



City of Nanaimo's Manual of Engineering Standards and Specifications (MoESS)

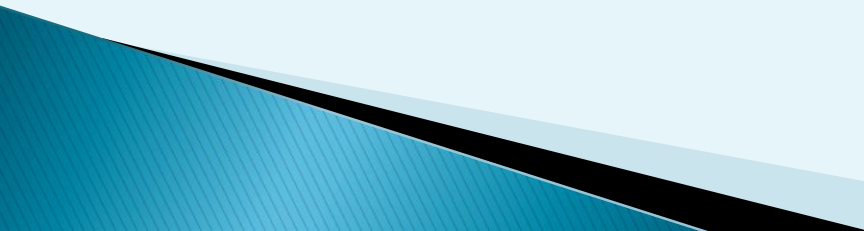
March 14, 2016

Regular Committee of the Whole

2016-MAR-14

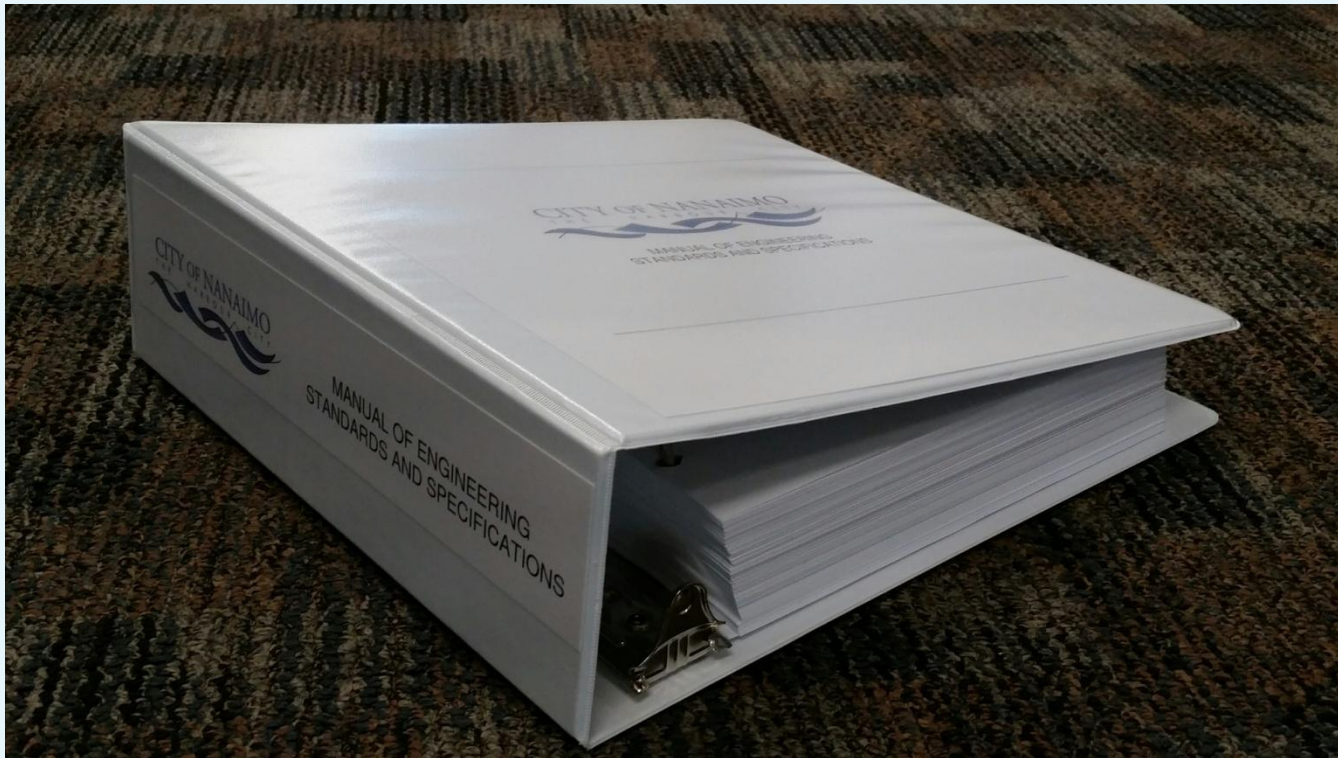
Presentation - Mr. Poul Rosen & Mr. Phil Stewart

Presentation Content

- ▶ **What is the MoESS?**
 - ▶ **Amendment Process for the MoESS**
 - ▶ **Proposed Changes**
 - ▶ **Next Steps in the Amendment Process**
 - ▶ **Future Changes**
- 

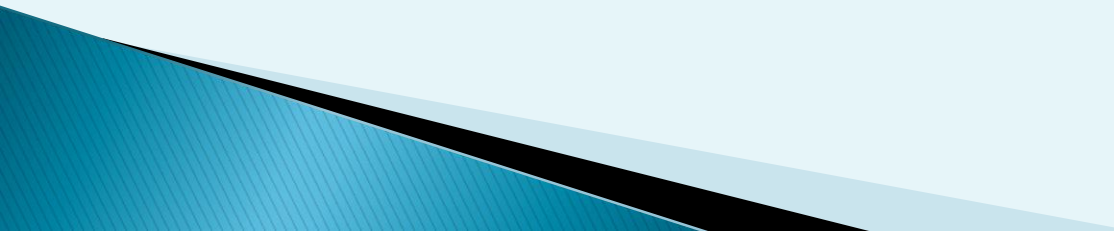
What is MoESS

- ▶ The MoESS is contained in the Subdivision Control Bylaw, as Schedule 'A'.

