



COLUMBIA BASIN TRUST
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COMMUNITIES ADAPTING TO CLIMATE CHANGE INITIATIVE

CITY OF ROSSLAND
CASE STUDY



This adaptation project was undertaken
by the City of Rossland as part of Columbia Basin Trust's
Communities Adapting to Climate Change Initiative, with federal
funding support through Natural Resources Canada's
Regional Adaptation Collaboratives Program



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Canada

CASE STUDY: CITY OF ROSSLAND

About the Case Study

In October 2009, the City of Rossland embarked on a one-year climate change adaptation planning process as part of Columbia Basin Trust's (CBT) Communities Adapting to Climate Change Initiative (Phase Two)¹.

The City of Rossland delegated the Rossland Sustainability Commission to lead the planning process, which followed six broad steps:

1. Get Started;
2. Learn about Climate Change;
3. Identify Priorities;
4. Assess Vulnerabilities and Risk;
5. Develop Adaptation Strategies and Actions; and
6. Implement and Monitor Plan.

The project was guided by a 13-member Steering Committee and Local Resource Team comprised of residents, members of the Sustainability Commission, City councillors, and City staff, and was managed by a local coordinator.

Simon Fraser University's Adaptation to Climate Change Team was hired to conduct research for the project. The team completed two preliminary reports on Rossland's historic and future climate.

Community Context

Rossland has a population of 3,557 people and is located approximately halfway between Vancouver and Calgary just north of the U.S. border. Nestled between the Monashee and Selkirk mountain ranges, the community sits at an elevation of 1,023 metres. Rossland has a rich gold mining history and is known for its great skiing at Red Mountain, which has produced some of Canada's best ski racers. Teck Resources Limited has its largest smelter in Trail, BC, only eight kilometres from Rossland, and is the principal employer for the area.

¹ www.cbt.org/climatechange

Summary of Climate-Related Changes by 2050²

Temperatures in Rossland are projected to increase by 2 degrees Celsius for the summer and winter averages.

Precipitation is projected to increase overall by 10.5 per cent, but to decrease in the summer by three per cent.

Stream flows are projected to change as spring runoff (fresnet) will occur about 15 to 40 days earlier, resulting in lower summer stream flows for longer periods.

Snowpack and snowfall are projected to decrease.

Extreme events such as heavy precipitation, droughts and windstorms are projected to increase.

Local observations surveys conducted with long-time Rossland residents indicated that residents have been noticing changes in the weather and believe that climate change is playing a role.

Community Impacts and Vulnerabilities

Rossland identified four priority climate impact areas for further research:

1. Infrastructure;
2. Water;
3. Energy; and
4. Food.

The priority areas were further assessed for vulnerabilities, risks and opportunities as summarized below.

Infrastructure

Rossland's infrastructure is aging. Climate change could contribute to greater infrastructure deterioration and damage as a result of more basement floods and sewer back-ups in heavy rainfall events, increased freeze-thaw stress on road surfaces, buildings and pipes, and more snow weight on roofs. Extreme events such as wildfires or windstorms could cause significant infrastructure damage.

“We want to try to take a look into the future and see where we are vulnerable.”

Jenifer Ellis, Project Coordinator

² Pacific Climate Impacts Consortium (PCIC)

Water

Climate change could result in moderately reduced water capture in Rossland's reservoirs in most normal years due to decreased snowpack, earlier and faster spring runoff that no longer matches peak demand, and reduced summer precipitation. However, variability in precipitation and temperatures and/or the increase in the incidence of extreme events could result in years where water capture is significantly lower than normal.

Energy

Due to a multitude of non-climate-related factors, such as increased global energy demand and the rising cost of processing for many energy sources, global energy costs are expected to rise. Climate may exacerbate some energy pricing and availability challenges. Reductions in summer river flows could cause increases in hydroelectric prices, and extreme events may cause temporary or extended power outages or price increases for fuels such as natural gas and oil.

Food

The majority of Rossland's food is imported and thus the implications of climate change for food security must be considered at a global level. Climate changes could cause significant shifts in global agricultural productivity, and the geopolitical implications of climate change on food production may have significant impacts on Rossland's access to food imports. Extreme events, pests and diseases may also have significant further impacts on global food production.

