



Community Sustainability Action Plan

Taking Action for our Climate

(November 2012)



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1.0 Introduction

The City of Nanaimo's Official Community Plan (planNanaimo) provides the over-arching direction and policy framework that sets the community on a path toward a more sustainable future:

"a community that is sustainable is defined as one that offers homes that are located near shops, schools, recreation, work and other daily destinations. These communities offer safe and convenient opportunities to walk, cycle or take transit. This helps to reduce the time and money spent on driving, reduces greenhouse gas emissions, and makes efficient use of land and services. Inherent in this approach is increased housing density to generate a population base that will support commercial services, other utilities and the provision of public transit. In addition, this approach requires support for mixed-use development so that a variety of uses can be found within a convenient distance and an investment in alternative modes of transportation including pedestrian and cycling trails which connect one place to another."

- planNanaimo (2008)

planNanaimo also sets the following vision and goals toward achieving a more sustainable community:

Vision and Guiding Principle (sustainability as the guiding principle): The recognition that for Nanaimo to be sustainable, it must respect the environment and protect critical habitat. It must also offer residences close to employment, shops, schools, and recreation so that single vehicle dependent travel does not have to be the only option to commute. Increasing housing density also works to make transit and other forms of transportation more affordable and more convenient for users.

- **Goal 1: Manage Urban Growth:** Focusing urban development within a defined Urban Containment Boundary (UCB) is a primary tool to focus growth and protect agricultural and environmentally sensitive lands.
- **Goal 2: Build a More Sustainable Community:** Reaching higher density levels in Nanaimo will be targeted toward the urban nodes and corridors identified in the OCP. These areas will provide the higher levels of servicing and amenities that will help support greater alternate transportation options and lower greenhouse gas (GHG) emissions, over the long-term.
- **Goal 3: Encourage Social Enrichment:** A key component addresses food security which encourages more opportunity and choice for locally grown food in the community. By having significant sources of locally grown food, there is less reliance on food transported from great distances that could be grown here otherwise. This has a significant impact on GHG emissions.
- **Goal 4: Promote a Thriving Economy:** Taking advantage of new business opportunities for a "green" economy that includes green energy generation based on renewable energy to substitute fossil fuels and promoting energy conservation for efficient energy use. The eventual goal is to create jobs, ensure real economic growth and prevent environmental pollution, degradation, and GHG emissions.
- **Goal 5: Protect and Enhance our Environment:** By looking after and enhancing Nanaimo's natural diversity; found throughout the City in our Douglas-fir forests, Garry oak meadows, watercourses and wetlands; we ensure we are more resilient and better prepared for the coming changes that will affect our landscape with a warming climate.

Section 5.1 of Goal 5 deals with energy and emissions management, which is specific to reducing greenhouse gas emissions. The greenhouse gas reduction targets were adopted by council in May 2010. New and existing policies also encourage, for example, greater energy efficiency in the planning, building design and construction of neighbourhoods and buildings; as well as development of a sustainability checklist

- **Goal 6: Improve Mobility and Servicing:** Creating greater accessibility and more opportunity for safe and convenient travel around the City by transit, bike, and on foot will have the greatest impact on the level of GHG emissions for Nanaimo. Rethinking our water and sewer services in a manner that utilizes opportunities to forestall new expansions and by using the existing systems as efficiently as possible will play an important, immediate role. Over the long-term, seeking opportunities to recapture waste heat, energy and reuse of water, where feasible, offer great potential for the future in increasing our overall energy efficiency and lowering our emissions levels.

The implementation strategy developed for planNanaimo called for the preparation of a Community Sustainability Action Plan (CSAP) to identify specific actions that tie back to the goals identified in planNanaimo.

2.0 Context

2.1 A Global Issue With Local Implications

Climate change has global implications to ecosystems, infrastructure and people. Local governments – given their vulnerability to climate impacts and their authority and opportunity to influence change – will be key players in addressing this defining issue of the 21st century.

Beyond reducing emissions to mitigate and avoid climate impacts, pursuing activities to reduce energy demand and implement more sustainable forms of energy provides both direct and indirect benefits to the community. We can improve our individual and collective resiliency to fluctuating energy supply and pricing by reducing our demand for energy. Further, we can generate local economic activity by reducing our demand and therefore our energy spending; creating job opportunities in areas that will assist us in making the transition to a sustainable energy future (e.g., building and retrofitting homes to be more energy efficient, providing and installing building scale alternative energy systems, etc), and; creating new sources of potential revenue, such as through local electricity generation. In the absence of pursuing these types of activities, it is not unreasonable to expect our energy spending to double over the course of the next decade.

2.2 Federal & Provincial Context

In light of the international consensus on the potentially dangerous consequences of climate change, senior levels of government have developed targets, plans and policy to direct efforts to reduce energy demand and GHG emissions across all sectors of the economy.

Federal Government Activities

At the 2009, United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP 15) in Copenhagen, Denmark, global leaders developed the Copenhagen Accord, which required industrialized countries to set economy-wide GHG emissions reduction targets for 2020. To address this requirement the Government of Canada committed to reducing GHG emissions by 17% below 2005 levels by 2020.

In 2010, the federal government included Passenger Vehicle and Light Truck Greenhouse Gas Emission Regulations under the Canadian Environmental Protection Act (CEPA) to create national vehicle efficiency standards that harmonize with the US standards by 2011. It is expected that with the legislation in place, the average GHG emissions from new vehicles for the 2016 model year will be about 25% lower than for vehicles that were sold in 2008. The federal government also announced plans to establish stringent regulated standards for heavy-duty vehicles in alignment those of the United States.

Provincial Government Activities

The provincial government is moving forward with a number of ambitious measures to improve energy efficiency and reduce GHG emissions across the province, including:

- **Greenhouse Gas Reduction Targets Act (Bill 44 – 2007):** Established province-wide GHG reduction targets of 33% below 2007 levels by 2020, and 80% by 2050.
- **BC Climate Action Plan:** Outlines actions that are estimated to achieve 73% of the reductions required to meet the targets established by Bill 44.

- **Clean Energy Act (Bill 17 – 2010):** Defined clean energy objectives, including achieving electricity self-sufficiency by 2016, and meeting 66% of the increase in demand by 2020 through energy conservation and demand-side measures.
- **BC Energy Plan:** Outlines actions to support the goals of achieving electricity self-sufficiency, net zero GHG emissions from electricity production, among others.
- **Local Government (Green Communities) Statutes Amendment Act (Bill 27 – 2008):**
Amended the *Local Government Act* to read:
LGA 877 (3) - An official community plan must include targets for the reduction of greenhouse gas emissions in the area covered by the plan, and policies and actions of the local government proposed with respect to achieving those targets (by May 31, 2010).
- **Housing Statutes Amendment Act (Bill 10 – 2008):** Introduced new Building Code provisions to increase energy and water efficiency, and provided local governments with the authority to apply these provisions.
- **BC Climate Action Charter:** A provincial initiative encouraging local governments to voluntarily commit to achieving carbon neutral operations beginning in 2012.

Within provincial government, some significant targets have been set under legislation. Under the *Greenhouse Gas Reductions Target Act* (Bill 44), all Public Service organizations (PSO) are required to meet a greenhouse gas emission (GHG) reduction target for their buildings and operations. The targets are to be 33% below 2007 emissions levels by 2020, and 80% below 2007 levels by 2050. This target falls in line with what science is recommending in order for GHG emissions to be reduced to half of today's levels by 2050.

The provincial government, through the *Local Government (Green Communities) Statutes Amendment Act* (Bill 27), has required that local governments set GHG reduction targets within Official Community Plans (OCP) and Growth Management Strategies. Within Bill 27, the *Local Government Amendment Act* has been amended to include the following:

An official community plan must include targets for the reduction of greenhouse gas emissions in the area covered by the plan, and policies and actions for the local government proposed with respect to achieving those targets (by May 31, 2010).

While no specific target is being required to be set for local governments, many are opting for the provincial targets identified for provincial organizations (ministries, school and hospital districts) in Bill 44.

2.3 Taking a Regional Approach

At the regional level, the Regional District of Nanaimo (RDN) has a Regional Growth Strategy (RGS), which is the policy framework that provides direction for regional growth and development. The City of Nanaimo's OCP includes a Regional Context Statement that identifies how it aligns with the goals of the current RGS, which are:

1. Prepare for Climate Change and Reduce Energy Consumption
2. Protect the Environment
3. Coordinate Land Use and Mobility
4. Concentrate Housing and Jobs in Rural Villages and Urban Growth Centres
5. Enhance Rural Integrity

6. Facilitate the Provision of Affordable Housing
7. Enhance Economic Resiliency
8. Enhance Food Security
9. Celebrate Pride of Place
10. Provide Services Efficiently
11. Enhance Cooperation Among Jurisdictions

In addition to setting the overarching policy framework for regional growth and development, the RDN provides regional transit services (in partnership with BC Transit) and solid waste management services to the City of Nanaimo (among other services it provides to member municipalities and Electoral Areas within the RDN); all of which have an impact on energy use and GHG emissions in Nanaimo.

Regional Transit Service

The Nanaimo Regional Transit System is provided in partnership by the RDN and BC Transit. Transportation planning is done in coordination with the City and other municipalities in the RDN. The primary goal of the Nanaimo Regional Transit Business Plan (developed in 2008) is to encourage greater transit ridership in the Nanaimo region by providing transit and other sustainable transportation options that improve mobility for people who have few other transportation options and also offer an attractive alternative for automobile drivers.

Regional Solid Waste Management Planning

Solid waste management occurs at both the regional and municipal levels. In British Columbia, regional districts often manage transfer stations and landfills. The RDN owns and operates two solid waste management facilities in the region; the regional landfill and a transfer station. The City of Nanaimo provides collection services to residents and some businesses in the city.

The RDN has updated their Regional Solid Waste Management Plan to include a “Zero Waste Plan,” which outlines a range of programs to support waste reduction activities in the region. The Zero Waste program has resulted in 64% of the garbage produced in 2004 being diverted to other uses. Diversion is expected to increase as a result of the City of Nanaimo fully implementing the organic waste composting (Green Bin) program. The program was piloted in 2010 with one third of residences in the city participating, and was expanded to all households in 2011 in an effort to increase waste diversion to 75% and move towards the Zero Waste goal.

Energy & Emissions Planning in the RDN

The RDN is also working in partnership with its member municipalities and Electoral Areas to advance efforts to reduce energy use and GHG emissions across the region. Similar to the City, the RDN has endorsed the provincial GHG emissions reduction targets of 33% below 2007 levels by 2020, and 80% below 2007 levels by 2050. These have been incorporated into the Regional Growth Strategy (RGS 2011) and into the Electoral Area Official Community Plans (OCPs).

2.4 City of Nanaimo Policy Context

In May 2010, as part of the City's effort to fulfill the province's requirements for all local governments to set GHG emission reduction targets into their OCPs, the City of Nanaimo endorsed the following policy into planNanaimo:

The City of Nanaimo will work to reduce emissions by 33% below 2007 emissions levels by the year 2020. Over the longer term, the City will continue to work to reducing emissions by 80% of 2007 emissions levels by the year 2050. A sustainability action plan will be developed to identify sustainability actions to achieve the targets for GHG emissions reduction.

The City established a set of energy and emissions policies in 2008, which provides some direction for on what a sustainability action plan should include:

Energy & Emissions Management Policies (planNanaimo, 2008)

- Develop a Sustainability Action Plan that will identify actions to achieve the targets.
- Encourage greater energy efficiency in the planning, design and construction of neighbourhoods and buildings.
- Develop a "sustainability checklist" for use during rezoning and development permit approvals.
- Use an integrated design team approach as part of the development process.
- Develop comprehensive parking plans to reduce the impact of vehicles and to encourage transit, pedestrian and cycle use.
- Support the development of innovative green spaces.
- Encourage the development of alternative energy supply options.
- Encourage multi-use buildings to take advantage of waste heat utilization and to share energy needs.
- Encourage landscaping that buffers buildings from wind and sun and which help reduce heating and cooling needs.
- Encourage buildings design and features that reduce energy needs.
- Support businesses in developing eco-industrial networks to build efficiencies in energy, resource use and waste management.

The OCP includes a number of additional policies that should be seen as being supportive (directly or indirectly) of the City's climate action efforts, including:

- Increasing residential density in Urban Nodes, Commercial Centres (City Commercial and Neighbourhood Commercial), and Corridors;
- Prioritizing the development and expansion of pedestrian, cycling and transit infrastructure;
- Providing opportunity for a 25% reduction in off street parking requirements in Urban

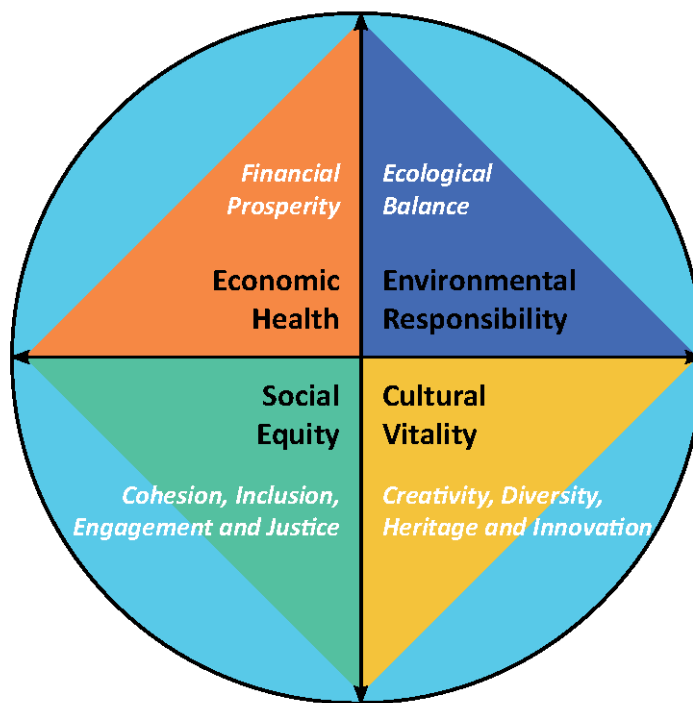
Nodes;

- Establishing programs to promote alternatives to single occupant vehicle (SOV) travel;
- Reducing per capita vehicle trips and increasing transit mode share;
- Supporting the Regional Solid Waste Management Plan (2004);
- Providing affordable housing through improved housing choices;
- Cooperating with School District 68 to achieve joint use and management of facilities;
- Providing opportunity for sustainable local food systems;
- Encouraging sustainable neighbourhood development in Resort Centre zoning;
- Encouraging property owners to provide live/work spaces in the downtown core;
- Creating support for businesses that bring sustainable wealth into the community;
- Conserving of Environmentally Sensitive Areas;
- Maintaining and enhancing the urban forest and greenways; and
- Conserving water (less pumping of water leads to less energy use).

Working Within the Corporate Strategic Plan

On July 9, 2012, Council approved the Corporate Strategic Plan for 2012-2015. The Strategic Plan includes a long-term vision, mission, values and operating philosophy and lists the City’s ongoing commitments to sustainability in the areas of economic health, environmental sustainability, social equity and cultural vitality.

The Four Pillars of Sustainability



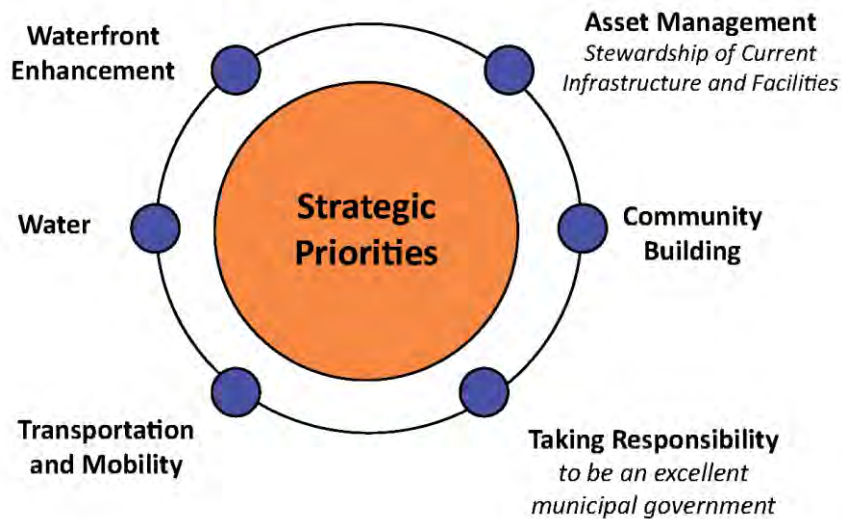
The Strategic Plan outlines six strategic priorities that require focus over the next few years:

- Asset Management
- Water
- Transportation and Mobility
- Taking Responsibility
- Waterfront Enhancement
- Community Building Partnerships

The Community Sustainability Action Plan (CSAP) builds on two of the strategic priorities as well as the City's ongoing commitment to sustainability.

The Community Sustainability Action Plan (CSAP) strongly contributes toward the plans priorities on Transportation and Mobility and on Community Building Partnerships while reaffirming Council's commitment in taking responsibility to build a sustainable Nanaimo for future generations. One of the most significant contributors to our GHG emissions levels come from our transportation. Reducing dependency on the single-occupancy vehicle and improving the integration between land use and mobility planning through building complete, compact communities will greatly reduce emissions over time. In addition, the City of Nanaimo recognizes that it cannot implement the CSAP successfully on its own. Success will depend on our ability to build partnerships and leverage our capacity with other stakeholders in the community. Only then will the CSAP be able to meet our ongoing commitment to sustainability and environmental responsibility, as identified in the Corporate Strategic Plan.

