

For many residents, quality of life is closely linked to our physical environment and natural areas in and around the City. Residents continue to express the great value of the natural environment throughout the myPG Sustainability Plan and OCP review process. This strong sense of stewardship and desire to protect the environment has been identified.

Since everyone uses, benefits and affects our local environment in which we live, work and play, the City of Prince George is committed to a community approach to maintaining a healthy environment. A community approach acknowledges there are a broad range of actions, strategies and commitments that can be made by individuals, community and interest groups, education sector, public health organizations, businesses, and all levels of government.

The community has provided its top goals within the myPG Sustainability Plan, also identified with the myPG Environment Strategy which include Clean Air, Clean Water, Green City Green Practices, Green Energy, Reduce Carbon Emissions and Adapt to Climate Change, and Reduced Waste. These goal areas are utilized to provide policy direction outlined within this plan.

As part of developing this plan, considerable work was completed to identify and map the key physical characteristics of the city such as significant slopes, various watercourses, energy and greenhouse gas emissions, etc.

Natural Environment Map

The Natural Environment Map provides context for policies and development permit area guidelines, which can both refer directly to areas on this map. The Natural Environment Map and include: ALR, Parks and Open Space, Steep Slopes, Watercourses, floodplain, Groundwater Protection Development Permit Areas, and Riparian Area Protection Development Permit Areas. Please note that properties identified on the Natural Environment Map as *ALR exclusion subject to ALC Resolutions* west of the airport lands have been approved for exclusion from the ALR by resolutions of the Agricultural Land Commission. The purpose is to facilitate light industrial development, with the ALR exclusion subject to conditions to be met at the time of rezoning, subdivision and servicing as outlined within ALC resolutions.

Hazardous Conditions Map

A Hazardous Conditions Map identifies a number of features including: Floodplain, watercourses and waterbodies, Significant Slopes. The Wildfire Interface Development Permit Area Map identifies areas subject to wildfire hazards, and the Dangerous Goods Routes Map identifies roads where dangerous goods may be moved.

6.1 Clean Air

Improving air quality is a key goal that has been expressed through past OCPs and again emphasized through the myPG process. There are many factors that contribute to our air quality issue and we cannot point to one single emission source as our primary issue. Recent research shows there are multiple pollution sources from tail pipes, to road dust, to natural background dust levels, to our transportation industries and to a number of our other industries and even some of our commercial businesses. Our geography and weather conditions also play key roles, sometimes causing air and pollutants to be trapped in the bowl and occasionally triggering air quality advisories. In recent years, significant work by major industries and others has helped to reduce particulate matter levels and odour (the smell from pulp mills caused by “total reduced sulfur”). Making significant reductions in pollutants such as particulate matter will require reductions in all sectors including residential, transportation, commercial and industrial and every individual has a role and responsibility to play.

Objectives

Objective 6.1.1 Improve air quality by reducing fine particulate matter levels, odour and other harmful pollutants

Policies

- 6.1.1 Encourage all sectors (residential, commercial, and industry) to investigate and implement new technologies to reduce air pollutants.
- 6.1.2 The City will continue to work with the Regional District of Fraser-Fort George to identify new industrial lands outside of the Bowl area, and promote the use of best available technology in all new and existing industry.
- 6.1.3 The City should consider the potential health impacts of vehicular emissions, and limit the development of any significant housing or employment within 150 m of the centreline of Highway 97 South of the Nechako River; and Highway 16 West of Highway 97
- 6.1.4 The City should continue to promote the exchange of older woodburning appliances to those meeting CSA/EPA standards for emissions and support outlying communities within our airshed to do the same.
- 6.1.5 The City should continue to play an active role in and support voluntary airshed research, education and planning initiatives such as the Prince George Air Improvement Roundtable (PGAIR).
- 6.1.6 The City will seek ways to continuously improve strategies that reduce road dust impacts on air quality.
- 6.1.7 The City should work with stakeholders and partners to continue research into the possibility of implementing a zero-net cost vehicle emission testing program.

- 6.1.8 The City will continue to review and update the Clean Air Bylaw as information, technology and standards improve.
- 6.1.9 The City will continue to promote programs that achieve net benefits to air quality and climate change.
- 6.1.10 The City will work to continuously improve its application and removal of traction material to minimize road dust and should minimize the amount of traction material applied depending on weather conditions and subject to safety considerations.
- 6.1.11 The City should conduct more frequent sweeping and flushing of municipal streets and additional dust control on unpaved roads.
- 6.1.12 The City should establish guidelines and standards of paved commercial and public parking lots to mitigate the release of fine dust from sweeping and paving.
- 6.1.13 The City should support PGAIR in the implementation of their Air Quality Plans.
- 6.1.14 The City will encourage any new and existing development to use hard surfacing of parking or storage areas while managing stormwater on-site (where appropriate), to reduce negative impacts to water quality and quantity in nearby watercourses.

6.2 Clean Water

The community would like to ensure its waterways and the water supply are protected and consumption is reduced. Specifically, the City and its partners will continue to protect water supplies from overuse, potential contamination, to treat wastewater adequately, to improve management of storm runoff and its impacts on waterways, and to identify and implement methods to reduce leaching and runoff from snowdumps and landfills.

Water Conservation objectives and policies within this plan relate to Council approved “A Water Conservation Plan for Prince George” in 2005, and support the following myPG goals:

- Waterways and the water supply are protected and consumption reduced
- Continue to protect water supplies from overuse, potential contamination, and to treat wastewater adequately
- Educate people about our per capita water consumption compared to other communities and industrialized countries
- Charge more for water and charge based on water consumption

Although there appears to be an abundant supply, our groundwater is vulnerable to contamination due to limited protective covering to prevent contaminants from entering the aquifer. There are many potential sources of contamination located near to this valuable groundwater source. A reduction in water demand slows the movement of any potential contaminants into and through the

aquifer, making it easier to treat, and easier to avoid potential contamination (City of Prince George 2005).

The quantity of water supply will be altered by many different climate change effects. Rising temperatures are expected to diminish snowpacks and increase evaporation. This will affect the seasonal availability of water, and may result in more frequent periods of water scarcity (IPCC 2007a). Also, although precipitation in Canada is projected to increase, studies reveal that a widespread increase in extreme precipitation events will occur. This means that (although there will be more rain) there will be an increase in periods of drought (Christensen et al., 2007). Groundwater will also be influenced severely with climate change; reflecting changes in the demand and availability in other sources, recharge rates and surface water interactions (Rivera et al. 2004). (Picketts et al, 2009)

Along with quantity, the quality of water supply is going to be affected by climate change. Communities that rely on surface water may have shallower intakes, which are more vulnerable to contamination. Also, the concentrations of nutrients or contaminants are relatively higher in smaller amounts of water. This means that effluent dilution in water courses will be a less effective mechanism to deal with pollutants (Federation of BC Naturalists 2007). (Picketts et al, 2009)

The City of Prince George relies on groundwater for all of its water supply. Over 80% of the City's water wells tap into aquifers that are recharged by the Nechako River. City drinking water comes from 6 municipal wells that draw 17.8 billion liters of water each year from underground aquifers. By utilizing underground aquifers, residents are protected against bacteria and other pollutants often found in surface sources such as lakes or rivers.

Raw water is chlorinated according to guidelines set out by Northern Health. The amount of chlorine used is monitored daily to maintain system-wide balance and to ensure the highest degree of protection for all residents. In addition, certified City operators routinely sample our water supply for quality and safety using accredited laboratories.

