

City of Maple Ridge

# GREEN INFRASTRUCTURE MANAGEMENT STRATEGY

October 2021



MAPLE RIDGE

British Columbia







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# Definition

## **GREEN INFRASTRUCTURE**

refers to the natural assets such as forests, streams, wetlands, vegetation, soils and bioengineered or landscape design solutions that exist now and that have the potential to be incorporated into sites, streets, and neighborhoods that collectively provide the community with a broad array of products, services, and benefits that are crucial to health, livability, cost saving, and sustainable development.

*Adapted from Connecting the Dots  
- Regional Green Infrastructure  
Network Resource Guide, Metro  
Vancouver, 2014*

# Introduction

## Why Green Infrastructure

It's a critical time to look at green infrastructure. Here in B.C., wildfires affecting air quality, record temperatures, drought, severe rain events, and flooding are becoming common annual events. Creating healthy, resilient and equitable living environments while adapting to increasing density and climate change impacts is the main reason for this strategy. Learning from other places around the world and locally, a proactive green infrastructure approach can help provide significant cost savings along with more effective, timely solutions. With redevelopment of our urban infill areas and expansion into greenfield areas, green infrastructure design options can help realize cost savings and provide better urban design to offset impacts on future generations of citizens.

## Purpose

The Green Infrastructure Management Strategy aims to include green infrastructure in the City's municipal toolkit. This strategy provides a road map for the City on how and where green infrastructure can be better integrated into future decision making with regards to municipal operations, capital projects, area plans, and development design practices.

## The Strategy

The strategy is a corporate, inter-departmental and municipal wide initiative. The actions outlined in this strategy support stakeholders and the City, its various departments, the development & business community and its tax payers in achieving objectives of the Official Community Plan (OCP), and Environmental Management Strategy (EMS). It will require an adaptive and incremental approach at various scales working with buildings, sites, streets, neighborhoods and a municipal wide level. Different areas will require appropriate solutions and this may change with time depending on densities, land uses, available resources, and community values.



## Green Infrastructure Opportunities

Green infrastructure also addresses many of Council's strategic priorities. These include:

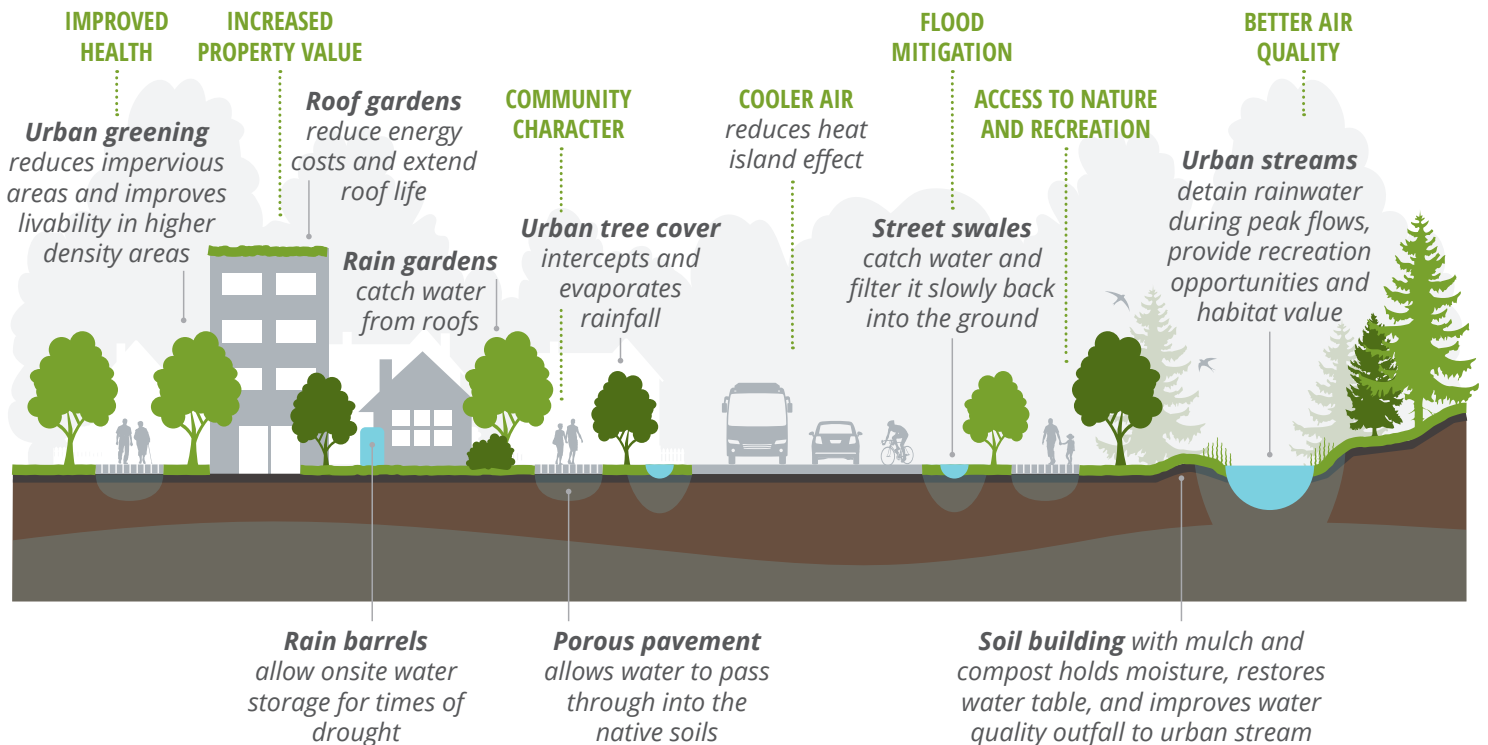
- Safe and healthy communities, including resilience to climate change and mitigating impacts associated with urban densification;
- Social well-being, liveability, access and connection to natural areas and complete healthy neighbourhoods;
- Economic vibrancy, cost savings, and adding to a business-friendly environment;
- Ecological health and fostering the importance of community connections to urban ecology.

