



# CPASW 2023

Asheville, NC

## Providing S2S Support to Transportation Officials Ahead of the 17-20 November 2022 Record Snow Event

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National Oceanic and  
Atmospheric Administration

U.S. Department of Commerce

National Weather Service  
Grand Rapids, MI



# Overview

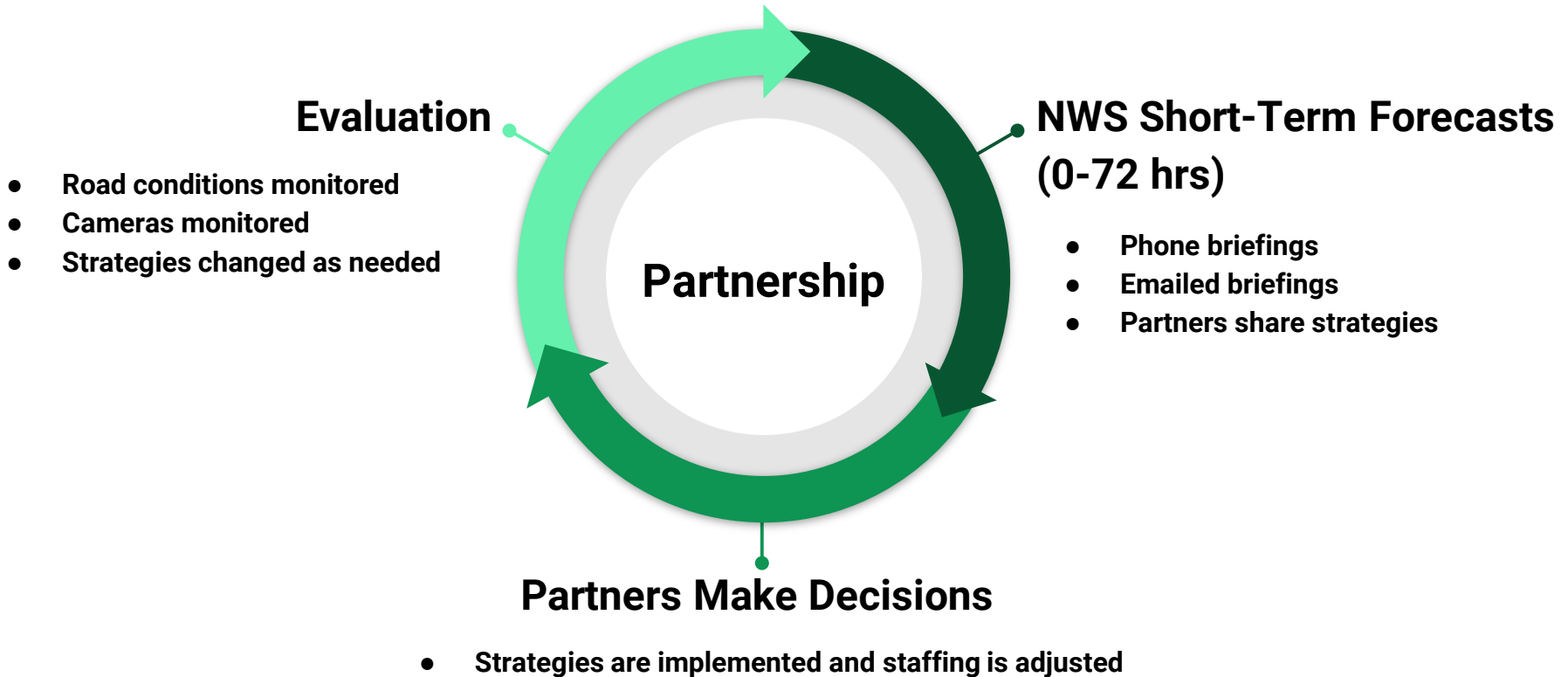
- **Background relationship with transportation officials**
- **The path toward S2S IDSS**
- **November 17-20, 2022 snow event**
- **Partner feedback on weekly S2S briefings**
- **Where we go from here**





