



Climate & Energy OCP Discussion Paper Executive Summary



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This is a stand-alone Executive Summary. The full Climate and Energy Official Community Plan Discussion Paper is available from the City of Victoria. The paper was prepared for the City of Victoria by HB Lanarc.



EXECUTIVE SUMMARY

Climate change has global implications to ecosystems, infrastructure and people. From stormwater incapacity to sea level rise, and drought to drinking water shortages, Victoria is vulnerable to a changing climate. When disasters strike, local governments are on the front line. Given their authority, local governments will be pivotal in either exacerbating or solving this defining problem of the 21st Century. Local governments can help communities significantly reduce greenhouse gas emissions to avoid the most catastrophic long term impacts, and reduce vulnerability to some of the inevitable changes the community will encounter.

The deep emission reductions targeted by the Province, and indeed required to avoid dangerous run-away climate change, will not be possible without significant engagement by senior governments, utilities, neighbouring local governments, businesses and residents. This is likewise true for meaningful adaptation.

Moreover, the measures necessary to protect the climate can reinforce a more integrated sustainability agenda that addresses long term economic, social, and environmental priorities. A climate-sensitive Official Community Plan can be the cornerstone of local government climate protection.

DISCUSSION PAPER OBJECTIVE

This Discussion Paper provides Council, staff and community stakeholders with context, analysis, process suggestions, and policy and action opportunities to integrate sustainable energy and emission reductions, and climate change adaptation into Victoria's OCP Update.

It would not be possible for a local government to advance all of the policy and action opportunities through the OCP Update. A number of *preliminary priorities* have therefore been identified. Others may be more appropriately addressed *following* the OCP Update, integrated into the ongoing policy and planning renewal process.

CITY OF VICTORIA CURRENT ACTIVITY AND CLIMATE PROTECTION

For the City of Victoria, emission reductions and adaptation will not be a fundamental departure from current City activity. It will be more about an intensification of its leadership in mobility, sustainability, liveability and land use planning. In contrast to most cities in North America, Victoria has significantly slowed emission growth and relatively low per capita emissions. The big challenge now is stopping and reversing this growth. Effective adaptation will reinforce and refine the City's commitment to sustainability and resilience, and is consistent with the City's efforts to manage risk to public and private property and human health and safety.

CONTEXT: CLIMATE, ENERGY, POLICY

The balance of scientific evidence attributes *most* contemporary climate change to the surge in GHGs from fossil fuel use. If we are to avoid climate changes with dangerous agricultural collapses, water shortages, droughts, and sea level rise, global emissions need to peak around 2015, with 50-85 % reductions below 2000 levels by 2050.¹

Beyond reducing emissions to avoid dangerous climate change, sustainable energy, i.e. efficiency, conservation and renewables, strengthens security in the face of steadily rising and volatile prices.

The BC Government announced in 2007 a commitment to reduce provincial GHG emissions 33% below current levels by 2020 and 80% by 2050, roughly in line with the scale of reductions necessary to avoid dangerous climate

¹ IPCC. Climate Change 2007: Synthesis Report.
http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm

change. A number of policies have subsequently rolled out to ensure all sectors of the province contribute to this commitment, most importantly for local government, this includes

- **The Green Communities Act:** amongst other changes requires OCPs to include GHG reduction *targets, policies,* and actions.
- **Climate Action Charter:** includes a voluntary commitment by signatory local governments to *create complete, compact, energy efficient rural and urban communities.*

As well as addressing key energy security priorities, BC Hydro’s policies and priorities, and many aspects of the Province’s Energy Plan are beginning to align with this agenda.

MITIGATION, ADAPTATION AND OCPs

An OCP is a powerful climate protection instrument because an its key elements include some of local government’s most influential policy and planning tools to support adaptation and emission reduction.

