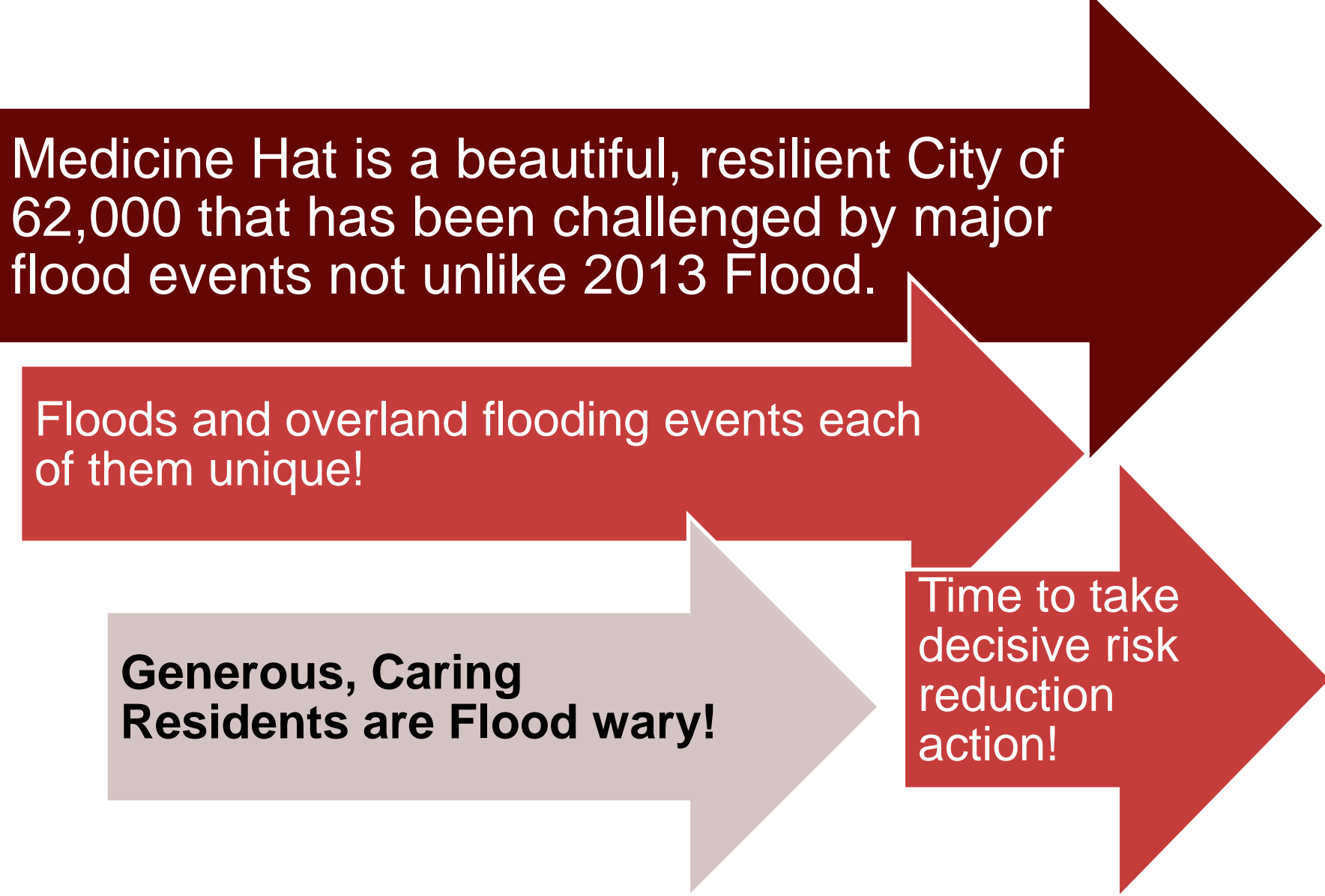


AEMA Stakeholder Summit November 4-5, 2013

Response and Mitigation by Innovation



Ron Robinson
Director of Emergency Management
City of Medicine Hat



Medicine Hat is a beautiful, resilient City of 62,000 that has been challenged by major flood events not unlike 2013 Flood.

Floods and overland flooding events each of them unique!

