

TOWN OF CANMORE

AGENDA

Special Meeting of Council

Council Chamber at the Canmore Civic Centre, 902 – 7 Avenue

Monday, September 29, 2014 at 11:00 a.m.

A. APPROVAL OF AGENDA

1. **Agenda for the September 29, 2014 Regular Meeting of Council**

B. PUBLIC QUESTION PERIOD

C. DELEGATIONS AND PETITIONS

None

D. MINUTES

None

E. BUSINESS ARISING FROM THE MINUTES

None

F. UNFINISHED BUSINESS

None

G. BYLAW APPROVAL

None

H. NEW BUSINESS

1. **Detailed Hazard and Risk Assessment**
Verbal briefing for information only.

I. CORRESPONDENCE/INFORMATION

None

J. REPORTS FROM ADMINISTRATION

1. **Alberta Community Resilience Program**
Recommendation: that council accept the Alberta Community Resilience statement of community priorities as information.

K. NOTICES OF MOTION

None

L. IN CAMERA

None

M. ADJOURNMENT

Statement of Community Priorities

Alberta Community Resilience Program

Introduction

As part of the Alberta Community Resilience Program (ACRP), applicants are being asked to submit a Statement of Community Priorities prior to (or with) their first application to the program.

The purpose of this statement is to provide the Grant Review Committee with context on the overall mitigation issues facing a community, specific issues of chronic flood/erosion/drought, overall community mitigation goals and priorities, and the projects being planned to achieve those goals and priorities. The statement should be historical in nature and identify a community's highest priority projects in the next 2 to 3 years. With this information, the Grant Review Committee can make recommendations for funding that hopefully represent the cumulative priorities of Alberta's communities.

Preparation of these statements need not be complex or lengthy, as long as they provide a clear indication of community priorities which are not likely to change.

Section 1 Community Overview

Name of Community: Town of Canmore

Population: 12,317 permanent, 5,982 Non-permanent/ Second Home Owners

Community location:

106 kilometers west of Calgary, on the Trans-Canada highway,
Latitude: 51.087977, Longitude: -115.349418
Town center elevation: 1309 meters above mean sea level.

Rivers, streams, or creeks that intersect in your community:

The Bow River runs through Canmore, named creeks flowing into the Bow River within Canmore's boundaries include: Cougar Creek, Three Sister's Creek, Pigeon Creek, Stone Creek, Stoneworks Creek, Policeman's Creek, Spring Creek, Stewart Creek and Canmore Creek. There are also several other unnamed creeks with smaller tributaries that impact Canmore.

A map of the Bow River as well as all tributary creeks and their fan boundaries are enclosed with this document.

Major industries near identified water bodies (please name industrial facilities, if possible):

There are two major industrial facilities within Canmore's boundaries: Thunderstone Quarry through which Pigeon Creek flows and Trans Alta's hydro-electric power generating station (Rundle Plant) which receives water out of the Rundle Forebay.

Major public infrastructure near identified water bodies (hospitals, roads, etc.):

Major public infrastructure includes: Trans Canada Highway (Highway 1), Highway 1A, Highway 742; CP Railway main line; ATCO Pipelines high pressure gas pipeline (serving the Bow Valley), Alta Link power transmission line, TransAlta power transmission line,

Other major public infrastructure impacted by mountain creek hazards includes the Canmore Hospital; Canmore Collegiate High School, Lawrence Grassi Middle School and Elizabeth Rummel School; Civic Center (Town Office); Fire/ Emergency Response Station, Town Public Works facility, Wastewater Treatment Plant, Pumphouse No. 1 and wells water supply, RCMP Station

Section 2 Description of Water Issues

Please identify which are chronic issues (historical) and which occur occasionally. Please include design criteria for existing infrastructure, if applicable/available.

Flooding: Chronic Occasional Unknown

Has Flood Hazard Mapping been undertaken in your community? Yes No Unknown
If yes, please provide a copy with your Statement

Flood events are frequent throughout the community, affecting especially the densely populated floodplains of Bow River and Cougar Creek. The recent big event in 2013 caused flooding and debris flooding in all of the catchments intersecting the Town of Canmore.

The Bow River flood in 2013 had the highest peak flow ever measured (at the gauge in Calgary) since recording started in 1911 in Calgary. Higher flood stages were only estimated from historical records for two events in the late 19th century. The last big event affecting the community was in 1974. Since then dyke improvements have been completed by the Province protecting from insuing events.

The Cougar Creek fan has seen flood and debris flood events a couple of times since the subdivision in the early 1980's. The most recent ones were in 2012 followed by the event in 2013.

Flood hazard maps prepared by ESRD exist for the Bow River and the Town has undertaken hazard studies and prepared hazard maps for Cougar Creek. Additionally, hazard and risk assessment studies for Canmore's mountain creeks have been initiated since the big event in 2013. The delineated hazard maps for the different return period scenarios for Cougar Creek can be seen in the attached report. The report of the other creeks will be completed this fall.

Erosion: Chronic Occasional Unknown

Erosion is one of the major impacts associated with steep mountain creeks where debris floods and debris flows are the predominant processes. As water and debris flows and reaches the fan apex and the grades of the channels decrease, sediment accumulates in the creek beds resulting with a loss of confinement for the creek. This is paired with erosion of banks and armouring. Last seen in 2013 on Cougar Creek fan, where lateral erosion took place up to 70 meters outside the channel bed, destroying and damaging homes along the creek.

Throughout the community all Mountain Creeks are affected by erosion (and sediment transport, mass

movement of materials).

Debris flows: Chronic Occasional Unknown

Debris flows and debris floods chronically occur in Town of Canmore's Creeks. Debris flows are known to appear in very steep channels, which is the case for Stone Creek, X, Y and Z Creeks as well as Echo Canyon.

