Saanich

Climate Action Plan

www.climateaction.saanich.ca

transportation
buildings
waste
energy alternatives

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Definitions ..... **Appendix A**


Mayor F. Leonard

A Message from the Mayor

I am very pleased to present the District of Saanich's first Climate Action Plan. Council, advisory committees, employees, and the public deserve credit for their contributions to a leading edge plan that will guide us through the climate change challenges we face. This Plan is just a start, but provides a foundation to further develop real action in the community and to prepare for the changes that global warming presents. By setting goals and actions for the community and municipal operations, we hope that our efforts will drive dramatic change over the next decade, creating a better world for current and future Saanich residents.

Frank Leonard, Mayor

The Challenge

" The problem is real, the problem is here and doing nothing is not an option."
BC Climate Action Plan

Cadboro Bay

This century will be defined by how humanity responds to two enormous and linked challenges; global warming, and energy supply. The changing climate is starting to impact the world in many ways and these impacts are predicted to increase significantly over the next 100 years. At the same time, human reliance on fossil fuels is dramatically increasing greenhouse gas emissions in the atmosphere and rising energy costs are elevating concerns that the end of cheap energy and oil is near.

The District of Saanich and other local governments face significant hurdles in meeting these challenges and need to work collectively to mitigate and adapt to current and future impacts. The local impacts of global warming have so far been relatively modest but significant large-scale impacts are expected in the future.

In 2008, Saanich's Official Community Plan review process identified significant community support for taking action and setting a climate action vision. Although the Saanich community represents a relatively small portion of the national emissions inventory, there is an opportunity to set an example for local governments across the province and the country while at the same time, making Saanich a better place to live and work. Municipalities are in a unique position to deal with the global climate change problem by establishing a culture of sustainability and resilience for residents and businesses.

A Global Problem

Emissions from fossil fuel consumption, methane production from waste and agriculture, and deforestation are regarded as the primary causes of human induced global warming. These emissions consist primarily of carbon dioxide, methane and nitrous oxide and are accelerating the 'greenhouse effect' within the atmosphere. Subsequently, this is contributing to the warming of the world's oceans which regulate the earth's temperature and directly impact regional weather patterns. The impacts of global warming are being witnessed through rising global temperatures, increasing frequency of storm events, melting glaciers and rising sea-levels.

The United Nations Kyoto Protocol (1997) was the first international policy focused on reducing the impacts of carbon emissions. When groundbreaking documentaries dramatically raised the public's understanding of climate change, residents began asking their leaders in government and industry to take action. This increased awareness was also driven by the United Nations scientific body called the Intergovernmental Panel on Climate Change (IPCC). The group produced its Fourth Assessment Report in 2007, with each report providing an evaluation of the risk of climate change impacts caused by human activity. This latest report further confirms that "*warming of the climate system is unequivocal*" and that this is very likely due to human activity.

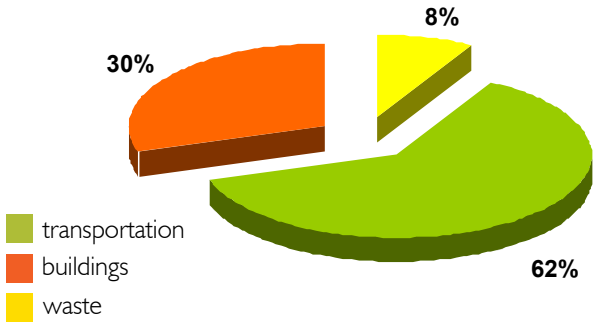
Measuring is the First Step

Of the sectors that contribute to British Columbia's total emissions inventory, communities have the most influence over transportation emissions (36% of provincial total), residential and commercial building emissions (12%) and solid waste emissions (5%). In the fall of 2008, the provincial government developed annual inventories for each BC municipality, using 2007 as the starting year. This inventory of emissions is used as the baseline to develop reduction targets.

The 2007 Saanich inventory shows that a total of 521,000 tonnes of community-wide greenhouse gas emissions were released in 2007. Based on the projected population growth of Saanich, it is estimated that, without taking any action, or Business-As-Usual (BAU), emissions will reach over 577,000 tonnes of greenhouse gas annually by 2020.

The 2007 inventory also provided a detailed breakdown of emissions by sector within the community, showing that 62% of greenhouse gas emissions are related to fuel combustion vehicles, 30% is related to buildings and 8% to landfilled waste.

2007 Saanich Community Greenhouse Gas Inventory



The Vision

Saanich commits to a 33% reduction of greenhouse gases in the community by 2020 from 2007 levels.

The Climate Action Plan is the municipality's climate change blueprint to achieve this vision and will provide Saanich Council, staff and residents with the tools to address and adapt to climate change. The Plan seeks to reduce both community and corporate (municipal operations) greenhouse gas emissions and prepare the municipality for the anticipated impacts of climate change. This Plan is the second of three municipal plans which work together to reduce emissions and adapt to climate change.

The first step was the completion of the Official Community Plan in 2008, which committed Saanich to support provincial climate action initiatives, to establish a climate action plan, and established a corporate emissions reduction target of 10% by 2010 from 2004 levels.

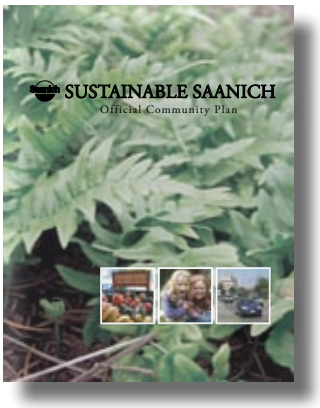
The Plan takes the next step, pulling together current and proposed community actions into one cohesive document that lays the foundation for community and municipal climate action to 2020 and beyond. The Plan also matches the Provincial emission reduction targets of 33% by 2020 from 2007 levels, thereby working toward the goal of reducing Saanich's carbon footprint and community reliance on increasingly scarce and costly fossil fuels.

The Plan contains 4 strategies focused on the reduction and mitigation of emissions. The final step is the development of a Climate Change Adaptation Plan that will prepare the community for the anticipated climate changes in the district. Both emission reduction and adaptation plans are needed to properly respond to the climate challenge.

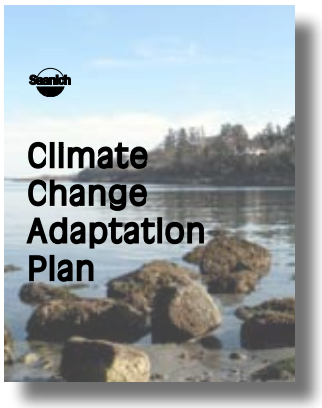
This Climate Action Plan is also designed to fit the framework set by the Federation of Canadian Municipalities (FCM) Partners for Climate Protection Program (PCP). The program consists of 5 milestones for communities to achieve by planning for and taking action on greenhouse gas emissions. This Plan brings the municipality to milestone 3 and sets the stage for milestones 4 and 5 to be completed in the coming years.

FCM PCP Milestones

1. Creating a greenhouse gas emissions inventory and forecast;
2. Setting an emissions reductions target;
3. Developing a local action plan;
4. Implementing the local action plan or a set of activities; and
5. Monitoring progress and reporting results.


SUSTAINABLE SAANICH
Official Community Plan


Climate
Action
Plan


Climate
Change
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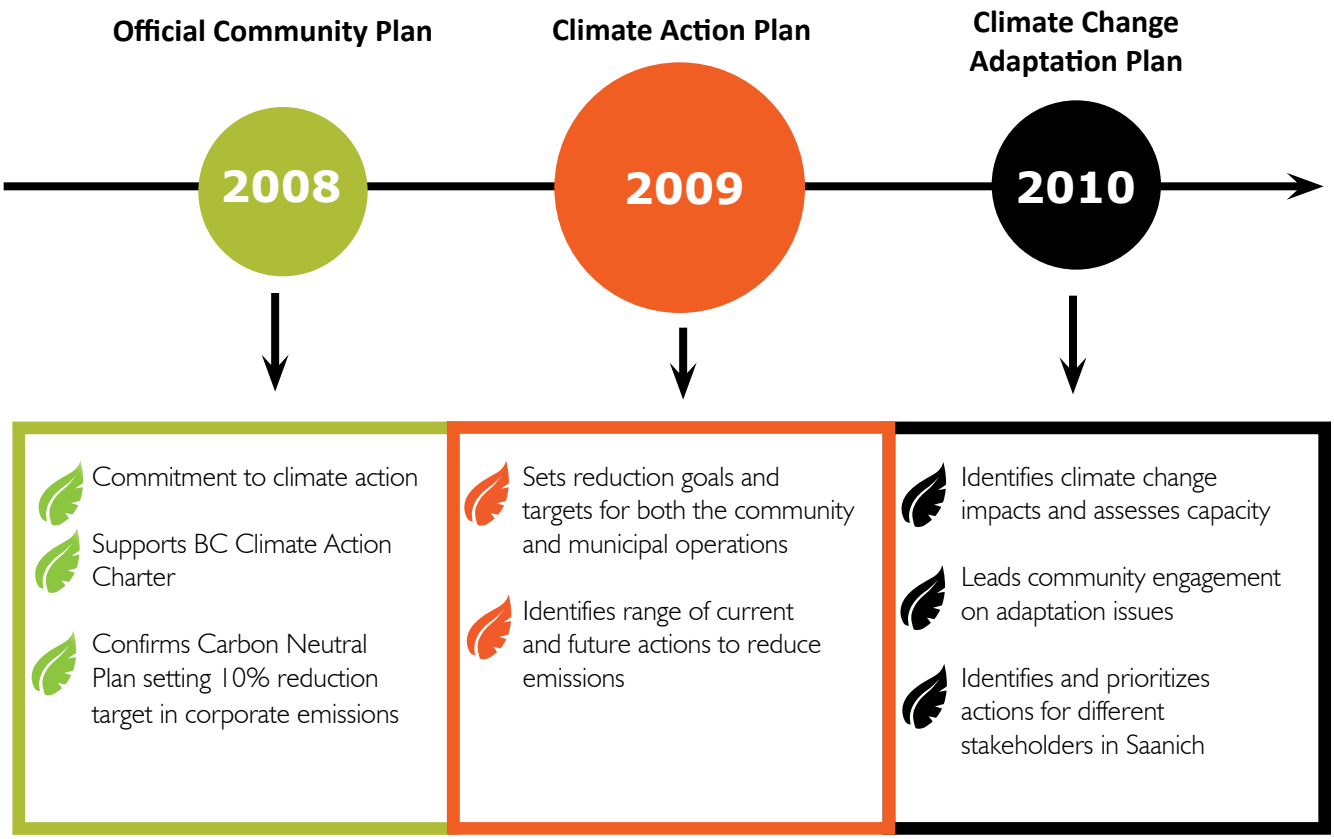

