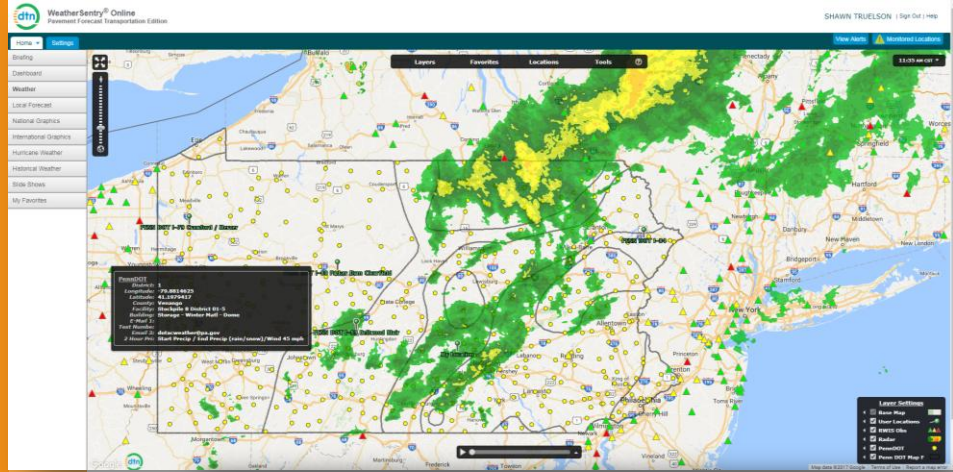
Weather  
Data  
Management



# WeatherSentry®

## Comprehensive, single platform weather decision support system

- Used by ILLINOIS DOT Districts 2-9, McHenry County, many local Illinois Public Works Depts.
- SaaS (Software as a Service) based with nothing to download or host
- Accurate Weather/Pavement Forecasts (Hourly, Daily, 15 Days Out)
- Integrated MDSS, RWIS Data Management
- Intuitive and Easy to Use with Minimal Training
- Full Control of Weather Layer Display
- Online Consulting with Meteorologists
- Custom Forecasts and Displays
- Location-based Alerts
- SmartPhone, Tablet, Mobile Access
- Historical Weather
- Summer and Winter Decision Support
- Responsive Customer Support



# Using WeatherSentry for Efficient Operational Decision-Making



- Measure what you put down and where you put it
- Hold your organization accountable for the salt it uses (measure it and make sure it is in keeping with what you should have used)
- Use liquids where appropriate – and have a process to determine whether or not their use is appropriate
- Quit using salt when it gets too cold – and define what is too cold for your operations
- Get the best possible forecast you can
- Base your operations off your levels of service, and measure whether you have achieved them relentlessly
- Appropriate and effective training

## Other BMPs

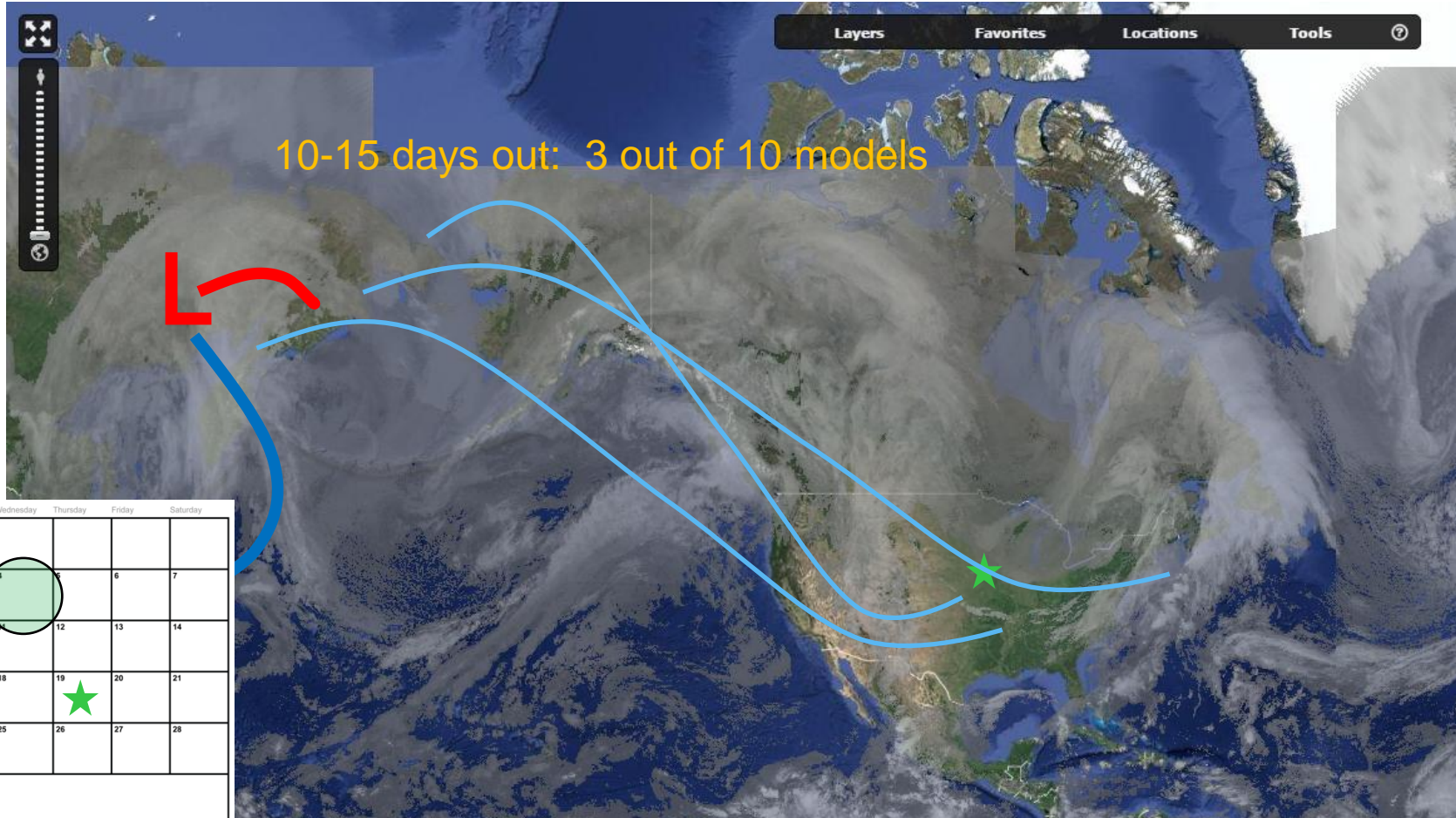
# Lead time of a weather forecast

10-15 day    5 day    3 day    2 day    1 day

- For the forecast lead times above...
  - What information is available to DTN meteorologists?
  - What information is available in WeatherSentry?
  - What are the operational considerations at this point?



# 10-15 Days Out



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	Notes:				

# 10-15 Days Out

- Forecast Considerations

- How far out? – Out of a sample of 10 models, 2-3 may go out to 15 days
- Time steps? – At best, models forecast in 6-12 hour chunks, if not 24-hr only
- Forecast variables? – “Daily”...high/low temperature, 24-hr precipitation
- Storm location? – “Ingredients” of a storm still over Asia or the Pacific Ocean
- Sample: [Chance of rain and snow late next week](#)

- Operational considerations

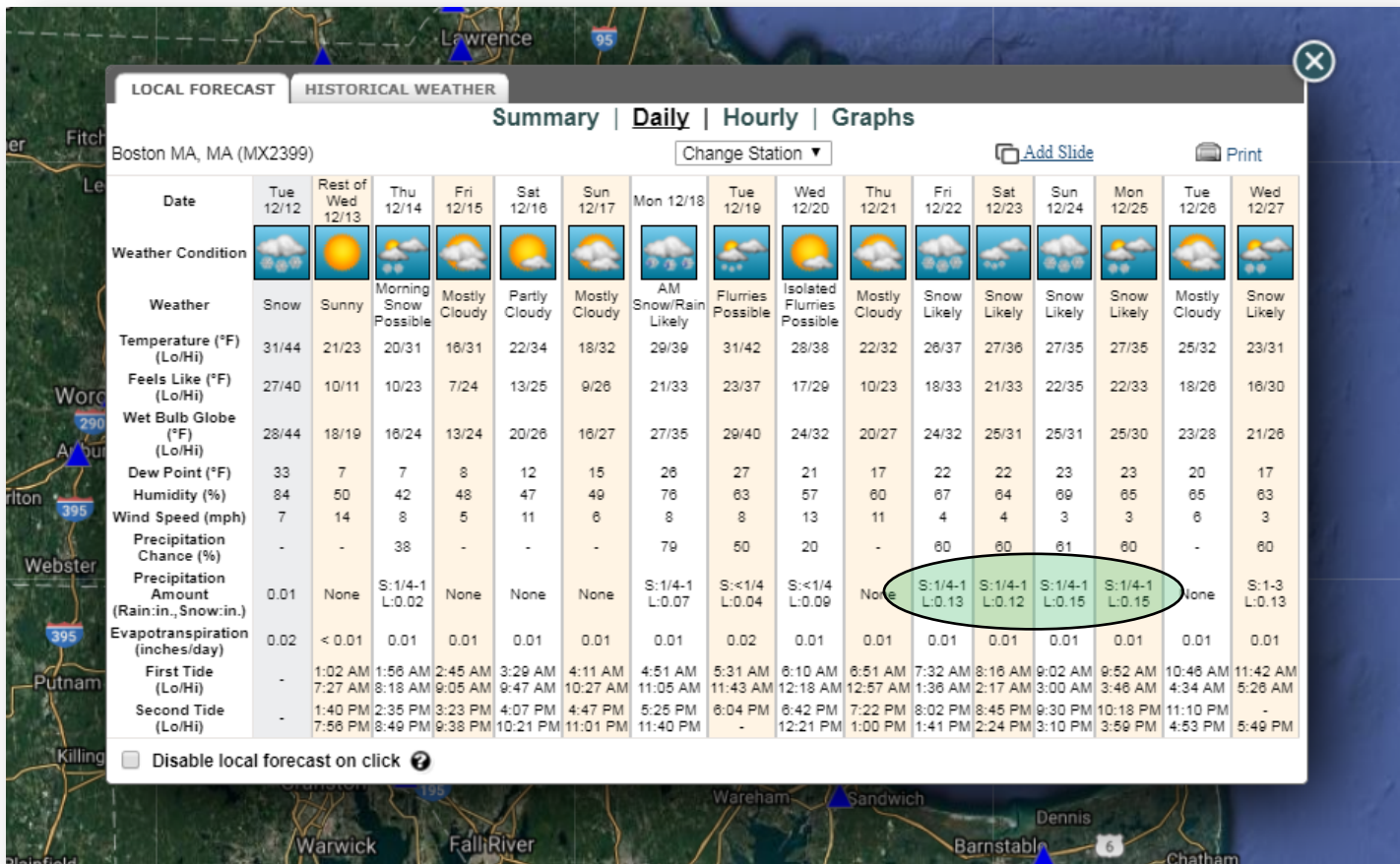
- Monitor the forecast...”something is headed our way”
- Big events, not minor events
- Look for which areas a response may be needed
- Keep staff informed
- Confidence is key! Look for day-to-day trends.

6am 6pm  
25F 33F

12am 6am 12pm 6pm  
28F 25F 30F 33F



# 15-Day Forecast Example

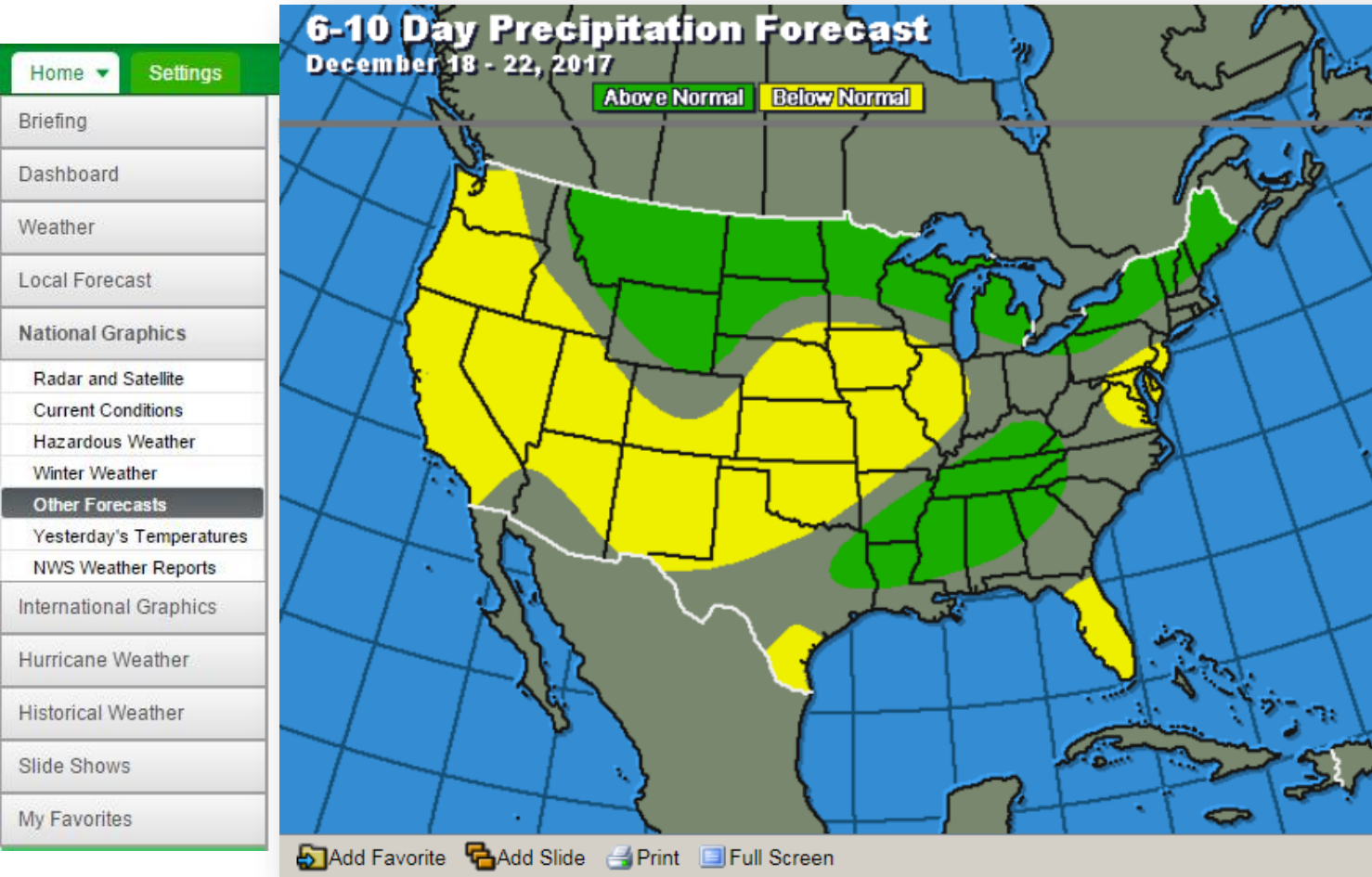


# 10-15 Days Out

- Forecast for Thursday
  - On Sunday...Mostly Cloudy
  - On Monday...Rain/snow mix (1/4 inch) starting in the AM
  - On Tuesday...1-3 inches of snow starting at 10am – 12pm
  - On Wednesday...2-4 inches of snow starting at 12pm
  - On Thursday...3-5 inches of snow starting at 2pm
  - Observed...5 inches of snow started at 4pm
- What trend did we see?
  - Precipitation started later and later
  - Precipitation amounts increased
  - Storm slowed down!

