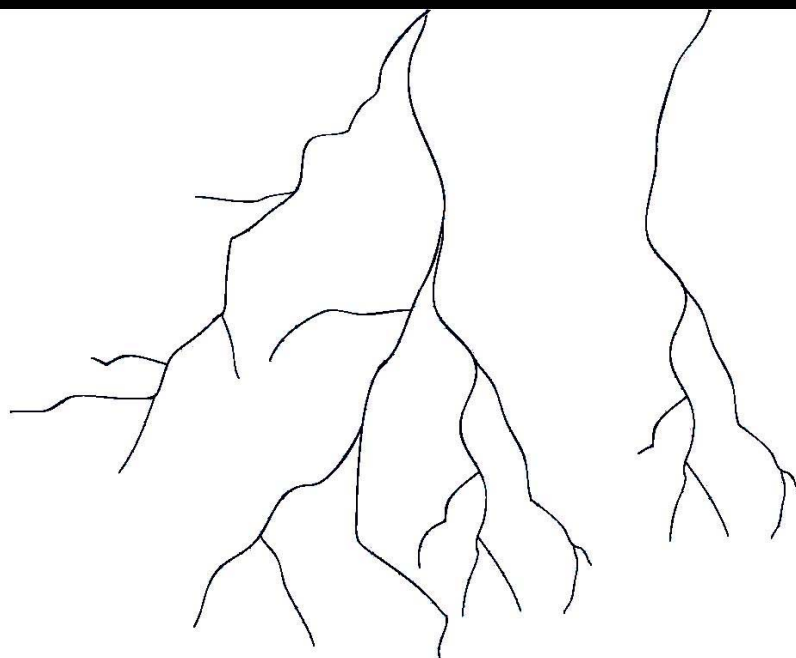


## Funding an Integrated Stormwater Management Plan (ISMP)



### Chapter Ten

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## 10.1 Framing the Question

In developing and funding a stormwater program, local governments are faced with the challenge of balancing risks of flooding and environmental degradation against community willingness to pay. This chapter provides strategies to address this challenge.

Since the primary source of revenue for local government is property taxes, stormwater program budgets will be largely governed by taxpayer ‘willingness to pay’ and taxpayer ‘ability to pay’. Since local governments always face competing priorities, a thorough consideration of risks and consequences becomes critical when establishing spending priorities.

A related issue is due diligence; once a risk is identified, local government has a responsibility and an obligation to address that risk. As introduced in Chapter 1, an Integrated Stormwater Management Plan (ISMP) provides a framework for addressing risk and moving towards a target condition by identifying:

- ❑ the risks
- ❑ what needs to be done to manage the risks
- ❑ who should be responsible
- ❑ a general timeline for implementation

### Taxpayer Willingness to Pay

Willingness to pay refers to the level of increase in taxation rate that taxpayers are prepared to accept in order to pay for a particular service, in this case, stormwater planning and management. Willingness to pay will be governed by taxpayers’ understanding of what is at risk. Local governments must be proactive in explaining the potential consequences (both in terms of flooding and property damage and habitat and species loss) of delaying or avoiding implementation of stormwater plans, to ensure that taxpayer willingness to pay is balanced against risk.

### Taxpayer Ability to Pay

Willingness to pay is linked directly to ability to pay. Hence, it is important to understand the cost implications of what it means to embrace a stream stewardship philosophy. Fundamental questions that will need to be answered when building public understanding and support for a funding plan are:

- ❑ What level of aquatic resource protection is achievable and sustainable, and which elements of stream stewardship are applicable?
- ❑ What is the local government liability and financial exposure in accepting senior government directives for protection/enhancement of aquatic habitat?
- ❑ Will the societal benefits justify the costs incurred? (i.e. is there a payback?)

Addressing these questions upfront will enable a local government to judge what level of stream stewardship is achievable and sustainable at an affordable cost.

