Executive Summary

Overview

Targeted watershed recovery and urban redevelopment and revitalization go hand in hand. This guidance describes a process for prioritizing watersheds for stormwater retrofits. It is intended to provide a tool for local governments to target investment in stormwater retrofits in a way that leverages opportunities for salmonid habitat restoration and facilitates redevelopment in urban centers.

Problem Statement

The impetus for this guidance is two-fold, originally based on the experience of two cities. The City of Tacoma has experienced challenges with attracting redevelopment to areas of the City planned to accommodate growth under the Washington State Growth Management Act. The City observed that the complexity and cost of redevelopment in highly urbanized areas is exacerbated by a number of factors, including stormwater management requirements. Paired with a sluggish economy, low rents, and high vacancy rates, these requirements have contributed to pushing redevelopment projects out of Tacoma and into lower-density areas of the county.

Seeking to avoid site-by-site facilities that consume land designated as Regional Growth Centers[1], the City of Redmond built regional stormwater facilities to serve its Downtown and Overlake Regional Growth Centers. The facilities have cost $70 million to date, and more investment is required to equip both regional growth centers with stormwater infrastructure. Although this accomplished the objective of avoiding site-by-site facilities, the multimillion dollar investment will likely not generate healthy aquatic habitat. In response to this reality, the City of Redmond stormwater utility picked up an additional element of its comprehensive plan to implement: restoring aquatic habitat in its urban watersheds. The City chose to develop a watershed management plan that prioritizes watersheds for stormwater retrofits that will support aquatic habitat for salmon. The Citywide Watershed Management Plan, approved by Ecology, allows the City to transfer stormwater retrofits out of basins to those priority watersheds.

The current rate and pattern of redevelopment of urban areas that will require stormwater retrofits will be based on redevelopment market forces and not on the highest-priority watersheds. The predicted annual rate of mitigation of new and redevelopment in Puget Sound is 1.6 percent over a 30-year period[2]. At this rate, it will take more than 60 years to retrofit all watersheds, and for any urbanized creek to be healthy, in the Puget Sound region. Redevelopment will occur where the market demands, and not necessarily in the watersheds with the highest potential for environmental improvement or restoration.

---

[1] The Puget Sound Regional Council has designated 29 urban centers in central Puget Sound as regional growth centers planned to accommodate housing (53 percent of residential growth) and employment (71 percent of employment growth) by 2040.

[2] Analysis of Stormwater Mitigation Projected to be Constructed by 2040 as Part of New and Redevelopment in WRIA 9, King County, 2014. Note: This number is based on many of the exemptions under the municipal permit not being utilized.

There is not enough funding to retrofit all receiving waterbodies in the immediate future[3]. In order to protect and restore uses (including salmon and shellfish recovery) in high-priority waterbodies, some jurisdictions will not want to wait for redevelopment to occur in the watersheds where those waterbodies are located. Prioritization of watersheds for stormwater retrofits allows jurisdictions to invest in watersheds with the most opportunity for restoring healthy aquatic habitat.

Uses for prioritization

Prioritization can provide environmental benefits in a number of different contexts, such as:

- Informing the needs assessment for the Capital Facilities Element of a local comprehensive plan, including the location and capacity of needed or expanded facilities to adequately control stormwater runoff from existing development;
- Targeting stormwater control investment under a structural retrofit program required under the Phase I permit, S5.C.6;
- Prioritizing project proposals for a grant from the Ecology Stormwater Financial Assistance Program to address pollution caused by existing development;
- Establishing a stormwater control transfer program that targets high-priority watersheds for transfer of stormwater retrofits from watersheds where development is encouraged under local comprehensive plans (see Appendix C and subsection c below); or
- Informing water clean-up plans (Total Maximum Daily Load).

Anticipated Results

Prioritization allows a jurisdiction to target stormwater retrofit investments that provide environmental benefits to areas with the most potential for restoration, while also meeting the requirements of the Growth Management Act. Prioritization provides a tool for targeting the location of and investment in regional detention facilities[4]. In one specific application, it can support a stormwater control transfer program. A transfer program is designed to provide an equivalent and more efficient approach to stormwater management than the Washington Department of Ecology's default program allows.

Prioritization allows cities and counties to move away from site-by-site stormwater facilities that consume land and that have the potential to increase development costs in urban centers that are designated to accommodate projected population and employment growth. Facilitating redevelopment in urban centers reduces the stormwater impacts of sprawl and development in greenfields.

Prioritization of watersheds for stormwater retrofits can target those areas with the most potential for reducing stormwater pollution and restoring salmon habitat. Salmon recovery plans do not address the

[3] The Stormwater Retrofit Analysis and Recommendations for Juanita Creek Basin in the Lake Washington Watershed (2012) found that approximately 68 percent of the 6.8 square mile basin is heavily developed with impervious surfaces (pavement, roofs, etc.). Estimated costs in 2011 dollars to achieve the most effective mitigation were estimated to be $1.4 billion ($30 - $200 million a square mile). However, it should be noted that Juanita Creek has high property values with locations of facilities near waterfront. The cost to retrofit may be lower in other urban areas.

