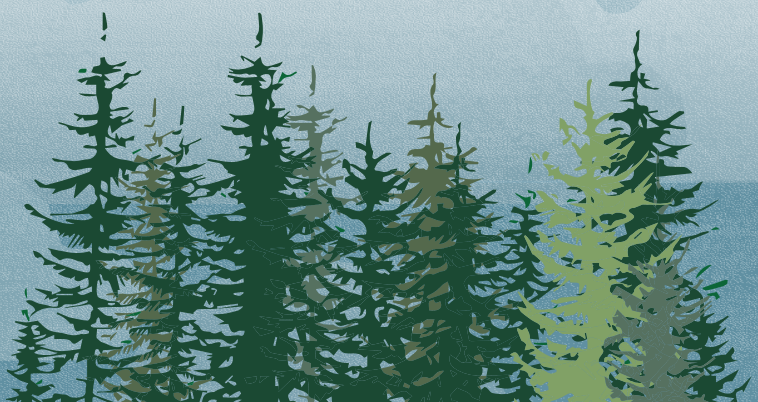
# PRIMER ON NATURAL ASSET MANAGEMENT

**This primer will:**

- Introduce you to Municipal Natural Asset Management
- Explain why it is important to consider natural assets as part of your overall asset management strategy
- Help you chart your community's course towards implementing Municipal Natural Asset Management



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Making Nature Count

# Steps towards effective municipal natural asset management

## Identification & Assessment of Natural Assets Phase

### STEP 1

**Develop an asset management policy, bylaw or financial statement directing the municipality to consider natural assets.**

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Policy directives are a first step. Over time, expect and enable other steps:

- Development cost charge bylaws that include natural assets;
- References to natural assets in asset management policies;
- Financial plans that cover natural asset maintenance;
- O&M plans that reflect natural asset goals; team approaches; and,
- Notes in your annual financial statements that reflect natural asset value.

### STEP 2

**Identify key natural assets and the services they provide.**

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- Inventory natural assets your community relies on –even if you don't own them.
- Compiling information into an asset register to make them 'visible' and increase the likelihood that they will be maintained.
- Registers do not have to be complicated or exhaustive.
- Rows can be adapted to show e.g. relevant natural asset, extent of asset in hectares, significance in terms of storm water services.

### STEP 3

**Determine the condition of natural assets in your community and do an initial valuation**

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- Even basic information on natural asset condition can support better decision making.
- Information can often be found in existing studies (e.g. stormwater master plans or drainage studies) and by gathering existing monitoring data(e.g. flow monitoring, surface level monitoring,groundwater monitoring, data on soil types).
- This work requires a broad spectrum of skills and expertise.
- Detailed assessments may require monitoring and indepth analysis but existing material is a great starting point. With this in hand, estimate what engineered infrastructure would perform similar services and at what cost – e.g. costs per cubic meter of stormwater management.
- Precise valuations will require in-depth support and analysis. Ultimately, natural assets should be identified, and their condition assessed, as for any capital asset.

1 = low; 3 = medium and 5 = high

| | Municipally - owned | | | | Private, provincial or federal ownership | | | |
|---|---|---|---|---|---|---|---|---|
| Ecosystem services in municipality | Terrestrial parks | Urban forests | Wetlands | Shoreline/ coastal area | Terrestrial parks | Forests | Bay & waterways | Gardens/ cultural places |
| **Provisioning Services** | | | | | | | | |
| Water supply | 1 | 2 | 2 | 1 | 3 | 3 | 5 | 1 |
| **Regulating Services** | | | | | | | | |
| Water purification | 4 | 4 | 5 | 1 | 3 | 4 | 1 | 1 |
| Flood protection | 4 | 5 | 5 | 2 | 3 | 4 | 1 | 1 |
| Climate regulation | 1 | 2 | 2 | 4 | 2 | 5 | 2 | 1 |
| Soil quality & stability | 4 | 4 | 4 | 2 | 4 | 5 | 2 | 2 |
| **Cultural Services** | | | | | | | | |
| Landscape and neighbourhood amenity | 5 | 5 | 1 | 5 | 5 | 5 | 4 | 5 |

## Planning Phase

### STEP 4

**Determine which assets are highest priority through a basic risk identification analysis.**

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Consider using a simple assessment such as the one below developed by the Town of Gibsons to determine which assets should be highest priorities, using the following indicative formula and your own judgement about asset importance, Risk = Impact * Likelihood.

