PLANNING COMMISSION
PUBLIC HEARING MEETING
AGENDA

Thursday, October 4, 2018
7:00 p.m.

Council Chamber · Shoreline City Hall
17500 Midvale Ave N
Shoreline, WA 98133

	Estimated Time
1. CALL TO ORDER	7:00
2. ROLL CALL	7:01
3. APPROVAL OF AGENDA	7:03

Public Comment and Testimony at Planning Commission

During General Public Comment, the Planning Commission will take public comment on any subject which is not specifically scheduled later on the agenda. During Public Hearings and Study Sessions, public testimony/comment occurs after initial questions by the Commission which follows the presentation of each staff report. In all cases, speakers are asked to come to the podium to have their comments recorded, state their first and last name, and city of residence. The Chair has discretion to limit or extend time limitations and the number of people permitted to speak. Generally, individuals may speak for three minutes or less, depending on the number of people wishing to speak. When representing the official position of an agency or City-recognized organization, a speaker will be given 5 minutes. Questions for staff will be directed to staff through the Commission.

4. GENERAL PUBLIC COMMENT	7:05
5. PUBLIC HEARING a. 2018 Comprehensive Plan Amendment • Staff Presentation • Public Testimony	7:15
6. DIRECTOR'S REPORT	8:15
7. UNFINISHED BUSINESS	8:16
8. NEW BUSINESS	8:17
9. REPORTS OF COMMITTEES & COMMISSIONERS/ANNOUNCEMENTS	8:18
10. AGENDA FOR October 18, 2018	8:19
11. ADJOURNMENT	8:20

The Planning Commission meeting is wheelchair accessible. Any person requiring a disability accommodation should contact the City Clerk's Office at 801-2230 in advance for more information. For TTY telephone service call 546-0457. For up-to-date information on future agendas call 801-2236

Planning Commission Meeting Date: October 4, 2018 **Agenda Item 5a.**

PLANNING COMMISSION AGENDA ITEM

CITY OF SHORELINE, WASHINGTON

AGENDA TITLE:	**2018 Comprehensive Plan Amendment Public Hearing**
DEPARTMENT:	**Planning & Community Development**
PRESENTED BY:	**Steven Szafran, AICP, Senior Planner** **Paul Cohen, Planning Manager**

☒ **Public Hearing** ☐ **Study Session** ☐ **Recommendation Or**
☐ **Discussion** ☐ **Update** ☐ **Other**

INTRODUCTION

The State Growth Management Act, chapter 36.70A RCW, limits review of proposed Comprehensive Plan Amendments (CPAs) to once a year with limited exceptions. To ensure that the public can view the proposals within a citywide context, the Growth Management Act directs cities to create a docket that lists the CPAs to be considered in this "once a year" review process.

The Planning Commission has held multiple study sessions throughout 2018 to discuss the CPAs listed in the 2018 Comprehensive Plan Docket (2018 Docket, see **Attachment 1**). The study sessions are listed below and include a link to each of the staff reports.

- July 5, 2018 –Surface Water Master Plan. The staff report for this item can be found here: http://www.shorelinewa.gov/home/showdocument?id=39203
- July 5, 2018 –Master Street Plan and Pedestrian Plan. The staff report for this item can be found here: http://www.shorelinewa.gov/home/showdocument?id=39205
- July 19, 2018 –Point Wells Subarea Plan update. The staff report for this item can be found here: http://www.shorelinewa.gov/home/showdocument?id=39242
- July 19, 2018 –Transportation Policy T-44 amendment. The staff report for this item can be found here: http://www.shorelinewa.gov/home/showdocument?id=39244

BACKGROUND

On April 16, 2018, the City Council established the 2018 Docket:

1. Amend the Comprehensive Plan for 145th Street annexation and all applicable maps. (2017 Docket)

Approved By: Project Manager _____ Planning Director _____

2. Consider amendments to the Point Wells Subarea Plan and other elements of the Comprehensive Plan that may have applicability to reflect the outcomes of the Richmond Beach Transportation Corridor Study as described in Policy PW-9. Also, consider amendments to the Comprehensive Plan that could result from the development of Interlocal Agreements as described in Policy PW-13. (2017 Docket)

3. Consider amendments to the Capital Facilities Element Goals and Policies and update of the Surface Water Master Plan. (2017 Docket)

4. Consider deleting Appendix D – Master Street Plan from the Transportation Master Plan (TMP) and replace with reference to the Engineering Design Manual pursuant to SMC 12.10.015.

5. Consider amendments to Transportation Policy T44 which clarifies how an Arterial Street's Volume over Capacity (V/C) ratio is calculated.

6. Consider amendments to the Point Wells Subarea Plan.

7. Consider amending Land use Designations Mixed-Use 1 and Mixed-Use 2 in the Land Use Element in order to provide clarification.

8. Consider updates to the Pedestrian System Plan from the Transportation Master Plan.

The 2018 Docket contains three (3) amendments from the 2017 Docket that the City Council directed to be carried over. These amendments are now on the 2018 Docket shown as proposed Amendments 1, 2, and 3.

2018 Comprehensive Plan Amendments

Comprehensive Plan Amendments can take two forms - privately-initiated amendments and City-initiated amendments.

Pursuant to SMC 20.30.340, all Comprehensive Plan Amendments, except those proposed by City Council, must be submitted by December 1 without fee for general text amendments. In 2018, there were two (2) privately-initiated amendments and six (6) city-initiated amendments.

2018 CPA DOCKET ANALYSIS

Amendment #1

This amendment is carried over from the 2017 Docket.

Amend Policy LU47 which states, "Consider annexation of 145th Street adjacent to the existing southern border of the City".

Staff Analysis:

The Shoreline city limits currently terminate at the northern edge of the 145th Street right-of-way; Seattle city limits are to the center line south and King County's jurisdiction is from the centerline north. The City is currently engaged in the design and environmental review of the 145th corridor from Interstate 5 to Aurora (State Route 99) and is evaluating annexation of the entire 145th corridor from 3rd Ave NW to State Route 522. There are maps contained in the Comprehensive Plan that do not include 145th Street. If annexed, all of the maps in the Comprehensive Plan and Transportation Master Plan must be amended to include 145th Street as a street within the City of Shoreline.

Due to the legal complexity, the timeline has extended for the annexation of 145th Street. The City completed the 145th Street Corridor Study in April 2016. The design of a portion of the roadway (Interstate-5 to Aurora) is underway. This was done in response to the 145th Street Station Subarea Plan and Sound Transit's upcoming 145th Street Light Rail Station. The environmental analysis on the roadway is scheduled for completion in 2018. In addition to design and environmental analysis, coordination between the City of Seattle, King County, and the Washington State Department of Transportation has taken longer than expected and this, along with legal solutions, must occur before the City can proceed with annexation of 145th Street.

Staff Recommendation:
Staff recommends that this amendment be carried-over and placed on the 2019 Comprehensive Plan Docket with the intent that the item will continue to be studied in 2019/2020.

Amendment #2

This amendment is carried over from the 2017 Final Docket.

Consider amendments to the Point Wells Subarea Plan and other elements of the Comprehensive Plan that may have applicability to reflect the outcomes of the Richmond Beach Transportation Corridor Study as described in Policy PW-9. Also, consider amendments to the Comprehensive Plan that could result from the development of Interlocal Agreements as described in Policy PW-13.

Staff Analysis:
The City anticipated that the Richmond Beach Transportation Corridor Study (TCS), as described in Policy PW-12, on mitigating adverse impacts from BSRE's proposed urban center development of Point Wells would be completed in 2018. The TCS was intended to inform mitigation that would be included in the Environmental Impact Statement for the development. However, the TCS has not been finalized as the City reached an impasse with BRSE's technical staff in determining an appropriate mitigation strategy to meet the City's Level of Service standards. In addition, the future of BSRE's urban center development applications is in question as the applications were terminated by the Snohomish County Hearing Examiner without further environmental review. BSRE

has appealed this ruling to the Snohomish County Council as well as to the Snohomish County Superior County. Until this uncertainty is resolved, the TCS will not be finalized.

Staff Recommendation:
Staff recommends that this amendment be carried-over and placed on the 2019 Comprehensive Plan Docket with the intent that the item will continue to be studied in the future.

Amendment #3

This amendment is carried over from the 2017 Final Docket.

Consider amendments to the Capital Facilities Element Goals and Policies and update of the Surface Water Master Plan.

Staff Analysis:

Over the past few years, Staff has been working with consultants, Brown and Caldwell and FCS Group (BC Team), to update the City's 2011 Surface Water Master Plan (2011 Master Plan) which is a supporting component of the City's Comprehensive Plan.

The primary purpose of the 2018 Master Plan is to address drainage and water quality challenges associated with growth, increasing regulations, and aging infrastructure. The 2018 Master Plan will guide the City's Surface Water Utility (Utility) for the next five (5) to 10 years, including recommendations for capital improvements, programs, long-term asset management, and a financial plan that sustainably supports the Utility.

The 2018 Master Plan was developed using Asset Management principles based on Level of Service (LOS) and LOS targets to provide a transparent way to inform the City Council on management strategy decisions and associated rates. The 2018 Master Plan provides for a proactive management strategy which includes implementing 25 high-priority projects and 24 new/enhanced programs that address high priority long-term needs, as well as anticipated new regulatory requirements.

As part of the 2018 Master Plan, Staff developed performance measures for each of the programs the Utility will be implementing based on the proactive management strategy. These measures will be used to monitor the success of the programs and ensure they are effectively meeting the level of service targets and expectations for the next five (5) years and beyond.

There are two proposed changes to the Comprehensive Plan. The first change will adopt a new Surface Water Master Plan (**Attachment 3**). The second change will update the goals and policies in the Parks Element by replacing references to the 2011 Surface Water Master Plan with the 2018 Surface Water Master Plan (**Attachment 2**).

Staff Recommendation:
Staff recommends approval of this amendment by adopting changes shown in **Attachment 2 and 3**.

Amendment #4

Consider deleting Appendix D – Master Street Plan from the Transportation Master Plan and replace with reference to the Engineering Design Manual pursuant to SMC 12.10.015.

Staff Analysis:

At the March 16-17, 2018 City Council Strategic Planning Workshop, Council set 2018-2020 Goals and Work Plan that includes the following relevant goal and action step:

- **Goal 2**: Improve Shoreline's infrastructure to continue the delivery of highly-valued public services.
    - **Action Step 8**: Update the Transportation Master Plan Pedestrian System Plan and sidewalk prioritization process and move the Master Street Plan from the TMP to Title 12 of the Shoreline Municipal Code.

The Transportation Master Plan (TMP) serves as the Transportation Element of the City's Comprehensive Plan. The TMP speaks to a Master Street Plan (Chapter 7), Recommended Transportation Improvements (Chapter 9), and Appendix D: Master Street Plan all include elements that are detailed and specific, similar to a development regulation as opposed to a goal/policy that a comprehensive plan is to contain. Therefore, this CPA is designed to revise the text within Chapters 7 and 9 of the TMP and remove Appendix D: Master Street Plan from the TMP as these elements are too specific for a policy document.

The proposed changes to the Transportation Master Plan are included in **Attachment 4**.

Furthermore, the text updates and removal of Appendix D from the Comprehensive Plan's TMP will allow for modifications outside of the GMA's comprehensive plan annual limitation, so as to allow the City to better respond to a changing development environment. It must be noted, that placing these elements outside of the TMP does not remove them from public scrutiny given that the Council's biannual approval of the Transportation Improvements Plan/Capital Improvements Plan (TIP/CIP) and major changes to the Master Street Plan (that will reside in the Engineering Development Manual [EDM]) are both subject to public review and comment.

The Comprehensive Plan's Transportation Element references the Transportation Master Plan as a supporting analysis document. Chapter 7 and Appendix D of the TMP, are about the "Master Street Plan."

The TMP's Chapter 7: Master Street Plan is structured as a Comprehensive Plan document, in that it includes policies and implementation strategies. In contrast, Appendix D of the TMP is more similar to development regulations, serving to implement the policies and strategies contained in Chapter 7 and other sections of the TMP. While Appendix D reiterates a bit of the language from Chapter 7, it consists primarily of a table that identifies specific street segments and their functional classifications. It also lists specific roadway cross-sections for arterial streets and local primary streets, general cross-sections for local secondary streets, existing right-of-way width, existing curb-to-curb width, required right-of-way width, and planned curb-to-curb width.

The City's current EDM, last amended in 2016, contains Appendix F – Street Matrix. The biggest distinction between Appendix D of the TMP and Appendix F of the EDM is in their tables. The EDM's Street Matrix includes additional columns. These columns denote required widths, on both sides of the road, for sidewalks, the amenity zone, curb, parking, travel lane, bicycle lane, etc. for each roadway or defer the establishment of these widths to later planning or development activities. In other words, the EDM's Street Matrix, which via SMC Chapter 20.70 is used to regulate development activities, operates appropriately as a development regulation.

Appendix D: Master Street Plan will be incorporated into the City's EDM, which sets forth minimum engineering requirements for site and right-of-way (ROW) work related to development within the city. Shoreline Municipal Code (SMC) Chapter 20.70 Engineering and Utilities Development Standards is the regulatory mechanism by which the EDM is imposed.

Staff Recommendation:
Staff recommends approval of this amendment by adopting changes shown in **Attachment 4**.

Amendment #5

Consider amendments to Transportation Policy T44 which clarifies how an Arterial Street's Volume over Capacity (V/C) ratio is calculated.

Staff Analysis:

This is a private, citizen-initiated amendment by Tom McCormick.

This privately-initiated amendment seeks a number of changes to Transportation Policy T-44 which will be explained and analyzed below. The applicant's application and amendment request is included in **Attachment 5**.

McCormick Privately-Initiated Proposed Amendment Language:

Concurrency and Level of Service

Policy T44. Adopt Level of Service (LOS) D at the signalized intersections on arterials and unsignalized intersecting arterials within the city as the level of service standard for evaluating planning level concurrency and reviewing traffic impacts of developments, excluding the Highways of Statewide Significance and Regionally Significant State Highways (I-5, Aurora Avenue N, and Ballinger Way). Intersections that operate worse than LOS D for the peak AM or peak PM *(See staff analysis #1 below)* will not meet the City's established concurrency threshold. The level of service shall be calculated with the delay method described in the Transportation Research Board's Highway Capacity Manual 2010 or its updated versions. Adopt a supplemental level of service for Principal Arterials and Minor Arterials that limits the peak AM and peak PM one-directional *(See staff analysis #1 below)* volume to capacity (V/C) ratio to 0.90 or lower, provided the V/C ratio on any leg of a signalized Principal or Minor Arterial intersection may be greater than 0.90 if the intersection operates at LOS D or better (a leg of a signalized arterial intersection refers to that portion of the arterial that is between the signalized intersection and the next nearest intersecting arterial or non-arterial street) *(See staff analysis #2 below).* These Level of Service standards apply throughout the city unless an alternative LOS standard is identified in the Transportation Element for intersections or road segments, or where an alternate level of service has been adopted in a subarea plan. , or for Principal or Minor Arterial segments where:

- Widening the roadway cross-section is not feasible, due to significant topographic constraints; or
- Rechannelization and safety improvements result in acceptable levels of increased congestion in light of the improved operational safety of the roadway.

Arterial segments meeting at least one of these criteria are:

- Dayton Avenue N from N 175th Street – N 185th Street: V/C may not exceed 1.10
- 15th Ave NE from N 150th Street – N 175th Street: V/C may not exceed 1.10

This Transportation Element contains an alternative LOS standard for segments of two arterials *(See staff analysis #3 below)*. Upon adoption of the 0.90 V/C standard in 2011, two arterial segments were given grandfathered treatment allowing a V/C ratio not to exceed 1.10, as follows:

- Dayton Avenue N from N. 175th Street to N. 185th Street (it was determined that widening the arterial segment was not feasible, due to significant topographic constraints), and
- 15th Avenue NE from N. 150th Street to N. 175th Street (it was determined that rechannelization and safety improvements for the arterial segment resulted in acceptable levels of increased congestion in light of the improved operational safety of the arterial segment).

Adopt level of service standards for transit, walking, and bicycling. Maintain the adopted level of service standards until a plan-based multi-modal concurrency approach is adopted that includes motor vehicles, transit, walking, and bicycling transportation measures.

Staff Analysis:

1. The first proposed change adds AM or PM peak when describing the LOS at intersections. Staff recommends denial off this change. The existing more generalized LOS D standard applies to any time of day where a peak may occur. For example, there may be a place of business or school institution where the trips generated may be highest during the midday period. The current standard allows the City to evaluate any peak period; restricting to just AM or PM periods would be more limiting.

2. This methodology appears to be inconsistent with existing forecasting/growth analysis methodology, which looked at both unsignalized and signalized intersections and associated segments. According to existing TMP methodology, a "leg" is any street segment between two intersections. For example, the segment of Dayton Avenue slated to exceed the 0.90 V/C ratio in 2030 was not constrained by any signalized intersections. Staff recommends denial of the proposed amendment to Policy T-44 as the current standard provides greater flexibility of application to a particular roadway segment.

3. The proposed amendment appears to be inconsistent with existing methodology. When the traffic modeling was completed for the Transportation Master Plan in 2011, the two arterial streets described in this section were not exceeding the 0.90 V/C ratio, and therefore were not grandfathered as described. The two locations described in this section were forecasted to exceed the 0.90 V/C ration by 2030 (not at the time of analysis).

Staff Recommendation:
Staff is recommending denial of these privately-initiated proposed amendments.

Amendment #6

Consider amendments to the Point Wells Subarea Plan.

Staff Analysis:

This is both a private, citizen-initiated amendment by Tom Mailhot and a city-initiated amendment.

The applicant's request and proposed amendments are included as **Attachment 6**. In reviewing the request, Staff identified other necessary amendments to the Point Wells Subarea Plan. Proposed Amendment #6 incorporates both the private amendment as well as the city amendment.

These proposed amendments to the Point Wells Subarea Plan will be discussed and analyzed below. The existing Subarea Plan language is presented in **blue text** with staff analysis and discussion shown in *italic black text.*

Proposed Amendment (city-initiated):

~~Subarea Plan 2 –~~ Point Wells Subarea Plan

***Staff Analysis**: The plan will be renamed from Subarea Plan 2 – Point Wells to Point Wells Subarea Plan. When the Plan was adopted in 2010, the City had three planned areas. Since that time, those planning areas have been changed or deleted. The reason for the change is that at the time of adoption the City was attaching numbers to subarea plans and for the Point Wells Subarea Plan, the number was included in the Title. With the exception of the Aldercrest Subarea Plan, no other subarea plan includes a number in its title. The City desires to move away from this titling feature and, therefore, recommends approval.*

Proposed Amendment (privately-initiated):

Geographic and Historical Context

Point Wells is an unincorporated island of approximately ~~100~~ 50 acres in the southwestern most corner of Snohomish County. It is bordered on the west by Puget Sound, on the east by the Town of Woodway, and on the south by the town of Woodway and the City of Shoreline (see Fig. 1). It is an "island" of unincorporated Snohomish County because this land is not contiguous with any other portion of unincorporated Snohomish County. ~~The island is bisected roughly north-south by the Burlington Northern Railroad (B.N.R.R.) right-of-way.~~

***Staff Analysis**: All the DEIS documents submitted by the developer list the lowland property as 61 acres but the City's maps show 50.2 acres as depicted in Figure 2. Since Woodway has annexed the upper bluff area, the unincorporated area should now be 50 acres, not 100 acres.*

With Woodway's annexation of the upper bluff, the BNRR no longer bisects the unincorporated portion.

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

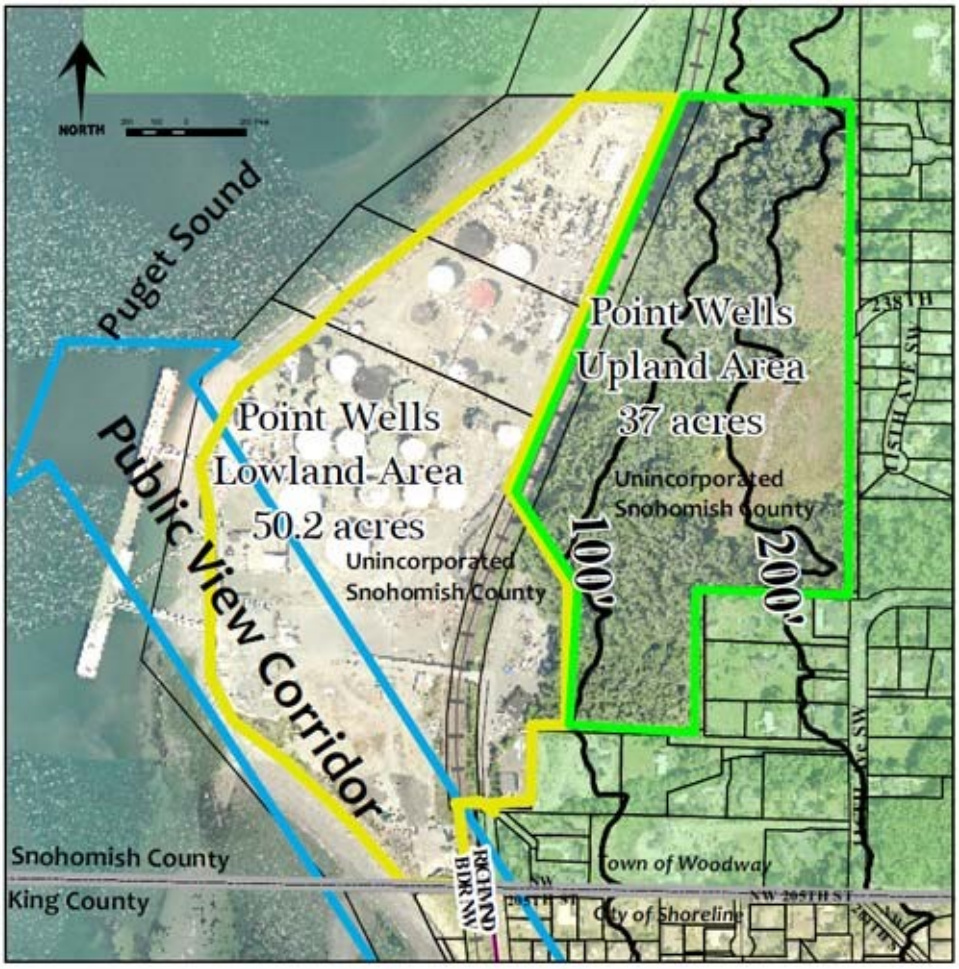
Figure 1 – Point Wells unincorporated island

Staff Analysis: *The above figure should be revised to delete the depicted upper bluff area and to show it instead as being part of the Town of Woodway (this revision reflects Woodway's recent annexation of land east of the BNRR).*

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

~~The lowland area of this unincorporated island (see Fig. 2) is approximately 50 acres in size.~~ The only vehicular access to ~~the lowland portion is to~~ Point Wells is via Richmond Beach Road and the regional road network via the City of Shoreline. However, there is potential easterly access through the Town of Woodway connecting to 116th Avenue West.



~~**Figure 2 – Upland and Lowland Areas at Point Wells**~~

Staff Analysis: *Figure 2 should be deleted as there is no longer a need to identify the upland area vs. the lowland area. Also, plan should recognize that a second access road is likely to be required by Snohomish County.*

The View Corridor arrow should be moved to Figure 1 or the old Figure 3 shown on the following page.

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

~~The upland area of the Point Wells Island (see Fig. 2) is approximately 37 acres in size. The upland does not have access to Richmond Beach Drive due to very steep environmentally sensitive slopes that separate the upland portion from the lowland portion. However, the upland portion does have potential easterly access through the Town of Woodway via 238th St. SW.~~

Staff Analysis: *Since Woodway has annexed the upper bluff, this paragraph is no longer needed.*

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

~~All of the Point Wells Island was previously designated by the City of Shoreline as a "Potential Annexation Area" (PAA). The Town of Woodway, and Snohomish County, have previously identified all of the Point Wells unincorporated island as within the Woodway "Municipal Urban Growth Area" (MUGA). The Washington State Court of Appeals, in a 2004 decision, determined that the overlap of Shoreline's PAA and Woodway's MUGA does not violate the provisions of the Growth Management Act.~~

Staff Analysis: *The above language should be moved from this section to the section titled Designation of a Future Service and Annexation Area (FSAA) at Point Wells, which is shown below.*

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

Snohomish County's designation of Point Wells as an "Urban Center"

In April of 2009, the Shoreline City Council adopted Resolution 285 which opposed the pending Snohomish County designation of Point Wells as an "Urban Center." The resolution cited the likely excessive impacts of up to 3,500 dwelling units on Shoreline streets, parks, schools, and libraries. The City submitted several comment letters to the County Council detailing the reasons for the City's opposition, reiterating the City's support for a mixed use development of a more reasonable scale at Point Wells, and pointed out that an "Urban Center" designation would be inconsistent with provisions of the County's plan as well as the Growth Management Act. Despite the City's opposition, in 2009 Snohomish County rezoned Point Wells as an Urban Center, and in 2010 adopted an Urban Center Development Code that applies to all Urban Centers in Snohomish County.

Staff Analysis: *The applicant's added language confirms that fact that the area was in fact designated as an Urban Center in the Snohomish County Comprehensive Plan.*

In light of the Hearing Examiner's June 29th, 2018 decision to deny BSRE's urban center development applications, the Point Wells site is zoned Planned Community Business and the future land use is Urban Village in Snohomish County's Future Land Use Map.

Staff recommends not amending this section with the applicant's proposed language and leaving the section as-is.

Proposed Amendment (privately-initiated):

Designation of a Future Service and Annexation Area (FSAA) at Point Wells

All of the Point Wells Island was previously designated by the City of Shoreline as a "Potential Annexation Area" (PAA). The Town of Woodway, and Snohomish County, have previously identified all of the Point Wells unincorporated island as within the Woodway's "Municipal Urban Growth Area" (MUGA). The Washington State Court of Appeals, in a 2004 decision, determined that the overlap of Shoreline's PAA and Woodway's MUGA does not violate the provisions of the Growth Management Act.

~~After a review of the topography and access options for Point Wells, the City of Shoreline no longer wishes to include the upland portion of this unincorporated island within its designated urban growth area. Because of the upland portion's geographic proximity and potential for direct vehicular access to the Town of Woodway, the City of Shoreline concludes that the upland portion should be exclusively within the Town of Woodway's future urban growth area. Any people living in future developments in the upland portion of the Point Wells Island would feel a part of the Woodway community because they would share parks, schools, and other associations facilitated by a shared street grid.~~

Staff Analysis: *The first paragraph was moved from the "Geographic and Historical Context" section of the Subarea Plan.*

The second paragraph is no longer needed since Woodway has annexed the upland portion.

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

~~Applying the same rationale to the lowland portion of the Point Wells Island, the City of Shoreline wishes to reiterate and clarify its policies. These lands all~~ Although there is potential easterly access to Point Wells through the Town of Woodway connecting to 116th Avenue West, presently ~~connect~~ Point Wells is connected to the regional road network only via Richmond Beach Drive and Richmond Beach Road in the City of Shoreline. Therefore future re-development of ~~the lowland area~~ Point Wells would be most efficiently, effectively, and equitably provided by the City of Shoreline and its public safety partners, the Shoreline Fire Department and Shoreline Police Department.

Staff Analysis: *The changes to this paragraph recognize that there is no longer a need to refer to a "lowland portion" as the upland portion is no longer part of the unincorporated island.*

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

At such future time that ~~the lowland portion of the~~ Point Wells ~~Island~~ annexes to the City of Shoreline, the urban services and facilities necessary to support mixed use urban development would be provided in an efficient and equitable manner. These would include police from the Shoreline Police Department and emergency medical services and fire protection from the Shoreline Fire Department. In addition, the City would be responsible for development permit processing, code enforcement, parks, recreation and cultural services, and public works roads maintenance.

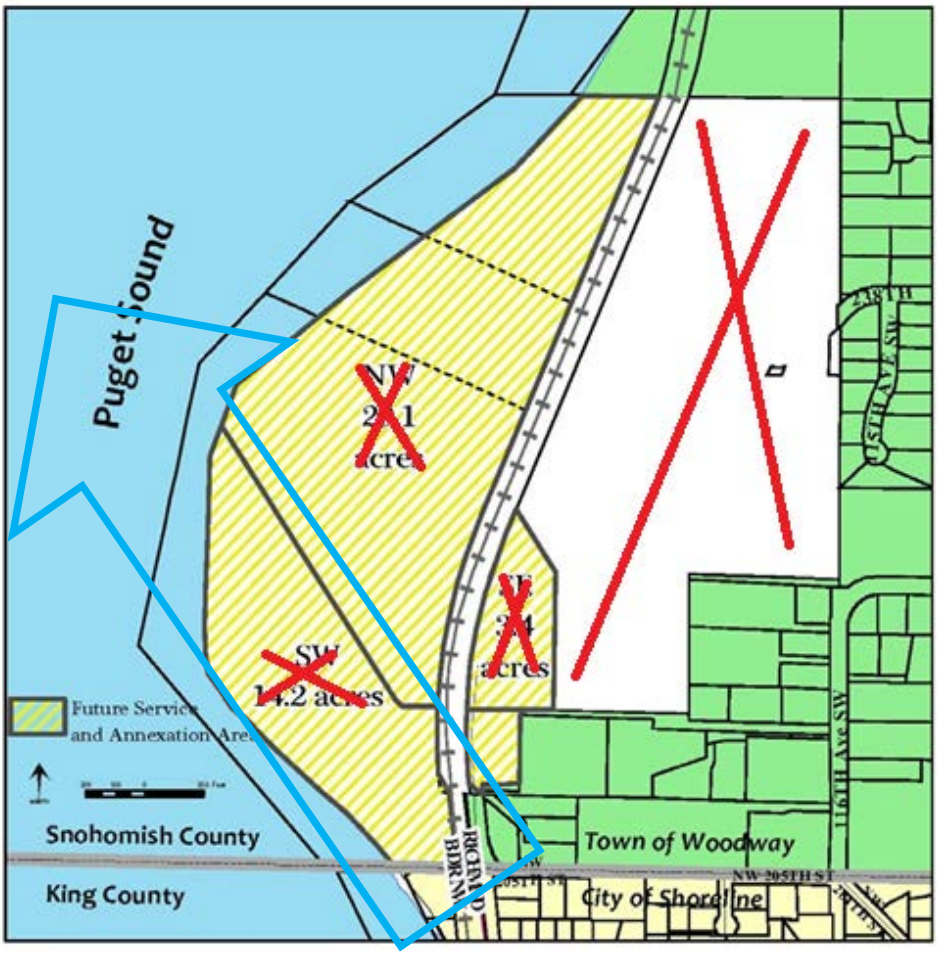
Future residents ~~of the lowland portion~~ of Point Wells would become a part of the Richmond Beach community by virtue of the shared parks, schools, libraries, shopping districts, and road grid. As citizens of the City of Shoreline, they would be able to participate in the civic life of this "community of shared interests," including the City's Parks Board, Library Board, Planning Commission, or other advisory committees, and City Council.

Policy PW-1 – ~~The Lowland Portion of the~~ Point Wells ~~Island~~, as shown on ~~Figure 3~~ Figure 2, is designated as the City of Shoreline's proposed future service and annexation area (FSAA)

Staff Analysis: *The "lowland portion" phrase has been deleted from the above sections since the lowland portion of the site no longer applies.*

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):



~~Fig. 3~~ Fig. 2 – City of Shoreline Future Service and Annexation Area

Staff Analysis: *Figure 2 should be revised to delete the indicated acreage figures. These figures are now incorrect. Also, in Figure 2, the depicted white-color Upland Area should be deleted and shown as being part of the Town of Woodway (this revision reflects Woodway's recent annexation of land east of the BNRR). Finally, the Public View Corridor graphic from the previous Figure #2 and its 100-foot and 200-foot elevation contours should be added to the new Figure 2. The SW, NW, and SE directional notations will remain.*

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

A Future Vision for Point Wells

The Subarea Plan, intended to be a 20-year plan document, envisions a Point Wells development that could take longer than 20 years to become fully realized once permits are approved to develop the site. Because of the time horizon of the plan and future

development, the City, in its decision-making, should consider the long-term costs of near-term actions and make choices that reflect a long-term perspective.

Staff Analysis: *Since the Hearing Examiner denied BSRE's development applications and upheld Snohomish County's Planning and Development Services request to deny the development applications because of substantial conflicts with the Snohomish County Code, the actual development of Point Wells would be years after development applications are approved.*

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

The City's vision for Point Wells is a world class environmentally sustainable community, both in site development and architecture. The redevelopment of the site should be predicated on remediation of the contaminated soil, and the restoration of streams and native plant regimes appropriate to the shoreline setting. New site design and improvements should incorporate low impact and climate friendly practices such as alternative energy sources, vegetated roofs, rainwater harvesting, rain gardens, bioswales, solar and wind technologies. Development at Point Wells should exhibit the highest quality of sustainable architecture, striving for gold or platinum LEED (Leadership in Energy and Environmental Design) certification.

Policy PW-2 – The Vision for Point Wells is an environmentally sustainable mixed-use community that is a model of environmental restoration, low-impact and climate friendly sustainable development practices, and which provides extensive public access to the Puget Sound with a variety of trails, parks, public and semi-public spaces.

Point Wells also represents a major opportunity to create a new subarea consistent with City objectives for economic development, housing choice, and waterfront public access and recreation. With almost 3,000 linear feet of waterfront, and sweeping 180 degree public views from Admiralty Inlet off Whidbey Island to Rolling Bay on Bainbridge Island, this site has unparalleled opportunity for public access, environmental restoration, education, and recreation oriented to Puget Sound.

The City's vision for Point Wells includes a mix of land uses, including residential, commercial, and recreational. The City recognizes that the site may be suited to a wide range of residential uses (e.g., market rate housing, senior housing, special needs housing, hotels, extended stay, etc.) as well as a range of commercial uses (e.g., office, retail, restaurant). Rather than proscribe the number or type of residential units, or the floor area of various types of commercial uses, the City prefers that flexibility be left to the developer to respond to market realities. However, whatever use mix is proposed must demonstrate that it conforms to adopted parking requirements, site design and building form policies cited below, and that generated traffic after mitigation does not exceed adopted citywide Level of Service standards, and does not exceed the traffic limit for Richmond Beach Drive that is specified in this Subarea Plan.

Staff Analysis: *Staff believes the proposed (underlined) language is an overreach. The proposed language is trying to limit traffic on RB Drive to what the subarea set (4000*

Average daily trips) which is not necessarily what the City anticipated indefinitely, and restricts traffic on this roadway more heavily than other comparable to roadways within the city.

THEREFORE, Staff recommends replacing the proposed underlined portion entirely with the following sentence:

"and that any transportation Level of Service failures, in accordance with Shoreline Municipal Code, are mitigated to maintain the adopted standard".

The added language to the above paragraph confirms that the City's vision includes maintaining the City's LOS standards.

Proposed Amendment (privately-initiated):

There are at least three (3) distinct subareas within the FSAA, identified on Fig. ~~3~~ 2 with the notations NW, SW, and SE. Because of their proximity to the single family neighborhoods to the east and south, maximum building heights in the SW and SE areas should be lower than in the NW subarea. Because of the large difference in elevation between the NW subarea and lands east of the railroad tracks, ~~much~~ taller buildings could be placed in this area without significantly impairing public views. Building placement in this area should avoid obstruction of the public view corridor shown on Fig. 2. The appropriate number, placement, and size of taller buildings in NW subarea should be determined through the development permit and environmental review process.

The portion of the Puget Sound shoreline in the SW subarea is the most environmentally sensitive area and a candidate for habitat restoration. This area has sandy substrate, supports some beach grass and other herbaceous vegetation, and contains a fair amount of driftwood. This area should be a priority for open space and restoration including elimination of invasive plants, re-establishing native riparian and backshore vegetation.

Policy PW-3 – Use and development of and near the Puget Sound shoreline and aquatic lands at Point Wells should be carefully designed and implemented to minimize impacts and achieve long-term sustainable systems. New bulkheads or over-water structures should not be permitted and the detrimental effects of existing bulkheads should be reduced through removal of bulkheads or alternative, more natural stabilization techniques.

Any improvements in the westernmost 200 feet (within the jurisdiction of the Shoreline Management Act) of the NW and SW subareas should be limited to walkways and public use or park areas. Outside that shoreline area, buildings should be located and configured to maintain as much openness and public views across the site as possible, with taller structures limited to the central and easterly portions.

Policy PW-4 – A public access trail should be provided and appropriate signage installed along the entire Puget Sound shoreline of the NW and SW subareas and secured with an appropriate public access easement document.

The relatively lowland area west of the tracks (between 10 and 20 feet above sea level) is abutted east of the tracks by a heavily forested slope. See Fig. 1. The slope rises steeply (15% to 25% grades) from the railroad tracks to the top of the slope, which is at approximately elevation 200. See Figure 2. ~~The tree line at the top of the slope consists of mature trees from 50 to 100 feet in height, which further obscures public views of Point Wells from the portions of Woodway above elevation 200.~~

Staff Analysis: *The last sentence of the above paragraph should be deleted since some of the trees at the top of the slope are likely to be cut down as part of a recently approved single-family development on the Upper Bluff.*

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

Policy PW-5 – New structures in the NW subarea should rise no higher than elevation ~~200~~ 150 or be no taller than 90 feet, whichever is less.

Staff Analysis: *Building to the full 200 foot elevation would make the buildings visible to the residents of Woodway and Richmond Beach, and the City should recognize the 90 foot building height limit contained in the County's Planned Community Business zoning regulations.*

Proposed Amendment (privately-initiated):

New buildings east of the railroad tracks would be much closer to existing single family homes in Woodway and Richmond Beach. To reflect this proximity, buildings of a smaller scale are appropriate.

Policy PW-6 – New structures in the SE Subarea should rise no higher than six stories.

In order to promote maximum openness on the site and prevent bulky buildings, the City should consider innovative regulations such as design standards and guidelines, building floor plate maxima, requiring a minimum separation between taller structures and the protection of public view corridors. Public views from City rights-of-way in the Richmond Beach neighborhood are a major part of the area's character, and provide a sense of place, openness, beauty, and orientation. A prominent public view corridor across the lowland area, shown in Fig. 2, affords a public view from Richmond Beach Drive northwest to Admiralty Inlet and Whidbey Island. Placement and size of structures at Point Wells should be located and configured so as not obstruct this important public view corridor.

Policy PW-7 – The public view from Richmond Beach Drive in Shoreline to Admiralty Inlet should be protected by a public view corridor across the southwest portion of the NW and SW subareas. New structures in the SE and SW subarea and the southwest portion of the NW subarea should rise no higher than six stories.

Staff Analysis: *The height limitation in the view corridor helps preserve the views from existing neighborhoods.*

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

Transportation Corridor Study and Mitigation

A traffic and safety analysis performed by the City in the summer of 2009 evaluated the nature and magnitude of impacts likely to accrue from the development of Point Wells as an "Urban Center" under Snohomish County zoning, as well as development scenarios assuming lesser orders of magnitude. This background information provided a basis for the City to conclude that, prior to the approval of any specific development project at Point Wells, the applicant for any development permit at Point Wells should fund, and the City oversee, the preparation of a detailed Transportation Corridor Study.

Corridor Study

The Transportation Corridor Study and Implementation Plan should include an evaluation of projected impacts on vehicular flow and levels of service at every intersection and road segment in the corridor. If a potential alternative access scenario is identified, it should be added to the corridor study. The Study should also evaluate and identify expanded bicycle and pedestrian safety and mobility investments, and identify "context sensitive design" treatments as appropriate for intersections, road segments, block faces, crosswalks and walkways in the study area with emphasis on Richmond Beach Road and Richmond Beach Drive and other routes such as 20th Ave. NW, 23rd Place NW, NW 204th Street and other streets that may be impacted if a secondary road is opened through Woodway.

Implementation Plan

The corridor study would be a step in the development of such a plan. The scope of the implementation plan should include a multimodal approach to mobility and accessibility to and from Point Wells, as well as detailed planning for investments and services to improve multimodal travel for adjacent communities between Point Wells and I-5. This could well include an integrated approach to accessing Point Wells, the Richmond Beach neighborhood, and Richmond Highlands with the Bus Rapid Transit system along Aurora Avenue, the I-5 corridor itself - focusing on the interchanges at N. 205th and N. 175th, as well as the Sound Transit light rail stations serving Shoreline.

While the analysis of vehicle flows is appropriate as part of the study, the solutions should provide alternatives to vehicle travel to and from Point Wells - as well as more transportation choices than those that currently exist today for the Richmond Beach neighborhood and adjacent communities.

Policy PW-9 – To enable appropriate traffic mitigation of future development at Point Wells, the developer should fund the preparation of a Transportation Corridor Study as the first phase of a Transportation Implementation Plan, under the direction of the City, with input and participation of Woodway, Edmonds, Snohomish County, and WSDOT. The Study and Transportation Implementation Plan should identify, engineer, and

provide schematic design and costs for intersection, roadway, walkway, and other public investments needed to maintain or improve vehicular, transit, bicycle, and pedestrian safety and flow on all road segments and intersections between SR 104, N 175th Street, and I-5 with particular attention focused on Richmond Beach Drive and Richmond Beach Road. Road segments that would be impacted by an alternate secondary access through Woodway should also be analyzed, which would include 20th Avenue NW, 23rd Place NW and NW 204th Street. The Study and Transportation Plan should identify needed investments and services, including design and financing, for multimodal solutions to improving mobility and accessibility within the Richmond Beach neighborhood and adjacent communities, including but not limited to investments on Richmond Beach Drive and Richmond Beach Road.

Policy PW-10 – The needed mitigation improvements identified in the Transportation Corridor Study and Implementation Plan should be built and operational concurrent with the occupancy of the phases of development at Point Wells.

Richmond Beach Road and Richmond Beach Drive provide the only vehicular access to Point Wells at this time. Therefore, it is critical that identified impacts be effectively mitigated as a condition of development approval. It is also vital that the traffic generated from Point Wells be limited to preserve safety and the quality of residential neighborhoods along this road corridor. In the event that secondary vehicular access is obtained through Woodway to the Point Wells site, the mitigation and improvements of the impacts to those additional road segments must also occur concurrent with the phased development.

Historically, mobility and accessibility in Richmond Beach and adjacent communities has been dominated by the single occupancy vehicle. Provision of bicycle and pedestrian facilities has been limited because retrofitting an existing road network with these facilities is an expensive undertaking. The Richmond Beach Road corridor is served by limited Metro bus service and is beyond a reasonable walking distance from potential development within Point Wells. Though rail service to a station in Richmond Beach was evaluated by Sound Transit, no service is envisioned in the transit agency's adopted 20 year plan. Improved transit, bicycle and pedestrian mobility is a long-term policy objective, but the majority of trips in the area will likely continue to be by automobiles utilizing the road network. The City's traffic study completed in 2009, assuming a 4-lane Richmond Beach Road, shows that if more than 8,250 vehicle trips a day enter the City's road network from Point Wells, it would result in a level of service "F" or worse at a number of City intersections. The City's Transportation Improvement Plan has scheduled Richmond Beach Road from 24th Avenue NW to Dayton Avenue N to be rechanneled from four (4) lanes to three (3) lanes in 2018. The rechannelization will reduce the capacity of this road segment so that current excess capacity is about 4,000 vehicle trips per day. If more than this number of vehicles enter Richmond Beach Road from Point Wells, it will result in a volume-to-capacity (v/c) ratio of over .90 on several City road segments and a level of service "F" or worse at a number of City intersections. This would be an unacceptable impact incapable of being mitigated with Richmond Beach Road remaining at three lanes.

Staff Analysis: *It is important to note that previous traffic studies did not consider the amount of traffic that a 3-lane configuration of Richmond Beach Road could handle.*

The Subarea Plan should be amended to recognize that Richmond Beach Road was rechannelized to three (3) lanes in 2018.

It is not recommended that the specific number of daily vehicle trips be included in the amended language, as background volumes will change over time, and the daily trips are not what the City uses for concurrency.

Therefore, Staff recommends that the proposed amendatory language read:

In 2018, the City rechannelized the Richmond Beach Road corridor from 24th Avenue NW to Dayton Avenue N from four (4) lanes to three (3) lanes. This rechannelization further reduced existing capacity along the corridor. Any changes proposed to land use within the subarea should be carefully studied to ensure that the trips generated do not exceed the adopted volume-to-capacity (v/c) ratio standard of over .90.

*Staff also recommends denial of the last sentence that states, "*This would be an unacceptable impact ~~.~~incapable of being mitigated with Richmond Beach Road remaining at three lanes"*. The City cannot assume traffic on Richmond Beach Road can't be mitigated. There may be conditions on a future project at Point Wells that can limit the number of cars entering and existing the site. Staff believes the proposed statement is premature and recommends evaluating traffic when the property owner submits a building permit for Point Wells.*

Proposed Amendment (privately-initiated):

Policy PW-11 – The City should address opportunities to improve mobility, accessibility, and multimodal east-west movement in the Richmond Beach Road Corridor between Puget Sound and I-5 as part of the update of the citywide Transportation Management Plan. The City should also work with neighboring jurisdictions Woodway and Edmonds to improve north-south mobility. These opportunities should be pursued in a manner that reduces existing single occupancy vehicle trips in the corridor.

Policy PW-12 – In view of the fact that Richmond Beach Drive between NW 199th St. and NW 205th St. is a local road with no opportunities for alternative access to dozens of homes in Shoreline and Woodway, the City designates this as a local street with a maximum capacity of 4,000 vehicle trips per day. ~~Unless and until 1) Snohomish County and/or the owner of the Point Wells Urban Center can provide to the City the Transportation Corridor Study and Mitigation Plan called for in Policy PW-9, and 2) sources of financing for necessary mitigation are committed, the City should not consider reclassifying this road segment.~~

Staff Analysis: *The City does not have a LOS standard based on daily trips, and it is not consistent with citywide standards. The City should evaluate deleting the entire policy since the 4,000 vehicle trips per day is not consistent with citywide standards.*

Staff supports amending policy PW-12 to reflect the changes shown above.

Proposed Amendment (privately-initiated):

Policy PW-13 – With a 3-lane Richmond Beach Road, there is little excess traffic capacity under the City's 0.90 V/C standard for arterials. While the City generally supports a mixed-use development at Point Wells, the City does not support a development at Point Wells that would result in traffic measured at any point along Richmond Beach Road exceeding the City's 0.90 V/C standard. While certain mitigations may lessen the likelihood of the City's 0.90 V/C standard being exceeded, the City rejects increasing the City's 0.90 V/C standard for Richmond Beach Road (e.g., increasing it to 0.95 or higher) as a possible mitigation measure, and the City rejects acquiring private property in order to widen Richmond Beach Road to five lanes as a mitigation measure, and the City rejects as a mitigation measure reverting Richmond Beach Road to four (4) lanes, which would jeopardize the public's health and safety, especially with increased traffic from Point Wells.

Staff Analysis: *Staff believes the new Policy PW-13 is an overreach. Staff does not support limiting this corridor beyond what the rest of the City is limited to from a concurrency perspective. The language proposed is further limiting than the City's adopted LOS standard (in that it says no segment can exceed 0.90 V/C, and City code says that one segment may exceed the 0.90 V/C as long as the intersection meets LOS). Staff also believes the new Policy PW-13 will limit Council when they decide in the future whatever land use changes are proposed at Point Wells and what mitigation might warrant exceeding the 0.90 V/C, which was done on 15th Avenue NE for example.*

Staff does not recommend adding Policy PW-13 as shown above.

