

Calgary Metropolitan Region Board
December 13, 2019 Board Meeting Agenda
9:30 AM, Mount Royal University
Roderick Mah Centre for Continuous Learning, Room EC2010

	Sheard	Page
1. Call to Order and Opening Remarks	All	
2. Adoption of Agenda <i>To adopt and/or revise agenda</i>	All	
3. Adoption of Minutes of Last Meeting (Attachment) <i>For Decision: Motion that the Board approve the Minutes of the November 22, 2019 meeting</i>	All	3
4. Municipal Context Reports <i>For Information: to provide a presentation on the Town of Cochrane and City of Chestermere Municipal Context Reports</i>	Cochrane Chestermere	
5. ESA Background Study (Attachment) <i>For Decision: Motion that the Board approve the ESA Background Study as input for the Growth Plan Consultant</i>	Tipman	8
6. Stormwater Background Report (Attachment) <i>For Decision: Motion that the Board approve the Stormwater Background Report as input for the Growth Plan Consultant</i>	Graves	30
7. CMRB Messaging Platform/Vision Statement (Attachment)	StrutCreative	
a) <i>For Decision: Motion that the Board approve the use of the CMRB Messaging Platform to inform the development of communications materials for the CMRB</i>		47
b) <i>For Decision: Motion that the Board approve one of the three proposed vision statements</i>		65
 <u>Closed Session</u> (Pursuant to Sections 23 & 24 of FOIP)		
8. Growth Plan-Workshop #1-What we Heard Summary Memo	HDR Calthorpe	

9. HR Item

Return to Open Session

10. Roundtable Discussion

All

11. Next Meeting: Friday January 24, 2019 @ MRU

12. Adjournment

Upcoming Meetings:

Land Use Committee	Jan 16 @ 9:30 AM	MRU Room EC2010
Intermunicipal Servicing Committee	Jan 16 @ 1:00 PM	MRU Room EC2010
Board Meeting	Jan 24 @ 9:30 AM	TBD
Advocacy Committee	TBD	
Governance Committee	Jan 30 @ 9:30 AM	CMRB Offices

Delegates in Attendance:

Mayor Peter Brown – City of Airdrie
Councillor Gian Carlo Carra – City of Calgary
Mayor Marshall Chalmers – 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
Reeve Greg Boehlke – Rocky View County
Mayor Pat Fule – Town of Strathmore
Reeve Amber Link – Wheatland County

Dale Beesley, Municipal Affairs

CMRB Administration:

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

1. Call to Order

Called to order at 9:30 AM. Chair Sheard circulated the approved Code of Conduct for signing by members.

2. Approval of Agenda

M 2019-60 **Moved by** Councillor Carra, **Seconded by** Reeve Boehlke, accepted by Chair.

Motion: That the Calgary Metropolitan Region Board approve the agenda of November 22, 2019, tabling Item 5 IREF Challenge to January 2020.

Motion carried unanimously.

3. Approval of Minutes

M 2019-61 **Moved by** Mayor Chalmers **Seconded by** Mayor Robertson, accepted by Chair.

Motion: That the Calgary Metropolitan Region Board approve the Minutes of November 22, 2019, as presented.

Motion carried unanimously.

4. Municipal Context Report

Mayor Fule introduced Justin Rebello, Manager of Development Services, who provided a presentation on the Town of Strathmore's Municipal Context Report, and answered questions.

5. Governance Committee Update

Motion:

M 2019-62

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

Motion: That the Calgary Metropolitan Region Board receive for information an update on the Governance Committee draft Minutes.

Motion carried unanimously.

Councillor Oel noted that the Minutes should reflect the member name update change to Foothills County in the delegates in attendance on page 1.

6. Governance Committee Terms of Reference

Motion:

M 2019-63

Moved by Mayor Brown **Seconded by** Councillor Carra, accepted by Chair.

Motion: That the Calgary Metropolitan Region Board approve the Revised Terms of Reference for the Governance Committee with the following change to #5 Committee Membership:

"The Committee will be comprised of not less than 3 members selected by the Board. The Chair will be an "ex officio" member of the Committee"

Motion carried unanimously.

7. Q3 Actuals

Motion:

M 2019-64

Moved by Mayor Robertson **Seconded by** Reeve Link accepted by Chair.

Motion: That the Calgary Metropolitan Region Board receive for information the 2019 Q3 Actuals.

Motion carried unanimously.

8. Budget 2020

Jordon Copping presented the materials relating to the draft 2020 Budget. The Board discussed future funding from Municipal Affairs.

Motion:

M 2019-65

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

Motion: That the Calgary Metropolitan Region Board approve 2020 Budget as presented.

Motion carried unanimously.

9. Regional Employment Analysis

Liisa Tipman reviewed the report and took questions from the Board.

Motion:

M 2019-66

Moved by Mayor Brown **Seconded by** Councillor Carra, accepted by Chair.

Motion: That the Calgary Metropolitan Region Board approve the status quo regional employment projections for the Calgary Metropolitan Region.

Motion carried unanimously.

10. Natural & Managed Water Capacity Study

Jaime Graves presented this item and answered questions. Mayor Genung suggested that the Board consider putting the topic of water conservation, and potentially a regional education program, on an upcoming agenda.

Motion:

M 2019-67

Moved by Councillor Carra **Seconded by** Mayor Fule, accepted by Chair.

Motion: That the Calgary Metropolitan Region Board approve 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.

11. CMR Existing Water & Wastewater Servicing & Regional Potential Study

Jaime Graves presented this item along with Bill Berzins and answered questions from the Board.

Motion:

M 2019-68

Moved by Reeve Oel **Seconded by** Councillor Carra, accepted by Chair.

Motion: That the Calgary Metropolitan Region Board approve the CMR Existing Water and Wastewater Servicing and Regional Potential study as input for the Growth Plan consultant.

Motion carried unanimously.

12. Special Study Areas

At the request of The Town of High River, the Board discussed the use of special study areas in ASPs. The Board directed CMRB Administration to work with the Land Use TAG to produce background information about the use of special study areas in the CMR and bring that back to the Board. In addition, Councillor Carra suggested that a conversation about the lessons learned from IREF would be beneficial. Liisa Tipman indicated that TAG is currently having these conversations and would be reporting back.

