

A wide-angle photograph of the Niagara River in flood. The water is turbulent and brown with sediment. In the background, the city skyline of Niagara Falls is visible under a blue sky with scattered white clouds. A white bridge spans the river in the middle ground. On the left bank, there are green trees and a few people walking. The overall scene depicts a powerful natural event in an urban setting.

# The Flood of 2013

Owen A Tobert, FCAE  
CAMA 2014 Conference  
Niagara Falls, ON



- What happened?

- How did it happen?

- What did we learn,...this time?

• What happened?

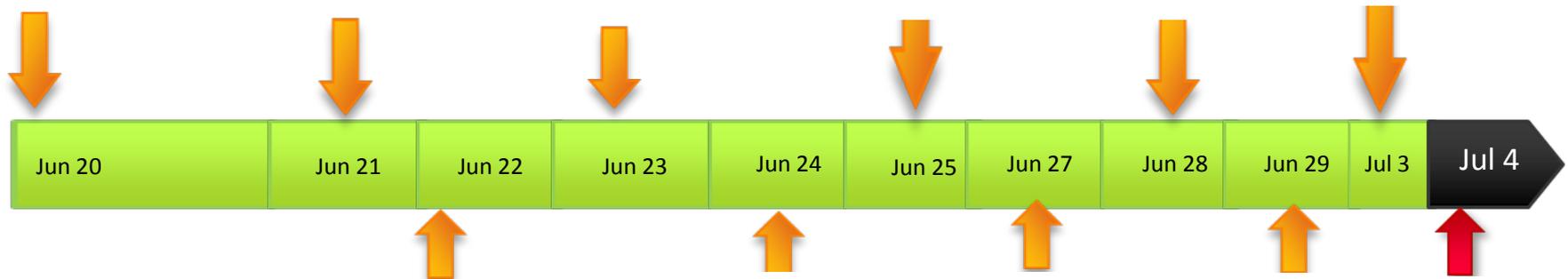
• What did we learn... this time?