Treated water is pumped to and stored in 14 service reservoirs throughout the City. Water is supplied to homes either directly from water supply well pumps or from one of these reservoirs.

We should not forget that groundwater supports river flows and supplies wetlands, lakes and other important natural features. Groundwater protection and management is an often overlooked but vital part of work that the City of Prince George carries out.

Objectives

Objective 6.2.1 Preserve, protect and restore riparian and wetland areas to maintain water quality and quantity, and the ecological functions of watercourses so they continue to support healthy fish and wildlife populations

- Objective 6.2.2 Preservation, protection and enhancement of water supply areas is to be achieved in part by keeping recharge areas free from incompatible development and sources of contamination.
- Objective 6.2.3 Where development plans are considered for aquifer recharge areas all uses and interests in the watershed shall be considered, particularly from the perspective of protecting the water supply.
- Objective 6.2.4 The City should consider conservation measures aimed at reducing current use of potable water resources to reduce the strain on the aquifer and the current water supply network.
- Objective 6.2.5 The City will ensure that the drinking water meets health standards.
- Objective 6.2.6 The City will strive to preserve drinking water quality by controlling the quality of storm and creek waters impacting water supply sources that are under the City's direct control.

Policies

General

- 6.2.1 In groundwater protection areas the City should not permit proposals for new development of:
- incinerators;
 - transfer stations;
 - vehicle dismantlers and metal recyclers (scrap yards);
 - waste management or treatment facilities;
 - manufacture, processing, sale, storage, or distribution of wood waste;
 - manufacture, processing, sale, storage, or distribution of agricultural waste;
 - manufacture, processing, sale, storage, or distribution of petroleum products or allied petroleum products;
 - manufacture, processing, sale, storage, or distribution of waste or effluent as defined under the Environmental Management Act;
 - snow storage;
 - composting or burial of livestock, poultry or aquaculture products;
 - sewage effluent discharges to ground; nor
 - any other development which may pose a risk to groundwater.
- 6.2.2 In groundwater protection areas the City should not allow any new effluent, stormwater runoff, or other contaminated discharges to ground. Where such discharges already exist the City may, if necessary, control the activity by enforcement of a bylaw.
- 6.2.3 The City should consider refinement and additional groundwater protection areas for the catchment area of the city's water supply wells, including but not limited to

protecting areas immediately adjacent to the Nechako and Fraser Rivers upstream from the wells.

- 6.2.4 The City may require developers/property owners to investigate, monitor and control (and where necessary remediate) land and groundwater contamination.
- 6.2.5 The City should ban all pesticide (which includes herbicides) use within groundwater protection areas, being mindful of the municipalities limited powers to regulate pesticides.

6.3 Water Conservation

Preamble

The City of Prince George (2005) initiated a Water Conservation Plan that provided an overview of the City's water system and identified activities to conserve water. The goal of water conservation planning is to achieve more efficient water-use by residential, industrial, commercial and institutional consumers in the City of Prince George. The impetus for moving toward water conservation is both economic and environmental. Economic concerns include a desire to alleviate capacity constraints, defer infrastructure renewal and replacement costs, and reduce operational costs. Environmental considerations involve minimizing the impact of both extracting and subsequently releasing treated city water to the natural environment.

Water conservation is often perceived to be restrictive and associated with personal inconvenience and rationing. Water conservation is however, not only a matter of using less water through use-limits such as sprinkling regulations, but involves careful management of water resources using a wide variety of methods. Mechanisms to assure and maintain water quality, repair leaks, use water saving technology (such as low-flow-toilets), and xeriscape (low water-use landscaping) all reduce excessive demand and contribute to water conservation.

Objectives

- Objective 6.3.1 Use all feasible water-use efficiency tools to reduce residential water consumption by 20% and overall water consumption by 15% in the next 10 years (relative to 2004 water-consumption levels).
- Objective 6.3.2 Delay capital cost investment required to increase storage and pumping capacity, and expand the distribution capacity.
- Objective 6.3.3 Operate sustainably to reduce operational costs.
- Objective 6.3.4 Increase public awareness on the value and reduce vulnerability of the aquifer

Objective 6.3.5 Protect groundwater resources and the Fraser River as the receiving environment for the City's wastewater.

Policies

Metering

- 6.3.1 Continue to require installation of water meters in all industrial, commercial and institutional customers, and all new building construction
- 6.3.2 The City will consider requiring the installation of water meters in all homes during significant renovations.
- 6.3.3 Continue to encourage and support programs for the voluntary installation of water meters in residential homes.

Regulatory tools

- 6.3.4 Promote building and plumbing code regulations for water-efficient faucets and appliances.
- 6.3.5 Encourage developers to incorporate xeriscape (drought resistant, low water requirement) concepts into development of landscape programs.

Education

- 6.3.6 Design adult education programs to highlight water uses, water-saving technologies and xeriscaping.
- 6.3.7 Continue elementary school education through "Wacky Wet Water" program and implement high-school education program to comply with environmental science programs.
- 6.3.8 The City will work with all government levels and agencies to demonstrate leadership in advancing water use efficiency.
- 6.3.9 Continue development of a leak detection program.
- 6.3.10 Develop water efficient landscaping through a partnership between City divisions and community members/organizations.
- 6.3.11 Initiate the development a centralized irrigation system for all City parks and boulevards
- 6.3.12 The City will work to retrofit of all municipal buildings to encourage water conservation and encourage provincial and federal buildings to use water-efficient technology.

Water Reuse

- 6.3.13 The City should consider integrating rain collection and reuse in all City and private developments and renovations.

6.4 Integrated Stormwater Management

Preamble

Integrated, or watershed-based, stormwater management recognizes the relationships between the natural environment and the built environment, and manages them as integrated components of the same watershed. It includes attention to both stormwater quality and quantity in a proactive approach.

- 6.4.1 The City will encourage the use of approved pervious surfaces for roads, driveways and parking lots, ensuring their application are not to the detriment of other policies identified in this bylaw (i.e. air quality)
- 6.4.2 The City will ensure erosion and sediment control for development are considered on a watershed scale and identify areas of high risk sediment movement and erosion potential.
- 6.4.3 The City will review its Stormwater Bylaw and consider a stormwater utility to fund the ongoing operating and maintenance of its stormwater network.
- 6.4.4 The City will continue to develop watershed drainage plans and implement priority areas identified within the plans.
- 6.4.5 To adapt to climate change, storm water management in Prince George should be designed to account for future temperature and precipitation changes. The City should undertake further study to determine the local impacts of climate change on existing storm water infrastructure, and consider increasing storm water capacity to promote resiliency.
- 6.4.6 To adapt to climate change, storm water in Prince George should be designed with maximum onsite retention where possible to minimize related flooding, improve water quality and save on infrastructure costs.
- 6.4.7 To adapt for climate change, water supply (both quantity and quality) should be protected and conserved to the greatest extent possible by: protecting aquifers and recharge zones; concentrating development near existing sources; and encouraging household and industry water conservation.

6.5 Green City, Green Practices

6.5 A Taking Care of our Natural Environment

Prince George truly is a city within nature. In addition to having all of the urban amenities, residents are surrounded by the natural environment including ample open spaces, community parks, streams and the forested landscape. Natural areas take into account not only the wildlife and natural features of the landscape, but also the views of the people that live and work there. They are important to residents and have a direct impact on the quality of life cherished by many. For some people it is the local park they walk in, and others it is that little patch of untouched forest that is great for wildlife viewing.