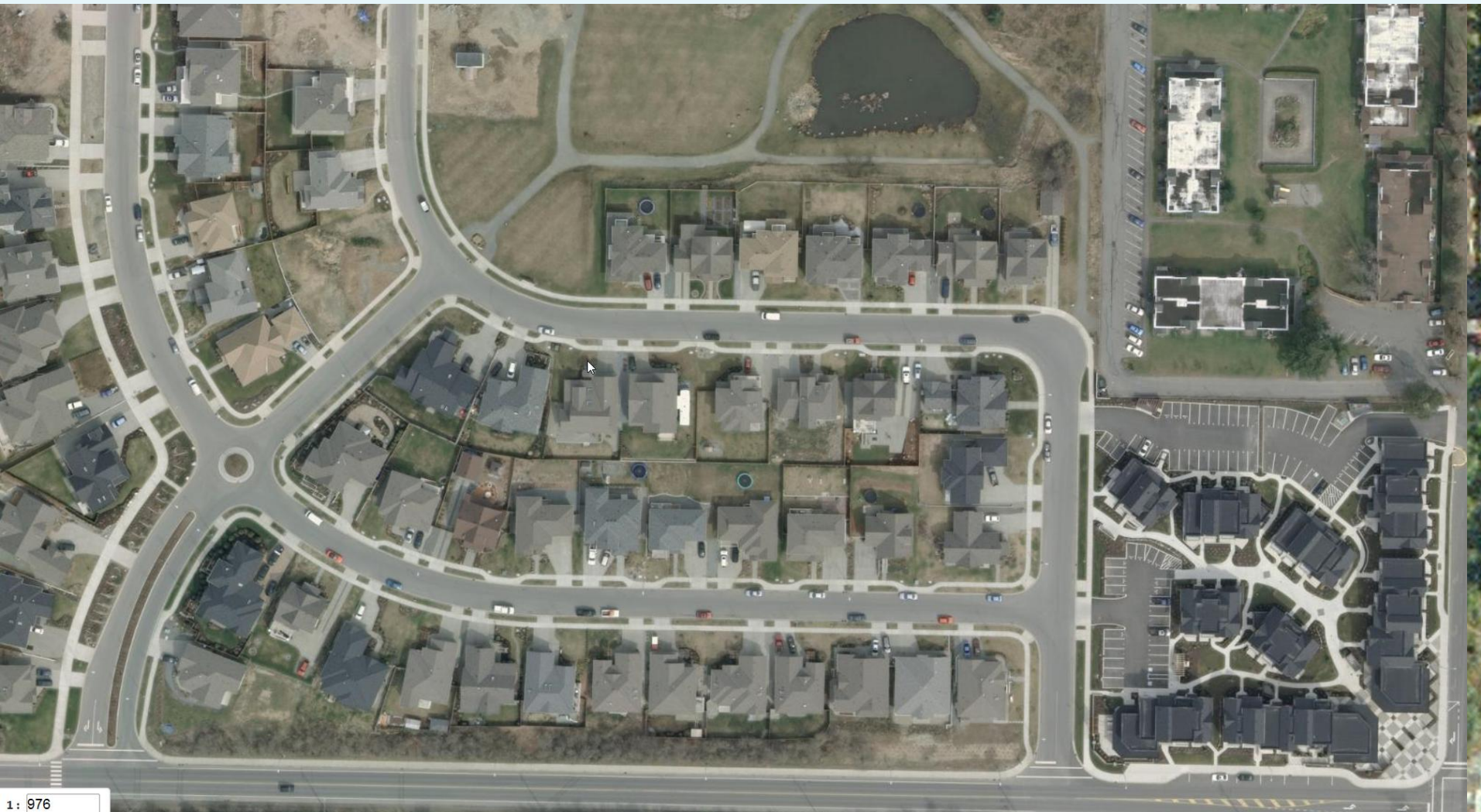


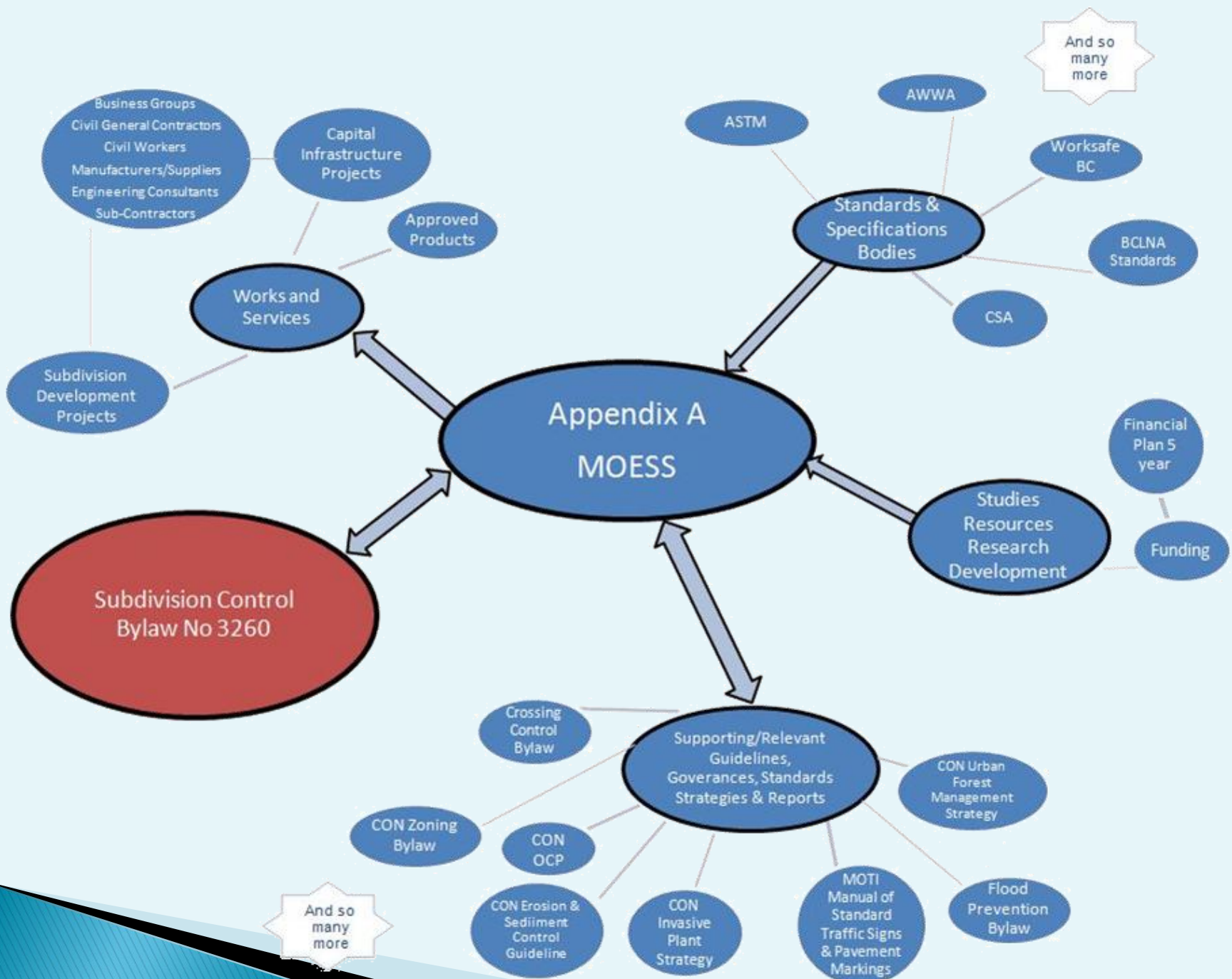
MoESS Sections

GENERAL DRAFTING REQUIREMENTS	1
GENERAL CONDITIONS	2
GENERAL REQUIREMENTS	3
TRENCH EXCAVATION, BEDDING AND BACKFILL	4
WATER DISTRIBUTION SYSTEM	5
SANITARY SEWER SYSTEM	6
STORM SEWER SYSTEM	7
CURBS, SIDEWALKS AND WALKWAYS	8
STREETS, TRAFFIC SIGNS AND MARKINGS	9
ROADWAY LIGHTING AND TRAFFIC SIGNALS	10
REINFORCED AND PLAIN CONCRETE WORKS	11
ASPHALTIC CONCRETE PAVING	12
CONCRETE PAVERS	13
LANDSCAPE	14

