

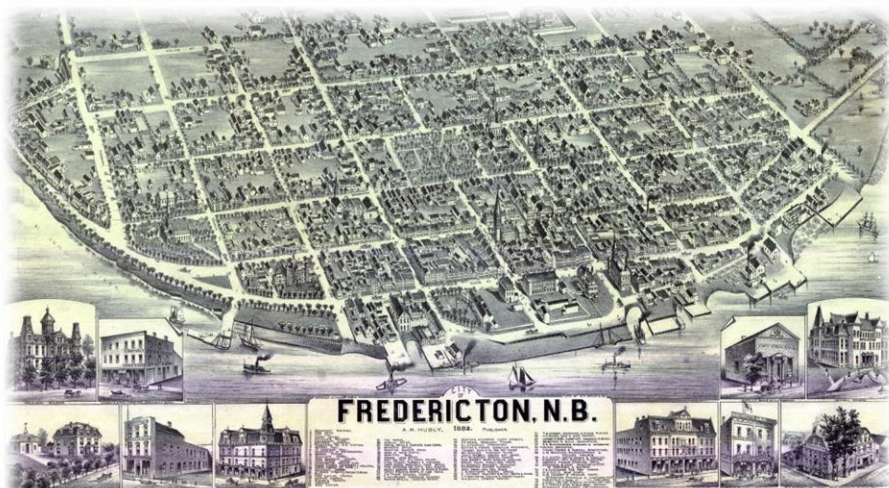


*Fredericton*

Flood of 2018: Keeping the City  
“Business as Usual” in a 15-Day Flood

# Fredericton 2018 Flood

- City built at the confluence of two rivers
- CBD/major employers located Downtown
- Equal population either side of river
- Daily commuting
- Low lying parking /roads



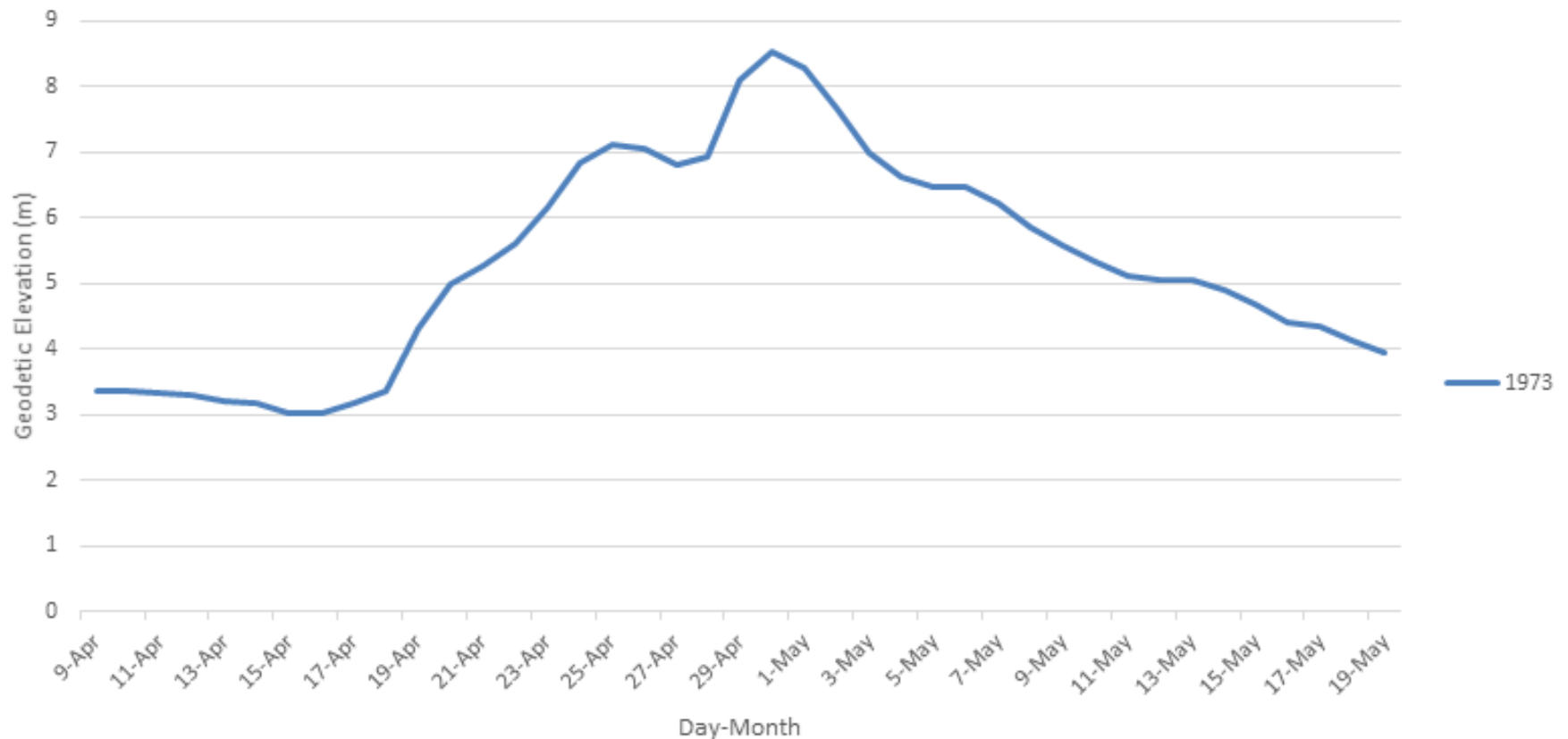
# Fredericton 2018 Flood

- Fluvial (Riverine) flooding
- Factors that attribute to flooding
  - Upper basin snow pack/water equivalency
  - Precipitation
  - Temperature fluctuations
  - Lower basin storage
  - Saint John Reversing Falls / tides
- Variability in flooding