Prince George is emerging from a major shift in the landscape due to the mountain pine beetle. The majority of pine stands have been removed, leaving a more open landscape in many areas. Long term planning is required to balance new threats to our landscape from forest pests, forest fire risk and wildfire interface, as well as climate change and how that will affect future growing regimes in our region.

It is important to recognize the value of nature and its importance in our lives. We should work towards allowing the landscape to shape the design of a new development rather than continuing to manipulate the land. It is easier to protect, at a minimum, what we have now rather than try to recreate it later.

Objectives

- Objective 6.5.1 Protect environmentally significant and sensitive areas, and the unique land features in our community.
- Objective 6.5.2 Require environmentally responsible development practices and the integration of development design into the natural features.
- Objective 6.5.3 Enhance awareness of environmentally sensitive areas and promote activities by providing opportunities for public enjoyment that respect environmental sensitivity and work to protect and restore the environment.

Policies

- 6.5.1 Encourage the incorporation of preventative measures in new development plans that consider the natural environment. This can include, but is not limited to, the prevention of soil contamination, urban interface planning, hazardous conditions analysis, energy efficiency, etc.

6.5 B Watercourses and Wetlands

Preamble

The City is fortunate to have a number of streams, lakes and wetlands within our community in addition to the Nechako and Fraser Rivers. These watercourses provide important spawning, rearing and overwintering habitat for a variety of salmon, trout, the critically endangered Nechako white sturgeon and numerous other fish and wildlife species. Fish are sensitive to land use changes from tree removal (loss of cover, shade, food and bank stability), changes to water quality (introduction of sediment, contaminants and chemicals), and damage to habitat (sediment infilling spawning beds, garbage entering the water). The streams are linked to our groundwater resources beneath our feet which our residents rely on for clean, safe drinking water.

The land we live in is very diverse with the low lying Bowl area of the river valleys, the cutbanks to the north, Nechako Plateau towards the west and rugged mountains towards the east and north. The different geography provides a diverse opportunity to live, work, and play in our city and the region around us.

Objectives

- Objective 6.5.4 Preserve Sensitive ecosystem areas, their living resources and connections between them in a natural condition and free of development to the maximum extent.
- Objective 6.5.5 The City will encourage the rehabilitation, restoration and enhancement of negatively impacted riparian features and functions.
- Objective 6.5.6 When considering impacts on watercourses and riparian areas, the City promotes a watershed and cumulative effects approach to riparian area protection with the aim of preserving the health of the entire watershed.

Policies

- 6.5.2 The City will work with all levels of government to promote public awareness and advise proponents of development and infrastructure projects to plan on the basis of achieving no net loss of fish habitat.
- 6.5.3 To achieve no net loss of fish habitat, require that all City infrastructure projects and private development proposals follow this sequence of management actions:
- Avoid impacts to habitat through appropriate siting and design
 - Mitigate minor or temporary impacts by reducing the level of impact, and repairing and restoring damaged habitat to their former state or better.

- Compensate only when loss of habitat is unavoidable. Compensation proposals will not be accepted where effective mitigation measures are feasible. Applicants are responsible for proving that all measures to avoid or mitigate habitat loss have been exhausted before proposing compensation.
- 6.5.4 When using fill material to raise the natural ground elevation, the toe of the fill slope shall be outside the riparian leavestrip area. The fill must be adequately protected against erosion that could carry sediment to a watercourse.
- 6.5.5 The City will identify and develop recommendations to protect wetlands.
- 6.5.6 The City should establish a program to identify and remove obstacles impeding fish movement such as inappropriately designed or installed culverts or other stream crossings.
- 6.5.7 The City will establish a system for tracking covenants related to protecting riparian areas and informing residents of their importance and significance.
- 6.5.8 Where appropriate, watercourses are to be maintained in an open state (not enclosed in a culvert, or other engineered material).
- 6.5.9 The City should consider implementing standards for the installation and maintenance of oil/water separators, sumps or other technologies prior to discharging to a watercourse to ensure that pollutants such as sediment, oil and other hydrocarbons are removed.
- 6.5.10 The City will educate landowners near or adjacent to watercourses of the development requirements within the riparian areas and the importance of protecting this important fish and wildlife habitat.
- 6.5.11 Prohibit the discharge of unmanaged rainwater into watercourses.
- 6.5.12 Promote community outreach and education that addresses water quality and quantity protection, and promotion of integrated storm water planning.
- 6.5.13 Reduce instances of point and non-point pollution sources that negatively affect water quality in our watercourses.
- 6.5.14 The City should continue to work with stakeholders and support programs and for the critically endangered Nechako White Sturgeon.
- 6.5.15 Plan discrete access points to watercourses that do not destroy riparian habitat.
- 6.5.16 Recognize the importance of wetlands and the need for their protection and/or rehabilitation in land use planning.

- 6.5.17 Maintain intergovernmental partnerships with senior levels of government to facilitate a “one-window” approach to planning and approvals.
- 6.5.18 Implement stewardship awareness programs, in cooperation with senior governments, local environment organizations and schools to increase public awareness and support protecting sensitive and important ecosystems.

6.5 C Hazardous Conditions

Preamble

Some hazards can dramatically affect the residents, institutions and businesses of Prince George and lead to a major emergency or disaster. The purpose of this section is to identify those hazards with high probability and consequence that are related to planning and land use management, and set out objectives and policies that will reduce risk by imposing restrictions on the use of land subject to hazardous conditions.

Prince George is susceptible to a variety of hazardous conditions and this section focuses on six (6) key hazards: floods (including ice jams), erosion and sedimentation, landslides, wildfires, atmospheric hazards and hazardous materials.

This Plan includes statements and map designations for restrictions on the use of land that are subject to hazardous conditions, and promotes settlement patterns that minimize the risk associated with hazardous conditions. However, the City does not represent to any person that activities, uses and development undertaken in accordance with the objectives and policies of this Plan will not result in injury, suffering, loss of life, loss of use, or property damage due to hazardous conditions. Furthermore, this Plan is not a “local emergency plan” prepared under the *Emergency Program Act* and regulations.

Objectives

- Objective 6.5.7 Promote settlement patterns that minimize the risk associated with hazardous conditions to:
- protect against injury, suffering and the loss of life, and minimize loss of use, and property damage by prohibiting or regulating development on lands subject to hazardous conditions, and
 - identifying and alleviating hazardous conditions which restrict the use of land or pose a risk of injury or damage.
- Objective 6.5.8 Protect public infrastructure from hazardous conditions.

Objective 6.5.9 Reduce or prevent negative impacts to air, soil, and water quality, the natural environment, its ecosystems and biological diversity that may result from hazardous conditions.

Objective 6.5.10 Inform hazard mitigation and emergency preparedness efforts.

Objective 6.5.11 Improve public awareness of hazardous conditions.

Policies

General

6.5.19 The possibility of hazardous conditions should always be considered with the design and construction of any development.

6.5.20 It is best to avoid developing in areas subject to hazardous conditions.

6.5.21 Vulnerable development should be prohibited from hazardous condition areas, unless the applicable hazard can be practically alleviated, and until adequate risk reduction measures are in place.

6.5.22 To adapt to climate change, the potential for increased risks related to hazardous conditions (such as forest fires, flooding and extreme weather) should be assessed before development occurs in an area. Development should not proceed until it is demonstrated that the future effects of climate change on the hazard(s) have been considered.

6.5.23 Any hazard assessment for land designated as a hazardous condition area should include the consideration of climate change and its impacts before approval is granted for a land use change bylaw.

6.5.24 Concentrations of development density, whether or not the development is classified as vulnerable development, should be limited in hazardous condition areas to reduce overall long term risk.