Council Strategic Priorities



2.5 Nanaimo: A Community Profile

The City of Nanaimo occupies a land mass of about 89 km² (Statistics Canada, 2006 Census land area 89.3 km²). Located on the east coast of Vancouver Island, Nanaimo's growth pattern is linear, stretching approximately 20 km from the Nanaimo River estuary in the south to the District of Lantzville in the north. About 5 km wide, the city is naturally bounded by the Strait of Georgia to the east and mountainous terrain to the west.

Nanaimo's urban land base is largely made up of low density single family neighbourhoods, punctuated by areas of commercial activity along the primary transportation corridors. Areas of higher density housing are somewhat isolated from commercial, recreational and transit services and the largest concentration of high density housing is found Downtown.

The City of Nanaimo is currently a community of about 83,810 people (Statistics Canada, 2011¹). In the last 40 years (1976 to 2006), the city's population has almost doubled, largely fuelled by significant growth from the mid-80s to mid-90s. While the late 1990s saw more modest growth, recent population figures indicates growth rates higher than that in the rest of British Columbia – close to 6.5% over the five years between 2001 and 2006.

Nanaimo's population is projected to grow by almost 30% to 101,400 by 2016 and by almost 50% to 118,000 by 2031 (Urban Futures, 2006²). According to this study, housing stock is expected to increase by 16,800 units and be made up of 9,000 single detached family homes, 4000 ground-oriented homes, and 3,800 apartment units. Future growth will be driven largely by people moving to Nanaimo rather than natural increase, and the aging of the city's population will be a dominant theme with the 65 plus age groups experiencing the greatest increase.

2.6 Energy & Emissions Levels in Nanaimo

This section describes our current energy consumption and GHG emissions and provides an estimate of how much energy we might consume in the future and the resulting level of GHG emissions.

Baseline Information (2007)

The Province has developed Community-wide Energy use and Emissions Inventories (CEEI) for all local governments in BC. These CEEI reports provide the total energy consumed through electricity and natural gas in Nanaimo and an estimate of propane, heating oil, wood and vehicle fuel consumed for the baseline year of 2007. The associated GHG emissions are also calculated for each type of energy consumed, and for the estimated amount of waste disposed of by Nanaimo residents in the regional landfill.³

For this study, CEEI data for Nanaimo was reviewed and compared to other data sources for the purpose of cross-checking the reliability of the data. The overall findings, based on the data that is available for comparison, are that the CEEI data provides a reasonable estimate of our energy and emissions. Therefore, the CEEI values are summarized below as reported by the Province.

¹ Census Canada 2011 Community Profile for Nanaimo: <http://www12.statcan.gc.ca/mobile/2011/cp-pr/table-eng.cfm?SGC=5921007>

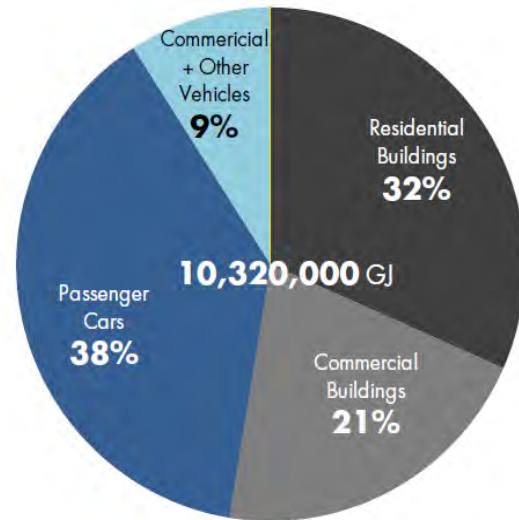
² Urban Futures Inc. (2006), *Population and housing projections for the City of Nanaimo, 2006 to 2031*. Retrieved from: <http://www.nanaimo.ca/assets/Departments/Community~Planning/Offical~Community~Plan~-~10~Year~Review/Background~Information/NanaimoPopulationHousing.pdf>

³ Revised CEEI reports for 2007 are available at www.env.gov.bc.ca/epd/climate/ceei/index.htm and were last updated for Nanaimo in June 2010. It is anticipated that CEEI reports will be released for the year 2010, and bi-annually after that.

Energy Use (2007)

Buildings (53%): Energy is consumed to heat, cool and power our buildings using natural gas and electricity. In residential buildings (houses, town homes, apartments) about 50% of the energy is electricity, 23% is natural gas, 14% is wood, 11% is heating oil, and 2% is propane. In commercial and small/medium industrial buildings, about 56% is electricity and 44% is natural gas.

Transportation (47%): Energy is consumed by vehicles to move people and goods. This energy primarily comes from burning gasoline, diesel and propane. Passenger vehicles account for the majority of the community's estimated transportation fuel use (38%).

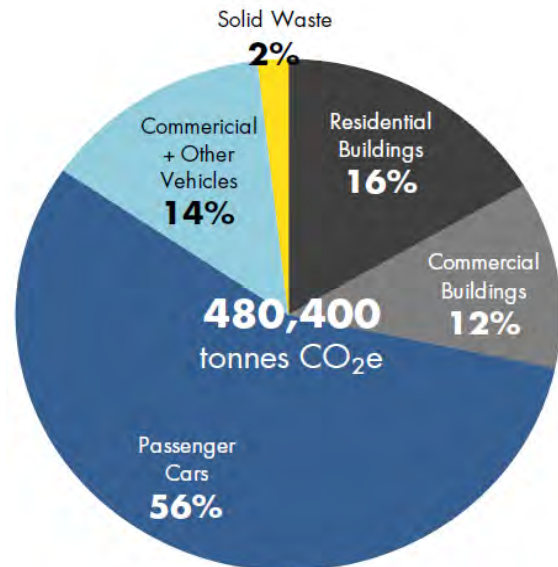


GHG Emissions (2007)

Buildings (28%): While buildings account for the majority of energy use in Nanaimo, they represent a smaller portion of our GHG emissions. This is because we primarily use hydroelectricity to power our buildings, which has lower carbon intensity than fossil fuels. Most of the GHGs in this sector result from our use of natural gas and heating oil.

Transportation (70%): Using gasoline, diesel and propane for transportation leads to approximately 70% of our community's GHG emissions. This figure accounts for vehicles that are registered in Nanaimo.

Solid Waste (2%): Waste that is not recycled or composted goes to the regional landfill where it decomposes and releases methane gas, a potent GHG. This accounts for 2% of our total emissions.



⁴ See definition of CO₂e

⁴ CO₂e – Carbon Dioxide Equivalent CO₂ (CO₂e) is the concentration of CO₂ that would cause the same level of impact as a given type and concentration of greenhouse gas and is expressed in metric tonnes. Examples of greenhouse gases include methane, perfluorocarbons, and nitrous oxide and carbon dioxide.

2.7 Key Components Influencing Energy Use & GHG Emissions

Land Use & Transportation

The pattern of development and how we move people and goods are major determining factors in the amount of energy we use and the greenhouse gases we emit into the atmosphere. Much of our emissions come from the type of transportation we use, as well as how far we have to travel, to get to our place of work, school and daily services. In fact, 70% of our city's emissions are attributed to transportation, with passenger vehicles being responsible for 56% of our total emissions. In turn, these elements are influenced by the types and densities of land uses we have within a community. As such, addressing both land use and transportation in an integrated manner is essential to achieving significant reductions in our energy use and emissions.

Nanaimo is primarily made up of low-density development with an average residential density of 7.6 dwellings per hectare. The City's existing development density pattern is shown on Figure 6. At present, there is little mixture between different land use types. Commercial activity takes place along the main transportation corridors, often as standalone retail services, with some residential and other amenities close by. Higher density housing developments are also situated away from commercial, recreational and transit services. This development pattern is set to change over time. The City's new OCP contains policies the focus growth within identified nodes and corridors, where higher density developments and mixed land uses will be encouraged. This will help reduce pressures on rural lands and natural areas around Nanaimo, and make walking, cycling and public transit more viable options for residents.

For further details on land use and transportation, view the City of Nanaimo Community Energy and Emissions Study (CEES) at www.nanaimo.ca/goto/CEES.

Buildings

Due to building typologies and ages, buildings are the primary consumer of energy in Nanaimo at 53% or 5,400,000 GJ of total energy demand. However, when it comes to their contribution to GHG emissions, buildings come in a distant second to transportation; contributing only 28% or 136,228 tonnes CO₂e to total emissions in the community. This difference is explained by the fact that energy demand in buildings is fulfilled primarily by electricity – in BC we use hydro electricity, which is a less carbon intensive energy source – and, to a lesser extent, natural gas.

Reducing energy demand in buildings provides benefits beyond climate change mitigation. Notably, taking steps to improve building energy efficiency and reduce energy consumption can result in energy cost savings for building owners over time. Opportunities to encourage and support builders, owners, and managers to reduce energy demand in existing and new buildings therefore are the focus for the strategies presented in the CSAP.

Residential Buildings (Housing): The type, form and function of buildings, including their size, age and construction, impact the amount of energy that is needed to heat and power them. Key statistics with respect to Nanaimo's current housing stock and their relevance for energy and emissions are outlined below:

- **Over 60% of dwellings are single family detached homes.** The remainder of Nanaimo's housing stock is comprised of semi-detached dwellings (4%), row houses (4%), duplexes (8%), apartments with less than five storeys (18%), apartments with five or more storeys

(3%), and other dwellings such as mobile homes (3%). While there is variation in building energy use within the building stock, generally speaking, larger single detached dwellings tend to consume more energy than smaller dwellings built in a more compact form.

- **Approximately 60% of dwellings are over 25 years old.** Due to advances in building codes, newer dwellings tend to be more energy efficient than older dwellings. The current BC Building Code (BCBC) requires that new homes attain an energy performance standard equivalent to EnerGuide 77. The BCBC is expected to go to EnerGuide 80 in 2011, which could result in new homes that consume up to 30% less energy than conventional (existing) homes.
- **Approximately 30% of dwellings are rented.** This can be beneficial to energy demand as owners may be more inclined to invest in the upfront costs for energy retrofits knowing that they will be the beneficiaries of energy savings over time. Whereas, heat and hot water costs are often included as part of rental costs, creating a disincentive for tenants to reduce their energy consumption. Tenants will also be less inclined to make energy efficiency improvements in dwellings where they may only live temporarily. Further, property owners of rental units may be reluctant to invest in retrofits without having direct control over occupant behaviour with respect to energy consumption, and as a result, the payback period on their investment.

Commercial, Institutional and Industrial Buildings: Commercial and small - medium industrial buildings are a large component of building energy demand and emissions, contributing to approximately 40% (2,167,575 GJ) of total building energy demand and accounting for approximately 42% (56,569 tonnes CO²e) of GHG emissions from the buildings sector in Nanaimo. New commercial development will be focused in Commercial Centres. Light industrial development tends to follow the corridors, while industrial lands are focused around Duke Point and in the City's south end.

Buildings Policy: Building codes are created by the Province and enforced by local governments, so the City has somewhat limited ability to regulate standards that exceed the building code.⁵ That said, the City can articulate their desire to achieve higher building energy performance standards and offer programs and incentives to move the local building market in that direction. Nanaimo is already moving in this direction with the following bylaws and policies:

- **Official Community Plan:** Includes policies that promote energy efficient building design practices for residential and commercial development. Relevant "green" policies for industrial and light industrial zones relate more to the site level and promote the development of eco-industrial networks to build efficiencies in energy, resource use and waste management. Sustainable neighbourhood development practices using criteria such as LEED®ND⁶ are promoted for the Resort Centre zone, where a mixed use development focused on recreational opportunities is anticipated in the future.

⁵ *Bill 10 – 2008, the Housing Statutes Amendment Act, enables local governments to enact regulatory bylaws for the purpose of addressing energy and water efficiency, and for reducing GHG emissions. However, this power is subject to the Community Charter's concurrent jurisdiction section which requires that, because local governments have no independent jurisdiction in relation to buildings, any bylaw dealing with building regulation must be approved by the Minister, enacted under a regulation, or enabled by agreement. The Environmental Law Centre at the University of Victoria has written a summary paper on this and other climate change legislation affecting local governments, which interprets relevant legislation and provides useful insights (<http://www.elc.uvic.ca/press/documents/Summary-BC-Climate-Change-Legislation-REVISED.pdf>).*

⁶ LEED for Neighbourhood Development is a US based rating system that integrates the principles of smart growth, new urbanism and green building into a standard for neighbourhood development. It is being developed by the US based Green Building Council in partnership with the Congress for the New Urbanism and the Natural Resources Defense Council.

- **Form & Character Guideline Update:** An update of the City’s form and character design guidelines can provide direction on specific site and building design strategies and could more clearly illustrate how native vegetation retention, xeriscaping or water wise gardening (water efficient landscaping), alternative transportation, energy efficient building form, site planning, and rainwater management could be envisioned. The form and character guidelines used within Development Permit Area 9 specifically apply to: public institutions, hotels/motels, commercial, light industrial, multifamily residential, and duplexes in the Old City Quarter.

Alternative & District Energy

Costs are one of the major barriers – real or perceived – that we face when making choices to reduce our energy consumption, invest in energy efficient technologies, and implement alternative energy systems. Accepting and paying the true costs of energy (e.g., in the case of hydroelectricity these are the costs associated with building dams, generating stations, transmission lines, etc, as well as the social and environmental externalities that may be associated with these activities) is one of the best ways to promote more responsible use of our energy resources. Market forces (e.g., volatile energy supply) and other interventions (e.g., utility rate increases, carbon taxes on fossil fuels, etc) will increase the cost of energy over time, which in turn will affect change in our individual behaviours and actions with respect to energy use.

The energy used in Nanaimo for our buildings is almost exclusively from electricity and natural gas. Many of the functions performed from the energy we now receive could be provided from a variety of alternative energy sources.

Alternative energy systems that may be used on a building-scale include solar panels for hot water, solar photovoltaic panels for electricity, and heat exchange systems (in the ground, air or water) for heat and hot water.

At larger scales (e.g. groups of buildings or neighbourhoods), district energy systems may supply heat and hot water using heat recovered from sewers or other available waste heat sources, heat exchange systems, and several other potential sources.

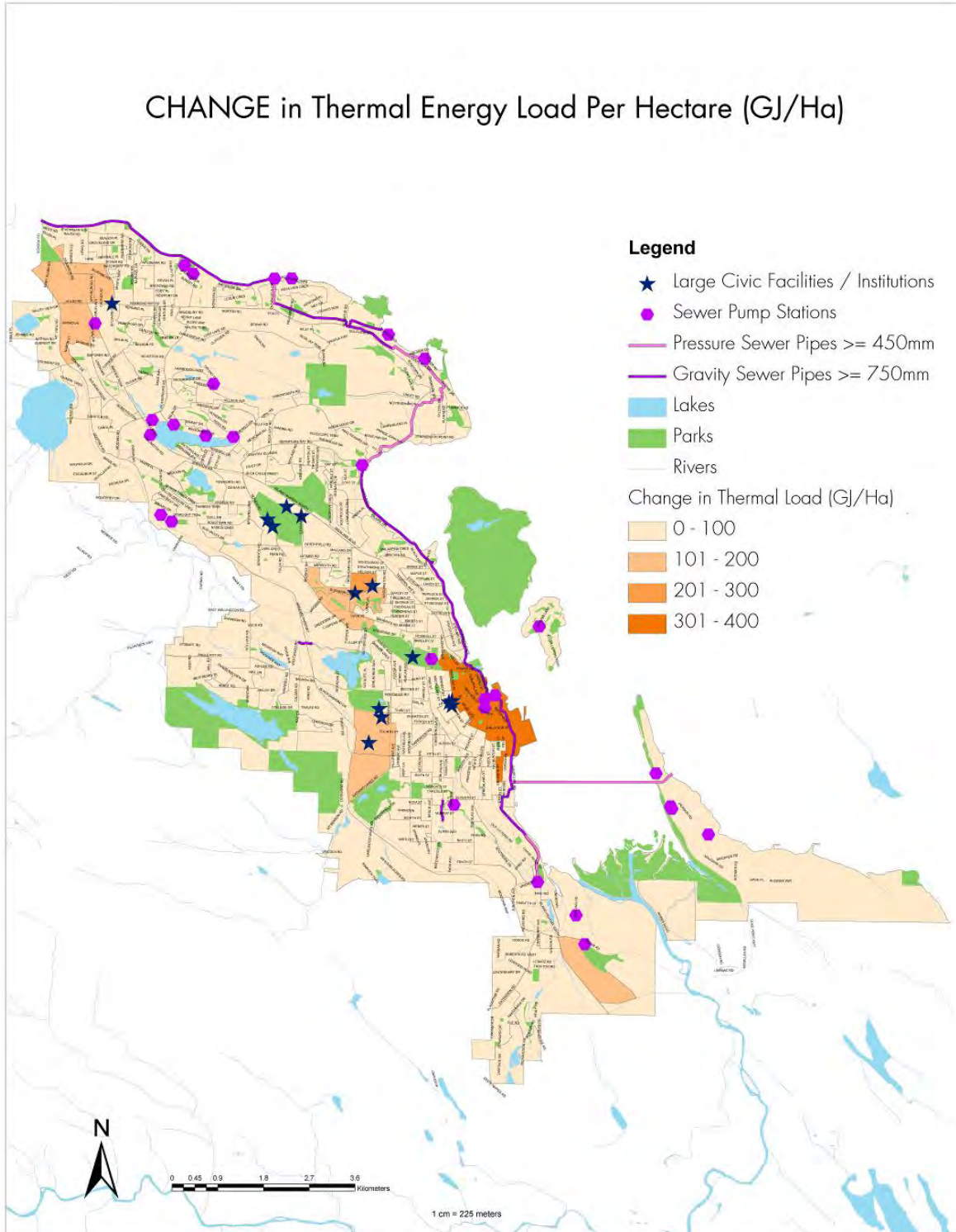
Developing more localized energy systems fed by renewable supply options help to reduce a community’s carbon footprint, and produce many other co-benefits some of which include, improved resilience against fluctuating energy supply and prices, and local economic development opportunities as a result of keeping energy spending local and creating new jobs.

