

Springbank Off-Stream Reservoir Environmental Impact Assessment

Alberta Transportation

October XX, 2017

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Elbow River Flood Mitigation for Calgary and Downstream Communities

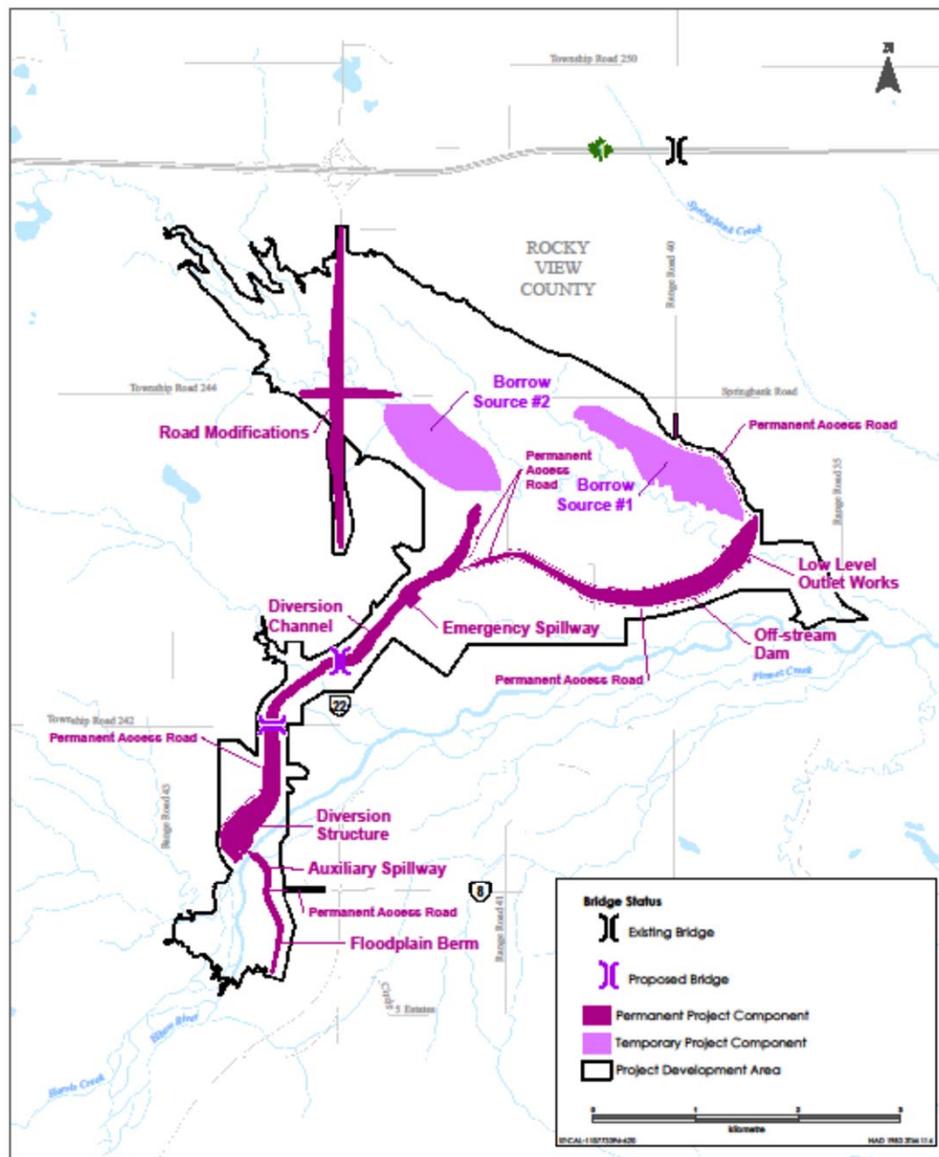
If 2013 Flood Happened Today

- ~\$700 million in immediate damages along Elbow River
- 100,000 Albertans evacuated
- \$5-6 billion in damages overall

Why SR1?

- Cheaper to build by >\$30 million
- Less impact to environment
- 3 times fewer wetlands impacted
- Provides protection 3 years sooner

The Environmental Impact Assessment/Statement has been submitted to provincial/federal regulators and is available at <ftp://ftp.gov.ab.ca/env/fs/EIA/>.



