

**Calgary Metropolitan Region Board  
Intermunicipal Servicing Committee**

Meeting Agenda November 7, 2019, 1:00 PM  
Mount Royal University, Room EC2010  
Rocerick Mah Centre For Continuous Learning

*The purpose of this meeting is to convene, discuss and make decisions regarding recommendations to be made to the Calgary Metropolitan Region Board.*

- |   |  |                          |
|---|--|--------------------------|
| 1. Call to Order & Opening Remarks  |  | Sheard                   |
| 2. Adoption of Agenda   |  | All                      |
| <i><b>For Decision:</b> Motion to adopt and/or revise the agenda</i>  |  |                          |
| 3. Review and Approve Minutes   | (Attachment)                                   | ISC                      |
| <i><b>For Decision:</b> Motion that ISC review and approve the Minutes of the October 3, 2019 joint meeting</i>   |  |                          |
| 4. Natural & Managed Water Capacity Study   | (Attachment)                                   | Graves/<br>WaterSMART    |
| <i><b>For Decision:</b> Motion that ISC recommend to the Board approval of the Natural and Managed Capacity of Regional Water Supply in the Calgary Metropolitan Region study as input for the Growth Plan consultant</i> |  |                          |
| <i>*Report &amp; Bibliography from WaterSMART attached separately</i>   |  |                          |
| 5. CMR Existing Water & Wastewater Servicing and Regional Potential Study   | (Attachment)<br>(Presentation sent separately) | Graves/<br>Urban Systems |
| <i><b>For Decision:</b> Motion that ISC recommend to the Board approval of the CMR Existing Water and Wastewater Servicing and Regional Potential study as input for the Growth Plan consultant</i>                       |  |                          |
| <i>*Report and Presentation from Urban Systems will be circulated by Monday Nov 4</i>   |  |                          |
| 6. Stormwater Background Report Update  | (Attachment)                                   | Graves                   |
| <i><b>For Discussion:</b> Motion that ISC receive an update on and discuss the Stormwater Background Report</i>   |  |                          |
| 7. TAG Update   | (Attachment)                                   | Graves                   |
| <i><b>For Information:</b> Motion that ISC receive for information an update on TAG Activities</i>  |  |                          |

8. Closed Session

- I. Growth Plan (Confidential Attachment) HDR Calthorpe
  - a. Workshop #1-What We Heard" summary Memo (Pursuant to Section 23 of FOIP)
  - b. Preliminary Internal and External Stakeholder Engagement Plan (Pursuant to Section 24 of FOIP)
  - c. Draft Terms of Reference for the Growth and Servicing Plan External Technical Advisory Group (Pursuant to Section 24 of FOIP)
  
- II. Western Irrigation District Project (Verbal Update) Graves  
(Pursuant to Section 16 of FOIP)

9. Next Meeting: Thursday December 5, 2019

10. Adjournment Sheard

Servicing Committee Members:

Mayor Peter Brown (Airdrie)	Councillor Don Moore (High River)
Councillor Gian-Carlo Carra (Calgary)	Mayor Bill Robertson (Okotoks)
Mayor Marshall Chalmers (Chestermere)	Reeve Greg Boehlke (Rocky View)
Councillor Patrick Wilson (Cochrane)	Mayor Pat Fule (Strathmore)
Reeve Suzanne Oel (Foothills) Vice Chair	Councillor Scott Klassen (Wheatland)

Christopher Sheard, Committee Chair  
Dale Beesley, GOA Representative

Upcoming Meetings:

Land Use Committee	Thursday Dec 5 - 9:30 AM	Mount Royal University Centre for Continuous Learning, Room EC2010
Servicing Committee	Thursday Dec 5 – 1:00 PM	
Board Meetings	Friday December 13 - 9:30 AM	MRU Room EC2010
Governance Committee	TBD	
Advocacy Committee	TBD	

Minutes of the meeting of  
the Joint Land Use Committee and  
Intermunicipal Servicing Committee of  
the Calgary Metropolitan Region Board  
held at the Royal Hotel  
on Thursday October 3, 2019

**Delegates in Attendance for Land Use Committee:**

Mayor Peter Brown – City of Airdrie  
Mayor Marshall Chalmers – City of Chestermere  
Mayor Jeff Genung – Town of Cochrane  
Reeve Larry Spilak – Foothills County  
Mayor Craig Snodgrass – Town of High River  
Mayor Bill Robertson – Town of Okotoks (Vice Chair)  
Deputy Reeve Jerry Gautreau – Rocky View County  
Councillor Bob Sobol - Strathmore

**Delegates in Attendance for Intermunicipal Servicing Committee:**

Mayor Peter Brown – City of Airdrie  
Mayor Marshall Chalmers – City of Chestermere  
Councillor Suzanne Oel – Foothills County (Vice Chair)  
Councillor Patrick Wilson – Town of Cochrane  
Mayor Craig Snodgrass – Town of High River  
Mayor Bill Robertson – Town of Okotoks  
Deputy Reeve Gerry Gautreau – Rocky View County  
Mayor Pat Fule - Strathmore  
Councillor Scott Klassen – Wheatland County

**CMRB Administration:**

Christopher Sheard, Chair  
Jordon Copping, Chief Officer  
Liisa Tipman, Project Manager–Land Use  
Jaime Graves, Project Manager–Intermunicipal Servicing  
JP Leclair, GIS Analyst  
Shelley Armeneau, Office Manager

**1. Call to Order**

Called to order at 9:00 AM.

**2. Opening Comments**

Chair Sheard welcomed the Committees and confirmed the timing for the joint meeting, which would be followed by a closed session workshop with growth plan consultants HDR Calthorpe.

### 3. Approval of Agenda

**Moved by** Mayor Robertson, **Seconded by** Mayor Chalmers, accepted by Chair

**Motion:** That the Calgary Metropolitan Region Land Use Committee and Intermunicipal Servicing Committee approve the agenda of the meeting.

**Motion carried unanimously.**

### 4. Review and Approve ISC Minutes

**Moved by** Mayor Genung, **Seconded by** Mayor Fule, accepted by Chair.

**Motion:** That the Calgary Metropolitan Intermunicipal Servicing Committee approve the Minutes of the September 5, 2019 meeting.

**Motion carried unanimously.**

### 5. Introduction to HDR Calthorpe

HDR Calthorpe provided a presentation which included an introduction to the HDR Team, regional planning experience, approach to regional planning, and policy development required to meet the CMRB Regulation.

### 6. LUC & ISC TAG Update

The Committees received an update on TAG activities presented by Liisa Tipman and Jaime Graves, as set out in the report.

### 7. Western Irrigation District Project

Closed Session (Pursuant to Section 16 of FOIP)

Chair moved into closed session at 9:57 AM. Chair returned to public session at 10:08 AM.

### 8. Next Meeting: November 7, 2019 @ MRU

### 9. Adjournment

Meeting adjourned at 10:10 AM.

---

**CMRB Chair, Christopher Sheard**

<b>Agenda Item</b>	<b>4</b>
<b>Submitted to</b>	<b>Intermunicipal Servicing Committee</b>
<b>Purpose</b>	<b>For Approval</b>
<b>Subject</b>	<b>Natural and Managed Capacity of Regional Water Supply in the Calgary Metropolitan Region</b>
<b>Meeting Date</b>	<b>November 7, 2019</b>

***For Decision:** Motion that ISC recommend to the Board approval of the Natural and Managed Capacity of Regional Water Supply in the Calgary Metropolitan Region Study as input for the Growth Plan consultant*

#### **Summary**

- On March 7, 2019, the Intermunicipal Servicing Committee granted CMRB Administration the authorization to complete a series of studies in support of the Water Roadmap, including Complexity C: Natural and Managed Water Capacity in the CMR study ("Complexity C"). To add additional clarity to the scope and purpose of the study, the report is entitled: Natural and Managed Capacity of Regional Water Supply in the Calgary Metropolitan Region
- CMRB Administration collaborated with the Water Table Technical Advisory Group ("Water Table"), CMRB Subject Matter Expert, and municipal experts to develop a scope of work for the Complexity C Study.
- The RFP was posted on Alberta Purchasing Connection on May 13<sup>th</sup> with a closing date of June 11<sup>th</sup>. WaterSMART Solutions Ltd. ("WaterSMART") was selected as the preferred proponent. The project was awarded on June 26, 2019.
- WaterSMART kicked off the work with a presentation to the ISC on July 4, 2019 followed by a presentation to the Water Table. WaterSMART provided a mid-study update presentation and discussions with Water Table. A presentation of study findings was discussed at a Water Table meeting on August 22, 2019. The draft report was subsequently reviewed by the Water Table and Alberta Environment and Parks (AEP) for comment. An additional meeting of the Water Table with WaterSMART to discuss and address comments was organized. A final draft of the report was circulated for review by the municipalities and is presented here.
- The purpose of the study was to summarize a range of existing studies regarding water supply-related constraints and opportunities in the CMR for consideration by the Growth Plan consultant in preparation of the Growth and Servicing Plan.
- WaterSMART has prepared a summary presentation of findings.

- The final report and annotated bibliography are attached under separate email due to the large file size. The second deliverable for this study is the annotated bibliography of studies reviewed in preparation of this report and summarizes key findings.

### **Attachments**

- Natural and Managed Capacity of Regional Water Supply in the Calgary Metropolitan Region, WaterSMART
- Annotated bibliography, WaterSMART
- Slide Deck: The Story of Natural and Managed Capacity of Water Supply in the CMR, WaterSMART

## **1. Key Messages from This Study**

The Calgary Metropolitan Region Board (CMRB) has a mandate to complete a Growth Plan and Servicing Plan for the Calgary Metropolitan Region (CMR) by December 2020. As part of the Servicing Plan development, the CMRB is undertaking inter-related studies of five Complexities that were identified as part of the CMRB Water Roadmap. The complexities focus on existing water and wastewater servicing, demand management, natural and managed capacity of supply, regulation and policy, and water quality and a background report on stormwater. Natural and managed capacity of water supply is the focus of this complexity study, which documents a summary of learnings from existing literature to provide relevant guidance to the CMRB Growth Plan consultant on the topic of natural and managed capacity of regional water supply.

Precipitation, in the form of runoff from snowmelt and rainfall, is the main source of natural water supply to the CMR, mostly coming from the Rocky Mountain headwaters. Peak runoff from snowmelt typically occurs in May and June, while rainfall can contribute to flow from June to August. Glacier meltwater is a key source of water in the late summer when snow and rainfall do not provide as much source water volume.

Projected changes to precipitation as a result of climate change will impact the natural water supply of the region because precipitation is the major source of water supply. There are two significant ways in which precipitation is projected to change in the CMR and headwaters region:

1. Timing throughout the year: climate projections for future conditions (roughly 2040s) indicate a trend toward more precipitation during the winter and less precipitation during the summer. Warmer air temperatures are projected to result in an earlier spring snowmelt.
2. Variability (quantitative difference between high and low flows): greater variability is projected between months, with higher possibilities of extremely high or low flows in any given year.

In general, climate change is likely to increase the frequency of low flow periods in all sub-basins in the CMR. Historical water supply studies also show long periods of low flows as part of natural variability. This indicates that regardless of climate change projections, water management strategies need to be designed around significant, multi-year droughts.

Management of water supply in Alberta is enacted through legislation, licensing, infrastructure, and planning/operations coordination. In 2007, the Bow and Oldman sub-basins were closed to new applications and water conservation objectives were set for the mainstem and their tributaries. Many reservoirs have been constructed within and upstream of the CMR to manage supply, mitigate floods, produce hydropower, or some combination. Management options that may be available to the CMR as identified in previous work are described in Section 4.5 and include both structural and non-structural options.

Section 5.1 of the report provides a description of high-level key considerations for the CMRB Growth Plan consultant. These are the dominant themes that relate to future water supply management. They are broad, generalized statements for consideration in the planning process and include:

- **Water supply variability:** Higher degrees of variability in water supply may be expected in the future. The river systems supplying water to the CMR have experienced significant natural variability in the past and in addition, climate change may introduce some level of variability. Planning for greater variability than has been experienced in recent decades is a pragmatic approach; in particular, multi-year droughts are likely.
- **Coordination among users:** Various kinds of storage and synchronizing upstream releases with downstream purposes offer opportunities. These could be in the form of upstream-downstream water management agreements and changing reservoir operations, or basin-wide shortage sharing and reallocation frameworks.
- **Planning for increasing efficiency:** Enabling growth while maintaining the same level of water consumption is possible through efficiency. Rates for water use must reflect the full cost of service and promote conservation.
- **Risk and vulnerability:** Water infrastructure must be designed to withstand extreme weather events. Extreme weather events in the headwaters may impact water availability or quality.
- **Low flows and wastewater:** Low river flows may impact municipal services by having inadequate volume for wastewater dilution.
- **Work with existing initiatives:** Many local and regional water management initiatives are underway already. New water management initiatives should tie-in with existing and under-development efforts to benefit the region as a whole.
- **Watershed changes are linked to water supply:** The important role that the whole watershed and tributaries play in contributing water quantity and water quality to the mainstem is often overlooked. Opportunities may exist in



coordinating management efforts from a systems approach regarding land use changes and the stewardship of smaller tributaries. Similarly, increasing water withdrawals from or wastewater inputs to sub-basins may have unforeseen impacts to the mainstem.

- **Diversity of storage and servicing:** A range of types of water storage provides better resilience and allows for more fine-tuned supply management, both of which are highly valuable in a variable and high-demand system like the CMR.