# 1973 Water Elevation

Saint John River at Fredericton Station 01AK003  
1973 Water Elevation

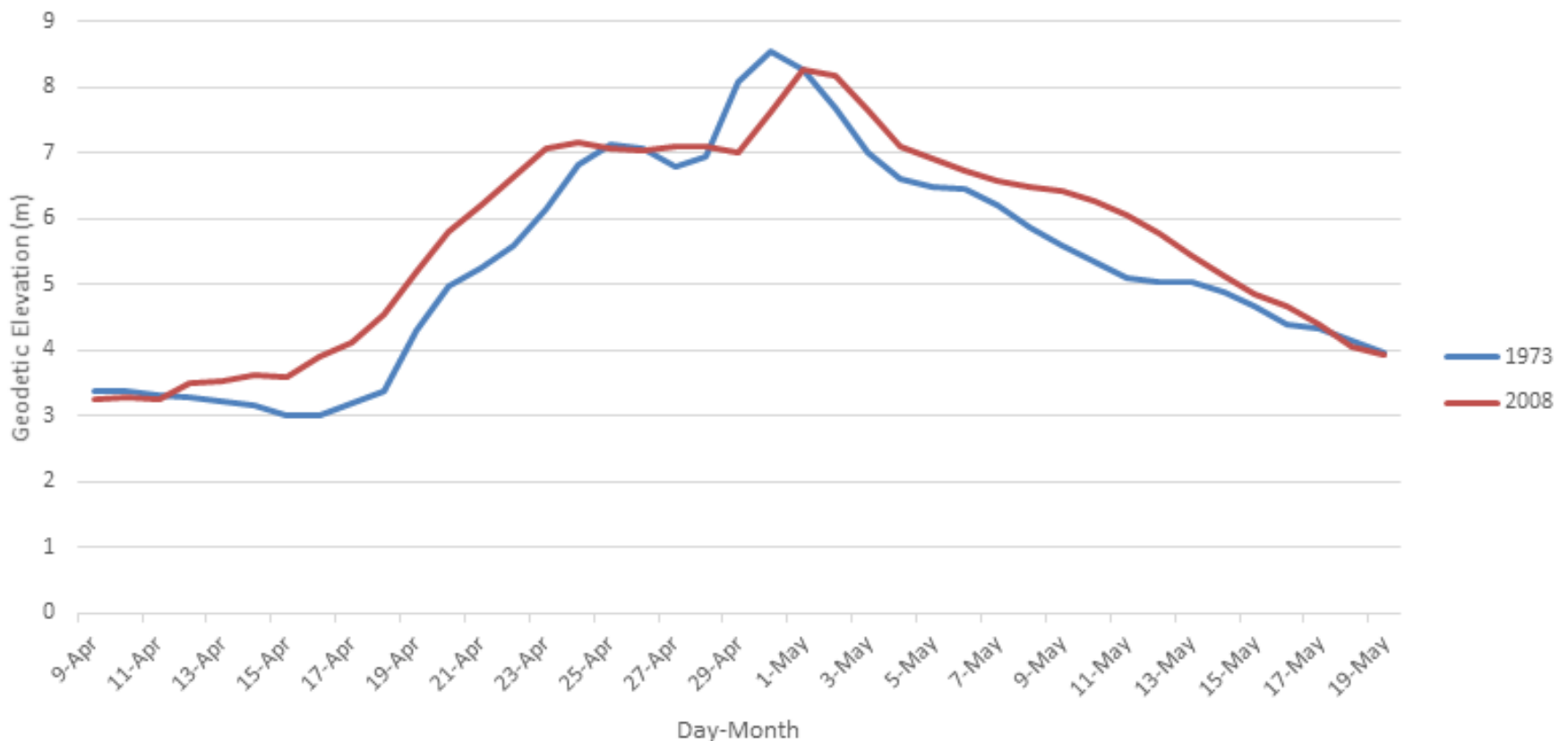




# 1973 & 2008

## Water Elevations Comparison

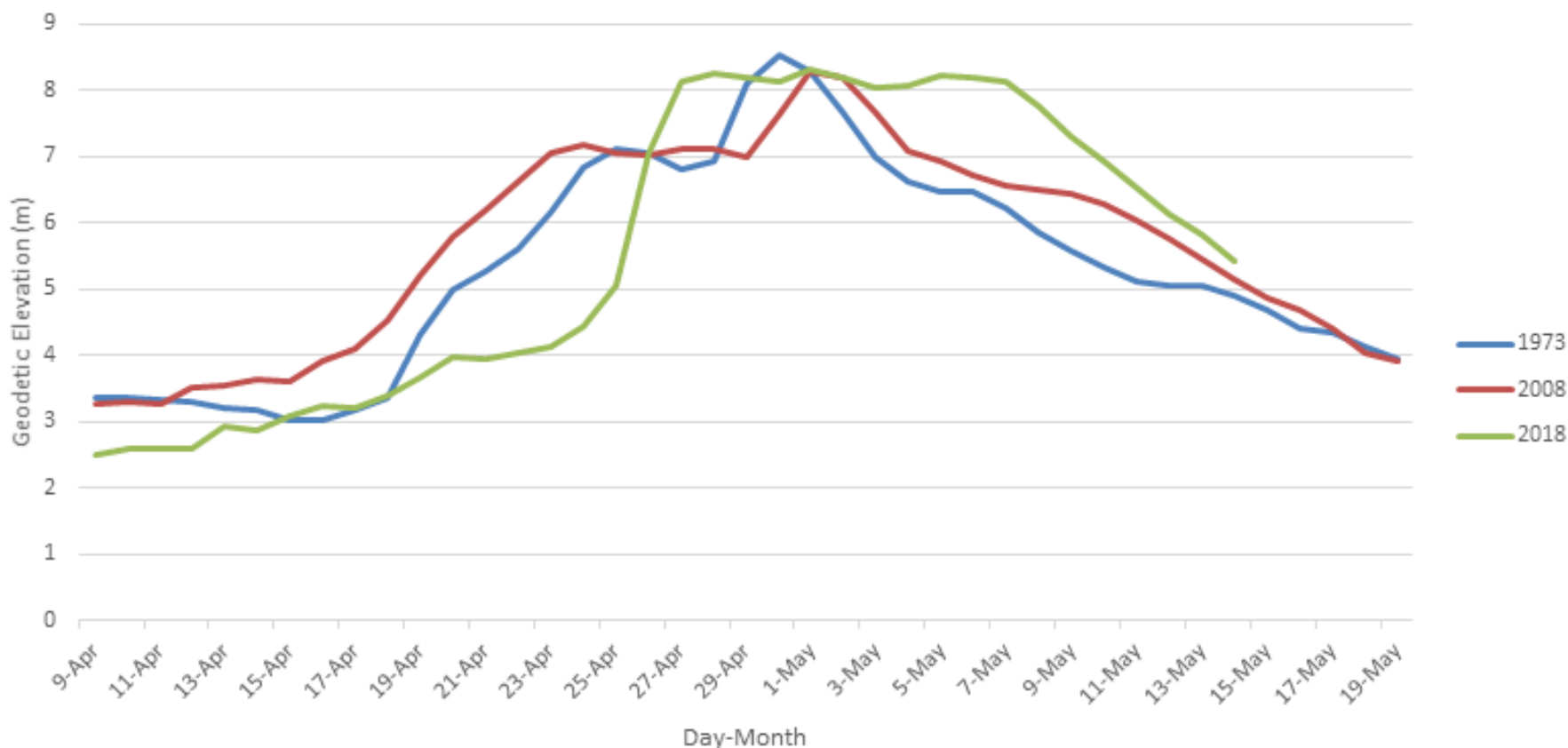
Saint John River at Fredericton Station 01AK003  
1973 & 2008 Water Elevation