Proposed Amendment (privately-initiated):

Interjurisdictional Coordination

The City should work with the Town of Woodway and Edmonds to identify ways in which potential future development ~~in the lowland portion~~ of Point Wells could be configured or mitigated to reduce potential impacts on Woodway and Edmonds. ~~There is no practical primary vehicular access to the lowland part of Point Wells other than via Richmond Beach Road. However, the City should work with property owners and Woodway to provide a bicycle and pedestrian route between Woodway and Point Wells.~~

Staff Analysis: *With the likelihood of a second access road through Woodway, this sentence is no longer accurate.*

Staff recommends approval of the above changes.

Proposed Amendment (privately-initiated):

The Growth Management Act states that cities, rather than county governments, are the preferred providers of urban governmental services. Because urban governmental services and facilities in Shoreline are much closer to Point Wells than are similar services

and facilities located in Snohomish County, it is most efficient for the City to provide those services.

Working with its public safety partners, Shoreline Fire Department and Shoreline Police Department, the City should invite Snohomish County to discuss an interlocal agreement to address the timing and methods to transition local governmental responsibilities for Point Wells from the County to the City. Included in these discussions should be responsibilities for permitting and inspection of future development at Point Wells, and possible sharing of permitting or other local government revenues to provide an orderly transition.

Policy PW-~~13~~ 14 – The City should work with the Town of Woodway, City of Edmonds, and Snohomish County toward adoption of interlocal agreements to address the issues of land use, construction management of, urban service delivery to, and local governance of Point Wells. ~~A joint SEPA lead-agency or other interlocal agreement with the County could assign to the City the responsibility for determining the scope, parameters, and technical review for the transportation component of the County's Environmental Impact Statement prepared for a future project at Point Wells. Under such agreement, this environmental analysis, funded by the permit applicant, could satisfy the policy objectives of the Transportation Corridor Study and Implementation Plan referenced at PW-10.~~

Policy PW-~~14~~ 15 – In the event that development permit applications are processed by Snohomish County, the City should use the policies in this Subarea Plan as guidance for identifying required mitigations through the SEPA process and for recommending changes or additional permit conditions to achieve greater consistency with the City's adopted policies.

Staff Analysis: *These policies would be renumbered if a new Policy PW13 is adopted as stated above. The applicant has suggested deleting the last two sentences of the current Policy PW-13. Staff recommends leaving the language as-is. Since the Hearing Examiner has denied BSRE's development applications, any new application will be required to complete SEPA review which includes transportation analysis and mitigation.*

Staff recommends denial of the above changes.

Amendment #7

Consider amending Land Use Designations Mixed-Use 1 and Mixed-Use 2 in the Land Use Element in order to provide clarification.

Staff Analysis:

Amendment #7 is a minor amendment proposed by the City Council in order to provide clarification to the Mixed-Use 1 and Mixed-Use 2 Land Use Designations so that each could stand-alone, rather than having Mixed-Use 2 (MU2) reference Mixed-Use 1 (MU1). Currently, the designations are defined in Land Use Policies 9 and 10, as

follows:

LU9: The Mixed-Use 1 (MU1) designation encourages the development of walkable places with architectural interest that integrate a wide variety of retail, office, and service uses, along with form-based maximum density residential uses. Transition to adjacent single-family neighborhoods may be accomplished through appropriate design solutions. Limited manufacturing uses may be permitted under certain conditions.

LU10: The Mixed-Use 2 (MU2) designation is similar to the MU1 designation, except it is not intended to allow more intense uses, such as manufacturing and other uses that generate light, glare, noise, or odor that may be incompatible with existing and proposed land uses. The Mixed-Use 2 (MU2) designation applies to commercial areas not on the Aurora Avenue or Ballinger Way corridors, such as Ridgecrest, Briarcrest, Richmond Beach, and North City. This designation may provide retail, office, and service uses, and greater residential densities than are allowed in low-density residential designations, and promotes pedestrian connections, transit, and amenities.

Staff is proposing to leave Policy LU9 as-is and amending Policy LU10 by deleting it in its entirety and replacing it with the following:

LU10: The Mixed-Use 2 (MU2) designation encourages the development of walkable places with architectural interest that integrate a wide variety of retail, office, and service uses. It does not allow more intense uses, such as manufacturing and other uses that generate light, glare, noise, or odor that may be incompatible with existing and proposed land uses. The Mixed-Use 2 (MU2) designation applies to commercial areas not on the Aurora Avenue or Ballinger Way corridors, such as Ridgecrest, Briarcrest, Richmond Beach, and North City. This designation may provide retail, office, and service uses, and greater residential densities than are allowed in low-density residential designations, and promotes pedestrian connections, transit, and amenities.

Staff Recommendation:
Staff recommends approval of the new language proposed for Policy LU10 as shown in **Attachment 7**.

Amendment #8

Consider updates to the Pedestrian System Plan from the Transportation Master Plan.

Staff Analysis:
This is a Public Works initiated amendment.

After a year-long process, on June 4, 2018, City Council approved the 2018 Sidewalk Prioritization Plan (2018 SPP). The 2018 SPP is to be the basis for developing a list of projects for a potential ballot measure funding package. The major components of the 2018 SPP are the creation of a data-driven process for updating and reprioritizing projects in the 2011 TMP Pedestrian System Plan (**Attachment 8**) and researching and recommending ways to fund them. The process included input from a citizen Sidewalk Advisory Committee (SAC) and multiple opportunities for providing public input through two open houses and online surveys.

With the help of the SAC, the sidewalk prioritization criteria provided for in the 2011 TMP has been updated to identify needs and prioritize sidewalk improvements based on safety, equity, proximity, and connectivity. Over a year-long process, the SAC developed measurable metrics to support each criteria based on readily available data from the 2005 U.S. Census, the City's collision history, street classifications, transit route plans, and Shoreline's geographic/amenity features (e.g. parks, streets, and schools).

Similar to the TMP's Appendix H: Pedestrian Facility Improvements Prioritization Matrix, the 2018 Sidewalk Prioritization Scorecard (**Attachment 9**) assembles the updated criteria and metrics with an assigned point system for the purpose of reprioritizing the list of sidewalk projects in the TMP's Pedestrian System Plan. Using Geographic Information Systems (GIS), the project team applied the 2018 Sidewalk Prioritization Scorecard to the 2011 Pedestrian System Plan to create the 2018 Sidewalk Prioritization Plan (**Attachment 10**) and the 2018 Pedestrian Improvements Prioritization Matrix (**Attachment 11**).

Over a year-long process, Staff reviewed multiple iterations of the Sidewalk Prioritization Plan. In this process, Staff identified adjustments needed to balance the geographic distribution of high priority projects across the city; accounted for anticipated redevelopment; capitalized on small, but impactful projects; and provided access to key community destinations. In addition, Staff, in collaboration with the SAC, reviewed open house and survey input on possible additions to the 2011 Pedestrian System Plan for prioritization using the 2018 Sidewalk Prioritization Scorecard criteria as well as considering the frequency of requested additions at a location.

Proposed Amendment No. 8 is to update the Comprehensive Plan's 2011 TMP Pedestrian System Plan with changes (notably, Chapter 5: Pedestrian Plan; Figure L - Pedestrian System Plan and Figure N - Pedestrian Projects Plan, Chapter 9: Recommended Transportation Improvements; Pedestrian Project Improvements' criteria text and Table 9.3 – Priority Pedestrian Projects Recommended for Funding) based on the 2018 Sidewalk Prioritization Plan process. The TMP sets policies to direct the prioritization of the Pedestrian System Plan, but the TMP itself does not need to direct the details of the Pedestrian System Plan's implementation. Therefore, the proposed amendment will remove Table 9.3 - Priority Pedestrian Projects and Appendix H - Pedestrian Projects Prioritization Matrix because their level of detail is too specific for the TMP and their content is outdated based on the Sidewalk Prioritization process. Instead, the TMP will reference the Sidewalk Prioritization Plan that will live as a planning document outside of the TMP.

The proposed changes to TMP Policy T-49, TMP Chapter 5 - Pedestrian Plan, TMP Chapter 9 – Recommended Transportation Improvements, and TMP Appendix H – Pedestrian Projects Prioritization Matrix are shown in **Attachment 12.**

Staff Recommendation:
Staff recommends approval of this amendment by removing Table 9.3 - Priority Pedestrian Projects and Appendix H - Pedestrian Projects Prioritization Matrix.

TIMING AND SCHEDULE

- Council Study Session on Proposed Docketed Comprehensive Plan Amendments – October 29, 2018
- Council adoption of the Proposed Docketed Comprehensive Plan Amendments – November 26, 2018

RECOMMENDATION

Staff recommends that the Planning Commission:
1. Carry-over amendments #1 and #2 to the 2019 docket.
2. Approve amendments #3, #4, #6 (with staff amendments), #7, and #8.
3. Deny amendment #5.

ATTACHMENT

Attachment 1 – 2018 Comprehensive Plan Docket
Attachment 2 – Capital Facilities Element Legislative Changes
Attachment 3 – Surface Water Master Plan
Attachment 4 – Legislative Changes to TMP for Amendment #4
Attachment 5 – Tom McCormick Application
Attachment 6 – Tom Mailhot Application
Attachment 7 – Land Use Policies LU9 and LU10 Legislative Changes
Attachment 8 – Pedestrian System Plan
Attachment 9 – Sidewalk Prioritization Scorecard
Attachment 10 – Sidewalk Prioritization Plan
Attachment 11 – Pedestrian Improvements Prioritization Matrix
Attachment 12 – Amendment 8 Legislative Changes

2018 COMPREHENSIVE PLAN AMENDMENT DOCKET

The State Growth Management Act generally limits the City to amending its Comprehensive Plan once a year and requires that it create a Docket (or list) of the amendments to be reviewed.

2018 Comprehensive Plan Amendments

1. Amend the Comprehensive Plan for 145th Street annexation and all applicable maps. (2017 Carry-over)

2. Consider amendments to the Point Wells Subarea Plan and other elements of the Comprehensive Plan that may have applicability to reflect the outcomes of the Richmond Beach Transportation Corridor Study as described in Policy PW-9. Also, consider amendments to the Comprehensive Plan that could result from the development of Interlocal Agreements as described in Policy PW-13. (2017 Carry-over)

3. Consider amendments to the Capital Facilities Element Goals and Policies and update of the Surface Water Master Plan. (2017 Carry-over)

4. Consider deleting Appendix D – Master Street Plan from the Transportation Master Plan and replace with reference to the Engineering Design Manual pursuant to SMC 12.10.015. (Public Works)

5. Consider amendments to Transportation Policy T44 which clarifies how an Arterial Street's Volume over Capacity (V/C) ratio is calculated. (McCormick)

6. Consider amendments to the Point Wells Subarea Plan. (Mailhot)

7. Consider amending Land Use Designations Mixed-Use 1 and Mixed-Use 2 in the Land Use Element in order to provide clarification. (P&CD)

8. Consider updates to the Pedestrian System Plan from the Transportation Master Plan. (Public Works)

The City of Shoreline Civic Center, which includes the City Hall building at 17500 Midvale Avenue N, provides approximately 66,400 square feet of office space where governmental services are available. These services include, but are not limited to, customer response, administration, permitting, environmental and human services, road and park maintenance, and neighborhood coordination. The campus also includes a 21,000 square foot auditorium, a 75 car elevated parking structure, and a one-acre public park and plaza.

In addition, the City owns and maintains approximately 28,765 square feet of facilities to support the park system, including the Spartan Recreation Center, the Shoreline Pool, the Richmond Highlands Recreation Center, Kruckeberg Botanic Garden, the Richmond Beach Saltwater Park Pedestrian Bridge, numerous park shelters, and outdoor restrooms.

The City operates a maintenance facility at Hamlin Park, located at 16006 15th Avenue NE. This location serves as a storage yard for various City vehicles, including a street sweeper and road maintenance equipment, as well as offices for street and park maintenance crews. The City is evaluating the relocation and expansion of this facility as part of possible utility acquisitions.

Stormwater Facilities

The Surface Water Master Plan, adopted in 2018 ~~2011~~, provides a detailed discussion of the stormwater facilities in Shoreline. The plan responds to both state and federal requirements for managing surface water in the city. The plan reviews current and anticipated regulatory requirements, discusses current stormwater management initiatives, identifies flooding and water quality programs, and discusses the resources needed for the City to fully implement the plan. Management of surface waters in the city is funded through the City's Surface Water Utility. The plan also provides a detailed inventory of the existing stormwater facilities and necessary capital facility upgrades.

Transportation Facilities

The Transportation Master Plan, adopted in 2011, and Transportation Element of this Plan provide a detailed discussion of the transportation facilities in Shoreline. The City prepares and adopts a six-year Transportation Improvement Plan (TIP) each year. The TIP lists street and non-motorized projects, and can include both funded and unfunded projects. It is prepared for transportation project scheduling, prioritization, and grant eligibility purposes.

Parks and Recreation Facilities

There are a number of public parks and recreation facilities within the community. These facilities are discussed in more detail in the 2011-2017 Parks, Recreation, and Open Space Plan and Parks, Recreation, and Open Space Element of this Plan.

Current Police Facilities

The Police Station was built in 1956 and purchased by the City shortly after incorporation in 1995. The Station is located at 1206 N 185th Street. The building is 5,481 square feet, and is constructed of unreinforced masonry that has not been retrofitted to earthquake standards. In 2012, the City initiated a facility feasibility study to analyze potential locations of a new facility. This need was identified during the City's 2009 Hazard Mitigation Planning effort.

DRAFT

Surface Water Master Plan

Prepared for
City of Shoreline
Shoreline, Washington

April 27, 2018

DRAFT

Surface Water Master Plan

Prepared for
City of Shoreline
Shoreline, Washington
April 27, 2018

This is a draft for internal review by City of Shoreline staff. This draft is not intended to be a final representation of the work done or recommendations made by Brown and Caldwell. It should not be relied upon; consult the final report.

Brown AND Caldwell
701 Pike Street, Suite 1200
Seattle, Washington 98101

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List of Abbreviations

§	section
2007 report	*2007 Bioassessment Report, Biological and Habitat Assessment of Shoreline Streams*
2016 Assessment	*2016 Fresh Water Assessment Report—State of Water Quality in Shoreline Streams and Lakes*
AMWP	Asset Management Work Plan
AKART	all known, available, and reasonable treatments
AO	Administrative Order
BC	Brown and Caldwell
BEACH	Beach Environmental Assessment, Communication and Health
B-IBI	Benthic Index of Biotic Integrity
BMP	best management practice
CAC	Community Assistance Contact
CAMP	*Condition Assessment Management Plan*
CCTV	closed-circuit television
CFR	Code of Federal Regulations
CIP	Capital Improvement Plan
CIPP	cured-in-place pipe
City	City of Shoreline
City Council	Shoreline City Council
Cityworks	Azteca Cityworks
CMMS	Computerized Maintenance Management System
CRS	Community Rating System
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Fund
DEM	digital elevation model
DO	dissolved oxygen
Ecology	Washington State Department of Ecology
EDM	*Engineering Development Manual*
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ET	evaporation and evapotranspiration
FEMA	Federal Emergency Management Agency
Financial Analysis Report	*Financial Analysis for 2018 Master Plan,* November 2017 (FCS Group 2017) (see Appendix K)
FIRM	flood insurance rate map
FTE	full-time equivalent
Fund	Surface Water Utility Enterprise Fund
GASB	Governmental Accounting Standards Board
GFC	General Facilities Charge
GIS	geographic information system
GMA	Growth Management Act
GO	General Obligation
GSI	green stormwater infrastructure
H&H	hydrologic and hydraulic
HPA	Hydraulic Project Approval
hr	hour(s)
IDDE	illicit discharge detection and elimination
LID	low impact development
LOS	level of service
Master Plan	*Surface Water Master Plan*
MEP	maximum extent practicable
MS4	municipal separate storm sewer system
N/A	not applicable
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NMF	North Maintenance Facility
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
O&M	operations and maintenance
O&M Manual	*City of Shoreline Surface Water Utility Operation and Maintenance Manual*
Phase II Permit	NPDES Phase II Municipal Stormwater Permit
PLC	programmable logic controller
PSLC	Puget Sound LiDAR Consortium
PWTF	Public Works Trust Fund
QA/QC	quality assurance/quality control
RCW	Revised Code of Washington

ROW	right-of-way
R&R	repair and replacement
RSMP	Regional Stormwater Monitoring Program
SCADA	supervisory control and data acquisition
SEPA	State Environmental Policy Act
SFAP	Stormwater Financial Assistance Program
SMC	Shoreline Municipal Code
State	State of Washington
Stormwater Manual	*Stormwater Management Manual for Western Washington*
SWPP	stormwater pollution prevention plan
SWPRRP	Stormwater Pipe Repair and Replacement Project
TMDL	total maximum daily load
UBME	Utility Business Management Evaluation
USC	United States Code
Utility	Surface Water Utility
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WQI	Water Quality Index
WRIA	Water Resource Inventory Area
yr	year(s)

Executive Summary

Since incorporating in 1995, the City of Shoreline (City) has strengthened its municipal services over time, including a steady improvement of surface water management. The Surface Water Utility (Utility) and Surface Water Utility Enterprise Fund (Fund) were established in 2006. Shortly thereafter, in 2007, the City became a National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Stormwater Permit (Phase II Permit) holder, which allows the City to discharge stormwater to surface waters of the state[1].

The Utility is the City's lead agency for maintaining Phase II Permit compliance, and is responsible for implementing the City's Stormwater Management Program. The Utility is also responsible for maintaining stormwater infrastructure, reducing flooding, and protecting surface water quality. The Utility prepared this 2018 *Surface Water Master Plan* (Master Plan) to guide activities for the next 5 to 10 years and address current challenges in stormwater management. In preparing this Master Plan, the following objectives were achieved:

- Develop updated levels of service (LOSs) for the Utility that align with customer expectations
- Review current policies, programs, and operational activities for the Utility and make recommendations for improvements
- Advance the Asset Management Program to improve stewardship of the surface water system infrastructure, and assure customers that funds are spent responsibly and effectively
- Prepare an operations and maintenance (O&M) manual to establish clear processes and protocols
- Assess the current state of the City's surface water systems
- Create an updated set of proposed capital improvement projects and prepare updated planning-level cost estimates
- Prioritize project and program recommendations for implementation
- Develop management strategies based on selected projects and programs
- Conduct a financial analysis to support funding and rate recommendations

Levels of Service

Functions and services provided by the Utility are shaped by the vision and values of the community, and are driven by State of Washington (State) and federal regulations. Levels of service are common-language statements that describe characteristics or attributes of services provided by the Utility to meet the community's basic needs and expectations. Levels of service should align with overall strategic goals of the organization and support its business drivers. Levels of service help Utility managers focus efforts and resources, communicate service expectations, and reconcile budgetary limitations.

[1] "Surface waters of the state" means all waters defined as "waters of the United States" in 40 CFR 122.2 that are within the boundaries of the state of Washington. This includes lakes, rivers, ponds, streams, inland waters, wetlands, ocean, bays, estuaries, sounds, and inlets. WAC 173-226-030.

As part of this 2018 Master Plan, the Utility has developed updated levels of service. The Utility started by considering the community's vision and values; reviewing the strategic goals of the City; and then engaging in a series of discussions with the public, City staff, and Shoreline City Council (City Council). The final levels of service and associated level-of-service targets are provided in Table ES-1.

Table ES-1. Levels of Service and Level-of-Service Targets for the Utility

Level of Service		Level-of-Service Target
LOS 1: Surface Water Impacts	Manage public health, safety, and environmental risks from impaired water quality, flooding, and failed infrastructure	No verifiable health and safety issues or environmental damage caused by the stormwater services outside of risk tolerance
LOS 2: Equitable Service	Provide consistent, equitable standards of service to the citizens of Shoreline at a reasonable cost, within rates and budget	Meet the levels of service as measured by customer satisfaction and rate and revenue projections
LOS 3: Communication and Outreach	Engage in transparent communication through public education and outreach	Maintain a communication plan to inform the community on Utility goals and progress
LOS 4: Regulatory Compliance	Comply with regulatory requirements for the urban drainage system	Meet or exceed regulatory requirements for NPDES Phase II and federal, State, and local regulations affecting surface water management

The levels of service and level-of-service targets shown in Table ES-1 were used to develop a matrix of performance targets and performance measures, both of which provide a much higher level of detail and specificity. Performance targets were used to develop prioritization criteria for capital improvement projects and programmatic recommendations. By organizing and linking prioritization criteria back to levels of service, the Utility was better able to determine which projects and programs are likely to provide the greatest benefit toward achieving levels of service. The results of the prioritization, in combination with estimated costs, were used to select and assemble projects and programs into solution sets, or *management strategies*.

Identifying Improvement Projects

The Utility prepared six basin plans between 2009 and 2016 for all of the city's drainage basins. The *Thornton Creek Watershed Plan* (completed in 2009) preceded the 2011 recommendation for basin planning because substantial drainage problems existed within the basin that drove a special planning effort. The five other basin plans followed the 2011 Master Plan, with two completed in 2013, two in 2015, and the final plan completed in 2016.

Detailed evaluations that were performed for each of the basin plans generated project and program recommendations to address problems related to flooding, water quality, and aquatic habitat. Recommendations were prioritized within each basin (e.g., high, medium, and low) based on the likelihood of success, number of issues addressed, whether public infrastructure or public safety were protected, and availability of public property to address the need. Recommendations from each of the basin plans have been compiled and now provide a basis for comprehensive planning that accounts for citywide priorities and includes financial planning, funding considerations, and/or potential rate impacts. Projects identified in the basin plans were carried forward and prioritized based on level-of-service targets, and the highest-priority projects were selected for inclusion in management strategies.

Evaluating Utility Programs

Utility programs are coordinated and planned activities with goals designed to help the Utility meet levels of service and address regulatory requirements. Programs involve various work activities including Utility administration, system operation and maintenance, and public involvement and outreach. Programs entail long-term or ongoing work activities that are supported by Utility staff and funded through operations budget. The Utility currently runs 18 programs falling into one of the following three categories:

- **Operational programs** help the Utility meet regulatory requirements, collect and analyze water quality data and asset information, perform routine inspections, and support overall Utility staff and resource management
- **Maintenance programs** include preventive and corrective maintenance including cleaning, repair, rehabilitation, and replacement of damaged or deteriorated Utility assets
- **Public involvement programs** educate and engage Shoreline's residents and ratepayers in surface water management and improving surface water quality

One of the major goals for the development of this Master Plan was to perform a thorough review of current programs and operational activities and their benefit to levels of service, needs identified in the basin plans, anticipated growth, and evolving regulations, and to develop detailed recommendations for improvements. The Utility evaluated the status of each existing program (as of 2017) and compared the program outcomes with level-of-service targets and upcoming regulatory requirements. Each of the evaluations resulted in one of three possible outcomes: (1) maintain the existing program, (2) enhance the existing program, or (3) develop a new program to address potential needs. Nine of the 18 existing programs were identified for enhancements, while 9 new programs were also considered. Each of the programs was carried forward and prioritized based on level-of-service targets, and the highest-priority programs were selected for inclusion in management strategies.

Management Strategies

One of the key objectives of this Master Plan is to prioritize recommended programs and capital improvement projects, and to develop comprehensive management strategies based on those priorities. Programs and projects have considerable cost implications and must be prioritized for implementation over time and to ensure adequate funding. A systematic process was developed, including a spreadsheet tool that applies a consistent set of criteria and procedures for scoring. Figure ES-1 below illustrates the prioritization and management strategy development process.

The Utility developed three alternative management strategies to comprise selected programs and projects. The three management strategies are defined as follows:

- **Minimum:** meet the minimum in terms of existing system needs and anticipated new regulatory requirements
- **Proactive:** minimum management strategy plus new high-priority projects and new/enhanced programs that address high-priority, long-term needs
- **Optimum:** proactive management strategy plus additional recommendations to enhance water quality and aquatic habitat

Program selections were based on prioritization scores, contributions toward meeting levels of service, and needs to address regulatory requirements. Selected programs are assumed to start within the next 6 years, while the remaining programs are deferred. Three programs were considered for inclusion in the 6-year Master Plan but were not included.

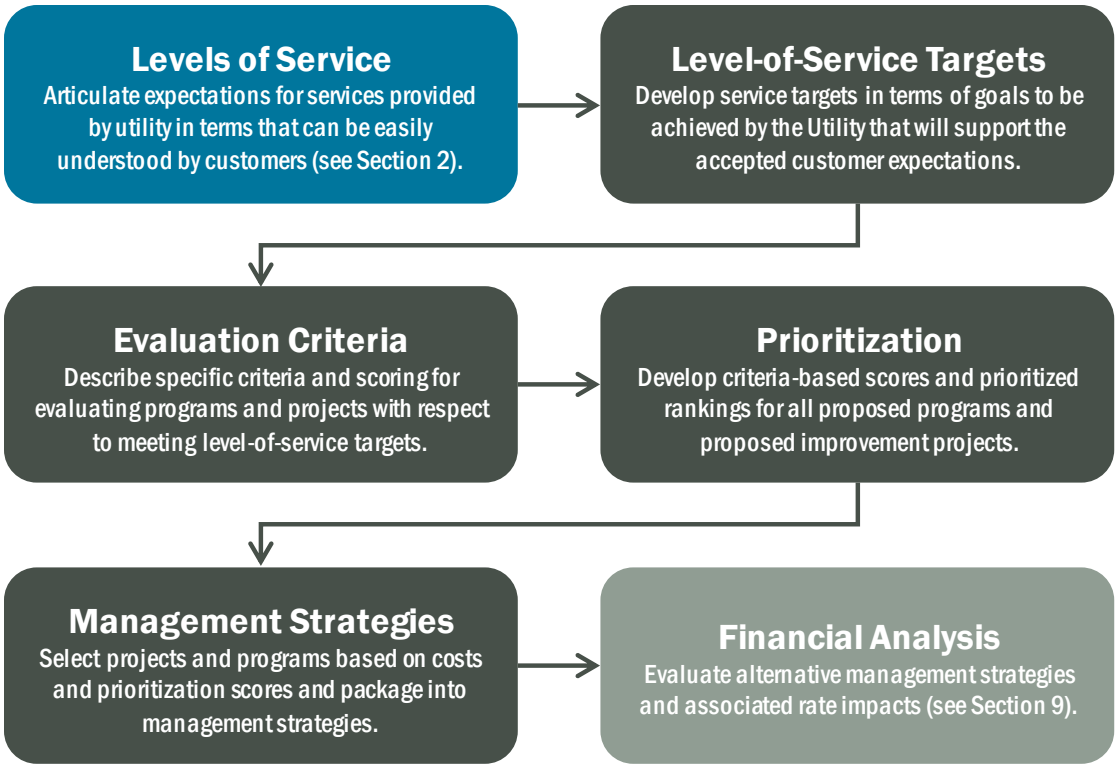


Figure ES-1. Prioritization process for developing management strategies

Projects were selected based primarily on prioritization scores, but with review and consideration for capital costs, project status (some projects have already been initiated), equitable distribution of projects throughout the city, and addressing a variety of project categories. Note that project selection is mostly a reflection of near-term versus long-term scheduling. Projects that were selected for each management strategy are to be included in the 6-year Capital Improvement Plan (CIP), with the remaining projects to be completed over a 20-year planning horizon. In some cases, projects are assumed to be initiated (e.g., planning, design, and permitting phases) during the 6-year planning; however, construction is assumed to be completed in subsequent years. Table ES-2 provides a summary of the number of projects and programs selected for the three management strategies, as well as a qualitative assessment of the benefits to the four levels of service.

Table ES-2. Management Strategy Summary with Cost and Levels of Service Impacts

Management Strategy	Number of Projects and Programs	Total Annual Program Cost, $ million [a]	Total 6-Year Project Cost, $ million [b]	Benefit to Levels of Service			
				Surface Water Impacts	Equitable Service	Communication and Outreach	Regulatory Compliance
Minimum	18 programs 6 projects	4.3	6.2	Low	Medium	Medium	Medium
Proactive [c]	24 programs 26 projects	6.0	11.1	Medium	High	High	High
Optimum	27 programs 30 projects	6.7	16.3	High	High	High	High

a. Includes $3.66 million of current program expenses.

b. Total 6-year project costs based on 2017 dollars.

c. City Council approved the Utility's recommended proactive management strategy based on financial analyses (see Section 9).

The Utility is responsible for funding all program and capital costs. The primary source of funding is a surface water management (SWM) fee assessed to all properties in the city. The fee is billed on King County's property tax statement. Nominal additional revenues are generated through interest earned on reserves and grants. The City controls the SWM fee and the City Council has the authority to adjust the fees as needed to meet financial objectives. A financial analysis was conducted to assess total system costs (capital and non-capital) and assessed funding sources (both current and potential additional funding sources) for each management strategy. Table ES-3 summarizes the annual revenue requirements based on the forecast of revenues, expenditures, fund balances, and fiscal policies that would be needed for each management strategy.

Table ES-3. Management Strategy Financial Analysis Summary

Management Strategy Rate Impact Summary	2017	Year 1 2018	Year 2 2019	Year 3 2020	Year 4 2021	Year 4 2022	Year 5 2023
Minimum							
Proposed increase	N/A	20%	5%	5%	4%	3%	3%
Resulting revenue	$4,488,372	$ 5,391,433	$ 5,666,666	$ 5,955,949	$ 6,200,381	$ 6,392,779	$ 6,591,147
Proactive							
Proposed increase	N/A	27%	15%	10%	10%	5%	5%
Resulting revenue	$4,488,372	$ 5,705,933	$ 6,568,385	$ 7,232,449	$ 7,963,649	$ 8,370,193	$ 8,797,492
Optimum							
Proposed increase	N/A	42%	20%	10%	8%	5%	5%
Resulting revenue	$4,488,372	$ 6,379,862	$ 7,663,490	$ 8,438,269	$ 9,122,444	$ 9,588,145	$ 10,077,620

Source: Table IV-1, City of Shoreline Surface Water Utility; Financial Analysis for 2017 Master Plan, FCS Group (November 2017), Appendix L.

With the greatest number of programs and projects, the optimum strategy has the highest annual revenue requirements and thus the largest rate adjustment of the three scenarios. However, all scenarios require increases in annual revenue to meet new, required expenses as they relate to regulatory requirements and appropriately managing the system. In all three scenarios, an initial, larger, revenue increase is required in 2018 followed by subsequent smaller increases over the next 5 years. This is due to increases in O&M expenses to meet regulatory and basic management requirements for operating the Utility.

These expenses cannot be funded through debt and thus the rate impact cannot be spread out over time. Efforts were made to spread costs and delay projects where possible to mitigate initial rate impacts. The Utility staff recommends the proactive management strategy. This strategy allows the City to not only be compliant with permit requirements but also to attend to desired levels of service and pressing investment needs.

Recommendations for Implementation

Utility staff presented the management strategies and results of the financial analysis to the City Council in August 2017, recommending implementation of the proactive management strategy. The recommendation for the proactive management strategy is based on the expected level of service provided for the associated cost and impact on surface water management fees. The proactive management strategy provides the following:

- Programs that meet current O&M needs and regulatory requirements
- Programs to meet anticipated new regulatory requirements
- High-priority projects and programs that most directly help meet the four levels of service
- Equitable Utility services across the city's drainage basins

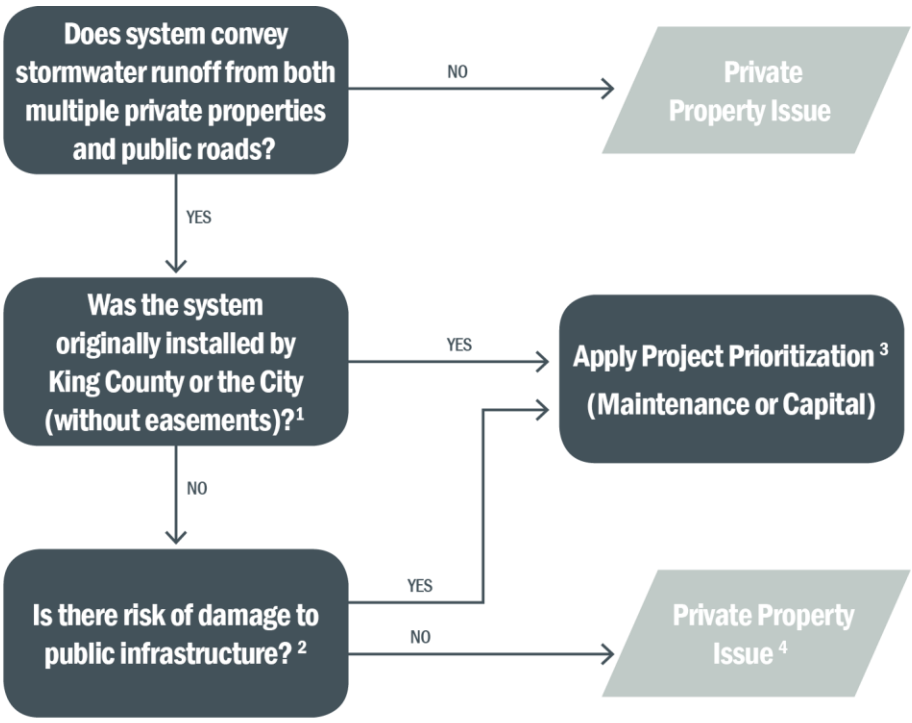
The City Council directed Utility staff to proceed with the proactive management strategy for preparing costs and financial information for the 2018–2023 CIP and 2018 City budget. The following sections summarize the policy recommendations, programs, and projects associated with implementation of the proactive management strategy.

Policy Recommendations

Utility staff conducted policy issue discussions with the City Council on four key policy issues. The following bullets summarize the recommended course of action based on the guidance provided by the City Council:

- **Use of Utility funds outside of the right-of-way (ROW):** The Utility will continue the practice of not expending Utility funds on private property unless City staff determine that the facilities in question are the responsibility of the City or public infrastructure is threatened. Utility staff will follow a "decision requirements" flow chart, shown in Figure ES-2 below. This flow chart shows the criteria Utility staff and the City Attorney will use to identify situations where it is appropriate to use Utility funds outside the ROW.
- **Stormwater Permit:** The Utility will establish a Stormwater Permit that consolidates all the onsite and ROW stormwater review activity into a single permit process covering all ongoing inspections, operations, maintenance, and enforcement of maintenance standards for private drainage systems as required by the Phase II Permit. The Stormwater Permit Program is intended to provide operating budget and staff resources for implementing this recommendation.
- **Surface water management fee-chargeable area:** The Utility will change the chargeable area for surface water fees to be based on hard surfaces. The chargeable area was updated in the surface water management rate table (Shoreline Municipal Code [SMC] 3.01.400) when the City Council approved the 2018 budget.
- **Private facility inspection and maintenance:** The Utility will continue with the current inspection and maintenance program but will embark on a pilot program offering private properties the option to participate in a self-certification program. The Utility estimated an operating budget for the Utility staff to develop the self-certification process over the next 6 years.

The Utility is expected to proceed as described above on each policy issue. Actions required by the Utility have been incorporated into program recommendations where applicable.



Footnotes:

1. In some areas, King County constructed improvements without securing easements. In these cases, there may be a legal justification for the City to secure drainage easements and assume maintenance, particularly if it is a trunk system that serves multiple properties. The City may require that the system be brought up to City standards and that the easement be provided to the City at no cost.
2. Includes flooding or erosion that results in (or could result in future) damage to public roads, infrastructure, or structures.
3. Determine resolution, if possible through a Drainage study/Assessment, then apply project prioritization criteria established in the 2018 Master Plan for prioritization and scheduling. This will include easement acquisition or relocating to the ROW.
4. The City may offer technical guidance.

Figure ES-2. Decision requirements for use of Utility funds outside the ROW

Programs

The proactive management strategy includes 24 programs: 9 existing programs, 9 enhanced programs, and 6 new programs. These programs have been developed to meet current and anticipated NPDES requirements, implement Utility best management practices (BMPs), and reduce the backlog of existing programs. Table ES-4 presents a summary of the proactive management strategy by program category with additional annual operation costs and estimated staffing. Staffing needs were developed by identifying program activities and workload estimates for enhanced and new programs.

Table ES-4. Implemented Program Summary					
Category	Program	Status	Planned Start Year	Operating Cost (Additional to Existing)	Additional Staffing (FTE)
Operation	NPDES Compliance	Enhanced	2020[a]	$32,480	0.13
	Floodplain Management	Existing	Ongoing	-[c]	-[d]
	Administration and Management	Existing	Ongoing	-[c]	-[d]
	Drainage Assessment	Enhanced	2018	$175,640	0.20
	Water Quality Monitoring	Enhanced	2020[a]	$85,470	0.25
	System Inspection	Enhanced	2018	$47,021	0.25
	Condition Assessment	Enhanced	2018	$160,340	0.34
	Private System Inspection	Enhanced	2019[b]	$62,192	0.40
	Stormwater Permit	New	2019[b]	$47,840	0.33
	Asset Management	Enhanced	2018	$69,200	0.25
Maintenance	Street Sweeping	Existing	Ongoing	-[c]	-[d]
	System Maintenance	Existing	Ongoing	-[c]	-[d]
	Small Repairs	Existing	Ongoing	-[c]	-
	SW Pipe Replacement	Enhanced	2019[b]	$651,520	0.52
	Surface Water Small Projects	Enhanced	2018	$400,000	0.16
	Catch Basin R&R	New	2018	$354,100	0.20
	LID Maintenance	New	2018	$53,732	0.10
	Pump Station Maintenance	New	2018	$63,600	0.10
	Utility Crossing Removal	New	2018	$18,400	0.15
Public involvement	Soak-It-Up Rebate	Existing	Ongoing	-[c]	-[d]
	Adopt-a-Drain	Existing	Ongoing	-[c]	-[d]
	Local Source Control	Existing	Ongoing	-[c]	-[d]
	Water Quality Public Outreach	Existing	Ongoing	-[c]	-[d]
	Business Inspection Source Control	New	2020[a]	$86,780	0.10
Average annual O&M effort for infrastructure associated with proactive management strategy				$33,867	0.02
			Total	**$2,342,182**	**3.50**

a. Existing program to continue until enhanced program begins in noted year.

b. Program development begins in 2018; program implementation begins in noted year.

c. Costs for existing programs assumed to be included within existing operation costs.

d. Staffing for existing programs assumed to be covered by existing staff.

Projects

The City Council approved staff's recommendation for the implementation of the proactive management strategy, which includes 25 projects, 21 of which are construction projects and 4 of which are studies or plans. The proactive projects include high-priority construction projects and studies that help meet the level-of-service targets. Projects selected for the 6-year CIP were then examined in closer detail with respect to implementation. Several projects were divided into phases where predesign/feasibility studies were needed or engineering and planning must be done well in advance of construction. Table ES-5 lists the proactive management strategy projects in order of priority with costs in 2017 dollars.

Table ES-5. Proactive Management Strategy Project Summary				
No	6-year CIP status[a]	Project Name	6-Year CIP Cost [b]	Capital Cost [b]
1	DC	25th Ave. NE Flood Reduction and NE 195th St. Culvert Replacement	$2,674,000	$8,226,000
2	P	Master Plan Update	$500,000	$500,000
3	PD	Springdale Ct. NW and Ridgefield Rd. Drainage Improvements	$545,000	$2,058,000
4	PDC	10th Ave. NE Stormwater Improvements	$1,788,000	$1,788,000
5	PD	Heron Creek Culvert Crossing at Springdale Ct. NW	$226,000	$855,000
6	DC	Hidden Lake Dam Removal	$2,097,000	$2,097,000
7	P	25th Ave. NE Ditch Improvements between NE 177th St. and 178th St.	$141,000	$2,538,000
8	PD	Pump Station 26	$320,000	$891,000
9	PD	Pump Station 30 Upgrades	$90,000	$339,000
10	P	6th Ave. NE and NE 200th St. Flood Reduction Project	$22,000	$384,000
11	PDC	Pump Station Misc. Improvements (Linden, Palatine, Pan Terra, 25, Ronald Bog, Serpentine)	$732,000	$732,000
12	C	NE 148th St. Infiltration Facilities	$393,000	$393,000
13	P	Boeing Creek Regional Stormwater Facility	$83,000	$9,440,000
14	P	System Capacity Modeling Study	$300,000	$300,000
15	PDC	NW 195th Pl. and Richmond Beach Dr. Flooding	$747,000	$747,000
16	P	Stabilize NW 16th Pl. Storm Drainage in Reserve M	$28,000	$500,000
17	P	Storm Creek Erosion Management Study	$80,000	$80,000
18	P	Climate Impacts and Resiliency Study	$80,000	$80,000
19	P	Boeing Creek Restoration	$50,000	$7,630,000
20	PD	NW 196th Pl. and 21st Ave. NW Infrastructure Improvements	$83,000	$313,000
21	P	18th Ave. NW and NW 204th St. Drainage System Connection	$15,000	$261,000
22	P	NW 197th Pl. and 15th Ave. NW Flooding	$7,000	$119,000
23	P	Lack of System and Ponding on 20th Ave. NW	$81,000	$1,458,000
24	P	12th Ave. NE Infiltration Pond Retrofits	$38,000	$677,000
25	P	NE 177th St. Drainage Improvements	$9,000	$152,000
			$11,129,000	$51,920,000

a. Implementation status key: P = planning/predesign/study, D = design/permitting, C = construction

b. 2017 dollars. O&M and other life-cycle costs included in financial planning analysis.

Funding

A financial analysis was prepared for capital projects and O&M programs for a 20-year period (2017–2036) and therefore includes financial planning beyond the 6-year period. The Financial Analysis Report (Appendix L) describes the rate increases for the 2018–2023 projected rates and the 2024–2036 revenue requirements. The report also accounts for the associated costs for the debt servicing, reserve funds, and meeting the policy requirements over the planning period. The report then projects the rate increases necessary to support this level of programming. Table ES-6 below provides the results of the projected rate analysis by year.

Table ES-6. Projected Percentage Rate Increases to Meet Proactive Level Program Expenditures							
Rate Increase Summary	2017	2018	2019	2020	2021	2022	2023
Annual rate increases	NA	27.0%	15.0%	10.0%	10.0%	5.0%	5.0%
Single-family annual bill	$ 168.81	$ 214.38	$246.54	$ 271.19	$ 298.31	$ 322.18	$ 328.89
Increase over prior year	NA	$ 45.58	$ 32.16	$ 24.65	$ 27.12	$ 14.92	$ 15.66

Source: Table VI-1; City of Shoreline Surface Water Utility; Financial Analysis for 2017 Master Plan, FCS Group (November 2017) (Appendix L)

Surface water management fee rates are approved annually when the City's annual budget is approved. The rate increases required for the proactive management strategy are implemented for the 6-year planning period through the budget approval.

The analysis shows the need for the rate's highest increase in 2018 with gradually smaller increases in later years. For single-family residences, this reflects an increase in the annual surface water charge from $168.81 in 2017 to $328.89 by 2023. The same percentage increase would apply for every customer type. The current customer rates were adopted on November 20, 2017, when the City Council approved the 2018 budget; these are located in the SMC 3.01.400 Surface Water Management rate table.

Capital improvement estimates show a sustained increase in capital investments from 2024 through 2036. This increase currently results in an average of more than $3 million annually in additional capital expenditures as compared to the current 6-year spending average. Because of sustained above-inflation increases through 2023, current financial forecasts show that the City will require slightly lower rate increases starting in 2024 (of 7 percent) that reduce toward inflationary increases over time despite the higher projected capital expenditures. These forecasts are dependent on the City maintaining its current capital schedule and cost estimates.

It is important that the City revisit the identified rates annually to ensure that the rate projections developed remain adequate. Any significant changes should be incorporated into the financial plan and future rates should be adjusted as needed.

The City should take extra consideration of improved capital cost estimates and scheduling in the 2024–2036 planning period. While the current rate forecast plans for an increase in capital expenditures through this period, changes to costs and schedules will be important to incorporate.

Other financial planning recommendations include the following:

- Adopt rate structure presented for the proactive management strategy
- Revise City "CIP model" to include updated reserve requirements including:
  - 120 days of O&M expenses minimum operating reserve balance
  - 2 percent of assets minimum capital reserve balance
- Review rates and current operational and capital needs annually
- Conduct new financial analysis in 5 years to ensure that projected rates are in line with Utility expenses

Section 1

Introduction

Shoreline, Washington, is a community in northern King County comprising roughly 55,000 residents and covering an area of nearly 12 square miles. Since incorporating in 1995, the City of Shoreline (City) has strengthened its municipal services over time, including a steady improvement of surface water management. The City adopted its first drainage code and established the Surface Water Management Fund in 1995. Operations and maintenance (O&M) work and assessment activities followed in 1997. The Surface Water Utility (Utility) and the Surface Water Utility Enterprise Fund (Fund) were established in 2006. Shortly thereafter, in 2007, the City became a National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Stormwater Permit (Phase II Permit) holder, which allows the City to discharge stormwater to surface waters of the state[2].

The Utility is the City's lead agency for maintaining Phase II Permit compliance, and is responsible for implementing the City's Stormwater Management Program. The Utility is also responsible for maintaining stormwater infrastructure, reducing flooding, and protecting surface water quality. The Utility prepared this 2018 *Surface Water Master Plan* (Master Plan) to guide activities for the next 5 to 10 years and address current challenges in stormwater management.

1.1 History of Planning Efforts

The City's first Master Plan was developed in 2005 to address prevailing needs for flood protection, water quality improvement, and stream habitat protection. The 2005 Master Plan focused on identifying problems and recommending specific structural projects and non-structural programs to address the identified problems. The 2005 Master Plan also included an evaluation of stormwater management activities necessary to comply with the forthcoming 2007 Phase II Permit[3]. The 2005 Master Plan included a financial analysis documenting the need for surface water management fees to support drainage improvements and mandatory compliance with the Phase II Permit.

An updated Master Plan was prepared in 2011 to address the Utility's growing needs, including the new and more stringent requirements anticipated with the 2013 Phase II Permit[4]. As services and regulatory compliance activities became more complex, the Utility required a more sophisticated approach to surface water planning and management. To address this need, the 2011 Master Plan established basic levels of service (LOSs) for the Utility, examined operations and policies, provided recommendations for improvements, and analyzed the rates needed to support the Master Plan. One of the key outcomes from the 2011 Master Plan was a schedule to complete a basin planning effort, which was designed to address stormwater management issues that are unique to each drainage area within the city.

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[2] "Surface waters of the state" means all waters defined as "waters of the United States" in 40 CFR 122.2 that are within the boundaries of the state of Washington. This includes lakes, rivers, ponds, streams, inland waters, wetlands, ocean, bays, estuaries, sounds, and inlets. WAC 173-226-030.

[3] The 2007–2012 Phase II Permit included new requirements for construction site and post-construction runoff control; IDDE, MS4, and O&M program requirements; and public education, outreach, and participation.

[4] The 2013–2018 Phase II Permit was issued in 2012 and became effective in 2013. New requirements in this permit included LID requirements for new development and redevelopment, and additional water quality data collection and documentation of financial contribution to the new RSMP administered by Ecology.

The Utility prepared six basin plans between 2009 and 2016 for all of the city's drainage basins. The *Thornton Creek Watershed Plan* (completed in 2009) preceded the 2011 recommendation for basin planning because substantial drainage problems existed within the basin that drove a special planning effort. The five other basin plans followed the 2011 Master Plan, with two completed in 2013, two in 2015, and the final plan completed in 2016. Figure 1-1 shows the areas covered by each of the basin plans. Table 1-1 summarizes the six basin planning documents.

