

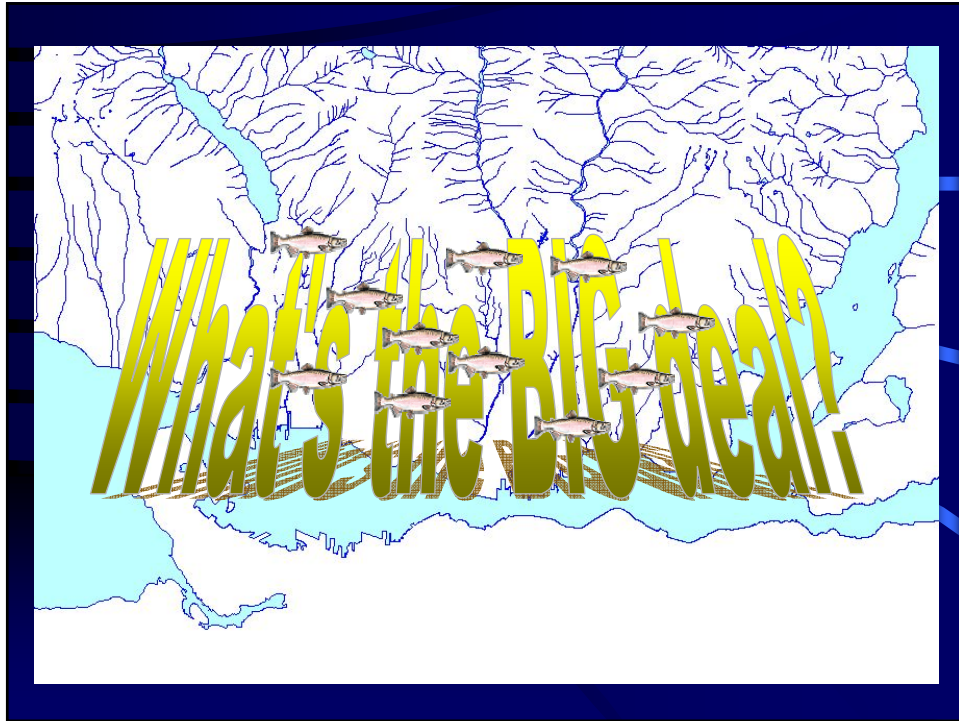
Rainwater Management Single Family Properties

Water Balance for Watershed Health

June 15, 2006
Richard Boase, P.Geo., CCEP
North Vancouver District

Single Family Rainwater Mgt.

- Why is this an issue?
- How do we implement effective change?
- How do we monitor results of decisions made?



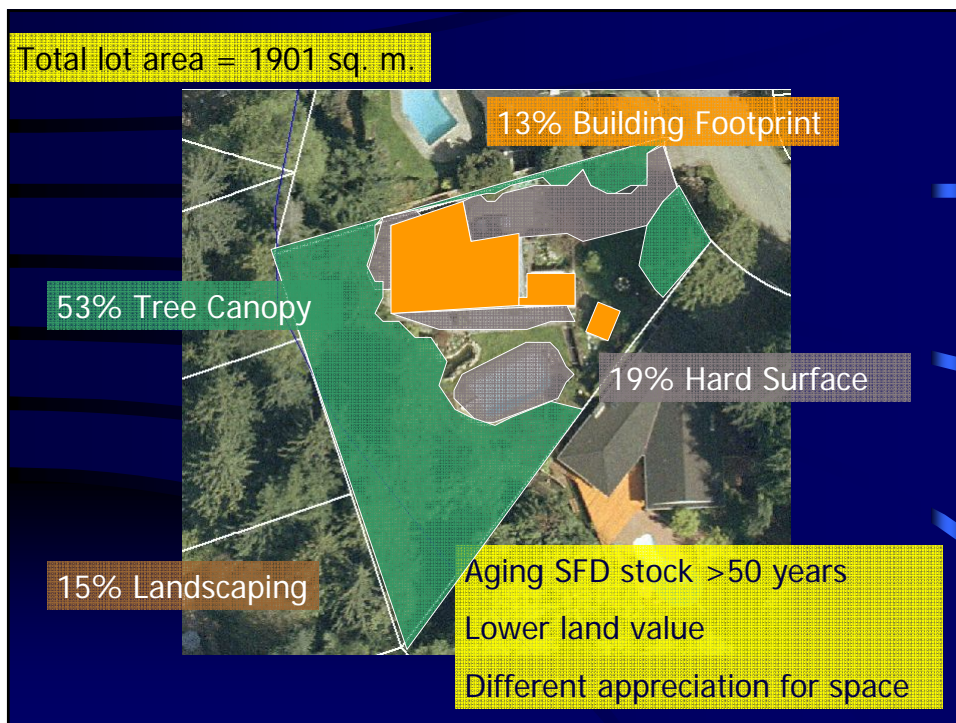
Single Family Rainwater Mgt.