# 1973, 2008, 2018

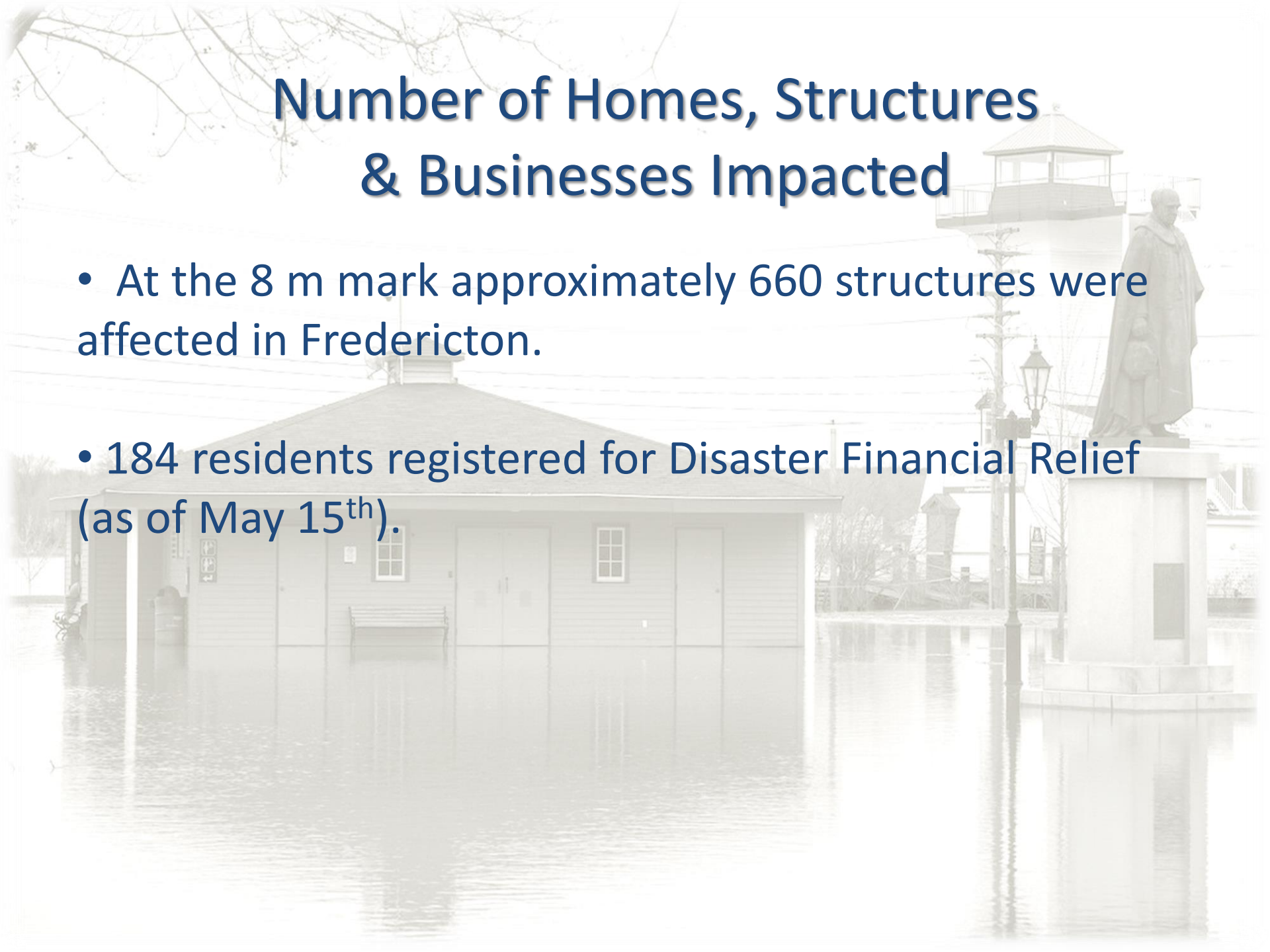
## Water Elevation Comparison

Saint John River at Fredericton Station 01AK003  
Major Flood Elevation Comparison



# Number of Homes, Structures & Businesses Impacted

- At the 8 m mark approximately 660 structures were affected in Fredericton.
- 184 residents registered for Disaster Financial Relief (as of May 15<sup>th</sup>).

