




STAFF REPORT TO COUNCIL

Date: October 26, 2009
To: Mayor and Council
From: Dave Dyer, Chief Engineer, Development Services
Subject: **Adapting to Climate Change in Prince George**

Attachments:

- **Climate Change in Prince George: Summary of Past Trends and Future Projections, Pacific Climate Impacts Consortium, 31 August 2009;**
- **Adapting to Climate Change in Prince George: An overview of adaptation priorities, University of Northern British Columbia, October 19, 2009**

RECOMMENDATION:

1. The Development & Operations Department recommends that Council:

- a) **RECEIVE** the attached climate change reports prepared by the Pacific Climate Impacts Consortium and the University of Northern British Columbia;
- b) **DIRECT** Administration to proceed with negotiations and application for 50% funding of a \$250,000 climate change adaptation project under the Natural Resources Canada Regional Adaptation Collaborative (RAC) program and, if successful, that the Director of Development Services be authorized to enter into any necessary funding agreements.

BACKGROUND:

In September 2008, the City was approved to receive \$10,000 under the BC Ministry of Community Development, Infrastructure Planning Program to assist in funding the **Climate Change in Prince George: Summary of Past Trends and Future Projections** research and report prepared by the Pacific Climate Impacts Consortium (PCIC) in collaboration with the University of Victoria and the University of Northern British Columbia. The report is now complete and is attached.

The report advises that as a northern region of Canada, north-central British Columbia is highly susceptible to climate change. Historical trends in the Prince George region reveal an average warming

of 1.3 °C in the past century with increased minimum temperatures of 2.2 °C in that same period. Precipitation trends have been varied with the effect of ENSO (El Nino/ Southern Oscillation) and the PDO (Pacific Decadal Oscillation) – for example, these climate variability effects caused cycles of lower precipitation during El Nino years (warm and dry) and higher precipitation during La Nina years (cool and damp).

Projected annual temperatures, based on several global and regional-based models, will increase by 1.6 °C to 2.5 °C by the mid-21st century. Precipitation is projected to increase by 3% to 10%, primarily in the winter with possible decreases in the summer; however, precipitation models are much less reliable because precipitation is greatly influenced by climate variability (ENSO and PDO).

Much more localized and specific climate change information can be extracted from the climate change models than is presented in the attached PCIC report. Additional information can be obtained as part of further research and investigation into climate change adaptation. For example, information such as the projected number of freeze-thaw cycles, frost degree-days, and growing degree-days resulting from climate change can be modeled to determine the impact on road infrastructure deterioration, ice-related flooding severity and possible agricultural activities, respectively.

The report, **Adapting to Climate Change in Prince George: An overview of adaptation priorities**, is the product of intensive research conducted by University of Northern British Columbia (UNBC) graduate student Ian Picketts in conjunction with City staff. Mr. Picketts work was supported by the City's Long Range Planning Division of the Department of Development and Operations as climate change adaptation has direct application for the current update of the City's Official Community Plan and in ongoing sustainability plans under the City's Integrated Community Sustainability Plan (myPG). The report provides a strategy that through a series of workshops undertaken by UNBC and Long Range Planning, lists climate change impacts that are specific for Prince George, reviews the work already underway with respect to higher priority climate change impacts (i.e. forest fires, flooding) and suggests ways to further investigate impacts for categories less understood (i.e. stormwater management, slope stability, possible migration of people to Prince George).

City staff have been in discussions with the Fraser Basin Council with respect to a grant opportunity that may soon be available from Natural Resources Canada (NRCan). The funding program would be administered through the Fraser Basin Council and is named the **Regional Adaptation Collaborative (RAC)**. The proposed program has a broad mandate to investigate the impact of climate change on regional eco-systems, resources, infrastructure and management activities. Prince George would be considered as the community example in the application of climate change adaptation and is the only BC community invited to participate in this regional (provincial) based program. The City has been invited to be part of this opportunity for cutting-edge research because of its northern location, its strong relationship with UNBC in the climate change area of research and its reputation within the province of being a leader in the area of climate change adaptation - the attached reports are examples. The program will span 3 years (four City fiscal years). Matching dollars (50% funding) are proposed for funding individual projects under the RAC program.

DISCUSSION:

The area of climate change adaptation is a poorly understood and an emerging challenge for many communities that are engaged in preparing sustainability plans. There are very few examples within Canada and even in North American that help to provide a template for use by municipalities investigating the climate change impacts on communities, infrastructure, management and costs. The attached reports prepared by PCIC and UNBC are a major step forward in, firstly, understanding the climate change projections for north-central British Columbia, secondly, identifying the impacts that climate change will have on the City of Prince George and, thirdly, determining the priorities of these impacts and the steps necessary to further investigate planning and infrastructure management in relationship to climate change.

The opportunity to participate in the RAC program and to lever funds to continue research and to refine specific areas of climate change impact is available to Prince George because of the City's reputation as a leader in the area of climate change adaptation. The available grant would be 50% of the project costs. The total estimated project budget for the City's climate change adaptation work is \$250,000 over three years. The City's funding commitment would be \$125,000 – approximately \$35,000 over four City fiscal years. Long Range Planning would set side this commitment from its annual operating infrastructure planning budget. Further details of the proposal, including timelines and deliverables, will be developed with the Fraser Basin Council once the program is confirmed by NRCan.

CONCLUSION:

Two climate change reports are completed and presented to Council. The report prepared by Pacific Climate Impacts Consortium presents the climate change trends over the past century and the temperature and precipitation projections for the next 50 to 80 years. Using this information, a report prepared by the University of Northern British Columbia in conjunction with the City of Prince George, presents and prioritizes climate change impacts that have been identified through a series of workshops and next steps for considering climate change adaptation in the City's OCP and Integrated Community Sustainability Plan (myPG).

City staff recommends participation in the NRCan funded RAC grant program to complete a \$250,000 climate change adaptation project. The City portion of \$125,000 over four fiscal years would be committed under Long Range Planning's infrastructure planning annual operating budget.

Respectfully submitted,



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Long Range Planning, Development & Operations Department

Attach.