# Background Relationship

Pre-existing Work Between the NWS + Transportation Officials





# S2S IDSS for Transportation Sector

The Path We Took

- **NWS invited to present the 2022-2023 winter forecast to a Kent County pre-winter operations meeting for transportation in November 2022**
  - Consisted of city, county, and state transportation officials
- **Utilized CPC 3-month outlook (maps, pie charts), La Niña climatology, 30-year trends, and NMME forecasts**
- **Embedded a prototype, custom 8 to 14 day outlook within the briefing to demonstrate S2S capability based on two main items:**
  - I knew we would get honest and valuable feedback on the utility of S2S IDSS
  - We had the potential for unusual and impactful winter weather coming up





# S2S IDSS for Transportation Sector

The Path We Took to Develop Briefings

## ➤ Tools

- CPC 8-14 day temperature, precipitation, and hazards outlooks
- Ensemble guidance from the ECE, GEFS, and CMC
  - Useful to view on WeatherBell Premium
  - Ensemble box and whiskers, mean/median/spread, chiclet charts, etc.

## ➤ Layout

- Email body: 4 to 6 bullets
- Slides (3): Lead with CPC graphics
- Depict probabilities of exceedance
- Highlight climatological information based on Hazards Outlook





# S2S IDSS for Transportation Sector

The Path We Took

**The Following S2S IDSS Slides are What Were Presented  
to the Transportation Officials Ahead of the  
17-20 November, 2022 Record Snow Event**



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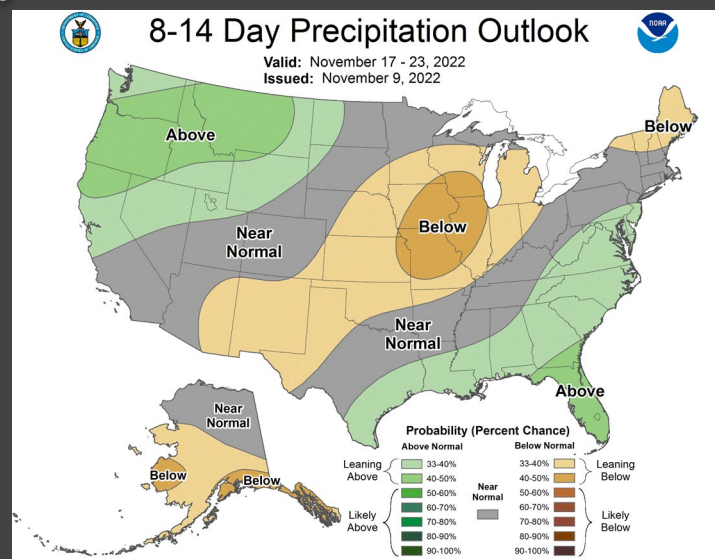
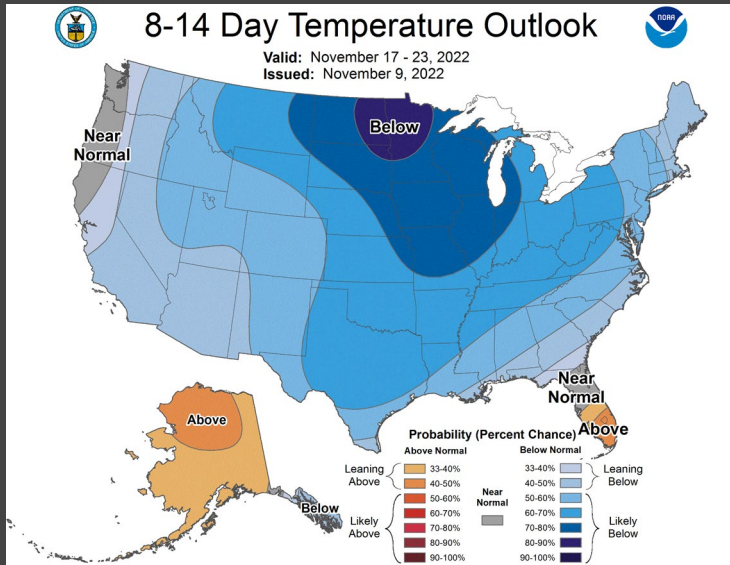
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# Weekly Weather Briefing - KENT COUNTY

