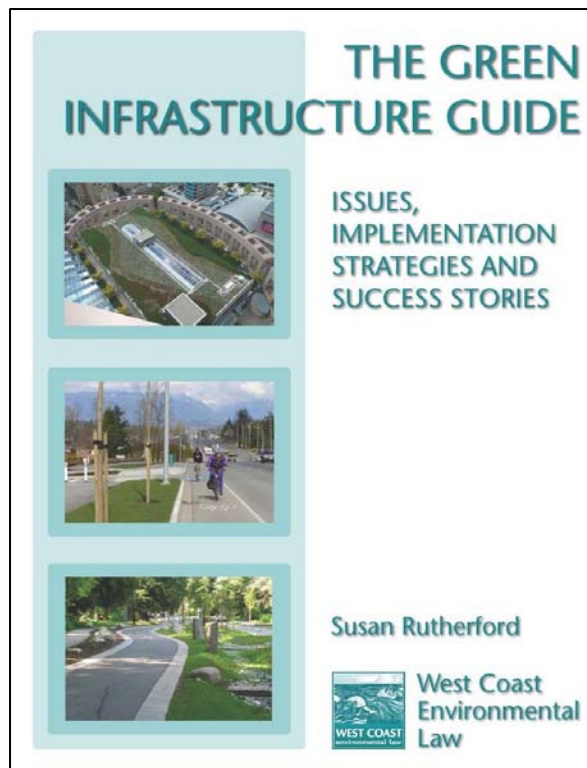


# An Introduction to *The Green Infrastructure Guide*

Focus on Rainwater Management, Land  
Development and Liability



## CH. 2 RAIN AND LAND



# The challenge: choosing the tools to meet your targets

- Recap: a range of jurisdiction and authority that is pertinent to managing the full spectrum of rainfall events
- Watershed needs → rainwater management and development planning decisions
- Green infrastructure approach is to:
  - Plan to preserve natural GI
  - If not possible, plan for engineered GI

# Research and establish limits

- Watershed study/ESA study & plan
- Integrated stormwater management plan
- Identify and establish targets
- Water Balance Model
- Green infrastructure approach is to:
  - Plan to preserve natural GI
  - If not possible, plan for engineered GI

# Regional and official community plans: integrate the targets

- Urban containment
- ESAs identified and protected
- Opportunity to plan for green, compact, low impact communities where watershed health is protected
- E.g. Surrey is integrating its ISMP guidelines into its neighbourhood concept plans
- Can plan for watershed values such as channel stability and capacity, protect hydrological function

# Zoning and Land Development Control

- ....the potential to shape a community's look, function and environmental impact
- Consider sensitive environments, adjacent uses and reducing overall loads through mixed use zoning

# Development permit areas

- Identified in the OCP - can be established for variety of purposes incl protect natural environment, its ecosystems or biodiversity
- *New:* can now be established for purpose of water, energy conservation, GHG reduction
- OCP or zoning bylaw sets out *Guidelines* for achieving DPA objectives
- Protect nat. features, specify type/placement of trees or veget, irrigation method, pervious surfaces, building siting, form and ext. design



# Parking

- Parking standards
  - Capacity (how much is really desired/needed?)
  - Maximum size
  - Design standards
  - Paving materials / permeability
  - Bicycle parking
  - Runoff
- And....NEW Bill 27 amendments – parking reserve fund (was for off-street parking) - can now also be used for pedestrian, bike or alternative transpo infrastructure



# Runoff & (im)permeable surfaces

- Power to by bylaw provide that owners who pave or roof areas provide for disposal of runoff in acc with bylaw, or establish a max. percentage that can be impermeable
- E.g. Port Coquitlam – zoning bylaw requires a green roof on industrial or commercial bldg roofs more than 5000 sq metres, on at least 75 % of the roof

# Landscaping

- A metre of topsoil....
- Soil landings for roof leaders
- Native plants and xeriscaping, to reduce demand for irrigation
- Rain gardens!
- Tree protection and planting requirements
- Example: Courtenay OCP requirement for topsoil



# Sediment control

- Protection of streams and infrastructure from sediments
- Especially construction sediment
- E.g. Surrey Erosion and Sediment Control Bylaw
- E.g. Saanich requirement for oil and grease interceptor on parking lots