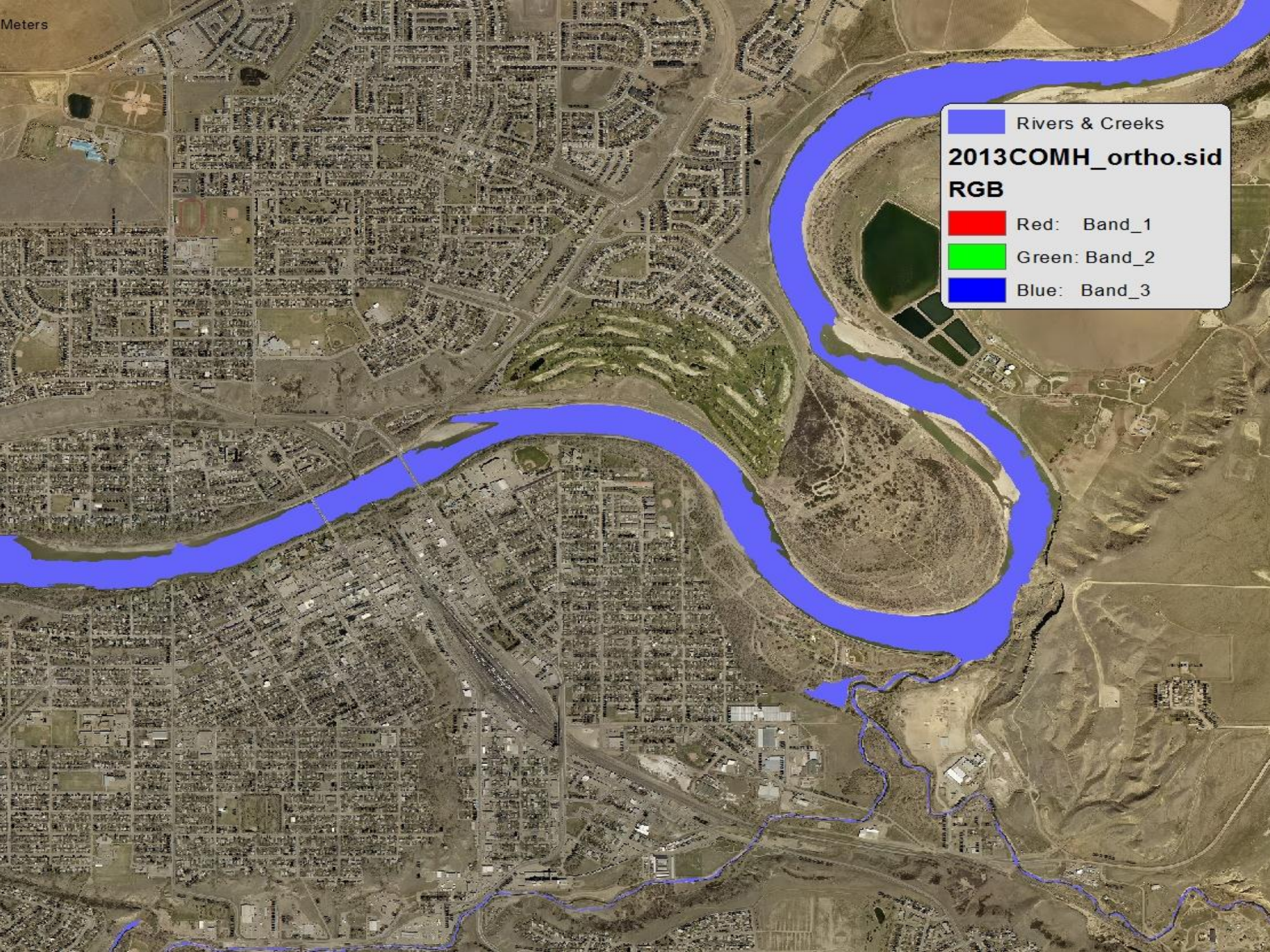
**Generous, Caring
Residents are Flood wary!**

Time to take
decisive risk
reduction
action!