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>November</b>						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
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29	30	Notes				

# Precipitation Departures



# Temperature Departures

Home Settings

Briefing

Dashboard

Weather

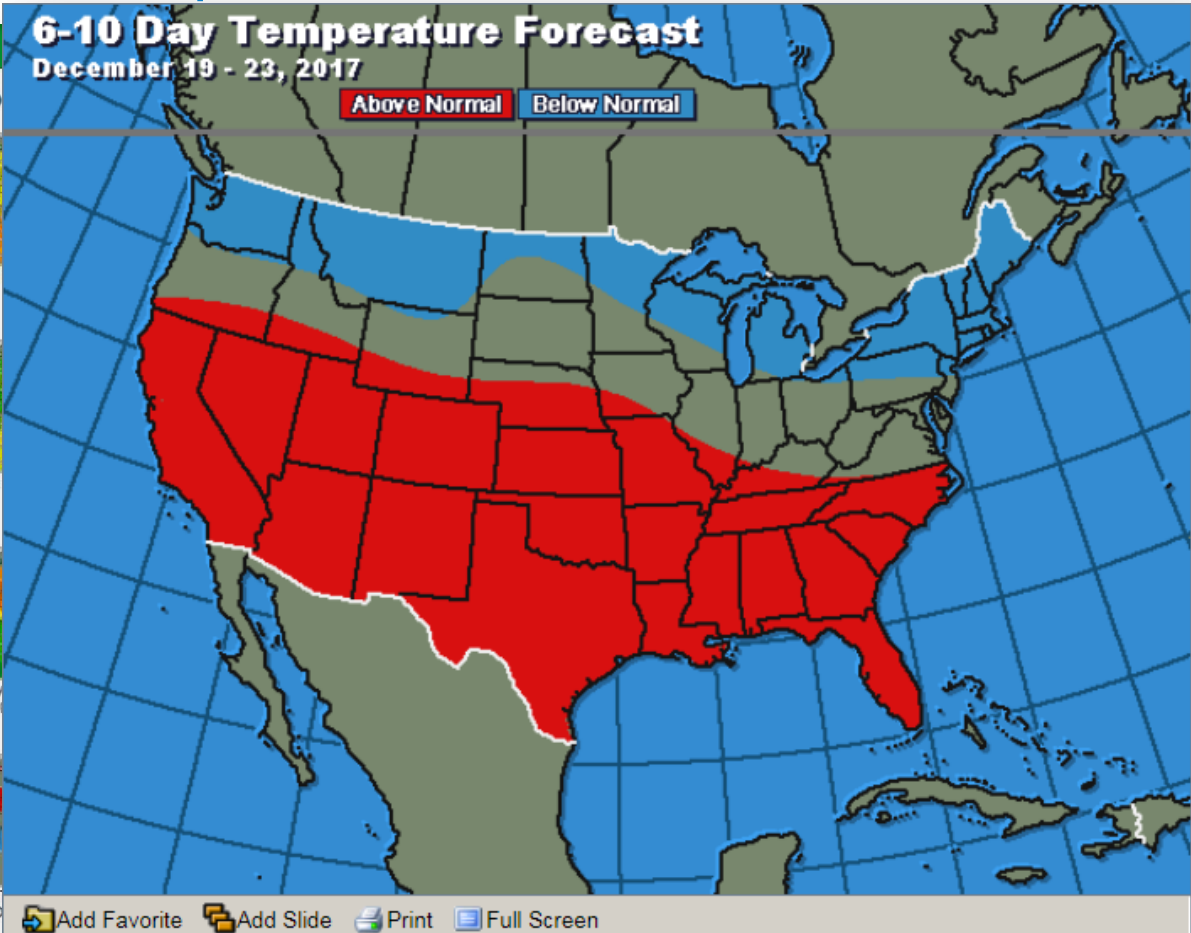
Local Forecast

National Graphics

- Radar and Satellite
- Current Conditions
- Hazardous Weather
- Winter Weather
- Other Forecasts
- Yesterday's Temperatures
- NWS Weather Reports
- International Graphics
- Hurricane Weather
- Historical Weather
- Slide Shows
- My Favorites

**WeatherSentry Updated!**  
What's New?

- Canada Alerts
- Extended Forecasts
- Layered Map Options
- Training Videos



# Lead Time of a Weather Forecast

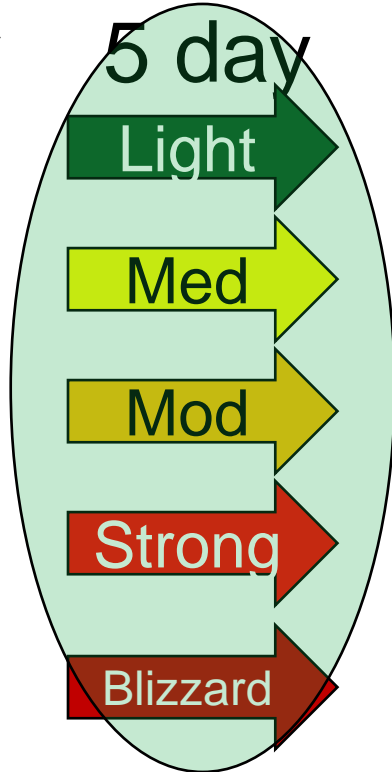
10-15 day

5 day

3 day

2 day

1 day



Frost

Light Snow

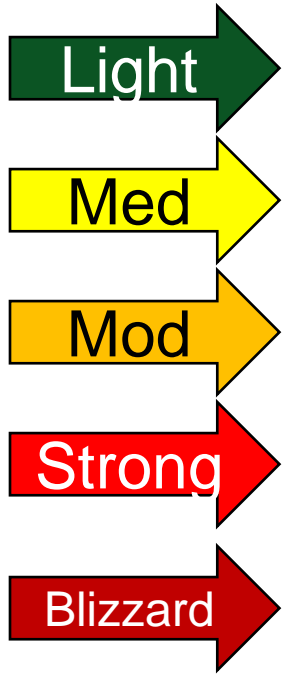
Moderate Snow

Heavy Snow or Ice

Blizzard



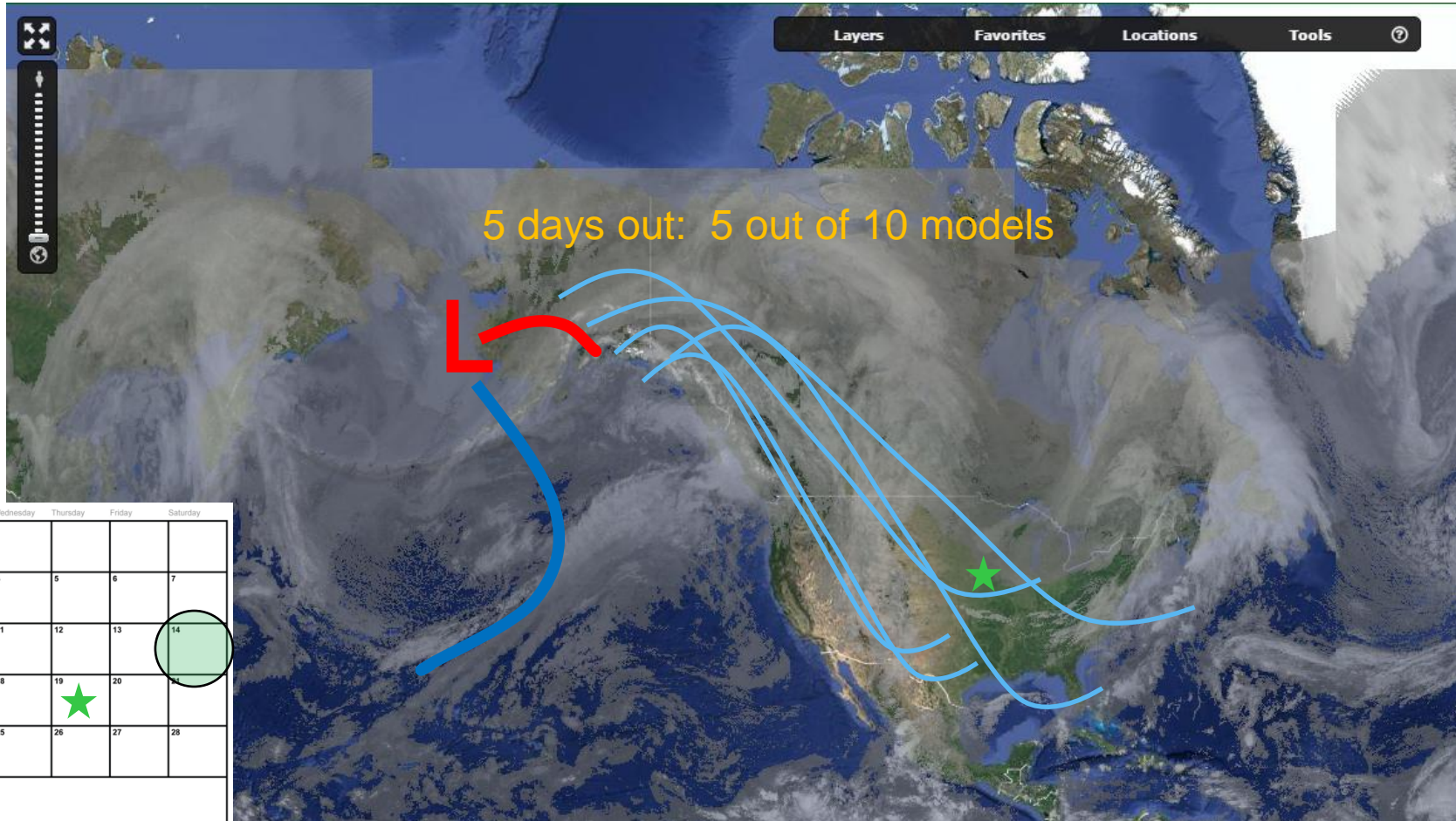
# 5 Days Out



- Light snow – Dusting up to 3 inches, frost?
- Moderate snow – 3 to 10 inches
- Strong/heavy – 7 to 10 inches or any ice
- Blizzard – 10 to 20 inches + wind
  - Sustained or frequent wind gusts of at least 35 mph
  - Falling or blowing snow reduces visibility to  $\frac{1}{4}$  mile or less
  - Period of at least 3 consecutive hours



# 5 Days Out



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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15	16	17	18	19	20	
22	23	24	25	26	27	28
29	30	Notes:				

# 5 Days Out

- Forecast Considerations

- How far out? - Out of 10 models, 4-5 go out this far
- Time steps? - Some models switch from 6-hr to 3-hr data around here
- Forecast variables? – Same as 10-15 day; “daily” variables; avg wind speed
- Storm location? – Pacific Ocean, Alaska
- Sample: [Chance of rain/snow late next week, best chances on Thursday](#)

<u>12am</u>	<u>6am</u>	<u>12pm</u>	<u>6pm</u>
28F	25F	30F	33F

- Operational Considerations

- Ask questions: Fast or slow? How are models doing? Impact?
- Light events = little to no communication
- Strong/heavy events = get ball rolling
  - Behind the scenes decisions. “Stocking up before the storm”.
  - Supplies = De-icing materials, fuel, special parts. Sensitivity to anything with a long lead time.

<u>12am</u>	<u>3am</u>	<u>6am</u>	<u>9am</u>	<u>12pm</u>
28F	26F	25F	27F	30F



# 5-Day Forecast Example

LOCAL FORECAST		HISTORICAL WEATHER														
Summary   <u>Daily</u>   Hourly   Graphs																
Near SAULT STE MARIE-CHIPPEWA COUNT..., MI (KCIU) <span style="float: right;">Change Station</span>																
Date	Sun 11/19	Rest of Mon 11/20	Tue 11/21	Wed 11/22	Thu 11/23	Fri 11/24	Sat 11/25	Sun 11/26	Mon 11/27	Tue 11/28	Wed 11/29	Thu 11/30	Fri 12/1	Sat 12/2	Sun 12/3	Mon 12/4
Weather Condition																
Weather	Snow	Cloudy	PM Snow Possible	All Day Snow Likely	Scattered Daytime Flurries Possible	All Day Snow/Rain Likely	AM Snow/Rain Likely	Snow Likely	Cloudy	Cloudy	Mostly Cloudy	Mostly Cloudy	Mostly Cloudy	Mostly Cloudy	Cloudy	Cloudy
Temperature (°F) (Lo/Hi)	22/33	24/39	24/40	22/30	22/33	20/36	23/36	18/27	19/30	23/29	20/32	21/32	22/32	21/31	22/32	22/31
Feels Like (°F) (Lo/Hi)	11/25	27/32	13/32	12/26	14/24	14/29	13/29	6/17	8/21	17/23	14/27	21/32	22/32	21/31	22/32	22/31
Wet Bulb Globe (°F) (Lo/Hi)	20/31	33/37	22/39	20/27	20/29	19/35	21/35	17/23	18/26	22/28	20/29	21/29	21/28	20/27	22/29	22/28
Dew Point (°F)	21	31	27	18	20	23	25	15	18	22	21	22	20	20	21	22
Humidity (%)	76	82	78	72	72	82	80	69	75	88	80	81	72	77	81	83
Wind Speed (mph)	12	12	15	7	9	8	8	10	8	5	4	LV	LV	LV	LV	3
Precipitation Chance (%)	-	-	47	65	27	77	60	60	-	-	-	-	-	-	-	-
Precipitation Amount (Rain:in., Snow:in.)	None	None	S:1/4-1 L:0.03	S:1-3 L:0.08	S:<1/4 L:0.02	S:1/4-1 L:0.27	S:<1/4 L:0.03	S:1-3 L:0.09	None	None	None	None	None	None	None	None
Evapotranspiration (inches/day)	0.03	0.03	0.04	0.03	0.03	0.02	0.02	0.03	0.03	0.01	0.02	0.01	0.01	0.01	0.01	0.01
First Tide (Lo/Hi)	-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
Second Tide (Lo/Hi)	-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-

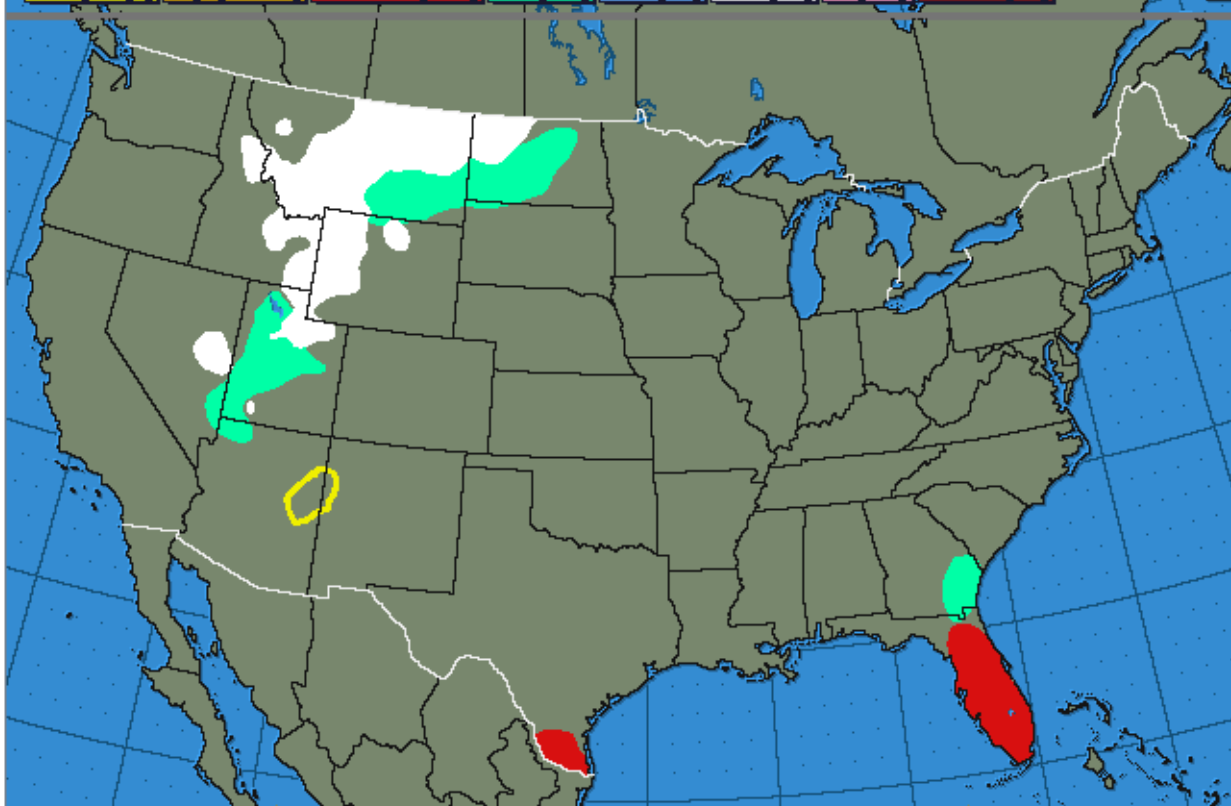
Disable local forecast on click ?