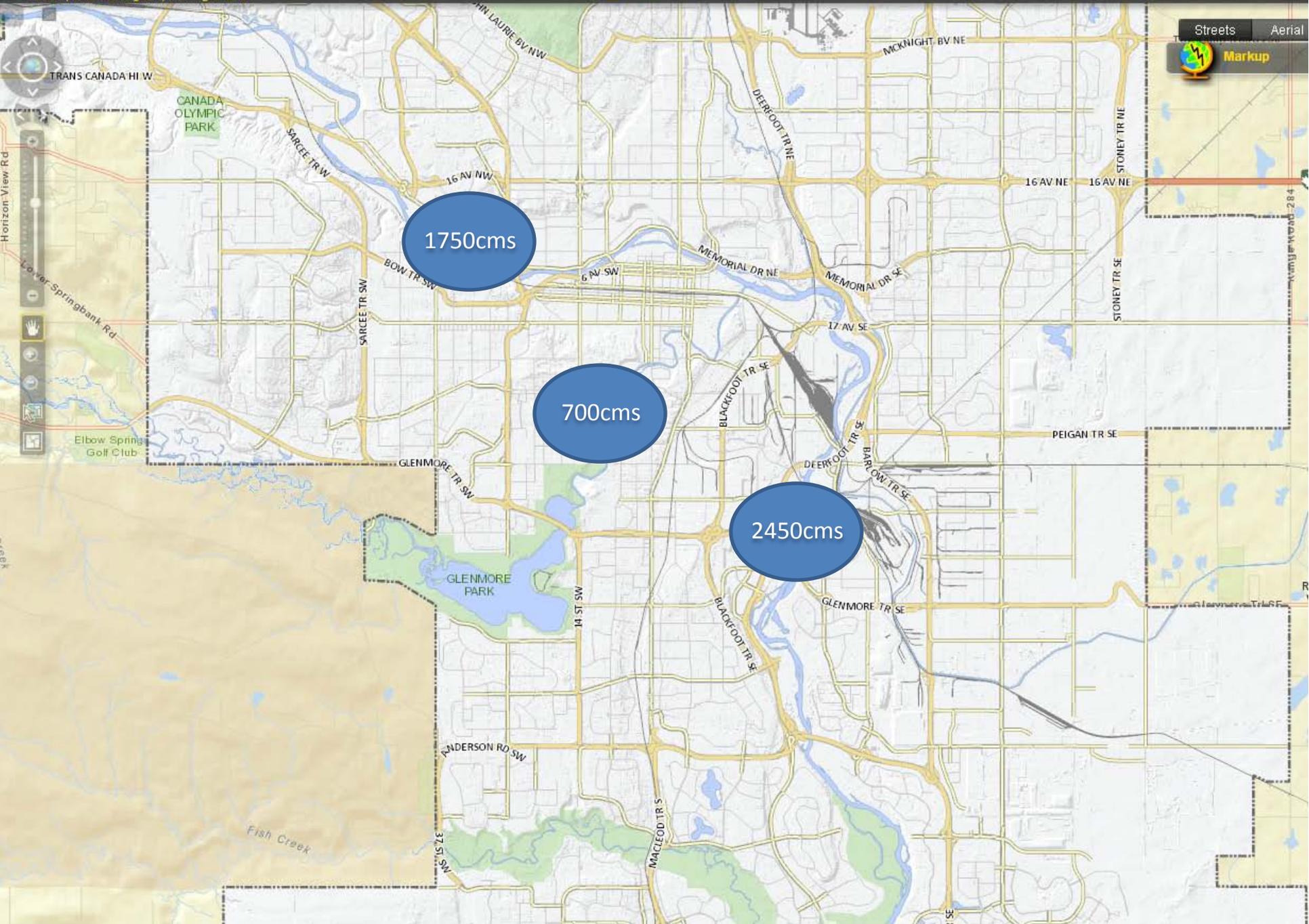
# EVENT CHRONOLOGY

- 0220 – EM flooding (1750 CMS)
- 0330 1:100 flow on Bow River (1750 CMS)
- 0759 – ME
- 0700 Community evacuations
- 1018 SOLE completed (26 communities)

