

**Calgary Metropolitan Region Board
Joint Land Use Committee & Intermunicipal Servicing Committee
Meeting Agenda**

December 5, 2019, 9:30 AM
Mount Royal University, Roderick Mah Centre for Continuous Learning
Room EC2010

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>For Decision:</i> <i>To adopt and/or revise agenda</i> | | | |
| 3. Review and Approve Minutes - LUC | (Attachment) | All | 3 |
| <i>For Decision:</i> <i>Motion that LUC review and approve the Minutes of the November 5, 2019 meeting</i> | | | |
| 4. Review and Approve Minutes - ISC | (Attachment) | All | 7 |
| <i>For Decision:</i> <i>Motion that ISC review and approve the Minutes of the November 5, 2019 meeting</i> | | | |
| 5. ESA Background Study | (Attachment) | O2 Planning | 10 |
| <i>For Decision:</i> <i>Motion that the LUC recommend to the Board the approval of the ESA Background Study as input for the Growth Plan consultant</i> | | | |
| 6. Stormwater Background Report | (Attachment) | Graves/Berzins | 49 |
| <i>For Decision:</i> <i>Motion that the ISC recommend to the Board approval of the Stormwater Background Report as input for the Growth Plan consultant</i> | | | |
| 7. S&E Calgary Regional Transportation Study Update | (Attachment) | Graves/Merali | 66 |
| <i>For Information:</i> <i>Motion that the ISC receive for information an update on the S&E Calgary Regional Transportation Study</i> | | | |
| 8. Growth Plan Progress Update & Policy Development | (Attachment) | HDR
Calthorpe | 80 |
| <i>For Information:</i> <i>Motion that the LUC & ISC receive for information an update on the HDR Calthorpe planning process</i> | | | |

9. Growth Plan Public Engagement Strategy (Attachment) HDR **87**
For Feedback: Motion that the LUC & ISC receive Calthorpe
 for information and provide input on the Growth
 Plan engagement strategy
10. External TAG Membership (Attachment) HDR **98**
For Feedback: Motion that the LUC & ISC receive Calthorpe
 for information and provide input on the proposed
 External TAG Membership
11. TAG Update (Attachment) Tipman **110**
For Information: Motion that LUC and ISC receive
 for information an update on the work of the CMRB TAG groups
12. Next Meeting: Thursday, January 16, 2020
13. Adjournment Sheard

Land Use Committee Members:

Mayor Peter Brown (Airdrie)	Mayor Craig Snodgrass (High River)
Councillor Gian-Carlo Carra (Calgary)	Mayor Bill Robertson (Okotoks) <i>Vice Chair</i>
Mayor Marshall Chalmers (Chestermere)	Reeve Greg Boehlke (Rocky View)
Mayor Jeff Genung (Cochrane)	Councillor Tom Ikert (Wheatland)
Reeve Suzanne Oel (Foothills)	Councillor Bob Sobol (Strathmore)

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 Tara McFadden (Cochrane)	Mayor Pat Fule (Strathmore)
Reeve Suzanne Oel (Foothills) Vice Chair	Deputy Reeve Scott Klassen (Wheatland)

Christopher Sheard, Committee Chair
 Dale Beesley, GOA Representative

Upcoming Meetings:

Land Use Committee	Thursday Jan 16 – 9:30 AM	Mount Royal University Centre for Continuous Learning, Room EC2010
Servicing Committee	Thursday Jan 16 – 1:00 PM	
Land Use Committee	Thursday Feb 6 - 9:30 AM	
Servicing Committee	Thursday Feb 6 – 1:00 PM	
Board Meetings	Friday Jan 24 & Feb 21 9:30 AM	MRU Room EC2010
Governance Committee	Thursday Jan 30 – 9:30 AM	CMRB Offices
Advocacy Committee	TBD	

Delegates in Attendance:

Mayor Peter Brown – City of Airdrie
Councillor Gian-Carlo Carra – City of Calgary
Deputy Mayor Yvette Kind – City of Chestermere
Mayor Jeff Genung – Town of Cochrane
Reeve Suzanne Oel – Foothills County
Mayor Craig Snodgrass – Town of High River
Mayor Bill Robertson – Town of Okotoks (Vice Chair)
Reeve Greg Boehlke – Rocky View County
Councillor Jason Montgomery – Town of Strathmore
Councillor Tom Ikert – Wheatland County
Monte Krueger – Municipal Affairs

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 9:30 AM.

2. Approval of Agenda

Reeve Boehlke asked the Chair for clarification as to why Item #7a was to be held in a closed session. Chair Sheard advised that the workshop was held in a closed session, and therefore until made public by the Board, the results should come forward in a closed session. Chair noted that Item #7b and c did not need to be in a closed session.

Moved by Reeve Boehlke, **Seconded by** Mayor Snodgrass, accepted by Chair

Motion: That the Land Use Committee amend the Agenda to remove Item #7a Growth Plan from a closed session.

Motion defeated. Recorded vote requested by Reeve Boehlke.

In favour: Reeve Boehlke, Mayor Snodgrass, Councillor Ikert, City of Airdrie (absent). **Opposed:** Councillor Carra, Deputy Mayor Kind, Mayor Genung, Reeve Oel, Mayor Robertson, Councillor Montgomery.

Moved by Reeve Boehlke, **Seconded by** Councillor Ikert, accepted by Chair

Motion: That the Land Use Committee amend the Agenda to remove Item #7a Growth Plan from the Agenda and send it to the Board.

Motion defeated. Recorded vote requested by Reeve Boehlke.

In favour: Reeve Boehlke, Councillor Ikert, City of Airdrie (absent)

Opposed: Councillor Carra, Deputy Mayor Kind, Mayor Genung, Mayor Snodgrass, Reeve Oel, Mayor Robertson, Councillor Montgomery

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

Motion: That the Land Use Committee approve the agenda of the meeting.

Motion carries.

3. Review and Approve Minutes

Moved by Mayor Roberson, **Seconded by** Mayor Genung, accepted by Chair

Motion: That the Land Use Committee approve the Minutes of the October 3, 2019 Joint meeting.

Motion carried unanimously.

4. Regional Employment Analysis

Liisa Tipman introduced Darryl Howery of Applications Management to present the status quo regional employment projections and answer questions from the Committee.

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

Motion (a): That the Land Use Committee recommend to the Board the approval of the status quo regional employment projections for the Calgary Metropolitan Region.

Motion carried unanimously.

Mayor Brown arrived at 10:22 AM

Moved by Mayor Brown, **Seconded by** Mayor Genung, accepted by Chair

Motion (b): That the Land Use Committee receive information on the draft outcomes of the Regional Employment Analysis.

Motion carried unanimously.

MOTION ARISING

Moved by Reeve Boehlke, **Seconded by** Councillor Carra, accepted by Chair

Motion: That the Land Use Committee direct that the TAG group further consider or refine the regionally significant employment areas criteria in consideration of information gathered at this meeting.

Motion carried unanimously.

The Committee members asked Administration to consider providing more clarity to motions brought for discussion, relating to their purpose and direction.

5. Environmentally Sensitive Areas

Liisa Tipman introduced Leif Olson from O2 Planning + Design to provide information on the draft outcomes of the Environmentally Sensitive Areas Background Study and answer questions.

6. LUC & ISC TAG Update

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

Motion: That the Land Use Committee receive for information an update on TAG activities.

Motion carried unanimously.

7. Closed Session

Committee moved into closed session at 11:39 AM. Committee returned to public session at 11:54 AM.

MOTION ARISING:

Moved by Reeve Boehlke, **Seconded by** Councillor Carra, accepted by Chair

Motion: That the Land Use Committee recommend to the Board that CMRB Administration prepare, along with HDR Calthorpe, a document to release to the public on the status of the results of the workshop to date.

Motion carried unanimously.

8. Growth Plan

Stephen Power from HDR Calthorpe reviewed the Preliminary Internal and External Stakeholder Engagement Plan and the draft Terms of Reference for the Growth and Servicing Plan External Technical Advisory Group.

9. Next Meeting: December 5, 2019 @ MRU

10. Adjournment

Meeting adjourned at 12:11 PM.

CMRB Chair, Christopher Sheard

Delegates in Attendance:

Mayor Peter Brown – City of Airdrie
Councillor Gian-Carlo Carra – City of Calgary
Deputy Mayor Yvette Kind – City of Chestermere
Reeve Suzanne Oel – Foothills County (Vice Chair)
Councillor Tara McFadden – Town of Cochrane
Councillor Don Moore – Town of High River
Mayor Bill Robertson – Town of Okotoks
Reeve Greg Boehlke – Rocky View County
Mayor Pat Fule - Strathmore
Deputy Reeve Scott Klassen – Wheatland County
Monte Krueger – Municipal Affairs

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. Approval of Agenda

Moved by Mayor Robertson, **Seconded by** Reeve Boehlke, accepted by Chair

Motion: That the Intermunicipal Servicing Committee approve the agenda of the meeting, removing item 8I.

Motion carried unanimously.

3. Review and Approve ISC Minutes

Moved by Mayor Brown, **Seconded by** Deputy Reeve Klassen, accepted by Chair.

Motion: That the Intermunicipal Servicing Committee approve the Minutes of the October 3, 2019 joint meeting.

Motion carried unanimously.

4. Natural & Managed Water Capacity Study

WaterSMART provided a presentation on the study which will be used as input for the Growth Plan Consultant.

Moved by Mayor Robertson, **Seconded by** Reeve Oel, accepted by Chair.

Motion: 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.

Motion carried unanimously

5. Stormwater Background Report

Jaime Graves and Bill Berzins updated the committee on the current state of the Stormwater Background report, answered questions and accepted feedback.

Moved by Mayor Robertson, **Seconded by** Mayor Brown, accepted by Chair.

Motion: That the Intermunicipal Servicing Committee directs the Advocacy Committee to lobby the Minister of Environment and Parks to enable use of stormwater for all purposes.

Motion carried unanimously

6. CMR Existing Water & Wastewater Study

Urban Systems provided a summary presentation of the current key constraints and opportunities related to water servicing infrastructure.

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

Motion: That the Intermunicipal Servicing Committee recommend approval to the Board approval of the CMR Existing Water and Wastewater Servicing and Regional Potential Study as input for the Growth Plan Consultant.

Motion carried unanimously

7. LUC & ISC TAG Update

Moved by Mayor Robertson, **Seconded by** Reeve Boehlke, accepted by Chair.

Motion: That the Intermunicipal Servicing Committee receive for information an update on TAG activities.

Motion carried unanimously

8. Western Irrigation District Project

Closed Session (Pursuant to Section 16 of FOIP)

Committee moved into closed session at 2:47 PM. Committee returned to public session at 2:52 PM.

9. Next Meeting: December 5, 2019 @ MRU

10. Adjournment

Meeting adjourned at 2:55 PM.

CMRB Chair, Christopher Sheard

DRAFT

Agenda Item	5
Submitted to	Land Use Committee
Purpose	For Decision
Subject	Environmentally Sensitive Areas Background Study
Meeting Date	December 5, 2019
<i>Motion that the LUC recommend to the Board the approval of the Environmentally Sensitive Areas Background Study as input for the Growth Plan consultant</i>	
<p>Summary</p> <ul style="list-style-type: none"> • The purpose of the Environmentally Sensitive Areas Background Study is to develop a common understanding of, and approach to, environmentally sensitive areas in the Calgary Metropolitan Region. • On November 7th, O2 Planning and Design (“O2”) presented the DRAFT findings of the ESA Background Study to LUC for discussion. CMRB Administration was directed to work with TAG to finalize recommendations. • Following from LUC, O2 reviewed the DRAFT document with TAG on November 15th. Final changes to the Background Study were agreed upon by the TAG members in attendance and the document was updated accordingly. • The final draft of the Background Study was circulated to TAG to ensure the TAG comments were correctly incorporated. Further changes were made, and the document was finalized. • The Background Study, once approved by the Board, will be provided to the Growth Plan consultant as input into the Growth Plan. The recommendations of the Background Study are not binding to the Growth Plan but are available for the consideration of Growth Plan consultant. 	
<p>Attachments</p> <ul style="list-style-type: none"> • “ESA Background Study Presentation”, O2 Planning and Design • <i>Environmentally Sensitive Area Background Study</i> (Final Draft) 	

1. Administration Request

That the LUC recommend to the Board approval of the Environmentally Sensitive Areas Background Study as input for the Growth Plan consultant.

02

Agenda Item 5 Attachment

ESA Definition, Criteria + Policy Goals

CMRB LUC | December 5, 2019

Meeting Objectives

1. Progress to Date
2. Review Final Project Recommendations
3. Request for Committee Recommendation to the Board

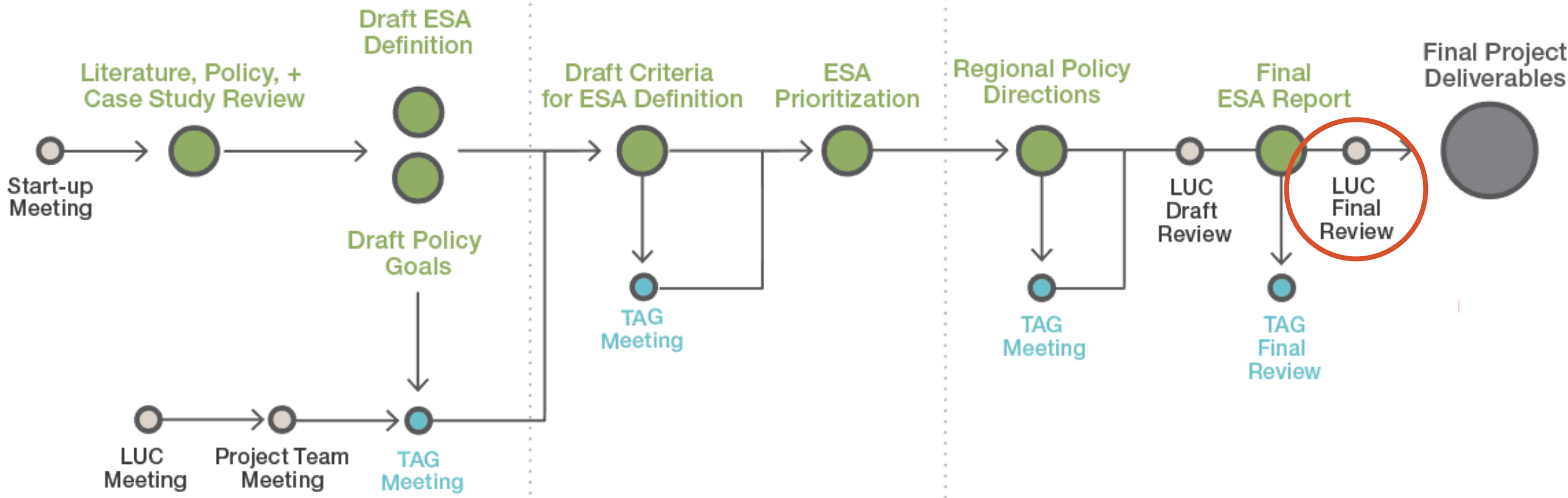
Project Intent

- To formally define Environmentally Sensitive Areas (ESAs)
- To provide recommendations on Criteria and Policy for Regional ESA management
- To ensure a practical and robust shared approach across the CMR
- To inform the development of the Growth Plan and Servicing Plan

**PHASE 1:
Start-up + Review of
Existing Studies**

**PHASE 2:
ESA Definition
Criteria**

**PHASE 3:
ESA Prioritization +
Policy Integration**



Environmentally Sensitive Areas

Recommended Regional Definition (revised with TAG input):

Environmentally Sensitive Areas (ESAs) are key natural components of the regional landscape, providing essential ecosystem functions and services. These include flood mitigation, drinking water supply, maintenance of regional biodiversity, preservation and connectivity of unique habitats and landscapes, and provision of culturally and economically valued resources and opportunities.

Adaptive and Practical Criteria

- Recommended criteria must reflect municipal capacity and data availability
- Aligned with provincial and municipal approaches
- A shared ESA definition contained in Municipal Development Plans
- High-level desktop criteria for Area Structure Plans
- Refinement and confirmation via field assessments during Non-Statutory Plans
- Revised with TAG input

1. Areas maintaining the provision of water quality and quantity throughout the Region and provide protection against drought and flooding events.

2. Areas providing habitat for identified local species of interest, designated species of conservation concern, or identified focal species.

3. Areas providing rare, unique, or biologically diverse ecosystems or unique landforms.

4. Areas contributing to other important ecosystem functions or services at regional or local scales.

Important connectivity corridors, shelterbelts and stepping stones
Important natural resources (plant products, forage, food sources)
Ecotourism and unique recreational opportunities
Culturally important landforms

ESA Policy, Implementation and Monitoring Opportunities

Recommendations were refined using November 15th TAG input and final document review

1. There is a recommendation that all Municipal Development Plans (MDPs) prepared by CMR municipalities to adopt a shared, formal definition of ESAs in accordance with the Criteria.

2. There is a recommendation that all MDPs establish a desktop-based process for identifying potential ESAs during the development of Area Structure Plans.

There is a recommendation that a rigorous fieldwork-based process should be used to confirm and refine potential ESAs during the development of finer-scale non-statutory plans, or prior to subdivision. These assessments would quantify the function of confirmed ESAs, in alignment with the recommended Criteria and Sub-Criteria.

3. In the absence of a fulsome inventory of confirmed ESAs, it is recommended that TAG develop a list of high-level and readily available spatial data to support the consideration of regional ESAs during the development of the Growth Plan.

4. There is a recommendation that the CMRB develop a well-maintained regional database of potential and confirmed ESAs over time, with clear standards for data collection and dissemination, to provide a consistent and fulsome inventory of important environmental features.

This regional database would aggregate municipal spatial data used as criteria to identify potential ESAs, providing municipalities with a shared understanding of the regional context.

Further study to implement this recommendation would be required post-2020.

5. There is a recommendation that the post-2020 work would investigate implementation and monitoring options for the creation and maintenance of the regional database. Completing this work, in collaboration with experts and key stakeholders, could:

- Ensure an ongoing effort is made to update, critique, and improve spatial environmental data.
- Provide a forum to develop, critique, and update spatial environmental datasets (such as wetland and watercourse inventories, land cover datasets, wildlife habitat, and human footprint and disturbance impacts), to align with regional definitions and standards.
- Encourage contributions to municipal and provincial inventories and observation databases from citizen groups, academic institutions, consultants and other subject matter experts.
- Identify lists of species of local importance and their habitat requirements.
- Maintain and improve the spatial dataset of all identified ESAs, their management status, and associated data regarding their function.

Next Steps

1. Committee Recommendation
2. Presentation to the Board

2022

ESA Definition, Criteria + Policy Goals

CMRB LUC | December 5th, 2019

Agenda Item 5 Attachment

Environmentally Sensitive Areas Background Study
Calgary Metropolitan Region Board

Final Draft for Review 20191126

 Planning + Design

Project Intent

Environmentally Sensitive Areas (ESAs) are key landscape features, providing important ecosystem services to municipalities at regional and local scales. The stewardship of ESAs is essential to the long-term maintenance of ecosystem function and biological diversity of the region. These cherished and often irreplaceable natural places are worthy of retention or special care to maintain water quality, provide flood mitigation, retain natural habitats and diverse landscapes, and preserve other valued ecosystem functions and services.

- **Ecosystem functions** describe the underlying biotic and abiotic processes that sustain, maintain, and transform the landscape over time.
- **Ecosystem services** are those aspects of the landscape that provide direct benefit to humanity. Such services provide protection from disturbances and disasters, provide municipalities with clean drinking water, and provide residents with diverse opportunities for recreation and economic benefit.