All sub-basins in the CMR are expected to experience some degree of water quantity constraints in the next 30 years due to projected changes in the natural and managed parts of the system. Generally, the headwaters have the lowest relative potential to experience constraints over the next 30 years with constraints increasing progressively downstream. Headwaters generally have fewer constraints as they have lower population levels, less development, and a proportionally greater volume of water to draw from. While most CMR municipalities fall within the highest level of constraint, it should be noted that these numbers are relative to other sub-basins in the study area and not absolute indicators of impending shortages.

Addressing the various water supply constraints will require action and cooperation by numerous stakeholders in the region. Specific opportunities for consideration by the CMRB as they proceed with regional planning were extracted from the literature throughout the preparation of the report, and are summarized below and in the final section of the report:

- Establish agreed-upon standards and timeframes for water-related municipal actions
- Develop an overall water supply strategy
- Work with a collaborative working group to identify specific opportunities for coordination of upstream releases and downstream uses, potentially identifying storage projects
- Formalize water sharing agreements
- Connect to academic researchers directly to promote applied research
- Work with AEP through the Land-use Framework to enable headwater protection and integrated land use management

A number of data gaps were identified during the study and are acknowledged in Section 6.2 of the report. As identified in the report, this topic is highly complex with multiple variables and additional study would benefit from input from other stakeholders.

Climate change impacts create uncertainty in water supply. Research suggests we should expect more snowmelt earlier in the year, hotter and drier summers, and higher intensity rainfalls.



## **2. Administration Request**

That the Intermunicipal Servicing Committee recommend to the Board approval of the Natural and Managed Capacity of Regional Water Supply in the Calgary Metropolitan Region study as input for the Growth Plan consultant.

# The Story of Natural and Managed Capacity of Water Supply in the CMR

Brie Nelson  
Mike Nemeth

November 7, 2019

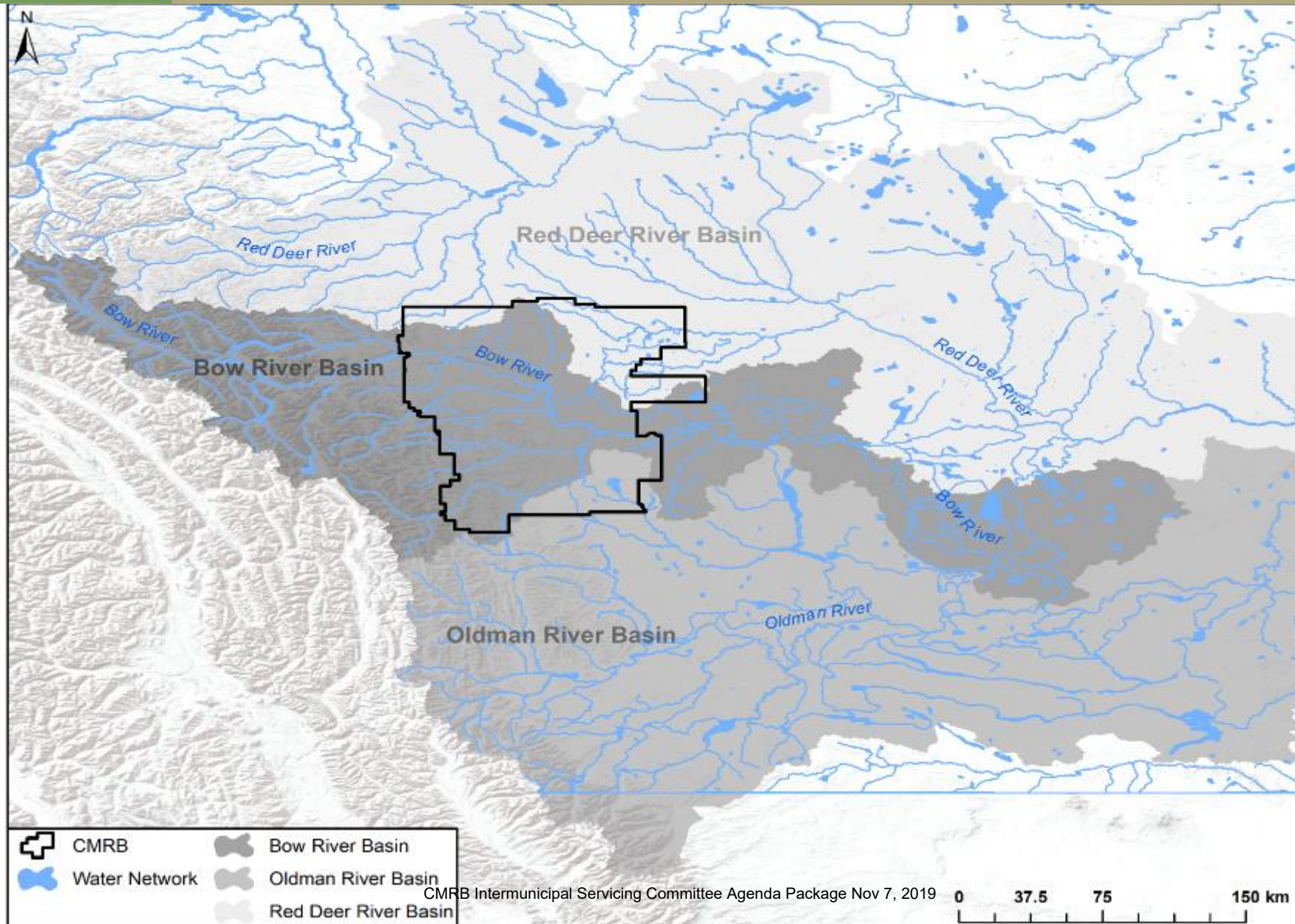
# Why are we here?



- **To ensure responsible growth in the CMR, Growth and Servicing Plans that will guide regional land-use decision-making are being developed.**
- **As part of this mandate, WaterSMART was engaged to study the natural and managed capacity of regional water sources.**

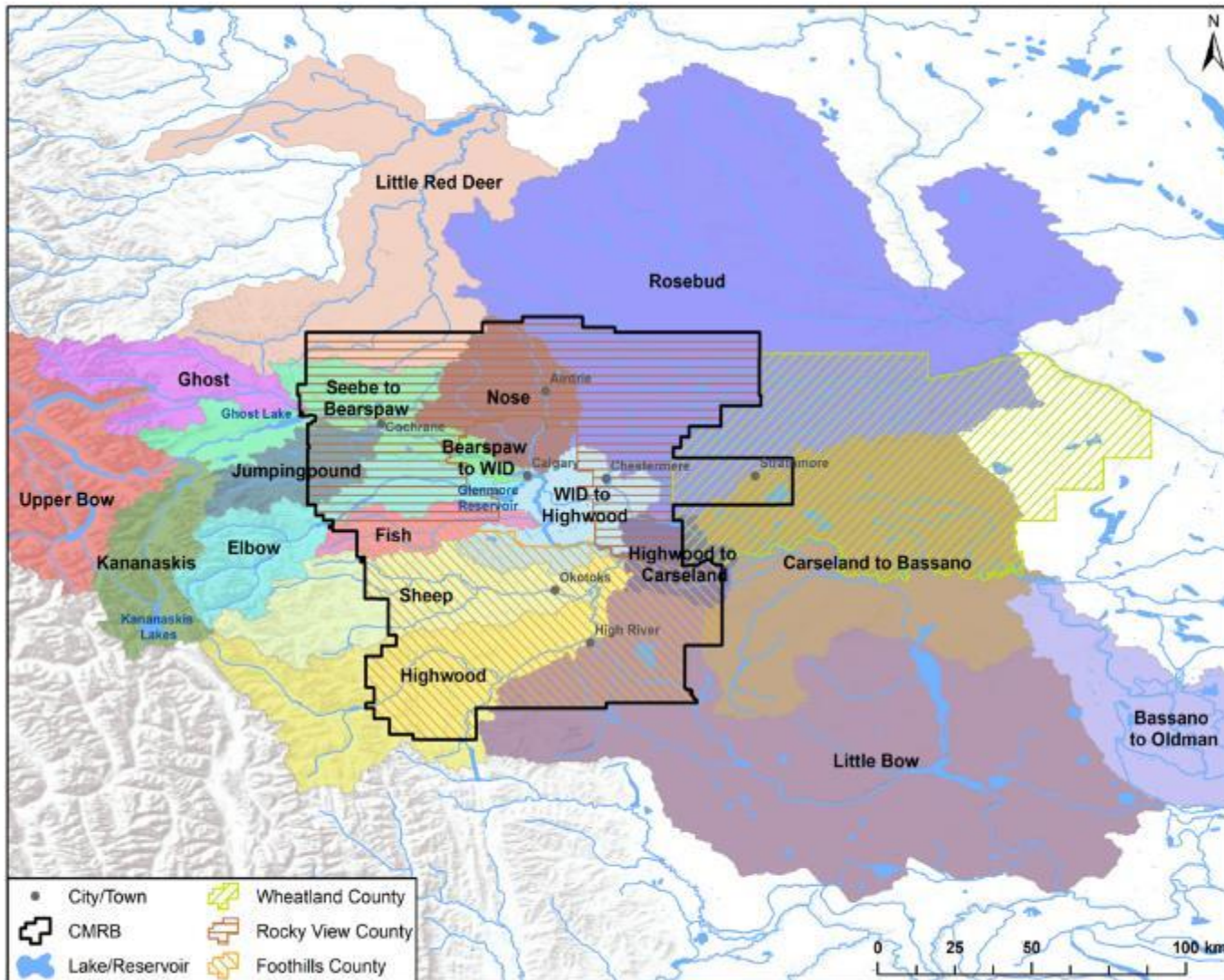


# CMR in relation to the Red Deer, Bow, and Oldman River basins





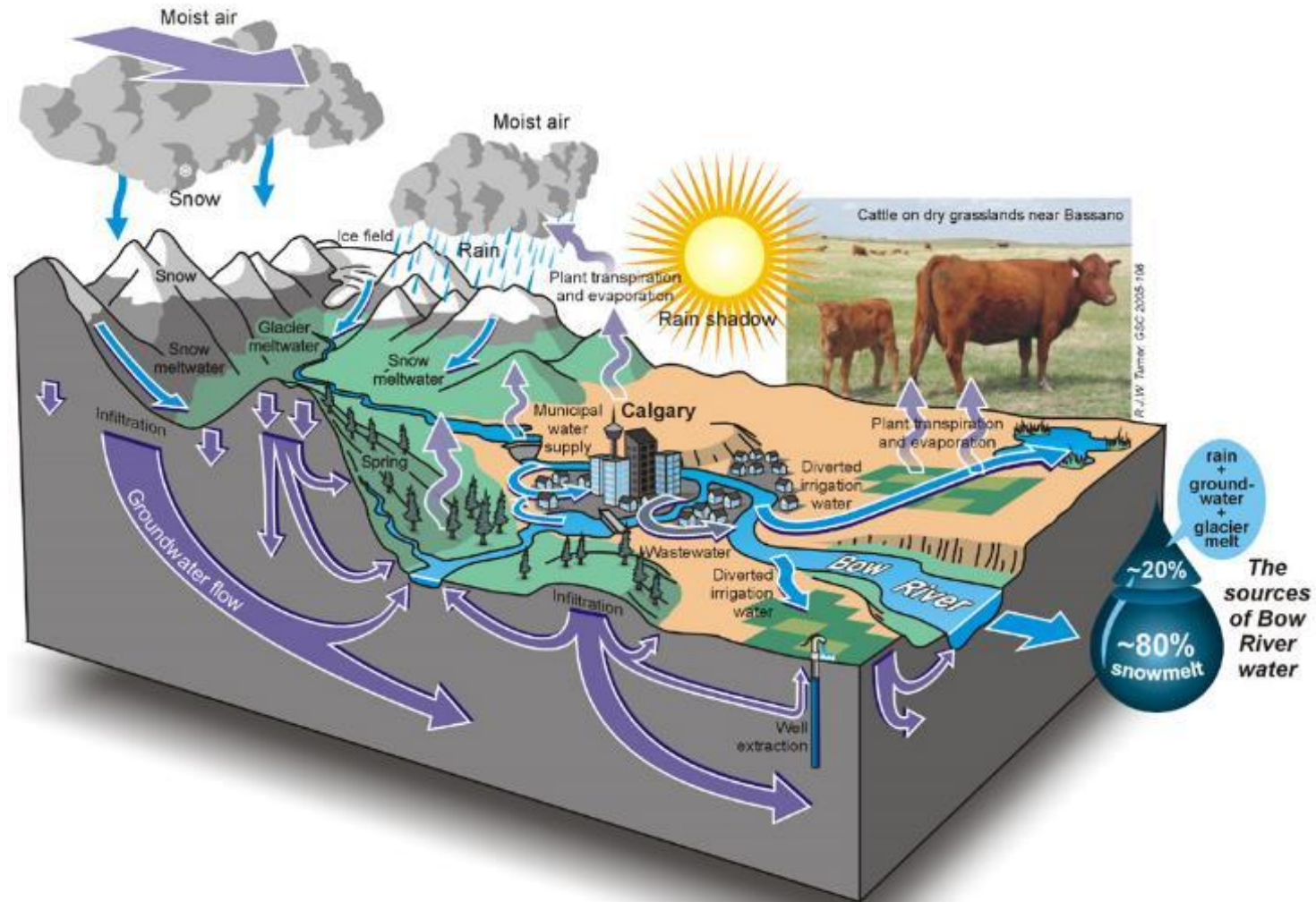
# Overlap with many smaller sub-basins with local needs and considerations



The amount of runoff from snowmelt in the Rocky Mountains on any given year is the main natural factor that determines how much surface water reaches CMR municipalities.

The CMR borders superimposed on the sub-basins and river reaches studied.

