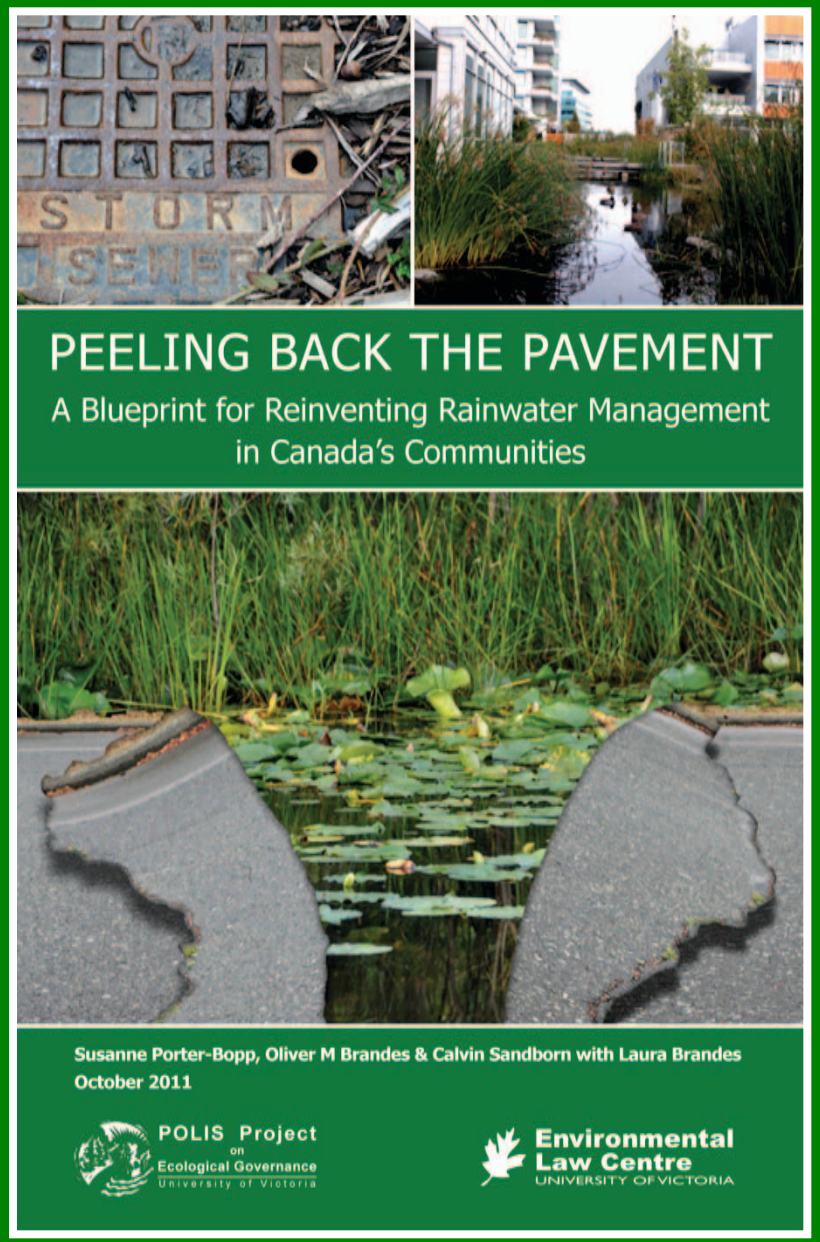

Jesse Baltutis, POLIS Water Sustainability Project
Water and Watershed Planning Workshop
January 18th, 2012