## 10.2 Making Choices

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The extent of a stormwater funding program will be influenced by willingness to pay, level of protection versus expenditures, ability to raise revenue, and level of investment versus risk reduction.

Potential sources of revenue for local government are explained in the next section. These sources include general revenue, development cost charges (DCCs), specified area charges, stormwater utilities and senior government grants.

### Dealing with Complexity

Two distinct core concepts that must be integrated in any stormwater funding program are summarized below:

- **Expenditures versus Revenue** - There is a cost to taxpayers to construct facilities that protect property and sustain the natural environment. As local government takes on more responsibility, funding must be provided to fulfil the commitments that have been made. This is a comparatively straightforward relationship to quantify.
- **Willingness to Pay versus Environmental Consequences** - The less the public is willing to invest in property and habitat protection, the greater the likelihood that problems will worsen. Conversely, more investment should improve the situation, provided the investment is strategic and addresses the sources of problems. This is a much more complex relationship to quantify because it involves value judgements.

Both components implicitly provide local government with flexibility to match willingness to pay to an affordable level of protection. The third dimension is time, as discussed in Chapter 9. Thinking in terms of a long-term time horizon provides the opportunity to achieve cumulative net benefits over time.

### Measuring Risk

The less that the public is willing to pay, the higher the risk there will be of adverse environmental consequences. This is a concept that local governments are only just beginning to consider. Deciding not to invest in stormwater management does not necessarily equate to cost savings, since there is a cost associated with the status quo if it means watershed conditions will deteriorate. Deteriorating watershed conditions result in flood damage and channel stabilization costs, as well as habitat loss and water quality impairment.

Underlying the issue of risk is the question of liability and due diligence. For example, if a local government knows that either the status quo or inaction will result in consequences that can be foreseen, they can be held legally liable for those consequences. On the other hand, if a local government demonstrates due diligence in developing a plan to forestall those consequences, this should normally relieve the liability. It then becomes a matter of matching the timing of plan implementation to ability to pay.

## 10.3 Who Pays?

The tiered approach is one of the cornerstones of this Guidebook. It provides a logical and appropriate basis for assigning responsibilities and determining who pays for what.

### Division of Responsibility

Table 10-1 suggests a division of responsibility (i.e. who pays) for implementing the three stormwater management ‘tiers’ - retain, detain and convey. The issue of who should pay for stormwater management is directly related to the following question:

- Are stormwater-related problems (habitat degradation, flooding) the result of past development, future development, or some combination?

For new development in an undisturbed watershed or catchment, the land developer would be expected to bear the cost for managing the complete spectrum of rainfall events. For urban retrofit scenarios where there are existing problems (degraded habitat, flooding) as a result of past development, local governments (i.e. existing landowners and taxpayers) would typically be expected to bear much of the cost. In most situations some level of cost sharing between developers and local governments will be appropriate.

For Table 10-1 to be applicable to a regional district, the regional district would first have to apply for drainage authority.

### Cost Sharing Between Developers and Local Government

Regardless of the initial land use in a particular catchment, new development or re-development projects should be responsible for managing Tier A events using rainfall capture strategies on private property. The responsibility for new developments should also include designing roads in new subdivisions to be self-mitigating (i.e. provide rainfall capture *and* runoff control) for Tier A events.

Local government would clearly be responsible for retrofitting existing roads as part of a long-term watershed or drainage catchment restoration strategy.

New developments and local government should each contribute a proportionate share of the cost for providing runoff control for Tier B events and flood risk management for Tier C events, depending on the relative impacts of existing and future development.