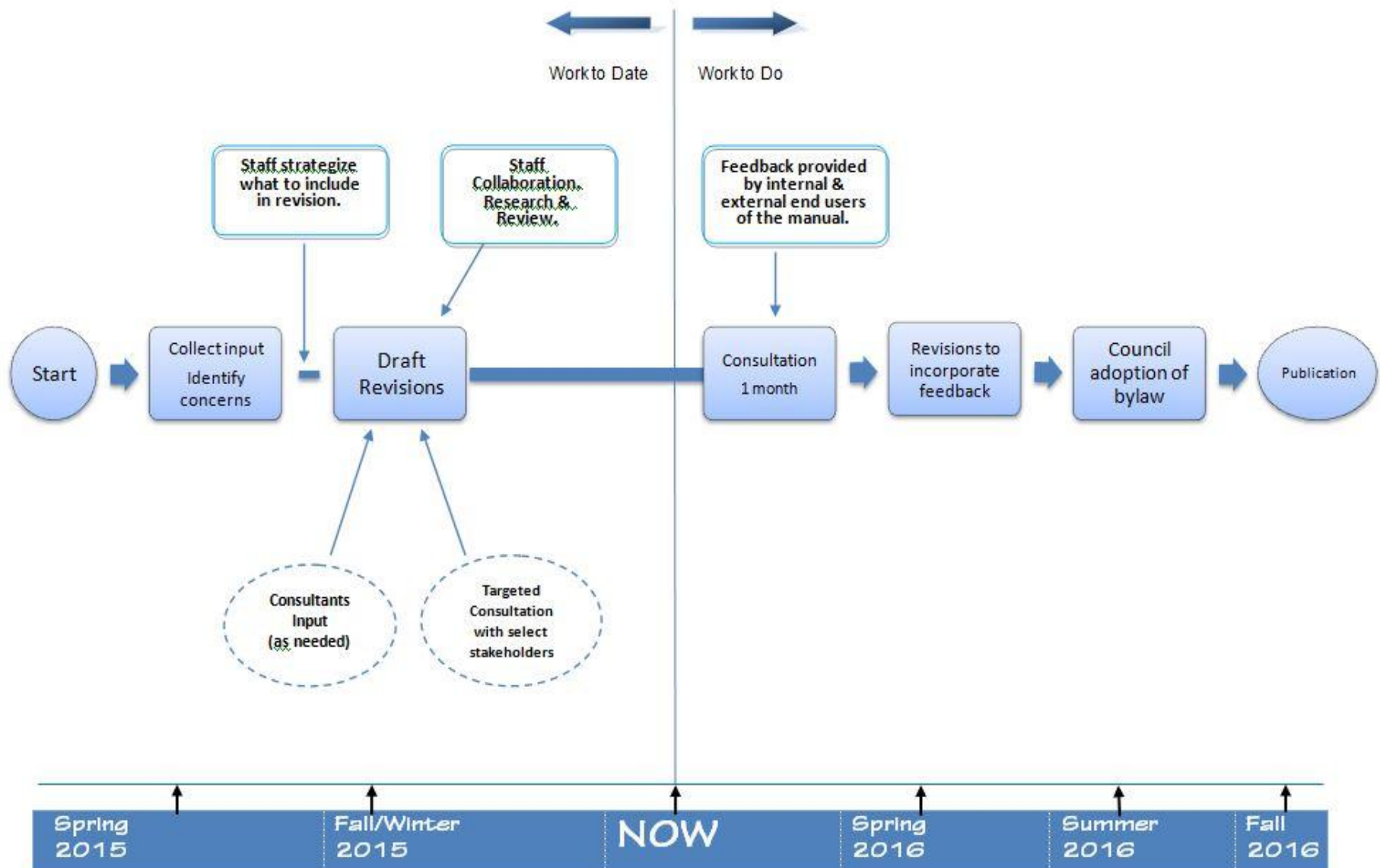


MoESS influence





Amendment Process



Proposed Changes

Major Revisions to 3 out of 14 Sections:

- Section 1: General drafting, record drawing and data management standards
- Section 5: Water Distribution System standards and specifications.
- Section 7: Stormwater management standards and specifications.
- Overall goal with the standards – protect the long term interests of the community



Section 5: Water Distribution Standards

- Water Dist Piping
- Service Connection
- Fire Hydrants
- Water Meters
- Cross Connection Control Program
- Other changes



Section 7 – Stormwater Management




Stormwater Managment

Purpose

- Provide flood protection
- Provide Drainage
- Minimize impacts on the aquatic environment that the City has.

Goal:

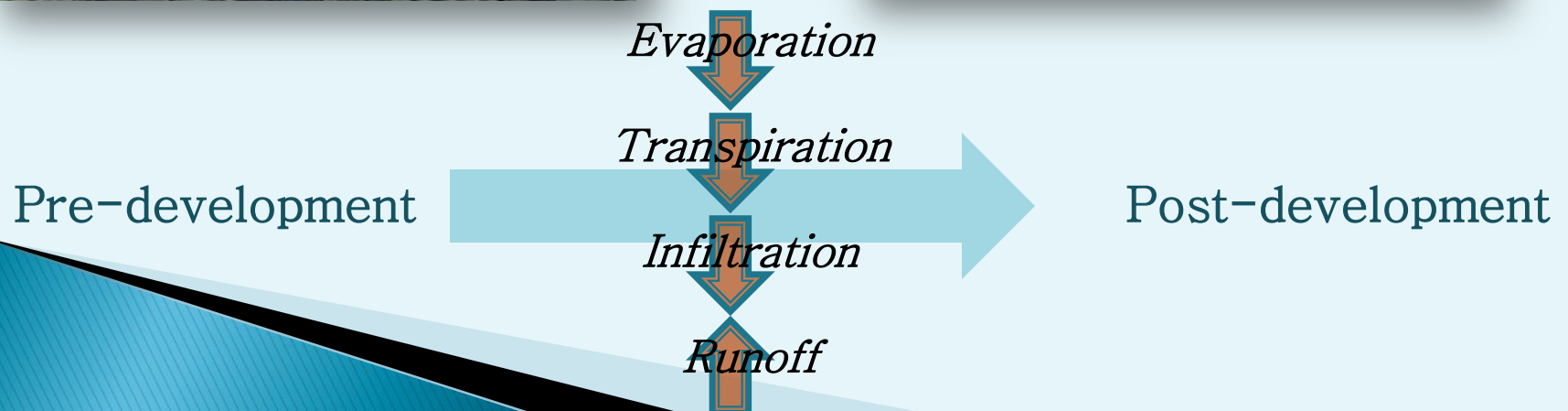
Achieve a balance between protecting property from flood hazards and protecting the aquatic environment in terms of both water quality and quantity.