Source: Road Data - ISE, Richard Roth, Government of Alberta, Government of Canada
 Source: Data - ISE, Government of Alberta, Statistics Canada



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Main Components of the Project

Figure 3-1



Application to Regulator

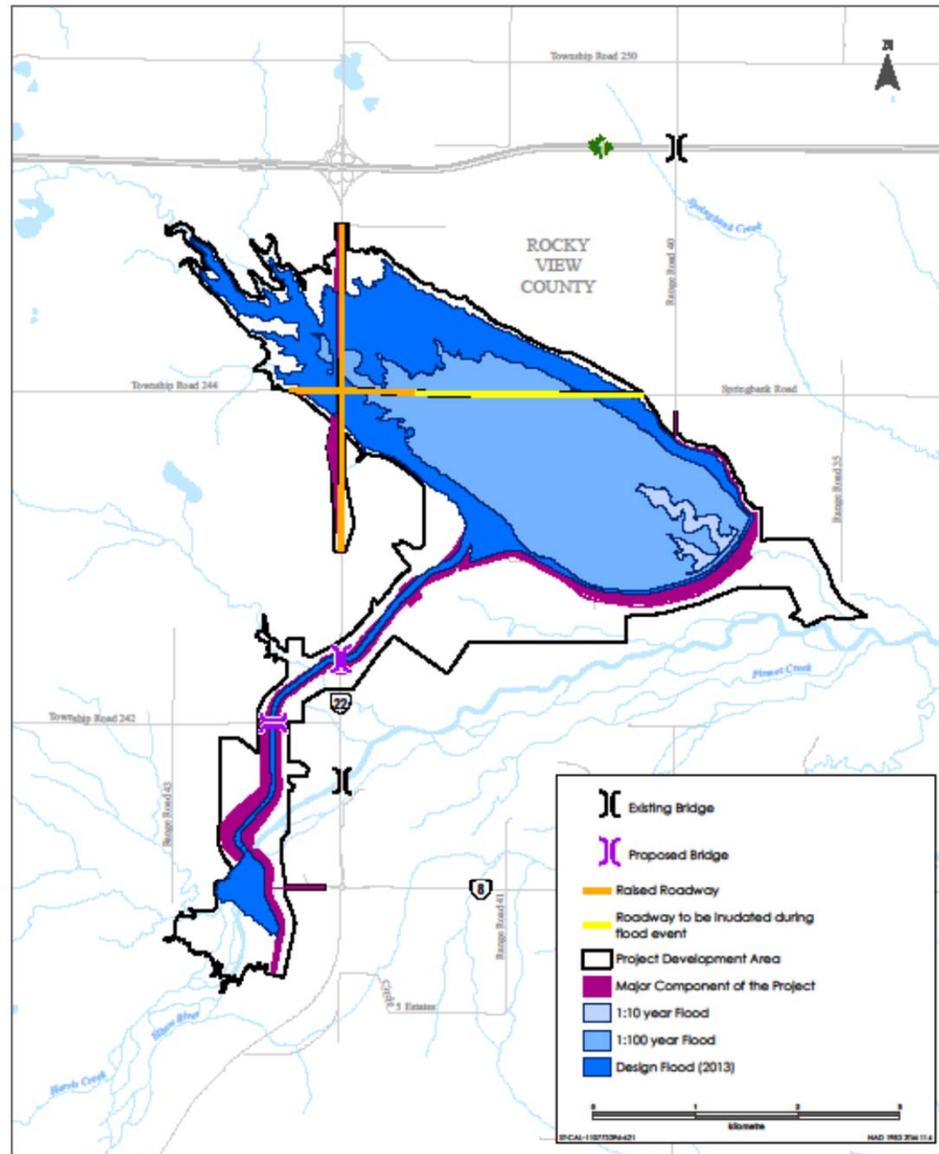
- **AEP and NRCB (Provincial) / CEAA (Federal)**
- **Contents are identical**
- **Submitted mid-month to both regulators**
- **Examines 15 categories across four assessment scenarios**

Environmental Impact Statement / Assessment

CATEGORIES		
Air Quality and Climate	Aquatic Ecology	Historical Resources
Acoustic Environment	Terrain and Soils	Traditional Land and Resource Use
Hydrogeology	Vegetation and Wetlands	Public Health
Hydrology	Wildlife and Biodiversity	Infrastructure and Services
Surface Water Quality	Land Use and Management	Employment and Economy

Assessment Scenarios

- **Construction**
- **Dry Operations**
- **Flood**
- **Post-Flood Operations**



Sources: Base Data - FSR, Rocked Path, Government of Alberta, Government of Canada
 Township Data - SRMC, Government of Alberta, Shireline 04



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Flood Scenarios

Figure 3-7



Air Quality and Climate

- **Potential Effects:**
 - Changes in: ambient air quality, ambient light, greenhouse gas, carbon sequestration capacity
- **Mitigation:**
 - Reduce idling times
 - Apply dust suppressants when necessary
 - Vegetate promptly
- **Significance Determination:**
 - Overall residual effect – not significant
 - Contribute only 0.03% to Alberta GHG emissions
 - Lighting not to exceed rural environment guidelines