[4] A regional detention facility is a stormwater quantity control structure designed to correct existing surface water runoff problems of a basin or sub-basin. This term is also used when a detention facility is sited to detain stormwater runoff from a number of new developments or areas within a catchment. See Appendix A, Definitions.

stormwater impacts from development that degrade salmon habitat in urbanized areas. Prioritization of receiving waterbodies for stormwater retrofits can facilitate salmon recovery by targeting watersheds with the most potential for restoration. Building stormwater retrofits that leverage habitat restoration projects can make it possible for salmonids to survive in urbanized water bodies.

Process and Data Sources for Prioritization

This guidance recommends a stepwise approach to prioritizing watersheds for stormwater retrofits. Locally adopted policies regarding water quality and habitat can provide the basis and framework for prioritization and the goals of a stormwater control transfer program. Regional-scale data, such as the Puget Sound Characterization project, and regional plans, such as Water Resource Inventory Area plans, will support a high-level analysis for local prioritization. But the final screen must be informed by local, watershed-specific, information. This guidance provides recommendations on types and sources of data easily accessible to local governments for a prioritization process.

"Stormwater Retrofit" is used very loosely!
Retrofit = to furnish with new or modified parts or equipment not available or considered necessary at the time of manufacture
Merriam-Webster

Some times you are talking retrofit and some times "Mitigation required as a consequence of development" Not sure I call that retrofit. Where its developer funded - I'd call it mitigation ~~or exempt~~

Also - point of the document needs to be kept clear.
- Prioritization is good and useful for several reasons
- Document provides a method of prioritization
- The transfer program (for developer funded mitigation) could also use this prioritization scheme.

Introduction

1.1 Purpose of this Prioritization Guidance

This guidance, prepared by a diverse stakeholder work group convened by the Washington State Department of Commerce, describes a process for prioritizing watersheds for stormwater retrofits. The intent is to protect and restore receiving waters or receiving waterbodies[5] within those watersheds. Prioritized watersheds will be important to protecting salmonids and other beneficial uses and are expected to respond to stormwater control retrofits . This guidance provides focused recommendations for western Washington State municipal stormwater permittees with designated regional growth centers[6] under the Puget Sound Regional Council's VISION 2040. However, it can also be used by local governments for capital facilities planning under the Growth Management Act.

A watershed prioritization effort can be useful to designate high-priority watersheds for stormwater retrofits for a number of purposes. A throughtful prioritization of watersheds for local projects can:

- Inform the needs assessment for the Capital Facilities Element of a local comprehensive plan, including the location and capacity of needed or expanded facilities to adequately control stormwater runoff from existing development;
- Target stormwater control investment under a structural retrofit program required under the Phase I permit, S5.C.6;
- Prioritize project proposals for a grant from the Ecology Stormwater Financial Assistance Program to address pollution caused by existing development;
- Establish a stormwater control transfer program that targets high-priority watersheds for transfer of stormwater retrofits from watersheds where development is encouraged under local comprehensive plans (see Appendix C and subsection c below); or
- Inform water clean up plans (Total Maximum Daily Load).

This stormwater retrofit prioritization guidance can be used on its own for prioritizing receiving waterbodies for voluntary retrofits, or it can be used as companion guidance to Ecology's *Stormwater Control Transfer Program: Out of the Basin* guidance as part of an infill or redevelopment strategy to increase capacity in urban centers[7].

1.2 Why prioritize watersheds for stormwater retrofits?

There are multiple benefits to prioritizing watersheds for stormwater retrofit investment. The current rate and pattern of redevelopment of urban areas that will require stormwater retrofits will be based on market forces and not on the highest-priority waterbodies. The predicted annual rate of mitigation of

[5] A receiving waterbody or receiving waters are the waters to which a specific geographic area (or, watershed) drain See Attachment A, Definitions.
[6] The Puget Sound Regional Council has designated 29 urban centers in central Puget Sound as regional growth centers planned to accommodate housing (53 percent of residential growth) and employment (71 percent of employment growth) by 2040.
[7] See Appendix C, Stormwater Control Transfer Program.

new and redevelopment in Puget Sound is 1.6 percent over a 30-year period[8]. At this rate, it will take more than 60 years to retrofit all watersheds in the Puget Sound region. Redevelopment will occur where the market demands, and not necessarily in the highest priority watersheds. It is important to note that Chinook salmon and other salmon species are listed as threatened by extinction in western Washington. Providing habitat over the next 60 years from now will not be sufficient to recover these iconic species.

There is not enough funding to retrofit all receiving waterbodies in the immediate future[9]. In order to protect and restore uses (including salmon and shellfish recovery) in high-priority waterbodies, some jurisdictions will not want to wait for redevelopment to occur in the watersheds where those waterbodies are located.

Prioritization allows a jurisdiction to target stormwater retrofit investments that quickly provide environmental benefits to areas with the most potential for restoration, while also meeting the requirements of the Growth Management Act. Prioritization provides a tool for targeting the location of and investment in regional detention facilities[10]. It allows cities and counties to move away from site-by-site stormwater facilities that consume land and that have the potential to increase development costs in urban centers that are designated to accommodate projected population and employment growth.