The outcome of acting today will build resiliency, create vibrant urban centres and support healthy living into the future.

Maple Ridge is extremely fortunate to have existing natural assets and opportunities to incorporate green infrastructure into new development areas. Green infrastructure opportunities can be described from natural to bio-engineered solutions. Such strategies, or a hybrid of strategies, offer multiple benefits and result in a positive return on investment over the long term.

They are a cost effective and proactive choice to manage unexpected events, future risks and known trends (for example, a changing climate, future urban growth, increased urban development). Green infrastructure increases the City's resilience and can help avoid unexpected costs and/or disruptions to the City and its residents.

**FIGURE:** Green Infrastructure Opportunities and Benefits





# Context – Unique to Maple Ridge

*The following identifies trends and opportunities in Maple Ridge. It also highlights key challenges to address, and mitigate as part of longer-term planning and operations.*

## Global and Regional Trends

- Changing weather patterns including increased frequency and intensity of drought, severe rain events and flood risk create unexpected events and risks for the City and its residents.
- Green infrastructure is increasingly emphasized by Metro Vancouver, outlined in Metro 2050, and to member municipalities as a much needed strategy to foster a highly resilient and livable sustainable metropolitan region.
- Many other local governments are having to invest millions of dollars and decades in restoring natural systems and rehabilitating their urban areas while some fortunate communities, like Maple Ridge, still have existing natural assets to work with.

### WHAT IS ECO-SYSTEM SERVICES?

*Eco-system services refers to the benefits that healthy, natural eco-systems generate for society. This includes a range of aspects, such as recreational opportunities, clean air and more significant uses, such as stormwater management and flood control. Municipalities have begun to consider these services, assess the value of such assets and include alongside other built assets in municipal planning.*

## City of Maple Ridge Findings

### OPPORTUNITIES

- Maple Ridge is well positioned to learn from others and adopt successful and appropriate measures. In addition, there are a number of existing initiatives and work of which the City can effectively build on, including existing natural assets, progressive protection and restoration regulations and integrated ecological development permit guidelines.
- Maple Ridge has significant public owned lands around the municipality that also contain an abundance of natural areas that currently provide eco-system services to our community which help reduce costs to taxpayers.
- The City has a decent tree canopy cover in its greenfield development areas. Adjacent municipal owned forest lands offer good opportunities with respect to economic, social and ecological services, benefits and cost savings that natural assets provide to the community.
- The City is well equipped to update and work with existing information, data and mapping layers needed to support green infrastructure decision-making, tracking and measuring future green infrastructure progress.
- Urban infill (the Town Centre and Lougheed Transit Corridor Areas) offer good opportunities to integrate green infrastructure within neighborhoods, streets, parking areas, sites and in building designs with redevelopment, densification and innovative use of green infrastructure design options.
- In contrast to traditional clearing and subdivision development, future greenfield development provides opportunities to integrate green infrastructure.