While the provision of energy has not historically been the purview of local governments, there are policy instruments available to local governments to encourage the implementation of alternative energy supply sources. The City of Nanaimo has already begun to explore alternative energy opportunities and ways to promote their adoption in the community. The Zoning Bylaw establishes height exemptions for wind turbines and sustainable building technologies, which are defined as follows:

“Structural or technological elements designed to decrease the carbon footprint of a building or structure. Such features shall include photovoltaic cells, roof mounted micro wind turbines, solar thermal collectors, infrastructure needed to access and maintain a green roof and the like.”

The following map provides an indication of the alternative and district energy potential by 2020 under the target scenario. Civic and institutional facilities that are currently large energy consumers are marked to indicate the location of potential “anchor tenants” of a DE system. Sewer pump stations and pipes indicate infrastructure where there may be a potential for waste heat recovery. The areas with the greatest change in thermal energy load per hectare (i.e. those that have the darker orange shading) include Woodgrove, the Hospital, Downtown, the University, and South Nanaimo).

Figure 1: Change in Thermal Energy Load per Hectare



Solid Waste

Waste does not directly consume energy but when deposited into landfills, it decomposes and releases methane gas which is a potent greenhouse gas. In 2007, 2% of Nanaimo's total GHG emissions came from solid waste. This is lower than the provincial average of 5.1% and can likely be attributed to the progressive solid waste management efforts underway in the Nanaimo region, which are explained in greater detail below.

Regional Solid Waste Management Plan: As a member municipality of the Regional District of Nanaimo, the City's waste is managed in accordance with the Regional Solid Waste Management Plan (SWMP). The SWMP sets a diversion target of 75% and has a goal of achieving "zero waste." In the City of Nanaimo, 63.86% of all waste is diverted from landfills. The implementation of the City of Nanaimo Organic Waste Composting program continues to increase the diversion rate. Some of the other Zero Waste programs underway in the RDN include:

- Residential Food Waste Collection Pilot Program
- Commercial Organics Diversion Program
- Residential Garbage and Recycling Program
- Solid Waste Composition Study
- Zero Waste Promotion and Education
- Illegal Dumping Prevention Program
- Construction/Demolition Waste Diversion Strategy

The RDN is also exploring product stewardship, which is a provincial government strategy to place the responsibility for end-of-life product recycling and disposal on the producers and consumers of a product, rather than on the general taxpayer or local government.

Methane gas is currently being captured and flared at the Cedar Road landfill in an effort to reduce emissions. The RDN has decided to take the landfill gas collection system a step further and has entered into an agreement with Cedar Road LFG Inc. to use the methane gas to produce electricity that will feed into the BC Hydro power grid.

Solid Waste Management in the City of Nanaimo: The City of Nanaimo collects residential waste and contracts recycling, which is taken to the regional landfill. It also has a residential food waste collection (Green Bin) program. Basic service garbage collection is currently limited to one 77 litre container every two weeks. The City has also implemented an Asphalt Recycling program through its contractor for road work. Arc Recycling uses a Hot-in-Place recycling process where old asphalt is heated, mechanically removed and re-laid without removing the recycled material from the original site. The process is cost effective and conserves both resources and energy in making and transporting new asphalt material.

Reduction Opportunities

Zero Waste Strategy: This strategy builds on the progressive waste management activities already underway in the Nanaimo region and focuses on education and incentives that the City can provide to residents in an effort to move towards the "zero waste" goal.

3.0 A Framework for Action

The framework for action is structured around three basic elements: 1) the GHG reduction scenarios; 2) community partnerships with the City 3) the approach to action.

The GHG emission reduction scenarios presented in Section 3.1 highlight the challenges in trying to reduce energy demand and GHG emissions in Nanaimo. In October 2010, the City hired Stantec Consulting to complete a Community Energy and Emissions Study (CEES). The intent was to review the current GHG emissions reduction target in the OCP and determine how it could be reached. An OCP “Plus” scenario that closely followed the goals and actions of the existing OCP and a “Target” scenario which included additional actions and measures needed to meet the GHG reduction target (33% reduction below 2007 levels by 2020 and 80% reduction below 2007 levels by 2050), were compared with a “Business as Usual” approach.

Policies and programs will take time to implement and even longer to take effect. As conditions change with time (i.e. the market, new technology, greater public awareness, etc.) behaviours will start to change and more substantial reductions will occur. That said, the expected measures to meet the Target scenario are more aggressive and difficult to meet versus the measures for the OCP Plus scenario. The OCP Plus scenario provides a more gradual transition that follows much more in line with the direction in the current OCP. The OCP Plus scenario also relies more on the use of education and incentives over regulation in the types of actions that are taken.

To meet any GHG reduction target, the whole community must play a role in reducing energy and emissions on top of what the City can incent or regulate. While there are recommended measures and actions that fall within the City’s mandate, community stakeholders and residents need to take some responsibility for their role. This will require a three-way partnership between the City, its community partners and residents.

When looking at the approach for taking action, the sources of energy demand and GHG emissions identified in the 2007 provincial Community Energy and Emissions Inventory provide direction on where to focus our collective efforts. They include:

- Land Use & Transportation (transit, cycling, walking, carpooling / car share, etc.)
- Buildings (existing and new construction)
- Alternative and District Energy
- Solid Waste

Within each of these components, the province, the City and local stakeholders all can play a role in altering the level of energy consumed and lowering greenhouse gas emissions.

3.1 GHG Reduction Scenarios

Many factors will influence the behaviour and actions of Nanaimo residents over time, making accurate predictions of the future next to impossible. However, generalized reduction scenarios can be established to define opportunities for reducing energy demand and GHG emissions and to impart an understanding of the level of effort required to achieve different magnitudes of reductions.

The strategies and actions identified in Section 5 incorporate a variety of policy instruments available to local governments and community stakeholders, including: education and outreach, non-financial incentives, financial incentives and policy and regulation. These strategies and actions were prepared and outlined within the City's Community Energy and Emissions Study (www.nanaimo.ca/goto/cees) and are used in this section to create the reduction scenarios, which are packages or combinations of specific actions that can help Nanaimo's energy and emissions reduction efforts. The Business As Usual (BAU) and the two GHG reduction (OCP Plus and Target) scenarios are described in detail within the Community Energy and Emissions Study (CEES).

In general terms, the scenarios are the following:

Business as Usual (BAU)

As population grows, so does the demand for energy. A business as usual forecast tells us how much energy we will need as our community grows if we continue with our current patterns of energy consumption. It also projects the amount of GHGs we can expect to emit as a result of our business as usual approach to energy consumption. Within the CEES, the BAU includes a forecast for energy consumption and GHG emissions in Nanaimo for the year 2020 and 2050.

Target Scenario

This scenario refers to the City's current commitment to pursuing the province-wide GHG targets of a 33% reduction below 2007 levels by 2020 and an 80% reduction below 2007 levels by 2050. The majority of the reduction opportunities outlined in this scenario should be seen as being supported by planNanaimo; however, this scenario goes beyond that in an attempt to define opportunities for Nanaimo to reach these ambitious targets. The result of this, in terms of energy and emissions reductions, is a scenario that demonstrates aggressive action on climate change that relies more on a regulatory approach, yet does not quite reach the province-wide targets.

OCP Plus Scenario

Again, this scenario is based largely on opportunities for energy and emissions reductions that are supported by planNanaimo, though it does incorporate additional actions that may not be explicitly mentioned in the OCP (e.g., idling reduction, district energy, etc). Nanaimo's OCP includes sustainability as a guiding principle and as such, is seen as a relatively progressive approach to managing future development in Nanaimo. The result of this, in terms of energy and emissions, is a scenario that results in moderate reductions – much better than business as usual, but not as aggressive as the target scenario with more focus on education, outreach and incentives (see Figure 2).

Nanaimo CEES

OCP+ Plus Scenario

OCP+ Plus Scenario

Population

2007	2020	2050
79,636	92,995	133,007

GHG Target (below 2007)

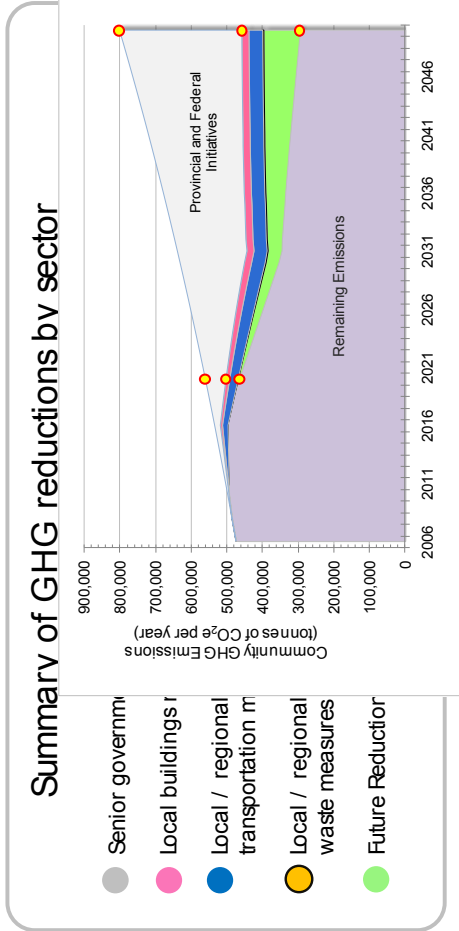
2020	2050
-3%	-39%

Total GHG Emissions (CO₂e)

2007	2020	2050
480,421	464,564	295,426

Per Capita GHGs (CO₂e/ person)

2007	2020	2050
6.0	5.0	2.2



Key features of the OCP+ Plus Scenario

- New growth largely focused in urban nodes, though some continues to occur throughout the city;
- Alternative transportation network grows and transit service improvements occur;
- TDM program implemented;
- Outreach campaign to promote idling reduction;
- Outreach campaign, coupled with incentives, to encourage energy efficiency improvements and alternative energy systems in buildings;
- One district energy system is implemented;
- Waste diversion continues to increase

3.2 A Three-Way Partnership

The actions outlined in this plan are intended to catalyze change in our use of energy, and change that reduces greenhouse gas emissions. As a local government, the City of Nanaimo can use certain powers granted by legislation and within their mandate to help manage energy and emissions for the community. While some of the recommended measures fall within the City's mandate, it also identifies measures that rely on the help of partners and residents. In this sense, the community's energy and emissions success relies on a three-way partnership between the City, its community partners and residents.



The City of Nanaimo has some degree of control and influence over how quickly the local stakeholders and residents participate in reducing their energy consumption, switch to less carbon intense fuels and reduce GHG emissions. In areas where the City has jurisdiction (e.g., land use policy and planning), it may enact bylaws (**regulation**) that essentially “require” certain behaviours or actions to occur (e.g., urban containment boundaries force development to occur in concentrated zones). In areas outside of the City's jurisdiction (e.g., transportation and buildings), the City may use strong policy tools such as: **financial incentives** to incent desired behaviours (e.g., providing building permit fee rebates for homeowners that undertake energy efficiency retrofits), and; **non-financial incentives** (such as improving cycling infrastructure and amenities to make cycling safer and more appealing to residents). Outreach and communication is also needed to ensure that people are aware of changes that are being implemented and the opportunities that these changes may present. The City, therefore, can also provide **outreach and education** to residents to encourage desired behaviours and actions.

Outreach is an essential tool for any change process as it assists individuals in understanding options and making informed decisions. Therefore it plays a major part within all the **strategies** that combine the regulation, incentives and non financial incentives of this plan.

Leveraging Existing Programs

There are emerging partnerships forming between the City, Vancouver Island University, and the development community, to establish green building projects in Nanaimo and to learn how best to develop these kinds of projects in the future.

The City also has a number of existing initiatives and programs related to energy and climate change that can be maximized when combined with an effective outreach strategy. Furthermore, a number of partners, such as BC Hydro and Fortis BC offer a range of programs to assist communities, homeowners and businesses with energy conservation. The City can leverage these programs in the community through collaborating with their partners on outreach campaigns. Some of the existing programs that the City can leverage through outreach are outlined below in Table 1.

Table 1: Existing Programs to Support Reductions in Energy & GHG Emissions

Existing Program	Description	Target Audience	Supporting Stakeholders
City Programs			
Corporate Green Building Policy	A City policy that requires all new civic buildings over 900 square metres to meet the Leadership in Energy and Environmental Design (LEED®) Gold rating. For building less than 900 square meters, environmental priorities in energy efficiency, minimizing greenhouse gas emissions and water efficiency, will be incorporated into the building and site design.	City staff, residents	
Corporate Energy Conservation Policy	A City policy that sets energy reduction targets for the City. Initially the City has set a target of 1% reduction in the overall consumption of energy for the City per year. All city departments are tasked with collectively meeting these targets.	City staff, residents	
Density Bonusing	The revised Zoning Bylaw 4500 (2011) has a density bonus incentive that allots points to developments that meet or exceed ASHRAE 140.2007 standards.	Developers and Trades (Contractors)	
Update existing Form and Character Design Guidelines	Revising the City Form and Character Design guidelines would provide direction for City staff, consultants and property owners on specific green site and building design. Special focus could be placed on green design elements, including: native vegetation retention, water wise gardening, alternative transportation, energy efficient building form, site planning, rainwater management.	Developers	
Transportation Master Plan	Development of plan is underway and will involve significant technical analysis to establish baseline conditions, build tools to assess future options, and identify actions to ensure that the transportation network meets future needs and that land-use planning and transportation objectives are mutually supportive.	Developers, City	
Woodstove Change-out Program	An incentive program to replace old wood burning stoves with new low-emissions stove or fireplace insert as part of a larger effort to improve air quality and reduce GHG emissions through more efficient wood burning.	Homeowners	
Zoning Bylaw: Sustainable Building Technologies	Amended zoning to permit sustainable building technologies, such as roof mounted micro wind turbines, photovoltaic cells, solar thermal collectors and green roof infrastructure, to exceed the height limits within the Zoning Bylaw.	Developers, home owners	

Table 1 Continued: Existing Programs to Support Reductions in Energy & GHG Emissions

Existing Program	Description	Target Audience	Supporting Stakeholders
Partner Programs			
Team Power Smart	Encouraging British Columbians to track energy consumption and saving. Members commit to reduce their electricity use by 10% and enjoy exclusive Team Power Smart offers and rewards.	Public	BC Hydro
Energy Conservation Assistance Program	Provide qualified low-income BC Hydro residential account holders with a home energy evaluation, the installation of energy saving products, and personalized energy efficiency advice	Low income households	BC Hydro
Energy Saving Kits	Provide free energy saving kits for low income households. The kit contains a number of simple, easy-to-install energy saving products including:	Low income households	BC Hydro & FortisBC
Rebates	Fridge buy-back program, appliance rebates & offers, lighting specials, windows offers, home electronics	Public	BC Hydro
Product Incentive Program	Incentives for eligible retrofits and replacement of products	Businesses	BC Hydro
e.Catalog	A resource of over 10,000 energy-efficient products from over 250 brands in one place.	Businesses	BC Hydro
New Construction Program	Tools, incentives and assistance to help design and implement energy efficient measures in new construction.	Developers	BC Hydro
Workplace Conservation Awareness Program	Resources to assist businesses in building their own Employee Energy Awareness program	Businesses	BC Hydro
ecoENERGY** Home Energy Assessment	Home audit and report containing recommendations on how to improve the energy efficiency of the home. Incentives available for implementing recommendations.	Homeowners, Businesses	Natural Resources Canada (NRCAN)
Renovation Rebates	Rebates for high-efficiency furnaces, heat pumps, water heaters, boilers, heat recovery ventilator, geothermal installations, insulation, etc	Homeowners	Province of BC
Solar Rebate	Incentive for a new solar hot water system.	Homeowners, Developers	Province of BC & Solar BC
New Home Program	Supports the nationally accepted EnerGuide rating systems by providing financial incentives* and cooperative marketing to new residential home construction.	Developers	BC Hydro

Table 1 Continued: Existing Programs to Support Reductions in Energy & GHG Emissions

Lead Stakeholder	Actions	Target Audience
Vancouver Island University	<ul style="list-style-type: none"> • Energy manager and Sustainability coordinator hired • Retrofitting of existing Buildings on campus. • Fleet right sizing / Upgrades to more fuel efficient vehicles. • Exploring feasibility of geo-exchange systems • Travel reductions by staff / increases in Parking fees • Education and awareness for staff and students on energy conservation and Climate Change issues 	Students / Faculty
BC Ferry Corporation	<ul style="list-style-type: none"> • LEED standards for new construction • Low sulphur Diesel and exploring use of Biodiesel • Undertaken and anti-idling program to minimize air pollution on ship for crew members • Gasoline fueled company vehicles being replaced with propane and electric • Expanded recycling program underway • Power smart program for all buildings • Car pooling program underway for staff 	Customers / Staff
Vancouver island Health Authority	<ul style="list-style-type: none"> • Building retrofits and energy upgrades at NRGH • Enhancing traffic demand management – increased subsidies for staff to use BC transit / increased bicycle storage / increased parking fees • Expanded recycling in NRGH • Energy use Program directed at staff • District Energy pre-feasibility study 	Staff / Patients / Visitors
Greater Nanaimo Chamber of Commerce	<ul style="list-style-type: none"> • Green office practices in place • Organizing Green Business Seminar • Involved in train Station restoration and its promotion as a transportation stop • Community advocate for sustainable practice 	Small / Medium sized Business owners / Customers
Non-government organizations (NALT, ESVI)	<ul style="list-style-type: none"> • Home energy audits for homeowners • Coordinates and organize community events (i.e. Earth Day, River’s day, etc.) • Provide opportunity for community to have access to locally grown produce • Community education and awareness 	Homeowners / General public
Nanaimo Recycling Exchange (Business / Recycling Services)	<ul style="list-style-type: none"> • The Nanaimo Recycling Exchange runs The “Down to Earth” Education Program as well as the recycling exchange itself. • Educators set up informative displays at public events. • An annual Environmental Mind Grind event where teams of students (Grade 4/5, grade 6/7 and grade 8/9) compete to challenge their knowledge of environment-related topics, including: species, spaces, air quality, transportation demand management, energy conservation, climate change, waste reduction, and water. 	Students / Customers / General Public

Lead Stakeholder	Actions	Target Audience
Local Business (i.e. Island West Coast Development, Cedar Road BioEnergy, iDUS Controls Ltd.)	<ul style="list-style-type: none"> Using waste gas from electricity generation at Cedar Road landfill LEED Gold office building (IWCD) Creating / marketing products that provide environmental benefit Demonstration platform and discussions on using gas for future adjoining industrial developments 	Customers / Employees
Canadian Homebuilders Association (Central Vancouver Island)	<ul style="list-style-type: none"> Informing and educating the home-buying public on the value of a home that meets Built Green™ standards 	Builders / Homeowners
School District 68	<ul style="list-style-type: none"> Has conducted energy audits of school buildings Energy retrofit upgrades of existing buildings Hired an energy manger Solar Hot water systems installed at three schools. Real time data available online Exploring feasibility of geo-exchange systems Student environmental programs to be enhanced 	Students / faculty

3.3 Approach to Action

Based on the results of the Community Energy and Emissions Study, the **OCP Plus scenario** was chosen as a more realistic scenario for the City to use in setting a measure to track progress in reducing emissions in the City. The implementation of the action plan will achieve the GHG target as envisioned in the OCP Plus scenario. The modified targets for GHG emissions and the strategies and actions contained in this action plan will form the basis for reducing GHG emissions in Nanaimo.

