

Climate Resilience Strategy



CLIMATE RESILIENCE INVENTORY Outline Plan and Land Use

Application Number LOC2017-0305

For a helpful resource to assist in completing this form, please refer to the "[Climate Resilience Inventory User Guide](#)". For assistance contact CPclimate@calgary.ca.

Project Address Residual Ward 9, Sub Area 9Q - Great Plains / Starfield. 68 ST SE (various)		Applicant Real Estate and Development Services
Applicant Contact Name Sandra Procyk	Applicant Business Phone (403) 268-5060	Signature Michael Carnegie

Purpose: This form is intended to assist in the evaluation of applications for alignment with the climate policies of the Municipal Development Plan and Climate Resilience Strategy. Information provided will be used to advance implementation of these policies at The City and inventory current practices. While The City encourages innovation and commitment towards meeting these policy requirements, not all applications will be expected to include features which are highlighted below. Scale and scope of the project are relevant considerations.

Certification

Project is seeking certification (ex: LEED ND, BREEAM Communities):

- Yes (indicate type and level) _____
- No (explain why not) See attached memo to this form for expanded rationale on this item. _____

Green Infrastructure

Describe any green infrastructure features of the proposal:

Please see the attached memo, specifically the *Construction Techniques* section which discusses the recycled asphalt and concrete being utilized in the development, as well as the Stormwater Management section which discusses innovative and non-standard stormwater practices implemented in our development.

Green Mobility

Describe any design innovations that will support low-carbon travel (transit, active modes, EVs):

The industrial development will be fully serviced by Calgary Transit which allows employees to access employment via bus. Additionally, the development could accommodate CN railway spur lines to individual industrial lots which promotes the efficient travel of goods and services. Stoney Trail SE borders the eastern edge of the development which also allows for efficient hauling of good and services, and access from both a regional and local context. The Outline Plan shows the location of the regional pathway systems and it's connection to the larger Green Way project, which illustrates the non-motorized travel opportunities for the project.

Renewable Energy

The I-G land use district allows for alternative power generation and is the predominant use within our Outline Plan. Please see the climate change memo which accompanies this form, specifically the Arch. Guidelines section.

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Food Security

Describe any opportunities for local food production created by the proposal:

N/A

Other Features

Explain any sustainable or resilient design features that are not captured above:

See *Architectural Guidelines* section in the attached memo

Issues

To enable the City to collect information where there may be municipal obstacles to climate resilience outcomes, please explain any design features that were considered but not included for reasons related to City regulations, standards, or processes:

Please see the opening paragraph of the Climate Initiative memorandum prepared by RE&DS which accompanies this form. It details the amount of capital RE&DS diverts to Affordable Housing which directly affects the financing available for other TBL items.

ISC: Confidential



Memo

To: Christine Leung – City of Calgary Planning & Development

From: Sandra Procyk, George Nieuwenhuis, Mike Carnegie – Real Estate and Development Services

RE: Climate Resilience Inventory – Outline Plan / Land Use Request from CPAG

This memo is provided as an expanded response to the Climate Resilience Inventory Form, provided to Real Estate and Development Services (RE&DS) by Calgary Planning Applications Group (CPAG).

For context, RE&DS Outline Plan (OP) and Land Use Redesignation (LUR) application is ±780 acres of City owned land in southeast Calgary, within the community of Great Plains / Starfield. The project is needed to advance our industrial land portfolio, which will increase the non-residential tax base and further promote industrial jobs in Calgary. It is important to note that the City is developing and subdividing individual lots as the developer, we are not the end user or constructing individual industrial buildings.

When reviewing our application for climate change strategies, it is imperative that CPAG is made aware of RE&DS Affordable Housing (AH) initiative. From 2012 to June 2020 RE&DS contributed **\$12.4M to AH as we take a percentage of our industrial sales and passed them on to AH**. This highlights the social priority we have taken when selling our industrial land and needs to be considered when we discuss capital available for development objectives that focus on climate change. Given the amount of money we contribute to AH and the need to return a profit on the disposition of the land itself, it makes it challenging to also provide significant investment towards environmental initiatives. However, we have still taken meaningful steps to address the issue of climate change in our development, primarily through the following means: The preservation of a large green corridor, recyclable construction materials and techniques, innovative stormwater management options, and forthcoming architectural guidelines.

