

## Chapter 1 : Strategic Initiatives

### Background

A strategic initiative is defined as a means through which a vision is translated into practice. It consists of a collection of projects and programs, outside of the organization's day-to-day operational activities that are designed to advance the organization with its underlying long range objectives and management issues.

The 2015 update to the City of Bellevue Storm and Surface Water System Plan is the first update to the system plan in 21 years. It describes Bellevue's current organizational and tactical approaches to stormwater management, identifies system-wide problems, documents a prescribed approach to stormwater management that will maintain current conditions, and explains how the city uses existing regulations, management practices and capital programs to address those problems. It is also intended to provide the city with long-range strategies for addressing what are expected to be continued and growing problems in the future.

The long-range/systemic problems identified in the plan are indicative of urban storm and surface water systems in the Puget Sound. Bellevue's projected growth and plan for increased urban density will likely mean that drainage basins are increasingly covered by impervious area which impacts Bellevue's storm water system making maintaining or restoring compromised aquatic systems all the more challenging. In short, Bellevue's stormwater management practices must keep pace with urban development if the city's environmental and property protection goals are to be realized. To this end, the following five storm and surface water management strategic initiatives are included in this Storm and Surface Water System Plan:

1. **The Primary Stormwater Infrastructure** strategic initiative will identify and develop strategies for maintaining system functionality of the primary components of the built storm and surface water system (both public and privately owned conveyance systems) with the objective of having management strategies in place that maintain long term system viability.
2. **The Property Management** strategic initiative will support the development of property management plans for Surface Water Utility Enterprise owned properties that have the potential for benefitting the storm and surface water system and natural conveyances.
3. **The Improving Water Quality** strategic initiative will support the development of a plan to address water quality problems that threaten aquatic habitat and Bellevue's surface waters.
4. **The Open Streams Condition Assessment** strategic initiative will support development of a stream protection and restoration plan that has the objective of improving stream health. The plan is intended to identify information gaps, objectives and restoration criteria for each stream within the city.
5. **The Citywide Watershed Management Plan Assessment** strategic initiative will support development of plan that considers how to optimize stormwater mitigation investments that strategically achieve flow and water quality conditions supportive of healthier waterways, fish,

and other aquatic life sooner than what might otherwise occur with the existing regulatory approach for improving water quality. The objective is to evaluate opportunities of redistributing stormwater mitigation resources generated by regulatory drivers towards priority stormwater basins where habitat and water quality improvements would have the greatest impacts. The plan is intended to develop a holistic Citywide Watershed management strategy that meets multiple stormwater and economic development needs.

Each of the five strategic initiatives is presented in the form of an “issue paper” that states the problem, provides relevant background information and describes the intended outcome. In some cases a strategic approach to analyzing the problem is suggested. Related policies, other strategic initiatives and specific Mission Statement objectives are indicated in each issue paper.

These strategic initiatives will set in motion a set of studies and system analyses that will inform possible future actions by the Storm and Surface Water Utility. Collectively they are the forward looking management strategies that will guide future storm and surface water planning initiatives.

## Strategic Initiatives

### 1) Primary Stormwater Infrastructure

**Table 1-1. Initiatives, policies, and Mission Statement goals related to the Primary Stormwater Infrastructure initiative.**

Mission Statement	<input checked="" type="checkbox"/> Control Damage From Storms	<input type="checkbox"/> Protects Water Quality	<input type="checkbox"/> Protects Fish & Wildlife Habitat	<input type="checkbox"/> Protects the Environment	
Policy Issue	<input type="checkbox"/> Aquatic Habitat	<input checked="" type="checkbox"/> Public/Private	<input checked="" type="checkbox"/> Easements		
Related Strategic Initiatives	<input type="checkbox"/> Open Streams Assessment	<input type="checkbox"/> Improving Water Quality	<input type="checkbox"/> Property Management	<input checked="" type="checkbox"/> Primary Infrastructure	<input checked="" type="checkbox"/> Watershed Planning

*Problem Statement:*

Bellevue’s ability to effectively operate the publically-owned storm and surface water system is contingent upon all of the primary components of the system (both public and private) functioning as designed. Primary components are those elements of the drainage system that, if they failed to perform as designed, would result in conditions that jeopardize the ability of the surrounding drainage system to safely convey storm water and avoid substantial environmental and property damage. When primary stormwater components on private property fail to perform as designed, the city’s ability to successfully convey runoff to receiving waters is compromised. This can result in:

- Emergency capital improvement projects;
- Flooding of major transportation corridors , and property in both public and private ownership;
- Jeopardized public safety; and
- Environmental damage.