**Table 10-1 Who Pays for Stormwater Management Infrastructure?**

Component of Integrated Strategy for Managing the Complete Rainfall Spectrum	Land Development Scenario		
	New subdivision within a mainly undeveloped catchment	New subdivision within a partially developed catchment	Re-development within a fully developed catchment
Rainfall Capture for the small Tier A Events (on-lot retention)	developers/ landowners	developers/ landowners	developers/ landowners
Rainfall Capture for the small Tier A Events (on-street retention)	developers	developers for roads within subdivision local government for existing roads	local government (i.e. municipalities)
Runoff Control for the large Tier B Events (detention)	developers*	cost sharing between developers and local government on an area basis*	local government* (i.e. municipalities)
Flood Risk Management for Tier C Events (contain and convey)	developers	cost sharing between developers and local government (i.e. municipalities)	local government (i.e. municipalities)

\* Runoff control targets can either be met by providing larger rainfall capture facilities (Tier A) or by providing community detention facilities.

For re-development scenarios this choice can have implications for who pays. The more on-lot storage that developers/landowners provide, the less local government funded community storage will be required.

## Supporting Innovation and Leadership

Innovation and leadership is being provided at the local government level. But moving towards a new standard practice for suburban design requires a considerable investment of staff time and financial resources to successfully implement and monitor demonstration projects.

During the transition period, it seems reasonable to suggest that senior governments should support innovation and leadership by funding demonstration projects. This is the most effective way for senior governments to limit the risk and liability associated with being innovative. The lessons learned will benefit all local governments. Therefore, it seems reasonable that the leaders be supported in their efforts to implement change.

## Responsibility for Operation and Maintenance

Table 10-2 parallels the previous table and summarizes who is responsible for operating and maintaining each tier of stormwater infrastructure.

Under the present system, subdivision developers are responsible for infrastructure integrity for a set period of time (typically one year) before a municipality formally takes possession of the completed works. Property owners have responsibility for maintenance of any drainage works that are located on private property.

During the transition period to a new standard practice, local governments have the option to extend the performance monitoring period for rainfall capture and runoff control facilities, for example, from one year to three years. A precedent is the Burnaby Mountain sustainable community that is being built by Simon Fraser University.

**Table 10-2 Who Operates and Maintains Stormwater Management Infrastructure?**

Component of Integrated Strategy for Managing the Complete Rainfall Spectrum	Land Development Scenario		
	New subdivision within a mainly undeveloped catchment	New subdivision within a partially developed catchment	Re-development within a fully developed catchment
Rainfall Capture for the small Tier A Events (on-lot retention)	property owners	property owners	property owners
Rainfall Capture for the small Tier A Events (on-street retention)	local government (i.e. municipalities)	local government (i.e. municipalities)	local government (i.e. municipalities)
Runoff Control for the large Tier B Events (detention)	local government (i.e. municipalities)	local government (i.e. municipalities)	local government (i.e. municipalities)
Flood Risk Management for Tier C Events (contain and convey)	local government (i.e. municipalities)	local government (i.e. municipalities)	local government (i.e. municipalities)

## 10.4 Sources of Funding

Five sources of funding that are potentially available to municipalities to pay for implementation of ISMPs are listed as follows:

- ❑ General Revenue – from all taxpayers
- ❑ Development Cost Charges – from land developers
- ❑ Specified Area Charge – from local neighbourhoods
- ❑ Stormwater Utility – from all property owners
- ❑ Senior Governments – via grant programs

Regional districts are limited in their ability to raise money. Funding must be tied to a specific function that is delegated by the municipalities; that function can only be assigned by referendum.

### Overview

From a funding perspective, the focus of local government is on how to pay for runoff control for Tier B events and flood risk management for Tier C events. This applies mainly to a scenario where municipalities must finance the retrofitting of a catchment with detention and conveyance facilities. This also applies to the maintenance of infrastructure that a municipality inherits in new subdivisions.

Each of the potential sources of stormwater funding is described briefly below. Of the five possibilities, a stormwater utility offers the best long-term option for stability and continuity. Hence, a detailed discussion of utilities is provided in the next section.

### General Revenue

This refers to a local government's annual budget, which is derived from property taxes. Historically, this is how drainage projects were funded. In many municipalities, this is still the funding source for drainage programs. Implementing a major capital program can therefore have a measurable and noticeable impact on property taxes. Furthermore, drainage then becomes one of a number of competing priorities for Councils to balance. Unless there is a demonstrated threat to life and property, it can be difficult to gain the necessary political support to proceed with major capital programs.