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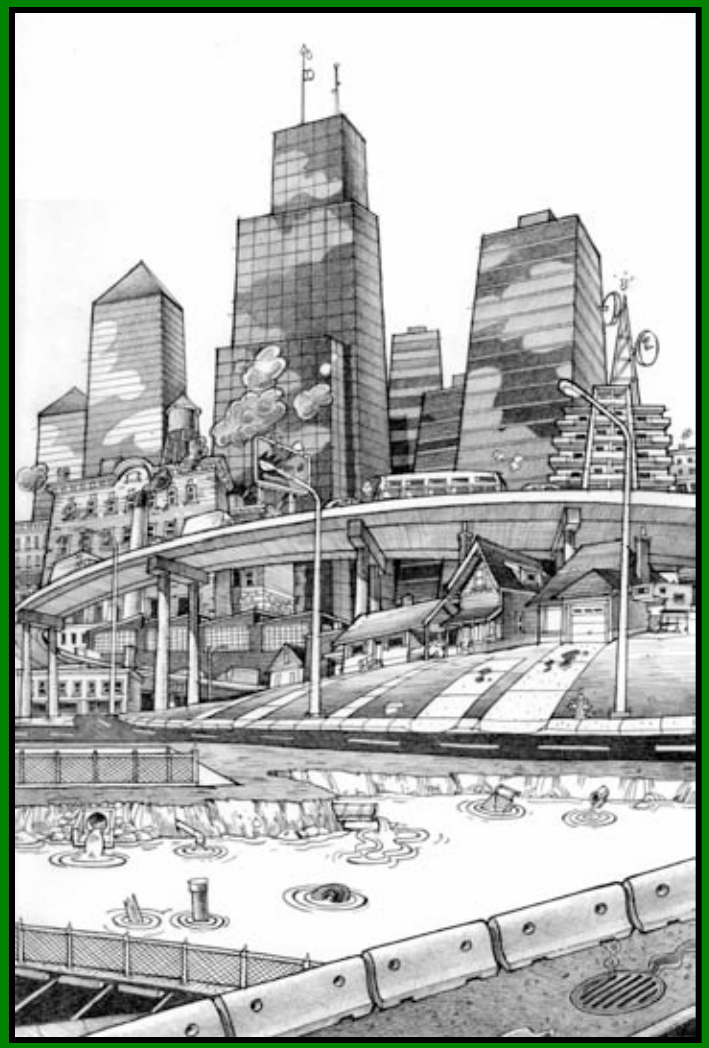
A TALE OF TWO CITIES



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WHY SHOULD WE CARE ABOUT STORMWATER?

- X flooded streets and basements
- X polluted beaches
- X degraded urban streams
- X ruined aquatic habitat
- X stressed aquifers
- X expensive drainage infrastructure that demands constant maintenance!

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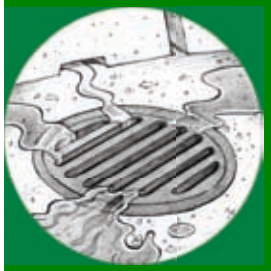
PROBLEM 1