The complexities of property rights and the ambiguity of drainage system<sup>1</sup> responsibility in some circumstances contribute to an uncertain set of roles and responsibilities for storm system management. Timely maintenance and asset renewal of primary drainage components (both publically and privately owned) is important to a fully functioning drainage system.

Bellevue does not currently have a management strategy to address the long-term viability of private conveyance components of the drainage system. Bellevue’s private drainage inspection program is currently limited to the inspection of privately-owned detention and water quality facilities. It does not extend to inspecting the condition or function of private conveyance facilities that comprise a critical part of the primary stormwater conveyance system.

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<sup>1</sup> Drainage system also referred to as the “storm and surface water system,” means the entire system within the city, both public and private, naturally existing and manmade, for the drainage, conveyance, detention, treatment or storage of storm and surface waters.

In addition, there is not a definitive policy or legal analysis that facilitates a quick and accurate determination of system ownership.

*Objective:*

To identify the primary components of the built storm and surface water system (publically and privately owned components) and to develop management strategies for addressing long term system viability so that drainage services continue to be provided in a safe and functional manner as the components age.

*Background:*

The built storm and surface water system is comprised of pipes, manhole structures, detention structures, water quality facilities, catch basins, outfall pipes and many other appurtenances necessary to provide for management of runoff. In addition, the system is designed to alleviate a wide array of environmental effects that occur as a result of an urbanizing landscape. Examples of unmanaged effects include impacts to water quality, degradation of aquatic habitat, increased flows to downstream properties, and increased flood frequencies.

Bellevue Utilities has not explicitly identified those elements of the built drainage system that are considered “primary.” Primary components are individual elements that are part of a larger drainage system network which, if they failed to perform as designed, would result in conditions that jeopardize the ability of the surrounding drainage system to safely convey storm water and avoid substantial environmental and property damage. Not knowing which components are “primary” puts Bellevue Utilities in a vulnerable position for meeting its duty of providing drainage services to the community in the event those primary components fail or are otherwise rendered incapable of functioning as designed.

Current policy asserts that responsibility for system maintenance, construction of renewal projects, and replacement of failed system components belongs to the property owner where the drainage asset is located. Unless otherwise stipulated by an easement or other legal agreement, land ownership implies management responsibility of the storm water asset whether or not it is a primary system component. Much of the built stormwater system in Bellevue is located in the public right-of-way, meaning the City is responsible for that portion of the system’s condition. However, in many locations throughout the City large conveyance pipes (12” or greater in diameter) are located on private properties whose owners are unaware that the pipe is their responsibility to maintain, renew and replace. In those instances where the pipes are on single family residential properties, maintenance actions are rare and seldom undertaken. Replacement has yet to occur but many pipes are reaching their service life and will need replaced in the next decade or two.

Current storm system policy limits public responsibility to “*all components of the storm and surface water system in city-owned right-of-way and in easements or tracts dedicated to, and accepted by, the Utilities Department.*”<sup>2</sup> The policy also establishes criteria for when other components of the drainage system can be incorporated into public ownership. It states “All of the following conditions must be met before ownership is transferred”:

1. There is a public benefit;
2. Easement or property is offered by the property owner at no cost;
3. The system meets current City standards or is brought up to current City standards by the

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<sup>2</sup> City of Bellevue. Storm and Surface Water System Plan. Bellevue, WA. Storm and Surface Water System Responsibility policy

owner;

4. There is access for Utilities Department maintenance from public right-of-way;
5. The Utilities Department has adequate resources to maintain the system, and for detention systems,
6. The system serves a residential plat or short plat (rather than a commercial property).<sup>3</sup>

This policy, established in 1995, has all but eliminated transfer of private systems into public ownership, and does not consider the criticality of the role that conveyance component may play in providing drainage services to the surrounding drainage area.

*Big Vision Outcome:*

The city will identify the “primary” drainage system components that collect and/or convey stormwater runoff. This effort will also identify the associated cost of its continued maintenance and eventual replacement. The “primary” system will be established by using criteria that identify components of the built drainage system that are considered to have a primary function for the operation of the larger drainage system’s performance, regardless of ownership. In circumstances where a “primary component” is in private ownership, the city will develop management options or strategies for those primary conveyance systems.

*Strategies:*

1. Develop criteria that identify individual components of the built storm and surface water system that are essential to the function of the larger drainage system network. Quantify how much of the system is considered primary for system operation.
2. Once the City knows which components are primary, focus condition assessment efforts toward those primary system components (regardless of ownership). Use the information as the basis for developing management options for keeping the infrastructure components functioning to defined performance standards.
3. For those primary components not in explicit public ownership identify mechanisms that provide the agency assurance that the components are functioning appropriately and are appropriately maintained.
4. Identify maintenance cost associated with any new or added infrastructure.