# High Impact Weather Outlook

Tuesday, Nov 03, 2015

Wind (>35mph) Trop. (T/S/Hur) Heat Index (>95F) Rain (>25) Flood (>3") Snow (>1") Ice (>1") T-storms (Svr)



## Hazardous



Lightning Potent



Flash Flood Thre



High Impact Weat  
Day 2

Home

Settings

Briefing

Dashboard

Weather

Local Forecast

National Graphics

Radar and Satellite

Current Conditions

Hazardous Weather

Winter Weather

Other Forecasts

Yesterday's Temperatures

NWS Weather Reports

International Graphics

Hurricane Weather

Historical Weather

Slide Shows

My Favorites

WeatherSentry



Add Favorite



Add Slide



Print

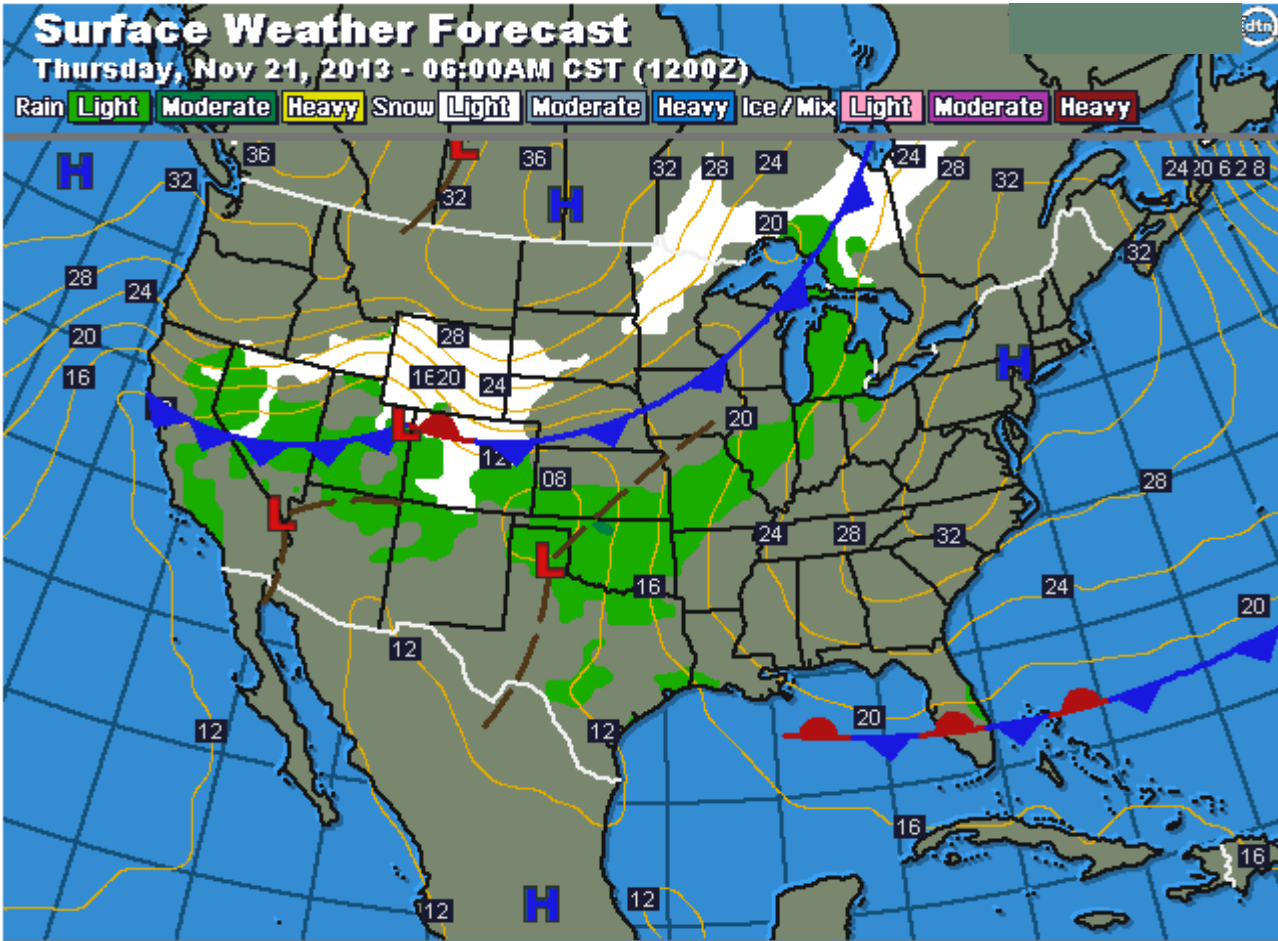


Full Screen



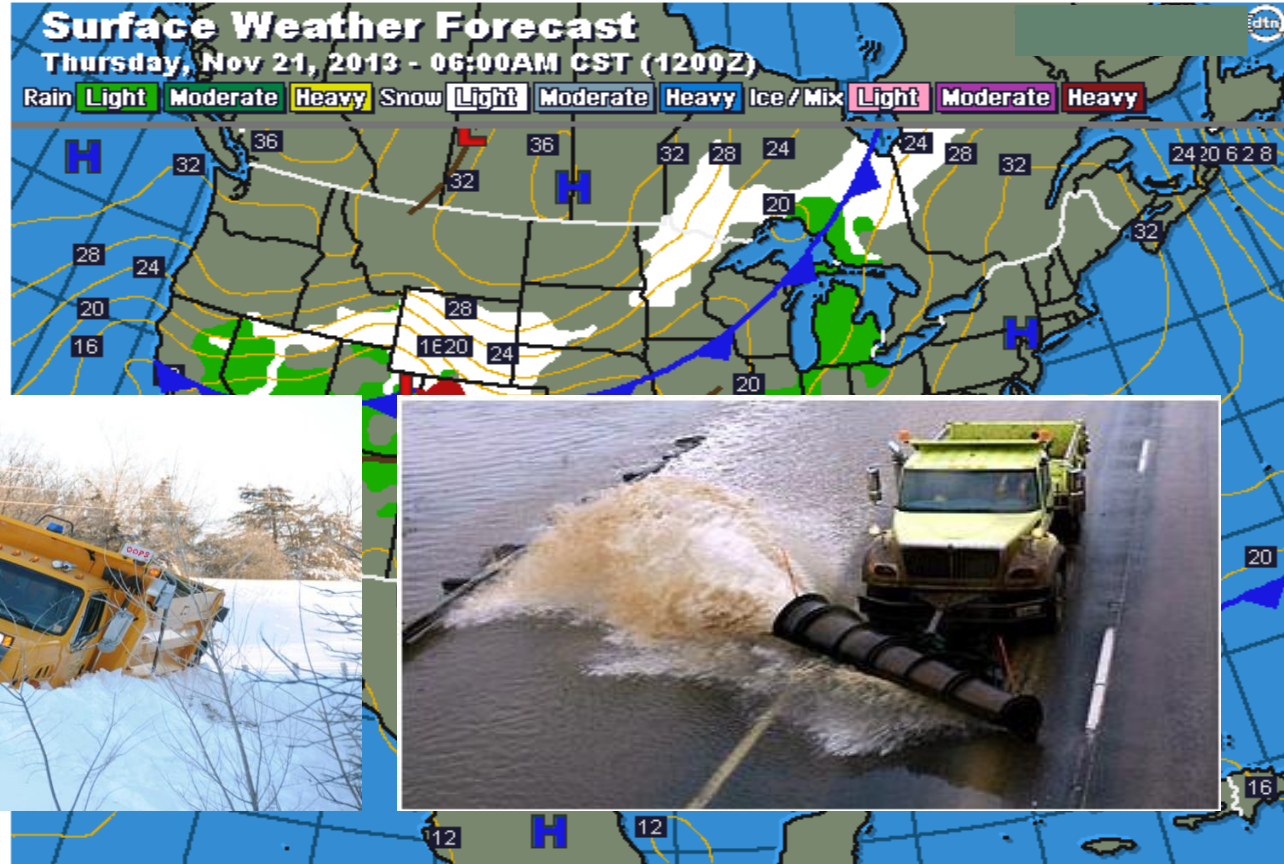
- Home
- Settings
- Briefing
- Dashboard
- Weather
- Local Forecast
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Surface



# Storm Track Matters!

- Track can differ
- Event can go from..
  - Light to Heavy
  - Vice versa



# Lead time of a weather forecast

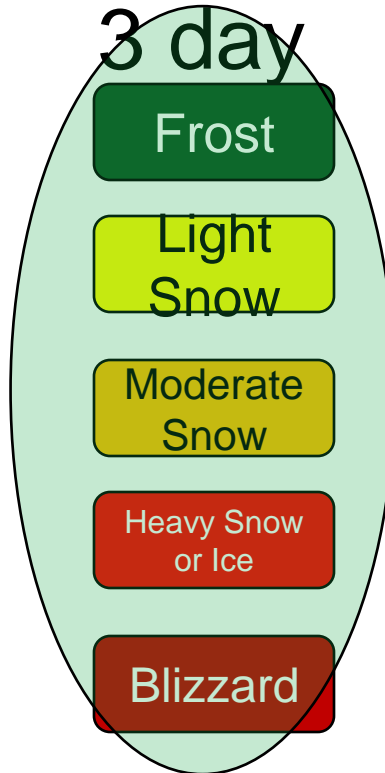
10-15 day

5 day

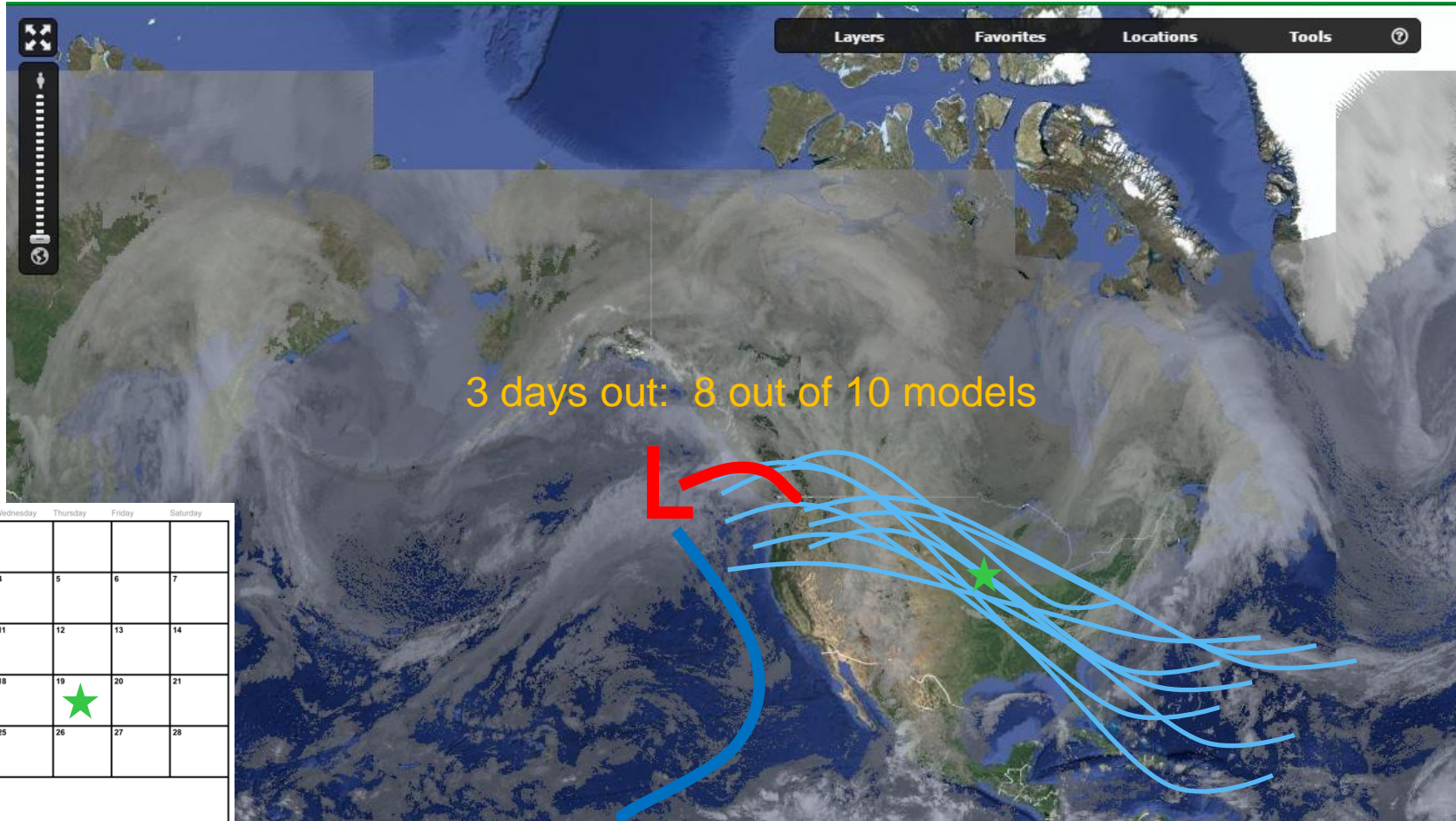
3 day

2 day

1 day



# 3 Days Out



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1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	Notes:				



# 3 Days Out

- Forecast Considerations

- How far out? - Out of 10 models, 7-8 go out this far
- What time steps? – Most models are at 3-hr steps, some may be hourly
- Which variables? – Hourly air temperature, wind speed, precipitation type and probability, accumulation.
- Storm location? – 3-4 states away. “Just coming on-shore”.
- Sample: **40% chance of 1-3” of snow on Thursday**

<u>12am</u>	<u>3am</u>	<u>6am</u>	<u>9am</u>	<u>12pm</u>
<b>28F</b>	<b>26F</b>	<b>25F</b>	<b>27F</b>	<b>30F</b>