- A larger green infrastructure network identifies critical areas and better connects the many parks, natural areas and significant wildlife hubs and corridors across the City, while expanding the City's recreational network connections and function of eco-system services.
- Existing and potential future City conservation areas and public greenspaces offer good opportunities to achieve multiple objectives, such as outdoor recreation, climate change resiliency, urban sustainability, and integrated stormwater management goals.
- Developer and resident oriented, regulatory and incentive programs, performance targets, user fees, education/outreach, incentive programs and best practices for site runoff, increasing tree canopy, or stewardship of other green assets within private lands could further improve and help build the City's green infrastructure system.
- In urban infill areas (such as the Town Centre and along major corridors), the City's green spaces are fragmented or disconnected. This includes watercourses and wetland/riparian areas. Along with pedestrian friendly streets and public greenspaces, opportunities for other forms of urban greenscaping, gardens, and shared green spaces can be explored.
- Existing natural assets on current undeveloped and developed lands are not well defined or included in the City's inventory or mapping database.
- In some urban infill areas, there is limited space on sites, streets, and neighborhoods to provide required or recommended amount of green infrastructure (for example, pervious area, tree retention) without lot assembly. In some areas, there is also limited access to shared green spaces, parks, pedestrian friendly green streets, and gardens.

## **CHALLENGES**

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- The population of Maple Ridge has been growing at a rate of 2% per year over the past 15 years. In the last two census periods, the City's population grew by 6,204 people, an average growth rate of 1.63%. With this, new residents' drive additional development and loss of natural assets.
- The services & cost savings associated with natural assets or value of green infrastructure has not yet been included in economic analysis or business plans for new development. As such, it's difficult to determine the best or smart use of undeveloped land without information on available natural assets and natural capital we have and how it serves us.
- Relative to other Lower Mainland municipalities, urban infill areas within Maple Ridge have a low tree canopy cover. This puts these areas at risk of increased run-off, flooding, poor air quality and urban heat island effect.
- There is limited opportunity for on site retention or improvements in some areas with conventional development planning and design. Often costs and impacts are transferred onto the City and tax payers. Given limited space in some areas there is a need for integration of on site and off site natural services benefits from green infrastructure can be provided to future residents, businesses, and visitors in these areas.
- Without established requirements, there is potential for loss of existing green infrastructure or natural assets on private lands with increasing density, especially within urban infill areas such as, the Town Centre, Dwyer Trunk Road and Lougheed Highway corridors.



# Guiding Principles

*Guiding principles are the values which support growth of green infrastructure in the City of Maple Ridge.*

- **Long-term commitment:** Action is needed *now* to see significant and measurable change for the future. Thinking and planning beyond election cycles are necessary to maintain momentum and planning into the future.
- **Adaptive and incremental:** Green infrastructure requires ongoing collaboration, input and change from all City departments.
- **Strong leadership from various departments within the City and council:** Actions will require support and resources to ensure success as well as some level of change within each department. A corporate wide initiative requiring all departments to be responsible along with senior management.
- **Inclusive engagement:** Implementation will require everyone to work together (City Council, city staff, community, stakeholders, and residents).
- **Cost effective and resourceful:** Working with and learning from other communities that have successfully managed to incorporate green infrastructure into their communities. Also building on existing programs, natural assets and municipal initiatives.
- **Relevance:** Identifying locally relevant solutions to ensure a good fit for the City.



# Goals

*Goals are high-level and outline the outcomes of the strategy.*

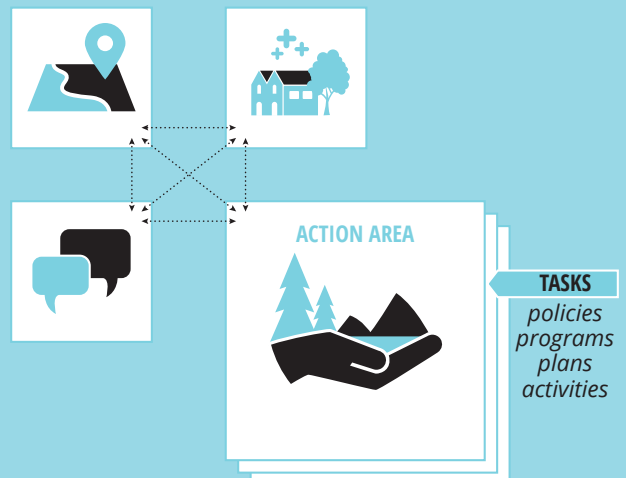
1. Increase the City's level of resilience to possible future shocks and stresses.
2. Foster a culture where natural and built infrastructure receive equal consideration in decision-making processes.
3. Support a healthy, vibrant urban centre.
4. Further build the City's identity and brand as a unique and recognizable place with a strong connection to the natural environment.
5. Improve the health and social well-being for all current and future residents.
6. Maintain the long-term affordability of municipal services for all current and future residents.
7. Build partnerships and awareness around green infrastructure in the City.