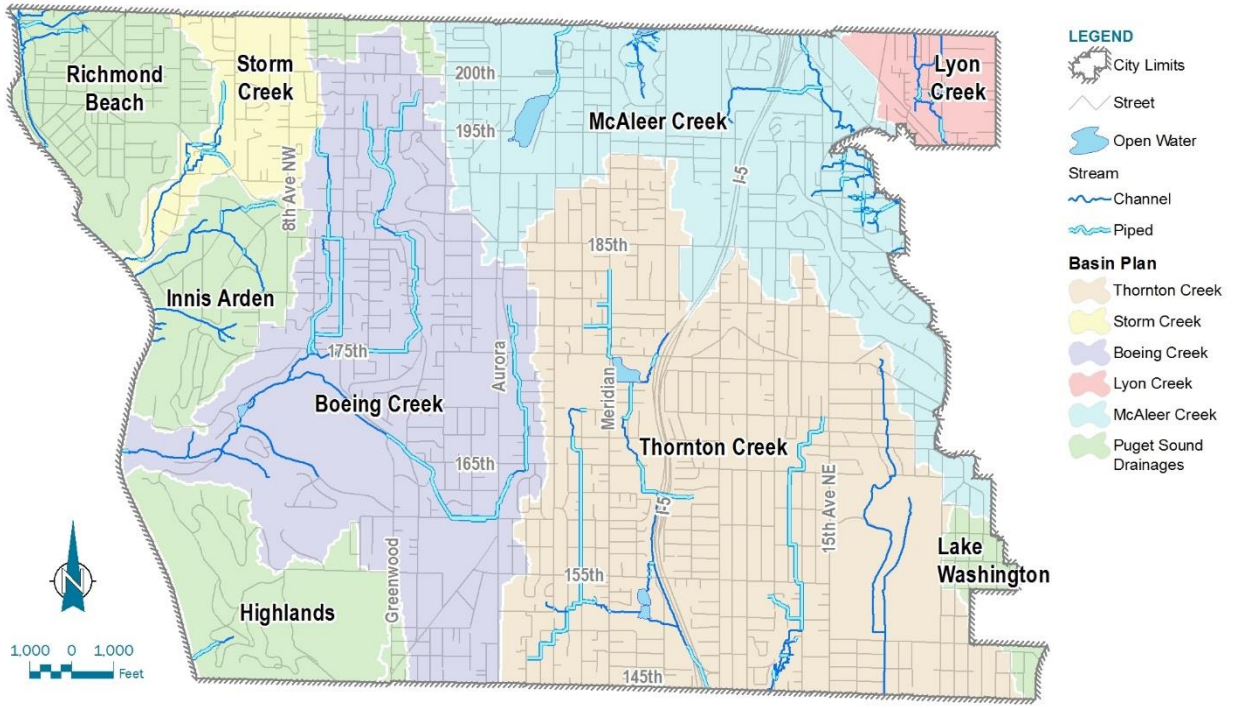

Figure 1-1. Shoreline surface water basins

Table 1-1. Summary of Basin Planning Efforts

Basin Plan Title	Date Completed	Area Covered within the City (acres)	Key Outcomes
Thornton Creek Watershed Plan	November 2009	2,375	• Capital improvement projects [a] • Programmatic measures and studies [a] • Flood hazard mitigation and mapping [b] • Recommendations for development standards [b]
Storm Creek Basin Plan	March 2013	308	• Capital improvement projects • Programmatic measures and studies • Condition assessment for stormwater pipes [a]
Boeing Creek Basin Plan	March 2013	1,769	• Capital improvement projects • Programmatic measures and studies • Condition assessment for stormwater pipes
Lyon Creek Basin Plan	October 2015	178	• Capital improvement projects • Programmatic measures and studies • Condition assessment for stormwater pipes • Risk-based prioritization of pipe repair and replacement (R&R) [a]
McAleer Creek Basin Plan	November 2015	1,370	• Capital improvement projects • Programmatic measures and studies • Condition assessment for stormwater pipes • Risk-based prioritization of pipe R&R
Puget Sound Drainages Basin Plan (including Lake Washington and other small basins)	December 2016	1,402	• Capital improvement projects • Programmatic measures and studies • Condition assessment for stormwater pipes • Risk-based prioritization of pipe R&R

a. Indicates a key outcome included subsequent basin plans.

b. Indicates a difference in key outcomes compared to preceding basin plans.

Detailed evaluations that were performed for each of the basin plans generated project and program recommendations to address problems related to flooding, water quality, and aquatic habitat. Recommendations were prioritized within each basin (e.g., high, medium, and low) based on the likelihood of success, number of issues addressed, whether public infrastructure or public safety were protected, and the availability of public property to address the need. Detailed recommendations from each of the basin plans have been compiled and now provide a basis for comprehensive planning that accounts for citywide priorities and includes financial planning, funding considerations, and/or potential rate impacts.

1.2 Purpose and Objectives

The purpose of this Master Plan is to provide a comprehensive update to the 2011 Master Plan and prioritize the recommendations from the recent basin planning efforts. This Master Plan will guide the Utility for the next 5 to 10 years and addresses emerging issues associated with rapid growth, increasing regulations, and aging infrastructure. In preparing this Master Plan, the following objectives were achieved:

- **Develop updated levels of service for the Utility that align with customer expectations:** The Utility worked closely with customers, Public Works staff, and the Shoreline City Council (City Council) to develop refined language for levels of service. The new levels of service reflect current customer expectations and provide a firm basis for operational decisions and priorities.
- **Review current policies, programs, and operational activities for the Utility and make recommendations for improvements:** Because of recent and anticipated growth and evolving regulations, the Utility worked with Public Works staff and the City Council to develop new policies, as well as recommendations for new and enhanced programs to address current needs. Program recommendations include details regarding costs, additional staffing needs, and performance measures for monitoring program success over time.
- **Advance the Asset Management Program to improve stewardship of the surface water system infrastructure, and assure customers that funds are spent responsibly and effectively:** Asset management ties expenditures to customer service levels, and through increased accountability aims to ensure that all asset decisions reflect the lowest life-cycle cost needed to meet customer expectations at responsible levels of risk. The Utility evaluated its current business practices and developed an Asset Management Work Plan (AMWP) to address gaps and develop near- and long-term actions for improving asset management practices.
- **Prepare an O&M manual to establish clear processes and protocols:** The Utility developed an updated and substantially expanded O&M manual to document the function and frequency of periodic maintenance activities, maximize the use of its Computerized Maintenance Management System (CMMS), and support improvements in asset management practices.
- **Assess the current state of the City's surface water systems:** The Utility synthesized available information from multiple sources, including basin plans, condition assessment data, previous modeling efforts, geospatial databases, and other available documents. In addition, the Utility evaluated water quality treatment options and developed a framework for system-wide capacity modeling.
- **Create an updated set of proposed capital improvement projects and prepare updated planning-level cost estimates:** The Utility developed an updated database of capital improvement projects that were identified through basin planning efforts, pump station condition assessment, the drainage assessment program, and ongoing pipe inspection and condition assessment programs. Project updates included the development of updated project cost estimates using a consistent set of costing assumptions.
- **Prioritize project and program recommendations for implementation:** The Utility established transparent and repeatable processes to prioritize projects and programs based on their potential to support meeting the level-of-service targets. The Utility used the prioritization results to select projects for the 6-year Capital Improvement Plan (CIP) and programs to be implemented over the same time frame.
- **Develop management strategies based on selected projects and programs:** Projects and programs were selected and packaged into management strategies that were evaluated with respect to meeting levels of service and costs to the Utility.

- **Conduct a financial analysis to support funding and rate recommendations:** Implementation of new and revised policies, programs, and projects requires financial planning that provides for implementation of a selected management strategy. The Utility conducted a financial analysis to determine the rates and revenue required to meet the operational, debt service, and capital improvement costs associated with implementation of each of the identified management strategies. The results were used to select a preferred management strategy for the Utility.

1.3 Planning and Review Process

The City retained Brown and Caldwell (BC) to assist with development of the 2018 Master Plan; work began in July 2016. During the process for plan development, the City held two public meetings and obtained input from the City Council. In addition, two Web-based public surveys were conducted to provide input on this Master Plan. More information about these efforts is included in the following paragraphs.

1.3.1 Public Meetings

Obtaining public input is an important way to match customer expectations with the levels of service that are defined for the Utility. A public meeting and open house were held at Shoreline City Hall on September 8, 2016. A total of 23 Shoreline citizens attended and listened to a short presentation on the surface water master planning process and development of levels of service for the Utility. The presentation was followed by many questions from the attendees, ranging from a general discussion on surface water to specific drainage problems experienced by residents. City staff were on hand to answer questions, interact with attendees, and gather feedback.

After the questions portion of the meeting, residents were encouraged to visit each of the two work stations set up within the room. The first work station focused on general surface water topics and planning processes. The second work station exhibited draft levels of service for the Utility and attendees interactively posted stickers indicating, in their view, the priorities of the Utility. Questions, comments, and priority notes from the open house were compiled and used to inform the development of levels of service and level-of-service targets.

A second open house was held at Shoreline City Hall on July 13, 2017. Eight residents attended and listened to a short presentation on the progress of the 2018 Master Plan. The presentation included an overview of project and program recommendations and a brief discussion of three proposed management strategies for the Utility. Work stations were set up within the room and residents were also asked to indicate which of the three stormwater management strategies they preferred by posting stickers on a display board outlining the three options. Figure 1-2 illustrates the basic steps of the 2018 Master Plan development process and the points where open houses were used to solicit feedback from the public.

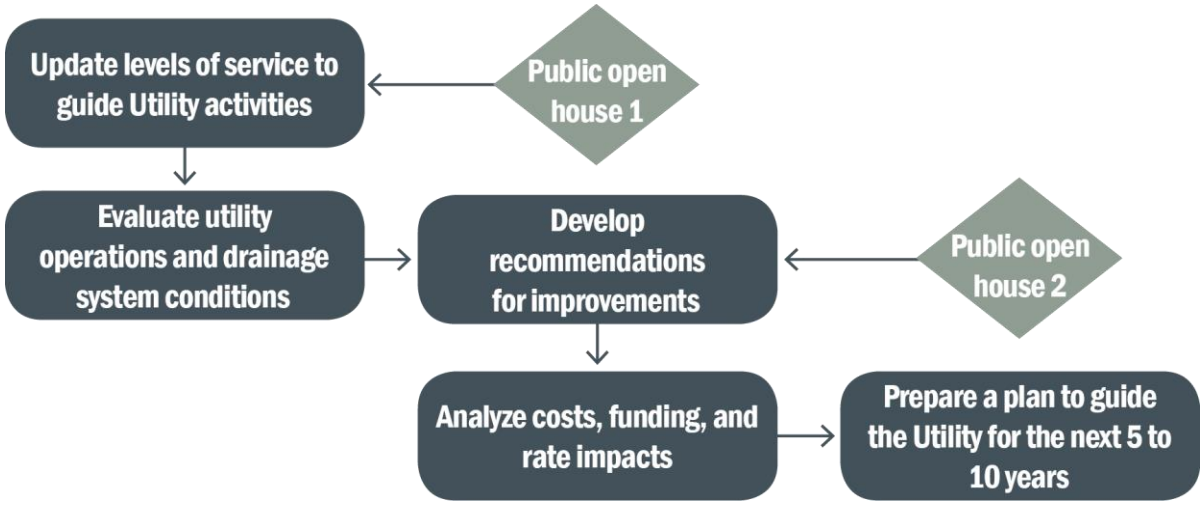

Figure 1-2. Public input was obtained through two open houses held during development of this Master Plan

1.3.2 Public Surveys

Public surveys were conducted in conjunction with each of the two public open houses to solicit direct feedback on levels of service and management strategies for the Utility (Table 1-2). In each case, the Web-based survey was released in advance of the public open house through various channels including Shoreline Alerts, Shoreline Area News, neighborhood associations, and the City's website. Survey questionnaires were also available to the attendees of each public open house. Public survey results are provided in Appendix A.

Table 1-2. Public Survey Activities

Survey Number	Dates of Survey	Number of Responses	Primary Topic
1	September 2–16, 2016	177	Proposed levels of service
2	July 5–16, 2017	129	Proposed management strategies

1.3.3 Reports to City Council

Utility staff provided updates to the City Council at five key points throughout the planning process. Staff reports were prepared in advance of scheduled City Council meetings, and presentations were given during each meeting, followed by questions from council members. These updates were not intended only to inform the City Council of progress on the 2018 Master Plan, but also to provide council members with opportunities to provide feedback and direction throughout the planning process. The following is a summary of the City Council meetings:

- **City Council meeting 1:** On October 10, 2016, the City Council received an introduction to the 2018 Master Plan planning process and reviewed the draft levels of service and level-of-service targets that were to be used in development of the 2018 Master Plan recommendations.
- **City Council meeting 2:** On May 15, 2017, the City Council discussed and provided direction on four key policy issues related to operation of the Utility, the outcomes for which have been incorporated into the program recommendations for the 2018 Master Plan.
- **City Council meeting 3:** On July 17, 2017, the City Council reviewed management strategies, which consisted of different groupings of projects and programs. The City Council also reviewed a summary and provided feedback on the prioritization process and management strategies being evaluated in the financial analysis.

- **City Council meeting 4:** On August 7, 2017, the City Council discussed and provided direction on a preferred management strategy for use in developing rates and financial analysis for the 2018 Master Plan and 2018–2023 rates.
- **City Council meeting 5:** On December 4, 2017, the City Council reviewed the new and enhanced Utility programs scheduled to begin in 2018 along with performance measures that will be used to monitor the success of the programs.

1.3.4 State Environmental Policy Act

The State Environmental Policy Act (SEPA) requires State of Washington (State) and local agencies to consider the likely environmental consequences of a proposal before approving or denying that proposal. This process provides a way to identify possible environmental impacts that may result from governmental decisions. As the lead agency, the City is responsible for identifying and evaluating the potential adverse environmental impacts of this Master Plan. This evaluation will be documented in the form of an environmental checklist and sent to other agencies and the public for their review and comment. See Appendix B for SEPA compliance documentation.

1.4 Organization of the Document

This Master Plan has been written for a variety of audiences ranging from Utility staff to City executives, and is intended to be available to the public and customers of the Utility. The body of this document is divided into the following nine sections:

Section 1. Introduction	Brief discussion of previous planning efforts, list of current planning objectives, and an overview of the planning process.
Section 2. Levels of Service	Summary of Utility services and a discussion on the development of updated levels of service.
Section 3. Drainage Systems	Description of the current conditions of the Utility's stormwater infrastructure and drainage basins.
Section 4. System Evaluation	Summary of technical evaluations, including a conditions assessment and needs for conveyance capacity modeling.
Section 5. Regulatory Compliance	Description of current and future regulations impacting Utility planning and operation.
Section 6. Policies and Procedures	Background on organizational structure and a review of relevant City policies, Shoreline Municipal Code (SMC), and recommendations for policy changes.
Section 7. Utility Programs	Review of current programs and development of recommendations for new and enhanced programs.
Section 8. Management Strategies	Discussion of program and project recommendations, including a summary of the prioritization process and selection of a preferred management strategy.
Section 9. Financial Analysis	Summary of the financial analysis and determination of rates needed to support the selected management strategy.
Section 10. Implementation	Summarizes the costs and staffing needs associated with the preferred management strategy, including the recommended funding plan.

The Master Plan starts with defining levels of service, then evaluates the need for projects and programs to meet those levels of service, and finally makes recommendations for implementing improvements. Section 2 describes the development of updated levels of service for the Utility, providing a basis for subsequent evaluations of system performance, operations, and asset management. Sections 3 and 4 describe and evaluate the condition of the drainage system, including recommendations for improvements from the recent basin planning efforts and condition assessment activities. Section 5 provides an overview of relevant regulations. Sections 6 and 7 discuss Utility policies, procedures, and programs and present recommendations for improvements. Section 8 describes how all recommended improvements were prioritized and selected for alternative management strategies. Section 9 describes the financial analysis used to identify a preferred management strategy for implementation. Section 10 provides additional details regarding implementation of the preferred management strategy. Additional supporting technical information is provided in the appendices.

Section 2

Levels of Service

The Utility is responsible for maintaining stormwater infrastructure and protecting surface water quality in the city of Shoreline. The Utility provides surface water management services within city limits through constructed drainage systems that connect with the streams, wetlands, and lakes of Shoreline's drainage basins, as well as the drainage systems of neighboring jurisdictions. The Utility is the lead agency for compliance with State and federal regulatory requirements relating to surface water resources (e.g., streams and rivers), such as the Phase II Permit.

Functions and services provided by the Utility are shaped by the vision and values of the community, and are driven by State and federal regulations. Levels of service are common-language statements that describe characteristics or attributes of services provided by the Utility to meet the community's basic needs and expectations. Levels of service should align with overall strategic goals of the organization and support its business drivers. Levels of service help Utility managers focus efforts and resources, communicate service expectations, and reconcile budgetary limitations. More specifically, levels of service are used to:

- Provide customers with an understanding of the services offered
- Focus asset management activities on what is needed most
- Measure performance and track progress of the Utility
- Examine the costs and benefits of the services offered
- Assess suitability, affordability, and equity of the services offered

As part of this 2018 Master Plan, the Utility has developed updated levels of service. The Utility started by considering the community's vision and values; reviewing the strategic goals of the City; and then engaging in a series of discussions with the public, City staff, and City Council. The following section summarizes the outcome of this process.

2.1 Community Vision

In 2009, the City Council adopted the *Vision 2029* document (City 2009). *Vision 2029* envisions Shoreline as "a thriving, friendly city where people of all ages, cultures, and economic backgrounds love to live, work, play, and—most of all—call home." The document further describes Shoreline as a:

> … regional and national leader for living sustainably. Everywhere you look there are examples of sustainable, low-impact, climate-friendly practices: cutting edge energy-efficient homes and businesses, vegetated roofs, rain gardens, bioswales along neighborhood streets, green buildings, solar-powered utilities, rainwater harvesting systems, and local food production, to name only a few. Shoreline is also deeply committed to caring for its seashore, protecting and restoring its streams to bring back the salmon, and making sure its children can enjoy the wonder of nature in their own neighborhoods (City 2009).

In support of this vision, the City's Public Works Department seeks to support a sustainable and vibrant community through stewardship of the public infrastructure and natural environment, with a vision for a legacy of enduring quality of services provided for the community and natural

environment through excellent infrastructure and innovative practices. Likewise, the Utility seeks to implement the vision and goals of the community through the services that it provides.

Sustainability. *Vision 2029* outlines a commitment to being a sustainable city in all respects. This emphasis on sustainability includes goals to conserve and protect our environment and natural resources; encourage restoration, environmental education, and stewardship; and apply innovative and environmentally sensitive development practices (City 2009). The City has also prepared an environmental sustainability strategy that underscores the use of green infrastructure, including the following recommendations:

- Promote green building and low impact development (LID) by training select staff, providing outreach information, and revising building and development codes
- Prioritize green streets planning, design, and implementation
- Promote natural solutions to stormwater management in private and public development with both incentives and requirements by revising engineering and development code standards, implementing CIP projects, and through public outreach (City 2008)

The City's commitment to environmental protection, sustainability, and natural solutions is also reflected in the natural environment goals in the *City of Shoreline Comprehensive Plan* (Comprehensive Plan), including the following goals related to surface water (City 2012):

- **Goal NE VI:** Manage the stormwater system through the preservation of natural systems and structural solutions to protect water quality; provide for public safety and services; preserve and enhance fish and wildlife habitat, and critical areas; maintain a hydrologic balance; and prevent property damage from flooding and erosion.
- **Goal NE VII:** Continue to require that natural and onsite solutions, such as infiltration and rain gardens, be proven infeasible before considering engineered solutions, such as detention.
- **Goal NE VIII:** Preserve, protect, and (where feasible) restore wetlands; shorelines; and streams for wildlife, appropriate human use, and the maintenance of hydrological and ecological processes.

Social Equity. *Vision 2029* and the Comprehensive Plan expand the goals for environmental sustainability to incorporate goals for advancing economic development and social equity (i.e., using a triple-bottom-line approach) (City 2009; City 2012). The importance of equity is also reflected in the values of the Public Works Department, honoring diversity and fairly representing all members of the community. The Comprehensive Plan includes the following relevant goals for utilities:

- **Goal U I:** Facilitate; support; and/or provide citywide utility services that are consistent, reliable, and equitable; technologically innovative, environmentally sensitive, and energy efficient; sited with consideration for location and aesthetics; and financially sustainable.
- **Goal U II:** Facilitate the provision of appropriate, reliable utility services, whether through City-owned and operated services, or other providers.

This Master Plan supports the community's vision for sustainability and social equity by providing a financially viable plan for improving surface water management, including recommendations for projects and programs that preserve natural systems, protect water quality, and reduce risks to public safety. Sustainability and equity goals were important considerations in the development of levels of service, as described in the next section.

2.2 Defining Levels of Service

Levels of service provide for a common understanding between the customer (i.e., residents and businesses) and the service provider (i.e., the Utility). When developing levels of service, it is useful to examine various aspects of the services provided by the Utility in terms of what is important to the customer; these often involve health and safety, environmental impacts, quality, reliability, availability, and affordability. Level-of-service statements should articulate intended objectives for delivering services and should be written in a way that can be understood by the end user.

Draft levels of service were developed from the levels of service described in the 2011 Master Plan, the City's Comprehensive Plan, and from the 2015–2017 City Council Work Plan and Goals. Utility staff then participated in several workshops facilitated by BC and FCS Group to develop and refine level-of-service statements. At the same time, level-of-service targets were defined as specific goals for how the Utility would meet the levels of service. The suggested language for levels of service and draft level-of-service targets was presented to the public at an open house on September 8, 2016, and part of a public survey run from September 2–16, 2016. Both the open house and survey were used to obtain feedback from the public and gain a better understanding of the public's priorities.

The draft levels of service, level-of-service targets, and results from the public open house and public survey were presented to the City Council for discussion on October 10, 2016. The City Council agreed with the levels of service and the levels of service did not change throughout the development of the Master Plan. The final levels of service and associated level-of-service targets are provided in Table 2-1.

Table 2-1. Levels of Service and Level-of-Service Targets for the Utility

Level of Service		Level-of-Service Target
LOS 1: Surface Water Impacts	Manage public health, safety, and environmental risks from impaired water quality, flooding, and failed infrastructure	No verifiable health and safety issues or environmental damage caused by the stormwater services outside of risk tolerance
LOS 2: Equitable Service	Provide consistent, equitable standards of service to the citizens of Shoreline at a reasonable cost, within rates and budget	Meet the levels of service as measured by customer satisfaction and rate and revenue projections
LOS 3: Communication and Outreach	Engage in transparent communication through public education and outreach	Maintain a communication plan to inform the community on Utility goals and progress
LOS 4: Regulatory Compliance	Comply with regulatory requirements for the urban drainage system	Meet or exceed regulatory requirements for NPDES Phase II and federal, State, and local regulations affecting surface water management

The levels of service and level-of-service targets shown in Table 2-1 were used to develop a matrix of performance targets and performance measures, both of which provide a much higher level of detail and specificity. Performance targets were used to develop prioritization criteria for capital improvement projects and programmatic recommendations (see Section 8). By organizing and linking prioritization criteria back to levels of service, the Utility was better able to determine which projects and programs are likely to provide the greatest benefit toward achieving levels of service.

Prioritization scoring and estimated costs were used to select and schedule projects and programs for implementation. The resulting group of projects and programs and schedule for implementation is referred to as a management strategy. Section 8 describes the process used to develop the following three alternative management strategies:

- **Minimum:** Meet the minimum in terms of existing system needs and anticipated regulatory requirements. Programs should focus on the fourth level of service, meeting existing and anticipated regulatory requirements. Projects should included those that are currently in progress.
- **Proactive:** Minimum management strategy plus new high-priority projects and new/enhanced programs that address high-priority, long-term needs and benefit all four levels of service. Programs in addition to the minimum should include enhanced existing programs or new programs meeting long-term needs for system inspection and maintenance.
- **Optimum:** Proactive management strategy plus additional recommendations to enhance water quality and aquatic habitat that provide the highest level of service.

The minimum, proactive, and optimum management strategies were analyzed for rate and funding impacts (Section 9), and a preferred management strategy was recommended for implementation after consulting with the City Council (Section 10).

Section 3

Drainage Systems

Shoreline is in the northern portion of King County bounded by Puget Sound to the west, Snohomish County to the north (including the cities of Mountlake Terrace, Edmonds, and the town of Woodway), Lake Forest Park to the east, and the city of Seattle to the south. Shoreline can be divided into seven distinct drainage basins: Thornton, Boeing, Storm, Lyon, and McAleer creeks; Middle Puget Sound; and West Lake Washington. Shoreline surface waters drain to either Lake Washington (Thornton, McAleer, and Lyon creeks, and West Lake Washington drainages) or Puget Sound (Boeing and Storm creeks, and the Middle Puget Sound drainages). Figure 1-1 (see Section 1) is a map of Shoreline's drainage basins. Figures 3-1 through 3-5 show the city drainage basins at a larger scale.

The city is nearly fully developed with about 1 percent of the total land area considered vacant (City 2017). On average, the city's land cover is currently 38 percent impervious. In buildout conditions (i.e., land use matches zoning allowances) imperviousness is estimated to be 50 percent.

Over the past 7 years, the City has completed basin planning for each of the city's drainages. Basin plans for the city's five largest creeks (Thornton, Boeing, Storm, McAleer, and Lyon) were completed first. The *Puget Sound Drainages Basin Plan* (AltaTerra 2016) included information for the city's remaining smaller drainages within the Middle Puget Sound and West Lake Washington basins. All six basin plans provide detailed evaluations of the drainage systems and recommendations for improvements that, when implemented, will help the Utility meet the levels of service defined in Section 2. Projects identified in the basin plans will be carried forward and prioritized based on level-of-service targets, and the highest-priority projects will be selected for inclusion in management strategies (see Section 8).

Table 3-1 presents an inventory summary of the basins' natural and built characteristics based on the basin planning work, the City's GIS and recent water quality evaluations. The sections following the table provide a summary for Shoreline with descriptions of smaller basins included in sections of larger adjacent basins. The summary includes a basin description, water quality data trends, and basin needs as identified in basin plans.

Table 3-1. Summary of Drainage Basins

Basin	In-City Basin Size (acres)	Percent of City Area	Percent Impervious		Geology Soils	Receiving Water Body	Projects Identified
			Existing	Buildout			
Thornton Creek	2,391	32	40	55	Vashon Till with Esperance Sands	Lake Washington via city of Seattle	22
Boeing Creek	1,764	24	40	57	Glacial till	Puget Sound	26
Storm Creek	298	4	38	51 (north) 47 (south)	Till (plateau) with Esperance Sands and lacustrine clay-silt (slopes)	Puget Sound	25
McAleer Creek	1,377	18	41	58	Esperance Sands (east) with glacial till and hardpan (west)	Lake Washington via cities of Mountlake Terrace, and Lake Forest Park	14
Lyon Creek	184	3	42	64	Esperance Sands with small portion of transitional beds along the lower portion of the creek near the city limits	Lake Washington via cities of Mountlake Terrace and Lake Forest Park	9
Middle Puget Sound	1,312	17	33	--	Glacial till (higher elevation) with advanced outwash and transitional beds of silt and clay (lower elevation)	Puget Sound	16
West Lake Washington	119	1	38	58	Alderwood gravelly sandy loam	Lake Washington and small portion to Lake Washington via Seattle	2

3.1 Thornton Creek

The Thornton Creek basin, located east of Aurora Avenue N, drains south through the city of Seattle to Lake Washington. The basin is the largest in the city with 2,391 acres (approximately one third of the 7,402-acre total basin area) within the city limits. See Figure 3-1.

The Thornton Creek basin is almost completely developed with single-family residential and commercial land use. The Thornton Creek basin contains several subareas that have been rezoned for higher density, including the 145th and 185th Street Light Rail Station Subareas. The 185th Street Light Rail Station Subarea spans portions of the Thornton and McAleer Creek basins, with approximately 60 percent of the 559-acre subarea in the Thornton Creek basin. As these areas redevelop, the Utility has the opportunity to mitigate impacts of increased impervious surfaces with stormwater management practices including LID, stormwater treatment, and detention facilities.

The headwaters of Thornton Creek begin within the city just north of Ronald Bog. Currently, a large portion of the former headwaters of Thornton Creek are piped water courses. Relative to all streams in the city, Thornton Creek contains the least amount of natural channel with an estimated 46 percent of the creek conveyed in closed conveyance. Significant features in the basin include the pond and wetland areas of Ronald Bog and Twin Ponds, Meridian wetland, and Thornton and Littles creeks.

The 2009 Thornton Creek (RW Beck 2009) basin plan lists several needs that have been addressed since the plan was published. These projects include capital projects that have alleviated flooding for the Ronald Bog area, flooding of 12th Avenue NE between NE 170th and 175th streets, and infrastructure improvements at N 167th Street and Wallingford Avenue N.

Needs reported in the 2009 plan that are currently relevant include:

- Basin-wide pipe inspection, condition assessment, and pipe repair and replacement (R&R)
- Localized flooding appears to be related to hydraulic constrictions in the system
- Wetland and buffer areas along the east edge of Ronald Bog Park lack a diverse native plant assemblage and habitat structures
- Portions of Hamlin Creek lack habitat in-stream structure, native vegetation, and canopy cover
- Water quality is of moderate concern because of fecal coliform

While the flooding issues associated with the Ronald Bog area have been addressed, a handful of localized flooding issues remain. These issues include areas with little or no formal drainage and retrofit opportunities for Littles Creek and existing infiltration ponds. Water quality and aquatic habitat remain key issues in the Thornton Creek basin. Approximately 46 percent of the creek channel is in pipes, and the open-channel portions have limited riparian habitat. Notable losses in aquatic habitat include enclosed portions of Hamlin Creek, wetland areas near Ronald Bog, and the coarse sediment-starved portions of Thornton Creek streambed. The Utility has proposed a public outreach program to address Thornton Creek basin resident behavior and activity.

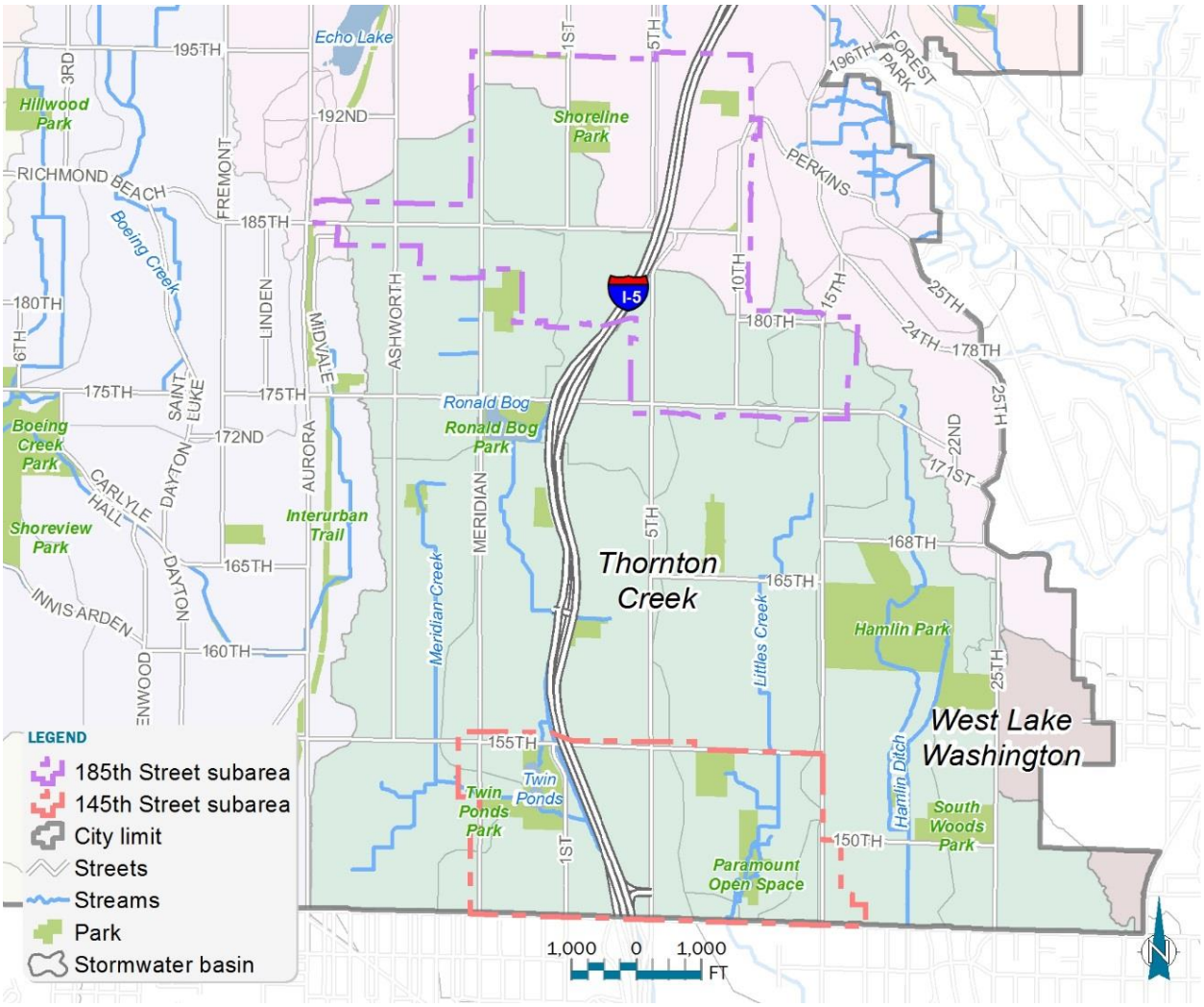

Figure 3-1. Thornton Creek/West Lake Washington basins

3.2 Boeing Creek

The Boeing Creek basin, the second-largest basin in the city, encompasses approximately 1,740 acres and is contained almost entirely inside the city limits. Most of the basin lies west of Aurora Avenue N and drains to Puget Sound. Land use in the basin is single-family residential with a smaller portion of commercial/industrial development along Aurora Avenue N. Focused areas of redevelopment include the Town Center subarea and the Aurora Square Community Renewal Area, both along Aurora Avenue N. See Figure 3-2.

The upper portions of the creek are piped because of previous and historical development. The lower 1.55 miles of the lower Boeing Creek main stem is open channel. This portion is located below Carlyle Hall Road.

The Boeing Creek basin has three dams managed by the Utility. The M1-dam and North Dam provide flood control on the south and north branches of upper Boeing Creek, respectively. Hidden Lake Dam, located on the main stem downstream of the north fork and south fork confluence, was originally constructed to build a fishing pond in the early 20th century. Hidden Lake has required ongoing sedimentation dredging and has been identified as a fish barrier along Boeing Creek. The City decided to stop dredging the lake in 2014 and begin a phased approach to remove Hidden Lake Dam and restore Boeing Creek at the Hidden Lake site.

The Boeing Creek basin plan (Windward 2013) identified erosion and water quality (presence of fecal coliform bacteria) as two of the primary surface water-related issues in the Boeing Creek basin. The plan also identified infrastructure needs including pipe R&R based on condition assessment, as well as stormwater management facilities to mitigate runoff impacts. The following issues identified in the basin plan associated with the built surface water system and infrastructure remain relevant today:

- Approximately 7 percent of the pipes inspected were recommended for repair.
- Multiple impassable fish barriers limit upstream access for anadromous fish, and potentially limit movement of resident fish confined to the upper reaches of Boeing Creek.
- Stormwater management facilities to mitigate runoff from developed areas are limited primarily to large, in-stream facilities at the heads of the open channel sections of Boeing Creek. Management of stormwater closer to the source could improve conditions and augment the functionality of these facilities.
- Glacial outwash geology in areas of steeper slopes is very erodible. Geologic conditions, combined with excessive stormwater inputs from upstream development, have contributed to major hillslope and channel instability issues in and adjacent to Boeing Creek.
- Sediment input from hillslope and bank erosion is deposited in low-gradient reaches, causing aggradation of sedimentation in spawning gravels, as well as maintenance issues in Hidden Lake.
- Low Benthic Index of Biotic Integrity (B-IBI) scores in Boeing Creek indicate poor aquatic habitat conditions
- Localized flooding appears to be related primarily to clogged culverts and ditches, rather than hydraulic constrictions in the system.
- Water quantity is of concern in the Boeing Creek basin, as evidenced by the Washington State Department of Ecology's (Ecology's) recent decision to close the basin to further appropriation of surface water and groundwater. Several applications for new water rights have been denied.

With the exception of localized areas lacking formal drainage or experiencing flooding, most of the surface water needs for Boeing Creek are associated with the open-channel portions of the basin. A key need to improve the natural function of the lower portion of the stream is to allow fish passage

through a creek restoration project. Areas in the upper portions of the basin with flooding and/or highly erosive runoff rates should be addressed prior to, or simultaneously with, a lower creek restoration project. One potential near-term project is the removal of the Hidden Lake Dam (see Figure 3-2). Removing the dam would not only eliminate a fish barrier, the sediment deposited behind the dam will no longer need to be dredged. A long-term project in the upper basin of the Boeing Creek south fork is a regional stormwater facility for planned redevelopment in the Aurora Square Community Renewal Area between 160th and 145th streets, west of Aurora Avenue N. This project will help to control erosive flows and provide some water quality benefits.

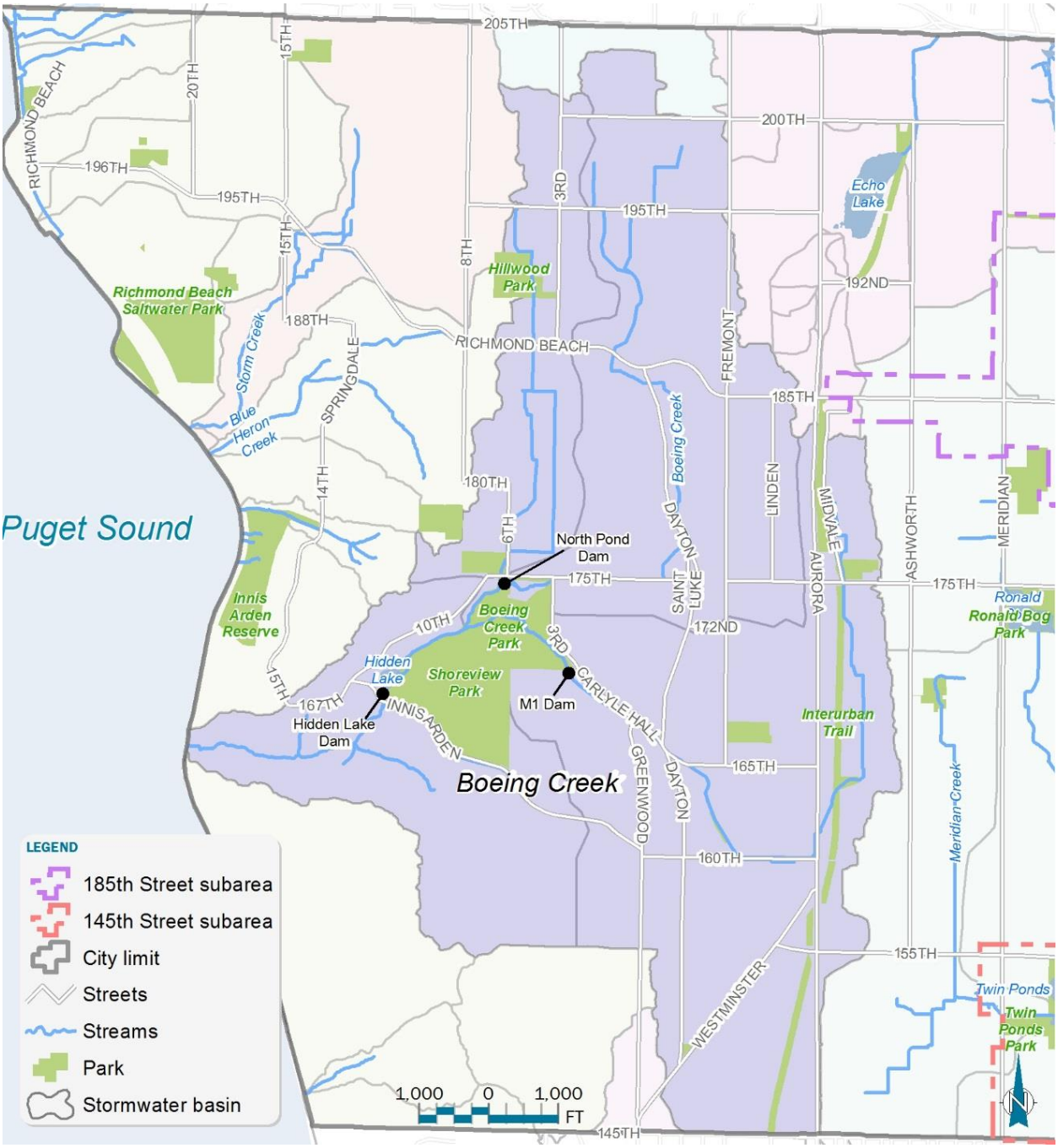

Figure 3-2. Boeing Creek basin

3.3 Storm Creek

As a small creek within the larger Middle Puget Sound regional drainage basin, Storm Creek (unlike Boeing Creek) is typically not distinguished from other small Middle Puget Sound drainages by other governmental entities such as King County and Washington State. However, localized flooding and streambank erosion within this small basin led the City to create a Storm Creek Basin Plan separate from the later Puget Sound Drainages Basin Plan. Because of this basin planning decision, the Storm Creek basin is often listed alongside the larger basins in the city. Approximately 298 acres of the Storm Creek basin are located within Shoreline city limits. The remaining portion, 176 acres, is located within the city of Edmonds. The basin lies west of Aurora Avenue N and drains to Puget Sound. Land use in the basin is single-family residential with a small portion of retail business along Richmond Beach Road. See Figure 3-3.

The upper portions of the creek are piped because of previous and historical development. The lower 1 mile of the Storm Creek main stem is open channel. This portion begins near 15th Avenue NW and NW 190th Street near the Innis Arden Club House. Notable surface water features in the Storm Creek basin include the three wetlands (Syre 1 and 2, and Eagle Reserve).

The Storm Creek basin (Windward 2013) provides the following issues associated with the built surface water system and infrastructure:

- Approximately 8 percent of the pipes inspected are recommended for repair.
- Stormwater management facilities to mitigate runoff from developed areas are not present in the Storm Creek basin.
- Geology of the Puget Sound-facing bluffs and in other areas with steeper slopes is very erodible and has contributed to channel down-cutting in Eagle Reserve.
- Water quality is of moderate concern, primarily because of fecal coliform bacteria and nutrients.
- Localized flooding appears to be related primarily to clogged culverts and ditches, rather than hydraulic constrictions in the system.

Channel erosion in the lower reaches of Storm Creek and high runoff rates generated from developed impervious surfaces remain the primary concerns in the Storm Creek basin. The 2013 basin plan outlined several high-priority projects to address these concerns. These projects include a study to evaluate runoff reductions using alternatives such as out-of-basin transfers and deep-well injection. Another potential project is to convert roadside ditches within the basin into infiltrating bioswales, which would not only reduce runoff rates, but also improve the quality of the stormwater discharged to the creek.

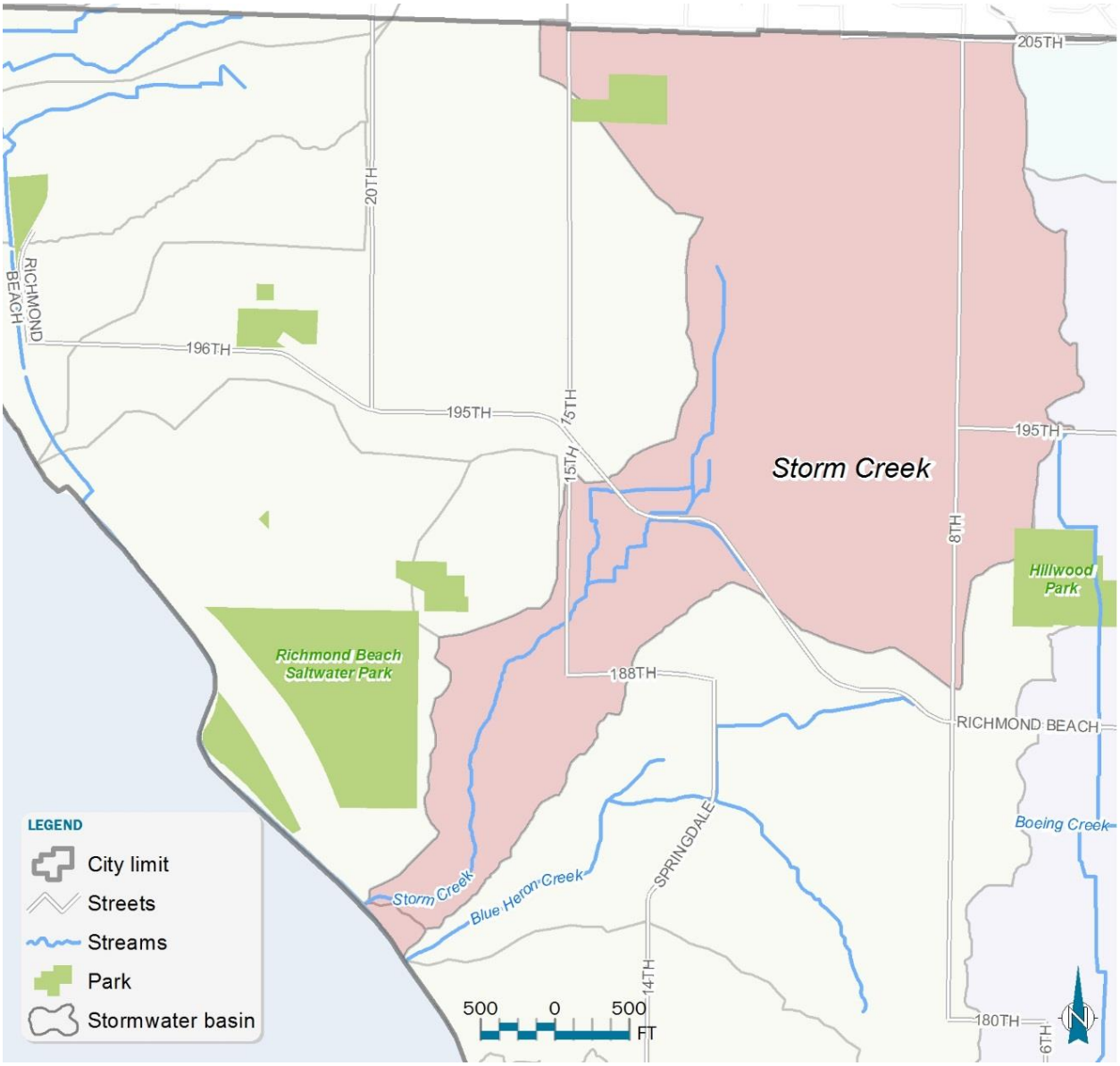

Figure 3-3. Storm Creek basin

3.4 McAleer Creek Basin

The portion of the McAleer Creek basin located in the northeast section of Shoreline city limits represents 1,377 acres of the drainage basin's 5,300-acre total. See Figure 3-4.

The McAleer Creek basin land use is predominantly residential with commercial industrial development along Aurora Avenue, Ballinger Way, NE 205th Street, and Interstate 5. The 185th Street Light Rail Station Subarea spans portions of the Thornton and McAleer creek basins, with approximately 40 percent of the 559-acre subarea in McAleer Creek basin.