Official Community Plan
Climate Action Plan
Climate Change Adaptation Plan
2008
2009
2010
Commitment to climate action
Supports BC Climate Action Charter
Confirms Carbon Neutral Plan setting 10% reduction target in corporate emissions
Sets reduction goals and targets for both the community and municipal operations
Identifies range of current and future actions to reduce emissions
Identifies climate change impacts and assesses capacity
Leads community engagement on adaptation issues
Identifies and prioritizes actions for different stakeholders in Saanich

Policies In Action

First Energy Conservation Policy by Saanich Council Adopted
1985

Joined the FCM's 20% Club aimed at reducing GHG Emissions
1998

Green Building Policy Adopted for New Municipal Buildings
2005

FCM Partners for Climate Protection Milestone 1 Reached
2006

1993
Municipal Buildings Converted from Oil to Natural Gas Heating

2004
Energy Audit & Retrofit of Municipal Buildings Initiated

2006
Municipal Fleet Bio-diesel and Anti-Idling Program Introduced

Leading By Example

For two decades the municipality has been working towards a more energy efficient future. Energy planning was identified early on as key priority and that is helping to prepare Saanich for the environmental and fiscal energy challenges faced in 2009.

The municipality is also committed to carbon neutral municipal operations by 2012 as a signatory to the BC Climate Action Charter. To become carbon neutral, emissions must be reduced as much as possible and then the municipality will offset the remaining emissions by paying a price per tonne of greenhouse gas emitted annually.

2009 Highlights

⇨ 10% reduction of annual corporate greenhouse gas emissions between 2004 to 2008, 2 years ahead of the target year (2010)

⇨ 500 tonne reduction of annual fossil fuel related greenhouse gases between 2004-2008

⇨ First Carbon Neutral Reserve funded project initiated with recreation centre solar hot water project (2009)

Private Sector Green Building Policy Adopted

2006

E3 Fleet Program Initiated

2007

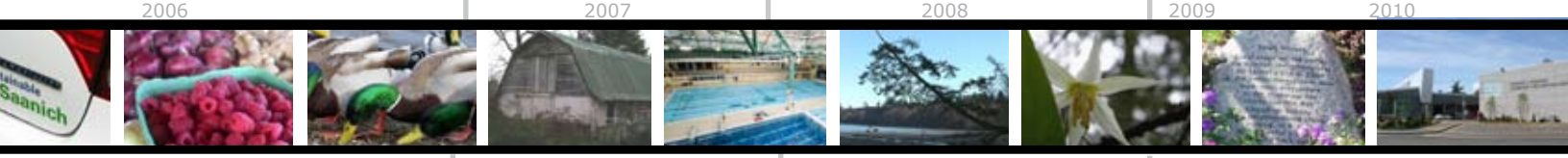
Reduced Corporate Emissions 10% from 2004 Levels

2008

Climate Action Plan

2009

2006 2007 2008 2009 2010



2006
Climate Change & Energy Action Plan Initiated

2007
Carbon Neutral Plan Adopted

2008
Adoption of Sustainable Saanich Official Community Plan

2010
Climate Change Adaptation Plan

The Saanich Carbon Neutral Calculator ... a household tool

In 2008, the municipality released an online Carbon Neutral Donation Calculator, giving residents a tool to calculate their personal and household greenhouse gas emissions. The calculator also allows residents to make a tax-deductible carbon neutral donation, based on their emissions results. Hundreds of residents have used the calculator since its release. To use the calculator, go to: www. climateaction.saanich.ca

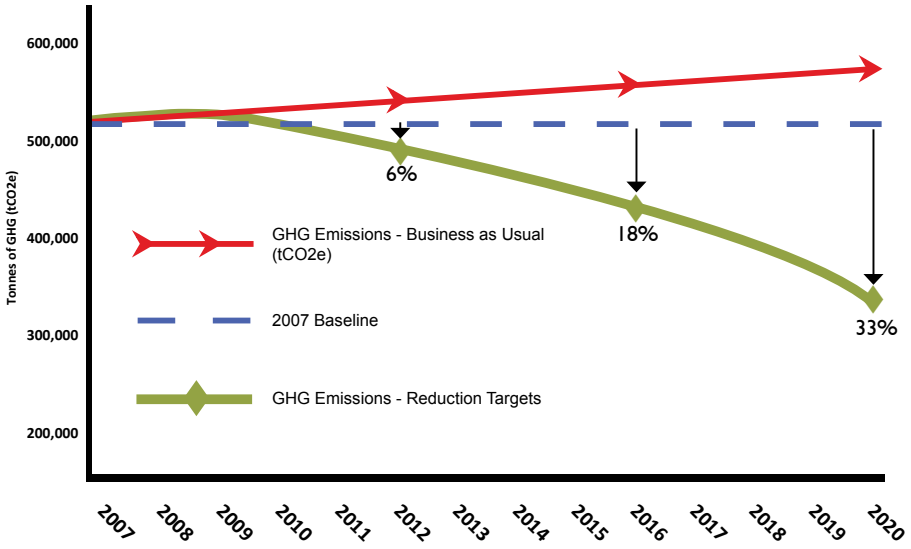
Goals & Targets

Reducing Community Emissions 33% by 2020

This Plan is focused on one main goal: to reduce 2020 community emissions by at least 33% using 2007 as the baseline year. This challenging target has been set to match the aggressive targets adopted by the provincial Government in the BC Climate Action Plan. Interim reductions targets of 6% by 2012 and 18% by 2016 have also been set by Saanich along with the provincial government's long-term target of 80% by 2050.

To reach this goal, 228,000 tonnes of greenhouse gas must be removed from the community's annual emissions by 2020, thereby lowering total annual emissions to 350,000 tonnes. The graph below illustrates the significant challenge that lies before the community. The blue line shows the greenhouse gas emissions baseline for 2007. The red line shows where emissions are headed if no action is taken by 2020 (Business-As-Usual) based on the current estimated energy consumption and population growth rates. The green line shows the timeline to lower emissions by 2020.

Business-As-Usual vs Greenhouse Gas Reductions (Community Emissions)



Measuring Greenhouse Gases

Greenhouse gas is measured in tonnes of carbon dioxide equivalents (tCO2e), a measurement that expresses the Global Warming Potential (GWP) of the main greenhouse gases, carbon dioxide, methane and nitrous oxide. The combustion of different fossil fuels can be measured in tCO2e to determine the carbon footprint of a community, building or organization. For example, current emission factors show that approximately one tCO2e is produced for every 400 litres of gasoline used by a car.

Framework

This Plan outlines four Climate Action Strategies as the basis for the Plan's framework to reduce community emissions by 33% by 2020. They are transportation, buildings, waste and energy alternatives. Within each strategy there are multiple focus area targets that will help to achieve this goal. A complete summary table of all goals, targets and actions are provided within each strategy section in the second half of this Plan. The tables have been designed as one-stop tools to review what actions have been initiated or are proposed.

Four fundamental principles have been identified to provide guidance when setting actions for the climate action strategies.

1. Require sustainable land development.
2. Engage the community with education and resources.
3. Reduce regulatory barriers and provide incentives.
4. Lead by example in municipal operations.

To achieve the 33% reduction goal, emission reductions are proposed for each strategy.

STRATEGY	COMMUNITY REDUCTIONS
1. Transportation	Fuel related emissions by 45%
2. Buildings	Building related emissions by 30%
3. Waste	Waste related emissions by 50%
4. Energy Alternatives	Additional 5% of building related emissions

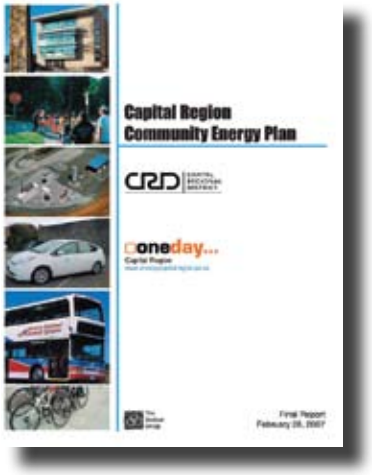
Actions to achieve these reductions will be initiated primarily by the Saanich Strategic Plan and implemented through departmental plans. This annually reported Plan balances municipal priorities with its resources. The indicators tracked within the Strategic Plan are monitored and progress reports are produced annually to ensure accountability and allow for course correction where appropriate. The Climate Action Plan will need to work in concert with the Strategic Plan to ensure that its actions are mutually consistent and adequately resourced. The Strategic Plan can be found at: www.saanich.ca/municipal/docs/strategic.html.