# Actions

*Action areas include a rationale and a group of specific tasks related to policies, programs, plans and activities to be undertaken in Maple Ridge. Often, they are inter-related and build-on each other.*

There are 4 key action areas in the City of Maple Ridge Green Infrastructure Management Strategy:

1. Inventory & Value the City's Natural Assets
2. Encourage and Support Green Development & Neighbourhoods
3. Establish Greenscaping Standards
4. Engage and Build Awareness within the City and in the Community







## ACTION AREA 1:

# Inventory and Value the City's Natural Assets

### RATIONALE:

*Maple Ridge includes large areas of undeveloped, city owned, regional and privately held natural areas. Many of these undeveloped land areas currently offer valuable eco-system services. However, these services aren't traditionally recognized, valued and accounted for in the same way as engineered capital infrastructure assets are within the City's management and financial planning.*

*Accounting for these natural areas allows the City to understand the real costs/benefits associated with conventional development, grey infrastructure, the loss of natural areas & maintaining natural assets. It will also form a foundation for the City to track, manage and monitor future green infrastructure performance.*

#### Departments Involved:

- Information Services, Planning, Parks and Operations, Engineering, Economic Development, Building, Emergency Services and Finance

**1.1** Identify the City's green infrastructure assets, including existing natural asset such as forests, trees, street trees and unique eco-systems. This includes the hubs, corridors and sites as they relate to the economic and social benefits and services offered to the City (i.e. aesthetics, stormwater management, recreation, wildlife management and safety, connectivity & biodiversity, climate resilience). This may include:

- Development of criteria and metrics to value (monetarily) natural assets for eco-system services.
- Assembly of remote sensing data and Lidar for routine analysis and monitoring of metrics.
- Development of key indicators for tracking and performance of these assets.
- Document the risks associated with changes or damages to natural assets in order to ensure the community understands the value of natural assets and associated risks of losing these assets.
- Identify lands where development occurs within identified high priority areas in the City's green infrastructure network. (i.e. for

private land natural asset protection) for potential covenants and easements.

**1.2** Evaluate natural capital services or develop a Natural Asset and Ecological Management Strategy. This may include:

- Identify assets that provide eco-system services - such as Environmentally Sensitive Areas and Sensitive Eco-systems Inventory lands, wetlands and riparian areas, municipal forests, deciduous and coniferous trees and tree canopy cover across the City.
- Identify portions of Agricultural Land Reserve lands, community forest lands, watershed areas that support green infrastructure functions for the City.
- Existing green infrastructure assets, pervious and impervious areas across the City, etc.
- The objectives should be to identify and evaluate:
  - the benefits (in dollars) that intact eco-systems currently provide to the City (as a comparison to if these were replaced with grey infrastructure);
  - where green infrastructure exists and where it is needed;
  - where protection of critical green infrastructure hubs corridors are required;
  - high priority conservation & green infrastructure acquisition areas for protection and management.

- Management of edge areas around community forests, and functional risk management best management practices along with wildlife interface best management practices around new development including urban infill ecological best management practices, i.e. songbirds, habitat, pollinator gardens, community gardens.

**1.3 Draft a Municipal Asset Management Policy that would include specific obligations to operate, maintain and replace natural assets alongside traditional capital assets. This could include requirements to:**

- Assess options to preserve, maintain, or enhance existing natural assets and the services they provide, before proposing new built assets.
- Compare the life-cycle costs of natural and engineered assets before making capital investment decisions.
  - *for example, a long term cost benefit analysis can be undertaken to understand the real costs/benefits associated with development & grey infrastructure with loss of natural areas & natural assets versus retention of these areas and assets that are essential for liveability and cost savings in all urban areas.*
- Integrate natural asset management into municipal finance planning, and include in long term financial plans (20 years+).
- Recognize natural assets in the notes section of annual financial statements and other documents, including the need to manage them in conjunction with engineered assets.