Medicine Hat South Sask. River Valley



Meters



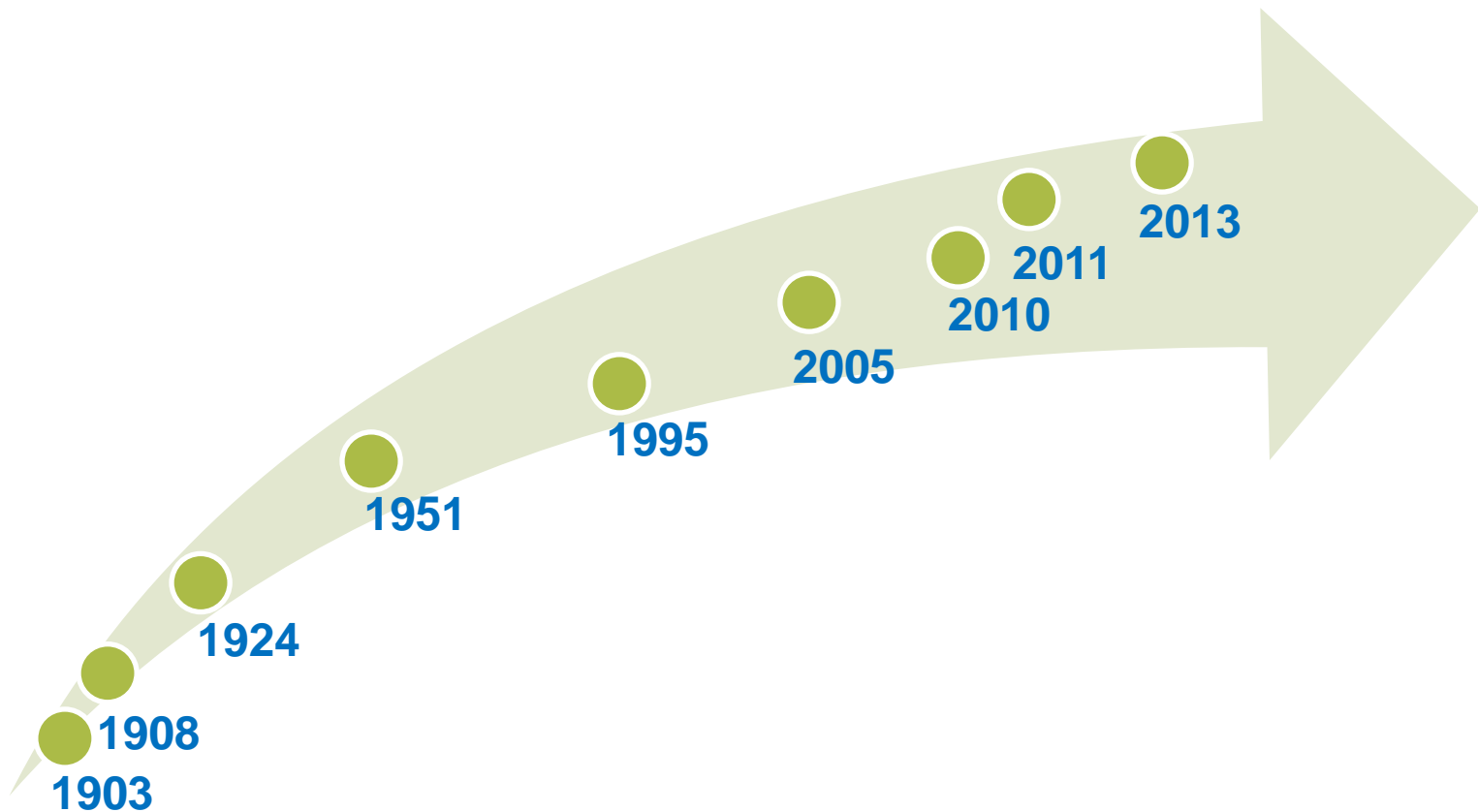
Rivers & Creeks

2013COMH_ortho.sid

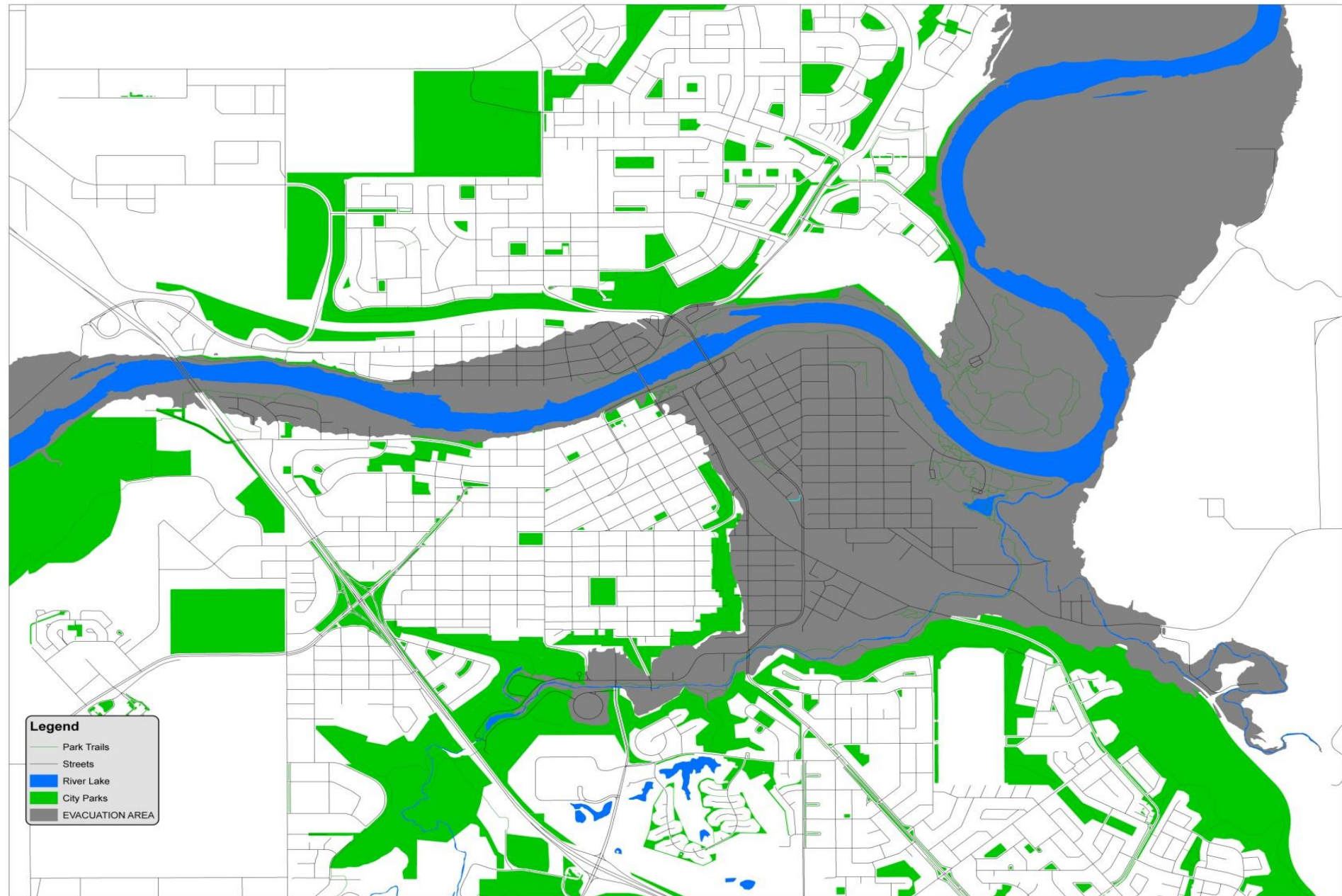
RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

