

Density + Nature: Reducing the Costs of Climate Change with Natural Asset Management (NAM)

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CRD Allies Network

Citizens' Environment Network in Colwood, Community Association of Oak Bay, Creatively United for the Planet, Esquimalt Climate Organizers, Friends of Bowker Creek, Friends of Victoria Harbour Migratory Bird Sanctuary, Garry Oak Meadow Preservation Society, Gorge Waterway Action Society, Nature Victoria (Victoria Natural History Society), Oak Bay Climate Force, Saanich Peninsula Environmental Coalition, South Island Climate Action Network, Transition Sooke, Victoria Climate Action Team, Victoria Climate Reality Hub, View Royal Climate Coalition

NAM: Getting Nature on the Balance Sheet



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Smart, Sustainable and Resilient cities:

the Power of Nature-based Solutions




G7 / G20





G20 Priority: Nature-based Solutions for Cities

Include in all mitigation and adaptation strategies

- **New urgency:** >1.5°C, heat/floods costing billions \$
- **Action needed:** governments, developers, planners
- **2023 standards:** by CSA Group








Towards an
EU Research and Innovation policy agenda for
Nature-Based Solutions & Re-Naturing Cities

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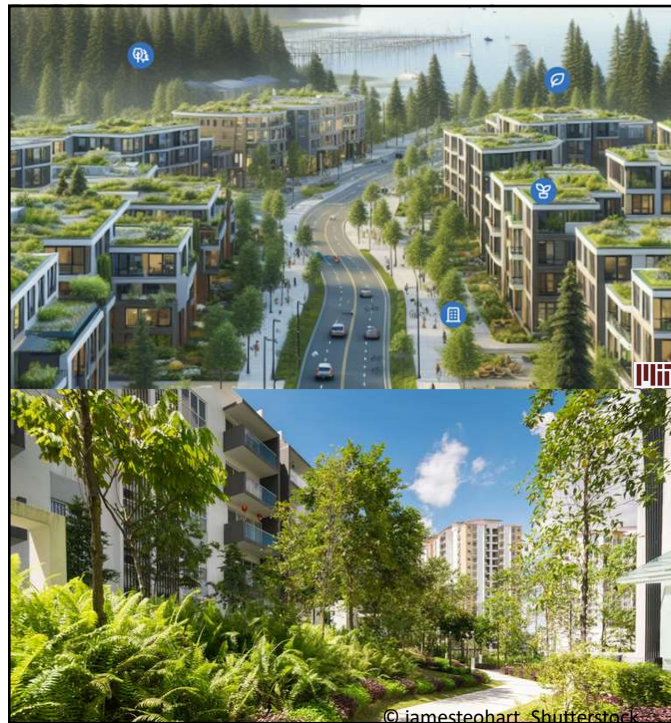
Unique Coastal Douglas-Fir (CDF) Ecozone



- Garry Oak & Arbutus
- Unique to Canada, most endangered in BC, globally significant
- 1% old-growth left, urbanized
- 75% of BC pop, 0.3% of BC area
- 80% of land is private; 35-40% tree canopy targets (City of Victoria: 75% urban forest on private land; 29% canopy)
- Private + public lots needed for ecosystem survival

Get facts: WhaleResearch.com

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Nature-based Solutions



ENGINEERS &
GEOSCIENTISTS
BRITISH COLUMBIA



- **Nature integrated with cities**, not in isolated parks, forests, wetlands
 - Natural & urban ecosystems
- **Natural + built infrastructure**
- **Reduce Emissions: 17% average**
 - Change behaviour – more local walking, biking, recreation
 - Carbon sequestration
- **Reduce Impacts & Costs:** heat, pollution, floods, drought, biodiversity loss
- NAM is one component

Nature-based Infrastructure is the only way countries can achieve progress on **Sustainable Development Goals**, **Global Biodiversity Framework**, and the **Paris Agreement** at the same time. ~ UN Environment Programme

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What is NAM?