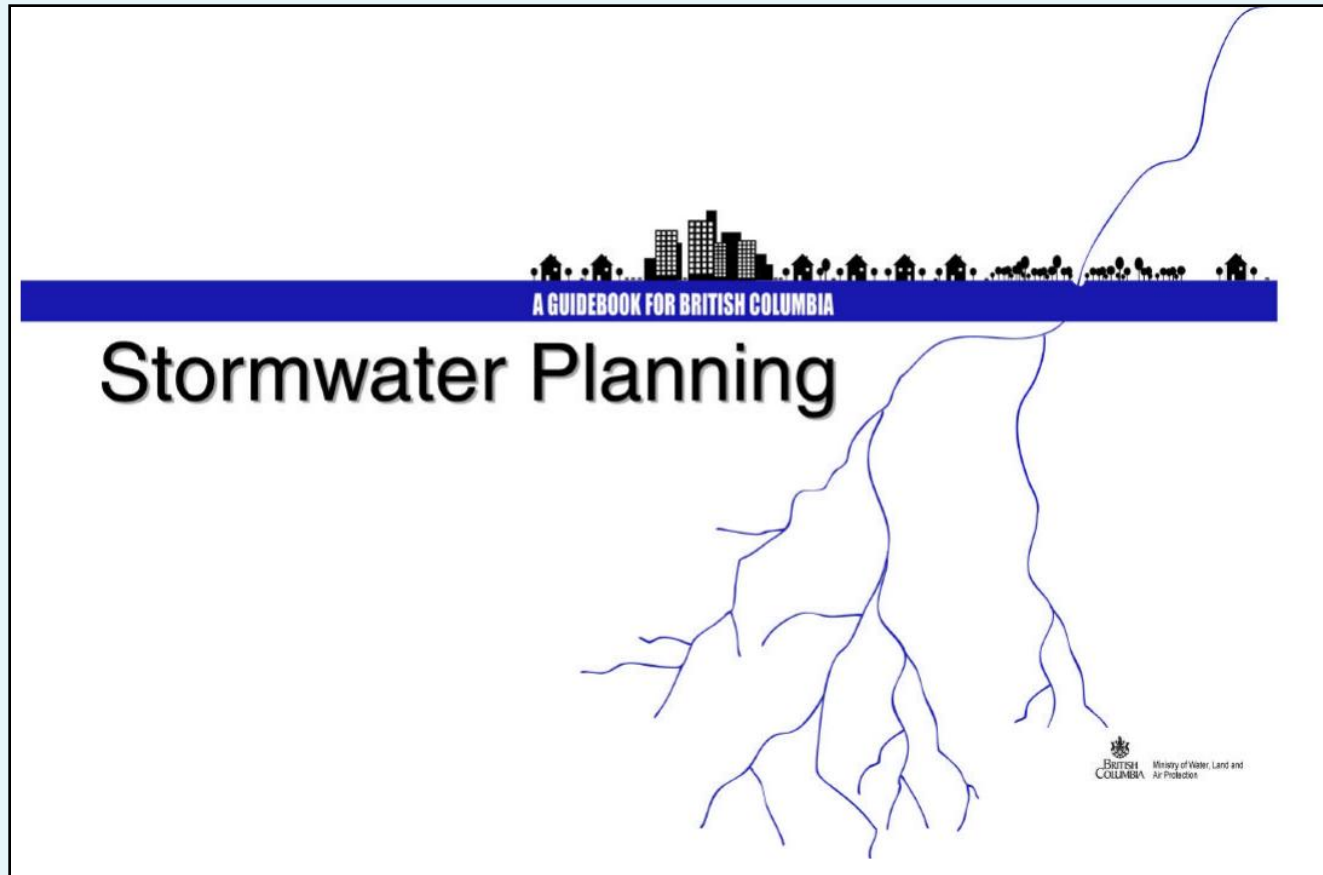
Rainfall- Development & Urbanization



Rainfall- Development & Urbanization



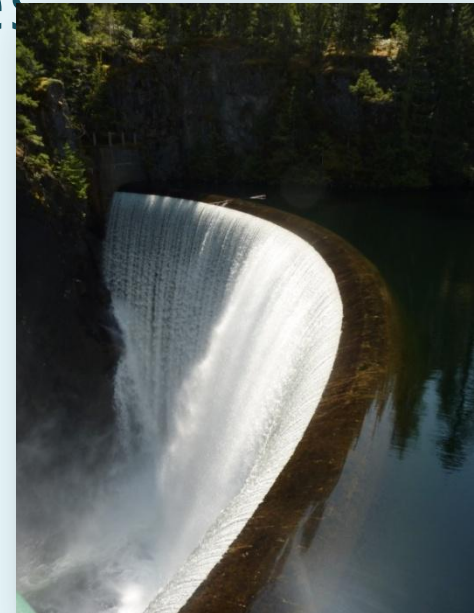
The Guidebook



The Guidebook

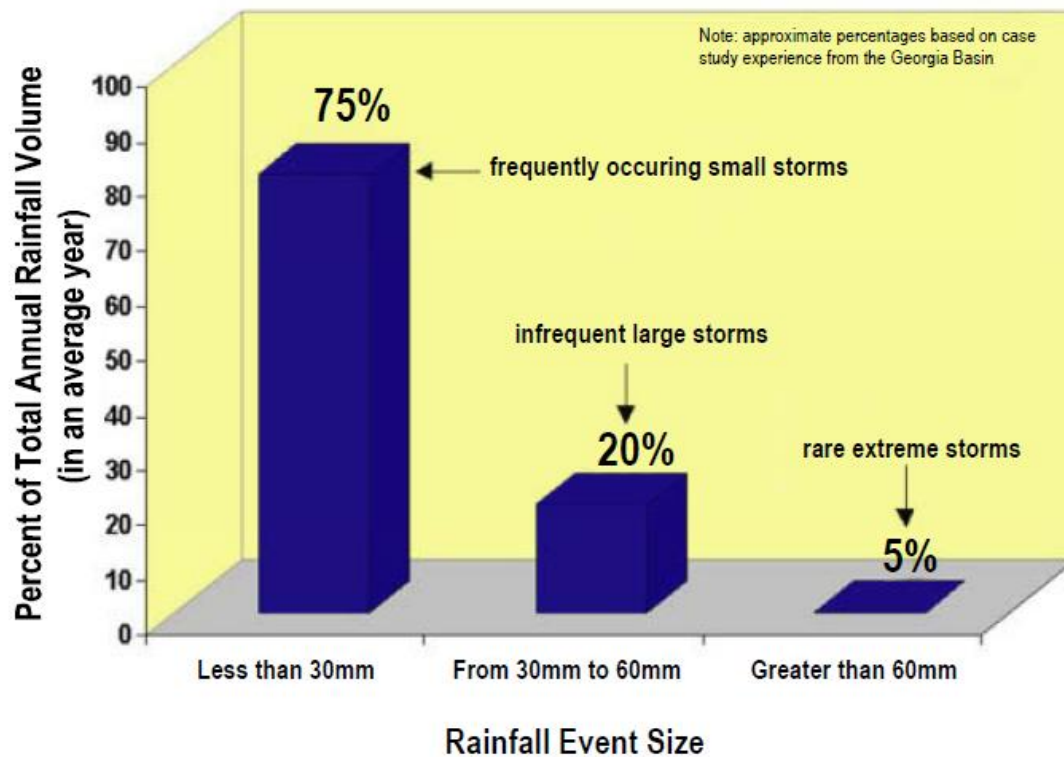
Rainfall as a Resource

- ▶ Fish and other aquatic species