ESAs are recognized as sensitive landscape features as their loss or degradation directly impacts ecosystem function. These areas have a disproportionate impact on the function of the regional landscape and require particular focus and attention during all stages of land use planning efforts. Areas may be ‘sensitive’ even if they are not presently at risk of loss or disturbance. Their designation is meant to inform municipal management decisions over time, not necessarily as a triage tool to direct immediate action. Thus, assessments of risk must be a component of the decision-making process during land use planning efforts, and in the ongoing monitoring and assessment of the health of the regional landscape.

The loss or degradation of an ESA produces meaningful impacts to ecosystem function and to the important ecosystem services which the region depends upon, directly impacting human society and economy. In the event of the absence of functioning ecosystems, municipalities must make costly infrastructure improvements to maintain the quality of life that would otherwise be provided by natural areas. As ecosystem services have been widely recognized as key components of healthy rural and urban systems, ESAs must be seen as cherished spaces which greatly contribute to the well-being of the region. The wise stewardship of these landscape features is necessary to preserve natural function, ensure healthy populations and maintain a sustainable balance as the Calgary Metropolitan Region continues to grow.

The suggested definitions, criteria, analytic approaches and policy recommendations contained in this document are intended to foster a shared regional language for the management of these important natural functions and services. The intent is not to dictate the approach or level of effort of each municipality, but to arrive at a shared framework for environmental stewardship that minimizes effort, maximizes the value of municipal planning processes, and encourages consistency across the region. Ensuring that municipalities focus their efforts on comparable measures allows for more efficient information sharing and enables cross-boundary collaborative stewardship. This framework enables municipalities to more effectively maintain the ecosystem functions and services that the region depends upon, aligning existing monitoring and management efforts towards the preservation of regionally important ecological values, and bringing regional consistency to the development process. Consequently, establishing this framework not only provides more robust and defensible land use planning but ensures more streamlined and consistent planning across municipal boundaries. The objective is to guide the conducting of rigorous assessments, within the means of varied municipalities, at the scale and level-of-detail appropriate to the plans they support.

Calgary Metropolitan Region Board Regulation

Section 9(1)(d) of the *Calgary Metropolitan Region Board Regulation* (“the Regulation”) requires that the Growth Plan contain policies regarding ESAs. To this end, in May 2019 the Land Use Committee (LUC) approved a request by CMRB Administration to undertake a background study around ESAs. The purpose of this report is to inform the development of the Growth Plan and Servicing Plan. The outcomes of this study are not binding on the Growth Plan.

This ESA Background Study provides guidance towards the development of a cooperative regional framework to

support municipalities in planning for ESAs, particularly those that span jurisdictional boundaries. This background study also provides an overview of existing policies and approaches, supplemented by current established best practices, to inform a regional approach to policies regarding ESAs as required by the Regulation. This background study provides a clear definition, practical objectives, and recommended criteria for the assessment and identification of ESAs. Drawing on input from all Calgary Metropolitan Region Board (CMRB) partner municipalities, and informed by broader-scale provincial approaches, this collaborative effort establishes a regional framework for ESA assessment, and guides the development of the CMRB's Growth Plan to ensure wise stewardship of the region's irreplaceable environmental features. This background report is intended to inform the development of the integrated Growth Plan and Servicing Plan, but the following recommendations are not necessarily binding on either Plan.

Regional Context

Across the CMR, policy and management approaches vary considerably in the criteria used to identify ESAs and in the approaches used to ensure their preservation. Building a consistent regional framework across all member municipalities requires a change in this approach, by shifting the focus of all municipalities towards a shared set of environmental criteria. The ongoing development of the Growth Plan highlights the need for a shared regional understanding of the location and functional contribution of ESAs. A comprehensive spatial map of known and potential ESAs has not yet been compiled and this lack of knowledge impacts the wise stewardship and sustainable development of the region.

Municipalities throughout the CMR have universally recognized the importance of protecting natural systems within their boundaries, albeit using a variety of definitions and approaches to do so. The Province has similarly recognized the wide variety of values that natural systems provide and has conducted province-wide assessments and valuations of ecosystem services, as well as formally defining Environmentally Significant Areas (also referred to as ESAs). Municipal policies refer to both Environmentally Significant Areas and Environmentally Sensitive Areas, often interchangeably. Others speak specifically of Wetland Policy, River Valley Management, Urban Forests, and Environmental Sustainability. The broad intent of all such policies is to preserve and support the essential ecosystem functions and services provided by natural areas.

The Water Roadmap, developed by the water servicing technical advisory group, identifies an iterative path forward for how water, wastewater and stormwater may be addressed in the Growth and Servicing Plan. Member municipalities identify water quality as it relates to land use as a consideration of regional interest. Given that regional environmental systems provide services which support water quality, this study incorporates water quality into the ESA definition and its associated criteria to support CMR municipalities in addressing the water quality complexity of the Water Roadmap.

While a great deal of consensus exists across municipalities in their focus on riparian areas, wetlands, river systems, source water areas and highly diverse ecosystems, differing terminology and specification has made it difficult to align municipal efforts across the region. As many of these landscape features span municipal boundaries, a regional framework is needed which ensures consistency and interoperability, with municipalities collecting and incorporating spatial data on the same set of features using a common framework. This regional framework ensures that municipalities identify and manage ESAs in a coordinated fashion, allowing for a shared understanding of the regional landscape and the effective stewardship of its important ecosystem services.

Municipalities vary in the spatial context of the natural systems functioning within their boundaries, the economic and social drivers for development of their lands, and their capacity for environmental management (in terms of staffing availability, subject matter expertise and availability of spatial data describing the location, condition and function of environmental features). A one-size-fits-all approach to establishing ESA criteria is therefore unrealistic.

To this end, this study identifies a range of criteria that can lead to the identification of an area as Environmentally Sensitive, and a variety of potential methods and approaches that can be used to assess these criteria. Municipalities must adopt the approaches which best reflect their capacity to manage the unique set of landscape features that fall within their boundaries. This proposed framework, and the tools identified within it, provides a

sound and practical approach that ensures all municipalities contribute to the identification and management of regionally important environmental features in a consistent and regionally relevant manner. As noted above, the outcomes of the study are intended to inform the development of the Growth Plan and Servicing Plan and are not binding on either Plan.

Recommended ESA Definition

Environmentally Sensitive Areas (ESAs) are key natural components of the regional landscape, providing essential ecosystem functions and services. These include flood mitigation, drinking water supply, maintenance of regional biodiversity, preservation and connectivity of unique habitats and landscapes, and provision of culturally and economically valued resources and opportunities.

Recommended ESA Objectives

The identification and assessment of potential ESAs is a critical aspect of sustainable development in the region. As natural systems are difficult and often impossible to replace once lost, the delineation and preservation of key environmental features is essential to preserve the natural functioning of the region. The identification and assessment of existing ESAs is the first step to the stewardship of these features. The management strategies taken to maintain these areas depends on the risk or vulnerability of each area, whether from human development, invasive species, erosion, or other external disturbances. As these factors change over time in response to conditions and context, the ongoing assessment of relative risk must be an ongoing task that extends beyond the identification and initial assessment of regional ESAs.

The objective of this study is to support sustainable regional land-use planning and development over time by identifying areas that require special management considerations during the land use planning process. This effort must align with existing provincial approaches but reflect the unique local context of the region at a scale appropriate for inter-municipal planning. All municipalities in the CMR already work towards this goal to greater or lesser extents. This study aims to ensure that a consistent approach is adopted that allows municipalities to better coordinate and streamline this process.

ESA identification is used to ensure awareness of the fulsome set of potentially valuable areas, to guide more detailed assessment. ESA assessment aims to confirm potential ESAs and highlight regionally important natural features for preservation, including those that may span municipal boundaries, providing a framework for collaborative municipal stewardship of ecosystem functions and services.

Recommended ESA Criteria

Well-defined criteria provide a clear and consistent approach to identifying and assessing ESAs, simplifying the management process for municipalities, and communicating the requirements for responsible and sustainable development to private enterprise. Four key criteria encompass the range of valued ecosystem functions and services occurring in the region, from water quality provision to flood mitigation to biodiversity preservation. More specific sub-criteria highlight the variety of nuanced factors within the CMR that contribute to the provision of ecosystem functions and services. High-level and detailed-level identification methodologies have been recommended for the various sub-criteria based on existing data and established best practices (see Appendix A). These methodologies are provided as examples which, through consultation with subject-matter experts, may be improved or modified to align with emerging best practices.

These approaches reflect different timing and levels of effort for ESA identification, with high-level identification occurring as a desktop exercise using readily available data during the development of statutory Area Structure Plans, while detailed-level identification occurs through additional analysis and ground-truthing often during the development of non-statutory Outline Plans or prior to subdivision.

The definition, objectives, and criteria for ESA assessment outlined in this background study were developed through an iterative review process with key stakeholders, the CMRB's Technical Advisory Groups (TAGs) comprised of municipal environmental planning staff, and the CMRB's Land Use Committee. They are intended to provide clarity, consistency and flexibility in implementation to ensure that relevant and practical data are collected over the life of the CMRB's Growth Plan. As municipalities vary in their environmental context and their management capacity, these criteria were developed to ensure that the varied municipalities share a common focus for the regional management of Environmentally Sensitive Areas.

The higher-level criteria that should be used to identify and assess Environmentally Sensitive Areas are:

1. Areas maintaining the provision of water quality and quantity throughout the Region and providing protection against drought and flooding events.
2. Areas providing habitat for identified local species of interest, designated species of conservation concern (SCC), or identified focal species groups.
3. Areas providing rare, unique, or biologically diverse ecosystems or unique landforms.
4. Areas contributing to other important ecosystem functions or services at regional or local scales.

ESA Policy, Implementation and Monitoring Opportunities

The following opportunities are intended for consideration by the Growth Plan consultant and are not binding to the development of the Growth Plan itself. The list below reflects concerns and practical considerations that have arisen from discussions with TAG members and municipal experts during the development of this background study.

- It is recommended that all Municipal Development Plans (MDPs) prepared by CMR municipalities to adopt a shared, formal definition of ESAs in accordance with the Criteria.
- It is recommended that all MDPs to establish a desktop-based process for identifying potential ESAs during the development of Area Structure Plans, and a rigorous fieldwork-based process to confirm and refine potential ESAs during the development of finer-scale non-statutory plans, or prior to subdivision. These assessments must quantify the function of confirmed ESAs, in alignment with the Criteria and Sub-Criteria.
- It is recommended that a spatial map of potential and confirmed ESAs across the region to support responsible development planning and stewardship of the region's environmental resources. Given the complexity of developing this map, this work would be undertaken after the completion of the Growth Plan as part of future studies.
- In the absence of a fulsome inventory of confirmed ESAs, it is recommended that TAG develop a list of high-level and readily available spatial data to support the consideration of regional ESAs during the development of the Growth Plan.
- It is recommended that the CMRB to develop a well-maintained regional database of potential and confirmed ESAs over time, with clear standards for data collection and dissemination, to provide a consistent and fulsome inventory of important environmental features. This regional database would aggregate municipal spatial data to identify potential regional ESAs using agreed upon criteria, providing municipalities with a shared understanding of the regional context. This database would be used to inform municipal planning processes and could be used to develop of spatial map of regional assets.
- It is recommended that the CMRB to investigate implementation and monitoring options for the creation and maintenance of such a regional database. Completing this work at the regional scale, in collaboration with experts and key stakeholders, could:
 - Ensure an ongoing effort is made to update, critique, and improve spatial environmental data.

- Provide a forum to develop, critique, and update spatial environmental datasets (such as wetland and watercourse inventories, land cover datasets, wildlife habitat, and human footprint and disturbance impacts), to align with regional definitions and standards.
- Encourage contributions to municipal and provincial inventories and observation databases from citizen groups, academic institutions, consultants and other subject matter experts.
- Identify lists of species of local importance and their habitat requirements.
- Maintain and improve the spatial dataset of all identified ESAs, their management status, and associated data regarding their function.

Recommended Specific ESA Criteria/Sub-criteria Descriptions

The following detailed sub-criteria reflect more nuanced aspects of the higher-level criteria. They reference the particular set of ecosystem functions and services which are provided by landscape features captured by the sub-criteria. This set of sub-criteria reflect the recommendations of the TAG groups, as well as current best and most appropriate practices and approaches for the CMR.

1. Areas maintaining the provision of water quality and quantity, and providing source water protection or protection against drought and flooding events:

- a. Presence of functional riparian areas adjacent to watercourses:

- i. Intact riparian areas provide: filtration of overland flow, reduction of inputs of fertilizer and other pollutants into rivers and other water bodies; dissipation of flood energy (force, height and volume); bank stabilization.

Ecosystem service: flood mitigation, water quality, maintenance of biodiversity, food provision, moderation of water temperature, climate change resiliency

Ecosystem function: disturbance regulation, water regulation, soil retention, nutrient regulation, supporting habitat, raw materials, provision of shade and shelter

- b. Catchment areas of large wetlands or wetland complexes:

- i. Wetlands provide water filtration and storage, contribute to groundwater recharge, delay the overland movement of water during flooding, and retain water during droughts.

Ecosystem service: flood mitigation, water quality, maintenance of biodiversity, food provision, moderation of water temperature, climate change resiliency

Ecosystem function: disturbance regulation, water regulation, soil retention, nutrient regulation, supporting habitat, raw materials, provision of shade and shelter

- c. Presence of well-functioning natural or naturalized floodplains:

- i. Undeveloped floodplains allow flood waters to spread over a large area, reducing energy of flows and reducing peak flows downstream. This reduces potential damage to infrastructure and communities and improves channel stability.

Ecosystem service: flood mitigation, maintenance of ecosystems and biodiversity, climate change resiliency

Ecosystem function: disturbance regulation, water regulation, soil retention, nutrient regulation, supporting habitat, food provision, raw materials, provision of shade and shelter

2. Areas providing habitat for identified native species of interest, designated species of conservation concern (SCC), or identified focal species groups:

- a. Area provides habitat for identified native species of interest:

- i. Habitat loss is one of the main threats to the long-term survival of identified native species of interest and their habitat may require special management considerations.
 - b. Area provides habitat for designated species of conservation concern:
 - i. Habitat loss is one of the main threats to the long-term survival of identified provincial or federal species of conservation concern and their habitat may require special management considerations.
 - c. Area provides habitat for identified focal species groups:
 - i. Habitat that supports a large range of species is important for the long-term maintenance of biodiversity in the region:

Ecosystem service: maintenance of biodiversity, pollination of crops and natural vegetation, control of pests, dispersal of seeds and translocation of nutrients, climate change resiliency

Ecosystem function: nutrient regulation, pollination, biological control, genetic resources

- 3. Areas providing rare, intact, or biologically diverse ecosystems or unique landforms:
 - a. Presence of biologically diverse ecosystems:
 - i. Biologically diverse ecosystems perform many ecosystem functions and provide numerous ecosystem services. Highly diverse systems are more resilient to disturbance.

Ecosystem service: Soils formation and protection, nutrient storage and cycling, pollution breakdown and absorption, climate change resiliency, maintenance of ecosystems and biodiversity, recovery from unpredictable events, invasive weed suppression, food provision, medicinal resources, wood products, ornamental plants

Ecosystem function: Breeding stocks, population reservoirs, future resources, diversity in genes, species and ecosystems

- b. Rare ecosystems:
 - i. Rare ecosystems are unique and irreplaceable landscapes whose preservation will ensure a representative and complementary regional ecological network.

Ecosystem service: maintenance of biodiversity, food provision

Ecosystem function: supporting habitats, raw materials, genetic resources

- c. Areas where intact ecosystems occur:
 - i. Highly intact ecosystems are more resilient to change, and as a result, are more likely to maintain their full range of ecological processes. Intact ecosystems are considered to be critical for the persistence of a broad range of flora and fauna than highly impacted habitats.

Ecosystem service: maintenance of biodiversity, habitat connectivity, generation and renewal of soils and natural vegetation, pollination, food provision, pest control

Ecosystem function: supporting habitats, raw materials, genetic resources, disturbance regulation, water regulation, soil retention, nutrient retention, pollination, provision of shade and shelter

- d. Areas where regionally, provincially or nationally recognized landforms are present:

- i. These unique landforms are considered to be exceptional examples of landscape diversity and may support important or unique ecological communities, species, and populations.

Ecosystem service: maintenance of ecosystems and biodiversity, cultural services

Ecosystem function: supporting habitats, raw materials, genetic resources

- 4. Areas that significantly contribute to other important ecosystem functions or services at regional or local scales:

- a. Important connectivity corridors, shelterbelts and steppingstones between core areas:

- i. Landscape connectivity allows the maintenance of subpopulation genetics, the re-establishment of extirpated populations in isolated habitats, and the linking of habitat types for species with varied life histories.

Ecosystem service: maintenance of ecosystems and biodiversity

Ecosystem function: supporting habitats, nutrient distribution, genetic resources, colonization

- b. Important natural resources (plant products, forage, food sources):

- i. Important natural resources provide economic and cultural services which benefit regional industries and should be managed to ensure that use does not compromise the access to or quality of such resources.

Ecosystem service: provisioning services

Ecosystem function: raw materials, genetic resources

- c. Ecotourism and unique recreational opportunities:

- i. Unique landforms, environments and biological entities provide important economic contributions, drawing visitors to the region and providing unique experiences to regional populations.

Ecosystem service: cultural services, recreational services, educational services

- d. Culturally important landforms

- i. Historic, cultural or spiritual valuation of unique landscapes and landforms preserve heritage and act as educational opportunities, acting to maintain the regional identity over time.

Ecosystem service: cultural services, educational services

APPENDIX A

Recommended ESA Sub-criteria with Measures and Methods

As described in the section above the following sub-criteria are intended to provide guidance to municipal partners in assessing the environmental sensitivity of landscape features in their unique context. The majority of these measures and methods are already in use across many municipalities of the Calgary Metropolitan Region, but a consistent regional framework for ESA management has not yet been achieved.

Sub-criteria examples are split into high level desktop approaches using readily available spatial datasets (conducted during initial planning stages such as Area Structure Plans) and detailed level field approaches requiring greater subject matter expertise and inventory effort (which can be conducted during the initial stages of development of subdivisions, Outline Plans, Conceptual Schemes, or Site Development Plans). These sub-criteria are neither exhaustive nor prescriptive and should be revised and updated by subject matter experts as a more comprehensive understanding of the ecosystem function of the regional landscape is developed. Proposed datasets listed below are representative of commonly available appropriate data and are not prescriptive nor exhaustive. Municipalities are encouraged to incorporate comparable data into their assessment processes, to reflect improvements in understanding. Assessments must always be conducted by qualified professionals.

1. Areas maintaining the provision of water quality and quantity throughout the region and providing protection against drought and flooding events.

Sub-criteria	High Level Desktop Assessments (ASP Scale)	Detailed Field Assessments (Non-Statutory / Outline Plan Scale)
<p>1.1. Presence of functional riparian areas adjacent to watercourses</p>	<p>Measure: Presence of a native vegetation community, adjacent to a watercourse, whose ecological functions of water retention and filtration have not been lost or highly impaired due to rural or urban development, resource extraction or agricultural purposes.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Use NRCan/CanVec stream network (Natural Resources Canada 2019a, 2019) to identify where watercourses occur. Ortho imagery and drainage modelling via LiDAR DEM can supplement CanVec layers. 2. Use vegetation layer (GVI (Alberta Environment and Parks (AEP) 2016), Municipal layers, ABMI (Alberta Biodiversity Monitoring Institute 2010), ACIMS (Alberta Parks 2017)) to identify where native vegetation communities are present adjacent to watercourse. 3. Overlay ABMI human footprint and NRCan/CanVec road etc. layers to identify areas with minimal human footprint. 	<p>Measure: Presence of a healthy riparian community adjacent to watercourse.</p> <ul style="list-style-type: none"> ● Contiguous size ● Bank Stability ● Overland flow distance <p>Methods:</p> <ol style="list-style-type: none"> 1. Identify presence of watercourse and classify as per provincial classification system (Alberta Agriculture and Forestry 2016). 2. Identify riparian community and delineate. 3. Complete Cows and Fish riparian health assessment (Adams and Hale 2009).