## ACTION AREA 2:

# Encourage and Support Green Development and Neighbourhoods

### RATIONALE:

*Continued growth and development offers a number of opportunities to further develop “green” area plans to support and encourage green development. This is specifically targeted to the urban infill and redevelopment context. Incorporating a green development approach and practices, as opposed to retrofitting existing development. This will minimize negative impacts, or, ideally, have a net positive impact, on the long-term cost efficiency, health and wellness of residents, resiliency of the City, and protection of the environment and nearby eco-systems.*

#### Departments Involved:

- Planning, Parks & Operations, Engineering, Operations, Information Technology, Economic Development, Building and Permits

**2.1** Facilitate a green infrastructure urban design charrette with local experts and municipal stakeholders green infrastructure design options in action and conduct more detailed cost-benefit assessments to determine the most appropriate and viable options in a redevelopment context).

**2.2** Incorporate broader green infrastructure objectives & targets into new area plans, the Official Community Plan goals and objectives, capital works projects, and new park designs or park upgrades.

- Identify green infrastructure options and costing or CBA for Town Centre, and along major corridor redevelopment areas.
- Street design charrette.

**2.3** Bridge the gap between area planning and site planning by creating clear design standards and performance targets for sites, servicing and streets.

**2.4** Outline performance targets for various development types and accountability. Contributions towards these targets can be applied both on site (new development) and off site (within the area plan).

**2.5** Explore the creation and implementation of a Green Infrastructure/Sustainability Development Checklist for identification

and protection of lands where development occurs within identified high priority areas in the City’s green infrastructure network.

**2.6** Outline regulations, design standards, and best management practices for green infrastructure in the public realm in areas identified within the green infrastructure network. This includes design of new park space, recreation areas and other greenspaces, for example, rain gardens, pollinator gardens, etc.

**2.7** Review development procedures and process for incorporating green infrastructure. This may include:

- Update development process checklists to include green infrastructure goals.
- Review initial applications to focus on prioritizing and making better use of existing assets on the land, prior to the development design stage.
- Review land assembly of smaller lots (up to 1 acre) within infill areas, to ensure green infrastructure opportunities and targets can be maximized.
- Set development/redevelopment run-off volume control targets or targets for rainfall management (i.e. development must treat the first 25mm of rainfall on site or manage 90% of all rainfall) for new or infill development. Allowing for on/off-site options.
- Set targets for shared open space areas, above ground detention ponds, green buildings (roof gardens, green walls, etc.) and urban infill greening/landscape.

**2.8 Offer development incentives and consider potential amendments to the Development Cost Charges Bylaw (DCC Bylaw) to share costs and identify funding opportunities for natural asset retention, restoration, and enhancement.**

- Development incentives: accelerated approval processes, density bonus for developments that integrate green infrastructure or retention and use of natural assets / eco-system services above what is required, or a reduction in DCCs for developments which include green infrastructure (see next bullet point).
- DCC amendment consideration: where a DCC eligible project that meets the requirements of a capital cost supporting an eligible green infrastructure service, and where restoration and enhancement will service the development in which the charge is imposed (as opposed to applying to engineering assets only), allow for a reduction in DCCs.

**2.9 Look for opportunities in private-public partnerships to implement green infrastructure pilot or demonstration projects for design, construction and management of projects that integrate green infrastructure. Explore, evaluate and identify the additional tools, resources, funding and programs that best fit the City to support implementation of green infrastructure with development. Some options may include:**

- Performance Targets and User Fees for Development Types.
  - *performance targets that support objectives to create liveable neighborhoods and reasonable access to green spaces for future residents, business owners, and visitors.*
  - *user fees or off-site compensation requirements (i.e. obtain credits for reduced runoff - to be implemented with a stormwater user fee system).*
- Incentive Based Tools.
  - *consider rebates to home owners (one-time payment) for installation of targeted green infrastructure elements.*
  - *tax incentives/tax credits or Payments for Eco-system Services (PES) in exchange for*

*protection or improved management and stewardship of natural assets.*

- Regulatory and Cost Sharing.
  - *explore green infrastructure utility and amenity charges for servicing requirements, off site local community facilities for both stormwater management, open space natural areas, and urban landscaping requirements for liveable neighborhoods and connections to meet municipal objectives related to safety, health, sustainability, energy, etc.*