- ▶ Groundwater
- ▶ Water Supply
- ▶ Aesthetic and recreational uses



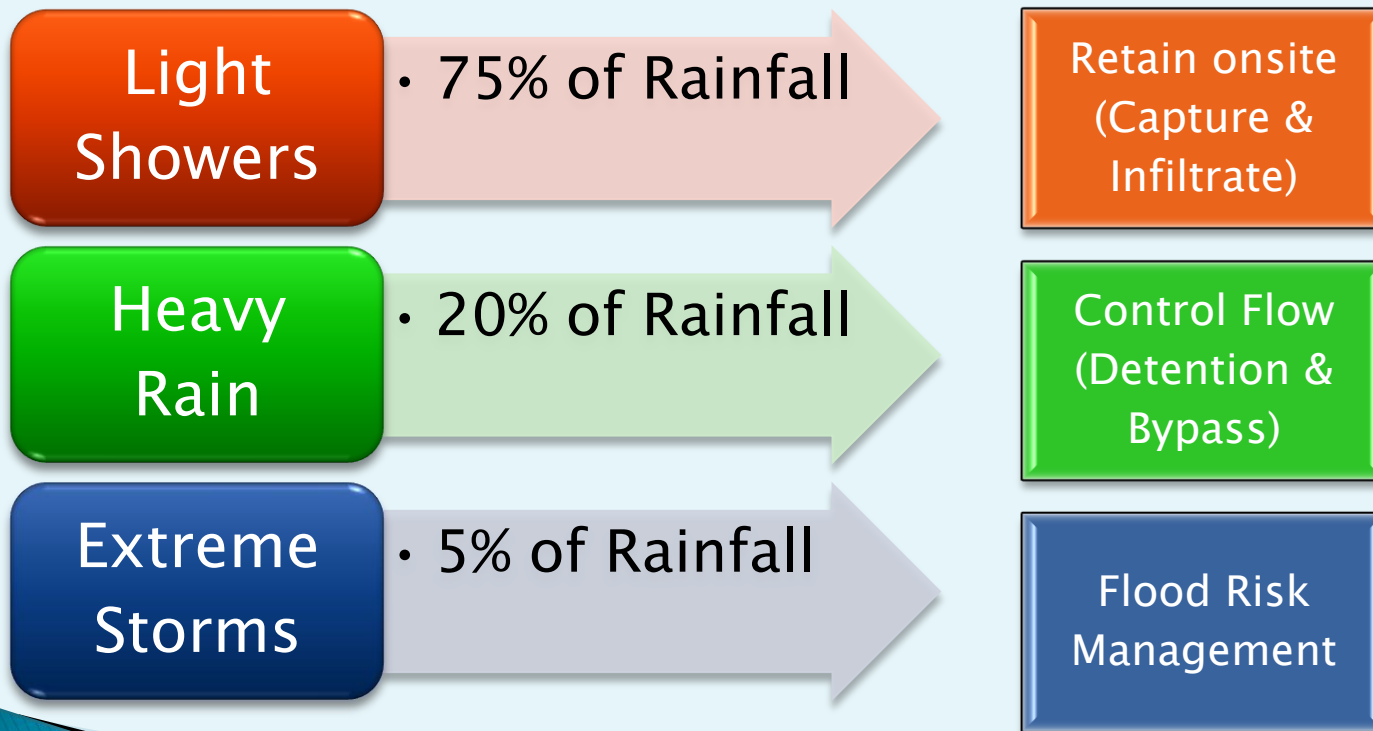
The Guidebook

Rainfall Spectrum



The Guidebook

Rainfall Spectrum – Approaches



Changes for the City of Nanaimo

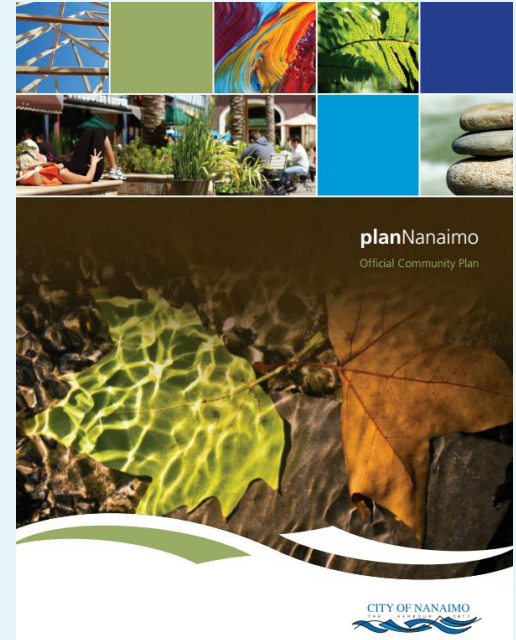
Why are we making changes?