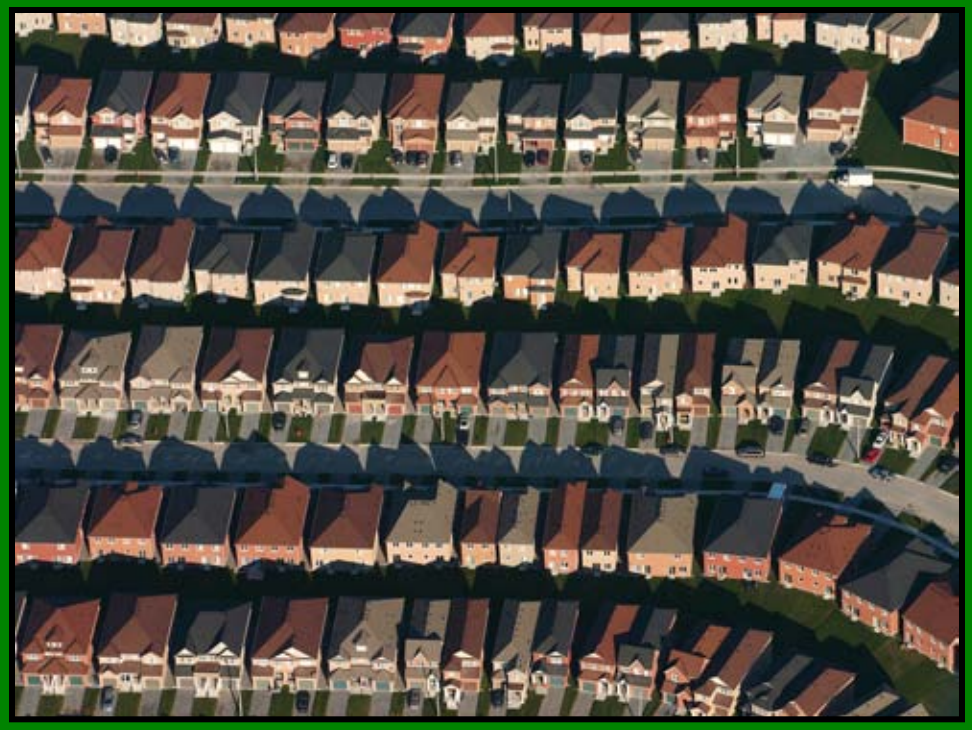
CONCRETE JUNGLES

DESIGN THAT CREATES RUNOFF

"concrete jungles"

more runoff

- large amounts of $$$ and resources are focused on drainage infrastructure because runoff (i.e.stormwater) is viewed as threat that ultimately needs to be removed



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PROBLEM 2

RAINWATER DOWN THE DRAIN

WASTE OF A VALUABLE RESOURCE

- "Rainfall as a threat" means communities miss the opportunity to capture and store rainwater for reuse
- Depletes local water supplies, undermines water conservation efforts, and leads to demand for expensive new water supply infrastructure

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PROBLEM 3

STORMWATER GOVERNANCE

WHO DOES WHAT?

- Urban water management decisions are made in a fragmented way with no one entity responsible for the entire hydrological cycle
- Land- and water-use decisions are typically separated across local government departments?

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THE STORMWATER CITY

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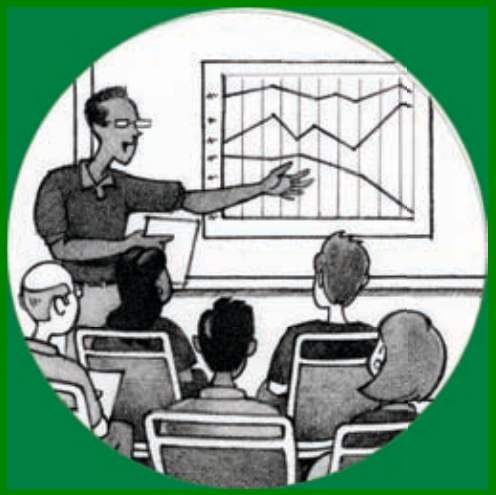
THE RAINWATER CITY: 3 PRINCIPLES



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PRINCIPLE 1

BUILD IT BETTER

DESIGN CITIES THAT WORK WITH THE WATER CYCLE

- Widespread implementation of green infrastructure practices reduce runoff volume more effectively and are less expensive than conventional stormwater management practices

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PRINCIPLE 2

LET RAIN DO THE WORK

IMPLEMENT WIDESPREAD RAINWATER HARVESTING

- Rainwater is embraced as a resource and does the work of meeting many non-potable water demands through widespread, integrated use of RWH across the community