Acoustic Environment

- **Potential Effects:**
 - Changes in: existing acoustic environment
- **Mitigation:**
 - Reducing equipment activities for specific areas or times
 - Complaint response procedure
- **Significance Determination:**
 - Overall residual effect – not significant
 - With mitigation, sound levels at most receptors would meet Health Canada thresholds (construction)
 - Dry operations, flood and post flood – not expected to exceed Health Canada thresholds



Hydrogeology

- **Potential Effects:**
 - Changes in: groundwater quantity and quality
- **Mitigation:**
 - Contractor to produce a Care of Water plan
 - Planning to minimize dewatering time, water returned to the local watershed
 - Seepage in the diversion channel allowed to infiltrate back into the ground
- **Significance Determination:**
 - Overall residual effect – not significant
 - Limited areas where groundwater infiltration could occur
 - Short retention time



Hydrology

- **Potential Effects:**
 - Changes in: sediment transport, channel morphology and hydrological regime beyond historic record
 - Sediment deposited in flood events mainly sand and coarse silt
- **Mitigation:**
 - Isolate in-stream works
 - Erosion and sediment control measures
 - Reclaim bank/riparian areas
- **Significance Determination:**
 - During construction, dry operations and post flood operations - overall residual effect – not significant
 - Primary flow would not be impeded
 - During flood – Project designed to mitigate extreme flooding on the Elbow River



Surface Water Quality

- **Potential Effects:**
 - Changes in: surface water quality
- **Mitigation:**
 - Limit in-stream and riparian works
 - Isolating in-stream works
 - Erosion and sediment control measures
 - Reclaim bank/riparian areas
- **Significance Determination:**
 - Overall residual effect – not significant
 - Methylmercury concentrations below CCME water quality guidelines



Aquatic Ecology

- **Potential Effects:**
 - Changes in: fish habitat, movement, mortality risk
- **Mitigation:**
 - Contractor to produce site specific Erosion and Sediment Control Plan
 - Isolate in-stream works
 - Addition of boulders downstream of diversion
 - Planning to respect restricted activity periods to the extent possible
- **Significance Determination:**
 - Overall residual effect – not significant
 - Residual effects are unlikely to pose long-term threat to fish species



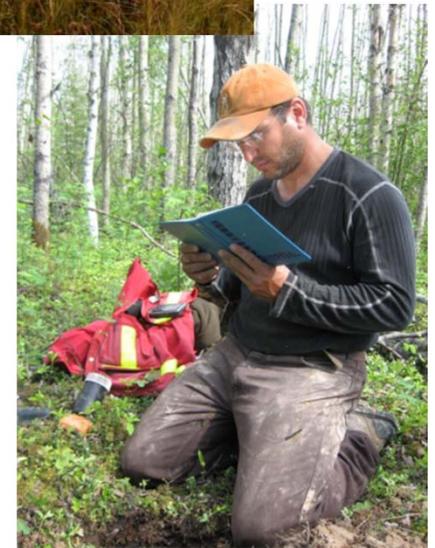
Terrain and Soils

- **Potential Effects:**
 - Changes in: terrain stability, soil quality and quantity
- **Mitigation:**
 - Salvage soils to replace following construction
 - Slope stability monitoring
 - Seeding/revegetation to help stabilize soils using native or agronomic plant species
- **Significance Determination:**
 - Overall residual effect – not significant (for all components except outlet channel during floods above 1:100)
 - Change in terrain stability at the outlet channel following flood and post-flood operations for the 1:100 and design flood – significant effect.



Vegetation and Wetlands

- **Potential Effects:**
 - Changes in: landscape diversity, community diversity, species diversity, wetland functions
- **Mitigation:**
 - Reseeding native soil areas with native seed mix
 - Cover crop to assist in weed and erosion control
 - Actively manage weeds
 - Replacement of permanent wetland impacts
- **Significance Determination:**
 - Overall residual effect – not significant
 - No loss of native upland or wetland vegetation, plant species of management concern or wetlands in the LAA



