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# CRP Ecological Conservation and Protection Initiative: Summary

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# Introduction

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*“Protecting the natural environment and watershed”* is the first of the Calgary Metropolitan Plan’s five principles. It was articulated with full recognition that this will be a challenge as the region grows and changes.

In the spring of 2014, the *Calgary Regional Partnership* (CRP) approached the Miistakis Institute to provide support with the implementation of Principle 1. The upshot of this collaboration was the initiation in spring of 2015 of the *Ecological Conservation and Protection Initiative*. This research and planning project was undertaken by the Miistakis Institute, overseen by Calgary Regional Partnership staff, vetted at each stage by the CRP’s Calgary Metropolitan Plan and Regional Servicing Steering Committee, and ultimately approved by the CRP’s Executive Committee.

The Ecological Conservation and Protection Initiative has two primary elements: an *Ecological Data Update* and development of an *Ecological Conservation and Protection Plan* (later shortened to the *CRP EcoPlan*). As can be expected, the Initiative evolved as it played out, and as well as several interim course corrections, two major elements were added: a ***comprehensive consultation with CRP member municipalities***, and the development of an ***Ecological Connectivity Guide*** for municipalities.

The following is the conceptual overview of the research and delivery services provided by the Miistakis Institute in support of the CRP’s *Ecological Conservation and Protection Initiative*.

## Ecological Data Update

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With five years having passed since the first Calgary Metropolitan Plan (CMP) was created (2009-2014), an opportunity was created to ask ‘What has changed?’, and perhaps more importantly, ‘How and where has that change occurred relative to what we planned?’.

The Ecological Data Update approached these questions with two data products: the *Human Footprint Intensity* tool, and support for the CRP’s *Land Use Zoning Map*.

## Human Footprint Comparison

The *Human Footprint Intensity* model created a spatially-explicit representation of the human 'footprint' on the landscape across the Calgary Region<sup>1</sup> at three different time stamps: 2007, 2010, and 2012. The 'intensity' was determined by the Ecological Conservation and Protection Initiative's Advisory Group, drawn from the CRP members (see details, below).

Footprint data for the Calgary Region was clipped from the Alberta Biodiversity Monitoring Institute's Alberta-wide human footprint datasets (2007, 2010, and 2012). The ABMI datasets were chosen as 1) they are robust datasets showing a wide range of human development and footprint, and 2) the ABMI has committed to updating these datasets on a regular basis, allowing the CRP GIS personnel to re-run the model at future dates.

Using a facilitated process, the Advisory Group members scaled the different types of footprint based on the 'intensity' of land use they represented. Once completed, the model allowed the CRP and its members to assess the change in human activity which may have an impact on ecological infrastructure and services at three different spatial resolutions (1000 hectare, 100 ha, and 10 ha).

This tool can now be used to inform the *CRP EcoPlan* as well as any other applicable CMP strategy.

*(full details of this project can be found in Human Footprint Intensity Mapping: A tool for tracking human footprint change in the Calgary Region, 2017)*

## Land Use Zoning Map

Land use zoning or districting follows similar rules and procedures from one municipality to another, but resultant zones can be quite different. Undertaking region-wide assessments of land use can therefore be tricky.

The Land Use Zoning (LUZ) Mapping initiative was conceived as a way to address

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<sup>1</sup> The Ecological Data Update used what was termed 'the idealized Calgary region', which meant data was gathered for all municipalities who either *were* or *had at some point been* members of the Calgary Regional Partnership.

this dilemma. The process involved gathering land use zoning data from municipalities in the Calgary region, then translating each municipality's unique set of 'zones' to a standardized set.

The first step was to gather the relevant data, which included the land use zoning data sets from the various municipalities, as well as an older generalized land use zoning product (2008).

Next, a process for assigning the older generalized land use classes to newer land use zone data from regional municipalities had to be developed, and advanced detailed added to the various zone classes.

The result was a process that will generate a table which can be joined to current and future LUZ data from any municipality in the region to update the generalized LUZ data set.

## Ecological Conservation and Protection Plan

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### Overview

The Ecological Conservation Planning component (later renamed the *CRP Regional EcoPlan*) was created to provide the basis for a practical, measurable plan for the on-going protection of the ecological features and functions on which the citizens of the Calgary Region depend for their physical, economic and social well-being.

The plan draws directly from the relevant strategies of the CMP, but provides more implementation detail, and integrating its efforts with other CMP strategies, as well as provincial plans and frameworks. The Plan was organized along a series of themes such that the targets and strategies could be data-supported and measurable over both the near and long term.