# Our natural water supply is complicated!



**Our naturally variable system means there are changes in the volume and timing of water flow both within and between years.**

Source: Turner, R.J.W., Franklin, R.G., Grasby, S.E., and Nowlan, G.S. 2005: Bow River Basin Waterscape; Geological Survey of Canada, Miscellaneous Report 90, 2005.

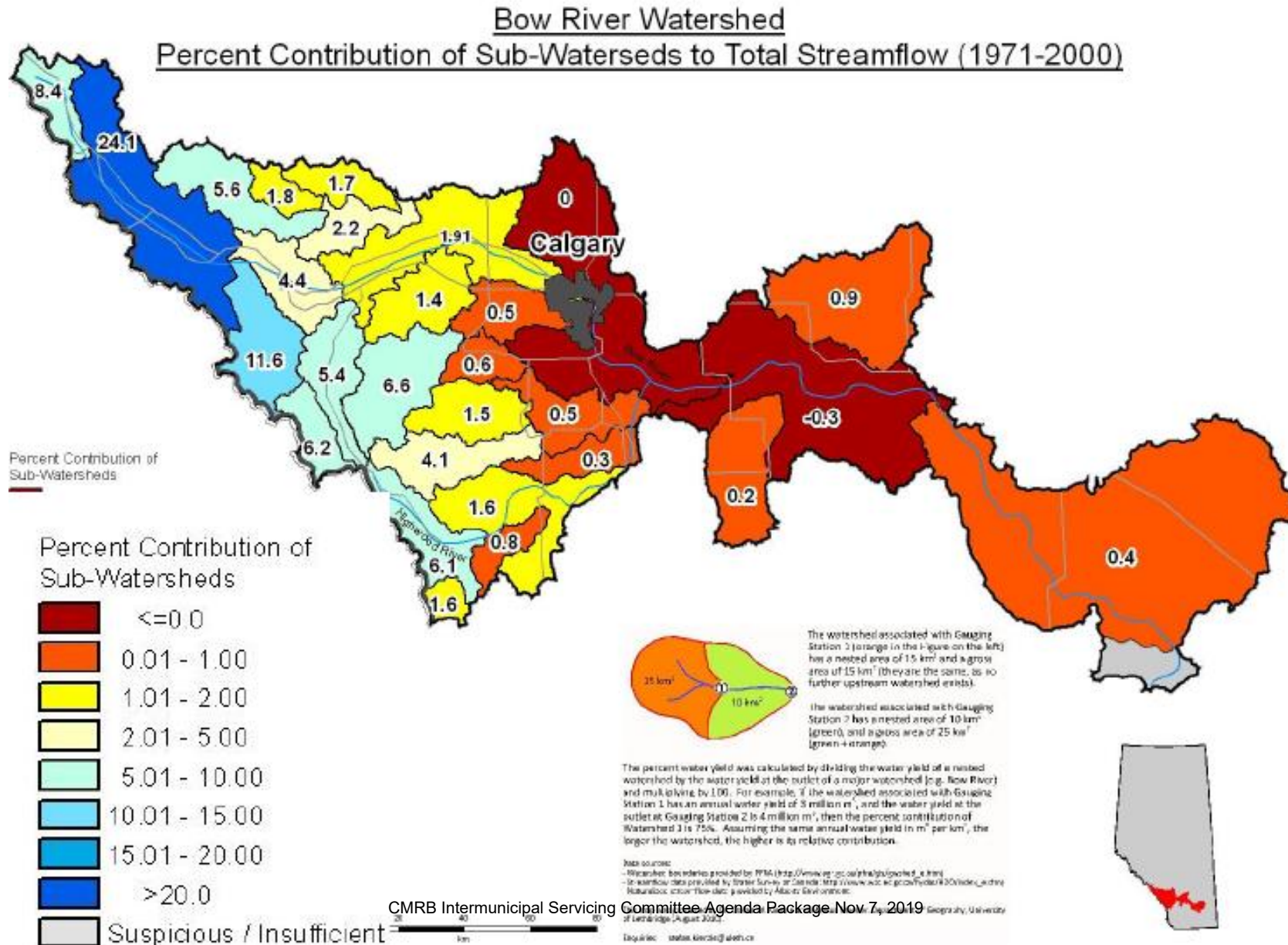
CMRB Intermunicipal Servicing Committee Agenda Package Nov 7, 2019

[www.watersmartsolutions.ca](http://www.watersmartsolutions.ca)

Agenda Page 14 of 54

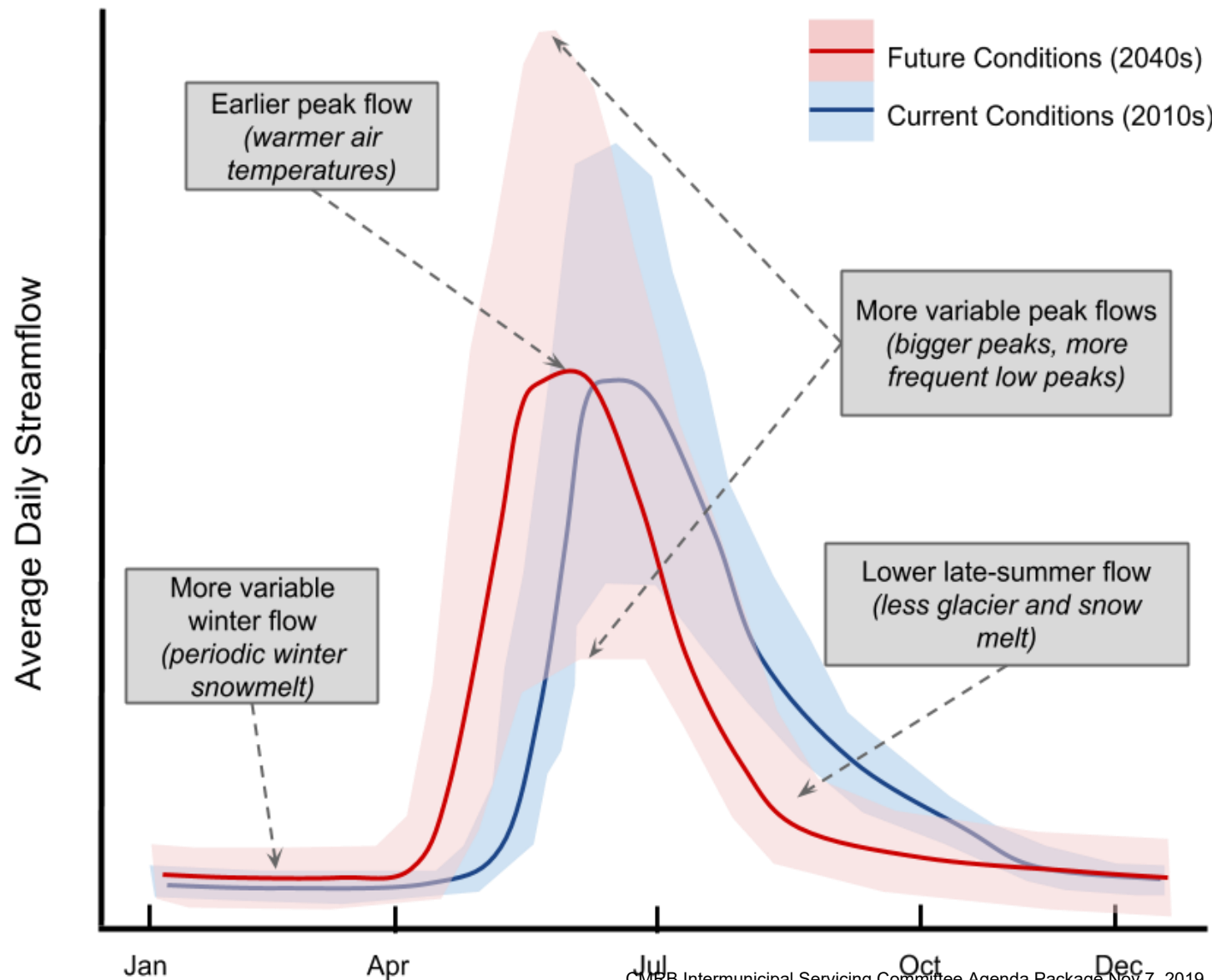


# Where exactly does our water come from?





# How will climate change impact the CMR?



## Conceptual diagram

- Illustrates the changes to average daily naturalized streamflow
- Projected for between now and the 2040s
- Typical mountainous, snowmelt-dominated sub-basin in the Bow River watershed.

The solid lines represent an “average” flow, while shaded areas correspond to an expected range of variability. The graph is not based on real data.

# One solution? Water management



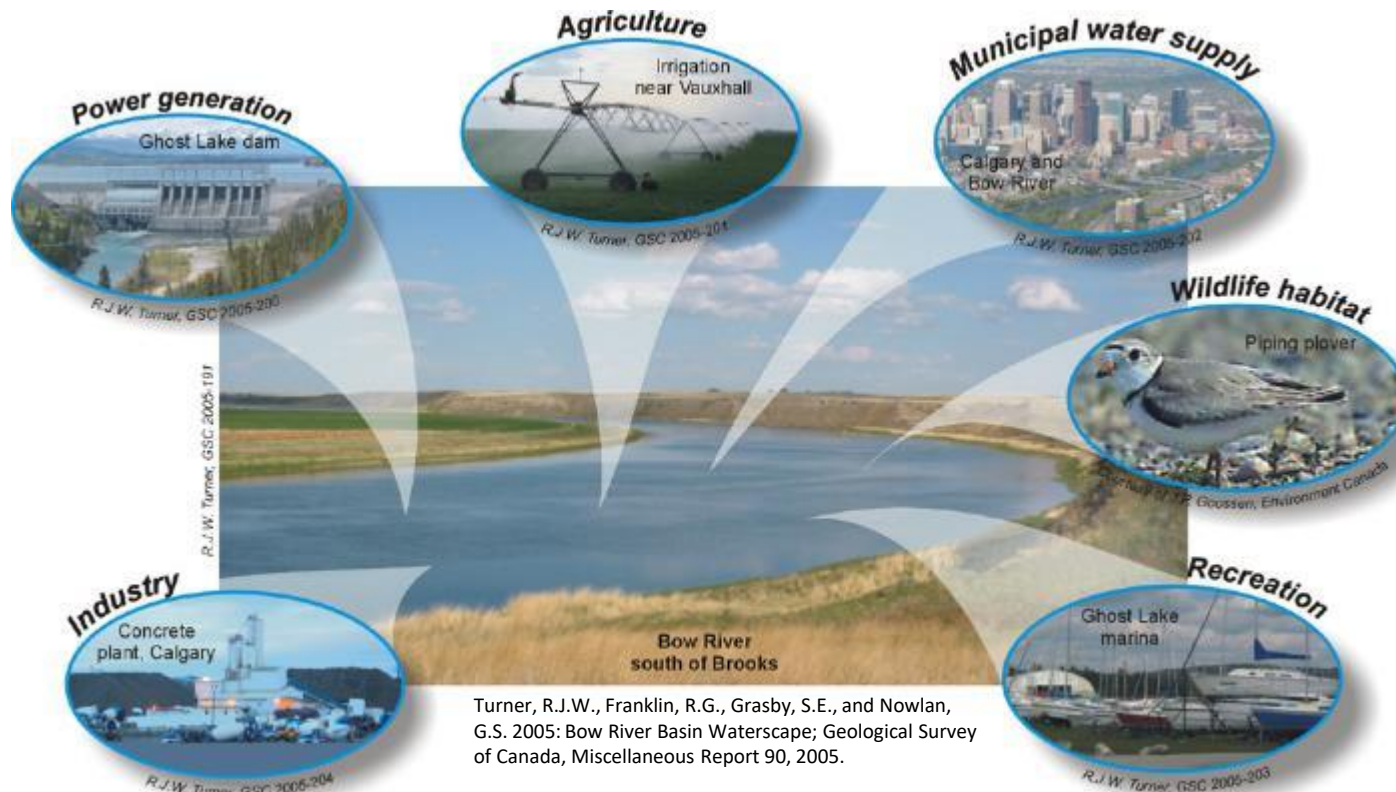
**Effective water management is one way we can reduce the impacts of a changing climate and other stresses on water supplies in the CMR.**