## ACTION AREA 3:

# Establish Greenscaping Standards

### RATIONALE:

*Future shocks and stressors may have a growing impact on the City in the coming decades. Adapting policy and implementation of new green infrastructure initiatives now is a smart future investment. With these changes come multiple benefits, a healthier City, and more attractive places to live and do business.*

#### Departments Involved:

- Planning, Parks Planning & Development, Engineering, Parks Operations, Information Technology, Operations, Finance

### 3.1 Prepare a Landscape Design Standards for City Streets and Public Realm.

- Establish rainwater and landscape integrated management targets with quantifiable metrics.
- Include aesthetic/social value as part of the design standards.
- Include diverse selection of green stormwater infrastructure treatments for streets - rain gardens & infiltration bulges / bioswales, pervious paving, and infiltration trenches.
- Establish maintenance and monitoring programs.
- Allocate secured funding for the operations and maintenance of assets.
- Track performance and incorporate lessons learned.

### 3.2 Increase the City's tree canopy and landscaping, in particular, in areas of the City identified as having a low tree canopy coverage (<30%) and areas with high impervious (a low capacity for infiltration) surface area (>40%). This should focus on:

- Tree Retention.
- Onsite/Off-site options (where development occurs).
- Tree Replacement.

- Life Cycle Management.
- Landscape Design Standards.

Consider moving towards a municipal urban forest management plan to help manage municipal forest assets, street trees, and to achieve municipal and community performance targets, and replanting objectives in a more comprehensive & timely manner.

### 3.3 Identify new programs, initiatives and stewardship opportunities for private residential lots to maintain or improve landscaping, reduce stormwater run-off and build the City's Green Infrastructure Network– options may include:

- One time tax rebates programs to home owners for low impact development.
- Tax incentives/tax credits or Payments for Eco-system Services (PES) in exchange for protection or improved management and stewardship of natural assets identified in the City's Green Infrastructure Network.
- Encourage volunteer stewardship of natural assets.
- Tree programs for home owners (discounted nursery stock) to increase tree canopy cover in areas that have been identified as deficient within the Green Infrastructure Network.

## ACTION AREA 4:



# Engage and Build Awareness within the City and in the Community

### RATIONALE:

*The success of building green infrastructure into the City's standard toolkit relies heavily on its acceptance and support within the community. As such, it is important that residents are fully engaged, understand and value the benefits of green infrastructure in the City, now and for its future livability, health and resilience.*

#### Departments Involved:

- Planning, Communications

- 4.1** Identify resources, new potential staff positions and training needs required to support implementation of the green infrastructure strategy.
- 4.2** Coordinate a green infrastructure outreach, education and awareness program targeting the development community, public and other stakeholders, this may include:
  - Green infrastructure webpage.
  - Green infrastructure brochure.
  - Public meetings and workshops.
  - Info-sharing and fact sheets through webpage.
  - Guided tours of existing green infrastructure assets.
  - Green infrastructure network layer on Ridgeview online mapping.
  - Partnership programs, local volunteer and stewardship opportunities.
- 4.3** Further connect and develop partnerships with local groups, neighbouring jurisdictions and governments, such as, Metro Vancouver, neighbouring First Nations communities and municipalities, UBC Malcom Knapp Research Forest, Ministry of Forests (Woodlots), Tourism BC, local stewardship groups, etc.
  - To protect important areas.
  - Share data and align green infrastructure initiatives.

- Work with local groups on stewardship and restoration of critical sites.
- Other:
  - deliver community-based initiatives and partnerships delivered through non-profit community organizations.
  - apply for Provincial and Federal funding to support new green infrastructure assets.
  - partnerships with federal and provincial agencies on programs like Backyard Habitat Planting, Adopt a Park, Community Gardens, Pollinator programs, Songbird and Raptor programs, Ongoing investment in Wildsafe BC education program including Bear Aware.





# Strategy Implementation

*Actions in this strategy require clear implementation to move forward. At such time that this management strategy has been endorsed by Council, it will be the role of staff, the Environmental Advisory Committee and the Internal Inter-Department Task Force to confirm the implementation plan and move forward on action areas outlined through annual business planning.*

The following table outlines actions and priorities. The table includes level of effort, timing, recommended priority and departments involved for all tasks within each action area. Some of the tasks have been identified as relatively low effort and considered quick wins, others require additional consideration, complexity and resources and may take a longer time for implementation. This is reflected as follows.