The City of Redmond chose to develop a Watershed Management Plan to restore all of Redmond's water bodies and provide a coordinated framework for addressing regulatory drivers (Endangered Species listings and Clean Water Act violations), while supporting future development.

> Redmond is taking a watershed-based approach to surface water management to be more strategic with resources, projects, and programs. When applied city-wide, this approach is expected to produce more immediate and measurable positive results relative to the current approach that relies on uncoordinated regulatory drivers to achieve incremental, site-by-site improvements in stormwater management as land is developed or redeveloped over an extended period. Redmond is implementing this approach to achieve the goal of rehabilitating all the City's surface waters over the next 50 to 100 years.[11]

Through careful tracking and reporting to Ecology, Redmond will demonstrate that infrastructure investments (by acres equipped with stormwater controls) will never be less than that achieved by following the default stormwater management requirements under the municipal permit. This commitment will be upheld until all developed areas of the City are equipped with stormwater controls.

notice they do not use the term retrofit.

regional facilities are possible now. The point is to be able to move development mitigation to high priority watersheds - combine it w/ jurisdictions and make an impact.

---

[8] Analysis of Stormwater Mitigation Projected to be Constructed by 2040 as Part of New and Redevelopment in WRIA 9, King County, 2014. Note: This number is based on many of the exemptions under the municipal not being utilized.

[9] The Stormwater Retrofit Analysis and Recommendations for Juanita Creek Basin in the Lake Washington Watershed (2012) found that approximately 68 percent of the 6.8 square mile basin is heavily developed with impervious surfaces (pavement, roofs, etc.). Estimated costs in 2011 dollars to achieve the most effective mitigation were estimated to be $1.4 billion ($30 - $200 million a square mile). However, it should be noted that Juanita Creek has high property values with locations of facilities near waterfront. The cost to retrofit may be lower in other urban areas.

[10] A regional detention facility is a stormwater quantity control structure designed to correct existing surface water runoff problems of a basin or sub-basin. This term is also used when a detention facility is sited to detain stormwater runoff from a number of new developments or areas within a catchment. See Appendix A, Definitions.

[11] City of Redmond Watershed Management Plan, page xiii.

The Growth Management Act requires capital facilities planning to support existing and planned development at urban densities, including stormwater facilities. These include improvements that are necessary to address existing deficiencies or to preserve the ability to maintain existing capacity[12]. A waterbody prioritization process can be used to assess urban areas that do not have adequate stormwater facilities to protect public health and the environment, and to identify needed stormwater retrofits to be included in the Capital Facilties Plan.

1.3 Background of the Building Cities in the Rain project

The Puget Sound Regional Council's Growth Management Policy Board at its May, June and July 2013 meetings heard presentations[13] from the Cities of Tacoma and Redmond, the Departments of Ecology and Commerce, and the Puget Sound Partnership. In Redmond's case, millions had been spent on a regional facility for a redeveloping downtown core, yet environmental benefit proportionate to the cost was not realized. Redmond staff developed a watershed management plan that prioritized watersheds for stormwater retrofits, allowing the city to transfer stormwater controls to achieve environmental improvement. Tacoma's perspective is that the complexity of redevelopment , exacerbated by stormwater management requirements, paired with low rents and high vacancy, has driven development out of downtown Tacoma's regional growth center and into lower-density areas, creating urban sprawl. and contrary to the intent of GMA.

The Board discussed the challenges raised in these presentations regarding the high cost of meeting state stormwater requirements on a site-by-site basis, among other costs, while also accommodating growth in high-density urban centers pursuant to the Washington State Growth Management Act . The Puget Sound Partnership South Central Action Area Local Integrating Organization (LIO) also heard from Tacoma, and expressed an interest in working on this issue under an adopted sub-strategy of the Puget Sound Action Agenda.[14]

As a result of the Growth Management Policy Board's discussion and the South Central LIO's interest in sustainable stormwater management, the LIO requested technical assistance from the Washington State Department of Commerce (Commerce) to further understand and develop recommendations to address the issue. Commerce secured funding through a National Estuary Program (NEP) Watershed Protection and Restoration grant to work with local communities to identify land use barriers to implementing the Puget Sound Action Agenda, and policies and regulations to address those barriers, entitled *Regional Alliances.*[15] With this funding, Commerce has researched the issue, provided technical assistance, and convened a work group of interested stakeholders to develop this guidance.

---

[12] RCW 36.70A.070 and WAC 365-196-415(3)(c) "A capital facilities element includes the new and expanded facilities necessary for growth over the twenty-year life of the comprehensive plan. Facilities needed for new growth, combined with needs for maintenance and rehabilitation of the existing systems and the need to address existing deficiencies constitutes the capital facilities demand."

[13] The presentations are posted on the PSRC Growth Management Policy Board's meetings web site.

[14] Puget Sound Action Agenda Sub-Strategy A 4.2, as amended in the 2014/2015 Action Agenda: "Provide infrastructure and incentives to accommodate new development and redevelopment within urban growth areas"; SC13, "Complete Regional Alliances Project and share results to increase infill development in urban centers while meeting stormwater requirements and Growth Management Act mandates".

