

# **March Flood Outlook Summary**

**Manitoba Hydrologic Forecast Centre**

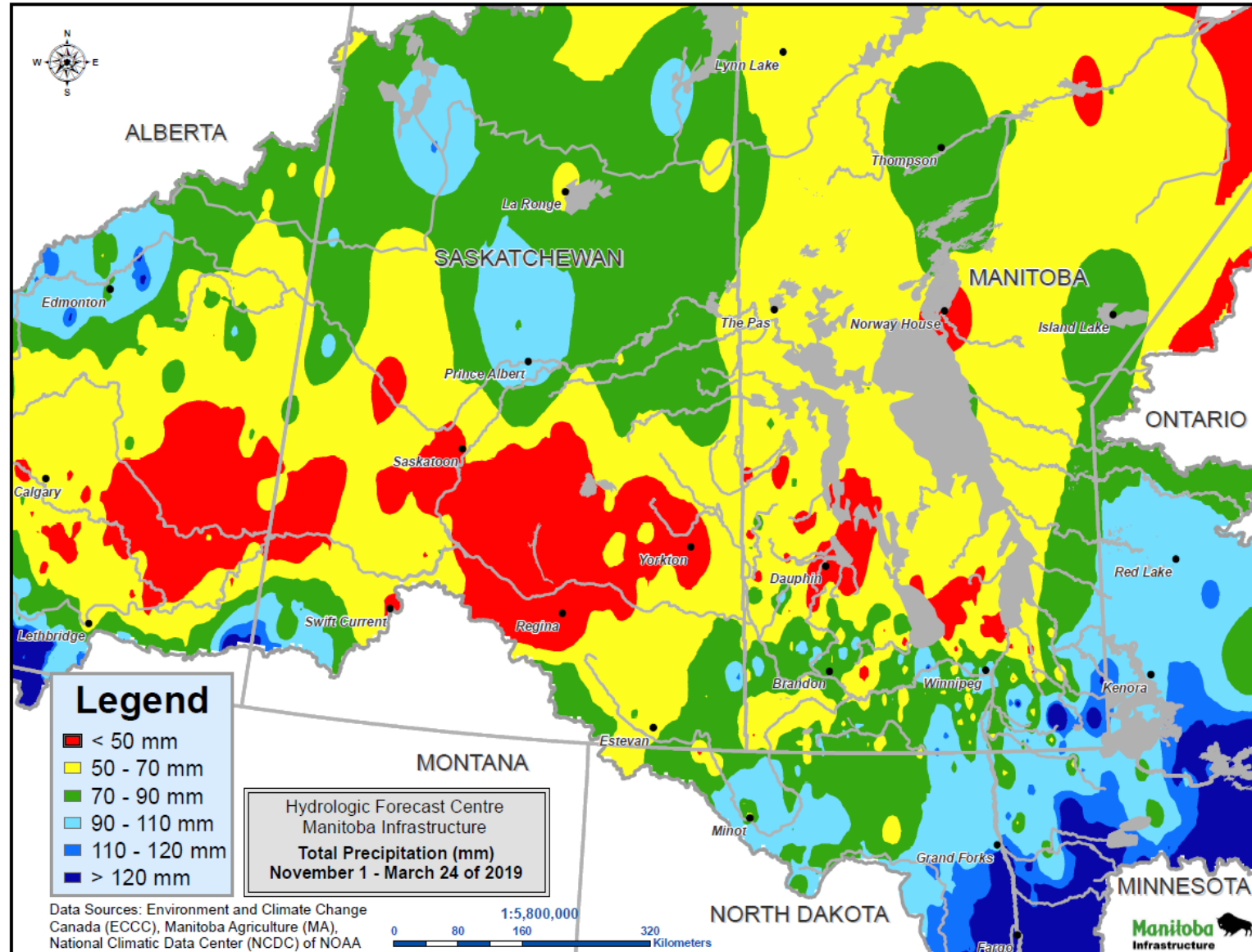
Manitoba Infrastructure

March 27, 2019

# **Winter Precipitation**

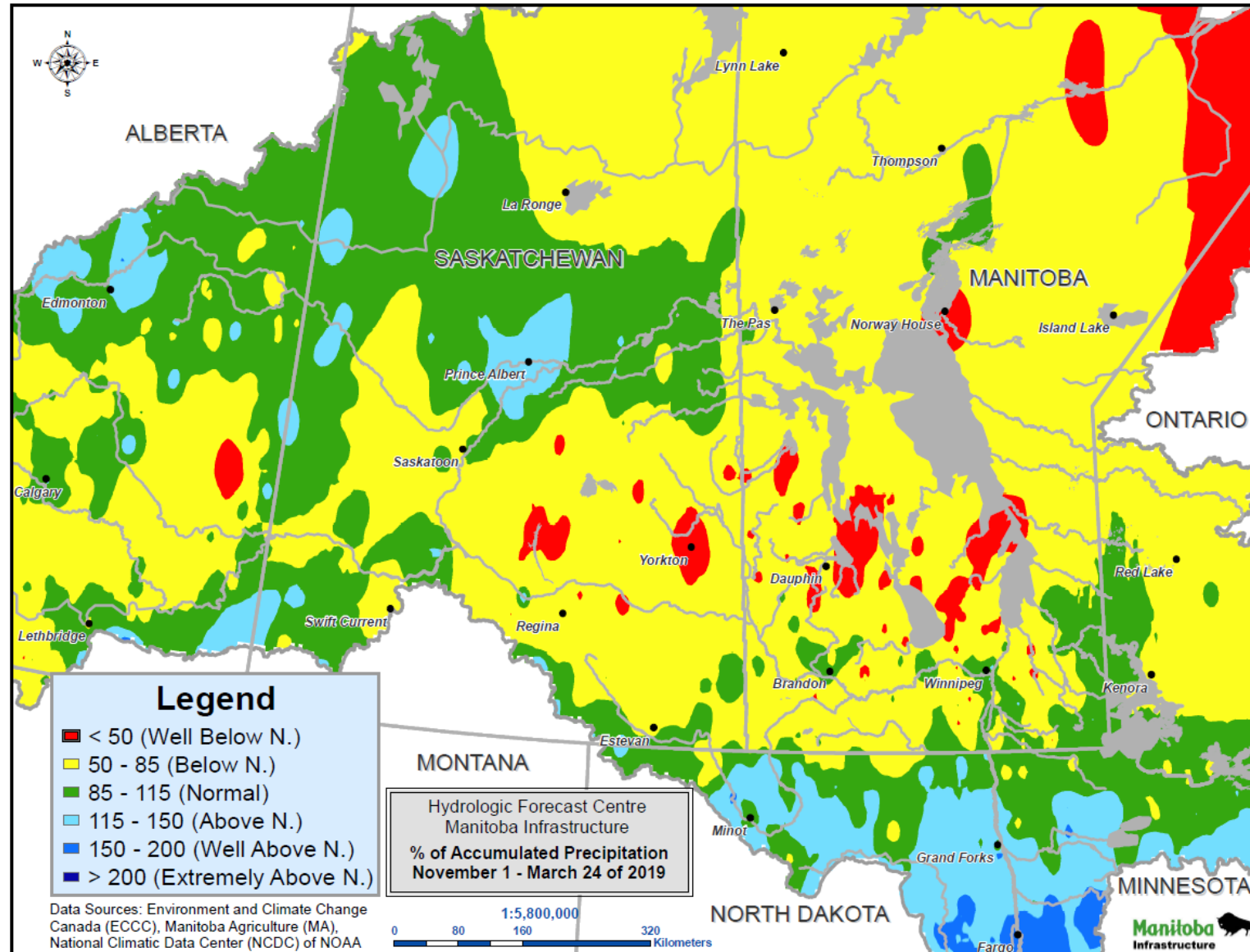
# Winter Precipitation (mm)