Community Actions

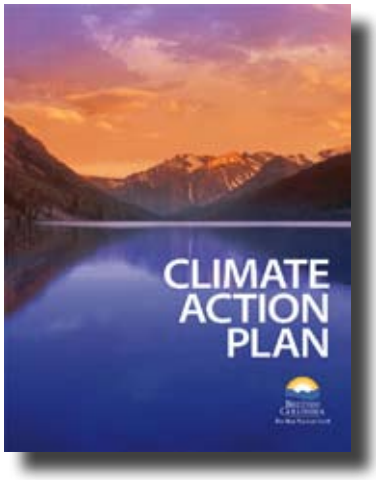
Reducing Community Emissions 33% by 2020

Community consultation has been an ongoing process in the development of this plan, starting with the extensive community input into Saanich's Official Community Plan. Input from staff, Saanich committees, community associations and residents were essential to develop a comprehensive Plan.

The success of this Plan will greatly depend on how well the community works together toward a common goal. The municipality must enable, support, educate and remove barriers to address the urgency of climate change. Saanich will work with community groups, business, institutions and other jurisdictions to learn from each other, solve problems and share as much information as possible. Each new action we propose will need new resources to properly implement and maintain, but working together on local, regional and provincial levels will help maximize those resources and ensure that knowledge is collectively shared.



Action required to tackle greenhouse gas emissions involves all levels of government but on the ground action begins with residents, business and institutions. While the Province has taken the important step of providing leadership, each BC community is different. As a result, planning for climate solutions needs to reflect the specific areas of concern and capabilities of each community.



While there are limits to what local governments can do within their range of powers, there are areas where local government can encourage and assist the community to reduce emissions. It will be vital to coordinate efforts with the CRD Climate Action Coordinator and other CRD jurisdictions to ensure the municipality continues to build on some of the excellent work that has already begun. Two examples of this are the BC Climate Action Plan and the Capital Region Community Energy Plan.

The municipality is actively engaged with the community on many issues from cycling and pedestrian access to alternative energy promotion. There are many community actions proposed in the Taking Action section of this plan. The following are a few examples that have been initiated already.

Residents

The municipality is providing residents with access to resources to save money and energy through the Green Building Rebate program and access to information on alternative energy technologies. A new brochure also summarizes the process to improve the energy efficiency in the home.

Business

Green developments are popping up all over the municipality, led by a motivated building community looking to meet the green expectations of tenants and residents. The municipality is providing free 'Green Start' consultations to business with green building questions they need answering. There are also free lighting audits and BC Hydro product rebates that all businesses should consider.

Institutions

Education centers are some of the best locations to start climate action and Saanich schools are already on their way. To support them, Saanich is providing funding under a newly proposed program to provide resources and support to local schools that will engage student in school-based climate action projects. The municipality will also work together with the University of Victoria and Camosun College to raise awareness and share information.

Personal Climate Action – Things You Can Do

The municipality has compiled a list of personal actions residents can take to help reduce community emissions.

Visit our website for more information:
www.climateaction.saanich.ca

Municipal Operations Actions

Reduce Municipal Operations Emissions 50% by 2020

Saanich's municipal operations are significant, consisting of the municipal hall, police and fire stations, four recreation centers, parks and many smaller buildings throughout the municipality. The list also includes all municipal street lighting, sewer systems and water supply lines. In total, municipal operations represent 1.5% of Saanich's total emissions inventory.

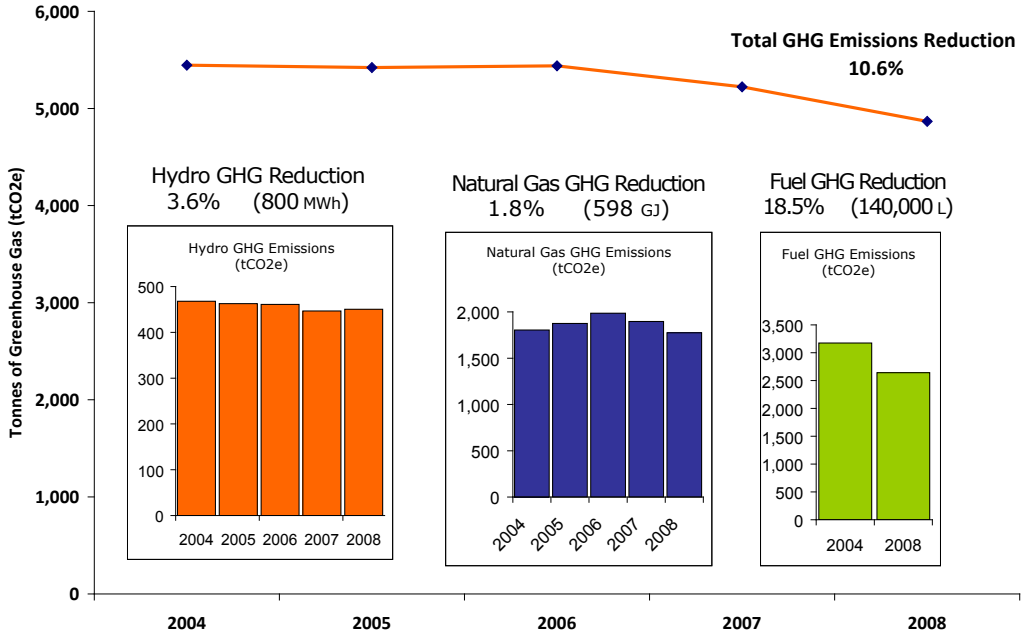
In 2007, Saanich set a goal of reducing greenhouse gas emissions from municipal operations 10% by 2010. This goal was reached two years early, largely as a result of the following initiatives.

- Implementation of municipal building retrofits that reduced total energy use despite an increase in total building area.
- Fuel related emissions were decreased by more than 500 tonnes annually through:
  - The E3 Fleet program which encourages "right-sizing" of fleet vehicles.
  - Replacing 12 older gas vehicles with fuel efficient hybrid vehicles.
  - Greater staff awareness of the benefits of fuel conservation and anti-idling.

The municipality now conducts annual corporate greenhouse gas inventories. The 2004 original baseline for inventories has been reset to the year 2007, to align with the community target baseline year as well as provincially legislated targets. In 2007, municipal operations were responsible for 5,223 tonnes of greenhouse gas. Using this baseline, this plan sets a new target to reduce corporate emissions by at least 50% by 2020. This target and interim targets exceed the emissions reduction targets for the Province of BC.

YEAR	PROVINCIAL OPERATIONS REDUCTION TARGETS	MUNICIPAL OPERATIONS REDUCTION TARGETS
2012	6%	18%
2016	18%	36%
2020	33%	50%

Greenhouse Gas Reductions from 2004-2008 (Municipal Operations)



To achieve the municipality's reduction targets, the Plan has set specific municipal operation targets for 2020.

Strategy	Strategy Municipal Operations Targets for 2020
1 - Transportation	Reduce fleet fuel consumption by an additional 50%.
2 - Buildings	Reduce municipal building emissions by 50%.
3 - Waste	Establish zero-waste buildings.
4 - Energy Alternatives	Require 20% of building energy from green sources.

To help take action on municipal climate action goals, and sustainability in general, Saanich is currently developing a Corporate Environmental Management System (CEMS) to track and monitor actions. a Green Team has also been established to act as a catalyst of awareness and to draw ideas directly from employees.

Taking Action

Getting to 33%

The following sections on each strategy explain in detail how to reach the Saanich community reduction goal of 33% by 2020. These actions will provide the community with a reference point to make informed decisions about how to reduce energy consumption and reliance on fossil fuels.

Setting a goal for the future is simple enough; the challenge lies in charting a practical and effective course to achieve that goal. To do this, focus areas with measurable targets have been identified within each strategy. Each strategy contains a table with estimates of the emissions reduction that would result if targets are achieved. A summary of the anticipated reductions resulting from each strategy is provided on the opposite page.

