



Calgary



Calgary's Flood Resilient Future

2020 Update – CRCAG AGM

Dec 2020

**The City of Calgary
Water Resources**

ISC: Unrestricted



Outline

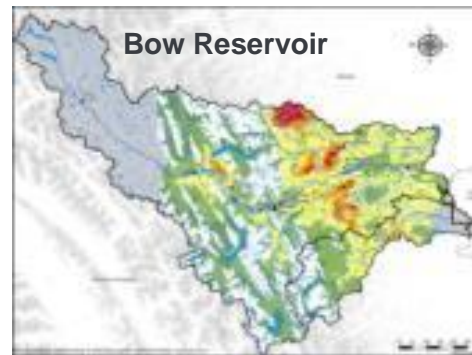
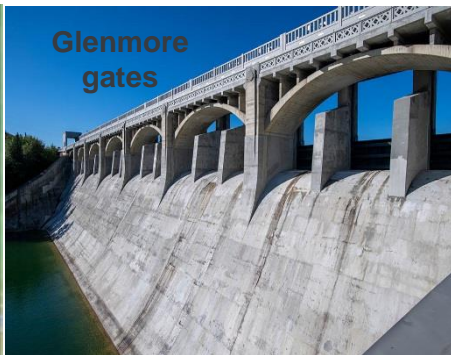
1. Flood Resilience Plan
2. 2020 Resilience Focal Points
3. 2021 Focal Points
 - Local Flood Mitigation Projects
 - Regional Flood Mitigation
 - Flood Hazard Mapping
4. Acknowledgement

Elbow River

**Springbank Reservoir
+ new Glenmore gates**

Bow River

**New upstream reservoir (BRRO)
+ TransAlta agreement
+ Local barriers & Drainage Works**



- + Land use policy and building regulations
- + Education, awareness, lot level programs
- + Emergency preparedness, response, forecasting

Layered resilience measures to work together for high combined resilience

2020 Resilience Program Focal Points

• **Glenmore Gates**

- \$80M+ project was functional in May 2020
- Doubles Glenmore 'live' flood storage capacity
- Increases threshold of damage to 1.5 x 2005 flood

• **Heritage/Deerfoot Meadows Barrier**

- Protection of Deerfoot and Heritage area
- Ensures emergency access/egress

• **Mission Island Hydraulic Improvements**

- Improve Mission Bridge flow capacity
- Enhance fish habitat

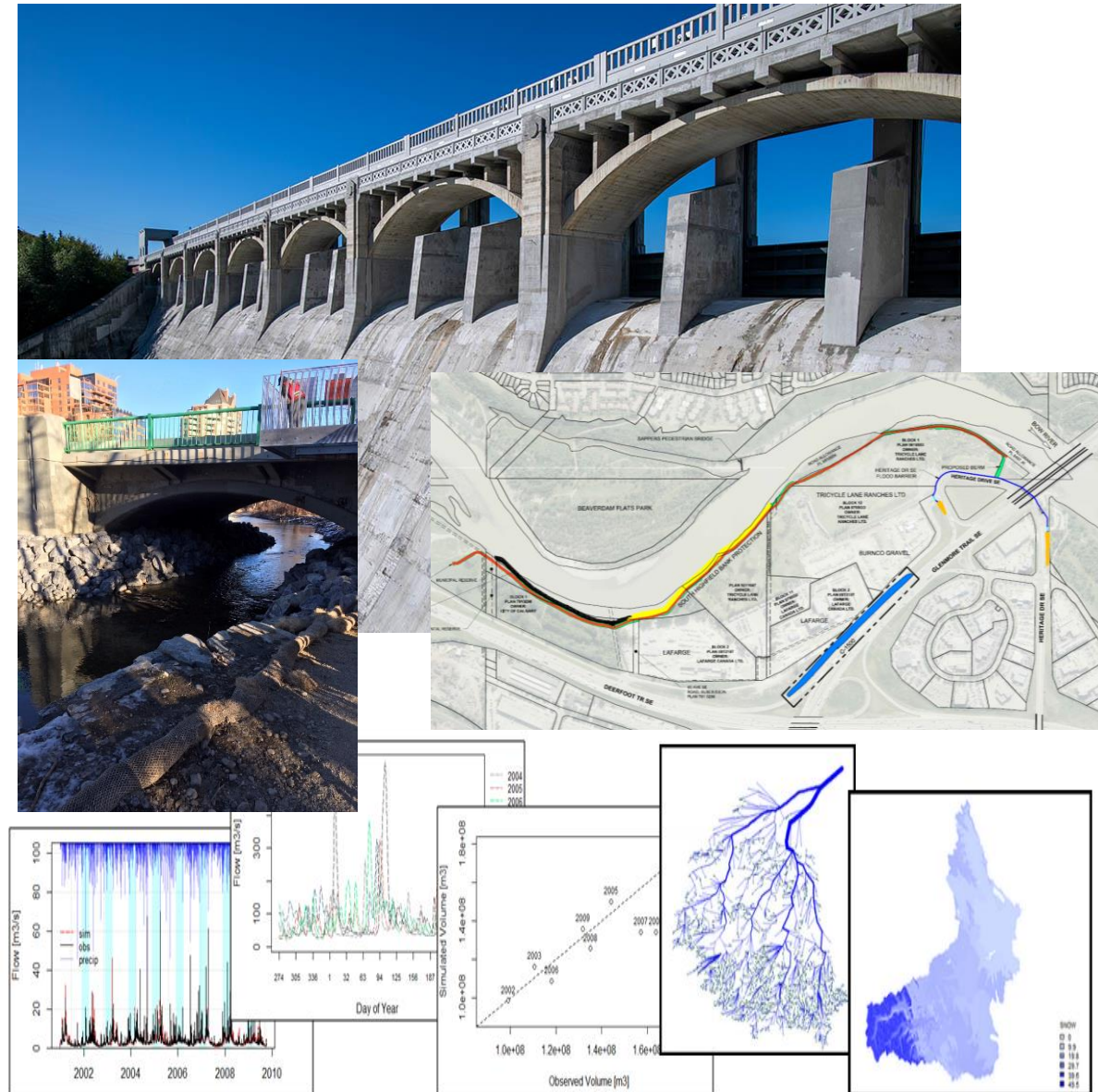
• **Montgomery Flood & Erosion Project**

