An Intro To Stormwater Management

What is Stormwater?
Rain that runs overland from roads and roofs instead of soaking into the ground

The Problem:
As we increase hard, impermeable surfaces we also increase:

- The amount of stormwater
- How fast it flows
- The pollutants it picks up and carries

Managing Stormwater

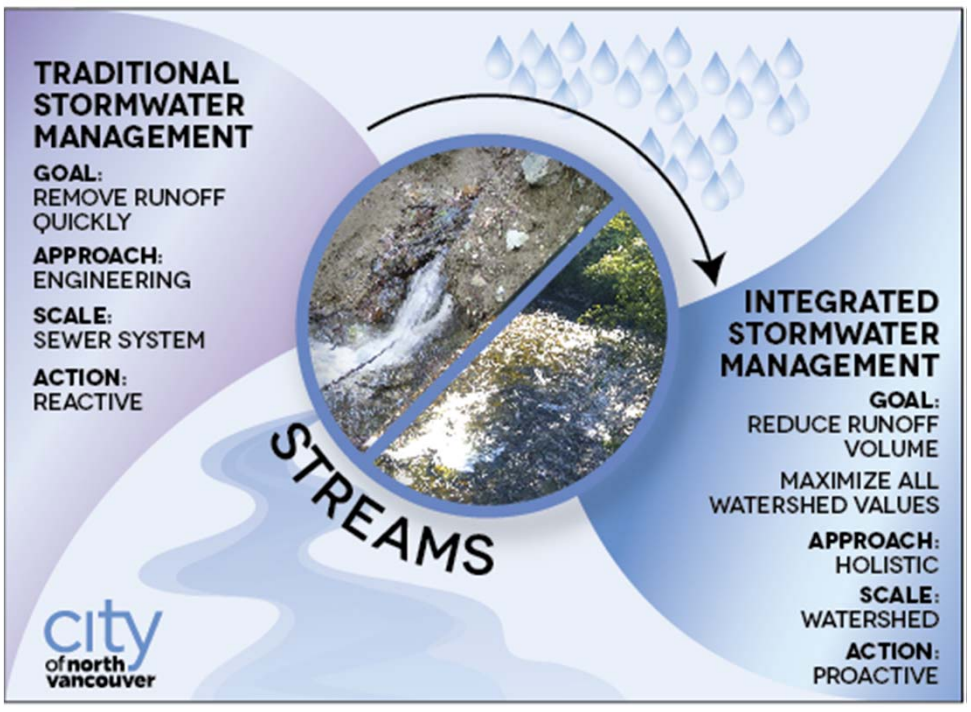
The Traditional Approach:
Move it as quickly as possible through pipes and engineered waterways.

What's Wrong With Tradition?

- Erosion and flooding
- Lower water quality
- Ecological damage and habitat loss
- Expensive stormwater sewer system upgrades

Increasing Pressures:

- Population growth and densification
- Climate change and more severe storms



city of north vancouver

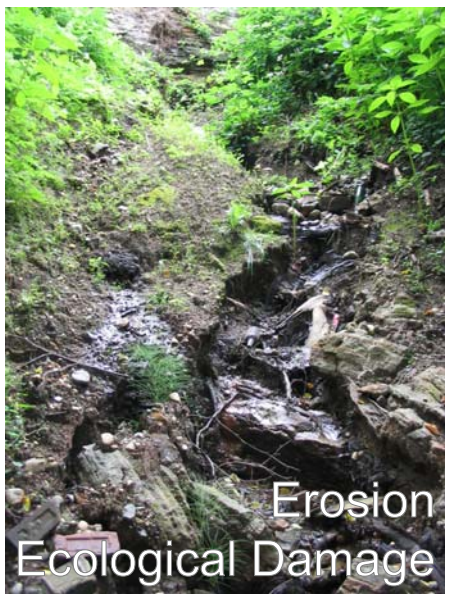
NORTH VANCOUVER DISTRICT

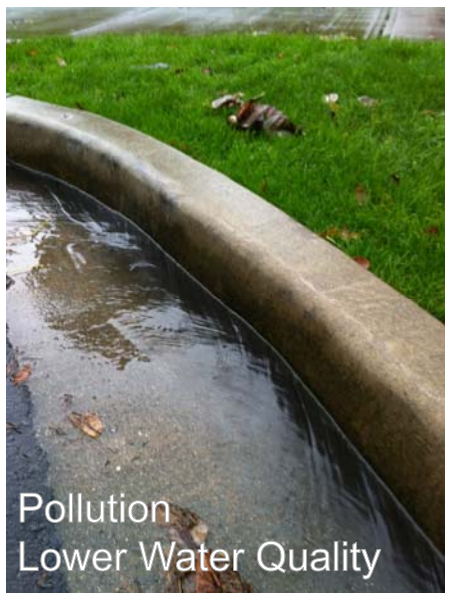
A New Approach

Integrated Stormwater Management

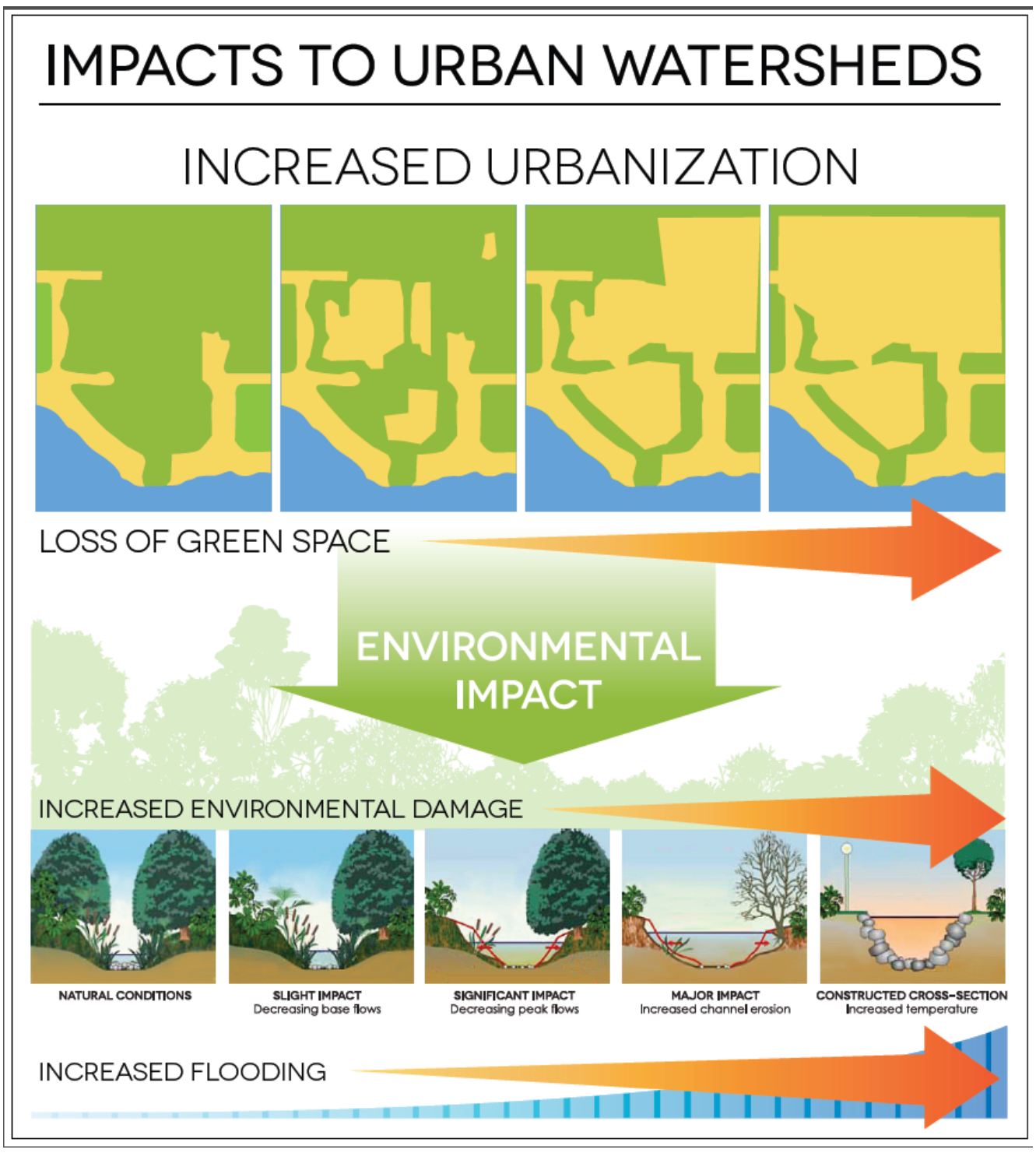
1. Integrate stormwater management with land-use planning and environmental protection
2. Recognize the many values of our watersheds – social, ecological, recreational, and economic
3. Mimic nature to allow water to seep into the ground
4. Make the process participatory and adaptive