DNV encompasses 16,237 Ha. (63 mi.²)

- 64.5% Wilderness Area
- **19.5% Residential**
- 8.3% Urban Parks
- 3.3% Conservation
- 2.1% Industrial

Single Family Rainwater Mgt.

What are the issues? (REALLY!)



Total lot area = 1972 sq. m.

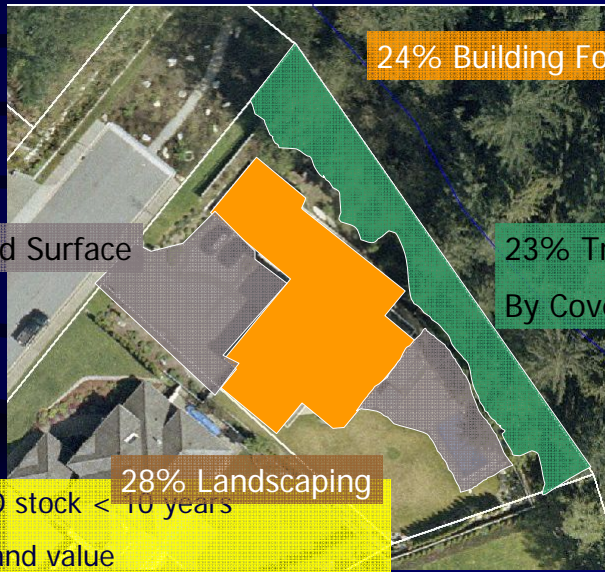
25% Hard Surface

24% Building Footprint

23% Tree Canopy
By Covenant

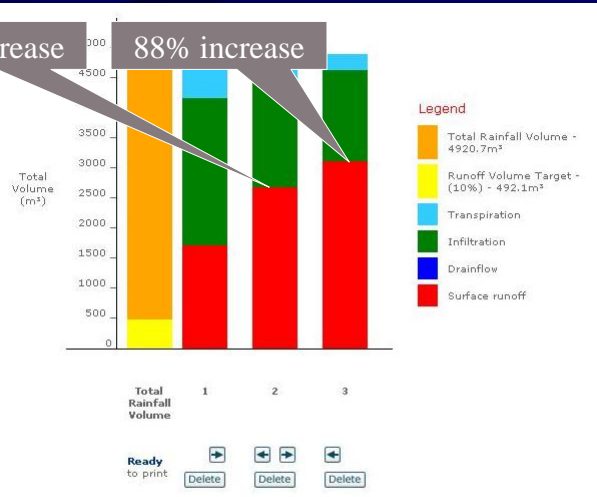
28% Landscaping
New SFD stock < 10 years