[15] Puget Sound Action Agenda Sub-Strategies A 1.2 and 4.1.

Prior to convening the Building Cities in the Rain Work Group, Commerce staff reviewed the Growth Management Policy Board stormwater discussions and met with builders, planners, stormwater managers, and others to gain a better understanding of the issue. The product of this analysis is a background report[16] that identifies key concerns and challenges. The report emphasizes the benefits to water resources of redevelopment and implementing the Puget Sound Regional Council's VISION 2040 Regional Growth Strategy. The Regional Growth Strategy includes policies to minimize new impervious surface and reduces pollution through decreased vehicle miles travelled. It encourages redevelopment of existing pollution generating impervious surfaces to non-pollution generating impervious surfaces (for example, replacing a parking lot with a mixed use building and plaza).

The Building Cities in the Rain Work Group grew out of a subcommittee of the South Central LIO. It includes representatives from Western Washington Phase I and II county and city permittees; the Washington State Departments of Ecology, Fish and Wildlife, Commerce, and the Puget Sound Partnership; the U.S. Environmental Protection Agency; Puget Sound Regional Council; the South Central LIO; Water Resource Inventory Area (WRIA) 8, and the environmental community.[17]

The work group agreed that a successful stormwater control transfer program could be an opportunity to both address the issue of managing stormwater in urban growth centers and to restore healthy habitat in urbanized priority watersheds. They met over a period of 18 months in 2014 and 2015 to develop the methodology in this guidance for prioritizing watersheds for stormwater improvements. Priority watersheds could then be designated to receive certain stormwater control improvements from designated regional growth centers in the central Puget Sound region. The discussions resulted in the realization that there are other uses for prioritization of stormwater controls besides a stormwater transfer control program, such as a structural stormwater retrofit program under the Phase I permit. Consequently, this guidance encourages cities and counties to prioritize their watersheds for stormwater retrofits regardless of whether they are contemplating a stormwater control transfer program.

2. Phasing of Prioritization Guidance - Focus on Regional Growth Centers

The Work Group agreed to take a stepwise, systematic approach to prioritization. Therefore, this first iteration of the guidance will focus on regional growth centers under the Puget Sound Regional Council's VISION 2040 to encourage growth in those areas. If this approach is successful, the group can then consider whether and how guidance for a broader geographic application beyond cities or counties with designated regional growth centers makes sense.

Regional growth centers[18] are the hallmark of VISION 2040. VISION 2040 is a regional strategy for accommodating the 5,000,000 people expected to live in the region by 2040. In addition to a Regional Growth Strategy, it consists of an environmental framework and multi-county planning policies adopted pursuant to the Washington State Growth Management Act[19] to guide local comprehensive land use plans and development regulations. Designated regional growth centers have been identified for housing and employment growth, as well as for regional funding to support that growth. Regional manufacturing/industrial centers are locations for increased employment. Regional centers are

[16] The Background Report is posted on the Building Cities in the Rain project web site.
[17] See Attachment B for the list of Work Group participants.
[18] See Attachment C for a map of the regional growth centers and 40/20 Basins Near Flow Control Exempt Waters.
[19] RCW 36.70A.210 (7).

expected to have subarea plans that meet planning expectations outlined in the Puget Sound Regional Council's Regional Centers Plan Checklist.

In most regional growth centers, reaching population and employment targets will require substantial infill development. In addition to encouraging efficient use of urban land through infill, VISION 2040 encourages maintaining hydrological functions, and where feasible, restoring them to a more natural state.

3. Multiple Community and Regulatory Benefits and Opportunities

Prioritization of receiving waterbodies for stormwater retrofits, including for a stormwater control transfer program, can be used to meet multiple regulatory and community goals. It can be used to meet the requirements of the federal Clean Water Act, while accommodating growth under the state Growth Management Act and meeting recovery goals for Puget Sound and salmon.

3.1 Clean Water Act, including the stormwater permit requirements

Water pollution and altered hydrology caused by development contribute pollutants and stressors such as erosion, scouring and heat to surface waters, impairing beneficial uses such as drinking, fishing, swimming, and other activities. As authorized by the federal Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Historically, industrial, municipal, and other entities obtain NPDES permits if their discharges go directly to surface waters. Separate storm sewer systems include discrete conveyances such as pipes or man-made ditches designed or used to convey or collect stormwater to receiving waterbodies. When owned and operated by a municipal or public entity (e.g., city, county, state), such storm systems (also called MS4s) may be regulated as ~~point~~ non-point sources under an NPDES permit. In Washington State , the NPDES permit program is administered by the Department of Ecology. Since its introduction in 1972, the NPDES permit program is responsible for significant improvements to our nation's water quality.[20]

3.1.1 NPDES Municipal Permits

In Washington State, NPDES MS4 permits have been phased in over time following EPA regulations. "Phase I" MS4 permits are issued to "large and medium-sized" jurisdictions - Clark, King, Pierce, and Snohomish counties and the cities of Seattle and Tacoma. Eighty-two cities and five counties fall under the western Washington "Phase II" MS4 permit for "small jurisdictions."[21]

Under both Phase I and Phase II western Washington MS4 permits, counties and cities must adopt regulations requiring best management practices (BMPs) for new development and redevelopment projects that meet certain project size and type thresholds. The BMPs are designed to: 1) protect water quality by providing runoff treatment, and 2) provide flow controls that reduce stormwater peak flow rates and volumes to prevent channel erosion in rivers and streams.