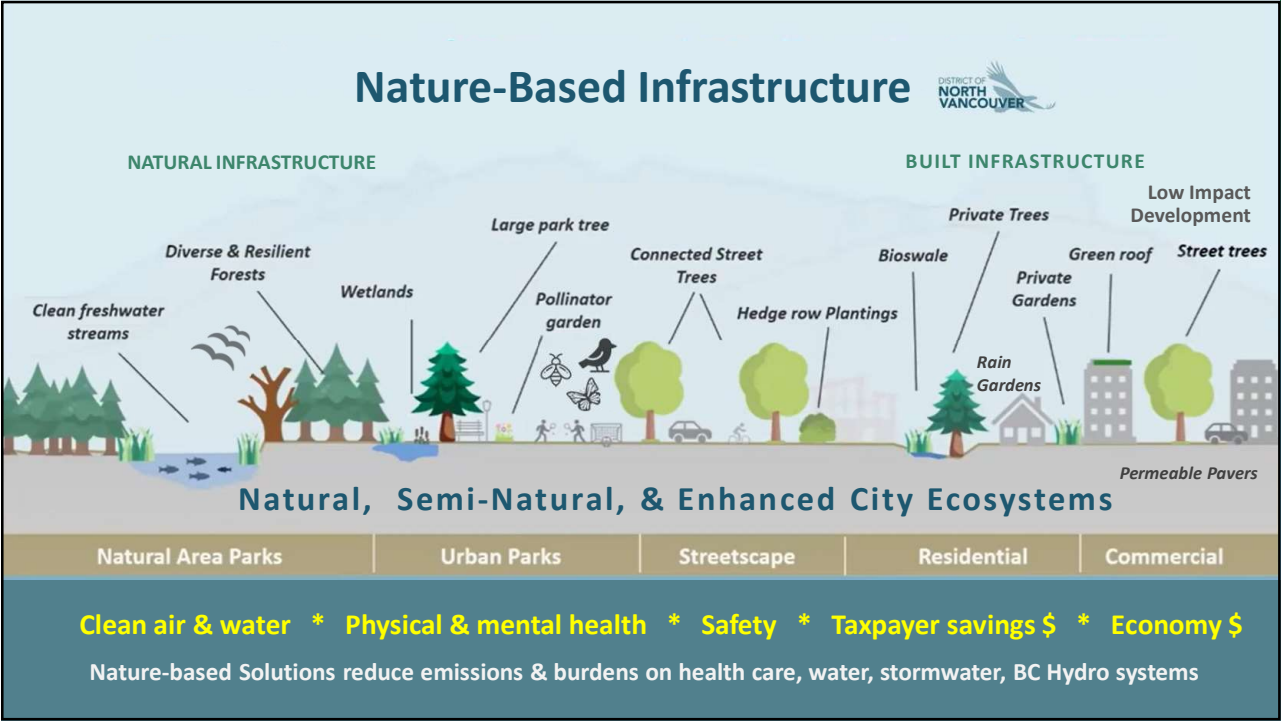
- Data-driven decision-making process (for all depts not only Parks or Urban Forestry)
- **Uses cost/benefit analysis tools for natural & “enhanced urban” assets**
 - Lower cost of delivering essential services - both financially & environmentally (offload engineered assets with lower cost, longer lifespan natural assets)
 - “Protect homes & reduces emissions”
- **Integrates natural assets into all dept plans/strategies**
 - Planning, Engineering, Parks, Emergency, Finance
 - OCP, Stormwater, Asset Mgt, Climate, Urban Forest, Biodiversity
- **Results in better quality of life**
 - Faster, more effective decisions on land use, infrastructure, building



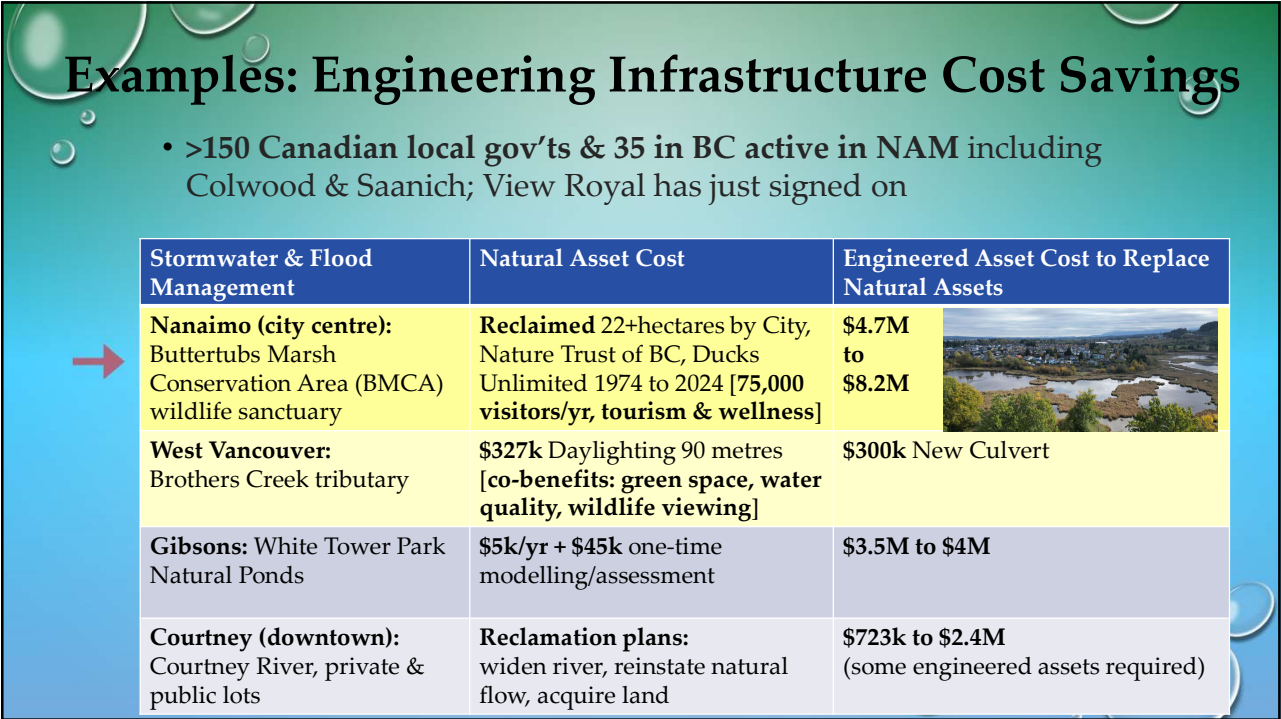
Government of Canada / Gouvernement du Canada