Motion:

M 2019-69

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

Motion: That the Calgary Metropolitan Region Board refer the subject of Special Study Areas to TAG for their review and request they prepare background information for the Land Use Committee, and if necessary, the Board.

Motion carried unanimously.

13. LUC/ISC Update

Jaime Graves and Liisa Tipman provided an update on the recent Committee work.

Motion:

M 2019-70

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

Motion: That the Calgary Metropolitan Region Board receive for information an update on the LUC and ISC.

Motion carried unanimously.

14. Board & Committee Appointments

The Board reviewed the appointments presented and Councillor Oel provided two changes to the Advocacy Committee.

Motion:

M 2019-71

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

Motion: That the Board approve the updated Board & Committee Appointments, changing Foothills County's representatives for the Advocacy Committee to Councillor Miller and Councillor McHugh.

Motion carried unanimously.

Jordon Copping noted that appointments to subcommittees did not need to be approved by the Board, as many attendees are staff.

15. Roundtable Discussion

Members held a brief roundtable discussion.

16. Next Meeting: Friday December 13, 2019 @ MRU, 9:30 AM

17. Adjournment

The Chair declared the meeting adjourned at 12:20 PM.

CMRB Chair, Christopher Sheard

Agenda Item	5
Submitted to	Board
Purpose	For Decision
Subject	Environmentally Sensitive Areas Background Study
Meeting Date	December 13, 2019

Motion that the Board approve the Environmentally Sensitive Areas Background Study as input for the Growth Plan Consultant.

Summary

- 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.
- O2 Planning and Design (“O2”) has worked collaboratively with the Land Use TAG to develop the recommendations of the Background Study.
- At the November LUC meeting, O2 presented the draft findings of the Study for discussion. CMRB Administration was directed to work with the Land Use TAG to finalize the Study recommendations.
- Following from LUC, O2 reviewed the draft document with TAG on November 15th. Final changes to the Study were agreed upon by the TAG members in attendance and the document was updated accordingly.
- The Study was recommended to the Board for approval by LUC at the December LUC/ISC meeting with the inclusion of one substantive amendment. “Appendix A, Table 1, Sub-Criteria 1.3” (page 9 of the Study) has been amended as follows:

Sub-criteria	High Level Desktop Assessments (ASP scale)	Detailed Field Assessments (non-statutory / outline plan scale)
1.3. Presence of well-functioning natural or naturalized floodplains	<p>Measure: Presence of a watercourse-adjacent floodplain dominated by natural or naturalized land cover.</p> <p>Methods:</p> <p>1. Use NRCan/CanVec stream network (Natural Resources Canada 2019) to identify where watercourses occur and floodway/flood fringe/inundation mapping (Government of Alberta 2015) where available. Historic and present day ortho imagery, LiDAR DEM and contour maps will</p>	<p>Measure: Presence of a watercourse-adjacent floodplain dominated by natural or naturalized land cover.</p> <p>Methods:</p> <p>1. Identify presence of watercourse and classify as per provincial classification system</p>

	<p><i>provide additional tools to delineate flood plain extents.</i></p>	<p><i>(Alberta Agriculture and Forestry 2016).</i></p> <p><i>2. Refer to provincial flood hazard mapping, inundation mapping, or develop own mapping.</i></p>
<ul style="list-style-type: none"> The Background Study, once approved by the Board, will be provided as input into the Growth Plan planning process. The recommendations of the Background Study are not binding to the outcomes of the Growth Plan but are available for the consideration of Growth Plan consultant. 		
<p>Attachments</p> <ul style="list-style-type: none"> <i>Environmentally Sensitive Area Background Study (Final Draft)</i> 		

1. Administration Request

That that the Board approve the Environmentally Sensitive Areas Background Study as input for the Growth Plan consultant.

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 be created 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/inundation 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, inundation 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.

Citations:

Adams, B. W., and G. Hale. 2009. Riparian Health Assessment for Streams and Small Rivers.

Alberta Agriculture and Forestry. 2016. Alberta Timber Harvest Planning and Operating Ground Rules Framework for Renewal. Government of Alberta.

Alberta Biodiversity Monitoring Institute. 2010. Land Cover 2010. abmi.ca.

Alberta Biodiversity Monitoring Institute. 2016. Predictive Landcover 3.0. <https://abmi.ca/home/data-analytics/da-top/da-product-overview/Advanced-Landcover-Prediction-and-Habitat-Assessment--ALPHA--Products/Predictive-Landcover-3.0.html>.

Alberta Biodiversity Monitoring Institute. 2017. Species Richness. <https://abmi.ca/home/data-analytics/da-top/da-product-overview/GIS-Biodiversity-Data/Richness.html>.

Alberta Biodiversity Monitoring Institute. (n.d.). Human Footprint. <https://abmi.ca/home/data-analytics/da-top/da-product-overview/Human-Footprint-Products.html>.

Alberta Environment and Parks. 2019. Fish and Wildlife Management Information System.

Alberta Environment and Parks (AEP). 2016. Grassland Vegetation Inventory.

<https://geodiscover.alberta.ca/geoportal/catalog/search/resource/fullMetadata.page?uid=%7BD3AB901-8EC0-4589-9335-C1E50AE05992%7D>.

Alberta Environment and Parks (AEP). 2017. Alberta Merged Wetland Inventory. <https://geodiscover.alberta.ca/geoportal/catalog/search/resource/fullMetadata.page?uid=%7BA73F5A1-4677-4731-B3F6-700743A96C97%7D>.

Alberta Environment and Sustainable Resource Development (AESRD). 2013. Sensitive Species Inventory Guidelines. <https://open.alberta.ca/publications/sensitive-species-inventory-guidelines>.

Alberta Parks. 2014. Significant Landforms of Alberta. Alberta Environment and Sustainable Resource Development.

Alberta Parks. 2017. Alberta Conservation Information Management System.

Bird Studies Canada (BSC). 2012. Canadian Important Bird and Biodiversity Areas. <https://www.ibacanada.ca/>.