- Highest accumulation in the southern basins including the Red and Souris Rivers
- Lowest accumulation in central, western and northern regions



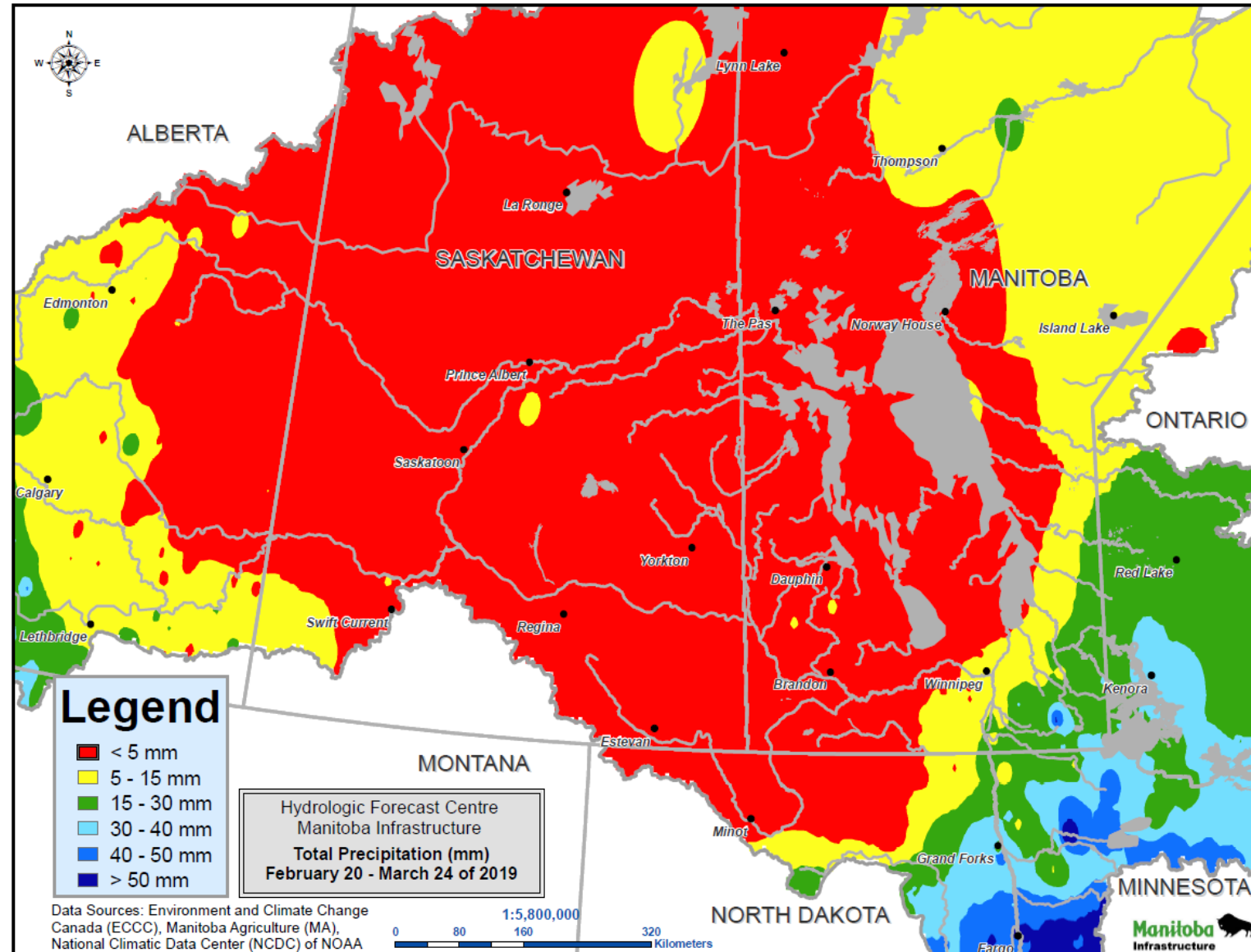
# Winter Precipitation (%)

- Normal to well above normal in the Red, Souris and Saskatchewan River basins
- Below normal in all other basins



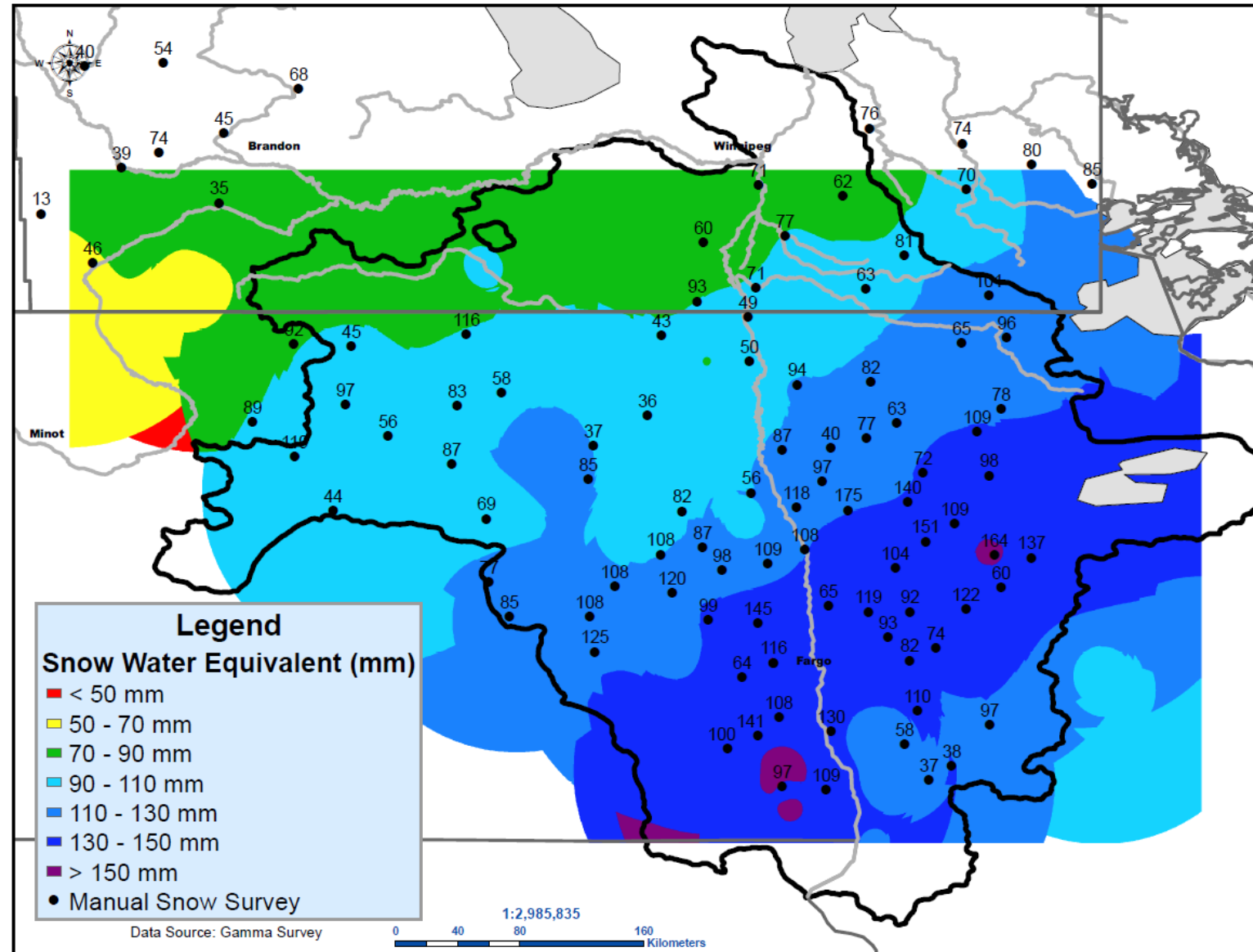
# Winter Precipitation - Last 35 Days (mm)