Higher land value
Different appreciation for space



59% increase

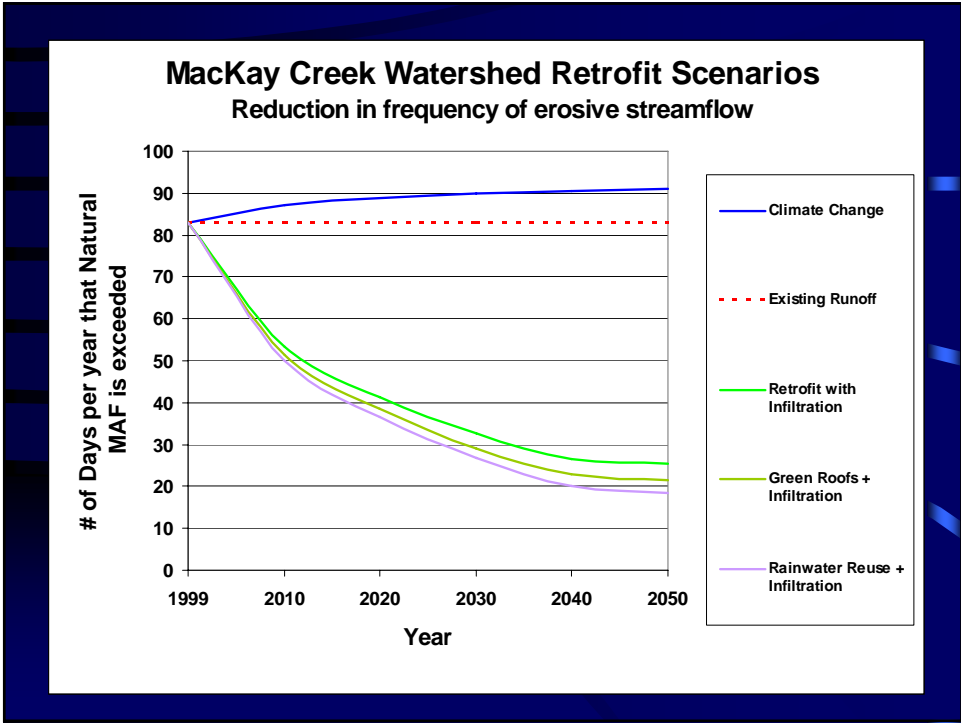
88% increase



Results Graph 1 - 50 Year Old SFD
50 Year Old SFD