## 1 to 2 Week Temperature & Precipitation Outlook:

November 17-23



**Normal Highs:** Mid 40s  
**Normal Lows:** Around 32  
**Forecast:** Odds favor temperatures to average below normal.

**Normal Precipitation:** Around 0.80"  
**Forecast:** Odds favor precipitation to average below normal.





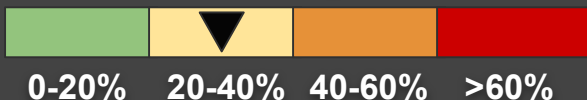
# Subseasonal Weather Briefing - KENT COUNTY

## 1 to 2 Week High Temperature and Snowfall Probabilities

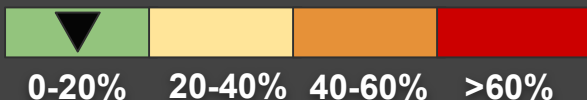
November 17-23

### HIGH TEMPERATURE PROBABILITIES

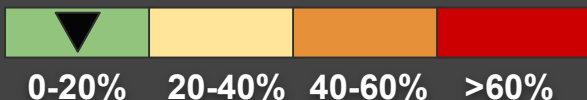
#### Highs Below Freezing



#### Highs in the Teens

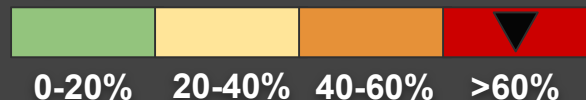


#### Highs in the Single Digits or Below Zero

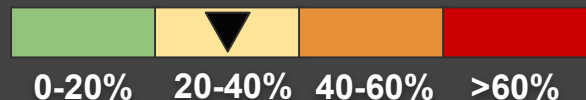


### SNOWFALL PROBABILITIES

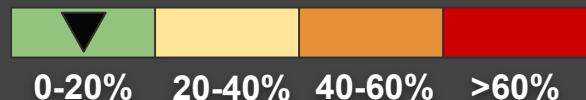
#### For Any Accumulating Snow



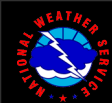
#### For at least 6"



#### For at least 12"







# Subseasonal Weather Briefing - KENT COUNTY

## 1 to 2 Week Risk for Extreme Cold and Heavy Snow

November 17-23

### EXTREME COLD

### HEAVY SNOW

*Defined as the risk for experiencing low temperatures that rank in the coldest 15% of reported readings for the dates above over the last 30 years.*

*Defined as the risk for receiving multi-day snowfall amounts that rank in the top 15% of reported readings for the dates above over the last 30 years.*



0-20% 20-40% 40-60% >60%

0-20% 20-40% 40-60% >60%





# Subseasonal Weather Briefing - KENT COUNTY

## 1 to 2 Week Forecast Discussion

*November 17-23*

“

Odds favor temperatures to be 10 to 15 degrees below normal. The most likely period for impactful snow is November 17-20 as the strongest core of Arctic air moves into the region. It is especially during this four day window when one or more days may not get above freezing. Lake effect snow is likely with accumulations and travel impacts expected. We do see at least some risk for multi-day snowfall accumulations to be significant compared to normal. ”