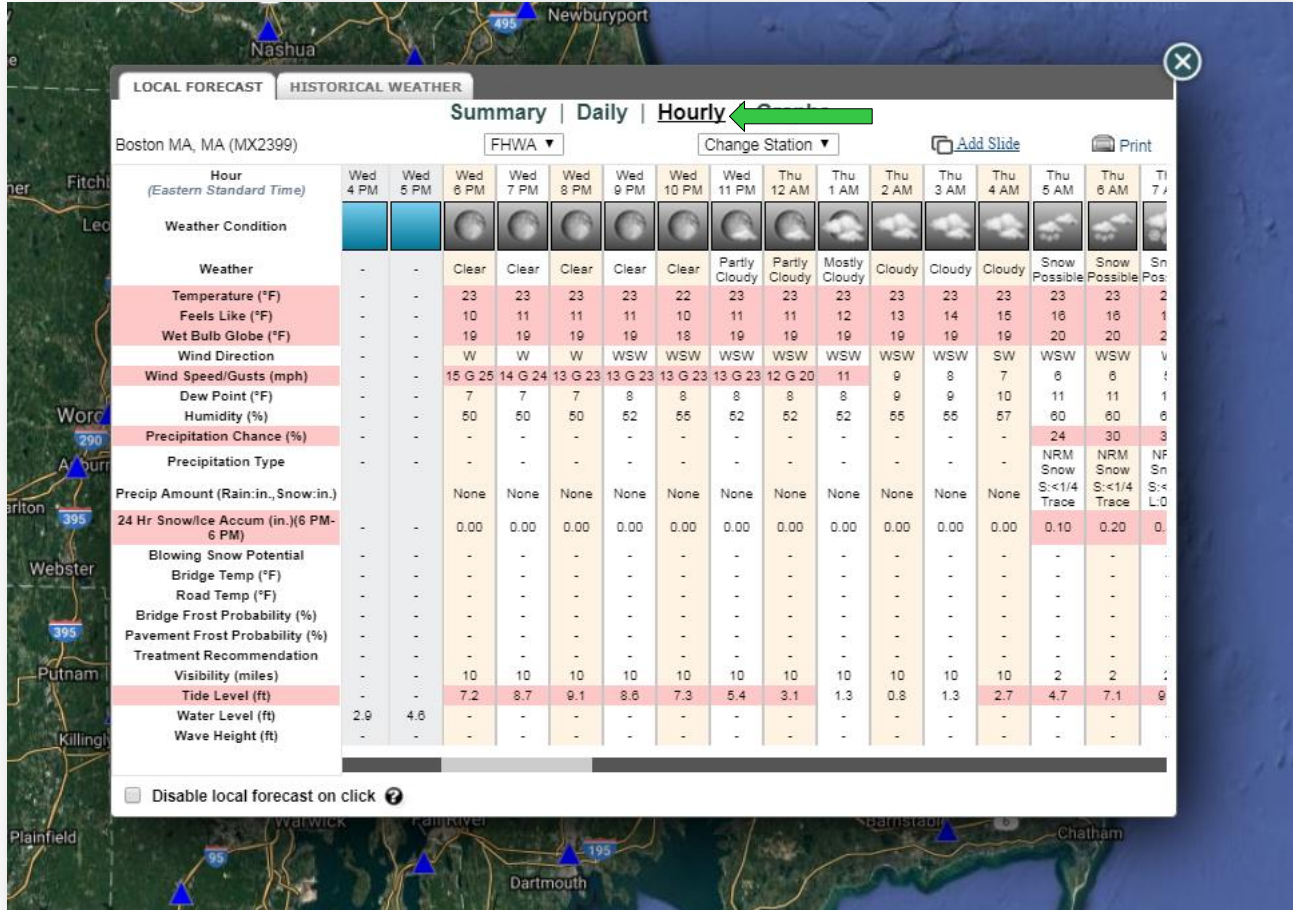
- Operational Considerations

- Consider anti-icing if conditions permit...24-hour notice
- Pre-storm meetings begin with vendors, contractors, County personnel
- Equipment preparedness begins

<u>12am</u>	<u>1am</u>	<u>2am</u>	<u>3am</u>	<u>4am</u>	<u>5am</u>	<u>6am</u>
<b>28F</b>	<b>27F</b>	<b>26F</b>	<b>26F</b>	<b>26F</b>	<b>25F</b>	<b>25F</b>



# Hourly Forecast





# PrecipPath Accumulation

Ending Friday, Mar 17, 2017 - 10:00AM CDT

Rain <.1" .1-.5" >.5"  
 Snow <1" 1-3" 4-6" 7-12" 12"+  
 Ice <.05" .05-.10" >.10"

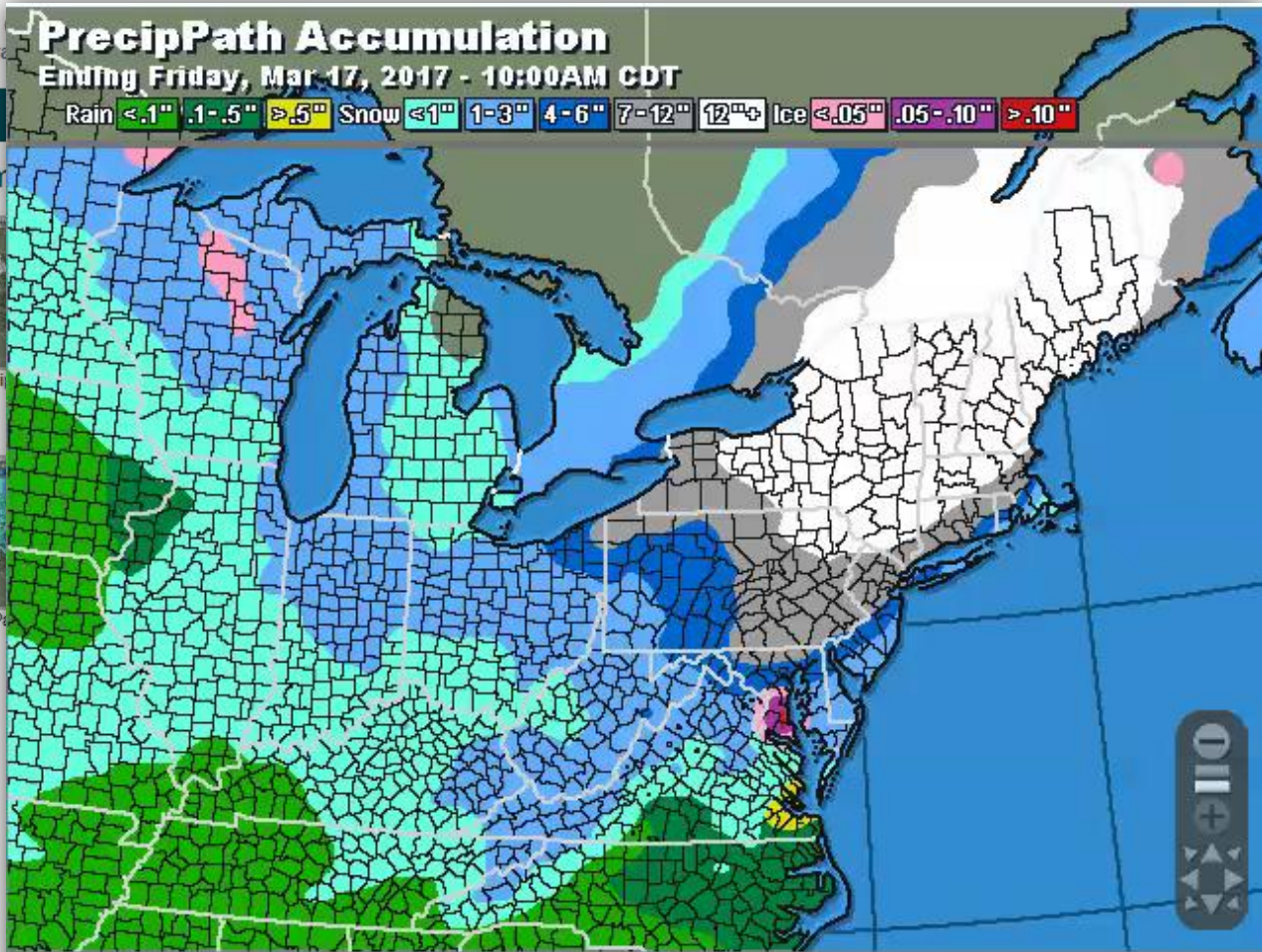
Home Settings

- Briefing
- Dashboard
- Weather
- Local Forecast
- Summary
- 15 Day
- Hourly
- Graphs
- Animations**
- National Graphics
- International Graphics
- Hurricane Weather
- Historical Weather
- Slide Shows
- My Favorites

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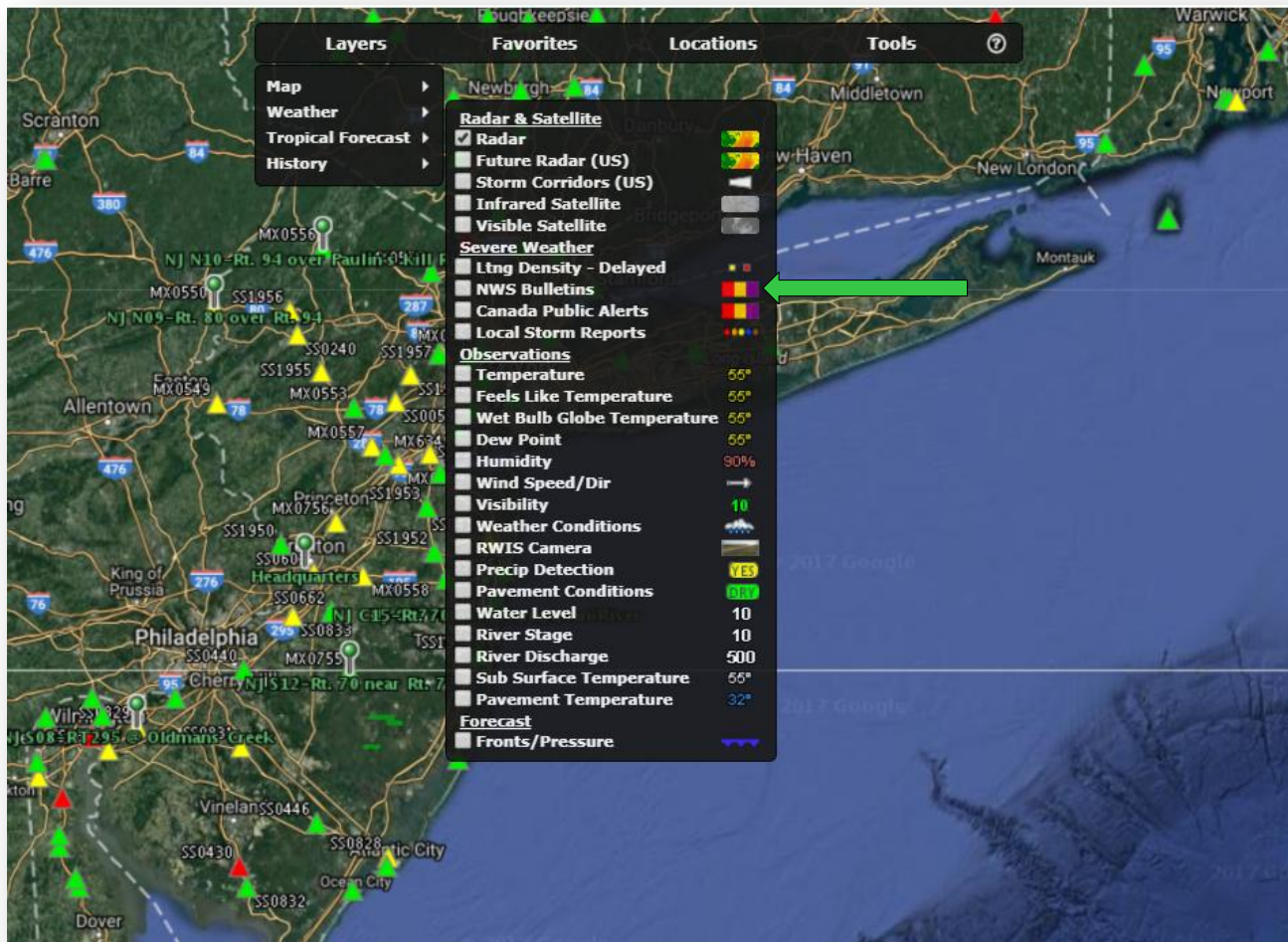
SnowP



Add Favorite Add Slide Print Full Screen Play



# National Weather Service Bulletins





Home Settings

Briefing

Dashboard

Weather

Local Forecast

National Graphics

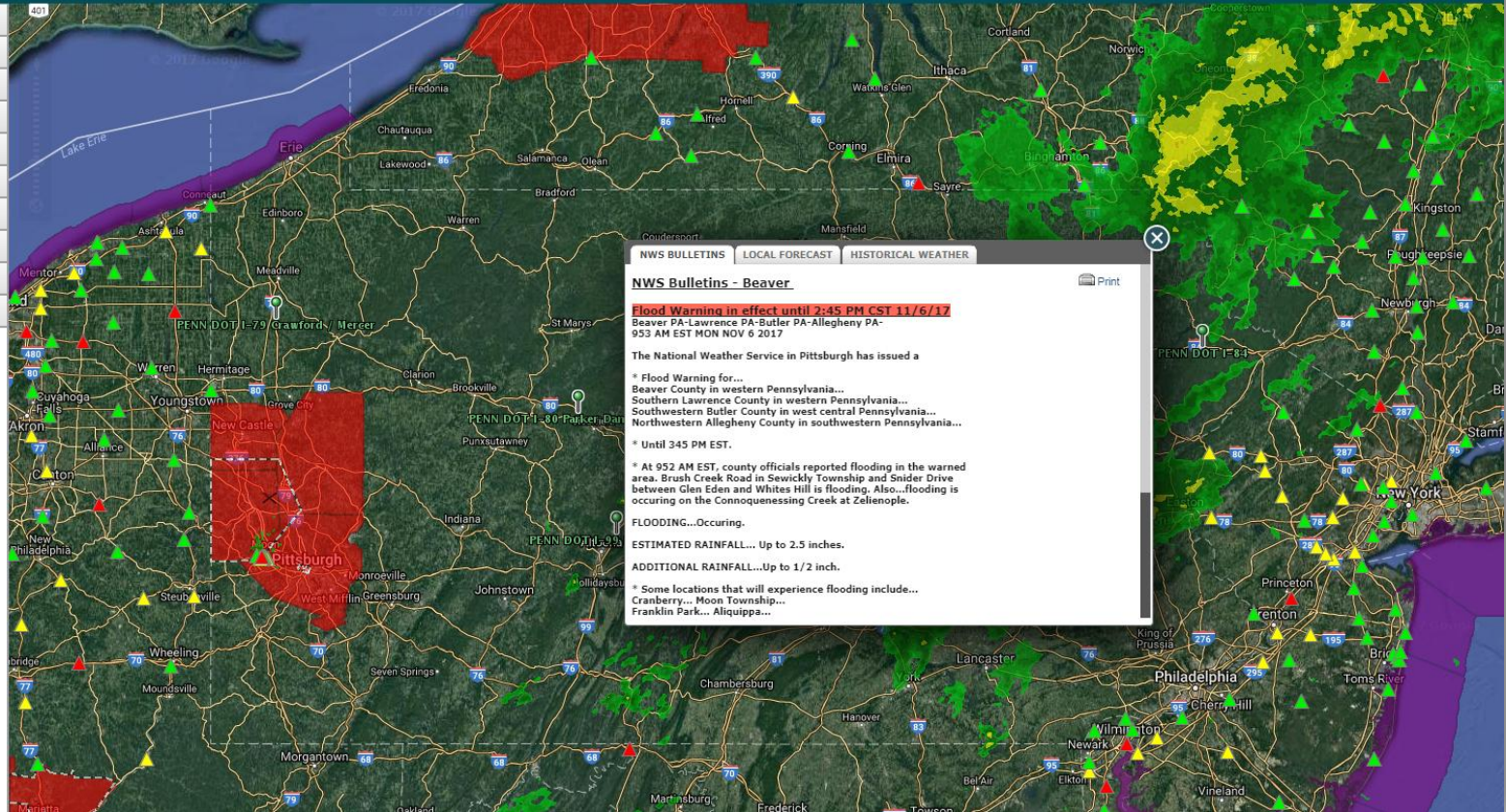
International Graphics

Hurricane Weather

Historical Weather

Slide Shows

My Favorites



NWS BULLETINS LOCAL FORECAST HISTORICAL WEATHER

**Flood Warning in effect until 2:45 PM CST 11/6/17**  
Beaver PA-Lawrence PA-Butler PA-Allegheny PA-  
9:53 AM EST MON NOV 6 2017

The National Weather Service in Pittsburgh has issued a

- \* Flood Warning for...  
Beaver County in western Pennsylvania...  
Southern Lawrence County in western Pennsylvania...  
Southwestern Butler County in west central Pennsylvania...  
Northwestern Allegheny County in southwestern Pennsylvania...
- \* Until 3:45 PM EST.
- \* At 9:52 AM EST, county officials reported flooding in the warned area. Brush Creek Road in Sewickly Township and Snider Drive between Glen Eden and Whites Hill is flooding. Also...flooding is occurring on the Connoquessing Creek at Zelienople.