6.5.25 Development on lands within the hazardous condition areas will likely encounter hazardous conditions. A development approval applicant should be notified if the subject property overlaps with one of these areas. Notification will include a determination whether a hazard assessment is necessary.

6.5.26 It is recommended that when considering an application or approval the Approving Officer require a landowner to provide a report in accordance with the *Land Title Act*, and the Building Inspector require the landowner to provided a report in accordance with the *Community Charter*, if the development is in a floodplain hazardous condition area, erosion and sedimentation hazardous condition area or landslide hazardous condition area. It is further recommended that the Approving Officer and Building

Inspector consider that report, or any other relevant study or plan, when determining whether the land is subject to, or could reasonably be expected to be subject to, flooding, erosion, or landslide.

6.5.27 A relaxation to any hazardous condition provision of this Plan, or any other applicable City Bylaw, should only occur where a proven serious hardship exists and no other reasonable alternative is available to the landowner. Before consideration is given other options such as alternative sites, construction techniques and designs should be prepared by the landowner or their agent and provided to the City.

6.5.28 Where a proposed development is within a designated hazardous condition area the approval authority should consider whether a covenant is required, or in cases where it is not required seek the voluntary agreement from a landowner for a covenant that includes:

- A statement that the land is subject to a hazardous condition;
- restriction on use, buildings, subdivision and alienation;
- obligations that land, hazard protection works, or a specified amenity in relation to it be protected, preserved, conserved, maintained, enhanced, restored or kept to the extent provided in the covenant. Amenity includes any natural, historical, heritage, cultural, scientific, architectural, environmental, wildlife or plant value relating to the land that is subject to the covenant;
- Conditions respecting reimbursement by the land owner for any expenses that may be incurred by the City as a result of a breach of the terms of the covenant;
- A waiver of claims against the City coupled with an indemnification against third party claims; and
- Engineers certificate confirming that the land can be used safely for the use intended.

6.5.29 The covenant should apply to the property for as long as the risk exists for the development.

6.5.30 Where a development has the possibility of exacerbating a risk to an adjacent parcel or development, a higher level of diligence on the development should apply. Thus risk reduction measures may be required to proceed or coincide with the construction and use of the development. However, where it is determined that the development does not have the possibility of exacerbating a risk to an adjacent parcel or development, security to guarantee the construction of risk reduction measures within a reasonable period may be acceptable.

Flood Hazard Area

6.5.31 Agricultural, park and open-land recreation uses are considered appropriate for designated flood hazard areas as the threat to life and property is low. Other uses may be considered within a designated flood hazard area subject to Provincial Regulations

and Guidelines, Flood Plain Regulation Bylaw, any plan or program the City has developed, and any hazard assessment undertaken for that development.

6.5.32 Where development is presently located in flood plain hazardous condition areas, or current zoning permits new development in designated flood plain hazardous condition areas the future construction of, addition to, or alteration of a building or structure to be used for habitation, business, or the storage of goods damageable by floodwaters should be floodproofed in accordance with the applicable Provincial Guidelines defined within Section 910 of the *Local Government Act*.

6.5.33 To adapt to climate change future studies related to flooding should continue to consider future temperature and precipitation projections and local climate impacts.

Erosion and Sedimentation Hazard Area

6.5.34 Park and open-land recreation uses are considered appropriate for designated erosion and sedimentation hazard areas as the threat to life and property is low. All other development should be located a safe distance from the watercourse, water body, and steep slopes to avoid areas prone to erosion.

6.5.35 Erosion control should be provided on all construction sites including minimizing the amount of land disturbed and limiting damage cause by changes to water flow on the land. This may include:

- Sediment and erosion control plans
- preserving existing grass and trees to the extent possible;
- replanting as soon as possible;
- using best management practices to prevent erosion and control sediment;
- locating soil piles away from waterways and roads;
- constructing a access drive for all vehicles including a dry apron, or tire wash station, to avoid tracking of mud onto streets;
- immediately clean-up sediment carried off-site by rain water or vehicles; and
- control the runoff from roof, driveway and other hard-surfaces to reduce erosion.

Landslide Hazard Area

6.5.36 Park and open-land recreation uses are considered appropriate for designated landslide hazard areas as the threat to life and property is low. All other development should be located a safe distance from unstable slopes.

6.5.37 To adapt to climate change, projected temperature and precipitation changes should be considered when designating dangerous slopes. The City should undertake further study to determine the local impacts of climate change on slope stability.

6.5.38 The following activities should be avoided in the landslide hazard area:

- excavation of slope or its toe;
- use of unstable earth fills for construction;
- loading of slope or its crest, such as placing earth fill at the top of a slope;
- deforestation – cutting down trees/logging and clearing land for crops; unstable logging roads;
- irrigation and lawn watering;
- mining/mine waste containment;
- artificial vibration such as pile driving, explosions, or other strong ground vibrations;
- water leakage from utilities, such as water or sewer lines; and
- alteration of the natural drainage.

Wildfire Hazard Area

- 6.5.39 Resource extraction (including agriculture), park and open-land recreation uses are considered appropriate for designated wildfire hazardous condition areas as the threat to life and property is low. Other uses may be considered within a designated wildfire hazard area subject to Provincial Regulations and Guidelines, Tree Protection Bylaw, any plan or program the City has developed, and any hazard assessment undertaken for that development.
- 6.5.40 Fire Smart practices should be encouraged and the following potential ignition sources and wildfire fuels should be avoided in the wildfire hazard area:
- standing dead trees;
 - dense mature forests with abundance of brush layers;
 - campfires;
 - heavy industry;
 - vehicle traffic;
 - railways;
 - homes and other residential structures;
 - power lines; and
 - unmonitored park and open spaces where historical or current nuisance activity occurs.
- 6.5.41 In order to mitigate wildfire risk, development in the wildfire hazard area should:
- change the fuel profile to reduce fire behaviour potential by changing the stand structure (e.g. fuel loading size and continuity, and species composition);
 - Without unduly causing inappropriate motorized access uses, improve access through the development of road and recreation trail system for fuel breaks and control lines for suppression efforts;
 - increase water availability by ensuring adequate location and number hydrants with sufficient flow in urban settings, and identifying suitable natural water bodies in rural areas; and
 - reduce the number of ignition sources.

- Follow Fire Smart practices

Atmospheric Hazards

- 6.5.42 New power utilities should be installed underground to reduce the potential for service interruption due to atmospheric hazards.
- 6.5.43 New neighbourhoods should be planned with multiple access points to ensure that emergency responders can attend to all areas of the City even if certain roads become impassable due to an atmospheric event.

Hazardous Material Area

- 6.5.44 Vulnerable development (except hazardous material manufacturing, processing, storage and disposal sites themselves) should be set back a minimum of 150 m from Dangerous Goods Routes and a minimum of 300 m from hazardous material manufacturing, processing, and disposal sites. A hazard assessment may recommend greater or lesser setbacks.

6.5 D Natural Forests, Interface Forests and Urban Forestry

Preamble

Prince George is a city within the forests. Extensive natural and managed forested landscapes surround the city and an abundance of forested lands weave throughout the urban and rural landscapes of Prince George. We have a mix of large parcels of natural forests, forests that are abutting a neighborhood (interface forests), and managed forests in our parks and greenbelts. While the benefits of this close relationship with our forests are many, this situation also poses certain challenges and hazards. Therefore the policies and objectives are intended to foster the benefits and reduce as much as possible the issues and hazards.