Flooding in Medicine Hat Region 1903-2013 – Upward Trend?



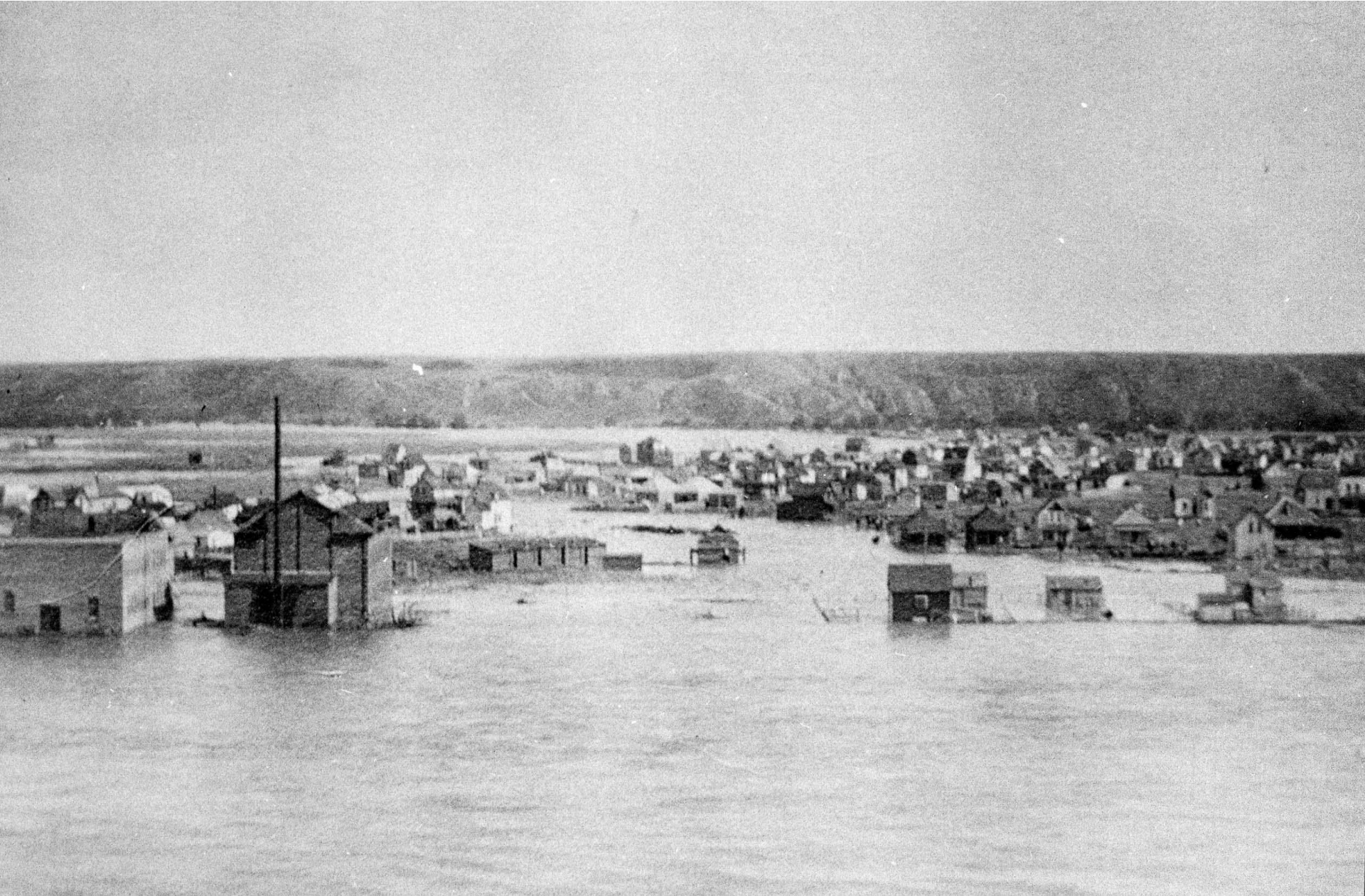
2013 Flood Prediction



Flats during 1903 flood – Woolen Mills and Residences surrounded - Ross Steamboat



Big Flood of 1908 South Sask.