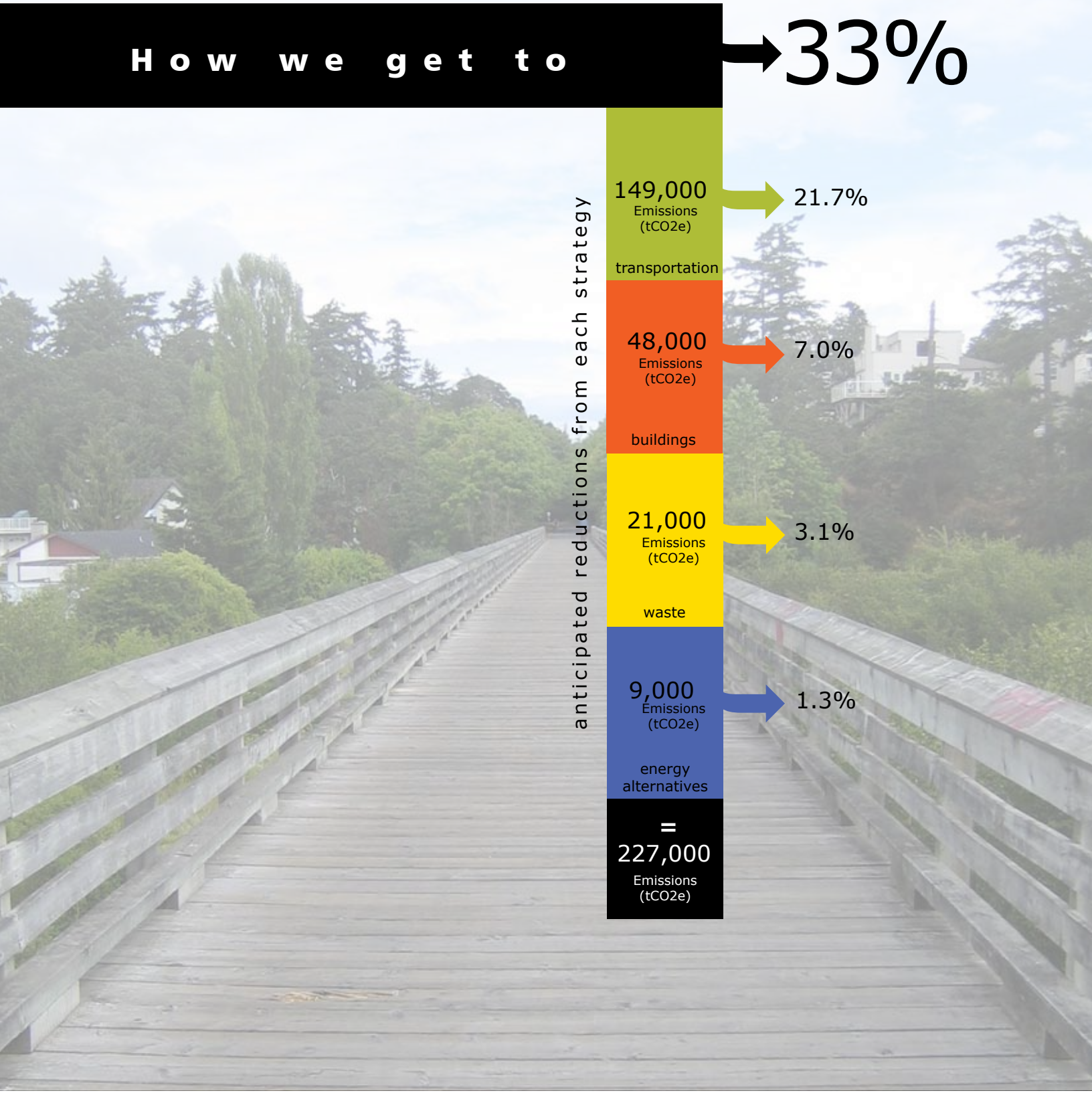
Actions for the short-term, to the end of 2010, and long-term have been set to work towards these targets. Several actions span across multiple focus areas and will help achieve multiple targets. However, not all actions can be addressed immediately for reasons such as funding and available expertise. Some of the programs have been initiated already, but there are many other actions proposed that will help reach these goals and more actions will be identified on an ongoing basis. Each strategy also has one target set for Saanich's municipal operations, indicated by the Sustainable Saanich logo.

Over time, these initiatives will likely shift due to changes in technology, societal behaviours and fiscal priorities. Some actions will succeed, while others may not produce the desired results. In order to keep this plan current and dynamic, every three years the plan will be revised including a review of the effectiveness of specific actions. If progress is not being met on targets, the actions may need to be modified or additional actions may be required. Annual reports will also be generated summarizing annual emissions information and progress made on climate actions.

Carbon Neutral Reserve Fund

Funding for actions will be supported by our innovative Carbon Neutral Reserve Fund, where the municipality has set aside equivalent offsetting funds based on our annual GHG inventories at $25 per tCO2e. Started in 2007, the fund has now so far provided funding for solar hot water feasibility studies and installation and many other projects are in the planning stage. While we will be seeking funding opportunities and partnerships on an ongoing basis, this fund ensures there will be a consistent funding source for climate action initiatives in the future while encouraging the municipality to continually reduce emissions.

How we get to → 33%



1 transportation

| Reduce fuel related emissions by 45% |

2 buildings

3 waste

4 energy alternatives

Vehicle emissions are the most significant source of greenhouse gases in the Capital Regional District currently representing 62% of Saanich's community emissions inventory. A combination of urban, suburban and rural lands provides the municipality with unique community transportation challenges.

To achieve real reductions, a determined focus must be placed on reducing reliance on passenger vehicles; therefore actions in this plan are developed with this priority in mind. The target for reducing community fuel consumption is 45% by 2020. To accomplish this, sub-targets are set in four focus areas; Transit, Cycling, Walking and Driving.

There are two significant long-term planning tools in the Saanich Official Community Plan (OCP) that are used to encourage sustainable transportation and low carbon communities; the Urban Containment Boundary and the "Centres" and "Villages" Strategy.

The Urban Containment Boundary separates urban from rural land uses and prevents further suburban sprawl outside the boundary while increasing the intensity and concentration of development in appropriate centres. This policy provides added protection of farmlands, environmentally sensitive areas and green space, and encourages compact, more walkable communities, with smaller carbon footprints.

This policy is also linked to the "Centres" and "Villages" strategy, which identifies areas of concentration where there is existing commercial and multi-family development serviced by public transit and adjacent to one or more major roadways. 22% of Saanich dwellings are within 500m of a "Centre" or "Village" and the OCP policies encourage the majority of new residential and commercial development to be focused in these areas.

Long-term planning studies are underway for two major centers, Uptown and Shelbourne corridors. A significant component of these studies will be to encourage transit, walking, cycling and energy conservation.

Actions

Strategy 1 Transportation	Focus	2020 Targets	Total Reduction (%)	GHG Reduction (tonnes)
	Transit	Increase transit ridership from 5.3% to 8%	1.2	8,500
	Walking	Increase walking participation from 9.1% to 12%	1.3	9,000
	Cycling	Increase cycling participation from 2.4% to 5%	1.3	9,000
	Driving	5000 electric vehicles in municipality	2.2	15,000
		Increase community fuel efficiency to achieve 30% fuel reduction	15.4	106,000
	Municipal	Reduce Saanich Fleet fuel related GHGs by 50% Sustainable Saanich	0.2	1,500
		Total Community Greenhouse Gas Emissions Reduction	**21.7**	**149,000**

Department	Focus	Short-Term Actions	Initiated
Engineering	●	S1.1 Annually increase km's of new bike lanes in the community.	☑
Engineering	▲	S1.2 Increase sidewalk construction and safety upgrades over the next 3 years.	☑
Engineering	◆	S1.3 Increase the number of bus stops upgraded to a minimum of 10 per year.	☑
Parks & Rec	▲●	S1.4 Complete Saanich Trails Master Plan (Centennial Trails Phase 2) project planning by 2010.	☑
Finance	■	S1.5 Enhance 24/7 online accessibility to municipal services.	☑
Planning	★	S1.6 Continue tracking of E3 Fleet program to reduce consumption.	☑
Planning	◆▲●■	S1.7 Complete planning studies of Douglas/Shelbourne Corridors by 2010.	☑
Planning	◆	S1.8 Support parking variances where good transit is provided.	☑
Corporate	◆●■★	S1.9 Develop corporate Transportation Demand Management Plan by 2010. - Corporate carpool program - Increased bicycle facilities - Corporate bus passes - Car-share use for municipal operations	
Planning	◆■	S1.10 Promote amenities for electric vehicles and bikes, scooters in developments.	
Planning	■	S1.11 Promote car pooling/care share in new developments.	
Corporate	■	S1.12 Develop local food purchases program for staff meetings and events.	
Planning	■	S1.13 Support parking relaxations in lieu of designated car sharing stalls.	
Corporate	■★	S1.14 Establish Low Carbon Meeting program (travel alternatives and webinars).	
Corporate	■★	S1.15 Establish a corporate travel offsetting carbon neutral program.	
Corporate	◆▲●■★	S1.16 Establish Saanich Corporate Green Teams – Transportation Focus Area 2010.	
Corporate	◆▲●■	S1.17 Participate in car-free day program for the community.	
Planning	◆▲●■	S1.18 Encourage and assist pocket markets in the municipality.	
Engineering	◆▲●■	S1.19 Explore options for additional Park and Ride location in rural Saanich	

Department	Focus	Long-Term Actions	Initiated
Planning	◆	L1.1 Promote transit-oriented development through implementation of the Regional Growth Strategy and the Official Community Plan.	☑
Planning	▲●■	L1.2 Develop District-wide Mobility Plan.	☑
Engineering	◆	L1.3 Support implementation of Rapid Transit along Douglas Street.	
Planning	■	L1.4 Review off-street parking standards to discourage vehicle use.	
Engineering	◆	L1.5 Develop a Saanich bus stop enhancement plan.	
Planning	■	L1.6 Develop plan for electric charging stations in core “centers” and “villages”.	
Parks & Rec	▲●	L1.7 Complete Saanich Trails Master Plan (Centennial Trails Phase 2) project implementation by 2015.	
Engineering	◆▲●	L1.8 Develop new engineering design specifications to support & encourage walking, cycling, transit and other forms of non-carbon based fuelled vehicles.	
Planning	▲■	L1.9 Promote expansion of community gardens in multi-family areas.	
Engineering	■★	L1.10 Purchase 2 electric fleet vehicles by 2012 .	