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<sup>3</sup> City of Bellevue. Storm and Surface Water System Plan. Bellevue, WA. Storm and Surface Water System Responsibility policy

## 2) Property Management Plans

**Table 2-1. Initiatives, policies, and Mission Statement goals related to the Property Management Plan initiative.**

Mission Statement	<input checked="" type="checkbox"/> Control Damage From Storms	<input checked="" type="checkbox"/> Protects Water Quality	<input checked="" type="checkbox"/> Protects Fish & Wildlife Habitat	<input checked="" type="checkbox"/> Protects the Environment	
Policy Issue	<input type="checkbox"/> Aquatic Habitat	<input checked="" type="checkbox"/> Public/Private	<input checked="" type="checkbox"/> Easements		
Related Strategic Initiatives	<input checked="" type="checkbox"/> Open Streams	<input checked="" type="checkbox"/> Water Quality	<input checked="" type="checkbox"/> Property Mgt.	<input type="checkbox"/> Primary Infrastructure	<input checked="" type="checkbox"/> Watershed Planning

*Problem Statement:*

The Utilities Department owns 430 acres of land on 247 (204 parcels owned by the SSWU) parcels within Bellevue’s City Limits, of that total, 136 acres are located in or near sensitive areas. Many of these properties have been acquired over time through development review, donations or acquisition through unique conditions. Much of the land is nearby or associated with open streams, wetlands and other sensitive areas that have the potential to help the City achieve the SSWU Mission goals. Because no comprehensive long-term management plans exist for these properties, their potential benefit may be under-realized. Proper long-term management plans would allow Utilities to optimize the potential of these properties to improve water quality, control flooding and better protect the environment. There is also potential to provide future mitigation areas once an accurate assessment of these properties has occurred.

*Objective:*

Create Management Plans for properties owned by the Storm and Surface Water Utility that are within or near sensitive areas and have the potential for helping the department achieve its Strategic Plan goals related to Environmental Stewardship.

The Management Plans will provide individual assessments for achieving long term goals for each significant property associated with sensitive areas. These assessments will guide the Utility in managing the properties to meet SSWU mission goals, which are aligned with the City’s Comprehensive Plan policies. The Plans will be used as management tools and can be submitted to permit agencies in support of future maintenance, capital construction and/or CIP project mitigation.

Each assessment would evaluate, document, and measure existing conditions for:

- Aquatic habitat
- Invasive and native vegetation
- Forest conditions
- Channel blockages
- Wildlife features
- Encroachments and debris locations
- Establishing clear property boundaries.

Each assessment will provide future recommendations for the property and will take significant time to develop. Site inspections will be conducted at the appropriate time to collect desired data (e.g. identification of some invasive vegetation is best accomplished while the species is flowering in late summer). Larger, more significant properties will have their own assessment. Smaller, similar use sites may be combined into a single assessment. Partnerships with other Departments will be pursued for evaluation of properties with multi-use opportunities.

*Background:*

Over time the SSWU has developed a substantial inventory of large tracts of land within and around sensitive areas. Generally these properties are comprised of wetlands and riparian areas surrounding stream channel and upland drainages. These properties are significant because of their role in controlling runoff during storm events, preventing erosion, protecting habitat biodiversity, and their influence on native vegetation and aquatic ecosystems.

Management and maintenance of these properties has been very task- focused, primarily performed reactively in an effort to mitigate a problem or deficiency. To date there has been no effort to look at each property to assess potential and identify strategies to optimize their benefit.

Because Bellevue's citizens continue to assign significant importance to the management and protection of our open spaces, particularly those that harbor streams, lake and wetlands; the Storm and Surface Water Utility seeks to optimize use of these properties toward that goal.

*Big Vision Outcome:*

The Utilities Department has a complete inventory of its land holdings and understands how they can be managed to optimize their contributions towards achieving the goals in the Storm and Surface Water Mission Statement (see page 3-1).

*Strategies:*

Develop land management plans for all the properties owned by the Utilities Department. Developing land management plans would provide the city and the department critical information about the properties and about how they can best be used to help achieve goals, and it would provide the city with a guidance document for implementing future land management actions. The land management plans would help with future budget requests, would work synergistically with other land management plans (e.g. Parks property management plans), and support other city-wide initiatives.

Development of management plans will allow for future maintenance and CIP efforts to be aligned with the goals for each property to support the goals of the SSWU and the City as a whole.