Coulon, A., J. F. Cosson, J. M. Angibault, B. Cargnelutti, M. Galan, N. Morellet, E. Petit, S. Aulagnier, and A. J. M. Hewison. 2004. Landscape connectivity influences gene flow in a roe deer population inhabiting a fragmented landscape: an individual-based approach. *Molecular Ecology* 13:2841–2850.

Environmental Protection Agency. 2019. Rare Ecosystems in the Conterminous US. <https://enviroatlas.epa.gov/enviroatlas/DataFactSheets/pdf/Supplemental/RareEcosystems.pdf>.

Fiera Biological Consulting Ltd. 2014. Environmentally Significant Areas in Alberta: 2014 Update.

Government of Alberta. n.d. Wildlife Sensitivity Maps. <https://www.alberta.ca/wildlife-sensitivity-maps.aspx>.

Government of Alberta. 2012a. Stepping Back from the Water: A Beneficial Management Practices Guide for New Development Near Water Bodies in Alberta’s Settled Region. Government of Alberta.

Government of Alberta. 2012b. Code of practice for pipelines and telecommunication lines crossing a water body. <https://open.alberta.ca/publications/2478000>.

Government of Alberta. 2013. Alberta Wetland Policy. Edmonton.

Government of Alberta. 2015. Digital Flood Hazard Mapping. <https://geodiscover.alberta.ca/geoportal/catalog/search/resource/details.page?uid=%7B41C924451244-4985-99F8-CEE0C090B839%7D>.

Government of Alberta. 2016a. Guide to the Alberta Wetland Rapid Evaluation Tool - actual (ABWRET-A) for the Boreal and Foothills Natural Regions. Edmonton, AB: Alberta Environment and Parks.

Government of Alberta. 2016b. Alberta Wetland Restoration Directive. Edmonton, AB: Alberta Environment and Parks.

Government of Alberta. 2019a. Range Health. <https://www.alberta.ca/range-health.aspx>.

Government of Alberta. 2019b. Alberta Public Lands Glossary of Terms:32.

Government of Canada. 2002. Species at Risk Act. Pages 1–103 S.C. 2002, c.29.

Hak, J. C., and P. J. Comer. 2017. Modeling landscape condition for biodiversity assessment - Application in temperate North America. *Ecological Indicators* 82:206–216.

Huxel, G. R., and A. Hastings. 1999. Habitat Loss, Fragmentation and Restoration. *Restoration Ecology* 7:309–315.

Kirk, D. A., A. C. Park, A. C. Smith, B. J. Howes, B. K. Prouse, N. G. Kyssa, E. N. Fairhurst, and K. A. Prior. 2018. Our use, misuse, and abandonment of a concept: Whither habitat? *Ecology and Evolution* 8:4197–4208.

Natural Resources Canada. 2019. National Hydro Network. <https://open.canada.ca/data/en/dataset/a4b190fe-e090-4e6d-881e-b87956c07977>.

Natural Resources Canada. 2019a. Lakes, rivers and glaciers in Canada - CanVec Series. <https://open.canada.ca/data/en/dataset/9d96e8c9-22fe-4ad2-b5e8-94a6991b744b>.

Natural Resources Canada. 2019b. National Road Network. <https://open.canada.ca/data/en/dataset/3d282116e556-400c-9306-ca1a3cada77f>.

Nel, J. L., D. J. Roux, G. Maree, C. J. Kleynhans, J. Moolman, B. Reyers, M. Rouget, and R. M. Cowling. 2007. Rivers in peril inside and outside protected areas: a systematic approach to conservation assessment of river ecosystems. *Diversity and Distributions* 13:341–352.

Sekercioglu, C. 2010. Ecosystem functions and services. Pages 45–72 *Conservation Biology for All*.

The Ramsar Convention. 2019. Ramsar Wetlands Canada. <https://www.ramsar.org/wetland/canada>.

Theobald, D. M. 2013. A general model to quantify ecological integrity for landscape assessments and US application. *Landscape Ecology* 28:1859–1874.

Agenda Item	6
Submitted to	Board
Purpose	For Decision
Subject	Stormwater Background Report
Meeting Date	December 13, 2019

Motion that the Board approve the Stormwater Background Report as input for the Growth Plan Consultant

Summary

- On March 7, 2019, the Intermunicipal Servicing Committee granted CMRB Administration the authorization to complete a series of studies in support of the Water Roadmap.
- 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 of the report. Water Table continued to discuss and refine the report through October.
- 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.
- On December 5, 2019, the ISC recommended that the Board approve the Stormwater Background Report. An edit was brought forward by Rocky View County in the Municipal Context section to reflect that Rocky View County are participants in Bow River Basin Council and the Elbow River Watershed Partnership. This edit is reflected in the attached report.

- 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.
- 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 Board approve 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 of Chestermere 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 participates in the following initiatives:</p> <ul style="list-style-type: none"> • Elbow River Watershed Partnership • Bow River Basin Council • CSMI • 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

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

Development Plans. Within the CMR, the scope, complexity and terminology within these plans can vary considerably.