Canada

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Examples: Planning Levels of Community Service

- Determines Quality of Life

City of Victoria Potential Services	Wetlands, \$/hectare/yr	Riparian, \$/hectare/yr	Urban Forest, \$/hectare/yr	Shrub & Herbaceous, \$/hectare/yr
Carbon Sequestration	\$1,432	\$1,288	\$1,445	\$800
Stormwater	\$25,602	\$996	\$6,200	\$700
Biodiversity	\$34,487	\$169	\$3,313	\$3,081
Pollination	Not assessed	\$1,669	\$1,669	\$1,669
Air Quality	\$813	\$813	\$813	\$29
TOTAL Potential Services Per Year (% of 2000 hectares)	\$6.1M/yr (5% area?)	\$500k/yr (5% area?)	\$10.8M/yr (40% area?)	\$3.8M/yr (30% area?)

- 1 hectare = ½ city block in Victoria
- Values /ha/yr from Saanich
- Metro Vancouver, Toronto, Saanich target 40% canopy
- Victoria 2013 downtown canopy 3%; C40 Cities targets 30-40% green

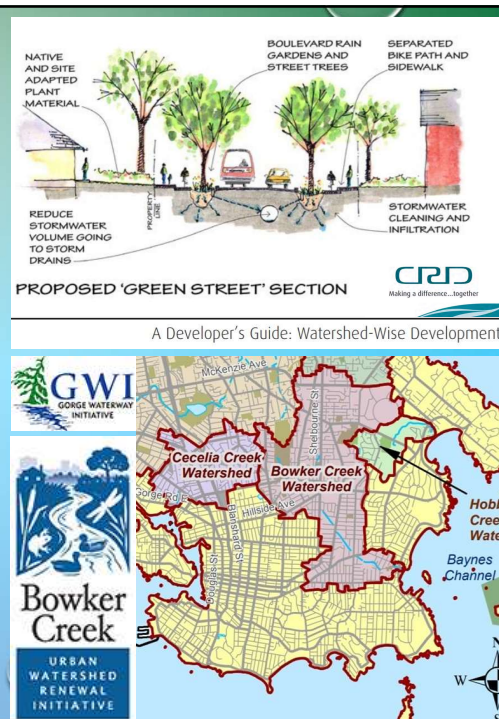
C40 CITIES

Physical & mental health services (avoided health costs): Saanich \$14M to \$52M/year

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Levels of Service Targets in OCPs & Asset Management

- **Housing DPAs, Built & Natural Infrastructure**
lower energy/water/GHGs, wildlife-friendly, watershed or ecosystem goals (rain or pollinator gardens, hedgerows, trees, permeable surfaces)
- **Public Health Services**
 - # vulnerable neighbourhoods meeting tree canopy targets
 - # tonnes pollutants removed by trees & shrubs
- **Biodiversity Services (incl. inside urban containment areas)**
 - # new developments w/ wildlife and bird-friendly designs
 - # hectares wetlands protected, new rain gardens, or streams daylighted to meet CRD regional watershed goals
 - # new park protection walkway amenities
- **Stormwater Services**
 - % reductions in impermeable surfaces on private property
 - # wetlands or urban floodplains restored
 - % increase in soil volume around trees & shrubs



