

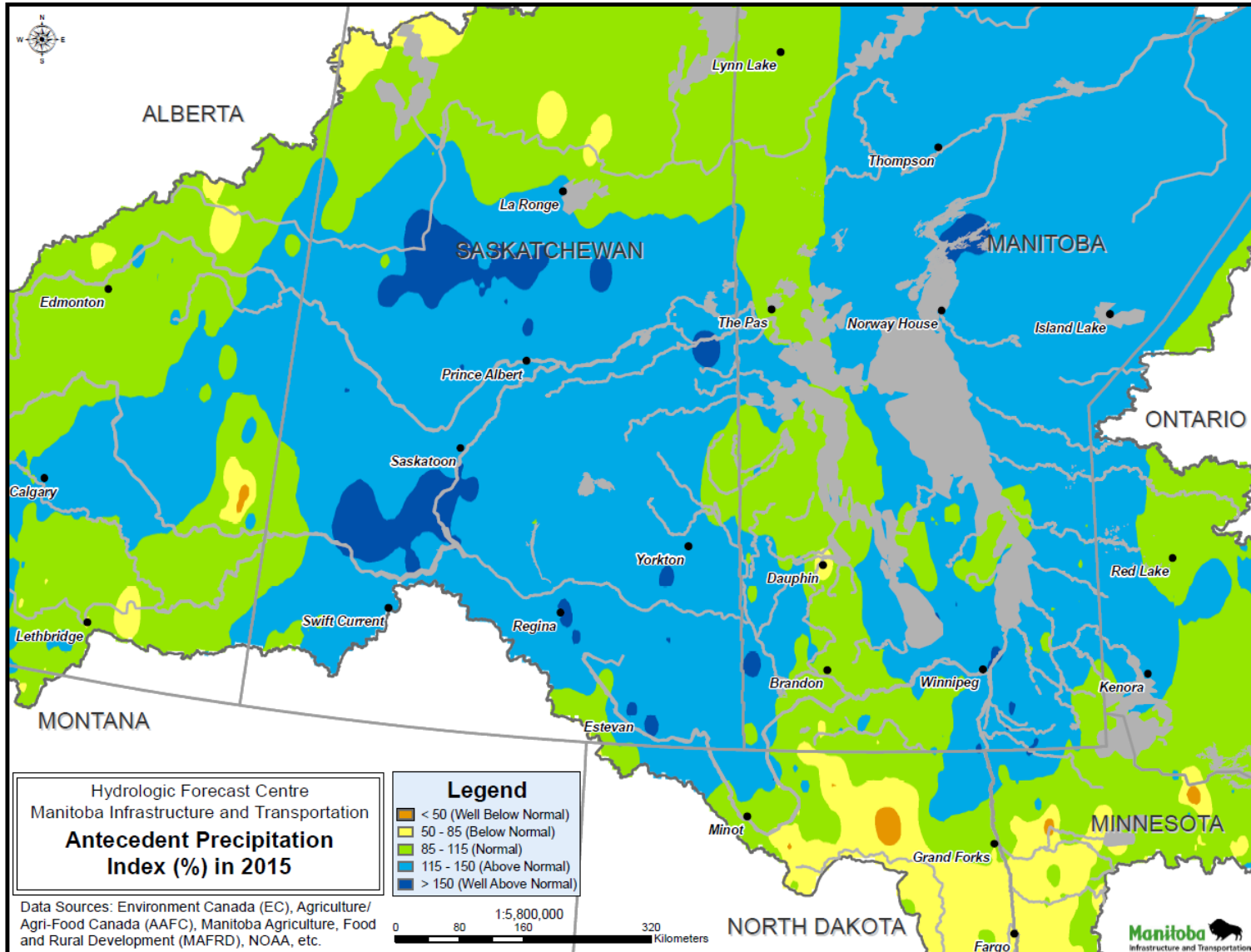
2016 FIRST SPRING FLOOD OUTLOOK FOR MANITOBA

**Hydrologic Forecast Centre
Manitoba Infrastructure and Transportation
Winnipeg, Manitoba**

February 29, 2016

1. Soil Moisture

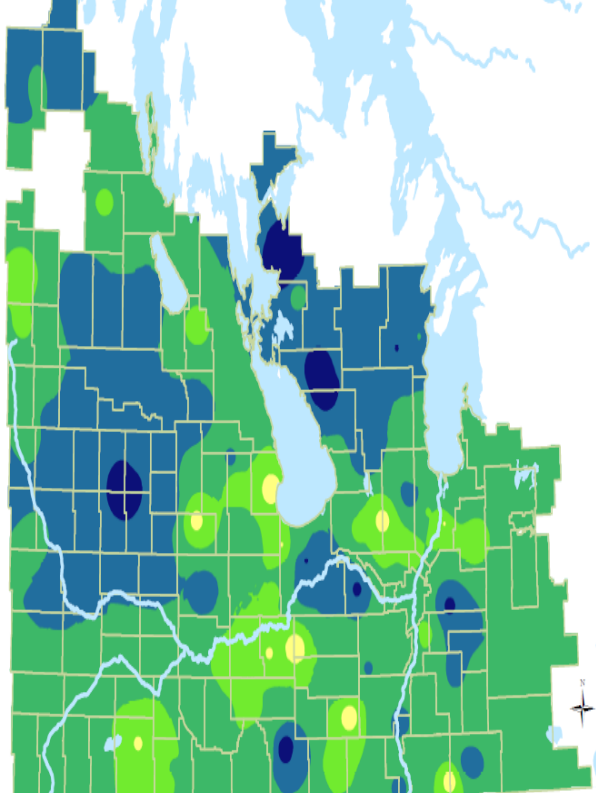
Antecedent Precipitation Index – API %



Field Measurement

Soil Moisture - Fall 2015

Amount of Available Moisture in the Top Root Zone (0-30 cm)



Amount of Available Moisture

- < 25 mm
- 25 - 50 mm
- 51 - 75 mm
- 76 - 100 mm
- > 100 mm