OCP Key Elements	Adaptation Relevance	Mitigation / Energy Relevance
Identify existing and future development: designation (com/ind/res), locations, density, mix, building types	Reduce development in vulnerable areas, improve public realm to strengthen social capital	Reduce GHGs with efficient land use mix, building type, density location
Identify existing and future transportation networks and their location, modal allocation, volume, form	Ensure systems are resilient, minimize risks to intense rainfall/floods and sea-level-rise	Reduce GHGs with efficient modes, connectivity, multi-modal potential
Identify existing and future agricultural land	Protect land – potentially from water related changes – manage risk of rising costs from disruption of imported food	Reduce carbon embedded in food, sequester soil carbon
Identify existing and future institutional development including schools, parks, recreational land uses	Reduce urban heat island with green space, reduce heat wave impact through passive heating/cooling building design	Reduce transportation GHGs with better parks access, sequester forest carbon; reduce building GHGs through reduced energy use
Identify public realm and design considerations	Reduce surface run off and urban heat island, strengthen livability to build social capital	Maximize solar access, and increase livability of mixed use/higher density
Identify land with hazardous conditions or environmentally sensitive	Adjust setbacks due to increased erosion and or sea level rise	-
Develop housing affordability policies	-	Reduce energy costs in buildings (insulation) and transportation (public transit, mixed use)
Designate existing and future sewage and water systems	Ensure sewage capacity meets increased precipitation forecasts, and water supply meets drought forecasts	Minimize energy consumption, and maximize energy recovery through design

Key Terminology

Emissions: Emissions in this report refer to greenhouse gas emissions or GHGs.

Adaptation: Adjusting natural and built environments and social systems to reduce vulnerability to climate change.

Mitigation: Minimizing long term climate change impacts by reducing GHGs.

Sustainable Energy: Improving energy security and reducing fossil fuel use through conservation, efficiency and renewables. *Mitigation* and *sustainable energy* are often used interchangeably.

Climate Protection: The combined efforts of climate change mitigation and adaptation.

GOVERNANCE

The biggest climate and energy challenges are not technical. They are institutional! All organizations, public and private, endeavouring to act are finding it difficult to reduce emissions for at least two reasons:

- Big new agendas don't immediately fit with the conventional policies, practices, routines and institutions of most organizations. There are alignment challenges.
- Climate and energy are crosscutting issues. Projects and policies run horizontally across organizations, and most organizations are generally vertically organized.

Process Suggestions

- ✓ At the outset of the OCP Update, begin to connect mitigation and adaptation to traditional OCP sectors. Develop a climate protection lens through which mitigation and adaptation will be integrated these sectors.
- ✓ Early in the OCP Process, determine the key climate mitigation and adaptation goals and the elements necessary to achieve a strong outcome.

CLIMATE PROTECTION AND CORE COMMUNITY PRIORITIES

Climate programs fail when they focus *exclusively* on emissions and/or climate change. Climate change impacts are slow moving and distributed around the globe. The benefits from deep emission reductions will be enjoyed by future generations and at a global level only if jurisdictions worldwide take collective action. Local governments with successful climate programs have shown how emission reduction measures compliment other core priorities that resonate with Council, staff and the community. A lesson from these leaders: "Think Local. Act Local."

Process Suggestion

- ✓ Identify core Council, staff and community priorities that can reinforce a climate agenda.

ENGAGEMENT AND PARTNERSHIP

Process Suggestions

- ✓ Develop an interdepartmental structure explicitly tasked to advance climate protection during the OCP update.
- ✓ Engage key community and energy stakeholders to consider mitigation and adaptation in the OCP process.

CONTINUOUS IMPROVEMENT

Ideally, the OCP and the target setting process helps shape an effective monitoring, evaluation and continuous improvement system. This would include:

Process Suggestion

- ✓ The OCP process is used to develop an effective monitoring, evaluation and continuous improvement system composed of meaningful short and long term targets integrated into broader City of Victoria business activities.

CLIMATE MITIGATION AND SUSTAINABLE ENERGY

Victoria's emissions are dominated by the transportation and building sector. Waste is small percentage. Emissions have grown in the order of 10% over the last 15 years, predominantly in transportation. If the historic trend was extended forward with forecasted population growth, emissions would grow 3% by 2020 and 16% by 2050, compared to provincial targets of minus 33% and 80% by these respective milestones.