The reach of McAleer Creek located within the city is roughly 4,000 feet long. Much of the city's McAleer Creek basin is composed of headwater areas to tributary systems. One of the headwaters originates south of Echo Lake, within the city of Shoreline, and flows north to Echo Lake. Echo Lake then drains north toward Lake Ballinger. Several other streams, the largest being Halls Creek located on the north end of Lake Ballinger in the city of Lynnwood, feed Lake Ballinger. McAleer Creek flows east out of Lake Ballinger, and is joined by the Cedar Brook Creek tributary at the boundary with the city of Lake Forest Park. It flows through the Nile Golf Course and the city of Lake Forest Park to Lake Washington. Other notable water features include the two lakes, Echo (13.5 acres) in the city of Shoreline and Ballinger (101.4 acres), which is located in the cities of Mountlake Terrace and Edmonds. One stormwater detention control structure located on the main stem of McAleer Creek at NE 196th Street, was designed to reduce downstream peak flows and alleviate past flooding. (SAIC 2011).

The entire main stem of McAleer Creek within the city of Shoreline up to Interstate 5 is used by anadromous fish. Little is known about the anadromous use of the various tributaries.

McAleer Creek is on the State 303(d) list for fecal coliform bacteria, dissolved oxygen (DO), water temperature, and low B-IBI scores. Washington State Department of Ecology (Ecology) has established a total maximum daily load (TMDL) to limit phosphorus discharges to Lake Ballinger, which receives drainage from a portion of Shoreline (McAleer Creek flows out of Lake Ballinger). Portions of McAleer Creek in Lake Forest Park downstream of Shoreline city limits are listed for several 303(d) parameters (DO and fecal coliform).

The McAleer Creek basin plan (AltaTerra 2015b) provides the following issues associated with the built surface water system and infrastructure:

- Approximately 6 percent of the pipes inspected are recommended for repair or replacement.
- Persistent erosion and/or flooding problem drainage areas are located at:
  - 6th Avenue NE and 200th Avenue NE west of Interstate 5
  - NE 192nd Street between 15th Avenue NE and 18th Avenue NE
  - 25th Avenue NE near 177th Street
  - NE 177th Street near 22nd Place NE
- Groundwater seepage (associated with some of the problem drainage areas above)

The highest-priority surface water issues in the McAleer Creek basin are improvements to the existing drainage system to address deficient systems, limited capacities, and/or erosion problems within the existing system. Green stormwater infrastructure projects such as bioretention swales are considered feasible and viable solutions for both water quality treatment and reduction of runoff rates. However, in some areas steep roadway ditches that exhibit erosion will require more structural solutions.

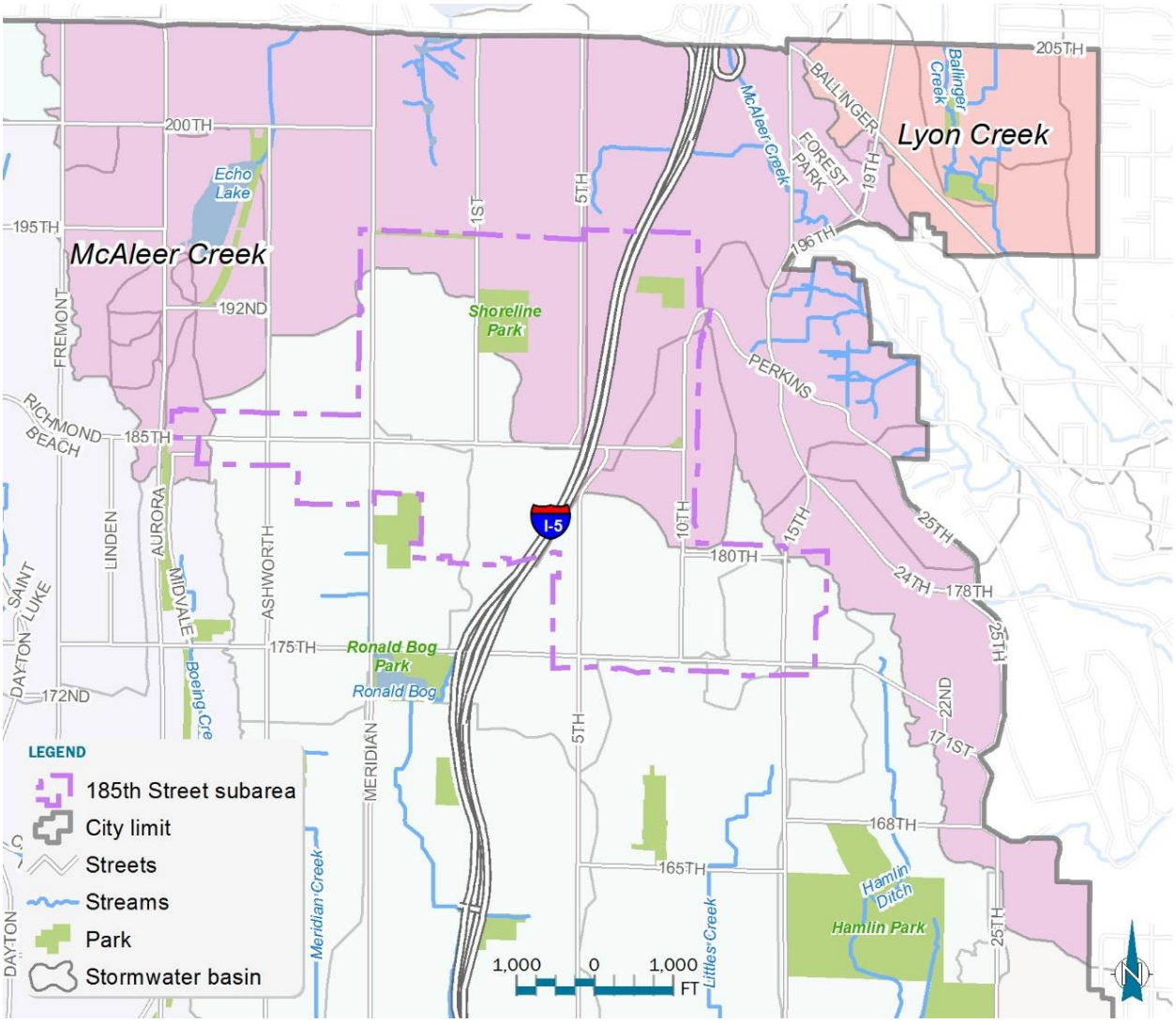

Figure 3-4. McAleer and Lyon creek basins

3.5 Lyon Creek

The Lyon Creek watershed comprises approximately 2,500 acres and lies within five municipal jurisdictions with most of the basin located in the cities of Mountlake Terrace, Brier, and Lake Forest Park. The size of the basin within Shoreline's city limits is approximately 184 acres. See Figure 3-4.

Ballinger Creek is the tributary of Lyon Creek that flows southeast through the city of Shoreline and into Lake Forest Park before discharging into Lake Washington. The portion that flows through Shoreline has a length of 2,200 feet. Notable surface water features associated with Ballinger Creek include the wetland areas of Ballinger Open Space and Brugger's Bog, which provide some natural stream buffer.

The predominant land use is single-family and multifamily residential, but there are clusters of nonresidential development including commercial development, a large school complex, and the City's North Maintenance Facility (NMF). A major current City project within the basin is the 25th Avenue NE Flood Reduction Project. The goal of the project is to reduce the flooding of Ballinger Creek near Brugger's Bog and along 25th Avenue NE. The project is in the predesign stage with several proposed improvements: daylighting Ballinger Creek along 25th Avenue NE, creating floodplain storage at the City's NMF site, and replacing the NE 195th Street culvert (within the city of Lake Forest Park, requiring coordination with Lake Forest Park).

Since 2001, the City has performed water quality monitoring on the 2,200-foot-long section of Ballinger Creek within the city. The monitoring results indicate that water quality parameters DO, water temperature, and turbidity may be improving. Results for pH showed no apparent trend (AltaTerra 2015a).

The Lyon Creek basin plan (AltaTerra 2015a) provided the following issues associated with the built surface water system and infrastructure:

- Approximately 6 percent of the pipes inspected were recommended for repair or replacement.
- Few stormwater management facilities are present in Shoreline or upstream in Mountlake Terrace to mitigate runoff from developed areas.
- Several undersized culverts are not able to convey surface water flows and contribute to frequent flooding along 25th Avenue NE.
- Because of topography, geology, and other drainage conditions, some developments built at lower elevations within the basin experience high groundwater conditions and/or localized flooding in basements and other depressions.

The primary surface water issue in the Lyon Creek basin is the flooding that occurs along 25th Avenue NE between Brugger's Bog Park and NE 195th Street. A capital improvement project to address flooding in this area is currently in the predesign stage, including several of the proposed improvements discussed above.

3.6 Middle Puget Sound

Middle Puget Sound Basin drainages within the city consist of four geographically distinct drainage areas (with each of these areas, except the Edmonds Way drainage, comprising multiple smaller hydraulically separate drainages) that discharge into Puget Sound (see Figure 3-5):

- **Middle Puget Sound-Richmond Beach drainages:** 434 acres northwest of Storm Creek basin, including Barnacle Creek
- **Middle Puget Sound-Innis Arden drainages:** 387 acres south of Storm Creek and north of Boeing Creek basins, including Heron and Coyote creeks
- **Middle Puget Sound-Highlands/Seattle Golf Club drainages:** 430 acres south of Boeing Creek basin
- **Middle Puget Sound-Edmonds Way drainage:** 61 acres along the city's northern boundary between 8th Avenue NW and Fremont Avenue N

The City does not manage surface water in the Middle Puget Sound-Highlands/Seattle Golf Club drainages as they are located within the private Highlands community and private Seattle Golf Club, and do not contain any City stormwater infrastructure.

Current land use in these drainages is mostly single-family residential. Small areas are developed as multifamily, schools, commercial, and parks and open space.

Drainage in these areas typically begins as urban runoff or as seepage from hillsides. The headwaters of North Barnacle Creek in the Middle Puget Sound-Richmond Beach drainage is located beyond city limits in the cities of Woodway and Edmonds. The handful of other small streams within these drainages originate from wetlands, hillside seeps, and urban runoff within the city of Shoreline (SAIC 2011).

The *Puget Sound Drainages Basin Plan* (AltaTerra 2016) provides the following issues associated with the built surface water system and infrastructure:

- Approximately 13 percent of the pipes inspected are recommended for repair or replacement
- Persistent drainage problems and flooding at Springdale Court NW and NW Ridgefield Road in the Middle Puget Sound-Innis Arden drainage
- Groundwater seepage in the following Middle Puget Sound-Innis Arden drainages:
  - Heron Creek
  - Coyote Creek area
- Ditch filling by some homeowners
- Lack of stormwater system or downstream connections

The 61-acre Middle Puget Sound-Edmonds Way drainage is adjacent to the northern portion of the Boeing Creek basin and drains to Puget Sound through the city of Edmonds. See Figure 3-5. Basin land use is residential and does not contain any wetlands or creeks. The City maintains pipes, ditches, and connecting structures located in the basins' right-of-way (ROW). The drainage concerns in this area are localized flooding because of clogged conveyance. The basin was evaluated in the *Puget Sound Drainages Basin Plan* (AltaTerra 2016) and no projects were identified.

The Utility identified 10 high-priority drainage problem areas in the Middle Puget Sound-Richmond Beach and Middle Puget Sound-Innis Arden drainages. More than half of the problem areas were related to a lack of formal drainage or lack of connectivity in the drainage system. In some cases, the ditches serving these locations have been filled by residents. Other drainage problems such as flooding and erosion are a result of existing infrastructure (ditches, pipes, and catch basins) needing to be repaired or replaced because of insufficient capacity or poor condition.

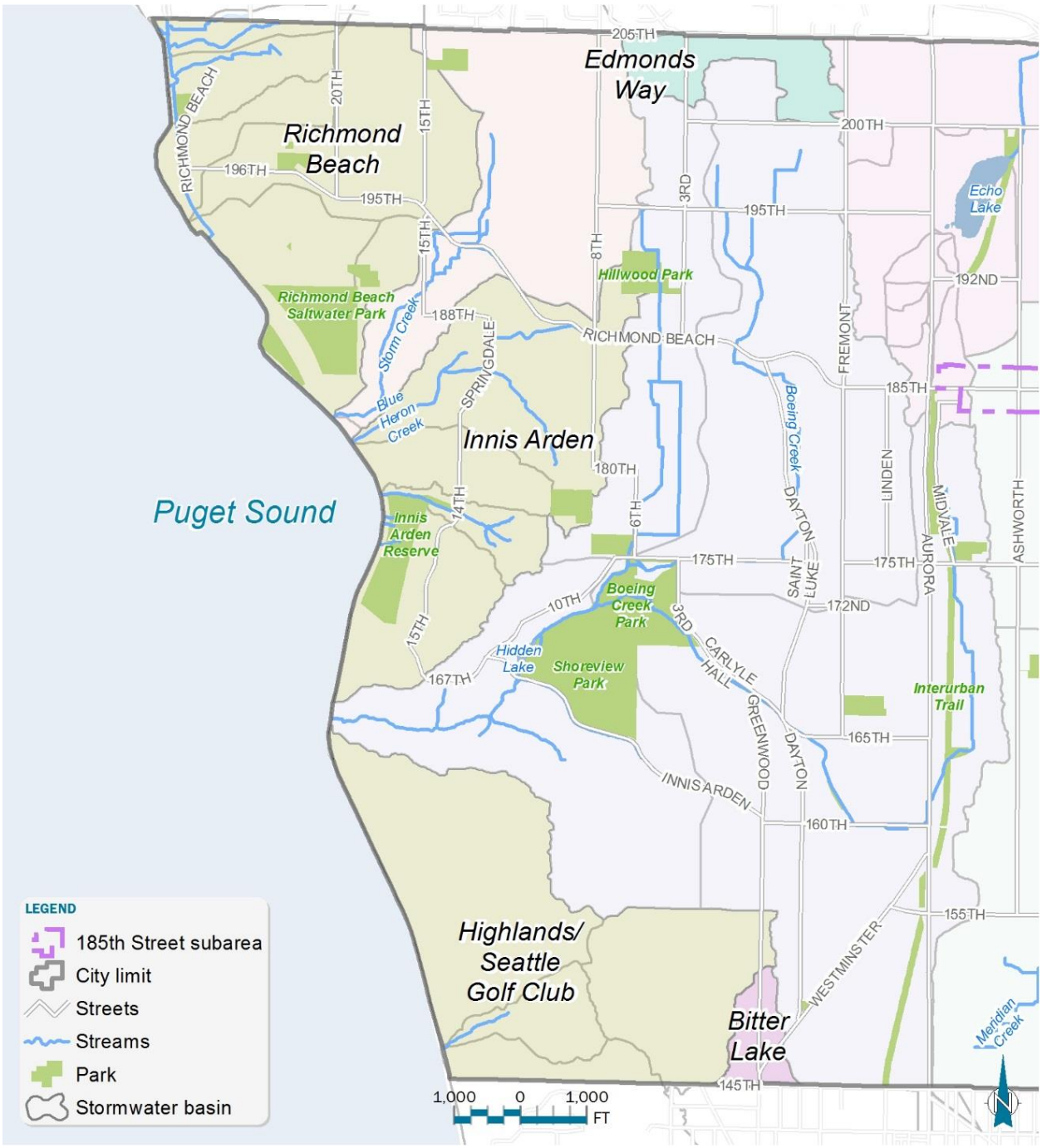

Figure 3-5. Middle Puget Sound drainages and Bitter Lake drainage to West Lake Washington

3.7 West Lake Washington

The city contains West Lake Washington basin drainages in three locations: two are located in the southeast corner of the city; the third is roughly 3 miles west of the other two located along the southern city boundary in the vicinity of Greenwood Avenue N and N 145th Street. No portion of this basin within the city of Shoreline contains streams.

The two eastern drainages of the West Lake Washington basin comprise approximately 90 acres (of a larger 450-acre drainage) and drain eastward to Lake Washington (see Figure 3-1). These two drainages flow to Lake Washington through the city of Lake Forest Park. Land use within these drainages is mostly residential, with small areas of commercial use along Bothell Way. Drainage occurs as overland flow or through drainage ditches, roadway culverts, and storm sewers. No wetlands were identified in the basin (SAIC 2011).

The city's third drainage within the West Lake Washington basin is the 29-acre Bitter Lake drainage (see Figure 3-5). This basin drains southward to the city of Seattle's Densmore basin, which discharges to Lake Washington far to the southeast. Land use within these drainages is mostly residential, with small areas of commercial use along Westminster Way N and N 145th Street. The City maintains pipes, ditches, and connecting structures located in the basins' ROW.

The West Lake Washington basin drainages in the city were reviewed as part of the *Puget Sound Drainages Basin Plan* (AltaTerra 2016). The basin plan noted current stormwater-related issues including high groundwater seepage in lower levels of private residences and a lack of stormwater system and downstream connections for the eastern drainages. No issues were noted for the Bitter Lake drainage.

Section 4

System Evaluation

This section summarizes evaluations of surface water systems, including a summary of condition assessment activities, and discussions regarding conveyance system capacity, water quality, and aquatic habitat conditions. Evaluations such as those described in this section are conducted to characterize surface water conditions, and identify system deficiencies and/or gaps in performance related to the Utility's desired levels of service.

4.1 Condition Assessment

Stormwater infrastructure can deteriorate over time; it is important to know the structural condition of Utility assets to minimize the potential for failures. Structural condition assessment activities can identify problems and enable timely maintenance, repair, or replacement. The City's Condition Assessment Program involves a combination of inspection techniques and the conversion of the observed or recorded data into assessment knowledge. This knowledge is then used to prioritize and schedule maintenance, repair, rehabilitation, and/or replacement activities.

Following the 2011 Master Plan, in parallel with subsequent basin planning efforts, the Utility initiated a program to inspect and assess approximately 134 miles of stormwater pipes owned and maintained by the City. The Utility also initiated a catch basin condition assessment program to address Phase II Permit maintenance standard requirements for catch basins and inlets. Over a 3-year period starting in 2014, the Utility inspected and assessed all 7,461 catch basins to achieve compliance with the Phase II Permit.

As part of the development of this Master Plan, the Utility prepared a *Condition Assessment Management Plan* (CAMP) to document, improve, and plan for continual asset condition assessment (see Appendix C). With the development of the CAMP, the Utility improved and refined the documented condition assessment methodologies for pipes, catch basins, and manholes. In addition, new methodologies were developed for ditches and LID facilities (e.g., bioretention, swales, and permeable pavement). Below is a summary of condition assessment work.

4.1.1 Pipes

The Utility has completed initial pipe condition assessments for all of the city's drainage basins except the Thornton Creek basin. The Thornton Creek Basin Plan was completed prior to the recommendation for pipe condition assessment in the 2011 Master Plan, so a pipe condition assessment was not completed at the time of the basin planning effort. Pipe inspections and condition assessment within the Thornton Creek basin began in 2017 and is anticipated to be completed in 2020. Approximately one third of the Utility's pipe network is located within the Thornton Creek basin.

Substantial portions of pipe networks in already-assessed basins were not completed because of issues caused by debris or structural blockages, utility crossing conflicts, improper and poor fitting connections, or because access points are located outside the ROW or easements. To address these issues and continue assessing pipe condition, the following ongoing pipe maintenance and inspection programs are recommended:

- **Condition Assessment Program** is an ongoing inspection program identified in the Basin Plans and in the CAMP (included in Appendix C). The program inspects pipes under two conditions: (1) routine pipe inspections, which occur on a 20-year inspection cycle, and (2) pipes that were not inspected or had an incomplete inspection because of access constraints. The Condition Assessment Program is described in Section 7.1.8.
- **Utility Crossing Removal Program** provides resources for coordinating with other utilities to remove their lines and repair storm drains that have been damaged because of crossings. The Utility Crossing Removal Program is described in Section 7.2.9.
- **Improper Connection Repair Program** fixes non-standard or improperly installed stormwater drains not included in other capital improvement projects by adding properly designed structures. The Improper Connection Removal Program is described in Section 7.2.10.

Based on the results of the inspection and condition assessment efforts to date, the Utility has projected that nearly 800 sections of pipes will require repair or replacement over the next 20 years with an average of 40 sections of pipe replaced per year. The goal is to repair or replace the failing pipes prior to the beginning of the next 20-year inspection cycle. Prior to 2018, the Utility had allocated sufficient resources to repair or replace 20 sections of pipe per year with the Stormwater Pipe Repair and Replacement Program (SWPRRP). This current rate would result in near failing sections of pipe not being repaired or replaced for up to 30 years. The Utility recommends an enhanced version of this program to repair and replace pipe no later than 20 years from the condition assessment and prior to scheduled re-inspection. The enhanced SWPRRP is described in Section 7.2.4.

4.1.2 Manholes and Catch Basins

The Utility's Phase II Permit requires periodic inspection and maintenance of catch basins and manholes. The City owns and maintains 7,461 catch basins and 736 manholes. Between 2014 and 2017, the Utility inspected all known catch basins and approximately 37 percent of the manholes.

Approximately 90 percent of the inspected catch basics were in good condition and another 8 percent were in fair condition. The remaining 2 percent received a poor condition assessment score and were identified for minor repair or replacement. Catch basins in good condition have no structural issues with the walls or bottom of the basin, no large holes in the basin cover, and no cracks in the grout connecting the pipes to the basin. Catch basins in poor condition have severe structural issues with the walls or bottom of the basin, large holes in the basin cover, and large cracks in the grout connecting the pipes and basin. A catch basin in fair condition shows moderate deficits in one or more areas. Catch basins in fair condition may be inspected more frequently.

Beginning in 2018, the Utility will inspect catch basins every other year and perform necessary maintenance within 6 months of inspection or within 2 years for CIP rehabilitation costing less than $25,000. With the increased frequency of inspection, the Utility estimates that the number of catch basins needing repair will increase to 3 percent per year and 1 percent per year will need to be replaced. To remain compliant with the 6-month maintenance time frames, the Utility recommends additional resources for a Catch Basin Repair and Replacement Program. See Section 7.2.6 for more details on this program.

All inspected manholes were assessed as being in good condition. Manholes will continue to be inspected annually through the Utility's ongoing System Inspection Program (see Section 7.1.7). Manholes that are part of the Condition Assessment Program are inspected when pipes are inspected. All accessible manholes within the Puget Sound and Lake Washington drainage basins were inspected as part of the *Puget Sound Drainages Basin Plan* project in 2016. The Utility

recommends including the inspection of manholes in the enhanced Condition Assessment Program; see Section 7.1.8.

4.1.3 Ditches

The City owns and maintains approximately 24 miles of ditches. The Utility completed a full circuit of ditch inspection and maintenance between 2008 and 2013. Beginning in 2014, ditches were re-inspected every 3 years, with approximately one third of the ditches maintained if needed per year. Ditches are inspected in early summer and maintenance is typically performed within 1 month of inspection.

Condition assessment scoring based on inspection results between 2014 and 2017 indicated that approximately 28 percent of ditches were in poor condition, requiring maintenance. Ditches in poor condition show signs of contamination and/or erosion, and excessive sediment and vegetation, which can prevent the flow of water to the ditch from the roadway or in the ditch channel. The Utility recommends continuing with the current ditch inspection and maintenance efforts included in the existing System Inspection Program and System Maintenance Program; see Sections 7.1.7 and 7.2.2, respectively.

4.1.4 Low Impact Development Facilities

The Utility-owned and operated LID facilities are inspected on an annual basis to meet the requirements of the Phase II Permit. Inspection data are analyzed after the inspections are completed. Following inspection, corrective work orders are created based on specific failure possibilities. LID facilities include permeable pavement, bioretention, and swales.

Based on annual inspection information, approximately 70 percent of permeable pavement installations received a poor condition assessment. Approximately 86 percent of bioretention facilities and 19 percent of swales received a poor condition rating. To maintain compliance with the Phase II Permit, the Utility must complete necessary maintenance of all surface water assets including LID facilities within 1 year of inspection. The Utility recommends additional resources to perform the required cleaning, structural repair, or structural replacement of LID facilities in the LID Maintenance Program. This new program would also enhance the existing vegetation management effort the Utility implements for its biofiltration facilities. See Section 7.2.7 for more details on this program.

4.1.5 Pump Stations

The Utility's eight pump stations received an extensive condition and capacity inspection and assessment in 2016 (Kennedy/Jenks 2016). The condition assessment resulted in a list of recommended pump station improvements, and is summarized in Table 4-1. Two of the pump stations were recommended for replacement. The recommendations for the remaining pump stations include adding supervisory control and data acquisition (SCADA) instrumentation, redundant pumps, and site access and safety. The Utility recommends including the three projects to the 6-year projects that are outlined in the 2016 report, namely replacement of pump stations 26 and 30, and the upgrade of the remaining pump stations, as recommended. These projects are listed in Section 8 which includes a project prioritization summary. Details on project costs are included in Appendix D-5. In addition to pump station upgrades, the Utility recommends the allocation of resources for an ongoing Pump Station Maintenance Program. See Section 7.2.8 for more details about this program.

Table 4-1. Recommended Pump Station Improvements	
Pump Station	**Condition Summary and Upgrade Recommendation**
Linden Avenue	Upgrade electrical components, add SCADA, provide signs and bollards, purchase redundant pump, and improve wetwell access
Palatine	Upgrade electrical components, add SCADA, provide signs, purchase redundant pump, and improve wetwell access
Pan Terra	Add SCADA, add pressure gauges, improve hatches, and provide guardrail
25	Upgrade/revise PLC program, improve hatches, and provide guardrail
26	Demolish and rebuild station and reuse existing wetwell
30	Demolish and rebuild station, reuse existing wetwell, provide site improvements around wetwell, and upgrade power service
Ronald Bog	Add SCADA, add pressure gauges, and provide bollards
Serpentine	Add SCADA, add pressure gauges, improve hatches, and provide grading improvement

Source: Kennedy/Jenks 2016 report.

4.2 Conveyance Capacity

As part of the Condition Assessment topic, the Utility reviewed the adequacy of existing data to build new hydrologic and hydraulic (H&H) models. Data for the principal conveyance elements and network connectivity appear to be generally complete; however, there are gaps in key attributes such as pipe size, pipe materials, and invert elevations.

The Utility recommends a phased and prioritized approach to H&H modeling, focusing on data collection and then on model development. Data collection activities can be performed prior to model development and can also provide near-term benefits to asset management and O&M activities. For example, cross-referencing under-capacity pipes with condition assessment results would identify which structurally deficient pipes need to be upsized during replacement. Model development should be performed according to priorities, tailored to specific needs, and refined over time. The Utility recommends allocating resources to develop a System Capacity Modeling Study for inclusion in the 6-year CIP. This study would provide new and updated modeling analyses to forecast future system demands, identify capacity deficiencies, and evaluate improvement projects. This project is listed in the Section 8 project prioritization summary. Details on the project are included in Appendix D-5.

4.2.1 Subbasin Priorities

The Utility created new subbasin delineations prior to determining subbasin priorities. These delineations were developed by first performing automated delineations using a digital elevation model (DEM) obtained from the Puget Sound Light Detecting and Ranging (LiDAR) Consortium (PSLC 2006). Automated delineations were then adjusted where stormwater infrastructure crossed subbasin boundaries. New subbasin identifiers were assigned and a numbering system sequenced from upstream to downstream was used Figure 4-1 shows the subbasins and the direction of stormwater discharge at each subbasin outlet.

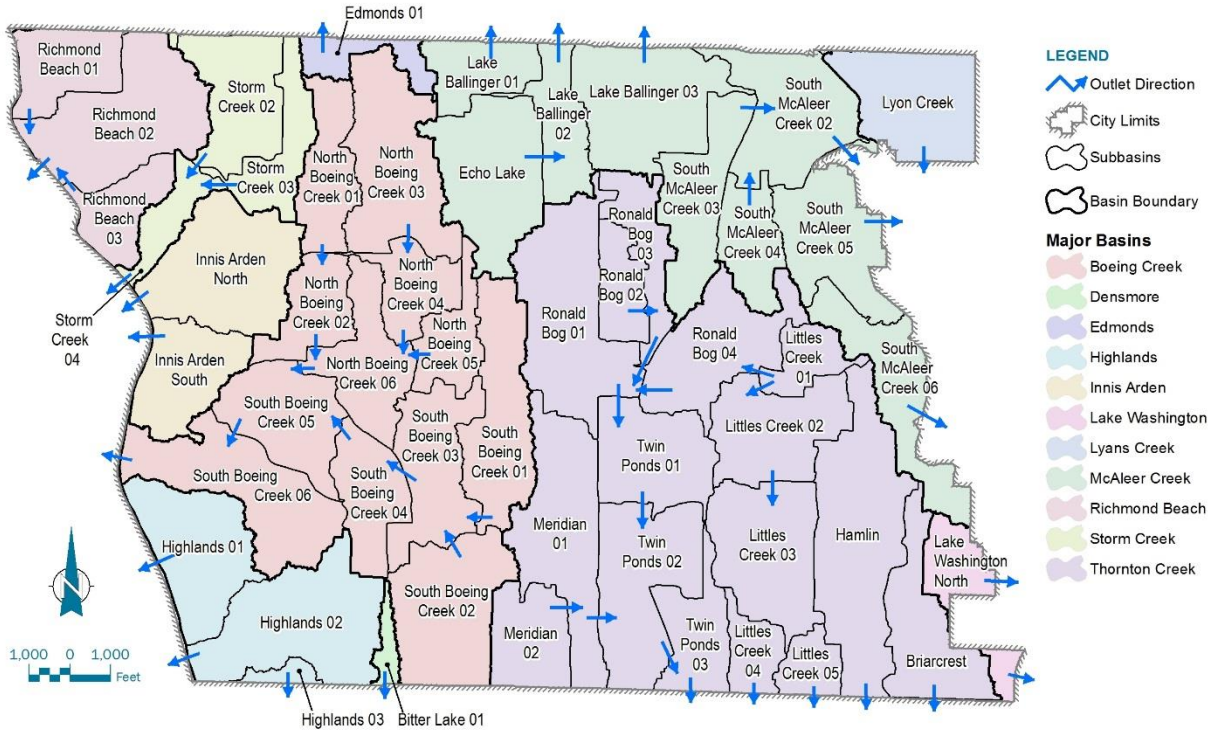

Figure 4-1. Newly delineated subbasins and connectivity

Data collection and modeling efforts should progress in phases as shown in Figure 4-2, which is based on a prioritization scoring system, where the higher score indicates a higher priority. Prioritization accounts for the following factors:

- Known capacity problems or localized flooding
- Existence of a subarea plan where significant growth is expected
- Potential increase in impervious area due to development
- Discharge to a TMDL receiving water or “waters of concern”
- Geotechnical constraints to stormwater infiltration
- Infrastructure data needs

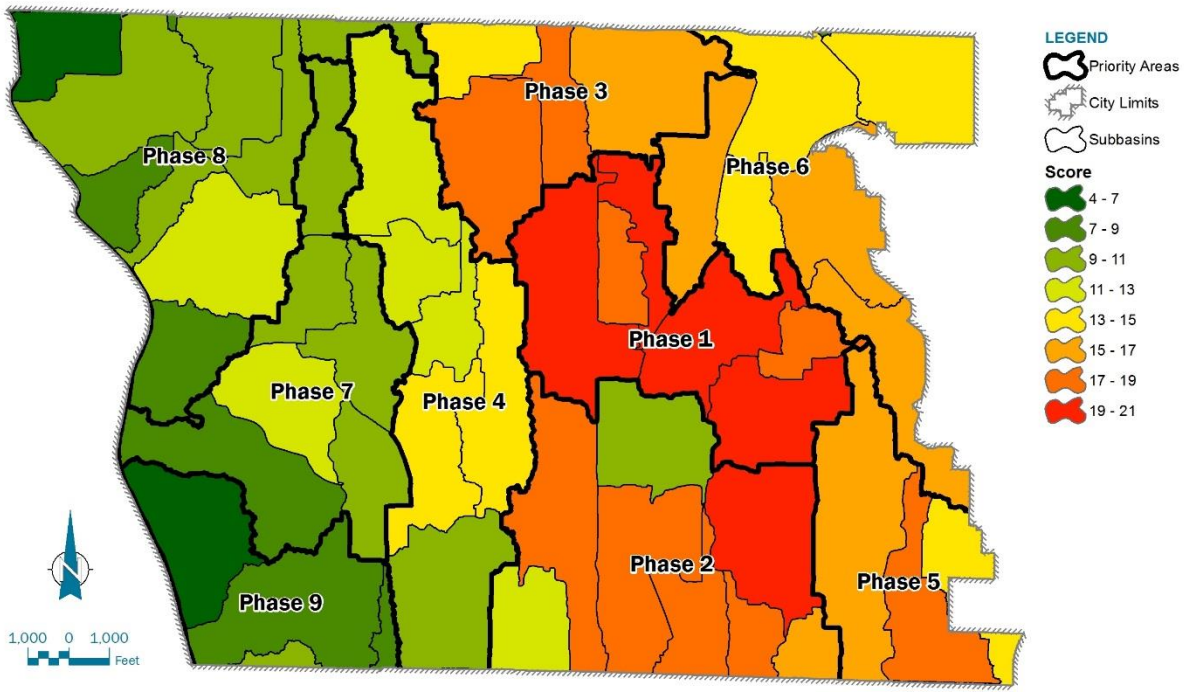

Figure 4-2. Subbasin priority scores and groupings for phased data collection and model development activities

4.2.2 Data Collection

One of the first steps in conducting H&H modeling will be to collect the requisite data. While some pipe and cross-section data are available along major streams and drainage ways, additional data need to be collected to develop more comprehensive drainage system models. Meteorological data—primarily precipitation—as well as spatial data, such as land cover and soil types, are needed to model runoff and inflows to the conveyance network. Table 4-2 provides a general summary of the data needs for H&H modeling.

Table 4-2. Typical Data Needs for H&H Modeling	
Types of Inputs	**Typical Data Needs**
Meteorological data	• Precipitation records, design storms, and/or intensity-duration-frequency statistics • Evaporation and evapotranspiration (ET) records, or meteorological inputs to calculate ET
Spatial data	• Topography: contours, digital elevations models, or terrain surfacing • Impervious areas and, if possible, classification of areas into categories such as roadways, parking lots, sidewalks, etc. • Pervious areas and, if possible, vegetative cover categories such as wetlands, woodlands, grasslands, etc. • Soil characteristics related to infiltration and storage capacities, hydrologic soil groups, general classifications • Land use and zoning • Parcel boundaries
System data	• Pipes: diameter, upstream invert elevation, downstream invert elevation, depth below grade, depth below rim, length, and pipe material • Manholes: type, size, depth, rim elevation • Ponds, vaults, and other storage facilities: dimensions, stage-storage curve, stage-discharge curve, invert elevations for inlets and outlets • Special structures (flow diversions, splitters, weirs, pump stations, gates, and other hydraulic controls): dimensions, floor elevations, hydraulic control elevations, inlet/outlet capacities, storage curves, and operating rules • Open channels and ditches: surveyed cross-sections, slope, culvert dimensions, culvert material, bridge dimensions, roadway elevations, and invert elevations for all structures
Calibration data	• Continuous flow/discharge measurements • Peak flow/discharge measurements • Water levels/flow depths • Historical anecdotal information

4.2.3 Model Development and Analyses Framework

As data are collected, H&H modeling can be performed to address specific projects or study needs. BC recommends beginning with the top priority (Phase 1) subbasins and developing a tailored modeling plan that focuses on the specific needs to be addressed in those subbasins. Developing the modeling plan should involve the following basic steps:

1. **Clarify the problem(s):** Defining and analyzing a problem occurs at several levels. The aim is to translate the problem understanding from the planner or policymaker to the modeler to ensure that the modeling effort answers the appropriate questions and provides useful results to inform decisions. The modeling team should craft a problem description and carefully analyze the nuances of the problem to understand the domain, characteristic time scale, spatial scale, and relevant physical processes.
2. **Define the objectives:** Building on the problem definition, the goals of the modeling effort should be established and then articulated through specific modeling objectives. There are often goals and objectives for the overarching plan (e.g., the 2018 Master Plan)—and, while these are related, they are not the same as modeling objectives. This is where the understanding of the problem and the questions at hand are transformed into specific actions that will yield specific results. For example, the modeler should determine which scenarios will be simulated and how those will be defined in model space. Such translations are potentially great sources of misunderstanding and should therefore receive careful and deliberate attention.
3. **Specify requirements:** As a modeling approach is developed, the modeling team can identify project-specific requirements for achieving the modeling objectives. Requirements should address the quality of the calibration and subsequent results, expertise needed to carry out the analyses, time constraints and deadlines for major milestones, communications and reporting

protocols, quality assurance/quality control (QA/QC) procedures, and data management practices.

Appendix E is a technical memorandum titled *Approach to Performing Hydrologic and Hydraulic Modeling Analyses,* developed as part of the 2018 Master Plan work, which describes this process and includes a modeling plan for the Phase 1 subbasins as shown in Figure 4-2 above. As model development activities continue for subbasins in subsequent phases, the modeling plan can be revisited and improved to address new objectives and apply lessons learned from previous phases.

4.3 Water Quality

Stormwater pollution from the City's municipal separate storm sewer system (MS4) is regulated by the Phase II Permit, which requires treatment and flow control for stormwater discharges from new development and redevelopment projects that exceed certain thresholds. New development projects that add 5,000 square feet of new hard surfaces, or that convert 0.75 acre of vegetation to lawn or landscaping, typically must treat runoff and control flow rates from the new and replaced hard surfaces or lawn/landscaped areas. Redevelopment projects that exceed these criteria typically must treat and control pollution and flows from the new hard surfaces and converted pervious areas. Redevelopment projects must also treat the replaced hard surfaces if the valuation of the proposed improvements exceeds 50 percent of the valuation of the existing site improvements.

The Phase II Permit requires application of LID principles and LID best management practices (BMPs) (also known as green stormwater infrastructure [GSI]) to make LID the preferred and most commonly used approach to site development. Examples of LID BMPs or GSI include bioretention, rain gardens, permeable pavement, vegetated roofs, downspout controls, and dispersion. Other types of stormwater BMPs, such as wet ponds or media filters, can be implemented to meet permit requirements for new development and redevelopment projects where LID opportunities are limited by site conditions.

In certain situations, regional facilities may be used instead of onsite BMPs to meet permit requirements for multiple new development or redevelopment projects within a catchment area. However, the regional facility must be operational before the new development or redevelopment activity occurs and the permittee must demonstrate that the regional facility will fulfill the new development and redevelopment requirements, such that onsite treatment is not needed.

4.3.1 Watersheds Affected by Total Maximum Daily Loads

Although the current Phase II Permit (2013–2018) does not explicitly require treatment or flow control for runoff from existing development, it does require compliance with TMDLs established for water bodies that receive municipal stormwater runoff. Phase II permittees whose stormwater drains to TMDL water bodies might need to implement regional projects, distributed BMPs, and/or GSI to reduce stormwater pollutant loads from existing development.

McAleer Creek is the only water body within Shoreline on the current 303(d) list, and several watersheds within the city contribute flow to downstream 303(d)-listed water bodies. Figure 4-3 shows the areas potentially affected by TMDLs for 303(d)-listed water bodies.

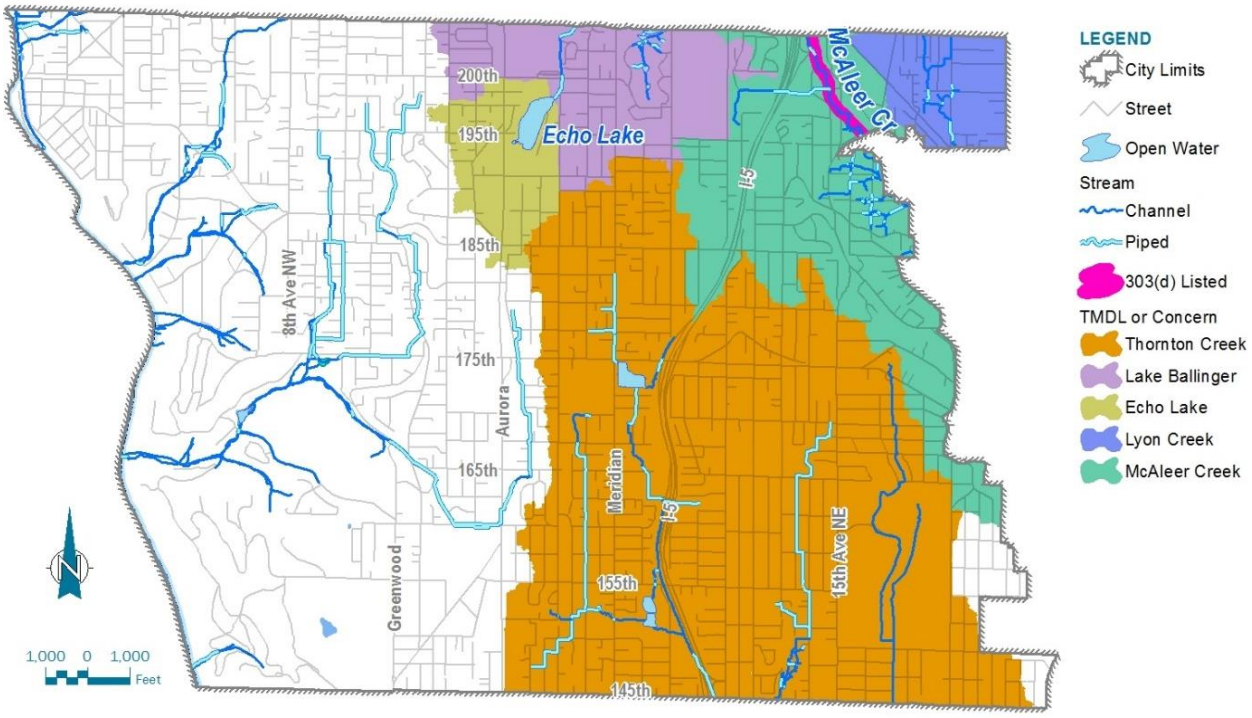

Figure 4-3. Areas potentially affected by TMDL or "waters of concern"

McAleer Creek is on the 303(d) list for fecal coliform bacteria, DO, water temperature, and low B-IBI scores. Ecology has established a TMDL to limit phosphorus discharges to Lake Ballinger, which receives drainage from a portion of the city. Reaches of Thornton Creek downstream of Shoreline are on the 303(d) list for bacteria, DO, and water temperature. Echo Lake is listed as a water body of concern because of elevated fecal coliform bacteria concentrations.

TMDL requirements are enforced through NPDES permits for MS4 and wastewater discharge to affected water bodies. A TMDL could require treatment or removal of stormwater pollution from existing developed areas that drain to the impaired water bodies. The next Phase II Permit will include an appendix listing all TMDL requirements for each permittee. Future TMDLs could affect stormwater treatment requirements for the highlighted areas on Figure 4-3.

4.3.2 Stormwater Treatment Options

Regional facilities, GSI, and/or distributed BMPs may be used to meet Phase II Permit requirements for new development and redevelopment, as well as future TMDL requirements. The Utility prepared a set of pros and cons comparing regional facilities and distributed BMPs and a rough cost comparison for subbasins around the city. This analysis is included in Appendix F.

The cost comparison indicated that regional facilities may be less expensive than distributed BMPs in most subbasins, especially if infiltration can be achieved at the regional facility site. Allowable infiltration capacity is clearly the most important factor in determining the cost feasibility of a project. A study completed by KPG for the City in 2015 looked at the feasibility of a regional facility for the Aurora Square Community Renewal Area (KPG 2014) and found that the cost to manage 1 acre of impervious surface with distributed/onsite facilities with no infiltration is more than nine times the cost compared to a regional facility with infiltration. Another key factor regarding cost-effectiveness is that regional facilities tend to have smaller unit costs (both capital and O&M) as the size of the facility (and treated area) increases because of economies of scale. Regional facilities could also be

used to help meet other City objectives such as encouraging redevelopment and economic growth, creation of green space, or other community amenities.

Regional facilities can be more challenging to implement than GSI or distributed BMPs for several reasons:

- Feasibility and cost for a regional facility depend, to a large extent, on the availability, ownership, size, and suitability of a site.
- Regional facilities are generally larger and more capital-intensive to build when compared to distributed BMPs. It is difficult to break up regional facilities into phases if capital funding is limited.
- Regional facilities that are intended to meet Phase II Permit requirements for new development or redevelopment must be built *before* the development takes place. The jurisdiction or developer must make an upfront investment to build the regional facility.

For these reasons, financing can often be more challenging than the technical issues associated with regional stormwater facilities.

In summary, the optimum treatment approach for a given situation will vary depending on site constraints and opportunities, regulatory requirements, stakeholder interests, and other social issues. Regional facilities and distributed BMPs can both be feasible, cost-effective solutions in the right circumstances. Focused studies like the one performed for Aurora Square can be conducted to evaluate site constraints and opportunities for specific areas of the city. Furthermore, given the importance of infiltration capacity, site investigations may be warranted even at the planning stage.

4.3.3 Stream and Lake Water Quality Summary

The Utility has monitored water quality in the city's key streams and lakes since 2002. The water quality data collected from 2002–2009 were described in the *2009 Fresh Water Assessment Report—State of Water Quality in Shoreline Streams, Lakes and Wetlands* (City 2010). The *2016 Fresh Water Assessment Report—State of Water Quality in Shoreline Streams and Lakes* (City 2017d) describes the water quality data collected from 2010–2015. These reports summarize water quality data for Thornton, Littles, McAleer, Cedar Brook, Storm, and Boeing creeks, as well as Hidden and Echo lakes. The monitoring included DO, water temperature, pH, and turbidity. These parameters must remain within certain limits to support fish and other aquatic organisms. The monitoring also included measurement of fecal coliform bacteria in water samples. The fecal coliform results were compared to State water quality criteria for protection of recreational users of the water bodies.

The City also used the monitoring results to calculate Water Quality Index (WQI) scores for each monitoring location. The WQI is intended to serve as a general indicator of overall water quality. It is calculated based on monitoring results for DO, pH, total phosphorus, total nitrogen, turbidity, total suspended solids, temperature, and fecal coliform bacteria, using the King County method. WQI scores can range from 1 to 100, with the higher number indicating higher water quality. The City's 2009 report calculated WQI scores based on 2007–2009 monitoring data, while the 2016 report used data collected from 2009–2015. The WQI scores were then sorted into three categories: (1) low concern (score 80 and above), (2) moderate concern (score between 40 and 80), and (3) high concern (score below 40).