**In Alberta, this is currently done through a combination of legislation, planning, infrastructure and licencing.**

# Water management legislation

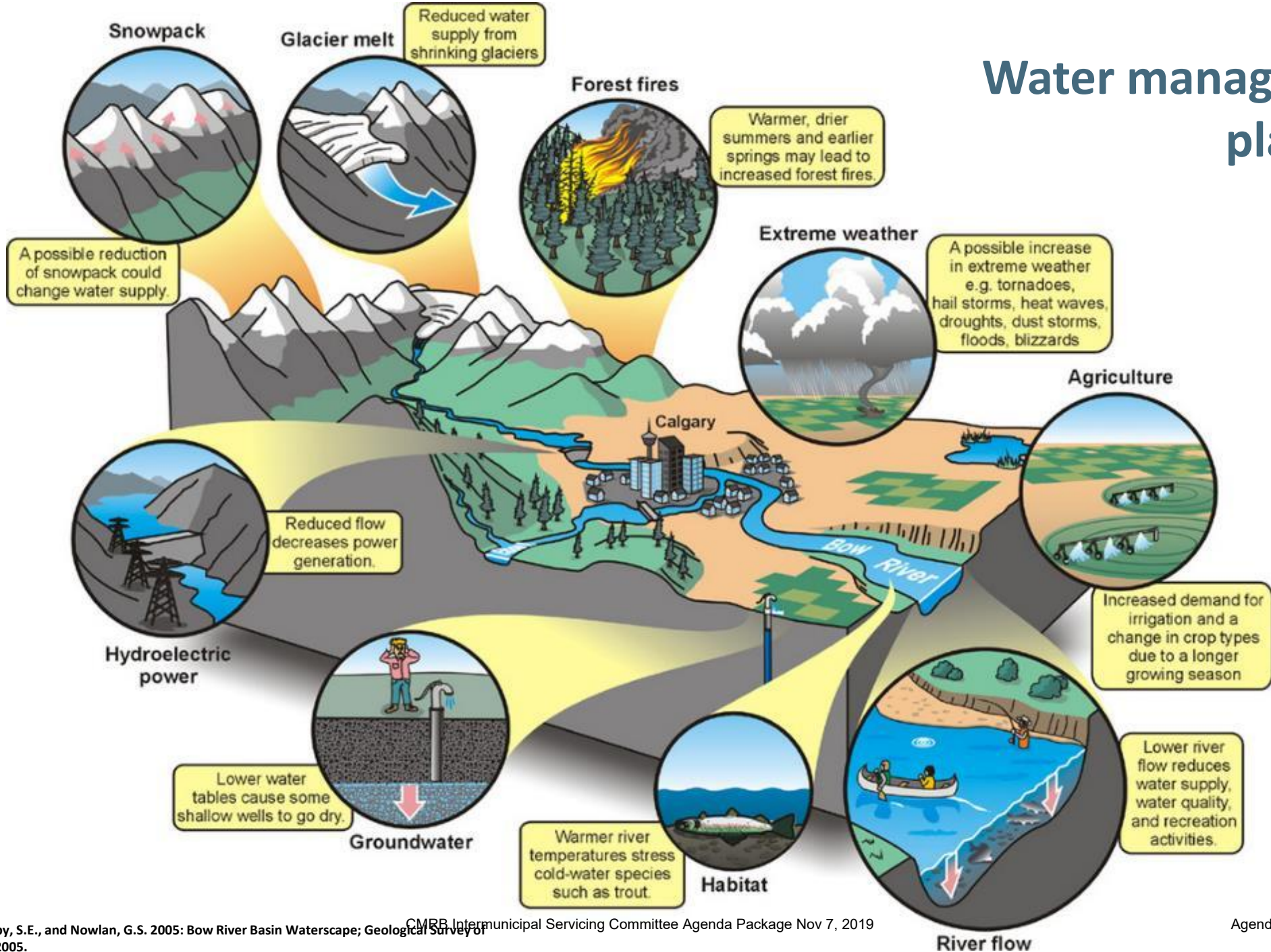
- **Alberta Water Act:** governs how the Province of Alberta manages water. Promotes economic growth through conservation and management of water.
- **Approved Water Management Plan for the SSRB:** no new applications for water allocations accepted for surface water from the basins of the Bow, the Oldman and the South Saskatchewan River sub-basin, and directs the government to implement an allocation limit for the Red Deer River Basin.



Turner, R.J.W., Franklin, R.G., Grasby, S.E., and Nowlan, G.S. 2005: Bow River Basin Waterscape; Geological Survey of Canada, Miscellaneous Report 90, 2005.



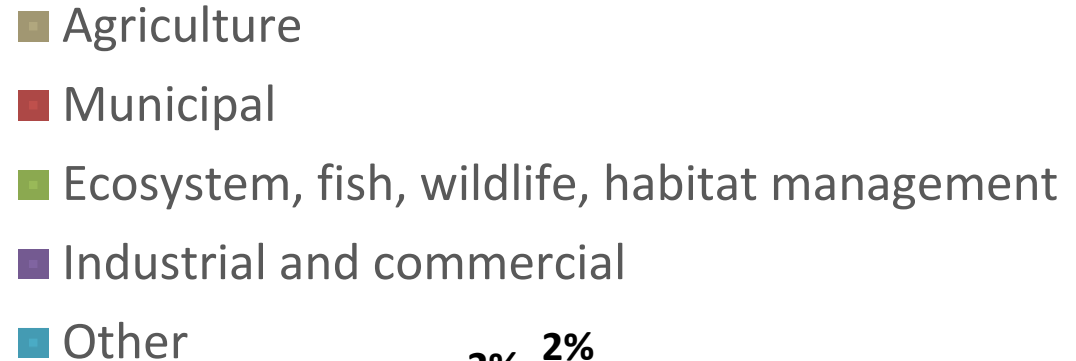
# Water management planning



# Water management through licensing

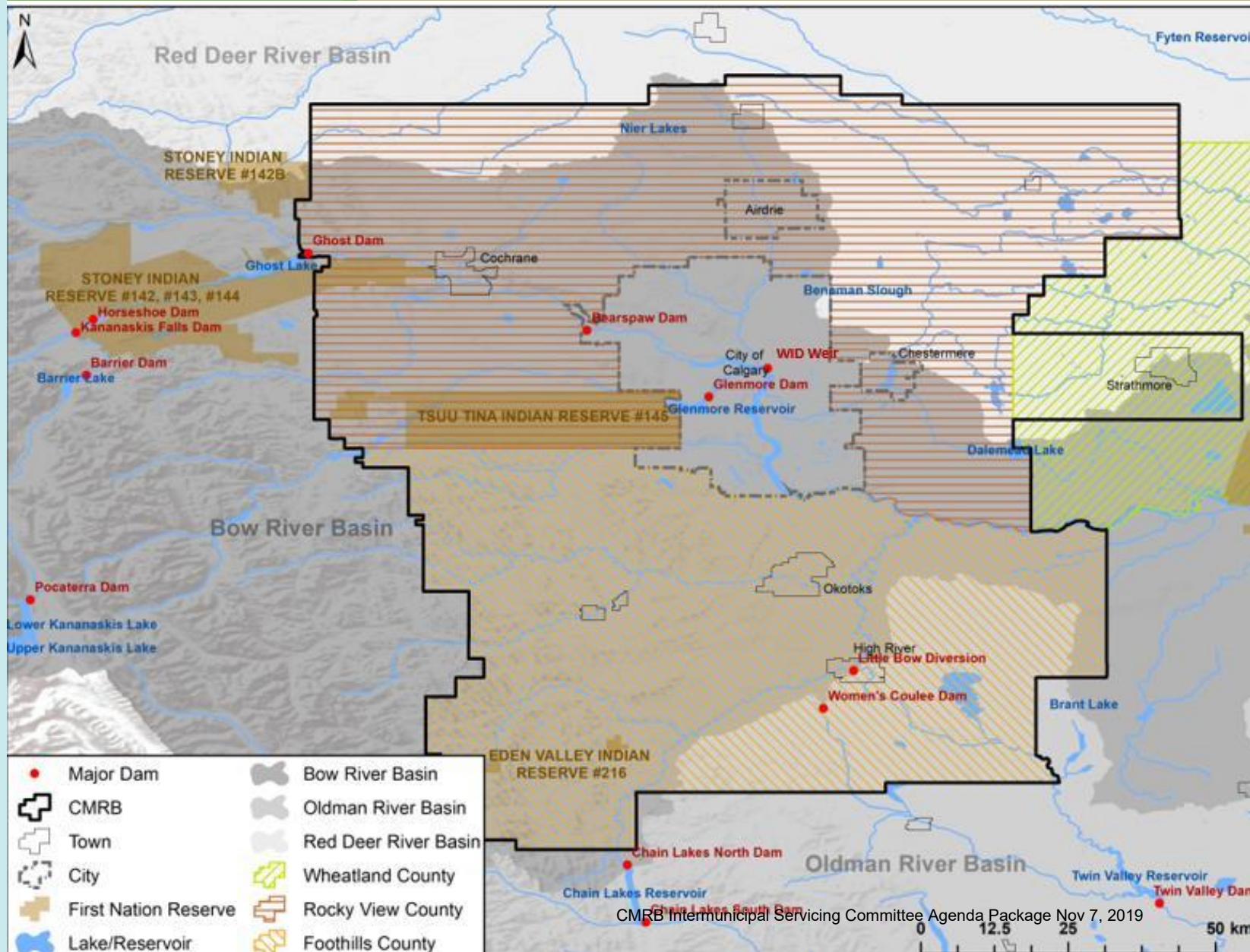
## SURFACE WATER ALLOCATIONS IN THE BOW RIVER BASIN 2010

- A water licence is issued under the *Water Act*
- Total annual volume, diversion rate, purpose of use, location, and other conditions
- Return-flow volumes are designated on the licence if applicable
- The Bow River is a fully allocated river = 60-70% of annual flow volume
- 1969 Master Agreement on Apportionment: half of the natural annual flow is to be passed on to Saskatchewan





# Water management infrastructure in the CMR and surrounding area



Water management infrastructure in the CMR and surrounding area has been developed in the past to improve or increase capacity to meet the needs of all stakeholders and the environment.

# How reservoirs and dams help us meet our water needs



**Reservoirs help meet water needs storing water, and augmenting natural periods of low streamflow which enables large licence allocations to still withdraw water.**



**Dams are used to make water releases that can maintain sufficient flows when they are most needed. Some dams can be operated to reduce flooding or save water to prepare for a drought.**



# Literature review: Options from previous studies for managing water

Option	Benefits	Risks
<b>Support the construction of new water storage</b>	<ul style="list-style-type: none"> <li>Increases available supply during shortages</li> <li>Flood mitigation opportunities</li> <li>Alleviates pressure &amp; provides flexibility for managing existing facilities</li> </ul>	<ul style="list-style-type: none"> <li>High cost</li> <li>Footprint removes existing riverine habitat</li> <li>Long and uncertain timeframes for completion including consultation, environmental approvals, and construction</li> </ul>
<b>Support changes to the operation of existing water storage</b>	<ul style="list-style-type: none"> <li>Relatively low cost compared to new infrastructure</li> <li>Can be implemented quick and offer immediate value</li> </ul>	<ul style="list-style-type: none"> <li>Changes in operational priorities may shift political will to advance some of these opportunities</li> <li>Potential impacts to meeting power demand</li> </ul>
<b>Support modification of existing water storage at Spray Reservoir</b>	<ul style="list-style-type: none"> <li>More time &amp; cost efficient than building new upstream storage</li> </ul>	<ul style="list-style-type: none"> <li>Uncertain currently if it would have the desired outcome and provide sufficient downstream benefits for CMR</li> </ul>
<b>Actively participate in regional water management discussions</b>	<ul style="list-style-type: none"> <li>Provides opportunity to influence priorities for the basin</li> <li>A unified CMR voice represents significant % of Alberta population</li> </ul>	<ul style="list-style-type: none"> <li>None - there is a risk of not participating in discussions</li> </ul>
<b>Develop improved monitoring and forecasting tools or technology to inform water management decisions</b>	<ul style="list-style-type: none"> <li>Could form the basis of partnerships &amp; increase collaboration</li> <li>Accurate forecasts are essential for basin management to balance risks &amp; coordinate actions across all sectors and water users</li> </ul>	<ul style="list-style-type: none"> <li>There is a risk of not doing anything</li> <li>Tools must be used for planning and decisions in order to have an impact but there is a risk of developing a tool and then it not being used</li> </ul>

# Literature review: Options from previous studies for managing water

Option	Benefits	Risks
<b>Further implementation of demand management</b>	<ul style="list-style-type: none"> <li>• Effective conservation measures are generally well established, public education can improve implementation</li> <li>• Could be implemented at any time and low cost</li> </ul>	<ul style="list-style-type: none"> <li>• Public support may be low due to perception that utility rates will increase</li> <li>• Messaging that is off-target or not educating effectively may have no results for spend</li> <li>• Adequate and long-term resources</li> </ul>
<b>Water quality protection</b>	<ul style="list-style-type: none"> <li>• Reduction in treatment costs for downstream users</li> <li>• Improved health of aquatic and riparian ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>• No risks were identified</li> </ul>
<b>Opportunities related to water licences</b>	<ul style="list-style-type: none"> <li>• Improve reliability of supply by changing source water body</li> </ul>	<ul style="list-style-type: none"> <li>• Public support may be low</li> </ul>

# Considerations for the growth planning consultant

<b>Water supply variability</b>	Higher degrees of variability in water supply may be expected in the future. IN particular, multi-year droughts are likely.
<b>Coordination among users</b>	Various kinds of storage & synchronizing upstream releases with downstream purposes offer opportunities. Could be in the form of upstream-downstream water management agreements & changing reservoir operations, or basin-wide shortage sharing & reallocation frameworks.
<b>Planning for increasing efficiency</b>	Enabling growth while maintaining the same level of water consumption is possible through efficiency. Rates for water use must reflect the full cost of service and promote conservation.
<b>Risk &amp; vulnerability</b>	Water infrastructure must be designed to withstand extreme weather events which may impact water availability or quality.
<b>Low flows &amp; wastewater</b>	Low river flows may impact municipal services by having inadequate volume for wastewater dilution.
<b>Work with existing initiatives</b>	Many local and regional water management initiatives are underway already. New water management initiatives should tie-in with existing and under-development efforts to benefit the region as a whole.
<b>Watershed changes are linked to water supply</b>	The role tributaries play in contributing to water quantity to the mainstem is often overlooked. Opportunities may exist in coordinating management efforts with stewardship of smaller tributaries. Similarly, increasing withdrawals from or wastewater inputs to sub-watersheds may have unforeseen impacts to mainstem.
<b>Diversity of storage &amp; servicing</b>	A range of types of water storage provides better resilience & allows for more fine-tuned supply management, both of which are highly valuable in a variable and high-demand system like the CMR.