## LEVEL OF EFFORT REQUIRED

- *Low effort* – can be completed internally with little to no funding, requires limited inter-department collaboration.
- *Medium effort* – primarily can be completed internally, with additional time/budget or contracted work. Involves higher level of multi department input and possible moderate funding requirements for external assistance or contracts.
- *High effort* – managed internally. Involves multi-department collaboration and higher level support between departments, with external assistance and ongoing support from Corporate Management Team and Council.

## TIMING FOR IMPLEMENTATION

- *Short term*: within 1 – 3 years
- *Medium*: within 4 – 7 years
- *Long*: within 8 years or more
- *Ongoing*

## RECOMMENDED PRIORITY

The recommended priority outlines key action areas and tasks that might be prioritized as foundational items in order to move forward with green infrastructure in the City.

- *Low* – can be completed independently or as part of general business planning.
- *Medium* – an important aspect or component of building green infrastructure, but does not have to happen immediately in order to ensure implementation of green infrastructure actions within the City. Requires scoping report and RFP.
- *High* – identified as a foundational component to the implementation of the green infrastructure strategy and success of building green infrastructure in the City. Timing important.

## DEPARTMENTS INVOLVED

As part of the internal inter-departmental task force, it is important to note that a successful green infrastructure strategy requires full support from various departments, senior management, and Council, as well as careful coordination of resources. This column outlines the key departments involved in the task. Staff will determine who will take the lead and responsibility for outcomes as each task is implemented.

ACTION AREA & TASKS	LEVEL OF EFFORT	TIMING	RECOMMENDED PRIORITY	DEPARTMENTS INVOLVED
<b>Action Area 1: Inventory &amp; Value the City's Natural Assets</b>				
Identify green assets (mapping)	Medium	Short	High	<ul style="list-style-type: none"> <li>• Parks, Recreation and Culture</li> <li>• Planning</li> <li>• Information Technology</li> <li>• Engineering</li> <li>• Operations</li> <li>• Emergency Services</li> <li>• Economic Development</li> </ul>
Natural Asset and Ecological Management Strategy (evaluation of natural capital services)	Medium	Short	High	<ul style="list-style-type: none"> <li>• Planning</li> <li>• Parks, Recreation and Culture</li> <li>• Information Technology</li> <li>• Engineering</li> <li>• Finance</li> <li>• Operations</li> <li>• Economic Development</li> </ul>
Develop a Municipal Asset Management Policy which includes new policy language with a focus on natural assets and natural capital evaluation opportunities	Medium	Medium	Medium	<ul style="list-style-type: none"> <li>• Finance</li> <li>• Engineering</li> <li>• Planning</li> <li>• Parks, Recreation and Culture</li> <li>• Information Technology</li> </ul>
<b>Action Area 2: Encourage and Support Green Development and Neighbourhoods</b>				
Coordinate a GI Design Charrette for certain urban infill areas to encourage more innovative design, integration of green infrastructure design options, and cost benefit analysis at site, street & block level	Medium	Short	High	<ul style="list-style-type: none"> <li>• All (Inter-department Task Force)</li> <li>• EAC</li> <li>• Stakeholders</li> <li>• Development Community</li> <li>• Public</li> </ul>
OCP Amendment & Area Planning – review and incorporate GI objectives (& targets)	Low	Ongoing	High	<ul style="list-style-type: none"> <li>• Planning</li> </ul>
Develop GI Design Standards & Performance Targets (servicing and streets )	Medium	Ongoing	Medium	<ul style="list-style-type: none"> <li>• Planning</li> <li>• Engineering</li> <li>• Building</li> <li>• Parks</li> <li>• Operations</li> <li>• Information Technology</li> </ul>
Set Performance Targets for various development types & accountability	Medium	Short	High	<ul style="list-style-type: none"> <li>• Planning</li> <li>• Engineering</li> <li>• Building</li> <li>• Operations</li> </ul>
Explore Development Permit Area	Medium	Medium	Medium	<ul style="list-style-type: none"> <li>• Planning</li> <li>• Engineering</li> <li>• Parks, Recreation and Culture</li> <li>• Finance</li> </ul>