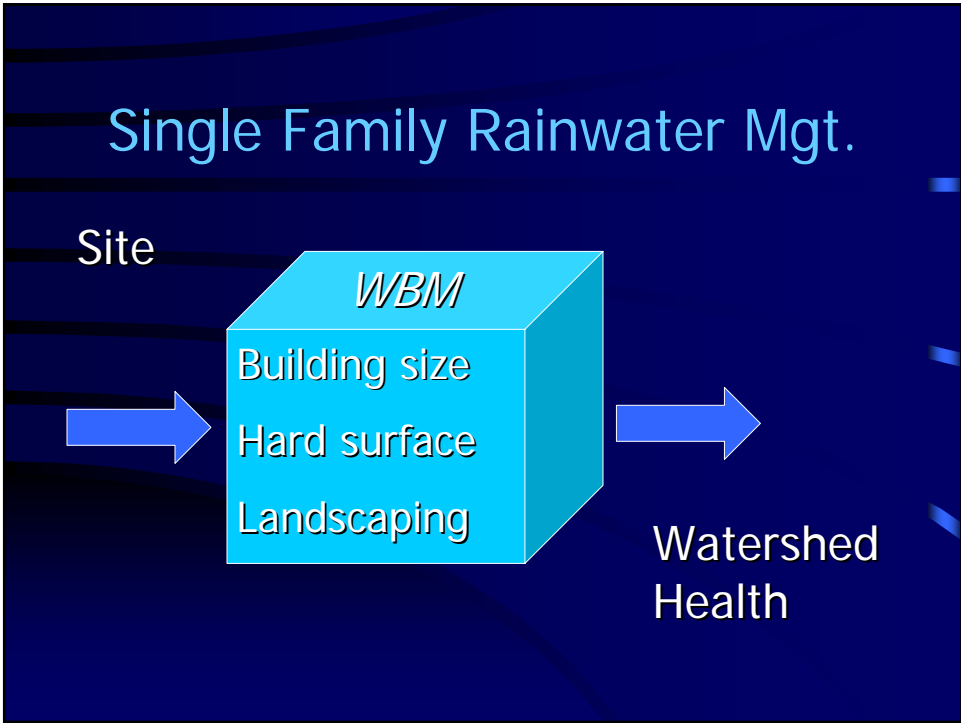
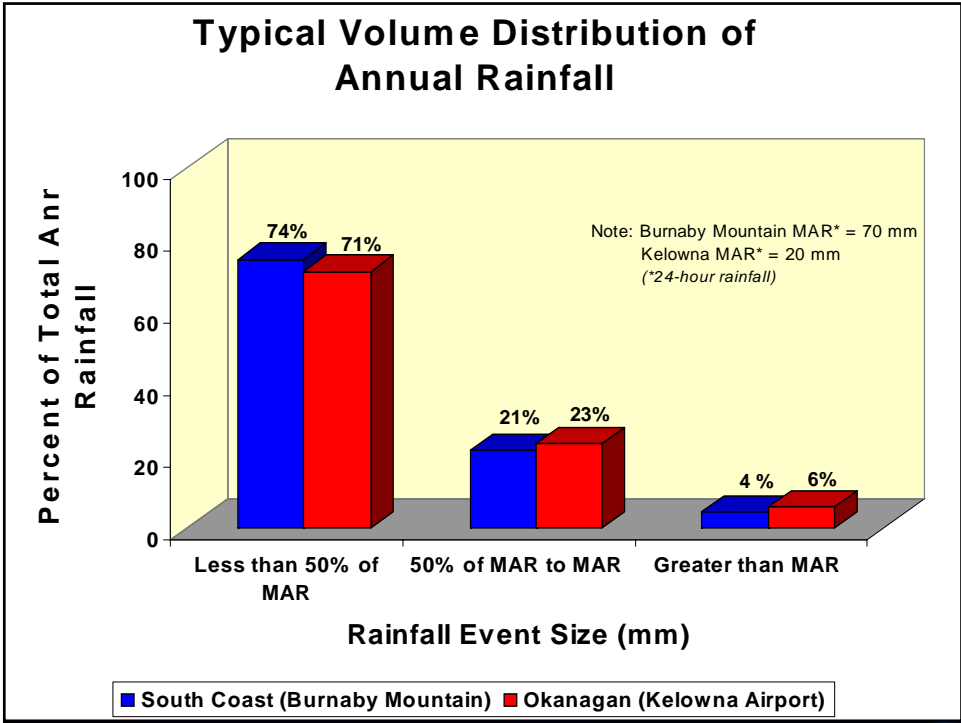
Results Graph 2 - New SFD with Forest Retention
New SFD Development with 5m Covenant to protect forest