## Potential constraints for municipalities

- Constraints include **low flow periods corresponding with high demand times**.
- As the **City of Calgary does not have the most senior allocations on the Bow**, if a more senior licence holder were to exercise their first-in-time right, the city's licence could be constrained.
- **Nutrient loading** during low flows is a potential constraint.
- **Degrading quality of source waters** from upstream land uses, practices and changes will create constraints.
- **Operational constraints will be created from regulatory approvals** (e.g. maximum diversion capacity and effluent loadings).
- Supply constraints will stem from **climate change shifts to water supply quantity and timing**, and from the capacity of existing reservoirs to maintain water availability.
- **Population growth** is expected for all CMR member municipalities. Water demand will increase if per-capita water use remains the same, **potentially leading to constrained water supplies**.

# Potential additional studies to address gaps in understanding

- **Regional climate study on water supply change and constraints:**
  - Use growth projections to analyze current and future water availability under climate change, current water allocation, water use from water bodies relevant to the CMR, and future water needs.
- **Multi-year drought regional water supply management study:**
  - To understand the impact of prolonged dry periods on water availability and potential responses.
- **Reservoir study:**
  - To understand current roles and opportunities of existing reservoirs from a regional perspective.
- **Assessment of natural and managed capacity of groundwater supply:**
  - To understand whether opportunities exist that are similar to the groundwater supply for Langdon.
- **Small-scale storage opportunities study:**
  - To identify opportunities for small-scale storage and coordination among them.
- **Study of water-derived constraints:**
  - To understand overlaps between potential constraints using representation with maps.
- **Assessment of other licences that have the potential to impact CMRB licences:**
  - To be built off of section 4.4.1 of this report, particularly regarding seasonality of demand.
- **Extract data from municipal annual reports under Environmental Protection and Enhancement Act:**
  - Supplement the incomplete data in the WURS system regarding municipal drinking water and wastewater systems.

# Opportunities

Opportunity	Description and examples
<p><b>Establish agreed-upon standards and timeframes for water-related municipal actions</b></p>	<ul style="list-style-type: none"> <li>• Collective decision-making and planning will create resiliency and benefit all members.</li> <li>• Establish goals that members agree to implement independently, within a certain timeframe, based on the context of each municipality.</li> <li>• Actions could include increased water conservation, storage and intermunicipal connections.</li> </ul>
<p><b>Develop an overall water supply strategy</b></p>	<ul style="list-style-type: none"> <li>• With the GOA, agree on a series of steps toward an overall water supply strategy, including steps that both municipalities and the CMRB would implement.</li> <li>• This approach will be resource efficient, lead to robust solutions, and support all members.</li> <li>• Could include timing upstream hydropower generation water releases to the peak water demands and/or filling new downstream storage, specifically small reservoirs, for other purposes.</li> </ul>
<p><b>Participate in a collaborative working group to identify specific opportunities for coordination of upstream releases and downstream uses, potentially identifying storage projects</b></p>	<ul style="list-style-type: none"> <li>• Collaboration is most effective under regulatory and policy frameworks that align land-use planning with management of water resources.</li> <li>• Key investment decisions are required that may be perceived to create inequities in water availability and that could have economic and political consequences. A collaborative approach could be an appropriate model to alleviate these fears while also considering ecological, municipal and irrigation needs.</li> <li>• A decision support process using the BRWG to help with water planning needs could be led by AEP to support uptake of outcomes from the process.</li> </ul>

# Opportunities

Opportunity	Description and examples
<p><b>Formalize agreements for water sharing in times of scarcity</b></p>	<ul style="list-style-type: none"> <li>• Initiate discussions with licensees who have priority allocations to establish water sharing agreements in times of water scarcity.</li> <li>• Gain a regional understanding of how water could be shared, and what this would mean for each licensee in terms of being prepared for water scarcity (e.g. infrastructure, by-laws, communication pieces).</li> <li>• This will ensure existing plans on drought response are understood and implemented effectively, both regionally and locally.</li> <li>• This strategy was successful in dealing with drought in the Oldman Basin in 2001.</li> </ul>
<p><b>Connect to academic researchers directly to promote applied research</b></p>	<ul style="list-style-type: none"> <li>• Ask academic institutions to promote research opportunities specific to CMRB needs.</li> <li>• For example, Global Water Futures (GWF) at the University of Saskatchewan could be contacted regarding their <i>Integrated Modelling for Prediction and Management of Change in Canada's Major River Basins</i> (IMPC).</li> <li>• The GWF have invited the CMRB to discuss running specific scenarios of interest using the model they are currently building.</li> </ul>
<p><b>Work with AEP through the Land-use Framework to enable headwater protection and integrated land use management</b></p>	<ul style="list-style-type: none"> <li>• Collaborate around upstream land use change.</li> <li>• Work with AEP to implement / refine environmental management frameworks (i.e. Surface Water Quality Management Framework) based on regional issues (e.g. source water quality).</li> <li>• May include coordinating with landowners, government, stakeholders and user groups to support implementation of land-use plans that maintain and enhance hydrological ecosystem services.</li> </ul>



---

# waterSMART!

Water Management Solutions

[www.watersmartsolutions.ca](http://www.watersmartsolutions.ca)

# Reference slides

# History demonstrates natural climate variability

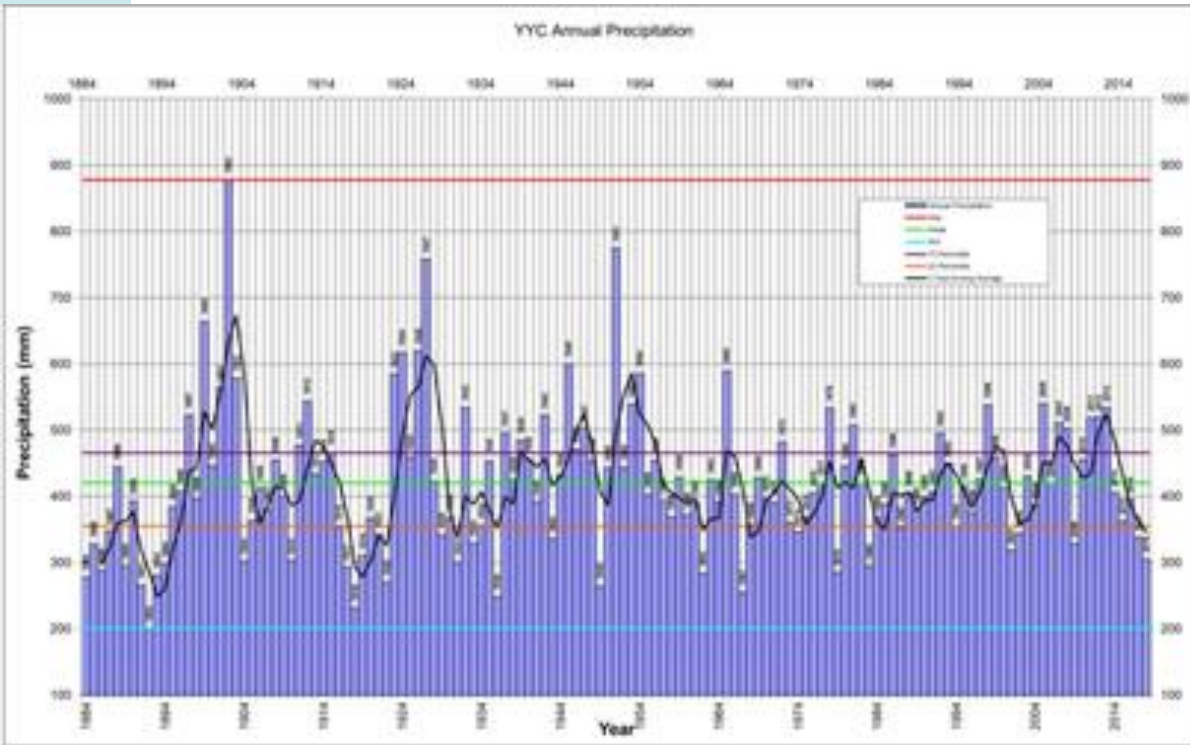
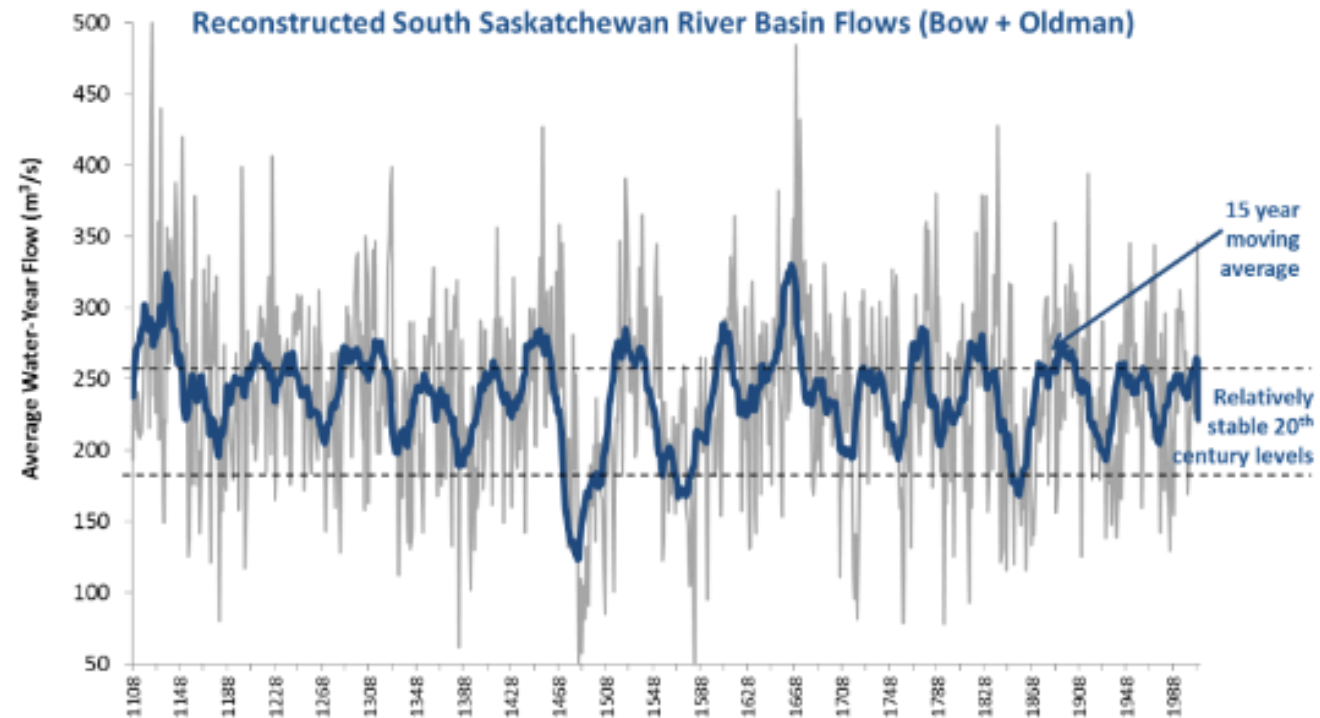


Figure 3 Total annual precipitation at Calgary Airport from 1884 to 2018. Source: City of Calgary

Climate comes to ground in water.

Climate, by definition, changes.



Source: Dr. David Sauchyn, Prairie Adaptation Research Collaborative, 2015

# How much water comes from each sub-basin?

Name	Drainage Area (km <sup>2</sup> )	Runoff (mm)	Water Yield (m <sup>3</sup> /yr)
★ Seebe to Bearspaw reach of the Bow River	7,791	415	3,231,413,035
Highwood to Carseland reach of the Bow River	15,519	207	3,217,099,161
Bearspaw to WID reach of the Bow River	7,917	347	2,750,225,112
Bassano to Oldman River reach of the Bow River	24,975	108	2,707,169,480
WID to Highwood reach of the Bow River	11,511	225	2,586,239,537
Carseland to Bassano reach of the Bow River	19,674	121	2,373,426,193
Upper Bow	4,207	535	2,252,524,534
★ Highwood River	4,008	156	623,732,970
Kananaskis River	946	493	466,053,668
★ Sheep River	1,569	187	293,575,870
Little Red Deer	3,725	60	222,529,487
★ Elbow River	1,253	173	216,125,571
Ghost River	937	219	204,794,375
Rosebud	10,168	19	190,230,142
Little Bow	7,480	11	79,759,199
Jumpingpound Creek	603	99	59,605,499
Fish Creek	447	118	52,820,346
Nose Creek	988	14	13,453,904

★ The blue star icon indicates a sub-basin or reach of the Bow River where a surface water allocation licenced to a CMRB member municipality is diverted

# Potential constraints for municipalities

CMRB member	Specific constraints regarding access to water
<p><b>The City of Calgary</b></p>	<ul style="list-style-type: none"> <li>• Constraints include low flow periods corresponding with high demand times.</li> <li>• As the city does not have the most senior allocations on the Bow, if more senior licence holder were to exercise their first-in-time right the city's licence could be constrained in high demand season in the summer.</li> <li>• Nutrient loading during low flows is also a potential constraint.</li> <li>• The population of Calgary is projected to increase at a rate of approximately 3% per year. Water demand will increase if per-capita water use remains the same, this may lead to constrained water supply.</li> <li>• Degrading quality of source waters from upstream land uses, practices and changes.</li> <li>• Operational constraints stemming from regulatory approvals e.g. maximum diversion capacity; effluent loadings</li> <li>• Supply risks stemming from climate change shifts to water supply quantity and timing, and the capacity of existing reservoirs to maintain water availability.</li> </ul>
<p><b>Airdrie, Chestermere and Strathmore</b></p>	<ul style="list-style-type: none"> <li>• Expected to be similar to Calgary because their drinking water is supplied by Calgary. Airdrie would be subject to return flow constraints.</li> </ul>