The following information details those items more broadly:

Green Corridor

Historically, industrial areas in Calgary have not dedicated significant amounts of Municipal Reserve (MR) within their developments. This is because industrial developers have traditionally paid cash in lieu for MR, rather than dedicating land at the source of their developments. GPS is committed to dedicating 8.4% of its land (25.53 ha, 63.08 ac) as MR, mostly to ensure the preservation of a unique open space corridor. In addition to the MR dedication, the project includes a vegetated and naturalized Public Utility Lot (PUL) which increases the open space dedication and buffers the free flowing drainage channel. This type and quantity of open space dedication is non-standard in *industrial developments* and would be considered in alignment with the natural infrastructure theme of the City of Calgary's Resilient Strategy.

The restored plantings, soil, shrubs and vegetation within this corridor will aid in the sequestering of carbon. As part of our DTR submission landscape cross-sections have been prepared to illustrate the open space dedication, please review those for an understanding of the green corridor theme.



Memo

Construction Techniques

Grading

GPS will be stripped and graded using a phased approach. This will minimize disruption of vegetation until it is necessary to facilitate development. We expect a minimum of five (5) phases of development which will prolong the need to disrupt the land until necessary. Additionally, RE&DS is looking to balance our dirt requirements for the project, limiting the amount of trucks required to haul material on/off site. These efforts will hopefully lead to a reduction in energy outputs as they limit, or at the very least target energy outputs to when they are absolutely needed.

Road Cross Sections

The project team has prepared non-standard road cross sections that complement existing roads. This ensures efficient tie-in's for utility line assignments. Additionally, some locations have wider pavement widths to ensure efficient movement of goods and services and allow for multi modal options.

Surface Works

Surface construction requires substantial amounts of concrete (curbs, gutters, and sidewalks) and asphalt (roads) to service the development. We know that the manufacturing of concrete and the extraction of aggregate requires significant energy to produce, and so to reduce this energy requirement, RE&DS is committed to pursuing the following:

1. Using Warm mix asphalt with up to 20% Reclaimed Asphalt Pavement (RAP); and
2. Using recycled concrete aggregate in the 80mm sub-base gravel layer under the roadway; and for the entire gravel layer under the sidewalk.

Stormwater Management

We know that developing a resilient city is an important aspect of dealing with the challenges of climate change. One aspect of becoming a resilient city is dealing with the sporadic weather events that are predicted as the climate warms. In GPS the Staged Master Drainage Plan (SMDP) proposes several approaches that are not considered standard practice within the City of Calgary; but will help deal with the ever-changing world we live in. Some of these approaches include:

- Allow surcharging of the storm sewer system
- Proposing reduced unit area release rate from the lots (45-50 L/s/ha versus standard 70 L/s/ha)
 - The above two strategies will optimize the storm pipe capacity and diameter thus improving the cut fill balance for this very grade constrained site
- Achieving voluntary runoff volume control targets by:
 - Applying practical SCPs within the lots that minimize the site encumbrance and are reliable and cost-effective approaches (eg absorbent landscaping, rain gardens, bioretention)



Memo

- Minimum 10% of lot area be dedicated to applicable SCP vegetative practices such as absorbent landscaping, rain gardens, bioretention with 40% of lot impervious area being directed over these areas
- Other non-mandatory onsite SCPs will be encouraged (i.e. rainwater harvesting, bioretention, permeable pavements)
- Encourage implementation of SCPs by:
 - Providing SCP design sizing guidelines
 - Preparing SCP site designs that are preapproved by WR
- Absorbent landscaping will be provided in suitable areas within the boulevards
- Design of constructed wetlands that is intended to provide significant ecological functionality but permits it to be used as supplemental active storage during infrequent or adverse hydrological events within the stormwater channel.
 - Will be designed and constructed with a series of pools and shallow meadow zones, shallow weirs and berms to provide a non-preferential flow path to create habitat
 - Will have a low and high discharge to the channel to manage water level fluctuations to meet the desired hydroperiods and maintain vegetation
 - Water discharging to the channel from the constructed wetlands is expected to achieve a 96-97% Total Suspended Solids (TSS) removal rate

Architectural Guidelines

RE&DS has been a leader among City Business Units in such that we require LEED qualifications in our Point Trotter subdivision, and that we asked Council in 2012 to approve an incentive program, whereby The City will provide purchasers up to \$100,000 when they submit proof of their LEED certification. Also, in 2009, before photovoltaic technology became as efficient as it is now, RE&DS required purchasers of our Great Plains IV development to employ solar thermal technology, for heating of their domestic hot water and/or for their space heating needs.

RE&DS will develop architectural guidelines for GPS, similar to what we have done with our previous industrial developments. The guidelines will be prepared prior to the first Development Permit (DP) application.

If you have any questions on the strategies listed above, please contact Development Services within RE&DS.

Thank you.