“Many of the proposed climate change adaptation actions are win-win actions that help promote the goals of sustainability contained in the Strategic Sustainability Plan, while also helping to ensure that we are prepared for a changing climate.”

Aaron Cosby, Chair of the Steering Committee

Adaptation Actions

Nineteen high priority actions were identified and assessed with respect to their urgency, potential cost, lead implementer and links to Rossland’s Strategic Sustainability Plan and Official Community Plan. These actions achieve a multitude of sustainability goals in addition to adaptation goals.

More detailed strategies that outline how the action can be achieved are listed in the Action Planning Data Base in Section four of Rossland’s final report.

General

Adaptation Goals	High Priority Actions
<ul style="list-style-type: none"> To ensure residents are knowledgeable and continue to learn about climate change adaptation. To mainstream climate change adaptation into City and community operations. 	<ul style="list-style-type: none"> Undertake a public outreach regarding specific climate change adaptation actions as they are implemented. Ensure City committees, plans and processes consider climate impacts/adaptation in their decision making.

Energy

Adaptation Goals	High Priority Actions
<ul style="list-style-type: none"> To minimize Rossland’s vulnerability to the impacts of rising energy prices. To minimize Rossland’s vulnerability to temporary and long-term energy supply interruptions. To ensure Rossland has a diversified energy supply through local renewable energy generation. 	<ul style="list-style-type: none"> Develop a Community and Corporate Energy Plan. Control sprawl and promote infill development. Identify and implement energy conservation measures on a corporate City level. Provide incentives for the development of renewable energy facilities.

Food

Adaptation Goals	High Priority Actions
<ul style="list-style-type: none"> To make Rossland a food-secure community and to minimize its vulnerability to potential declines in global food production. To support local farmers and residential growers. To identify and protect agricultural lands. 	<ul style="list-style-type: none"> Promote increased local food production and processing. Ensure local growers have sufficient land access. Establish a community composting system. Protect agricultural land and topsoil through incentives, education, planning and regulation.

Infrastructure

Adaptation Goals	High Priority Actions
<ul style="list-style-type: none"> To ensure Rossland’s infrastructure is resilient to climate change. To ensure climate change is considered in infrastructure upgrades as well as new residential development and renovations. To consider alternate management approaches (e.g. conservation, on-site or neighbourhood water retention, etc.) in place of infrastructure upgrades. 	<ul style="list-style-type: none"> Give consideration to climate change in the new City of Rossland infrastructure upgrade assessment and plan, and encourage Council to implement the plan. Encourage other agencies at the regional, provincial and federal level, such as CBT, to prepare best practices guides and provide funding for pilot programs to address climate change in mountain climates. Prepare climate change design guidelines for new builds and renovations to reduce overheating, basement flooding, fire risk and extreme event damage. Revise the Subdivision and Development Servicing Bylaw to require on-site or subdivision water retention and minimized runoff design in new development. Promote on-site water retention, active storage capacity and permeable surfaces on existing residential properties through education and incentives.

Water

Adaptation Goals	High Priority Actions
<ul style="list-style-type: none"> To ensure Rossland has accurate information regarding annual stream flows, snowpack and water use. To manage Rossland’s existing water supply without the need for additional reservoir capacity. To minimize the impact of potentially decreased water supply in late summer/early fall as a result of climate change without creating additional costs to taxpayers. To ensure Rossland is prepared to respond to droughts. To consider ecosystem needs in Rossland’s strategic water management. 	<ul style="list-style-type: none"> Improve Rossland’s data regarding water supply and demand. Reduce per capita water use through a combination of regulation, education, incentives and targets. Create a watershed and/or a water management plan. Encourage residents to utilize alternative water sources for non-potable water use needs.

For more information about the Communities Adapting to Climate Change Initiative:

Website: www.cbt.org/climatechange

Email: adaptation@cbt.org

City of Rossland Contact:

Manager of Planning and Development Services: Mike Maturro

Project website: www.visionstoaction.ca

Duration of project: One year

Project budget: \$47,254.82

Additional: 98 in-kind hours from City staff and 385 volunteer hours