• **Flood Emergency Response Update**

- Temporary Pumping plan refinement
- Realignment of Plan with Glenmore gates
- Adaptation to COVID19

• **Flow Forecasting**

- RAVEN/FEWS software developed / operationalized
- Satellite telemetry enabled 'emergency' level station
- Bragg Creek flow monitoring station re-build

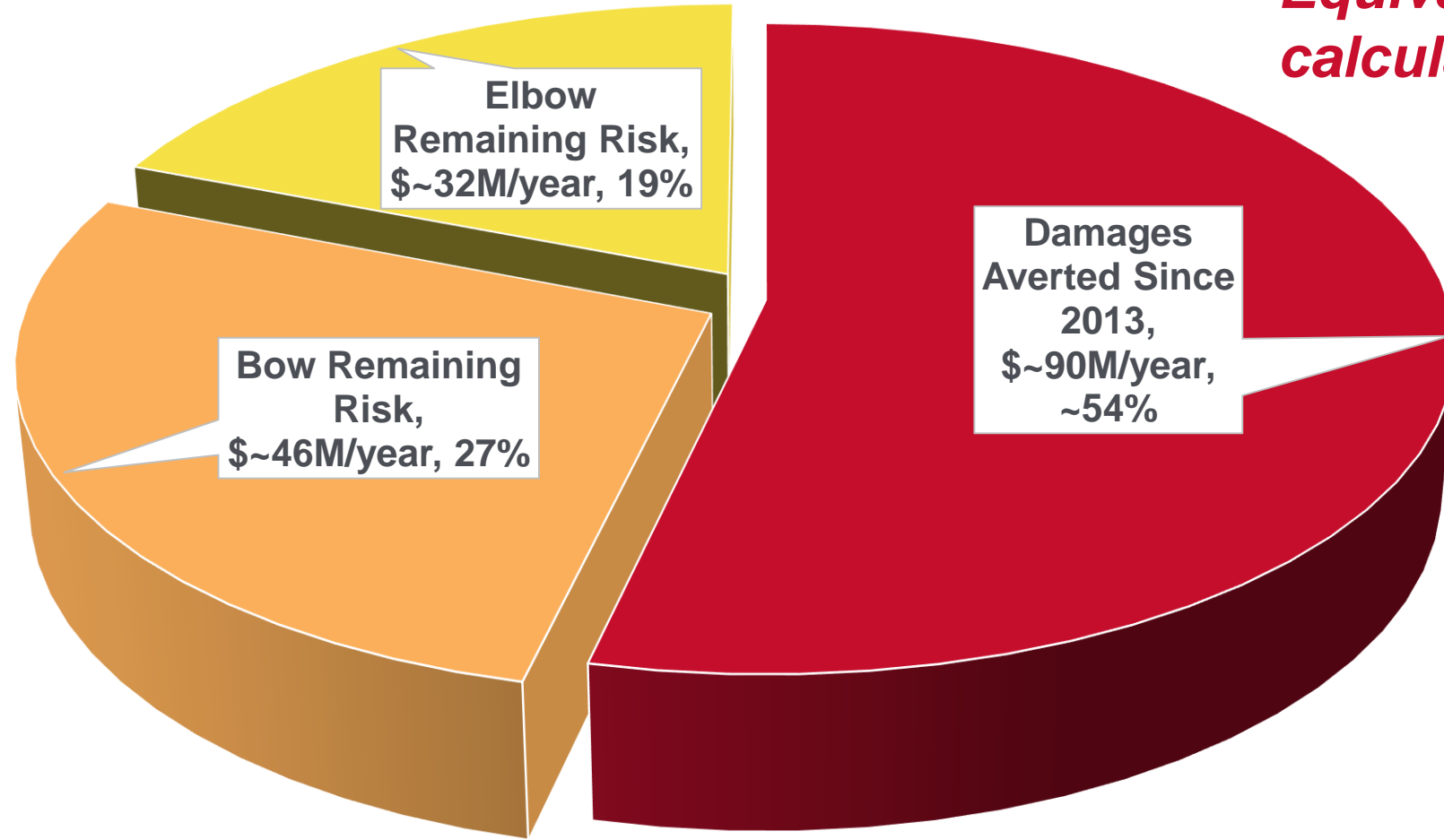




2020 Update – Damage Exposure Remaining