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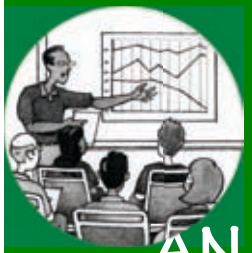
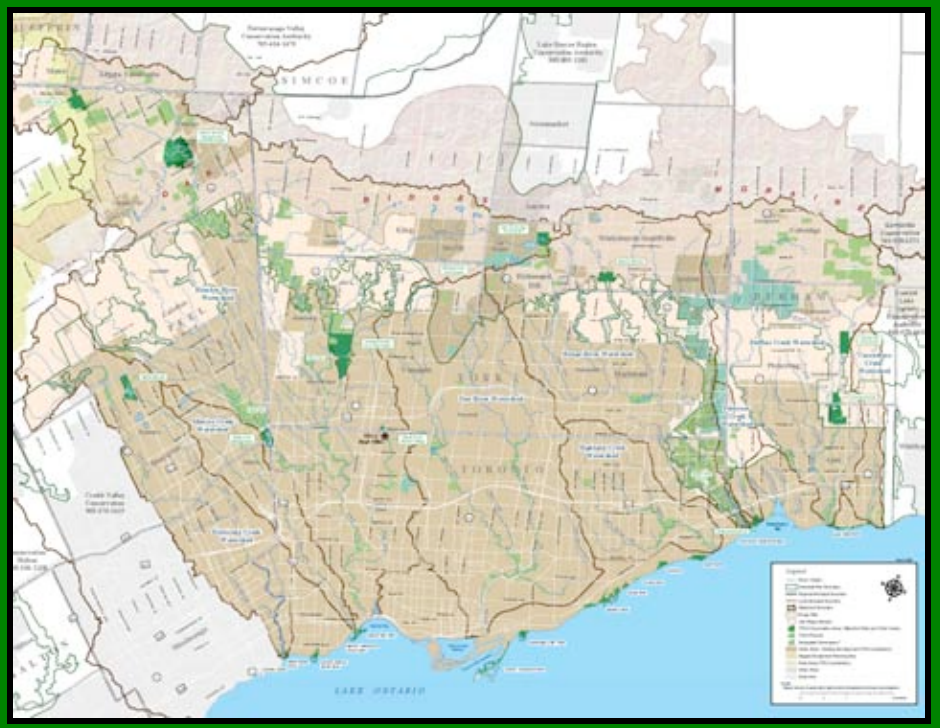
PRINCIPLE 3



NEW GOVERNANCE

AN INTEGRATED WATERSHED-BASED APPROACH

- Integrate ecosystem-based land- and water-use management on a watershed scale
- Reorganize internal local government structures to enable planning and cooperation across departments



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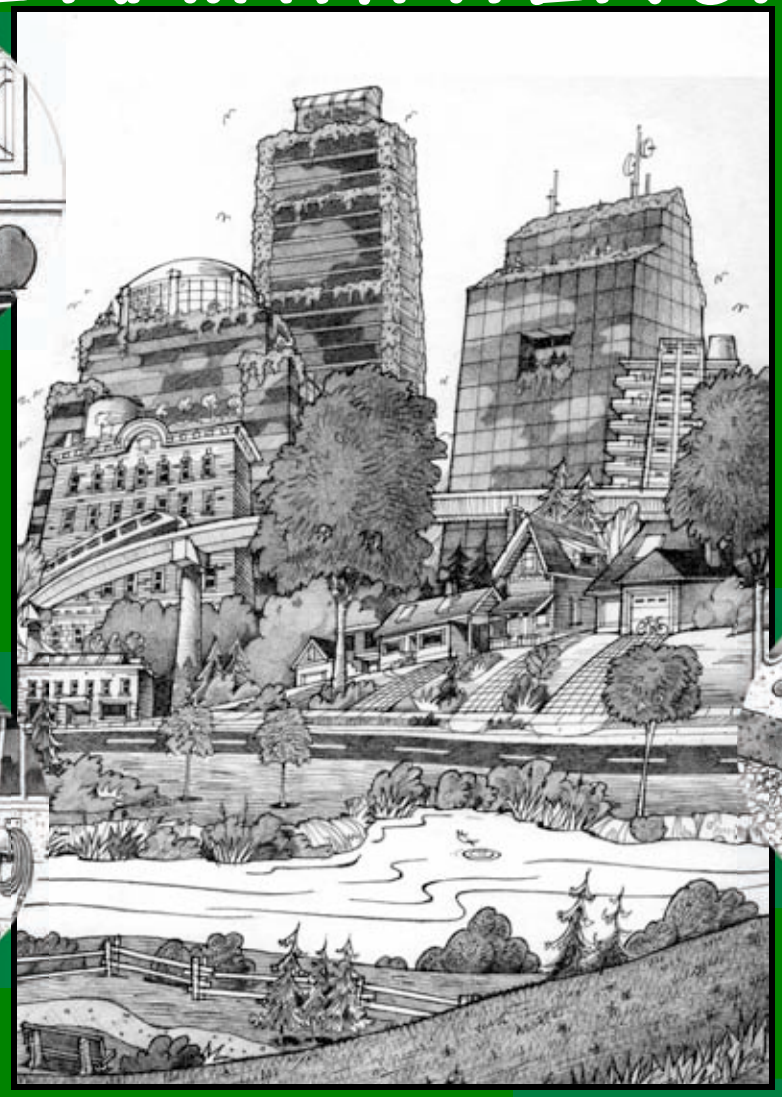
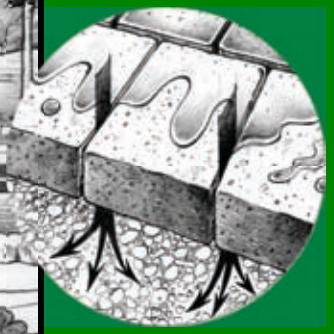
THE RAINWATER CITY