Sub-criteria	High Level Desktop Assessments (ASP Scale)	Detailed Field Assessments (Non-Statutory / Outline Plan Scale)
<p>1.2. Catchment areas of large wetlands or wetland complexes</p>	<p>Measure: Presence of wetlands over a certain size, or a wetland complex of nearby wetlands over a certain size.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Use NRCan/CanVec waterbody (Natural Resources Canada 2019) and Alberta Merged Wetland Inventory (Alberta Environment and Parks (AEP) 2017), by using historic and present day ortho imagery to identify potential inaccuracies and data gaps. 2. Identify wetland complexes using buffers or cost-distance methods to select large aggregations of wetlands. 	<p>Measure: Presence of a wetland that scores an ‘a’, ‘b’, or ‘c’ on the provincial ABWRET-A evaluation, or those wetlands which score highly in the surface water storage, sediment & toxicant retention & stabilization, Phosphorus retention, nitrogen retention, organic nutrient export ABWRET-A functional components.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Complete ABWRET-A for each wetland and submit to Province for results (Government of Alberta 2016a).
<p>1.3. Presence of well-functioning natural or naturalized floodplains</p>	<p>Measure: Presence of a watercourse-adjacent floodplain dominated by natural or naturalized land cover.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Use NRCan/CanVec stream network (Natural Resources Canada 2019) to identify where watercourses occur and floodway/flood fringe mapping (Government of Alberta 2015) where available. Historic and present day ortho imagery, LiDAR DEM and contour maps will provide additional tools to delineate flood plain extents. 2. Use vegetation layer (GVI/ACIMS/Municipal layers) to identify where native vegetation communities are present (Alberta Environment and Parks (AEP) 2016, Alberta Parks 2017) adjacent to watercourse and where human footprint is present (ABMI human footprint layer (Alberta Biodiversity Monitoring Institute n.d.) or equivalent). 	<p>Measure: Presence of a watercourse-adjacent floodplain dominated by natural or naturalized land cover.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Identify presence of watercourse and classify as per provincial classification system (Alberta Agriculture and Forestry 2016). 2. Refer to provincial flood hazard mapping or develop own mapping. 3. Field work to confirm if undeveloped (lacking hard infrastructure, such as riprap, houses, roads, bridges, or intact meander belt).

2. Areas providing habitat for identified local species of interest, designated species of conservation concern (SCC) or identified focal species groups.

Sub-criteria	High Level Desktop Assessments (ASP Scale)	Detailed Field Assessments (Non-Statutory / Outline Plan Scale)
<p>2.1. Area that provides habitat for identified native species of interest</p>	<p>Measure: Native vegetation patch that meets key habitat requirements. Presence of important habitat features that are known breeding, roosting, or foraging sites, or overwintering areas.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Municipalities to identify which species are of local interest. 2. Determine key habitat the species requires (breeding/stopover, key habitat characteristics) and develop list of key habitat criteria for use in Detailed Level. 3. Use vegetation layer (GVI/FWMIS/municipal data) to identify where this habitat or landscape feature occurs (Alberta Environment and Parks (AEP) 2016, Alberta Environment and Parks 2019). Ortho imagery may be used to supplement and validate data. 4. Build regional dataset by referring to existing information (regional and local studies, provincial data) and requesting information from AEP wildlife biologists. 	<p>Measure: Native vegetation patch that meets key habitat requirements. Presence of important habitat features that are known breeding, roosting, or foraging sites, or overwintering areas.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Complete field surveys to identify if key habitat exists and general/targeted wildlife or vegetation surveys to identify species and/or features that are present. 2. Identify if the site has the potential to have important habitat features or has an area identified in the regional dataset. 3. Identify which general or targeted wildlife surveys are required based on habitat available. 4. Complete minimum number of surveys identified in the Sensitive Species Survey Guidelines (Alberta Environment and Sustainable Resource Development (AESRD) 2013) to identify if features are present.
<p>2.2. Area provides habitat for designated species of conservation concern</p>	<p>Measure: Presence of:</p> <ul style="list-style-type: none"> ● An Important Bird Area (Bird Studies Canada (BSC) 2012); ● Ramsar wetlands (The Ramsar Convention 2019); ● Designated critical habitat/Emergency Orders under Species at Risk Act (including aquatic habitat) (Government of Canada 2002), provincial Key Wildlife Biodiversity Zone (Alberta Environment and Parks 2019) 	<p>Measure:</p> <ul style="list-style-type: none"> ● Observed Designated SCC in conjunction with breeding behaviour, or significant foraging/stopover/wintering location. ● Provincial Sensitive Species ranges and either contains (or likely contains) suitable habitat for that species or has observations of that species. <p>Methods:</p> <ul style="list-style-type: none"> ● Use GIS to determine if any of these are in the regional area.

Sub-criteria	High Level Desktop Assessments (ASP Scale)	Detailed Field Assessments (Non-Statutory / Outline Plan Scale)
	<p>and area is dominated by natural cover;</p> <ul style="list-style-type: none"> ● Provincial Key Wildlife Habitat (Piping Plover waterbodies, Trumpeter Swan waterbodies, Greater Short-Horned Lizard Habitat, Ord’s Kangaroo Habitat, Grizzly Bear Zone, Mount Goat and Sheep Areas, Colonial Nesting Birds) (Government of Alberta n.d.) ● and area is undeveloped; ● Within provincial sensitive species ranges and either contains (or potentially contains) suitable habitat for that species OR has historical observations of that species (FWMIS/ACIMS), or Class A and B watercourses, fish-bearing water bodies (Government of Alberta 2012b) with previous observations of fish species of conservation concern (Alberta Environment and Parks 2019), or appropriate habitat for specie of conservation concern in the range. <p>Methods:</p> <ol style="list-style-type: none"> 1. Use GIS to determine if any of these are in the regional area. 2. Provincial/federal datasets: IBA (Bird Studies Canada (BSC) 2012), Ramsar (The Ramsar Convention 2019), SARA (Government of Canada 2002), AEP Key Wildlife Biodiversity Zones, AEP wildlife sensitivity datasets(Government of Alberta n.d.), ESAs (Fiera Biological Consulting Ltd. 2014), LAT, FWMIS (Alberta Environment and Parks 2019), ACIMS (Alberta Parks 2017). 	<ul style="list-style-type: none"> ● Use provincial/federal datasets: IBA (Bird Studies Canada (BSC) 2012), Ramsar (The Ramsar Convention 2019), SARA (Government of Canada 2002), AEP Key Wildlife Biodiversity Zones, AEP wildlife sensitivity datasets(Government of Alberta n.d.), ESAs (Fiera Biological Consulting Ltd. 2014), LAT, FWMIS (Alberta Environment and Parks 2019), ACIMS (Alberta Parks 2017). ● Complete general/targeted wildlife or vegetation surveys to add to species observations.
<p>2.3. Area that provides habitat for</p>	<p>Measure: Quarter section that meets the minimum number of species</p>	<p>Measure: Habitat patch that meets the criteria for the focal species group.</p>

Sub-criteria	High Level Desktop Assessments (ASP Scale)	Detailed Field Assessments (Non-Statutory / Outline Plan Scale)
identified focal species groups	<p>observed within one focal species group.</p> <ul style="list-style-type: none"> ● Use Provincial ESA waterfowl and amphibian groups, adjusting species to be more region specific where needed (Fiera Biological Consulting Ltd. 2014). ● Create other species groups: mammals, fish, grassland and forest birds, or raptors. <p>Methods:</p> <ol style="list-style-type: none"> 1. Region to identify focal species groups. 2. Use vegetation layer (GVI (Alberta Environment and Parks (AEP) 2016), ABMI (Alberta Biodiversity Monitoring Institute 2010), Municipal layers) to identify where native vegetation communities are present and remove impermeable built areas. 3. Modelled habitat suitability identifies the area as likely to contain a sufficient number of focal group species. 	<p>Methods:</p> <ol style="list-style-type: none"> 1. Identify if focal group habitat exists on the site. 2. Identify which general or targeted wildlife surveys are required based on habitat available. 3. Complete minimum number of surveys identified in the Sensitive Species Survey Guidelines (Alberta Environment and Sustainable Resource Development (AESRD) 2013). 4. Determine if the minimum number of species for a focal species guild is observed within a specific habitat patch.

3. Areas providing rare, intact, or biologically diverse ecosystems or unique landforms.

Sub-criteria	High Level Desktop Assessments (ASP Scale)	Detailed Field Assessments (Non-Statutory / Outline Plan Scale)
3.1. Presence of biologically diverse ecosystems	<p>Measure: Diversity tends to increase with natural patch size.</p> <p>Modelled species habitat for a wide set of species provides an estimate of species richness.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Municipalities may wish to adopt a minimum size threshold to reduce the impact of edge effects. A common assumption is the larger the patch size, the more 	<p>Measure: Areas where a high number of native species are observed.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. General and targeted wildlife field surveys; 2. Detailed vegetation surveys (vegetation community mapping and detailed vegetation list as part of rare plant surveys).

Sub-criteria	High Level Desktop Assessments (ASP Scale)	Detailed Field Assessments (Non-Statutory / Outline Plan Scale)
	<p>diverse an area is. This assumes that wildlife species diversity will also be higher in native vegetation communities.</p> <p>2. Use ABMI all species richness dataset (which presents relative species richness across Province), clip out region, determine the relative species richness classes, and select areas which fall within the top quantile of those classes.</p>	
<p>3.2. Areas providing rare or unique ecosystems</p>	<p>Measure: Meets the following:</p> <ul style="list-style-type: none"> ● Within the Provincial Threatened and Endangered Plant Ranges with suitable habitat for the identified species (Government of Alberta n.d.). ● Presence of Rare ecological communities (Alberta Parks 2017). ● Presence of unique ecosystems identified by the municipality. <p>Methods:</p> <ol style="list-style-type: none"> 1. Overlay Provincial Threatened and Endangered Plant Ranges layer (Government of Alberta n.d.) with vegetation layers (GVI (Alberta Environment and Parks (AEP) 2016) etc.) and ABMI human footprint (Alberta Biodiversity Monitoring Institute n.d.) (or other disturbance datasets, accounting for successful restoration efforts) to ID if suitable habitat exists. 2. Overlay ACIMS data (Alberta Parks 2017) to see where RECs occur within the region. 3. Overlay identified unique ecosystems identify by the municipality. 	<p>Measure: Meets the following:</p> <ul style="list-style-type: none"> ● Within the Provincial Threatened and Endangered Plant Ranges with observations of the species (Government of Alberta n.d.). ● Presence of rare ecological communities (Alberta Parks 2017). ● Presence of unique habitats identified by the municipality. ● Presence of A/B/C value wetlands determined by ABWRET-A (Government of Alberta 2016a). <p>Methods:</p> <ul style="list-style-type: none"> ● Complete orthophoto interpretation to delineate vegetation communities and identify areas that may provide rare or unique habitat. ● Complete early and late season rare plant surveys. ● Identify any Threatened and Endangered plants and delineate the area that they occur in. ● Identify any rare ecological communities and delineate area. ● Identify any unique habitats and delineate area.

Sub-criteria	High Level Desktop Assessments (ASP Scale)	Detailed Field Assessments (Non-Statutory / Outline Plan Scale)
<p>3.3. Areas where intact ecosystems occur</p>	<p>Measure: Presence of:</p> <ol style="list-style-type: none"> 1. Intact terrestrial vegetation communities. Municipalities may wish to adopt a minimum size threshold to reduce the impact of edge effects. 2. Intact lentic vegetation communities. Municipalities may wish to adopt a minimum size threshold to reduce the impact of edge effects. <p>Terrestrial Methods:</p> <ol style="list-style-type: none"> 1. Remove ABMI human footprint (Alberta Biodiversity Monitoring Institute n.d.) and provincial linear features from vegetation layers (Alberta Biodiversity Monitoring Institute 2010, Alberta Environment and Parks (AEP) 2016). 2. Remove any hydrography polygons (wetlands, rivers etc.). 3. Remove any vegetation polygons that are disturbed. 4. Identify any vegetation polygons remaining. 5. Municipalities may wish to adopt a minimum size threshold to reduce the impact of edge effects. <p>Lentic Methods:</p> <ol style="list-style-type: none"> 1. Using ABMI, GVI and other available wetland inventories to identify lentic wetlands (Alberta Biodiversity Monitoring Institute 2016, Alberta Environment and Parks (AEP) 2016, 2017). 2. Identify any lentic wetlands, removing any wetlands where known disturbances occur (dams, roads, stormwater management) or; 3. Wetlands of any size within natural, but not necessarily 	<p>Measure:</p> <ul style="list-style-type: none"> ● Intact terrestrial vegetation communities: rated “healthy” as per rangeland health assessment or Cows and Fish assessment (Adams and Hale 2009) or is a reference community described by rangeland guides (Government of Alberta 2019a) or; ● Intact lentic vegetation communities: wetlands rated as “Healthy” using the appropriate Wet Meadow IBI assessment (Government of Alberta 2016b). <p>Methods:</p> <ol style="list-style-type: none"> 1. Complete vegetation community mapping with plots to determine if vegetation community matches the reference community description. 2. Wetlands rated as “Healthy” using the appropriate Wet Meadow IBI assessment (Government of Alberta 2016b).

Sub-criteria	High Level Desktop Assessments (ASP Scale)	Detailed Field Assessments (Non-Statutory / Outline Plan Scale)
	<p>native, terrestrial vegetation patches.</p> <p>4. Municipalities may wish to adopt a minimum size threshold to reduce the impact of edge effects.</p>	
<p>3.4. Areas where regionally, provincially or nationally recognized landforms are present</p>	<p>Measure: Presence of significant landforms.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Overlay region with provincial and federal significant landforms layer (Alberta Parks 2014) and any landform feature deemed significant by the Region. 	<p>Measure: Presence of significant landforms.</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Overlay region with provincial and federal significant landforms layer (Alberta Parks 2014) and any landform feature deemed significant by the Region.

4. Areas that significantly contribute to other important ecosystem functions or services at regional or local scales.

Sub-criteria	High Level Desktop Assessments (ASP Scale)	Detailed Field Assessments (Non-Statutory / Outline Plan Scale)
<p>4.1. Important connectivity corridors, shelterbelts and steppingstones between core areas</p>	<p>Measure: Areas with high frequency of wildlife usage (may include seasonal usage).</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Wildlife/Vehicle Collision data. 2. Intact native vegetation located between known habitat areas. 	<p>Measure: Areas with high frequency of wildlife usage (may include seasonal usage).</p> <p>Methods:</p> <ol style="list-style-type: none"> 1. Circuitscape Models showing likelihood of wildlife movement. 2. Field assessment. 3. Wildlife Cameras.
<p>4.2. Important natural resources (plant products, food sources)</p>	<p>Measure: Area contains sustainable resources of economic importance.</p> <p>Method: Industry and provincially sourced resource data.</p>	<p>Measure: Area contains sustainable resources of economic importance.</p> <p>Method: Ground-truthing and stakeholder input during outline plan stages.</p>

<p>4.3. Ecotourism and unique recreational opportunities</p>	<p>Measure: Area supports valued recreational activities.</p> <p>Methods: Stakeholder input, social media geofenced posts and tweets.</p>	<p>Measure: Area supports valued recreational activities.</p> <p>Method: Stakeholder input during outline plan stages.</p>
<p>4.4. Culturally important landforms</p>	<p>Measure: Heritage lands, historic First Nations cultural centres.</p> <p>Method: Stakeholder consultation, TEK inventories, provincially designated sites, Historic Resource Value (HRV) Inventory highly valuable classes.</p>	<p>Measure: Heritage lands, historic First Nations cultural centres.</p> <p>Method: Ground truthing through assessment of archaeological potential, detailed interviews with First Nations.</p>

APPENDIX B

Definitions:

ABMI: The Alberta Biodiversity Monitoring Initiative tracks changes in Alberta's wildlife and their habitats from border to border, and provides ongoing, relevant, scientifically credible information on Alberta's living resources.

AMWI: The Alberta Merged Wetland Inventory is a generalized, merged product of 35 component wetland inventories that utilized different types of source data from different years, different data capture specifications and different classifications. Considerable variation in the level of detail and accuracy is present in this dataset.

Ecosystem: A community or group of living organisms that live in and interact with each other in a specific environment.

Ecosystem function: The biological, geochemical and physical processes and components that take place or occur within an ecosystem.

Ecosystem services: (also referred to as “ES”) Are the benefits that humans receive from nature including provisioning (e.g. food, fuel, fibre, fresh water), regulating (e.g. air quality, climate regulation, erosion control, water quality), and supporting services (e.g. production of oxygen, soil formation, resiliency). A breakdown of types of ecosystem services is available on the FAO site: <http://www.fao.org/ecosystem-services-biodiversity/background/provisioning-services/en/>

Biological diversity (or biodiversity): The variability among living and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems.

Habitat: The resources and conditions present in an area that produce occupancy, including survival and reproduction, by a given organism. Habitat is organism-specific; it relates the presence of a species, population, or individual (animal or plant) to an area's physical and biological characteristics. Habitat implies more than vegetation or vegetation structure; it is the sum of the specific resources that are needed by organisms.

Important habitat feature: A specific element within habitat that is integral to the life history of a species, such as: established Bank Swallow colony, Sharp-Tailed Grouse lek, Ferruginous Hawk or other sensitive raptor nest, Great Blue Heron rookery, snake hibernacula, bat hibernacula/roost, trout spawning habitat.

Human Footprint: The ABMI defines human footprint as the visible alteration or conversion of native ecosystems to temporary or permanent residential, recreational, agricultural or industrial landscapes. The definition includes all areas under human use that have lost their natural cover for extended periods of time, such as cities, roads, agricultural fields, and surface mines. It also includes land that is periodically reset to earlier successional conditions by industrial activities such as forestry cutblocks and seismic lines.

Intact: Intactness is an indicator of “the absence of human modification of the habitat” (Theobald 2013: 1859). Landscapes with high levels of intactness are considered to have higher retention of (historical) ecological structure, composition, and function (Hak and Comer 2017). An intact ecosystem has the following characteristics:

- It is free from substantial anthropogenic fragmentation, such as urban development, cultivation, roads, pipelines, powerlines, clearcuts and industrial activities.
- It is free from substantial human influence for periods that ensure that it is formed by naturally occurring ecological processes, including fires, wind and pests.
- It contains only naturally seeded native plants and supports viable populations of those species.
- It is large enough to be resilient to edge effects and to survive most natural disturbance events.

Local species of interest: Species or species groups designated by region or municipality as species of management priority.

Floodplain: The identified 1:100 year floodway and the adjacent flood fringe.

Focal wildlife species groups: Groups or guilds that have life requisites encompassing other species, ecosystems, and/or processes; their use in conservation efforts therefore represents not only their own life histories, but a range of species, ecosystems and/or processes as well.

Riparian Area: Riparian areas are transitional areas between upland and aquatic ecosystems. They have variable width, extend above and below ground, and perform various functions. These lands are influenced by, and exert an influence on, associated water bodies, including alluvial aquifers and floodplains. Riparian lands usually have soil, biological and other physical characteristics that reflect the influence of water and other hydrological processes.

Natural: Natural ecosystem is a community of living and non-living organisms, where each component interacts together as a unit through biological, physical and chemical processes. The distinctiveness of natural ecosystems is that they are purely natural and their formations are not in any way influenced by human activity.

Naturalized: Naturalization is a process of ecological restoration that involves returning an altered or degraded site to a more natural condition through the use of trees, shrubs and flowers that are native to the area.

Source watershed: the source watershed generally includes the watershed area upstream of a water supplier's intake. It is delineated by the boundaries of drainage basins that supply streams, lakes, and reservoirs that serve as source water.