FLOODING...Occuring.

ESTIMATED RAINFALL... Up to 2.5 inches.  
ADDITIONAL RAINFALL...Up to 1/2 inch.

Some locations that will experience flooding include...  
Cranberry... Moon Township...  
Franklin Park... Aliquippa...

Print



# WINS Alerts

## WINS Alerts

Delete		Alert Locations: All	Alert Status: View New Alerts		
All					
	Location	Event Type	Issue/Valid Date Time	Expire Date Time	Status
<input type="checkbox"/>	Manitoba Infrastructure	Fcst Rain	10/25/17 10:32 PM CDT	Not Applicable	New
<input type="checkbox"/>	Jct 1w/34	Fcst Rain	10/25/17 10:32 PM CDT	Not Applicable	New
<input type="checkbox"/>		Fast Wind Speed	10/25/17 10:32 PM CDT	Not Applicable	New
<input type="checkbox"/>		Severe Weather	10/25/17 10:17 PM CDT	10/26/17 6:17 AM CDT	New

### Precip Monitor

Location	Status	Timing	Settings
MB Altona	<span style="color: red;">■</span> Warning	Snow is in the area. Snow is estimated to end at 8:41 AM CDT 10/26/17, but there is a chance of Snow through 11:00 AM CDT 10/26/17.	<input type="checkbox"/> Add Slide
MB Birds Hill	<span style="color: yellow;">■</span> Caution	No precipitation detected by radar in the next 3 hours. There is a chance of Snow through 11:00 AM CDT 10/26/17.	<input type="checkbox"/>
MB Birtle	<span style="color: yellow;">■</span> Caution	No precipitation detected by radar in the next 3 hours. There is a chance of Snow through 11:00 AM CDT 10/26/17.	<input type="checkbox"/>

### NWS Bulletin Monitor

Location	Status	Summary
No locations have been activated for NWS Bulletin Monitor.		

### Environment Canada Alerts Monitor

Location	Status	Summary
Manitoba Infrastructure	<span style="color: purple;">■</span> Advisory	weather statement for City of Winnipeg in effect until 12:29 PM CDT 10/26/17.
MB Alonsa	<span style="color: red;">■</span> Warning	snowfall warning for R.M. of Alonsa incl. Ebb and Flow Res... in effect until 3:20 PM CDT 10/26/17.
MB Altona	<span style="color: red;">■</span> Warning	weather warning for Mun. of Rhineland incl. Altona Plum Co... in effect until 9:19 PM CDT 10/26/17.
MB ASHERN	<span style="color: green;">■</span> All Clear	There are no bulletin types that meet your criteria.
MB BEAUSEJOUR	<span style="color: purple;">■</span> Advisory	weather statement for R.M. of Brokenhead incl. Beausejour an... in effect until 12:29 PM CDT 10/26/17.
MB Birch River	<span style="color: green;">■</span> All Clear	There are no bulletin types that meet your criteria.
MB Birds Hill	<span style="color: red;">■</span> Warning	snowfall warning for Prairie View Mun. incl. Birdtail Sioux... in effect until 3:20 PM CDT 10/26/17.
MB Birtle	<span style="color: red;">■</span> Warning	snowfall warning for Prairie View Mun. incl. Birdtail Sioux... in effect until 3:20 PM CDT 10/26/17.

### Wind Monitor

Location	Status	Summary
No locations have been activated for WindMonitor®.		

Alert Type	
Forecast Conditions	
Rain >	<input type="checkbox"/> %
Snow >	<input type="checkbox"/> %
Freezing Rain/Drizzle >	<input type="checkbox"/> %
Rain >	<input type="checkbox"/> %
Snow >	<input type="checkbox"/> %
Freezing Rain/Drizzle >	<input type="checkbox"/> %
Temp <	<input type="checkbox"/> °F
Temp >	<input type="checkbox"/> °F
Feels Like <	<input type="checkbox"/> °F
Feels Like >	<input type="checkbox"/> °F
Wet Bulb Globe <	<input type="checkbox"/> °F
Wet Bulb Globe >	<input type="checkbox"/> °F
Wet Bulb Globe >	<input type="checkbox"/> °F
Humidity <	<input type="checkbox"/> %
Humidity >	<input type="checkbox"/> %

### Manage Recipients

Enter a phone number, email or SMS text address, and time zone for the selected Recipient. Click the Specify Quiet Periods button to specify one or two time periods to suppress alerts for the recipient. Click the Severe Weather Warning Override checkbox to receive these alerts during the quiet period.

Recipient	Shawn Truelson										
Recipient	Shawn Truelson										
Recipient Type	Mobile Phone										
Phone Number	6123825318@txt.att.net										
Service Provider	AT&T										
Time Zone	(UTC-05:00) Central Daylight Time										
<input type="radio"/> No Quiet Periods <input checked="" type="radio"/> Specify Quiet Periods											
<table border="1"> <thead> <tr> <th>Quiet Period 1</th> <th>Quiet Period 2</th> </tr> </thead> <tbody> <tr> <td>Start: 10 PM</td> <td>Start: <input type="text"/></td> </tr> <tr> <td>End: 7 AM</td> <td>End: <input type="text"/></td> </tr> <tr> <td>Period: Daily (Sun-Sat)</td> <td>Period: None</td> </tr> <tr> <td colspan="2"> <input checked="" type="checkbox"/> Severe Weather Warning Override (What's this?)                 </td> </tr> </tbody> </table>		Quiet Period 1	Quiet Period 2	Start: 10 PM	Start: <input type="text"/>	End: 7 AM	End: <input type="text"/>	Period: Daily (Sun-Sat)	Period: None	<input checked="" type="checkbox"/> Severe Weather Warning Override (What's this?)	
Quiet Period 1	Quiet Period 2										
Start: 10 PM	Start: <input type="text"/>										
End: 7 AM	End: <input type="text"/>										
Period: Daily (Sun-Sat)	Period: None										
<input checked="" type="checkbox"/> Severe Weather Warning Override (What's this?)											
<input type="button" value="New"/> <input type="button" value="Delete"/>											
<input type="button" value="Save Changes"/>											

• Recipient Shawn Truelson was updated.



# Lead time of a weather forecast

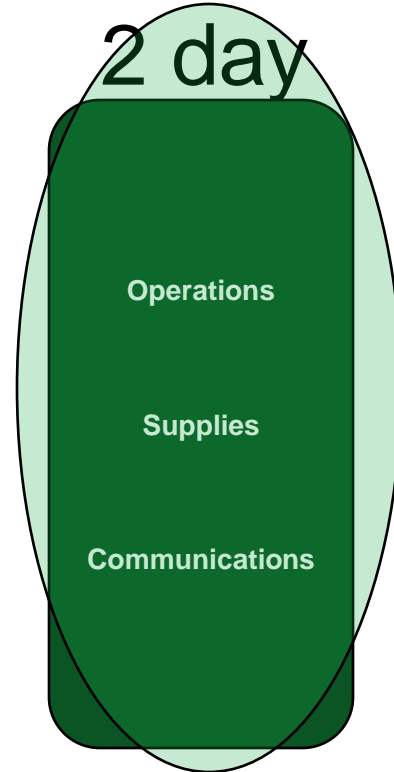
10-15 day

5 day

3 day

2 day

1 day



# 2 Days Out



2 days out: 9 out of 10 models

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	Notes:				



# Forecast Ingredients

## 1 Atmospheric Temperature

- Highs & Lows
- Hourly Trends



## 2 Precipitation

- Timing
- Type
- Amount



## Plowing & Treatment



## 3 Pavement Forecast

- Melting
- Accumulation
- Freezing
- Frost



# Road Weather Information Stations (RWIS)

- DTN has access to all Illinois DOT RWIS plus ORD
- Pavement forecasts are produced for most RWIS
- Virtual forecasts available
- Low cost sensors in research

The screenshot displays the WeatherSentry Online interface, titled "WeatherSentry® Online Pavement Forecast Transportation Edition". The user is identified as SHAWN TRUELSON. The interface includes a navigation menu on the left with options like Home, Settings, Briefing, Dashboard, Weather, Local Forecast, Spray Outlook, National Graphics, International Graphics, Hurricane Weather, Historical Weather, Slide Shows, My Favorites, and Custom Forecasts. The main area is a map of the Midwest region, showing RWIS data points for various locations. The map is overlaid with a grid of roads and weather conditions. A "Layers" panel at the top of the map area includes options for Layers, Favorites, Locations, and Tools. A "Layer Settings" panel in the bottom right corner shows options for Base Map, User Locations, RWIS Obs, Radar, and Pavement Conditions. A "RWIS Obs" panel in the bottom center shows "Valid Data", "Sensor Error", and "No Data in 60 minutes". The map shows various weather conditions such as "DRY", "WET", and "TRACE" across different regions including Iowa, Illinois, Indiana, Ohio, and Missouri. The interface also includes a "View Alerts" and "Monitored Locations" button in the top right, and a "9:00 PM CDT" time indicator. The bottom of the screen shows a Windows taskbar with the search bar and various application icons.



# 2 Days Out

<u>12am</u>	<u>3am</u>	<u>6am</u>	<u>9am</u>	<u>12pm</u>
28F	26F	25F	27F	30F

- Forecast Considerations

<u>12am</u>	<u>1am</u>	<u>2am</u>	<u>3am</u>	<u>4am</u>	<u>5am</u>	<u>6am</u>
28F	27F	26F	26F	26F	25F	25F

- How far out? - Out of 10 models, 8-9 go out this far
- What time steps? – All models are at 3-hr steps and several are 1-hr
- Which variables? –Pavement temperature! Treatment recommendations. Dew point. Wind direction.
- Storm location? – 1-2 states away. Affects are already being felt.
- Sample: 40% chance of 2-3” of snow starting 2pm Thursday. NW winds 10-15 mph. Pavement temps 25-30 degrees. NaCl 150 lb/mi.

- Operational Considerations

- Anti-icing if conditions permit (pavement temps in range, no rain)
- Crews ensure drains are open, curb and island markers are in place, snow fence is checked. Road/utility work is noted.
- Facility equipment is checked...generator fuel, etc.
- Communication with media during big events



# RWIS-based Pavement Forecasts

LOCAL FORECAST		HISTORICAL WEATHER												
Summary   Daily   Hourly   Graphs														
MA CHESHIRE RT 8, MA (MX6403)		FHWA			MA CHESHIRE RT 8								Add Slide	
Hour (Eastern Standard Time)	Mon 10 PM	Mon 11 PM	Tue 12 AM	Tue 1 AM	Tue 2 AM	Tue 3 AM	Tue 4 AM	Tue 5 AM	Tue 6 AM	Tue 7 AM	Tue 8 AM	Tue 9 AM		
Weather Condition														
Weather	Cloudy	Cloudy	Cloudy	Cloudy	Snow Possible	Snow Possible	Snow Possible	Snow Possible	Snow Possible	Snow Possible	Snow Likely	Snow Likely		
Temperature (°F)	22	22	22	20	24	24	24	24	25	25	26	28		
Feels Like (°F)	22	22	15	13	18	17	16	16	17	16	18	20		
Wet Bulb Globe (°F)	20	20	20	19	22	22	23	23	24	24	26	28		
Wind Direction	E	SE	ESE	E	E	E	E	E	ESE	E	ESE	ESE		
Wind Speed/Gusts (mph)	3	3	5	5	5	6	7	7	7	8	8	8		
Dew Point (°F)	16	16	17	17	18	19	20	21	22	23	25	27		
Humidity (%)	78	78	81	88	78	81	85	88	88	92	96	96		
Precipitation Chance (%)	-	-	-	-	27	36	43	45	47	49	54	59		
Precipitation Type	-	-	-	-	NRM Snow	NRM Snow	NRM Snow	NRM Snow	NRM Snow	NRM Snow	NRM Snow	Wet Snow		
Precip Amount (Rain:in., Snow:in.)	None	None	None	None	S:<1/4 Trace	S:<1/4 Trace	S:<1/4 L:0.01	S:<1/4 Trace	S:<1/4 Trace	S:<1/4 L:0.01	S:<1/4 L:0.02	S:1/4-1 L:0.03		
24 Hr Snow/Ice Accum (in.)(12 PM-12 PM)	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.30	0.60		
Blowing Snow Potential	-	-	-	-	-	-	-	-	-	-	-	-		
Bridge Temp (°F)	25	25	25	25	25	25	25	25	24	25	25	28		
Road Temp (°F)	25	24	24	25	25	25	25	25	25	25	26	29		
Bridge Frost Probability (%)	0	0	0	0	0	0	0	0	0	0	0	0		
Pavement Frost Probability (%)	0	0	0	0	0	0	0	0	0	0	0	0		
Treatment Recommendation	-	-	-											

Atmospheric Forecast


Pavement Forecast

Treatment Recommendation




Disable local forecast on click

# Online Consultation Forum

**WeatherSentry® Online**  
Pavement Forecast Transportation Edition

[Home](#) [Settings](#)

**Briefing** 

[Dashboard](#)

[Weather](#)

[Local Forecast](#)

[Spray Outlook](#)

[National Graphics](#)

[International Graphics](#)


[Hurricane Weather](#)

[Historical Weather](#)

[Slide Shows](#)


[My Favorites](#)

[Custom Forecasts](#)




**October 2018**

[Master This Winter's](#) [Page](#)

**Choose a region:**  

## North Central Highlights

**Cody Fishman** Energy Meteorologist  
Bio

### Isolated Rain and Snow Showers

Rain showers across MO and IL move out by morning with chances of snow showers across northern MN and northern WI through the day. [More ...]

Posted by Cody Fishman at 2:30 AM CDT 10/15/18

**Comments (10)**

**WILL, KENDAL, GRUNDY COUNTIES, IL:** Good evening! Yes, we are expecting you to be in somewhat of a dry spell over the next two weeks. It is not expected to be completely dry through the 15 days, but there do not appear to be any big rain/snow makers on the horizon. As of right now, we expect you have a 60% chance of having below normal precipitation over the next 6-10 days, with a 40% chance of below normal precipitation over the next 8-14 days. Hopefully this helps, and thanks for the question!