- *Before any resilience work, Equivalent Annual Damage was calculated at \$168M/year*

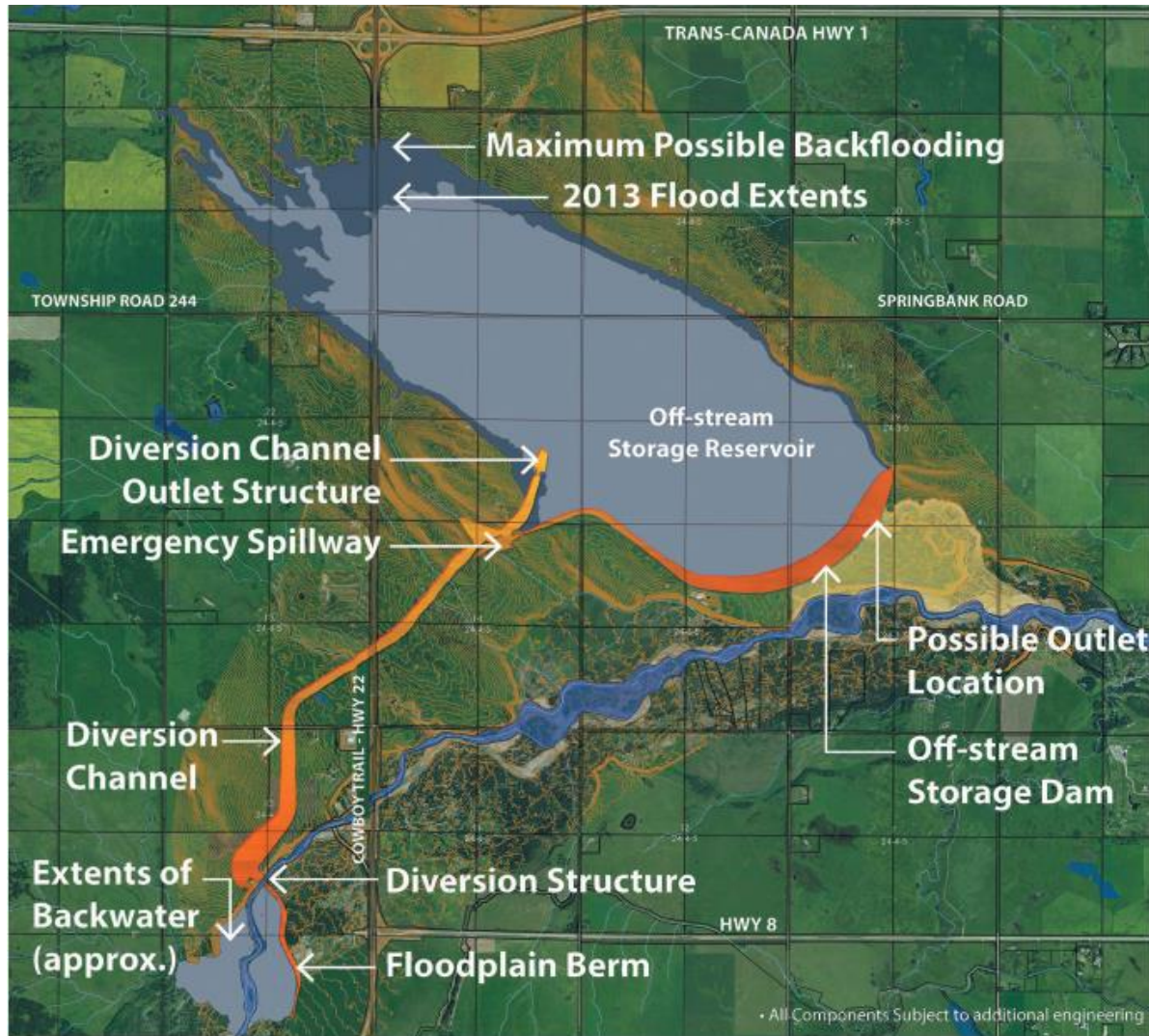
- *Mitigation done cuts damage potential by half*
- *Remaining risk will be further reduced by projects in 2021 in beyond, but*
- *Remaining risk is due to ‘big’ events – big solutions*
- *Significant damage potential remains (\$7B+ over 100 years)*