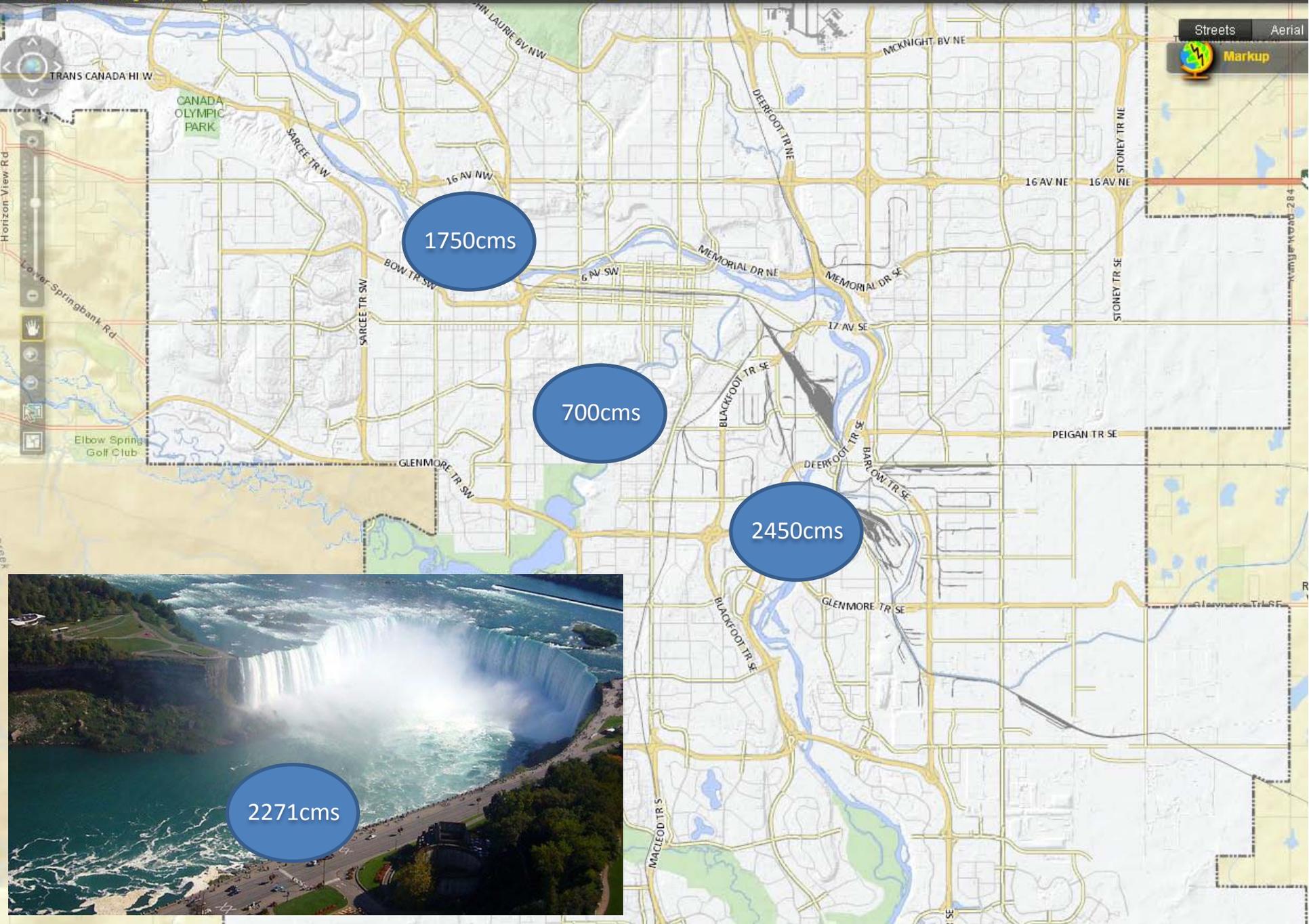
transit lines restored



- Pea
- Six c
- Safety inspect SOLE expires. MEP
- Calgæ for re-energiza
- mair
- remains in effect.



Streets Aerial  
Markup

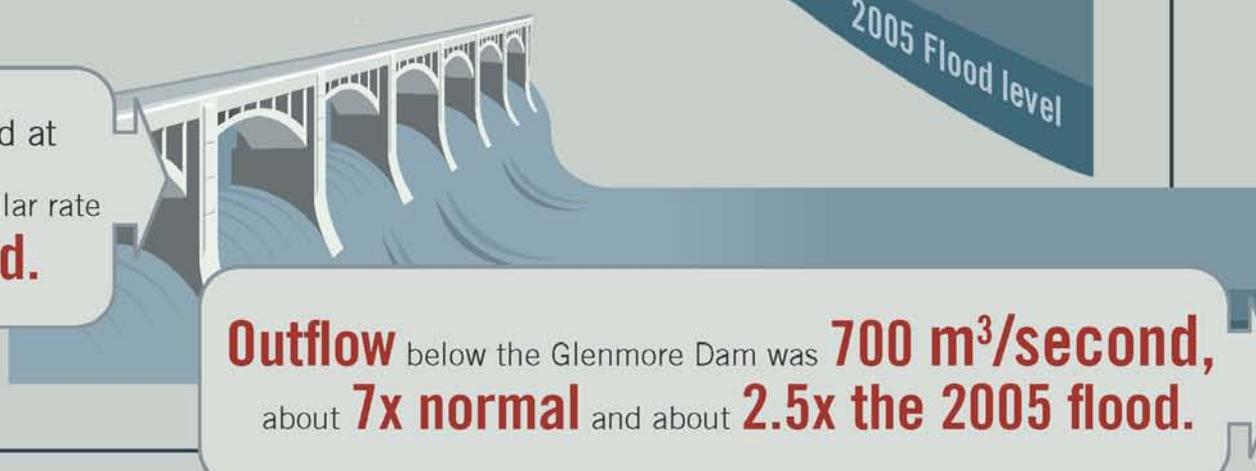


1

## THE FLOOD



The Bow river flows peaked at **2,400 m<sup>3</sup>/second, 8x** the regular flow and more than **3x the 2005 flood.**



The Elbow river inflow peaked at **1,240 m<sup>3</sup>/second, 12x** the regular rate and more than **3x the 2005 flood.**

Outflow below the Glenmore Dam was **700 m<sup>3</sup>/second,** about **7x normal** and about **2.5x the 2005 flood.**

2

## THE **FALLOUT**



Evacuations in **32 communities**  
affected **80,000** Calgarians.