Transit

While multiple bus routes currently serve 93% of Saanich (within 500m of residences), challenges remain as only 5.3% of residents are accessing the transit service. This Plan has set a target to increase transit participation to 8% by 2020 and to achieve this, it will be important to enhance the bus riding experience for residents. Adequate shelter, security, ease of boarding and frequency of service are all factors which encourage ridership.

Proposed short-term actions include developing new engineering design guidelines for how streets, sidewalks and bus stop systems are built. The Plan proposes a bus shelter enhancement competition to achieve this. The municipality will also work in cooperation with BC Transit to increase the number of upgraded bus stops by a minimum of 10 per year.

Cycling

Compact, efficient communities have a multitude of social and economic benefits, particularly when it comes to cycling and walking. Providing safe and accessible cycling environments has been a focus for many years in Saanich and the municipal cycling network has continued to expand. The 2020 sub-target to increase participation rates for cycling from 2.4% to 5% is designed to not only help reduce emissions, but actions will contribute to improving the overall health and well-being of the community as well.

Multi-use trails are also important to include when planning for movement of cyclists, pedestrians and many other forms of transport including strollers, scooters, and wheelchairs. The Saanich Trails Master Plan (Centennial Trails 2006 and beyond) project was initiated in 2003 to build upon existing trails and make multi-use trail connections east/west and north/south to all geographic areas of the municipality. The project has now entered into Phase 2 with a focus on trail improvements and construction of new trails. All of the trail segments will be tied together, providing further transportation options to the residents of Saanich.

Walking

The Saanich Trails Master Plan project also contributes to improved walkability for Saanich residents. This Plan has set a sub-target to increase walking participation rates from 9.1% to 12%. With increasing demand for new and improved pedestrian facilities, the municipality is increasing the level of sidewalk construction over the next three years. This demand has arisen as a result of increased densification and evolving attitudes toward the impact of motorized travel.

| Saanich's biggest success on climate action has been the significant reductions to municipal fleet fuel consumption. |

Driving

Removing or reducing the number of traditional fossil fuel-burning cars using roads is no small task. It needs a combination of planning, incentives, technological advancements, and a shift in the way residents think about cars. While transit, walking and cycling alternatives are an important part of the puzzle, changing vehicle technology to hybrid and electric systems will help maintain traditional vehicle benefits while reducing emissions.

Recent events indicate that the electric car may soon be a regular part of everyday lives. Barriers to the electric car are starting to come down and this Plan anticipates that a target of 5000 electric vehicles in the community by 2020 is possible. This would represent 10% of the more than 50,000 passenger vehicles registered in the municipality.

Actions currently underway include improving the online accessibility of municipal services to residents and providing parking variances where good transit is provided. Proposed actions include planning for electric car charging stations at key centres and promoting amenities for car sharing, electric vehicles, electric bikes and scooters in new developments.

Leading By Example

Saanich's biggest success on climate action has been the significant reductions to municipal fleet fuel consumption. From 2004 to 2008, annual fuel related emissions were reduced by 532 tonnes (more than 187,000 litres of unleaded and diesel fuel). The E3 Fleet management program played an important role in this success, but more importantly, staff made an effort to make fuel saving decisions in their day to day work. This Plan sets a new corporate target of 50% reduction in fuel related emissions from 2007 levels by 2020. Proposed actions include the potential purchase of two electric vehicles for the Saanich fleet by 2012, and the development of a corporate Transportation Demand Management Program which would include carpooling, improve bicycle facilities, departmental bus passes and other incentives to reduce the use of personal, single occupancy vehicles.

2 buildings

| Reduce building related emissions by 30% |

Reducing the carbon footprint of buildings in the municipality involves a wide range of physical and natural challenges. There are significant opportunities for existing residences and commercial buildings to increase energy efficiency as well as raising energy standards for new buildings. It is also important to effectively manage and protect forest and water resources impacted by new developments and renovations.

The goal for Strategy 2 is to reduce building related emissions by 30% by 2020. Sub-targets for achieving this goal focus on residential, commercial and municipal energy efficiency, water consumption and management of the urban forest.

Energy Efficiency in Buildings

This Plan proposes to increase the average efficiency of Saanich homes and commercial buildings by 30% over the next 10 years to result in an emissions reduction of more than 20,000 tonnes.

In recent years, much attention has been placed on making sure new developments meet higher energy efficiency standards such as LEED, Built Green and Power Smart. Although this focus is appropriate, it should be noted that all new buildings are reaching much higher energy efficiencies than most older buildings simply by adhering to the modern requirements of the BC Building Code.

Less attention has been paid to reducing energy use in the large stock of existing buildings, especially older buildings with very low EnerGuide ratings. There are approximately 33,000 existing dwelling in Saanich, half of which were built pre-1970 with limited energy efficiency. Only 375 new dwellings are being built annually (1% of the total) and these are generally achieving a relatively high EnerGuide rating of 77 or better.

Actions

Strategy 2 Buildings	Focus	2020 Targets	Total Reduction (%)	GHG Reduction (tonnes)
	Residential	Improve residential energy efficiency by 30%	4.9	34,000
	Commercial Institutional	Improve commercial energy efficiency by 30%	1.9	13,000
	Water	Reduce residential water consumption by 20%	-	-
	Forests	No Net Loss of Forest Canopy in the Municipality	-	-
	Municipal	Reduce municipal building GHGs by 50% Sustainable Saanich	0.1	1000
		Total Community Greenhouse Gas Emissions Reduction	**7.0**	**48,000**

Department	Focus	Short-Term Actions	Initiated
Planning	◆▲	S2.1 Revise Saanich Green Building Program to increase requirements.	☑
Parks and Rec	■	S2.2 Complete an Urban Forest Strategy.	☑
Finance	★	S2.3 Fund municipal GHG reducing projects with Carbon Neutral Reserve Fund.	☑
Engineering	★	S2.4 Complete Life-Cycle cost analysis of all Municipal Facilities.	☑
Engineering	★	S2.5 Upgrading and rebuilding of Saanich pump stations.	☑
Parks and Rec	■	S2.6 Participate in the provincial Trees for Tomorrow Program.	☑
Fire	●	S2.7 Water recycling system at new Fire Training Centre.	☑
Engineering	★	S2.8 Complete Saanich streetlight dimming project.	☑
Parks and Rec	■	S2.9 Implement the Urban Forest Strategy findings by the end of 2010.	
Engineering	★	S2.10 Explore rainwater recapture options at municipal buildings.	
Parks and Rec	■	S2.11 Set a goal for annual tree planting in the urban forest.	
Parks and Rec	■	S2.12 Identify tree planting locations in the municipality.	
Planning	◆▲●■	S2.13 Expand current community grants program to include grants for community groups to take action on climate change.	
Planning	◆▲	S2.14 Develop carbon footprint evaluation tool for development reviews.	
Planning	◆▲●	S2.15 Develop a rooftop gardens awareness program for commercial/multi-residential.	
Planning	◆▲●■	S2.16 Develop sustainability showcase precincts (Major Center) which set minimum green building requirements for all developments in the boundary.	

Department	Focus	Long-Term Actions	Initiated
Planning	◆▲●■	L2.1 Complete new development permit guidelines.	☑
Parks and Rec	■	L2.2 Determine a baseline inventory for canopy cover in Saanich.	
Lands	★	L2.3 Reduce heating oil use 50% in corporate operations by 2012.	
Corporate	★	L2.4 Establish Saanich Corporate Green Teams – Building Focus Area 2011.	
Planning	◆▲	L2.5 Promote the use of Smart Metering to reduce energy consumption.	
Planning	◆▲	L2.6 Encourage home energy audits for all building renovation applications.	
Planning	◆●	L2.7 Encourage metering of energy and hot water in multi-unit residences.	
Corporate	●	L2.8 Promote regional water conservation measures.	
Engineering	★	L2.9 Review all municipal buildings for LEED Existing Building status.	
Parks and Rec	◆●■	L2.10 Provide green recreation programs to the public.	
Corporate	◆▲	L2.11 Develop a detailed Community Energy Plan for the municipality.	
Engineering	★	L2.12 Update the Fleet Center building heating and control systems.	
Finance	◆	L2.13 Evaluate tax incentive program for home energy efficiency improvements.	

In order to maximize the effect of an energy reduction plan for buildings, it will be important to focus significant effort on retrofitting existing building stock.

To reach the 30% target, all building types should be considered; from single family dwellings to commercial and institutional uses. Building energy efficiency has also been identified as a priority by all levels of government. Significant rebates and incentives are available. The federal rebate program (EcoEnergy.ca) offers a wide range of rebates for home improvements for both residents and commercial building operators.

A significant step in the effort to reduce building related emissions was the enactment of the new BC Green Building Code in 2008. This code set new energy and water efficiency standards for all new buildings. This Plan supports the upcoming enhancements to the code respecting solar ready homes and greywater recycling.