TEK: Traditional Ecological Knowledge describes indigenous and other forms of traditional knowledge regarding the sustainability of local resources.

Undeveloped: Undeveloped, or raw, land has no utilities, no structure or pre-defined building site and no intra-parcel roads. It lacks all the components of urban, rural or agricultural development.

Water: The Water Act defines water to mean all water on or under the surface of the ground, whether in liquid or solid state.

Water body: The Water Act defines a water body as any location where water flows or is present, whether or not the flow or the presence of water is continuous, intermittent or occurs only during a flood, and includes but is not limited to wetlands and aquifers.

Watercourse: A natural channel or depression in which water flows regularly or intermittently.

Wetland Complex: A hydrologically connected aggregation of wetlands which function together to provide ecosystem services for the surrounding landscape.

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Agenda Item	6
Submitted to	Joint Land Use and Intermunicipal Servicing Committee
Purpose	For Decision
Subject	Stormwater Background Report
Meeting Date	December 5, 2019
<i>Motion that ISC recommend to the Board approval of the Stormwater Background Report as input for the Growth Plan consultant</i>	
<p>Summary</p> <ul style="list-style-type: none"> • 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. • 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 was the subject of the Flood Workshop held on October 10, 2019. • 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 were incorporated, discussed and elaborated to form a background report. This work occurred through July, August and September of 2019 with Water Table input. • In September, the Growth Plan consultant team 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. • An update on the Stormwater Background Report was provided to ISC on November 7, 2019. ISC Comments on the priority rating were received and incorporated, along with additional feedback from the Water Table and member municipality technical experts through discussions and reviews. • Like all background reports prepared to date, the purpose of this report is to establish a regional perspective through common definitions, priorities and objectives. There is an understanding that further discussions related to policy development and integration with other priorities of the Board are part of Growth and Servicing Plan development by the Growth Planning Consultant. 	

- Elements identified by the Water Table as requiring further work include continued discussions and clarity around water quality objectives and flow rates for various intermunicipal water bodies, with input from the province. These items may not be fully addressed within the 2020 Growth and Servicing Plans, but the Plans could identify future priorities around stormwater.

Attachments

- CMR Stormwater Background Report

1. Administration Request

That the ISC recommend to the Board approval of the Stormwater Background Report as input for the Growth Plan consultant.

CMR Stormwater Background Report

1. BACKGROUND REPORT OBJECTIVE

The objective of this report is to:

- a) identify common definitions and differentiate between municipal versus regional significance regarding stormwater management;
- b) summarize how stormwater servicing is regulated and administered within in each municipality;
- c) identify regional best practices within the CMR, other regions across Canada and the world;
- d) summarize provincial and municipal policy and regulations that affect stormwater management within the region; and,
- e) identify key themes for regional stormwater servicing for consideration of the growth planning consultant in growth and servicing plan development.

2. STORMWATER SERVICING/MANAGEMENT WITHIN THE CMR

2.1. 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.”

Stormwater is regulated by Provincial Regulations (which define quantity and quality of runoff). The Province, in turn, grants the municipalities jurisdiction over the land use plans that control the nature of engineered structures and operational controls that achieve the broader objectives for quality and quantity

Stormwater may result in localized flooding and overland flow which is primarily limited to the scale of individual sites and neighbourhoods and are therefore managed at the municipal rather than regional scale. Stormwater may also result in riverine flooding that often occurs at a regional scale.

Because regional-scale flooding brings forward questions related to land use, mitigation measures, infrastructure investments, technical standards for infrastructure design, and political leadership, it is critical to have a truly integrated approach. Further details on the integrated approach to riverine flooding is the topic of a separate CMRB work package.

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.

CMR stormwater management challenges arise from a variety of factors including:

- source water quality concerns related to upstream land uses;
- relatively flat landscape that increases susceptibility to overland flooding during extreme events;
- limited availability to receiving waters within the northeast portion of CMR;
- air quality concerns (including H₂S odours) associated with organic matter in ponds that sit idle under ice for extended period; and
- co-mingling of hail and snow that often affect the sizing and performance of storage and control structures even during spring/summer events.

The only regional engineered infrastructure within the CMR 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. As such, the WID's acceptance of stormwater has negative impacts on the quality of water supplied for irrigation.

2.2. MUNICIPAL CONTEXT – STORMWATER

The following table summarizes the stormwater servicing context of each municipality, as adapted from the CMRB Municipal Context Reports and CMRB member municipality web sites.

Municipality	Municipal Stormwater Service Context
Airdrie	<p>The stormwater management system in Airdrie is made up of a network of underground storm mains and above ground Storm Water Management Facilities including engineered swales and stormwater ponds. Stormwater is collected and released from the system in a controlled matter in order to protect infrastructure and ultimately Nose Creek. The City adopted its Master Stormwater Drainage Plan in September 2013.</p> <p>Refer to Drainage BYLAW NO. B-03/2014 – manage stormwater within the city.</p> <p>Airdrie is part of the Nose Creek Collaborative Partnership with Rocky View County, Calgary Airport Authority and the City of Calgary. The objective of the Nose Creek Collaborative Partnership is to protect the riparian areas through management of volume control, release rates and and improve water quality in the Nose Creek through stormwater management.</p>
Calgary	<p>The City's stormwater system is comprised of minor and major systems consisting of 4,700 km of buried pipe. The minor systems consist of primarily underground infrastructure intended to handle minor storm events. The major systems consist of surface and underground</p>

Municipality	Municipal Stormwater Service Context
	<p>infrastructure intended to handle major storm events. In most communities in Calgary and other cities, the minor system is designed to drain one-in-five-year storms. In some older communities built prior to 1952, the minor systems are designed to handle one-in-two-year storms. The major systems are designed to handle 1:100 year storm events. Calgary's storm-drainage system has approximately 350 wet and dry ponds. These ponds are intended to attenuate storm flows to achieve the design service levels and provide a level of treatment to reduce Total Suspended Solids (TSS) loadings discharged to waterways. The City adopted its Stormwater Management Strategy in 2005 – the strategy is currently being updated.</p> <p>Since January 2004 the storm drainage system became financially self-supporting through what is now called the monthly Drainage Service Charge on customers' utility bills, in addition to fees paid by the development industry to support servicing of new developments. Like the water and wastewater utilities, the storm drainage system does not receive money from property taxes.</p> <p>Reusing stormwater for municipal purposes is a priority. The interpretation of the <i>Water Act</i> by the Government of Alberta has made natural wetland retention and meeting Calgary's stormwater management objectives challenging, however, progress is being made to resolve these issues. The City's Total Loading Management Plan and Stormwater Management Strategy aim to reduce pollutants from entering the Bow River. Furthermore, Calgary is part of several inter-municipal groups and watershed stewardship groups to manage stormwater.</p> <p>The City of Calgary participates in the following Stormwater and Watershed Management Groups:</p> <ul style="list-style-type: none"> • Bearspaw Reservoir Trilateral Task Force • Nose Creek Watershed Partnership • Elbow River Watershed Partnership • Bow River Basin Council • Cooperative Stormwater Management Initiative (CSMI)¹ <p>The City of Calgary Source Water Protection Plan has identified 12 priority actions to proactively protect Calgary's regional water supply which are based on the following four goals:</p> <ul style="list-style-type: none"> • Protect the source watershed with improved land use planning • Promote innovation in stormwater management to protect source water quality • Leverage key partnerships for risk mitigation • Involve the community through education and outreach
Chestermere	Stormwater management in Chestermere is comprised of minor and major infrastructure systems which convey stormwater from urban development to stormwater ponds and ultimately outfall to Western Irrigation District infrastructure. Stormwater management facilities in the City of

¹ Rocky View, Strathmore, Chestermere, Wheatland, Calgary and the Western Irrigation District have participated in the Cooperative Stormwater Management Initiative (CSMI) since 2012.

Municipality	Municipal Stormwater Service Context
	<p>Chestermere are designed and constructed in accordance with the City of Calgary Design Standards and Alberta Environment Regulations.</p> <p>The City is currently working with regional partners to secure an approved stormwater outfall for future urban development.</p> <p>In 2019 the City re-gained the management of all stormwater facilities from Chestermere Utilities Inc. which owned and managed the utility from 2015-2019.</p> <p>Chestermere adopted its Integrated Stormwater Master Plan in 2015 and an update is currently underway. The update will also include a flood mitigation study on existing infrastructure.</p>
Cochrane	<p>In Cochrane, developers are required to provide the necessary stormwater infrastructure to service growth areas in accordance with Cochrane and Alberta Environment standards. The Town of Cochrane requires that Storm Water Management reports comply with the requirements set out in the City of Calgary Stormwater Management and Design Manual in accordance with the Surface Drainage Bylaw 13-2005. Intensification via redevelopment of some of the inner areas of Town could face challenges with an already over capacity existing stormwater system servicing the downtown area. Site specific redevelopment areas will need to be assessed and solutions to the capacity issues addressed. Cochrane will be updating the existing Integrated Stormwater Master Plan and associated rate structure in 2020 to ensure proper system operations and asset performance to address quality and capacity performance.</p>
Foothills	<p>Stormwater is addressed within the Municipal Development Plan adopted in 2010.</p> <p>Within the County, regardless of the scale of development, drainage plans are required in order to mitigate stormwater impact and must include the preservation of critical water features such as wetlands and riparian areas. The County supports integrated watershed management plans which address water quality, such as the Bow Basin Watershed Management Plan.</p>
High River	<p>High River adopted its Infrastructure Master Plan (IMP) in 2011. The underground portions of the IMP were superseded in 2017 by the Utility Master Plan (UMP) which includes the stormwater system.</p> <p>Due to the age of infrastructure within portions of the Town, there are stormwater management issues in certain areas of the Town. A sub-regional plan would be helpful, however no intermunicipal stormwater plan exists currently.</p>
Okotoks	<p>The storm sewer and drainage systems consist of 117 kms of main lines, 2,000 catch basins and 1,460 manholes with 15 main outfalls to the Sheep River. The Town's Stormwater Management Master Plan was completed in 2014.</p> <p>The Okotoks system has been designed and constructed according to the City of Calgary specifications recognizing their leadership in this area. The system includes stormwater management facilities and a combination of natural and human made collection systems all terminating in the Sheep River. The system has proven itself through several significant events in the past 20 years and been upgraded accordingly including flood protection along the Sheep River with the support of senior levels of government.</p>

Municipality	Municipal Stormwater Service Context
	Okotoks would like to see the use of stormwater and effluent become possible through provincial policy as one of many solutions to the water constraints in the South Saskatchewan Basin.
Rocky View	<p>The County utilizes Master Drainage Plans within new developments to identify Best Management Practices, conveyance routes and alternative outfall strategies. In many of these Plans, stormwater use has been identified as an important element in managing stormwater.</p> <p>Stormwater management is a challenge in the northeast quadrant of the County where there is insufficient capacity for stormwater discharge. The County's current solutions include setting aside developable land for evaporation ponds or increased operational costs for site drainage.</p> <p>Rocky View County is a partner in the following initiatives:</p> <ul style="list-style-type: none"> • CSMI initiative (to address stormwater outlets) • Nose Creek Watershed Partnership • Bearspaw Reservoir Trilateral Task Force
Strathmore	<p>Stormwater management is governed by the Town's Stormwater Management Policy adopted in 1993.</p> <p>Limitations within Strathmore stormwater systems are limiting growth within the Town. Due to the Town's significant wetlands, relatively flat grade and the requirement for additional stormwater control infrastructure, the area that can be practically considered for development is less than the gross area.</p> <p>The Town has a stormwater master agreement in place with Western Irrigation District (WID) for pre-annexation areas. Currently stormwater drains into Eagle Lake.</p>
Wheatland (CMRB Portion)	The County identifies stormwater system design and construction standards within its 2016 Standards Manual. Within CMR geographical area of Wheatland County, the West Highway 1 Area Structure Plan addresses stormwater management. The Hamlet of Cheadle has significant stormwater drainage issues which are limiting development in the hamlet. The west industrial subdivision also has stormwater drainage issues. Wheatland is a partner in the CSMI initiative.

3. EXAMPLES OF REGIONAL BEST PRACTICES IN STORMWATER

National Research Council (NRC) provides a Best Practice Guide for stormwater management planning with recognition that watersheds (as natural drainage systems) are the appropriate level at which effective stormwater planning begins. NRC identifies a hierarchy of stakeholders and features of stormwater plans cascading downstream from site, neighbourhood, sub-watershed and watershed drainage levels.

Across Canada, regional planning authorities generally establish high-level principles and facilitate collaboration between neighbouring municipalities.

Examples of CMR initiatives include:

- Bearspaw Reservoir Trilateral Task Force was launched in 2018 by City of Calgary, Rocky View County and Transalta to identify risks, issues and management options for the Bearspaw Reservoir that provides drinking water to 1.4 million customers within the region;
- Bow River Phosphorous Management Plan was launched in 2011 as a collaborative initiative to address water quality policy objectives established for the middle reach of the Bow River between Bearspaw and Bassano Dams that affect the capacity of the Bow River to assimilate wastewater discharges from the 3 largest wastewater treatment plants in the region at Bonnybrook, Fish Creek and Pine Creek;
- Cooperative Stormwater Management Initiative (CSMI) was initiated in 2012 as a joint initiative between Western Irrigation District, Rocky View, Chestermere, Wheatland, Strathmore and Calgary (with AEP support) to establish stormwater infrastructure to provide cost effective and ecologically sound outlets for stormwater within the area;
- Nose Creek Watershed Water Management Plan (Airdrie, Rocky View, Calgary, Calgary Airport Authority, Town of Crossfield) recognizes that watershed management is a shared responsibility and identifies goals and objectives that maintain the ecological integrity (function) of the watershed and minimize risks associated with land use and development.

Across Canada, other notable regional initiatives include:

- Edmonton Metropolitan Region Board acknowledges that coordinated stormwater drainage planning should be considered for lakes, rivers and creeks where watershed boundaries cover multiple municipalities
- Metro Vancouver provides regional policy guidance through forums including the Stormwater Interagency Liaison Group
- Greater Golden Horseshoe (Ontario) outlines regional growth plan requirements that are informed by watershed plans.

Around the world, stormwater and municipal wastewater are reused to address water shortages including:

- New York City worked with State regulators and the Watershed Agricultural Society to implement the Catskill Farm program in which the City avoided water treatment plant upgrade costs by subsidizing capital and operational costs for pollution control measures on farm lands upstream of the City's treatment works;
- Sydney Park (Australia) treats 860 million litres of stormwater for downstream reuse to meet 10% of the City's water demand;
- Orange County (California) recycles treated wastewater for landscape irrigation, power generation cooling and other industrial uses; and,
- Singapore recycles treated sewage for industrial uses or blending with drinking water supply during drought periods.

As the CMRB member municipalities continue to address potential water shortages due to weather cycles and climate change, stormwater use becomes increasingly attractive. Key challenges around stormwater in the CMRB include: AEP reuse regulation and policy, extreme variability in flows associated with intense rainfall events, interference of snow/hail with engineering systems for collection and conveyance, high salinity associated with early-spring runoff from street surfaces, nutrient loading, economics of stormwater use vs raw water treatment/distribution and the potential of cross-contamination with sewer overflows.

4. REGIONAL STORMWATER CONTEXT IN THE CMR

CMRB 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 Reservoir²
- Bow River – Bighill Creek²
- Elbow River²
- Fish Creek
- Highwood River
- Horse Creek
- Jumpingpound Creek²
- Middle Bow River²
- Nose Creek²
- Pine Creek
- Rosebud River²
- Serviceberry Creek
- Sheep River
- Upper Little Bow River

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 culminate at the Subdivision Servicing Agreement-level (site-scale) and often originate in 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.

² Denotes watershed represented by watershed stewardship group (WSG) or watershed planning and advisory council (WPAC) actions

Provincial regulations governing stormwater flows are found within both the *Water Act* and Environmental Protection and Enhancement Act (EPEA). Surface water quality Triggers and Limits are defined within the South Saskatchewan Region Surface Water Quality Management Framework (2014). The overarching statutory plan regulating water management within the CMRB is the Approved Water Management Plan for the South Saskatchewan River Basin.

More specifically, stormwater management is regulated under the *Water Act* when systems alter the flow or direction of flow to natural water bodies. Similarly, approval is required under Alberta Environmental Protection and Enhancement Act (EPEA) to ensure the works meet provincial standards for timing and quality of stormwater runoff released to the environment.

Stormwater drainage systems must meet the requirements established in the Wastewater and Storm Drainage Regulation (119/1993) and in conformance to Alberta Environment and Parks (AEP) Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems (2013). Detailed stormwater management standards are described in Stormwater Management Guidelines for the Province of Alberta (1999) that includes guidance for the planning, analysis, design, construction, operation and maintenance of stormwater management systems. Water quality objectives are further defined in AEP's Environmental Quality Guidelines for Alberta Surface Waters (2018) to protect aquatic life, agricultural and recreational uses.

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 (Figures 2 and 3). In particular, the WID has been a key participant for the Cooperative Stormwater Management Initiative as providing a potential outfall for stormwater from the northeastern portion of the CMR.

5. REGIONAL STORMWATER SERVICE IN THE CMR – EMERGING KEY THEMES AND OPPORTUNITIES

At CMR scale, stormwater servicing is about collaborative regional stormwater management because stormwater drainage becomes another community's source water.

Key priorities within the CMR include:

1. Drinking water quality for public health and safety
2. Affordability of water treatment
3. Water quality for ecosystems and downstream users
4. Management of nutrient loading
5. Protection of people, land, property and ecosystems
6. Stormwater use
7. Increase public utilization of stormwater infrastructure

These priorities, desired outcomes and regional opportunities are summarized in Table 1.

Key themes for the CMRB include:

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

Watershed Planning

Watershed planning in Alberta brings together diverse stakeholders to establish watershed-specific targets for water quality and quantity. The CMRB may wish to encourage its member municipalities to actively participate in these initiatives and ensure that appropriate watershed targets are adopted in each intermunicipal sub-watershed and recognized in statutory land use plans, where appropriate.

Consideration should be given to WSG-level collaboration within intermunicipal sub-watersheds that are not currently supported by an active stakeholder group. Water quality objectives should be established that are scientifically-based and ratified by affected municipalities in a manner that reflects their specific priorities and concerns. Whereas 6 of 14 sub-watersheds within the region are under active consideration by watershed planning or stewardship groups, CMR municipalities may support the development of stewardship activities within the remaining 8 sub-watersheds, where necessary.

Collaboration

Collaboration between CMRB member municipalities within each of the sub-watersheds can improve the operating efficiencies and economics of stormwater management infrastructure. Alignment of neighbouring municipal development plans can ensure that the cumulative effects of stormwater on quality and quantity of water are managed.

A leading example of the integration of upstream stormwater works and drainage management within a natural sub-watershed is the Nose Creek Watershed Water Management Plan. The Plan provides recommendations for setbacks and stormwater management principles that are being adopted within Airdrie, Calgary, Rocky View, Crossfield and the Calgary Airport Authority.

Likewise, the establishment of the Cooperative Stormwater Management Initiative (CSMI) is an example of collaboration between both municipal and irrigation entities to mitigate the effects of stormwater runoff on irrigation water quality while reducing the restrictions that stormwater discharge imposes on land development.

Finally, the emergence of the Bearspaw Reservoir Trilateral Task Force is a further example of sub-regional collaboration regarding the potential impact on drinking water supplies. The Task Force released a Consensus Report in June 2019 that includes recommendations for management options that could apply to the estimated 89,000 residents within the Task Force's planning area.

During the development of the Growth and Servicing Plan for the CMR, key areas requiring more focused collaborative planning can be identified.

Advocacy

The CMRB can advocate to the province for a favourable regulatory and policy regime that creates new opportunities for stormwater use as a mechanism to offset potential water shortages. This includes addressing factors that may restrict municipalities including the timeliness of Provincial approvals and overcoming regulatory barriers to the innovative approaches that have been successfully applied within other water-short jurisdictions around the world.