More than **1,600 people** registered at  
community support centres on the first day.



**16 LRT stations**  
were closed.

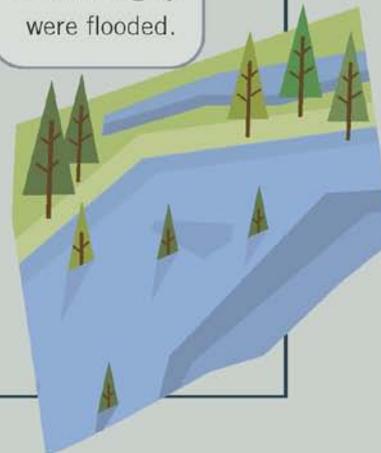
**More than 20 bridges** were closed.

**30 parks**  
across Calgary  
were flooded.



**More than 50 bus routes**  
were cancelled or detoured.

**34,000 locations**  
were without power.



• What happened?

• How did it happen?

• What did we learn... this time?



# Western Aspect of the Bow Valley Watershed

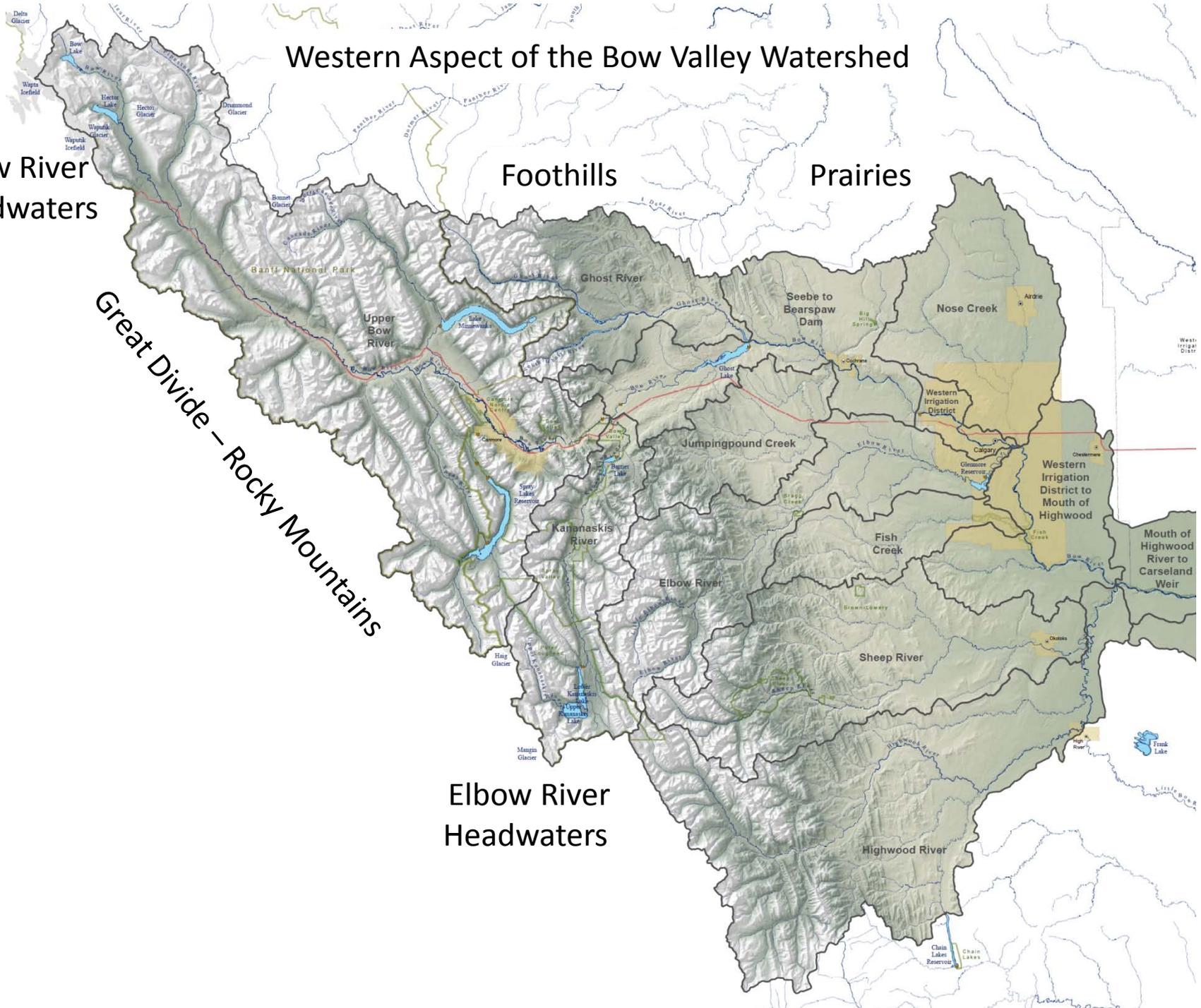
Bow River  
Headwaters

Foothills

Prairies

Great Divide – Rocky Mountains

Elbow River  
Headwaters



1850 UTC  
2013-06-20

Scale/Échelle:  
1km/Pixel

40 KM |—————|

# Weather Trifecta:

1. Ground saturated and/or frozen
2. High snow pack and pending warm temperatures
3. Precipitation, rain and/or snow in higher elevation

mm:

200

125

100

64

50

32

24

16

12

8

4

2

1

0.5

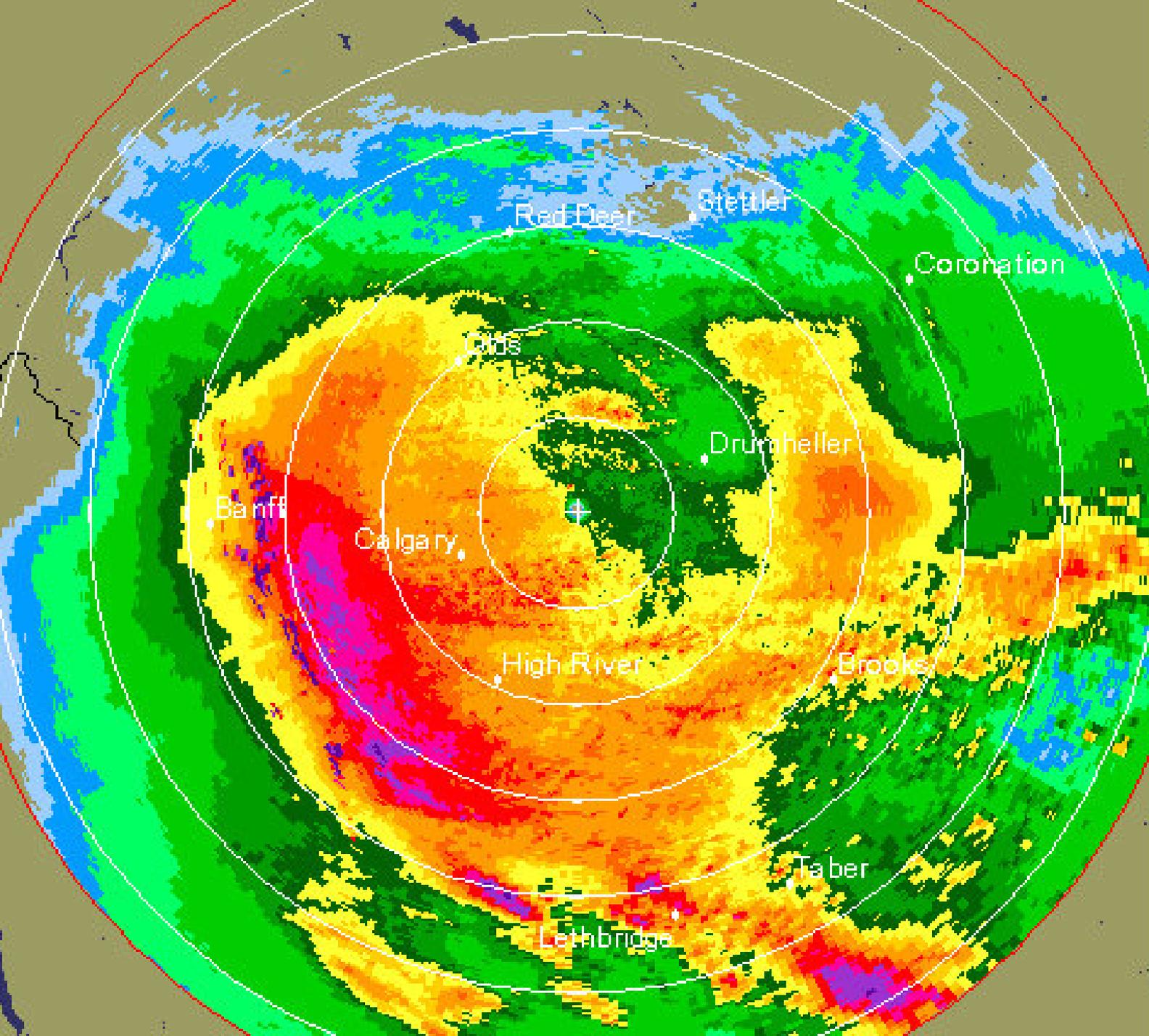
PA

24.00 hours

1850 UTC  
2013-06-20

Scale/Échelle:  
1km/Pixel

40 KM 