### 3) Improving Water Quality

**Table 3-1. Initiatives, policies, and Mission Statement goals related to the Improving Water Quality initiative.**

Mission Statement	<input type="checkbox"/> Control Damage From Storms	<input checked="" type="checkbox"/> Protects Water Quality	<input checked="" type="checkbox"/> Protects Fish & Wildlife Habitat	<input checked="" type="checkbox"/> Protects the Environment	
Policy Issue	<input checked="" type="checkbox"/> Aquatic Habitat	<input type="checkbox"/> Public/Private	<input type="checkbox"/> Easements		
Related Strategic Initiatives	<input type="checkbox"/> Open Streams	<input checked="" type="checkbox"/> Water Quality	<input type="checkbox"/> Property Mgt.	<input checked="" type="checkbox"/> Primary Infrastructure	<input checked="" type="checkbox"/> Watershed Planning

*Problem Statement:*

Throughout Bellevue and the region, lakes, streams, and wetlands are affected by stormwater runoff. Stormwater runoff from developed land—such as roads, parking areas, rooftops and lawns—transports a mixture of pollutants such as petroleum, heavy metals, animal waste, and sediments into nearby streams. Stormwater runoff is the leading contributor to water quality pollution of urban waterways in the state<sup>4</sup>. Fish, wildlife, and habitat are compromised, as well as the community’s ability to experience a healthy natural environment that supports fishable and swimmable waters.

*Objective:*

Improve surface water quality and habitat by removing pollutants that threaten Bellevue’s surface waters where feasible and practicable through application of selective stormwater retrofit Best Management Practices (BMPs) in locations where there is a lack of adequate water quality treatment.

*Background:*

Bellevue has a long history of using codes, standards and municipal programs to address ongoing pollutant runoff affecting fish, wildlife, and the environment. Despite these efforts untreated pollutants from areas developed prior to regulations continue to degrade lakes, streams, and wetlands, impacting fish, habitat, and the community’s ability to enjoy the natural environment.

This is a national issue and local governments and regulators are increasingly turning to stormwater “retrofit” in urban areas to augment existing programs as a means of managing stormwater runoff to improve water quality in lakes and streams. Retrofits include installations or upgrades of best management practices (BMP’s) in developed areas where there is a lack of adequate stormwater treatment. For example, rain gardens may be installed on the roadside to collect surface pollutants, trap them in soils, and percolate clean runoff into the ground. In other areas a vault could be installed and maintained to remove sediment instead of allowing it to travel to a stream and impact fish habitat. While some studies show high costs for reducing urban pollution to levels that support biological function<sup>5</sup>, other studies provide evidence to support that properly applied stormwater retrofits can

<sup>4</sup> Puget Sound Partnership ([www.psp.wa.gov/stormwater.php#2](http://www.psp.wa.gov/stormwater.php#2))

<sup>5</sup> [Stormwater Retrofit Analysis and Recommendations for Juanita Creek Basin in the Lake Washington Watershed](#); August 2012; work completed by King County, City of Kirkland and the Washington State Department of Transportation and funded by state Department of Ecology stormwater grant.



reduce pollutants in lakes and streams in a cost effective manner.<sup>6</sup> Successful projects have implemented a balance of traditional and low impact BMP's that treat for specific pollutants of concern based on modelling results, water chemistry and biological indicators. This project would evaluate the opportunities and constraints for achieving environmental improvements in water quality through focused use of retrofit technology.

It is anticipated that future Phase II Municipal Stormwater Permits (NPDES), such as Bellevue's, will likely mandate stormwater retrofit. Implementing this initiative would allow the City of Bellevue to provide information to the State about the opportunities and constraints of retrofit in an urban environment, as well as position the city for future grant programs.

The Utilities Department and city's mission statements support investigating and implementing retrofit BMPs where benefits can be demonstrated and are cost effective. This approach is also consistent with adopted policies and the community's values for a healthy and sustainable environment.

*Big Vision Outcome:*

Utilities will develop a plan that prioritizes Bellevue's drainage system to identify where retrofit makes the most sense to address water quality issues related to runoff. Criteria and processes will be developed to determine the use of appropriate retrofit technologies. A list of priority areas that would benefit most from WQ retrofit will be developed using a variety of factors. A menu of BMP alternatives will be developed that weighs existing options with BMP retrofit using cost/benefit, pollution reduction, and/or habitat enhancement to provide staff with more tools for improving habitat and the uses of Bellevue's streams. This effort will provide guidance for where retrofit may be a reasonable, effective, and appropriate tool to improve water quality through the Capital Investment Program or operational efforts. It will also serve to inform other strategic efforts, such as the Open Streams Assessment and Watershed Planning, by providing important information regarding where the highest risk and highest priority areas for water quality improvement needs are, helping to further those efforts and improve water quality.