- Last 35 days were typically dry within central and western basins with little to no recorded precipitation
- Two major precipitation systems occurred in the Red River basin and south east corner of the province



# Snow Water Equivalent - Red River Basin (mm)

- Highest snow water equivalent in southern portion of the Red River basin with in the US
- Snow water equivalent varies between 60 to 150 mm

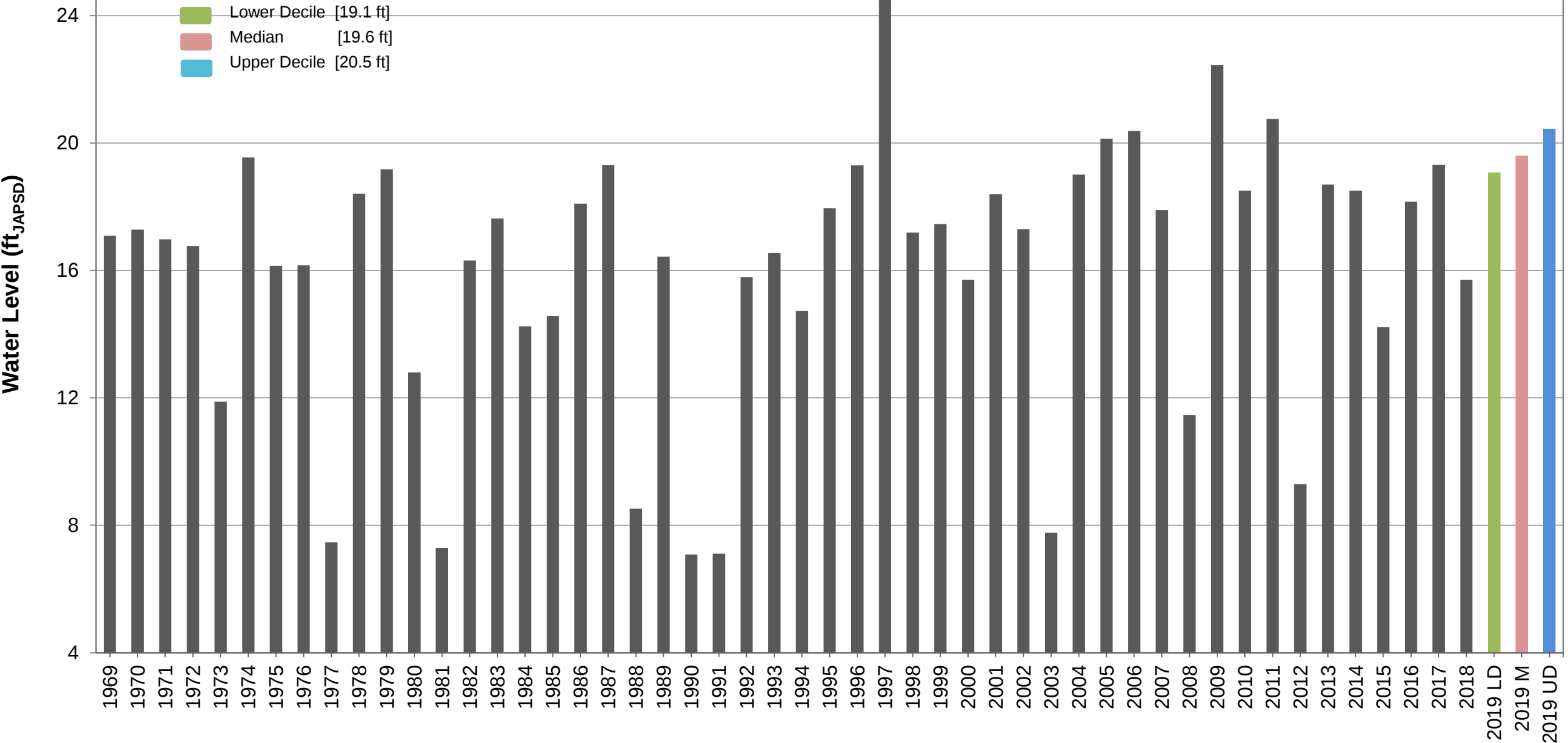


# **Red River and Tributaries Forecast**

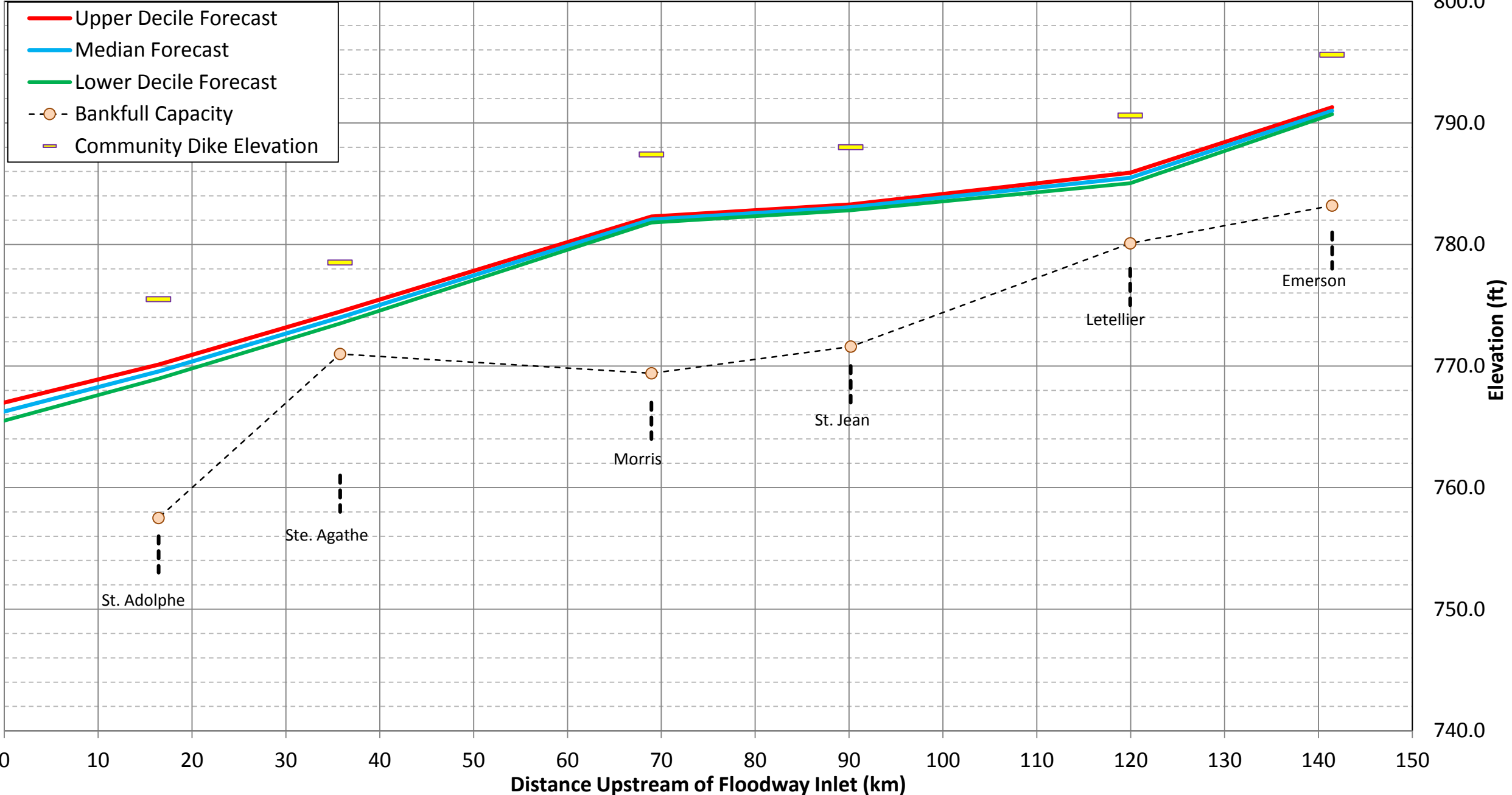
# Red River Valley Forecasted Levels

| Community (Gauge Location)              | Forecasted Levels (ft)          |                          |                                 | Upper Decile Level in excess of 2009 flood (ft) |
|-----------------------------------------|---------------------------------|--------------------------|---------------------------------|-------------------------------------------------|
|                                         | Lower Decile<br>( ~ 2009 flood) | Median<br>(> 2009 flood) | Upper Decile<br>(>> 2009 flood) |                                                 |
| Emerson                                 | 790.7                           | 791.0                    | 791.3                           | 0.5                                             |
| Letellier                               | 785.0                           | 785.5                    | 785.9                           | 0.7                                             |
| St. Jean                                | 782.8                           | 783.1                    | 783.3                           | 0.4                                             |
| Morris                                  | 781.8                           | 782.0                    | 782.3                           | 0.4                                             |
| Ste. Agathe                             | 773.5                           | 774.0                    | 774.5                           | 0.8                                             |
| St. Adolphe                             | 769.0                           | 769.6                    | 770.1                           | 0.9                                             |
| City of Winnipeg (James Avenue Station) | 19.0                            | 19.6                     | 20.5                            |                                                 |

Red River at James Avenue, Winnipeg (ft<sub>JAPSD</sub>)