### Development Cost Charges

Development cost charges (DCCs) were introduced by the Provincial Government in the 1970s to ensure that new development paid its fair share of the off-site costs required to service the development. In the case of drainage, it may be many years before a municipality collects sufficient money from individual developers to enable a project to proceed. Hence, a watercourse may be subjected to the cumulative adverse effects of erosion and sedimentation.

### Specified Area Charge

Local governments have the option to create Specified Areas for the purpose of recovering the cost of providing a specific service. An example would be a *Local Initiatives Program* for road and drainage improvements.

### Stormwater Utility

The purpose of any local utility is to provide a self-sustaining source of revenue to fund implementation of capital and maintenance programs over a multi-year period. BC municipalities have historically had both water and sanitary utilities. Funding is raised through a user fee.

Although stormwater utilities are often discussed in BC, there has been a lack of will at the local government level to implement them. In recent years, however, several municipalities (notably the cities of Surrey and North Vancouver) have broadened the scope of their sanitary sewer utilities to encompass drainage. This has enabled those municipalities to proceed with major capital projects.

Washington State municipalities, including Bellingham and Bellevue, have adopted stormwater utilities. The Bellevue utility was one of the first such utilities in North America.

### Senior Governments

Historically, senior governments have not provided funding for drainage in BC, other than the Fraser River dyking program and flood disaster response programs. The Federal Government's newly created *Green Municipal Enabling Fund* is the first opportunity for

some local governments to access funding for stormwater management in the suburban regions.



## 10.5 Setting Up a Stormwater Utility

A stormwater (or drainage) utility may be defined as a self-liquidating entity that has a focused purpose for stable and dedicated funding for surface water quantity and quality management, operations and maintenance, rehabilitation and enhancements.

The information presented in this section is included courtesy of the District of Maple Ridge. It is adapted from a staff presentation to Council in 2001.

### Legislative Authority

A stormwater utility is permitted under the following sections of the *Local Government Act*:

- ❑ Section 363.(1) – A Council may, by bylaw, impose a fee or charge payable in respect of full or part of a service of the municipality
- ❑ Section 517.(1) – Subject to the specific limitations and conditions established by or under this *Act*, a municipality may operate any service that the Council considers necessary or desirable for all or part of the municipality
- ❑ Section 518.(1) – A bylaw under this Part may (a) establish different classes of persons, places, activities or things, and (b) make different provisions for different classes and for different areas of the municipality

### Scope of a Utility

Stormwater utilities typically include a network of pipes, streams, ponds and lakes for detention and water quality control. The utility is set up to address both:

- ❑ the built stormwater system – pipes, pump stations, outfalls
- ❑ the natural stormwater system – creeks and streams

Its purposes are primarily flood protection, erosion control and environmental protection.

### Addressing Public Concerns

Public concerns that a utility would typically address include:

- ❑ flooding
- ❑ water pollution
- ❑ property damage
- ❑ stream erosion
- ❑ habitat impacts
- ❑ wetland acquisition
- ❑ stormwater detention

### Utility Focus

Typical programs for a stormwater utility include:

- ❑ water quality control, including education
- ❑ operations and maintenance
- ❑ development regulation
- ❑ capital improvements

### Objectives and Services

Stormwater quality protection objectives may include:

- ❑ water quality for safety and enjoyment of residents
- ❑ preservation of aquatic and wildlife habitat

Particular services a utility may provide include:

- ❑ 24-hour emergency response for flooding and hazardous spills
- ❑ residential and other built connections to the utility's drainage system
- ❑ erosion control
- ❑ operation and maintenance of drainage systems
- ❑ flood warning systems
- ❑ water quality and environmental monitoring

## Financing Principles

Financing principles for utilities include:

- user fees (and demand management)
- charge based on benefits or cost of service

The total revenue is derived from utility rates/fees as well as DCCs.