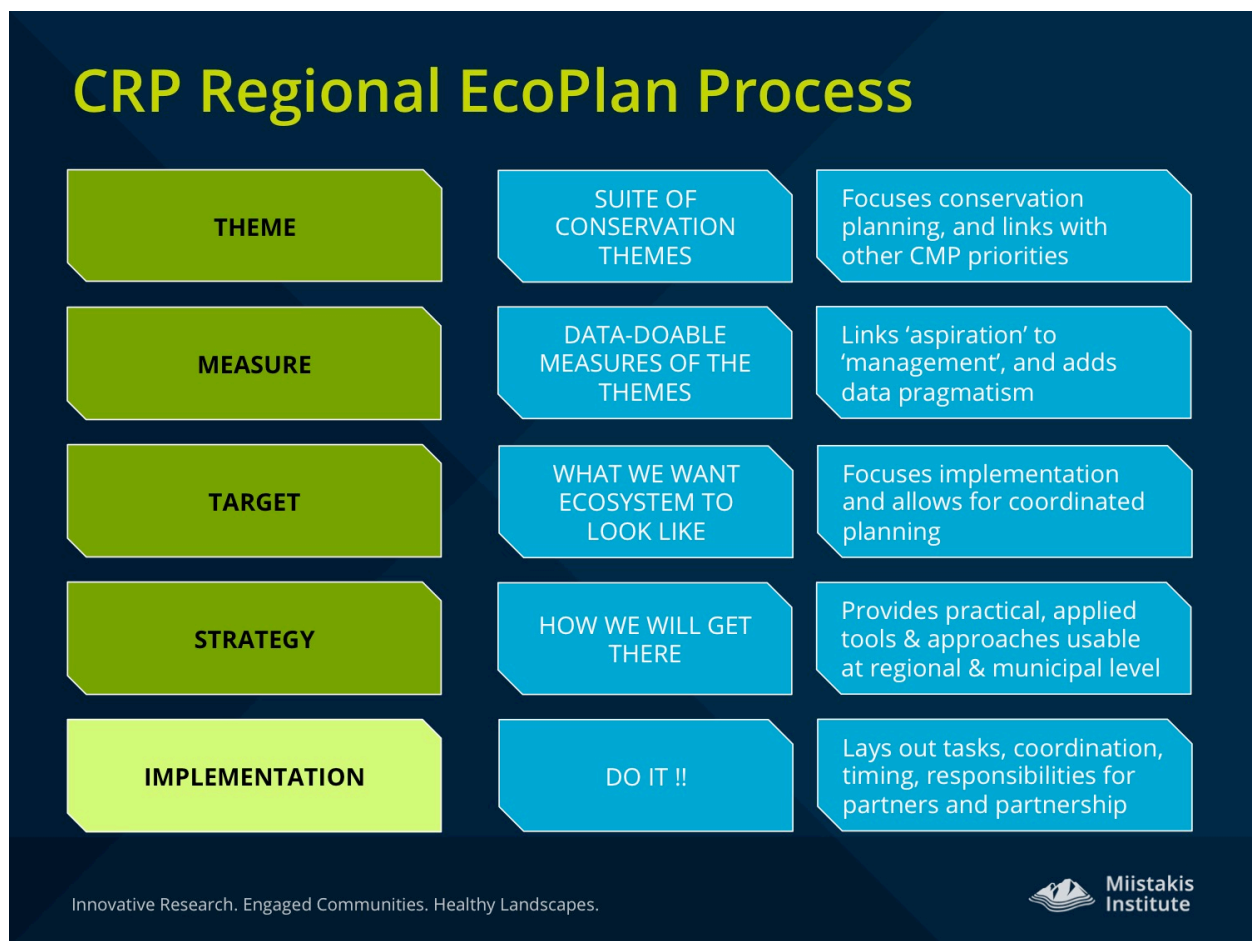
The elements of the plan development are (see *Figure 1: CRP Regional EcoPlan Process*):

- Establish the ecological conservation themes,
- Develop viable measures for each that are applicable at the local and regional scales,

- Create a catalogue of implementation strategies that also work at both levels, and
- Propose an approach for establishing regional targets within each theme.

It should be noted that this is the 'logical' order of these plan elements. However, the setting of targets can be challenging when those affected municipalities are not clear as to what is actually expected of them. For this reason, work commenced on the Strategies Catalogue (see below) in advance of developing the target-setting process.

**Figure 1: CRP Regional EcoPlan Process**



## Themes

To maintain plan focus and clarity for the affected municipalities, a suite of ecological conservation and protection themes was developed. The themes were developed based on several criteria related to their representativeness of ecological



functions and services, practicality, applicability, acceptability, and connection to the Calgary Metropolitan Plan goals.