Policies

Community Outreach and Education

- 6.5.45 Promote tree planting of private and public land.
- 6.5.46 Work cooperatively with other governments to ensure effective role for stakeholders and the public in the stewardship and management of the natural environment. Encourage ecological gifting of property to the City or nongovernmental agencies eligible to hold conservation covenants.
- 6.5.47 Promote public education with respect to illegal dumping and the negative effects it can have on natural areas such as spreading non-native or invasive plants and killing native vegetation.

6.5.48 Develop and implement an education and awareness program to reduce non-essential pesticide use on residential and municipal property.

Planning

6.5.49 The City will encourage retention of native plants and trees (with protection of root systems) during land clearing, development, and infrastructure construction activities. Any replanting plans are to consider using native vegetation similar to the surrounding environment.

6.5.50 The City will work toward conserving or protecting areas having significant natural habitat value and/or important wildlife corridors.

6.5.51 Ensure that City infrastructure and private development projects identify and respect applicable low risk timing windows such as nesting, spawning, hibernating and migrating when scheduling projects. The vegetation clearing window to avoid breeding birds is August 1 to April 15. Raptor nests may not be removed at any time without prior approval from the appropriate Provincial and/or Federal agencies.

6.5.52 Ensure that the management of City activities considers the following:

- Identify all aspects of operations that may have a significant impact on the environment;
- Manage and control operations and processes to minimize impacts on the environment;
- All materials deposited on City property should be identified and recorded. Any materials that may be contaminated shall be placed in designated areas.
- Achieve compliance with environmental legislation and regulations;
- Continuously improve the City's environmental performance.

6.5.53 Implement road planning, design and operations to reduce wildlife-vehicle collisions and minimize fragmentation of wildlife habitat.

6.5.54 Use Naturescape principles wherever possible. Promote backyard habitat that attracts birds and other appropriate wildlife.

6.5.55 The city should move towards implementing more naturalized boulevards and some park areas.

6.5.56 For areas that have the potential for high wildlife densities and value, planning and development shall be required to include seasonal wildlife utilization assessments

6.5.57 Determine if there is any special wildlife or species at risk (including their habitat) prior to development and infrastructure planning. Projects are to be directed away from these areas.

Regulation

- 6.5.58 Prevent motorized recreation in sensitive ecosystems including riparian areas.
- 6.5.59 Where the results of environmental and utilization assessments indicate areas of significant utilization for wildlife, the following strategies should be implemented:
- Landscaping guidelines
 - Fencing opportunities
 - Planning greenbelt location, size, and configuration
 - Road layout design
- 6.5.60 The City will endeavor to protect environmentally sensitive areas by one or more of the following tools:
- Development Permit Areas and guidelines
 - Environment Protection bylaws (ex. Tree Protection Bylaw)
 - Land dedication/acquisition
 - Leavestrip areas
 - Conservation covenants
 - Tax exemptions

6.5 E Brownfield Redevelopment

Preamble

A brownfield can be identified as an abandoned, vacant, derelict or underutilized site with active potential for redevelopment that may have contamination or the perception of contamination from a previous use. These sites are often former commercial or industrial properties.

- Examples of Brownfield Sites can include:
 - Abandoned gasoline/service stations
 - Former waste disposal facilities
 - Former commercial sites (junkyards, automotive repair shops)
 - Former industrial sites (drycleaners, mills)
 - Vacant derelict buildings.

Brownfields may be contaminated sites but are not always. Some experts suggest that up to 30% of brownfield sites, once investigated, are found to be uncontaminated or marginally contaminated. Further, not all contaminated sites are brownfields. The difference lies in the redevelopment potential of the site.

Reinvestment into brownfield sites shifts development pressure away from undeveloped land and uses existing infrastructure investment. Benefits include returning non-productive real estate assets to a higher and better use, strengthening the social fabric by increasing community pride and safety, and protecting the environment at various levels including groundwater that we drink and the

ecosystems our watercourses sustain. The need for a Brownfield Redevelopment Strategy is established and supported through various City plans, policies, and documents. The goal of brownfield redevelopment is to bring brownfield sites back into productive use by the removal of perceived and real threats of contamination.

Objectives

Objective 6.5.12 To promote and facilitate the remediation and redevelopment or reuse of brownfield sites to strengthen established and readily serviced growth areas within the City through stimulation of private sector initiatives and strategic municipal action by:

- Increasing community awareness of the economic, social and environmental benefits of brownfield redevelopment.
- Improving the health and safety of established neighbourhoods, in which brownfield properties are located;
- Improving environmental conditions of the City through the remediation or removal of contaminated soils; and,
- Improving the municipal tax base by encouraging reinvestment on brownfield sites;
- Working cooperatively with our partners in the community to integrate site contamination mitigation and prevention measures to ensure public health and safety with emphasis on protecting our City's groundwater aquifers.

Policies

- 6.5.61 City endorsed revitalization areas to be prioritized for key brownfield development and redevelopment initiatives.
- 6.5.62 The City will enter into partnerships with other governments and the private sector to undertake brownfield remediation and redevelopment projects, and increase awareness.
- 6.5.63 Ensure development or redevelopment of Brownfield or other levels of contaminated sites incorporate environmentally sensitive remediation plans and consider the wide range of environmental impacts (energy, and waste, air, water, and land impacts) that an end-use may have.
- 6.5.64 The City will use sustainable methods of demolition and cleanup, including natural and ecological forms of remediation and the reuse of building materials where possible.

6.5 F Energy Efficiency, Renewable Energy and Climate Change Mitigation

Preamble

Prince George residents, businesses, industries, and services depend on grid-supplied electricity, natural gas and other energy sources. Our community exerts very little control over the effects of national and global supply-demand factors and will continue to be affected by price uncertainty lined to these resources. Much of the energy sources currently used in Prince George are derived from fossil fuels, particularly petroleum and natural gas products. The consumption of these fuels contributes to greenhouse gas (GHG) emissions¹. There are often correlations, synergies and co-benefits in strategies that support alternative energy resources, reduce energy, and reduce GHG emissions. As such, the discussion on energy often has a link to GHGs and vice versa.

There are two key strategies to address Prince George's long-term energy needs. The first is to focus on "demand side management" (DSM) in order to use energy wisely and reduce our consumption. The second is to develop alternative energy sources, particularly low-carbon sources. Local supply-side have the ability to lower emissions while supporting the regional economy. The purpose of this section is to set out objectives and policies related to planning and land use management that support opportunities for reducing GHG emissions through DSM and the promotion of energy alternatives.

Context, trends and issues

The City of Prince George in 2007, established a voluntary community target of 2% less GHG emissions from 2002 levels by 2012 and a corporate target of 10% less GHGs from 2002 levels by 2012. This target is also related to energy efficiency strategies because of the correlation between energy use (particularly fossil fuel consumption) and GHG emissions.

According to the most recent Community Energy and Emissions Inventory (CEEI), supplied by the Provincial Government, in 2010, Prince George's 2007 energy use was 12.7 million GJ. About 31% of the energy use occurs in residential buildings, 48% by road transportation, and about 21% occurs in the commercial and small industrial sector. Large industry is not included in these figures. The total GHG emissions for Prince George in 2007 is estimated at 659,000 tonnes of carbon dioxide equivalents (t CO₂e), with 63% coming from on-road transportation, 33% from buildings, and 4% from solid waste (this does not include emissions from heavy industry).

¹ Electricity in BC is low-carbon (the 1990-2009 National GHG Inventory states that emissions are 32 g of carbon dioxide equivalent (CO₂e) per kWh, although some electricity is imported from Alberta, which has a much higher carbon intensity (880 g CO₂e/kWh).