*Strategies:*

Identify priority areas where water quality projects could improve stream and lake conditions. Assess site constraints for those areas. Evaluate existing and new technology to determine whether the retrofit options are appropriate for highly developed areas, will not cause other water quality issues, and are expected to address pollutants of concern. Identify areas where pollutants, such as sediment, pathogens, nutrients, metals, and other organics and inorganics are likely to persist without a focused retrofit water quality plan. Develop a plan for prioritized projects to achieve improved and measurable water quality results. Identify potential grants and funding sources. Focused water quality monitoring may be employed to determine specific needs or effectiveness of treatments. Other data, such as biological, habitat, and pre-spawn mortality will be incorporated as additional effectiveness indicators of selected installations.

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<sup>6</sup> K. Brian Boyer and mark S. Kieser (2012) Urban Stormwater Management – An MS4 Success Story for Western Michigan University. Journal of Green Building: Winter 2012, Vol. 7. No. 1 pp. 28-39.

#### 4) Open Streams Condition Assessment

**Table 4-1. Initiatives, policies, and Mission Statement goals related to the Open Streams Condition strategic initiative.**

Mission Statement	<input checked="" type="checkbox"/> Control Damage From Storms	<input checked="" type="checkbox"/> Protects Water Quality	<input checked="" type="checkbox"/> Protects Fish & Wildlife Habitat	<input checked="" type="checkbox"/> Protects the Environment	
Policy Issue	<input checked="" type="checkbox"/> Aquatic Habitat	<input checked="" type="checkbox"/> Public/Private	<input checked="" type="checkbox"/> Easements		
Related Strategic Initiatives	<input checked="" type="checkbox"/> Open Streams	<input checked="" type="checkbox"/> Water Quality	<input checked="" type="checkbox"/> Property Management	<input type="checkbox"/> Primary Infrastructure	<input checked="" type="checkbox"/> Watershed Planning

*Problem Statement:*

There is no strategic pathway to achieve the city’s vision for healthy streams<sup>7</sup>. Like most urban municipalities, maintaining healthy streams is a challenging goal to achieve. Urban streams experience increased flow and pollutants that degrade aquatic habitat, impact water quality, and cause erosion of stream beds and banks.

*Objective:*

The outcome of this initiative will be a stream protection and restoration plan for improving stream health. The plan will identify information gaps, identify objectives for streams (including measureable restoration outcomes and barriers to achieving these outcomes), and develop criteria for prioritizing streams and objectives.

*Background:*

Bellevue’s Comprehensive Plan expresses the community’s vision for the future. This vision for the Environmental element states that in 2035:

Bellevue embraces its stewardship of the environment by protecting and retaining natural systems, and building for a sustainable future. As growth and development occurs, Bellevue is working to build a healthier, greener and more sustainable future for generations to come. New buildings are designed to protect and even restore natural systems. The community highly values and celebrates the results, such as reduced energy use and greenhouse gas emissions, increasing tree canopy and more salmon in local creeks.

The Utilities Mission statement states that the city’s storm and surface water system “...protects water quality, supports fish & wildlife habitat, and protects the environment.”

There is an estimated 80 miles<sup>8</sup> of open stream channel in Bellevue of which 23 miles (or 38%) are in public ownership either through title, easement or other property obligation. The City of Bellevue’s constructed drainage system connects directly to the open streams and lakes throughout the city.

<sup>7</sup> City of Bellevue Comprehensive Planning. Bellevue 2025 Vision Details.

<sup>8</sup> City of Bellevue Utilities Department. Storm and Surface Water Utility Statistical Report. 2013.

Stormwater runoff is conveyed to streams, lakes and wetlands by the stormwater drainage system or by overland flow. As an alternative to piping and burying streams, Bellevue chose to preserve the network of open streams and lakes from the impacts of stormwater runoff by implementing detention and water quality treatment (primarily sediment controls) regulations, constructing in-stream storage facilities (regional stormwater facilities) and implementing stormwater management programs such as operation and maintenance, public education and outreach.<sup>9</sup> As explained in Chapter 6, Current Conditions, maintaining healthy streams in an urbanizing area is a challenging goal to achieve because they experience increased flow and pollutants that degrade aquatic habitat, impact water quality and erode stream beds and banks.