Plan Nanaimo

Official Community Plan

Section 6.8 Stormwater Services

“Stormwater management now must try to balance the need to prevent flooding with the need to protect water bodies and aquatic habitat, and provide for greater natural infiltration in order to allow water tables and groundwater to be recharged”



Changes for the City of Nanaimo

Why are we making changes?

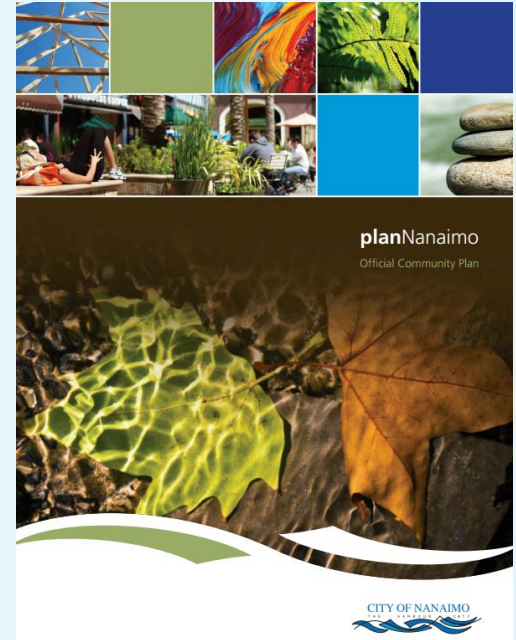
Plan Nanaimo

Official Community Plan

Section 6.8 Stormwater Services

Objective 2:

“To review and revise municipal stormwater management. Assess the design of municipal and private drainage systems with a view of meeting environmental objectives while making construction and maintenance cost effective”



Changes for the City of Nanaimo

Why are we making changes?

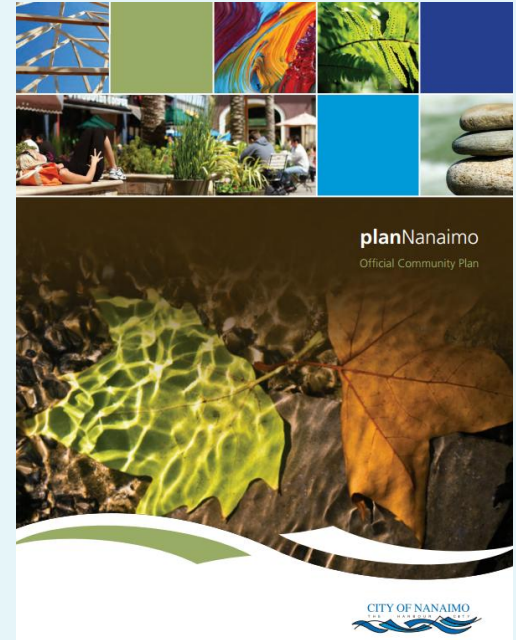
Plan Nanaimo

Official Community Plan

Section 6.8 Stormwater Services

Policy 2:

*“The City’s Stormwater Management Policy along with **subdivision standards and specifications for stormwater management** will be reviewed and revised to reflect the objectives in this Plan.”*



Changes for the City of Nanaimo

- Runoff Control
- Storage Facilities
- Water Quality
- Climate Change
- Submissions to City
- Other minor changes



Changes for the City of Nanaimo

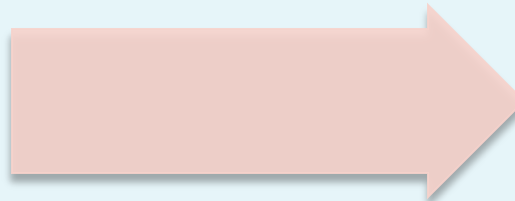
Runoff Control

Retention of 90% of annual rainfall runoff onsite
Can be done using Rain Gardens, Bioswales,
Pervious Paving, Absorbent Landscaping,
Infiltration Facilities.

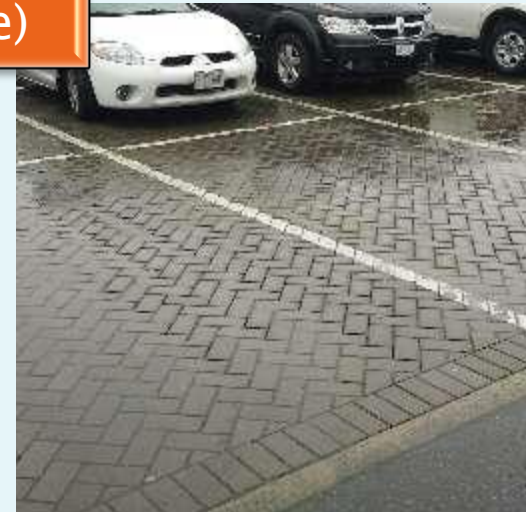


Heavy
Rain

Light
Showers



Retain onsite
(Capture &
Infiltrate)



Does it work?

City of Coquitlam did some field testing:



"We set up flow monitors at two identical townhome sites which have their roof and on-site drainage directed to infiltration trenches. We plugged the trench on the control site and left the other one active and then measured the flow downstream of both for one year," explains Melony Burton.



Annual runoff from the site with an infiltration trench was less than 10% of the annual rainfall (90% infiltration), which meets both volume reduction and water quality treatment criteria set by Fisheries and Oceans Canada. Peak runoff rates from the treated site were also a fraction of that from the untreated catchment.

Water Quality Improved: At the same time, water quality was being monitored in a newly installed bioswale median on Lougheed Highway.