Maximum Water Surface Profile  
2019 Spring Forecast - March 27

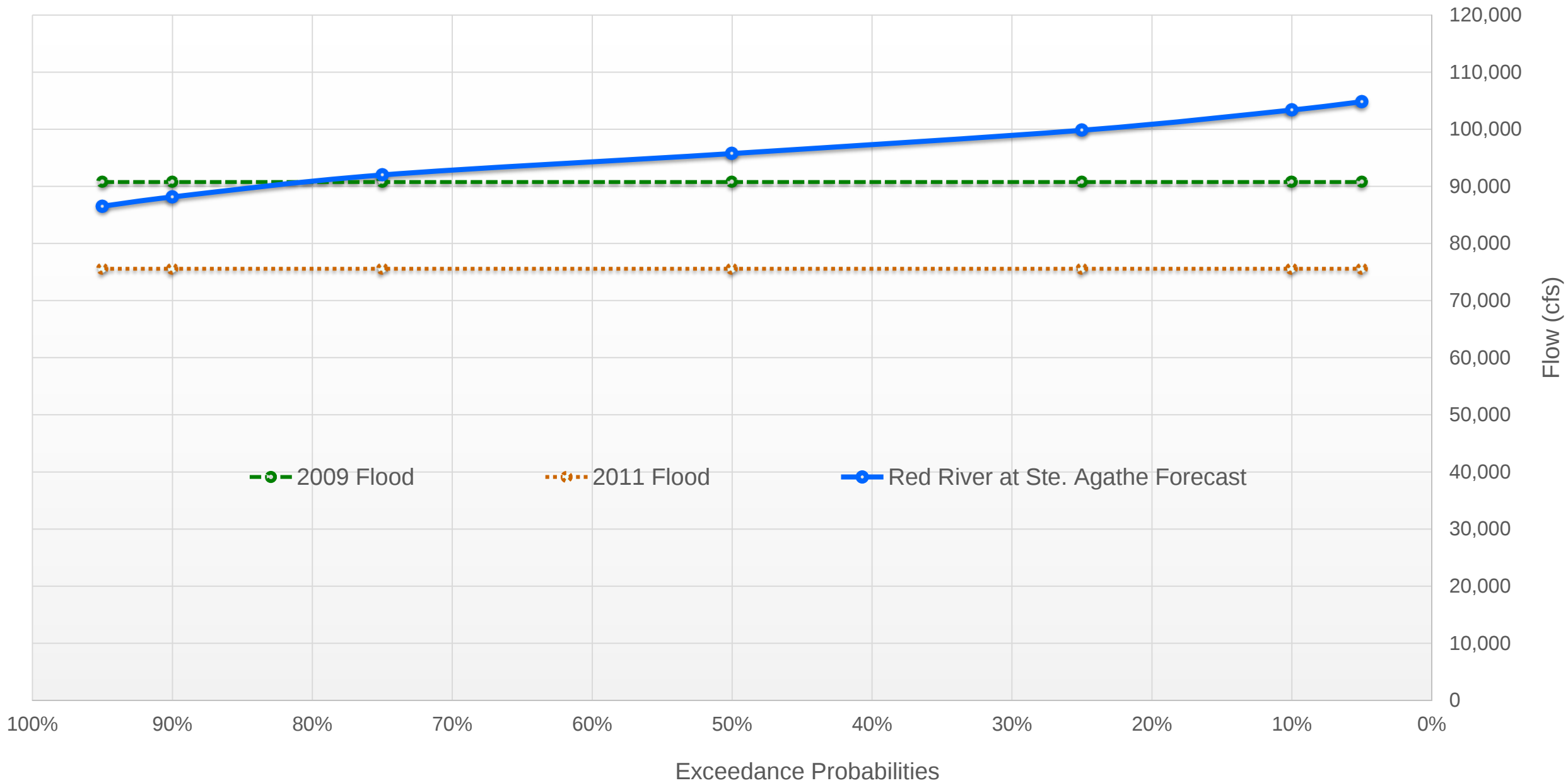


# Red River and Tributaries

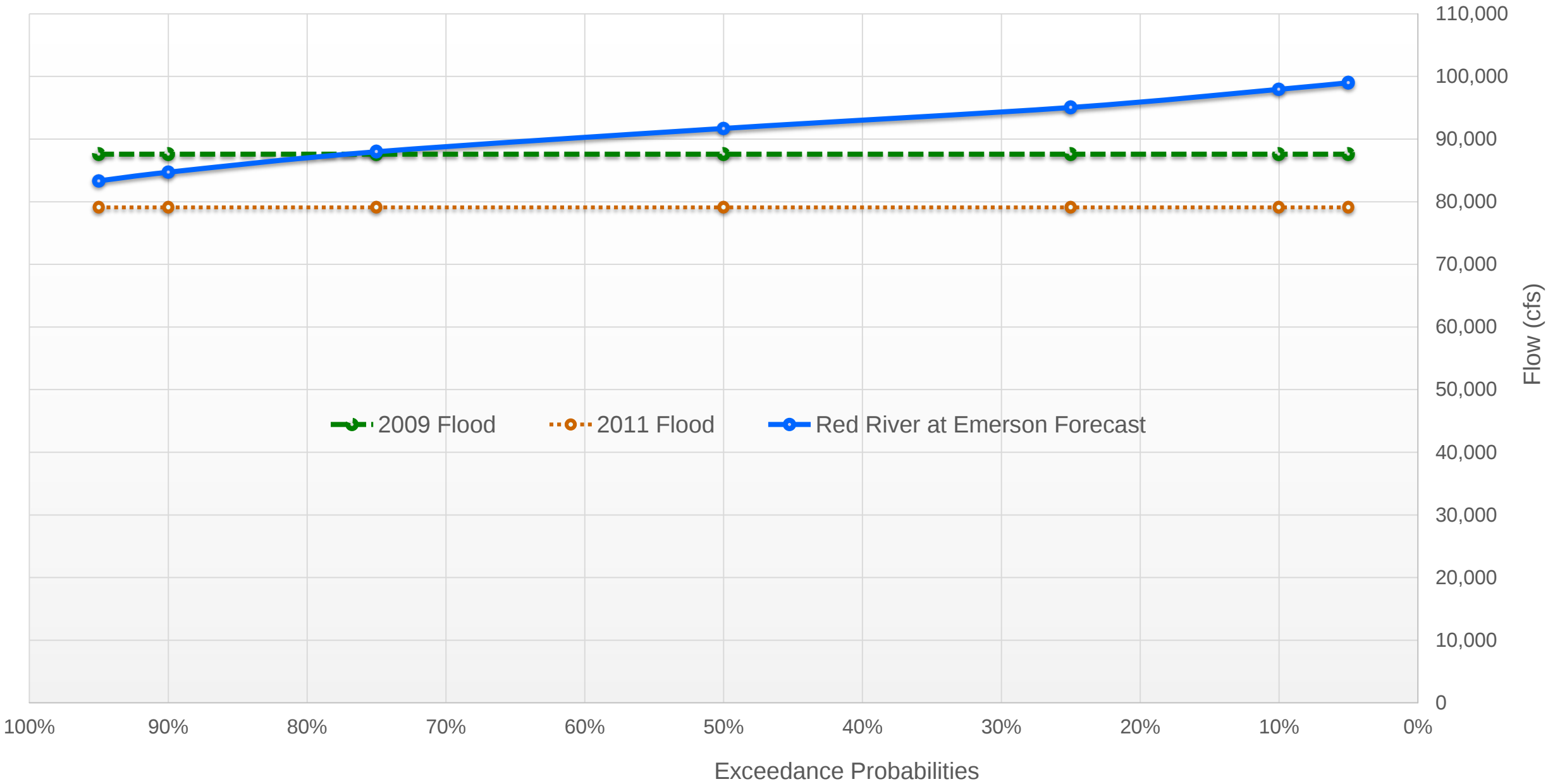
## Forecasted Flows

| Exceedance Probability              | Red River and Tributaries Forecasted Flows (cfs) |                      |                         |                           |
|-------------------------------------|--------------------------------------------------|----------------------|-------------------------|---------------------------|
|                                     | Red River at Ste. Agathe                         | Red River at Emerson | Pembina River at Gretna | Roseau River at Gardenton |
| Lower Decile (Favourable Weather)   | 88,000                                           | 85,000               | 5,800                   | 3,500                     |
| Median (Normal Weather)             | 96,000                                           | 92,000               | 7,400                   | 4,100                     |
| Upper Decile (Unfavourable Weather) | 103,000                                          | 98,000               | 8,600                   | 4,700                     |