mm

200

125

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32

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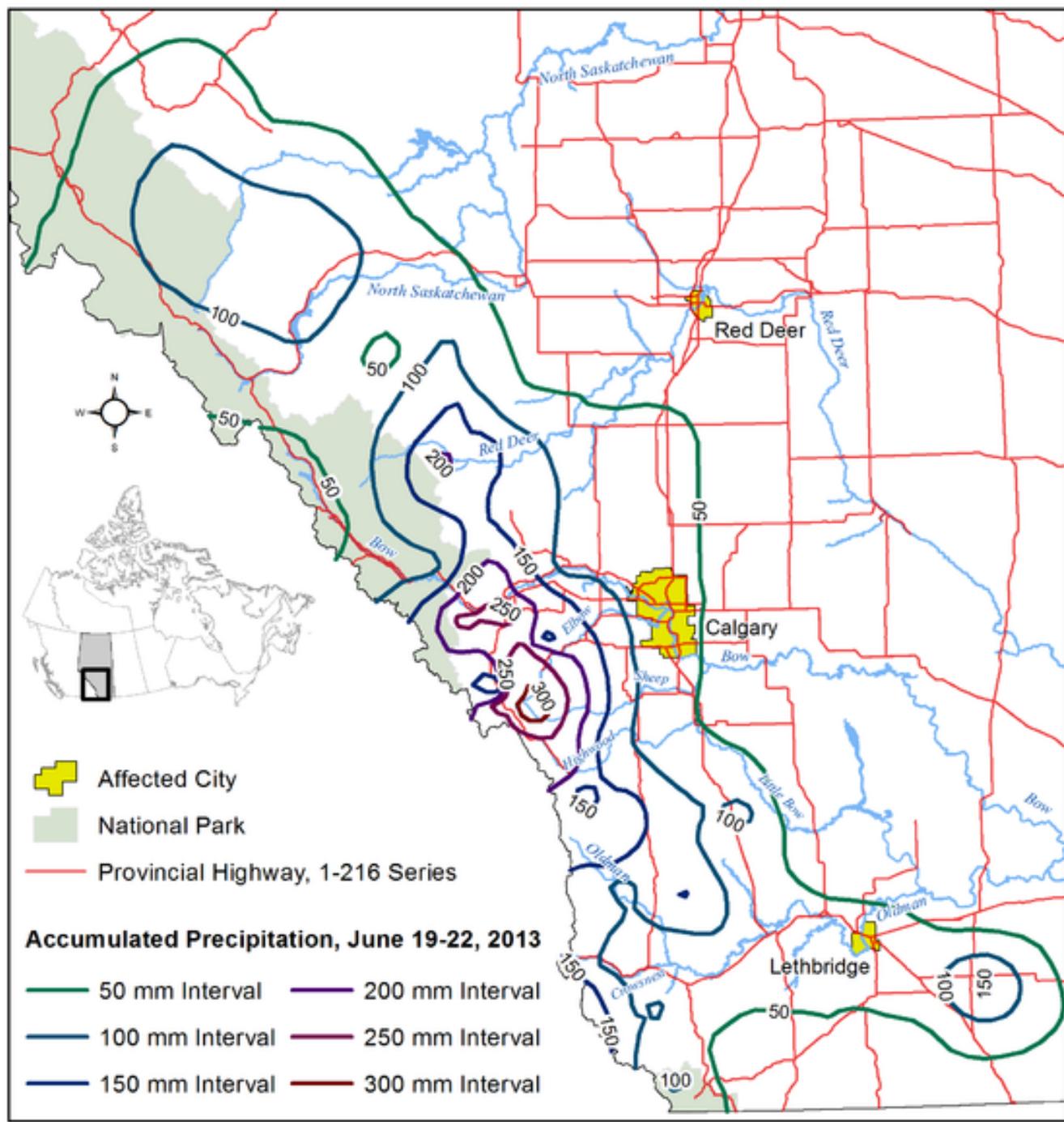
2