# Potential constraints for municipalities

CMRB member	Specific constraints regarding access to water
<b>Cochrane</b>	<ul style="list-style-type: none"> <li>Potential nutrient loading during low flows is also a constraint as Cochrane would be subject to the same wastewater return flow constraints as Calgary because they send their wastewater to Calgary.</li> </ul>
<b>Foothills County</b>	<ul style="list-style-type: none"> <li>Sources water from groundwater which may be constrained by increasing demand paired with uncertain sustainable yield.</li> </ul>
<b>Wheatland County</b>	<ul style="list-style-type: none"> <li>The portion of Wheatland County within the CMR boundary is serviced by individual groundwater wells which may be constrained by increasing demand &amp; uncertain sustainable yield.</li> </ul>
<b>High River</b>	<ul style="list-style-type: none"> <li>High River sources its water supply from a number of shallow groundwater wells that draw groundwater under the direct influence (GUDI) of surface water from the Highwood River. The Highwood River, which has a less reliable natural water supply than the Bow River mainstem and no major upstream storage. Constraints include low flow periods corresponding with high demand times on the Sheep/Highwood system. The Highwood River has experienced water quality issues in the past, including harmful dissolved oxygen (DO) levels during low flow conditions.</li> <li>High River relies on several licences in combination to achieve total water supply; several of these licences are junior in priority.</li> </ul>

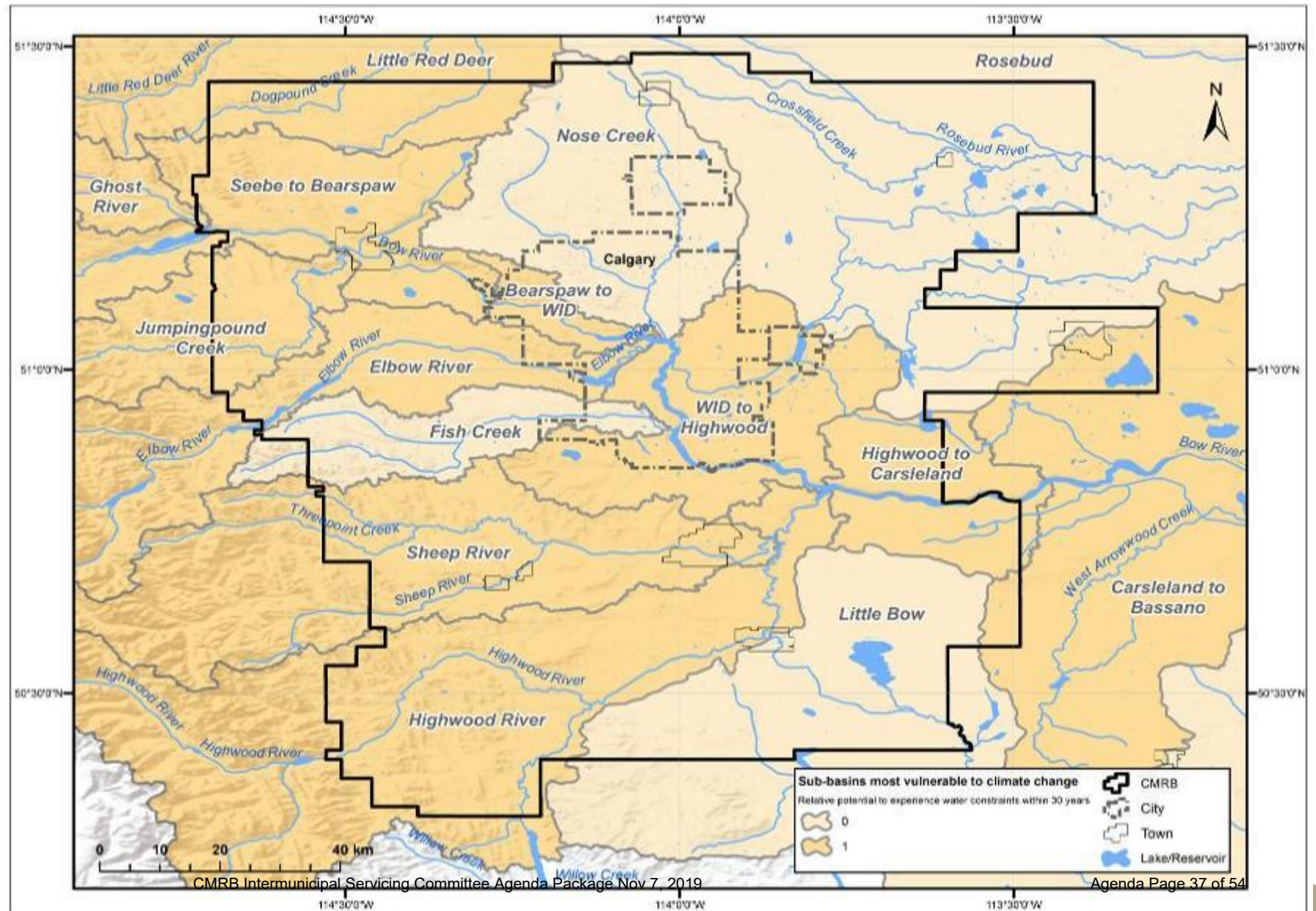
# Potential constraints for municipalities

CMRB member	Specific constraints regarding access to water
<b>Okotoks</b>	<ul style="list-style-type: none"><li>• Okotoks sources water from the Sheep River, which has a less reliable natural water supply than the Bow River mainstem and no major upstream storage.</li><li>• Okotoks relies on several licences in combination to achieve total water supply; several of these licences are junior in priority.</li><li>• The population of Okotoks is projected to increase at a rate of approximately 3% per year. Water demand will increase if per-capita water use remains the same, this may lead to constrained water supply.</li></ul>
<b>Rocky View County</b>	<ul style="list-style-type: none"><li>• There are 70 independent water cooperatives within RVC each with their own water licence and water treatment plants. Coordination is challenging.</li></ul>



# Potential constraints on sub-basins in the next 30 years

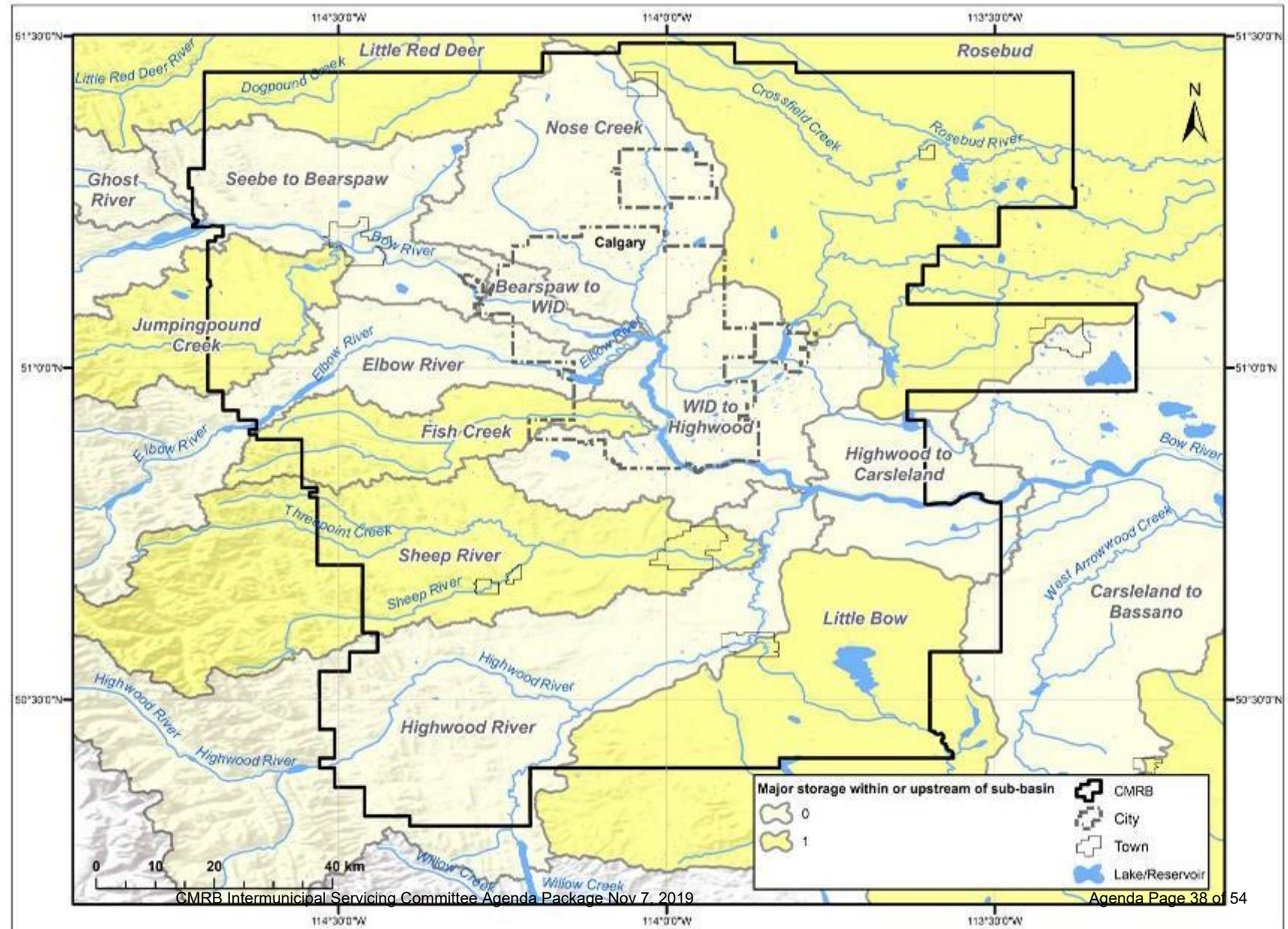
Watersheds deemed to be more vulnerable to climate change (1 or darker orange) based on projected changes to climate in the CMR. Snowmelt dominated watersheds are deemed most vulnerable to climate change based on reviews of available data and professional judgement.





# Potential constraints on sub-basins in the next 30 years

Watersheds with no water storage (e.g. a dam) in the sub-basin or upstream were deemed to be more vulnerable to water supply constraints in the future (1 or darker yellow).



# Observations

- **Informed water operations staff, coordinated operations plans, and well-maintained infrastructure will maximize the existing water supply**
  - These activities need to be properly funded over the long term.
  - Where a junior priority number makes a municipal water allocation vulnerable, a reverse licence transfer provides greater security.
- **Increased awareness is needed of potential water supply challenges expected to occur in the future**
  - Develop materials to increase awareness of local drought response strategies to facilitate water supply management.
- **CMRB members could share their existing Water Shortage Response plans**
  - This would ensure coordination with licence applicants who are required to share their plans.
- **Consider municipal operational efficiencies and solutions for water diversions and conveyance**
  - Some solutions to water supply challenges may avoid municipal political challenges and allow for greater autonomy or control over water supplies.
- **Water management should include initiatives to mitigate events that will negatively impact long term water supply**
  - Includes source water protection, land-use planning, and water quality initiatives.
- **Land-use management and development decisions for upstream areas of relevant watersheds are key to water supply management**
  - Coordination with government bodies who have jurisdiction over upstream land-use and riparian and stormwater planning within each municipal jurisdiction is important.

<b>Agenda Item</b>	<b>5</b>
<b>Submitted to</b>	<b>Intermunicipal Servicing Committee</b>
<b>Purpose</b>	<b>For Approval</b>
<b>Subject</b>	<b>CMR Existing Water and Wastewater Servicing and Regional Potential</b>
<b>Meeting Date</b>	<b>November 7, 2019</b>

***For Decision:** Motion that ISC recommend to the Board approval of the Calgary Metropolitan Region Existing Water and Wastewater Servicing and Regional Potential study as input for the Growth Plan consultant.*

#### **Summary**

- On March 7, 2019, the Intermunicipal Servicing Committee granted CMRB Administration the authorization to complete a series of studies in support of the Water Roadmap, including Complexity A: CMR Existing Water and Wastewater Servicing and Regional Potential ("Complexity A").
- CMRB Administration collaborated with the Water Table Technical Advisory Group ("Water Table"), CMRB Subject Matter Expert, and municipal experts to develop a scope of work for the Complexity A Study.
- The RFP was posted on Alberta Purchasing Connection on April 26<sup>th</sup> with a closing date of May 24<sup>th</sup>. Urban Systems Ltd. ("Urban Systems") was selected as the preferred proponent. The project was awarded on June 10, 2019.
- Urban Systems Ltd. kicked off the work with a presentation to the ISC on July 4, 2019 where ISC directed CMRB administration to rename the study. The study was renamed and accepted at a subsequent ISC meeting. A kickoff presentation was made to the Water Table. Urban Systems Ltd. provided a mid-study update presentation and discussions with Water Table. A presentation of study findings was discussed at a Water Table meeting on September 23, 2019. The draft report was subsequently reviewed by the Water Table for comment. Comments received from the municipalities were addressed and form the final draft report presented here.
- The purpose of the study was to inform the CMRB Growth Plan consultant of a preliminary summary of the current key constraints and opportunities related to water servicing infrastructure in the CMR.
- Urban Systems Ltd. has prepared a summary presentation of findings.
- The final report is attached under separate email due to the large file size.

### **Attachments**

- CMR Existing Water and Wastewater Servicing and Regional Potential, Urban Systems Ltd. \*to be circulated by Monday Nov 4
- Slide Deck: CMR Existing Water and Wastewater Servicing and Regional Potential, Urban Systems Ltd. \*to be circulated by Monday Nov 4

## **1. Key Messages from This Study**

The Calgary Metropolitan Region Board (CMRB) has a mandate to complete a Growth Plan and Servicing Plan for the Calgary Metropolitan Region (CMR) by December 2020. As part of the Servicing Plan development, the CMRB is undertaking inter-related studies of five Complexities that were identified as part of the CMRB Water Roadmap. The complexities focus on existing water and wastewater servicing, demand management, natural and managed capacity of supply, regulation and policy, and water quality. In addition, a background report on stormwater is currently underway.