Predicting trends for a communities' response to energy efficiency strategies is challenging. However, based on current experiences in pilot incentive programs and home energy labelling, the general population of Prince George does not place a high priority on energy efficiency. This is fairly typical of other communities and likely stems from relatively low energy costs, the relatively high costs of key energy efficiency upgrades (e.g. 95% efficiency furnaces, heat recovery ventilators, and heat pumps) and associated long payback periods, and the competition with other household upgrades. A focused study and communication strategy should be completed to identify how to increase the completion of retrofits and other energy efficient practices.

Objectives

- Objective 6.5.13 Reduce energy use and GHG emissions generated by existing buildings through retrofits or redevelopment and the introduction of renewable energy technologies.
- Objective 6.5.14 Improve energy efficiency, use of renewable energy, and reduce GHG emissions for new buildings.
- Objective 6.5.15 Improve energy efficiency, use of renewable energy, and reduce GHG emissions for City owned buildings and facilities.

Policies

General

- 6.5.65 Work with partners and guiding policies identified in energy and GHG management plans to achieve significant measurable reductions in grid-supplied and fossil-fuel based energy and greenhouse gas emissions.
- 6.5.66 The City dedicates its support to the British Columbia Climate Action Charter by achieving carbon neutrality in City corporate operations by 2012.
- 6.5.67 By 2012, reduce corporate greenhouse gas emissions by 10% and community greenhouse gas emissions by 2%, compared with 2002 levels
- 6.5.68 Act as a resource to the community by promoting energy efficiency and awareness.
- 6.5.69 The City should establish new corporate and community energy targets and develop practical and effective strategies for education and awareness, and seek means of motivating people towards implementing actions to achieve energy and GHG reductions.

- 6.5.70 The City should work with partners to establish a demonstration and resource centre on energy efficiency and GHG reduction building techniques, appliances, renewable energy technology and methods.
- 6.5.71 The City should work with partners to design and implement a marketable and highly visible awards and recognition program that recognizes those home owners and builders that are leaders in implementing energy efficient upgrades and strategies for their homes. The intent is to spur market interest and demand for higher efficiency homes that come with multiple benefits.
- 6.5.72 The City should work to expand the customer base connected to the Downtown District Energy System (DDES) and look for opportunities to expand the DDES infrastructure (underground piping) in conjunction with other works.
- 6.5.73 The City should explore and assess the pros and cons of opportunities provided by the Provincial and Federal governments, utilities and other key stakeholders in furthering the uptake of renewable energy technologies by homeowners, building owners and developers.

Existing Buildings

- 6.5.74 Continue to work with the provincial and federal governments to actively promote grant and incentive programs through the means available to the City.
- 6.5.75 Develop incentive programs that support and compliment incentive programs from other levels of government to improve the market uptake for energy efficiency retrofits of existing buildings for all uses.
- 6.5.76 At the time of rezoning or the Development Permit stage for building rehabilitation, either for addition or replacement, the City should negotiate energy efficiency and renewable energy targets.
- 6.5.77 Through collaborative efforts with organizations, business groups, utilities and community groups, the City should develop strategies to enable energy efficiency upgrades or retrofits and a high demand for energy efficient appliances and equipment.
- 6.5.78 Engage with the commercial (small & medium size business) and light-industry sectors, or support processes that facilitate the engagement (e.g. workshops conducted by Climate Smart Business) to develop energy efficiency targets, strategies and action plans and to encourage participation in third party programs (e.g. BOMA Go Green program, incentive programs from utilities).

- 6.5.79 Work with local building organizations to promote and encourage builders to become Built Green™ certified and use means available to the City to promote the Built Green™ program.
- 6.5.80 The City should work with partners and stakeholders to investigate financial tools as a means for home owners and building owners to finance capital costs of specific energy efficiency (including adding renewable energy) improvements to buildings on a cost-recovery basis.
- 6.5.81 Promote and support the use of renewable energy technology that has been sanctioned by higher levels of government or certification and standards associations.
- 6.5.82 Continue to utilize the SCEC³ model, and other energy mapping tools, as part of the City's routine energy and emissions program; in general, to inform targets and policies related to retrofits of the existing housing stock and the introduction of solar hot water and district energy renewable energy sources; in particular, to target low cost, highly effective retrofit measures; and as an integrating information resource, to provide neighbourhood level and city level findings to the public in combination with relevant incentive packages.

New Buildings

- 6.5.83 Establish Energy Efficiency and Renewal Energy development permits areas covering all residential development outside of the Infill and Growth Priority growth management designations, in order to:
- Promote high efficiency housing (70 kWh/m²/year for heating) and/or housing that uses at least 20% renewable energy source.
 - Encourage housing that will be connected and utilize a shared heating and/or power plant (e.g. neighbourhood sized geo-exchange or district heating system or ground source heat pump system)
- 6.5.84 The City should amend infrastructure policies and standards to encourage the development of energy efficient and green buildings that enable the use of renewable energy (e.g. alignment for passive solar gain, solar hot water readiness, district heating readiness, minimum renewable energy standards for new buildings of a minimum size.
- 6.5.85 Obtain green building and energy efficiency requirements at time of rezoning in the form of covenants or development agreements.
- 6.5.86 Support and promote education and awareness and the use of recognized programs that train local builders on energy efficiency, renewable energy alternatives and green building techniques, and register their competence.
- 6.5.87 Include provisions for supporting energy efficient and green building, including the use of renewable energy in development or amendments and implementation of a

revitalization tax exemption by-law to incentivize denser urban and residential development.

- 6.5.88 Use innovative financial tools for the capital costs for buildings that will achieve high levels of energy efficiency or use of renewable energy.
- 6.5.89 Develop and implement demonstration projects (City owned or other private/other public entity owned) through partnerships and incentive or grant programs.

City of Prince George Buildings and Facilities

- 6.5.90 Update, where needed, and implement the City of Prince George Sustainable Energy Management Plan in order to achieve energy and greenhouse gas reductions through such initiatives as:
- capital equipment retrofit and replacement
 - energy awareness programs
 - operational and maintenance improvements
 - construction of district energy systems
- 6.5.91 New City buildings and facilities will achieve high energy efficiency and, where practical, use renewable energy sources.
- 6.5.92 The City should establish a corporate committee of staff from various departments in order to develop practical and effective strategies for workplace energy efficiency and GHG reductions.

6.5 G Climate Change Adaptation

Preamble

Climate change adaptation is preparing for the impacts a community is expecting to experience, and making it more resilient to unexpected changes. The city has made adjustments in response to many climate related impacts, and these impacts are expected to intensify over at least the next 50 years. It is important for a community to proactively plan for changes in order to avoid costly consequences such as infrastructure damage and risks to safety. The purpose of this section is to communicate the concept of climate change adaptation, identify the priority impacts for Prince George, and set out policies and objectives to reduce risks and maximize potential benefits associated with climate change.

Over the last three years the City has been working with many partners to examine future temperature and precipitation projections, and to determine how they will affect the City. Over the past 90 years average temperatures in Prince George have risen by 1.1 °C, and night time minimum temperatures have risen by 2.0 °C (see Figure 1). By 2050 temperatures are projected

to increase by another 1.6 to 3.5 °C, and precipitation levels are expected to rise by 3 – 10%. Winter temperatures will increase faster than summer temperatures, and most of the precipitation increase will occur in winter.