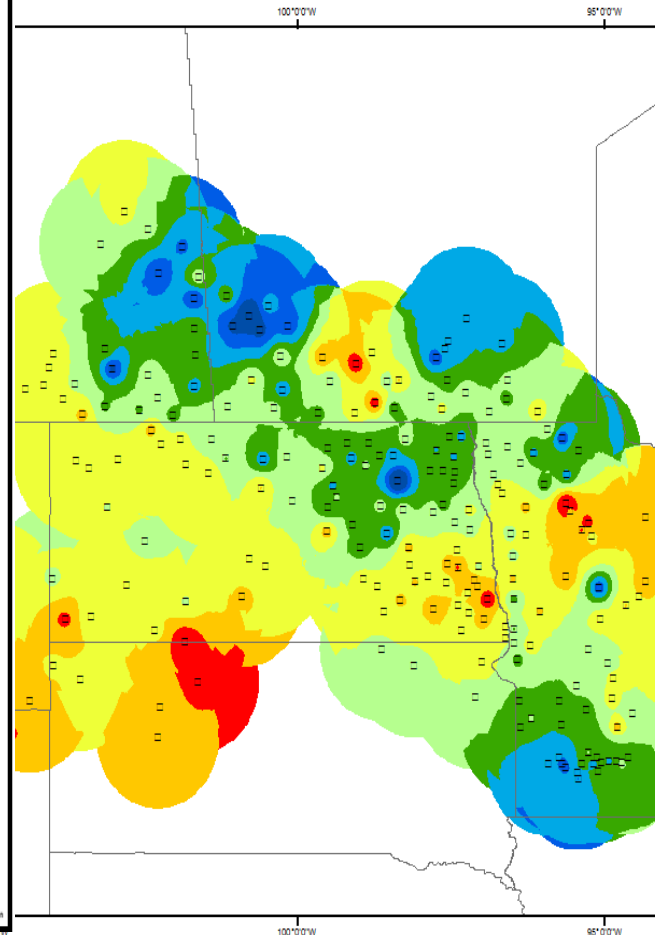
The colours on this map represent measured soil moisture values from soil samples collected at 105 sites across Manitoba. The sampling sites were chosen based on locations whose soils represent the surrounding areas. Soil properties such as bulk density, field capacity and wilting point were estimated for each soil based on their physical characteristics.

For more information, contact M. Riekman, Manitoba Agriculture, Food and Rural Development.