### STEP 5

**Determine what scenarios you want to understand**

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- Asset service levels may differ with climate change, different management strategies, in-fill,land acquisition or other variables. Considering different scenarios will help you to set management objectives.
- Pick a few scenarios to explore (e.g. status quo and climate change) and decide what variables you need to understand (e.g. surface inflows & outflows, groundwater inflows, recharge rates, peak flows, drainage area).
- Then, you are ready to model using a tool such as the Stormwater Management Model (see "Resources" below).
- This may require outside support.

| Natural asset | Services | Hazards | Impact | Likelihood | Risk |
|---|---|---|---|---|---|
| Aquifer | Water provision | Leak from gas storage tank | High | Medium | High |
| | | Spill from transport truck | High | Low | High |
| Foreshore | Protection of business and residential districts from storms | Storms, development | High | Low | Medium-high |
| Healthy creek distant from developments | Stormwater absorption, conveyance, and flood protection | Development and overuse | Low | Low | Low |
| Degraded creek near area with land intensification | Stormwater absorption, conveyance, and flood protection | Development and overuse | Medium | High | High |

## Implementation Phase

### STEP 6

**Start managing your natural assets**

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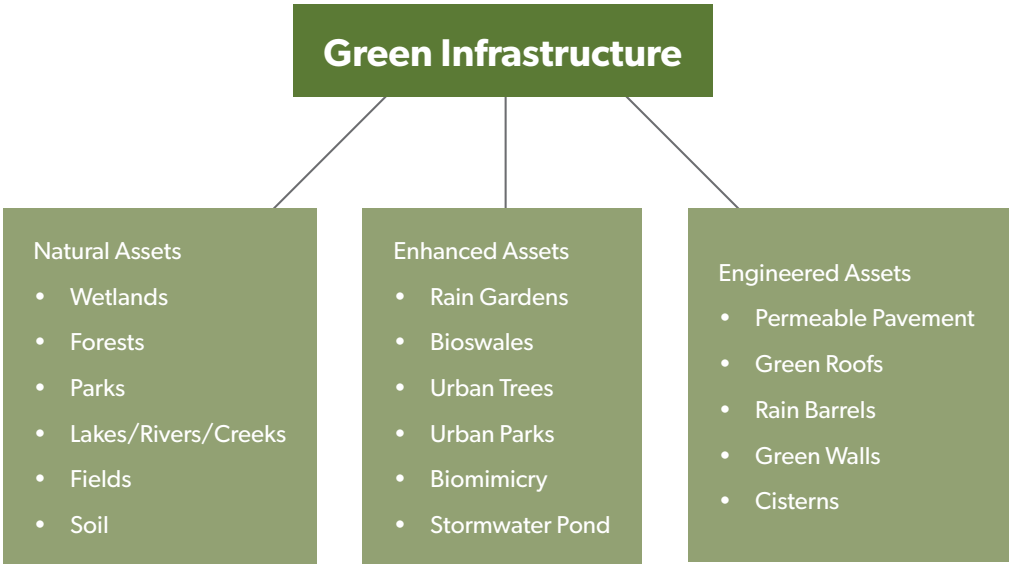
- Operations and maintenance plans are key to municipal natural asset management and can include monitoring, maintenance, acquisition,restoration.
- Plans should focus on service delivery from priority natural assets and be supported by multi department teams.
- Funding for plan implementation must be set aside in financial plans.
- Natural asset service value can be reflected in 'notes' sections of financial statements.
- Other steps will emerge from the process.

# What are municipal natural assets?

- "Natural assets" are the stock of natural resources and ecosystems that yield a flow of benefits to people.
- "Municipal natural assets" are the stock of natural resources or ecosystems that are relied upon, managed, or could be managed by a municipality, regional district, or other form of local government for the sustainable provision of one or more municipal services.
- "Green infrastructure" is a broad category that includes natural assets *and* designed and engineered elements that have been created to mimic natural functions and processes in the service of human interests, as depicted in the diagram.




# Why manage municipal natural assets?

- Natural assets such as aquifers, forests, streams, riparian areas and foreshores can provide municipalities with vital services equivalent to those from many engineered assets.
- Emerging evidence shows that identifying, measuring and managing natural assets as part of an overall asset management strategy can save capital and operating costs and reduce risk.
- Local governments are finding that natural assets are resilient and adaptable to climate change. With effective monitoring, maintenance and rehabilitation now, natural assets can provide service and add value for decades in ways that many engineered assets cannot match.
- In some communities, development cost charges may be able to support the rehabilitation of natural assets.
- There are external funding sources to support the maintenance/rehabilitation of municipal natural assets.
- Some natural assets serve multiple purposes. For example, parks may reduce flooding risks as well as provide recreational benefits and can be managed to maximize several objectives.

# Who can help me?

MNAI is a not-for-profit organization that aims to make municipal natural asset management mainstream across Canada. Reach the MNAI team at **info.mnai@gmail.com** for more information.

# Resources

The MNAI website (**mnai.ca**) has:

- Tools and resources
- Technical reports and news related to MNAI projects
- Information on getting involved
- The story of how municipal natural asset management began in the Town of Gibson



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