The strategies listed in the next chapter focus on reducing major GHG emission sources in the City and target general opportunities, including densification, more sustainable choices of transportation, energy efficient buildings, local energy production; and the reuse and reduction of solid waste. A set of measures for the actions are included which will track progress in meeting the City’s overall GHG reduction target.

Each strategy has a set of different types of actions. Where the City has jurisdiction (e.g., land use policy and planning), City action may include the use of bylaws (**regulation**) that essentially “require” certain behaviours or actions to occur (e.g., urban containment boundaries force development to occur within a given area). In areas outside of the City’s jurisdiction (e.g., transportation and buildings), some actions propose strong policy tools such as **financial incentives** to incent desired behaviours (e.g., providing building permit fee rebates for homeowners that undertake energy efficiency retrofits), and; **non-financial incentives** (such as improving cycling infrastructure and amenities to make cycling safer and more appealing to residents). Finally, each strategy includes a number of actions that provide **outreach and education** to residents to encourage desired behaviours and actions over the long term.

4.0 Strategies & Actions

4.1 Land Use & Transportation

Strategy 1: Compact Complete Community Strategy

This strategy focuses primarily on land use and development and the ways in which development patterns influence our transportation choices and as a result, our energy consumption and GHG emissions. Actions are focused on incentives and policy to encourage development patterns that concentrate density and provide mixed uses in particular areas and promote connectivity between these areas. This has many benefits to the community, including: creating more vibrant neighbourhoods, improving pedestrian and cycling opportunities, improving access to and frequency of transit, increasing the diversity of housing options, and preserving parks and open spaces.

Actions

Actions	Description
Education /Outreach	
Provide information on energy efficient development practices	Compile information on energy efficient and sustainable development practices and make it available at the front counter and through the permit application process. This would help to build awareness around programs that already exist to support this type of development.
Offer 'Energy Efficient Development Practices' Workshops	Working in partnership with the RDN and local builder / developer associations (e.g. Canadian Homebuilders Association), the City could offer learning sessions (workshops) to: promote energy efficient development practices, build awareness of the programs and incentives available, outline the associated benefits and costs, and communicate why these practices are important for the future of the region.
Incentives	
Establish a Development Incentive Program	The South End Neighbourhood Plan recommends establishing a Development Incentive Program that encourages higher density, mixed use development (residential, office, and commercial space) on lands designated as Urban Nodes, Corridors and Neighbourhood Commercial Centres. This type of program would improve the distribution of population and services, thereby reducing the distances traveled to get to work and to access daily services. Emphasis would be placed on integrating higher density; mixed use developments into existing neighbourhoods (i.e. encourage infill development). The program might include all or some combination of the opportunities listed below (most of which require that a bylaw be created or amended) and should be paired with an outreach strategy.
Allow density bonuses for large new green development	Under the City's new zoning bylaw 4500 (2011), a higher level of density is offered as an incentive in exchange for green development features, including high energy efficiency building designs, improved pedestrian, cycling and transit amenities, designated parking spaces for car-pools and car-share vehicles, and more, with Council approval.
Review Development Cost Charge (DCC) structure and consider reductions	The City could consider increase overall DCCs for development and provide DCC reductions to developers who meet the eligibility requirements that could be outlined in a Sustainability Checklist.

Actions	Description
Regulations / Projects	
Update existing Form and Character Design Guidelines with a checklist tied to incentives.	The City is looking into completing an update of its existing Form and Character development permit guidelines for DPA 9. These guidelines cover energy and water efficiency issues from a site and building design perspective. The guidelines include passive design techniques, rainwater management, green roofs, building orientation, Water Wise landscape, and renewable power generation, among other topics.
Infill commercial (or mixed-use) buildings by reducing surface parking	The City could consider adjusting current parking requirements to encourage infill commercial buildings in areas where parking requirements limit this possibility.
Develop an Energy Efficient Rezoning Policy	The City could consider developing a policy to define the type of activities that are desired in a rezoning application, such as high energy performance standards, incorporation of innovative alternative energy sources, etc. Such a policy statement would not have the regulatory strength of the OCP or Zoning bylaw, but it would be considered a soft measure for encouraging innovation and demonstrating leadership.
Adopt a Transit Oriented Development (TOD) Policy	A TOD policy could apply to specific areas of the City (i.e. urban nodes and corridors) that currently have better access to transit, and would define (1) what TOD is, and; (2) how parking reductions would be considered in TODs. The policy would provide guidance and incentives for developers to build higher density, mixed-use developments with pedestrian and cycling facilities along high frequency transit routes.

Measures

Reduction Scenario	Expected Outcomes	GHG Reductions (Tonnes / CO ₂ e)
	<ul style="list-style-type: none"> ○ 60% of new residential growth is focused in urban nodes, including downtown. ○ 60% of new commercial growth is focused in urban nodes, including downtown. ○ 25% reduction in personal vehicle use as a result of more compact urban form. 	7,131

Strategy 2: Alternative & Active Transportation Strategy

The City of Nanaimo envisions offering a transportation system to its residents and visitors that permit's a high level of convenience with a low environmental and social impact, and supportive the City's key climate change emission reduction targets.

Actions

Action	Description
Education / Outreach	
Promote Commute Trip Reduction Strategies	<p>Take opportunities to work with partners (RDN and major employers in the City and Region) and encourage strategies that will result in fewer and more efficient commute trips. Examples of opportunities might include:</p> <ul style="list-style-type: none"> ○ Offer subsidized transit passes (e.g. regular monthly passes, ProPass, UPass) to employees; ○ Provide end-of-trip cycling facilities (bike racks, showers, lockers, secured parking). ○ Provide designated parking spaces for carpoolers and low emissions vehicles. ○ Provide opportunities for flex-time, compressed work schedules, and tele-working. ○ Participate in existing provincial and national commuter initiatives such as the BC Bike to Work Week and Bike Month, and the Commuter Challenge.
Provide Bicycle Awareness and Safety Education	<p>Work with the RDN and the Greater Nanaimo Cycling Coalition to promote and provide bicycle safety education to residents and to work with schools to hold bicycle safety workshops for the public during events, such as Bike to Work Week in the Spring.</p>
Promote Walking and Cycling to Students	<p>Work with community groups and students to develop bike clubs and other student-led programs that promote walking and cycling. Student-led programs can help develop student champions and build up programs that require less support by the City over the long term.</p>
Incentives	
Encourage New Developments to Offer Alternative Transportation Options	<p>The City, the RDN and neighbouring municipalities, shall work to encourage developers to consider opportunities to: unbundle parking from housing costs in an effort to reduce housing costs and encourage people to consider living without a vehicle; offer transit passes and car share memberships to home buyers; provide a car-share vehicle(s) to the owners of a new development; provide secure bike parking (as proposed in the new zoning bylaw), and; provide electric vehicle plug-in facilities. The types of opportunities promoted would vary by development and depend on what transportation services and amenities are available at a given site.</p>
Regulations / Projects	
Complete the Transportation Master Plan	<p>Currently underway in 2012, the Transportation Master Plan will involve significant technical analysis to establish baseline conditions, build tools to assess future options, and identify actions to ensure that the transportation network meets future needs and that land-use planning and transportation objectives are mutually supportive.</p>

Improve Transit Service Amenities	As currently planned, work with the RDN and BC Transit to communicate development plans in an effort to ensure that improvements to transit services (e.g. frequency, priority bus / HOV lanes, transit signal priority) and amenities (bus shelters, seating, signage, etc) are focused around areas that are identified for higher density development (i.e. urban nodes and corridors).
Enhance the Pedestrian and Cycling Environment	As the commute mode share for walking is currently over 9%, priority should be placed on improving the pedestrian and cycling environment. These efforts could be focussed on major streets and at intersections along corridors, in urban nodes and commercial centres. Actions might include wider sidewalks with improved lighting, benches, etc.; traffic calming measures, cycle lanes and paths; bicycle racks and secure lock-up facilities; and end of trip facilities at all civic buildings. It could also be focused on improving street connectivity in the outer neighbourhoods, where streets often end at cul-de-sacs, which increases walking and cycling distances. To ensure strategic improvements are made a Walking and Cycling Plan should be developed by the City.
Enhance Transit Stop Facilities	The City should continue to work with the RDN to invest in transit stop facilities (e.g. shelters, benches, lighting, route maps and schedules, information kiosks, etc.) in an effort to increase the sense of comfort and safety of transit riders.
Identify Innovative Funding Opportunities to Support Alternative Mode Infrastructure and Programs	The City could investigate the potential of the following funding opportunities (some of which will require that a bylaw be put in place): <ul style="list-style-type: none"> ○ Alternative Transportation Fund from cash-in-lieu of reduced parking requirements. ○ Local Improvement charges on properties adjacent to walking / cycling / transit investments (i.e. the beneficiaries) to help fund projects for new / additional facilities.

Measures

Reduction Scenario	Expected Outcomes	GHG Reductions (Tonnes / CO ₂ e)
	<ul style="list-style-type: none"> ○ 1% reduction in Vehicle Kilometers Travelled as a result of transit service improvements. ○ 1% reduction in Vehicle Kilometers Travelled as a result of improvements to cycling infrastructure. ○ 5% reduction in Vehicle Kilometers Travelled as a result of improvements to the pedestrian environment. 	8,606

Strategy 3: Low Carbon Mobility Strategy

Despite our best efforts to plan for compact, complete communities where people can easily move around using alternative and active modes, we still need to account for the fact that people will need to drive their cars. This strategy is not about telling people that they can't drive their vehicles around, it's about encouraging people to think of ways to be more efficient with their current driving habits and to consider ways they could reduce their personal vehicle use. The strategy is focused on opportunities to reduce the number and distance of personal vehicle trips in Nanaimo, and to encourage more efficient vehicle travel.

Actions

Action	Description
Education / Outreach	
Develop a Nanaimo Green Fleet Challenge	<p>The City could initiate a program / campaign to encourage local businesses to reduce commercial fleet vehicle emissions. This might include activities such as:</p> <ul style="list-style-type: none"> ○ Providing workshops and information resources on green driving techniques ○ Sharing lessons learned from the City's fleet emissions reduction efforts ○ Encouraging businesses to join the E3 Fleet program of the Fraser Basin Council (http://www.e3fleet.com/) ○ Offering awards / recognition / incentives for businesses that demonstrate innovation, and which achieve the most reductions, etc.
Incentives	
Provide Priority Parking and/or Parking Fee Reductions	The City should work with local retail outlets, businesses, Nanaimo Regional General Hospital, and Vancouver Island University to encourage them to offer parking spaces and / or parking fee reductions for low emission vehicles and carpoolers. The City could lead the effort by offering these incentives at all civic facilities.
Regulations / Projects	
Provide Plug-ins for Electric Vehicles	Similar to the action above, the City could work with partners to encourage them to implement plug-in facilities / parking spaces for electric vehicles. The City could lead the effort by offering these incentives at all civic facilities.
Encourage BC Transit to Transition Towards Cleaner Transit	The City could work in partnership with the RDN and other municipalities served by BC Transit to encourage a faster transition to electric trolley busses or other cleaner transit vehicle technologies

Measures

Reduction Scenario	Expected Outcomes	GHG Reductions (Tonnes / CO ₂ e)
	<ul style="list-style-type: none"> ○ 50% reduction in unnecessary idling. ○ 4% reduction in VKT as a result of Transportation Demand Management (TDM) programs. ○ 15% reduction in commercial VKTs as a result the Green Fleet Challenge. 	9,728

4.2 Buildings

Strategy 1: Energy Efficient Existing Building Strategy

Approximately 60% of the building stock that exists today in Nanaimo is over 25 years old. Older buildings are prone to having compromised air sealing from windows and doors, poor or no insulation in walls, and inefficient furnaces and water heating appliances, all of which contribute to increased energy demand. As a result, existing buildings present a significant opportunity for reducing energy use and GHG emissions in Nanaimo. This strategy is mainly focused on education and incentives to encourage residential and commercial building owners and managers to undertake retrofits that will result in higher standards of energy performance in the existing building stock.

Actions

Action	Description
Education / Outreach	
Package and Promote Information on Existing Programs that Support Energy Efficiency Improvements in Residential and Commercial Buildings	The City shall promote existing rebate and incentive information in an effort to increase awareness around programs such as: <ul style="list-style-type: none"> BC Hydro Powersmart: offers info and incentives for energy efficient building improvements, optimization, equipment and appliances; Natural Resources Canada EcoEnergy program: offers incentives for energy efficient building improvements, equipment and appliances; LiveSmart BC: provides information including tips for reducing personal energy consumption and GHG emissions at work.
Provide Training for Building Inspections Staff	To ensure that staff in the Building Inspections Department is prepared to handle inquiries and requests with respect to energy efficient buildings, the City should consider providing training around energy efficiency and energy management.
Incentives	
Woodstove Change-out Program	An incentive program to replace old wood burning stoves with new low-emissions stove or fireplace insert as part of a larger effort to improve air quality and reduce GHG emissions through more efficient wood burning.
Toilet Rebate Program	Many households in the City are equipped with older toilets that require 13 litres of water or more per flush. New high-efficiency toilets require only 4.8 litres or less per flush, and dual flush toilets use either 3 or 6 litres. By taking advantage of the toilet replacement rebate program, residents could conserve more than 200 litres per day or 80,000 litres per year.
Waive height restrictions in Zoning Bylaw: Sustainable Building Technologies	Amended zoning to permit sustainable building technologies, such as roof mounted micro wind turbines, photovoltaic cells, solar thermal collectors and green roof infrastructure, to exceed the height limits within the Zoning Bylaw.
Provide Rebates for Home Energy Audits and Retrofits	The City could explore opportunities to provide homeowners with a rebate on building permit fees when an energy audit and retrofit have been completed and verified through a third party system (e.g., City Green Energy Audits, EnerGuide).

Offer Revitalization Tax Exemptions for Major Energy Efficiency Improvements	The Community Charter (as of 2010) now allows for Revitalization Tax Exemptions to be offered for the purpose of energy and water conservation. The objective is to create financial value for energy improvements that stays with the property. Consider offering a Revitalization Tax Exemption to support property owners in undertaking major energy efficiency upgrades (Note: this action requires that a bylaw be created).
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Regulations / Projects

Amend the Building Bylaw to Require Minimum Energy Performance Standards	This goes beyond what is normally considered the jurisdiction of local governments, though it has been done by others (see City of Yellowknife Building Bylaw), as a means of bringing older homes up to current energy performance standards. The bylaw should outline a requirement for an energy audit, a minimum energy performance standard; and mandatory energy efficiency upgrades for homes that don't meet the minimum performance standard.
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Corporate Energy Conservation Policy	The City currently has a policy that sets energy reduction targets for City buildings. Initially the City has set a target of 1% reduction in the overall consumption of energy for the City per year. The Energy manager works with all city departments are tasked with collectively meeting these targets.
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Measures

Reduction Scenario	Expected Outcomes	GHG Reductions (Tonnes / CO ₂ e)
	<ul style="list-style-type: none"> ○ 25% of homes have undergone energy efficiency retrofits ○ 40% of commercial buildings have undergone energy efficiency retrofits / recommissioning 	6,421

Strategy 2: Energy Efficient New Building Strategy

The design and construction of new buildings presents opportunities to encourage higher energy performance standards. Proposed changes to the BC Building Code in 2011 will result in new homes with energy performance standards to Energuide 80. However, despite these higher standards, new single family detached homes will typically consume more energy than other dwelling types as a result of their larger size, and lack of shared walls. For this reason, this strategy focuses on more than just improving energy efficiency (in residential and commercial buildings); it promotes efforts to provide residents with a greater diversity of housing options to choose from. Smaller dwellings not only help to reduce energy demand and GHG emissions, they also provide potential co-benefits to the community including, affordability and improved housing choice.