- **Sunnyside Flood Barrier**
 - Detailed Design, permitting tendering
- **9th Avenue SE Bridge**
 - Complete construction
- **Sunnyside Upper Plateau**
 - Materials procurement underway
 - Construction start spring 2021
- **Bowness Barrier Evaluation**
 - Continue engagement with community
- **Centre Street Gravel Bar Shaping**
 - Improve north arch flow capacity
- **EauClaire/Downtown Flood Barrier**
 - Tender, construction commencement
- **Crowchild Trail Gravel Bar / Debris**
 - Tender design and plan construction
- **Scollen Bridge (25 Ave SW Bridge)**
 - Remove caissons and improve flow capacity





Springbank Off-Stream Reservoir

- **Springbank Offstream Reservoir**
 - Continue to support IAAC Tech Adv Group
 - Intervener participation in NRCB hearing
 - Continue to assess operations of Glenmore
- **Bow River Reservoir Options**
 - Provide data, technical review and input as Phase 2 scope completed to narrow to a single reservoir option and site
- **TransAlta Ghost / Kananaskis Reservoirs Agreement Renewal**
 - Support GoA and TAU with information on flood response requirements, forecasting coordination and timing



• Alberta Env & Parks Inundation Maps

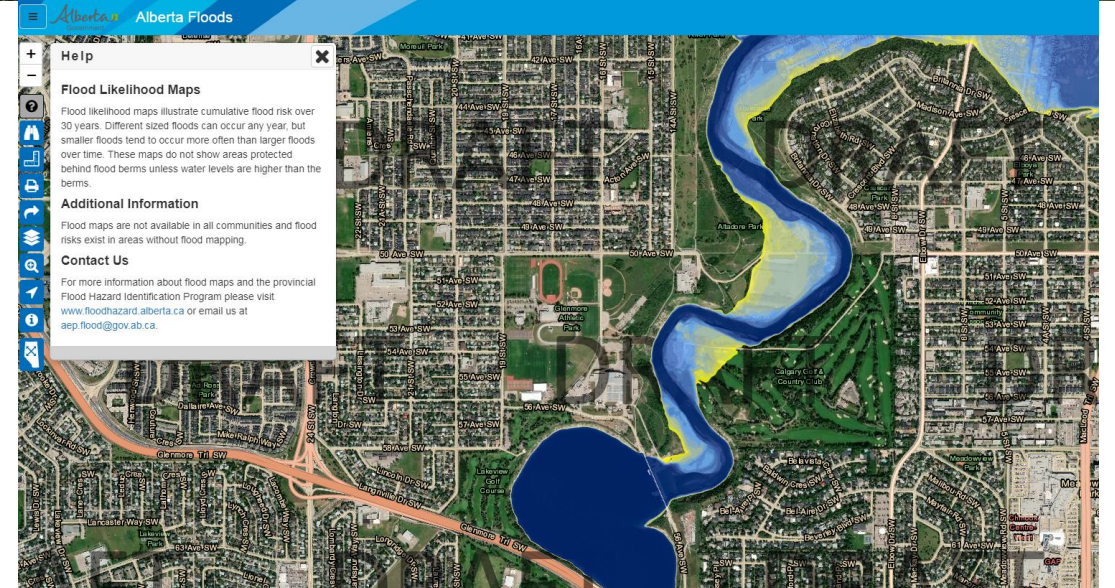
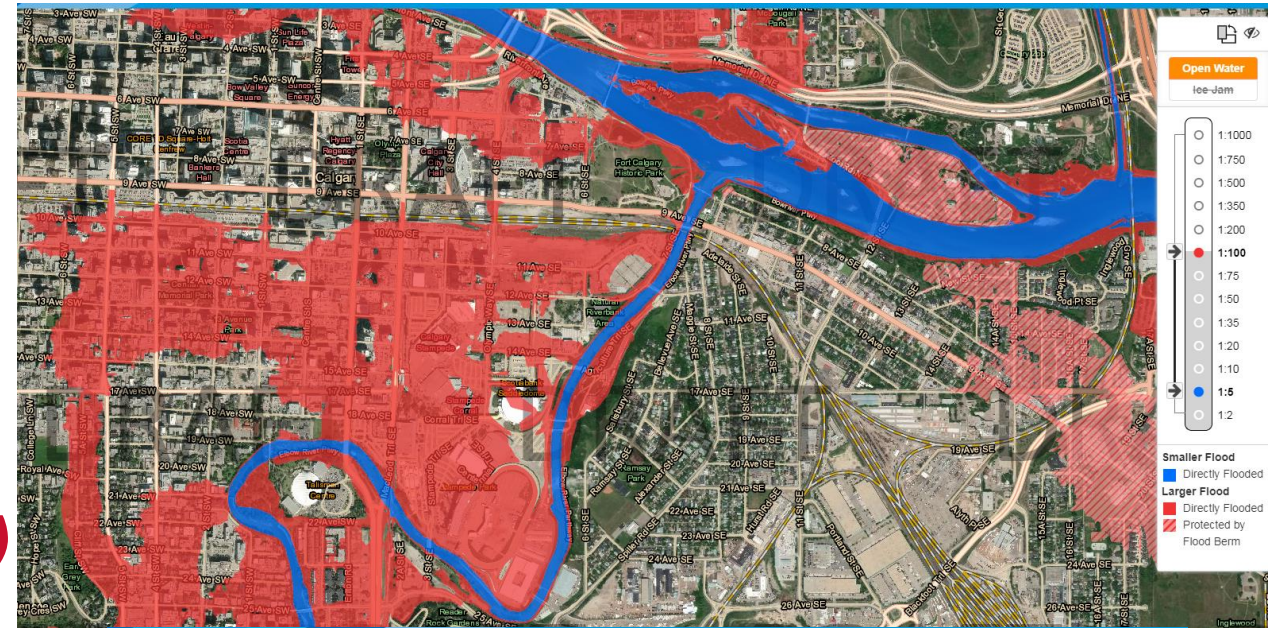
- Inundation maps for 1:2 to 1:1000 *design* floods
- Maps posted for public review-comment by Jan 2021
- Underlying model will be used to define Flood Hazard Areas later in 2021
- Updates needed for ongoing/recent mitigation
- https://floods.alberta.ca/?app_code=FI&mapType=Draft

• City of Calgary Flood Hazard Area (FHA) Zones Policy review

- Engage with development and building management industries, citizens, and other stakeholders on regulatory approaches for zones
- Prepare Land Use Bylaw & policy amendments

• Alberta Env & Parks FHA Maps

- Assess process for updates as mitigation measures are put in place
- Address timelines for periodic updates





- ***Thank You GoA***
 - AEP River Forecast Group
 - AEP Resilience and Mitigation Group
 - AEP Bow River Operations Group
 - AEP Flood Hazard Mapping Group
 - ATRANS – Water Control Structures Design and Delivery

- ***Thank you CRCAG and FFYYC***
 - Organized, thoughtful and energetic

Calgary



Questions ?