The Calgary Metropolitan Region Board (CMRB) administration commissioned this study to provide information for the Intermunicipal Servicing Committee (ISC), the Board and the Growth Plan consultant to consider in their development of the Growth and Servicing Plan due to the Minister by December 2020. The scope of this study is to identify and summarize technical capacity information provided by the members regarding existing water supply, wastewater collection, and treatment infrastructure capacities within the region. This study provides a baseline fact set of the current infrastructure capacities relative to current and projected demands (expressed in population equivalents) from the areas currently served by these water and wastewater systems.

Water and wastewater infrastructure capacity (including location, size and material type) was compiled to prepare an inventory of existing servicing infrastructure within the Calgary Metropolitan Region (CMR) that may have potential regional significance. Infrastructure capacity shown in this report is based on information provided by the municipalities and/or included in existing technical studies. The capacities noted herein rely on current or best available information provided by the member municipalities regarding their infrastructure in order to provide a comparison of the design or existing system capacity with the current and projected demand needs. Where capacity information was not provided or available in provided reports, assumptions have been made and are identified accordingly in the report.



The following three timeframes are used in this study to compare current infrastructure capacity to service area demands:

- Existing (2019) Demand;
- 20-year (2039) Demand; and
- 2076/Buildout Demand.

2076 was used as a “buildout” timeframe as many of the long-term servicing studies and master plans provided by the members considered growth to 2060 or 2076 for their service areas, so this ensures consistency with population projections between this study and others.

Population projections used for urban municipalities were provided in the report titled “Population Projections for the Calgary Metropolitan Regional Board” (Rennie Intelligence, 2018), which was adopted by the CMRB and provided for use in this study. For rural municipalities, long-term demand projections are not provided on an area by area basis. In order to project long-term demands for the rural service areas, we have used projected demands for the buildout of the approved Area Structure Plans for the existing service areas.

It is important to note that the CMRB population data is not used universally by each individual member municipality for their own long-range planning. Therefore, any conclusions regarding projected demands in this report may differ from that of the members. This study is intended to highlight the areas where more detailed analysis should be undertaken in areas where members determine it is beneficial to collaborate regionally.

The infrastructure analyzed for this study includes water and wastewater treatment plants, water and wastewater corridors (pipelines) and licencing. Infrastructure capacity was provided by the municipalities. Where capacity information was not available, assumptions have been made and are identified accordingly in the report. Factors not considered include Master Service Agreement limitations, pumping or lift station capacity, storage capacity, age and condition of infrastructure and operating strategies used by Calgary Metropolitan Region (CMR) members to achieve the service level commitments within their communities. The work herein relies on current or best available information provided by the member municipalities regarding their infrastructure in order to provide a comparison of the design or existing system capacity with the current and projected regional needs.

Water licences are analyzed only for their total annual diversion volume, with the exception of the City of Calgary which considers instantaneous withdrawal rates. This analysis does not review other limitations of the licences such as instantaneous withdrawal rates, water conservation objectives, in-stream flow objectives, or licence priority. More work is therefore needed to understand the overall physical water supply and evaluate how the region will manage licences with all of their complexities and restrictions over the next 60-year timeframe.

In more than one municipality in the CMR, water licence represents the critical constraint to delivering water servicing in the future. From this baseline fact set, more detailed analysis can be completed on the areas of opportunity to address other restrictions and complexities regarding regional licencing.

For each of the three timeframes, infrastructure capacity surplus or deficits are visually represented qualitatively in the form of heat maps to allow for visualization of the state of capacity of the region's infrastructure for the non-technical reader.

Planning for regional servicing depends on many factors over and above the information provided in this report. This report is not a servicing plan, nor indicates any servicing options, which would require rigorous technical study of each of the systems, their demands, technical and operational limitations among many other considerations. The scope of this study is to provide a visual representation of baseline facts for the CMR regarding the existing regional service infrastructure. Therefore, this report should not be utilized to make servicing conclusions. Rather, it forms one piece of a greater discussion regarding regional collaboration, growth areas, sustainable resource management, climate variability, drought and flood resiliency, among others.

This study qualitatively illustrates the current state of regional infrastructure capacity with a view to identifying opportunities for regional collaboration regarding sustainable growth management, as is the mandate of the CMRB. It is acknowledged that actual service capacity depends on a variety of factors that were beyond the scope and schedule of this preliminary assessment.

## **2. Administration Request**

That the Intermunicipal Servicing Committee recommend to the Board approval of the *Calgary Metropolitan Region Existing Water and Wastewater Servicing and Regional Potential* study as input for the Growth Plan consultant.

<b>Agenda Item</b>	<b>6</b>
<b>Submitted to</b>	<b>Intermunicipal Servicing Committee</b>
<b>Purpose</b>	<b>For Discussion</b>
<b>Subject</b>	<b>Stormwater Background Report Update</b>
<b>Meeting Date</b>	<b>November 7, 2019</b>
<i>For Discussion: Motion that ISC receive an update on and discuss the Stormwater Background Report</i>	
<p><b>Summary</b></p> <ul style="list-style-type: none"> <li>On March 7, 2019, the Intermunicipal Servicing Committee granted CMRB Administration the authorization to complete a series of studies in support of the Water Roadmap.</li> <li>CMRB Administration collaborated with the Water Table Technical Advisory Group (“Water Table”), CMRB Subject Matter Expert, and municipal experts to develop a background report on Stormwater in the CMR. Note that the stormwater work package is separate from policy on flood-prone areas and riverine flooding which is the subject of the Flood Workshop held on October 10, 2019.</li> <li>The stormwater background report was kicked off with a workshop held on June 13, 2019 with members of the Water Table and other municipal experts. A summary of the workshop was prepared by the CMRB Water SME. The summary report was circulated to the Water Table. Comments have been incorporated, discussed and elaborated into a background report form through July, August and September of 2019 with Water Table input.</li> <li>In September, the Growth Plan consultant reviewed a draft of the report and requested that the regional issues of stormwater be concisely identified, which resulted in the formation of Table 1, attached.</li> <li>This brief is meant to update the ISC on current state of the Stormwater Background report and provide an opportunity for ISC input and discussion.</li> </ul>	
<p><b>Attachments</b></p> <ul style="list-style-type: none"> <li>Table 1: DRAFT Key Themes and Opportunities Regarding CMR Stormwater Management</li> </ul>	

## 1. Definition of Stormwater

*“Stormwater is runoff from rainstorms, hailstorms or melting snow that is shed from urban and rural landscapes. Stormwater picks up pollutants, including trash and suspended and/or dissolved solids that impact the quality of downstream water bodies.”*

## 2. Definition of Regional Stormwater Servicing

Regional stormwater servicing within the CMR refers to the collection, conveyance, storage and discharge of stormwater that crosses intermunicipal boundaries through engineered infrastructure or natural drainage (watersheds or wetlands). Stormwater drainage systems are generally at a site or neighbourhood scale. Reservoirs, lakes, rivers, wetland complexes and tributaries in the CMR are not considered to be stormwater infrastructure, but they are the critical natural components of the overall regional stormwater drainage system.

The only regional engineered infrastructure within the CMR, as defined above, that receives stormwater is the Western Irrigation District (WID) system, however its primary function is the delivery of irrigation water to more than 400 farms and municipal water to approximately 12,000 people within the WID service area. The WID is not a member of the CMRB and is governed by the province’s Irrigation Districts Act.

## 3. Regional Stormwater Context in the CMR

CMR drainage enters 14 hydrologic units (sub-watersheds) that cross intermunicipal boundaries and can therefore be classified as regional in scope. These units are illustrated in Figure 1:

- Bow River- Ghost Reservoir<sup>1</sup>
- Bow River – Bighill Creek<sup>1</sup>
- Elbow River<sup>1</sup>
- Fish Creek
- Highwood River
- Horse Creek
- Jumpingpound Creek<sup>1</sup>
- Middle Bow River<sup>1</sup>
- Nose Creek<sup>1</sup>
- Pine Creek
- Rosebud River<sup>1</sup>
- Serviceberry Creek
- Sheep River
- Upper Little Bow River

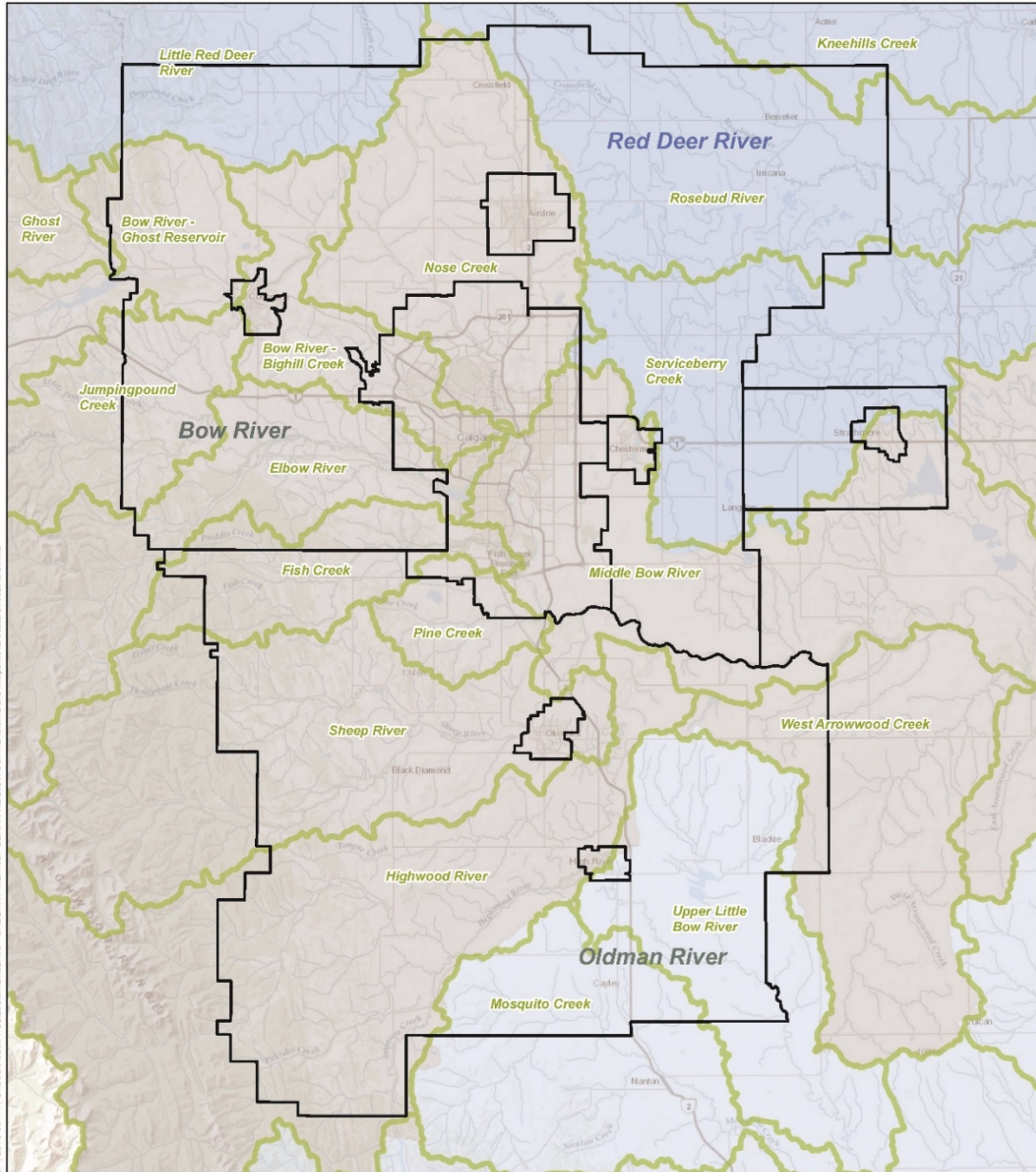
---

<sup>1</sup> Denotes watershed represented by watershed stewardship group (WSG) or watershed planning and advisory council (WPAC) actions

In addition, portions of CMRB municipalities drain into the Kneehill Creek, Little Red Deer River, Mosquito Creek, West Arrowhead Creek hydrologic units that discharge into the Red Deer and Oldman River Basins.

Stormwater systems that drain into sub-watershed units within the CMRB are typically administered within individual municipalities under a hierarchy of plans that originate at the Subdivision Servicing Agreement-level (site-scale) and often cascade into progressively larger plans including Neighbourhood Structure Plans, Community Area Structure Plans, Master Drainage Plans and eventually Municipal Development Plans. Within the CMR, the scope, complexity and terminology within these plans can vary considerably.





J:\P\2019-06-14\_C:\Users\Jean-Paul\OneDrive - CALGARY METROPOLITAN REGION\BOARD\CMRB\GIS\Maps\MXD\WatershedsHUC.mxd

- Major Sub-watersheds**
- Bow River
  - Oldman River
  - Red Deer River

Hydrologic Unit Code 8

The Hydrologic Unit Code (HUC) Watersheds of Alberta represents a collection of four nested hierarchically structured drainage basin feature classes that have been created using the Hydrologic Unit Code system of classification developed by the United States Geological Survey (USGS) with accommodation to reflect the pre-existing Canadian classification system. The HUC Watersheds of Alberta consist of successively smaller hydrologic units that nest within larger hydrologic units, resulting in a hierarchical grouping of alphanumeric-coded watersheds feature classes. More information on the USGS hydrologic units can be found at <http://water.usgs.gov/GIS/huc.html>



Calgary Metropolitan Region Board

### Watersheds of Alberta in the CMRB

Data Sources: Government of Alberta, Ministry of Environment and Sustainable Resource Development  
Map Created: 2019-06-14

Map for reference purposes only. The CMRB assumes no liability for, or accepts any liability arising from any inaccuracy, incompleteness, or misleading information.