CMRB's members are actively considering stormwater use projects in their municipalities and would benefit from the timely promulgation and execution of Stormwater Guidelines proposed by Alberta Environment and Alberta Public Health. Possible advocacy strategies for the CMRB may include (i) the development of a CMRB-specific Code of Practise for Municipal Stormwater Use that simplify approvals and (ii) supporting additional staffing within the AEP and Alberta Health during the initial roll-out of the Alberta Water Reuse and Stormwater Use Guidebook, anticipated in the near-term.

Figure 1: Hydrologic Units (Sub-Watersheds) Within the CMRB

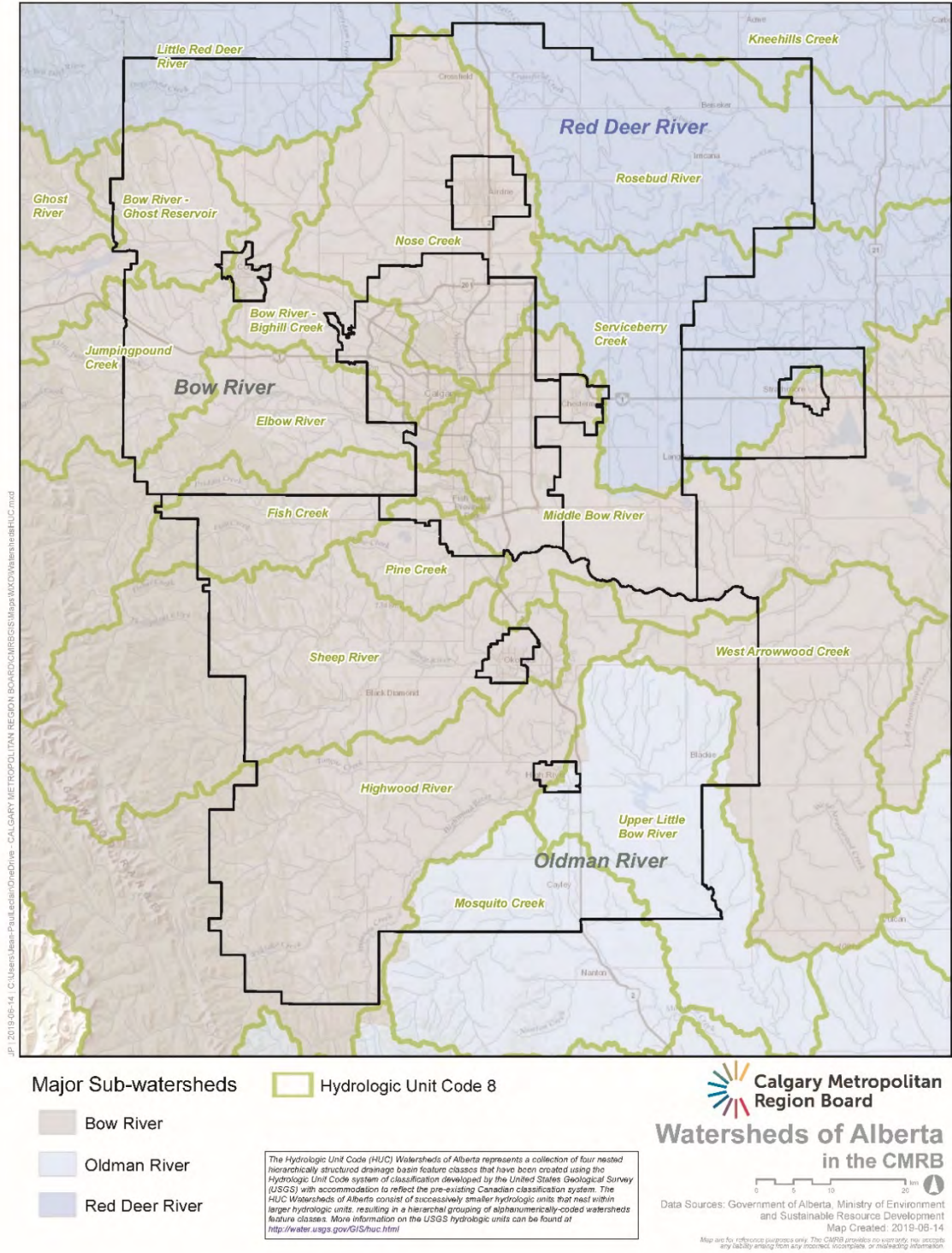


Figure 2: Western Irrigation District within Calgary Metropolitan Region

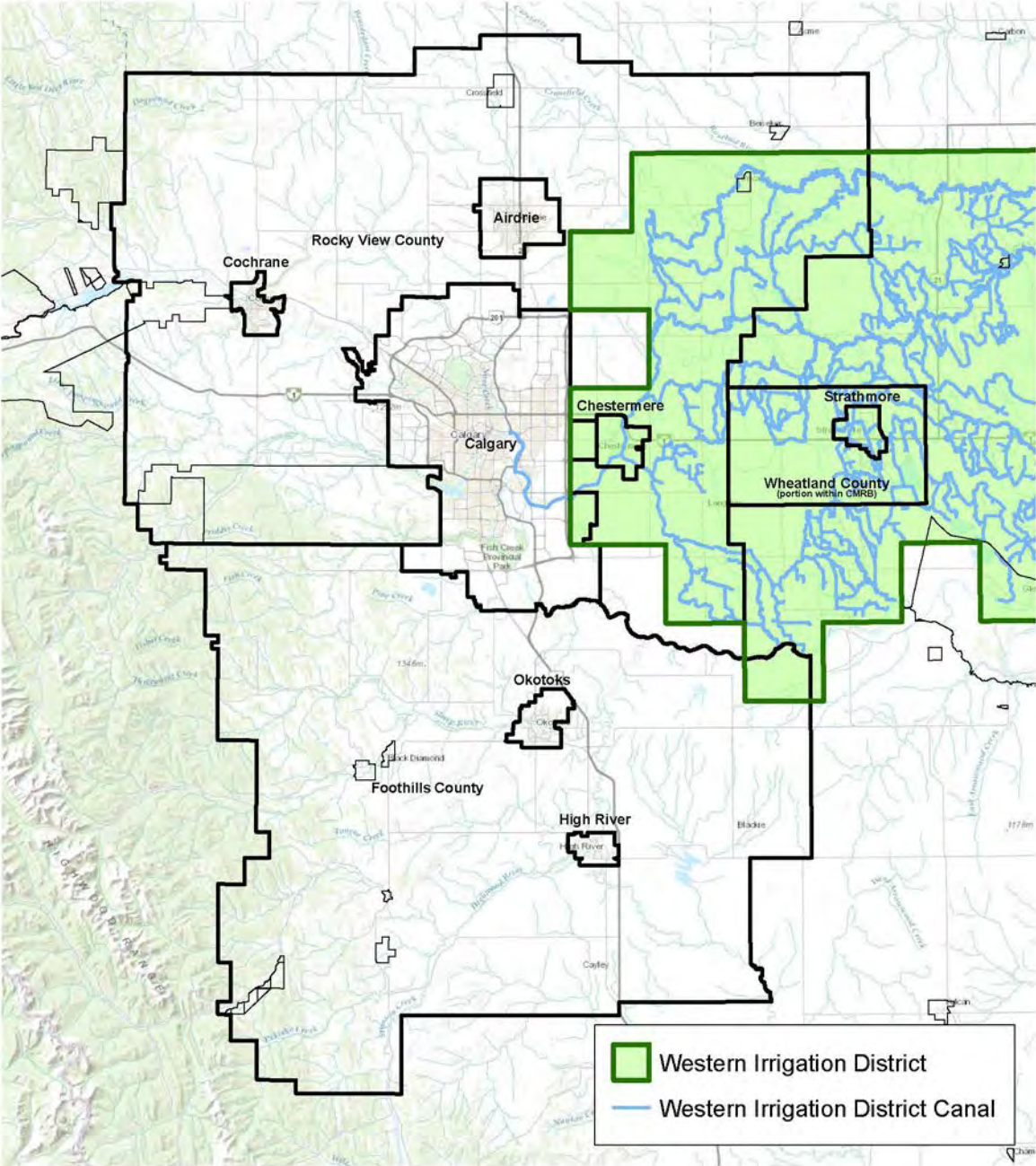


Figure 3: Bow River Irrigation District Downstream of Calgary Metropolitan Region

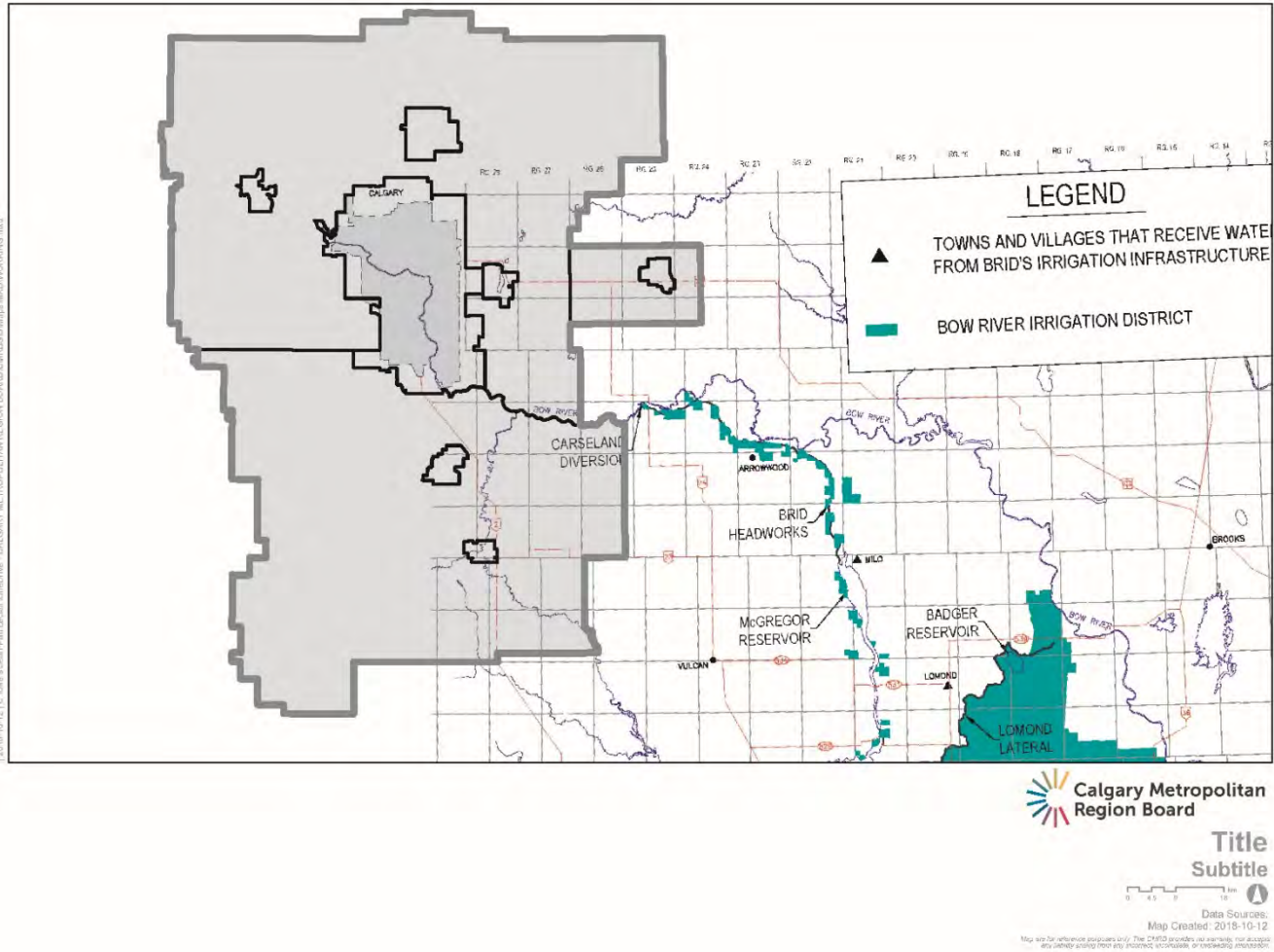


Table 1: Key Themes and Opportunities Regarding CMR Stormwater Management

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"> 1. For the 6 sub-watersheds with WPAC or WSG plans in place, ensure water quality objectives are acknowledged in statutory plans, where appropriate. 2. Support intermunicipal sub-regional cooperation initiatives by connecting interested parties and sharing report information. 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. 4. CMRB participate with other sub-watershed users to understand total loadings, cumulative effects and infrastructure (point and non-point sources) operation impacts (e.g. Government of Alberta Phosphorus Management Plan). 5. Advocate to Government of Alberta and other groups for water quality objectives and action plans for key upstream lands outside CMR. 6. Promote existing initiatives of Government of Alberta, Alberta Agriculture and Forestry, Irrigation Districts, Cows and Fish, Ducks Unlimited, Alberta Water Council and others 7. Ensure that stormwater management outcomes are guided by MGA and reflected in implementation of CMRB ESA criteria. 	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				
Management of Nutrient Loading	<p>Nutrient loading in stormwater releases reduces assimilative capacity for wastewater return flows</p> <p>Total Loadings Management restricts Effluent Return</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</p>	Watershed Planning and Collaboration	<ol style="list-style-type: none"> 8. Advocate and/or participate in ongoing nutrient loading management strategies, where applicable 	High

Intermunicipal Priority	Concern	Policy Goal / Outcome	Theme	Potential Regional Opportunities	Priority Ranking
	(WWTP) which includes stormwater impacts from upstream users	wastewater treatment facilities to meet targets			
Protection of People, Land, Property and Ecosystems	Overland flooding* can result in injury or death Damage to property and ecosystem from flooding*, stormwater management facilities overflow and stream migration	Control discharge runoff flows to pre-development or lower flows, and/or volumes where applicable Keep rivers and surrounding natural areas healthy by reducing the impact of urban activities and development	Collaboration	9. Ensure ongoing work related to riverine flooding reflects mitigating risk to people 10. Ensure consistent watershed-specific outcomes among stormwater management plans for intermunicipal sub-watersheds. 11. Ensure that stormwater management outcomes are guided by MGA and reflected in implementation of CMRB ESA criteria. See also policy on flood-prone areas work	High
Stormwater Use	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 Mitigate public health risk associated with contact with stormwater	Advocacy and Collaboration	12. Work with AEP and Alberta Health to establish accelerated guidelines and approval mechanisms for stormwater use. 13. Once provincial stormwater use guidelines have been released, develop a CMR-specific Code of Practice for stormwater use for non-potable applications. 14. Quantify and communicate the balance between stormwater use and ability to meet instream objectives for river health, and plan accordingly	High
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	15. Catalogue management practices of stormwater infrastructure ponds and recreational amenity management 16. 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

Agenda Item	7
Submitted to	Joint Land Use and Intermunicipal Servicing Committee
Purpose	For Information
Subject	South and East Calgary Regional Transportation Study
Meeting Date	December 5, 2019
<i>Motion that the ISC receive for information an update on the South and East Calgary Regional Transportation Study</i>	
<p>Summary</p> <ul style="list-style-type: none"> • In September 2018 CMRB administration was authorized by ISC to develop a RFP, with support from the Transportation Technical Advisory Group, for a transportation study covering the remaining geographical portions of the Calgary Metropolitan Region (CMR) not included in the North Calgary Region Transportation Study (NCRTS). This study is referred to as the South and East Calgary Regional Transportation Study (S&ECRTS). ISL Engineering and Land Services was the successful proponent, through the competitive bid process. • The S&ECRTS began in January 2019 and is currently expected to be substantially completed by February 2020. • Together, the two studies, NCRTS and S&ECRTS, are intended to identify prioritized lists of the regional transportation infrastructure projects required to support the planned growth, in the Calgary Metropolitan Region (CMR), over the next 10 years (2028) and the next 20 years (2039). 	
<p>Attachments</p> <ul style="list-style-type: none"> • South and East Calgary Regional Transportation Study Update, Aziz Merali – CMRB Transportation Subject Matter Expert 	

1. South & East Calgary Region Transportation Study (S&ECRTS)

The S&ECRTS was initiated by the CMRB request for proposal 2018-02 in October 2018. The successful consultant, ISL Engineering and Land Services, began their work in January 2019.

The S&ECRTS will build upon the study process, analyses, evaluation and results of the NCRTS. The expected outcome, in early 2020, are two transportation forecasting models and priority lists of transportation infrastructure required to support the planned growth in the CMR for the next 10 years (2028 Model) and the next 20 years (2039 model).

1.1. Study Objectives

The study objectives included:

1. Using the NCRTS process as a guide, develop the interim (10 year) and long term (20 Year) transportation networks to support the planned growth in the south and east portion of the CMR .
2. Design the study process such that the two transportation networks can be integrated
3. Develop a 2028 (10 Year) and 2039 (20 Year) Transportation Infrastructure Project Priorities list for the South & East Calgary Region.

1.2. Study Process

The approved study process is very similar to the process used in the NCRTS. The study is divided into three stages as follows:

Stage 1 – Update the Land Use and Transportation Network (Jan to Mar 2019)

The key tasks included data collection and review where participating municipalities had provided data and information related to ASP's and outline plans approved prior to 31 December 2017. The updated land uses, population & employment forecast along with the expected road network have been added to the transportation forecasting models developed during the NCRTS resulting in composite models for the 2028 (10 year) and 2039 (20 year) planning horizons. Participating municipalities reviewed and approved the project evaluation criteria and process to be used in Stage 3.

Stage 2 – Network Modelling and Evaluation (Apr to Nov 2019)

During this stage a number of road and transit network scenarios were modelled, analysed and evaluated to determine the final networks and projects required to support the planned growth in 2028 and 2039.

Stage 3 – Network Prioritization (Dec 2019 to Feb 2020)

The preferred road and transit networks and projects from stage 2 will be evaluated, against a set of qualitative and quantitative criteria, approved, by the key stakeholders, in stage 1. The evaluation process will identify the infrastructure projects, and priority, required to support the growth in the Calgary region over the next 10 and 20 years.

1.3. Project Status

The project is on schedule and on budget at this time. Stage 1 is complete. Stage 2 is complete. The 2039 network was finalized in September 2019 and the 2028 network is substantially complete and will be finalized in early January 2020. Stage 3 is currently in progress.

Agenda Item 7

HDR|Calthorpe are keen to receive the region-wide 2028 (10 Year) and 2039 (20 Year) networks for use in their RapidFire models. CMRB administration will be delivering the network information in the coming weeks.

1.4. Recommendation

That the ISC receive for information an update on the South and East Calgary Regional Transportation Study.