# Red River at Ste. Agathe - Forecast Flow Probabilities

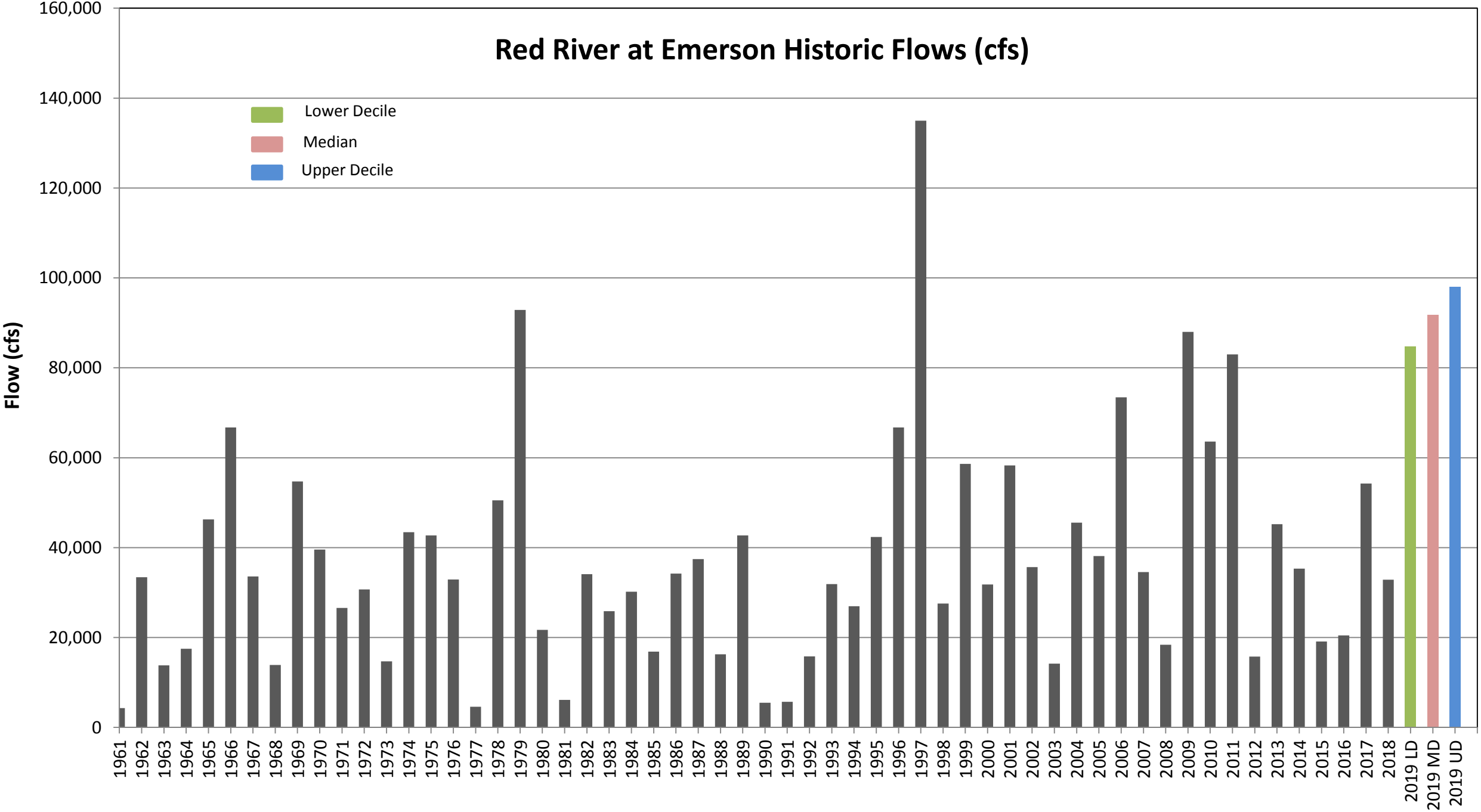


Red River at Emerson - Forecast Flow Probabilities



Red River at Emerson Historic Flows (cfs)

- Lower Decile
- Median
- Upper Decile



# **Red River and Tributaries**

## **Forecasted Water Levels**

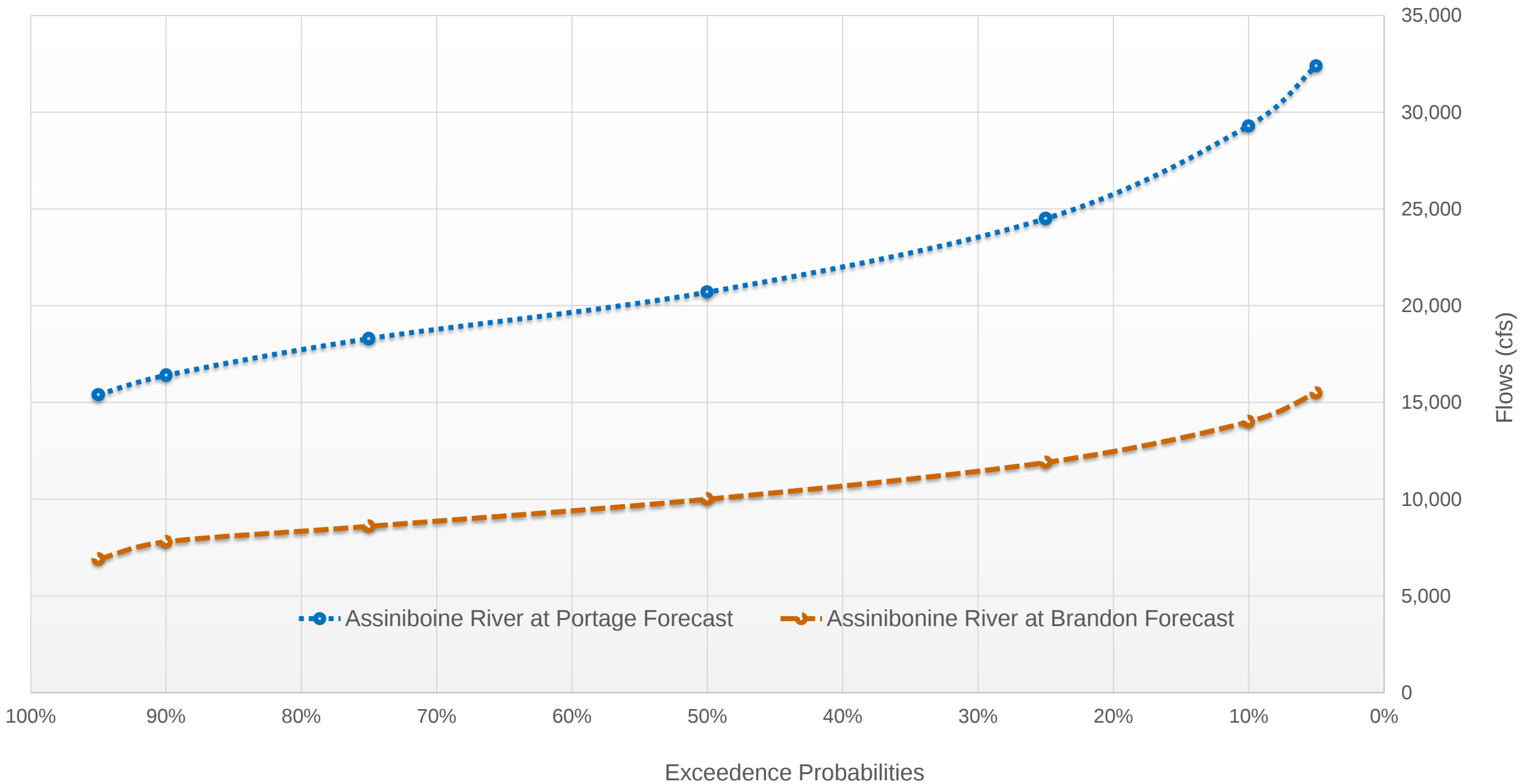
- Normal and Unfavourable weather: Above 2009 levels
- Favourable weather: Close to 2009 levels
- Winnipeg at James Avenue Gauging Station:
  - Unfavourable weather: 20.5 ft
  - Normal weather: 19.6 ft
  - Favourable weather: 19.0 ft