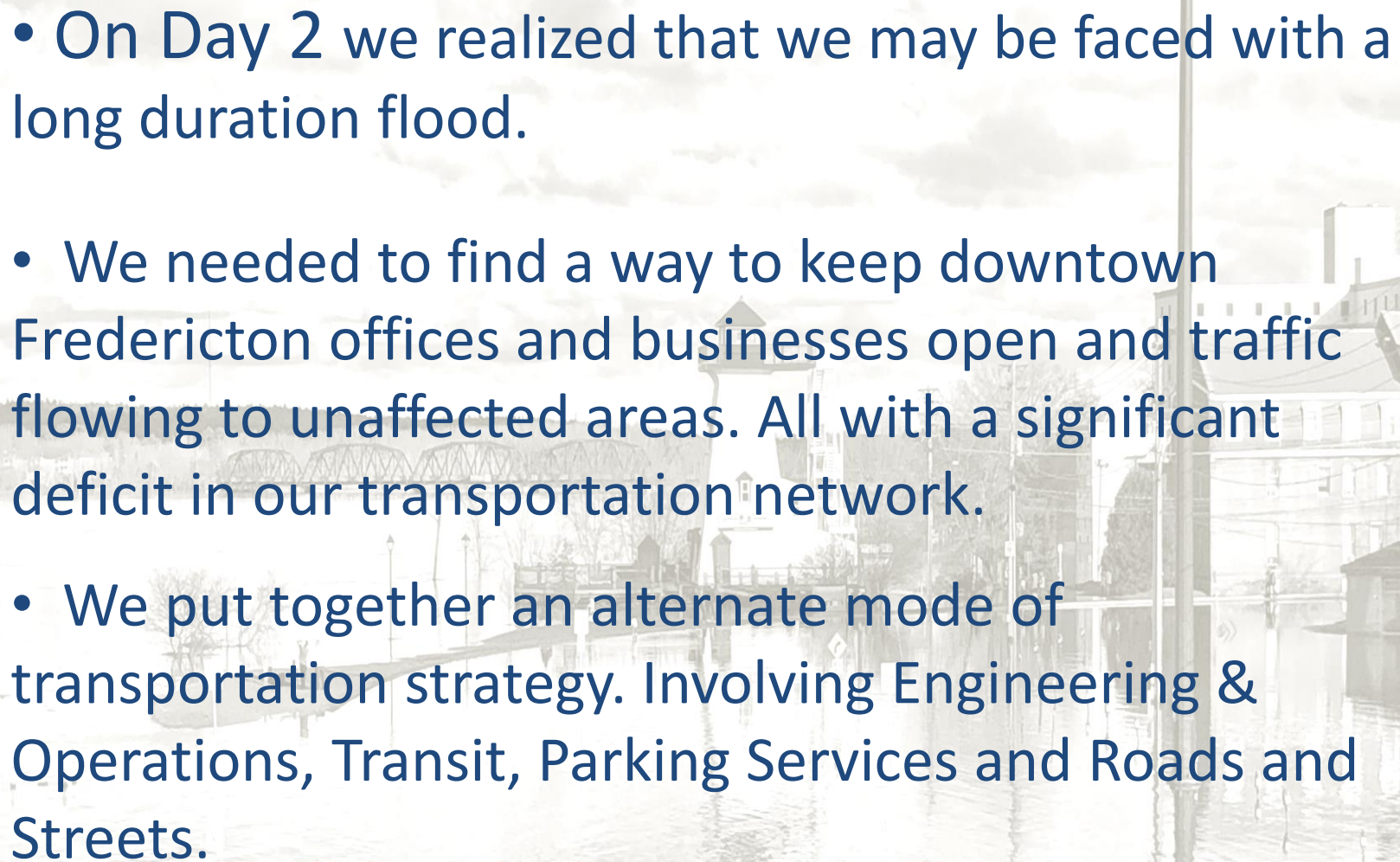


# Impact on the Downtown Core

- Bridge ramps needed to be closed affecting 78,000 daily commuters who travel into or through the downtown.
- Over 800 parking spots were under water.
- Over 50 streets were closed, many in the downtown.

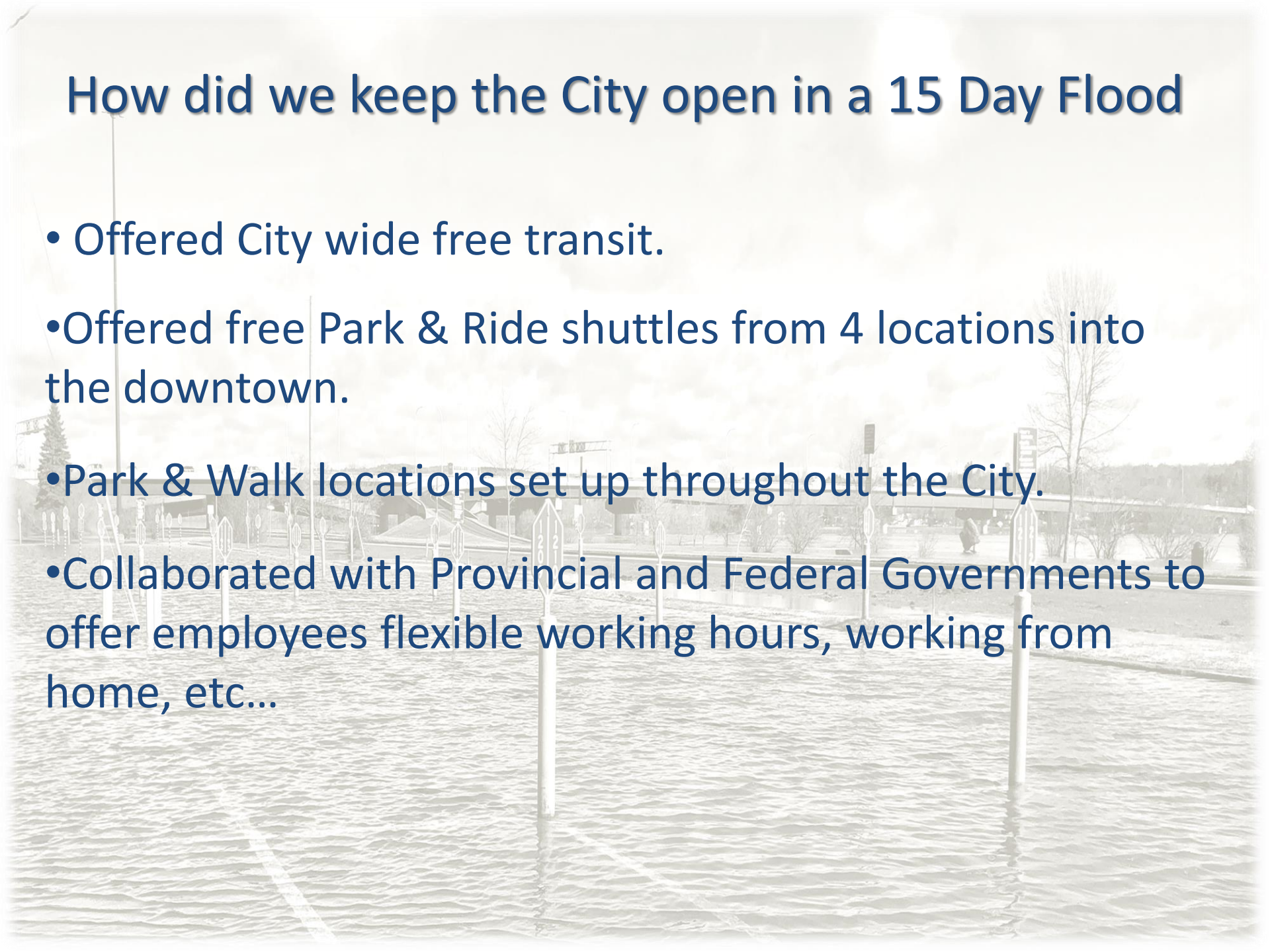




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- On Day 2 we realized that we may be faced with a long duration flood.
  - We needed to find a way to keep downtown Fredericton offices and businesses open and traffic flowing to unaffected areas. All with a significant deficit in our transportation network.
  - We put together an alternate mode of transportation strategy. Involving Engineering & Operations, Transit, Parking Services and Roads and Streets.