The permits have requirements that apply to new development and redevelopment depending upon specific conditions as follows:

---

[20] EPA NPDES web site.

[21] See Attachment D for a list of the western Washington Phase I and II cities and counties.

- Minimum Requirement #5, On-Site Stormwater Management[22] (MR #5, often referred to as the Low-Impact Development requirement, or LID) requires projects to infiltrate, disperse, and retain stormwater runoff at a project site.
- Minimum Requirement #6, Runoff Treatment[23] (MR #6) requires that various types of runoff treatment be provided to address the post-project condition for certain hard and pervious surfaces.
- Minimum Requirement #7, Flow Control[24] (MR #7 Flow Control) requires that qualifying projects control flow durations (for the range of pre-developed discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow) to match those conditions produced by the pre-developed land cover condition (generally, forested) rather than by the immediate pre-project land cover condition. This Minimum Requirement is the focus of Ecology's Stormwater Control Transfer Program guidance.

3.1.2 Prioritization of Receiving Waterbodies for Stormwater Control Improvements

As noted above, prioritization of receiving waterbodies for stormwater control improvements allows a jurisdiction to target stormwater retrofit investments that provide more effective and efficient environmental benefits in water bodies with the most potential for restoration. Prioritization can provide environmental benefits in a number of different contexts, such as:

- Establishing a stormwater control transfer program that targets high-priority watersheds for transfer of stormwater retrofits (see Appendix C and subsection c below).
- Targeting stormwater control investment under a structural retrofit program required under the Phase I permit, S5.C.6;
- Prioritization of project proposals for a grant from the Ecology Stormwater Financial Assistance Program to address pollution caused by existing development;
- Capital improvement planning for stormwater utilities; or
- Water clean up plans (Total Maximum Daily Load or 4B plan).

3.1.3 Basin/Watershed Management Plan as Basis for Stormwater Control Transfers – ~~Future~~ Proposed

Both Phase I and Phase II permits allow permittees to tailor certain Minimum Requirements to local circumstances through the use of an Ecology-appproved basin plan or similar water quality and quantity planning effort[25].

A permittee may establish a stormwater control transfer program[26] as an alternate means to provide equivalent or better stormwater controls off site and out of basin if approved by Ecology under the MS4 permit. Doing so allows a permittee to invest in stormwater controls first in watersheds that drain to

[22] Municipal Permits for Western Washington, Appendix 1, Section 4.5, Minimum Reguirement #5, On-site Stormwater Management.
[23] Municipal Permits for Western Washington, Appendix 1, Section 4.6, Minimum Reguirement #6, Runoff Treatment.
[24] Municipal Permits for Western Washington, Appendix 1, Section 4.7, Minimum Reguirement #7, Flow Control.
[25] See the following permit requirements (Phase I: S5.C.5.a.i , Phase II: S5.C.4.a.i).
[26] See Appendix C for a description of a stormwater control transfer program.

priority-receiving waterbodies or receiving waters without degrading lower-priority receving waterbodies or receiving waters, while still meeting permit requirements.

3.1.4 Stormwater Control Transfer Programs

In conjunction with this guidance, the Ecology Stormwater Control Transfer Program guidance presents an opportunity for incentivizing infill development in urban centers while accelerating environmental improvement in other watersheds within a jurisdiction where it will create the most environmental benefit.

A stormwater control transfer program can increase opportunities for infill development in urban centers while meeting stormwater requirements, Growth Management Act goals and requirements, and efforts to help restore priority watersheds. It would allow a local government to transfer a portion of stormwater controls to consolidate the efforts to restore habitat in priority water bodies. By doing so, the amount of developed area with stormwater controls would remain equivalent to or exceed those that would have been realized by following default MS4 permit requirements.

The Ecology guidance provides an alternative approach to conventional onsite stormwater management requirements; under the municipal permits, stormwater mitigation requirements at urban infill and redevelopment sites can be more challenging and costly to implement compared to undertaking a similar project at an undeveloped site. A transfer program allows for stormwater impacts to be mitigated at a location outside the local drainage basin, thereby providing greater flexibility to developers or jurisdictions wanting to infill and redevelop urban areas. The Ecology guidance provides a means for jurisdictions to incentivize infill development in urban centers, through construction of fee-in-lieu stormwater mitigation facilities, while accelerating environmental improvement in other watersheds within a jurisdiction where they will create the most environmental benefit.

Per Ecology's guidance, the goal of a stormwater control transfer program is to direct flow control improvements to watersheds where they will provide more immediate environmental benefit than would be realized under the normal rate of development or redevelopment in the jurisdiction's watershed. At the same time, the approach prevents further degradation in all watersheds – i.e., no development or redevelopment activity will be allowed to create new or additional adverse impacts to any receiving waterbodies or receiving waters.