# **Assiniboine River Forecast**

# Assiniboine River Forecasted Flows

| Exceedance Probability              | Assiniboine River Forecasted Flows (cfs) |         |         |         |         |
|-------------------------------------|------------------------------------------|---------|---------|---------|---------|
|                                     | Russell                                  | Miniota | Brandon | Holland | Portage |
| Lower Decile (Favourable Weather)   | 1,500                                    | 4,100   | 7,800   | 15,000  | 16,000  |
| Median (Normal Weather)             | 2,300                                    | 6,000   | 10,000  | 20,000  | 21,000  |
| Upper Decile (Unfavourable Weather) | 3,400                                    | 8,700   | 14,000  | 28,000  | 29,000  |

Assiniboine River Forecasted Flows (cfs)



# Assiniboine River at Brandon Historic Flows (cfs)

- Lower Decile
- Median
- Upper Decile

Flow (cfs)

1961  
1962  
1963  
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2019 MD  
2019 UD



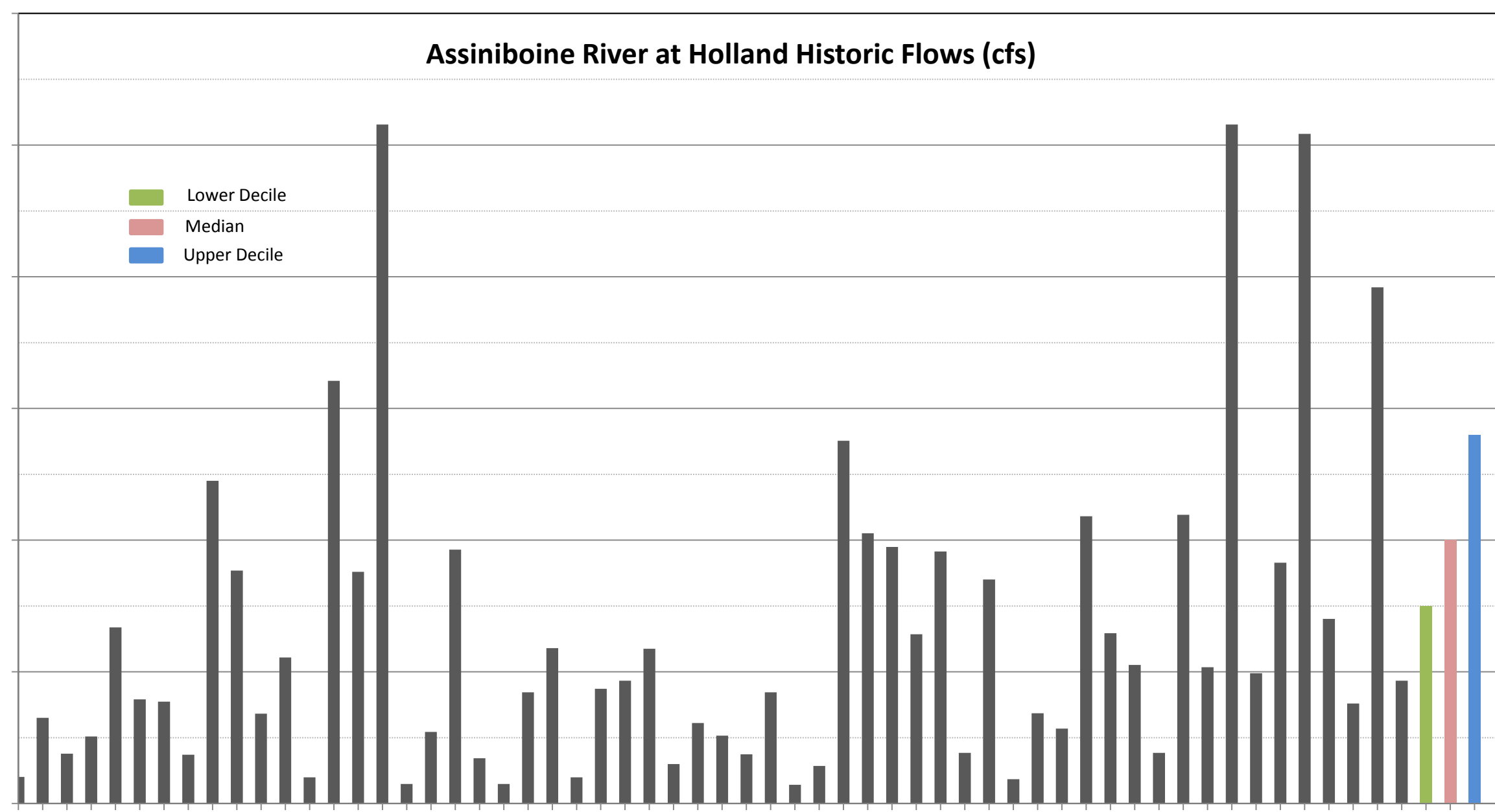
# Assiniboine River at Holland Historic Flows (cfs)

- Lower Decile
- Median
- Upper Decile

Flow (cfs)