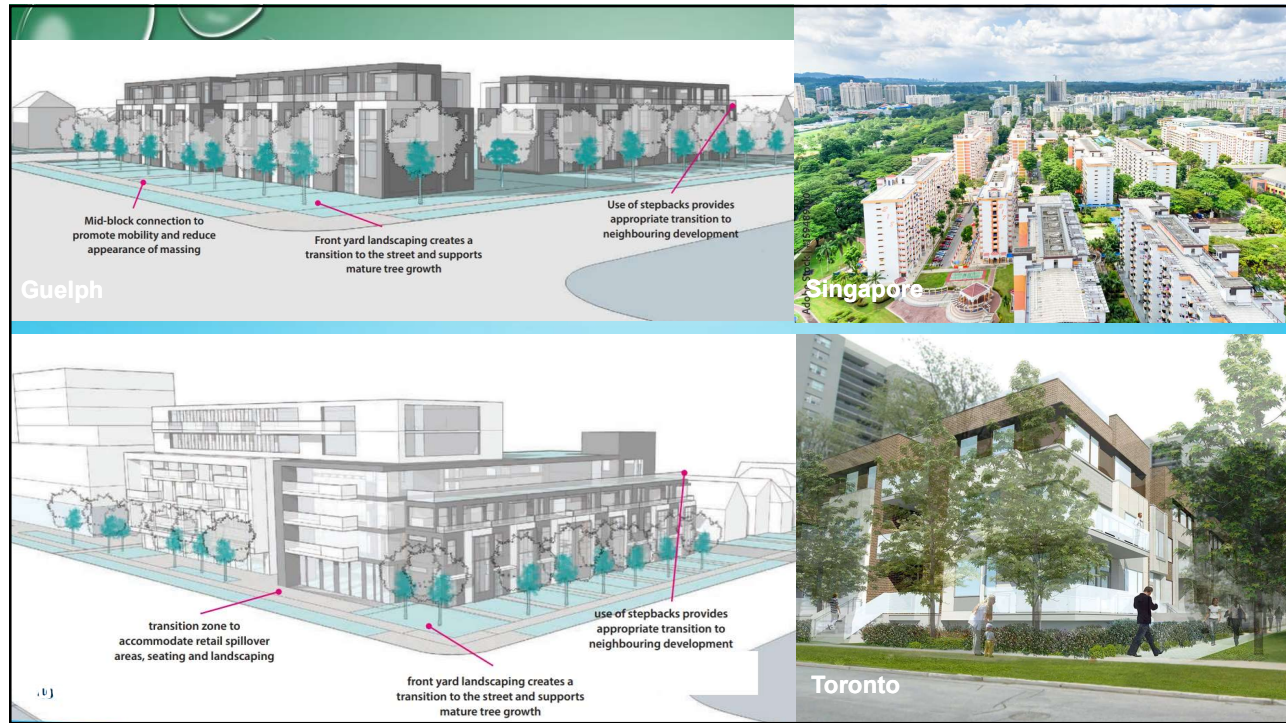
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Colwood

Built and Natural Infrastructure

• OCP Objectives for Built & Natural Infrastructure

Objectives

- Responsible Infrastructure Management – To deliver services and manage public assets in a financially and environmentally responsible manner.
- Water Conservation – To protect and conserve water resources.
- Rainwater Management – To manage rainwater in a manner that optimizes conservation, protects ecosystems, and maintains quality.
- Wastewater Management – To manage wastewater in a manner that optimizes conservation.
- Waste Management – To apply a zero-waste approach to solid waste management.
- Reduced Urban Heating – To reduce the heat island effect.

Policy Directions – Key Examples

- Sewer Connections – Require that all new developments are considered for roads, water and sanitation.
- Growth Management – Minimize costs of roads and form.
- Asset Management – Apply a life-cycle approach to a development are considered for roads, water and sanitation and other communities services.
- Water Conservation Strategies – Implement conserve water restrictions, greywater use, and rainwater harvesting.
- Rainwater Management – Develop a rainwater management including: minimizing impervious surfaces to encourage incorporating rain gardens, bioswales, and other features rainwater.
- Waste Management – Collaborate with other jurisdictional management.
- Heat Island Effect – Provide landscaping along street function, to combat the heat island effect that is caused

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CRD Economy: Environment & Wildlife

- **Tourism Victoria:** 2023 Conde Nast Traveler readers voted Victoria **#1 Best Small City in the World** "breathtaking ... from tidepool to treetop"
- **Travel & Leisure:** Vancouver Island #1 in Canada due to "natural charms"
- **CRD has 3 Federal Migratory Bird Sanctuaries:** "National Treasures"

WHAT ARE THE BEST THINGS ABOUT GREATER VICTORIA? VICTORIA FOUNDATION

67% NATURAL ENVIRONMENT #1

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