Flats area 1070 Mill St. during 1924 Flood Sillak family escape by boat



Trucks Traveling through flooded streets in the Flats area – 1951 S.S. River Flood



1995 Flood – 1% chance in a century of ever happening: 5375 CMS



Double whammy! 2005 overland flood from Rain and Hail and South Sask. Flood event!!



June 18, 2010 – Unprecedented! Fields and roadways have become a raging, destructive river of water heading through Cypress County toward Medicine Hat.



Friday June 18/10 →



← Monday June 21/10

2011 Flood



The Flood of 2013 Calgary Herald

“An unforgettable summer of angry rivers, unprecedented flooding and undeniable human spirit!”

Medicine Hat has battled fierce flooding over the past many years. June 21/13 - 10,000 people from 3700 properties were mandatorily evacuated.

Life/Infrastructure/Property/Environment hung in the balance while preparing for an unprecedented 6000 c/m/s.

The Flood of 2013 Calgary Herald and Medicine Hat Accounts

Medicine Hat rose to the challenge through “Community Unity”! Just as folk from 30 communities upstream did and continue to do; a resilient spirit and rugged determination put our community back on its feet.

Compassion and tireless support from dozens of organizations such as; Samaritans Purse, Mennonite groups, many Churches, Red Cross, Salvation Army, Canadian Army Volunteers and City staff was demonstrated in unimaginable ways.



June 23, 2013 Approximately 1530hrs /5,100 CMS







'Lego Wall' berm to protect Electric Generation Plant





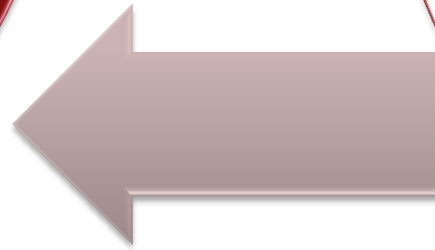
EOC and Flood Plan Activation

3 Primary Objectives:

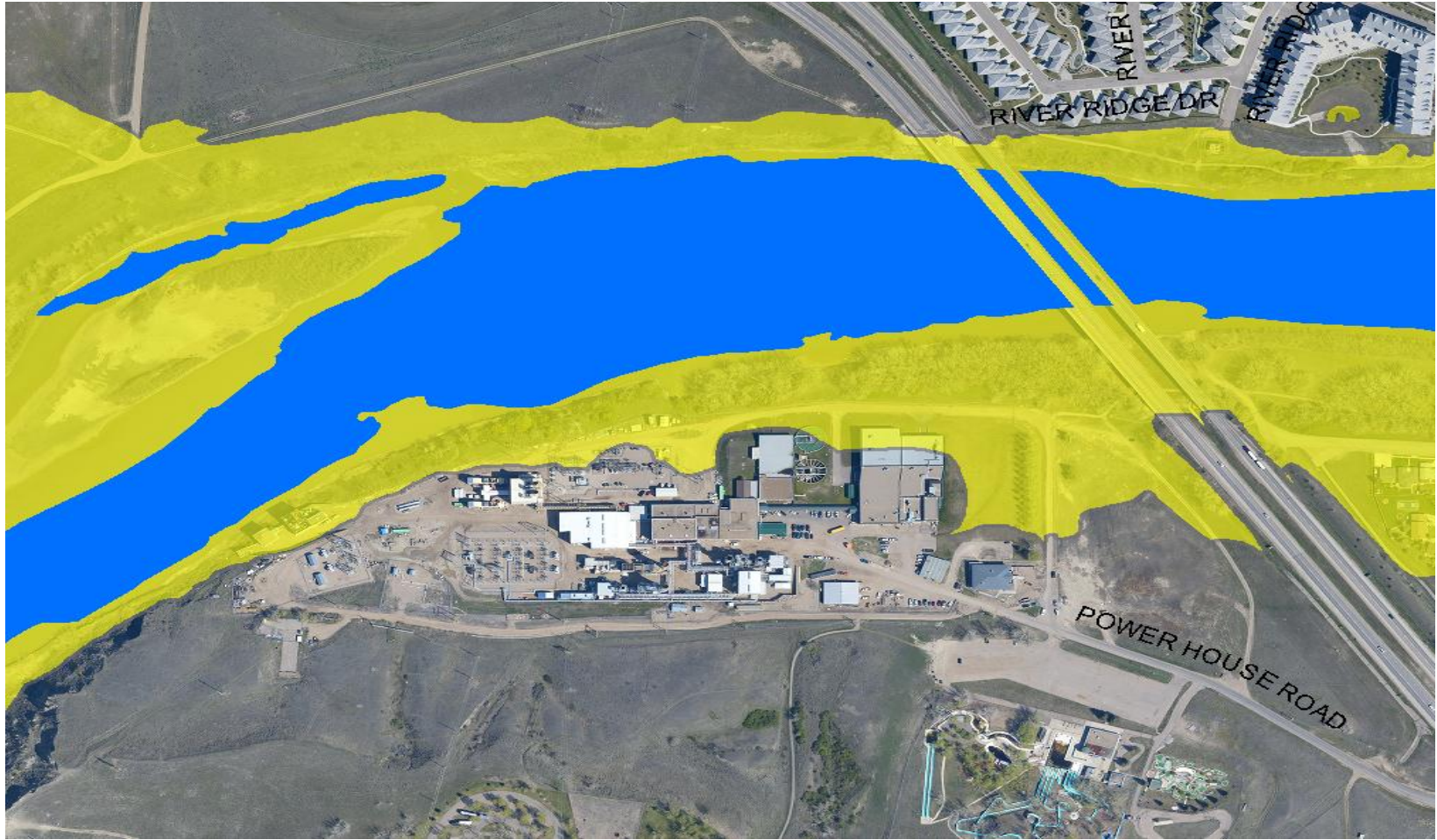
- #1 Objective: Protect Lives – Mandatory Evacuation approximately 10,000 people from 3700 properties.
- #2 Objective: Protect Critical Infrastructure