The themes were developed through a process of expert review, staff review, Steering Committee<sup>2</sup> workshopping, and finally individual member municipality review. The themes were then recommended by the Steering Committee and approved by the CRP Executive Committee.

*(full details of the EcoPlan themes can be found in CRP Regional EcoPlan Themes – Detailed, 2016)*

## Measures

A vital linkage between the goals of the CRP EcoPlan (and Calgary Metropolitan Plan) and the ability for CRP members to individually and collectively act on them, is the development of a set of practical measures for each of the Ecological Conservation and Protection ‘Themes.’

A measurement assessment was conducted on each of the EcoPlan Themes (and sub-themes), and a preliminary assessment report developed that outlined some data needs and priorities that had emerged.

*(see Measuring Up: A Preliminary Assessment of Potential CRP EcoPlan Sub-Theme Measures, 2015)*

As well, an EcoPlan Data Needs matrix was developed to help understand which themes would face the greatest challenges with regard to finding information to support measurement, target-setting, and strategy development. The results indicated that the two most problematic themes would be: 1) ecological connectivity, and 2) wetlands. The direct result of that assessment was the addition of the Connectivity Guide project (see below), and the development of a proposal to address the Wetlands issue.

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<sup>2</sup> CRP’s Calgary Metropolitan Plan and Regional Servicing Steering Committee



## Strategies Catalogue

A challenge to all planning approaches is connecting the overarching desired outcomes with practical actions that have a clear connection to those desired outcomes. A key tool within the *CRP EcoPlan* was the development of an *EcoPlan Strategies Catalogue*.

This resource is a catalogue of action-oriented strategies, applicable at both the regional and the local level, and capable of helping member municipalities make measurable progress towards ecological conservation goals. The Catalogue identifies and explicitly outlines the connections between individual strategies and the approved EcoPlan Themes.

Currently, the structure is an MS Excel spreadsheet, with the intention of web delivering the catalogue to maximize its accessibility and use. Though not part of the scope of this initial phase of this project, preliminary meetings were held with the Calgary Regional Partnership to identify opportunities for eventual web delivery.

## Target-setting

The CRP EcoPlan will require setting targets for each of the themes/sub-themes, which the CRP members will work towards together. While actually setting these targets is the basis of the next project phase, the scope of this phase included creating and proposing an effective *target-setting process*.

After researching several target-setting processes (exploring key characteristics, proven approaches, common issues, process models, required roles, and local applicability), Miistakis staff and CRP staff developed a basic target-setting approach which Miistakis further developed into a proposed six-step target-setting process.

The target-setting process was workshopped with the Steering Committee in December of 2016, and the final version articulated as the proposed 'go-forward' approach, ready for the next phase of the project where targets are actually set.

(see *CRP Regional EcoPlan Proposed Target-setting Process*, 2017)

## Working Group

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The Ecological Conservation and Protection Initiative's Working Group was created to liaise between the research team (the Miistakis Institute) and the CRP and its members, providing insight based on the CMP Committee's mandate and perspective, as well as connecting the research team to municipal (and other) personnel who could provide the necessary expertise and/or perspective.

The Group was established by, and was a recommending body to, the *CMP Implementation and Regional Servicing Steering Committee* and subsequently the Executive Committee and the CRP Board.

The Working Group was called on in several occasions to provide a focus group for the Initiative, review proposed approaches, and identify relevant people and resources. Specific examples include providing support for the Land Use Intensity ranking exercise, and the Connectivity Guide focus group.

(see *Appendix 1: Working Group Terms of Reference*)

## CRP Member Municipality meetings

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As described above, development of the Ecological Conservation Themes was a keystone of the *Ecological Conservation and Protection Initiative* generally, and the *CRP EcoPlan* specifically. The initial plan was to draft themes, then present them to the CRP's *Calgary Metropolitan Plan and Regional Servicing Steering Committee* for discussion and ultimately approval.

At the April 9, 2015 Committee meeting, it became apparent that the intended engagement approach would not be sufficient to secure the level of buy-in that will ultimately be needed for all of these stages. While there was great discussion and feedback, there was also an underlying sense that when the step of establishing targets was reached, for example, the presentations and discussion at the Committee level may not make it back to the member municipalities in a robust enough form to ensure the members feel adequately consulted and bought in.

At that time, the work plan was revised to include meetings with each member municipality in an effort to cement that genuine buy-in. Ultimately, one Miistakis staff member and one CRP staff member met with each member municipality.