Overall, the water quality in the city's streams and lakes is typical of urban water bodies in the Puget Sound lowlands. The following bullets summarize the City's water assessment for each drainage basin:

- The Thornton Creek basin includes monitoring locations on Thornton and Littles creeks. DO and fecal coliform often did not meet water quality criteria. Both the 2009 and 2016 reports note that both Thornton and Littles creeks are in the "high concern" category based on their WQI scores (City 2010, 2017d).
- The Boeing Creek basin includes stream monitoring locations on the north and south forks of Boeing Creek, and Hidden Lake. For the north fork, the 2009 report notes excursions from the DO criterion, while the 2016 report mentions excursions for DO and fecal coliform. For the south Boeing Creek location, the 2009 report notes excursions for DO and the 2016 report notes excursions for fecal coliform. Both branches of Boeing Creek are in the "moderate concern" category based on their WQI scores. Monitoring results presented in both the 2009 and 2016 reports indicate an excursion from the water quality standard for fecal coliform bacteria from Hidden Lake (City 2010, 2017d).
- The Storm Creek basin includes one monitoring location on Storm Creek. The 2009 report notes excursions for DO and fecal coliform and the 2016 report notes excursions for DO, pH, turbidity, and fecal coliform. Storm Creek is predominantly in the "highest concern" category based on its WQI scores (City 2010, 2017d).
- The McAleer Creek basin includes monitoring locations McAleer and Cedar Brook creeks and Echo Lake. For both creeks, the 2009 and 2016 reports cite excursions for DO, turbidity, and fecal coliform. Both the 2009 and 2016 reports note that both McAleer and Cedar Brook creeks are in the "moderate concern" category based on their WQI scores. Monitoring results presented in both the 2009 and 2016 reports for Hidden Lake indicated consistent excursions for all water quality parameters (City 2010, 2017d).
- The Lyon Creek basin includes one monitoring location on Ballinger Creek within the city. Water quality results for Ballinger Creek are included in the Lyon Creek Basin Plan for monitoring occurring during 2002–2013. A WQI score was not completed but the results were compared to the State water quality criteria. The monitoring results indicate that water quality parameters DO, water temperature, and turbidity may be improving. Results for pH showed no apparent trend (AltaTerra 2015a).
- The Middle Puget Sound basin includes one marine monitoring location at Richmond Beach. King County collects weekly samples at Richmond Beach Saltwater Park during the swimming season (approximately 14 weeks). The samples are analyzed for fecal indicator bacteria to confirm that the water is safe for recreational uses. King County's 2017 Beach Environmental Assessment, Communication and Health (BEACH) Program annual report indicates that Richmond Beach Saltwater Park met the swimming standards during all periods sampled (Ecology 2018).

4.4 Aquatic Habitat

The Utility conducted biological and habitat evaluations in its *2007 Bioassessment Report, Biological and Habitat Assessment of Shoreline Streams* (2007 report) (Watershed Company 2009). The 2007 report found that urbanization impacts were the likely cause of low B-IBI scores observed at all five stream locations included in the study (Thornton, McAleer, Lower Boeing, Upper Boeing, and Storm creeks). The 2007 report noted that "streams with larger forested riparian buffers tended to have relatively higher quality physical habitat than streams with narrower riparian buffer" and "silt and sand were generally a dominant substrate type in many of the survey areas." The silt and sand substrates negatively affect the macroinvertebrate community and the successful spawning habitat for fish species (Watershed Company 2009).

The City's 2016 Water Quality Assessment Report (City 2017d) included the following recommendations to improve aquatic habitat conditions in the city:

- Conduct riparian vegetation surveys to assess presence of non-native species and replace with appropriate native vegetation. This action will help to reduce streambank erosion, reduce turbidity, and improve in-stream habitat. This effort is included in the Aquatic Habitat Improvement Program (see Section 7.3.7).
- Perform fish surveys on Boeing, Storm, McAleer, and Thornton creeks. A fish survey will help establish a baseline condition and can be used to measure future changes. Fish surveys can be performed programmatically or as part of a related project. For the 2018 Master Plan, the fish surveys are recommended as a part of a project.
- Install temperature loggers at priority stream sites for continuous temperature recording.
- Consider climate change in future studies, plans, ongoing maintenance, and infrastructure design. Climate change could cause current conditions to decline if not mitigated (City 2017d). This effort is included in the *Climate Impacts and Resiliency Study*. Details on the study are included in Appendix D-5 of the Master Plan.

Section 5

Regulatory Compliance

The Utility must establish and maintain programs that comply with State and federal regulations pertaining to surface water, including natural water bodies and the MS4. The City achieves compliance by incorporating these requirements into its own policies, regulations, and ordinances. Compliance with stormwater regulations is an important responsibility of the Utility (see LOS 4, Regulatory Compliance, Table 2-1).

This section summarizes the federal and State regulations and programs that drive the Utility's work. Other City regulations including the Shoreline Municipal Code (SMC) are briefly described in Section 6.2.4. The City designed these regulations in accordance with federal and State requirements.

The primary regulatory driver for the Utility work is the Phase II Permit issued by Ecology. The Phase II Permit which allows the Utility to discharge stormwater runoff from the City's municipal drainage system into Washington State waters as long as the Utility implements programs to protect water quality by reducing the discharge of nonpoint source pollutants to the maximum extent practicable (MEP) through application of Phase II Permit-specified BMPs.

5.1 Federal Requirements

The Utility directly or indirectly adheres to the requirements of the following five federal government-based requirements:

- **National Environmental Policy Act (NEPA):** requires documentation of environmental impact of projects with federal permits
- **Clean Water Act (CWA):** requires permits and adherence to permit requirements to maintain or improve water quality
- **Endangered Species Act (ESA):** requires O&M practices conducive to habitat conservation
- **National Flood Insurance Program (NFIP):** requires flood-prone cities to adopt and enforce ordinances that meet or exceed Federal Emergency Management Agency (FEMA) requirements to reduce the risk of flooding
- **Governmental Accounting Standards Board (GASB):** requires the City to adhere to requirements of established governmental accounting and financial reporting

The requirements from these federal and nationally based regulations and their impact on the Utility operations and management are presented below.

5.1.1 National Environmental Policy Act (43 CFR 1500–1508)

Passed in 1970, NEPA requires that all proposed activities (such as surface water capital projects) with federal funding or needing federal permits prepare documentation that describes the environmental impacts of proposed actions, and perform public outreach and review opportunities. The documentation includes disclosure to the public of the following information: the federal-related actions and a mechanism for public input, preparation of environmental impact statements, and presentation of alternatives and mitigation for major project components that might impact the environment.

5.1.2 Clean Water Act (33 USC 1252 [a])

The CWA is the 1972 amendment to the 1948 Federal Water Pollution Control Act. The main purpose of the CWA is to achieve the goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. To achieve that goal, the CWA directs the U.S. Environmental Protection Agency (EPA) to administer programs to (1) regulate the discharge of pollutants (e.g., through permits), and (2) implement water quality standards. The relevant portions of these two programs are summarized below.

In 1999, EPA adopted rules to implement Phase II of the MS4 Program, which applied to smaller communities. These smaller communities were identified as those located in urbanized areas as defined by the U.S. Census. The Phase II Permit is described in Section 5.2.1, Phase II Permit (CWA 402-NPDES).

5.1.3 Wetland-Related Permits (CWA §404)

Section 404 of the CWA regulates water body filling, particularly wetland areas, with a permit program. The U.S. Army Corps of Engineers administers the permit program to ensure no net loss of wetland areas. Under this permit program, capital projects that impact wetlands would need to include alternatives to avoid, minimize, or compensate for any wetland loss. In cases where a wetland area is impacted, the permit program regulates wetland replacement through a mitigation process.

5.1.4 Endangered Species Act

The National Oceanic and Atmospheric Administration (NOAA) listed Puget Sound Chinook salmon (*Oncorhynchus tshawytscha)* and Puget Sound Steelhead as threatened species under the ESA on March 24, 1999, and May 11, 2007, respectively. Both species' threatened status was confirmed on April 14, 2014. The ESA provides for both the conservation and protection of plant and animal species that face the threat of extinction, as well as for the supporting ecosystems. To prevent further decline of the species and to encourage restoration, the ESA prohibits "take" of listed animals, which includes significantly modifying its habitat. The ESA requires that a plan be developed and implemented to address recovery of the species.

Shoreline is located within Water Resource Inventory Area (WRIA) 8 (Lake Washington, Cedar/Sammamish Watershed and Water) and participates in this group's Chinook salmon conservation planning efforts for streams discharging to Lake Washington and Puget Sound (WRIA 8 2017). The City continues to protect Chinook salmon with a range of BMPs and public education. The only water body with documented Chinook presence is McAleer Creek. Steelhead trout also have a documented presence in McAleer Creek.

NOAA listed the southern resident population of killer whales (*Orcinus orca*) as endangered species under the ESA on November 18, 2005, and updated status on April 14, 2014. The southern resident population of killer whales spends summers and fall in Puget Sound, which is considered critical habitat. Urban surface runoff has been identified as one of several sources of pollution that degrades water quality and can affect killer whales through bioaccumulation of contaminants in prey (Industrial Economics 2006). Boeing and Storm creeks, and the Middle Puget Sound drainages discharge to the Puget Sound. Activities such as road maintenance, culvert replacement, surface water asset O&M, and land use regulations can impact aquatic habitat. These activities can be subject to the requirements of the ESA.

5.1.5 Governmental Accounting Standards Board Statement 34

The City needs an accurate inventory of its stormwater infrastructure to comply with GASB 34 requirements. Financial reporting by public utilities must adhere to requirements set by the GASB, which is the agency responsible for developing standards of State and local governmental accounting and financial reporting. Most prominent is GASB Statement 34, "Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments," which was issued in June 1999. The main objective of Statement 34 requirements is to develop financial reports that are more comprehensive and easier to understand by the public. Statement 34 consists of several components, which can be seen in full in paragraphs 3 through 166 of the GASB publications (GASB 2017).

5.2 State Requirements

State regulatory requirements and federal requirements administered by the State that are relevant to the Utility are described below. Two sections of the federal CWA administered by the State through Ecology protect water quality include the Phase II Permit (CWA 402-NPDES) and TMDL Listing (CWA 303(d)). For convenience, the federal and State requirement for flood protection and mitigation are described together below. Other State requirements, such as the planning requirements associated with the Growth Management Act (GMA) and permitting requirements outlined in the Hydraulic Code, are also discussed.

5.2.1 Phase II Permit (CWA 402-NPDES)

Shoreline is a Phase II permitted community and received its first Phase II Permit from Ecology in 2007. The 2007 Phase II Permit was updated and reissued to Phase II Permit holders in August 2012 with an effective date of August 2013. In January 2014, some modifications were made to the City's Phase II Permit and Ecology issued an errata sheet in 2015.

5.2.1.1 Current Phase II Permit (effective 2013–2018, with extension to 2019)

The Phase II Permit allows municipalities to discharge stormwater runoff from their municipal drainage systems into Washington State water bodies (e.g., streams, rivers, lakes, and wetlands) under conditions specified in the Phase II Permit. Municipalities must implement programs to protect water quality by reducing the discharge of pollutants to the MEP and by applying all known, available, and reasonable treatments (AKART). Stormwater pollution reduction is accomplished through the application of structural and non-structural BMPs. The stormwater management activities specified in the Phase II Permit are documented in a *Stormwater Management Program Plan* and broken out by the following program components (City 2017e):

- *Stormwater Management Program* administration
- Public education and outreach
- Public involvement and participation
- Illicit discharge detection and elimination (IDDE)
- Control of runoff from new development, redevelopment, and construction sites
- Municipal O&M
- Monitoring and assessment

The Phase II Permit also requires compliance with established TMDLs as described in Section 5.2.2.

On March 31 of each year, the Phase II Permit requires the City to submit a report to Ecology on the status of compliance with the Phase II Permit. The City must also submit a stormwater management program plan each year that describes the activities for the coming year. Implementation of specific Phase II Permit conditions are staggered throughout the 5-year Phase II Permit term.

In the 2013 Phase II Permit, there were changes and updates from the 2007 Phase II Permit. Two significant changes were as follows:

- LID requirements were included for new development and redevelopment to mimic natural drainage processes. Existing standards were changed to apply to sites smaller than 1 acre.
- A Regional Stormwater Monitoring Program (RSMP) was included covering collection of water quality, habitat, and biota monitoring information; program effectiveness tracking; a source identification information repository; publicly accessible monitoring data; and identification of Ecology as the program administrator for the 2013–2018 Phase II Permit term, with funding from each permittee.

5.2.1.2 Future Phase II Permit (2019–23)

The 2013–2018 Phase II Permit was extended 1 year. Ecology plans to issue a new Phase II Permit in 2019. Ecology held public meetings in 2017 and presented preliminary draft language for the new Phase II Permit, which includes the following:

- **Business Inspection Source Control Program:** To continue reduction of illicit discharges and build on existing public outreach and education efforts of Ecology's Local Source Control Partnership, the new Phase II Permit may require a source control program for the existing Development Program, similar to what is currently required of Phase I Permit holders (e.g., City of Seattle, King County). The new source control program would require updates to SMC as well as additional resources to manage the program and perform inspections.
- **Illicit discharge tracking and documentation:** The previous Phase II Permit provided guidance for tracking and documenting illicit discharges. To better review illicit discharge information, Ecology will require Phase II Permit holders to document incidents and submit a file with an annual report containing the information in the manner Ecology prescribes. This will require Phase II Permit holders to use the Ecology system to document the illicit discharge incidents or to develop a data programming tool to convert the data collected in the City's system into the Ecology prescribed format.
- **Minor updates to mapping and water quality monitoring:** The new Phase II Permit will include minor modifications to the continuing mapping and monitoring requirements. For mapping, Phase II Permit holders will be required to record size and material attributes for all known MS4 outfalls. For the Utility, this requirement is partially met with 80 percent of the mapped outfalls with size and material attribute information complete. For water quality monitoring, the new Phase II Permit is asking for more detail in annual report summary responses and changes in payment time for regional status and trend monitoring.
- **Language clarification:** Although not resulting in substantive or actionable changes, the new Phase II Permit will include language clarification and provide overall clarity to the "Controlling Runoff from New Development, Redevelopment and Construction Sites" and "Public Education and Outreach" sections.
- **Update to education and outreach requirements**: The new permit will include "actionable changes," to the education and outreach requirement including, a new evaluation of an existing program, implementing either changes to that program or a new program altogether, and correlating outreach efforts to actual water quality data, which has not been done previously.

- **Long-term MS4 planning:** Ecology is proposing a watershed-scale planning requirement for both Phase I and Phase II Permit holders. The planning effort would require permit holders to prioritize subbasins based on the needs of local receiving waters and prepare plans with targeted capital projects and BMPs that directly contribute to preventing and reducing impacts to receiving waters.
- **Stormwater Management Manual for Western Washington update:** Ecology is updating the 2014 *Stormwater Management Manual for Western Washington* (Stormwater Manual) to enhance usability and improve overall clarity.

5.2.2 Total Maximum Daily Load Listing (CWA 303(d))

Ecology performs a statewide Water Quality Assessment every 2 to 4 years to identify water bodies that do not meet the State water quality standards. Water bodies that do not meet standards are placed on the CWA 303(d) list. Ecology develops TMDLs for the water bodies on the 303(d) list to bring them into compliance with water quality standards. TMDLs typically apply to the watershed areas that contribute flow to the 303(d)-listed reaches.

McAleer Creek is the only water body within Shoreline on the current 303(d) list. Echo Lake is listed as a water body of concern, which means there are indications of a water quality problem, but not an ongoing impairment. Other watersheds within the city contribute flow outside of Shoreline city limits to downstream water quality impaired water bodies. For example, the Thornton Creek watershed contributes flows to 303(d) reaches of Thornton Creek outside of Shoreline. Similarly, portions of the city's McAleer Creek watershed contribute flow to the TMDL-listed Lake Ballinger located in the cities of Mountlake Terrace and Edmonds.

TMDLs for water bodies downstream of Shoreline could trigger pollutant load reduction requirements for stormwater discharges in Shoreline. TMDL requirements will become a special condition of the next Phase II Permit after the TMDL has been developed by Ecology and approved by EPA. The TMDL could require treatment or removal of stormwater runoff from existing developed areas that drain to the affected water bodies. Thus, TMDLs could affect future stormwater treatment or removal of stormwater runoff from existing developed areas that drain to the affected water bodies. See Appendix F, for more details on 303(d) and TMDL information.

5.2.3 National Flood Insurance Program and Floodplain Management (RCW 86.16)

In 1968, the U.S. Congress created the NFIP to provide financial protection to property owners from flood damage. The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding (see FloodSmart.gov for details about the program). The City is a participating community in FEMA's NFIP. To participate in the program, the City adopted and enforces a floodplain management ordinance that regulates development, SMC 13.12 Floodplain Management.

The City updated SMC 13.12 in 2017 to meet FEMA recommendations developed during a Community Assistance Contact (CAC) assessment. The updates were administrative in nature and provided consistency with updated FEMA regulations. The updates ensured that the City remained in compliance with FEMA regulations, and maintained its eligibility for the NFIP. The current FEMA flood insurance rate maps (FIRMs) affect properties along the Puget Sound shoreline, Boeing Creek, and the north fork of Thornton Creek.

Revised Code of Washington (RCW) Chapter 86.16, "Floodplain Management," establishes statewide authority for floodplain management as provided through the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. Ecology is identified as the responsible State agency

to carry out this program. Under Washington Administrative Code (WAC) Chapter 173-158, Ecology requires local governments to adopt and administer regulatory programs compliant with the minimum standards of the NFIP. Ecology provides technical assistance to local governments for both identifying the location of the 100-year (base) floodplain and administering their floodplain management ordinances.

The City currently does not participate in FEMA's Community Rating System (CRS). The CRS is an incentive program that encourages communities to adopt floodplain management activities exceeding the minimum NFIP requirements. Participants receive discounts on flood insurance.

5.2.4 Growth Management Act (RCW Chapter 36.70A)

The Washington State Legislature enacted the GMA in 1990 to address rapid population growth and concerns with suburban sprawl, environmental protection, quality of life, and related issues.

The GMA provides a framework for regional coordination of land development. Under the GMA, local comprehensive plans, such as the Comprehensive Plan, must include the following elements: land use, housing, capital facilities, utilities, transportation, economic development, parks and recreation, and, for counties, a rural element. City master planning documents, such as the 2018 Master Plan, are coordinated with the City's comprehensive planning process through an annual Comprehensive Plan amendment process. During this amendment process, the Master Plan and capital projects therein are integrated with the capital facilities element of the Comprehensive Plan.

5.2.5 Hydraulic Project Approval (State Hydraulic Code RCW 77.55)

The Washington Department of Fish and Wildlife (WDFW) requires a Hydraulic Project Approval (HPA) for construction activities that use, divert, obstruct, or change the natural flow or bed of any waters of the state. The purpose of the requirement is to protect fish habitat in stream channels, prevent erosion, and protect freshwater and nearshore marine aquatic life. Construction activity such as bridge painting, channel improvements, stream restoration, or culvert replacements within the ordinary high water mark of any stream would typically require an HPA. Flood-damage repair and prevention activities may be permitted as a 5-year plan, avoiding the need to permit each individual activity. WDFW generally may require modifications to plans and specifications that avoid or mitigate project impacts on fish ecology. Possible modifications include, and are not limited to, the following:

- Making a culvert fish passable
- Providing large woody debris in a stream channel
- Moving grading limits outside the ordinary high water mark
- Specifying construction practices that prevent entry of construction equipment and/or materials into the watercourse
- Specifying bed material, construction methods, the construction period, riparian vegetation, and any required mitigation

If it is more cost-effective, the applicant may be permitted to perform offsite mitigation, provided that it will generate equal or greater biological functions and values as compared to onsite mitigation.

Table 5-1 provides a summary list of the federal and State regulations and programs relevant to the Utility's responsibilities.

Table 5-1. Federal and State Regulations and Programs Relevant to the Utility's Responsibilities		
Title	**Regulation or Program**	**Application to the City**
Federal		
NEPA	Regulation	All projects with federal funding or needing federal permits are required to submit a NEPA review to describe environmental ramifications, disclose federal actions, provide a mechanism for public input, prepare an environmental impact statement, and consider alternatives and mitigation for actions.
CWA	Regulation	Originally passed in 1972 to address point sources of pollution and to restore the chemical, physical, and biological integrity of the nation's water (33 USC 1251 [a]). Several sections are administered by Ecology through permission of EPA including §303(d), §401, and §402-NPDES as described in RCW 90.48.260. These sections of the CWA are described in the State and Regional subsection of this table. Different sections of the CWA require permits and adherence to permit requirements to maintain or improve water quality.
CWA §404 wetlands	Regulation	Permit program for capital projects that is administered by the U.S. Army Corps of Engineers to ensure no net loss of wetland areas. Permits are obtained when work occurs in or near a designated wetland area. The City's designated wetlands are mapped in the City's GIS.
ESA	Regulation	Stormwater capital improvement projects that involve federal permitting or funding could require consultation with federal agencies under §7 of the ESA. ESA consultation could increase project timelines and costs. For the Utility, ESA-regulated activities require O&M practices conducive to habitat conservation.
GASB Statement 34	Program	Requires the City to adhere to established governmental accounting and financial reporting such as accurate inventory of the City's stormwater infrastructure.
State and Regional		
SEPA	Regulation	Each capital improvement project requires SEPA review prior to implementation, unless that project qualifies as exempt. May increase project costs and schedules. Planning documents that outline proposed capital projects and programs such as the Master Plan require programmatic SEPA review to evaluate cumulative impacts.
CWA §303(d) TMDL listings [a]	Regulation	TMDLs could lead to more stringent stormwater quality controls in future NPDES permits. The City does not currently have any TMDLs. The City has one water body with a 303(d) listing, McAleer Creek.
CWA §401 water quality certification [a]	Regulation	Individual projects that require §404 permit (projects with the federal connection) or other federal permits would also require a §401 certification from Ecology. A §401 certification could include requirements for site-specific mitigation measures, which could affect capital improvement project design and costs.
CWA §402 MS4 NPDES permit [a]	Regulation	Includes requirements focused on stormwater quality management in the city. The Phase II Permit requires the reduction of pollutant loads to the MEP. Washington State may establish TMDLs for water bodies that violate the standards. TMDLs can become Phase II Permit requirements.
NFIP and floodplain management [b]	Regulation	Washington State's RCW 86.16, "Floodplain Management," establishes statewide authority for floodplain management as provided through the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. Provides guidance and regulations for City's Floodplain Development Permit and participation in NFIP.
GMA and *City of Shoreline Comprehensive Plan*	Regulation	The GMA is a significant driver for land use and permitting decisions. The 2012 *City of Shoreline Comprehensive Plan* (as amended) is required by the GMA, and includes language preventing adverse surface water impacts from land development (City 2012).
State hydraulic code	Regulation	Projects that involve work in waters of the state such as streams and culverts that convey stream flow require an HPA permit. HPA permitting and mitigation measures could affect project costs.
Archaeological and cultural coordination	Regulation	If capital improvement projects are near known or suspected archaeological sites, they must coordinate with the Department of Archaeology and Historic Preservation, local Indian tribes, and King County Historic Preservation.

a. *Portions of the CWA are delegated to Ecology entities for administration.*

b. *The NFIP is a federal program administered by FEMA, but is presented here with Washington State-administered floodplain management requirements.*

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Section 6

Policies and Procedures

Utility services are provided by City staff who perform administrative activities, operations, maintenance, public involvement, and capital improvement planning in accordance with established policies and procedures. This section describes the organizational structure of the staff supporting the Utility, provides background on existing policies and procedures, and summarizes policy discussions and recommended policy changes evaluated as part of the master planning process.

6.1 Staff Organization

The Utility is part of the City's Public Works Department. Utility staff are located primarily under the Surface Water Utility; however, shared staff also fall under Street Operations and Engineering. Additional staffing funds may be allocated to other City departments, such as Administrative Services or Planning and Community Development, but this varies from year to year depending on the needs of the Utility. Figure 6-1 provides an organizational chart for Utility personnel with the full-time equivalent (FTE) allocations for 2017.

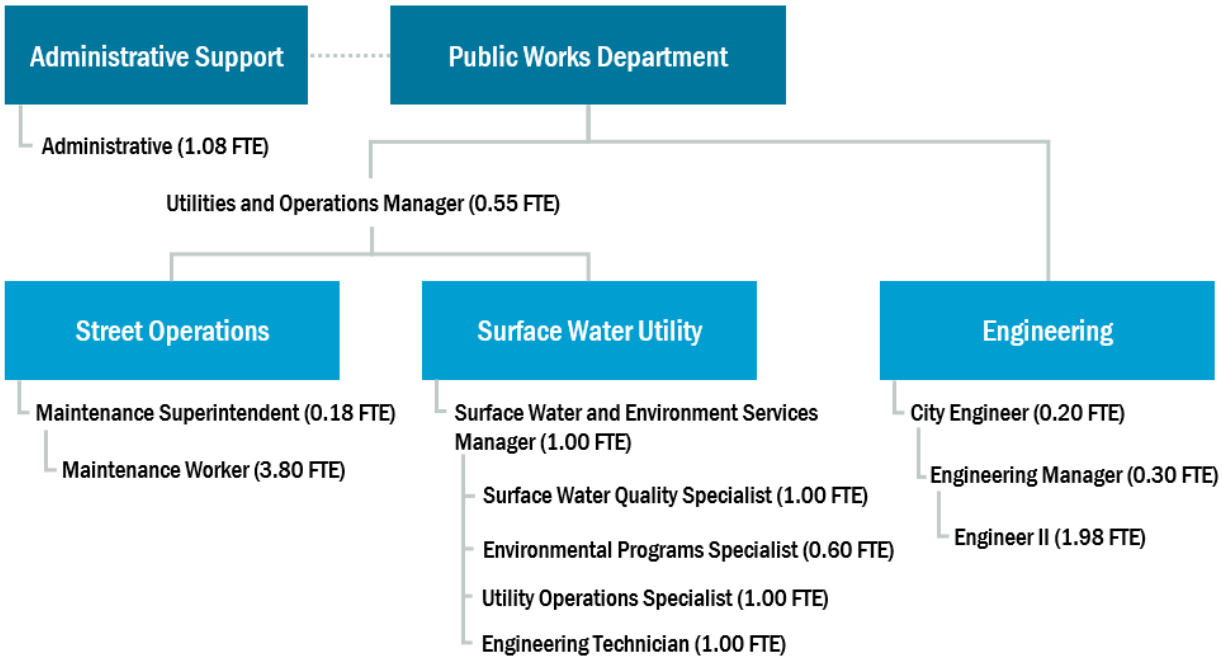


Figure 6-1. Organization of personnel contributing to Utility with FTE allocations for 2017

6.2 Existing Policies and Procedures

The Surface Water and Environmental Services Manager, Utilities and Operations Manager, Public Works Director, and City Manager work collectively to establish policies and procedures for the Utility, many of which are approved by the City Council through municipal ordinances or as part of the annual budgeting process. Policies and procedures are developed as staff recommendations, and are approved through a process that potentially involves three levels of City administration: Public Works Department, City Manager's Office, and the City Council. For example, policies that result in changes to municipal code or that affect the City's annual budget require the Public Works Director to coordinate with the City Manager's Office to prepare recommendations for the City Council. In contrast, minor updates to the *Engineering Development Manual* (EDM) or Administrative Orders (AOs) interpreting existing code are simply approved at a departmental level by the Public Works Director.

The following sections summarize key policies and procedures for the Utility.

6.2.1 O&M Manual

As part of the development of this Master Plan, the Utility prepared the *City of Shoreline Surface Water Utility Operation and Maintenance Manual* (O&M Manual), which contains the latest policies and procedures for operating and maintaining the City's surface water infrastructure (see Appendix G). The updated O&M Manual documents the policies and procedures that improve asset management and comply with regulatory requirements. Key updates include:

- Process details for O&M procedures in accordance with the Phase II Permit and asset management BMPs
- O&M work flow process relative to the Computerized Maintenance Management System (CMMS)
- Inspection and maintenance guidance for the various types of publicly owned surface water assets
- References to other O&M activities such as severe weather response, IDDE procedures, and private facility inspection

6.2.2 Engineering Development Manual

The 2016 Shoreline EDM is a guide for public and private development within the city. The EDM is a supplement to the city code and provides minimum engineering criteria and specifications. The Public Works Director is given authority to create and update the EDM through SMC 20.70.020, Engineering and Utilities Development Standard. The EDM is updated on an ongoing basis and typically re-published every other year.

The EDM manual includes four divisions:

- **Division 1:** Administration contains information related to permits
- **Division 2:** Right-of-way presents standards and other information related to development within the ROW
- **Division 3:** Surface Water contains surface water policies, as well as design standards that apply to public and private development
- **Division 4:** Construction and Inspection provides the basics regarding construction and inspection in the City ROW

Division 3 of the EDM consolidates City policy, procedures, and BMPs guidance for development related to surface water. Table 6-1 summarizes the nine chapters of Division 3.

Table 6-1. Summary of EDM Division 3 Surface Water Standards and Policies

Chapter	Relevance to Utility
18. Surface Water Standards	Provides references to standards documents including the 2012 Stormwater Manual, as amended in December 2014 and the King County *Surface Water Design Manual* (Stormwater Manual)
19. Stormwater Manual Modifications	Lists modifications to the requirements of the Stormwater Manual especially where the Stormwater Manual notes an item is optional or up to the jurisdiction
20. General Requirements	Provides additional requirements to documents listed in Chapter 18, Surface Water Standards
21. Infiltration	Provides additional information about infiltration for LID and relative to City-specific development permits
22. Surface Water Project Classification	Includes guidance and descriptions about the four development project classifications to help with following the requirements of the Stormwater Manual and City development permits
23. Site Development Plan	Provides reference to site development discussion in the Stormwater Manual and additional City-specific guidance on BMPs for site design
25. Stormwater Pollution Prevention Plan	Provides reference to stormwater pollution prevention plans (SWPPPs) and additional City-specific requirements for preparing a SWPPP
26. Flood Control	Lists areas within the city that are identified as floodplain areas and provides reference to SMC
27. Conveyance System	Lists design specifications for pipe, drop structures, wall crossing, and ditch modifications

The EDM incorporates or provides references to AOs, which are code interpretations issued by department directors. Currently one AO is related to surface water activities, AO 000019 121300. This AO states that a detention pond can be placed in all land use zones. Unlike parking, detention is not a function of land use, but a function of impervious surface and drainage area.

6.2.3 Budget and Capital Improvement Plan

An annual City budget and the 6-year CIP recommendations are prepared as part of an overall budget process and are approved by the City Council annually. There are also budget amendments and budget carryover processes that occur during the year.

Financial policies associated with the City's annual budgeting process are included in the appendices of the annual *Capital Improvement Plan* (City 2017b). These policies were considered during the CIP cost development and rate structure analysis of this Master Plan:

- **Fund reserve:** The City shall maintain an operating reserve within the Fund in an amount equal to or greater than 20 percent of budgeted operating revenues.
- **CIP O&M costs:** CIP projects, as approved by the City Council, shall have a funding plan for O&M costs identified in the project description. These costs will be included in the City's long-term financial planning.

6.2.4 Shoreline Municipal Code

SMC Chapter 13.10, Surface Water Utility, establishes the requirements for the Utility. The City Council adopts amendments to the SMC on an ongoing basis as recommendations are provided by the City Manager's office and department directors. Compliance with Phase II Permit regulations is a common driver for code amendments related to the Utility. For example, the City adopted SMC language to promote and not inhibit the use of LID to maintain compliance with the 2013 Phase II

Permit requirements. Code amendments are also needed when surface water management fees change. Utility staff recommended new surface water management fees for 2018 to fund the recommended projects and programs identified in the 2018 Master Plan. The City Council updated the surface water management rate table, SMC 3.01.400 with the adoption of the 2018 annual budget and CIP. This section of code also included language changes relative to chargeable area as discussed in Section 6.3.3.

Table 6-2 presents a summary of the current SMC relevant to the Utility and its level-of-service goals.

Table 6-2. Summary of Shoreline Municipal Code Relevant to Utility

Code	Relevance to Utility
3.01.400 Surface Water Management Rate Table	Presents the current surface water management rate table, rate credits and adjustment, and Soak It Up program rebate rate.
3.35.080 Surface Water Utility Enterprise Fund	Establishes the Surface Water Utility Enterprise Fund and restrictions of its use.
13.10 Surface Water Utility	Establishes the Utility and its goals, and provides guidance and requirements for water quality pursuant to federal (NPDES Permit) and State (Chapter 90.48 RCW) requirements including prohibited discharges, inspections, investigations, and illicit discharges. Includes guidance for facility design and construction, construction inspection, and record drawings and certification.
13.12 Floodplain Management	Outlines the City's approach, standards, and adherence to State and federal guidance for floodplain management to protect public health, safety, and welfare relative to flooding.
20.30 Subchapter 9. Code Enforcement	Declares public nuisance and enforcement. Includes code enforcement procedures for SMC. Outlines enforcement procedures relevant to violations outlined in other sections of SMC such as the pollution of public waters, commercial facility maintenance, floodplain management, and public nuisances as defined by the RCW. Outlines the escalation of enforcement for code violations as declared in SMC 20.30.740. Relevant to the inspection and maintenance enforcement of privately owned stormwater facilities, detection and elimination of illicit discharges, and floodplain management.
20.70 Engineering and Utilities Development Standard	Establishes the engineering regulations and standards including naming the EDM as the City standard for surface water asset design and maintenance.
20.70.140 Dedication of Stormwater Facilities	Outlines maintenance responsibilities for stormwater facilities within and outside of the public ROW, including processes for accepting or releasing facility dedication. Relevant to the inspection and maintenance enforcement of privately owned stormwater facilities.
20.70.330 Surface Water Facilities	Establishes that stormwater facilities must meet requirements outlined in SMC 13.10, Surface Water Utility, and SMC 20.30.440, Installation of Improvements. Relevant to the inspection and maintenance enforcement of privately owned stormwater facilities.
20.80 Critical Areas: 20.80.260–300 Fish and Wildlife Habitat 20.80.310–350 Wetlands 20.80.360–380 Flood Hazard 20.80.420–450 Aquifer Recharge	Includes critical area ordinances for fish and wildlife habitat, wetlands, flood hazard areas, and aquifer recharge areas that include designating and rating, mapping and delineation, development standards, or alteration. Critical area information is considered for CIP planning and cost estimates.
20.200 Shoreline Master Plan	Requires a master plan as specified by the Shoreline Protection Act. Outlines regulations relevant to shoreline protection including no net loss of ecologic function of the city's shorelines. Considered for surface water CIP and cost estimates.
20.230 SMP Shoreline Policies and Regulations	Includes surface water policies and regulations associated with shoreline areas for surface water in general and for stormwater management facilities.

6.2.5 City of Shoreline Comprehensive Plan

The Comprehensive Plan, the City's long-range planning document for the next 20 years, was originally adopted shortly after the City incorporated in 1995. A major review and revision to the Comprehensive Plan was completed in December 2012. While the Comprehensive Plan is a long-range planning document, it may be amended annually by the City Council via ordinance. Shoreline citizens and the City recommend amendments to the Comprehensive Plan's polices and goals, maps, and supporting analyses. City-initiated amendments occur as the City develops and adopts its various master planning documents (e.g., parks, transportation, and surface water) or as new planning issues and goals emerge. The Comprehensive Plan contains many policies relevant to the Utility. Utility staff reviewed the Comprehensive Plan goals and identified a subset of goals relevant to the Utility and the 2018 Master Plan, see Table 6-3.

Table 6-3. Shoreline Comprehensive Plan Goals Relevant to Utility

Comprehensive Plan Section	Policy and Goals Relevant to Utility
Land use, residential	LU41: Through redevelopment opportunities in station areas, promote restoration of adjacent streams, creeks, and other environmentally sensitive areas; improve public access to these areas; and provide public education about the functions and values of adjacent natural areas.
Land use, light rail station areas	LU69: Design, locate, and construct surface water facilities to: • Promote water quality • Enhance public safety • Preserve and enhance natural habitat • Protect critical areas • Reasonably minimize significant, individual, and cumulative adverse impacts to the environment
Land use, water quality, and drainage	LU70: Pursue state and federal grants to improve surface water management and water quality.
	LU71: Protect water quality through the continuation and possible expansion of City programs, regulations, and pilot projects.
	LU72: Protect water quality by educating citizens about proper waste disposal and eliminating pollutants that enter the stormwater system.
	LU73: Maintain and enhance natural drainage systems to protect water quality, reduce public costs, protect property, and prevent environmental degradation.
	LU74: Collaborate with Ecology and neighboring jurisdictions, including participation in regional forums and committees, to improve regional surface water management, enhance water quality, and resolve related interjurisdictional concerns.
	LU75: Where feasible, stormwater facilities like retention and detention ponds should be designed to provide supplemental benefits, such as wildlife habitat, water quality treatment, and passive recreation.
	LU76: Pursue obtaining access rights, such as easements or ownership, to lands needed to maintain, repair, or improve portions of the public drainage system that are located on private property, and for which the City does not currently have legal access.
Community design	CD28. Use the Green Street standards in the Master Street Plan to provide an enhanced streetscape, including street trees, landscaping, natural surface water management techniques, lighting, pathways, crosswalks, pedestrian and bicycle facilities, decorative paving, signs, seasonal displays, and public art.
Transportation	T10. Use LID techniques or other elements of complete or Green Street, except when determined to be infeasible. Explore opportunities to expand the use of natural stormwater treatment in the ROW through partnerships with public and private property owners.

Table 6-3. Shoreline Comprehensive Plan Goals Relevant to Utility	
Comprehensive Plan Section	**Policy and Goals Relevant to Utility**
Natural environment, geological, and flood hazards	NE11. Mitigate drainage, erosion, siltation, and landslide impacts, while encouraging native vegetation.
	NE14. Inform landowners about site development, drainage, and yard maintenance practices that affect slope stability and water quality.
	NE16. Prioritize the resolution of flooding problems based on public safety risk, property damage, and flooding frequency.
	NE17. Promote public education and encourage preparation in areas that are potentially susceptible to geological and flood hazards.
Natural environment, wetlands, and habitat protection	NE23. Participate in regional species protection efforts, including salmon habitat enhancement and restoration.
	NE24. Preserve critical wildlife habitat, including those identified as priority species or priority habitats by WDFW, through regulation, acquisition, incentives, and other techniques. Habitats and species of local importance will also be protected in this manner.
	NE25. Strive to achieve a level of no net loss of wetland function, area, and value within each drainage basin.
	NE26. Restore existing degraded wetlands where feasible.
	NE27. Focus on wetland and habitat restoration efforts that will result in the greatest benefit for areas identified by the City as priority for restoration.
Natural environment, streams, and water resources	NE28. Support and promote basin stewardship programs to prevent adverse surface water impacts, and to identify opportunities for watershed improvements.
	NE29. Stream alterations, other than habitat improvements, should occur only when it is the only means feasible, and should be the minimum necessary.
	NE30. Identify and prioritize potential stream enhancement projects through surface water basin planning and its public participation process. Enhancement efforts may include daylighting of streams that have been diverted into underground pipes or culverts, removal of anadromous fish barriers, or other options to restore aquatic environments to a natural state.
	NE31. Work with citizen volunteers, State and federal agencies, and Indian tribes to identify, prioritize, and eliminate physical barriers and other impediments to anadromous fish spawning and rearing habitat.
	NE32. Preserve and protect natural surface water storage sites, such as wetlands, aquifers, streams, and water bodies that help regulate surface flows and recharge groundwater.
	NE33. Conserve and protect groundwater resources.
	NE34. Provide additional public access to Shoreline's natural features, including the Puget Sound shoreline. The City will attempt to reach community and neighborhood agreement on any proposal to improve access to natural features where the proposal has the potential to negatively impact private property owners.
	NE35. Educate the public on BMPs regarding the use of pesticides and fertilizers to prevent chemical runoff and the pollution of water bodies.
Capital facilities	CF9. Improvements necessary to provide critical City services such as police, surface water, and transportation at designated service levels concurrent with growth shall have funding priority for City funds over improvements that are needed to provide capital facilities.
	CF10. Consider all available funding and financing mechanisms, such as utility rates, bonds, impact fees, grants, and local improvement districts for funding capital facilities.
	CF11. Evaluate proposed public capital facility projects to identify net costs and benefits, including impacts on transportation, stormwater, parks, and other public services. Assign greater funding priority to those projects that provide a higher net benefit and provide multiple functions to the community over projects that provide single or fewer functions.
	CF16. Promote water reuse and water conservation opportunities that diminish impacts on water, wastewater, and surface water systems, and promote conservation or improvement of natural systems.

Table 6-3. Shoreline Comprehensive Plan Goals Relevant to Utility	
Comprehensive Plan Section	Policy and Goals Relevant to Utility
Capital facilities, mitigation, and efficiency	CF17. Encourage the use of ecologically sound site design in ways that enhance provision of utility services.
	CF18. Support local efforts to minimize inflow and infiltration, and reduce excessive discharge of surface water into wastewater systems.
	CF25. Evaluate and establish designated levels of service to meet the needs of existing and anticipated development.
	CF26. Plan accordingly so that capital facility improvements needed to meet established level of service standards can be provided by the City or the responsible service providers.
	CF27. Identify deficiencies in capital facilities based on adopted levels of service and facility life cycles, and determine the means and timing for correcting these deficiencies.
	CF31. The City establishes the following levels of service as the minimum thresholds necessary to adequately serve development, as well as the minimum thresholds to which the City will strive to provide for existing development: surface water, consistent with the levels of service recommended in the most recently adopted Master Plan.
Utilities	U3. Encourage and assist the timely provision of the full range of utilities within Shoreline to serve existing businesses, including home businesses, and promote economic development.
	U4. Support the timely expansion, maintenance, operation, and replacement of utility infrastructure to meet anticipated demand for growth identified in the land use element.
	U5. Coordinate with other jurisdictions and governmental entities in the planning and implementation of multi-jurisdictional utility facility additions and improvements.

6.3 Recommended Policies and Procedures

As a part of the development of this Master Plan update, the Utility examined current policies and procedures considering the newly defined levels of service and potential improvements to Utility programs. Utility staff prepared policy issue discussions to receive City Council guidance. Based on guidance from the City Council, the Utility then prepared policy, code, and program recommendations for inclusion in the 2018 Master Plan. The following four topics were presented to the City Council:

- Use of Utility funds outside of the ROW
- Stormwater Permit
- Surface water management fee-chargeable area
- Private facility inspection and maintenance

Issues associated with each of the four topic areas are discussed below and include an evaluation of the status quo condition and alternatives with pros and cons. The outcome of the issues discussions based on City Council guidance and reference to implementation in the 2018 Master Plan is also noted.

6.3.1 Use of Utility Funds Outside the Right-of-Way

The Utility often receives requests to perform work on drainage systems that cross through private property. These requests may come from the affected property owner or a group of property owners, or others being impacted by the drainage system. The decision to use Utility funds on private property is based on the determination that the drainage facilities in question are clearly the responsibility of the City, or instances when public infrastructure, such as a road, is threatened if action is not taken. With technical guidance from Utility staff, the City Attorney makes the determination of City responsibility on a case-by-case basis with final determination made by the City Attorney's Office.

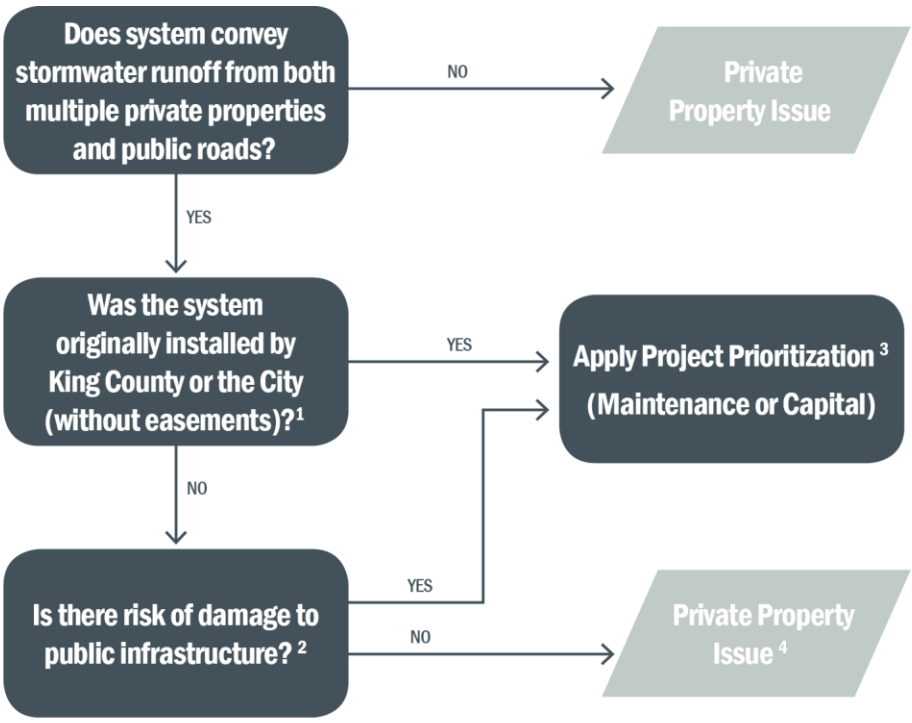
Two policy alternatives and their pros and cons were considered, as described in Table 6-4.

Table 6-4. Use of Utility Funds Outside the ROW Policy Alternatives and Pros/Cons

Policy Alternative	Pros	Cons
Alternative 1: Status quo: public infrastructure preservation • Continue the practice of not expending Utility funds on private property unless City staff determine that the facilities in question are the responsibility of the City or public infrastructure is threatened.	• Limits City involvement with private systems • Legally defendable • Requires the lowest funding level of the two alternative approaches considered • Provides clear policy direction	• May not satisfy some property owners who want the City to take certain actions • Would not allow City action in situations where there is only a water quality or environmental enhancement opportunity
Alternative 2: Identify critical private property infrastructure • City acquires easements or purchases properties containing critical stormwater infrastructure. City operates and maintains these facilities. • Create a program to develop and maintain inventory of drainage and water quality infrastructure on private property deemed critical to protect public infrastructure and provide public benefits (e.g., water quality and environmental enhancements)	• Provides a program for identifying and acquiring easement or ownership of critical drainage infrastructure on private property • Provides a method to consider public requests for City maintenance of private drainage systems where a broader public interest than preservation of public infrastructure may be present • Ensures a minimum level of maintenance for critical facilities added to the City's maintenance program	• Requires establishment of, and funding for, a new program to inventory and prioritize critical drainage infrastructure for easement or ownership acquisition and ongoing maintenance

The City Council agreed with the staff's recommended Alternative 1: Status quo: public infrastructure preservation. Staff refined a "decision requirements" flow chart developed in the 2011 Master Plan, shown in Figure 6-2. This flow chart shows the criteria Utility staff and the City Attorney will use to identify situations where it is appropriate to use Utility funds outside the ROW.

Establishing a clear and transparent process for use of Utility funds outside of the ROW helps the Utility provide consistent and equitable service to customers (see LOS 2, Equitable Service, Table 2-1).



Footnotes:

1. In some areas, King County constructed improvements without securing easements. In these cases, there may be a legal justification for the City to secure drainage easements and assume maintenance, particularly if it is a trunk system that serves multiple properties. The City may require that the system be brought up to City standards and that the easement be provided to the City at no cost.
2. Includes flooding or erosion that results in (or could result in future) damage to public roads, infrastructure, or structures.
3. Determine resolution, if possible through a Drainage study/Assessment, then apply project prioritization criteria established in the 2018 Master Plan for prioritization and scheduling. This will include easement acquisition or relocating to the ROW.
4. The City may offer technical guidance.

Figure 6-2. Decision requirements for use of Utility funds outside the ROW

6.3.2 Stormwater Permit

The Utility operates an MS4 that has connections from private onsite systems. However, there is no single standard process for permitting onsite stormwater systems and connections to the MS4. The City instead has multiple permitting processes for property owners to gain approval and implementation of onsite stormwater infrastructure and connection to the MS4. As permits are processed, the City's recorded actions related to onsite stormwater infrastructure and MS4 connections are filed in different locations. The result is that permit information related to stormwater is in several locations, and is difficult for Utility staff to review and access effectively and efficiently.

Two policy alternatives and their pros and cons were considered, as summarized in Table 6-5.