Actions

Action	Description
Education / Outreach	
Work with the Development Community to Promote Energy Efficient New Development	The City shall work in partnership with the RDN and other municipalities in the region to initiate a dialogue with the development community around goals, programs and incentives for energy efficient new development.
Incentives	
Density Bonus credit for Energy Performance	The revised Zoning Bylaw 4500 (2011) has a density bonus incentive that allots points to developments that meet or exceed ASHRAE 140.2007 standards.
Regulations / Projects	
Update and revise the Form and Character Design Guidelines	An update of the City's Form and Character Design Guidelines is has been initiated by staff (2011), for Development Permit Area 9. These guidelines provide direction for City staff, consultants and property owners on specific site and building design strategies. A new section on green design including: native vegetation retention, Xeriscaping (water efficient landscaping), alternative transportation, energy efficient building form, site planning, and rainwater management could be added. The City should release any revised guidelines with an outreach strategy targeting local developers and builders. A Checklist could be used in future to structure and establish a building fee and development permit rebate program that would be based on the levels of performance (or scores) attained.
Require Higher Energy Efficiency Standards for Large Rezoning Applications	The City shall build on its current density amenity for sustainable "green" development by requiring higher standards of energy efficiency for commercial / industrial developments over a certain size.
Corporate Green Building Policy	A City policy that requires all new civic buildings over 900 square metres to meet the Leadership in Energy and Environmental Design (LEED®) Gold rating. For building less than 900 square meters, environmental priorities in energy efficiency, minimizing greenhouse gas emissions and water efficiency, will be incorporated into the building and site design.

Measures

Reduction Scenario	Expected Outcomes	GHG Reductions (Tonnes / CO ₂ e)
	<ul style="list-style-type: none">○ 25% of new homes are built to meet higher energy efficiency standards.○ 30% of new commercial buildings are built to achieve the latest ASHRAE 90.1 standard (http://en.wikipedia.org/wiki/ASHRAE_90.1).○ 10% of new residential and commercial buildings install geo-exchange systems.	1,249

4.3 Alternative & District Energy

Strategy 1: Alternative & District Energy Strategy

This strategy outlines education, incentives and policies that the City can implement to encourage alternative energy systems at the buildings scale and to develop and encourage connection to district energy systems.

Actions

Action	Description
Education / Outreach	
Continue partnership with the RDN to Promote Building Scale Alternative Energy Technologies (i.e. Green Building Tour)	The City of Nanaimo has partnered with the RDN to become a Solar Community and will be working with the RDN on promoting solar energy systems for residential and commercial application. The City and the RDN shall consider expanding this program to offer a broader suite of information on building scale alternative energy systems for residential and commercial applications (e.g. geothermal, micro wind, etc.). This could be done using existing information and materials from programs and organizations that are already in place (e.g. Canadian Wind Energy Association, Community Energy Association, BC Sustainable Energy Association etc.). The City should continue to look for opportunities to install alternative energy technologies on civic facilities as a way of demonstrating leadership in the community.
Train Building Inspections on Alternative Energy Technologies	The City should provide training to Building Inspections staff to ensure that inspectors are equipped with knowledge and skills to handle inquiries and inspections for building scale alternative energy systems. The training should result in increased familiarity with a variety of building scale alternative energy systems and their installation requirements, as well as familiarity with incentive programs, and local suppliers and installers.
Incentives	
Offer Building Permit Fee Rebates and / or Offer Free Inspections	The City shall explore opportunities to offer incentives to encourage homeowners to install alternative energy systems, such as a building permit fee rebate and / or free inspections.
Research and consider the use of Local Improvement Charges for Alternative Energy Systems	To encourage building owners to install alternative energy systems or hydronic systems (for connection to district energy systems), the City will work toward implementing Local Improvement Charges that tie the installation costs to property taxes. In this way, the cost burden for these systems is borne over time by the property owner who continues to benefit from the reduced energy demand afforded by these systems.
Regulations / Projects	
Conduct District Energy Pre-Feasibility Studies to Identify Opportunities for Nanaimo	<p>To ensure that existing development is able to benefit from future district energy opportunities during major renovations or redevelopment, and that new development maximizes these opportunities from the beginning, the City shall work with interested community stakeholders and conduct district energy pre-feasibility studies in an effort to:</p> <ul style="list-style-type: none"> ○ understand where potential opportunities exist and identify specific zones; ○ identify potential energy supply sources, and; investigate partnerships, financing and governance models to advance potential DE system(s). This study provides a high level scoping assessment of DE opportunities in Nanaimo, which can help to focus future pre-feasibility studies that might be undertaken. <p>BC Hydro provides funding to support District Energy studies:</p> <ul style="list-style-type: none"> ○ Pre-feasibility study – up to 50% funding to assess the general feasibility for district energy in a specific location (maximum \$20,000). The study provides a high-level screening of technology options available for a given site/area. ○ Feasibility study – up to 50% funding to conduct a detailed analysis of a

district energy system at a particular site (maximum \$75,000). The study recommends a specific approach to providing energy services to the development (i.e. technology source chosen and business case economics are known).

Measures

Reduction Scenario	Expected Outcomes	GHG Reductions (Tonnes / CO ₂ e)
	<ul style="list-style-type: none"> ○ 10% of existing residential buildings install solar hot water systems. ○ 15% of new residential buildings install solar hot water systems. ○ 10% of new buildings are connected to a DE system (e.g., a DE system is operating in one (1) of the identified zones). 	314

4.4 Solid Waste

Strategy 1: Zero Waste Strategy

This strategy builds on the progressive waste management activities already underway in the Nanaimo region and focuses on education and incentives that the City can provide to residents in an effort to move towards the “zero waste” goal.

Actions

Action	Description
Education / Outreach	
Continue to promote the Zero Waste approach to the public and to business	Continuing its commitment to support implementation of the Regional District of Nanaimo’s Solid Waste Management Plan, the City will work with the RDN and partners to conduct outreach to residents and businesses on opportunities to reduce, reuse, and recycle waste, as well as compost food waste and other organics whether at home in a backyard composter or via the region’s new Green Bin program.
Identify / Promote Eco-Industrial Networking	“Eco-Industrial networking” is the exchange of materials / resources between industrial operations, where one industry’s waste becomes another industry’s resource. When permitting new industrial development, the City should consider working with developers, the RDN and local waste contractors to investigate opportunities to make use of waste resources from other industrial operations and to consider how the waste resources from their operations might benefit another industry.
Incentives	
Review the Fee Structure for Solid Waste Collection	As per the OCP, the City will periodically review the fee structure of the solid waste, recycling and green Bin collection programs to ensure that: <ul style="list-style-type: none"> ○ Fees continue to incent waste reduction ○ Fees (and the program structure in general) are not creating any perverse incentives that might run counter to the goals of the SWMP (e.g. size or quantity of waste bins provided in comparison to size of recycling and composting bins), and ○ Residents continue to receive acceptable levels of service at reasonable costs.

Measures

Reduction Scenario	Expected Outcomes	GHG Reductions (Tonnes / CO ₂ e)
	<ul style="list-style-type: none"> ○ 75% of organic waste is diverted as a result of efforts to implement the SWMP. ○ Landfill gas is captured and used to produce electricity for the grid. 	1,220

5.0 Implementation

5.1 Community Engagement

The Community Sustainability Action Plan (CSAP) relies on multiple partners, throughout the community, working together and separately, on initiatives that collectively reduce energy and emissions over time and contribute toward the City's GHG reduction targets. Working with and engaging the community is a fundamental that requires the City playing a role in fostering communication and providing opportunities for connections and partnerships to develop among our community stakeholders. Key recommendations to initiate and support community engagement are:

- **Continue Communication Amongst Stakeholders:** Key stakeholders that could really help to move the CSAP actions forward were in attendance at the workshops. These stakeholders were engaged in the issues, voiced their support for the CSAP, and expressed their interest in staying connected to these discussions with the City and with each other. Continued communication amongst stakeholders will be beneficial to the implementation of this plan (more awareness around partnership opportunities, etc.). The City should provide opportunities for ongoing dialogue with interested stakeholders in order to create new synergies, share knowledge and expertise and create opportunities for new actions to be identified to cut energy use and GHG emissions.
- **Dedicate Staff and Resources to Implementation:** A dedicated position to help coordinate and manage the implementation of the CSAP is recommended. Funding (up to 50% of a full-time position) is available through BC Hydro to support the creation of a Community Energy Manager. Making use of available grant funding to secure staff resources during the early stages of implementation would help to kick start action in the community.
- **Establish a Coordinating Team to Advance On-The-Ground Implementation:** Stakeholders expressed a need for a coordinating team that would be focused on moving CSAP implementation forward and work to support the Community Energy Manager. This team would be more operational in nature and used to get actions / projects off the ground. To this end, a Terms of Reference for a CSAP support team could be developed and used to solicit interest from a range of community stakeholders.
- **Complete Action Plan Priority-Setting and Establish an Initial Five Year Plan:** Key stakeholders have provided high level suggestions for actions to be prioritized and implemented in the near-term. Continued efforts to prioritize actions and detail implementation requirements will ensure implementation remains focused and manageable, which may help to boost momentum for ongoing action. A short term plan (5 year) should be developed to outline priority actions and responsibilities (lead, partners, etc.), and to determine cost implications and potential sources of financial support (see draft under Appendix E).
- **Education and Awareness Within the Community:** Parallel to priority-setting and initial implementation planning, the City and its partners will need to develop an outreach and public engagement strategy that signals a "call to action" in the community and creates momentum for individual, community, corporate and institutional action. Understanding

which actions will be implemented in the short term and the specific activities that will be required to advance these actions will help to create an understanding of target audiences and inform communication objectives, which provide the starting point for the development of an outreach strategy.

5.2 Action Plan Implementation

The CSAP will be implemented through a variety of actions, ranging from the development of new bylaws and the direct involvement of citizens, landowners and stakeholders through to citizen committees and the preparation of Area Plans for Urban Nodes, Corridors and Neighbourhoods. Certain actions are to be implemented in the short term (such as updating the Form and Character Design Guidelines and the green density bonusing incentive within the new Zoning Bylaw). Other actions will be implemented over a longer timeframe, and may require months or years to complete. Some implementation measures, such as increased community involvement, will be ongoing.

A draft five-year plan was prepared as part of the senior management review. It strongly favors building momentum through education and awareness for the plan and then transitioning toward incentives toward the end of the 5-year term (see Appendix E).

Strategy 1: Compact, Complete Communities (Estimated GHG Reductions by 2020: 7,131 tonnes CO₂e)							
#	Strategy and Actions	Type/Nature of Action	Lead	Partners	Estimated Costs		Status
					Capital (one-time \$)	Operating (annual \$)	
1	Provide information on energy efficient development practices through brochures and through City / regional website	Outreach	CoN	RDN	\$5,000 for materials	none	40% complete
2	Offer 'Energy Efficient Development Practices' Workshops	Outreach	CoN, RDN	Development Community	none	\$10,000 for 2 workshops	Workshops held in 2011
3	Establish a Development Incentive Program (not necessarily financial)	Incentive (program)	CoN	Local developers	none	unknown (incentives)	Research Underway
4	Allow density bonuses for large new green developments	Incentive		Local developers	none	Existing staff time	Complete
5	Review Development Cost Charge Structure and consider (DCC) reductions	Incentive (Bylaw)	CoN	Development Community	none	unknown (incentives)	Underway 2012, 2013
6	Update existing Form and Character Design Guidelines and consider adding a checklist that will provide rebates for green development.	Policy (Bylaw) and incentive	CoN	Local developers	none	Existing staff time plus \$25,000 (\$250 x 100 permits per year)	Design guideline review underway
7	Infill commercial (or mixed use) buildings by reducing surface parking	Incentive	CoN		none	Existing staff time	-
8	Develop an Energy Efficient Rezoning policy	Policy (Bylaw)	CoN		none	Existing staff time	-
9	Adopt a Transit Oriented Development Policy (Corridor Designation)	Policy	CoN		none	Existing staff time	Completed

Strategy 2: Alternative and Active Transportation (Estimated GHG Reductions by 2020: 8,606 tonnes CO ₂ e)							
#	Strategy and Actions	Type/Nature of Action	Lead	Partners	Estimated Costs		Status
					Capital (one-time \$)	Operating (annual \$)	
10	Complete the Transportation Master Plan	Planning	CoN	RDN, MoT	\$150,000		Begins fall 2012
11	Provide bicycle awareness and safety education (Bike to Work Week)	Outreach	CoN	Greater Nanaimo Cycling Coalition, large Employers, Cycling shops	none	\$5,000 for materials + existing staff time	Underway, Yearly event since 2008
12	Promote walking and cycling to students	Outreach	CoN	School District; VIU	none	Existing staff time + partners time	Underway
13	Promote commute trip reduction strategies	Outreach	RDN, CoN	Large employers	none	\$5,000 for materials + existing staff time	-
14	Encourage new developments to offer alternative transportation options	Outreach and incentive	CoN	Local developers and builders	none	Existing staff time	-
15	Enhance the pedestrian and cycling environment	Infrastructure Upgrade	CoN	RDN, developers	\$500,000 for infrastructure	\$5,000 for materials (i.e. bike route maps)	-
16	Enhance transit stop facilities	Infrastructure Upgrade	RDN, CoN	BC Transit (Contracted Service)	\$500,000 for infrastructure	\$5,000 for materials + staff time	-
17	Consider reducing parking requirements downtown and in urban nodes	Incentive	CoN	CoN; BIAs	none	Existing staff time	-
18	Identify funding opportunities to support alternative mode infrastructure and programs	Policy	CoN	Community Stakeholder	none	Existing staff time	-

Strategy 3: Low Carbon Mobility (Estimated GHG Reductions by 2020: 9,728 tonnes CO ₂ e)							
#	Strategy and Actions	Type/Nature of Action	Lead	Partners	Estimated Costs		Status
					Capital (one-time \$)	Operating (annual \$)	
19	Provide plug-ins for electric vehicles	Infrastructure	CoN, Fraser Basin Council, Province, RDN	Local Commercial Property Owners	Funding available for % of cost (up to \$4000 per plug-in)	Existing staff time	Underway and ongoing
20	Encourage BC Transit to transition towards cleaner transit vehicle technologies	Policy	CoN	RDN	none	Council / staff time	Underway and ongoing
21	Provide priority parking and/or parking fee reductions for low emission vehicles	Incentive	CoN	Engineering; BIAs; Retailers	unknown	\$5,000 for outreach + existing staff time	-
22	Develop a Nanaimo Green Fleet Challenge	Outreach	CoN, RDN	Fraser Basin Council; Large employers	none	\$5,000 for materials/events + existing staff time	-

Strategy 4: Energy Efficient Existing Buildings (Estimated GHG Reductions by 2020: 6,421 tonnes CO ₂ e)							
#	Strategy and Actions	Type/Nature of Action	Lead	Partners	Estimated Costs		Status
					Capital (one-time \$)	Operating (annual \$)	
23	Corporate Energy Conservation Policy	Policy	CoN	CoN Staff	\$322,000 (2013)	Existing staff time	Policy Complete
24	Woodstove Change-out Program	Outreach / Incentive	CoN	RDN	none	\$25,000 for rebates + outreach support	Underway since 2009
25	Toilet Rebate program	Incentive	CoN	RDN; Nanaimo Recycling Exchange	none	\$50,000 for rebates + existing staff time	Underway since
26	Waive height restrictions for Sustainable Building Technology in Zoning Bylaw	Incentive	CoN	RDN; Building Technology Retailers	None	Existing staff time	Complete
27	Package and promote information on existing programs that support energy efficiency improvements in residential and commercial buildings	Outreach	CoN, RDN	; Local developers	none	\$5,000 for materials + existing staff time	Partially complete (information on City website)
28	Provide training for Building Inspections staff	Outreach	CoN	City Green Solutions	none	\$7,500 for training	-
29	Provide rebates for home energy audits and retrofits	Incentive	BC Hydro, Fortis BC	CoN	none	\$250 per audit and \$1,000 per retrofit (up to a max # of homes per year)	-
30	Offer Revitalization Tax Exemptions for major energy efficiency improvements	Incentive (Bylaw)	CoN	Local developers	none	unknown (tax exemptions)	-
31	Amend the City Building Bylaw to require minimum energy performance standards	Policy (Bylaw)	CoN	Local developers	none	\$50,000 for consultants and outreach + existing staff time	-

Strategy 5: Energy Efficient New Buildings (Estimated GHG Reductions by 2020: 1,249 tonnes CO₂e)							
#	Strategy and Actions	Type/Nature of Action	Lead	Partners	Estimated Costs		Status
					Capital (one-time \$)	Operating (annual \$)	
32	Corporate Green Building Policy	Policy	CoN	Local builders, RDN		Existing staff time	Complete
33	Work with community and regional partners to promote energy efficient new development	Outreach	Canadian Homebuilders Association, CoN	RDN; Local developers	none	\$10,000 for outreach + existing staff time	-
34	Update existing Form and Character Design Guidelines	Policy (and Outreach)	CoN	Local developers	none	\$10,000 for outreach + existing staff time	-
35	Density bonus credit for energy performance	Incentive	CoN	Local developers	none	Existing staff time	-
36	Encourage higher energy efficiency standards for large rezoning applications	Policy (Bylaw)	CoN	Local developers	none	\$10,000 for outreach + existing staff time	-

Strategy 6: Alternative and District Energy (Estimated GHG Reductions by 2020: 314 tonnes CO ₂ e)							
#	Strategy and Actions	Type/Nature of Action	Lead	Partners	Estimated Costs		Status
					Capital (one-time \$)	Operating (annual \$)	
37	Continue partnership with the RDN to conduct outreach and promote building scale alternative energy technologies (Green Building Tour)	Outreach	CoN	RDN; Local developers	none	\$10,000 for outreach materials	Ongoing since 2011
38	Train building inspectors on alternative energy technologies	Outreach	CoN	City green Solutions, CHBA	none	\$7,500 for training	-
39	Offer building permit rebates and/or free inspections for alternative energy systems	Incentive	CoN		none	\$5,000 (\$250 x 20 permits/year)	-
40	Research and consider the use of Local Improvement Charges for funding Alternative Energy Systems	Incentive	CoN,	RDN	Capital needed to finance LICs)	Existing staff time	-
41	Conduct a district energy pre-feasibility study to identify opportunities in Nanaimo	Project	VIHA; School District; CoN, VIU	Large energy consumers	none	\$40,000 (consultant costs)	VIHA has completed one for hospital area

Strategy 6: Zero Waste Strategy (Estimated GHG Reductions by 2020: 1,220 tonnes CO ₂ e)							
#	Strategy and Actions	Type/Nature of Action	Lead	Partners	Estimated Costs		Status
					Capital (one-time \$)	Operating (annual \$)	
42	Continue to conduct outreach on Zero Waste	Outreach	RDN,	CoN , Community Partners	none	\$15,000 for outreach materials	Ongoing
43	Identify / promote eco industrial networking	Outreach	CoN	RDN	none	\$20,000 (consultant costs)	-
44	Review fee structure for Solid Waste collection	Incentive	CoN	RDN	none	Existing staff time	-

Appendix A: Monitoring & Reporting Progress

In applying an adaptive management approach to plan implementation, it is important to monitor changes in energy use and GHG emissions over time to gauge the effectiveness of activities being undertaken. To accomplish this, a monitoring program needs to be developed that tracks specific indicators of progress. Proposed primary and secondary indicators for this plan are outlined below. Suggested data sources are also described.