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THE BUSINESS CASE
FOR THE RAINWATER CITY

- City of Portland: will save more than $ 58 million and 40% less than the cost of traditional infrastructure solutions through large-scale integration of green infrastructure and targeted pipe replacement and repairs

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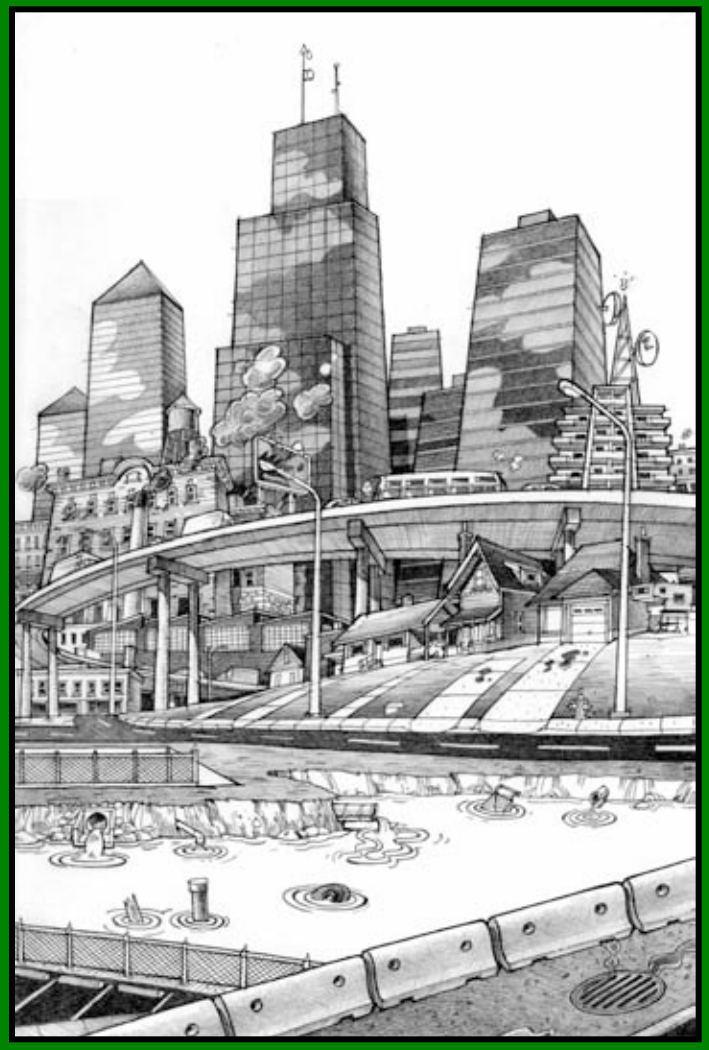
A BLUEPRINT TO CHANGE THE FUTURE