Table 6-5. Stormwater Permit Policy Alternatives and Pros/Cons		
Policy Alternative	**Pros**	**Cons**
Alternative 1: Status quo: use existing permit process Continue to rely on the current process that involves coordinating with up to four permitting processes where recorded actions related to onsite stormwater infrastructure and MS4 connections are located and managed in different permit records	• No new permit is required	• Significant interdepartmental coordination • Increased risk of not meeting regulations and maintenance standards • Information and approvals of stormwater management facilities reside in different documents • Responsibility remains dispersed among departments
Alternative 2: Establish a City stormwater permit Consolidate all the onsite and ROW stormwater review activity into a single permit and develop a process to manage ongoing inspections, operations, maintenance, and enforcement of maintenance standards for private drainage systems as required by the Phase II Permit	• Improved coordination with other permitting processes for stormwater management • Facilitate a comprehensive review, approval, implementation, and improved maintenance tracking of surface water management infrastructure	• New stormwater permit process and fee

The City Council agreed with staff's recommendation for Alternative 2: Establish a City Stormwater Permit. The Utility estimated an operating budget for Utility staff to develop the Stormwater Permit in 2018 and implement it in 2019. Details on the Stormwater Permit program are presented in Section 7.1.9.

Establishing a City Stormwater Permit provides the Utility with a consistent process to enforce standards that reduce risks to public health, safety, and the environment (see LOS 1, Surface Water Impacts, Table 2-1). In addition, a consistent permitting process provides a clearer line of communication with customers (see LOS 3, Communication and Outreach, Table 2-1).

6.3.3 Surface Water Management Fee Chargeable Area

Surface water management fees are currently based on impervious surface[5]. To comply with the Phase II Permit, the City requires that properties implement LID practices that reduce the amount of impervious surface area. In 2016, the SMC was updated to include LID language that included changing references from "impervious surface" to "hard surface" as defined by Ecology. The reference change had one exception: the term "impervious surface" is still used to define rate categories in the Surface Water Management rate table as presented in SMC 3.01.400.

Based on the current definition of impervious surface, permeable pavements and vegetated roofs would not be chargeable areas for surface water management fees; however, these surfaces are included in the "hard surfaces" definition. The City's level of service for stormwater conveyance requires the same downstream capacity and costs for both impervious and hard surfaces because the system must provide conveyance in the event of permeable surface system overload during storm events and/or permeable surface system failure. Inspections and oversight of onsite stormwater systems will remain the same with either definition.

[5] Impervious surface means a non-vegetated surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development, and causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam, or other surfaces which similarly impede the natural infiltration of stormwater.

Two policy alternatives and their pros and cons were considered, as summarized in Table 6-6.

Table 6-6. Surface Water Management Fee Chargeable Area Policy Alternatives and Pros/Cons

Policy Alternative	Pros	Cons
Alternative 1: Status quo: maintain existing surface water management fees based on impervious surface Chargeable area will be based on the current definition of impervious surface	No SMC amendment required	• Possible revenue loss for development that reduces impervious surfaces through the use of permeable pavements or other permeable surface treatments • Potentially cause confusion among ratepayers with the terms "hard surface" and "impervious surface" used by Ecology
Alternative 2: Use hard surfaces for surface water management fees Replace the term "impervious surface" with "hard surface" for purposes of calculating surface water management fees in SMC 3.01.400	Ensures a consistent revenue stream as hard surfaces replace impervious surfaces and eliminates confusion among ratepayers with Ecology's use of terms "hard surface" and "impervious surface"	• Requires an amendment to SMC 3.01.400 • Requires developing and maintaining an inventory and tracking process for managing the changes in hard surfaces

The City Council agreed with staff's recommendation for Alternative 2: Use Hard Surfaces for Surface Water Management Fees, which would change the chargeable area for surface water fees to be based on hard surface. The chargeable area was updated in the surface water management rate table (SMC 3.01.400) when the City Council approved the 2018 budget.

Updating the surface water management fee definition will help meet LOS 2, Equitable Service, in Table 2-1 by ensuring a consistent revenue stream as hard surfaces replace impervious surfaces, and by reducing confusion among ratepayers related to inconsistent use of Ecology terminology.

6.3.4 Private Facility Inspection and Maintenance Program

The Phase II Permit requires annual inspections and appropriate maintenance of all permanent stormwater BMPs/facilities that were constructed on private properties since 2007 and discharge to the MS4. The Phase II Permit assigns responsibility for the enforcement of proper maintenance activity to the City.

During the investigation of Utility O&M programs, Utility staff identified the need to change the Private Facility Inspection and Maintenance Program because of changes in rate credits and an anticipated increase in private facilities. Staff made the recommendation to transition the program from relying only on enforcement code for maintenance to include a private facility owner self-certification program similar to what is implemented by King County. The City Council requested additional information on the recommended approach before approval.

Two policy alternatives and their pros and cons were considered, as described in Table 6-7.

Table 6-7. Private Facility Inspection and Maintenance Enforcement Policy Alternatives and Pros/Cons

Policy Alternative	Pros	Cons
Alternative 1: Status quo: use current inspection, notification, and enforcement mechanisms Continue to use SMC authority to oversee required Utility private drainage system inspection and enforcement activities	• Does not require creation of new municipal code for surface water maintenance enforcement • Generally accepted municipal business practice	Process may take longer than the allowed time for repairs as specified by the Phase II Permit and may result in an NPDES violation
Alternative 2: Establish a self-certification process Create a program for new systems and establish a process for property owners to conduct inspect and self-certify that the stormwater system is maintained and operating correctly	• Anticipated to result in less staff time for inspection, verifying maintenance actions, and code enforcement • Provides public education opportunities	• Requires new code to establish self-certification • Relies on property owners and their agents to assess proper functioning of stormwater systems • Requires incentive for existing systems to join • Could increase risk of permit noncompliance and/or third-party lawsuits

The City Council directed Utility staff to provide more information on Alternative 2: Establish a Self-Certification Process including more details on the participation and cost implications, and to report back to the City Council with findings. To gather more information on the recommended approach, Staff will embark on a pilot program offering the private properties the option to participate in the self-certification program with the use of qualified personnel as defined in the Phase II Permit. The Utility estimated an operating budget for the Utility staff to develop the self-certification process over the next 6 years. Details on the Private Facility Inspection and Maintenance Program are presented in Section 7.1.9.

The addition of a self-certification process to the existing private facility inspection and maintenance program promotes costs savings by reducing Utility staff time for inspections (see LOS 3, Equitable Service, in Table 2-1).

Section 7

Utility Programs

Utility programs are coordinated and planned activities with goals designed to help the Utility meet levels of service and address regulatory requirements. Programs involve various work activities including Utility administration, system operation and maintenance, and public involvement and outreach. Programs entail long-term or ongoing work activities that are supported by Utility staff and funded through operations budget. Short-term work activities that are funded through the City's CIP are generally referred to as projects, rather than programs[6]. Project recommendations are discussed in later sections.

The Utility currently runs 18 programs falling into one of three categories:

- **Operational programs** help the Utility meet regulatory requirements, collect and analyze water quality data and asset information, perform routine inspections, and support overall Utility staff and resource management
- **Maintenance programs** include preventive and corrective maintenance including cleaning, repair, rehabilitation, and replacement of damaged or deteriorated Utility assets
- **Public involvement programs** educate and engage Shoreline's residents and ratepayers in surface water management and improving surface water quality

One of the major goals for the development of this Master Plan was to perform a thorough review of current programs and operational activities and their benefit to levels of service (see Section 2), needs identified in the basin plans, anticipated growth, and evolving regulations, and to develop detailed recommendations for improvements. The Utility evaluated the status of each existing program (as of 2017) and compared the program outcomes with level-of-service targets and upcoming regulatory requirements. Each of the evaluations resulted in one of three possible outcomes: (1) maintain the existing program, (2) enhance the existing program, or (3) develop a new program to address potential needs. Nine of the 18 existing programs were identified for enhancements, while 9 new programs were considered for recommendation.

Table 7-1 lists the 27 programs considered for recommendation and implementation. Prior to recommendation, programs were prioritized and, based on this prioritization, were grouped according to three alternative management strategies (see Section 2 for level-of-service discussion). Ultimately one management strategy is recommended for implementation in the Master Plan. As a result, not all programs are recommended for implementation in the Master Plan. Additional details for all considered programs, including staffing needs and estimated implementation costs, are provided in Appendix D-1. Prioritization and selection of programs for implementation is described in Section 8.

[6] Some ongoing programs, such as Pipe Repair and Replacement, are funded as capital improvements; but generally, programs are funded through operations and projects are funded through the CIP.

Table 7-1. Summary of Considered [a] Improvements for Utility Programs			
Program Category	Existing Programs		New Programs
	Maintain	Enhance	
Operation	• Administration and Management • Floodplain Management	• NPDES Compliance • Drainage Assessment • Water Quality Monitoring • Asset Management • System Inspection • Condition Assessment • Private Facility Inspection and Maintenance	• Stormwater Permit
Maintenance	• Street Sweeping • System Maintenance • Small Repairs	• Stormwater Pipe Repair and Replacement [b] • Surface Water Small Projects [b]	• Catch Basin Repair and Replacement • LID Maintenance • Pump Station Maintenance • Utility Crossing Removal • Improper Connection Repair
Public Involvement	• Soak It Up Rebate • Adopt-a-Drain • Local Source Control • Water Quality Public Outreach		• Business Inspection Source Control • Thornton Creek Stewardship • Aquatic Habitat Improvement

a. *Programs listed here were considered for inclusion in management strategies. Ultimately, not all considered programs were recommended for implementation; see Section 8 for the list of recommended programs and Section 10 for the selected management strategy.*

b. *These programs are funded as R&R capital projects in the City's annual budget.*

7.1 Operational Programs

Operational programs cover a broad range of work activities that administer surface water management practices, comply with regulatory requirements, sustainably manage assets, and support overall Utility staff and resource management.

7.1.1 Administration and Management (Existing)

Administration and management activities include workload management, budgeting, and policy development by Utility staff. These efforts also require coordination with, and support from, other City departments and their divisions, including the following:

- **Administrative services:** budget and financial administration, administrative support, accounting, purchasing, and GIS
- **Planning and Community Development:** development review and inspection, code enforcement
- **Engineering Division of Public Works Department:** engineering services
- **Operations and Streets Division of Public Works Department:** vehicle and equipment maintenance

Administration and management of the Utility is recommended to continue with the same basic responsibilities and administrative practices, though some activities may expand to accommodate additional staff and internal resources. This program helps the Utility meet all four levels of service (see levels of service defined in Table 2-1) by providing for the general management of the Utility and administration of the other programs described in this Section.

7.1.2 Floodplain Management (Existing)

The Utility manages the City's participation in FEMA's NFIP. FEMA NFIP regulatory compliance includes implementation of SMC Chapter 134.12, "Floodplain Management," which includes administration of floodplain development permits and review. Enforcing floodplain regulations helps the City meet the minimum requirements for a Community to participate in the NFIP (relates to LOS 4, Regulatory Compliance, see Table 2-1); see Section 5.2.3 for more details on the regulatory requirements for floodplain management and the NFIP. Sound floodplain management also more generally helps the City reduce the potential impacts of flooding events (relates to LOS 1, Surface Water Impacts, in Table 2-1). There are no recommendations for this program. The Utility should continue to work to keep the City in compliance with requirements for participation in the NFIP.

7.1.3 NPDES Compliance (Enhanced)

Public Works is the lead organization responsible for administration and interdepartmental coordination of the Phase II Permit compliance. While all City staff are responsible for response and reporting related to IDDE and spill response, Utility staff perform administrative duties to remain compliant including coordinating Phase II Permit-required training, preparing the annual report, tracking permit requirements, and communicating Phase II Permit needs to other City departments and with Ecology and neighboring jurisdictions (relates to LOS 4, Regulatory Compliance, see Table 2-1). The Utility addresses other NPDES requirements (e.g., public outreach and involvement, pollution prevention with O&M, and water quality monitoring) through other Utility programs described below. The NPDES requirement to control runoff from development is managed through the Department of Planning and Community Development.

The current NPDES Compliance Program is recommended for enhancement to address the anticipated new requirements of the next Phase II Permit, which Ecology plans to issue in 2019. Ecology has indicated that the 2019 Phase II Permit will include a new Business Inspection Source Control Program, updated water quality monitoring and reporting, IDDE tracking and reporting, and new watershed-scale planning. See Section 5.2.1 for more details about the Phase II Permit.

7.1.4 Drainage Assessment (Enhanced)

Utility staff investigate, evaluate, and prioritize drainage issues identified through basin planning, customer service requests, and staff field observations. This work identifies capacity deficiencies, addresses public safety hazards, and reduces risk of erosion and water quality impairment (relates to LOS 1, Surface Water Impacts, see Table 2-1). Prior to 2017, the Utility had an informal Drainage Assessment Program and because of limited resources a backlog of unaddressed drainage complaints has accumulated. Funding secured in 2017 allowed the Utility to begin to address the backlog of about 75 drainage assessment requests. Continued funding is needed to address the approximately 20 new drainage assessment requests that arise in a typical year.

The Drainage Assessment program is recommended for enhancement as an ongoing program to complete drainage assessments to address the backlog and maintain levels of service. As the drainage assessment work is completed and construction-based solutions are identified in an ongoing program, the additional resources will be allocated for the maintenance, repair, and replacement programs such as the Surface Water Small Projects Program; see Section 7.2.5. This enhanced program supports the Utility's Asset Management program, O&M of existing and planned assets, and Utility financial planning (relates to LOS 2, Equitable Service, see Table 2-1).

7.1.5 Water Quality Monitoring (Enhanced)

The Utility conducts a Water Quality Monitoring Program to fulfill several objectives, including the following:

- Support the City's *Vision 2029* goals for conserving and protecting environmental and natural resources
- Beach sampling at Echo Lake and Hidden Lake to protect human health as part of the King County Swimming Beach Monitoring Program
- Lake sampling as a part of the King County Lake Stewardship Program
- Water quality level-of-service goals of the 2011 and 2018 Master Plan

Under this program, staff collect water quality samples from six streams and two lakes within the city. The monitoring, which began in 2002, helps the Utility monitor the condition of the city's surface waters (relates to LOS 1, Surface Water Impacts, see Table 2-1). The results are documented in two water quality assessment summary reports (City 2010; City 2017d). The reports evaluate water quality relative to the applicable State water quality standards (WAC 173-201A). See section 4.3.3 for additional details about the water quality monitoring program and water body assessments.

The monitoring program is managed by full-time Utility staff, but relies on seasonal staff to assist with data collection and evaluation. Seasonal staff turnover rates are higher than permanent staff turnover rates, resulting in greater staff training needs and performance inefficiencies.

This program is recommended for enhancement to add staff resources to improve program efficiencies for sampling, analysis, and reporting.

7.1.6 Asset Management (Enhanced)

The Utility's existing Asset Management Program was established following adoption of the Master Plan in December 2011. Since then, a substantial amount of asset information has become available through condition assessment and basin planning efforts. In 2013, the City implemented Azteca Cityworks (Cityworks), a GIS-integrated CMMS designed to improve asset condition tracking and continued maintenance of City infrastructure. Cityworks uses a geographic-based asset inventory to facilitate the work flow process, enabling the Utility to plan and manage required maintenance more efficiently. Implementation of the Cityworks software platform required a significant reconfiguration of the City's GIS data and additional data capture, inspections, and work orders. All service requests, work orders on assets, and inspections are now recorded in the Cityworks system.

A key objective of the Master Plan work is to advance the asset management program. The Utility performed a formal evaluation on its portion of the citywide asset management program with a Utility Business Management Evaluation (UBME). The UBME helped identify areas of improvement needed to meet the Utility's level of service and to be on par with the management practices of similar-sized utilities. The UBME results and recommended actions to enhance the asset management program are documented in an Asset Management Work Plan (AMWP), which included near- and long-term actions. The AMWP is included in Appendix H.

This program is recommended to enhance the existing asset management program with activities outlined in the AMWP. In addition to the actions outlined in the AMWP, BC and FCS Group developed the following three guidance documents to assist with the enhancement of the asset management program:

- **Asset plan template:** outlines key information to help manage the asset over the asset's life cycle including introduction and overview; description of assets covered by the plan, service

levels, future demand, life-cycle management, and financial considerations; and action plan (see Appendix I)

- **Asset management process and framework:** describes the process and key elements of the asset management framework including Utility goals, levels of service, asset knowledge, people and processes, asset decisions, and risk mitigation (see Appendix J)
- ***Condition Assessment Management Plan* (CAMP):** provides an asset management-based condition assessment approach and condition assessment results for eight of the Utility's currently inspected infrastructure assets (see Appendix C)

The enhanced Asset Management program will help continue the cost-effective planning and management of Utility assets, sound financial planning, and efficient operations (relates to LOS 2, Equitable Service, see Table 2-1).

7.1.7 System Inspection (Enhanced)

The Utility inspection program provides information for cleaning, repairs, and condition assessment, and is the backbone program for City surface water asset maintenance and management. The Utility inspects stormwater assets and facilities through three inspection programs: system inspection, private (commercial) facility inspection, and pipe inspections. More details about all inspection programs are available in the City's *Surface Water O&M Manual* included in Appendix G.

The system inspection program consists of the following types of inspections:

- ROW inspections include catch basins, ditches, and ditch-adjacent pipe (driveway culverts) networks that transfer surface water from ROW pavement. Each catch basin is inspected on a 2-year cycle while each ditch is inspected every third year.
- Regional facility inspections involve visual checks of stormwater facilities, site access, and safety features associated with a regional site owned and operated by the City. Inspections are conducted annually.
- Residential facility inspections involve visual checks of stormwater infrastructure on a biennial cycle. Half of the facilities are inspected in even years and the other half are inspected in odd years.
- Park facility inspections involve annual inspection of stormwater quality and flow control facilities in City-owned parks. Parks that have water quality and/or flow control infrastructures are inspected annually.
- City facility inspections involve the inspection of stormwater facilities on City-owned and City-maintained properties outside of parks.

Enhancements recommended for the System Inspection Program are a result of 2013 Phase II Permit requirements. To remain compliant, the Utility is required to increase catch basin inspection frequency, from at least once by August 1, 2017, to once every 2 years starting in 2018. Also, as redevelopment occurs within the City ROW, the City will own and operate more water quality BMPs. To meet the increasing needs of catch basin inspection and maintenance, the Utility should allocate additional staffing, material, and equipment resources for the System Inspection Program.

The program reduces incidents of flooding, erosion, and water quality impairment through systematic and scheduled inspections (relates to LOS 1, Surface Water Impacts, see Table 2-1). The program helps meet LOS 2, Equitable Service, by supporting the Asset Management program's goal of cost-effective planning and management of Utility assets, sound financial planning, and efficient operations. The program addresses O&M regulatory requirements of the Phase II Permit, which helps to meet LOS 4, Regulatory Compliance.

7.1.8 Condition Assessment (Enhanced)

Condition assessment provides a standardized inspection and scoring system to evaluate assets for repair, replacement, or re-inspection. The Condition Assessment program provides information necessary for risk-based asset management decision making. The program also identifies conditions that, if left unaddressed, may contribute to flooding, erosion, or water quality impairment (relates to LOS 1, Surface Water Impacts, see Table 2-1). The program helps meet LOS 2, Equitable Service, by supporting the goals of the Asset Management program including system preservation, O&M activities, and efficient financial planning.

Pipe condition assessment includes the inspection of pipes through closed-circuit television (CCTV) and handheld recording devices on a basin-wide scale. The general inspection cycle for stormwater is on a 20-year frequency, which is within the range of industry best management practices. Pipe inspections and condition assessments were performed between 2012 and 2016 as part of basin plan development. About two-thirds of the pipes have been inspected within the basin planning areas with a completed condition assessment. The remaining one-third of those pipes either have an incomplete inspection or were not inspected because of debris or structural blockage. Pipes with a condition assessment score were evaluated and prioritized in the SWPRRP (relates to Section 7.2.4).

In 2017, a condition assessment project began in the Thornton Creek basin. This project will complete the system-wide evaluations recommended in the 2011 Master Plan. Section 4.1 provides details about the pipe condition assessment evaluation for pipes inspected prior to 2017.

The enhancement for the Condition Assessment program is that it become an annually funded program. An ongoing program will help the Utility meet the recommended 20-year inspection frequency and complete the inspection of pipes whose inspections were incomplete or that were not inspected because of debris or blockages.

7.1.9 Private Facility Inspection and Maintenance (Enhanced)

The NPDES Permit requires annual inspections and maintenance, if needed, of all permanent stormwater BMPs/facilities constructed on private properties. The permit further assigns responsibility for enforcement of proper maintenance activity to the City. Privately owned stormwater assets are maintained by the owner. Until January 1, 2017, the Utility offered a Surface Water Management fee discount for any parcel that maintained its stormwater facilities.

With the anticipated growth in the City, the majority of new development and redevelopment projects will have to construct permanent stormwater BMPs/facilities. Over time, virtually all properties will have the potential to come under the inspection requirement. In July 2015, the City's planning-level redevelopment rate was estimated at 1.5 to 2.5 percent, suggesting that within a 50-year planning horizon, virtually all properties within the City of Shoreline could require annual drainage inspections.

The anticipated increase in the number of inspections and associated enforcement actions will be supported by the enhanced private inspection and maintenance enforcement program. This program is recommended to hold property owners accountable for their storm drainage system. Staff also recommends creating a process in which property owners conduct inspections and "self-certify" that the surface water system is maintained and operating correctly. The self-certification process would limit inspections to spot checks, properties where inspection is required, and those facilities that have repeatedly failed inspections.

The program provides the Utility opportunities for public outreach helping to meet the goals of LOS 3, Communication and Outreach (see Table 2-1). By documenting the inspection and maintenance of private facilities, the program helps meet the goals of LOS 4, Regulatory Compliance.

7.1.10 Stormwater Permit (New)

The City Council approved a Utility staff recommendation to develop a City stormwater permit for private development (see Section 6.3.2 for issue discussion with City Council). The new City stormwater permit will provide a mechanism for Utility staff to review proposed stormwater infrastructure designs, collect hard surface area information, manage and record maintenance covenants, update GIS, and inspect surface water infrastructure (relates to LOS 2, Equitable Service, see Table 2-1). In conjunction with the EDM and existing development permits, the stormwater permit will serve as the City's standard framework for regulating and tracking onsite stormwater systems and connections to the MS4.

Like other City development-related permits, the stormwater permit may gather surface water management chargeable area, defined as impervious surface until 2017 and now defined as hard surface. Hard surface areas are used to estimate sizing for surface water infrastructure and are also used to develop surface water management fees according to SMC 3.01.400. A 2017 evaluation of the existing Utility billing, permit review and tracking process revealed gaps in the City's methods for updating and tracking the surface water management chargeable area (see Appendix K for Utility billing evaluation). The evaluation recommended that chargeable area be collected on one permit and that the permit differentiate hard surface data (used for Utility billing) and hardscape data (used for land use code).

7.2 Maintenance Programs

Maintenance programs are routine maintenance activities including cleaning, repair, rehabilitation, and replacement of Utility assets.

7.2.1 Street Sweeping (Existing)

The Street Sweeping program, which is performed by Street Operations staff, includes sweeping arterial and residential streets, bike lanes, and some municipally owned parking lots to reduce the pollutant load from sediments and debris from entering the MS4 as roadway runoff. Pollutant removal helps the Utility maintain O&M-related compliance with the Phase II Permit (relates to LOS 4, Regulatory Compliance, see Table 2-1). Routine street sweeping is performed year-round with higher traffic volume streets being swept as often as monthly and lower volume streets and municipal parking lots swept twice per year. The program also provides seasonal and emergency sweeping services. In addition to providing water quality benefits, street sweeping maintains public safety and reduces airborne pollutants by removing fine particulate matter (relates to LOS 1, Surface Water Impacts, see Table 2-1). The Public Works Department prepared the *Street Sweeping Plan* to communicate to its citizens about the means, methods, frequency, and schedule of the program (City 2016). The Utility should continue to maintain city streets according to the *Street Sweeping Plan*.

7.2.2 System Maintenance (Existing)

System maintenance includes cleaning and minor repair of surface water assets and facilities. LID vegetation maintenance, catch basin cleaning, ditch maintenance, and other stormwater system maintenance are performed by Public Works operation staff and private contractors. Private contractors provide seasonal workforce resources and specialized equipment such as vactor trucks and high-pressure cleaners for collecting and removing sediment from catch basins, jetting and rodding equipment for cleaning and clearing pipe, and truck-mounted augers for ditch cleaning.

The City currently uses goats to help control blackberries and other weedy plants at selected surface water facilities. A goat herder is on site full-time for larger sites and part-time in fully fenced smaller areas.

The Utility should maintain its current efforts for the system maintenance program except where noted below for enhanced and new maintenance programs.

The System Maintenance program addresses problems in system capacity due to the accumulation of sediment and debris and also eliminates potential water quality problems (relates to LOS 1, Surface Water Impacts, see Table 2-1). The program also helps LOS 4, Regulatory Compliance, by addressing the O&M regulatory requirements of the NPDES Permit.

7.2.3 Small Repairs (Existing)

The Small Repairs program addresses minor repairs for assets not included in other repair programs, small projects, or CIP projects. This includes berms, road or shoulder work to resolve a drainage issue, and other small infrastructure repairs or installations typically made by O&M staff or private contractors on an as-needed basis. The Utility should maintain its current efforts for small repairs. The Small Repairs program helps meet LOS 1, Surface Water Impacts (see Table 2-1) by addressing system deficiencies and reducing potential public safety hazards and impairment of water quality and aquatic habitat. The program also helps meet LOS 2, Regulatory Compliance, by supporting the goals of the Asset Management Program.

7.2.4 Stormwater Pipe Repair and Replacement Program (Enhanced)

The City owns and maintains approximately 134 miles of stormwater pipes, and most of those pipes have exceeded their typical service lifespans. Pipes are evaluated in the Condition Assessment Program (Section 7.1.8) and prioritized for repair or replacement in the SWPRRP. The preferred repair method is to install a robust pipe liner (to date the City has used primarily cured-in-place pipe [CIPP] lining for repairs). Open-cut trench pipe replacement is used for pipes that are too deteriorated to repair with CIPP lining. These methods provide optimal value by extending the lifespan of the City's existing stormwater infrastructure.

The existing SWPRRP began following implementation of the system-wide Condition Assessment program. Because of limited resources, the program has resulted in the repair or replacement of only a small percentage of the failing pipes. At the current rate, completing the identified pipe repairs and replacements would take more than 20 years. An expansion of the program to finish repairs within a 20-year period is recommended to align with the City's 20-year inspection cycle. The recommended enhanced SWPRRP will proactively protect public safety, reduce flooding, decrease maintenance demands, and protect critical infrastructure and other public and private property (relates to LOS 1, Surface Water Impacts, and LOS 2, Equitable Service, see Table 2-1).

7.2.5 Surface Water Small Projects Program (Enhanced)

The Surface Water Small Projects (Small Projects) program implements small projects to address localized drainage problems and other small-scale surface-water-related issues. Drainage issues are generally identified through either the City's customer request system or City staff field observations and are evaluated in the Drainage Assessment Program (see Section 7.1.4).

With more surface water small project needs evaluated and identified in the enhanced Drainage Assessment program, the need for additional small drainage construction projects is estimated to double over the 6-year planning period. The Utility should allocate additional resources to the Small Projects program to construct the additional projects and help meet updated levels of service.

The enhanced Small Projects program helps meet LOS 1, Surface Water Impacts, by addressing system deficiencies and reducing potential public safety hazards. The program helps meet LOS 2, Equitable Service, directly by supporting the goals of the Asset Management program including cost-effective planning and management.

7.2.6 Catch Basin Repair and Replacement (New)

The Phase II Permit requires the Utility to perform maintenance on catch basins that do not meet the maintenance standard. The catch basins must be maintained within 6 months of inspection (relates to LOS 4, Regulatory Compliance, see Table 2-1). During the last 3 years, the number of catch basins needing repair or replacement was greater than the Utility resources available to perform the work. In addition, the number of catch basins requiring R&R is anticipated to increase as the Utility increases the frequency of catch basin inspections to remain compliant with the 2013 Phase II Permit O&M requirements. The recommended new catch basin R&R program will help the Utility remain in compliance with the Phase II Permit maintenance requirement.

7.2.7 Low Impact Development Maintenance (New)

The Utility has historically inspected its LID facilities and performed only vegetation maintenance for bioretention and swales. Other maintenance activities such as structural repair, soil replacement, and permeable pavement cleaning have been deferred until required by the Phase II Permit. To remain complaint with the Phase II Permit in 2018, the Utility should maintain all surface water assets to an established maintenance standard as based on inspection results (relates to LOS 4, Regulatory Compliance, see Table 2-1). The recommended LID maintenance program provides the resources necessary to perform cleaning, structural repair, and replacement efforts to achieve the facilities' adopted maintenance standard.

7.2.8 Pump Station Maintenance (New)

The Utility performs nearly weekly checks on the Utility's eight pump stations during the rainy season as part of the Hot Spot inspection program, and monthly in the dry summer months. While the spot inspections confirm that the pump stations are operating during the time of inspection, they do not provide routine or preventive maintenance or provide an overall condition assessment. This recommended program would provide routine maintenance of pump station equipment (e.g., hydraulic, mechanical, and electrical), structure, and facility access.

The new Pump Station Maintenance program will identify potential capacity deficiencies, which will help meet LOS 1, Surface Water Impacts (see Table 2-1) and help meet the cost efficiency goals of the Asset Management program LOS 2, Equitable Service.

7.2.9 Utility Crossing Removal (New)

The pipe inspection and condition assessment effort associated with the basin planning work revealed numerous instances throughout the city where other utility lines and unidentified conduits crossed storm drain pipes. Utility crossings can damage storm drain pipes, reduce flow capacity of pipes, cause obstructions in water flow from debris blockages, and make pipe inspection difficult. This recommended program involves City staff time to coordinate with other utilities to remove their lines and repair the storm drains that have been damaged because of improper crossings. The program would also include inspecting the removal work when complete.

The new Utility Crossing Removal program will identify potential capacity deficiencies caused by utility crossings, which will help meet LOS 1, Surface Water Impacts (see Table 2-1). The program will also help meet the cost efficiency goals of the Asset Management program LOS 2, Equitable Service.

7.2.10 Improper Connection Repair (New)

The pipe inspection and condition assessment effort associated with the Basin Planning work revealed numerous instances throughout the city where storm drains are improperly connected. Improperly installed storm drain connections can lead to separated pipe joints, leaks, erosion, and possibly damage to nearby structures. This recommended program involves fixing non-standard or improperly installed stormwater drains by adding a properly designed structure such as a catch basin or prefabricated tee to connect pipes. The recommended installations represented in this program would be those not included in other CIP projects.

The new Utility Connection Repair program addresses potential capacity deficiencies caused by improperly installed storm drain connections. This program helps meet LOS 1, Surface Water Impacts (see Table 2-1) by removing these deficiencies.

7.3 Public Involvement Programs

The Utility's Public Involvement programs are intended to educate, involve, and engage Shoreline ratepayers regarding surface water issues such as water quality, flood reduction, and expected levels of service. Current and recommended programs are described below.

7.3.1 Soak It Up Low Impact Development Rebate (Existing)

The Soak It Up rebate program helps property owners manage rainwater on their property with rain gardens or native vegetation conservation landscaping. Incentives are provided to qualified applicants as rebates. The program supports the Utility's Phase II Permit public outreach and education requirements. The Utility should continue promoting and growing participation in this rebate program.

The Soak It Up Low Impact Development Rebate program provides opportunities, education, and outreach for LID principles. This program helps meet the LOS 3, Communication and Outreach, and LOS 4, Regulatory Compliance (see Table 2-1).

7.3.2 Adopt-A-Drain (Existing)

This storm drain monitoring program increases awareness of localized flooding, efforts needed to protect fish and habitat from pollutants, and maintenance needs of the City's storm drains. The Adopt-A-Drain program volunteer participants keep drains clear of debris and monitor drains for potential contaminants such as paint, motor oil, or soapy water. Through program participation and promotion, information is also provided to encourage proper disposal of household hazardous waste to avoid surface water contamination. The Utility should continue promoting and growing participation in this volunteer program.

The Adopt-A-Drain program promotes public participation in activities that can reduce capacity deficiencies and erosion problems with low-cost volunteer efforts. The program helps meet LOS 1, Surface Water Impacts, and LOS 3, Communication and Outreach in Table 2-1.

7.3.3 Local Source Control (Existing)

The Local Source Control/Small Business Pollution Prevention program helps business owners develop practical methods to reduce or eliminate non-stormwater pollutant discharges through proper material storage, hazardous waste disposal, spill plans, and other BMPs. Upon completion of a spill plan, a business is eligible for a free spill kit. Training for staff is also provided through this program. This program supports NPDES regulatory compliance and includes targeted inspection and outreach to businesses (relates to LOS 3, Communication and Outreach, and LOS 4, Regulatory

Compliance in Table 2-1). The Utility should continue participating in this program and, where possible, combine efforts with the proposed Business Inspection Source Control Program.

7.3.4 Water Quality Public Outreach (Existing)

This program supports Phase II Permit compliance for community outreach and includes participation in Earth Day events, community and neighborhood events, and a car wash event program. The program also promotes water quality campaigns provided by the Utility and outside water quality organizations. The programs include materials and Web pages reporting spills, car washing, auto leaks, pet waste, and yard care. The Utility should continue performing outreach activities that promote public education, outreach, involvement, and participation requirements of the Phase II Permit (relates to LOS 3, Communication and Outreach, and LOS 4, Regulatory Compliance in Table 2-1).

7.3.5 Business Inspection Source Control (New)

This new program is anticipated to be a separate but complementary program to the Local Source Control program. The program, an anticipated requirement of the 2019 Phase II Permit, will require the Utility to inspect 20 percent of businesses annually to detect potential pollution sources and institute corrective actions as needed. The goal of the program is to reduce illicit discharges and build on existing public outreach and education efforts (relates to LOS 3, Communication and Outreach, and LOS 4, Regulatory Compliance, see Table 2-1). The recommended program is similar to what is currently required of Phase I Permit holders (e.g., City of Seattle, King County) and will require updates to the SMC.

7.3.6 Thornton Creek Stewardship (New)

Thornton Creek is the city's most degraded waterway and could benefit from a watershed-based public involvement and stewardship program. The recommended program would consist of a series of targeted behaviors to improve water quality such as a watershed-specific pet waste program. Through this type of program, City staff would conduct outreach on pet waste and provide an incentive for pet owners to change behavior. The program would survey constituents periodically to track behavior change. Other program elements might include habitat education and volunteer restoration activities.

The Thornton Creek Stewardship program will help meet LOS 1, Surface Water Impacts, and LOS 3, Communication and Outreach (see Table 2-1) by public education and outreach for the water quality needs of Thornton Creek.

7.3.7 Aquatic Habitat Improvement (New)

Riparian zones play a key role in combating adverse water quality impacts associated with nonpoint source pollution and offset the need for costly stormwater and flood protection facilities. This recommended program would conduct vegetation surveys and streamside plantings to improve overall habitat near freshwater systems. Other program activities include removing invasive plant species and replacing plantings with native species to improve functionality of the stream.

The Aquatic Habitat Improvement program will help meet LOS 1, Surface Water Impacts, and LOS 3, Communication and Outreach (see Table 2-1) by providing opportunities for public involvement, outreach, and education with projects that protect or restore aquatic habitat of city water bodies.

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Section 8

Management Strategies

As described in previous sections, recommendations for improving the Utility include new and enhanced programs and capital improvement projects. Programs and projects have considerable cost implications and must be prioritized for implementation over time and to ensure adequate funding. This section summarizes the recommended improvements and describes a detailed prioritization process that is based on meeting levels of service and complying with regulatory requirements. The results of the prioritization, in combination with estimated costs, were used to select and assemble projects and programs into solution sets, or *management strategies*. A financial analysis of each of the management strategies is presented in Section 9.

8.1 Prioritization Process

One of the key objectives of this Master Plan is to prioritize recommended programs and capital improvement projects, and to develop comprehensive management strategies based on those priorities. A systematic process was developed, including a spreadsheet tool that applies a consistent set of criteria and procedures for scoring. Figure 8-1 illustrates the prioritization and management strategy development process.

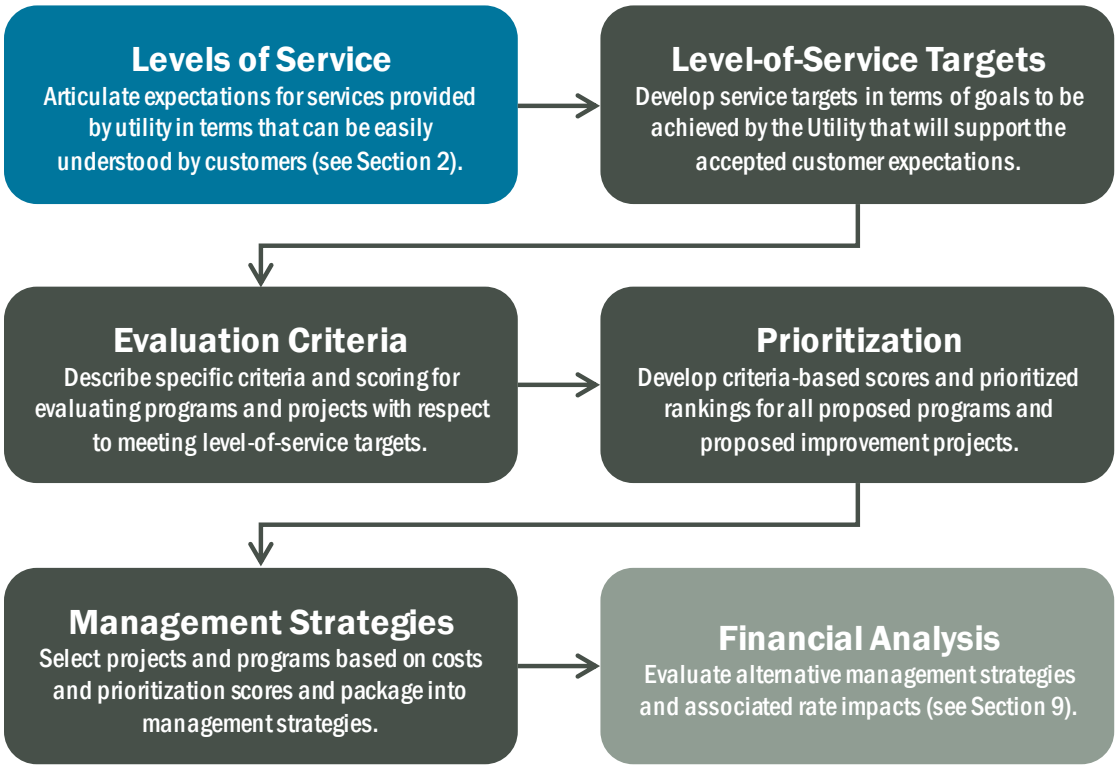

Figure 8-1. Prioritization process for developing management strategies

Levels of service (see Section 2) and associated level-of-service targets are the basis for articulating customer expectations for the services provided by the Utility. Level-of-service targets were refined to reflect key goals relating to flooding and erosion, water quality, aquatic habitat, responsible stewardship of assets, customer service and communications, and regulatory compliance (see Table 8-1). These targets were then carried forward to support project and program prioritization, as well as monitoring/tracking of operational activities.

Table 8-1. Level-of-Service Targets for Program and Project Evaluation

Level of Service	Level-of-Service Targets
1. Manage public health, safety, and environmental risks from impaired water quality, flooding, and failed infrastructure	A. Flooding and Erosion: No verifiable health and safety issues or environmental damage caused by flooding or erosion outside of an accepted risk tolerance B. Water Quality: Improve the quality of stormwater discharged to impaired receiving waters to mitigate environmental damage C. Habitat: Protect aquatic habitat by reducing impacts to ecosystem health and biotic diversity in lakes, streams, and wetlands
2. Provide consistent, equitable standards of service to the citizens of Shoreline at a reasonable cost, within rates and budget	D. Responsible Stewardship: Provide equitable services through cost-effective planning and management of utility assets, sound fiscal planning, and efficient operations
3. Engage in transparent communication through public education and outreach	E. Customer Service and Communications: Provide effective communication, public education, and outreach
4. Comply with regulatory requirements for the urban drainage system	F. Regulatory Compliance: Meet state and federal regulatory requirements for stormwater utilities

Level-of-service targets were further refined into specific evaluation criteria; these differed slightly between programs and projects. Table 8-2 provides an example of the program and project evaluation criteria for Level of Service Target “A. Flooding and Erosion” from above.

Table 8-2. Evaluation Criteria for Flooding and Erosion

Program Evaluation Criteria	Project Evaluation Criteria	
	Measure	Question
A.1 System Capacity Program addresses capacity deficiencies	The capacity of the drainage system to capture, convey, store, and discharge (or infiltrate) runoff should be sufficient to prevent flooding more often than the standard risk tolerance for the affected properties.	a. Does the project improve the capacity of the drainage system? b. What is the scale of the problem addressed by the improvement?
A.2 Hazard Reduction Program addresses an apparent public safety hazard	Urban drainage conditions that cause observed and recurring public safety hazards should be eliminated.	Does the project address an apparent public safety hazard such as severe flooding of inhabited structures or flooding that affects critical facilities?
A.3 Erosion Control Program addresses erosion problems related to public stormwater conveyance	Water conveyed through public infrastructure and/or within the public ROW (i.e., ditches and streams) should not cause erosion that threatens property or infrastructure.	Does the project address an erosion problem due to public stormwater conveyance?

As programs and projects are scored, each criterion receives a score of 0, 1, or 2. Guidance on scoring is provided for each evaluation criterion; in general, a 0 is assigned when there is not relevant benefit, a 1 when there is moderate relevant benefit, and a 2 when there is substantial relevant benefit. The scores are then multiplied by a pre-specified weighting factor. The weighted

scores are then summed to obtain a single prioritization score for each program and project. Details on the evaluation criteria, scores, and weighting factors are provided in Appendix D-2.

After scoring was completed, the programs and projects were ranked from highest to lowest by their total scores and tabulated with other key information such as estimated cost, type, location, and the primary issue addressed (described below). This information was used to select programs and projects and align them with defined management strategies (see Section 8.2).

8.1.1 Program Prioritization and Cost Estimates

As described in Section 7, a total of 27 programs were considered for addressing current and future needs of the Utility, nine of which are a continuation of existing programs, nine are enhanced programs (existing programs with added enhancements), and nine are new programs.

Program costs were developed for all enhanced and new programs. For enhanced programs, the cost estimate consisted of costs only for the enhanced activities within the program. For new programs, costs were based on expenses of similar activities or programs at the Utility. In cases where a similar program did not exist, Utility staff referenced programs from other agency programs or developed estimates based on experience. Costs were also developed for new infrastructure per management strategy to provide anticipated planning-level costs for O&M in the 6-year planning period. Key elements for program costs included Utility staff labor, professional contracts, equipment, and materials. Details on these elements are as follows:

- Utility staff cost and FTE estimates:
  - Staff availability (hr/yr/FTE): 1,768
  - Percent of total program FTE for management, supervision, and administration: 15 percent
  - Program/project management: 1 hr/$1,000 contract
  - Staff loaded rate: $80/hr
- Professional services contracts:
  - Contractor rate: $130/hr
  - Program study: $30,000–$50,000
  - Maintenance work: Varies—based on existing contracts and program
- Equipment:
  - Estimates from Ecology documents and previous studies
  - Included in professional service contracts
- Materials:
  - Estimates from existing operation budget
  - Estimates from professional service contracts and project costs estimates

Table 8-3 lists the 27 programs, general program categories, prioritization scores, and capital cost estimates.

Table 8-3. Program Prioritization Scoring and Cost Summary			
Program	Category	Prioritization Score [c]	Estimated Annual Program Cost [d]
System Inspection (Enhanced)	Operation	1,280	$47,021
Business Inspection Source Control (New)	Public involvement	1,020	$86,780
Street Sweeping (Existing)	Maintenance	975	-[a]
Water Quality Public Outreach (Existing)	Public involvement	950	-[a]
Adopt-a-Drain (Existing)	Public involvement	855	-[a]
System Maintenance (Existing)	Maintenance	825	-[a]
Soak-It-Up Rebate (Existing)	Public involvement	815	-[a]
Local Source Control (Existing)	Public involvement	785	-[a]
Administration and Management (Existing)	Operation	740	-[a]
Catch Basin Repair and Replacement (New)	Maintenance	720	$354,100
Private Facility Inspection/Maintenance (Enhanced)	Operation	580	$62,192
NPDES Compliance (Enhanced)	Operation	560	$32,480
Stormwater Permit (New)	Operation	555	$47,840
Small Repairs (Existing)	Maintenance	525	-[a]
LID Maintenance (New)	Maintenance	525	$53,732
Condition Assessment (Enhanced)	Operation	480	$160,340
SW Pipe Repair and Replacement (Enhanced)	Maintenance	480	$953,600[b]
Surface Water Small Projects (Enhanced)	Maintenance	480	$500,000[b]
Drainage Assessment (Enhanced)	Operation	460	$175,640
Floodplain Management (Existing)	Operation	445	-[a]
Asset Management (Enhanced)	Operation	400	$69,200
Water Quality Monitoring (Enhanced)	Operation	325	$85,470
Utility Crossing Removal (New)	Maintenance	320	$18,400
Pump Station Maintenance (New)	Maintenance	260	$63,600
Improper Connection Repair (New)	Maintenance	220	$60,520
Thornton Creek Stewardship (New)	Public involvement	170	$19,900
Aquatic Habitat Improvement (New)	Public involvement	155	$54,600

a. Costs for existing programs were not estimated; assumed to be included within existing operation costs.

b. Costs of pipe replacement and small projects can be scaled depending on the amount of work to be accomplished each year.

c. Maximum score 1,480.

d. 2017 dollars.

8.1.2 Project Prioritization and Cost Estimates

Since the completion of the basin plans, the Utility has compiled 116 recommended projects with a combined estimated cost of $50 million. One of the tasks of the Master Plan was to assess these projects within the context of the levels of service and consistent priorities for the Utility. A series of three workshops were conducted with staff to screen the projects and develop a transparent and repeatable prioritization process. These workshops are summarized below:

- **Workshop 1:** Staff worked to remove projects that have already been completed or are no longer relevant. Projects that can be addressed programmatically were removed from the list or added to an existing or new program. Project entries that address the same problem were combined.
- **Workshop 2:** Staff worked to develop a formal prioritization process based on the City's level of service, as well as regulatory and operational considerations. During this second workshop, Utility staff established a set of evaluation criteria and project scoring definitions. Following the workshop, BC developed a prioritization tool to implement the prioritization process and performed an initial round of project scoring.
- **Workshop 3:** Staff reviewed the results of the initial scoring and discussed ways to improve and refine the results. Following the workshop, staff worked to revise and refine the scoring and developed a final list of projects for consideration.