Prior to each meeting, the policy and planning documents for the municipality were assessed according to the CRP EcoPlan themes to identify connections, strengths and gaps, as well as effective strategies that could be used in the Strategies Catalogue.

At each meeting, the EcoPlan process was described in detail, and the municipal assessment provided. The municipality gave feedback as to what was missing or misrepresented in the assessment, and feedback on the appropriateness and viability of the EcoPlan Themes themselves. The Themes were then revised based on this feedback.

(see *Appendix 2: CRP Member Municipality Meeting Template*, for the assessment / letter template used with each municipality)

## Connectivity Guide

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Landscape connectivity - specifically, the preservation and maintenance of “Connectivity Zones” was recognized a key component of the CRP’s Calgary Metropolitan Plan, and the CRP Regional EcoPlan. However, there were many issues working against the meaningful consideration of connectivity in regional or local planning including the loose and inconsistent definition of “connectivity,” the lack of a well-defined transparent modelling process, and the ineffectiveness of static one-time mapping outputs.

For these reasons, “ecological connectivity” ranked highest on the Data Needs Assessment, and a side project was conceived to address this issue. The focus of the project was to build a simple, effective, standardized process for modeling connectivity for the Calgary Region or any smaller area. The project tasks would create base data materials, run the model on relevant demonstration cases in the region, and create a Technical Guide and a Planning Guide aimed at municipal staff.

The project had three components:

1. Connectivity definition and model selection

- The two tasks in this component included:
  - Review of connectivity definitions to develop a standard one usable by municipalities; and
  - Review of connectivity models to identify one that was usable, accessible, and effective for the CRP member municipalities, resulting in the identification of the open source CircuitScape package.

## 2. Building a connectivity model

- The three tasks in this component included:
  - Develop a 'resistance surface' (or 'cost surface') as the base input for any connectivity modelling in the region;
  - Running 'base case' connectivity modeling to create model outputs that were shared with the CRP in the form of spatial data layers and maps;
  - Conducting "demonstration" model runs, using 'deer' at a regional scale, and (working with the Town of Chestermere) using 'water' connectivity at a municipal scale.

## 3. Drafting user guides

- The two tasks in this component included:
  - Development of a technical how-to guide ("Pulling the Levers") describing the connectivity modeling process in a way that anyone with basic GIS knowledge could follow the standardized connectivity modeling and mapping process; and
  - Development of a planning how-to guide ("Connecting the Dots") describing the potential planning applications of connectivity modeling in a way that would resonate with a municipal planner.

(see *Connecting the Dots: A Guide to Using Ecological Connectivity Modelling in Municipal Planning*, 2016 and *Pulling the Levers: A Guide to Modelling and Mapping Ecological Connectivity*, 2016)

## Next Steps

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Some of the next steps for the Ecological Conservation and Protection Initiative are clear, and some are provisional based on what will happen as the new Growth Management Board is put in place in the Calgary region. Those next steps can be considered, however, as coming under three categories.

## CRP Regional EcoPlan

The next steps for the CRP Regional EcoPlan are somewhat more clear. The most immediate next step is to execute the target-setting process, an important intermediary step between the planning and implementation, as it involves the members committing to actual targets.

Related to this is the on-going development and maintenance of the Strategies Catalogue, as the target-setting process will both rely on and populate the catalogue.

Beyond that is the actual implementation of the plan, which should commence once the targets have been set and agreed, and the partnership has agreed on them, with the drafting of an Implementation Framework applicable at the regional and municipal levels.

## Ecological Data Update

The next steps for the Ecological Data Update are also fairly clear.

The *Human Footprint Intensity* tool should be re-run as soon as the Alberta Biodiversity Monitoring Institute releases the next iteration of that data set. It will be important to then use the results of this tool. This would include making it available to member municipalities in a way that facilitates their informed use. It would also include a cross-CRP discussion about what the pattern of human footprint development is showing relative to what the Calgary Metropolitan Plans envisioned, and ask what has driven the differences.

The two most pressing data needs were identified in the EcoPlan process (ecological connectivity and wetlands), but only one of these was addressed (ecological connectivity). A proposal has been developed for how this data issue could be addressed in such a way as to support measurement and action for the Wetlands theme in the EcoPlan.

## Calgary Region Growth Management Board

The governance of regional municipal planning in the Calgary area is very unclear.

At the time of this writing, it is not clear what will be the outcome of the Government of Alberta's announcement of a Growth Management Board (GMB) for the Calgary region. The two rough scenarios are that the Calgary Regional Partnership morphs into the GMB or a completely new entity is created.