South & East Calgary Regional Transportation Study Update

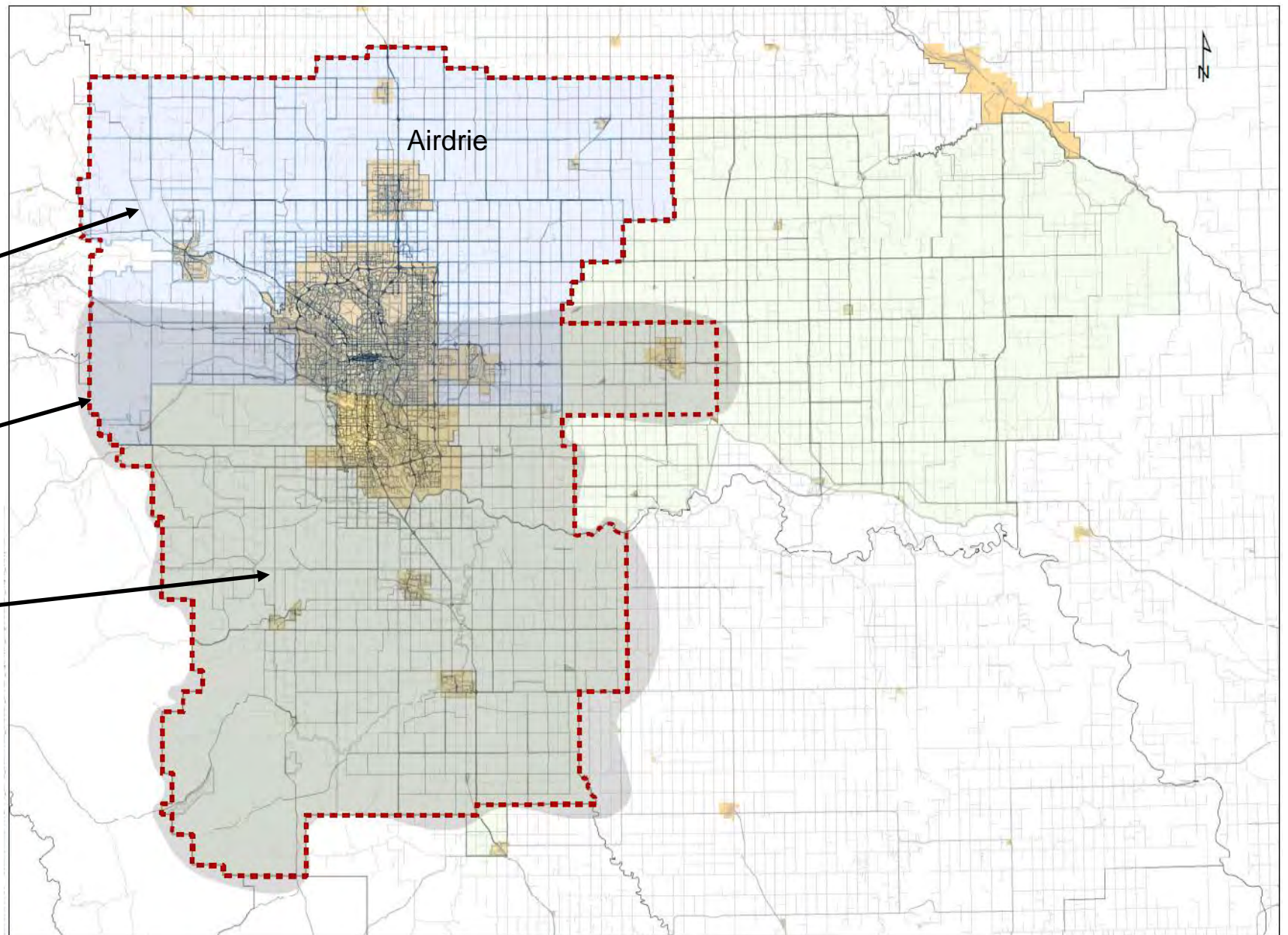
Presentation with CMRB Intermunicipal Servicing Committee
December 5, 2019

Study Area

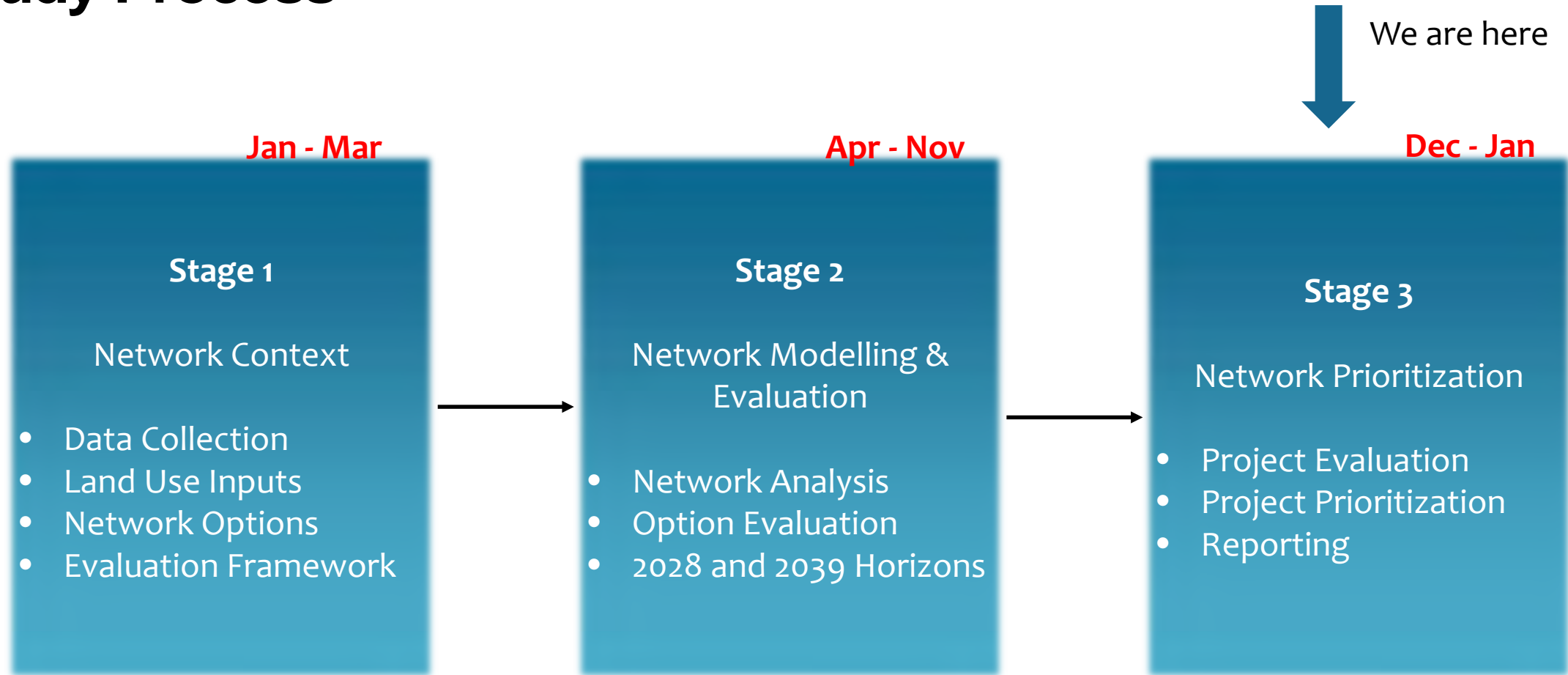
NCRTS Study Area

CMRB Boundary

S&ECRTS Study Area
(This Study)



Study Process



Approved Plans

Municipality	Land Use Data ASP/ARP/Plans
Calgary	7
Chestermere	0*
Foothills County	54
High River	5
Okotoks	7
Rocky View County	2
Strathmore	8
Wheatland County	11

* Due to the complete overlap of Chestermere in the two study areas, land use data in the S&ECRTS study area was already available from the NCRTS

Growth Assumptions

- All municipalities provided input based on approved ASPs as of December 31, 2017
- 10-year (2028) and 20-year (2039) horizons – so not necessarily “full build” of all plans

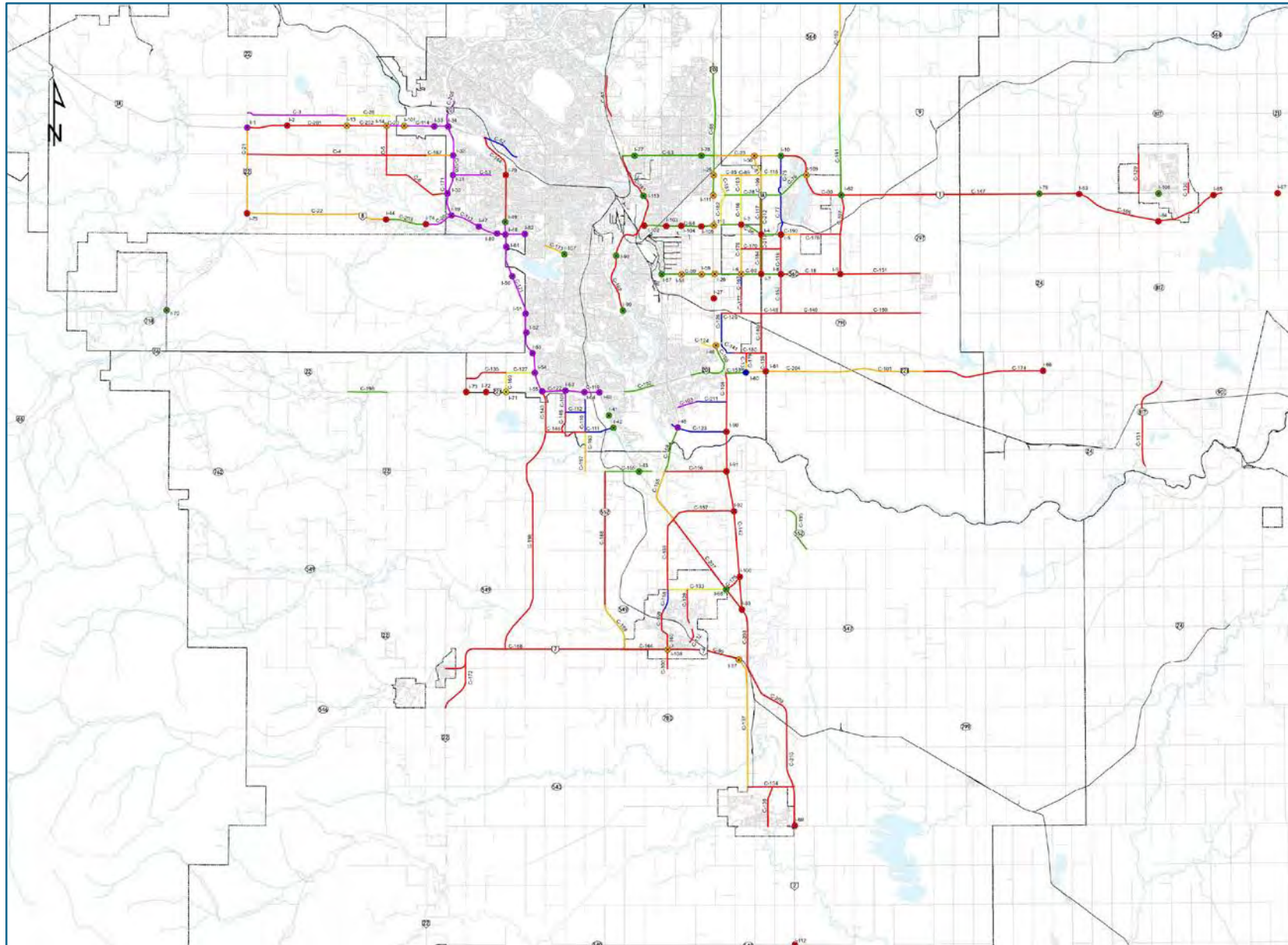
Land Use Recap

Municipality	Pop 2015	Jobs 2015	Pop 2028	Jobs 2028	Pop 2039	Jobs 2039
Airdrie	66,033	13,456	108,951	34,667	154,708	61,547
Calgary	1,178,492	691,029	1,598,710	930,511	1,910,998	1,087,173
Chestermere	17,807	2,319	35,738	13,501	53,220	24,751
Cochrane	26,320	6,807	37,217	13,616	49,534	15,542
High River	14,551	7,816	19,464	10,339	24,817	10,339
Okotoks	28,747	8,468	37,835	10,947	45,677	11,850
Strathmore	13,423	6,255	17,095	6,747	20,483	6,857
RVC	43,136	13,053	75,366	38,999	104,059	61,642
Foothills	23,229	7,286	30,483	15,988	35,720	21,659
Wheatland	3,153	780	4,218	2,023	4,829	2,818
Other*	9,982	4,669	13,298	5,771	17,665	5,948
TOTAL	1,424,873	761,938	1,978,375	1,083,109	2,421,711	1,310,126

* Other includes Beiseker, Black Diamond, Crossfield, Irricana, Longview and Turner Valley

** Wheatland County data only includes area within CMRB boundary

Road Network :



Legend

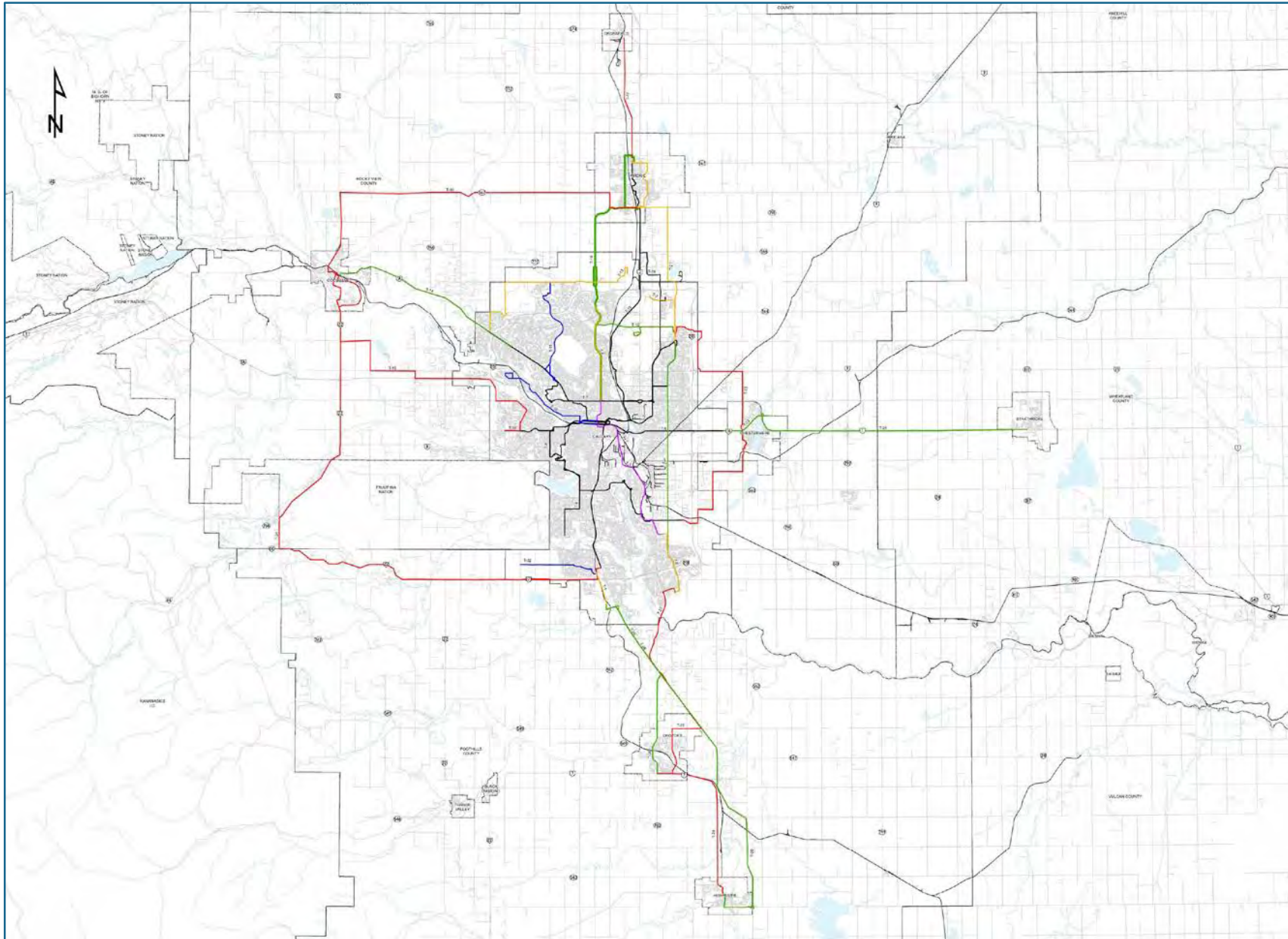
Interchanges & Intersections

- Beyond 2039
- ⊗ 2039 Regional
- ⊗ 2039 Non-Regional
- 2028 Regional
- 2028 Non-Regional
- Underway Now

Corridor Classification

- Beyond 2039
- 2039 Regional
- 2039 Non-Regional
- 2028 Regional
- 2028 Non-Regional
- Underway
- Municipal Boundary

Transit Network:



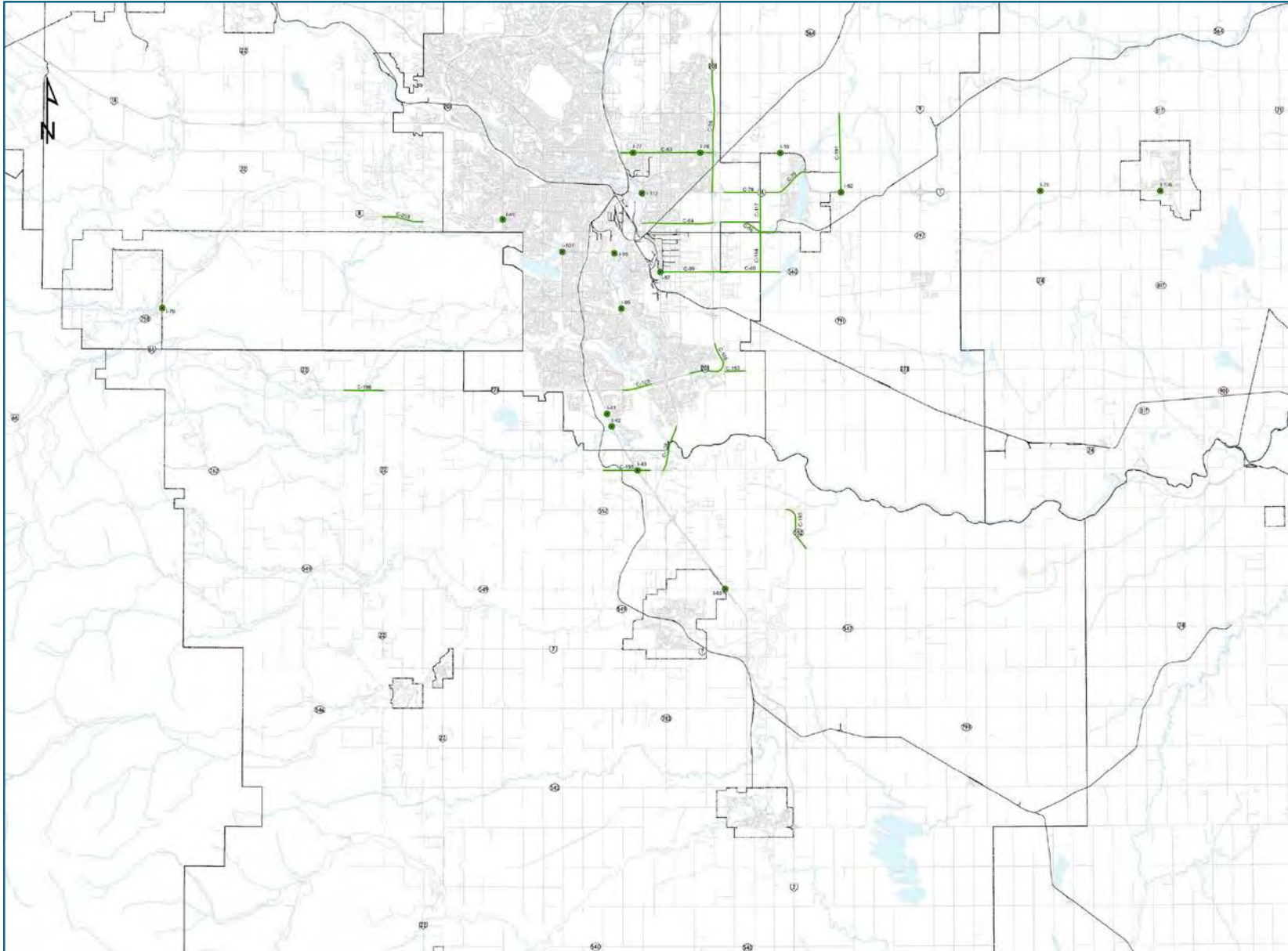
Legend

Transit Projects

-  Beyond 2039
-  2039 Regional
-  2039 Non-Regional
-  2028 Regional
-  2028 Non-Regional
-  Underway Now
-  Existing
-  Municipal Boundary

Four Test Scenarios

South Highways	4 Corridors	MT + DFT + 88	MT + DFT(I) + 37	MT + DFT(I)
Okotoks	Hwy 2A 4 Lanes	Hwy 2A 4 Lanes (?)	Hwy 2A 4 Lanes	Hwy 2A 6 Lanes
Aldersyde	Hwy 2A 4 Lanes	Hwy 2A 2 Lanes	Hwy 2A 2 Lanes	Hwy 2A 4 Lanes
Providence	w/ 53 St IC	w/ 53 St IC	w/o 53 St IC	w/o 53 St IC
South Macleod	w/ W Outlet Only	w/o S+W Outlets	w/ S Outlet Only	w/ S Outlet Only
Deerfoot Calgary	No Upgrades	GT + AR Only	Full Upgrades	No Upgrades
Sarcee Trail	Full Upgrades	Full Upgrades	No Upgrades	Full Upgrades
South Shepard	Twin 22X to 791	Twin 22X to 797	Twin 22X to 791	Twin 22X to 797
S. of Chestermere	Various permutations on area corridors – Garden, Conrich, Peigan, Glenmore			
Strathmore	Full Bypass	No Bypass	Full Bypass	No Bypass



Road Network : 2028 Horizon

Legend

Interchanges



2028 Regional

Corridor Classification



2028 Regional

Base Road Network



Municipal Boundary

Next Steps

- Deliver 2028 and 2039 networks to HDR|Calthorpe team for use with the RapidFire analytical tool
- Evaluate SECRS candidate projects against a set of criteria approved by participating municipalities
- Develop a list of projects and priorities to support the planned growth in the Calgary region
- Combine the lists of the North Calgary Regional Transportation Study with the results from the S&ECRTS
- Document the study process and results for CMRB approval – Q1 2020



Questions ?