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

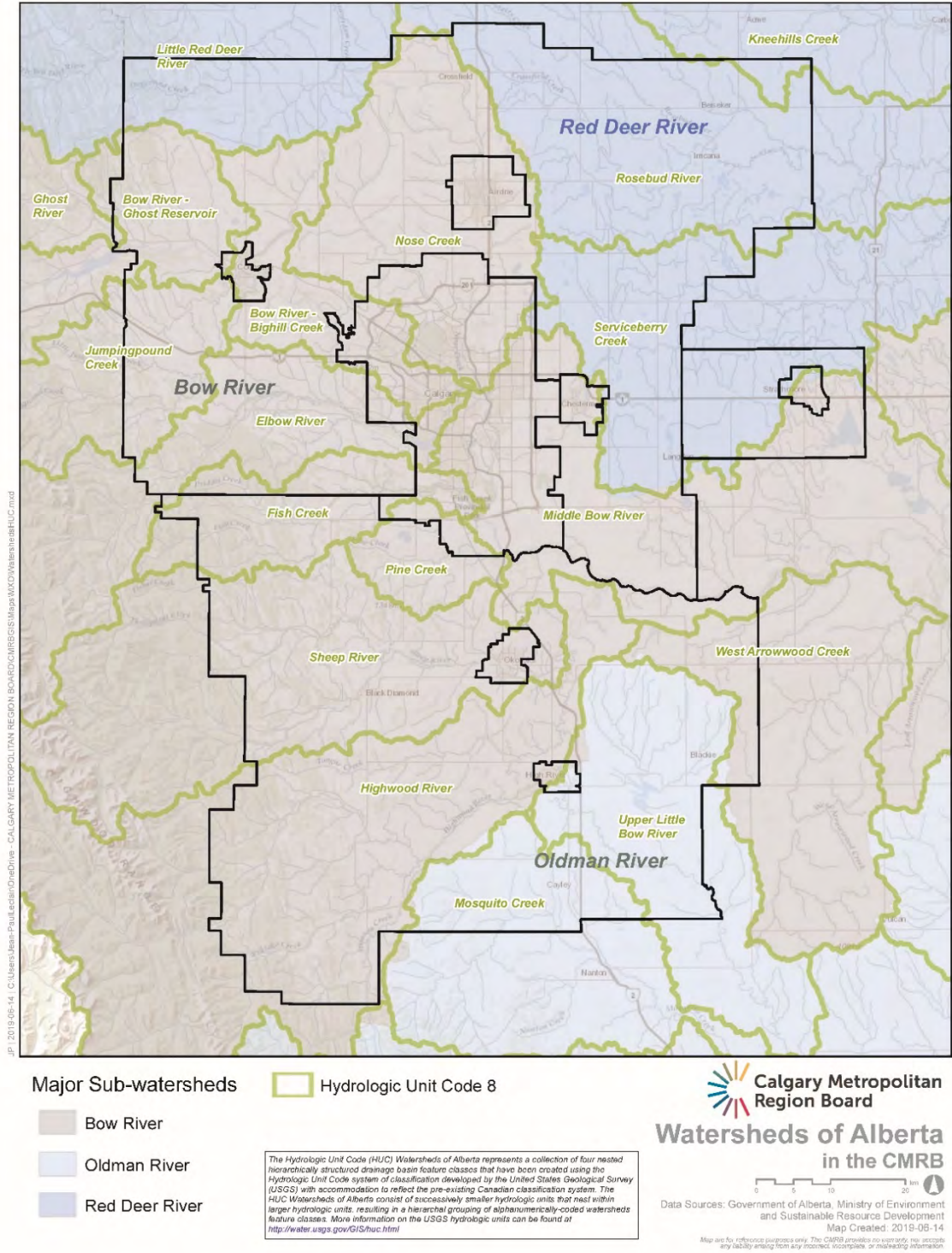


Figure 2: Western Irrigation District within Calgary Metropolitan Region

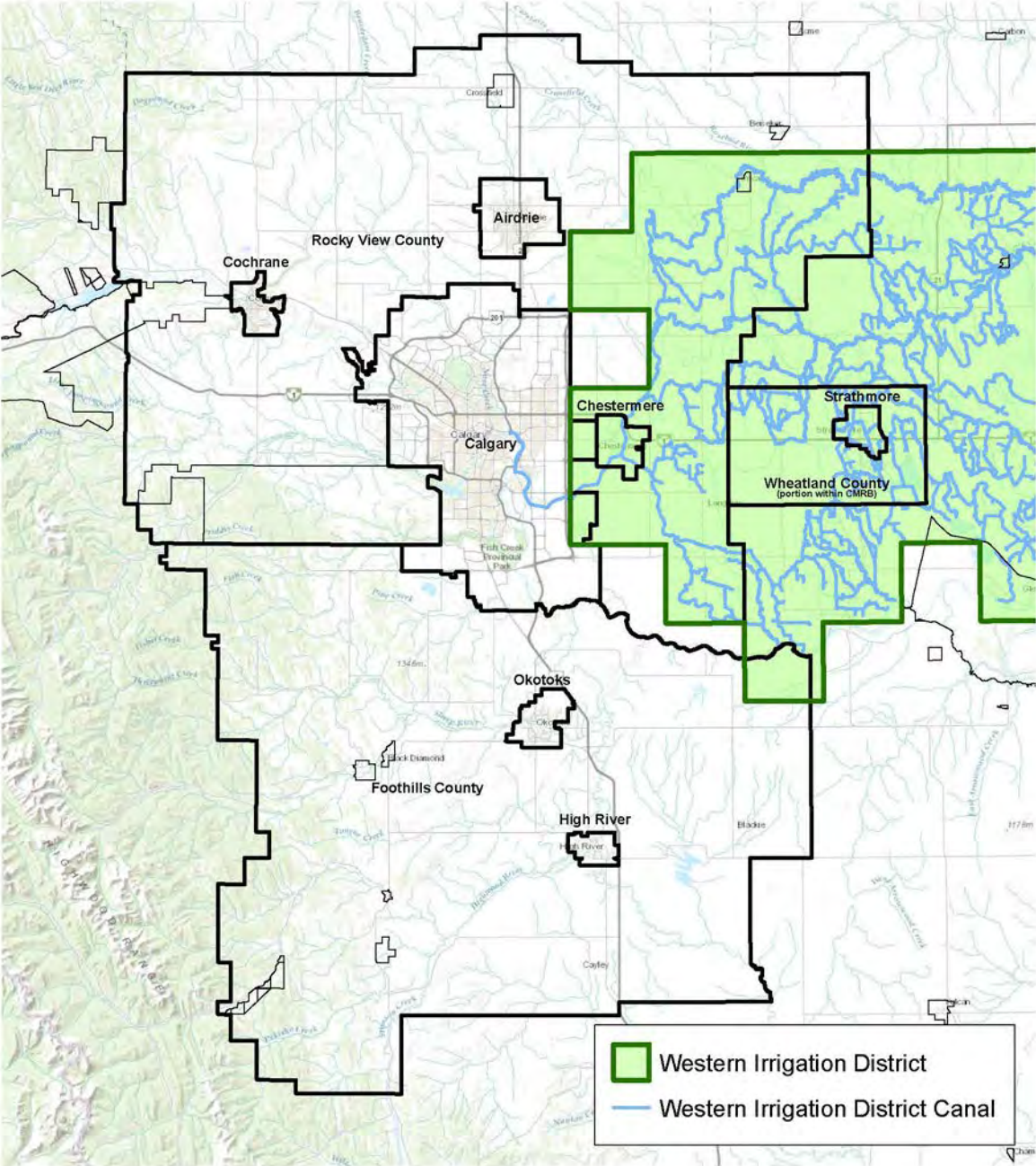


Figure 3: Bow River Irrigation District Downstream of Calgary Metropolitan Region