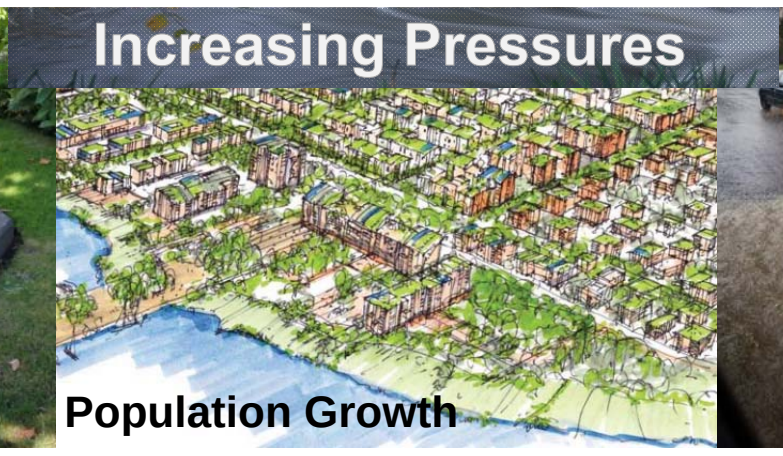
Impacts of Urbanization
Without Integrated Stormwater Management





Integrated Stormwater Management Plan (ISMP)





The ISMP Process and Timeline

Integrated Stormwater Management Plan (ISMP)

Drivers and Goals

- Community and Stakeholder Led
- Engineering and Technical Objectives
- Ecological Health
- Regulatory Requirements

Information Gathering and Analysis

- Environmental Assessment
- Hydrogeology and Flow Monitoring
- Land Use Planning
- Engineering and Modelling
- Park Use and Recreation

Develop the Plan

- Land Use Planning
- Flood Mitigation
- Habitat Enhancement
- Capital Planning
- Financial and Implementation Programs

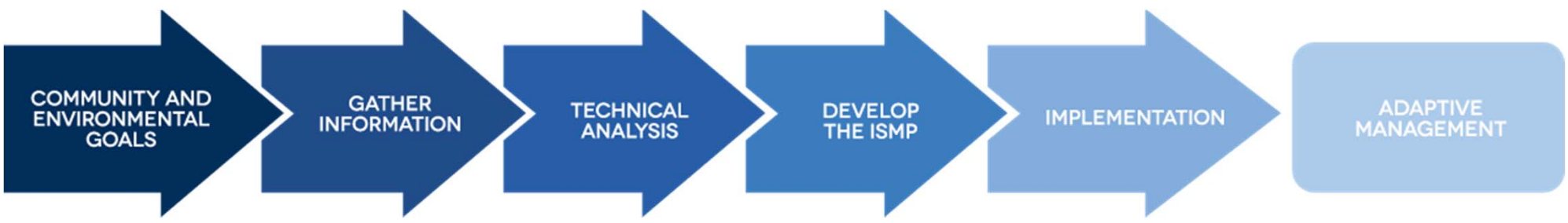
Implement

- **OPTIONS FOR ACTION**
  - New Design Standards
  - Land Use Plans
  - By-law Changes
  - Environmental Restoration and Protection
  - Amending Related Plans

Adaptive Management

- Ongoing monitoring and review
- Physical indicators (e.g. stormwater flows and ecological health)
- Program review
- Reassess, Learn, and Adapt

Timeline



Integrated Stormwater Solutions

Integrated Stormwater Management Plan (ISMP)

Doing Things Differently

A unique ISMP is needed for every community and watershed because of different conditions and values

But, there are common features shared by all ISMPs:

- Reduces runoff volume, not just collection and transportation
- Considers all watershed values
- Proactive land-use planning to minimize stormwater impacts and costs
- Restores natural areas
- Mimics natural processes

Urban Green Space

Proactive Land Use Planning

Land Use Changes

- More urban green space
- On-site stormwater management
- Avoid sensitive and high risk areas
  (e.g., floodplains, waterways, steep slopes)
- New design standards for stormwater infrastructure, paved surfaces, and new developments

Streamside Protection

Rain Barrels

Permeable Pavement

Rain Gardens

Green Roofs

Technology and Engineering

- Pervious paving and infrastructure
- Green roofs
- Design based on future development and climate change
- Grey water reuse
  (e.g., rain barrels, irrigation, non-potable uses)

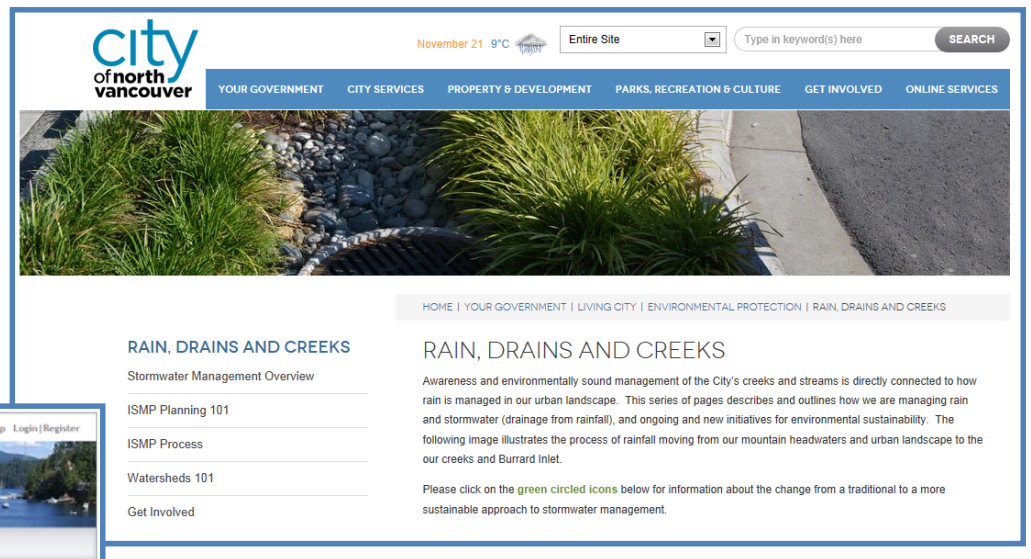
These Are Your Watersheds
This Is Your Plan