Some of the storm and surface water system problems that must be addressed to achieve the vision for healthy streams include:

- Mitigate stream flow changes. Urban stream flow characteristics are distinctly different than the flow characteristics of a forested pre-developed period. Urban streams have significantly higher annual peak flow rates, a higher degree of “flashiness” between storms, meaning they rise and fall at a faster rate than they once did causing more erosion, and there has been a shift in seasonal peak flows. What were once considered peak winter flows are now routinely matched during the dry summer season. This is reflective of trends across the region.
- Address stream temperature and water quality issues. Urban streams routinely have temperatures above thresholds that block migration and are sometimes even lethal for salmon. Some reaches of Mercer Slough, Coal Creek, Ardmore (Idylwood) Creek, Lewis Creek and Kelsey Creek, are among urban streams listed as “water quality impaired” for certain pollutants by Ecology.
- Improve stream biota habitat. Aquatic life in urban streams reflects the changes in stream flow and water quality. Pre-spawn mortality in coho has been linked to highway and ultra-urban street runoff and environmental indicator scores for aquatic life are typically rated as “poor” to “very poor” in urban streams.

Current Utilities Department practices focus the department’s efforts for stream and aquatic habitat restoration on public lands or publically owned infrastructure. This policy has resulted in stream restoration efforts at sites other than where the greatest “ecological lift” will occur. The policy, coupled with the relatively small amount of land in public ownership minimizes the ability of most public efforts at stream restoration to effectively change the environmental response to urbanization. Moreover, expectations that private property owners on their own will improve stream conditions are unrealistic and will not address a wide-spread systemic problem. Few, if any private property owners have the necessary technical skills, financial resources, or understanding of the full system which are needed to restore a stream or stream segment. This piecemeal approach will take decades to achieve restoration goals, even if there was full property owner participation. This plan will identify options to remedy these barriers to stream rehabilitation.

Recognizing a need to incentivize public/private partnerships to hasten urban stream restoration, the Department of Ecology is supporting regional efforts to focus stormwater management at a basin or watershed scale, rather than strictly focusing efforts on individual site development. Focusing stormwater management at a basin or watershed scale recognizes that dense urban growth will

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<sup>9</sup> KCM-WRE/YTO. City of Bellevue. 1976. Drainage Master Plan. Bellevue, WA

continue and that options for focusing urban stream improvements to see restoration results more quickly exist through such approaches. Some strategies, such as the Redmond citywide management plan, include a fee-in-lieu program that maintains existing stream conditions in some basins while moving the stormwater mitigation improvements from all development to specific high priority basins. This concentrated approach is designed to restore high priority habitat faster, provide streamlined development, and reduce costs. All basins within the city must have baseline information, restoration objectives, and prioritized actions before the watershed management plan can be developed. This stream protection and restoration plan will develop the foundational support for a comprehensive, holistic watershed management plan to be explored under a separate strategic initiative paper.

*Big Vision Outcome:*

The outcome of this initiative is a comprehensive stream protection and restoration plan for each basin to achieve the city's vision for healthy streams. This will include identifying opportunities to reduce flow rates and volumes that degrade aquatic habitat, impact water quality, cause erosion of stream beds and banks, as well as other urban stresses to streams.

*Strategies:*

The Utilities Department will work with other City departments to:

- Identify existing conditions, data gaps and performance measures needed to evaluate progress towards the city vision for healthy streams.
- Develop vision, objectives, and prioritized actions based on basin characteristics, water quality, current and future land use, historical or anticipated fish use, and other criteria appropriate for each basin.
- Identify options for working with private property owners to improve stream habitat in the most effective locations, in accordance with the city's vision and objectives.
- Provide required information to develop a comprehensive, holistic watershed management plan for the City.

And, as a result of having the plan:

- Utilities staff will have a clear understanding of the department's role for streams and aquatic habitat restoration in the context of the city's vision and goals for stream health.
- All city staff will understand their role for implementing the city's integrated approach for stream stewardship and restoration.

*Known/Existing Actions:*

**Bellevue's NPDES Municipal Permit.**

The Utilities Department meets NPDES requirements, but those requirements are primarily focused on new development and not on pre-existing development and its impacts. The NPDES permit currently does not require jurisdictions to develop a plan/strategy for returning impacted streams to a healthy aquatic state.

**Community Surveys.**

Bellevue surveys consistently rate environmental stewardship and healthy open spaces as high community priorities and an important element of quality of life in Bellevue. In a 2009 representative

sample survey for Bellevue Parks and Community Services, three out of four respondents agreed (with half expressing strong agreement) with the statement:

“...the city should place a priority on improving health and ecological function of forest, wetlands, lakes and streams.”

This is supported by Bellevue residents’ extensive use of the city’s open space system. The survey found that 97% of respondents had used park facilities at least twice in the last year, with 74% identifying natural areas as the facilities used.