Bridges, Shaw Communications Head (911), Power generation and distribution, Water distribution, Lift Stations, City Hall, Police Station, 911 Dispatch, Remand Center, Law Courts, Library, and if possible Arena, and Veiner Center.



Objective #2 Protect Critical Infrastructure



Objective #3

Protect Property and Environment

Residents and Businesses were effectively informed through routine EOC called Media scrums. Excellent Public Information Officer captured key messages from 18 internal agencies and a very supportive Media coverage provided timely messaging and public expectations.



Social Media/Rumors were overcome through direct contact with the Director/ Assistant Directors to address all miscommunications with fact. We became the trusted site for information.



The EOC was fully transparent in all of its communications

2013 Flood Impact – City of Medicine Hat

Approximately
10,000 People
from 3700
properties
evacuated

ESS – housing
instead of
Reception
center/cots

Inspection
Program
somewhat
successful

Multi-agency and
multi-jurisdictional
agencies
struggled to
contact all who
were displaced

Not including property purchase and Sewer Isolation Valve Installation Program

Thus far City of Medicine Hat received \$9.6 million from the Province related to the Flood.

The City spent Just over \$8 million thus far on:

- Arena and some of the other smaller City owned buildings \$2 million
- Parks: Athletic park, trails in Strathcona \$1 million
- Evacuation Centre and related services \$1 million
- Work done by Municipal Works (berms/bridges/roadwork) \$1 million
- Berming and work at the Water treatment and Power plant \$1 million
- Emergency Operations Centre/Police/other departments \$2 million

Not including property purchase and Sewer Isolation Valve Installation Program

The City of Medicine Hat filed an initial application for assistance with Province on June 26th. At that time we estimated the total costs to be approximately \$150 million. Since then we have been able to conduct further evaluations, engineering reviews, and revised those estimates. The most current estimate completed at the beginning of August was approximately \$73 million

We continue to gather information and engineering technical data with respect to flood 2013 impact. At this point there are indications that some of the larger infrastructure has not been damaged to the extent it could have been. Therefore we believe the final costs will be lower than this estimate.

Natural Disasters Require Unnatural Focus on Mitigation/Preparedness

Flood Plan
Manual –
Engineers study
and response to
include 6000
c/m/s

- Flood Plan updated
- GIS inundation mapping
- Multi-agency, Multi-Jurisdictional Data Base
- Permanent Berm protecting Power and Water distribution
- Lift Station ERP – New Bridge 1-200 yr.
- Property purchase and relocation
- Veiner Center relocation
- Storm water outflow valves
- Added sensors along local creeks.
- Sewer Isolation Valve Program

Disaster Recovery Program Flood Mitigation Measures - STANDATA

PURPOSE:

To outline alternative solutions for minimum flood mitigation measures when building owners apply for DRP funding to perform repairs or rebuild on their property.

Government of Alberta appointed advisory panel on community flood mitigation to provide direct input on the latest flood prevention technology from around the world.

Building Code Standata Aug 15, 2013

06-BCB-009R1

4. The objective is to protect plumbing fixtures/equipment located in basements from backflow from the public sewers.

Solution: Backflow prevention devices are required under the National Plumbing Code as adopted by regulation in Alberta. All backflow prevention devices shall be installed in accordance with manufacturer's recommendations and the Plumbing Regulations.

Medicine Hat's Innovative Mitigation Sanitary Sewer Isolation Valve Program

In the event residents of Medicine Hat experienced overland flooding and/or sewage back-up, City Council supported a Sanitary Sewer Isolation Valve Assistance Program.