Primary Indicators

Primary indicators directly track progress towards the desired outcome of reduced energy consumption and GHG emissions. It is recommended that the City report on the indicators provided in Table every 2 years, coinciding with the Province of BC's plans to update the Community Energy and Emissions Inventory (CEEI) reports.

Table 2: Primary Indicators for Energy & Emissions

Primary Indicator	Data Source
Total energy consumption (GJ)	CEEI
Per capita energy consumption (GJ per person)	CEEI; Census or City data
Total electricity consumption (GJ per capita)	CEEI
Per capita electricity consumption (GJ per person)	CEEI; Census or City data
Total GHG emissions (tonnes of CO ₂ e)	CEEI
Per capita GHG emissions (tonnes CO ₂ e per person)	CEEI; Census or City data
Total GHG emissions from the buildings sector (tonnes of CO ₂ e)	CEEI
Total GHG emissions from the transportation sector (tonnes of CO ₂ e)	CEEI
Total GHG emissions from solid waste (tonnes of CO ₂ e)	CEEI

Secondary Indicators

Secondary indicators are linked to the on-the-ground outcomes (e.g., number of commuters taking transit to work), which contribute to the longer term goals (e.g., reduction in transportation-related energy and emissions). Table provides potential secondary indicators for monitoring energy and emissions.

Table 3: Secondary Indicators for Energy & Emissions

	Strategy	Secondary Indicator	Data Source
LAND USE AND TRANSPORTATION	Compact, Complete Community Strategy	Compact development: Residential density; and Residential density within a 400m area around bus routes	Census Data (GIS format)
	Alternative and Active Transportation Strategy	Pedestrian environment: Kilometres of sidewalk; Walking mode share Cycling environment: Kilometres of designated cycling lanes and routes; Cycling mode share Transit quality: Percent of bus arrivals being on-time; Percent of bus stops with shelters and seats Transit use: Transit mode share; Transit service hours per capita	City GIS Data; Census Data City GIS Data; Census Data BC Transit, City Data Census Data, BC Transit

	Strategy	Secondary Indicator	Data Source
	Low Carbon Mobility Strategy	<p>Commute trips: Mode share of ride-share users</p> <p>Parking management: Revenue collected from parking fees; Average parking occupancy rate; Percent of new developments that have unbundled parking</p> <p>Alternative fuel vehicles: Percent of new private developments with electric vehicle plug-ins within parking lots; Percent of community facilities with electric vehicle plug-ins within parking lots Percentage of alternative fuel vehicles owned by residents and businesses of Nanaimo</p> <p>Innovation funding: Revenue collected from innovative funding programs for sustainable transportation projects and programs</p>	<p>Census Data</p> <p>City Parking meter Data</p> <p>City Building Permit Data</p> <p>ICBC</p> <p>City Finance Data</p>
BUILDINGS	Energy Efficient Existing Buildings Strategy	<p>Existing Energy Efficient (Residential) Buildings: Percent of existing residential buildings renovated to high energy performance standards (e.g., EnerGuide for Homes 80 or higher).</p> <p>Existing Energy Efficient (Commercial) Buildings: Percent of existing commercial buildings renovated to high energy performance standards (e.g., exceeding ASHRAE 90.1).</p>	<p>City Building Permit Data</p> <p>City Building Permit Data</p>
	Energy Efficient New Buildings Strategy	<p>New Energy Efficient (Residential) Buildings: Percent of new residential buildings exceeding energy performance standards in the current building code (validated through third party rating systems such as EnerGuide, LEED®)</p> <p>New Energy Efficient (Commercial) Buildings: Percent of new commercial buildings exceeding energy performance standards in the current building code (validated through third party rating systems such as LEED®, ASHRAE 90.1)</p>	<p>City Building Permit Data</p> <p>City Building Permit Data</p>
ALT ENERGY	Alternative Energy Supply Strategy	<p>Connections to Alternative Energy Supply: Percent of homes in Nanaimo connected to alternative energy supply; Percent of commercial buildings in Nanaimo connected to alternative energy supply.</p>	City Building Permit Data
SOLID WASTE	Zero Waste Strategy	<p>Tonnes of Waste disposed in the Landfill: Tonnes of solid waste disposed by City residents at the regional landfill Tonnes of solid waste disposed per capita in Nanaimo</p>	RDN data or City solid waste collection data

What More Can Be Done?

The OCP Plus scenario demonstrates reductions that are reasonable to expect provided the City continues to adhere to the guidance and policies included in its current OCP.

The Target scenario attempts to demonstrate a path towards achieving GHG emissions reduction targets of 33% below 2007 levels by 2020 and 80% below 2007 levels by 2050. Unfortunately, the scenario doesn't quite get all the way there, and yet, the assumptions made to create the scenario may be perceived as being relatively aggressive measures for a local government to implement.

As mentioned before, achieving deep emissions reductions will require aggressive action to manage land use to concentrate growth in specific areas in order to offer improved transportation options, retrofit existing buildings, and develop new buildings in a more compact form and to the highest energy performance standards possible.

In addition to these focus areas, the City may wish to pursue complementary opportunities that may provide co-benefits (i.e. social, environmental, economic) to energy and emissions reductions, and serve to raise awareness and build momentum for sustainable change in the community. A number of these opportunities have already been identified in the City's OCP, including:

- Offering affordable housing through improved housing choices
- Cooperating with School District 68 to achieve joint use and management of facilities
- Encouraging the development of sustainable local food systems
- Encouraging property owners to provide live/work spaces in the downtown core
- Support for businesses that bring sustainable wealth into the community
- Conservation of Environmentally Sensitive Areas
- Maintaining and enhancing the urban forest and greenways
- Continuing the water conservation program

The BAU forecast and scenario provide proof of the key role that senior levels of government play (and will continue to play) in reducing energy and emissions. More can be accomplished through taking a stronger community partnership approach.

Appendix B: Stakeholder Consultations

Engaging the Public on Climate Change Workshop (2010-DEC-16)

In December 2010, BC Healthy Communities (BCHC) was contracted to facilitate a community stakeholder workshop on “**Collaboration and Community Engagement on Climate Change**”. During the workshop, a variety of stakeholders from the development community, provincial government, health authority, school district, business community and local community organizations met with City staff to discuss how to foster meaningful citizen engagement as a way to inform how the Action Plan can be best implemented. The following is a synopsis and notes from the workshop.

Synopsis

When exploring the barriers to change most attendees recognized there were psychological, cultural, behavioural and legislative reasons for not changing our approach at this time. In order for change to occur, a series of “catalysts for change” were recognized as needed. They include:

- Convening regular meetings of interested parties to discuss developing a communications strategy and a set of collective actions that the group could complete, including:
 - Deciding on an initial collaborative project and successfully meeting it to demonstrate what can be done (Case Study)
 - Identify a series of issues (i.e. green spaces, community gardens, tree planting in neighbourhoods, finance donations) and gather concerned stakeholders and put them together to identify solutions
 - Place more information on the City sustainability webpage including garnering solutions from different sectors
 - Opening dialogue to other sectors in the community. Perhaps setup a sustainability blog
- Support / participate in the Transportation Plan process– encourage reducing private auto use, increase public transportation and biking - set goals and meet them – this would be a model for other projects.
- Engage major stakeholder groups (i.e. business community, school district, university, health authority, City) .
- Set goals for educating the community (Determine specific targets for business, residents, students, etc.).
- Place an educational priority on working with children / young adults on improving their knowledge and understanding of the local environment. This could include understanding local ecosystems and local food growing opportunities.
- Determine how targets and strategies are going to contribute to GHG reductions tie it to how a project or initiative is pursued.
- Explore the possibility of pooling funding from local public institutions (i.e. School Districts, VIHA, VIU, City, RDN) that will be expected to go toward carbon offset funds (\$25/tonne) and lobby for their use in local carbon sequestration and offset projects.
- Set aside funding in the budget specifically relate to new projects within our region (i.e. grants, etc.) and let the public know about it.

Notes

WELCOME AND INTRODUCTION:

Attendance list attached.

What drew you here?

- Local involvement
- Messaging and outreach
- Wanting to make connections
- Wanting action for change
- Timely opportunity for change
- Wanting to move from talking to doing
- Framing message in positive terms
- Wanting to understand what can we do?
- Wanting to keep momentum and avoid complacency

MAPPING ACTION AND COMMITMENTS ON CLIMATE CHANGE IN NANAIMO:

EXERCISE #1: ORGANIZATION COMMITMENTS: WHAT ACTIONS ARE YOU DOING?

Vancouver Island University

- BC Hydro Energy Manager position created
- Lamp / lighting upgrades
- switching to gas from electricity in buildings (check)
- fleet right sizing / upgrades to more fuel efficient vehicles
- carbon neutral, incorporating energy offsets, conservation behaviour, travel reduction of staff, increases in parking fees

Old City Neighbourhood Association

- Computer industry making changes around conservation and improved recycling of hardware
- Challenges in disseminating information in the community

D-Carbon 8

- working with local businesses to help them become carbon neutral
 - travel planning, carbon offsets land acquisition, for local offsetting

ESVI

- Attending meetings and discussions groups as part of awareness raising and public education

RDN Transit

- RDN – biodiesel 5% - 10%; central transit fleet; new green transit building; no idle procedure in place. More training for drivers on behaviour. Reminders from dispatchers. Organic waste being recycled from RDN facilities

BC Ferries

- Hydrothermal heating; LEEDS technology; optimize land use; opportunity to purchase new vessels; most vessels have effluent standards;
- Follow Transport Canada and Environment Canada’s sulphur levels and energy eff. index targets
- B5 – low sulphur diesel used on ferries; no heavy bunker fuel used
- Ferry / vehicle driver training to improve fuel consumption
- Power Smart program implemented in BC Ferries facilities
- Policy changes underway that reinforce environmental and safety concerns
- Car pooling program underway for staff in Nanaimo

Cedar Road Bioenergy

- Using waste gas for electricity generation at Cedar Road landfill.
- Gas also to be used on packers using the landfill
- Collaborative development and demonstration platform

Nanaimo Green Group

- Oversee care production and distribution of fruit bearing trees; vegetables from community gardens
- Pedestrian friendly
- Protect shoreline; manage sewage
- Lighting upgrades
- Walk able neighbourhoods; better traffic lights

Greater Nanaimo Cycling Coalition

- Supports City in development of bike network – E&N trail; safe routes to school

iDUS Controls Ltd.

- Local company involved in development of water conservation product; smart water device
- Sees that change is done in steps and sees technology as a way to make a positive change that is seamless in to residents.
- Use technology to minimize disturbance; make it seamless – can make difference in water use
- Sees incentive programs as beneficial

Streamline Environmental

- Does environmental audits
- Habitat protection / enhancement
- Need to value ecosystem services
- Sees education and engagement as important to address climate change
- Need to better integrate value beyond simply economic
- Green business – responds to policy and this creates opportunity

Community Gardens

- Involved in encouraging local food production.
- Organization recognizes huge cost savings by avoiding dependence on oil to transport food to the island from elsewhere
- Community activism is an important element in moving environmental issues forward.
- Incentive programs are beneficial and offer an opportunity to create change

Greater Nanaimo Chamber of Commerce

- Double-sided photocopying
- Turn off lights
- Use energy efficient lighting and heating
- Sustainability workshop for Chamber members
- Promote discussion on sustainability in the business community
- Train station restoration and promote as transportation hub
- Farmer's market
- Recycled paper
- Promote conservation and carbon offsets
- Reusable containers for coffee / tea / creamers / etc.
- Composting of food court waste
- Sustainability program within the organization

General Comments Also Expressed:

Behaviour Change:

- Huge hurdle to cross
- Need everyone in the community involved
- Encouraging examples out there - Water use drops 50% with understanding
- Recycling behaviour another example
- Community activism – important element
- Huge psychological load to change opinion
- Too much “grovelling” by non-profits for funding and support
- Non-profits form because of unmet need seen in society
- Need to return to local food sustainability
- Volatile and need to be first on scene
- Lead by example

Education:

- Need inventory
- University – has a unique opportunity to influence the community
- Legislation and regulation can act as a blocker → facilitator
- Incentive programs beneficial as an education tool
- TEEB Report on valuing (UNESCO) ecosystems significant work on broadening the definition of value beyond economic
- David Suzuki Foundation / Globe Foundation providing educational services in the community
- Sasha Angus / Pedro Marquez (Royal Roads) – Sustainability Project / Strategy for Vancouver Island
- Power Smart program
- City Green Energy Conservation Assistance Program

BARRIERS AND CATALYSTS TO INFLUENCING CHANGE:

EXERCISE #2(A)

BARRIERS TO CHANGE

Psychological

- Apathy and Inertia – Disconnection from the Earth
- Apathy - misinformation
- Ignorance
- Behaviour – Competing interests
- Recognizing local adverse impacts (environmental, social, cultural, economic)
- Valuing ecological goods and services
- Current worldview – re: consumption / media

Cultural

- Offer incentive – personal and collective
- Show leadership
- Cultural shift to fear of the unknown
- Short range thinking

Behavioural

- Habits
- Incentives to make change - better health information

Systems

- Legislation – Better policy needed
- Costs
- Cost savings

CATALYSTS FOR CHANGE

- Creating regular forums for collaboration with mandate to initiate actions
- Convening meeting of interested parties to discuss development of a communications strategy that would effectively reach out to identify social target groups.
- Participate in the conversation – open to ideas and will give time toward implementing them
- Engage with the business community to reduce carbon footprints – will be liaising with the Chamber of Commerce
- Arrange a follow-up meeting to today's event with the realistic purpose of a common project being the outcome

- Reduce transportation emissions in Nanaimo
- Educate and engage more of the community from a few dozen to 1000's
- Have more City-initiated meetings to build on the ideas being presented
- Establish website dedicated to garnering solutions from different sectors
- Official Community Plan that clearly lays out requirements for environmental sustainability (with details)
- Extend opportunity for dialogue to additional sectors
- Find one project involving collaboration and show success (Case Study)
- Transportation – reduce private auto use, increase public transportation and biking - set goals and meet them – this would be a model for other projects
- Pooling of public institutional (i.e. School Districts, VIHA, VIU, City, RDN) carbon offset funds (\$25/tonne) to be used in local carbon sequestration and offset projects
- Identify a series of issues (i.e. green spaces, community gardens, tree planting in neighbourhoods, finance donations) and gather concerned stakeholders and put them together to identify solutions
- Setting up meetings with potential partners
- Maximum effect to the widest group across all ages and interests to effect increased GHG reduction
- Clarity on targets, strategies, and data related to how to make the biggest impact on meeting targets
- Increase / expand infrastructure for bicycling and public transit
- Establish most important environmental issue in Nanaimo and begin addressing it
- Opportunities for children / adults to grow their understanding skills, and values around local ecologically responsible food growing; through community gardens at schools in the district – so many spin-offs and opportunities
- Set aside funding in the budget specifically relate to new projects within our region (i.e. grants, etc.) and let the public know about it

EXERCISE #2(B)

Identifying small steps to begin – for the Individual

- Buy local or fair trade
- Walk, bike, public transport
- 3 R's – reduce, reuse, recycle
- Showers at work place
- Work schedule
- Wiser power use
- Less lawns
- Zero scaping
- Native plants
- Recycling – multi-family and businesses
- Composting
- Growing food
- Hybrid – electric
- Inform yourself and share your thoughts
- Speak up - home energy efficiency
- Cook from scratch
- Change habits – trust yourself
- Regulating home temperature
- Light bulb change
- Be mindful of actions – how / why do I do what I do
- Buy locally
- Re-use (take the shopping bags out of the trunk)
- Combined vehicle trips
- Think about your purchases
- Grow your own food
- Consumer choices
- Water conservation
- Household toxins
- Private land use
- Vehicle selection
- Vote - participate

Identify some big leaps that should be taken - Individual

- Choose to live in a green apartment building
- Plan energy efficient homes
- Fly less
- Purchase / use an electric cars / car co-op
- Learn to drive less
- Ration fuel
- Purchase more local products – (match with tax incentives to make price competitive)
- Relocalize the economy
- Start a green business
- Change consumption pattern
- Make do with less

- Reconnect with land and community
- Don't become complacent about taking small steps
- Move closer to work / services
- Complete many small steps
- Get involved in local politics
- Get rid of car
- Adopt the 100-mile diet (local food)
- Support tax increases to pay for increased service
- Downsize your home

Identifying small steps to begin– for the Community

- Better planning to increase public transport use
- Support local business (farmers markets..)
- Responsible consumption
- Implement Official Community Plan
- Promote energy efficiency / GHG reduction as cool / sexy
- Have more roundabouts in the City
- Allow / promote the use of Clotheslines
- Establish more convenient trails
- Allow growing food in public spaces
- Share stories including media
- Support good ideas from the community
- Encourage dialogue
- Support Car sharing
- Support community gardens
- Increase walk / bike paths
- Expand City-wide organics collection
- Restrict drive through restaurants

Identify some big leaps that should be taken – Community

- Relocalize economy
- Establish incentives to upgrade and make positive change
- Media should show more positive examples in the community
- Instil hope in the community
- Highly utilized public transportation
- Financial incentives / penalties
- Public transport and infrastructure
- Develop policy and incentives
- Incorporate a new energy grid
- Buy locally (carbon offsets)
- Integrated transportation planning
- Better transit system
- Redefine wealth
- Renewable energy systems / dist. energy
- Create low-impact corridors
- Legislative change
- Increase urban density

DEFINING CROSS-SECTOR PARTNERSHIPS ON CLIMATE CHANGE

EXERCISE #3 –COLLABORATIVE LEADERSHIP STRENGTHS / OPPORTUNITIES...