60,000  
50,000  
40,000  
30,000  
20,000  
10,000  
0

1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 LD 2019 MD 2019 UD

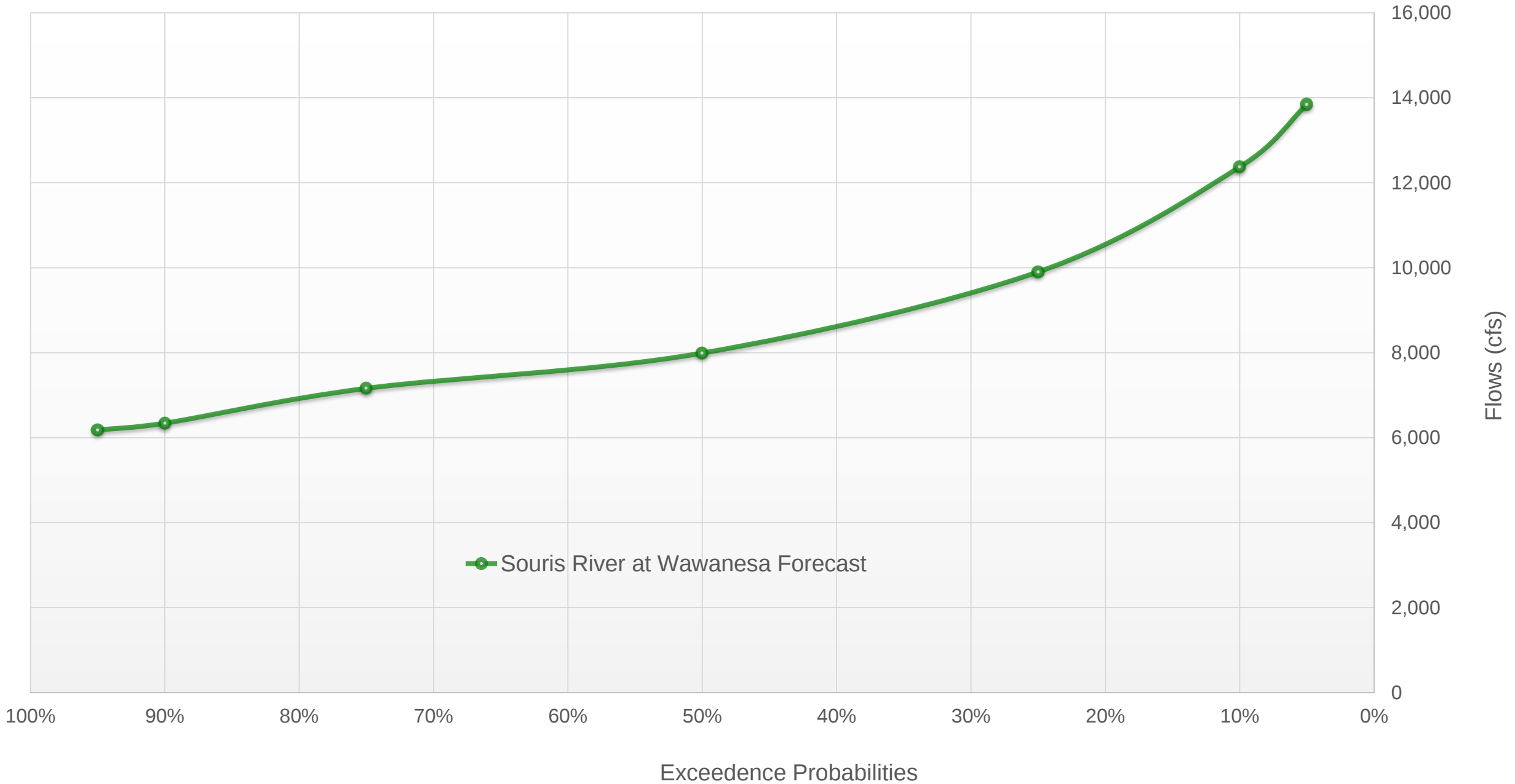


# **Souris River Forecast**

# Souris River Forecasted Flows

| Exceedance Probability              | Souris River Forecasted Flows (cfs) |        |          |
|-------------------------------------|-------------------------------------|--------|----------|
|                                     | Melita                              | Souris | Wawanesa |
| Lower Decile (Favourable Weather)   | 3,700                               | 5,800  | 6,300    |
| Median (Normal Weather)             | 4,800                               | 7,400  | 8,000    |
| Upper Decile (Unfavourable Weather) | 8,000                               | 11,200 | 12,400   |

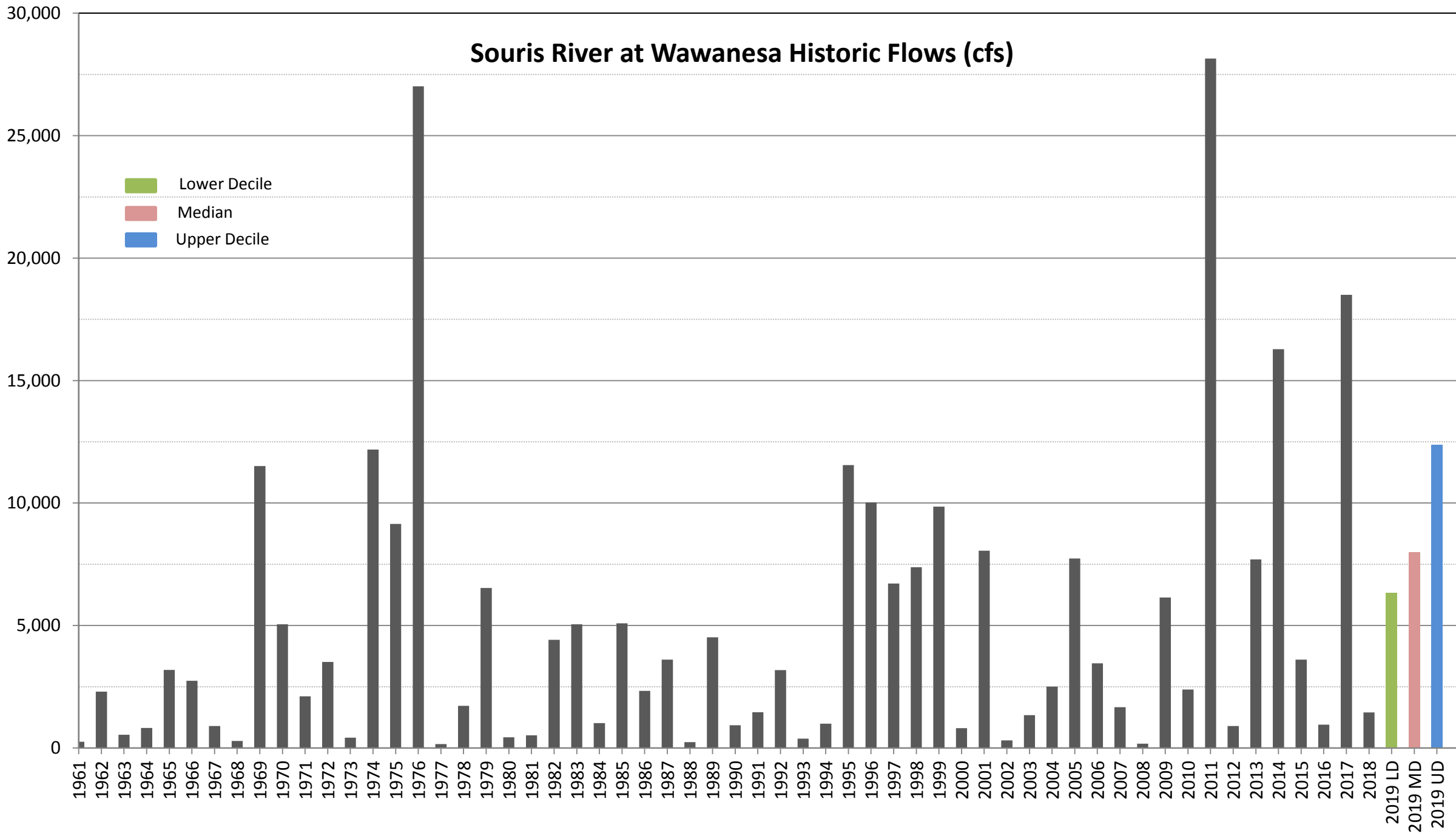
Souris River at Wawanesa Forecasted Flows (cfs)



# Souris River at Wawanesa Historic Flows (cfs)

- Lower Decile
- Median
- Upper Decile

Flow (cfs)



# **Assiniboine and Souris Rivers**

- High risk of moderate flooding (i.e. flooding of low-lying areas and agricultural lands)
- Water levels will be below top of community dikes
- Portage Diversion is expected to be operated

# **Central, Eastern & Northern Regions**

- Interlake and Whiteshell Lake areas
  - Low risk of overland flooding
- Northern Manitoba
  - Moderate risk of overland flooding along Saskatchewan and Carrot River
- Major Lakes: Minor risk of lake flooding and lakes are expected to be within desirable ranges
- Risk of ice jam related flooding due to above normal ice thickness