Date: 2016-01-15

1:2,500,000

Gamma Survey



Soil Moisture (upper 20 cm)

October 4 - October 20, 2015

Percent (%)

- 0 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 35
- 35 - 40
- 40 - 45
- 45 - 64

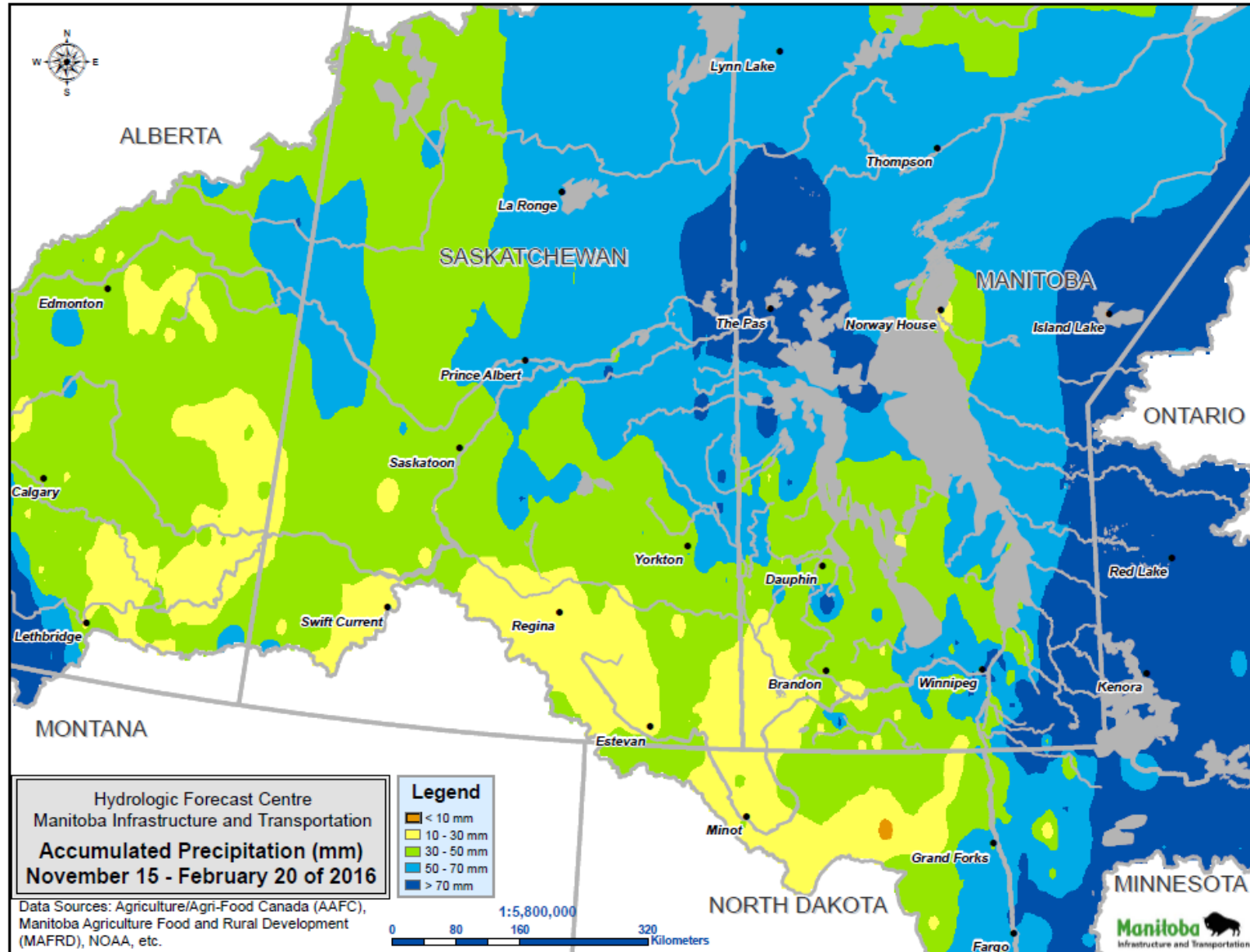
- Airborne Measurement
- Airborne Interpolation