The project screening, workshops, and prioritization process resulted in a list of the 40 prioritized projects. Appendix D-6 presents the project prioritization evaluation criteria. The Utility prepared project summaries and planning-level cost estimates for each of the projects, which are provided in Appendix D-5. Quantities and line-item costs were based on information contained in the basin plans. Unit costs were updated to 2017 dollars based on the *Engineering News-Record* costs index. Other key cost assumptions include the following:

- An estimating and construction contingency of 50 percent was applied to the construction subtotal
- An additional 13 percent was added to the construction cost to account for contractor overhead, profit, and mobilization
- Washington State sales tax of 10 percent was applied to the construction subtotal
- An additional 15 percent was included to account for City staff time to support the project
- If a predesign feasibility study was needed to refine the design of the project, an addition cost ranging from 1.5 to 10.0 percent of the project cost was applied
- An additional 20 to 45 percent was applied to the subtotal cost of the above items to account for administration, engineering design, and permitting; the amount varied depending on the size and complexity of the project

Preliminary life-cycle cost estimates were also developed for the projects to assist with estimates of increasing O&M costs due to commissioning of new projects. Where possible, the life-cycle cost estimates include renewal and disposal costs, in addition to annual O&M costs. Cost information was obtained from national and local sources. Where available, estimates from the Utility budget breakdown were used exclusively or given higher weighting when combined with other estimates. Assumptions for life-cycle costs that vary per project type include:

- **Design life:** Life in years as specified in Washington State Department Highway Runoff Manual.
- **Operating, maintenance, and renewal activities:** Operating costs are estimated for pump stations as these are the only surface water assets that are operated. The costs include electricity estimates from the 2016 Utility operating budget summary.
- **Maintenance costs:** Based on regional and national estimates with regional estimates weighted more heavily.
- **Renewal costs:** Based on value for renewal costs per facility.
- **Disposal costs:** For many projects, disposal costs were estimated as an excavation cost based on the estimated dimensions of the project.

Table 8-4 lists the 40 projects, general project categories, prioritization scores, and capital cost estimates.

Table 8-4. Project Prioritization Scoring and Cost Summary				
	Project Name	Category[a]	Prioritization Score	Estimated Cost [b]
1	25th Ave. NE Flood Reduction and NE 195th St. Culvert Replacement	FM	620	$8,226,000
2	Master Plan Update	Study	620	$500,000
3	Springdale Ct. NW and Ridgefield Rd. Drainage Improvements	FM	560	$2,058,000
4	10th Ave. NE Stormwater Improvements	FM	515	$1,788,000
5	Heron Creek Culvert Crossing at Springdale Ct. NW	AM	485	$855,000
6	Hidden Lake Dam Removal	FM	480	$2,097,000
7	25th Ave. NE Ditch Improvements between NE 177th St. and 178th St.	EC	480	$2,538,000
8	Pump Station 26	AM	420	$891,000
9	Pump Station 30 Upgrades	AM	420	$339,000
10	6th Ave. NE and NE 200th St. Flood Reduction Project	FM	360	$384,000
11	Pump Station Improvements: Linden, Palatine, Pan Terra, 25, Ronald Bog, Serpentine	AM	360	$732,000
12	NE 148th St. Infiltration Facilities	FM	355	$393,000
13	Boeing Creek Regional Stormwater Facility	EC	315	$9,440,000
14	Stormwater Upgrades NW 196th St.	AM	310	$146,000
15	System Capacity Modeling Study	Study	300	$300,000
16	NW 195th Pl, and Richmond Beach Dr. Flooding	FM	280	$747,000
17	Stabilize NW 16th Pl. Storm Drainage in Reserve M	EC	260	$500,000
18	Storm Creek Erosion Management Study	EC	250	$80,000
19	Flood Reduction in Linden Avenue Neighborhood	FM	245	$803,000
20	Climate Impacts and Resiliency Study	Study	220	$80,000
21	Culvert Improvements near 14849 12th Ave. NE	FM	205	$347,000
22	Convert Stormwater Conveyance Ditches to Bio-infiltration Facilities	WQ	190	$1,178,000
23	Boeing Creek Restoration	AH	180	$7,630,000
24	NW 196th Pl. and 21st Ave. NW Infrastructure Improvements	FM	175	$313,000
25	Echo Lake Biofiltration Swale	WQ	160	$905,000
26	18th Ave. NW and NW 204th St. Drainage System Connection	FM	150	$261,000
27	NW 197th Pl. and 15th Ave. NW Flooding	FM	150	$119,000
28	Lack of System and Ponding on 20th Ave. NW	FM	150	$1,458,000
29	12th Ave. NE Infiltration Pond Retrofits	FM	140	$677,000
30	NE 177th St. Drainage Improvements	FM	130	$152,000
31	26th Ave. NE Flooding and Lack of System Study	FM	110	$64,000
32	NW 180th St. and 8th Ave. NW Ditch with Unknown Connection	FM	80	$68,000
33	NE 192nd St. Ditch Modifications	EC	60	$202,000
34	Bioretention at N 199th St. and Wallingford Ave. NE	WQ	50	$524,000
35	Bioretention at NE 192nd St. and Burke Ave. NE	WQ	50	$320,000
36	Hamlin Creek Daylighting	AH	50	$1,611,000
37	Thornton Creek Coarse-Grained Sediment Improvements	AH	50	$55,000
38	Enhance Ronald Bog Wetland Fringe Areas	AH	50	$2,826,000
39	Westminster Triangle Bioinfiltration Facility	WQ	45	$163,000
40	NW 194th Pl. and 25th Ave. NW Ditch Erosion	EC	40	$150,000

a. Abbreviations for project categories as follows: AH = Aquatic Habitat Enhancement, AM = Asset Management, EC = Erosion Control, FM = Flood Mitigation, Study = non-structural study funded through capital budget, WQ = Water Quality Improvement

b. 2017 dollars.

8.2 Management Strategies

The Utility developed three alternative management strategies to comprise selected programs and projects. The three management strategies are defined as follows:

- **Minimum:** meet the minimum in terms of existing system needs and anticipated new regulatory requirements
- **Proactive:** minimum management strategy plus new high-priority projects and new/enhanced programs that address high-priority, long-term needs
- **Optimum:** proactive management strategy plus additional recommendations to enhance water quality and aquatic habitat

Program selections were based on prioritization scores, contributions toward meeting levels of service, and needs to address regulatory requirements. Selected programs are assumed to start within the next 6 years, while the remaining programs are deferred. Three programs were considered for inclusion in the 6-year Master Plan but were not included. The list of programs within each management strategy is provided in Appendix D-3.

Projects were selected based primarily on prioritization scores, but with review and consideration for capital costs, project status (some projects have already been initiated), equitable distribution of projects throughout the city, and addressing a variety of project categories. Note that project selection is mostly a reflection of near-term versus long-term scheduling. Projects that were selected for each management strategy are to be included in the 6-year CIP, with the remaining projects to be completed over a 20-year planning horizon. In some cases, projects are assumed to be initiated (e.g., planning, design, and permitting phases) during the 6-year planning; however, construction is assumed to be completed in subsequent years. Table 8-5 provides a summary of the number of projects and programs selected for the three management strategies, as well as a qualitative assessment of the benefits to the four levels of service.

The City Council approved the Utility's recommended proactive management strategy. As noted in Table 8-5, the proactive management strategy includes 24 programs and 26 projects. It will provide a medium benefit to surface water impact level of service and high benefits to equitable service, regulatory compliance, communication, and outreach. In addition to meeting the existing system needs and anticipated new regulatory requirements, the proactive management strategy includes new projects and new/enhanced programs that address high-priority, long-term needs.

Table 8-5. Management Strategy Summary with Cost and Levels of Service Impacts

Management Strategy	Number of Projects and Programs	Total Annual Program Cost, $ million [a]	Total 6-Year Project Cost, $ million [b]	Benefit to Levels of Service			
				Surface Water Impacts	Equitable Service	Communication and Outreach	Regulatory Compliance
Minimum	18 programs 6 projects	4.3	6.2	Low	Medium	Medium	Medium
Proactive [c]	24 programs 26 projects	6.0	11.1	Medium	High	High	High
Optimum	27 programs 30 projects	6.7	16.3	High	High	High	High

a. Includes $3.66 million of current program expenses.

b. Total 6-year project costs based on 2017 dollars.

c. City Council approved the Utility's recommended proactive management strategy based on financial analyses (see Section 9).

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Section 9

Financial Analysis

The purpose of this financial plan is to ensure the viability of the City's surface water management program. This section is a summary of a full report prepared by FCS Group (*Financial Analysis for 2018 Master Plan,* November 2017 [Financial Analysis Report]). The full report can be found in Appendix L.

The financial plan considers the historical financial condition, current and identified future financial and policy obligations, O&M needs, and capital projects as identified in this 2018 Master Plan.

The Utility is responsible for funding all program and capital costs. The primary source of funding is a surface water management (SWM) fee to all properties in the city. The fee is billed on King County's property tax statement. Nominal additional revenues are generated through interest earned on reserves and grants. The City controls the fees and the City Council has the authority to adjust the fees as needed to meet financial objectives.

The financial plan assessed total system costs (capital and non-capital) and assessed funding sources (both current and potential additional funding sources). The report used a 6-year planning period.

9.1 Available Capital Funding Assistance and Financing

Long-term capital funding strategies must be defined to ensure that adequate resources are available to fund the CIP identified in the 2018 Master Plan. In addition to City resources (Utility fees), capital needs may be met from outside sources such as grants, low-interest loans, and bond financing. The following summarizes internal and external resources available for meeting funding requirements.

9.1.1 City Resources

Resources appropriate and available to the City for funding capital needs are limited to rate revenues and accumulated cash (through rates and interest) beyond what is required by the minimum reserve requirements set forth in fiscal policies. The City does not maintain specific capital-related charges such as a General Facilities Charge (GFC) that would provide additional capital resources.

9.1.2 Outside Resources

Although the City does not have additional internal funding sources, grant, loan, and bond opportunities are available to fund the CIP identified and some programs. These potential sources are described in the following subsections.

9.1.2.1 Grants and Low-Cost Loans

Historically, federal and state grant programs assist local utilities with funding of capital projects. However, these assistance programs have been mostly eliminated, reduced, or replaced by loan programs. Remaining miscellaneous grant programs are generally lightly funded and heavily subscribed. Major funding sources are described below.

Department of Ecology Grants and Loans. Ecology administers an integrated funding program for projects that improve and protect water quality. The funding cycle generally begins on September 1, and applicants must submit the final application by the first week of November. Capital projects include stormwater control and treatment, nonpoint pollution abatement, and stream restoration activities. The amount of available grant and loan funding varies from year to year based on the State's budget appropriation process and the annual federal budget. The sources of funding for water quality projects include the following:

- Centennial Clean Water Fund State Grant Program
- Clean Water Act Section 319 Federal Grant Program
- Clean Water State Revolving Fund (CWSRF) Loan Program
- Stormwater Financial Assistance Program (SFAP)

The City has received SFAP funding in the past and anticipates further funds from this program in 2018.

King County Flood Reduction Grant. King County's Flood Reduction Grants assist cities with local flood reduction projects. Applications are generally due in May and there is no cap on the award amount. Total available funding for 2017 was slightly over $3 million (King County 2017).

Public Works Trust Fund (PWTF). Cities, counties, special-purpose districts, public utility districts, and quasi-municipal governments are eligible to receive loans from the PWTF. Eligible projects include repair, replacement, and construction of infrastructure for domestic water, sanitary sewer, stormwater, solid waste, road, and bridge projects that improve public health and safety, respond to environmental issues, promote economic development, or upgrade system performance. As of August 2017, the PWTF is not funded through 2019 and is not accepting funding requests.

9.1.2.2 Bond Financing

General Obligation (GO) Bonds. GO bonds are bonds secured by the full faith and credit of the issuing agency. With this high level of commitment, GO bonds have relatively low interest rates and few financial restrictions. However, the authority to issue GO bonds is restricted in terms of the amount and use of the funds, as defined by Washington constitution and statute. The amount of debt that can be issued is linked to assessed valuation.

Revenue Bonds. Revenue bonds are commonly used to fund utility capital improvements. The debt is secured by the revenues of the issuing utility. With this limited commitment, revenue bonds typically bear higher interest rates than GO bonds and also require security conditions related to the maintenance of dedicated reserves (a bond reserve) and financial performance (added bond debt service coverage). The City agrees to satisfy these requirements by resolution as a condition of bond sale.

Revenue bonds can be issued in Washington without a public vote. The current financial forecast anticipates issuing revenue bonds to help fund capital projects starting in 2018.

9.2 Financial Forecast

The financial forecast, or revenue requirement analysis, predicts the amount of annual revenue that is needed from user rates to meet the obligations of the Utility. The analysis incorporates operating revenues, O&M expenses, debt service payments, rate-funded capital needs, and any other identified revenues or expenses related to surface water management.

The objective of the financial forecast is to evaluate the sufficiency of the current level of rates to meet expected expenditures and comply with fiscal policies and financial goals of the City. The results determine the amount of revenue needed in a given year to meet that year's expected financial obligations. For this analysis, two revenue sufficiency tests were developed to reflect the

financial goals and constraints of the City: cash needs and debt coverage. To operate successfully with respect to these goals, both tests of revenue sufficiency must be met.

Cash Flow Test. The cash flow test identifies all known cash requirements for the City in each year of the planning period. The requirements include O&M expenses, debt service payments, depreciation funding or directly funded capital outlays, and additions to specified reserve balances. The total annual cash needs of the City are then compared to projected cash revenues using the current rate structure. If revenue shortfalls are identified, the rate increases necessary to make up the shortfalls are established.

Coverage Test. The coverage test is based on a commitment made by the City when issuing revenue bonds or certain other forms of long-term debt. Debt service coverage is expressed as a multiplier of the annual revenue bond debt service payment. For example, a 1.25 coverage factor means revenue must be sufficient to pay O&M expenses, annual revenue bond debt service, plus an additional 25 percent of that annual revenue bond debt service. Targeting a higher coverage factor can help the City achieve a better credit rating and provide lower interest rates for future debt issues.

In determining the annual revenue requirement, both the cash and coverage sufficiency tests must be met and the test with the greatest deficiency drives the level of needed rate increase in any given year.

9.2.1 Current Financial Structure

The City maintains a fund structure and implements financial policies that target management of a financially viable and fiscally responsible stormwater system. The City's fiscal policies and financial assumptions are described below.

Operating Reserves. Operating reserves ensure that adequate cash working capital will be maintained to deal with cash balance fluctuations.

The City's current policy is to maintain a minimum balance of 20 percent of O&M expenses. This equates to 73 days of operating expenses.

We recommend, and the study reflects, an O&M reserve minimum balance of 120 days. This higher level of reserves is consistent with the risk maintained by the City from receiving surface water fees twice per year coinciding with the payment of property taxes. If the City were to move to a monthly billing system this reserve target could be reduced.

Capital Reserves. A capital contingency reserve is an amount of cash set aside in case the Utility must make an unexpected (emergency) capital investment. The reserve is also available for other unanticipated capital needs such as cost overruns. Capital reserves are usually calculated as a percentage of fixed asset cost with industry BMP set at 1 or 2 percent.

This forecast is based on maintaining a minimum balance of at least 2 percent of assets, or approximately $450,000.

System Reinvestment. System reinvestment funding promotes system integrity through reinvestment in the system. Target system reinvestment funding levels are commonly linked to annual depreciation expense as a measure of the decline in asset value associated with routine use of the system. The specific benchmark used to set system reinvestment funding targets is a policy that balances various objectives including managing rate impacts, keeping long-term costs down, and promoting "generational equity" (i.e., not excessively burdening current customers with paying for facilities that will serve a larger group of customers in the future).

Because of the levels of planned capital improvements over the next 6 years, this study does not separately consider the need for additional, dedicated, system reinvestment.

Capital Funding. The City uses a combination of debt proceeds and rate revenue to fund capital projects. The following funding resources are identified as part of the capital funding strategy:

- Accumulated cash reserves over minimum fund balances
- Annual cash from rates available for rate funded capital
- Interest earned from the available fund balance and other miscellaneous capital resources
- Revenue bond proceeds (as necessary)

Debt Management. This financial analysis models a minimum bonded debt coverage test of 1.5. The financial forecast is developed from 2017 and 2018 budget documents. This forecast is supported by key factors and assumptions used to develop a complete portrayal of the Utility's annual financial obligations. A list of the key revenue and expense factors and assumptions used to develop the baseline financial forecast can be found in the Financial Analysis Report (Section III) in Appendix L.

9.3 Management Matrix Analysis

The City considered three management strategies in the financial analysis: minimum, proactive, and optimum. Each management strategy reflects a different suite of programs and projects that allow the City to provide varying levels of service to its customers. These varying programs and projects impact the forecasted operating and capital costs and thus necessary rate increases.

It is important to note that these three strategies are a change from the Utility's current operating scenario. The three management strategies all account for additional operational and capital expenditures that help better align the Utility to its levels of service.

Using management strategies in the financial analysis allows the City to determine the rate impacts of different service levels. Through discussion with the City Council, City staff, and community residents, the proactive strategy was chosen as the recommended management strategy. See a description of the proactive management strategy in Section 8.2.

Management strategies differ on two levels:

- **Programs** are O&M activities that enhance or maintain surface water services. The minimum strategy uses the fewest number of programs and the optimum strategy uses the most. Each strategy builds on the next so there are no programs in the minimum strategy that are not also in the proactive strategy and there are no programs in the proactive strategy missing from the optimum strategy.
- **Projects** are capital investments designed to enhance or maintain surface water services. The three management strategies differ in the number of projects that are assumed to take place in the 6-year planning horizon. Projects not planned in the 6-year planning period are assumed to occur in the next 20 years, between 2024 and 2036.

Minimum. The minimum management strategy is a combination of projects and programs meant to meet the minimum in existing system needs and anticipated new regulatory requirements.

Proactive. The proactive management strategy adds new projects and enhanced programs that address high-priority, long-term needs as well as anticipated new regulatory requirements.

Optimum. The optimum management strategy adds additional priority projects and programs that focus on enhancements to water quality and aquatic habitat.

9.3.1 Management Strategy Results and Summary

Table 9-1 summarizes the annual revenue requirements based on the forecast of revenues, expenditures, fund balances, and fiscal policies that would be needed for each management strategy.

Table 9-1. Management Strategy Financial Analysis Summary

Management Strategy Rate Impact Summary	2017	Year 1 2018	Year 2 2019	Year 3 2020	Year 4 2021	Year 4 2022	Year 5 2023
Minimum							
Proposed increase	N/A	20%	5%	5%	4%	3%	3%
Resulting revenue	$4,488,372	$ 5,391,433	$ 5,666,666	$ 5,955,949	$ 6,200,381	$ 6,392,779	$ 6,591,147
Proactive							
Proposed increase	N/A	27%	15%	10%	10%	5%	5%
Resulting revenue	$4,488,372	$ 5,705,933	$ 6,568,385	$ 7,232,449	$ 7,963,649	$ 8,370,193	$ 8,797,492
Optimum							
Proposed increase	N/A	42%	20%	10%	8%	5%	5%
Resulting revenue	$4,488,372	$ 6,379,862	$ 7,663,490	$ 8,438,269	$ 9,122,444	$ 9,588,145	$ 10,077,620

Source: Table IV-1, City of Shoreline Surface Water Utility; Financial Analysis for 2017 Master Plan, FCS Group (November 2017), Appendix L.

With the greatest number of programs and projects, the optimum strategy has the highest annual revenue requirements and thus the largest rate adjustment of the three scenarios. However, all scenarios require increases in annual revenue to meet new, required expenses as they relate to regulatory requirements and appropriately managing the system.

In all three scenarios, an initial, larger, revenue increase is required in 2018 followed by subsequent smaller increases over the next 5 years. This is due to increases in O&M expenses to meet regulatory and basic management requirements for operating the Utility.

These expenses cannot be funded through debt and thus the rate impact cannot be spread out over time. Efforts were made to spread costs and delay projects where possible to mitigate initial rate impacts.

The Utility staff recommends the proactive management strategy. This strategy allows the City to not only be compliant with permit requirements but also attend to desired levels of service and pressing investment needs. Section 10.5 details the recommended funding plan for the proactive strategy.

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Section 10

Implementation

Utility staff presented the management strategies and the results of the financial analysis to the City Council in August 2017, recommending implementation of the proactive management strategy. The recommendation for the proactive management strategy is based on the expected level of service provided for the associated cost and impact on surface water management fees. The proactive management strategy provides the following:

- Programs that meet current O&M needs and regulatory requirements
- Programs to meet anticipated new regulatory requirements
- High-priority projects and programs that most directly help meet the four levels of service
- Equitable Utility services across the city's drainage basins

The City Council directed Utility staff to proceed with the proactive management strategy for preparing costs and financial information for the 2018–2023 CIP and 2018 City budget. The following sections summarize the policy recommendations, programs, and projects associated with implementation of the proactive management strategy.

10.1 Policy Recommendations

As described in Section 4.3, Utility staff have already conducted policy issue discussions with the City Council on four key policy issues. The following bullets summarize the recommended course of action based on the guidance provided by the City Council:

- **Use of Utility funds outside of the ROW:** The Utility will continue the practice of not expending Utility funds on private property unless City staff determine that the facilities in question are the responsibility of the City or public infrastructure is threatened. Utility staff will follow a "decision requirements" flow chart, shown previously in Figure 6-2. This flow chart shows the criteria Utility staff and the City Attorney will use to identify situations where it is appropriate to use Utility funds outside the ROW.
- **Stormwater Permit:** The Utility will establish a Stormwater Permit that consolidates all the onsite and ROW stormwater review activity into a single permit process covering all ongoing inspections, operations, maintenance, and enforcement of maintenance standards for private drainage systems as required by the Phase II Permit. The Stormwater Permit Program is intended to provide operating budget and staff resources for implementing this recommendation.
- **Surface water management fee-chargeable area:** The Utility will change the chargeable area for surface water fees to be based on hard surfaces. The chargeable area was updated in the surface water management rate table (SMC 3.01.400) when the City Council approved the 2018 budget.
- **Private facility inspection and maintenance:** The Utility will continue with the current inspection and maintenance program but will embark on a pilot program offering private properties the option to participate in a self-certification program. The Utility estimated an operating budget for the Utility staff to develop the self-certification process over the next 6 years.

The Utility is expected to proceed as described above on each policy issue. Actions required by the Utility have been incorporated into program recommendations where applicable.

10.2 Programs

The proactive management strategy includes 24 programs: 9 existing programs, 9 enhanced programs, and 6 new programs. These programs have been developed to meet current and anticipated NPDES requirements, implement Utility BMPs, and reduce the backlog of existing programs. Table 10-1 presents a summary of the proactive management strategy by program category with additional annual operation costs and estimated staffing. Staffing needs were developed by identifying program activities and workload estimates for enhanced and new programs. Staffing needs are included in program costs estimates in Appendix D-1.

Table 10-1. Implemented Program Summary

Category	Program	Status	Planned Start Year	Operating Cost (Additional to Existing)	Additional Staffing (FTE)
Operation	NPDES Compliance	Enhanced	2020[a]	$32,480	0.13
	Floodplain Management	Existing	Ongoing	-[c]	-[d]
	Administration and Management	Existing	Ongoing	-[c]	-[d]
	Drainage Assessment	Enhanced	2018	$175,640	0.20
	Water Quality Monitoring	Enhanced	2020[a]	$85,470	0.25
	System Inspection	Enhanced	2018	$47,021	0.25
	Condition Assessment	Enhanced	2018	$160,340	0.34
	Private System Inspection	Enhanced	2019[b]	$62,192	0.40
	Stormwater Permit	New	2019[b]	$47,840	0.33
	Asset Management	Enhanced	2018	$69,200	0.25
Maintenance	Street Sweeping	Existing	Ongoing	-[c]	-[d]
	System Maintenance	Existing	Ongoing	-[c]	-[d]
	Small Repairs	Existing	Ongoing	-[c]	-
	SW Pipe Replacement	Enhanced	2019[b]	$651,520	0.52
	Surface Water Small Projects	Enhanced	2018	$400,000	0.16
	Catch Basin R&R	New	2018	$354,100	0.20
	LID Maintenance	New	2018	$53,732	0.10
	Pump Station Maintenance	New	2018	$63,600	0.10
	Utility Crossing Removal	New	2018	$18,400	0.15
Public involvement	Soak-It-Up Rebate	Existing	Ongoing	-[c]	-[d]
	Adopt-a-Drain	Existing	Ongoing	-[c]	-[d]
	Local Source Control	Existing	Ongoing	-[c]	-[d]
	Water Quality Public Outreach	Existing	Ongoing	-[c]	-[d]
	Business Inspection Source Control	New	2020[a]	$86,780	0.10
Average annual O&M effort for infrastructure associated with proactive management strategy				$33,867	0.02
			Total	**$2,342,182**	**3.50**

a. Existing program to continue until enhanced program begins in noted year.

b. Program development begins in 2018; program implementation begins in noted year.

c. Costs for existing programs assumed to be included within existing operation costs.

d. Staffing for existing programs assumed to be covered by existing staff.

Three programs were only included in the optimum management strategy and therefore not included in the recommended management strategy. These programs included a group of projects or programmatic work that were considered good candidates for alternate funding such from a grant or as a component of a separate but related capital project. The programs and discussion for funding are as follows:

- **Improper Connection Removal Program:** Identified in the condition assessment efforts of the basin plan work. Improper connections can be addressed when identified as a surface water small project or as part of a separate but related capital project.
- **Thornton Creek Stewardship Program:** Identified in the Thornton Creek Basin Plan because of the creek's poor water quality. The stewardship opportunities identified for this basin can be applied to all basins. Grant funding from Ecology or the Puget Sound Partnership may be available for this public outreach, involvement, and education program.
- **Aquatic Habitat Improvement Program:** Identified in basin planning efforts as a citywide need. Aquatic habitat improvements identified in this program can be addressed when identified as a part of a separate but related capital project. Portions of this program related to public outreach and involvement may be funded through Ecology grants.

10.2.1 Staffing Needs

The Utility staff estimated additional staff resources during the development of proactive management strategy program costs and the annual City budget process. The need for 3.5 additional FTE was identified in the enhancement of Utility programs. These FTE include 1.00 FTE (Public Works Senior Maintenance Worker), 1.00 FTE (Engineering Technician), 1.00 FTE (Engineer I), and 0.2 FTE (Maintenance Worker). The remaining 0.3 FTE to be allocated to the Utility programs was obtained through the redistribution of existing FTE within the Public Works Department. Redistribution of FTE occurs during the annual budget review process, but can also occur as needed. From the development of the 2018 budget, a notable redistribution of the FTE consisted of the addition the development review and construction inspection staff. These staff will help with new Stormwater Permit program.

Figure 10-1 shows an organizational chart for Utility personnel with FTE allocations for 2018.

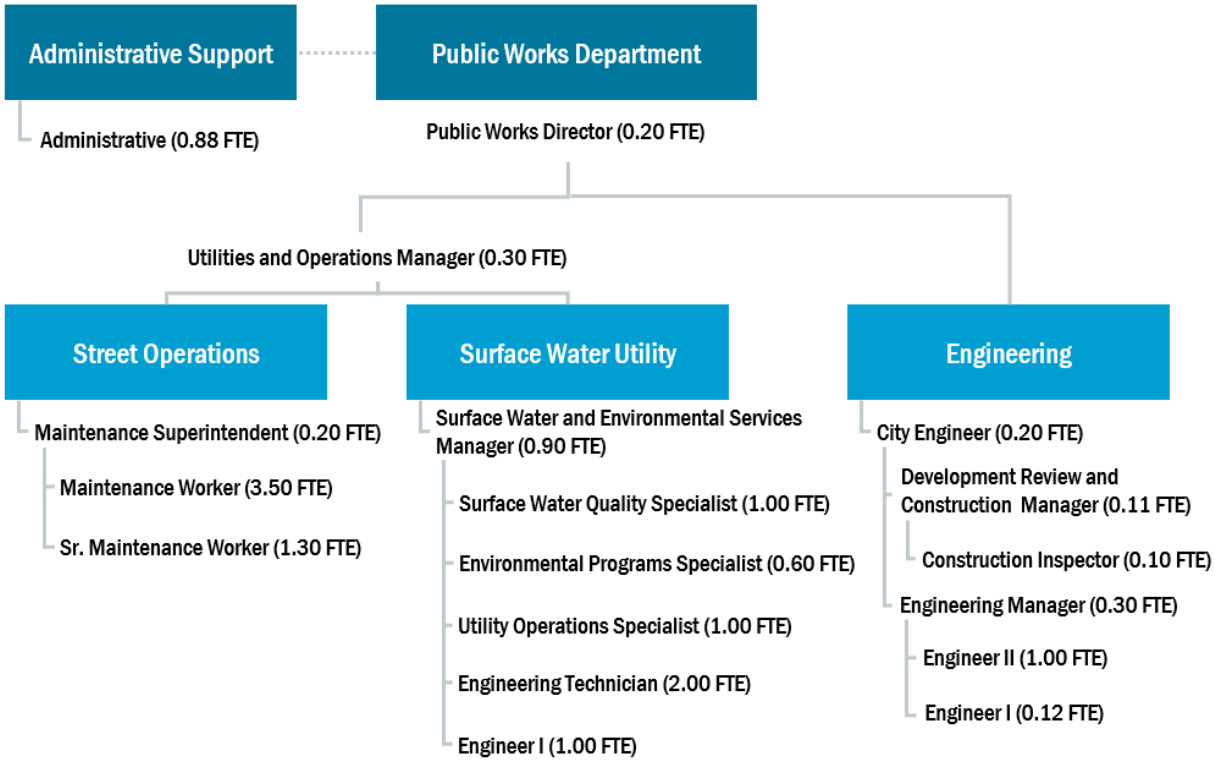

Figure 10-1. Organization of personnel contributing to Utility with FTE allocations for 2018

10.2.2 Monitoring Performance

As the Utility moves forward with implementing the programs included in the proactive management strategy, staff will collect data and monitor the performance of these programs over time. The Utility has assessed each of the programs and described the characteristics of a successful program. Staff identified quantitative performance measures related to the successful implementation of each program. These performance measures were then narrowed down to one per program, and thresholds for success were set according to three possible levels or ratings (see Table 10-2).

Table 10-2. Performance Ratings for Programs

Performance Rating	Definition
Meets expectations	Program meets expectations and is consistent with meeting level-of-service targets.
Needs improvement	Program is active and is being implemented by staff, but still needs improvement to meet expectations of customers or stakeholders.
Below expectations	Program either does not exist or falls short of meeting expectations of customers or stakeholders.

Appendix D-4 provides a comprehensive list of the programs to be implemented for the proactive management strategy along with a description of the performance measure identified for each. An overall assessment of levels of service can be made by combining the ratings of all related programs for a particular level of service. For example, if there are 11 programs that greatly impact level of service 1 (manage public health, safety, and environmental risks from impaired water quality, flooding, and failed infrastructure), we can assess the status of each program and then determine an average rating (see Table 10-3).

Table 10-3. Combined Assessment of Programs Supporting LOS 1, Surface Water Impacts		
Relevant Program	2017 Program Status	Combined Status
Drainage Assessment [a]	Needs improvement	Below Expectations
Water Quality Monitoring [a]	Meets expectations	
Street Sweeping	Meets expectations	
System Maintenance	Needs improvement	
Pipe Condition Assessment Program [a]	Below expectations	
SW Pipe Replacement Program [a]	Below expectations	
System Inspection [a]	Meets expectations	
Catch Basin Repair and Replacement [a]	Below expectations	
LID Maintenance [a]	Below expectations	
Pump Station Maintenance [a]	Below expectations	
Utility Crossing Removal [a]	Below expectations	

a. *Programs that are new or enhanced for the proactive management strategy; these programs may have gaps or may not exist currently, which would lead to a "below expectations" rating in 2017.*

Appendix D-4 provides a complete list of the programs with 2017 program status ratings. Appendix D-4 also shows the anticipated ratings for 2018, once additional programs become active and additional Utility staff are available to ramp up those activities. In addition, Appendix D-4 shows the long-term goals for each program as anticipated for 2023. Table 10-4 shows the overall ratings and planned improvements for how the programs will support the levels of service.

Table 10-4. Levels of Service and Level-of-Service Targets for the Surface Water Utility					
Level of Service		Level-of-Service Target	2017	2018	2023
LOS 1: Surface Water Impacts	Manage public health, safety, and environmental risks from impaired water quality, flooding, and failed infrastructure	No verifiable health and safety issues or environmental damage caused by the stormwater services outside of risk tolerance			
LOS 2: Equitable Service	Provide consistent, equitable standards of service to the citizens of Shoreline at a reasonable cost, within rates and budget	Meet the levels of service as measured by customer satisfaction and rate and revenue projections			
LOS 3: Communication and Outreach	Engage in transparent communication through public education and outreach	Maintain a communication plan to inform the community on utility goals and progress			
LOS 4: Regulatory Compliance	Comply with regulatory requirements for the urban drainage system	Meet or exceed regulatory requirements for NPDES Phase II and federal, state, and local regulations affecting surface water management			
Meets expectations		Needs improvement		Below expectations	

10.3 Projects

The City Council approved staff's recommendation for the implementation of the proactive management strategy, which includes 25 projects, 21 of which are construction projects and 4 of which are studies or plans. The proactive projects include high-priority construction projects and studies that help meet the level-of-service targets. Projects selected for the 6-year CIP were then examined in closer detail with respect to implementation. Several projects were divided into phases where predesign/feasibility studies were needed or engineering and planning must be done well in advance of construction. Table 10-5 lists the proactive management strategy projects in order of priority with costs in 2017 dollars.

Table 10-5. Proactive Management Strategy Project Summary

6-year CIP status[a]	Project Name	6-Year CIP Cost [b]	Capital Cost [b]
DC	25th Ave. NE Flood Reduction and NE 195th St. Culvert Replacement	$2,674,000	$8,226,000
P	Master Plan Update	$500,000	$500,000
PD	Springdale Ct. NW and Ridgefield Rd. Drainage Improvements	$545,000	$2,058,000
PDC	10th Ave. NE Stormwater Improvements	$1,788,000	$1,788,000
PD	Heron Creek Culvert Crossing at Springdale Ct. NW	$226,000	$855,000
DC	Hidden Lake Dam Removal	$2,097,000	$2,097,000
P	25th Ave. NE Ditch Improvements between NE 177th St. and 178th St.	$141,000	$2,538,000
PD	Pump Station 26	$320,000	$891,000
PD	Pump Station 30 Upgrades	$90,000	$339,000
P	6th Ave. NE and NE 200th St. Flood Reduction Project	$22,000	$384,000
PDC	Pump Station Misc. Improvements (Linden, Palatine, Pan Terra, 25, Ronald Bog, Serpentine)	$732,000	$732,000
C	NE 148th St. Infiltration Facilities	$393,000	$393,000
P	Boeing Creek Regional Stormwater Facility	$83,000	$9,440,000
P	System Capacity Modeling Study	$300,000	$300,000
PDC	NW 195th Pl. and Richmond Beach Dr. Flooding	$747,000	$747,000
P	Stabilize NW 16th Pl. Storm Drainage in Reserve M	$28,000	$500,000
P	Storm Creek Erosion Management Study	$80,000	$80,000
P	Climate Impacts and Resiliency Study	$80,000	$80,000
P	Boeing Creek Restoration	$50,000	$7,630,000
PD	NW 196th Pl. and 21st Ave. NW Infrastructure Improvements	$83,000	$313,000
P	18th Ave. NW and NW 204th St. Drainage System Connection	$15,000	$261,000
P	NW 197th Pl. and 15th Ave. NW Flooding	$7,000	$119,000
P	Lack of System and Ponding on 20th Ave. NW	$81,000	$1,458,000
P	12th Ave. NE Infiltration Pond Retrofits	$38,000	$677,000
P	NE 177th St. Drainage Improvements	$9,000	$152,000
		$11,129,000	$51,920,000

a. Implementation status key: P = planning/predesign/study, D = design/permitting, C = construction

b. 2017 dollars. O&M and other life-cycle costs included in financial planning analysis.

10.4 Recommended Funding Plan

The proactive management strategy includes project (capital) and program (non-capital) investments to meet regulatory requirements and address high-priority, long-term needs of the Utility.

Capital. There are more than $22.3 million in identified capital project costs over the 6-year planning horizon assuming a 3 percent annual escalation rate. The specific projects and costs are identified the Financial Analysis Report (see Appendix L).

O&M Program. The proactive strategy O&M expenses (including programs not in the 2017 O&M program) were identified in Table V-3 in the Financial Analysis Report. Annual (escalated) expenses ranged from approximately $4.78 million (2018) to $5.69 million (2023).

10.5 Current and Projected Rates

Surface water management fee rates are approved annually when the City's annual budget is approved. The rate increases required for the proactive management strategy are implemented for the 6-year planning period through the budget approval. The financial analysis was prepared for capital projects and O&M programs for a 20-year period (2017–2036) and therefore includes financial planning beyond the 6-year period. This section describes the rate increases for the 2018–2023 projected rates and the 2024–2036 revenue requirements.

10.5.1 2018–2023 Projected Rates

The Financial Analysis Report accounts for the "proactive level" of capital and O&M program costs over the 6-year planning period. The report also accounts for the associated costs for the debt servicing, reserve funds, and meeting the policy requirements over the planning period. The report then projects the rate increases necessary to support this level of programming. Table 10-6 below (Table VI-1 in the Financial Analysis Report—see Appendix L) provides the results of the projected rate analysis by year.

Table 10-6. Projected Percentage Rate Increases to Meet Proactive Level Program Expenditures

Rate Increase Summary	2017	2018	2019	2020	2021	2022	2023
Annual rate increases	NA	27.0%	15.0%	10.0%	10.0%	5.0%	5.0%
Single-family annual bill	$ 168.81	$ 214.38	$246.54	$ 271.19	$ 298.31	$ 322.18	$ 328.89
Increase over prior year	NA	$ 45.58	$ 32.16	$ 24.65	$ 27.12	$ 14.92	$ 15.66

Source: Table VI-1; City of Shoreline Surface Water Utility; Financial Analysis for 2017 Master Plan, FCS Group (November 2017) (Appendix L)

The analysis shows the need for the rate's highest increase in 2018 with gradually smaller increases in later years. For single-family residences, this reflects an increase in the annual surface water charge from $168.81 in 2017 to $328.89 by 2023. The same percentage increase would apply for every customer type. The current customer rates were adopted on November 20, 2017, when the City Council approved the 2018 budget; these are located in the SMC 3.01.400 Surface Water Management rate table.

Figure 10-2 compares the 2018 Shoreline monthly surface water management fee with 2018 monthly fees of other surface water agencies. The Shoreline monthly fee is considerably lower than that of Seattle and similar to that of other local agencies.

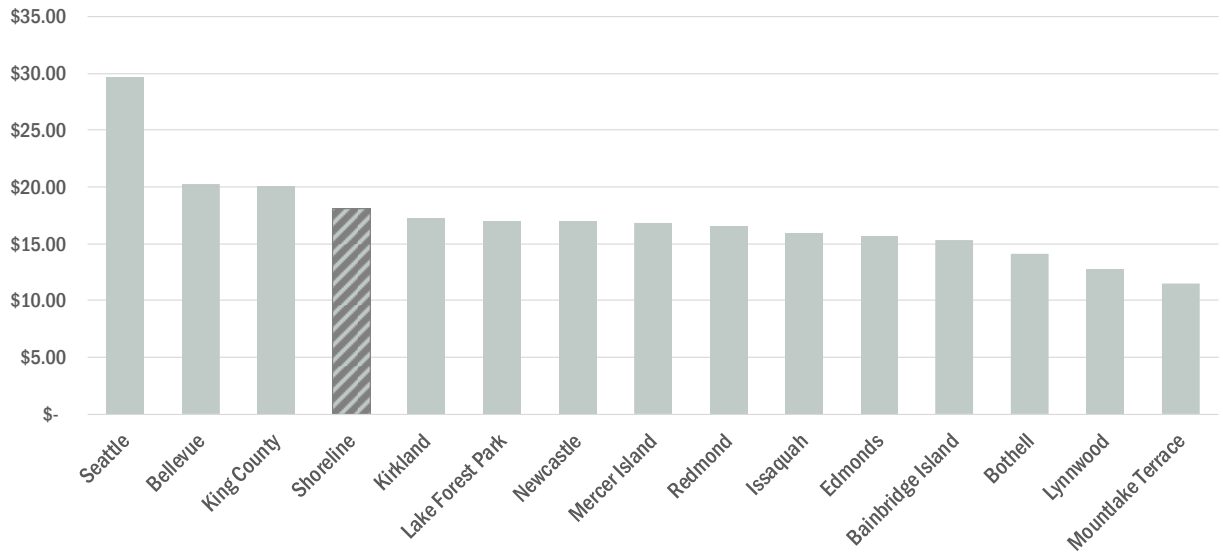

Figure 10-2. Comparison of Shoreline 2018 monthly surface water management fees with other 2018 surface water agencies

10.5.2 2024–2036 Revenue Requirement Discussion

Capital improvement estimates show a sustained increase in capital investments from 2024 through 2036. This increase currently results in an average of more than $3 million annually in additional capital expenditures as compared to the current 6-year spending average. Because of sustained above-inflation increases through 2023, current financial forecasts show that the City will require slightly lower rate increases starting in 2024 (of 7 percent) that reduce toward inflationary increases over time despite the higher projected capital expenditures. These forecasts are dependent on the City maintaining its current capital schedule and cost estimates.

10.6 Conclusion

The City examined three management strategies in the financial analysis. Each analysis considered all funding resource options, the Utility's financial policies and targets, and current operating needs. All strategies were developed such that they, at a minimum, meet Phase II Permit obligations. All management strategies require rate increases. The 2018 rate increase is the most substantial, followed by smaller increases through 2023. These increases are related to higher O&M obligations of new programs.

The proactive strategy adds new, high-priority projects and programs and is the recommended management strategy. The proactive management strategy is recommended because it meets Phase II Permit obligations and funds many high-priority needs but does not require the same level of investment (and rate increases) as the optimum strategy.

It is important that the City revisit the identified rates annually to ensure that the rate projections developed remain adequate. Any significant changes should be incorporated into the financial plan and future rates should be adjusted as needed.

The City should take extra consideration of improved capital cost estimates and scheduling in the 2024–2036 planning period. While the current rate forecast plans for an increase in capital expenditures through this period, changes to costs and schedules will be important to incorporate.

Other financial planning recommendations include the following:

- Adopt rate structure presented for the proactive management strategy
- Revise City "CIP model" to include updated reserve requirements including:
  - 120 days of O&M expenses minimum operating reserve balance
  - 2 percent of assets minimum capital reserve balance
- Review rates and current operational and capital needs annually
- Conduct new financial analysis in 5 years to ensure that projected rates are in line with Utility expenses

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Section 11

Limitations

This document was prepared solely for the City of Shoreline in accordance with professional standards at the time the services were performed and in accordance with the contract between the City of Shoreline and Brown and Caldwell dated July 14, 2016. This document is governed by the specific scope of work authorized by the City of Shoreline; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by the City of Shoreline and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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Section 12

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Comprehensive Plan

Amendment No. 4

TMP Master Street Plan Update

Bus Stops

Aurora Avenue N Bridge

Level of Service is a term that describes the amount, type, or quality of facilities that are needed in order to serve the community at a desired and measurable standard.

Transportation level of service is a qualitative measure, graded A(best) through F(worst), describing the operational conditions of the City's transportation system.

State Department of Transportation, King County Metro Transit, the City of Seattle, and Shoreline neighborhoods to develop the final light rail alignment and station area plans for the areas surrounding the future Link Light Rail stations. (See LU20 - LU43 for additional light rail station study area policies.)

T35. Work with King County Metro Transit and/or Sound Transit to develop a plan for bus service to serve the light rail station at Northgate coinciding with the opening of service at Northgate.

T36. Support and encourage the development of additional high capacity transit service in Shoreline.

T37. Continue to install and support the installation of transit supportive infrastructure.

T38. Work with Metro Transit, Sound Transit, and Community Transit to develop a bus service plan that connects residents to light rail stations, high-capacity transit corridors, and park and ride lots throughout the city.

T39. Implement traffic mitigation measures at Light Rail Station Areas.

T40. Promote livable neighborhoods around the light rail stations through land use patterns, transit service, and transportation access.

Master Street Plan

T41. Design City transportation facilities with a primary purpose of moving people and goods via multiple modes, including automobiles, freight trucks, transit, bicycles, and walking, with vehicle parking identified as a secondary use.

T42. Implement the standards outlined in the ~~Master Street Plan~~ Street Matrix for development of the city's roadways.

T43. Frontage improvements shall support the adjacent land uses, and fit the character of the areas in which they are located.

Concurrency and Level of Service

T44. Adopt *Level of Service* (LOS) D at the signalized intersections on arterials and unsignalized intersecting arterials within the city as the level of service standard for evaluating planning level concurrency and reviewing traffic impacts of developments, excluding the Highways of Statewide Significance and Regionally Significant State Highways (I-5, Aurora Avenue N, and Ballinger Way). Intersections that operate worse than LOS D will not meet the City's established concurrency threshold. The level of service shall be calculated with the delay method described in the Transportation Research Board's Highway

Table of Contents

Creating a Pedestrian System in Shoreline

Developing and Implementing the System

- **Goal T IX:** Provide a pedestrian system that is safe, connects to destinations, accesses transit and is accessible by all.

- **Policy T17:** Implement the Pedestrian System Plan through a combination of public and private investments.

Implementation Strategies

17.1. Develop a wayfinding signage and mapping system for pedestrian facilities that directs and guides users to public facilities, parks, schools, significant transit stops and transportation facilities and commercial areas.

- **Policy T18:** When identifying transportation improvements, prioritize construction of sidewalks, walkways and trails. Pedestrian facilities should connect to destinations, access transit and be accessible by all.

Implementation Strategies

18.1. Develop and regularly update a prioritization and funding strategy to implement the City's Pedestrian System Plan.

18.2. Include pedestrian facilities identified in the City's Pedestrian System Plan as part of the City's six-year Capital Improvement Plan and TIP.

18.3. Through the City's Complete Streets policies, continue to accommodate pedestrians in future roadway or intersection improvement projects with facilities or technologies that make walking safer and more convenient for pedestrians.

18.4. Utilize existing undeveloped right-of-way to create pedestrian paths and connections.

18.5. Require that all projects resulting in an increase in the number of vehicular trips, such as commercial, non-residential, multi-family and residential short-plat and long-plat developments, provide for sidewalks or separated all-weather trails.

~~**Discussion:** Through the Master Street Plan, the City has identified the cross-section and design of arterials and determined appropriate improvements for local streets. Frontage improvements should be consistent with the Master Street Plan.~~

18.6. Continue to implement the City's curb ramp program to install wheelchair ramps and other ADA requirements at all curbed intersections.

18.7. Include construction of pedestrian facilities identified in the City's Pedestrian System Plan as projects that qualify for "credits" through the City's concurrency program.

18.8. Look for opportunities to leverage public or private investments to implement the pedestrian system. Pursue funding opportunities through grants and private foundations.

18.9. Require and identify pedestrian detour routes in construction areas.

- **Policy T19:** Design crossings that are appropriately located and provide safety and convenience for pedestrians.

Implementation Strategies

19.1. Develop a policy and procedure for the location, design and approval of crosswalk markings.

Master Street Plan

A Plan for All Streets

The Shoreline Master Street Plan was developed by the City to help guide property owners, developers, architects, landscape architects and engineers involved with the design, permitting and construction of improvements to Shoreline street right-of-way.

The Master Street Plan provides guidance for future right-of-way improvements. The Shoreline Master Street Plan was developed by the City to help guide property owners, developers, architects, landscape architects and engineers involved with the design, permitting and construction of improvements to Shoreline's right-of-way. In developing this Master Street Plan, the City considered and attempted to balance the access and mobility needs of all users including motorists, pedestrians, bicyclists, transit and freight while responding to anticipated growth. The design criteria strive to balance safety, preservation and maintenance of the roadway infrastructure and environmental conservation.

The ~~Master Street Plan~~ Engineering Development Manual's Appendix F - Street Matrix identifies specific roadway cross-sections for all Arterial Streets and Local Primary Streets in Shoreline, dividing each roadway into segments to identify where there are differing right-of-way needs, such as number of travel lanes or bicycle facilities. In addition to the planned cross-section for Arterial Streets and Local Primary Streets, the ~~Master Street Plan~~ Street Matrix includes an inventory of the existing street cross-sections and right-of-way for these streets. The planned cross-sections establish the location of future curbs so that streets can be constructed in the proper location.