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A Lasting Impression

1) Reduce the amount of impermeable surfaces by changing the way we build and retrofit our communities
2) Use rain as a resource and as a viable decentralized source of water for non-potable needs
3) Integrate decision making on a watershed scale

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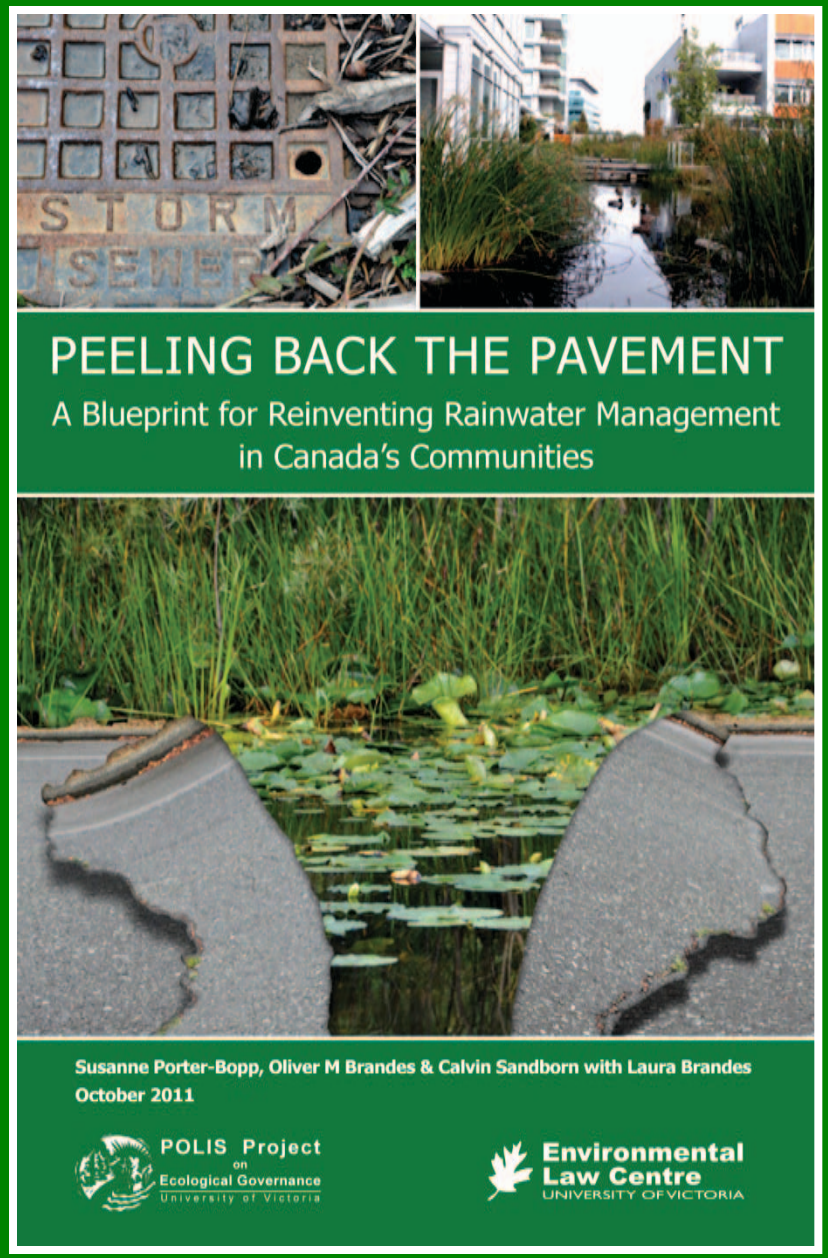
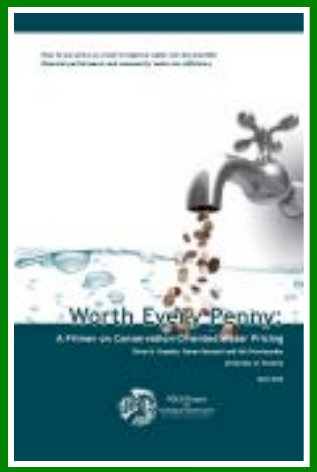
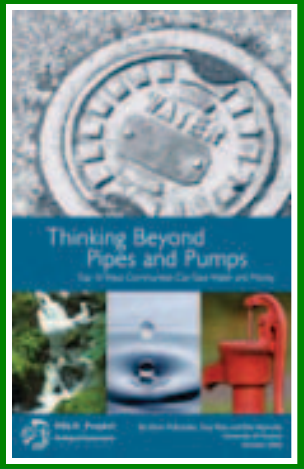