The City will cover up to \$2000 per sewer connection for the procurement, installation including concrete and applicable taxes. The City identified that some valves are unsuitable for our sewer system.

Medicine Hat Innovative Mitigation Sanitary Sewer Isolation Valve Program

City staff identified three valves that are believed to adequately meet flood protection specifications:

- 100% Full Port Steel or Brass Ball Valve
- 100% Full Port Knife Gate Valve
- Mainline ABS Testgate Valve

A required permit allows for the installation of a pre-approved valve that sustains 20-25 psi.

- Or equivalent: Specification must be provided for review and approval prior to permit issuance.

Innovative Mitigation Sanitary Sewer Isolation Valve Program

The \$2000 assistance is for installation of City of Medicine Hat approved Sanitary Sewer Isolation devices on qualified sewer connections.



This will include the cost of procurement and installation of a 'steel or brass Ball Valve' or 'Knife Gate Valve' or other type of sanitary sewer isolation valve (must be CSA approved or equivalent) as pre-approved by the Chief Administrative Officer (CAO) or his/her designate.



Approvals will be valid for 6 months unless extended at the discretion of the CAO

Sewer Isolation Valve “NOTICE” to home owners

- Sewer Service Isolation Valve located in this building must remain in the OPEN position. Other than annual maintenance, the valve may only be closed during a flood event of scale as advised by the Director Emergency Management. Also, the valve must be opened when it is safe to do so as advised by the Director of Emergency Management. For further information regarding notification please contact Emergency Management for the City of Medicine Hat at 403 502 8712.

Sewer Service Isolation Valve Rules:

- The Owner of the building may only operate the valve as required by the manufacturer's installation guidelines. To safeguard against the valve being rendered inoperable or prevent a tight shutoff, the valve should be operated through a full cycle and returned to its normal operating position once a year. For further information with respect to operating the isolation valve contact the plumber who installed the valve.

Emergency Management canned message



Medicine Hat
The Gas City

IMPORTANT

Sewer Service Isolation Valve located in this building must remain in the OPEN position. Other than annual maintenance, the valve may only be closed during a flood event of scale as advised by the Director of Emergency Management. Also, the valve must be opened when it is safe to do so as advised by the Director of Emergency Management. For further information regarding notification please contact Emergency Management for the City of Medicine Hat at 403.502.8712.

The Owner of the building must only operate the valve as required by the manufacturer's installation guidelines. To safeguard against the valve being rendered inoperable or prevent a tight shutoff, the valve must be operated and maintained a minimum of once per year or as per manufacturers' instructions. For further information with respect to operating the isolation valve, contact the plumber who installed the valve.

Plumbing Contractor Responsible for Installation	
Phone #	
Installation Address	
Isolation Valve Make/Model	
Plumbing Permit #	

Under the Safety Codes act, it is an offence to remove or disfigure this sign.

What is mitigation planning and why?

Is there a standard by which we can determine if we are on the right path toward making our Cities Resilient?

Prevention and Preparedness planning according to AEMA has a \$25-\$1 return on investment

With the proliferation of global Disasters what can we do better in terms of risk reduction and implementation of mitigation strategies.

Ten Essentials

Checklist for Mitigation and Making Cities Resilient

UN - Hyogo Framework for Action 2005-2015



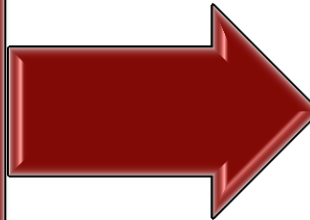
“The framework can be implemented by Local and Provincial Governments. The Checklist derives from the priorities of the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters. A key instrument for implementing and sustaining disaster risk reduction.”

Requires the support of City Council and Residents.

Achieving all or some of these ten essentials will help cities to become more resilient.

Ten-Point Checklist

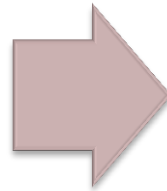
1) Put in place organization and coordination to understand and reduce disaster risk, based on participation of citizen groups, business and Industry. Build Local Alliances.



1a) All agencies, departments, and residents, progressively work and train towards understanding their role in disaster risk reduction and preparedness.

Ten-Point Checklist

2) Assign a budget for disaster risk reduction and provide incentives for homeowners, low-income families, communities, businesses and the public sector to invest in reducing the risks we face.



3) Maintain up-to-date data on hazards and vulnerabilities, prepare risk assessments and use these as the basis for urban development plans and decisions. Ensure that this information and the plans for your City's resilience are readily available to the public and fully discussed with them.

Ten-Point Checklist

4) Invest in and maintain critical infrastructure that reduces risk, such as flood drainage, adjusted where needed to cope with “climate change”.



5) Assess the safety of all schools and health facilities and upgrade them as necessary.



6) Apply and enforce realistic risk-compliant building regulations and land-use planning principles. Identify safe land for low-income citizens and develop upgrading of informal settlements, where feasible.