**Environmental Stewardship Initiative.**

The Environmental Stewardship Initiative vision is:

“To integrate the natural and developed environments to create a sustainable urban habitat with clean air and water, habitat for fish and wildlife, and comfortable and secure places for people to live and work.”

**Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan**

Bellevue City Council adopted the 2005 Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan, supporting Chinook salmon recovery efforts with the objective of maintaining the region’s quality of life including preserving and protecting a healthy environment and economy.



## 5) Citywide Watershed Management Plan Assessment

Table 5-1. Initiatives, policies, and Mission Statement goals related to the Citywide Watershed Management Plan strategic initiative.

Mission Statement	<input checked="" type="checkbox"/> Control Damage From Storms	<input checked="" type="checkbox"/> Protects Water Quality	<input checked="" type="checkbox"/> Protects Fish & Wildlife Habitat	<input checked="" type="checkbox"/> Protects the Environment	
Policy Issue	<input checked="" type="checkbox"/> Aquatic Habitat	<input checked="" type="checkbox"/> Public/Private	<input checked="" type="checkbox"/> Easements	<input checked="" type="checkbox"/> Water Quality	
Related Strategic Initiatives	<input checked="" type="checkbox"/> Open Streams Assessment	<input checked="" type="checkbox"/> Improving Water Quality	<input checked="" type="checkbox"/> Property Management	<input checked="" type="checkbox"/> Primary Infrastructure	<input checked="" type="checkbox"/> Watershed Planning

### *Problem Statement:*

Current approaches to stormwater management constrain the city's ability to implement strategic improvements in urban waterbodies and waterways. Increased pollution, flow rates and volumes impact water quality, degrade aquatic habitat, flood property and cause erosion of stream beds and banks despite significant public/private stormwater investments and increasing regulatory controls. For many cities, including Bellevue, a significant source of these impacts is from development that occurred prior to storm and surface water regulations, which continue to evolve and become more stringent.

The Washington State Department of Ecology recently recognized the fiscal challenges and regulatory limitations of addressing the continuing degradation of the Puget Sound under the parcel by parcel retrofit/development approach currently mandated by the permit regulatory approach. It approved a Citywide Watershed Management Plan for Redmond which allows for actions that are a departure from previous Ecology stormwater management directives and which may help local jurisdictions balance multiple and sometimes conflicting regulatory requirements for population growth and stormwater management. Redmond's Watershed Plan includes actions to:

- strategically plan and prioritize stormwater investments (private and public) to targeted watersheds,
- where they will deliver the greatest environmental benefit; and
- address multiple regulatory requirements using a holistic watershed approach.

Redmond's watershed approach is intended to produce focused high quality habitat sooner, albeit in limited areas, as opposed to implementing incremental improvements in all streams and lakes that would not provide significant overall habitat benefits for decades. Bellevue might benefit from a similar strategic and holistic approach to stormwater management and investment.

### *Objective:*

Invest resources strategically to achieve flow and water quality conditions supportive of aquatic beneficial uses in focused areas, meet multiple regulatory drivers and support beneficial economic development and redevelopment by assessing the benefits and challenges of a comprehensive, holistic Citywide Watershed Management Plan approach to storm and surface water management.

### *Background*

#### Stormwater Management

Management of stormwater is a relatively recent discipline. The City of Bellevue incorporated in 1953 (population 6,000). By the time the Storm and Surface Water Utility (SSWU) was formed in 1974, the city's population was 63,940. At that point, a significant portion of the area within the present city boundaries had already been developed without stormwater controls (Figure 6-15).

The focus of the newly formed SSWU was to implement stormwater controls and programs to reduce flooding, erosion and property damage and prevent the deterioration of water quality, and to construct regional detention ponds and other stormwater capital improvements to mitigate previous development impacts. An open stream policy was adopted which preferred streams remain open to support fish and quality of life (rather than piped and buried under fill to support development).

It is now 40 years since the SSWU was formed and:

- Eleven regional detention ponds and other stormwater capital improvements have been constructed;
- Stormwater management programs have been implemented to
  - Inspect, operate and maintain the storm and surface water system,
  - Minimize flooding and water quality impacts, and
  - Improve aquatic habitat conditions;
- Stormwater flow control and water quality treatment controls have been applied to new development and redevelopment projects, evolving over time to require flow control mitigation back to forested predevelopment conditions and low impact development techniques where feasible such as rain gardens; and
- Federal and state regulatory controls to protect water quality and fisheries, address stormwater and land use impacts, and meet growth management needs continue to multiply and increase.