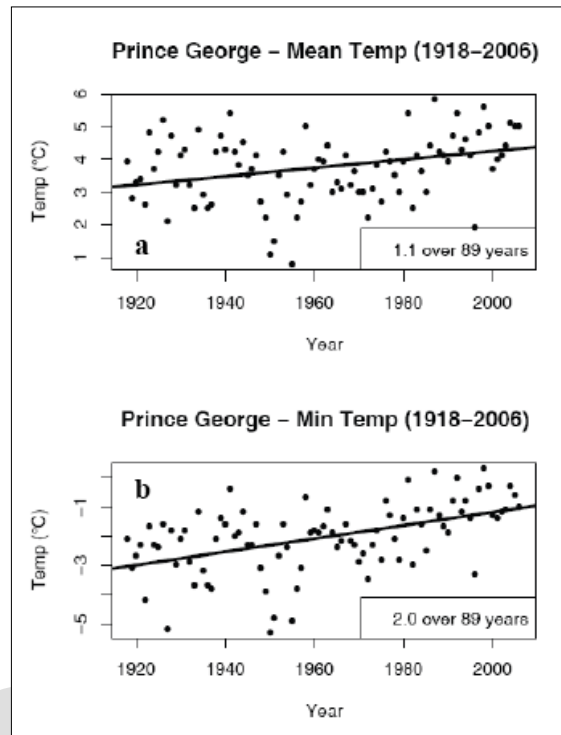


Figure 1 (a) Mean and (b) Minimum Temperature Trends in Prince George: 1918-2006, Courtesy of the Pacific Climate Impacts Consortium.

Community adaptation requires input from local stakeholders that understand the region and the municipality. The results of several exercises in Prince George indicate that the priority climate impacts in the community are:

1. Forests
2. Flooding
3. Transportation
4. Severe weather/emergency response
5. Water supply
6. Slope stability
7. Storm water
8. Buildings and utilities.

Other important priorities that need to be considered include: health; agriculture; and, new residents and businesses. The adaptation priorities will be quite similar across north-central BC.

This section has close relationships with many other components of the Official Community Plan (OCP). Adaptation actions should be coordinated with mitigation actions, and the City should search

for strategies that address both concurrently (such as local agriculture and compact urban form). Furthermore, a community that proactively pursues adaptation and makes itself more resilient will ultimately experience significant social and economic benefits.

Objectives

- Objective 6.5.16 Promote climate change adaptation in order to minimize negative climate related impacts on human safety, health and well being.
- Objective 6.5.17 Consider climate change adaptation in all aspects of future decision making related to the priorities identified in the Adapting to Climate Change in Prince George document.
- Objective 6.5.18 Adapt to climate change by encouraging infrastructure development that minimizes the risk of negative climate related impacts.
- Objective 6.5.19 Adapt to climate change by promoting resiliency to unexpected climate related changes.
- Objective 6.5.20 Adapt to climate change by planning to capitalize on positive impacts that may arise as a result of climate related changes in the region.
- Objective 6.5.21 Improve public awareness of climate change, and work to concurrently adapt to and mitigate climate change impacts.

Policies

General

- 6.5.93 To adapt to climate change, future climate conditions and their expected impacts should always be considered in the design and construction of any new development. This consideration should be explicitly stated in designs.
- 6.5.94 To adapt to climate change, developments should be resilient to a wide range of future conditions (such as instances of severe and unusual weather).
- 6.5.95 All climate change mitigation efforts should also examine their climate change adaptation implications (and vice versa) to ensure that adaptation and mitigation efforts are complementary.
- 6.5.96 The climate change impact priorities outlined in the Adapting to Climate Change in Prince George document should be considered in new development proposals. Consideration of these priorities will minimize the risks of potential negative impacts, and maximize potential opportunities.

The City will take a leadership role in promoting adaptation to climate change by: educating local stakeholders and developers about climate change; assisting developers and stakeholders as they consider climate impacts; and providing resources and conducting research to enable adaptation.

6.6 Urban Interface Management

Preamble

Prince George's natural environment dominates the landscape, bringing the natural areas into close proximity with urban and residential developed areas. Although the proximity of residential and urban areas to natural areas is very desirable, it also means that there is little buffer between the two. We face a large ratio of natural to developed area, and must manage multiple factors in order to maintain the integrity of each. Managing development, encouraging stewardship, and supporting initiatives that protect and promote our interface areas are important in ensuring a positive legacy for future generations of Prince George citizens.

Urban forests provide green infrastructure linking the community to recreational areas and open spaces within the city, providing social, economic, environmental, and health benefits. The purpose of this section is to identify management issues for urban/natural interface environments and set out objectives and policies for maximising benefits and reducing the risks of interface fire, human-wildlife conflicts, and other undesirable events or conditions affecting or derived from interface areas.

Many of these trends or effects can be mitigated through targeted management of new development, planning of our green infrastructure, strategic planting projects, understanding the implications of climate change, public education/outreach, and active urban forest management.

Objectives

- Objective 6.6.1 Manage and reduce the potential hazard of wildland fires in the interface by reducing the risk to public safety and property, and improving preparedness.
- Objective 6.6.2 Maintain and promote the social, cultural, environmental, and economic values of Prince George's urban forest.
- Objective 6.6.3 Encourage development within already-urbanized areas, and reduce development into natural interface areas to reduce the expansion of the interface boundary.
- Objective 6.6.4 Reduce the potential for human-animal interactions before they occur.
- Objective 6.6.5 Minimize or reduce the negative impacts of invasive species on the natural environment, ecological integrity and biological diversity.
- Objective 6.6.6 Minimize safety hazards to the public and to City employees, while recognising the inherent risks of locating next to wildland areas.

Policies

General

- 6.6.1 Interface areas are important environmental assets to the residents and their ecological integrity should be considered in every development that may affect these areas.
- 6.6.2 Urban forests make a positive contribution to property values and should be considered a major capital asset.
- 6.6.3 The City will continue to seek ways to balance interface values such as visual quality, wildlife habitat, erosion potential, and development priorities.

Wildfire

- 6.6.4 The City should reduce the risk fires in the interface by:
- Identifying lands that pose a higher than acceptable risk of interface fire
 - Developing and maintaining a strategy or plan that will address the risk of wildfire in the interface;
 - Prioritizing the treatment of forest fuels in the interface to ensure efficient use of resources;
 - Carrying out forest management activities on Crown and Municipal lands where appropriate to reduce the interface fire hazard consistent with the strategy and in compliance with applicable Provincial legislation.
- 6.6.5 The City should maintain emergency services and facilities that will be able to safely and quickly address interface fires where appropriate or until provincial services can be deployed.
- 6.6.6 New developments proposed in the Wildfire Interface Development Permit Areas must address the interface wildfire risk through the removal of forest fuel and the use of appropriate building materials as defined in the *Home Owners FireSmart Manual* (British Columbia Edition).
- 6.6.7 The *Home Owners FireSmart Manual* (British Columbia Edition) shall be employed to educate and encourage property owners to take action on their own properties to reduce the risk of interface fires and to protect their property in the event of a fire.
- 6.6.8 Activities required by the City to be undertaken by the property owner will be at the property owner's expense.

- 6.6.9 The City will continue to manage the forests in the Prince George Community Forest according to the objectives laid out in the Probationary Community Forest Agreement and the Prince George Community Forest Management Plan (2006-2011). This agreement is in the process of being examined for a long term Community Forest License and may be subject to change.
- 6.6.10 The City will support the Prince George Community Forest Advisory Committee in its role as community advisors in the management of the Prince George Community Forest as long as is appropriate.
- 6.6.11 To adapt to climate change, future forest related planning and study should include the consideration of climate change and its effects on environmental, economic and social conditions in Prince George. Forest impacts related to climate change include: fires; infestations; changing growth rates; and changing composition. The City will continue to work with the appropriate agencies and personnel to develop strategies and partnerships to reduce the risk of wildfire entering the city's boundaries from areas outside municipal boundaries.