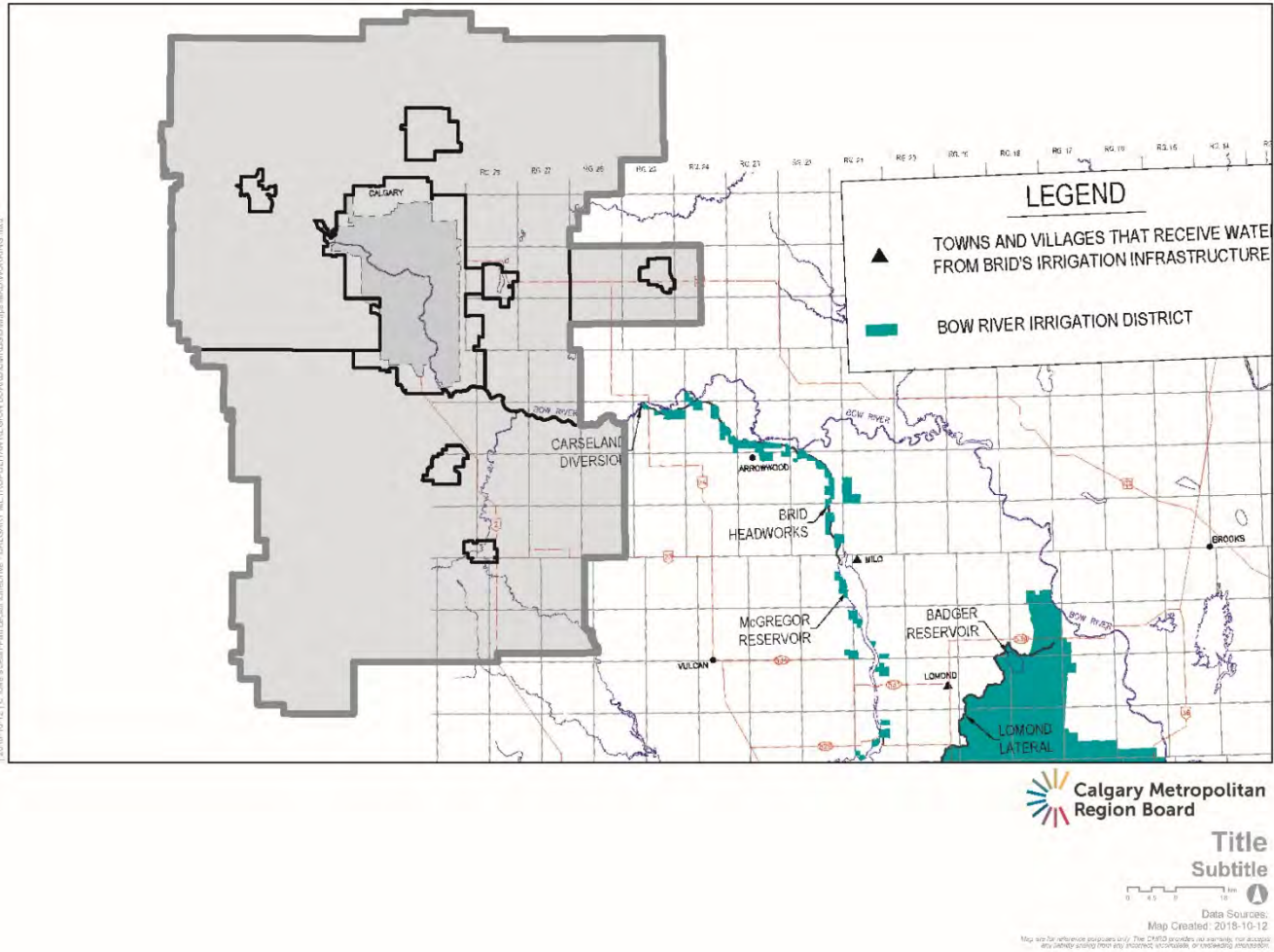


Table 1: Key Themes and Opportunities Regarding CMR Stormwater Management

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	7a
Submitted to	Board
Purpose	For Decision
Subject	CMRB Messaging Platform
Meeting Date	December 13, 2019
Motion that the Board approve the use of the CMRB Messaging Platform to inform the development of communications materials for the CMRB	
<p>Summary</p> <ul style="list-style-type: none"> • The Board has completed surveys, workshops and collaborative discussions around the Board's key areas of focus and the Board's vision for the CMRB. • Workshops were held in November and December 2018. From this process, draft goal and vision statements were created. These goal and vision statements were presented to the Board for further discussion at the March 2019 Board meeting. • In April 2019, StrutCreative ("Strut") was engaged to create communications materials for the CMRB. This was done as part of completing phase 1 of the Board-approved Communications and Engagement Framework. Phase 1 of the Framework includes confirming the Board goal and vision statements. • Strut reviewed the Board vision and goals statements and used them to develop a draft CMRB Messaging Platform. The Messaging Platform is a living document intended to guide the development of communication materials. It will also support the development of Growth Plan and Servicing Plan engagement materials with consistent messaging about the CMRB. The draft Messaging Platform was presented at the June board meeting for discussion. • The Board directed CMRB Administration to work with Strut to review the Messaging Platform, including the vision and goal statements. A survey on vision was circulated to all member municipalities to inform this work. • Further discussion of the vision and goal statements occurred at the October 2019 Workshop #1 led by HDR Calthorpe. Strut used the outputs of this workshop to further update the Messaging Platform. • Draft vision statements will be discussed as part of Agenda Item #7b. 	
<p>Attachments</p> <ul style="list-style-type: none"> • "Visioning and Messaging Recap", Presentation, StrutCreative • Draft <i>CMRB Messaging Platform</i>, StrutCreative 	

1. Introduction

The Calgary Metropolitan Region Board held visioning sessions on November 23 and December 14, 2018. At the November session, participants conducted a roundtable exercise, exploring challenges and opportunities around six focus areas:

1. Economic Wellbeing
2. Growth Management and the Efficient Use of Land
3. Environmentally Responsible Land Use
4. Shared Services Optimization
5. Rural/ Urban Differences
6. Water Stewardship

Following that workshop, two goal and vision statements were drafted for each area of focus. These statements were reviewed and discussed by the Land Use TAG as part of the chartering process.