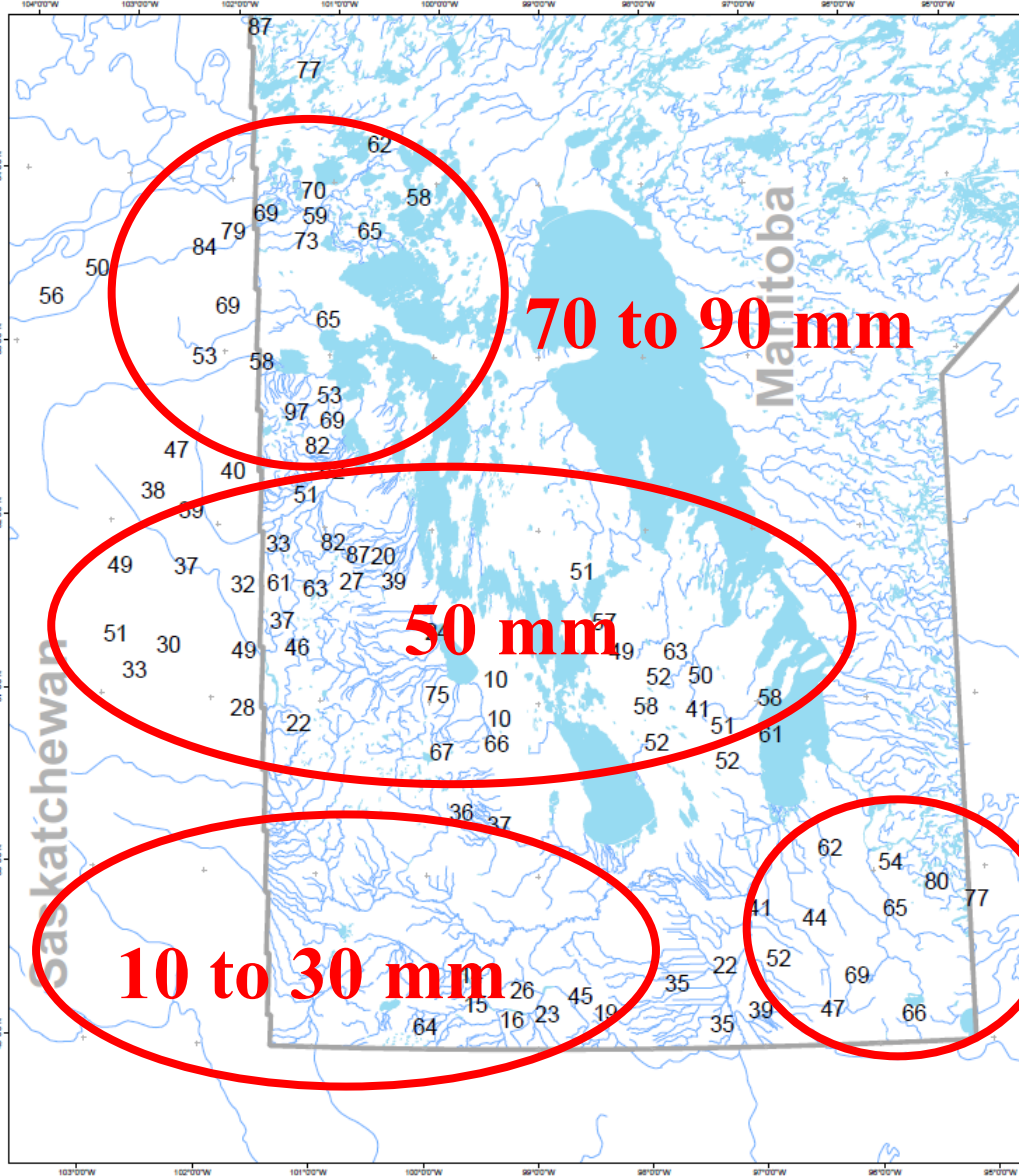
National Operational Hydrologic Remote Sensing Center

2. Winter Precipitation

Gauge Precipitation (mm)