The existing Saanich Green Building Rebate Program provides additional incentives to new home builders and renovators, beyond the rebates provided by the federal EcoENERGY program. The municipality has established partnerships to provide a flexible program that reduces building permit fees depending on the level of green building achieved, including incentives for retrofitting of residential buildings. There are provincial incentives underway that could significantly change behaviour and energy consumption. BC Hydro has initiated rate changes to promote energy conservation and is now mandated to install Smart Metering by 2012, both of which are expected to have significant impacts on consumer behaviour.

The municipality is also proposing a detailed community energy plan to analyze community energy loads, assets and policies to reduce energy consumption.

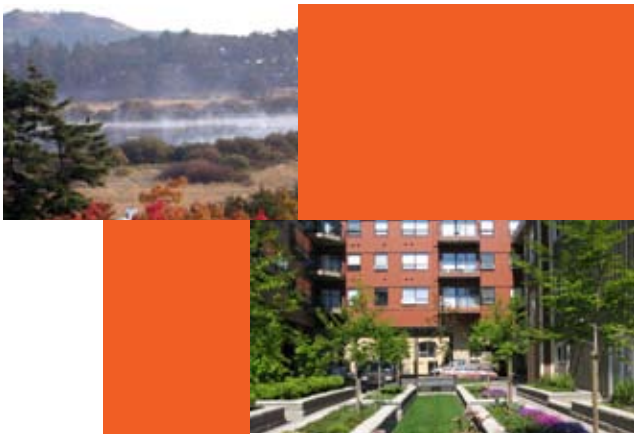
This Plan proposes actions which include the expansion of the current Saanich Community Incentive Program to include climate action initiatives led by community groups and the development of a rooftop gardens awareness program for commercial and multi-residential buildings.

The Role of Forests

This Plan also recognizes the vital role that trees play in mitigation and adaption to climate change impacts and that development decisions directly affect the municipal inventory of trees. It is imperative that rural and urban forests are maintained since trees are second only to the ocean when it comes to absorbing carbon from the atmosphere. Trees also provide shading and water runoff control to properties when planned appropriately.

Saanich Parks staff is currently developing an Urban Forest Strategy. The strategy will be a long-term plan for the management of all trees and their associated growing environments within the District - both in the Urban Containment Boundary and in Rural Saanich. The strategy will establish actions and targets that will be supported by the Climate Action Plan to ensure that existing trees inventories are maintained and enhanced. The intention is to support a goal of no net loss of forest canopy in the municipality.

| A 50% reduction target for all municipal building emissions has been set for 2020. |



Conserving Drinking Water

The west coast of British Columbia is fortunate to have access to large amounts of the best drinking water on earth. However current behaviours and management of this valuable resource need to change to address possible climate change impacts. It is not commonly recognized that a large amount of energy is used to transport water throughout a community and to manage the discharge of water to the sewer and stormwater systems. As a result, water conservation is an important component of any energy conservation initiative.

The Capital Regional District (CRD) Water Services provides water to 320,000 consumers along with system wide water conservation, water quality and cross connection control services. Aiming to reduce current per capita water demand by 30%, Saanich will support the current water programs initiated by the Capital Regional District. CRD Water Services encourages the wise and efficient use of water through education, financial incentives, policy measures and research for both residents and businesses. Conservation of drinking water will also be a focus in the future Climate Change Adaptation Plan. (see page 34)

Proposed actions in the Plan include providing commercial and property managers with living roof resources and incentives and to encourage metering of energy and hot water consumption in multi-unit residences.

Leading by Example

The municipality has been investing in building energy reductions for many years, most recently in 2005 with a mandate for a minimum LEED Silver status for all buildings over 500m^2 and implementing the Carbon Neutral Reserve Fund in 2007. An energy retrofit project initiated in 2004 is now showing a significant return on investment. Since the start of that project, the municipality has managed its buildings in a more energy efficient manner. From 2004 to 2008, the municipality reduced its greenhouse gas emissions attributable to hydro generation by 3.8% and natural gas emissions by 1.6%. This reduction was achieved despite a small increase in municipal building area and in the number of full-time municipal employees.

A 50% reduction target for all municipal building emissions has been set for 2020. It is anticipated that this will be achieved through a combination of continued reductions in electrical and natural gas consumption and utilizing alternative energy solutions such as solar hot water, photovoltaic and geoexchange energy. The groundwork for achieving this goal includes a life-cycle cost analysis for all municipal buildings in 2009.

3 waste

Reduce waste related emissions by 50%

As the solid waste challenges in the Capital Regional District (CRD) continue to grow, waste reduction planning and actions have been initiated by both the CRD and Saanich. While landfill management is the responsibility of the CRD, the municipality does share the costs of waste management with other CRD municipalities and is also responsible for its portion of the greenhouse gas emissions from the landfill.

Through promotion of reduction, reuse, recycling programs and new technology, the municipality has the potential to reduce waste related emissions by up to 50%. This goal may be achievable through the development of a Saanich Community Waste Management Strategy in concert with the implementation of regional actions, such as a ban on organic materials from the regional landfill by 2012.

Recycling systems that have been developed over the past 20 years have successfully diverted waste away from the landfill. Direct emissions from the landfill were further reduced through a methane capture system that was installed in 1996. However, there are now technologies and markets available that could potentially allow diversion of most wastes from the landfill. A CRD study in 2005 showed landfilled waste predominantly consists of organic waste (30%), paper (16%), plastics (14%) and wood (10%), all of which could be diverted from the landfill. Achieving this goal will take continued modifications to current waste management systems in municipalities and personal behaviours of CRD residents.

Current landfill bans include drywall, cardboard, directories, large appliances, tires, electronics, scrap metals and fill materials, paper and yard and garden waste. It is estimated that these bans have diverted over 600,000 tonnes of material from the landfill. CRD staff is now recommending two additional material bans (wood waste and product stewardship materials) by 2010.

Actions

Strategy 3 Waste	Focus	2020 Targets	Total Reduction (%)	GHG Reduction (tonnes)
	◆ Solid Waste	Increase solid waste diversion from 33.4% to 67%	3.04	20,900
	★ Municipal	Eliminate landfilled waste from municipal operations Sustainable Saanich	0.01	100
		Total Community Greenhouse Gas Emissions Reduction	**3.1**	**21,000**

Department	Focus	Short-Term Actions	Initiated
Purchasing	☆	S3.1 Implement Sustainable Purchasing Program in 2010.	☑
Engineering	◆ ☆	S3.2 Develop the Saanich Community Waste Strategy in 2009.	☑
Planning	◆	S3.3 Encourage recycling requirements for all Saanich businesses.	
Planning	◆	S3.4 SmartFood campaign to promote local food and reduce waste.	
Engineering	☆	S3.5 Expand Saanich corporate composting program.	
Corporate	☆	S3.6 Develop a Zero-Waste Program for municipal operations in 2010.	
Corporate	☆	S3.7 Establish Saanich Corporate Green Teams – Waste Focus Area 2010.	
Corporate	◆	S3.8 Conduct waste reduction public education seminars.	
Corporate	◆	S3.9 Develop incentives to further reduce the volume of construction waste going to the landfill.	
Department	**Focus**	**Long-Term Actions**	**Initiated**
Corporate	☆	L3.1 Convert all municipal operations to 100% recycled content paper.	
Corporate	◆	L3.2 Promote systems that reuse unwanted items. (websites, donations)	
Planning	◆	L3.3 Implement recycling requirements for new multi-residential and commercial.	
Planning	◆ ☆	L3.4 Promote the Canada Post Red Dot Campaign to reduce mailed advertising.	
Human Resources	☆	L3.5 Incorporate environment award into the Saanich Applause Program	

Saanich Community Waste Management Strategy

The future management of solid waste in the municipality is currently being reviewed as part of a Saanich Waste Management Strategy. Solid waste currently contributes more than 40,000 tonnes of greenhouse gas to Saanich's carbon footprint. Current waste collection systems are based on historic fossil fuel intensive practices that need to be reviewed to seek out cost-effective, long-term and low-carbon solutions.

Leading by Example

In 2008, Saanich conducted its first internal waste audit. The audit estimated a total volume of 110 tonnes of solid waste generated annually by municipal operations and identified actions to improve waste diversion. Despite the success of current recycling initiatives, the audit showed that 37% of municipal garbage could still be diverted from the landfill. Internal systems are now being established to develop a Zero-Waste Program. As a starting point, a new Sustainable Purchasing Program has been initiated for municipal operations which will incorporate sustainability criteria for each product considered during the tendering process.

4 energy alternatives

| Reduce building related emissions 5% through energy alternatives |

Conserving energy is the simplest way to reduce emissions; however all vehicles and buildings still require some form of energy to function. New sources need to be developed to reduce or replace carbon intensive fossil fuel consumption. This Plan sets a goal to have 5% of community building energy demand met by alternative energy sources by 2020. To achieve this target, efforts will focus on solar, heat exchange systems and district energy.

Solar

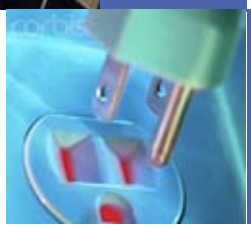
In 2008, Saanich was designated as a Solar Community by SolarBC and since then, the municipality has been working to promote solar hot water technology and to remove the barriers to residential installations. A target was set for 400 solar hot water installations in Saanich by the end of 2010. To make this happen, the municipality provides residents with the education, tools and incentives to see if solar is right for them. In June of 2009, the municipality held its first Solar Open House to connect residents directly with solar hot water experts and installers in the region. The event was very popular and identified a successful path to real climate action.