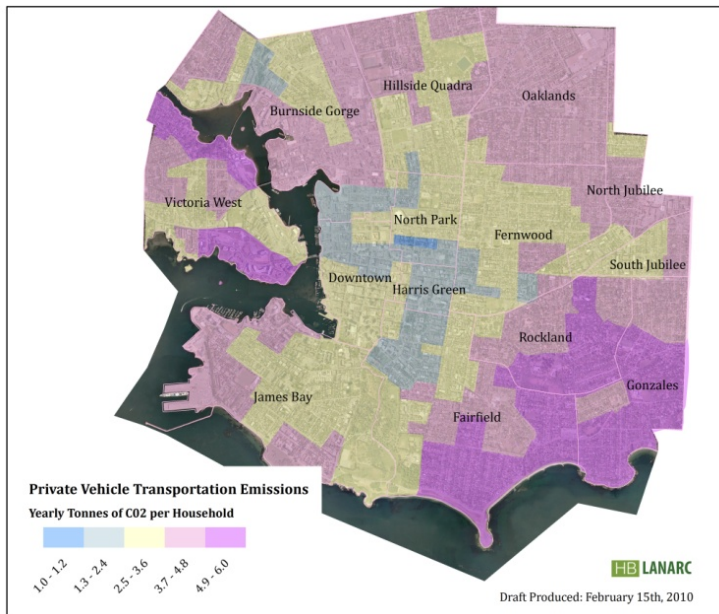
In comparison to the CRD average, Victoria has significantly lower residential emissions, 2.3 vs 2.8 tonnes per annum, due to more complete, compact, connected and centred urban design and modal share. *Total* per capita emissions are higher than the CRD average, 5.2 tonnes vs 4.8 tonnes, because of the large institutional and commercial sectors whose emissions are distributed across the population.

GHG TARGET SETTING

A local government’s energy and climate knowledge, and stage in its planning cycle should influence its target setting approach. The rigour of those targets should iteratively evolve as planning and implementation progress.

Process Suggestion

- ✓ Given its size and sophistication, Victoria should develop in a rigorous manner some defensible targets on a community-wide and sectoral basis as part of its OCP Update. Targets should provide guidance for detailed planning and implementation and support the continuous improvement system.



ENERGY AND EMISSION MAPPING

Energy and emissions are profoundly shaped by urban design and land form, spheres of profound local government influence. Spatializing building, transportation and waste energy and emissions permits a richer appreciation of the urban design and land form impacts and opportunities.

Process Suggestion

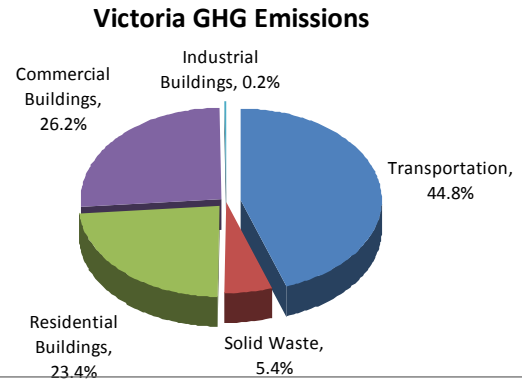
- ✓ The City should build on its baseline modeling and mapping to explore the energy and emission implications of different land use and development OCP scenarios.

This map of private transportation emissions by household and neighbourhood per annum is from the [Victoria Energy and Emissions Baseline Mapping Report](#) complementing this [Discussion Paper](#).

TAKING ACTION - CLIMATE MITIGATION & SUSTAINABLE ENERGY

Emission and energy management opportunities are organized under strategic objectives by energy end use or emission sector preceded by the land use sector given its overarching influence.² While some policy and action opportunities are logical to address *during* the OCP update, others may be more appropriately addressed *following* the OCP Update, integrated into the ongoing policy and planning renewal process. A short list of preliminary

² While they have great merit, ecosystem opportunities were not examined, e.g. enhancing carbon in forests or reducing upstream transportation emissions through urban agriculture.



priorities has been identified based on their consistency with traditional OCP activity, their potential impact, and/or relevance for Victoria. It would, nevertheless, be prudent to examine the broader list of opportunities.

LAND USE

There are four strategic land use objectives that will reduce GHGs in transportation, buildings and energy supply.

1. **Complete:** Support mixed use development recognizing the unique characteristics neighbourhood character.
2. **Compact:** Concentrate development around neighbourhood centres and the central business.
3. **Connected:** Ensure pedestrian, cycling, transit and road network connectivity.
4. **Centered:** Continue to concentrate employment downtown, strengthening CRD's central business district.

This strategy involves collaboration with the Capital Regional District. Becoming North America's smart growth capital may be an appropriate sectoral goal.