The median used an engineered soil and special filter media to remove pollutants from the road runoff.

"Those results were also positive," Melony comments, "showing an 80-90% reduction in contaminants like nitrate, zinc, copper and total suspended solids."

Implementation

Development Community

- Consultation process to date
- Site by site approach
- Working with the development community



Green Rock
Development



Hawthorne
Subdivision

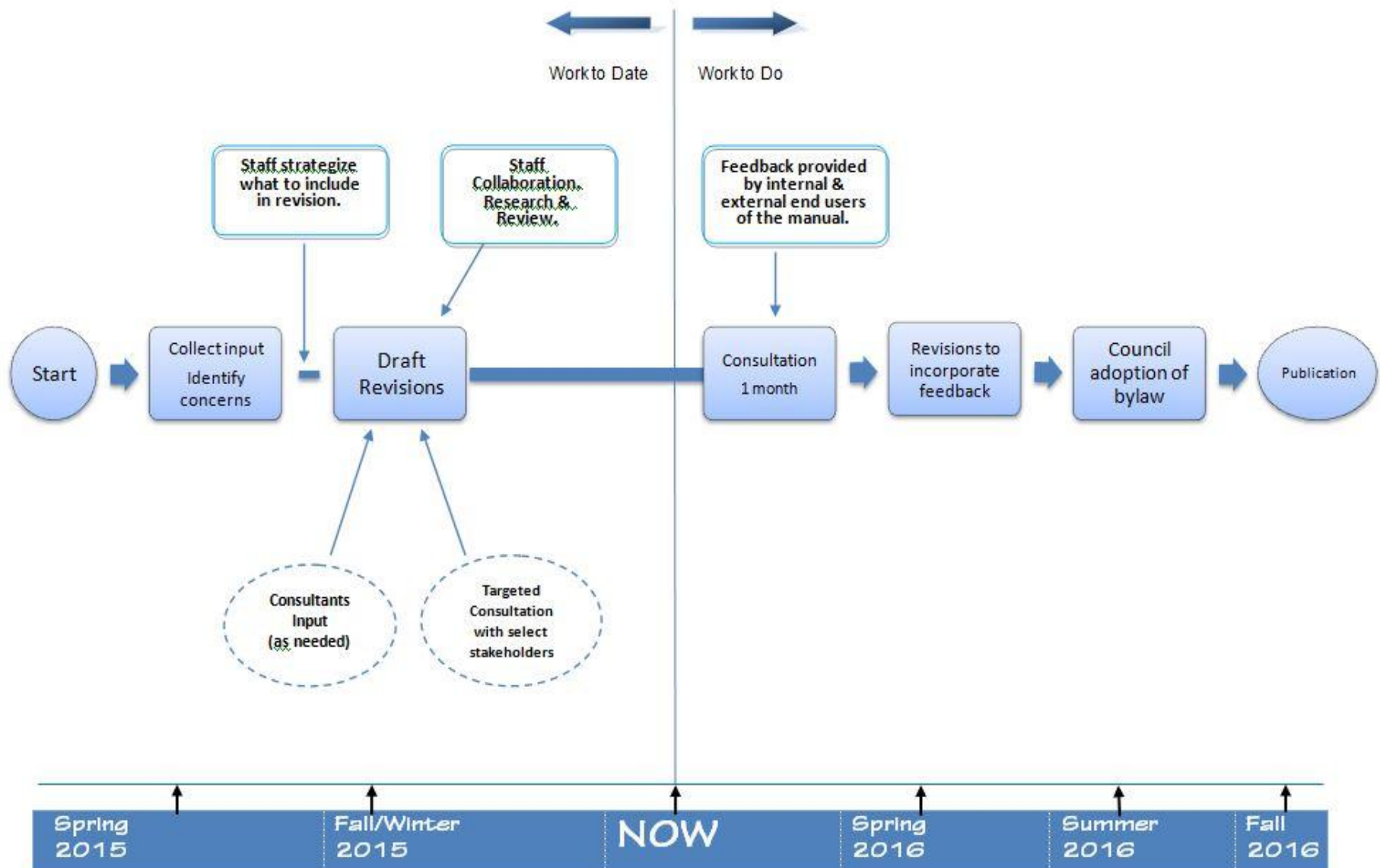


Nanaimo Hospital ER
Expansion



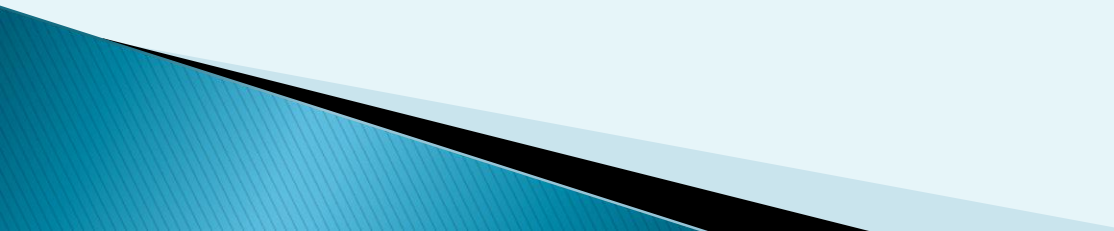
Island West
Coast
Developments

Amendment Process



Future MoESS Amendments

Anticipated future priority amendments:

- Section 8 and 9: Transportation Network
 - Section 10: Street Lighting and Traffic Signals
 - Section 6: Sanitary Sewer System
 - Other priorities to be identified as needed
- 

Questions....