# How did we keep the City open in a 15 Day Flood

- Offered City wide free transit.
- Offered free Park & Ride shuttles from 4 locations into the downtown.
- Park & Walk locations set up throughout the City.
- Collaborated with Provincial and Federal Governments to offer employees flexible working hours, working from home, etc...





- Reconfigured traffic pattern on bridge to help flow.
- Encouraged residents to walk, bike and carpool.
- Rewarded residents who did use alternate transportation.





# Fredericton EMO Preparedness

- Monthly Meetings
- 20 – 25 attendees internal & external partners
- Builds good working relationships
- Emergency Response Plan reviewed & exercised





# EMO Partners

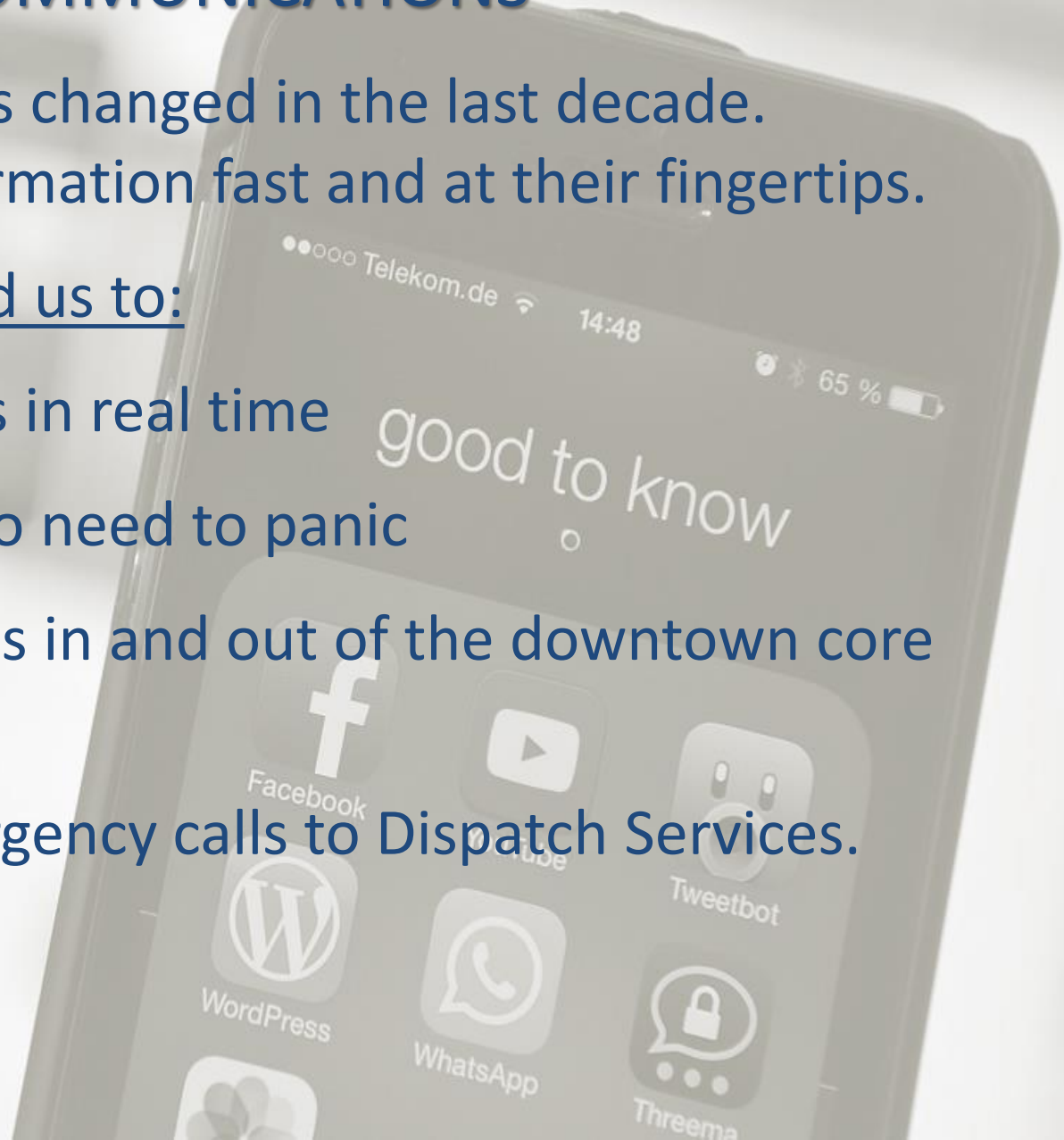
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- *Canadian Red Cross*
  - *Salvation Army*
  - Meals on Wheels
  - FARC
  - *York Sunbury Search & Rescue*
  - CBI Home Health
  - Horizon Health
  - Ambulance NB
  - Bell Aliant
  - NB Power
  - York Manor
  - NB Health
  - *UNB*
  - *NBEMO*
  - *Samaritan's Purse*
  - *NB Social Development*
  - Fredericton Airport
  - Village of New Maryland
  - Town of Oromocto
  - *School District (Anglo West)*
  - Enbridge Gas
  - *Roadway Operations (Internal)*
  - *Water & Sewer (Internal)*
  - *Building Services (Internal)*
  - *Transit (Internal)*
  - *IT (Internal)*
  - *Fredericton Police*
  - *Fredericton Fire*
  - *Communications/911 (Internal)*

