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CITY OF COURTENAY

Courtenay IRMP – Phase 3

Council Presentation

Integrated Rainwater Management Plan

Objective: Protect the aquatic environment, mitigate the impact of drought and flooding

- Facilitate transition toward an integrated rainwater approach to stormwater management
- Implement objectives and policies of the OCP

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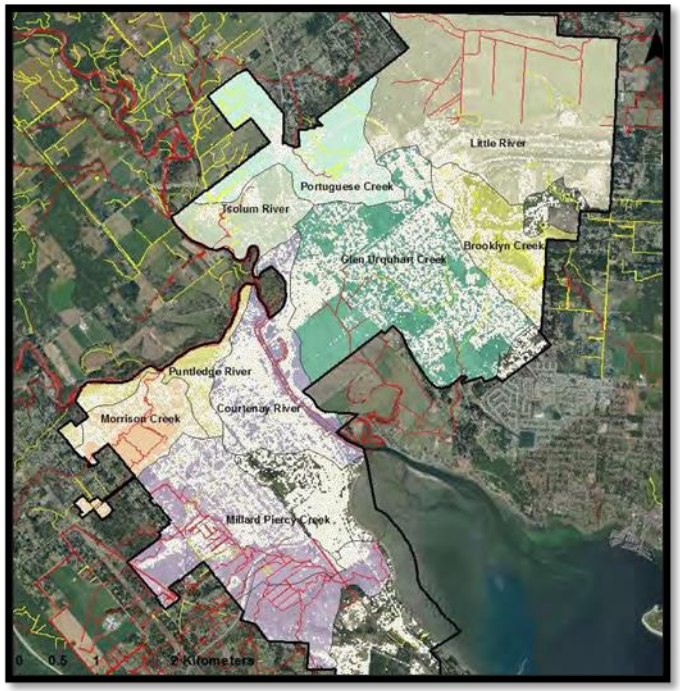
Watersheds and Stormwater Systems

Natural Watersheds are Forested

Developed areas have:

- Reduced forest cover
- Impervious surfaces
- Direct connections to streams

As land is developed, stormwater rates and volumes increase



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Stormwater Impacts

- Flooding
- Erosion of Waterways
- Water Quality
- Drought
- Ecosystem Impacts

IRMP – Project Overview

Phase 1 (2019)

- Preliminary Stormwater Model
- Preliminary Capital Plan

Phase 2 (2020)

- Hydrological Assessment
- Geotechnical Assessment
- Environmental Assessment

Phase 3

- Stakeholder Engagement
- Complete Stormwater Model
- Stormwater Capital Plan
- Mitigate Environmental Impacts
- IRMP Strategy
- Stormwater Funding Analysis

Key IRMP Phase 3 Project Work

Rainwater Management Assessment

- Reviewed Available Guidance and Compared Targets
- Recommend Rainwater Management Targets and Updates to Subdivision & Development Bylaw

Water Quality Assessment

- Sampling Program and Analysis
- Identify Treatment Targets and Mitigations

System Assessment and Upgrades

- Pipe upgrades based on the future land use (OCP) conditions and future with climate change rainfall projections
- Capital program developed based on prioritization matrix to rank projects in order to be completed
- Sustainable renewal funding analysis projected annualized need

Recommendations to Implement IRMP

1. Invest in Capital Upgrades

- Capital upgrades are required to prevent localized flooding and property damage
- Complete priority projects to address areas of highest risk
  - Detailed design, followed by construction
- Account for climate change
- Correct perched culverts (fish barriers) along creeks

Time	Project Cost Total	Culvert Projects	Stormwater Main Projects
Year 1-2	$4,614,000	4	2
Year 3-5	$26,059,000	8	0
Year 6-10	$10,309,000	6	4
Total	**$40,982,000**	**18**	**6**

Recommendations to Implement IRMP

Allocate Funding for Stormwater

- Average annual capital spend was $143,000 from 2015 – 2022
- 35 year renewal need for linear storm assets is $101M
  - Annual capital investment of $2.9M is recommended
- Underfunding is not sustainable

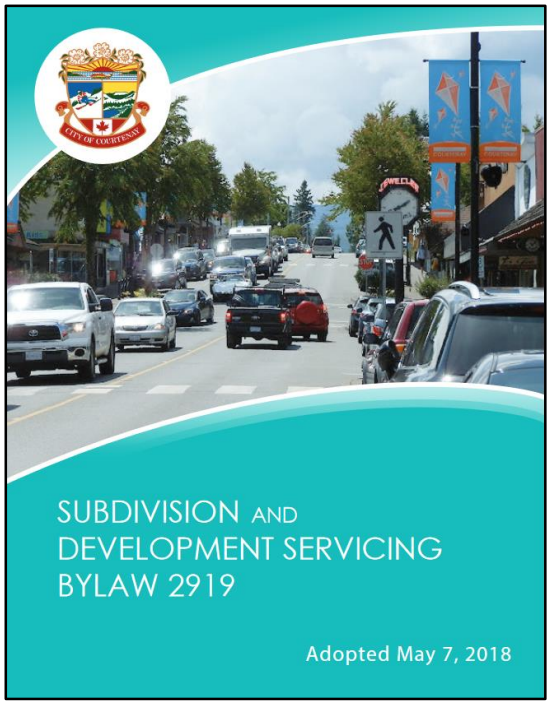
Funding Sources

- Increase allocation from general revenue
- Where possible, complete projects as part of development upgrades, and use DCCs
- Pursue grant funding opportunities for green infrastructure

Recommendations to Implement IRMP

2. Update Subdivision & Development Servicing Bylaw

- Develop rainwater management guidelines
- Volume based rainwater management targets
- Adopt water quality targets
- Update 100-year climate change design storm
- Add specifications for absorbent landscaping
- Adopt source control design guidelines



Recommendations to Implement IRMP

3. Develop Rainwater Source Control on Public Land

- Increased density, will increase stormwater run-off and impact to local creeks and streams
- Develop green infrastructure in road allowances, and parks
- Further study is proposed to identify suitable locations and develop detailed designs

Recommendations to Implement IRMP

4. Protect and Enhance Environmental Values

- Remove barriers to fish passage
- Restore degraded riparian corridors
- Stabilize creek banks using bioengineering methods

Perched culvert, along Piercy Creek

Degraded riparian corridor, creek bank requires stabilization

Recommendations to Implement IRMP

5. Establish Monitoring Program & Adaptive Management

- Track progress of IRMP implementation
- Monitor and report on key performance indicators for watershed health
  - Flow monitoring
  - Water quality monitoring
  - Green infrastructure performance, detention best management practices
  - Catchment impervious area changes
- Recurring review and assessment of monitoring data to understand changes over time
- Explore options to engage with local watershed groups

Recommendations to Implement IRMP

6. Public Engagement

- Address sources of pollution
  - Roof treatments, garden, lawn maintenance, vehicle washing, pet waste.
- Support landowners improve rainwater management on private land
- Citizen science programs and public education

Questions?

Thank You to City of Courtenay Staff For Their Involvement and Support:

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