# Comprehensive Rainwater Management Bylaw

- Combine jurisdiction into one comprehensive bylaw
- E.g. Metchosin Rain Water Bylaw No. 467
  - References the need to comply with various fed and prov laws (Fisheries Act, Fish Protection Act); also health, safety and protection jurisdiction
  - Source control; natural hydrologic pathways
  - Prohibitions and permissions
  - Rainwater protection and source control (Perf. Stnds for quality, runoff rates/volumes, erosion & sediment, imperv)
  - Design criteria for facilities; rainwater management manual

# DCCs

- Charge for capital infras.
- Bill 27 will allow DCC adjustments if eligible devt designed for low impact devt
- E.g. Surrey multi-use greenway/swale next to road



# Phased development agreement

- Relatively new tool under LGA
- More flexibility to negotiate specific features and amenities



# Covenants

- Section 219 LTA
- On title
- Protect riparian property or values
- Typically used in rezoning or subdivision servicing agreements
- Phased development agreements
- E.g. District of North Vancouver on-site rainwater disposal and management infras
  - Records
  - Inspection
  - Enforcement

# CH. 5 LIABILITY

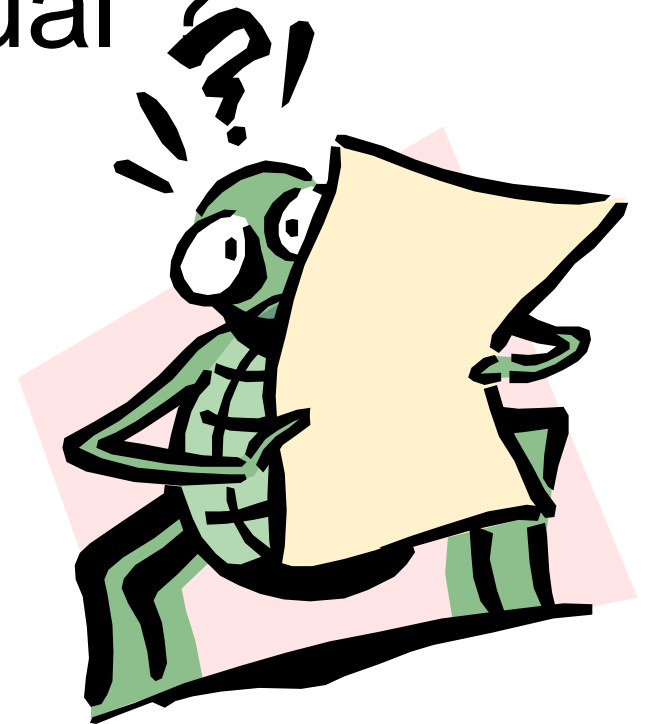




Risk in a green infrastructure  
approach?

OR

Risk in carrying on with the old  
“business as usual”?



# Acknowledge, understand and manage the risks

- Remember that no matter what you do, there is always risk
- Whatever the risks that you are concerned about, make sure that you acknowledge the risks and then get on with managing them.....
- i.e. get specific about *what the hurdles* are, *quantify them*, and then get specific about ***how you are going to overcome*** those hurdles

# Strategies to manage risk

- Pilot projects (and question current practice)
- Engineer redundancy and extra safety
- Use of qualified professionals
- Policy decisions that limit scope
- Adaptive management
- Forge ahead with partners and build trust
- Seek funding partners
- Performance & maintenance bonds
- Ensure all the risks are considered (e.g. GAAP reporting, full life cycle costs)

# Seek support from the public, the development community and from senior government.

- Discuss the benefits, costs and risks of different options
- Look for opportunities
- Consider the spectrum of costs and benefits – not just financial but environmental, social, economic and cultural

# When pitching reform, remember the GI benefits!



- Biodiversity and habitat protection
- Pollution abatement
- Water quality services
- Air quality services
- Rainwater management
- Flood control
- Recreational space
- Public health
- Property values enhanced
- Economic development
- Staying ahead of senior government regulation



**CONCLUSION: PULLING POLICY, ACTION  
AND TECHNOLOGY TOGETHER, AS A  
GOVERNMENT AND AS A COMMUNITY,  
WE CAN PROTECT OUR WATERSHEDS  
AND CREATE GREEN, BEAUTIFUL  
COMMUNITIES**

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**THANKS!**