## **4. Existing Collaboration on Stormwater in CMR**

Under Alberta's Water for Life Strategy, Watershed Planning and Advisory Councils (WPAC's), particularly the Bow River Basin Council, play a key role in the development of objectives and strategies for achieving water quality objectives within the Basin. At a smaller scale, Watershed Stewardship Groups (WSG's), such as the Elbow River Watershed Partnership and Nose Creek Watershed Partnership, play a key role in establishing sub-watershed targets and work together with multiple stakeholders at the local level to improve practices related to land use and stormwater management.

The Western Irrigation District (WID) and Bow River Irrigation District (BRID) operate irrigation and stormwater conveyance systems in the northeastern and southeastern portions of the region. In particular, the WID has been a key participant for the Cooperative Stormwater Management Initiative by providing a potential outfall for stormwater from the northeastern portion of the CMR.

## **5. Key Themes and Opportunities**

Through multiple discussions and a review of regional best practices, key themes have emerged. The key themes for the CMRB include:

1. Watershed Planning: Supporting key regional initiatives including the work of WPAC's, WSG's, Bow River Phosphorous Management Plan and others;
2. Collaboration: Ensuring consistent and mutually-beneficial stormwater management plans for intermunicipal watersheds;
3. Advocacy: Working with the Government of Alberta on strategic initiatives that provide regional benefits

The potential opportunities for regional collaboration put forward through discussion by the Water Table are summarized in Table 1, attached. These opportunities could be considered as input for the Growth Plan consultant during development of the Growth and Servicing Plan.

## **6. Administration Request**

That the Intermunicipal Servicing Committee receive an update on and discuss the Stormwater Background Report.

**Table 1: DRAFT Key Themes and Opportunities Regarding CMR Stormwater Management**

Intermunicipal Priority	Concern	Policy Goal / Outcome	Theme	Potential Regional Opportunities	Priority Ranking
<p>Drinking Water Quality for Public Health and Safety</p> <p>Affordability of Water Treatment</p> <p>Water quality for ecosystems and downstream users</p>	Runoff pollutants from urban landscapes within CMR municipalities	<p>High quality water for public health and ecosystem benefits</p> <p>Source water protection: Land use development is managed to safeguard the basin's high quality source water.</p> <p>Drinking water treatment in the CMR is affordable for customers</p>	Watershed Planning and Collaboration	<ol style="list-style-type: none"> <li>1. For the 6 sub-watersheds with WPAC or WSG plans in place, ensure water quality objectives are acknowledged in statutory plans, where appropriate.</li> <li>2. Support intermunicipal sub-regional cooperation initiatives by connecting interested parties and sharing report information.</li> <li>3. Advocate for stewardship activity for the 8 sub-watersheds that are not currently represented by a WPAC or WSG to establish watershed-specific quality and quantity objectives, where the need exists.</li> <li>4. CMRB participate with other sub-watershed users to understand total loadings (point and non-point sources), cumulative effects and infrastructure operation impacts (e.g. Government of Alberta Phosphorus Management Plan).</li> <li>5. Advocate to Government of Alberta and other groups for water quality objectives and action plans for key upstream lands outside CMR.</li> <li>6. Promote existing initiatives of Government of Alberta, Alberta Agriculture and Forestry, Irrigation Districts, Cows and Fish, and others</li> </ol>	High
	Runoff pollutants from agricultural landscapes within CMR municipalities				
	Runoff pollutants from land use within municipalities upstream of CMR				
	Runoff pollutants from land use within Crown lands upstream of CMR				
Managing nutrient loading	<p>Nutrient loading in stormwater releases reduces assimilative capacity for wastewater return flows</p> <p>Total Loadings Management restricts Effluent Return (WWTP) which includes stormwater impacts from upstream users</p>	<p>Stormwater and wastewater releases are managed to safeguard watershed health</p> <p>Reduce stormwater nutrient loading in lieu of costly upgrades to water and wastewater treatment facilities to meet targets</p>	Watershed Planning and Collaboration	<ol style="list-style-type: none"> <li>7. Participate in ongoing nutrient loading management strategies, where applicable</li> </ol>	High

Agenda Item 6 Attachment

Intermunicipal Priority	Concern	Policy Goal / Outcome	Theme	Potential Regional Opportunities	Priority Ranking
Protection of People, Land, Property and Ecosystems	Overland flooding can result in injury or death  Damage to property and ecosystem from localized flooding, stormwater management facilities and stream migration	Control discharge runoff flows to pre-development flows, or lower targeted flows and/or volumes where applicable  Keep rivers and surrounding natural areas healthy by reducing the impact of urban activities and development	Collaboration	8. Ensure ongoing work around riverine flooding reflects risk to people 9. Ensure consistent watershed-specific outcomes among stormwater management plans for intermunicipal sub-watersheds. Note: see also land use TAG ESA study See also policy on flood-prone areas work	High
Water Quantity for Non-Potable Uses	Capture and use stormwater for non-potable use, thus reducing water diversions.	Ensure timely approvals for potential re-use opportunities  Identify and explore use of alternate water supplies to augment municipal services	Advocacy and Collaboration	10. Work with AEP and Alberta Health to establish accelerated approval mechanisms for stormwater use. 11. Once provincial stormwater use guidelines have been released, develop a CMR-specific Code of Practice for stormwater use for non-potable applications. 12. Understand or quantify the conflict between stormwater use and ability to meet instream objectives for river health, and react accordingly	Medium (requires GoA input)
Increase Public Utilization of Stormwater Infrastructure	Balance the protection of human safety / health and opportunity for use of stormwater infrastructure as recreation assets/amenity	Stormwater infrastructure is seen an asset to communities	Collaboration	13. Catalogue management practices of stormwater infrastructure ponds and recreational amenity management 14. Catalogue approaches by municipalities in the CMR to support discussions with citizens and development community on opportunities in greenfield and established areas (e.g., contact versus non-contact amenity)	Low

Note that policy on flood-prone areas, riverine flooding and environmentally sensitive areas (ESAs) are under separate cover. Where flooding is mentioned here, it is referring to localized flooding related to stormwater

In CMR, source water refers to surface water and groundwater under direct influence

This table is to be read with accompanying background report



<b>Agenda Item</b>	<b>7</b>
<b>Submitted to</b>	<b>Intermunicipal Servicing Committee</b>
<b>Purpose</b>	<b>For Information</b>
<b>Subject</b>	<b>Technical Advisory Group Updates</b>
<b>Meeting Date</b>	<b>November 7, 2019</b>
<i>For Information: Motion that the Intermunicipal Servicing Committee receive for information an update on TAG activities</i>	
<p><b>Summary</b></p> <p>The Land Use TAG and Servicing TAG are currently focusing on the following areas:</p> <ul style="list-style-type: none"> <li>• HDR Calthorpe Consultant Onboarding</li> <li>• Regional Employment Analysis</li> <li>• Land Supply</li> <li>• Agriculture Subcommittee</li> <li>• Transit Subcommittee</li> <li>• Environmentally Sensitive Areas Background Study</li> <li>• Transportation Study</li> <li>• CMRB Water Table</li> <li>• Recreation Framework</li> <li>• Policing Subcommittee</li> </ul> <p>Updates on the Environmentally Sensitive Areas Background Study and the Regional Employment Analysis, two Water Roadmap Complexity studies, and the Stormwater Background report are provided as part of other agenda items in the agenda packages.</p>	

## 1. HDR Calthorpe

- HDR Calthorpe kicked off their planning process with Workshop #1 to be held on October 3<sup>rd</sup>.
- HDR will be providing CMRB Administration with an account of any data gaps that need to be filled as part of their process.
- A meeting with TAG will be held on November 15<sup>th</sup> to discuss the role of the TAGs in HDR Calthorpe's planning process.

## 2. Regional Employment Analysis

- Status quo regional employment projections will be brought to LUC for decision at the November meeting.
- Applications Management is working to finalize other materials, including the appropriate criteria to define regionally significant employment areas. These will be finalized in collaboration with TAG.

## 3. Land Supply Analysis

- Land Supply Analysis is nearing completion.
- Materials are being circulated to TAG representatives for their confirmation.
- Identifying land supply for commercial, industrial and residential purposes is a requirement of the *Calgary Metropolitan Region Board Regulation* and will be a useful dataset to support many of the studies the CMRB is undertaking.

## 4. Agriculture Subcommittee

- The Subcommittee has reviewed a preliminary report and is in the process of drafting final conclusions and DRAFT policy recommendations for review by LUC with a target date of the December Committee meeting.

## 5. Transit Subcommittee

- Interim findings as approved by the ISC are being used to support the Growth Plan planning process, including the need to focus on key themes of “integration,” “connection” and “efficiency” in transit.
- Municipal transit specialists are being incorporated into the HDR Calthorpe planning process as approved by ISC.
- Reporting of the Subcommittee findings are ongoing. The draft will be reviewed by the Transit Subcommittee prior to ISC for approval with a target date of the December Committee meeting.

## 6. Environmentally Sensitive Areas Study

- Status quo regional employment projections will be brought to LUC for decision at the November meeting.
- O2 Planning and Design is working to finalize other materials, including potential policy opportunities. One further in-person workshop will be held with TAG.

## 7. South and East Calgary Regional Transportation Study (S&ECRTS)

- The S&ECRTS was initiated by the CMRB in October 2018. The successful consultant, ISL Engineering and Land Services, began in their work in January 2019.
- The S&ECRTS will build upon the study process, analyses, evaluation and results of the NCRTS. The expected outcome, at the end of 2019, is a transportation

Agenda Item 7

model for the 2028 and 2039 planning horizons that can be used as base model to develop long term transportation models for the Calgary metropolitan region (CMR).

- The project is on schedule and on budget at this time. Modelling and testing scenarios is partially complete. The 2039 network was finalized. A few additional scenarios are being tested before finalizing the 2028 network.
- The North Calgary Regional Transportation Study was adopted by the Board on September 20, 2019.

## 8. CMRB Water Table

- The Water Roadmap continues to be revised to include an approach to integrated policy direction on development in flood-prone areas. A workshop to kick off the work on flood-prone areas occurred on October 10, 2019. Summary report preparation is ongoing.
- The Water Table has been working through scopes of work A through E of the Water Roadmap Complexities and the Stage 1 Report.
  - Stage 1 Report Executive Summary was approved by ISC in a joint meeting of the land use committee (LUC) and ISC on June 6, 2019
  - Complexity A – “Calgary Metropolitan Region Existing Water and Wastewater Servicing and Regional Potential”. The scope of work was developed with input from Water Table. The RFP closed May 24, 2019. Urban Systems was awarded the contract on June 10, 2019. At the direction of the ISC on July 4, 2019, the study has been renamed to ‘Calgary Metropolitan Region Existing Water and Wastewater Servicing and Regional Potential’. The study findings were presented by the consultant in another agenda item.
  - Complexity B – Demand Management. ISC recommended the report for approval by the Board on September 5, 2019. The Board approved the study on October 18, 2019. The study has been shared with the Growth Plan consultant.
  - Complexity C – Managed and Natural Capacity. CMRB Admin, Water Table, and AEP developed the scope for the RFP. The RFP closed on June 11, 2019. WatertSMART was awarded the contract on June 26, 2019. The study findings were presented by the consultant in another agenda item.
  - Complexity D – Regulation, Approvals and Policy. CMRB Admin hosted a workshop with many ISC members and municipality administrations in attendance, and others on June 27<sup>th</sup>, 2019 at Cochrane Ranchehouse. The summary report has been circulated and next steps with AEP are being discussed.
  - Complexity E – Water Quality. Land Use TAG, CMRB admin and Water Table are working jointly on land use planning for water quality in the CMRB through the Environmentally Sensitive Areas Study. An update was provided to land use

Agenda Item 7

committee earlier today.

- A background report for consideration by the Growth Planning Consultant is currently underway for Stormwater by the Water Table. An update was provided to ISC in another agenda item.
  
- CMRB administration continue to participate at meetings of AEP projects including Bow River Phosphorus Management Plan Implementation Committee and the Bow Basin Water Management Options Conceptual Assessment.

## **9. Recreation Framework**

- The workshop with Recreation Servicing TAG to define regional recreation was held on June 7, 2019. The consultant is has prepared a summary report of the workshop. Recreation Servicing TAG has reviewed the report. A meeting of the TAG was held on October 29 to discuss the feedback. Next steps are being determined.

## **10. Policing Subcommittee**

At the June 6, 2019 joint Committee meeting the following motion was unanimously passed:

That the CMRB form a voluntary subcommittee of the Intermunicipal Servicing Committee to examine models of delivering policing services in the Calgary Metropolitan Region. Further, that CMRB Administration provide coordination services to strike the subcommittee and that this work be separate from the delivery of the Servicing Plan, outlined in the Calgary Metropolitan Region Board Regulation 190/2017 and due to the Minister by December 31, 2020.

Both elected and staff are eligible to participate in this subcommittee of the ISC. The first meeting of the subcommittee was held on October 9, 2019. The Committee determined to do a current state report and is exploring the possibility of Mount Royal University students conducting the work free of charge.

## **11. Recommendation**

That the Intermunicipal Servicing Committees receive for information an update on TAG activities.