Agenda Item	8
Submitted to	Land Use Committee & Intermunicipal Servicing Committee
Purpose	For Information
Subject	HDR Calthorpe Progress Update
Meeting Date	December 5, 2019
<i>Motion that the LUC and ISC receive for information an update on the HDR Calthorpe planning process</i>	
<p>Summary</p> <ul style="list-style-type: none"> • Representatives of HDR Calthorpe will provide the Committees with an overview of work completed to date. The project is in “Phase 1: Information Gathering and Visioning”. • In addition to a progress update, an approach to policy development will also be presented and discussed. 	
<p>Attachments</p> <ol style="list-style-type: none"> 1. “Progress Update and Policy Development”, Presentation, HDR Calthorpe 	

Agenda Item 8 Attachment

Calgary Metropolitan Regional Board

LUC and ISC– December 5, 2019

Progress Update and Policy Development

Public Engagement Opportunities

PHASE 1
Information
Gathering and
Visioning

PHASE 2:
Regional
Scenarios

PHASE 3:
Preferred Scenario
and Adoption



* Final Draft Submission to CMRB Board

Submission by CMRB Board to Minister *



We are here

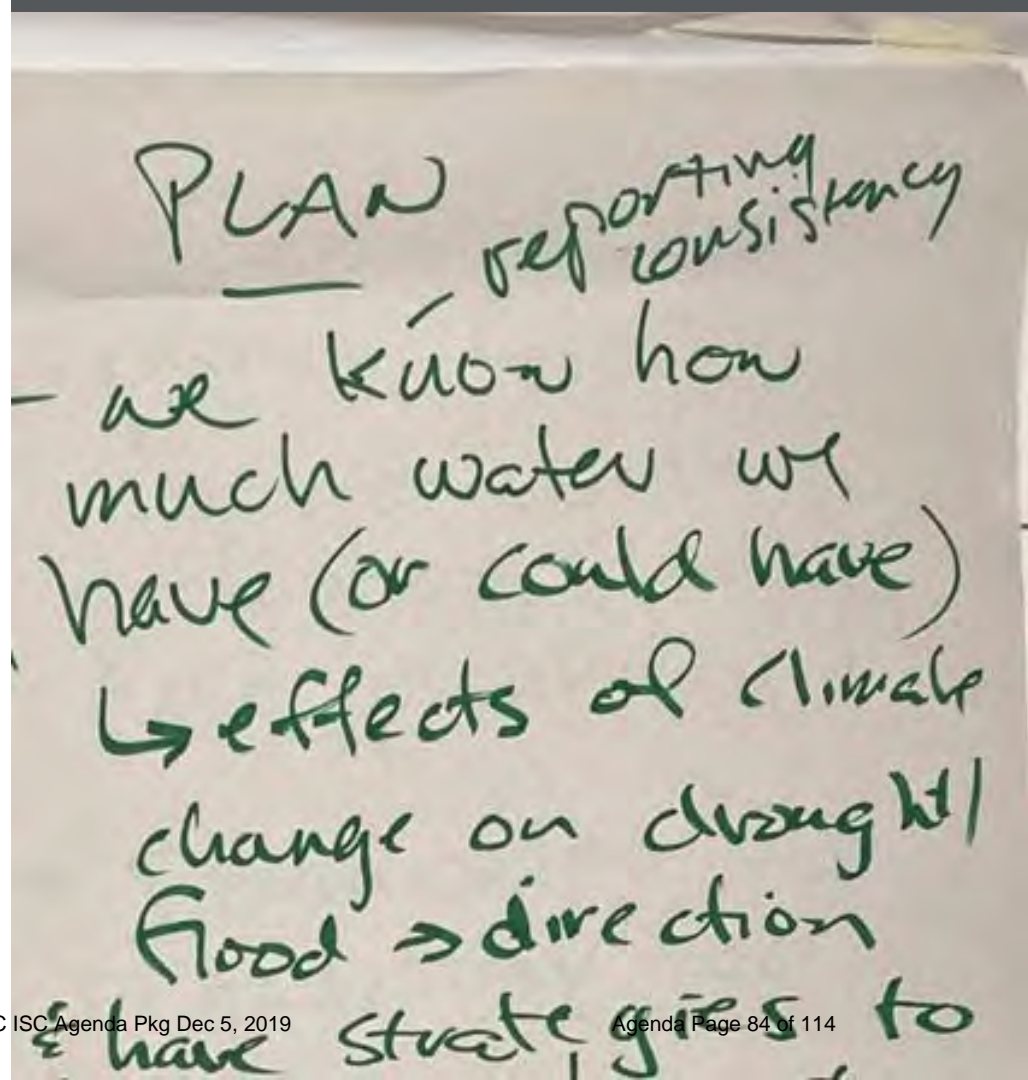
Inputs to Policy Development:

- CMRB Regulation and Board Direction
- Board Objectives
- Background Studies
- Scenarios and Analytics
- Best Practices



Policy Development in the Work Plan

- Most occurs after a preferred scenario is developed
- Policy will support the preferred scenario and enable implementation
- Opportunities for some regional policy to be developed in advance
- Most policy development occurs early in Phase 3 (late spring / early summer 2020)



Phase 2: CMRB Regional Scenario Development and Evaluation

Workshop 2

Regional Scenario Development

- LUC/ISC
- 2 alternatives to BAP

January 2020

Workshop 3

Regional Scenario Review

- TAGs
- Scenario evaluation and technical issues

March 2020

Workshop 4

Preferred Scenario Review

- TAGs
- Technical issues and refinement

June 2020

Business as
Planned
Scenario

Scenario
Refinement

Technical Evaluation
and Preferred
Scenario Identification

Scenario
Refinement and
Policy Development

Discussion / Questions?

Agenda Item	9
Submitted to	Land Use Committee & Intermunicipal Servicing Committee
Purpose	For Input
Subject	Public Engagement Plan
Meeting Date	December 5, 2019
<i>Motion that the LUC and ISC receive for information and provide input on the HDR Calthorpe preliminary Public Engagement Plan</i>	
<p>Summary</p> <ul style="list-style-type: none"> • The Public Engagement Plan complements the Internal and External Stakeholder Engagement Plan reviewed by the Committees at the November 7th Committee meetings. • Representatives of HDR Calthorpe will provide the Committees with an overview of their preliminary Public Engagement Plan. • The preliminary Public Engagement Plan has been provided to garner input from Committee members. It is being presented for discussion. 	
<p>Attachments</p> <ol style="list-style-type: none"> 1. "Public Engagement Plan", Presentation, HDR Calthorpe 2. Preliminary Public Engagement Plan 	

Agenda Item 9 Attachment

Calgary Metropolitan Regional Board

LUC and ISC– December 5, 2019
Public Engagement Plan

Public Engagement Objectives

- To inform the public about the project, including the impacts and the outcomes, using plain language
- To encourage the public to share their feedback on potential and preferred scenarios
- To reach a broad and diverse representation of the public from across the region
- To report back on what was heard during engagement events and what the next steps are

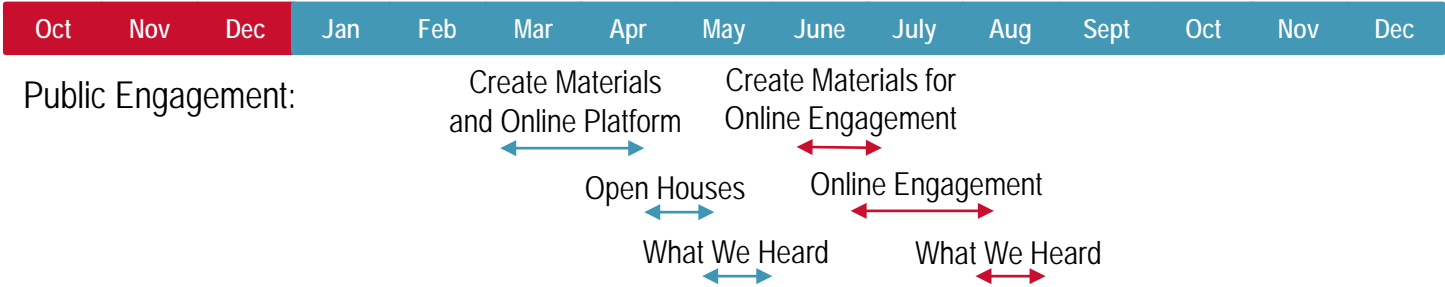
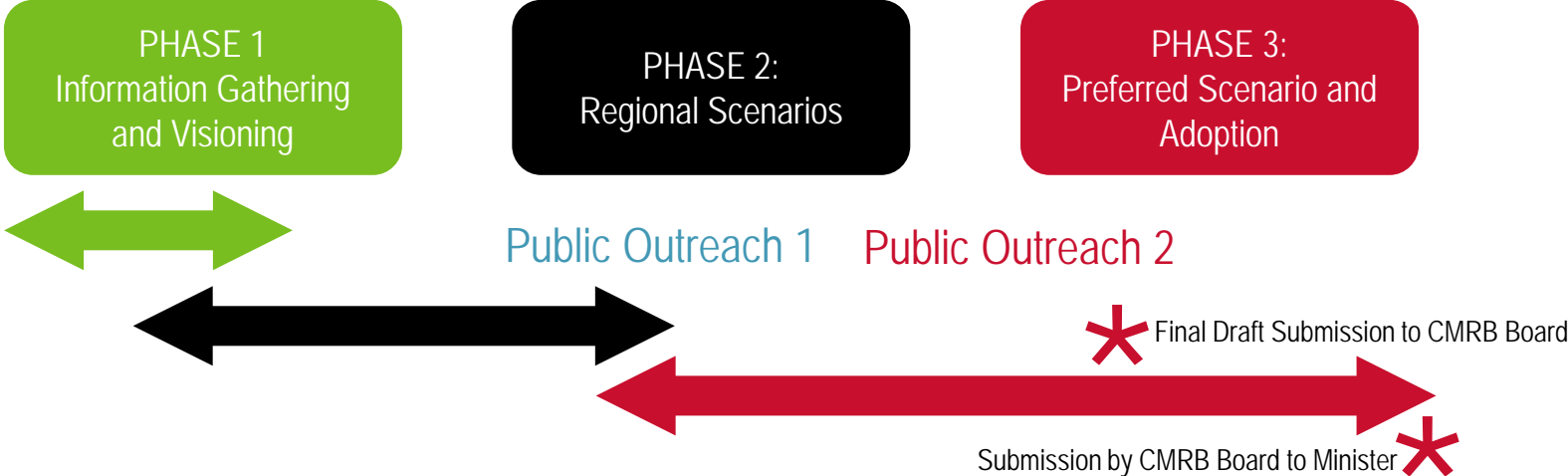
Levels of Engagement

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives and/or solutions.	To obtain public feedback on analysis, alternatives and/or decision.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Approach to Public Engagement

- Wide geographic and demographic reach
- Accessible to all communities in the region
- Work with Engagement and Communications TAG
- Outreach 1:
 - Create the “story” through online platform
 - Solicit input on the preliminary growth scenarios
 - Plan, promote and hold 5 open houses
 - What We Heard Report
- Outreach 2
 - Explain how the preferred scenario was identified
 - Solicit input on the scenario to support refinement

Public Engagement Schedule



Discussion / Questions?

Growth and Servicing Plan

Agenda Item 9 Attachment

Calgary Metropolitan Region Board

Date: Tuesday, November 26, 2019

Subject: DRAFT Preliminary Public Engagement Plan

Approach

Using the IAP2 spectrum (Figure 1), the public will be engaged at the “Consult” level. Regional engagement requires a wide geographic and demographic reach that is viewed as being equitable among all communities within the region. Opportunities will be provided for both face to face and digital participation.

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives and/or solutions.	To obtain public feedback on analysis, alternatives and/or decision.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Figure 1: IAP2 Levels of Engagement

As a starting point, it will be important to share the story of the Growth and Servicing Plan and why it matters to those who live and work in the Calgary Metropolitan Region (CMR). The public online engagement launch will occur in *Phase 2: Regional Scenarios* phase of the Growth and Servicing Plan. The public will be invited to provide input on the Growth and Servicing Plan through an online engagement tool and an open house series. An engagement report summarizing what was heard will be prepared.

As the Growth and Servicing Plan is further refined, it will be shared with the public including how internal and public feedback was used in the process. The public will be asked to share their feedback on overall direction for regional growth to help refine the Plan. An engagement report summarizing what was heard will be prepared. The outcomes of the final plan will be shared broadly.

The tasks are further described in the *Engagement Process and Techniques* section below.

Objectives

The objectives for the public engagement plan are:

- to inform the public about the project, including the impacts and the outcomes, using plain language;
- to encourage the public to share their feedback on potential and preferred scenarios;
- to reach a broad and diverse representation of the public from across the region; and
- to report back on what was heard during engagement events and the next steps.

Public Participants

Public participants are people who live and/or work in the member municipalities:

- City of Airdrie
- City of Calgary
- City of Chestermere
- Town of Cochrane
- Foothills County
- Town of High River
- Town of Okotoks
- Rocky View County
- Town of Strathmore
- Wheatland County (portion as described in the *Calgary Metropolitan Region Board Regulation*)

In all requests for feedback, we will which municipality respondents live and/or work in, so that we can identify differences in feedback from different areas in the CMR.

Engagement Process and Techniques

This section outlines how we will undertake the public engagement. It is organized around public outreach programs that will take place through Phases 2 and 3 of the Growth and Servicing Plan. A “What We Heard” summary will be generated following each of the outreach programs. The project team has recommended creation of a Communications and Engagement Technical Advisory Group (CE TAG), comprised of communication and engagement representatives from each of the member municipalities. We will work with the CE TAG to help promote the online and in-person engagement activities.

Public Outreach 1

The first public outreach program will introduce the public to the overall Growth and Servicing Plan, and specifically to the regional scenario development process. It will allow for feedback on the Plan process and on the initial scenarios as developed by the project team with input by the Land Use and Intermunicipal Servicing Committees (LUC and ISC).

The communications and engagement team will work closely with the rest of the project team to develop the narrative and visual materials that will be programmed into an online platform. This will be the first time many members of the public will engage with the CMRB regarding the Growth and Servicing Plan. The online engagement narrative will tell the full story and bring the public up to speed before diving into the scenarios and gather feedback. Our team will develop plug-and-play key messaging and marketing materials that can be easily shared by respective stakeholder communications to share on their existing communications channels. The online platform will allow for easy use on a variety of devices from computers to smartphones, and will be designed to be accessible with all types of online connectivity, including cell service. The online site will be launched and announced via the CMRB website and through the various member municipality communications vehicles with the assistance of the CE TAG members.

The effort will include:

- story creation;
- program, test, announce, and launch the online engagement platform;
- develop key messages, soundbites and regional scenarios newsletter;
- launch and monitor online platform;
- collect, review and summarize public feedback including a public-facing “What We Heard” report; and
- help refine preferred scenario direction based on public feedback.

A series of open houses will be conducted in five locations around the region to engage the public in the process, inform them about the scenarios, and lead them to participate through the web site. An event plan will be developed in advance of the public open houses that details the logistics, event organization/execution and feedback methodologies for each venue.

Public Outreach 2

The second outreach will focus on refinement of a preferred growth scenario and input to supporting policy, and will occur in the later stages of *Phase 3: Preferred Scenario and Adoption* of the Growth and Servicing Plan. This outreach will seek input to support refinement of the preferred scenario.

It will continue to tell the Growth and Servicing Plan story using the online platform developed for the first public outreach. The narrative will explain how the preferred scenario was identified, including how previous internal and public feedback was used in the process. The public will be asked to comment on the preferred scenario. Feedback gathered will be used to assist in the further refinement of the preferred scenario prior to the final review of the preferred scenario by the LUC and ISC.

The outreach program will involve the following tasks:

- develop, program and test online engagement tools;
- develop key messages, soundbites and preferred scenario newsletter;
- launch online platform;
- summarize public feedback, including a What We Heard Report.

Building Awareness

The CE TAG will be important in assisting in identifying advertising and promotional opportunities to build awareness about the project and the opportunities to provide feedback, given their knowledge of the most effective tools in their own community.

Timelines

Early March – meet with the communication and engagement TAG for identification of advertising and promotional opportunities in each municipality

- Public Outreach 1:
 - March to early April 2020 – creation of materials for both the online and face to face engagement and promotion
 - Mid to late April 2020 – online and face to face engagement
 - Late April to early May 2020 – report on what was heard in all engagement activities
- Public Outreach 2:
 - June 2020 – creation of materials for online engagement and promotion
 - June to early August 2020 – online engagement
 - Mid-August 2020 – report on what was heard through online engagement

Reporting and Evaluation

Reports will be completed at the end of each of the two outreach programs. They will speak to who participated, what feedback they provided and how it was incorporated into the project.

Evaluation will be collected at the end of each face to face activity and will be solicited on the online engagement platform. It will be used to identify any gaps in messaging and improvements for future processes.

Agenda Item	10
Submitted to	Land Use Committee & Intermunicipal Servicing Committee
Purpose	For Input
Subject	External TAG Membership
Meeting Date	December 5, 2019
<i>Motion that the LUC and ISC receive for information and provide input on the proposed membership for the External Technical Advisory Group</i>	
<p>Summary</p> <ul style="list-style-type: none"> • On November 7th, representatives of HDR Calthorpe presented the Committees with an Internal and External Stakeholder Engagement Plan for discussion. The Internal and External Stakeholder Engagement Plan is attached to this agenda item for reference. • The Internal and External Stakeholder Engagement Plan includes a recommendation to establish an External Technical Advisory Group (“External TAG”). The External TAG would participate in the development of the Growth Plan and Servicing Plan by acting as expert technical advisers. • HDR Calthorpe has provided a preliminary list of organizations that should be invited to participate in the External TAG. • HDR Calthorpe seeks the input of the Committee members on other umbrella organizations that should be invited to participate in the External TAG. These organizations would bring broad expertise in key areas of focus. <ul style="list-style-type: none"> ○ Areas of focus could include environmentally sensitive areas; transportation and transit; water and wastewater servicing; agriculture; residential; industrial and commercial land development; economic development or other. • The optimum number of representatives participating in the External TAG is ten representatives. 	
<p>Attachments</p> <ol style="list-style-type: none"> 1. “External TAG Membership”, Presentation, HDR Calthorpe 2. Internal and External Stakeholder Engagement Plan, as presented at the November 7th Land Use Committee and Intermunicipal Servicing Committee Meeting, for reference 	

Agenda Item 10 Attachment

Calgary Metropolitan Regional Board

LUC and ISC– December 5, 2019

External TAG Membership

External TAG Members

Areas of focus could include environmentally sensitive areas; transportation and transit; water and wastewater servicing; agriculture; residential, industrial and commercial land development; economic development; or other.