Preliminary Priorities

- ✓ **Zoning Bylaw:** Create land use mix, building types, and concentrate development to reduce GHGs.
- ✓ **Development Permit Areas:** Identify development and design to meet smart land use and climate protection.
- ✓ **Density Bonusing:** Advance efficiency and onsite renewable energy in exchange for greater density.
- ✓ **Low Carbon Corridors & Quarters:** Identify several zones to support development of ultra low carbon projects.

TRANSPORTATION

This sector has seven strategic objectives.

1. **Improved Transportation Choice:** Enable people of diverse abilities to have a range of mobility options
2. **Multi-Modal Integration:** Strengthen seamless transitions between modes.
3. **Reduced Automobile Travel Distance:** Reduce annual per capita vehicle kilometers traveled.
4. **Automobile Efficiency:** Support vehicle fuel efficiency improvements.
5. **Transportation Network Enhancement:** Strengthen existing network prioritizing transit and active transport.
6. **Integrated Land Use & Transportation:** Build on the land use strategy to strengthen mobility.
7. **Senior Government Engagement:** Encourage collaboration and investment in transit and active transportation.

This sector involves collaboration with the CRD and engagement with BC Transit, the BC and Federal Government. Becoming North America's walking and cycling capital may be an appropriate sectoral goal.

Preliminary Priorities

It is likely these won't be entirely developed in the OCP but provide direction to transportation planning processes.

- ✓ **Integrated Transportation Plan: Enrich the existing Plan, and consider**
 - Enhanced Transit
 - Multi Modal Transportation Hubs and Nodes
 - Community Car Sharing
 - Transportation Demand Management
- ✓ **Bicycle Master Plan: Enrich the existing Plan, use Development Permits where appropriate, and consider:**
 - Commercial/Institutional and Residential End of Trip Facilities
 - Enhanced Network and Infrastructure
- ✓ **Pedestrian Master Plan: Enrich the existing Plan, use Development Permits where appropriate, and consider:**
 - Enhanced Network and Infrastructure

BUILDINGS

There are several objectives under two principle areas. Local governments have relatively less influence on envelope and building components. Provincial and Federal Governments and BC Hydro are critical in this sector.

1. High Performance Building Strategy

- a. **New Buildings:** *Enforce* and strategically advance energy efficiency.
- b. **Existing Buildings:** Strategically advance energy efficiency.
- c. **Building Scale Renewables:** Strategically encourage opportunities.

2. Low Impact Energy Supply Strategy

- a. **District Energy:** Establish low carbon district energy systems.
- b. **Low Impact Renewable Energy:** Encourage site and large scale renewables.

3. Sr Government and Utility Action

- a. **Engagement:** Encourage development of stronger policies and programs

An appropriate goal may be becoming a national green building centre of excellence.

Preliminary Priorities

- ✓ **Development Permit Areas:** Address efficient site and building design, passive solar, and new Bill 27 authority.
- ✓ **Rezoning Process:** Explore premium performance standards, including energy retrofits
- ✓ **Occupancy Permit:** Explore its use to ensure compliance with energy requirements of existing building code.
- ✓ **Development/Building Permit:** Consider fast-tracking renewables/efficiency. Use with sustainability checklist.
- ✓ **Density Bonusing:** Consider extra density if certain efficiency requirements or renewable energy is being used.

It is likely none of these actions are developed during the OCP, but they could be directives coming out of the OCP.

- ✓ **Low Carbon Education and Outreach:** Develop resident and builder-targeted programs for new and existing:
 - Fuel Furnace Replacement: Form a partnership to create a fuel-oil furnace replacement program
- ✓ **District Energy Strategy:** Establish groundwork for expanding district energy throughout the City

WASTE

This strategy has five high level objectives. Given activity is not part of a traditional OCP, most opportunities could be deferred to, or provide high level guidance to other planning processes.

1. **Zero Waste Neighborhoods and Buildings:** Incorporate zero waste principals in new design
2. **CRD Engagement:** Collaborate to strengthen GHG performance in current and future Plans
3. **Composting:** Continue to extend beyond CRD's plans municipally in composting
4. **Recycling:** Extend beyond CRD's plans municipally in recycling
5. **Senior Government Engagement:** Encourage Sr Governments to strengthen *reduction* targets, policies and actions

This strategy could include meaningful bold objectives like establishing Victoria as a Zero Waste city.