Updated vision statements were brought back to the March 2019 board meeting for feedback. The Board requested that there be opportunity to further discuss the vision statements going forward.

2. Updated Messaging Platform

At the March board meeting, the Board approved the Communications and Engagement Framework. StrutCreative (“Strut”) was engaged to complete phase 1 of the Framework. The phase 1 work includes confirming the Board goal and vision statements and building communications materials to explain the story of the CMRB: What is it? How does it work? Who is involved? What are the Interim Growth Plan and Interim Regional Evaluation Framework?

Strut reviewed the draft vision statements for completeness and quality and developed a tag line, vision, mission, one-minute message, and other key messages using the Board’s goal and vision statements. This was presented to the Board at the June 2019 meeting. The Board directed CMRB Administration to work with Strut to further refine the Messaging Platform.

As part of refining the Messaging Platform, a survey on vision was sent to all member municipalities. In addition, Strut delivered a presentation on the Messaging Platform at Growth Plan Workshop #1 led by HDR Calthorpe, which was followed by roundtable discussions on each of the Board’s areas of focus and the associated vision statements. This input was used to further refine the Messaging Platform.

The Messaging Platform will be used to support the creation CMRB communications materials. It will also support the development materials for Growth Plan and Servicing engagement activities by offering a consistent set of messages about the CMRB. The Messaging Platform is intended to be a living document and updated as necessary.

3. Recommendation

That the Board approve the use of the CMRB Messaging Platform to inform the development of communications materials for the CMRB

Visioning & Messaging Recap

Calgary Metropolitan Region Board

Prepared for the December 13, 2019 Board Meeting

strutcreative[©]

Recap

The process to date:

- Environmental scan
- Board surveys x 2
- Board workshops x 2
- TAG input as part of chartering process
- Messaging platform development
- Board messaging platform presentation and refinement
- Vision survey and refinement of statements
- HDR Calthorpe growth planning workshop and refinement

Key Themes

The following themes were consistently expressed by the CMRB throughout all engagements.

- Diversity
- Prosperity
- Collaboration
- Focus
- Innovation
- Adaptiveness
- Efficiency

The Messaging Platform

- Informed by board visioning work, defined areas of focus, and key themes
- Designed to guide CMRB board communications and ensure a consistent message
- Broad enough to encompass all the work you're doing and may do in the future
- A living document that will evolve with CMRB

Thank you

strutcreative[®]

CMRB Messaging Platform

[DRAFT v4.1]

PREPARED FOR CALGARY METROPOLITAN REGION BOARD

November 22, 2019

Strut Creative Inc. 101, 255 - 17 Avenue SW Calgary, Alberta T2S 2T8

Contact: Michelle Caplan 1-403-228-9200 ext. 113 michelle.caplan@strutcreative.com

OVERVIEW

The messaging platform that follows was designed for Calgary Metropolitan Region Board (CMRB) to provide a solid foundation for all communications, including but not limited to marketing materials, public-facing documents, speeches and presentations. Its goal? Build brand awareness and enhance CMRB's profile within the region and beyond.

The platform was developed with CMRB's organizational goals and target audiences in mind and includes purposeful vision and mission statements to complement CMRB's mandate. It outlines who CMRB is, what you do, and your goals for the future. Most critically, it provides you with an elevator pitch and supporting messages that will help facilitate consistent communication by all staff and board across all channels.

A NOTE ABOUT ACRONYMS

Whenever possible, it is recommended that CMRB use its full name in public-facing documents and marketing materials. This will help improve recognition of the organization and ensure individuals, businesses, industry and government become more familiar with both the Board and the Calgary Metropolitan Region.

DRAFT

VISION

TBD - Please see Appendix I for vision statement options.

MANDATE

A mandate outlines how you will work to achieve your vision. It's a high-level description of the tangible, real-world operational efforts your organization will undertake to achieve its goals.

Long: The Calgary Metropolitan Region Board is mandated to support the long-term sustainability of the Calgary Metropolitan Region. It ensures environmentally responsible land-use planning and growth management; develops policies on regional infrastructure investment and service delivery; and promotes the economic wellbeing and competitiveness of the region.

Short: Our mandate is to support the long-term sustainability of the Calgary Metropolitan Region.

VALUES

Organizational values help shape and guide how you work, act and operate. They serve as a barometer for decision making and form the basis of who CMRB is as an organization.

Collaboration

We work together to identify opportunities and efficiencies that reduce the costs of growth and help achieve sustained prosperity for our region.

Organization

We are purposeful and thoughtful in our actions, prioritizing the development of strategies and plans that guide and enhance the work we do.

Respect

We respect each other, our neighbours, our environment, and the land on which our region is built.

Innovation

We embrace new ideas and the development, testing and iteration of bold solutions to complex regional challenges.

Diversity

We embrace our differences and celebrate the unique character and identity of the diverse people and places that make up our region.

GOALS OF THE CALGARY METROPOLITAN REGION BOARD

The following goals have been identified by the board to provide vision and direction for CMRB, ultimately helping track and measure progress.