Posted by Nick Lesser at 8:58 PM CDT 10/15/18

Could we really see a dry spell for the next two weeks? as the 15 day shows? with only minimal rain? for Will, Kendall and Grundy County, IL. Thanks


Posted by Tim Wallace Landscape Supply at 8:53 PM CDT 10/15/18

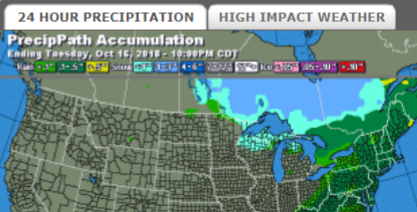
**TRUE NORTH NE LLC:** Good afternoon and thanks for your inquiry. At this time, we do not see any good or realistic chance for snow for the remainder of October into early November. In general, chances for snow

### Blogs/Community

**DTN Extended Weather**  
DTN WINTER 2018-2019 FORECAST 10/4

**WeatherSentry Ideas & Input**  
MxVision Weather Sentry Training 10/1

**U.S. RADAR** **LOCAL RADAR** 9:30 PM CDT  


**24 HOUR PRECIPITATION** **HIGH IMPACT WEATHER**  
**PrecipPath Accumulation**  
Ending Tuesday, Oct 16, 2018 - 10:00PM CDT  






24x7x365  
Meteorological  
Consultation

# Lead Time of a Weather Forecast

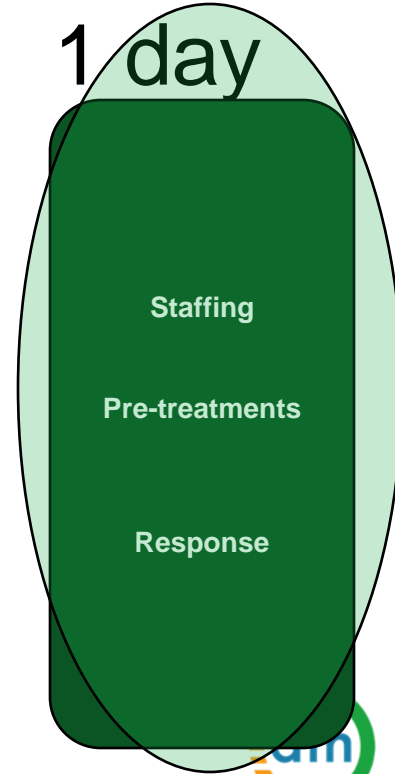
10-15 day

5 day

3 day

2 day

1 day



# 1 Day Out



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>November</b>						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	Notes:				



# 1 Day Out

<u>12am</u>	<u>3am</u>	<u>6am</u>	<u>9am</u>	<u>12pm</u>
28F	26F	25F	27F	30F

- Forecast Considerations

- How far out? – All 10 models go out this far. There are 10 solutions and hopefully they agree!
- What time steps? – 2-3 models are hourly and the rest are 3-hourly
- Which variables? – Same as 2 days out

<u>12am</u>	<u>1am</u>	<u>2am</u>	<u>3am</u>	<u>4am</u>	<u>5am</u>	<u>6am</u>
28F	27F	26F	26F	26F	25F	25F

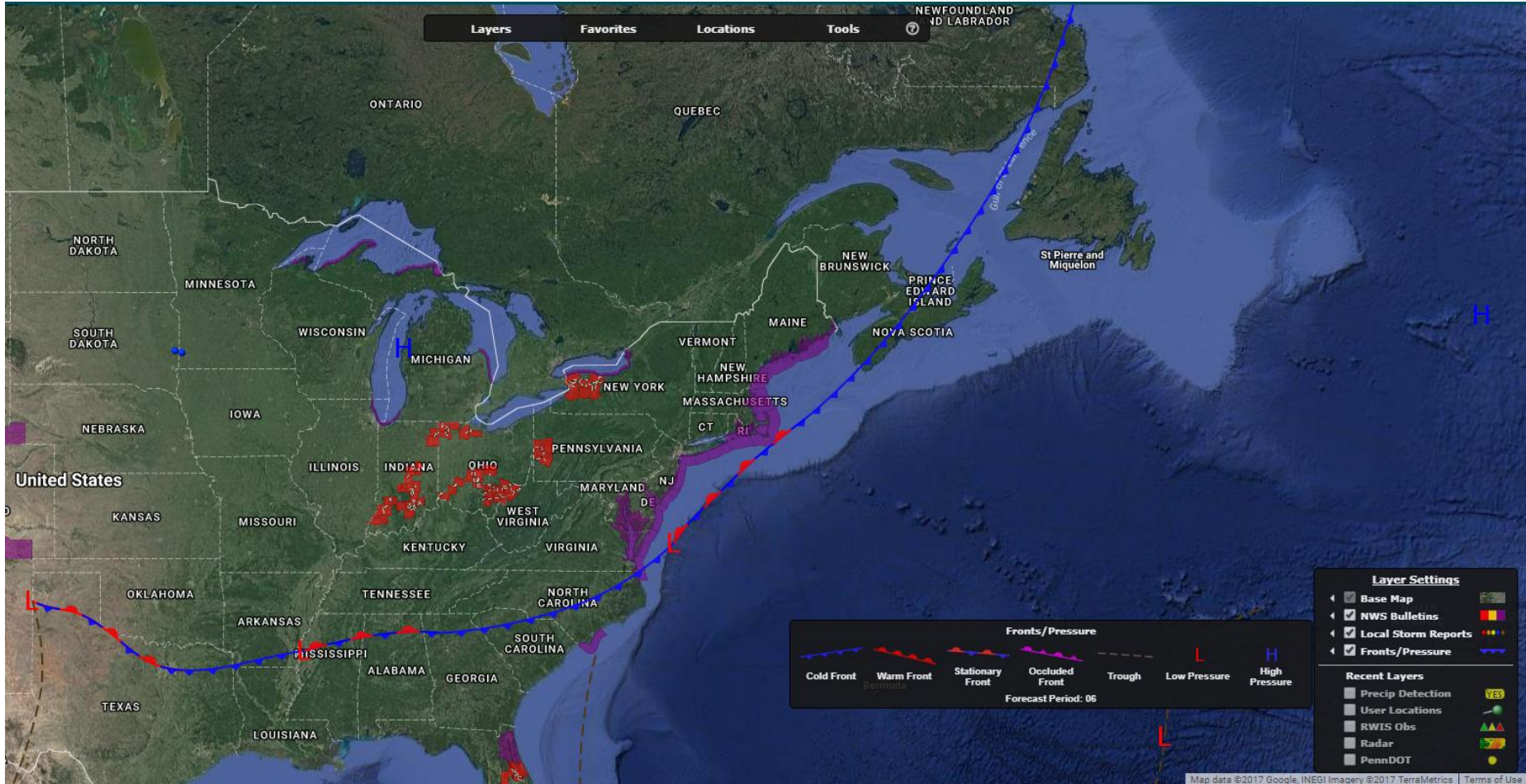
- Storm location? – “Next door” or entering the state.
- Sample: 40% chance of 2-3” of snow starting 2pm Thursday and ending 7pm. NW winds 10-15 mph switching to N at 25-35mph. Pavement temps 25-30 degrees and falling to 15-20 degrees by storm end. NaCl 100 lb/mi @ 1pm and NaCl 150 lb/mi @ 7pm.

- Operational Considerations


- Frost or Light Snow – Pre-treat. Pre-load trucks. Notify law enforcement.
- Moderate events – Mostly same. Split-shifts. Media not notified.
- Heavy or Blizzard – Contractors. Additional equipment. Hotel rooms. Meetings with elected officials and media. Coordination with emergency management.



# Fronts



# Forecasts in Graph Format



**WeatherSentry® Online**  
Pavement Forecast Transportation Edition

Home
Settings

Briefing

Dashboard

Weather

Local Forecast

Summary

15 Day

Hourly

Graphs

Animations

National Graphics

International Graphics

Hurricane Weather

Historical Weather

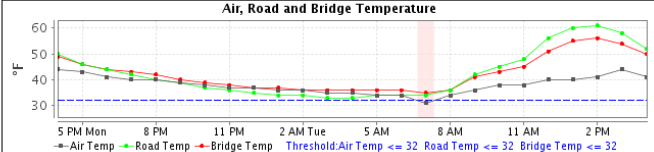
Slide Shows

My Favorites

## Graphs

PENN DOT I-79 Crawford / Merce... 
☆ Add Favorite

### PENN DOT I-79 Crawford / Mercer



Air, Road and Bridge Temperature

°F

5 PM Mon 8 PM 11 PM 2 AM Tue 5 AM 8 AM 11 AM 2 PM

- Air Temp - Road Temp - Bridge Temp

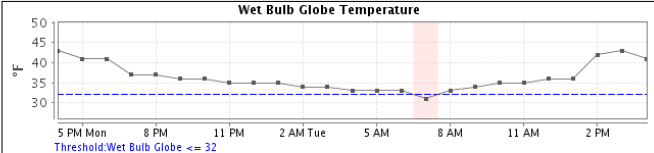
Threshold: Air Temp <= 32 Road Temp <= 32 Bridge Temp <= 32

#### Meteogram Settings

- Air, Road and Bridge Temperature
- Wet Bulb Globe Temperature
- Dew Point
- Relative Humidity
- Wind Speed & Gust
- Blowing Snow Potential
- Precipitation Probability
- Precipitation Amount
- Precipitation Type Probability
- 24 Hr. Total Snow Accumulation
- Road Temperature
- Bridge Temperature
- Road Temperature & Dew Point
- Pavement Frost Probability and Bridge Frost Probability
- Bridge Temperature & Dew Point

Save Settings

Change Threshold Settings

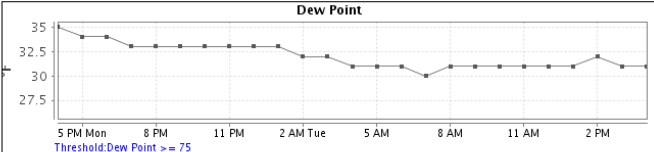


Wet Bulb Globe Temperature

°F

5 PM Mon 8 PM 11 PM 2 AM Tue 5 AM 8 AM 11 AM 2 PM

Threshold: Wet Bulb Globe <= 32

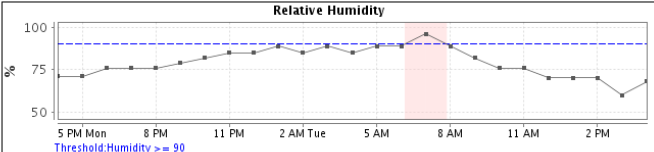


Dew Point

°F

5 PM Mon 8 PM 11 PM 2 AM Tue 5 AM 8 AM 11 AM 2 PM

Threshold: Dew Point >= 75

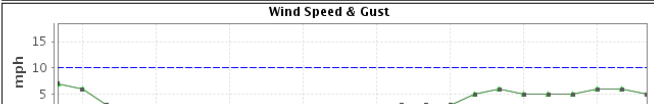


Relative Humidity

%

5 PM Mon 8 PM 11 PM 2 AM Tue 5 AM 8 AM 11 AM 2 PM

Threshold: Humidity >= 90



Wind Speed & Gust

mph

5 PM Mon 8 PM 11 PM 2 AM Tue 5 AM 8 AM 11 AM 2 PM



# Confidence Levels

## 24-Hour Forecast Summary

PENN DOT I-84

☆ Add Favorite

Print









### PENN DOT I-84

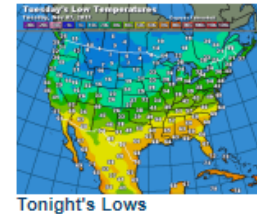
**Rain:** Rest of Today...Cloudy with rain. Chance of precipitation 80 percent. Accumulations around 0.03 inches.

Tonight...Partly cloudy in the evening then clearing. Tuesday...Mostly cloudy.

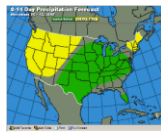
**Monday:** High: 56, Low: 37. **Rest of Monday:** Wind: NW 6-13mph gusting to 23

TABLE   GRAPHS

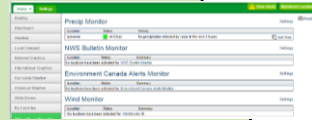
Hour	Mon 4 PM	Mon 7 PM	Mon 10 PM	Tue 1 AM	Tue 4 AM	Tue 7 AM	Tue 10 AM	Tue 1 PM
Weather Condition								
Weather	Rain Likely	Mostly Cloudy	Partly Cloudy	Clear	Clear	Mostly Cloudy	Mostly Cloudy	Cloudy
Temperature (°F)	52	44	39	35	33	33	40	44
Wind Direction	NW	NNW	NNW	NNW	N	N	N	NNE
Wind Speed/Gusts (mph)	13 G 23	13 G 23	10	10	8	7	6	6
Precipitation Chance (%)	80							
Precipitation Type	Rain	-	-	-	-	-	-	-
Precip Amount (Rain.in.,Snow.in.)	Rain 0.03	None	None	None	None	None	None	None
24 Hr Snow/Ice Accum (in.) (4 PM-4 PM)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



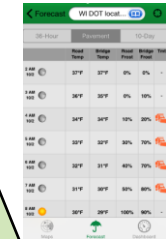
Long Range  
*Consistency?*



Medium Range  
*Agreement?*



Short Range  
*Confidence?*



10-15  
days

- Daily forecast
- Long-range temperature and precipitation departure maps

5 days

- Surface forecast maps

3 days

- Hourly forecasts, EC bulletins, Monitored Locations
- Precipitation and Wind "Path" maps

2 days

- Hourly pavement forecast and treatment recommendations
- Dashboard & Briefing
- WINS alerts

1 day

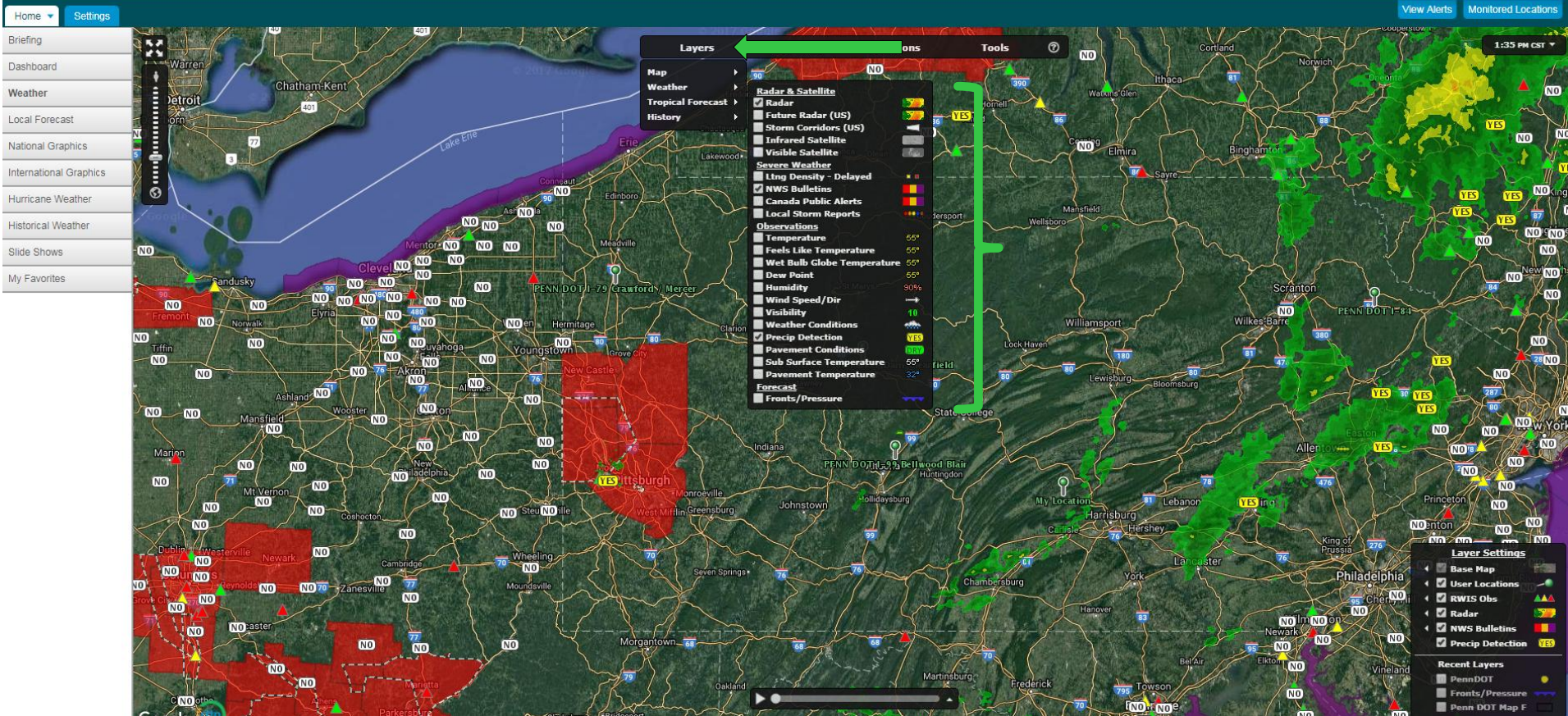
- Radar
- Temperatures, wind speed, pavement
- Fronts

# During Storm



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>November 2015</b>						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	Notes				

# Weather Map Layers



The screenshot displays the WeatherSentry Online interface. On the left is a navigation menu with options like Home, Settings, Briefing, Dashboard, Weather, Local Forecast, National Graphics, International Graphics, Hurricane Weather, Historical Weather, Slide Shows, and My Favorites. The main area shows a weather map of the Northeast United States, including parts of Ohio, Pennsylvania, and New York. The map features various weather layers such as radar, satellite, and temperature. A central 'Layers' panel is open, showing a list of layers with checkboxes and icons. A green bracket highlights the 'Radar & Satellite' and 'Severe Weather' sections. In the bottom right corner, a 'Layer Settings' panel is visible, showing options for Base Map, User Locations, RWIS Obs, Radar, NWS Bulletins, and Precip Detection. The map itself shows a mix of green, yellow, and red areas, indicating different weather conditions and pavement forecasts. A 'Tools' panel is also visible at the top right of the map area.