## For Additional Information Contact:

Brandon Hoving, Meteorologist

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Cell: 616-402-5532





# 17-20 November, 2022 Snow Event

Outcome

## 17-20 November, 2022 Snow Event: What Happened?





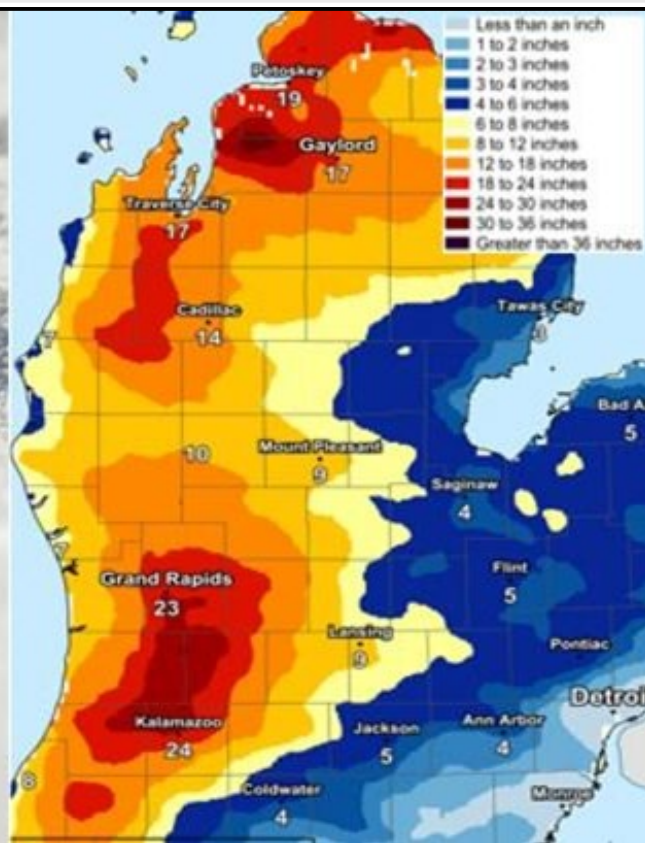
# November 17-20, 2022 Snow Event

## Outcomes

### Snow Totals: November 16 – 20, 2022

|                   |       |
|-------------------|-------|
| East Grand Rapids | 30.8" |
| Caledonia         | 27"   |
| Grand Rapids NWS  | 24.4" |
| Ada               | 23"   |
| Paw Paw           | 23"   |
| Saranac           | 21"   |
| Holland           | 12"   |
| Big Rapids        | 12"   |
| Lansing           | 9"    |

National Weather Service  
Grand Rapids, Michigan



Almost all of this snow fell over three days: Nov. 17, 18, and 19





# November 17-20, 2022 Snow Event

## Outcomes







# November 17-20, 2022 Snow Event

## Outcomes

**LIVE GRAND RAPIDS**

**LIVE U.S. 131 - GRAND RAPIDS**

**WINTER WEATHER ALERT** **KENT CO. ROAD COMMISSION GIVES UPDATE ON ROADS** 5:07 29°

Courtesy of WOODTV





# Partner Feedback

On Weekly S2S Briefings

## Since the November 2022 event...

- Weekly emails and slides sent to ~30 transportation partners in Kent County
- Focuses exclusively on the 8-14 day timeframe
- Another big event occurred leading up to Christmas (~ 2 ft of snow + blizzard conditions)
- Sought partner feedback after giving them advanced notification on December 13, 2022:

### Public Works Official

“[This] helped with our decision yesterday to send a full shift to nights. This time of year, if the extended forecast indicates that we are going to have below average snowfall and warmer than average temperatures, we will often keep more employees on day shift. The 1 to 2 weeks out forecast is key, as a typical 7 day does not provide for enough time to make this transition.”

### County Roads Official

“We share the outlooks with our entire operations supervision staff. Helps vehicle maintenance staff prepare specialized equipment. We put wings on motor graders. Prepped front plows. Helps plan for work activities. Are we looking at snow removal operations, guardrail repair, tree trimming, drainage. While we are all very reactive in most of the work we do, relying on a short term forecast, the extended outlook lets us plan general activities long term.”





# Where We Go From Here

On Weekly S2S Briefings

## Partner comments for how to structure next winter's S2S briefings:

- Bulleted emails work great. Not too much info or too complicated.
- 3-slide attachments should continue to be used
- Mentioning both what is likely to happen but also what could happen
- If possible, include these forecast elements on the 8 to 14 day time scale:
  - Pavement temperatures
  - Ground temperatures
  - Frost depth

## Partner feedback on S2S briefings for the spring/summer:

- Include thunderstorm risk, heat information, above average precipitation, etc.
- Helps them plan a variety of outdoor work responsibilities







# CPASW 2023

Asheville, NC

# Thank you!

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