# COMMUNICATIONS

Communications has changed in the last decade. Residents want information fast and at their fingertips.

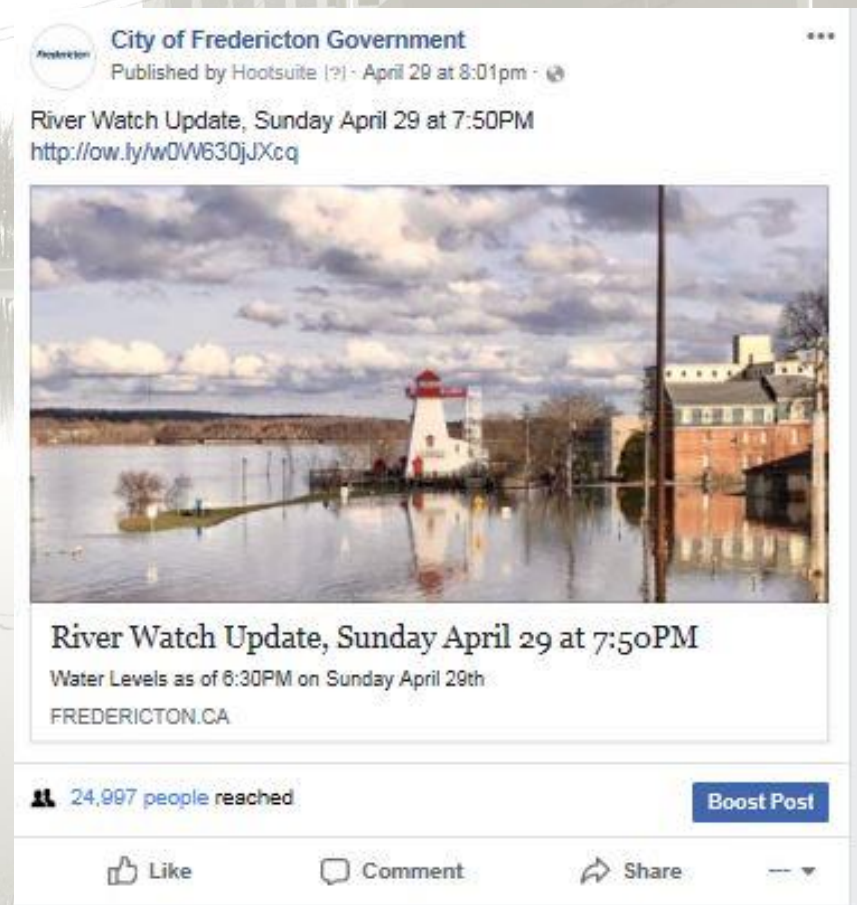
## Social media allowed us to:

- Reach our residents in real time
- Ensure there was no need to panic
- Help move residents in and out of the downtown core with ease.
- Minimize non emergency calls to Dispatch Services.



# Flood Related Facebook Statistics

- 156 original posts made regarding the flood, In comparison 412 total posts were made in 2017.
- Over the 15 days of the flood the number of people following our page increased by 22%.
- Some of our Facebook posts had a reach of over 100,000.





# Facebook Live

- Facebook Live was used daily to communicate our message to residents. It allowed them to hear information they needed to know, fast and efficiently.

- Facebook Live video's were viewed 70,800 times for over 49,200 minutes in the first 5 days of the flood.





- Our Facebook and Twitter pages were key communication tools for our residents. Our Facebook page had 36,000 engagements (comments and shares). In all of 2017 we had a total of 24,000 engagements.