**Layers**

- Map
- Weather
- Tropical Forecast
- History

**Radar & Satellite**

- Radar
- Future Radar (US)
- Storm Corridors (US)
- Infrared Satellite
- Visible Satellite

**Severe Weather**

- Lfng Density - Delayed
- NWS Bulletins
- Canada Public Alerts
- Local Storm Reports

**Observations**

- Temperature 55°
- Feels Like Temperature 55°
- Wet Bulb Globe Temperature 55°
- Dew Point 55°
- Humidity 90%
- Wind Speed/Dir 10
- Visibility 10
- Weather Conditions
- Precip Detection YES
- Pavement Conditions
- Sub Surface Temperature 55°
- Pavement Temperature

**Forecast**

- Fronts/Pressure

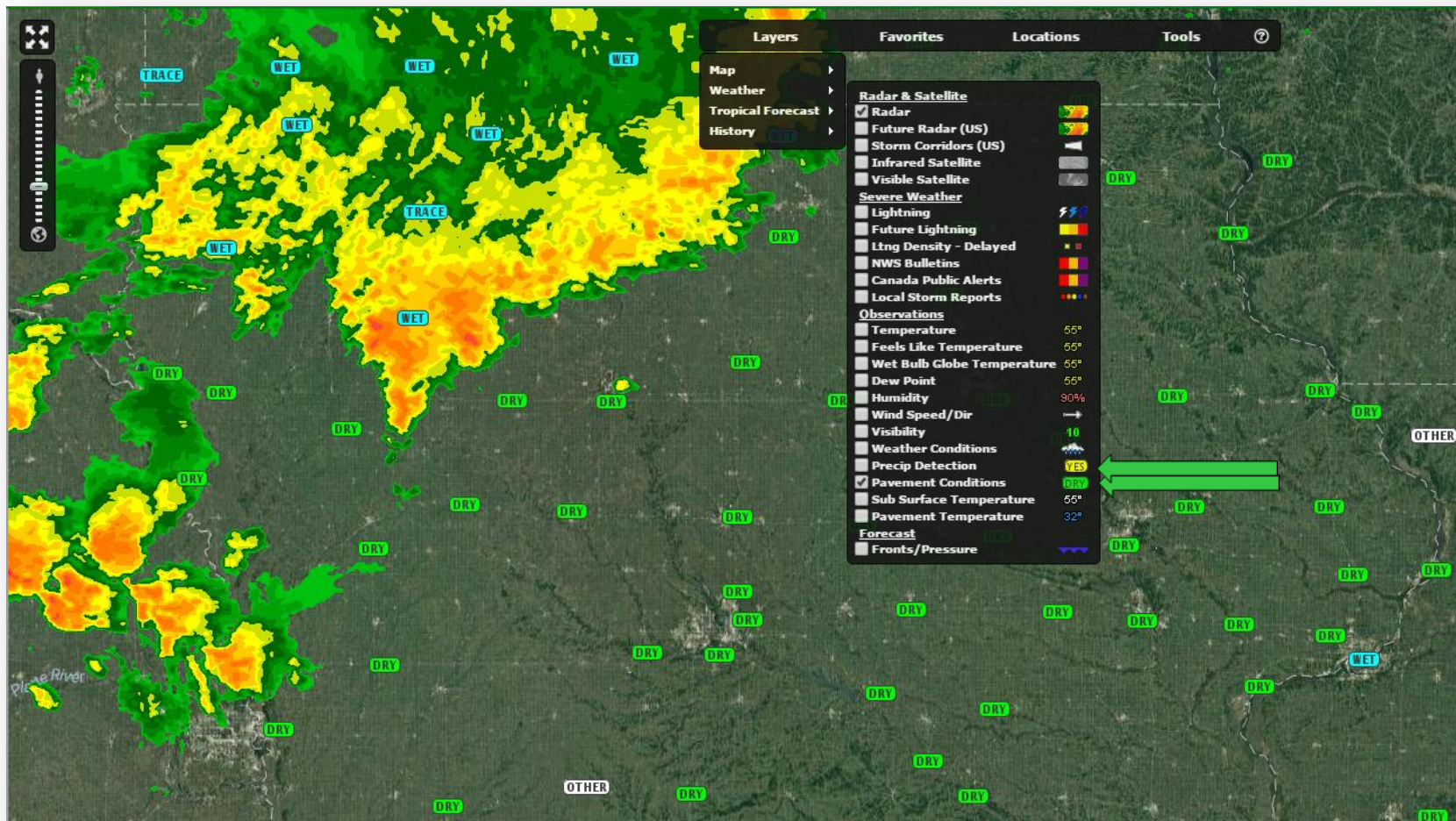
**Layer Settings**

- Base Map
- User Locations
- RWIS Obs
- Radar
- NWS Bulletins
- Precip Detection YES

**Recent Layers**

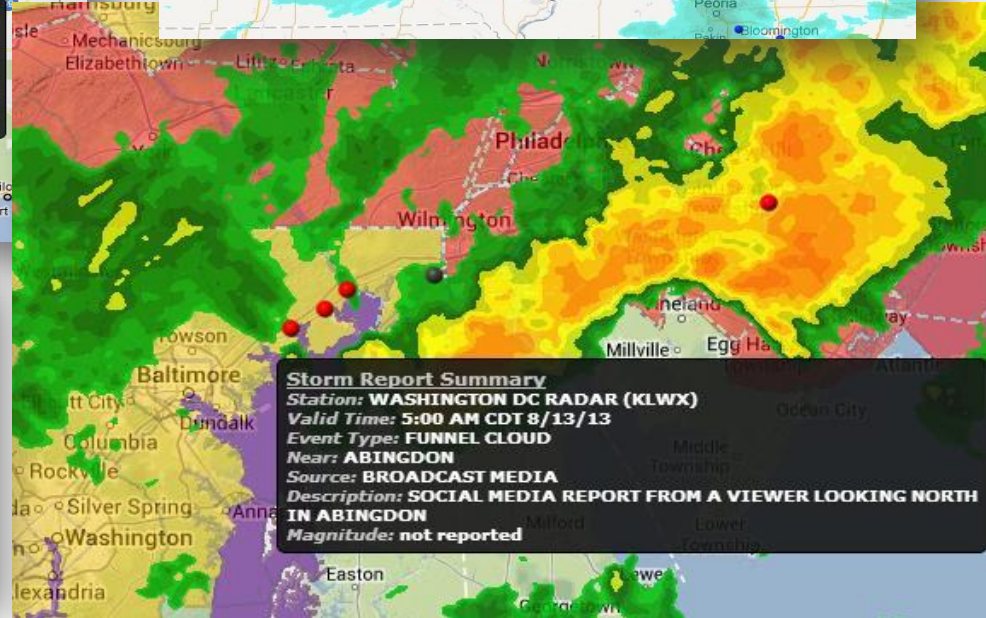
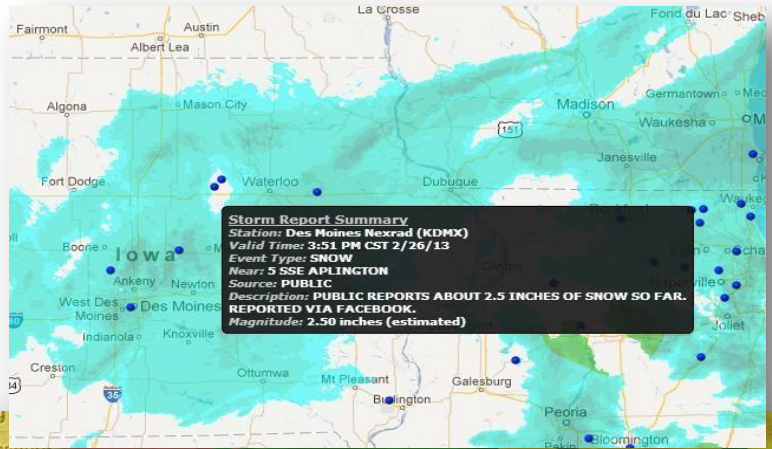
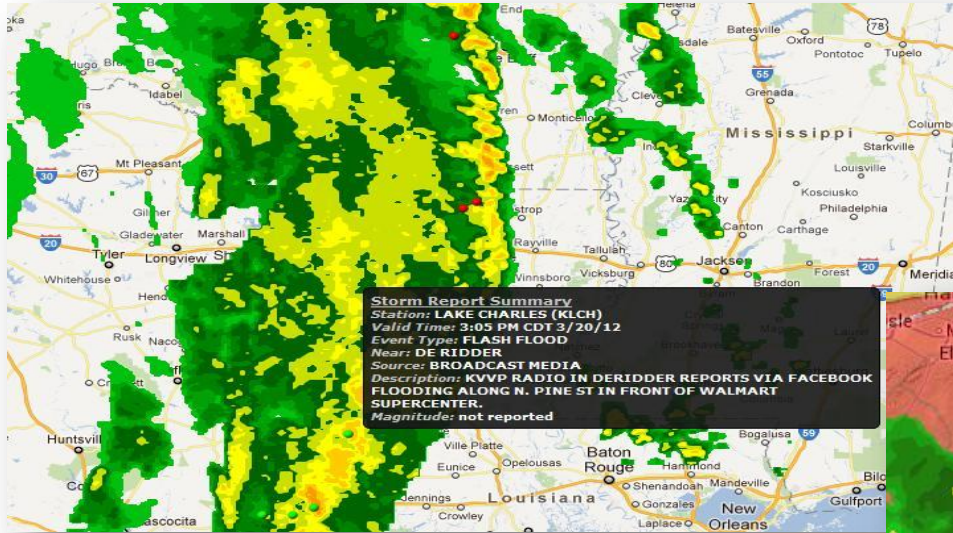
- PennDOT
- Fronts/Pressure
- Penn DOT Map F