Local Government

- Demonstrate leadership
- Convenor
- Ability to engage public
- Regulator
- Responsible for Infrastructure
- Can establish Innovative programs - Incentives
- Works within Legal Structure
- Creates and Enforces Bylaws
- Issues and Enforces Business licenses
- Service provider
- Facilitator
- Educator
- Legislation
- Role model “setting the bar”
- Cooperation between levels of government
- Reinvesting offsets \$\$ into the community (green space)
- Possible Partnership: residents, businesses, private sector, visitors, staff, other governments

School District

- Legal obligations
- Education curriculum
- Procurement
- Community facilitator “collaborator”
- Outreach
- Leadership “role model” e.g. water treatment
- Infrastructure
- Making it personal for students
- Cross disciples
- Educating kids, parents
- Community offsets
- Teacher training
- Extra murals
- Possible Partnerships: students, parents, public, neighbourhoods, media, politicians, service providers, other schools, teacher and staff,

Post Secondary

- Research and innovation
- Legal obligations
- Role model
- Facilitator

- Leader
- Education
- Making it personal for students
- Cross disciples
- Educating kids, parents
- Model
- Stewardship education
- Community offsets
- Review catering outlets
- Community partnerships
- Community leadership
- Possible Partnerships: students, parents, service providers, other schools, teachers and staff, communities, media, public, industry

Health Authority

- Education and awareness re links to individual and community health
- Legal obligations (carbon neutral)
- Collaborator
- Legislator
- Solution maker
- Information distribution
- Financial
- Regulations
- Promotes healthy living
- Model
- Community offsets
- Research
- Outreach clinics / workshops
- Population health
- Communicate healthy lifestyle
- Possible Partnerships: government, public, families, medical profession, industry, communities, labour sector - everyone

Private Sector

- No legal obligations
- Taxpayers
- Commercialize
- Innovate
- Opportunity to be role model
- Sponsors
- Legislators
- Funder
- Educator
- Influencer
- Research and technology and development
- Marketing sustainable products – local, low-cost, recyclable
- Niche markets – mainstream

- Can influence other business / competitive advantage
- Provide capital investment
- Provide technology / products
- Marketing / messaging
- Providing product / service
- Advertising
- innovator
- Possible Partnerships: government, media, post secondary, school districts, labour sector, employees, industry (purchasing, similar businesses, contractors), other business, consumer, staff

Community Organizations

- Influences local government, school district and post secondary
- Grassroots
- Advocacy
- Generate policy
- Researchers
- Innovators
- Lobbyists
- Educators
- Funders
- Sponsors
- Support for clients
- Leadership
- Projects
- Diversity
- Involvement
- Consortia
- Public communication
- Possible Partnerships: public, media, government, industry, schools, private sector

Media

- Present both sides.
- Balanced reporting

OPPORTUNITIES FOR SHARED LEADERSHIP:

EXERCISE #4 – COLLABORATIVE LEADERSHIP OPPORTUNITIES

- Private sector – work with contractors and provide green services
- Community organizations – partner with education sector - workshops, community outreach, on energy efficiency
- Local government – showcase green buildings, promote green building
- School District – showcase and promote green transportation
- Health Authority – Waste reduction / reuse
- University/Colleges – energy efficiency on campus
- Four groups collaborate on one idea: (i.e. Local government, School District, Health Authority, University/Colleges) – energy conservation / generation specifically, get carbon offsets to purchase local land (following rule of additionality)
- Explore collaborative alliances (i.e. VIEA)
- Leaders within collaborative teams
- Ideas website – connecting people, community leaders with ideas
- i.e. westcoast aquatics

Next steps towards strategic engagement for climate change

- Create a list of potential projects for Nanaimo
- Prioritize this list
- Organize another meeting with different sectors around engagement and communications with different target groups
- Organize a “Dragon’s Den” –to pitch ideas to a group of community leaders
- Set realistic / ambitious targets (moving from goals to strategies to achieve targets)
- Complete a community-wide action plan – use as a “house” to test ideas
- Underscore cost implications – linking deficit issues to climate change (reduce energy as cost cutting measure)
- Initiate the process to become a “Transition Town”
- Mapping specific opportunities to link with

What I Liked about the Dec 16th Workshop:

- Group discussions
- Energy of presenters / facilitators
- Organized directional presentations
- Leading discussions
- All the different points of view
- Informative well delivered presentations
- Diversity of people and backgrounds
- The way the groups were formed
- The channelling of the effort
- Cross-section of participation
- Interactive group sessions
- The thinking involved to bring issues to light
- Assembling people from so many different sectors
- Interesting exercise, rich dialogue, various perspectives
- Facilitation – two people alternating, plus variety of presentation media
- Good flow and pace of workshop
- Good engagement of participants in table discussions
- The fact that such an event was held
- Variety of program
- Representation of facts and concepts
- Spectrum of community interests presented
- Style of presentation
- Made some very good connections that I am hopeful will result in tangible change
- Good process
- The more specific work on developing collaborative ideas and the networking opportunities
- Networking with other passionate workers in other areas of interest
- Varying presentations with activities, promoting free speech

What I Would Change about the Dec 16th Workshop:

- RDN doesn't develop anything without further direction / input from stakeholders
- More interagency discussion
- The room temperature – cold is not fun
- More shorter breaks for informal conversation
- Discussion of specific projects – follow through of ideas and projects
- Reduce amount of time talking about generalization re climate change and examples in other countries and areas outside of BC

- Opportunity for everybody in the room to meet
- Some form of concrete next step
- I think the vast majority of the people present were already well aware of the info presented in the earlier half of the day
- The room was not comfortable – too cool – difficult to hear soft voices
- To have known about the action plan around climate change earlier in the day
- Fewer fun activities
- More lead time (notice) of the meeting
- Mixing up tables so we don't spend all day with the same table
- More "green" catering
- Too much time defining climate change – you were preaching to the converted
- Less repetition of common themes
- Open a window

And furthermore ...

- I look forward to "rubber meeting the road", and helping when I can
- Put the outcome of this meeting on the City website, and invite input from the public
- If we target greenhouse gas emissions, we had better hit the target if we want to retain credibility and momentum
- Really need to make sure there is follow-up to this workshop, both with participants and the wider community
- Great that the City hosted the session – timely – good value
- Set a next meeting date
- Much of your presentation was a repeat for me but it was a great refresher
- Action
- Maintain the momentum – bring in more people
- Would like to close with a specific "next step" to carry on the energy generated
- The example of change in smoking habits was a good study in what creates a shift in social mores
- Stacy and Kerri were very good at facilitating and promoting thought – calm voices and slow speakers, which was nice

Attendance List for Collaboration and Community Engagement Workshop on Climate Change (2010-DEC-16)

Organization	Name	Position
Newspapers		
	Toby Gorman	Reporter
Downtown Nanaimo Magazine	Anne Middleton / Judy Stephan	Publisher & Editor
Government		
Regional District Of Nanaimo	Chris Midgley Daniel Pearce Gerry Boutin	Sustainability Manager Manager of Transit Planning
Ivanhoe Cambridge	Mark Fenwick Rod Mayo Ken Morrison	Mall Manager Energy Manager Environmental Coordinator
Streamline Environmental	Iain Cuthbert	
IWCD	Greg Constable	Owner / Operator
iDUS Controls Ltd.	Ron Hartmann	President and CEO
Mid-Island Science, Technology and Innovation Council	Carolyn Tatton	Executive Director
Cedar Road LFG	Paul Liddy	Managing Director
Young Professionals of Nanaimo	Andre Sullivan	President
International Composting	brian RamseyKris Obrigewitsch	VP Corporate
Greater Nanaimo Chamber of Commerce	S.D. Mason	Chief Executive Office
Institutions		
Vancouver Island University	Eric Smiley	Green Building and Energy Tech Program
	Ric Kelm	Director, Facilities
	John Woychuck	MBA Internship Coordinator
	Daryl Amos	Energy Manager
	Michelle Patterson	Sustainability Coordinator
VIHA	Joe Cianiello	Energy Manager
	Gary Bray	Parking Coordinator
	Nancy Myers	?
School District 68	Brian Kingsley	Technical Assistant
Neighbourhood Associations	Dean Forsyth	Neighbourhood Network

Attendance List for Sustainability Action Plan “Check-in” Meeting (2011-JUN-16)

Organization	Name	Position
Newspapers		
Nanaimo Magazine	Anne Middleton	Publisher
Government		
City of Nanaimo	Fred Pattje Jim Kipp Rob Lawrance Rebecca Tubbs Amir Fruend Gord Foy Bruce Anderson	Councillor Councillor Env. Planner Admin Trans. Plng Specialist Traffic/Trans. Engineer Manager, Comm. Plan
Institutions		
Vancouver Island University	Michele Patterson Daryl Amos	Sustainability Coordinator Energy Manager
Vancouver Island Health Authority	Deanna Fourt Gary Bray	Parking Coordinator
Private		
Routledge Homes	Jim Routledge	
Advisory Committee on Environmental Sustainability (ACES)	Anne Kerr Shelley Serebrin Joan Wagner	Member (NALT) Member (SD68) Member (Community)
BC Hydro	Travis Streb	
Energy Solutions for Van Island	Ian Gartshore Bill Wolverton John Carver	
First Capital Real Estate Management Services	Gerry Boutin	
Harmac Pacific	David Bramley	
Nanaimo Bioenergy Centre	Paul Liddy	
Neighbourhood association	Dean Forsyth	Neighbourhood
Stantec Consulting	Ron MacDonald	Consultant
Young Professionals of Nanaimo	Leif Bogwald	

Community Stakeholder Implementation Workshop (2011-NOV-22)

A three-hour afternoon workshop was held at Nanaimo City Hall on Tuesday, 2011-NOV-22. This section summarizes the content of the workshop and the discussions that were held amongst participants.

Objectives: The stated objectives of the workshop were to:

- Review and confirm existing actions and implementation requirements for SAP
- Add new actions (as necessary)
- Identify high priority actions
- Define key implementation activities, roles and timelines

Agenda: The agenda for the workshop was set in consultation with city staff and ACES and sent to participants in advance of the workshop.

Time	Discussion Item
1:00 pm	Welcome and introductions
1:10 pm	Review objectives, drivers, and work to date
1:40 pm	Actions brainstorm (plenary exercise)
2:00 pm	Prioritizing actions (plenary exercise)
2:05 pm	Health break
2:15 pm	Unpacking high priority actions (breakout exercise)
3:30 pm	Moving forward with implementation (plenary discussion)
3:50 pm	Wrap up and next steps

Actions Brainstorm (Exercise): Following welcoming remarks from the City and the facilitator’s review of the workshop objectives, drivers for the SAP, and work completed to date, participants were invited to spend time reviewing the actions contained within the draft SAP (which largely focus on activities that can be led by the City), and asked to individually brainstorm additional ideas for action.

Questions offered for consideration during this exercise included:

- Are there additional actions required to address the seven strategies in the SAP?
- Are you aware of other actions being implemented in the community (by organizations, businesses, individuals, etc.)?

Participants were asked to write their actions on a post-it note (one idea per post-it) and assign it to the appropriate SAP strategy, which were displayed on posters on the wall.

Many of the actions that were brought forward supported or built upon the existing actions in the draft SAP. One new area for action came out during this exercise which was to preserve green space as a means of addressing the many ecosystem services provided by trees and natural areas (e.g., carbon sequestration, provision of oxygen, shading, water and air filtration and purification, aesthetic values, etc.).

Prioritizing Actions (Exercise): Before taking a health break, participants were each given 10 sticky dots and asked to review the actions during the health break and use their dots to “vote”

for the actions they saw to be a high priority. The actions that received the most “votes” (sticky dots) would then be discussed in more detail in small groups during the next exercise. These actions included:

- Action #11: Transit-oriented development (TOD) policy
- Action #17: Enhance the pedestrian and cycling environment
- Action #31: Rebates for energy audits and retrofits
- Action #42: District energy pre-feasibility study
- New Action: Electric vehicle infrastructure and Bylaw
- New Action: Natural areas protection

Unpacking High-Priority Actions (Exercise): Participants were asked to select which of the six actions (listed above) they wanted to discuss in further detail, thereby self-selecting small discussion groups. Each group was then given a worksheet and invited to “unpack” the action, including:

- Outlining the key steps (3–5 activities) required to move the action forward;
- Discussing who should lead implementation and who should partner/support; and
- Developing an estimated timeline for implementation.

Plenary Report Back: Each of the six small groups was asked to provide a short report back on the discussions that were held by their groups. Participants were invited to comment or ask questions following each report back. Generally speaking, the participants were comfortable with the implementation activities, lead and partner responsibilities, and timelines presented for each of the actions discussed.

Following the plenary report back, the group was asked to comment on general requirements for moving SAP implementation forward. The following questions were offered for their consideration:

- What are the common threads from the small group discussions?
- Were any important gaps or needs identified?
- Do you feel that the necessary mechanisms are in place to assist with implementation?

Comments from that discussion are summarized below:

- Implementation and monitoring plan is required
- Leaders need to self-identify
- Coordinating body to advance implementation → ACES is a high-level advisory group; a more operational group is needed
- Costs may be a barrier → need to find creative ways to move this forward through partners and financing, and look at how we allocate funds within the municipality
- City should consider hiring a point person to lead plan implementation → BC Hydro provides funding support for Community Energy Managers; this person could report to the coordinating group
- Look for ways to continue this communication with stakeholders
- Consider best practices from other communities

Wrap-up & Next Steps: Rob Lawrance, Environmental Planner for the City of Nanaimo and SAP lead, provided participants with a brief summary of the next steps for finalizing the SAP and moving it forward into the implementation phase. Key milestones in this process include:

- Review preliminary action plan draft with ACES → complete
- Stakeholder review of actions and implementation priorities → complete (this workshop)
- City Staff review and comment begins → December 2011/January 2012
- Presentation to Advisory Committees → January/February 2012
- Presentation of Final SAP to Council → March 2012

Participants were thanked for giving up their afternoon to attend the workshop and provide input towards the SAP.

Key Observations: Key observations from the workshop are provided below for the City's consideration as it moves forward with SAP implementation:

- **Continue Communication Amongst Stakeholders:** Key stakeholders that could really help to move the SAP actions forward were in attendance at the workshop. These stakeholders were engaged in the issues, voiced their support for the SAP, and expressed their interest in staying connected to these discussions with the City and with each other. Finding ways to encourage continued communication amongst stakeholders will be beneficial to SAP implementation (more awareness around partnership opportunities, etc.). Informal gatherings, such as lunch and learns and periodic email updates, could be an easy and effective way of sharing ideas and updates on progress with SAP implementation.
- **Dedicate Staff Resources to SAP Implementation:** Stakeholders identified available funding (through BC Hydro) to support a staff resource (Community Energy Manager) that could help to lead implementation. Making use of available grant funding to secure staff resources during the early stages of SAP implementation could help to kick start action in the community.
- **Formalize a Coordinating Group to Advance On-The-Ground Implementation:** Stakeholders expressed a need for a coordinating group that would be focused on moving SAP implementation forward. The Advisory Committee on Environmental Sustainability (ACES) was seen to be a strong advisory support on sustainability issues; however, stakeholders felt that a more operational group would be needed to get actions off the ground. To this end, a Terms of Reference for a SAP Working Group could be developed and used to solicit interest and participation in a small multi-stakeholder coordinating group. This activity could potentially be coordinated and managed by the staff resource identified above.
- **Build on the Workshop Priority-Setting and Implementation Planning:** The workshop provided the starting point for prioritization and implementation planning for the SAP. Key stakeholders voiced their support for and their interests in SAP implementation; helping to identify high priority actions to move forward. Continued efforts to prioritize actions and detail implementation requirements will ensure that SAP implementation remains focused and manageable, which may help to boost momentum for ongoing action. It may be useful to establish a short term implementation strategy to outline priority actions and responsibilities (lead, partners, etc.), and to determine cost implications and potential sources of financial support.
- **Raise Awareness Within the Community:** Parallel to priority-setting and initial implementation planning, the City and its partners may wish to develop an outreach and

engagement strategy to raise awareness in the community. Understanding which actions will be implemented in the short term and the specific activities that will be required to advance these actions will help to create an understanding of target audiences and inform communication objectives, which provide the starting point for the development of an outreach strategy.