If the former scenario comes to pass (a CRP-esque GMB), the Ecological Conservation and Protection Initiative generally and the CRP EcoPlan specifically, can proceed largely intact.

However, if a new entity is created, it will be important to immediately move to re-confirm the ecological conservation and protection Themes. These themes – and their collaborative creation and vetting – are the backbone of the EcoPlan. With a new membership this will not be a simple nor quick task. After this has taken place, however, the new entity will be well positioned to move forward with first the target-setting and then the Implementation Framework.

# Appendices

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## Appendix 1: Working Group Terms of Reference



Calgary Regional Partnership

### **Ecological Conservation and Protection Initiative**

#### **Working Group Terms of Reference**

*DRAFT March 31, 2015*

#### **Committee Formation**

The committee is established by, and is a recommending body to, the CMP Implementation and Regional Servicing Steering Committee (CMP Steering Committee) and subsequently the Executive Committee and the Board.

The CMP Steering Committee, the Executive Committee and the Board have the authority to request additional work of the committee, to alter the committee's work, to adopt, accept or reject the recommendations as they see fit.

#### **Purpose**

- Liaise between the research team and the CRP and its members, providing insight based on the CMP Committee's mandate and perspective, as well as connecting the research team to municipal (and other) personnel who can provide the necessary expertise and/or perspective.

#### **Composition**

- Representative of:
  - Municipalities geographically and size (town under 5000, town over 5,000, city)
  - Elected, CAO and staff perspectives
  - GIS and planning perspectives
- Consist of a core group of people (5 – 7), plus additional representatives as the current tasks dictate

#### **Function**

- Provide focus group for Ecological Data Update and Ecological Conservation and Protection Plan discussions



- Provide initial review of proposed approaches, data tools, and strategies put forward by the research team
- Where Committee approvals are needed, help facilitate that process
- Identify relevant people and resources (documents, data sets, plans, etc.) that can support the project

#### Schedule

- Meet by conference call every one to two months
- Be available for research team questions (to the degree reasonable)

#### Other information

##### Research team

- Consists of staff members from the Miistakis Institute
- Role: Manages project in coordination with CMP Steering Lead, develops research, methodologies, tools and leads consultation for the project.

##### External Experts

- Depending on the subject matter, the Miistakis Institute will arrange for experts to provide information, presentations or input to the project.

## Appendix 2: CRP Member Municipality Meeting Template

### ***CRP Regional EcoPlan***



MISTAKOS  
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Hello [ ],

Thank you again for making the time to meet with us!

The following document is a summary of what we have found so far, and is intended as a discussion document. We know there are holes in it – that is the primary reason for meeting with you, to help us fill the holes.

**Please take a look through this summary document**, as it will be the basis of our questions for you!

A few words about this assessment and our approach to the Regional EcoPlan to set the context ...

#### EcoPlan Approach

- Every municipality will contribute in a different way to the Regional EcoPlan.
- Our assessment focuses on the strengths of each municipality – i.e., what they bring to ecological conservation and protection both locally and regionally.
- Once all the strengths are collated, the gaps will become apparent.
- We are assessing according to the Regional EcoPlan Themes (which we will describe at the meeting)
- We will draw heavily on local leadership for Implementation – i.e., if one/several municipality(s) has a great approach to addressing a conservation issue, that will form the basis of proposed action.
- Strategies need to be relevant for accomplishing regional goals, but also usable for municipalities to take practical action at the local level.
- The EcoPlan needs to be measureable; we need to actually be able to chart progress

#### Assessment Approach

- This is not thorough, yet – each municipality needs to vet the assessment.
- 'Unclear' means we did not come across something; it may in fact be very clear if we looked in the right place!

- Although we are primarily assessing for existing policy related to the EcoPlan themes, we are also collecting
  - Effective strategies currently being used by municipalities
  - Methods for measuring progress currently being used by member municipalities

Thank you!

Sincerely,  
Guy Greenaway  
Miistakis Institute

## **MUNICIPALITY**

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### **Summary**

#### Key Plans / Policies / Documents

- Municipal Development Plan

#### Approach

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#### Notable Strengths

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### **Assessment by Theme**

#### Landscape Health

- Connectivity
- Escarpments and ridges
- Large patches of natural vegetation

#### Watershed Health

- Wetlands
- Riparian areas
- Water quality
- Water quantity
- Source water

### Natural Spaces

- Natural open space
- Urban forest
- Permeable surfaces
- Natural flood zones

### Food Production

- Agricultural land base

### Airshed Health

- Air quality
- GHG mitigation