The number of direct solar system installations using photovoltaics (PV) is also increasing but the current cost of systems and the long payback period for feeding green energy back into the grid mean a significant investment from the resident. This Plan supports increasing the feed-in tariff rates from BC Hydro so that these systems can become affordable to more homeowners.

Strategy 4 Energy Alternatives	Focus	2020 Targets	Total Reduction (%)	GHG Reduction (tonnes)
	Solar	1000 residential hot water systems and 50 commercial systems	0.3	2,000
	Heat Exchange	Increase residential heat exchange systems by 2%	0.1	800
	District Energy	Promote district energy systems for core centres	0.9	6,000
	Municipal	20% of municipal operations power from green power sources	0.03	200
		Total Community Greenhouse Gas Emissions Reduction	**1.3**	**9,000**

Department		Short-Term Actions	Initiated
Planning	◆ ★	S4.1 Install 400 residential solar hot water installations by 2010.	☑
Planning	◆ ★	S4.2 Hold solar hot water open houses twice per year.	☑
Engineering	◆ ★	S4.3 Install solar hot water system for one Saanich Recreation Centre.	☑
Planning	◆ ▲ ● ★	S4.4 Continue implementation of Saanich Carbon Neutral Plan by completing Climate Action Plan, Corporate Environmental Management System and Adaptation Plan by 2010.	☑
Planning	◆ ★	S4.5 Develop a Saanich solar hot water policy.	
Planning	◆ ▲ ●	S4.6 Enhance sustainability checklist with alternative energy requirements.	
Planning	◆ ▲ ●	S4.7 Encourage and support developers to install alternative energy systems.	
Planning	◆ ▲	S4.8 Implement multi-family and commercial building plug-in vehicle stations.	
Planning	●	S4.9 Encourage district energy systems in all new major center plans.	

Department	Focus	Long-Term Actions	Initiated
Planning	◆ ▲ ●	L4.1 Conduct Community Energy Study to assess district energy possibilities.	
Corporate	◆ ▲ ● ★	L4.2 Review options for SmartGrid techology in the community.	
Finance	◆ ▲ ●	L4.3 Develop alternative energy incentive program.	
Planning	◆	L4.4 Mandate solar ready for all new buildings in Saanich.	
Planning	★	L4.5 Establish Saanich Corporate Green Teams – Energy Alternatives Focus 2011.	
Planning	◆ ▲ ● ★	L4.6 Develop an events program to raise Climate Action awareness.	
Planning	★	L4.7 Increase Saanich Carbon Neutral Offsets to market levels or to Pacific Carbon Trust levels (i.e. $25).	



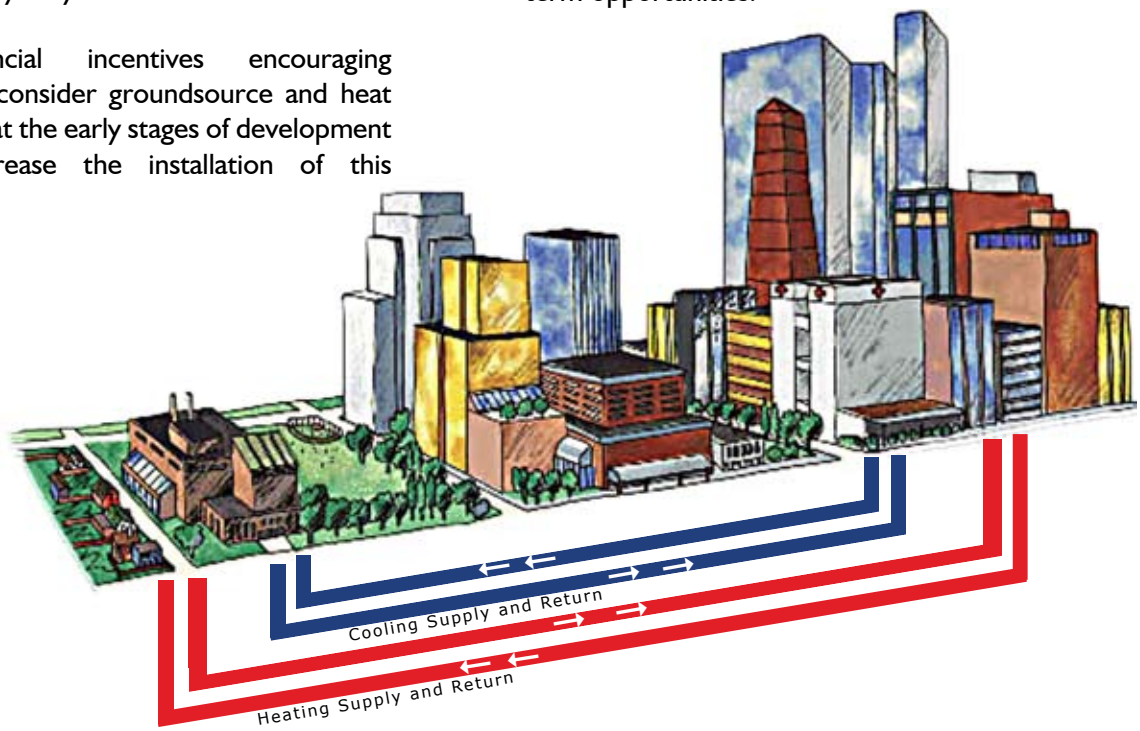
Heat Exchange

Heat exchange technology takes advantage of temperature differences in the ground or air (and occasionally in water) to either heat or cool a building space. Known as groundsource heat, and often wrongly as "geothermal", piping runs either vertically or horizontally in the ground where the temperature is constant. The same philosophy is used for air based systems which use outside air to provide a temperature difference. Both are effective ways to affordably heat and cool while using only a very small amount of energy from a pump. Groundsource heat can be an expensive option, but may be viable for larger operations during new construction. Air source heat pumps have become increasingly popular, more efficient and are relatively easy to install.

Federal financial incentives encouraging developers to consider groundsource and heat pump systems at the early stages of development will help increase the installation of this technology.

District Energy

In areas of high energy demand, district energy systems have proven to be a very efficient provider of energy. The systems centralize the energy sources of heating or cooling for a development, a neighbourhood or even entire communities, Cities in BC that have installed successful district energy systems include Vancouver, North Vancouver, Prince George, Kelowna and Revelstoke. This Plan calls for the evaluation of district energy systems in higher density areas. Long-term planning studies for the Uptown and Shelbourne major centres will consider district energy as an important future energy option. The municipality is also working with Terasen Gas and BC Hydro to identify short-term opportunities.



| The municipality has set a target for 400 solar hot water installations in Saanich by the end of 2010. |

Leading By Example

Before moving forward on tackling energy related emissions, the municipality must first have a clear understanding of current energy demands and where they will be in 2020. A district energy study, in partnership with BC Hydro and Terasen Gas, is needed to understand these energy trends.

This Plan seeks to increase the energy demand met by green power for municipal buildings to 20% by 2020. This is to be achieved through a combination of the solutions provided in the Strategy 4 Action List starting with feasibility studies of solar hot water systems for recreation centre pools and showers. This Plan also recommends consideration of an alternative energy financing program that has been piloted in other communities.

Next Step:
The Climate Change Adaptation Plan

The Saanich Climate Action Plan has focused on reducing emissions. The next step on climate action goes in a different direction with the development of the Climate Change Adaptation Plan. This step focuses on adapting to the coming climate change impacts that are already underway. Adaptation is the only response available for the climate change impacts that will occur over the next several decades since mitigation measures will take decades to have an effect. This plan will be developed to ensure that a robust and effective list of actions can be developed for different stakeholders in the community.

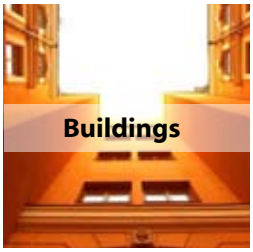
It is clear that BC is already seeing the effects of climate change, such as the impact the pine beetle has had on interior forests. The list of potential climate change impacts is extensive; the most publicized being sea-level changes, melting glaciers, ecological impacts, food security challenges, and water and forest protection.

A list of potential societal impacts due to climate change was developed by the Capital Regional District within an adaptation scoping study produced in 2007. The table on the next page provides a look at those impacts and how they may impact Saanich.

The municipality is fortunate to be located in a region equipped with leading edge educational and government resources that together are building a significant knowledge base on climate action. The municipality will develop a stand-alone Adaptation Plan that will provide recommended actions for municipal residents and business to take in preparation for the coming changes.

The municipality will seek partnerships with regional and provincial governments so that other communities can benefit from the lessons learned in the project process and outcomes. Completion of the Adaptation Plan is targeted for the end of 2010.