ORIGINAL	REVISED
Economic Wellbeing	
<ul style="list-style-type: none"> The Calgary Metropolitan Region is a globally recognized economy, attracting the best and brightest in a variety of economic sectors to support regional prosperity and a high quality of life. The Calgary Metropolitan Region has a strong and unified approach to regional economic growth, maximizing the return we will realize from investments in development. 	<ul style="list-style-type: none"> The Calgary Metropolitan Region has a plan for regional economic development, laying the groundwork for a strong and unified approach to regional economic growth to help maximize the return realized from investments in development. The Calgary Metropolitan Region is a globally recognized economy, attracting the best and brightest in a variety of sectors—from technology to agriculture—to support regional prosperity and a high quality of life.
Growth Management and the Efficient Use of Land	
<ul style="list-style-type: none"> The Calgary Metropolitan Region has grown in a balanced way reflecting a variety of land uses, capitalizing on growth opportunities. The Calgary Metropolitan Region has grown in a fiscally sustainable way, which integrates regional servicing. 	<ul style="list-style-type: none"> The Calgary Metropolitan Region optimizes land across a variety of uses, capitalizing on opportunities for growth. The Calgary Metropolitan Region grows in a fiscally sustainable way, which integrates regional servicing.
Environmentally Responsible Land Use	
<ul style="list-style-type: none"> The Calgary Metropolitan Region recognizes the important role of natural systems in the Region and planned growth accordingly. The Calgary Metropolitan Region is a leader in sustainable regional planning which minimizes the impacts of development on our land, water and air. 	<ul style="list-style-type: none"> The Calgary Metropolitan Region is a leader in sustainable regional planning practices which minimize the impacts of development on our land, water and air.

Shared Services Optimization

<ul style="list-style-type: none"> Residents of the Calgary Metropolitan Region experience borderless delivery of essential services based on a fair cost-benefit model. The Calgary Metropolitan Region delivers services in a more efficient and sustainable way through shared services optimization. 	<ul style="list-style-type: none"> Residents of the Calgary Metropolitan Region experience borderless delivery of essential services based on a fair cost-benefit model. The Calgary Metropolitan Region delivers services in a more efficient and sustainable way through optimization of shared services.
--	---

Celebrating Rural/Urban Differences

<ul style="list-style-type: none"> The Calgary Metropolitan Region has grown in a way which celebrates the individual character of our municipalities while working together to build a stronger region. The Calgary Metropolitan Region has worked together to make our developments perform better financially, environmentally and socially. 	<ul style="list-style-type: none"> The Calgary Metropolitan Region celebrates its diversity and the unique choices that exist within the Region—from housing to employment to recreation. The Calgary Metropolitan Region reaps the social, environmental and financial rewards of working together to develop common systems that serve the needs of different geographies.
---	--

Water Stewardship

<ul style="list-style-type: none"> The Calgary Metropolitan Region has a water strategy which promotes healthy people, healthy ecosystems and is resilient in times of drought and flood. The Calgary Metropolitan Region has a coordinated approach to water, wastewater and stormwater which provides safe and healthy water for our growing region. 	<ul style="list-style-type: none"> The Calgary Metropolitan Region has a water strategy which promotes healthy people, healthy and sustainable ecosystems and is resilient in times of drought and flood. The Calgary Metropolitan Region has a coordinated approach to water supply, wastewater and stormwater which provides safe and healthy water for our growing region.
--	---

KEY MESSAGING

Who We Are

The Calgary Metropolitan Region Board is a collaborative made up of mayors and reeves from 10 municipalities who collectively lead the actions and activities of the board. CMRB exists to facilitate discussion, build and administrate growth plans, and undertake studies to achieve sustained prosperity of our region.

What We Do

We support the long-term sustainable growth and enhanced quality of life of the Calgary Metropolitan Region by:

- Collaborating to address regionally significant issues
- Facilitating continued investment and development
- Ensuring the efficient and balanced development of urban and rural lands for residential, business and agricultural uses
- Minimizing the impact of development on our land, water and air
- Creating efficiencies through the optimization of shared services such as regional transportation and water stewardship
- Prioritizing water security

One-Minute Message

Also known as an elevator pitch, your one-minute message is what you'd tell someone about CMRB if you had only one-minute of their time. Great one-minute messages concisely communicate what your organization does, its core values and key differentiators. The best one-minute messages are memorable because they are authentic to the organization's staff and membership.

Since 2018, our 10 municipalities have been working together to address key social, environmental and economic needs, identifying efficiencies and collectively tackling regional issues.

We're helping create a roadmap for sustained growth and prosperity by defining goals and providing guidance on the efficient use and servicing of land. We've overseen the development and implementation of the region's Interim Growth Plan and are currently in the process of developing the region's first official Growth Plan set to take effect in 2021.

We believe the long-term success of our region requires collaboration and coordination between municipalities. Because while each of our cities, counties and towns has many unique assets, it is only together that we will succeed at growing a world-class destination to live, work and play.

SUPPORTING MESSAGES

The following messages can be used individually or in combination and are designed to be updated and added to as CMRB grows and changes.

We are working together to create a region that is a growing destination to live, work and play.

Thriving communities require more than homes for people to live in. They require viable employment opportunities, economic certainty, accessible transportation routes and transit options, and a healthy environment with sustainable natural systems. The CMRB addresses these social, environmental and economic needs through the development of effective regional planning practices and the evaluation of statutory plans through a regional lens.

Our municipalities are all connected.

Our municipalities do not exist in a vacuum. When one municipality makes large-scale changes to infrastructure or land-use, neighbouring municipalities are impacted—either directly or indirectly. The same principle applies to residential and commercial development. When a region grows in one area, it must also grow in the other to ensure long-term sustainability.

Together, we can do more.

CMRB members collectively and collaboratively work to address the needs of the region while identifying opportunities and efficiencies to reduce the costs of growth and realize sustained prosperity. Because together, we can achieve more—financially, environmentally and socially.

Our region is experiencing critical water challenges.

Today, our region is home to one third of the population of Alberta but less than 5% of the province's surface water. If we aren't purposeful about managing this invaluable resource, our supply won't be able to keep up with our region's growing demand. CMRB is working to develop a long-term solution to improve water management and conservation.

We are working to reduce the costs of growth on the Calgary Metropolitan Region.

We do this by developing effective regional planning practices and promoting the efficient use of land and cost-effective development.

The Interim Growth Plan is easy to use.

The Interim Growth Plan was developed to complement existing municipal planning processes. The plan lays out a sustainable framework for regional growth, without being onerous or prescriptive in its terms. CMRB's role is to ensure planning for regionally-significant development is coordinated between municipalities. We do not evaluate or critique plans on their technical merits.