Attendance List for Sustainability Action Plan Implementation Workshop (2011-NOV-22):

Organization	Name	Position
Government		
City of Nanaimo	Ted Greaves Diana Johnstone Rob Lawrance Gord Foy Chris Sholberg	Councillor Councillor Environmental Planner Traffic/Trans. Engineer Interim Manager, Comm. Plan
Regional District of Nanaimo	Chris Midgley Jennifer Frumento	Manager, Energy and Sustainability Sustainability Coordinator
Institutions		
Vancouver Island University	Daryl Amos	Energy Manager
Vancouver Island Health Authority	Deanna Fourt	Manager Energy Efficiency and Conservation
Private		
Routledge Homes	Jim Routledge	
Advisory Committee on Environmental Sustainability (ACES)	Anne Kerr Shelley Serebrin Wally Wells Michael Schellinck James Redford	Member (NALT) Member (SD68) Member (Business) Member (Waste Reduction) Member
BC Hydro	Paul Bouman	
Chrysalides Architecture	Michael Hill	
Energy Solutions for Van Island	Ian Gartshore Bill Woolverton	
First Capital Real Estate Management Services	Gerry Boutin	
Green Business Group	Ryan Coffee	
Harmac Pacific	David Bramley	
Nanaimo Area Land Trust	Allan Hawryzki	
Nanaimo Cycling Coalition	Davis Grey	
Neighbourhood Association	Ryan Ripple	Nanaimo Old City Association
Stantec Consulting	Ron MacDonald Amy Seabrooke	Consultant Consultant
Young Professionals of Nanaimo	Leif Bogwald	

Appendix C: City GHG Projects

Through programs, like the Federation of Canadian Municipalities' "Partners for Climate Protection" program, City staff and Council have gained some experience in tracking and managing emissions in daily operations through the implementation of the City's "Corporate Climate Change Plan", which was adopted in September of 2007. A number of projects were initiated from the recommendations of the plan.

The City also signed onto the province's voluntary Climate Action Charter, which commits City Council and staff to become "carbon neutral" in corporate operations by 2012. Other City initiatives that have been completed to date include the following:

Transportation Alternatives: Currently, the City has a network of over 130 km of trails that has been developed to connect neighbourhoods, parks, schools, and other destinations in a safe, aesthetic and enjoyable manner.

- The network of multi-use trails links with on-street cycle routes and transit routes to facilitate commuting and alternatives to vehicular transportation.
- A "Trail Implementation Plan" and "Bicycle Strategy" currently guide the design and implementation of new trails and cycle routes over the long term.

Greening the Fleet: The City is working toward including more fuel efficient vehicles into service and exploring alternative fuel use. Some examples include:

- Currently using a B5 Biodiesel mix in City vehicles since May 2008.
- Created Anti-idling Policy for Public Works vehicles. Undertook fleet review.
- Exploring the use of Bio-Diesel to further reduce emissions including NOx, once it meets all the requirements as a B20 blend to satisfy the warranty concerns of the engine manufactures.
- 6 Hybrid vehicles currently in the fleet. Hybrid vehicles will be made as first consideration when replacing cars and light truck in the fleet.
- Using ultra low sulphur diesel fuel at 15ppm to meet 2007 standards.
- Investigating the use of hybrids for larger Class 7 and 8 trucks (refuse packers, dump trucks and sweepers) and Zamboni ice resurfacing equipment as it becomes available.

Energy Conservation: The City created an energy manager position in February 2009. Since the position was created, a number of initiatives have taken place, including a review of the City's existing energy efficiency policy. The 1990 Energy Efficiency Policy was intended to set direction in making the corporation a more energy efficient operation. The policy included establishing an "active and aggressive" awareness campaign; considering lifecycle costs when purchasing; and approving building upgrades based on a five-year simple payback. The Energy Manager has also been tasked with implementing the Corporate Climate Change Plan, in consultation with the City Sustainability Committee. Some of the milestones reached to date include:

- Switching lighting mechanisms for traffic lights can lead to significant energy savings. The City has retrofitted the existing red and green incandescent traffic signal lights with LED displays. Red and green displays were done first, since these displays are on the longest time and result in the greatest benefits.

- Completed lighting audits and upgrades at Cliff McNabb, Centennial, Beban House, Frank Crane. Saving 125,000 kwh per year with 2.4 year payback after chasing BC Hydro incentives.
- Numerous other smaller energy-saving projects ranging from street lighting pilot projects, insulation, controls, power factor, etc.
- Adopted a new corporate energy policy Oct, 2009.
- Energy audits / studies underway at NAC, Beban Park, many other smaller sites.
- Established overall City energy reduction targets and energy/square foot performance indicators.
- Integrated the Corporate Climate Change Plan projects into the energy management strategy.
- Established a five-year financial plan for Sustainability projects.
- Increased overall staff awareness of energy use, energy wasters and opportunities.
- Monthly reporting on energy / sustainability at Sustainability Committee meetings, PW meetings, etc.

Water Conservation: The City of Nanaimo was one of the first municipalities in the province to be 100% metered. This was completed in 1992, and is one of the most significant water conservation measures that can be done. Metering had the effect of reducing peak summer demands by up to 25%. The City's summertime per capita use has declined from approximately 1400 litres per person per day to 1100 litres due to metering. In comparison, wintertime use is about 600 litres per person per day.

As well, the City has an expanding block rate system of charging water. This system sees heavier users pay more per gallon than light users. The user rates are also set significantly high enough to cover all the ongoing costs of the water system. This goes a long way toward putting a true value on water, and encourages conservation.

Greenhouse Gas Reduction and Clean Air:

- **Corporate Climate Change Plan - Green House Gas Targets:** In 2002, the City of Nanaimo joined the Federation of Canadian Municipalities (FCM) "Partners for Climate Protection" Program (PCP). Working with the Regional District of Nanaimo a final draft of the City of Nanaimo Corporate Climate Change Plan was completed and passed by Council in September 2007. When implemented, the reduction initiatives presented in the Plan have the potential to reduce the City's corporate Greenhouse Gas emissions by 13% of 2001 levels, by 2012.
- **Restricted Outdoor Burning:** Burning for land clearing purposes was banned when alternatives such as grinding became available. In June of 2002, Council adopted a policy to restrict burning garden, landscape and other organic waste within the City of Nanaimo for a period of one year. Thereafter, given wide public acceptance, a bylaw amendment was adopted restricting outdoor burning on most City lots. Burning is permitted only on parcels one acre in size or larger and those on Protection Island, Fridays and Saturdays, only during the months of April and October.

Woodstove Change-out Program:

- **Woodstove Change-out Program:** Since 2009, the City has partnered with the British Columbia Lung Association and the Province of British Columbia in the Nanaimo woodstove change-out program. The program provides \$250.00 incentives to homeowners who decide to change out and replace their older woodstoves (pre-1994) for more efficient wood, gas or

pellet stoves. The purpose is to improve air quality in Nanaimo by removing stoves that were never designed to minimize smoke pollution. Participating retailers in the City also provide rebates on top of the City rebate as well. The program runs from March until the end of April, each year.

Green Buildings:

- **City of Nanaimo Green Building Policy:** In June of 2006 The City of Nanaimo endorsed the Advisory Committee on Environmental Sustainability (ACES) recommendation that all new Civic buildings over 500 square meters shall meet the requirements for the Canadian Green Building Council LEED (Leadership in Energy and Environmental Design) "GOLD" Rating. The LEED certification recognizes buildings that incorporate design, construction and operational practices that will reduce energy consumption provide a healthier work environment and minimize its environmental impact. As of July 1 2007 there are 2 Civic buildings (Oliver Road Recreation Center and Fire Station #4 located on the Cranberry Connector).

Recycling and Reuse:

- **Curbside Recycling Program & Refuse Policy:** Recycling and material diversion services exist at curbside and beyond. Our user pay approach to residential services encourages clients to control the amount of waste they produce through the provision of a one standard size container per week garbage collection limit and bi-weekly curbside recycling. Nanaimo residents have actively participated in curbside recycling since 1988. Services have expanded many times over the years but only when opportunities and local conditions suggest ongoing enterprises that secure proper disposal of items collected exist. The overall goal, throughout the evolution of programs and services, is to reduce waste, achieve increased diversion and provide a positive outcome for the environment and city residents.
- **Asphalt Recycling:** The City of Nanaimo contracts out its roadwork to Arc Recycling Corp. which uses a Hot-in-Place recycling process. Old asphalt is heated, mechanically removed and re-laid without removing the recycled material from the original site. The process is cost effective and conserves both resources and energy in making and transporting new asphalt material.

Ecosystem Health:

- **Parks and Open Space System:** The city currently has over 600 hectares of City-controlled parkland and over 600 hectares of publicly accessible privately managed parkland. This park and open space system allows for formal and informal recreation, environmental interpretation and protection, urban beautification, and the accommodation of multi-purpose parks and recreational facilities. A Parks Recreation and Culture Master plan guides park development and land acquisition to further expand the park system for future generations.
- **Watercourse / Riparian Protection:** For many years, Nanaimo has been a leader in watercourse and riparian area (leave strip) protection. Since 1997, land use activities adjacent to watercourses and leave strips have been regulated by both a development permit area (DPA 23) and within the City Zoning Bylaw. With the provincial Riparian Area Regulation now in force, the City has opted for “pre-defined SPEAS”, which have been identified under the watercourse development permit area and zone.
- **Environmentally Sensitive Areas (DPA):** Within the City of Nanaimo, there are a number of unique and sensitive ecosystems found across the City that help make up the local environment which many of us come to identify Nanaimo with. These areas contain rare and endangered vegetation that need special protection. In June 2006, Council endorsed the creation of an Environmentally Sensitive Development Permit Area which is triggered as part of the development permit process. Information is collected on rare plants and the size of area needed to sustain them. Through a variety of tools, staff works with developers and property owners to set aside these areas for future generations to enjoy and appreciate.
- **Steep Slope Development Guideline (DPA and Zone):** Many of the remaining undeveloped residential lands in Nanaimo are on steep slopes and hillsides. These lands present special challenges in terms of erosion problems, stormwater drainage, groundwater management, and other environmental and visual impacts. Protecting these slopes in the course of development is important for both the environment and the visual appeal of Nanaimo. Conventional detached residential developments located on steep slopes are typically very disruptive on steep slopes given the densities that need to be achieved. It is also very difficult to retain natural vegetation. For this reason, the City supports the use of larger single family lots or housing forms that concentrate development in less sensitive parts of steeply sloped land, leaving a significant portion of the land in a relatively undisturbed state.
- **Sustaining our Urban Forests:** Forests are a significant part of the heritage and setting that gives Nanaimo its character and attractiveness. The City is in the process of developing an Urban Forest Management plan to guide Nanaimo's future efforts to increase overall tree canopy cover, support the protection of trees, improve tree health, and maximize the benefits of trees for all residents. The plan will synthesize existing City tree-related policies, the latest urban forest research, best management practices in arboriculture and input from the public into a vision for the future of Nanaimo's urban forest.

Appendix D: Process for the Action Plan

It is anticipated the Community Sustainability Action Plan process will take approximately eighteen months to complete. The following outlines the steps and timeline to complete the various components of the process:

Phase	Process	Time Period
1	<p>Commencement of Process <i>Plan initiation and process organization (data collection, background documentation, ACE mandate change)</i></p>	August – October 2010
2	<p>Identify Issues and Opportunities <i>Meet with staff to review status of plans / initiatives underway within City. Review OCP objectives, process formalization.</i> <i>Meet with Regional energy managers to identify challenges and opportunities in energy conservation and local energy generation.</i></p> <p>Complete Community Energy and Emissions Study (CEES) <i>Work with a Stantec Consulting to help conduct a technical study reviewing future land use plans for the City and determine the GHG emissions in a “business as usual” scenario and under other scenarios that take into account changes in built form and transportation use. This will include a review of the feasibility of various onsite energy generation opportunities on the City.</i></p> <p>Stakeholder Network Workshop / Check-in <i>Hold workshop to review public engagement on climate change with community stakeholders. Discuss actions already underway in community by stakeholders. Keep stakeholders informed of progress as CEES is completed.</i></p>	October 2010 – July 2011
3	<p>Complete Preliminary Draft Plan <i>Using the CEES, prepare and complete a draft Community Sustainability Action Plan for ACES Committee review.</i></p>	August 2011
4	<p>Stakeholder review and comment on draft action plan <i>With the draft action plan, provide for opportunities for stakeholders input and comment. This includes:</i></p> <ul style="list-style-type: none"> ○ <i>Review preliminary action plan draft with ACES</i> ○ <i>Stakeholder review of action and Implementation priorities</i> 	September – November 2011
5	<p>Community Review - Draft Plan <i>Raise awareness about the action plan; invite participation and input, from community. This includes:</i></p> <ul style="list-style-type: none"> ○ <i>Newspaper / Social Media updates</i> ○ <i>Presentation of action plan to community groups/ events</i> 	December 2011 – January 2012
6	<p>Management Review Community Sustainability Action Plan reviewed by City managers</p>	June – September 2012
6	<p>Present Draft Plan to Council <i>ACES complete review and comment. Report to Council on adopting Community Sustainability Action Plan prepared</i></p>	October – November 2012
7	<p>Council Consideration / Adoption <i>Community Sustainability Action Plan submitted to City Council for consideration</i></p>	November 2012

Appendix E: DRAFT Five Year Plan

DRAFT Five Year Work Plan – Community Sustainability Action Plan (2013-2017)

#	Tasks	Type/Nature of Action	Lead	Partners	Estimated Costs		Start (Yr.)
					Capital (one-time \$)	Operating (annual \$)	
PLAN IMPLEMENTATION							
1	Establish community coordinating team and commence education / social marketing campaign	Outreach	CoN	VIHA, VIU, Chamber of Commerce, SD 68	–	–	1
2	Create Community Energy Manager Contract Position		CoN	VIHA, VIU, Chamber of Commerce, others	–	\$80,000 for 5 years with BC Hydro offering 50% funding	4
3	Conduct five year review of action plan	Outreach / review	CoN	VIHA, VIU, Chamber of Commerce, others	–	–	5
LAND USE AND TRANSPORTATION –Compact, Complete Community Strategy							
4	Offer ‘Energy Efficient Development Practices’ Workshops	Outreach	RDN, CoN	Development Community	–	\$10,000 for 2 workshops	2
5	Review Development Cost Charge (DCC) structure and consider reductions	Incentive (Bylaw)	CoN	Development Community	–	unknown (incentives)	1

LAND USE AND TRANSPORTATION –Alternative and Active Transportation Strategy							
6	Complete the Transportation Master Plan	Planning	CoN	RDN, MoT	\$150,000	–	1 – 2
7	Provide bicycle awareness and safety education (Bike to Work Week)	Outreach	CoN	Greater Nanaimo Cycling Coalition, large Employers, Cycling shops	–	\$5,000 for materials + existing staff time	1 – 5 Currently underway
8	Promote walking and cycling to students	Outreach	CoN	School District; VIU	–	Existing staff time + partners time	1 – 5
9	Encourage new developments to offer alternative transportation options	Outreach and incentive	CoN	Local developers and builders	–	Existing staff time	2
10	Identify innovative funding opportunities to support alternative mode infrastructure and programs	Policy	CoN		Community Stakeholders	Existing staff time	3
LAND USE AND TRANSPORTATION –Low Carbon Mobility Strategy							
11	Provide plug-ins for electric vehicles (Planning currently underway)	Infrastructure	CoN, Fraser Basin Council, Province RDN	Local Commercial property owners	Funding available for ¾ of cost (up to \$4000 per plug-in)	Existing staff time	1 – 2 Underway
12	Provide priority parking and/or parking fee reductions for low emission vehicles	Incentive	CoN	Engineering; BIAs; Retailers	–	\$5,000 for outreach + existing staff time	2

13	Develop a Nanaimo Green Fleet Challenge	Outreach	CoN, RDN	Fraser Basin Council; Large employers	–	\$5,000 for materials/events + existing staff time	4
BUILDINGS – Energy Efficient Existing Building Strategy							
14	Package and promote information on existing programs that support energy efficiency improvements in residential and commercial buildings	Outreach	CoN, RDN	Local Developers, Real Estate Agents	–	\$5,000 for materials + existing staff time	1 - 2
15	Provide training for Building Inspections staff	Outreach	CoN	City Green Solutions	–	\$7,500 for training	4
16	Provide rebates for home energy audits and retrofits	Incentive	BC Hydro, Fortis BC	CoN	–	Funding for audits provided by BC Hydro, Fortis BC	3
BUILDINGS–Energy Efficient New Building Strategy							
17	Work with community and regional partners to promote energy efficient new development	Outreach	CoN , Canadian Homebuilders Association,	RDN, ; Local developers	–	\$10,000 for outreach + existing staff time	4-5
BUILDINGS–Solid Waste Strategy							
18	Continue to conduct outreach on Zero Waste	Outreach	RDN	CoN, Community Partners	–	\$15,000 for outreach materials	1 - 5