Ten-Point Checklist

7) Ensure that Disaster Risk reduction education and training programs are in place in schools, and throughout local communities.

8) Protect ecosystems and natural buffers to mitigate floods, storm surges and other hazards to which your city may be vulnerable. Adapt to “climate change” by building on flood risk reduction practices.

Ten-Point Checklist

9) Employ early warning/notification systems and emergency management capacities in your city and hold regular public preparedness drills.



10) After each Disaster, focus on the needs of those impacted by the event. Support re-entry, recovery and reconstruction with them. Allow community organizations to design and help implement responses including rebuilding of homes and livelihood.

What is Reasonable, Achievable, Sustainable?

Invite
Community
Associations

Develop
Clear Risk
reduction
framework.
Encourage
stakeholders
to sign up to
the Risk
Reduction
campaign

Promote
active
engagement
of community
members in
using the
informational
resources

Build
partnerships
in projects
with local
government,
NGO's the
private
sector, etc. to
make your
local area
safer

Achievable Mitigation and Risk Reduction

Share local knowledge and experience with other practitioners such as planners, risk assessments and mapping, maintenance of critical infrastructure, safer land use and enforcement of building standards

Collaborate in measuring progress through participative monitoring.

Strive to develop better tools and methodologies for urban risk reduction in any/all of the Ten Essentials for Making Cities Resilient.

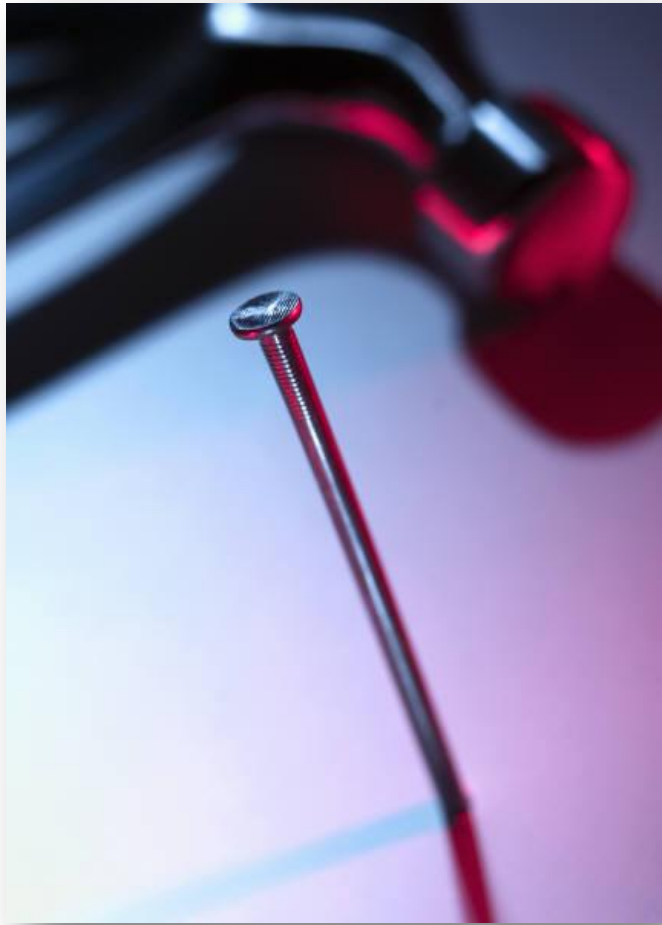
Achievable Mitigation and Risk Reduction

Advocate for increased urban risk reduction at the local level.

Encourage greater involvement of local stakeholders in regional and international policy development

Strengthen the links/relationship between NGO's local governments and community based organizations.

Disaster Preparedness Strategies – Will Ours Be Effective?



**“If all you have is a hammer,
everything looks like a nail.”**
*Bernard M. Baruch adviser to
Presidents Harding, Coolidge,
Hoover, Roosevelt and Truman.*



“Sourcing Information is like sourcing water; good water sustains life, bad water may kill you”

Capt. William Simpson – US Merchant Marine Officer – survivor on uninhabited desert islands and author of ‘The Nautical Prepper’ (Ulysses Press)



What Does Preparedness Mean?

Knowledge of what type(s) of events to be prepared for requires looking to the experienced professionals which will help not waste time and dollars.

Disaster preparedness is risk analysis;
what good are guns when you need a boat?

You will always need minimum stockpiles of water, food, medication and clothing plus supplies and equipment designed for sustaining life.



Resource Links

- Capt. Simpson www.williamesimpson.com
- Prevention of Disease Sites
<http://www.guardian.co.uk/lifeandstyle/2013/mar/05/ten-ways-to-live-longer>
- YoYo72 <http://www.getprepared.gc.ca>



Assuring the
essential needs of
people affected by a
significant emergency
through a
massive coordination
efforts in Medicine Hat



Church Groups

Providing Necessities During Events of Scale



Samaritans Purse/Mennonite Disaster Services



COMMUNITY
Unity
FLOOD 2013