The Growth Plan will encourage business in the Calgary Metropolitan Region and reduces uncertainty for municipalities, investors and citizens.

The Growth Plan will serve as a best-practice guide for achieving long-term prosperity of the Calgary Metropolitan Region. It will provide guidance and structure to municipalities, the development industry and other regional stakeholders on how to plan and develop for sustainable growth. As a living document, the plan will frequently be evaluated and updated to ensure its content is reflective of the changing needs of the people, businesses and ecosystems that contribute to our region's success.

STONE AND VOICE

The CMRB should follow the Government of Alberta's guidelines for tone and voice.

The government of Alberta's voice is:

- Friendly and approachable
- Clear
- Direct
- Genuine

The tone of communications should reflect the type of message being conveyed. For more serious topics, the government recommends a direct, no-nonsense tone. For communications such as informational materials, event invitations and news releases, a lighter, conversational tone should be used.

For more information and examples, refer to the [Government of Alberta's Voice, Tone and Style Guide](#).

APPENDIX I - VISION STATEMENT OPTIONS

The following vision statements reflect the feedback provided through the Vision Refinement Survey as well as the outcomes of the HDR Calthorpe workshop that took place on October 3, 2019.

Option 1

A region of sustained prosperity home to thriving communities, economies and natural ecosystems.

Option 2

We are building a region for the can-doers, the innovators and the up-and-comers. A region where choice of housing, employment and recreation is abundant, and where quality of life is as high as the economy is resilient. This is a place where collaborative planning achieves ambitious goals and where challenges are tackled head-on to make way for new opportunities. Welcome to the Calgary Metropolitan Region.

Option 3

Together, we are building a strong, resilient region where our collective strengths are leveraged to achieve sustained prosperity. A region where thoughtful development works to protect and enhance natural ecosystems, and helps families and businesses thrive.

DRAFT

APPENDIX II - REGIONALLY SIGNIFICANT TOPICS TO BE ADDRESSED IN GROWTH PLAN

The Growth Plan provides a foundation to guide population and employment growth, land use, and infrastructure planning in the Calgary Metropolitan Region and provide high-level planning direction on regionally significant topics including:

- Economic development and employment
- Land use
 - ▶ Efficient residential, commercial and industrial land use and cost-effective rural and urban development. This includes development of new settlement areas; intensification and infill development of existing settlement areas; expansion of existing settlement areas; country residential development; and employment areas.
- Transportation and transit
 - ▶ Corridors for recreation (e.g. bike pathways), transportation, energy transmission, utilities and inter municipal transit
- Water quality, conservation and management (including flood mitigation)
- Environmental conservation and the protection of agricultural lands

DRAFT

Agenda Item	7b
Submitted to	Board
Purpose	For Decision
Subject	CMRB Vision Statements
Meeting Date	December 13, 2019
Motion that the Board approve one of the three proposed vision statements	
<ul style="list-style-type: none"> • As part of ongoing discussions, the Board has identified that a single vision statement would be of value to the Board. Initial drafts of a vision statement were provided to the Board as part of the CMRB Messaging Platform developed by StrutCreative ("Strut"). • At the June Board meeting, the Board directed CMRB Administration to work with Strut to further review the Messaging Platform, including further work on the vision and goal statements. • Drawing inputs from a survey on vision and the outcomes of HDR Calthorpe Workshop #1, Strut has provided three revised vision statements for review by the Board. • The preferred vision statement will be included in the CMRB Messaging Platform and will be used to development CMRB communications materials. It will also inform the work of the Growth Plan and Servicing Plan and the creation of public engagement materials. • Further discussion on the CMRB Messaging Platform is included as part of Agenda Item #7a. 	
Attachments	
<ul style="list-style-type: none"> • "Vison Statement Options", Presentation, StrutCreative 	

1. Introduction

At the March Board meeting, the Board approved the Communications and Engagement Framework. StrutCreative ("Strut") was engaged to complete phase 1 of the Board-approved Communications and Engagement Framework. This work includes confirming the Board vision statements and building communications materials to explain the story of the CMRB: What is it? How does it work? Who is involved? What are the Interim Growth Plan and Interim Regional Evaluation Framework?

To complete phase 1, Strut has developed a CMRB Messaging Platform. Recent updates to the Messaging Platform were informed by the outcomes of a survey on vision and Growth Plan Workshop #1 led by HDR Calthorpe.

2. Vision Statement Options

Strut has prepared the following vision statement options for discussion by the Board:

Option #1: *A region of sustained prosperity home to thriving communities, economies and natural ecosystems.*

Option #2: *We are building a region for the can-doers, the innovators and the up-and-comers. A region where choice of housing, employment and recreation is abundant, and where quality of life is as high as the economy is resilient. This is a place where collaborative planning achieves ambitious goals and where challenges are tackled head-on to make way for new opportunities. Welcome to the Calgary Metropolitan Region.*

Option #3: *Together, we are building a strong, resilient region where our collective strengths are leveraged to achieve sustained prosperity. A region where thoughtful development works to protect and enhance natural ecosystems, and helps families and businesses thrive.*

3. Recommendation

That the Board approve one of the three proposed vision statements

Vision Statement Options

Calgary Metropolitan Region Board

Prepared for the December 13, 2019 Board Meeting

strutcreative[©]

A Regional Vision

- Serves as a guide for all the work you do
- Communicates your aspirations for the future
- Is broad enough to encompass CMRB's mandate and goals
- Is narrow enough to differentiate the region

Option 1

A region of sustained prosperity home to thriving communities, economies and natural ecosystems.

Option 2

We are building a region for the can-doers, the innovators and the up-and-comers. A region where choice of housing, employment and recreation is abundant, and where quality of life is as high as the economy is resilient.

This is a place where collaborative planning achieves ambitious goals and where challenges are tackled head-on to make way for new opportunities. Welcome to the
Calgary Metropolitan Region.

Option 3

Together, we are building a strong, resilient region where our collective strengths are leveraged to achieve sustained prosperity. A region where thoughtful development works to protect and enhance natural ecosystems, and helps families and businesses thrive.

Thank you

strutcreative[®]