There is a strong need to encourage redevelopment in cities and denser urban areas in order to accommodate growth, to reduce vehicle miles and trips, and to reduce sprawl and its associated stormwater impacts. Concentrating development in urban centers helps avoid the longer term costs of sprawl, such as increased impervious surface and stormwater runoff, increased need for stormwater infrastructure, and increased flooding, shoreline degradation and erosion. Thoughtful stormwater planning on a watershed-scale that considers a host of options to addressing stormwater runoff impacts can facilitate redevelopment in urban centers while also achieving water quality and habitat restoration goals.

A stormwater control transfer program as described above is expected to yield cost effective and better environmental outcomes in western Washington than the default approach under the permit. The mutually beneficial outcomes of a stormwater control transfer program are to:

- Meet or exceed municipal stormwater permit requirements;

- Improve and inform capital facilities planning decisions under the Growth Management Act by developing a prioritized list of investments;
- Increase capacity to meet local or regional ecosystem/watershed recovery goals with retrofits that leverage salmonid habitat restoration;
- Improve habitat for salmonids or shellfish, or address other sensitive beneficial uses of a waterbody sooner than following the existing default stormwater management approach; and
- Facilitate and expedite development in urban growth centers designated to receive projected population growth under the Growth Management Act.

The decision to develop and implement a stormwater control transfer program is a local policy decision that will require a significant investment of time and resources to implement. Establishing a clear, defensible prioritization approach is an important early step.

3.2 Growth Management Act – Helping Communities Plan Strategically for their Future

Since the Washington State Growth Management Act[27] was passed by the Legislature in 1990, Washington counties and cities have used the Act's planning framework to adopt comprehensive plans and development regulations to:

- Guide where urban growth areas should be located and provide these urban areas with adequate and affordable urban services;
- Protect the environment and enhance the state's high quality of life, including water quality;
- Enhance transportation systems to reduce congestion and create healthy alternative modes of travel; and
- Revitalize downtowns with attractive compact development.

The Growth Management Act requires the fully planning counties and the cities[28] within them to meet all of the requirements under the Act. Counties must, in consultation with cities, adopt countywide planning policies that govern the county and city comprehensive land use plans and development regulations. In central Puget Sound, the Puget Sound Regional Council is required to adopt multi-countywide planning policies that govern countywide planning policies for the four counties (King, Pierce, Kitsap and Snohomish).[29] VISION 2040 contains the multi-county planning policies adopted by the Puget Sound Regional Council under the Growth Management Act.

Prioritization of receiving waterbodies for stormwater retrofits allows a city or county to identify the environmental assets of the community, and to target needed infrastructure where it will have the most environmental benefit. Stormwater planning that facilitates development in regional growth centers implements a number of the multi-countywide planning policies in VISION 2040.[30]

---

[27] Chapter 36.70A RCW and related statutes.

[28] 29 counties and the cities within them are required or opted into the requirements to fully plan under the Growth Management Act. All 12 Puget Sound counties and their cities are fully planning under the Act.

[29] RCW 36.70A.210(7).

[30] MPP-En-3: Maintain and, where possible, improve air and water quality, soils, and natural systems to ensure the health and well-being of people, animals, and plants. Reduce the impacts of transportation on air and water quality, and climate change.

MPP-En-5: Locate development in a manner that minimizes impacts to natural features. Promote the use of innovative environmentally sensitive development practices, including design, materials, construction, and on-going maintenance.

3.2.1 Capital Facilities and Utilities Plans

Land use planning under the Growth Management Act requires, "where applicable, the review of drainage, flooding, and stormwater runoff and provides guidance for corrective actions to mitigate or cleanse discharges that pollute waters of the state, including Puget Sound or waters entering Puget Sound."[31] Based on this language and the current municipal stormwater permits, some jurisdictions are addressing these issues in their comprehensive plans and budgets. The City of Kenmore adopted a Surface Water Element in its comprehensive plan that requires implementation of the capital improvement program to maintain and improve its MS4[32]. The Cities of Kirkland, Issaquah, Renton and Tacoma have adopted level of service standards for surface water management in their capital facilities elements[33].

Cities and counties must adopt a six- to 20-year plan of capital projects with estimated costs and proposed methods of financing[34] as part of their comprehensive plan. In regard to new stormwater infrastructure, planning and implementation typically occurs through a site-by-site approach, rather than a comprehensive view of the landscape and actions needed to improve or maintain water quality and habitat. Prioritization of waterbodies for regional facilities provides a more comprehensive, and hopefully more efficient, approach to planning for stormwater management facilities. And, strategically identifying locations for facilities in a capital facilities plan can help address stormwater requirements for regional growth centers.

3.2.2 Creating Compact Communities in Regional Growth Centers

Prioritization provides a tool for targeting the location of and investment in regional detention facilities[35]. It allows cities and counties to move away from site-by-site stormwater facilities that consume land and that have the potential to increase development costs in urban centers. Regional growth centers designated under VISION 2040 are the urban centers where redevelopment is planned

---

MPP-En-13: Maintain natural hydrological functions within the region's ecosystems and watersheds and, where feasible, restore them to a more natural state.
MPP-En-14: Restore — where appropriate and possible — the region's freshwater and marine shorelines, watersheds, and estuaries to a natural condition for ecological function and value.