## Reaction of residents in comments on Facebook & Twitter

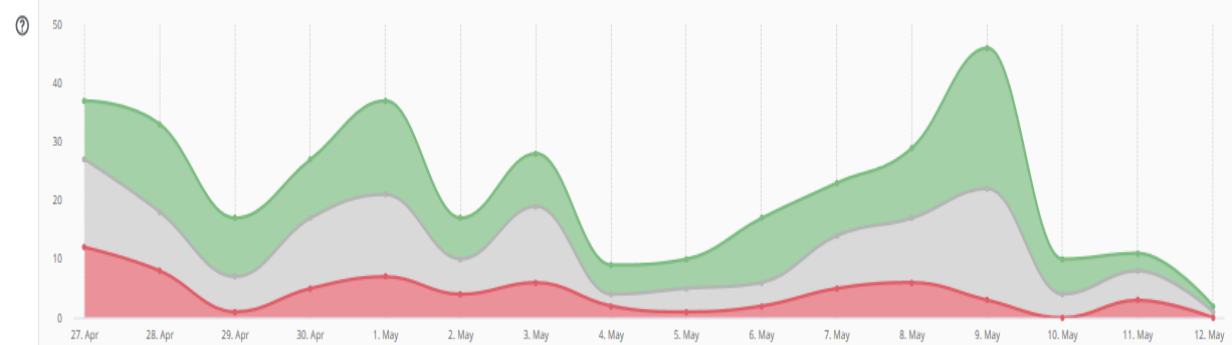
Neutral Comments: 827

**Negative: 283**

**Positive: 484**

Inbound Messages by Sentiment

● positive ● neutral ● negative



# Web Cam Usage

Web cams allowed residents to:

- View water levels without coming too close to the fast moving water.
- Allowed residents to check traffic on the bridge.
- Allowed them to see that downtown offices & businesses were open.

Webcam	2017	2018
River View	3,065	44,489
Westmorland Street Bridge	2,248	44,186
City Hall & Downtown Street View	2,107	35,922
Officer Square	1,942	32,583 (off line mid week due to flood)

# What Worked Well

- No fatalities or injuries to residents or staff during this prolonged event.
- Flow of traffic on the Westmorland Street Bridge (removal of concrete barriers to ease traffic flow)
- Relationships with external partners.
- Traditional media i.e.. Radio and television
- Use of social media
- Web Cams

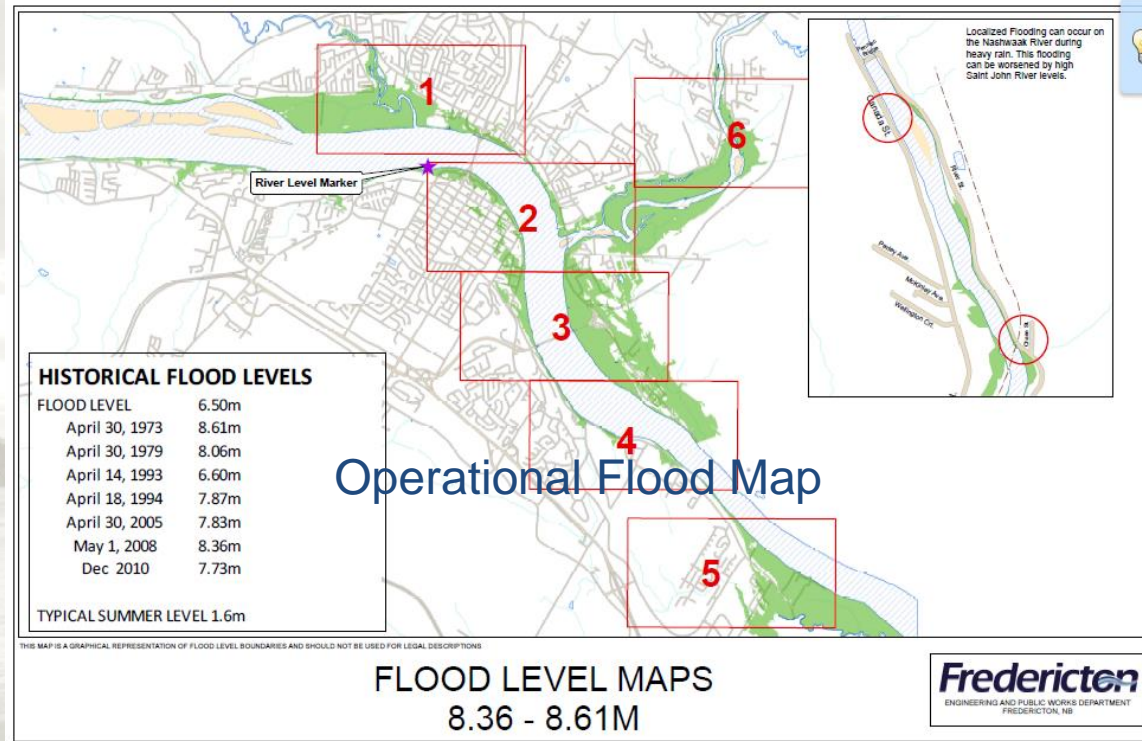


- Good internal working relationships between all departments.
- Ability to reduce calls to dispatch services.
- Positive relationship with our elected officials.
- Ability to keep businesses open in downtown core.





# Past Adaptive Strategies



- Operational flood maps
- Separated sewer systems
- “Disconnected” Downtown

- Key infrastructure and links raised
- Minimum elevations for habitable space.
- Storm water valves
- Flood marker





# Future Adaptive Strategies

- *Infrastructure renewal/asset management:*
  - Add resilience to key infrastructure and links
  - Storm water valves
- *Increase knowledge about:*
  - River flooding mechanisms
  - Climate change impacts (Sea level rise)
- *Policy Development*
  - Business continuity planning
  - Open space/flood plain management



# Questions