# Pavement Conditions





# Local Storm Reports



11/6/17 Local Storm Reports

- Severe Weather
- Winter Weather
- Flood
- Wind
- Other
- Multiple

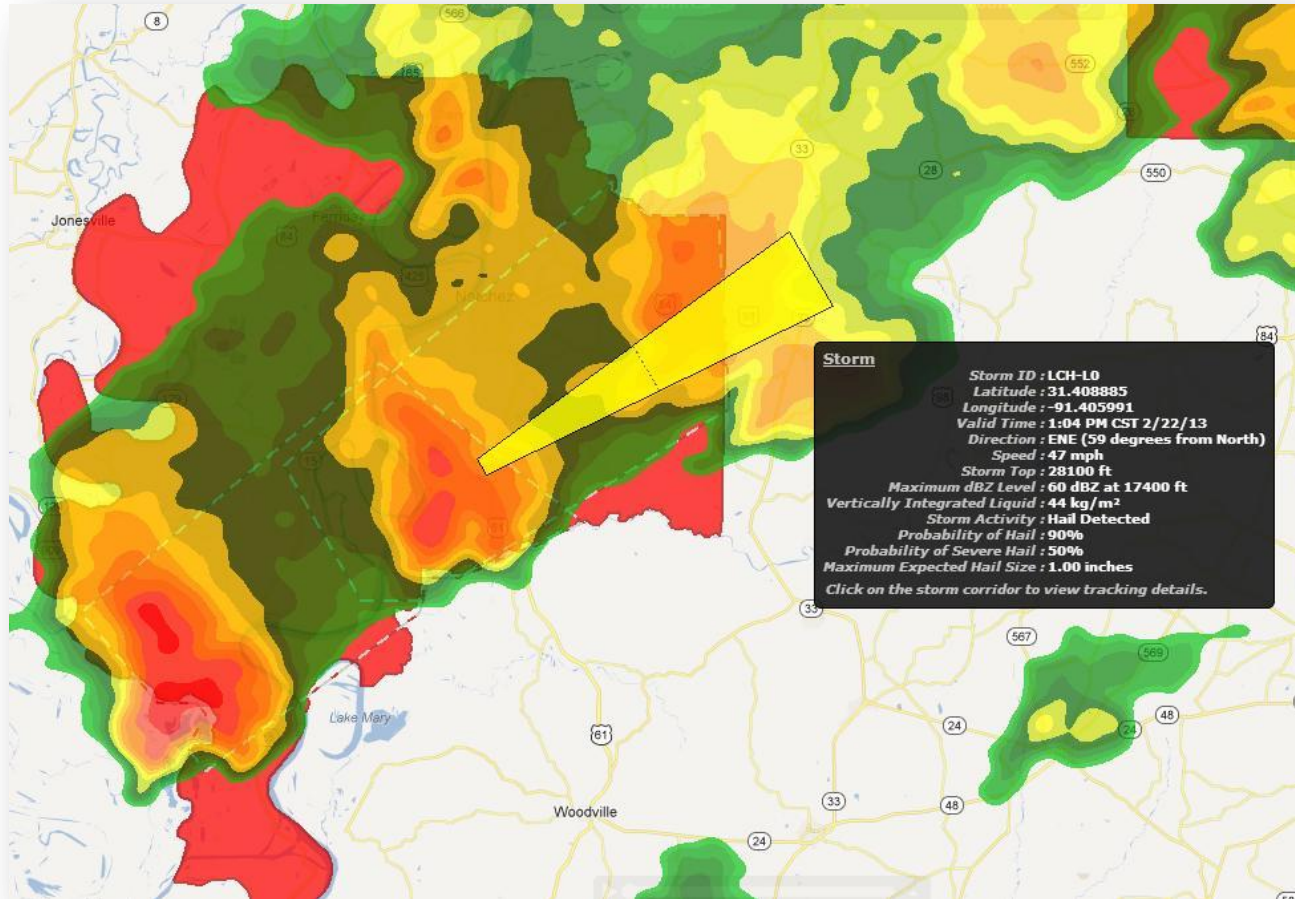
**Layer Settings**

- Base Map
- NWS Bulletins
- Local Storm Reports

**Recent Layers**

- Precip Detection YES
- User Locations
- RWIS Obs
- Radar
- PennDOT

# Storm Corridors



# Alerts



WeatherSentry® Online  
Pavement Forecast Transportation Edition

SHAWN TRUELSON | Sign Out | Help

Home ▾

Settings

View Alerts

Monitored Locations

Briefing

Dashboard

Weather ·

Local Forecast

National Graphics

International Graphics

Hurricane Weather

Historical Weather

Slide Shows

My Favorites

## WINS Alerts

Delete

Alert Locations: All ▾

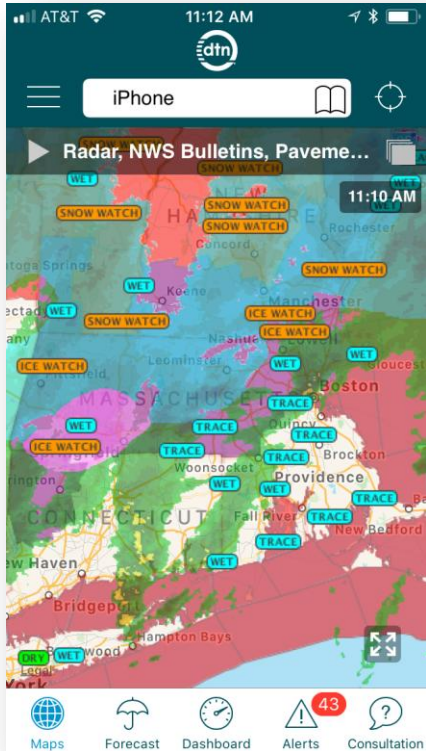
Alert Status: View New Alerts ▾

All

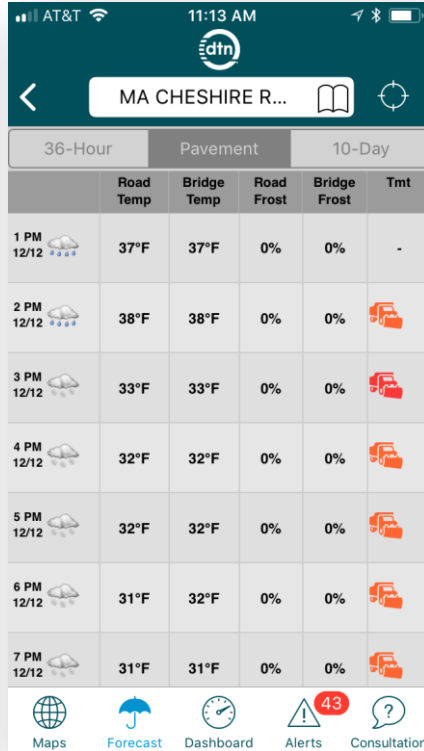
	Location	Event Type	Issue/Valid Date Time	Expire Date Time	Status
<input type="checkbox"/>	PENN DOT I-84	Fcst Wind Speed	11/6/17 8:10 PM EST	Not Applicable	New
<input type="checkbox"/>	PENN DOT I-84	Fcst Bridge Frost	11/6/17 7:46 PM EST	Not Applicable	New
<input type="checkbox"/>	PENN DOT I-84	Fcst Wind Speed	11/6/17 4:10 PM EST	Not Applicable	New

# WeatherSentry SmartPhone

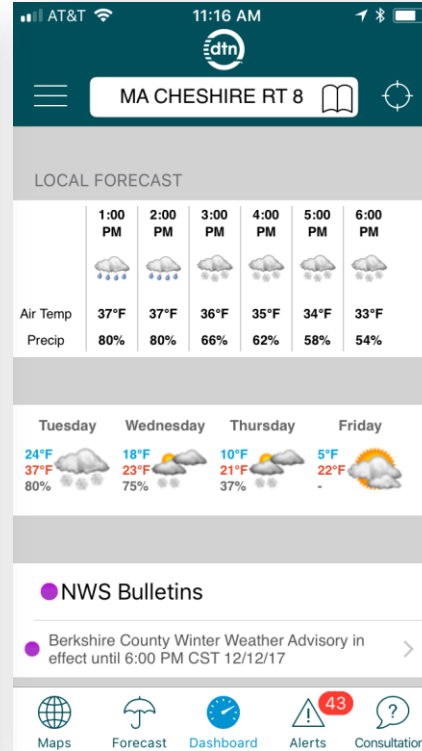
RWIS, radar, bulletins



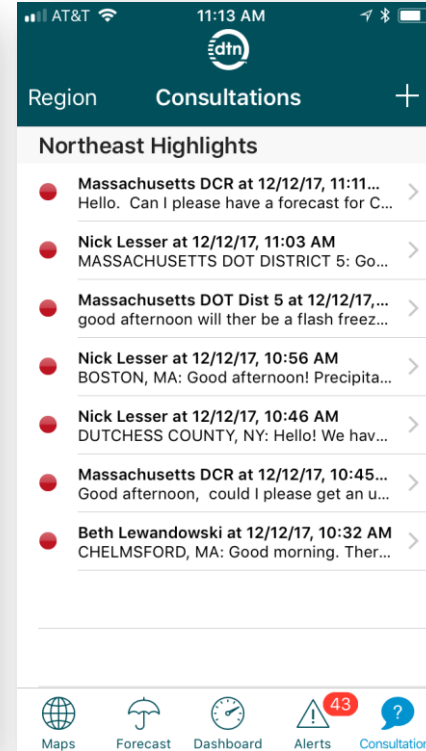
10-day, pavement forecasts



Dashboard



Forecaster Consultation

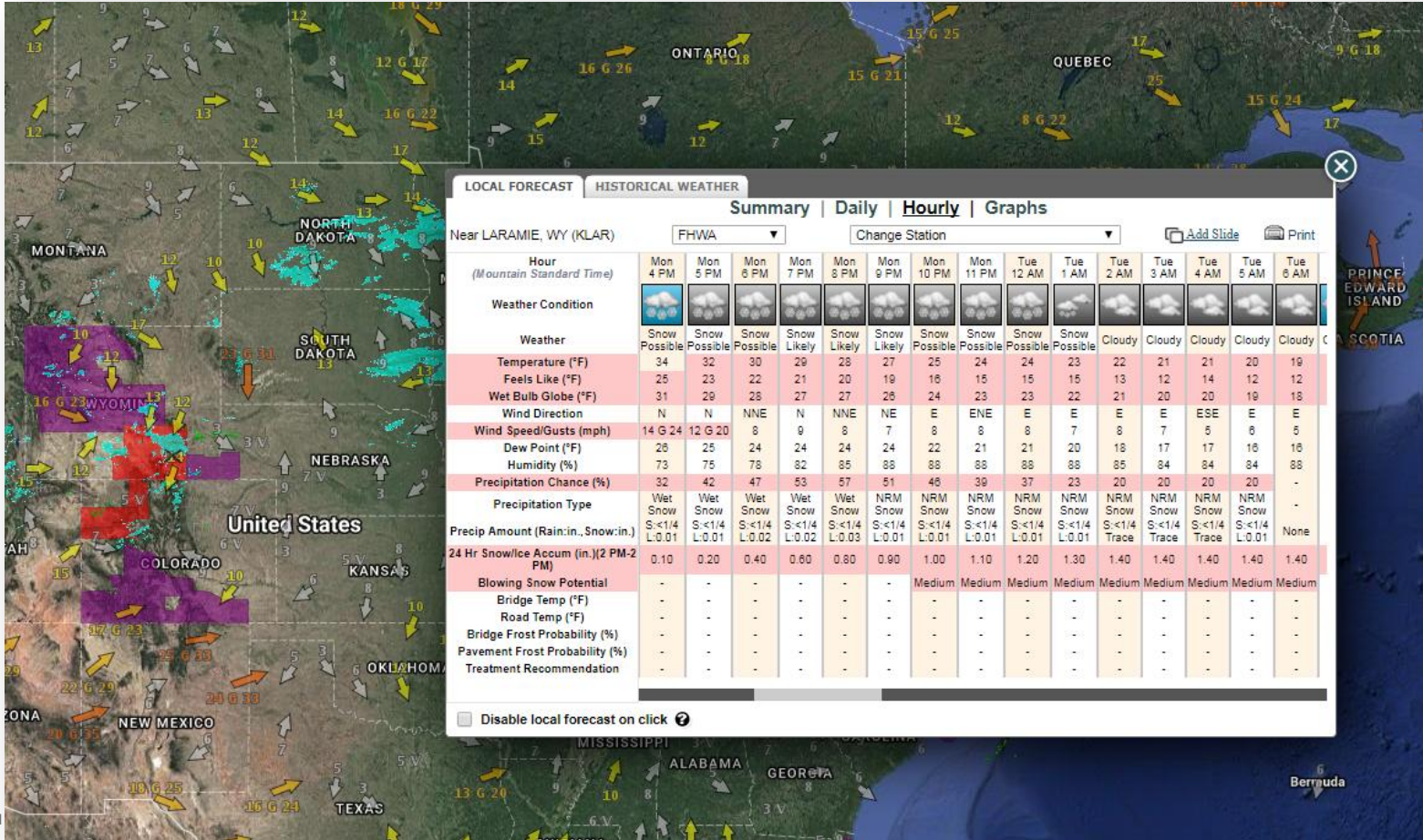


# After the Storm



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>November 2015</b>						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19 ★	20	21
22	23	24	25	26	27	28
29	30	Notes:				

# Continued Monitoring/Future Outlook



# Historical Weather for After Action Review

**WeatherSentry® Online**  
Pavement Forecast Transportation Edition

Home Settings

Briefing  
Dashboard  
Weather  
Local Forecast  
National Graphics  
International Graphics  
Hurricane Weather  
Historical Weather  
Daily History  
RWIS History  
Monthly History  
Slide Shows  
My Favorites

## Daily Historical Weather for My Location

Calendar: 12/12/2017 Go My Location Print

**DAILY HISTORY** **HOURLY HISTORY**

### Boston MA (MX2399) for December 12, 2017

Actual Temp		Normal Temp		Dept Max	Dept Min	Evap
Hi	Lo	Hi	Lo	-	-	0.02 inches/day
44.0°F	31.0°F	-	-	-	-	-

Precipitation		Snow Accum Est.		Snow Cover Est.		Degree Days	
Liquid Amount						HDD	CDD
0.01 in		0.00 in		4.00 in.		28.0 °F	0.0 °F

**24 Hour Rainfall Estimate**  
Ending Wednesday Dec 13 2017 6:00AM CST (1200Z) inches

0.1 0.2 0.3 0.4 0.5 0.75 1.0 2.0 3.0 4.0 5.0 6.0 10.0 15.0+

**WeatherSentry® Online**  
Pavement Forecast Transportation Edition

Home Settings

Briefing  
Dashboard  
Weather  
Local Forecast  
National Graphics  
International Graphics  
Hurricane Weather  
Historical Weather  
Daily History  
RWIS History  
Monthly History  
Slide Shows  
My Favorites

## Daily Historical Weather for My Location

Calendar: 12/12/2017 Go My Location Print

**DAILY HISTORY** **HOURLY HISTORY**

### Boston MA (MX2399) for December 12, 2017

Hour	Temperature (°F)	Dew Point (°F)	Relative Humidity (%)	Precipitation (in.)	Wind (mph)	Conditions
12:00 AM EST	30.9	24.1	75	-	ENE at 3	Mostly Cloudy
1:00 AM EST	30.9	24.1	75	-	E at 3	Cloudy
2:00 AM EST	32.0	24.1	72	-	ESE at 5	Cloudy
3:00 AM EST	32.0	25.0	75	-	SE at 5	Cloudy
4:00 AM EST	33.1	26.1	75	-	LV	Cloudy
5:00 AM EST	34.0	26.1	73	-	SE at 6	Cloudy
6:00 AM EST	35.1	27.0	73	-	SE at 8	Cloudy
7:00 AM EST	35.1	28.9	79	-	ESE at 10	Cloudy
8:00 AM EST	36.0	30.0	79	-	ESE at 10	Snow
9:00 AM EST	37.9	32.0	79	-	SE at 9	Snow
10:00 AM EST	39.9	34.0	79	-	SE at 9	Rain
11:00 AM EST	39.9	36.0	86	-	SE at 12	Rain
12:00 PM EST	41.0	37.0	86	-	SE at 12	Rain
1:00 PM EST	42.1	39.0	89	-	ESE at 10	Rain
2:00 PM EST	42.1	39.0	89	-	SE at 10	Rain
3:00 PM EST	44.1	39.9	86	-	SE at 12	Rain
4:00 PM EST	44.1	41.0	89	-	ESE at 8	Rain
5:00 PM EST	43.0	41.0	93	-	SSE at 9	Rain
6:00 PM EST	43.0	41.0	93	-	S at 8	Rain
7:00 PM EST	42.1	39.9	93	-	SW at 6	Rain
8:00 PM EST	36.0	35.1	96	-	WNW at 10	Rain
9:00 PM EST	36.0	33.1	89	-	WNW at 10	Rain
10:00 PM EST	35.1	32.0	89	-	WNW at 10	Rain
11:00 PM EST	35.1	32.0	89	-	W at 9	Cloudy



# Historical Archived Alerts for After Action Review



WeatherSentry® Online  
Pavement Forecast Transportation Edition

Home ▾ Settings **View Alerts** Monitored Locations

## WINS Alerts

Delete Alert Locations: All Alert Status: View Archived Alerts ▾

	Location	Event Type	Issue/Valid Date Time	Expire Date Time	Status
<input type="checkbox"/>	Jct 1w/34	Fcst Wind Speed	11/5/17 8:40 AM CST	Not Applicable	New
<input type="checkbox"/>	Jct 1w/34	Fcst Wind Speed	11/4/17 6:32 PM CDT	Not Applicable	New
<input type="checkbox"/>	Jct 1w/34	Snowfall	11/4/17 4:44 AM CDT	11/4/17 8:44 PM CDT	New
<input type="checkbox"/>	Manitoba Infrastructure	Fcst Snow	11/4/17 2:02 AM CDT	Not Applicable	New
<input type="checkbox"/>	Jct 1w/34	Fcst Snow	11/3/17 11:02 PM CDT	Not Applicable	New
<input type="checkbox"/>	Jct 1w/34	Snowfall	11/3/17 3:22 PM CDT	11/4/17 7:22 AM CDT	New
<input type="checkbox"/>	Jct 1w/34	Fcst Wind Speed	11/3/17 11:02 AM CDT	Not Applicable	New
<input type="checkbox"/>	Jct 1w/34	Fcst Wind Speed	11/2/17 9:32 PM CDT	Not Applicable	New





# WEATHER CHECKLIST FOR MONITORING FORECAST TRENDS



## Long-range: 10-15 days out

Monitor the 15-day forecasts in WeatherSentry for day-to-day trends and inform staff of potential winter events in the future. Follow the trends through time – not necessarily all the details (too early for that).



## Medium-range: 5-9 days out

Review forecasts and determine what has changed - did temperatures trend colder – or did snow accumulations increase or decrease? Did the “day of the storm” change? Consult with our meteorologists on model trends for greater confidence. Stock up on resources before the storm.



## Medium-range: 2-4 days out

If not done, set up alerts to monitor hourly forecasts for precipitation, temperatures and wind speed. Prepare equipment and hold pre-storm meetings with personnel and vendors. Get the word out on social media.

# WEATHER CHECKLIST FOR MONITORING FORECAST TRENDS



## Short Range: One Day Out

Use hourly pavement forecasts and treatment recommendations, and continue consulting with our meteorologists by phone and WeatherSentry Online Consulting Forum. Enact anti-icing plans, if conditions permit.



## In-Storm: Day of the Storm

Monitor RWIS observations, radar and local storm reports. Stay informed while using WeatherSentry SmartPhone. Continue with treatment plans and adjust accordingly. Continue to consult with the meteorologists for any late changes in the storm's behavior.



## Post-Storm: The Next 24-48+ Hours

Watch for blowing snow and re-freeze problems as temperatures often fall sharply behind the storm. Look ahead to see if any new storms are on the horizon.

# Questions?



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