[31] RCW 36.70A.070(1).

[32] Policy SW-1.1.5 states: Implement a Capital Improvement Program that maintains and improves the MS4 in a manner that enhances and protects the City's natural environment, mitigates flooding problems, improves water quality, promotes a reliable and safe transportation network and provides the community a safe and healthy place for living, working and recreation.

[33] The Kirkland 2015 adopted level of service is "Conveyance, flow control, and water quality treatment per the Stormwater Management Manual for Western Washington or equivalent to prevent flooding, and protect water quality, and habitat in streams and lakes." Issaquah's 2015 adopted level of service is the King County Surface Water Design Manual and municipal permit requirements. Renton's level of service is treatment that does not increase pre-developed discharge rates, and conveyance without system surcharging during 25-year storm events and no increased flooding during 100-year events. Tacoma's 2015 adopted level of service is 10-year, 24-hour design storm for private facilities less than 24 inches in diameter, and 25-year, 24-hourdesign storm for all public facilities and private facilities greater than or equal to 24 inches in diameter.

[34] RCW 36.70A.070(3).

[35] A regional detention facility is a stormwater quantity control structure designed to correct existing surface water runoff problems of a basin or sub-basin. This term is also used when a detention facility is sited to detain stormwater runoff from a number of new developments or areas within a catchment. See Appendix A, Definitions.

to accommodate projected population (53 percent of residential growth) and employment growth (71 percent).

A stormwater control transfer program provides additional opportunity for realizing the Growth Management Act's vision of vibrant, compact communities that allow cities and counties to accommodate growth. For example, such a program can provide options for meeting flow control requirements on smaller urban lots by transfering flow control requirements to another site. It can provide cost-effective options and more certainty to developers in urban centers, encourage the growth that is planned in those centers, and help lower infrastructure costs for managing stormwater. A fee-in-lieu program can also be part of the jurisdiction's strategy to fund the necessary retrofits for existing development needed under the Capital Facilities Plan.

3.2.3 Transportation Demand Management and Infrastructure under VISION 2040

By the year 2040, projected population and job growth is expected to boost demand for travel within and through the region by about 40 percent. Regional growth and regional manufacturing/industrial centers, with their concentration of people and jobs, form the backbone of the transportation network for the four-county region. Facilitating growth in designated regional centers reduces the demand for vehicle trips and parking infrastructure, both of which can have significant stormwater impacts. Thoughtful stormwater planning on a watershed-scale that considers a host of options to addressing stormwater runoff impacts can facilitate growth in those centers where public transit and services exist or are planned.

3.2.4 Economic Development and Revitalization

Vibrant downtowns and other urban centers are an essential element for any region-wide economic development strategy because they are traditionally the hubs of economic activity in any community. Market-based incentive programs such as a stormwater transfer control program can encourage economic development in these urban centers planned for housing, employment growth, transit, recreation, and services.

3.2.5 Subarea Plans and Environmental Review

"Up front" environmental review of subarea plans identifies predefined mitigation that provides certainty to developers and the community. Most of the currently designated regional growth centers have subarea plans adopted by the city. A subarea plan is a more detailed version of the comprehensive plan for a specific area, such as a downtown or neighborhood. The Puget Sound Regional Council now requires an adopted subarea plan or "center plan" for designation of new regional growth centers. The plan should include or reference policies and programs for innovative stormwater management.[36]

"Up front" environmental review of subarea plans under the State Environmental Policy Act (SEPA), or predefined mitigation of development, can be used to further streamline permitting and provide incentives for developers in a regional growth center. The predefined mitigation measures could include

[36] See PSRC's Regional Center Plans Checklist.

stormwater retrofits in high-priority watersheds and/or offsite transfers of stormwater controls. Mitigation measures would be predefined in the SEPA document for the subarea plan.[37]

3.3 Puget Sound Action Agenda

The Puget Sound Action Agenda is a regional road map that lays out the work needed to achieve an ambitious goal: restoring the health of Puget Sound by 2020. The 2014/2015 Action Agenda identifies key ongoing programs, local priorities for different areas of the Sound and approximately 300 specific actions that must be implemented over the next two years to stay on track toward recovery targets. The Action Agenda calls for concentrated growth in urban growth areas and improved stormwater controls to implement two of the Action Agenda's three strategic initiatives: (1) Prevent pollution from urban stormwater runoff; and (2) Protect and restore salmon habitat.

Prioritization of receiving waterbodies for stormwater retrofits can target those areas with the most potential for reducing stormwater pollution and restoring salmon habitat. A stormwater control transfer program can be used to facilitate compact development in urban centers and provide opportunities for improving water quality and restoring salmon habitat.[38] Compact development can be facilitated by allowing a developer to pay a fee-in-lieu of constructing stormwater retrofits on site that consume land.

The third Action Agenda strategic initiative is to restore and re-open shellfish beds. Shellfish health begins on land, through reduction of pollution from rural and agricultural lands and maintenance and repair of failing septic systems. Stormwater retrofits in high priority watersheds that drain to marine waters could be used to improve the health of shellfish beds.