Multiple Urban Forest Values

- 6.6.12 The urban forest will be managed so that it can continue to contribute to the provision of an excellent quality of life in the community of Prince George.
- 6.6.13 The City recognises that it is important to have a mosaic of urban forest types to meet the needs of the public.
- 6.6.14 The City should maintain the habitat, landscape connectivity, and ecosystem diversity needs of wildlife within the greater landscape context, where appropriate within municipal boundaries.
- 6.6.15 The value of the urban forest in mitigating climate change, improving air quality, providing ecosystem services, and achieving social objectives should always be considered when weighing development options.
- 6.6.16 Parks and open spaces should be maintained in a naturalised state where possible to support natural habitat values and reduce operational budgets.
- 6.6.17 The City should pursue opportunities to enhance and link recreational opportunities within naturalised spaces, where appropriate.
- 6.6.18 Safety should always be considered within the design and implementation of forest management activities.
- 6.6.19 The City should monitor and respond as appropriate to forest and ecosystem health trends influenced by climate change, pest or pathogen infestations, wildfire suppression, urban development, and other factors.

- 6.6.20 The City should expand its tree inventory program.
- 6.6.21 The City should pursue tree protection strategies which could include heritage designations, ISA assessments and revisions to the Tree Protection Bylaw.
- 6.6.22 The City should consider conducting formal valuation studies on targeted trees, stands, and ecosystems.
- 6.6.23 Forest management inventory and management tools should be explored.
- 6.6.24 Visual quality, recreation, noise buffering, water quality, flood mitigation, erosion mitigation, slope stability, wildlife habitat, provision of privacy, shading, spiritual and cultural values, and other identified values should be considered when choosing forest management options for interface sites.
- 6.6.25 A natural areas management strategy including an updated urban forest management plan should be developed.
- 6.6.26 Integrated land use approaches should be implemented wherever possible to improve opportunities for biodiversity, ecosystem connectivity, recreation, agriculture, and local food production, while reducing conflicts.
- 6.6.27 Efforts should be made to improve community awareness and engagement in:
- community and urban forests and their management
 - environmental stewardship
 - watershed management
 - interface fire hazard management and “FireSmart” principles
- 6.6.28 The City should consider supporting community tree and shrub planting initiatives, where the locations, densities, and species selection are consistent with:
- Fire hazard mitigation concepts
 - Future development plans
 - Climate change adaptation principles
 - Safety management
 - Drainage management
 - Site or ecosystem restoration objectives
 - Visual quality and viewscape management
 - Wildlife management and human-animal conflict avoidance
 - Soil erosion management
 - Minimised impacts on utilities like water, sewer, hydro, telecommunications, and road infrastructure
 - Recreation objectives
 - Other plans, principles, and values pertinent to the site.

Wildlife

- 6.6.29 The City should dissuade bear-human conflicts before they occur. This could include active management and/or development of bylaws governing the following:
- garbage storage and collection
 - fruit trees
 - composts
 - community gardens
 - greenbelt dumping
 - connectivity and design of parks and open spaces
 - other attractants and habitat considerations.
- 6.6.30 In addition to concerns about the creation of “problem” bears, the City’s management of fruit trees should take into consideration the importance of birds, bees, butterflies, and other pollinators in the maintenance of biodiversity and ecosystem integrity, especially as a tool in climate change adaptation.
- 6.6.31 The City supports continued community education efforts about human-bear conflict mitigation.
- 6.6.32 The City should continue to support initiatives like the Fruit Exchange Program and work with the Northern Bear Awareness Society, local Conservation Officers, and other organisations to develop strategies for monitoring and reducing human-bear conflicts.
- 6.6.33 Efforts to increase landscape connectivity for biodiversity and sensitive habitat needs, should be balanced with measures to reduce the introduction of bears into urban neighbourhoods.
- 6.6.34 New public green spaces, trails and development areas are to take into consideration the potential disturbance of wildlife habitats and travel corridors.
- 6.6.35 When designing fuel management treatments, the City could consider the potential impacts on bear habitat and attractants that may be created due to a short-term increase in shrub layers, herb layers, and berry production.
- 6.6.36 The City should manage human-ungulate interactions through consideration of important ungulate winter range habitat, high-use corridors, and high conflict areas.
- 6.6.37 Any new Greenfield development should consider impacts to rare and endangered species and their habitat including amphibians, ungulate winter range and other sensitive species.

6.6.38 The City should consider including a no net loss of valuable wildlife habitat in its development policies.

6.6.39 The City should consider an ecological approach to land use planning where ecosystems and the valued wildlife that live within are incorporated and protected.

Invasive Species

6.6.40 It is important to control the introduction of invasive species to natural areas, greenbelts, park areas, and other properties

- bylaw 7370 Parks and Open Space Bylaw
- Use only non-invasive species in seed mixes, urban planting projects

6.6.41 Maintain and adopt appropriate City policies to promote native habitat restoration, reduction or removal of invasive species, and other sustainable landscaping strategies including

- Changing mowing and other maintenance practices where appropriate
- Integrated pest management strategies
- Xeriscaping strategies
- Urban forestry strategies
- Include tree and plant species indigenous to the region in all municipal landscaping, and avoid those plant species that are invasive or deleterious to native vegetation

6.6.42 New development should include strategies to reduce or prevent the introduction and colonization of disturbed sites by invasive species

6.6.43 Develop an Integrated Management Strategy to address the ongoing management of invasive plants.

6.6.44 Continue to participate with appropriate agencies in the management of local invasive species.

6.6.45 The potential introduction of invasive species should be considered when designing new trails and access into interface areas.

6.6.46 The City should actively reduce invasive species on City-owned land and along transportation corridors.

Safety

6.6.47 Any new development should maintain adequate access to interface areas for maintenance by City and utility personnel/equipment as well as for fuel treatments and fire suppression activities.

- 6.6.48 Bylaws should not preclude the removal of hazardous trees or treatment of hazardous conditions within interface areas, where necessary for the protection of life or property.

6.7 Solid Waste

Preamble

The city's sanitary landfill is operated by the Regional District of Fraser-Fort George and is located on a large site west of the Hart Highway near Foothills Boulevard and Austin Road. It is anticipated that the area is large enough to accommodate projected future population growth. The landfill site is situated above the Nechako aquifer, and regular monitoring is carried out to define any leachate problems.

Objectives

- Objective 6.7.1 The City is committed to the Regional District of Fraser Fort George Solid Waste Management Plan and its efforts to reduce the amount of waste coming to the landfill each year and to educate the public around the idea of reducing, reusing, and recycling waste products.

Policies

- 6.7.1 The capacity of the current solid waste landfill site boundaries are deemed adequate for the projected growth of the city. Measures to monitor and manage any offsite impacts will continue.
- 6.7.2 Given the sensitivity of this overall area as an important component to the city's water supply, expansion of the landfill site, or development of any new sites should give particular regard to the impact on groundwater.
- 6.7.3 For aesthetic and safety reasons, only open land buffer or recreation uses are permitted within 300 metres of the landfill site.
- 6.7.4 Examine the feasibility of a curb-side compost pick-up system as well as composting systems for municipal facilities as part of an overall waste management strategy.