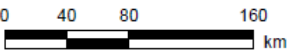
SNOW SURVEY MAP



**Snow Survey (mm)
February 11- 18**

60 to 80 mm

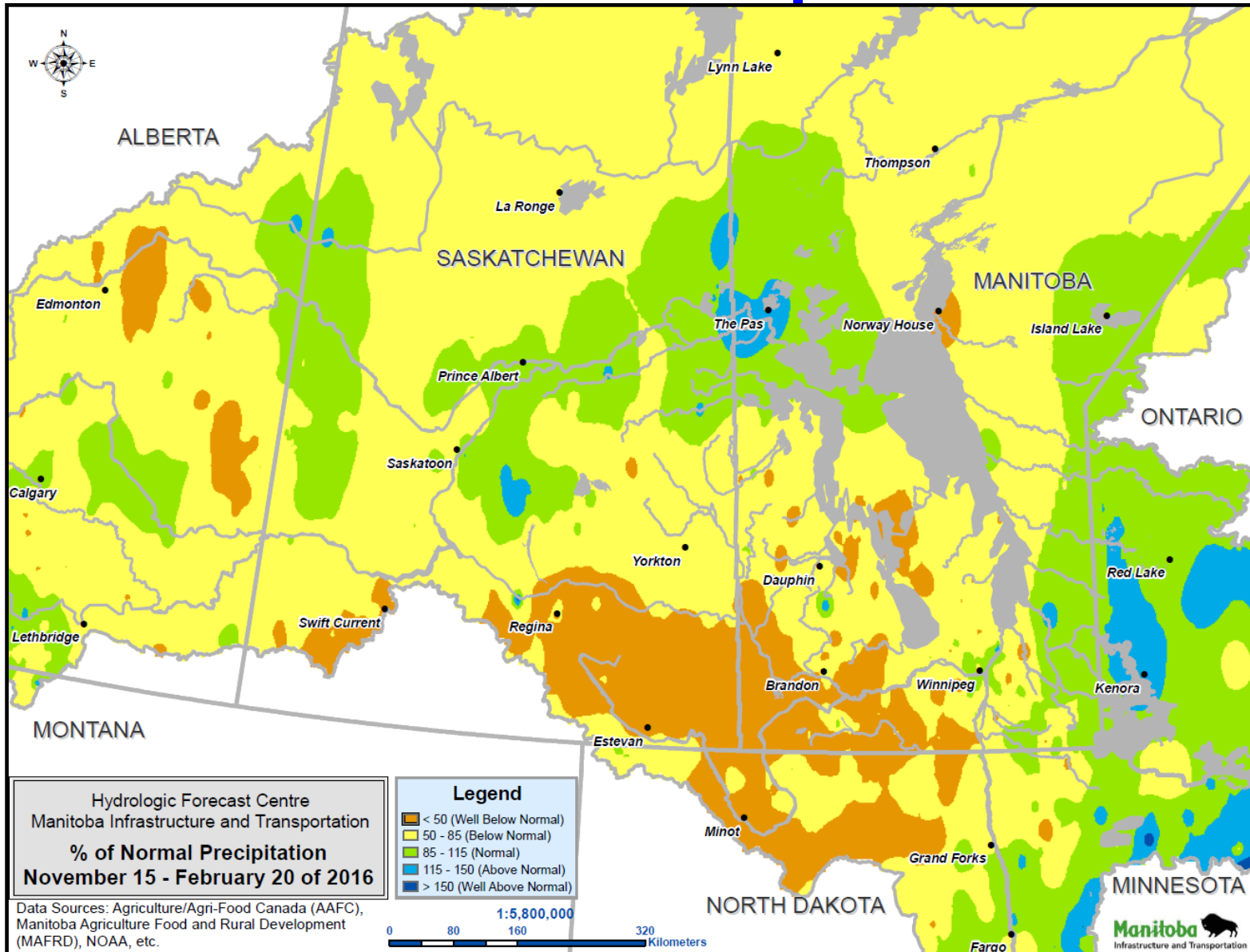
Water Content (mm)
February 11-18th, 2016



Manitoba and Eastern Saskatchewan



% of Normal Precipitation



3. Frost Depth (m)

- **Normal to slightly less than normal**
 - **Above normal temperature and below-average snow cover**
 - **Below normal frost depth means the soil can absorb more melting water**

4. Base Flows and Levels

- **Above Normal at Western Manitoba Watersheds**
- **Normal for the rest of the province**