3.4 Puget Sound Salmon Recovery Plan

The Puget Sound Salmon Recovery Plan is a regional shared strategy developed in response to listings of Puget Sound Chinook salmon and Summer Chum salmon in Hood Canal under the federal Endangered Species Act (ESA). The recovery plan is mandated by the ESA listing and developed to meet the needs of fish and people. A fundamental assumption of this shared strategy approach is that local watershed efforts are the engine that will lead the region to recovery of salmon. Restoration and protection actions will take place largely at the watershed level. To that end, recovery plans have been developed by local watershed groups for each of the Water Resource Inventory Areas (WRIAs) in Puget Sound. Those plans are comprised of detailed strategies and actions designed to address the limiting factors that have caused the species to be threatened with extinction under the ESA.

Salmon recovery plans do not address the stormwater impacts from development that degrade salmon habitat in urbanized areas. Prioritization of receiving waterbodies for stormwater retrofits can facilitate salmon recovery by targeting watersheds with the most potential for restoration. Building stormwater

---

[37] For example, an integrated plan/SEPA document, plan-level "non project" SEPA document, planned action environmental impact statement (RCW 43.21C.031), or a subarea plan and environmental impact statement for transit-oriented development (RCW 43.21C.420).

[38] Several strategies in the Action Agenda speak directly to compact communities, clean water and habitat restoration, for example:
A1. Focus Land Development Away from Ecologically Important and Sensitive Areas
A2. Protect and Restore Upland, Freshwater, and Riparian Ecosystems
A4. Encourage Compact Regional Growth Patterns and Create Dense, Attractive, and Mixed-Use and Transit-Oriented Communities

retrofits that leverage habitat restoration projects can make it possible for salmonids to survive in urbanized water bodies.

3.5 Climate Change

Encouraging redevelopment in urban centers helps communities reduce energy use and transportation emissions that contribute to climate change. At 45.7 percent of total greenhouse gas emissions (GHG), transportation is Washington State's largest GHG emissions contributor[39]. Allowing people to walk and use transit reduces their vehicle miles traveled (VMT) and GHG emissions. Increased density alone has a modest impact, but well-planned compact communities with street connectivity, mixed-use, availability of transit, and other smart growth characteristics are also correlated with reductions in VMT. A study by John Holtzclaw found that every time a neighborhood doubles in compactness, the number of vehicle trips residents make is reduced by 20 percent to 30 percent[40]. Smaller housing units increase energy efficiency, and smaller parcel sizes can reduce the thermal emissions that attributable to large lots with larger houses, longer driveways and bigger yards[41].

Based on the scope of analyses King County performed as part of the WRIA 9 Stormwater Retrofit on impacts from climate change on stormwater detention facilities (King County 2014), results indicate a need for approximately a 10-percent increase in storage volumes to meet current flow control design standards. However, the application of this result is extremely limited. The County recommends reviewing outcomes anticipated by July 2018 from current efforts among King County, Washington State Department of Ecology, and the University of Washington Climate Impacts Group. Their goal for this study is to evaluate the effectiveness of current stormwater design standards under projected future rainfall patterns and make recommendations for updating King County design standards to account for climate change impacts. This analysis will inform the next Stormwater Design Manual update, and will result in long-term savings in stormwater infrastructure investment.

Prioritization of receiving waterbodies for targeted stormwater investments can support related efforts for resiliency planning for climate change[42]. Communities can plan for climate change impacts by ensuring new stormwater facilities have adequate flow control and water quality treatment[43].

3.6 Environmental Justice

Prioritizing watersheds for stormwater retrofits can include consideration of environmental justice[44] and social equity issues in economically disadvantaged neighborhoods. These neighborhoods can benefit

---

[39] See the Washington State Greenhouse Gas Emissions Inventory, 2010 – 2011.

[40] *Creating Great Neighborhoods: Density in Your Community*, Local Government Commission.

[41] For example, a 2,000-square-foot household consumes 16% more energy for heating and 13% more energy for cooling than a 1,000-square-foot house. See *Growing Cooler*, Smart Growth America (2007).

[42] See the Washington State Integrated Climate Change Response Strategy, and King County's Strategic Climate Action Plan, Section Two, page 112. Also see Attachment E, Resources, for other examples of planning for Climate Change.

[43] See Appendix E, Resources, for examples of community planning for climate change.

[44] EPA defines Environmental Justice as follows:

> Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation. It will be achieved when everyone enjoys the same degree of protection from environmental

from green infrastructure stormwater retrofit projects that include amenities such as street trees, tree canopy along a stream, parks, or projects that reduce flooding. Communities that choose to prioritize their watersheds for retrofits can consider these neighborhoods for retrofits as part of the prioritization process.

Transit-oriented compact communities that are encouraged in sending watersheds through a stormwater control transfer program would enable greater densities. Compact communities should also provide for affordable housing, access to services, and transit options for lower-income households. The Growth Management Act requires cities and counties to plan for the housing needs for all economic segments of the community, and for multi-modal transportation systems[45].

---

and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.

[45] RCW 36.70A.020 and 070.