Despite these significant public/private stormwater investments and increasing regulatory controls, Bellevue's waterbodies and waterways, like most urbanized areas, continue to experience increased pollution, flow rates and volumes that impact water quality, degrade aquatic habitat, flood property and cause erosion of stream beds.

#### Today

Bellevue is now the fifth largest city in Washington, with a population of more than 130,000. It is the high-tech and retail center of the Eastside, with more than 130,000 jobs and a skyline of high-rises. While business booms downtown and 84% of the City has been developed, much of Bellevue retains a small-town feel because of thriving, woodsy neighborhoods and undeveloped areas consisting of parks and open spaces that are not anticipated to be developed and which together keep people calling Bellevue "a city in a park." Only 6 percent of the remaining vacant land is likely to be developed. Therefore, today's stormwater regulations will mostly be applied to redevelopment of existing development.

A recent local study estimated a cost of \$1.4 billion (or \$200 million per square mile) in 2011 dollars to achieve flow control and water quality conditions supportive of aquatic life in a single watershed<sup>10</sup>. In 2013, Ecology approved a citywide watershed management plan for the City of Redmond which allowed

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<sup>10</sup> Stormwater Retrofit Analysis and Recommendations for Juanita Creek Basin in the Lake Washington Watershed; August 2012; work completed by King County, City of Kirkland and the Washington State Department of Transportation and funded by state Department of Ecology stormwater grant.



for departure from previous Ecology stormwater management directives. These two recent events motivate Bellevue to explore whether a watershed-based approach could be a significant improvement over the parcel-by-parcel retrofit/development approach currently mandated by the permit regulatory approach.

Focusing stormwater management at a basin or watershed scale recognizes that dense urban growth will continue and that targeting stream improvements for more rapid restoration results may make sense. One strategy is to include a fee-in-lieu program that maintains existing stream conditions in some basins while moving the stormwater mitigation improvements from all development to specific high priority basins. This concentrated approach is designed to restore high priority habitat faster, provide streamlined development, and reduce costs. All basins within the watershed plan must have baseline information, restoration objectives, and prioritized actions in order to develop a comprehensive watershed management approach.

*Big Vision Outcome:*

The big vision outcome is to have healthier waterways, supportive of fish and other aquatic life sooner. This initiative will assess whether employing a watershed-based approach (relative to the current approach) allows Bellevue to be more strategic with resources, projects and programs, to meet conflicting regulatory drivers while supporting future development and redevelopment and to more likely achieve more immediate and measurable improvements to flow, water quality and aquatic habitat of our streams and lakes.

*Strategies:*

To implement this initiative, staff expects to:

1. Assess the benefits and challenges of a comprehensive, holistic Citywide Watershed Management Plan approach to storm and surface water management and present the results to City Council for discussion and consideration.

Some of the criteria Redmond and the state Department of Ecology considered in arriving at a viable watershed plan and which Bellevue will include in assessing a watershed-based approach are:

- Directs stormwater management improvements to those watersheds within the City where they will provide the most immediate environmental benefit and where the City has control and an ability to affect overall water quality; Provides greatest return (environmental benefit) on investment;
- Addresses surface water pollution and ecosystem degradation using a holistic watershed approach that locally tailors and provides a coordinated framework for addressing multiple regulatory drivers;
- Supports future development and redevelopment;
- Delivers the greatest environmental improvement while not allowing stormwater runoff from any development to further degrade conditions in any receiving water or new or increased impacts due to flows or pollutants in any receiving water;
- Produces more immediate and measurable positive results relative to the current approach;

- Provides guidance to stormwater programs and operations to more efficiently benefit surface waters.
2. The steps to assess a watershed management approach include:
- Implementing the Open Streams Assessment Initiative first to characterize and prioritize Bellevue’s watersheds and associated waterbodies and waterways where the greatest return (environmental benefit) on investment can be achieved and to identify opportunities to reduce stormwater flow rates and volumes as well as other urban stressors.
  - Identifying the watershed planning policies, management techniques and tools to consider in the watershed-based management approach including the results of the Improving Water Quality initiative. This process would start with considering those strategies which Ecology approved for the Redmond Plan (such as fee-in-lieu programs, transferring water quality or flow improvements to priority watershed sites and tailoring stormwater regulations based on a prioritized watershed approach). It would also include consideration of other policies, management techniques and tools such as public-private partnerships, property acquisition, tree retention or replacement, aquatic habitat restoration, source control, retrofit improvements, etc.
  - Developing a citywide watershed management plan, based on the results of the open stream assessment initiative, which identifies how and where to apply different policies, management techniques and tools to achieve the big vision outcome.