POLIS Water Sustainability Project handbook series

http://poliswaterproject.org/toolkit





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PHILADELPHIA'S GREEN CITY, CLEAN WATERS PLAN

- Fixing existing overflow problems using conventional "grey" infrastructure would cost the City more than US$ 10 billion
- Philadelphia instead decided to invest US $ 2.4 billion in green infrastructure over 25 years
- By recreating the natural systems degraded by urbanization, the City plans to convert more than one-third of its total drainage area into greened acreage + restore nearly 24 kilometres of urban streams

PRINCIPLE 2 - LET RAIN DO THE WORK - CASE STUDY

GUELPH, ON: AN EARLY ADOPTER OF WIDESPREAD RAINWATER HARVESTING

- Guelph RWH Project began in 2005 with installation and monitoring of RWH systems across the city
- Reduces water demands by as much as 47% and site runoff by as much as 89%!25

Guelph's Indoor RWH Pilot

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PRINCIPLE 3 – NEW GOVERNANCE - CASE STUDIES

- City of Toronto's Wet Weather Flow Management Master Plan (2003)
  - 25 year plan
  - Geographic boundary of city covers 6 watersheds
  - Represents a comprehensive approach to urban stormwater governance
- Metro Vancouver's Integrated Liquid Waste and Resource Management Plan
  - Eco-system-based approach to managing stormwater on regional scale
  - Plan ultimately integrates liquid and solid waste recovery, rainwater management, and land use planning for the entire Greater Vancouver area

A BLUEPRINT FOR THE RAINWATER CITY

OUTCOMES

- IMPROVED RUNOFF QUALITY
- REDUCED RUNOFF VOLUME
- ENHANCED ASSET MANAGEMENT
- WATERSHED GOVERNANCE

BUILD IT BETTER

LET RAIN DO THE WORK

WATERSHED GOVERNANCE

LOCAL GOVERNMENT

- Create Incentives for Green Infrastructure
- Implement Rainwater Utility Charges
- Mandate "Runoff Neutral" Standards for All New Developments and Redevelopments
- Set Effective Permeability/ Impermeability Targets for the Region
- Repair and Replace Obsolete Drainage Infrastructure and Restore Urban Streams and Watersheds
- Install End-of-Pipe Runoff Treatment Where Needed
- Develop Local Government Support and Guidelines
- Promote Non-Potable Water for All Irrigation
- Mandate Dual Plumbing for All New Developments
- Overcome Cost Barriers
- Create an Integrated Water Management Plan
- Integrate Water Service Departments
- Establish Multidisciplinary Departments
- Develop Rainwater and Green Development Guidelines
- Enhance Reporting
- Support Citizen-Driven Stewardship Initiatives

SENIOR GOVERNMENT

- Create Incentives for Green Infrastructure - Including Linking Infrastructure Spending
- Overcome Code Restrictions
- Develop Provincial Guidelines and Policy Support
- Enforce the *Fisheries Act*
- Establish a Regional Water Commission, Agency, or Authority
- Legislate Integrated Water Management Plans