Preliminary External TAG Members

- Alberta Transportation
- Alberta Environment and Parks
- Alberta Municipal Affairs
- Western Irrigation District
- BILD Calgary
- Bow River Basin Council

Discussion / Questions?

Growth and Servicing Plan

Calgary Metropolitan Region Board

Date: Monday, October 28, 2019

Subject: Preliminary Internal and External Stakeholder Engagement Plan

This memo provides a first draft of the plan for internal and external stakeholder engagement to support the CMRB's Growth and Servicing Plan. Public engagement will be addressed separately.

The Internal and External Stakeholder Engagement Plan is a living document, and will be amended as necessary to reflect specific needs and evolving priorities as the Growth and Servicing Plan is developed.

This Plan builds on the framework created by CMRB administration in Phase 1 of the Growth and Servicing Plan, which focused on informing stakeholders of the CMRB's mandate as identified in the Calgary Metropolitan Region Board Regulation and confirming the vision and values of the Board. The goal of the Internal and External Engagement Plan is to enhance the CMRB Growth and Servicing Plan through stakeholder engagement. It defines how the team will provide clear, timely and effective communication for stakeholders.

Objectives

The objectives of the Internal and External Stakeholder Engagement Plan are:

- To inform stakeholders about the project, including the impacts and the outcomes, using plain language
- To partner with the internal stakeholders to develop project goals, create alternative scenarios and finalize the preferred scenario for the Growth Plan and Servicing Plan
- To work with external stakeholders to review alternative scenarios and give input on the preferred scenario for the Growth Plan and the Servicing Plan
- To report back on what was heard during engagement events and how that input was considered after each phase of engagement

Internal Stakeholder Engagement

Internal stakeholders include:

- CMRB Board
- Land Use Committee (LUC) and Intermunicipal Servicing Committee (ISC)
- CMRB Administration
- Land Use and Intermunicipal Servicing Technical Advisory Groups

In addition to the groups noted above, we recommend the creation of an additional technical

advisory group comprised of communication and engagement staff from the member municipalities. This could be an informal group that can help provide input on key communication and engagement issues in their respective communities, and can assist in identifying advertising opportunities and other local support resources for engagement. Table 1 summarizes the roles of these stakeholders.

Table 1: CMRB Internal Stakeholders

Group	Composition	CMRB Role	Growth Plan Role and Interaction
Board	Mayors and Reeves or their alternates	Decision-making	<ul style="list-style-type: none"> - Progress updates every month as part of regular meetings - Approval of interim deliverables - Final acceptance of the plan
LUC and ISC	Elected Officials	Advisory / Recommendations	<ul style="list-style-type: none"> - Direct input to the plan development through monthly discussions regarding policy and 2 Workshops - Discussion of interim deliverables and recommendation of interim deliverables to the Board for approval
Administration	CMRB Staff	Project Management and support services	<ul style="list-style-type: none"> - Project management - Weekly updates and formal progress meetings - Various forms of ongoing informal communication
Land Use TAG Servicing TAG	Expert staff from member municipalities to provide input on matters related to the drafting of the Growth Plan and Servicing Plan	Expert Advisors	<ul style="list-style-type: none"> - Updates at TAG meetings - 4 workshops through the plan development - Draft policy review
Communication and Engagement TAG (Recommended)	Expert staff from member municipalities to provide input on communication and engagement related to the development of the Growth Plan and Servicing Plan	Expert Advisors	<ul style="list-style-type: none"> - Updates at all TAG meetings

CMRB Board

Role: Overall direction and decision-making

Engagement Strategy: Engagement with the CMRB Board will be in the form of project updates, delivered by the Growth Plan Consultant representatives at regular Board meetings. Interim deliverables and the draft Growth and Servicing Plan will be presented to the Board by the project team (HDR | Calthorpe and CMRB Administration) for their approval.

Meetings and Workshops:

Meeting or Workshop	Date	Growth and Servicing Team Involvement	Key Focus
Board Meeting	Oct. 18, 2019	None	
Board Meeting	Nov. 22, 2019	Update via project manager	<ul style="list-style-type: none"> • Background document review and Workshop 1 Summary
Board Meeting	Dec. 13, 2019	None	
Board Meeting	Jan. 24, 2019	None	
Board Meeting	Feb. 21, 2020	Update via project manager	<ul style="list-style-type: none"> • Scenarios generated
Board Meeting	Mar. 19, 2020	None	
Board Meeting	Apr. 24, 2019	None	
Board Meeting	May 22, 2020	Update via project manager	<ul style="list-style-type: none"> • Scenario evaluation summary
Board Meeting	June 26, 2020	None	
Board Meeting	July 17, 2020	Update via project manager	<ul style="list-style-type: none"> • Preferred scenario selection and supporting policy
Board Meeting	Sept. 18, 2020	None	
Board Meeting	Oct. 16, 2020	Presentation by project team	<ul style="list-style-type: none"> • Draft Plan
Board Meeting	Nov. 20, 2020	None	
Board Meeting	Dec. 18, 2020	Presentation by project team	<ul style="list-style-type: none"> • Final Plan Approval

Meeting Preparation: All materials for inclusion in Board Agendas will be provided to the CMRB project managers 10 days in advance of the Board meeting date.

Land Use and Intermunicipal Servicing Committees

Role: Discussion, direction and recommendation to the Board

Engagement Strategy: Engagement with the LUC and ISC will be primarily via workshops that provide direct input to the Growth and Servicing Plan and at Committee meetings. In addition, project updates will be provided at other meetings in the form of a presentation to the applicable committee.

Phase 1: Visioning and Issues Workshop (Completed on October 3, 2019)

Description: A combined workshop of the LUC and ISC will be held to confirm goals and

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identify issues and challenges. The workshop will introduce the project team and allow them to listen and better understand the CMRB's vision, goals, objectives, issues, and challenges. A summary of the CMRB's visioning process to date will be presented. The workshop will include a high-level discussion of the Growth and Servicing Plan, regional existing conditions, the scenario modeling approach, and an interactive game with CMRB members as part of the place-types discussion.

Audience: The target audience are members of the Land Use Servicing Committee (LUC) and Intermunicipal Servicing Committee (ISC) and senior municipal staff. We recommend participation by two elected officials and two staff members from each municipality, for an approximate total of 45 attendees.

Format: The format will be a series of presentations of background material, breakout groups to discuss previously developed objectives, followed by an interactive activity in the form of a game. Participants will be seated at six tables (six to seven participants per table).

How Input Will be Used: Input from the workshop will be used to refine the objectives for the Growth and Servicing Plan, while the discussion on these objectives will be used as further input to the regional vision. The interactive game will be used to help the team understand current growth plans, and general aspirations an early input to scenario development. The discussion around the tables during the game will provide the team with important context and understanding of the growth issues, including areas of alignment and difference among CMRB members. An engagement report will be provided.

Phase 2: Regional Scenario Development Workshop

Description: A combined workshop with the LUC and ISC will be held to develop two alternate scenarios.

Audience: The target audience are members of the Land Use Servicing Committee (LUC) and Intermunicipal Servicing Committee (ISC). We recommend participation by two elected officials and two staff members from each municipality, for an approximate total of 45 attendees.

Format: A presentation will share the base case scenario with the workshop audience. This base case will have been developed as part of Phase 1 with involvement from the TAGs. Following the presentation, participants will be split in half with one group using one set of parameters given to them by the project team and the other group using another set of parameters to each develop an alternate scenario. The format will be similar to the interactive game in the first workshop, but the locations and types of development (place types) will be more specific and tied to a total regional growth threshold. The groups will share their scenario development.

How Input Will be Used: The two scenarios developed in the workshop will form the basis for two of the three scenarios to be evaluated (the third being the business as usual). The project team will use the scenarios generated in the workshop, and further develop them to a level that will allow them to be evaluated.

Phase 3: Preferred Scenario Review Workshop

Description: A combined workshop with the LUC and ISC will be held to undertake a detailed review of the preferred scenario, including sufficient resolution of outstanding issues to allow

recommendation of the preferred to the Board upon completion of any outstanding refinements.

Audience: The target audience are members of the Land Use Servicing Committee (LUC) and Intermunicipal Servicing Committee (ISC). We recommend participation by two elected officials and two staff members from each municipality, for an approximate total of 45 attendees.

Format: The workshop will initially include a presentation reviewing the scenario generation and evaluation process, including the rationale for the preferred scenario. In breakout groups, participants will identify questions, concerns and necessary clarifications associated with the preferred scenario. Following a reporting back, potential solutions to outstanding issues will be identified through a facilitated discussion.

How Input Will be Used: The workshop will identify final issues and refinements to the preferred scenario that will be required. Discussion throughout the workshop will help to shape implementing policy, particularly policy required to ensure the preferred scenario can be implemented as intended. An engagement report will be provided.

Meetings and Workshops

Meeting or Workshop	Date	Growth and Servicing Team Involvement	Key Focus
LUC/ISC Combined Workshop	Oct 3, 2019	Workshop facilitation	• Vision, goals and issues
LUC/ISC Separate Meetings	Nov 7, 2019	Presentation/Update	• Background reports and context
LUC/ISC Combined Meetings	Dec 5, 2019	Presentation/Update	• Approach to policy development
LUC/ISC Combined Workshop	Jan 16, 2020	Workshop facilitation	• Scenario development
LUC/ISC Combined meeting	Feb 6, 2020	Presentation/Update	• Refined scenarios
LUC/ISC Combined meeting	March 5, 2020	Presentation/Update	• Scenario evaluation update
LUC/ISC Combined meeting	April 2, 2020	Presentation/Update	• Scenario evaluation outcomes
LUC/ISC Combined meeting	May 7, 2020	Presentation/Update	• Public engagement results review
LUC/ISC Combined meeting	June 11, 2020	Presentation/Update	• RapidFire preliminary results review
LUC/ISC Combined workshop	July 2, 2020	Presentation/Update	• Preferred scenario review
LUC/ISC Combined meeting	Sept 3, 2020	Presentation/Update	• Preferred scenario recommendation and implementing policy review
LUC/ISC Combined meeting	Oct 1, 2020	Presentation/Update	• Draft plan presentation

LUC/ISC Combined meeting	Nov 5, 2020	Presentation/Update	<ul style="list-style-type: none"> • Draft plan refinements and response to comments
LUC/ISC Combined meeting	Dec 3, 2020	Presentation by project team	<ul style="list-style-type: none"> • Final Plan for recommendation to Board

Workshops will be facilitated by HDR | Calthorpe staff. For meetings, HDR | Calthorpe staff will provide appropriate background information and presentations.

Meeting Preparation: All materials for inclusion in Committee Agendas will be provided to the CMRB project managers 10 days in advance of the Committee meeting date.

Technical Advisory Groups

Role: Expert technical advice and input.

Engagement Strategy: The Land Use and Servicing TAGs and their subcommittees will be engaged with through several methods. For many meetings, HDR | Calthorpe’s role will be to listen and learn. There are two workshops dedicated to TAG input. Participating TAG members should be senior staff members who typically participate in the LUC/ISC workshops.

Phase 2: Regional Scenario Review Workshop

Description: This workshop will provide an opportunity to review two of the scenarios in detail prior to public engagement, including input on the evaluation process. This workshop will be a combined workshop.

Audience: The target audience are members of the Land Use TAG and Servicing TAG. We anticipate separate Land Use and Servicing TAG meetings to allow for focused technical discussion.

Format: The workshop will initially include a presentation on the scenario outcomes. Participants will be provided an opportunity to ask questions. In breakout sessions, specific issues will be identified, and TAG members will be encouraged to identify potential solutions to issues identified. HDR | Calthorpe subject matter experts will participate in-person or potentially via live streaming. Following the workshop, TAG members will give their comments via either hard copy or an online platform for consideration by the project team.

How Input Will be Used: The input from the TAG will be of critical input to refinement of the scenario and selection of the preferred scenario. This input will also serve as input to the policy development to provide guidance on how each scenario could be implemented.

Phase 3: Preferred Scenario Review Workshop

Description: Host a face to face and live streaming session to review the scenarios and identify technical issues, constraints and opportunities. In particular, we will challenge TAG members to identify possible solutions for technical issues.

Audience: The target audience are members of the various TAGs. This is expected to be a

combined session so that issues of common interest can be explored.

Format: The project team will present the preferred scenario and the rationale for the recommendation. In breakout groups that combine members of all TAGs, specific issues and challenges associated with the preferred scenario will be identified, along with potential solutions.

How Input Will be Used: The TAG input will be directly used to refine the preferred scenario to account for technical and implementation challenges. This input will allow the HDR | Calthorpe team to develop a preferred scenario that is most likely to gain approval from the Committees and Board.

Meetings and Workshops

Meeting or Workshop	Date	Growth and Servicing Team Involvement	Key Focus
Land Use / Servicing TAG Combined Meeting	Nov 15, 2019	Presentation/Update	• TAG future role and expectations
Land Use / Servicing TAG Separate Workshops	Mar 2, 2020	Workshop facilitation	• Scenario evaluation and technical issues
Land Use / Servicing TAG Combined Workshops	June 26, 2020	Workshop facilitation	• Preferred scenario refinement
Land Use / Servicing TAG Combined Workshops	July 3, 2020	Presentation/Update	• Preferred scenario recommendation and implementing policy review

Other TAG Involvement

All of the Committee workshops allow for attendance beyond LUC and ISC members to include senior staff participants. It is expected that these staff participants will generally be TAG members.

It is also expected that the TAGs will be consulted through the Plan development and that additional meetings to solicit input may be added as appropriate.

External Stakeholder Engagement

The primary vehicle for external stakeholder engagement is expected to be the External TAG. The terms of reference for the external TAG is attached as Appendix A. The proposed membership, subject to Committee review and Board approval, of the external TAG includes:

- Alberta Transportation
- Alberta Environment and Parks
- Alberta Municipal Affairs
- Western Irrigation District
- BILD Calgary Region

Role: Expert technical advice and input.

Engagement Strategy: The External TAG will be engaged with through update meetings and involvement in the Preferred Scenario Refinement Workshop.

First Nations

The Calgary region is within traditional Treaty 7 territory. Within the boundaries of the CMR are located two of the five Treaty 7 First Nations (Tsuut'ina and Stoney Nakoda First Nations). There is also an urban Indigenous population comprised of Métis, Inuit, and First Nations community members who call the Calgary region their home and may have an interest in the Growth and Servicing Plan. Our approach to Indigenous Engagement for the Growth and Servicing Plan, is to offer culturally appropriate communication and engagement activities with Indigenous stakeholders (First Nations within Calgary region, all Treaty 7 Nations, the urban Indigenous community, and other interested indigenous communities). These engagement activities will reflect their desired level of involvement in the development of the Growth and Servicing Plan.

Agenda Item	11
Submitted to	Land Use Committee and Intermunicipal Servicing Committee
Purpose	For Information
Subject	Technical Advisory Group Updates
Meeting Date	December 5, 2019
<i>Motion that the LUC and ISC receive for information an update on the work of the CMRB Technical Advisory Groups</i>	
<p>Summary</p> <p>The Land Use TAG and Servicing TAG are currently focusing on the following areas:</p> <ul style="list-style-type: none"> • HDR Calthorpe Planning Process • Regional Employment Analysis • Land Supply • Agriculture Subcommittee • Transit Subcommittee • Environmentally Sensitive Areas Background Study • Transportation Study • CMRB Water Table • Recreation Framework • Policing Subcommittee <p>Updates on the HDR Calthorpe Planning Process, Environmentally Sensitive Areas Background Study and the Stormwater Background report are provided as part of other agenda items in this agenda package.</p>	

1. HDR Calthorpe Planning Process

- HDR Calthorpe is currently in Phase 1: Information Gathering and Visioning.
- A meeting with TAG was held on November 15th to present more detailed information on the HDR Calthorpe work plan and to discuss the role of the TAGs in that process.
- CMRB Administration continues to support the HDR Calthorpe team with data and information gathering.

2. Regional Employment Analysis

- The draft recommendations of the Regional Employment Analysis were reviewed by Land Use TAG on November 15th. The criteria for identifying regionally significant employment areas were discussed and TAG agreed on a path forward to complete the study.
- Applications Management is working to finalize the Regional Employment Analysis report. The report will be circulated to TAG to ensure it appropriately reflects TAG input.
- A final report will be presented to LUC for its recommendation at the January 16th meeting.

3. Land Supply Analysis

- Identifying existing, approved lands for commercial, industrial and residential purposes is an important and useful dataset to support many of the studies the CMRB is undertaking.
- Member municipalities have been circulated draft maps to ensure existing and approved land uses are correctly identified.
- Once municipal reviews are complete, HDR Calthorpe will use the data to finalize its base mapping.

4. Agriculture Subcommittee

- The Agriculture Subcommittee met on November 25th to review and refine its recommendations.
- The preliminary report will be updated to incorporate the input of the Subcommittee.
- Draft recommendations will be brought to LUC in January.

5. Transit Subcommittee

- Interim findings as approved by the ISC are being used to support the HDR Calthorpe 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.

6. Environmentally Sensitive Areas Background Study

- On November 7th, LUC reviewed the draft recommendations of the Environmentally Sensitive Areas Background Study and provided feedback to CMRB Administration.
- O2 Planning and Design met with Land Use TAG on November 15th to review the draft report and agree to final changes.
- O2 updated the report in consideration of LUC and TAG feedback. O2 is presenting the final study report to LUC on December 5th for its recommendation.

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, is a transportation model for the 2028 (10 year) and 2039 (20 year) planning horizons that can be used as base model to develop long term transportation models for the Calgary metropolitan region.
- The 2039 network was finalized in September 2019 and the 2028 network is substantially complete and will be finalized in early January 2020.
- The next phase of work is project evaluation and prioritization in January and February 2020.
- The combination of the North and South&East model results for 10 year and 20 year horizons are a key input into the HDR Calthorpe planning model. CMRB administration are working to deliver these to Calthorpe ahead of project evaluation stage of the S&ECRTS.

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 in High River. 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. ISC recommended the report for approval by the Board on November 7, 2019. The Board approved the report on November 22, 2019. The study has been shared with the Growth Plan consultant.
 - 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. ISC recommended the deliverables for approval by the Board on November 7, 2019. The Board approved the deliverables on November 22, 2019. The deliverables have been shared with the Growth Plan consultant.

- Complexity D – Regulation, Approvals and Policy. CMRB Admin hosted a workshop with many ISC members and municipality administrations in attendance, and others on June 27th, 2019 at Cochrane Ranchehouse. The summary report has been circulated and next steps with AEP are being discussed. The Advocacy Committee is also working on materials for advocacy with the Province on topics related to water.
- 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 (ESA) Study. The status of the ESA work is summarized in another agenda item.
- A background report for consideration by the Growth Planning Consultant was developed by the Water Table on Stormwater. An update was provided to ISC on November 7, 2019. The report has been provided 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 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. Another meeting of the Recreation TAG is scheduled for December 17, 2019.

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 LUC and ISC receive for information an update on the work of the CMRB Technical Advisory Groups