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COMMUNITIES ADAPTING TO CLIMATE CHANGE INITIATIVE

CITY OF KIMBERLEY
CASE STUDY

CASE STUDY: CITY OF KIMBERLEY

About the Case Study

In 2008 Columbia Basin Trust (CBT) selected the City of Kimberley to participate in a one-year community learning, engagement and planning process on climate change adaptation.

"Climate change is real. How it is occurring is not the issue. The effects need to be looked at and addressed."

~ Mayor of Kimberley, Jim Ogilvie, June 2008

Kimberley's project followed three stages:

1. *Learn* – Connect local observations and concerns with available scientific data on projected climate impacts.
2. *Share* – Bring the results of the data collection to the community and provide teach how the predicted impacts could effect Kimberley.
3. *Plan* – Synthesize knowledge gained during the learning and sharing process, and create an action plan to guide both short-term and long-term adaptation measures.

The project was guided by a multi-stakeholder steering committee and had the benefit of significant involvement by city staff and councilors.

Kimberley addressed climate change impact vulnerabilities and sensitivities associated with the natural environment, the built environment and the socio-economic environment.

Community Context

Kimberley has a population of 6,139 people (2006 Census) and is located in the southeastern corner of British Columbia, just north of the U.S. border. A former mining community, Kimberley is now an official BC Resort Community, focused largely on local outdoor recreation opportunities including hiking, golfing and skiing. It also hosts several annual festivals and events.

Climate-Related Changes

The Pacific Climate Impacts Consortium (PCIC) prepared a historical climate analysis and future climate projections to inform local understanding of how Kimberley's climate has been changing and how it may continue to change in the future.[1]

1 Arelia T. Werner, Brenna M. Paterson & Harpreet K. Jaswal, "*Analytical Summary: Past Trends and Future Projections for the Kimberley and Elkford Region – DRAFT*", Pacific Climate Impacts Consortium, October 2008. The analysis remains in draft form as of the preparation of this report; completion is expected later in 2009.

Summary of Climate-Related Changes

Temperatures in the Kimberley area have warmed about one degree Celsius over the last century, and are forecast to warm an additional two to three degrees by the 2050s.

Precipitation in the area has seen a slight increase over the last 100 years, with a clear trend to less precipitation in the form of snow. In the future, precipitation in summer is expected to decrease by four to 10 per cent while winter precipitation is expected to increase by one to 13 per cent.

Stream flows have also been changing, with peak spring flows shifting into April/May from May/June since the 1950s. Future projections for stream flows predict earlier spring freshets with lower peak volumes and a more sustained duration, and lower stream flows in late summer and early fall. Snowpack is expected to reduce by up to 20 per cent.

Local observations collected over the course of the project from local residents and stakeholders identified changes that may be related to climate change including:

- Shoulder seasons have shifted – colder, later springs and warmer, later falls;
- More intensive/extreme weather events;
- Species moving beyond their normal ranges;
- Gardening zone has changed from Z3-Z4; and
- Drier climate overall.

Community Impacts and Vulnerabilities

Kimberley identified three priority climate impact issue areas: 1) water and forests (natural environment), 2) municipal infrastructure (built environment), and 3) tourism (socio-economic environment).

Small working groups comprised of city staff and council representatives, local steering committee members and local stakeholders further addressed priority issues. Each of the working groups undertook a vulnerability assessment where they identified key vulnerabilities associated with their priority issue and developed recommendations for adaptive actions.

Summary of Kimberley's Vulnerabilities

Water, Forests and Municipal Infrastructure	Tourism
• Municipal water supply • Drinking water system • Wildfire risk to the built and natural environment* • Quality of aquatic environment • Risk of flooding including association with storm water system • Forest health and mountain pine beetle • Urban trees • Risk of slope failure • Future proofing and other considerations * Perhaps the most catastrophic vulnerability facing the community	• Ski tourism • Golf tourism • Trail-based tourism • Water-based tourism • Festival and event tourism • Other local attractions

Adaptation Actions

The adaptation plan has over one hundred recommendations. They range from simple, "no-regrets" measures, (e.g. obtaining standing permission of the Mayor for City of Kimberley fire crews to fight fires in Kimberley's watersheds) to more complex investigations (e.g. undertaking a comprehensive flood hazard study for Mark Creek).

Many recommendations are intended to inform Kimberley's Official Community Plan review and renewal process, as well as their infrastructure plan. For example, one of the actions is to incorporate climate impacts and adaptation measures into Kimberley's ten-year infrastructure plan. Several extend to seek involvement of other local stakeholders in addressing local vulnerabilities.

A Summary of the High Threat, High Urgency and High Priority Actions

Vulnerability: Municipal Water Supply

Objective: Kimberley is resilient to drought and seasonal low-water periods while maintaining adequate water for ecosystem needs.

- Determine the reasons Kimberley has more than double the B.C. average for water consumption.
- Determine the limits of current water supply for current demands and future growth, including estimates of drought flows incorporating future climate change projections and ecosystem needs.
- Develop a plan to address community water use and reservoir management during drought conditions.

Vulnerability: Forest Health, Mountain Pine Beetle and Wildfire

Objective: To minimize the risk of catastrophic wildfire in Kimberley's watersheds and ensure logging activity minimizes impact to water quality and volume in Mark, Matthew and Kimberley Creeks.

- Contact Tembec to assist in defining spill response locations for Kimberley and Matthew Creek. Identify and map locations for pumping stations and clearly mark with signs on site.
- Ensure Total Chance Access Planning is in place for all three watersheds (Mark Creek, Kimberley Creek and Matthew Creek) and that regular refreshers (annual) occur for fire crew and contractors.
- Obtain standing permission from Mayor for wildfire response in the City's watersheds.
- Maintain and improve communications with the south east Fire Centre in Castlegar.
- Ensure plan for alternative drinking water source for the community in the event of wildfire in Mark Creek watershed.

Vulnerability: Wildfire and Risk to the Built Environment/Municipal Infrastructure

Objective: To protect life and property from the threat of wildfire.

- Continuation of current suite of interface fuel treatment activities, with addition of community education program to build and maintain support for interface fuel management.
- Encourage community uptake of FireSmart building and landscaping guidelines.
- Reduce risk to chlorination plants and associated infrastructure through appropriate FireSmarting.
- Review and update community emergency response plans for all emergencies (fire, flood, extreme storm events, etc), including emergency communication and evacuation plans.

Vulnerability: Drinking Water System

Objective: Kimberley's drinking water system minimizes water loss and provides high quality drinking water for the community.

- Undertake cost-benefit analysis for reciprocal back-up water system from Matthew Creek or St. Mary's River if Mark Creek system goes down.
- Reduce risk to chlorination plants and associated infrastructure through appropriate FireSmarting.

For More Information about the Communities Adapting to Climate Change initiative:

Website: www.cbt.org/climatechange

Email: adaptation@cbt.org

City of Kimberley Contacts: Project Coordinator: Ingrid Liepa, email: kimberleyclimate@shaw.ca

Coordinator, Planning and Development Services: Troy Pollock, email: tpollock@city.kimberley.bc.ca

Duration of project: One year

Project budget: $29,000 (In addition, $20,115 in in-kind time / $3,169 in-kind contributions).