Preliminary Priority Opportunities

- ✓ **Recycling and Composting Space:** Require space for waste separation, including organics in buildings
- ✓ **Resource Depot:** Establish space for a materials exchange network with drop off centres
- ✓ **Waste-To-Energy Analysis:** In the event, waste to energy is considered, require rigorous climate sensitive analysis for evaluation, and if it moves forward, the design.

CLIMATE IMPACTS AND ADAPTATION

Victoria will experience a number of climate changes, notably sea-level rise, changing frequency and intensity of precipitation and weather events, major hydrological changes, and reorganization of ocean ecosystems.

IMPACTS

There are wide ranging estimates of the magnitude and probability of impacts.

- **Infrastructure and Water Supply:** Decreased water supplies, increased water/sewage demand, increased of storm water system loading because of key incidents; Increased fire risk to reservoir.
- **Coastal Infrastructure and Property:** Increased risk of damage and inundation from sea level rise.
- **Human Health:** Water-borne disease is expected to increase. CRD does not use a disinfection system
- **Energy Security:** Decreasing reservoir levels at hydro-electric facilities risk electricity supply constraints.
- **Food:** Prices could increase significantly as global agricultural and food systems are impacted.
- **Local Economy:** Tourist and commercial fishing will be affected by shifts in species abundance and range.

ADAPTATION PLANNING

Reducing *vulnerability* and *risk* is the ultimate goal of adaption planning. Analyzing the context and taking action should be based on understanding the determinants of vulnerability and risk and designing measures that address the determinants, and the vulnerabilities and risks themselves.

Process Suggestion

- ✓ Take a methodical approach to assessing vulnerability and risk to inform development of policies and actions to reduce vulnerability and risk to climate change.

TAKING ACTION ON IMPACTS AND ADAPTATION

Adaptation opportunities are organised by civic planning area. While some are logical to address *during* the OCP Update, others may be more appropriately addressed *subsequently*, integrated into ongoing policy and planning renewal process. A short list of preliminary priorities emerged based on rudimentary application of the *Risk Assessment and Adaptation Planning Framework*. They would be refined, ideally through a *high level vulnerability and risk assessment* as part of the OCP Update.

LAND USE

Because Victoria is largely built-out, most new land development will be in some form of *re-development*. The City will need to use policy tools aimed at existing buildings and land uses to advance adaptation.

Preliminary Priorities

- ✓ **Development permit guidelines:** e.g. address stormwater, landscaping, tree selection, passive design
- ✓ **Vulnerability zoning:** explore for sea-level-rise to shape development and re-development

STORMWATER, RAINWATER, WASTEWATER AND POTABLE WATER MANAGEMENT

These three critical systems have major overlapping infrastructure and management components. The remaining combined stormwater and sewer systems, carry risks to low lying areas, waterfront areas and beaches in major rain events.

Preliminary Priority Opportunities

- ✓ **Purple Pipe Integration:** Operationalize these emerging Provincial policies from an adaptation perspective.
- ✓ **Water Smart Mixed Use Redevelopment:** Improve onsite water management during redevelopment.
- ✓ **Watershed Management:** Phase in integrated watershed management plans for all watersheds.
- ✓ **Storm water by-laws:** Plan to expand the number to encompass more activities and business types.

BUILDINGS

The most important building opportunities are addressed under Stormwater, above.

TRANSPORTATION AND ACCESSIBILITY

Preliminary Priority

- ✓ **Street and Road Engineering Standards:** Update standards to reflect anticipated intense precipitation events.

ECOLOGICAL HEALTH

Preliminary Priority

- ✓ **Street Tree Program:** Address water quality/quantity, stormwater, forest carbon benefits, and resilient species.

LOCAL FOOD SUPPLY

Preliminary Priority

- ✓ **Community food and agriculture strategy:** Guide future development, potentially in partnership with region.

FINANCIAL MANAGEMENT

There are opportunities to manage municipal, and in turn, resident/business risk.

Preliminary Priority

- ✓ **Procurement and tendering:** Update to consider impacts and adaptation for capital projects.
- ✓ **Capital planning:** Phase in impact and adaptation assessment for internal projects.

RESILIENCE

Preliminary Priority

- ✓ **Resiliency Policy:** Update the City's public safety and health-oriented policy to include impacts and adaptation.

FOR MORE INFORMATION



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