1

0.5

PA

24.00 hours



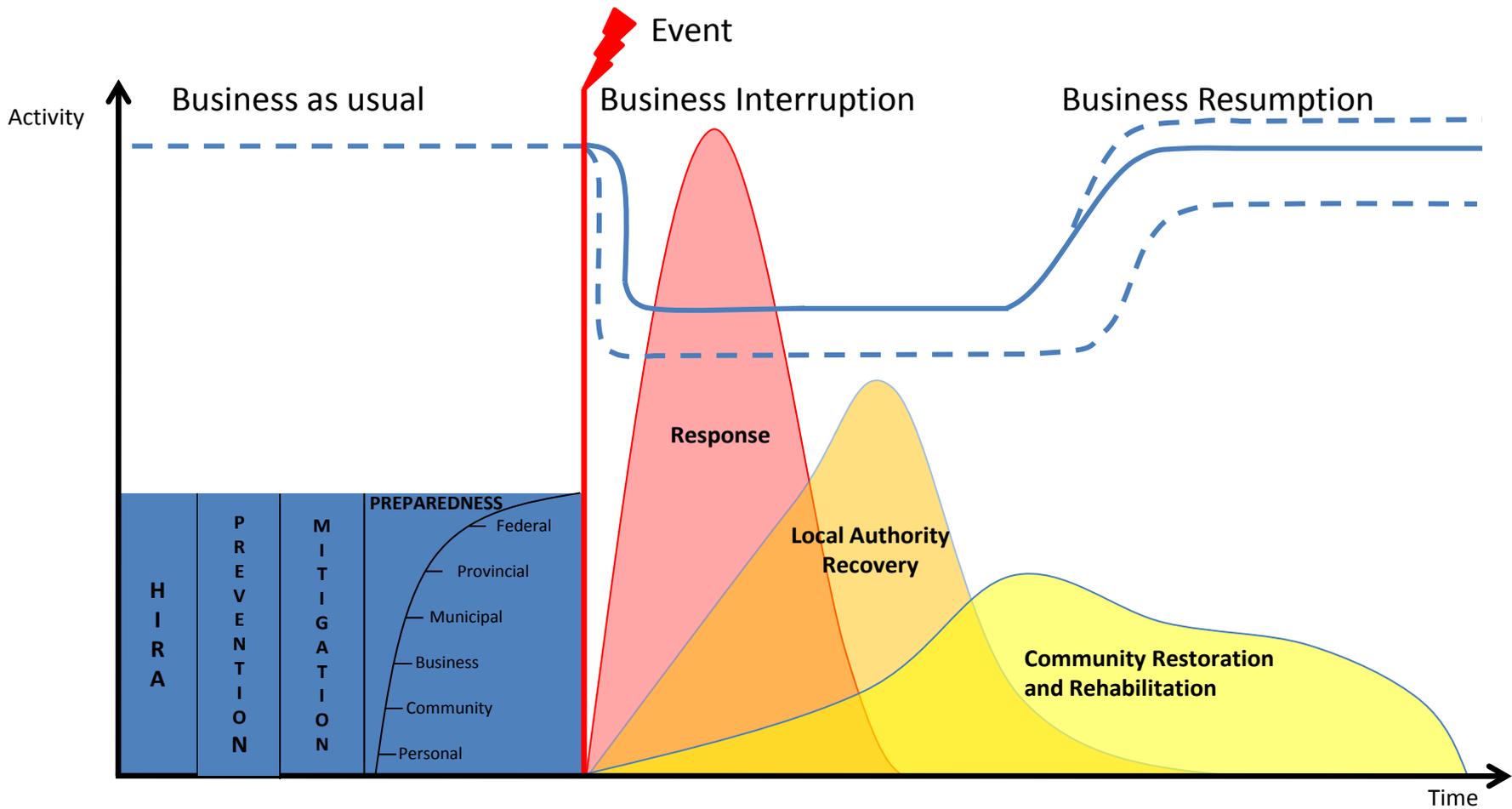
• What happened?