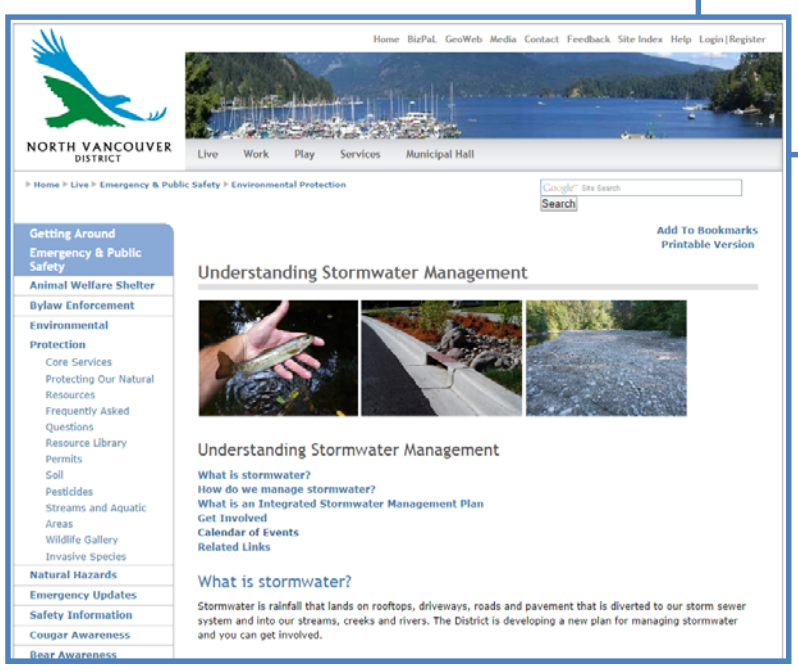
Get Involved!

Integrated Stormwater Management Plan (ISMP)

Go Online

www.cnv.org/ISMP
www.dnv.org/ISMP





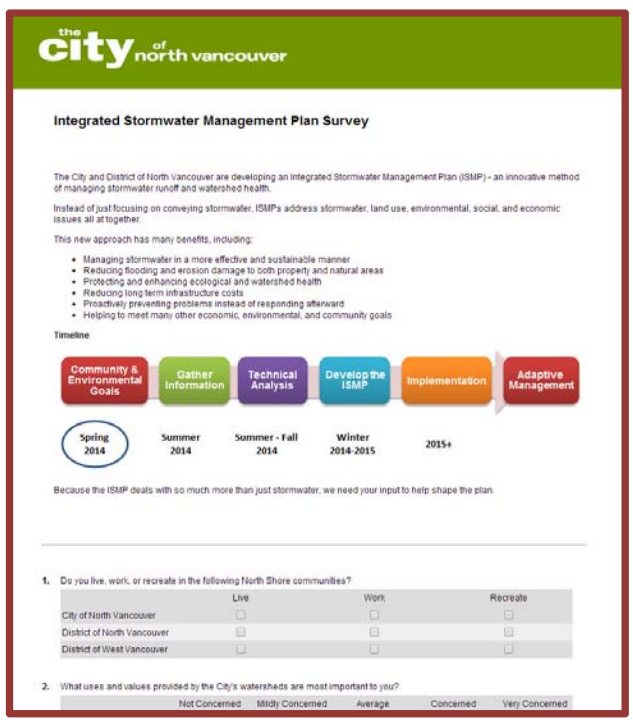
Fill Out A Survey

What are your main concerns?
What issues should the ISMP address?
What uses and values are most important to you?

Available tonight and at any time online

Join the ISMP Advisory Group

Email ISMP@dnv.org for more information



Leave Your Email and Stay Involved

Get regular updates and invitations to future events, including:

- Open Houses
- Workshops
- Surveys

Contact us any time at:

ISMP@cnv.org City of North Vancouver

ISMP@dnv.org District of North Vancouver

There will be many opportunities to become more involved.
This is your chance to become a watershed leader.