The other creeks named above are prone to debris floods, which differ in sediment concentration. Debris Floods are defined as very rapid surging flows of water heavily charged with debris in a steep channel. Debris floods are also a chronic issue for the Community.

Drought: Chronic Occasional Unknown

There are no droughts known in the Community.

Section 3 Description of Long-term Community Resilience Goals / Priorities

Please describe your community's long-term resilience goals and identify specific areas of the community that are most vital to achieve long-term resilience within the community.

The Town of Canmore's long-term resilience goals are as follows:

Reduce the risk to safety of individual loss of life to below 1/10,000 (chance of death in any given year) for existing development and 1/100,000 for new development in accordance with draft guidelines developed by ESRD for steep mountain creeks. This includes an assessment of risk to the individual residents, the general public and emergency response staff at each creek and for the Bow River through detailed study to identify locations where the risk is exceeded.

Reduce the risk of group loss of life to "As low as reasonably possible" (ALARP) in accordance with draft guidelines developed by ESRD for steep mountain creeks.

Consider the economic loss potential for each creek in terms of an annualized loss. Reduce the economic loss potential through mitigation where practical using economic loss versus mitigation cost to determine a cost benefit relationship. This is only considered once individual and group life loss goals are met and is generally a secondary consideration. We do believe however that the significant costs of mitigation require this metric for full justification.

Each mitigation strategy will be developed with the goal of minimizing or eliminating social and environmental impacts to the surrounding parks, our creeks, Canmore residents, and to our downstream neighbors. We will work closely with the Province to determine how best to accomplish this important goal.

Each of Canmore's mitigation strategies will be informed by detailed hazard and risk assessments that illustrate how mitigation will appropriately (but not excessively) reduce risks. These studies will accompany all of our mitigation funding requests. Detailed hazard and risk assessments will be completed in accordance with ESRD's draft guidelines.

Section 4 Project Priority

Please provide a list of specific projects that could allow your community to meet/address its identified priorities. Projects **must** be placed in priority order. Note that we do not require a detailed project description at this point; the intent is to simply give an idea of what may be submitted and its overall priority to the community.

Priority 1: Cougar Creek long term mitigation structures: options being considered involve either flood retention or sediment retention.
Priority 2: Three Sister's Creek long term debris flood mitigation
Priority 3: Stone Creek long term debris flow mitigation
Priority 4: Stoneworks Creek long term debris flood mitigation
Priority 5: Other Mountain Creek hazard and risk assessments (to be completed once priority creeks are completed)

We are seeking to undertake a risk assessment for the Bow River. The dyke system in place has been designed based on a 1/100 year hazard and was built at a time when the town was a fraction of its current size. It is felt that a better understanding of the risks associated with the Bow River is needed to inform emergency response and potential future mitigation work. Based on the results of that risk assessment the Bow River may end up as one of Canmore's top priorities for mitigation.

Section 5 Watershed Assessment

Please provide an assessment of how the works proposed by the applicant maintain and potentially enhance the health of the watershed and sub-watersheds the community is located in. Please identify how the project(s) will enhance the overall resilience of the community in future flood and drought events. The components of this assessment should include:

Provide an overview of any other mitigation options considered, including non-structural options such as wetland assessment and riparian protection.

In general, the Town of Canmore is aiming at the establishment of passive mitigation where it is possible. This will be achieved by reducing the vulnerability of our Community. A first step in this approach is the identification and assessment of hazard and risks. By knowing the hazard it is possible to adapt our land use strategies accordingly and restrict future development to safe areas without intervening in the natural flow regime.

For areas with high risks, such as the the densely populated areas, a different approach has to be taken with

structural measures on the one hand and bioengineering on the other. The latter one includes planting of autochthonous vegetation which increases slope stability, roughness and infiltration. The latter two are of special importance when it comes to floods, as there is less overland flow with higher infiltration and interception rates. Decreasing flow velocity by planting roughness has a positive effect both in community and downstream.

Identify any relationship to other projects being proposed by other communities in the watershed.

We are working in collaboration with the MD of Bighorn to undertake detailed hazard and risk assessments using the same approach and methodology. This will ensure consistent application of draft provincial guidelines as the province moves towards joining other world leading countries in dealing with debris flows and debris floods on our steep mountain creeks.

Mitigation projects in Canmore are expected to have no negative effect on downstream communities.

Please engage your local Watershed Planning and Advisory Council (WPAC), and identify how the projects proposed by the applicant fit within the WPAC's Integrated Watershed Management Plan, if applicable.

The following people involved with the Bow River Basin Council (BRBC) have been engaged regarding the flood mitigation projects in Canmore. Mark Bennet, the BRBC Executive Director, has been briefed on the Cougar Creek and Bow River Project. Rob Wolfe, a Board of Director of the BRBC as well as an Environmental Specialist for ESRD, has intimate knowledge of the mitigation program as he has been involved with our program since its inception in the Summer of 2013. Melanie Percy of AB Parks and Jon Jorgenson of ESRD, who participated in the Bow Basin Flood Mitigation and Watershed Management Project, have also been heavily involved in several of our flood mitigation projects, including the long term mitigation options for Cougar Creek.

All of them believe that our long-term mitigation goals and projects fit with the BRBC management plan. There will be no increase in water flows and sediment transport to downstream communities due to the mitigation projects within the Town of Canmore. All projects aim at reducing peak water flows and/or reducing amount of sediments reaching the Bow River.

Contact Name:	Date:
Signature:	

Freedom of Information

The Applicant acknowledges that the *Freedom of Information and Protection of Privacy Act* applies to all information and records provided by the Applicant to the Minister and to any information and records which are in the custody or under the control of the Minister.