• What did we learn



# Lessons Learned

- Implemented learning's from 2005 Flood
  - Built a new EOC model that focused on recovery right away,
  - Built a new emergency operations center, sought funding immediately after the 2005 flood (opened April, 2013)
  - Rigorous EO and RO practice, practice, practice





  
**Emergency  
Operations  
Centre**  
THE CITY OF  
**CALGARY**  
Public Works & Safety  
617 / 673-1 Street N.E.

1 ST NE

P  
30 min

P  
3h  
10:00 - 18:00  
NO MON



EMS

STATION

AHS

Welcome home, group 21

Services (AHS)

# Lessons Learned

- Begin planning for recovery DAY 1 of the emergency, including recovery metrics
- Social Media is your friend
  - Mayor primary communicator
  - Heavy use of Twitter
- Changing work methodology
  - *“We can no longer afford to work at the speed of Government” LA Fire Capt.*
  - Safely, quickly
  - Not policy and procedure driven



# Lessons Learned

- Engage Volunteers early and productively
  - Because of the limited area of flood impact, considerable segments of community had capacity and willingness to assist others recover
- Ongoing challenge encourage community members to take steps to increase their ability to protect and take of themselves and others without municipal support

# Lessons Learned

- Community has unbelievable capacity for self help, out of 80,000 people evacuated, less than 2,000 needed overnight accommodation
- Volunteers
  - Don't try to keep them out
  - Facilitate their success
  - Facilitate tools, transportation, PPE
  - Link to Inspiring Strong Neighbourhoods?
- Focus on recovery, recovery, recovery











# Humpty's

Breakfast Time,  
Lunch Time, Dinner Time,  
**ANYTIME**

**FRANCHISE  
OPPORTUNITIES**  
1-800-661-7589



NATURAL  
REFRIGERANT  
NEW

ALL DAY  
TASTE

Grand Opening  
2018







the calgary zoo after the flood... man, i hope everyone is safe, especially the animals.

[pic.twitter.com/2TvblrTnOl](https://pic.twitter.com/2TvblrTnOl)

← Reply ↻ Retweet ★ Favorite ⋮ More





















THANKS EVERYBODY  
FOR ALL THE  
HELP.

I'm good now.

6002

THANK

♡ YOU ♡

VOLUNTEERS

THANK

♡ YOU ♡

GALGARY

NEED:  
ELECTRI-  
CITY

NEED:  
MORE  
WINE

NEED:  
CUTE  
FIREMAN

WE LOST SOME STUFF  
WE GAINED A COMMUNITY

THANK YOU!



Supporter On



Thank  
you!!

ENGINE