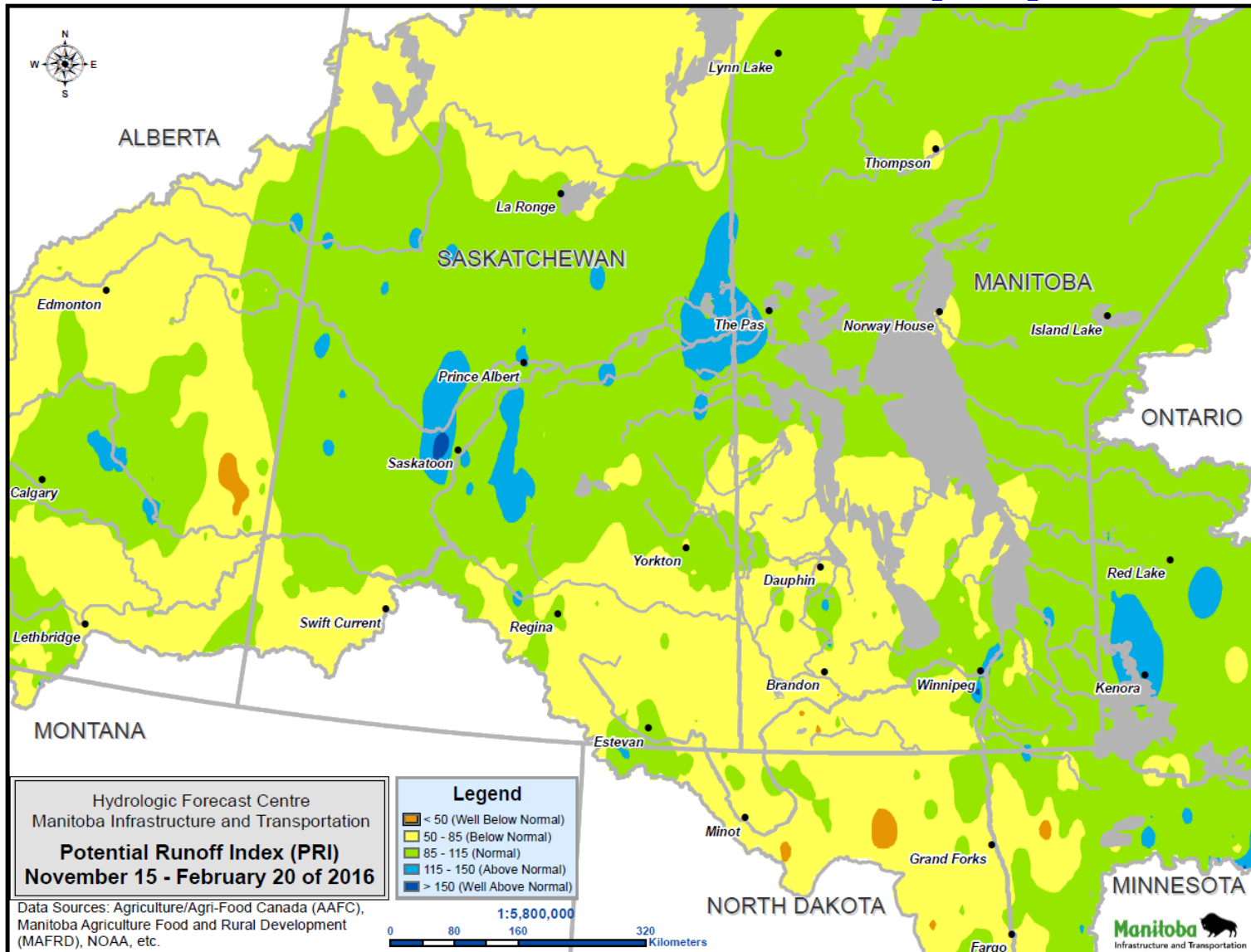
5. River Ice Thickness

- **Normal to below normal**
 - **Above normal temperatures &**
 - **Below normal snow cover to provide insulation**

6. Future Weather

- **Long-term Forecasts are unreliable**
 - **Conditions could change significantly**
- **Long-term Precipitation Forecast**
 - **Normal to below normal**
- **Long-term Temperature Forecast**
 - **Normal to above normal**
 - **Potential for early melt**

Runoff Potential (%)



	Risk of Overland Flooding
Red River	Minor
Pembina River	Minor
South West Region (Souris R, etc)	Minor
Roseau River	Moderate
Assiniboine River	Moderate
Interlake Region	Moderate
Northern Manitoba & The Pas	Moderate
Major Lakes	Minor

Flood Outlook In Numbers

	Lower	Median	Upper
Red River – James Ave. (Ice Eliminated Level in feet)	8.3		17.5
Red River at Emerson	18,000	31,500	45,000
Qu’Appelle River at Welby	1,800	2,700	3,900
Assiniboine River at Brandon	2,700	3,800	5,600
Assiniboine River at Holland	3,900	5,500	7,700
Shellmouth Inflow in acre-feet	200,000	320,000	450,000

Operations Forecast

➤ Floodway

➤ Could be operated if flow will exceed the forecasted unfavourable condition

➤ Portage Diversion

➤ Could be operated under unfavourable weather conditions

➤ Shellmouth Dam

➤ Level is expected to be between 1402 ft and 1404 ft after the spring runoff.