ACTION AREA & TASKS	LEVEL OF EFFORT	TIMING	RECOMMENDED PRIORITY	DEPARTMENTS INVOLVED
<b>Action Area 2: Encourage and Support Green Development and Neighbourhoods (continued)</b>				
Outline Landscape Management, Maintenance & Design Best Management Practices for green infrastructure in the public realm	Medium	Medium	Medium	<ul style="list-style-type: none"> <li>• Parks, Recreation and Culture</li> <li>• Operations</li> <li>• Planning</li> <li>• Engineering</li> </ul>
Review the Development Procedures and Process for incorporating GI (review process and Bylaw)	Medium	Medium	Medium	<ul style="list-style-type: none"> <li>• Planning</li> <li>• Engineering</li> </ul>
Review / consider incentives and amending the Development Cost Charges Bylaw (DCC Bylaw) to support GI	Low	Medium	High	<ul style="list-style-type: none"> <li>• Planning</li> <li>• Engineering</li> </ul>
Identify private-public partnerships/pilot project & other funding mechanisms	Medium to high	Ongoing	Medium	<ul style="list-style-type: none"> <li>• Various</li> </ul>
<b>Action Area 3: Establish Greenscaping Standards</b>				
Landscape Design Standards for City Streets & Public Areas	Low	Medium	Medium	<ul style="list-style-type: none"> <li>• Parks, Recreation and Culture</li> <li>• Planning</li> <li>• Engineering</li> </ul>
Forest / Tree Operations & Management Plan for Municipal forests/trees	Medium	Long	Medium	<ul style="list-style-type: none"> <li>• Parks, Recreation and Culture</li> <li>• Information Technology</li> <li>• Planning</li> </ul>
GI Residential Programs, Incentives and Stewardship Opportunities	Medium	Ongoing	High	<ul style="list-style-type: none"> <li>• Parks, Recreation and Culture</li> <li>• Planning</li> <li>• Communications</li> </ul>
<b>Action Area 4: Engagement and Build Awareness</b>				
Internal Education and Training	Medium	Ongoing	High	<ul style="list-style-type: none"> <li>• All</li> </ul>
Green infrastructure Education & Outreach Initiatives	Medium	Medium	Medium	<ul style="list-style-type: none"> <li>• Planning</li> <li>• Communications</li> </ul>
Identify key partnerships (academic, regional, etc.)	Low	Ongoing	Medium	<ul style="list-style-type: none"> <li>• Planning</li> </ul>

## Stakeholders and Green Infrastructure Inter-departmental Task Force

Maintain and set regular meeting dates to continue the Green Infrastructure Inter-departmental Task Force Group to focus on support for short term action items. The Inter-departmental Task Force will be responsible for monitoring the progress of Actions and tracking the phasing and prioritization of related tasks within other departments.

# Appendices

Appendix A:  
Project Background

Appendix B:  
Risks



# Appendix B: Risks

The Green Infrastructure Management Strategy is just one step towards furthering green infrastructure in the City. Continual effort is needed to ensure the success of each action with the strategy. The following risks and mitigation strategies represent challenges identified by staff and stakeholders to the implementation of this management strategy.

RISK	MITIGATION
Silo Departments	<ul style="list-style-type: none"><li>• Regular communication through the Internal Staff Task Force Group</li><li>• Council involvement</li><li>• Environmental Planning Champion</li></ul>
Lack of Uptake in the Development Community	<ul style="list-style-type: none"><li>• Provide information and consult with the development community</li><li>• Identify key partners</li><li>• Identify key development incentives for green infrastructure</li></ul>
Lack of budgets or staff to support green infrastructure initiatives	<ul style="list-style-type: none"><li>• Grant applications</li><li>• Partnerships with Metro Vancouver (i.e. sharing data), neighbouring communities, academic institutions</li></ul>
Lack of Community Support and Partnerships	<ul style="list-style-type: none"><li>• Regular communication on green infrastructure initiatives and progress</li><li>• Identify pilot projects and relevant community groups to support community-based initiatives</li><li>• Involve community leaders</li></ul>
Existing policy remains unchanged	<ul style="list-style-type: none"><li>• Policy review included as tasks within action areas</li><li>• Council update, endorsement and staff recommendation to implement tasks outlined</li><li>• Internal Staff Task Force to track and monitor</li></ul>
Risk of ongoing impacts and costs of not incorporating green infrastructure on residents (taxpayers) and the City's systems	<ul style="list-style-type: none"><li>• Council support and leadership</li><li>• Resident and development community engagement</li><li>• External partnerships (regional, academic, etc.)</li></ul>





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