Potential Impacts due to Climate Change Specific to Saanich

SYSTEM	SUMMARY OF POTENTIAL IMPACTS
	• Increased or decreased crop productivity due to temperature changes. • Increased reliance on irrigated agriculture due to more frequent and/or severe drought.
	• Water damage to buildings and property from sea level rise or increased severity of precipitation. • Increased requirements for screens on building windows due to increased insect-born disease. • Increased energy demand for cooling systems in existing buildings and new construction
	• Increased energy demand for building space in winter and summer. • More frequent power outages associated with extreme weather events and peak loading.
	• Migration of species and populations capitalizing on the warmer climates. • Increased risk of ecosystem breakdown, in particular, local extinctions and species migration. • Change in survivability of re-planted areas due to changed soil moisture, potentially increased droughts. • Change in forest composition due to a combination of impacts.
	• Migration of species and populations capitalizing on the warmer climates. • Increased risk of species and ecosystem breakdown. • Habitat loss due to potential flooding, in particular in low-lying coastal areas.
	• Increased incidence of insect-borne disease due to warmer temperatures. • Increased allergens due to increased summer temperatures. • Increased outbreaks of infectious diseases. • Degraded air quality and associated increases in respiratory diseases and death. • Heat related deaths and illnesses due to increased temperatures.
	• Land based transportation route disruption. • Reduced sea and airport capacity for handling cargo and passengers. • Decreased highway safety due to more frequent and severe weather events.
	• Decreased water supply affecting regional supply and groundwater aquifers. • Impaired water quality in streams and lakes. • Increased taste and odour issues with consumers due to deteriorating source water quality. • Sewer overflows from stormwater runoff and river flows due to increased number of peak events. • Streambank erosion, landslides, and erosion of shorelines.

Definitions

Adaptation
Adjustment in natural or human systems in response to actual or expected climatic changes.

Aspirational Target
Also referred to as a top-down target, a target that is set with a vision in mind. Can be compared to a bottom-up target, which sets a target based on calculated estimates of what can be achieved. Saanich has set an aspirational reduction target of 33% of greenhouse gases by 2020 based on 2007 baseline emissions.

Baseline
GHG Emissions in a specified year, against which future emissions are measured.

BC Climate Action Charter
Local governments from across B.C. have joined with the Province and the Union of BC Municipalities, to find ways to tackle the challenges posed by climate change, pledging to significantly cut greenhouse gas emissions by 2012. http://www.cd.gov.bc.ca/ministry/whatsnew/climate_action_charter.htm

Business-As-Usual (BAU)
A simple forecast predicting the increase in greenhouse gas emissions based on population projections. Population growth estimates for the District of Saanich were obtained from BC Stats adapted from Statistics Canada 2006 Census.

Carbon Neutral
Being carbon neutral, or having a net zero carbon footprint, refers to achieving net zero carbon emissions by balancing a measured amount of carbon released with an equivalent amount sequestered or offset.

Capital Regional District
The provincially established federation of local governments and administrative districts providing services to the capital region.

Climate Change
Any long-term significant change in the "average weather" that a given region experiences. Average weather may include average temperature, precipitation and wind patterns. It involves changes in the variability or average state of the atmosphere over durations ranging from decades to millions of years. These changes can be caused by dynamic process on Earth (ocean processes, volcanoes), external forces including variations in sunlight intensity, and more recently by human activities.

Car Co-op
A system where a fleet of cars is made available for use by members of the car share group in a wide variety of ways.

Density
As defined in the "Local Government Act" S. 872: "the density of use of the land, parcel or area, or the density of use of any buildings and other structures located on the land or parcel or in the area".

District Energy
District Energy is the distribution of thermal energy using a pipeline distribution system. The central thermal plants may use various types of fuel including natural gas, oil or renewable energy. Heat may be generated from either purchased fuel or waste heat.

E3 Fleet Program
E3 is a Canadian, independent, non-profit managed system for "greening" fleets. E3 stands for Energy, Environment, and Excellence – the core focus of the system. http://www.e3fleet.com/

ecoENERGY
The ecoENERGY Initiative is a comprehensive effort to provide Canadians with clean energy through energy efficiency, renewable sources of energy and greater investment in new energy technologies.

Electric Car
An automotive vehicle that is propelled by one or more electric motors powered by a special rechargeable electric battery rather than by an internal combustion engine.

Environmental Management System
Part of an organization's management system used to develop and implement its environmental policy and manage its environmental impacts. The overlying purpose of the system is to establish a commitment to pollution prevention, environmental regulatory compliance and continual improvement of environmental performance.

Extreme Event
An extreme weather event refers to meteorological conditions that are rare for a particular place and/or time, such as an intense storm or heat wave. An extreme climate event is an unusual average over time of a number of weather events, for example heavy rainfall over a season.

Fossil Fuel
Fossil fuels or mineral fuels are fuels formed by natural resources such as anaerobic decomposition of buried dead organisms. The age of the organisms and their resulting fossil fuels is typically millions of years, and sometimes exceeds 650 million years. These fuels contain a high percentage of carbon and hydrocarbons.

Green Building
A systems approach to building design and construction that employs techniques that minimize environmental impacts and reduce ongoing energy consumption while contributing to the health and productivity of its occupants.

Greenhouse Gas (GHG) and Greenhouse Effect
Gases present in the atmosphere which reduce the Earth's loss of heat into space and therefore contribute to increases in global temperatures through the "greenhouse effect". Greenhouse gases are essential to maintaining the temperature of the Earth, however, an excess of greenhouse gases can raise the temperature of a planet to uninhabitable levels. Based on ice-core samples and records, current levels of CO2 are approximately 100 ppmv higher than during pre-industrial times, when direct human influence was negligible. Greenhouse gases include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), perfluorocarbons (PCF's) and hydrofluorocarbons (HFC's).

Intergovernmental Panel on Climate Change
The Intergovernmental Panel on Climate Change is the leading body for the assessment of climate change, established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) to provide the world with a clear scientific view on the current state of climate change and its potential environmental and socio-economic consequences. The IPCC is a scientific body. It reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change. It does not conduct any research nor does it monitor climate related data or parameters. Thousands of scientists from all over the world contribute to the work of the IPCC on a voluntary basis. Review is an essential part of the IPCC process, to ensure an objective and complete assessment of current information. Differing viewpoints existing within the scientific community are reflected in the IPCC reports.

Kyoto Protocol
The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1997 in Kyoto, Japan, at the Third Session of the Conference of the Parties (COP) to the UNFCCC. It contains legally binding commitments in addition to those included in the UNFCCC. Most Organization for Economic Cooperation and Development countries and countries with economies in transition agreed to reduce their anthropogenic greenhouse gas emissions (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride) by at least 5% below 1990 levels in the commitment period 2008 to 2012. The Kyoto Protocol entered into force on 16 February 2005. (IPCC, 2007)

LEED
The Leadership in Energy and Environmental Design (LEED) Green Building Rating System, developed by the U.S. Green Building Council (USGBC) and adopted by the Canadian Green Building Council (CaGBC), provides a suite of standards for environmentally sustainable construction.

Mitigation
Measures taken during the planning, design, construction, and operation of works and development to alleviate potential adverse effects on natural habitats.

(Sustainable Saanich) Official Community Plan
The principal legislative tool for guiding future growth and change in Saanich. The Official Community Plan (OCP) is an expression of the fundamental values and goals of the community. It establishes directions for achieving a collective vision of what Saanich should be.

Smart Metering
A smart meter is an advanced meter (usually an electrical meter) that identifies consumption in more detail than a conventional meter; and optionally, but generally, communicates that information via some network back to the local utility for monitoring and billing purposes (telemetering).

Solar Energy
Solar energy refers to solar radiation energy converted into electrical energy through photovoltaic panels (PV) or captured through heating of water or other heat transfer fluid for hot water heating or space heating in buildings.

Sustainability or Sustainable Development
The concept of meeting the needs of the present without compromising the ability of future generations to meet their needs. Sustainability is based on the efficient and environmentally responsible use of natural, human, and economic resources, the creation of efficient infrastructures, and the enhancement of residents' quality of life.

TDM
Transportation Demand Management (TDM) is the application of strategies and policies to influence traveler behaviour with the aim of reducing automobile travel demand, as a means to save energy, reduce greenhouse gas emissions, improve air quality, and reduce traffic congestion.

Urban Containment Boundary
The line which separates urban from rural land uses.

Urban Forest
Saanich's Urban Forest is the sum total of all trees and their associated growing environments within the municipality. It is the entire collection of trees growing on parks and private lands, on commercial and institutional lands, along highways, roads, trails and paths, as well as throughout open spaces in the community.

Urban Forest Strategy
The draft strategy provides a long–term plan for achieving a sustainable urban forest in Saanich. It will establish goals, strategies and actions to meet the vision of the strategy.

UNFCCC (United Nations Framework Convention on Climate Change)
An international treaty adopted in 1992, and entered into force in 1994, that sets an overall framework for intergovernmental efforts to address challenges posed by climate change. It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. Under the Convention, governments cooperate in preparing for adaptation to the impacts of climate change, launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, and gather and share information on greenhouse gas emissions, national policies and best practices. One hundred and ninety-two countries have ratified their membership with UNFCCC and the Kyoto Protocol is an addition to this treaty.

Weather
The state of the atmosphere at a given time and place with regard to temperature, air pressure, humidity, wind, cloudiness, and precipitation. The term weather is used mostly for conditions over short periods of time. (Environment Canada, 2008) Weather differs from climate, as climate provides the likelihood of occurrence for a particular weather event. (Andrew Weaver, "Keeping Our Cool" 2008)

Zero Waste
Where all outputs, currently referred to as "waste", are used as inputs for another process. For Saanich this means no waste is sent to landfill.

Eco-audit

The printed version of this report was prepared using socially responsible paper. The use of 100% post-consumer fibre paper will help save trees and reduce energy consumption, air pollution, water pollution and solid waste. The paper used for this report is manufactured from 100% post-consumer fibre; no new trees were used to manufacture this paper.

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