## Benefits of a Stormwater Utility

Benefits fall into two categories: environmental and functional.

The environmental benefits are:

- habitat protection
- habitat rehabilitation
- ecological enhancement

The functional benefits include:

- stable and dedicated funding for long-term initiatives and public goals
- equitable distribution of costs to users
- ability to finance and implement innovative technologies and solutions
- ability to upgrade systems and eliminate deficiencies
- long-term strategic planning for sustainability and flexibility

## Challenges for a Utility

In setting up a utility, challenges that need to be overcome include:

- perception of ‘inflexible’ funds
- perception of another tax
- not eligible for Home Owners Grant
- service may not always be transparent
- user ability to pay

## Determining the Purpose

In forming a utility, a major consideration is deciding its purpose(s). The choices include:

- flood control
- water quality protection and pollution prevention
- natural stream and water body management
- erosion and sedimentation control
- combined sewers for sanitary and storm drainage

## Revenue and Billing

Deciding on the utility purpose(s) leads to revenue and billing considerations:

- Initial revenue requirements –
  - Which programs are to be undertaken first and which will be phased in?
  - Where will the working capital for starting up the utility come from?
- Billing structure and mechanism –
  - What are the classifications or rates?
  - Can the existing billing system accommodate this?

## Timing and Rates

Questions related to implementation that must be addressed include:

- Timing – It usually takes two to three years to start up a utility – what is the long-term financial plan for the utility?
- Initial rates – What is the appropriate level, and phase in?

## Stormwater Utility Rates

Examples of annual stormwater utility rates include: City of Surrey (\$55+); City of Bellevue, Washington State (\$130+), and Snohomish County, Washington State (\$30+).

## 10.6 Regional Approach

Local government has responsibility for land use decisions. Local government is also responsible for protection of property. Because it is better positioned to protect the environment, local government is now being called on to play a primary role in aquatic habitat protection, restoration and management. During this period of transition, however, there is uncertainty as to what this change means, and who pays. BC can learn from the Washington State experience.

### Cross-Jurisdictional Funding of Watershed Action Plans

Watercourses cross local government boundaries. This raises a host of inter-jurisdictional issues. Commencing in 1994, the thirty-nine cities in King County, Washington State, have been attempting to address watershed management issues (flooding, fish habitat and water quality) through Inter-Local Agreements. Notable accomplishments to date include:

- ❑ trust has been built incrementally
- ❑ Watershed Forums have been created
- ❑ Regional Funding Principles have been adopted (1997)
- ❑ policy guidelines have been defined for a co-operative approach

Lessons that can be learned from the King County experience are distilled as follows:

- ❑ need regional decision-making for investments
- ❑ need regional funding
- ❑ need multi-level forums

While a voluntary approach in King County has been successful at developing consensus and community priorities, it has failed to deliver:

- ❑ regional funding
- ❑ certainty - due to the governance issue
- ❑ ability to do new regional projects

Based on the King County experience, ensuring success at the watershed scale means there must be an over-arching decision authority in place plus senior government funding.

### Other British Columbia Experience

Three regional districts (Greater Vancouver, Capital Region, and Nanaimo) have developed or are in the process of developing regional approaches to ensure consistency in municipal stormwater management strategies. These are a component of Liquid Waste Management Plans (LWMPs). However, there is no precedent in British Columbia for inter-municipal funding of implementation plans for cross-boundary watershed protection or restoration.

Quasi-precedents for cross-jurisdictional stormwater funding in British Columbia may be found in regional water supply and wastewater treatment systems. Typically, this means that member municipalities have designated responsibility to regional districts (through ‘letters patent’) for these functions. Based on a cost sharing formula, the municipalities contribute funding for capital improvements and operation and maintenance of the regional function. This arrangement offers a possible template for a regional approach to stormwater funding.