Results Graph 3 - New SFD No Forest Retention
New SFD No Forest Retention



Single Family Rainwater Mgt.

How do we implement change?



Single Family Rainwater Mgt.

3. Landscape Plan Specifications:

- Include references to the most recent B.C.S.L.A./B.C.N.T.A. landscape standard for all landscape construction.
- In keeping with landscaping installation best practice and the City's stormwater management "Water Balance Model", the landscaping detail to include soil depths as follows:
 - Planting Beds - 450 mm topsoil or amended organic soils
 - Lawn Areas - 300 mm topsoil or amended organic soils
 - Trees - 300 mm topsoil or amended organic soils around and below root ball.
- All vegetation removal and replacement shall adhere to the "Land Development Guidelines for the Protection of Aquatic Habitat" prepared by the Department of Fisheries and Oceans and the Ministry of Environment, Lands and Parks where applicable.

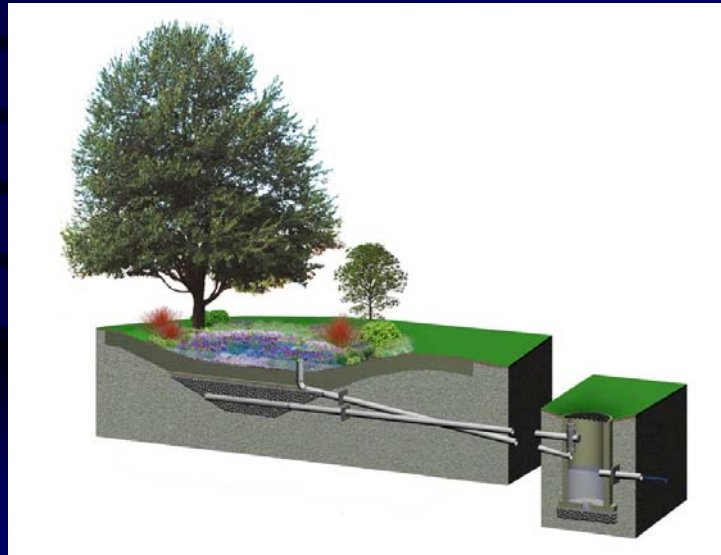
City of Courtenay

Infiltration Facilities



New residential standards

Rain Garden



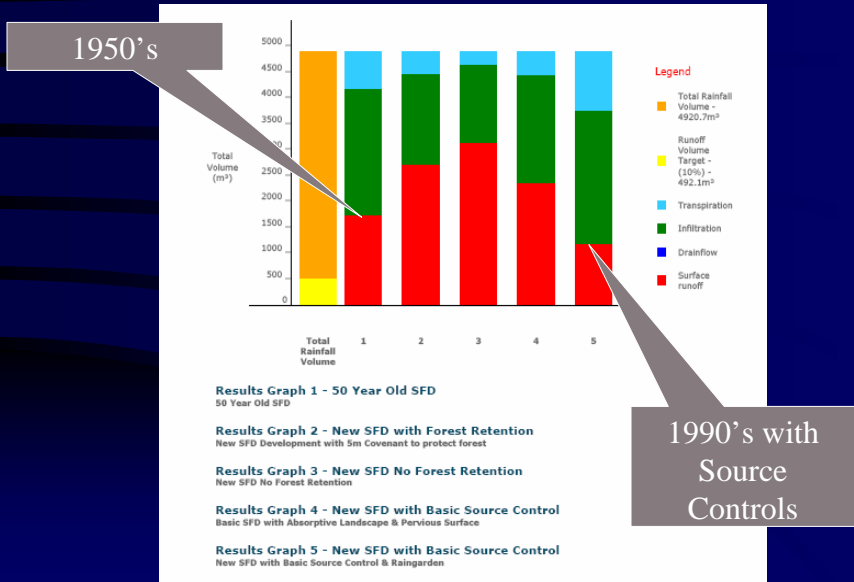
Single Family Rainwater Mgt.

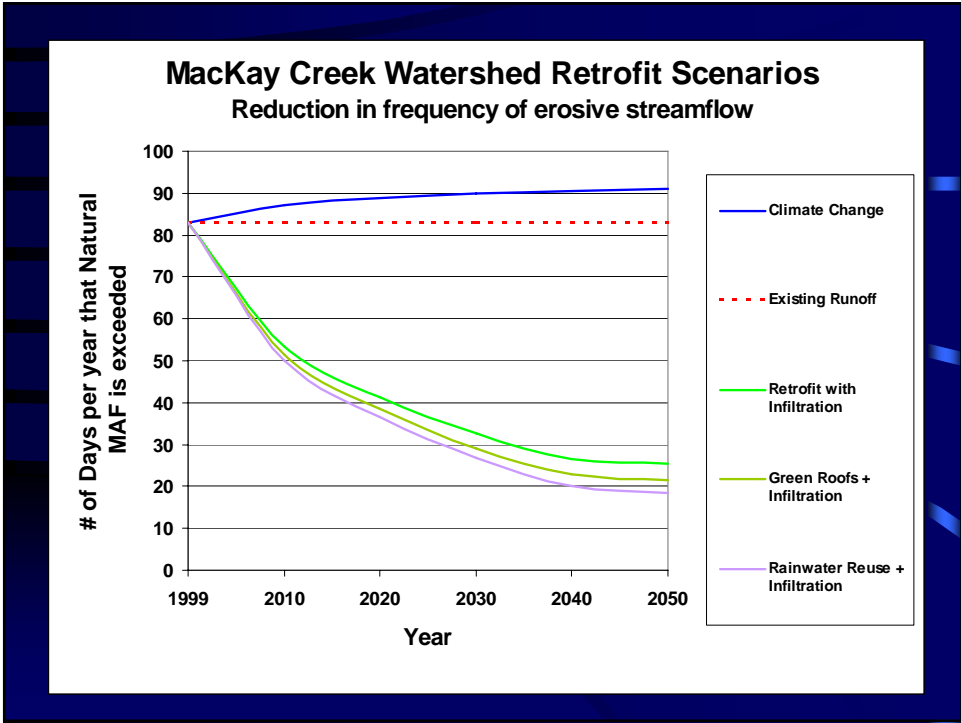
Can we make a difference?

Single Family Rainwater Mgt.

Water Balance Model Example Benefits of Source Control

Benefits of Source Control





Single Family Rainwater Mgt.

Yes