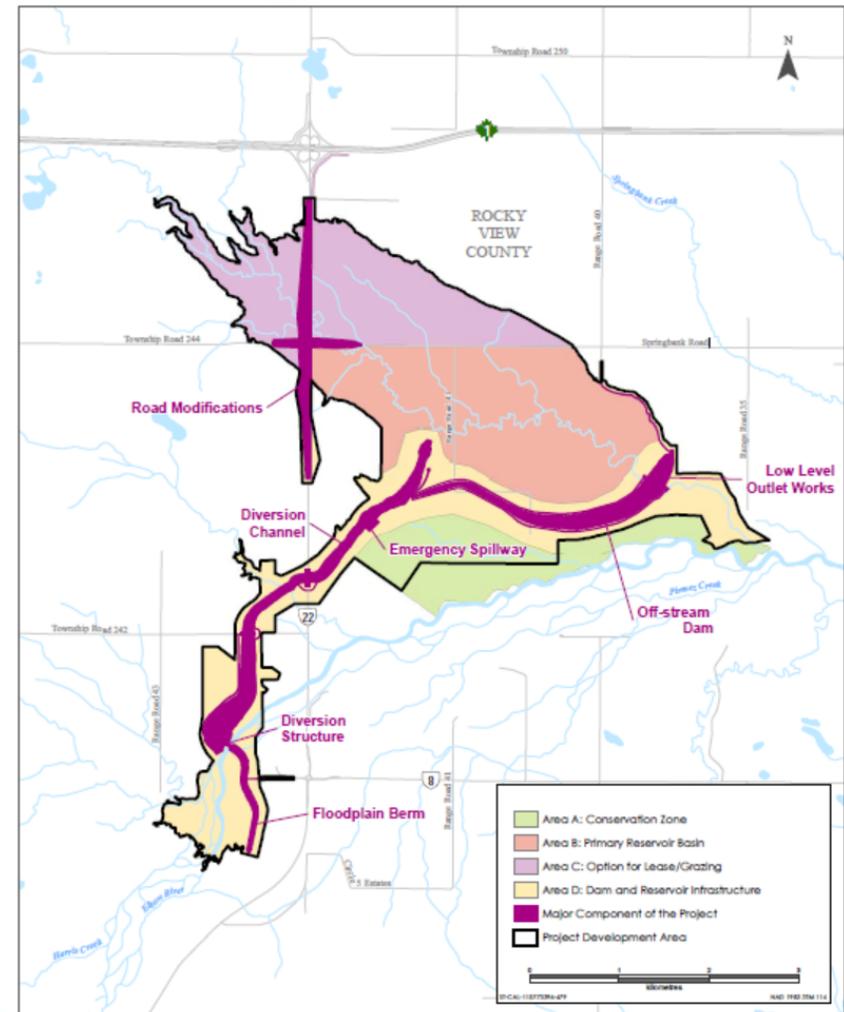
Wildlife and Biodiversity

- **Potential Effects:**
 - Changes in: habitat, movement, mortality risk, biodiversity, wildlife health
- **Mitigation:**
 - Floodplain berm and diversion channel will allow for wildlife movement
 - Setbacks for active nests and dens
- **Significance Determination:**
 - Overall residual effect – not significant



Land Use and Management

- **Potential Effects:**
 - Changes in: land use (including navigation), change in parks and Protected Areas
- **Mitigation:**
 - Permanent portage around in-stream components
 - Signage for detours
- **Significance Determination:**
 - Overall residual effect – not significant
 - Landowners will be compensated fairly



Historical Resources

1. Potential Effects:

- Loss of or alteration to historical resource site contents or site context

2. Mitigation:

- Will comply with requirements as directed by Alberta Culture and Tourism

3. Significance Determination:

- Overall residual effect – not significant



Traditional Land and Resource Use

- **Potential Effects:**
 - Changes in: availability of or access to traditional resources for current use, current use sites or areas
- **Mitigation:**
 - Have met with and documented engagement activities with indigenous groups as well as issues, concerns and recommendations raised.
 - Area along the Elbow River flood plain will be accessible
- **Significance Determination:**
 - Overall residual effect – not significant
 - Does not result in long-term loss of availability of traditional use resources in the LAA or RAA

Public Health

- **Potential Effects:**
 - Change in human health
- **Mitigation:**
 - Construction vehicles will be properly maintained and meet emission control standards
- **Significance Determination:**
 - Overall residual effect from air quality, water quality and country foods – not significant
 - methylmercury (less than the CCME water quality guidelines)

Infrastructure and Services

- **Potential Effects:**
 - Changes in: infrastructure services, accommodation availability, transportation infrastructure and services
- **Mitigation:**
 - Construction staging plan to reduce traffic disruptions
 - Traffic Accommodation Strategy developed by the contractor
- **Significance Determination:**
 - Overall residual effect – not significant
 - Hwy 22 remains open during construction
 - No exceedance of available capacity of roads



Employment and Economy

- **Potential Effects:**
 - Changes in: provincial economy, regional labour force, regional economy
- **Mitigation:**
 - Effects are expected to be positive with direct, indirect, and induced employment and GDP. As such no mitigation measures are proposed
- **Significance Determination:**
 - Overall residual effect – positive on employment and economy in the LAA and Alberta
 - Reduce the average annual damages of floods by approximately \$28 million



Next Steps

- **Respond to Information Requests from the regulators**
- **Participate in the NRCB process**

QUESTIONS?