For Local Secondary Streets, the ~~Master Street Plan~~ Street Matrix identifies the options for street cross-sections, rather than a specific cross-section for each street, including green streets. A determination of the appropriate cross-section for a given Local Secondary Street will be made at the time modifications to the street are funded or redevelopment occurs.

~~While the Master Street Plan establishes the cross-section for a roadway, the design standards, such as sight distances, curb radii and profile grade, are contained in the City's Engineering Development Guide.~~

~~The **Shoreline Master Street Plan** is contained in **Appendix D.**~~

- **Policy T36:** Design City transportation facilities with the primary purpose of moving people and goods via multiple modes, including automobiles, freight trucks, transit, bicycles and walking, with vehicle parking identified as a secondary use.

❖ **Policy T37:** Implement the standards outlined in the ~~Master Street Plan~~ Street Matrix for development of the City's roadways.

❖ **Policy T38:** Frontage improvements shall support the adjacent land uses and fit the character of the areas in which they are located.

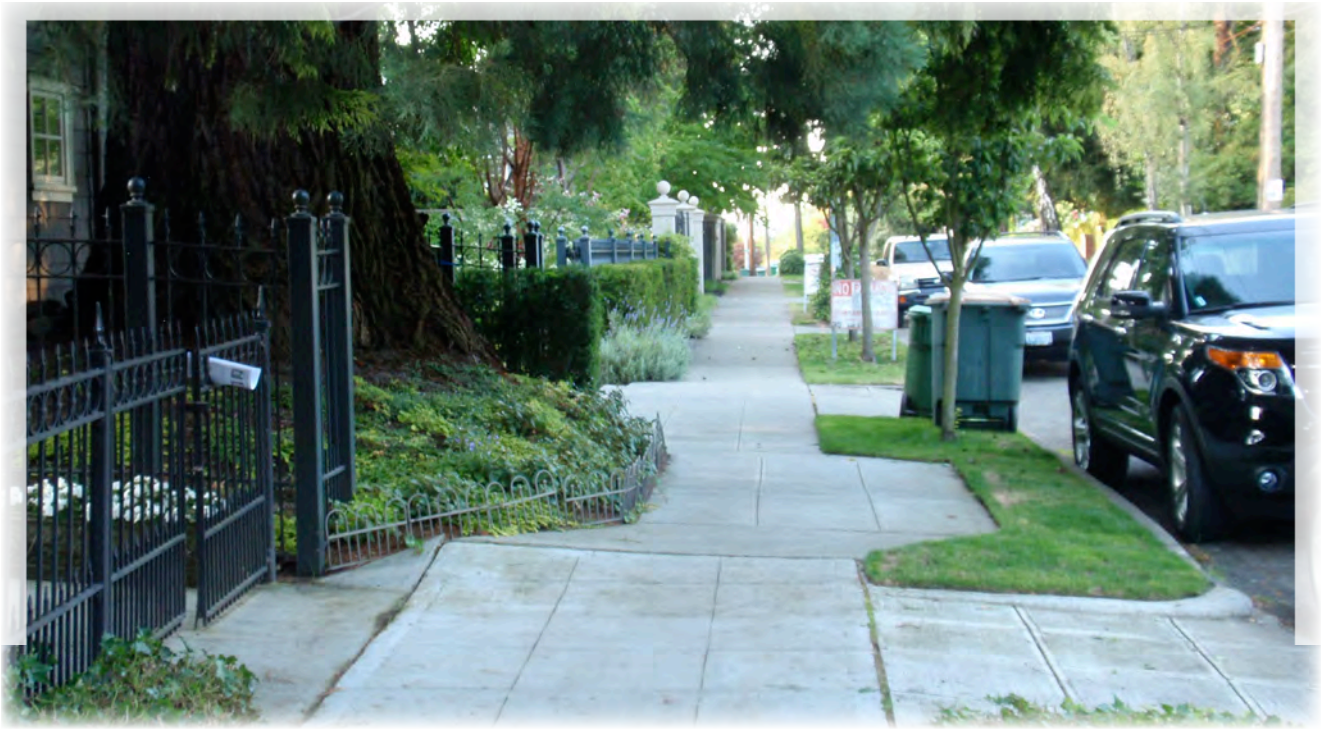
Implementation Strategies

38.1. Utilize the Street Classification Map as a guide in balancing street function with land uses. Minimize through-traffic on local streets.

38.2. Require frontage improvements as part of City capital projects such as park improvements and facility developments.

38.3. Develop the amenity zone in a manner that is appropriate and complementary to the adjacent land uses.

Discussion: Amenity zones should generally be landscaped and, where possible, utilized for stormwater management purposes. In areas where a wide pedestrian walking surface is desired, such as Town Center, the amenity zone may be a hard surface treatment with trees in pits. Amenity zones that are adjacent to on-street parking areas should be landscaped as much as possible, but may include limited hard surface areas for drivers or passengers exiting vehicles. Amenity zones adjacent to roadways that do not have on-street parking shall be landscaped as much as possible.



38.4. Allow for flexibility in the implementation of the ~~Master Street Plan~~ Street Matrix to address site-specific, unique or unforeseen circumstances, such as the presence of bus stops, topography or large trees. Sidewalks should be separated from the curb by a five-foot wide amenity zone/landscaping strip. Sidewalks adjacent to single family residential development shall be a minimum of five feet wide. Require the construction of wider sidewalks (a minimum width of eight feet) adjacent to uses other than single-family residential including, but not limited to:

- Commercial uses
- Medium and high density residential uses
- Parks
- Churches
- Libraries
- Schools
- Sports and social clubs
- Major transit facilities
- Civic facilities
- Conference centers
- Museums
- Medical facilities
- Day cares

38.5. Assure that motorized and non-motorized transportation systems are appropriately sized and designed to serve the surrounding land uses and to minimize the negative impacts of growth.

38.6. Require new development and redevelopment to upgrade substandard frontage improvements in accordance with the ~~Master Street Plan~~ Street Matrix.

38.7. Require the dedication of right-of-way and construction of frontage improvements in conjunction with new development in a manner that is equitable, and related to the impacts of adjacent land use. Dedication or building setbacks should be required during the permit review process to ensure new development is served by the appropriate street cross-section identified in the ~~Master Street Plan~~ Street Matrix.

Discussion: The ~~Master Street Plan~~ Street Matrix establishes the required cross-section for all roadways in the City. In order to ensure the needed right-of-way is available for transportation improvements and that frontage improvements are constructed in the correct location, staff will evaluate the existing right-of-way and roadway improvements during permit review. Determinations shall be based upon the need for right-of-way improvements associated with adjacent land uses, such as wider sidewalks, and the historic patterns of dedications in the vicinity. For example, if only half of the needed right-of-way is present and it is clear that all of the existing right-of-way was dedicated by owners opposite a property wishing to develop, the remaining half can be exacted from the developing property. Front yard setbacks should at a minimum be sufficient to avoid conflicts with future transportation projects.

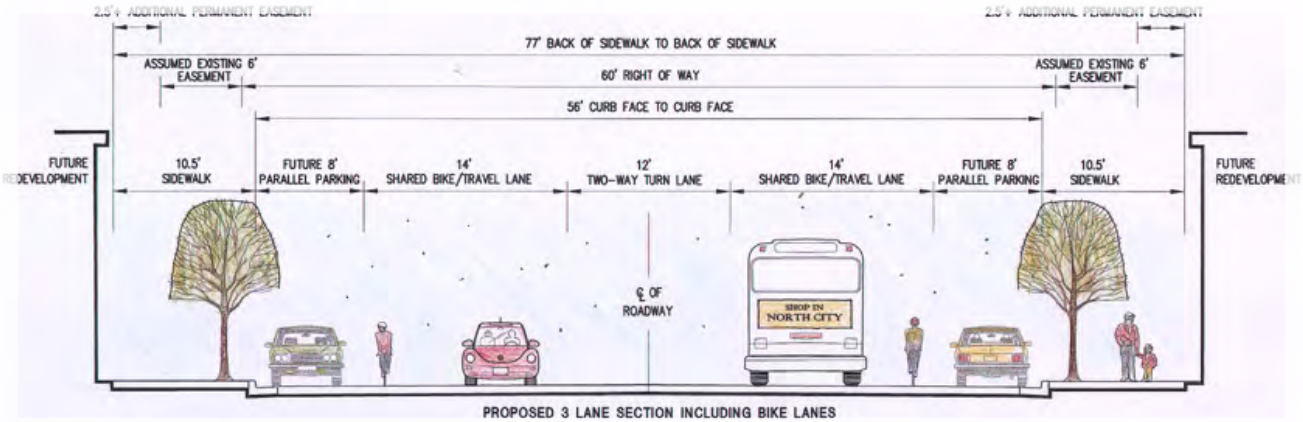


Image: courtesy of KPG for the North City Project

Appendix H includes a matrix identifying the programs into which each of the candidate pedestrian projects fall. Some projects fall into more than one category.

As shown in **Figure M, Unimproved City Right-of-Way** (Chapter 5), there are several segments of unused right-of-way throughout the City that can be used for pedestrian and bicycle connections. Many of these segments are outside of the Pedestrian System Plan. Providing these connections results in better connectivity between neighborhoods and can reduce walking distances. These projects are generally smaller in scale and less expensive than typical sidewalk projects; however, they do not achieve many of the objectives of the larger system plan. These will be built as hard surface connections, such as asphalt, and will be ADA accessible if feasible.

In addition to the projects identified, upgrades to existing substandard sidewalks are needed. Many of these upgrades will be completed in conjunction with major capital projects that redesign an entire street. Additionally, private development that triggers frontage improvements will be required to construct new sidewalks or upgrade substandard sidewalks in accordance with the ~~City's Master Street Plan~~ Engineering Development Manual's Appendix F - Street Matrix.

- **Policy T44:** Expand the City's pedestrian network. Prioritize projects shown on the Pedestrian System Plan, using the following criteria:
  - Can be combined with other capital projects or leverage other funding
  - Proximity to a school or park.
  - Located on an arterial.
  - Connects to an existing walkway or the Interurban Trail.
  - Located in an activity center, such as Town Center, North City or Ballinger, or connects to Aurora Avenue N.
  - Connects to transit.
  - Links major destinations such as neighborhood businesses, high-density housing, schools and recreation facilities.

Implementation Strategies

44.1. Create a sidewalk "gap" filling program dedicated to the design and construction of small sections of sidewalk, thereby completing larger, continuous walkways.

Discussion: By constructing short, missing segments of sidewalk (less than five blocks) in locations where there is a gap, the City can work to complete the larger pedestrian system, connecting parks, schools and other pedestrian destinations. Gaps will usually focus on completing sidewalks on one side of the street.

44.2. Develop a program as part of the City's CIP dedicated to completing sidewalks that connect to transit routes.

Discussion: The City's Pedestrian System Plan emphasizes completion of the sidewalk system on the arterial roadway network. Similarly, transit service in Shoreline is almost exclusively on arterial streets. Sidewalks that connect to transit will help encourage ridership as users have a safer path to and from their transit stop.

44.3. Develop a program as part of the City's Capital Improvement Plan dedicated to completing sidewalks that connect to schools and the Interurban Trail.

44.4. Create a program in the City's CIP dedicated to design and construction of pedestrian and bicycle projects within undeveloped right-of-way.

Appendix D: Master Street Plan

The Master Street Plan identifies specific roadway cross-sections for all Arterial Streets and Local Primary Streets in the City of Shoreline. It is intended to guide the development of streets throughout the City. The planned cross-sections for these streets establish the location of future curbs so that streets can be constructed in the proper location.

The Master Street Plan also identifies a general cross-section for Local Secondary Streets which provide for travel in each direction, on-street parking and sidewalks on each side of the street. Due to the large number of Local Secondary Streets in the City, a determination of the appropriate cross-section for a given Local Secondary Street will be made at the time modifications to the street are funded or when redevelopment occurs. Additionally, because the needs and conditions of the Local Secondary Streets vary greatly throughout the City, the design criteria must be flexible.

The design criteria for Local Secondary Streets may vary in the following ways:

- Curb-to-curb widths
- Ditch on one side in the place of amenity zones
- Sidewalk on one side only
- Parking on one side only
- Wider amenity zone
- Meandering sidewalk
- Pervious walkways
- Curb on one side only
- Concrete edge – at grade sidewalk

Many of these features will also be included as part of Green Street projects in the City.

In accordance with the adopted policies and implementation strategies associated with the Master Street Plan, the following principles accompany its implementation:

- Frontage improvements shall support the adjacent land uses and fit the character of the areas in which they are located. Five feet is the standard sidewalk width adjacent to single family residential land uses, and eight feet is the standard sidewalk width adjacent to all land uses other than single-family residential. Increased width may be required if determined by a traffic study.
- The amenity zone should be developed in a manner that is appropriate and complimentary to the adjacent land uses and use of the street. The minimum width for amenity zones is five feet. Amenity zones should generally be landscaped and, where possible, utilized for stormwater management purposes. Amenity zones adjacent to roadways that do not have off-street parking shall be landscaped as much as possible. In areas where a wide pedestrian walking surface is desired, such as commercial areas, the amenity zone may be a hard surface treatment with trees in pits. Amenity zones that are adjacent to on-street parking areas should be landscaped as much as possible but may include limited hard surface areas for drivers or passengers exiting vehicles.
- The identified cross-sections should still allow for flexibility to account for site-specific, unique or unforeseen circumstances (such as presence of bus stops), topography, sensitive areas

and presence of significant vegetation (large trees).

- The maximum right-of-way needs for street classifications are as follows:
  - Principal Arterial – 122 feet
  - Minor Arterial – 84 feet
  - Collector Arterial – 80 feet
  - Local Primary Street – 66 feet
  - Local Secondary Street – 90 feet

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
ARTERIAL STREETS AND LOCAL PRIMARY STREETS								
Collector Arterial	1st Ave NE	N 145th St	N 149th St	60	26-37	63	36	East side properties must dedicate 3 feet in conjunction with redevelopment.
Collector Arterial	1st Ave NE	N 149th St	NE 155th St	82-123	30-36	63-66	36	Wider amenity zones where there is extra right-of-way.
Collector Arterial	1st Ave NE	NE 185th St	Approx. 175 feet south of NE 190th St	60	35	65	38	Property on the east will dedicate 5 feet at the time of redevelopment
Collector Arterial	1st Ave NE	Approx. 175 feet south of NE 190th St	Approx. 130 feet north of NE 192nd St	60	47-60	60	48	Utilize the eastern 18' for back in angle parking and sidewalk. A portion of the sidewalk is on City property or will be dedicated.
Collector Arterial	1st Ave NE	Approx. 130 feet north of NE 192nd St	NE 195th St	60	21-29	60	39	Property at the SE corner of 1st and 193rd was required to install parking as part of Conditional Use permit.
Collector Arterial	1st Ave NE	NE 195th St	N 205th St	60	29	60	29	Utilize the eastern 16.5 ' for natural stormwater treatment
Collector Arterial	3rd Ave NW	NW 171st St	NW 175th St	60-90	22-34	62	36	On-street parking to be provided where feasible
Local Primary Street	3rd Ave NW	NW 180th st	NW Richmond Beach Rd	60	24-30	60	30	
Collector Arterial	3rd Ave NW	NW Richmond Beach Rd	NW 205th St	60	28-36	60	36	
Minor Arterial	5th Ave NE	NE 145th St	NE 148th St	60	43	To be determined in conjunction with 145th Corridor Study		
Minor Arterial	5th Ave NE	NE 148th St	NE 163rd St	60	43	66	44	Combined bicycle and parking lane. Need to acquire 3 feet from each side.
Minor Arterial	5th Ave NE	NE 163rd St	Approx. 300 feet north of NE 165th St	60-90	43-50	84	56	Combined bicycle and parking lane. Need to acquire 12 feet from each side. Construct wider amenity zone or sidewalk where ROW exceeds 84 feet.

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
Minor Arterial	5th Ave NE	Approx. 300 feet north of NE 165th St	NE 174th St	60-72	43	66	44	Combined bicycle and parking lane. Need to acquire 3 feet from each side.
Minor Arterial	5th Ave NE	NE 174th St	NE Serpentine Pl	60	24-42	70	44	Need to acquire 5 feet from each side.
Minor Arterial	5th Ave NE	NE Serpentine Pl	NE 185th St	52-124	22-36	66	44	Combined bicycle and parking lane. Need to acquire 3 feet from each side.
Collector Arterial	5th Ave NE	NE 185th St	NE 195th St	30-116	16-28	70	38	
Collector Arterial	5th Ave NE	NE 195th St	NE 205th St	60	25	60	43	Utilize the western 17 feet for natural stormwater treatment; use the eastern 21' for a combination of parking, amenity zone, natural stormwater treatment and sidewalk, based upon topography and soils.
Collector Arterial	6th Ave NW	NW 175th St	NW 180th St	60	24	60	36	This cross-section allows for an uphill climbing lane and downhill shared/signed lane
Collector Arterial	8th Ave NW	NW 180th St	NW 185th St	60	20	60	38	
Collector Arterial	8th Ave NW	NW 185th St	NW Richmond Beach Rd	60	29-35	64	38	Property on the east side will dedicate 8' at the time of redevelopment
Minor Arterial	8th Ave NW	NW Richmond Beach Rd	Approx. 80 feet north of NW 190th St	60	22	75	50	For this cross-section, no parking on either side of the street and no bicycle lane on the west side. Figures include a right turn lane, SB through lane, left turn lane and NB through lane.
Minor Arterial	8th Ave NW	Approx. 80 feet north of NW 190th St	NW 205th St	60-75	20-32	60	38	On-street parking allowed where ROW is wider
Local Primary Street	10th Ave NE	NE 155th St	NE 175th St	70-80	25-36	60	32	
Collector Arterial	10th Ave NE	NE 175th St	NE 185th St	70-80	32	70-80	38	Utilize the space behind the west sidewalk for natural stormwater management

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
Collector Arterial	10th Ave NE	NE 185th St	NE 190th St	60-160	32	60	38	Would consider vacating and squaring the intersection at 185th and 10th; sharrows in both travel lanes
Collector Arterial	10th Ave NW	NW Innis Arden Way	NW 175th St	60	20	60	32	No sidewalk on the south side. On-street parking on the south side accommodated where possible. Cross-section across the bridge is two 12 foot travel lanes and an 8 foot sidewalk on the north side with no amenity zone.
Local Primary Street	10th Ave NW	NW 175th St	NW 180th St	50-60	20	60	36	
Collector Arterial	14th Ave NW	Springdale Ct NW	NW 175th St	60	20	60	36	
Principal Arterial	15th Ave NE	NE 145th St	NE 150th St	60-77	52-55	86	56	Two travel lanes in each direction
Principal Arterial	15th Ave NE	NE 150th St	NE 152nd St	60-73	44-54	90	60	Two travel lanes in each direction
Principal Arterial	15th Ave NE	NE 152nd St	NE 155th St	60-65	44-50	74	44	
Principal Arterial	15th Ave NE	NE 155th St	NE 165th St	60-65	42-50	70	44	
Principal Arterial	15th Ave NE	NE 165th St	NE 169th St	60	44	68	44	
Principal Arterial	15th Ave NE	NE 169th St	NE 172nd St	60	44	70	44	
Principal Arterial	15th Ave NE	NE 172nd St	NE 175th St	60-70	52-44	59	44	
Principal Arterial	15th Ave NE	NE 175th St	NE 180th St	70-80	40-54	79	58	Sidewalk located on private property in some locations. Two travel lanes in each direction
Principal Arterial	15th Ave NE	NE 180th St	24th Ave NE	42-95	40-44	74	44	Narrower sidewalks and less dedication required in front of SF properties
Principal Arterial	15th Ave NE	24th Ave NE	NE 190th St	57-80	42-44	68	44	
Principal Arterial	15th Ave NE	NE 190th St	Ballinger Way NE	60-90	40-60	74	44	Narrower sidewalks and less dedication required in front of SF properties
Collector Arterial	15th Ave NW	NW 167th St	NW 175th St	60	20	50	26	

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
Collector Arterial	15th Ave NW	NW 188th St	Approx. 50 feet north of NW 191st St	60	20	60	36	All dedication would come from the west side, as the ROW is offset 10 '
Collector Arterial	15th Ave NW	Approx. 50 feet north of NW 191st St	NW Richmond Beach Rd	50-60	20-37	65	36	MF properties will dedicate 7.5 feet on each side.
Collector Arterial	15th Ave NW	NW Richmond Beach Rd	NW 205th St	40-60	24-100	60	36	
Minor Arterial	19th Ave NE	Forest Park Dr NE	NE 199th St	60	36	60	36	
Minor Arterial	19th Ave NE	NE 199th St	NE 205th St	60-70	36-40	64	36	
Local Primary Street	20th Ave NW	Saltwater Park Entrance	NW 195th	60	18	50	30	
Collector Arterial	20th Ave NW	NW 195th St	NW 205th St	40-50	22-30	60	36	
Collector Arterial	22nd Ave NE	NE 171st St	NE 172nd St	60	24-34	60	38	
Minor Arterial	24th Ave NE	24th Pl NE	15th Ave NE	60-110	26-37	60	38	
Collector Arterial	25th Ave NE	NE 145th St	NE 150th St	30-60	28-38	60	38	
Collector Arterial	25th Ave NE	NE 150th St	NE 153rd St	60	31	60	37.5	
Collector Arterial	25th Ave NE	NE 153rd St	NE 165th St	30	30-31	60	37.5	
Collector Arterial	25th Ave NE	NE 165th St	NE 168th St	60	35-43	60	38	
Collector Arterial	25th Ave NE	NE 168th St	NE 175th St	60	24-30	60	38	
Collector Arterial	25th Ave NE	NE 175th St	NE 177th St	60	23-26	60	38	
Collector Arterial	25th Ave NE	NE 177th St	NE 178th St	60-110	27	50	24	Amenity zone will be the shoulder. Preferred width on the east
Collector Arterial	25th Ave NE	NE 178th St	NE 185th St	55-67	26	60	36	
Local Primary Street	25th Ave NE	NE 195th St	NE 200th St	60	23-25	60	32	Sharrows in travel lanes
Local Primary Street	25th Ave NE	NE 200th St	NE 205th St	60	23	60	38	Sharrows in travel lanes
Local Primary Street	Ashworth Ave N	N 155th St	N 175th St	60	24-28	60	32	
Local Primary Street	Ashworth Ave N	N 175th St	N 185th St	60	23-28	60	36	
Collector Arterial	Ashworth Ave N	N 185th St	N 192nd St	60	24-30	60	42	Shoulder is 4 feet wide.

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
Collector Arterial	Ashworth Ave N	N 192nd St	N 195th St	60	20-29	62.5	36	Development on the east must dedicate 2.5 feet
Collector Arterial	Ashworth Ave N	N 195th St	N 199th St	60	23	60	36	
Collector Arterial	Ashworth Ave N	N 199th St	N 200th St	60	27	62.5	36	Development on the east must dedicate 2.5 feet if developed as something other than single family; the cross-section on the west will match the park if the City acquires additional property and extends the existing improvements.
Principal Arterial	Aurora Ave N	N 145th St	N 205th St	89-227	58-122	110	110	When redeveloping, property owners must construct full frontage improvements if interim improvements were constructed with the Aurora Corridor Improvement Project. Cross-section is wider at intersections where additional lanes are required.
Principal Arterial	Ballinger Way NE	15th Ave NE	Approximately 600 feet south east of 19th Ave NE	90-120	62-86	120	60	2 travel lanes in each direction. The amenity zone width to be adjusted for BAT lanes.
Principal Arterial	Ballinger Way NE	Approximately 600 feet south east of 19th Ave NE	22nd Ave NE	100	48-56	90	40	The amenity zone width to be adjusted for BAT lanes.
Principal Arterial	Ballinger Way NE	22nd Ave NE	25th Ave NE	80-90	42-58	68	28	All widening to occur on the east/ northeast, the amenity zone width to be adjusted for topography or for BAT lanes.
Collector Arterial	Carlyle Hall Rd N	NW 171st St	Dayton Ave N	60-90	22-34	62	36	On-street parking to be provided where feasible
Collector Arterial	Carlyle Hall Road N	Evanston Place N	Dayton Ave N	60+	30+	60	38	
Minor Arterial	Dayton Ave N	Westminster Way N	N 160th St	90-111	38-54	66	44	

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
Minor Arterial	Dayton Ave N	N 160th St	Carlyle Hall Road N	95-108	30-38	60	38	
Minor Arterial	Dayton Ave N	Carlyle Hall Road N	N 172nd St	60	22-30	60	38	
Minor Arterial	Dayton Ave N	N 172nd St	St. Luke Pl N	60	22-30	52	32	
Minor Arterial	Dayton Ave N	St. Luke Pl N	N Richmond Beach RD	60-75	22-28	60	38	
Collector Arterial	Fremont Ave N	N 165th St	N 205th St	60-72	28-39	68	46	
Collector Arterial	Forest Park Dr	15th Ave NE	NE 196th St	60	21-23	60	36	
Principal Arterial	Greenwood Ave N	N 145th St	Westminster Way N	80+	62+	To be determined in conjunction with 145th Corridor Study		
Collector Arterial	Greenwood Ave N	Westminster Way N	N 155th St	60	22-39	60	38	West side pedestrian improvements are trail-like due to topographic separation
Collector Arterial	Greenwood Ave N	N 155th St	N 160th St	60	22-32	60	38	
Collector Arterial	Greenwood Ave N	N Innis Arden Way	Carlyle Hall Rd N	60	22	60	36	
Local Primary Street	Innis Arden Drive	Ridgefield Rd NW	NW Richmond Beach Rd	60-120	20	58	34	Sidewalk with no amenity zone across culvert/bridge
Collector Arterial	Linden Ave N	N 175th St	N 185th St	60	20-26	64	38	This is a Green Link Street per the Town Center Code
Collector Arterial	Midvale Ave N	N 175th St	N 185th St	20-60	22-37	46.5	30	17 feet on SCL property for back in angle parking; This is a Storefront Street per the Town Center Code
Minor Arterial	Meridian Ave N	N 205th St	N 145th St	60-105	38-55	68	44	
Collector Arterial	Perkins Pl NE	NE 185th St	Perkins Way NE	60	20	60	36	
Collector Arterial	Richmond Beach Dr NW	NW 195th	NW 196th	60	20	60	38	
Collector Arterial	Richmond Beach Dr NW	NW 196th St	NW 199th St	60	20	60	36	
Local Primary Street	Ridgefield Rd NW	NW Innis Arden Dr	Springdale Ct NW	60	20	54	34	Add amenity zone to sidewalk on the south side where possible
Collector Arterial	Springdale Ct NW	14th Ave NW	NW 188th St	60	20	60	36	

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
Collector Arterial	St. Luke Pl	NW 175th St	Dayton Ave N	60	37	54	36	
Principal Arterial	Westminster Way N	Greenwood Ave N	Fremont Ave N	90	60-64	68	44	Two travel lanes in each direction
Principal Arterial	Westminster Way N	Fremont Ave N	N 155th St	90-125	60-78	90	60	Two travel lanes in each direction
Minor Arterial	Westminster Way N	N 155th St	Aurora Ave N	100	60	Cross-section to be determined in conjunction with future redevelopment		
Local Primary Street	N 152nd St	Aurora Ave N	Approx. 375 feet west of Ashworth Ave N	50-60	20-34	66	36	Each side of the street must dedicate 3 feet; begin on-street parking at Scottish Rite center
Principal Arterial	N 155th St	Westminster Way N	Aurora Ave N	115-220	70-80	Cross-section to be determined in conjunction with future redevelopment		
Minor Arterial	N 155th St	Aurora Ave N	Midvale Ave N	74-88	47-70	As per the Aurora Corridor Project		
Minor Arterial	N 155th St	Midvale Ave N	Stone Ave N	74	42	72	42	
Minor Arterial	N 155th St	Stone Ave N	I-5	72	42	68	42	
Minor Arterial	N 160th St	Dayton Ave N	Aurora Ave N	50-72	40-43	72	43	
Local Primary Street	N 165th St	Aurora Ave N	Interurban Trail	60	27-36	63	36	The cross-section does not have bicycle lanes, it has a 12 foot left turn pocket; redevelopment must dedicate 1.5 feet on both sides and expand the sidewalk width to 8 feet.
Local Primary Street	N 165th St	Interurban Trail	Ashworth Ave N	60	27-36	60	30	
Collector Arterial	N 165th St	Evanston Place N	Aurora Ave N	60	26	60	38	
Local Primary Street	N 167th St	Ashworth Ave N	Meridian Ave N	60	22	60	30	
Collector Arterial	N 172nd St	Fremont Ave N	Dayton Ave N	60	36	60	36	
Collector Arterial	N 175th St	Fremont Ave N	Fire Dept	73	42	70-73	44	
Collector Arterial	N 175th St	Fire Dept	Aurora Ave N	66-71	43-52	As per the Aurora Corridor Project		
Principal Arterial	N 175th St	Aurora Ave N	Midvale Ave N	62	54-55	As per the Aurora Corridor Project		
Principal Arterial	N 175th St	Midvale Ave N	Meridian Ave N	70-100	44-60	94	55	2 travel lanes in each direction. Wider sidewalks to accommodate bicycles.

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
Principal Arterial	N 175th St	Meridian Ave N	1st Ave NE	90-159	50-75	105	66	Includes a right turn lane at on ramps. Wider sidewalks to accommodate bicycles
Minor Arterial	N 185th St	Fremont Ave N	Approx. 140 feet west of Aurora Ave N	70-80	56	67	55	
Minor Arterial	N 185th St	Approx. 140 feet west of Aurora Ave N	Aurora Ave N	60	44	As per the Aurora Corridor Project		
Minor Arterial	N 185th St	Aurora Ave N	Midvale Ave N	60	42	As per the Aurora Corridor Project		
Minor Arterial	N 185th St	Midvale Ave N	Ashworth Ave N	60-72	41-42	72	42	
Minor Arterial	N 185th St	Ashworth Ave N	1st Ave NE	60-70	42	66	42	
Collector Arterial	N 195th St	Greenwood Ave N	Fremont Ave N	60-88	22-28	66	36	
Collector Arterial	N 195th St	Fremont Ave N	Linden Ave N	60	30	60	36	
Collector Arterial	N 200th St	1st Ave NW	Whitman Ave N	58-60	32-36	66	44	
Collector Arterial	N 200th St	Whitman Ave N	Aurora Ave N	60	37-40	As per the Aurora Corridor Project		
Collector Arterial	N 200th St	Aurora Ave N	Approx. 720 feet east of Aurora Ave N	60	40	As per the Aurora Corridor Project		
Collector Arterial	N 200th St	Approx. 720 feet east of Aurora Ave N	Ashworth Ave N	60	50	70	42	All widening to the north
Collector Arterial	N 200th St	Ashworth Ave N	Meridian Ave N	60	40	60	39	
Collector Arterial	NE 150th St	15th Ave NE	20th Ave NE	60	30-36	64	38	
Collector Arterial	NE 150th St	20th Ave NE	25th Ave NE	60	39	62	38	City has constructed meandering path on the north side, resulting in a varying sidewalk/amenity zone width
Minor Arterial	NE 155th St	I-5	15th Ave NE	60-72	41	68	42	
Collector Arterial	NE 165th St	5th Ave NE	10th Ave NE	60	30-45	60-65	36	
Collector Arterial	NE 165th St	10th Ave NE	15th Ave NE	60	44	63	36	
Collector Arterial	NE 168th St	15th Ave NE	25th Ave NE	60-64	22-29	60	36	
Collector Arterial	NE 168th St	25th Ave NE	25th Ave NE	64	27	60	38	

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
Collector Arterial	NE 171st St	22nd Ave NE	25th Ave NE	60	20	60	38	
Principal Arterial	NE 175th St	1st Ave NE	Approx. 120 feet west of 3rd Ave NE	90-159	50-75	105	66	Includes a right turn lane at on ramps. Wider sidewalks to accommodate bicycles
Principal Arterial	NE 175th St	Approx. 120 feet west of 3rd Ave NE	15th Ave NE	60-100	26-56	94	55	2 travel lanes in each direction. Wider sidewalks to accommodate bicycles.
Collector Arterial	NE 175th St	15th Ave NE	Approx. 300 feet east of 15th Ave NE	60-81	40	60	44	Two travel lanes in each direction, 8 feet of north sidewalk in ROW, 2 feet on private property
Collector Arterial	NE 175th St	Approx. 300 feet east of 15th Ave NE	NE 172nd St	60	24-33	60	38	
Minor Arterial	NE 178th St	24th Pl NE	25th Ave NE	60	30	60	38	
Collector Arterial	NE 180th St	10th Ave NE	14th Ave NE	60	32	60	39	
Collector Arterial	NE 180th St	14th Ave NE	15th Ave NE	60	35	60	34	
Minor Arterial	NE 185th St	1st Ave NE	10th Ave NE	60-260 +	42	66	42	No amenity zones required across the bridge over I-5.
Minor Arterial	NE 196th St	15th Ave NE	Forest Park Dr NE	60-80	36-39	45.5-49.5	24	Parking to be accommodated on SE side where possible
Minor Arterial	NE 196th St	Bridge		60-80	36-39	38	24	
Collector Arterial	NE Perkins Way	10th Ave NE	15th Ave NE	60	26-36	40	27	Cross section will be no less than 40 feet. It will consist of 27 feet of asphalt to accommodate two 12 foot travel lanes and one 5 foot bicycle lane in each uphill direction, a pedestrian walkway on the north side of the roadway and widened shoulder and parking where possible.
Collector Arterial	NE Perkins Way	15th Ave NE	City Limits	60	25-41	60	38	
Minor Arterial	NE 205th Street	19th Ave NE	30th Ave NE	N/A	N/A	30	22	
Collector Arterial	NW 167th St	10th Ave NW	15th Ave NW	60	20	60	36	

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
Collector Arterial	NW 175th St	St. Luke's Pl	3rd Ave NW	60	28	60	36	Provide amenity zone on the south where feasible and allow the sidewalk to meander due to topography.
Collector Arterial	NW 175th St	3rd Ave NW	3rd Ave NW	60	28-34	54.5	36	
Collector Arterial	NW 175th St	6th Ave NW	10th Ave NW (s leg)	60	28	50	33	Parking on the north side to consist of parking pullouts where feasible
Local Primary Street	NW 175th St	10th Ave NW (s leg)	10th Ave NW (n leg)	60	20	48	26	
Local Primary Street	NW 175th St	10th Ave NW (n leg)	14th Ave NW	60	20	60	32	
Local Primary Street	NW 180th st	3rd Ave NW	6th Ave NW	60	32	60	30	
Collector Arterial	NW 180th St	6th Ave NW	8th Ave NW	50-60	20-35	60	36	
Local Primary Street	NW 180th St	8th Ave NW	10th Ave NW	60	20	60	36	
Collector Arterial	NW 188th St	15th Ave NW	Springdale Ct NW	60	20	60	32	
Collector Arterial	NW 195th St	8th Ave NW	Greenwood Ave N	50-60	28-32	66	36	
Minor Arterial	NW 195th St	15th Ave NW	20th Ave NW	60-85	44	Curb-to-curb cross-section remain the same until corridor study is complete		
Local Primary Street	NW 195th St	Richmond Beach Dr NW	NW 196th	60	27	60	38	
Collector Arterial	NW 196th St	20th Ave NW	24th Ave NW	64-74	42-44	Curb-to-curb cross-section remain the same until corridor study is complete		
Collector Arterial	NW 196th St	Richmond Beach Dr NW	24th Ave NW	60	26-32	68	46	
Collector Arterial	NW 200th St	1st Ave NW	3rd Ave NW	60	30	66	44	
Collector Arterial	NW 205th Street	3rd Ave NW	8th Ave NW	40-50	19-20	50	30	
Collector Arterial	NW Innis Arden	Greenwood Ave N	Approx. 450 feet east of 6th Ave NW	80	22	To be determined in conjunction with the Shoreline Community College Master Development Permit Application		

Functional Classification	Street	From	To	Total Existing Right-of-Way	Existing Curb-to-Curb Width	Required Right-of-Way	Planned Curb-to-Curb Width	Notes
Collector Arterial	NW Innis Arden	Approx. 450 feet east of 6th Ave NW	6th Ave NW	80	22	60	32	8 foot width on south/west side is shoulder
Collector Arterial	NW Innis Arden	6th Ave NW	10th Ave NW	60-81	21-24	46	32	
Minor Arterial	NW Richmond Beach Rd	Fremont Ave N	2nd Ave NW	80-110	44	Curb-to-curb cross-section remain the same until corridor study is complete		
Minor Arterial	NW Richmond Beach Rd	2nd Ave NW	8th Ave NW	60-80	44-54	79	66	
Minor Arterial	NW Richmond Beach Rd	8th Ave NW	15th Ave NW	60-83	44	Curb-to-curb cross-section remain the same until corridor study is complete		
LOCAL SECONDARY STREETS								
Local Secondary Street	Generic Cross Section			Varies	Varies	60	32	
Local Secondary Street – Storefront Street	N 178th St, N 180th St, N 183rd St	Town Center Boundaries		Varies	Varies	64	36	
Local Secondary Street – Greenlink Street	Stone Ave N	Town Center Boundaries		30-60	16-36	60	32	Combined travel lanes/on-street parking
Local Secondary Street	NW 200th Ave	3rd Ave NW	8th Ave NW	30-60	28	56	32	Combined travel lanes/on-street parking
Local Secondary Street	Firlands Way N	N 185th St	N 188th St	92	25	90	58	This is a Storefront Street per the Town Center Code; redesign the intersection at Firlands & Linden
Local Secondary Street	N 152nd St	Approx. 375 feet west of Ashworth Ave N	Ashworth Ave N	60	30	60	24	Amenity zone width needs to be flexible to accommodate topography.
Local Secondary Street	N 195th St	Ashworth Ave N	Wallingford Ave N	60	40	71	45	The south side must dedicate 11 feet. Less ROW is needed if parallel parking is installed on-street instead of angle in parking.
Local Secondary Street	N 195th St	Wallingford Ave N	Meridian Ave N	60	30	60	30	

City of Shoreline
Planning & Community Development
17500 Midvale Avenue North Shoreline, WA 98133-4905
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Permit Hours: M - F * 8:00 a.m. to 4:00 p.m.

Print Form

COMPREHENSIVE PLAN GENERAL AMENDMENT APPLICATION

Amendment proposals may be submitted at any time, however if it is not submitted prior to the deadline for consideration during that annual amendment cycle, ending on December 1st, the amendment proposal will not be considered until the next annual amendment cycle.

Please attach additional pages to this form, as needed.

Contact Information - If the proposal is from a group, please provide a contact name.

Applicant Name Tom McCormick

Address 2444 NW 201st Place City Shoreline State WA Zip 98177

Phone 206-915-7755 Fax _____ Email tommccormick@mac.com

Proposed General Amendment - This can be either conceptual: a thought or idea; or specific changes to wording in the Comprehensive Plan, but please be as specific as possible so that your proposal can be adequately considered. If specific wording changes are proposed pleas use underline to indicate proposed additions and ~~strikethrough~~ to indicate proposed deletions. **Please note that each proposed amendment requires a separate application.**

See attached text -- Attachment to Comprehensive Plan General Amendment Application submitted by Tom McCormick on December 1, 2017.

Reference Element of the Shoreline Comprehensive Plan (required) and page number (if applicable) - (e.g. Land Use, Transportation, Capital Facilities, Housing, etc.)

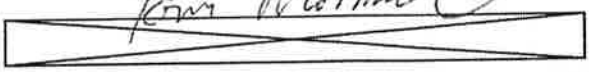
Transportation Element, Policy T44.

Support for the Amendment - Explain the need for the amendment. Why is it being proposed? How does the amendment address changing circumstances or values in Shoreline? Describe how the amendment is consistent with the current Shoreline Comprehensive Plan, if inconsistent, explain why. How will this amendment benefit the citizens of Shoreline? Include any data, research, or reasonings that supports the proposed amendment. (A copy of the Shoreline Comprehensive Plan is available for use at the Planning & Community Development department, Shoreline Neighborhood Police Centers, and the Shoreline and Richmond Beach libraries).

This amendment clarifies how an arterial's V/C ratio is to be calculated. Neither the peak AM nor the peak PM one-directional volume may exceed 90% of the arterial's peak AM or peak PM one-directional capacity. Further, the special rule that allows the V/C ratio on a leg of an arterial intersection to be greater than 0.90 if the intersection operates at LOS D or better is revised to clarify that the rule only applies to signalized intersections, and to clarify that a leg of a signalized intersection refers to that portion of the arterial that is between the signalized intersection and the next nearest intersecting arterial or non-arterial street. The amendment also clarifies that the LOS D standard is not to be exceeded for either the peak AM or peak PM.

The amendment also memorializes the grandfathered 1.10 V/C standard for the specified road segments on Dayton Avenue N and 15th Ave NE. These segments had a projected V/C in excess of 0.90 when the V/C standard was first approved by the City Council in 2011 for inclusion in the Comprehensive Plan, and were given grandfathered treatment by the City Council due to the reasons specified in T44. These two grandfathered instances are the only instances where a V/C in excess of 0.90 has been approved by the City Council. If the City or other party seeks to have a V/C greater than 0.90 for any other arterial segment, then the party would need to propose a Comprehensive Plan amendment and, as is normal, have the proposal fully vetted by the Planning Commission and the City Council.

Signature - An amendment application can not be accepted unless the signature block below has been completed. The applicant certifies that all of the aforementioned statements in this application, any exhibits and/or maps transmitted herewith are true and the applicant acknowledges that any amendment granted based on this application may be revoked if any such statement is false.

Application Signature  Date December 1, 2017

PROPOSED AMENDMENTS WITHOUT THE REQUIRED APPLICATION INFORMATION MAY BE REJECTED OR RETURNED FOR ADDTIONAL INFORMATION.

Attachment to Comprehensive Plan General Amendment Application
submitted by Tom McCormick on December 1, 2017

Amend Policy T44 of the Comprehensive Plan to read as follows (underlings show additions; strikethroughs show deletions):

T44. Adopt Level of Service (LOS) D at the signalized intersections on arterials and unsignalized intersecting arterials within the city as the level of service standard for evaluating planning level concurrency and reviewing traffic impacts of developments, excluding the Highways of Statewide Significance and Regionally Significant State Highways (I-5, Aurora Avenue N, and Ballinger Way). Intersections that operate worse than LOS D for the peak AM or peak PM will not meet the City's established concurrency threshold. The level of service shall be calculated with the delay method described in the Transportation Research Board's Highway Capacity Manual 2010 or its updated versions. Adopt a supplemental level of service for Principal Arterials and Minor Arterials that limits the peak AM and peak PM one-directional volume to capacity (V/C) ratio to 0.90 or lower, provided the V/C ratio on any leg of a signalized Principal or Minor Arterial intersection may be greater than 0.90 if the intersection operates at LOS D or better (a leg of a signalized arterial intersection refers to that portion of the arterial that is between the signalized intersection and the next nearest intersecting arterial or non-arterial street). These Level of Service standards apply throughout the city unless an alternative LOS standard is identified in ~~the~~ this Transportation Element for intersections or road segments, or where an alternate level of service has been adopted in a subarea plan. ~~, or for Principal or Minor Arterial segments where:~~
~~• Widening the roadway cross-section is not feasible, due to significant topographic constraints; or~~
~~• Rechannelization and safety improvements result in acceptable levels of increased congestion in light of the improved operational safety of the roadway.~~
~~Arterial segments meeting at least one of these criteria are:~~
~~• Dayton Avenue N from N 175th Street – N 185th Street: V/C may not exceed 1.10~~
~~• 15th Ave NE from N 150th Street – N 175th Street: V/C may not exceed 1.10~~

This Transportation Element contains an alternative LOS standard for segments of two arterials. Upon adoption of the 0.90 V/C standard in 2011, two arterial segments were given grandfathered treatment allowing a V/C ratio not to exceed 1.10, as follows:
• Dayton Avenue N from N 175th Street to N 185th Street (it was determined that widening the arterial segment was not feasible, due to significant topographic constraints), and
• 15th Ave NE from N 150th Street to N 175th Street (it was determined that rechannelization and safety improvements for the arterial segment resulted in acceptable levels of increased congestion in light of the improved operational safety of the arterial segment).

Added by ordinance 730, Adopted by Council December 14, 2015:
Adopt level of service standards for transit, walking and bicycling. Maintain the adopted level of service standards until a plan-based multi-modal concurrency approach is adopted that includes motor vehicles, transit, walking and bicycling transportation measures.

Note: Conforming amendments will need to be made to the TMP (Transportation Master Plan) and the Development Code.

Attachment to Comprehensive Plan General Amendment Application
submitted by Tom McCormick on December 1, 2017

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~~• Dayton Avenue N from N 175th Street – N 185th Street: V/C may not exceed 1.10~~

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Please attach additional pages to this form, as needed.

Contact Information - If the proposal is from a group, please provide a contact name.

Applicant Name Tom Mailhot Tom Mailhot

Address 2432 NW 201st Place City Shoreline State WA Zip 98177

Phone 206 321 5612 Fax _____ Email tmailhot5@gmail.com

Proposed General Amendment - This can be either conceptual: a thought or idea; or specific changes to wording in the Comprehensive Plan, but please be as specific as possible so that your proposal can be adequately considered. If specific wording changes are proposed pleas use underline to indicate proposed additions and ~~strikethrough~~ to indicate proposed deletions. **Please note that each proposed amendment requires a separate application.**

Revise the Point Wells subarea Plan to account for changes since it was originally passed. Example: Pt Wells Upper Bluff has been annexed by Woodway

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Reference Element of the Shoreline Comprehensive Plan (required) and page number (if applicable) - (e.g. Land Use, Transportation, Capital Facilities, Housing, etc.)

Point Wells Subarea Plan

Support for the Amendment - Explain the need for the amendment. Why is it being proposed? How does the amendment address changing circumstances or values in Shoreline? Describe how the amendment is consistent with the current Shoreline Comprehensive Plan, if inconsistent, explain why. How will this amendment benefit the citizens of Shoreline? Include any data, research, or reasonings that supports the proposed amendment. (A copy of the Shoreline Comprehensive Plan is available for use at the Planning & Community Development department, Shoreline Neighborhood Police Centers, and the Shoreline and Richmond Beach libraries).

Emailed revisions and explanations to Steve Szafran + to pcd@shorelinewa.gov

---

Signature - An amendment application can not be accepted unless the signature block below has been completed. The applicant certifies that all of the aforementioned statements in this application, any exhibits and/or maps transmitted herewith are true and the applicant acknowledges that any amendment granted based on this application may be revoked if any such statement is false.

Application Signature Tom Mailhot Date 12/1/2017

PROPOSED AMENDMENTS WITHOUT THE REQUIRED APPLICATION INFORMATION MAY BE REJECTED OR RETURNED FOR ADDTIONAL INFORMATION.

Subarea Plan 2 – Point Wells

Geographic and Historical Context

Point Wells is an unincorporated island of approximately ~~100~~ 61[1] acres in the southwesternmost corner of Snohomish County. It is bordered on the west by Puget Sound, on the east by the Town of Woodway, and on the south by the town of Woodway and the City of Shoreline (see Fig. 1). It is an "island" of unincorporated Snohomish County because this land is not contiguous with any other portion of unincorporated Snohomish County. ~~The island is bisected roughly north-south by the Burlington Northern Railroad (B.N.R.R.) right-of-way.~~ [2]

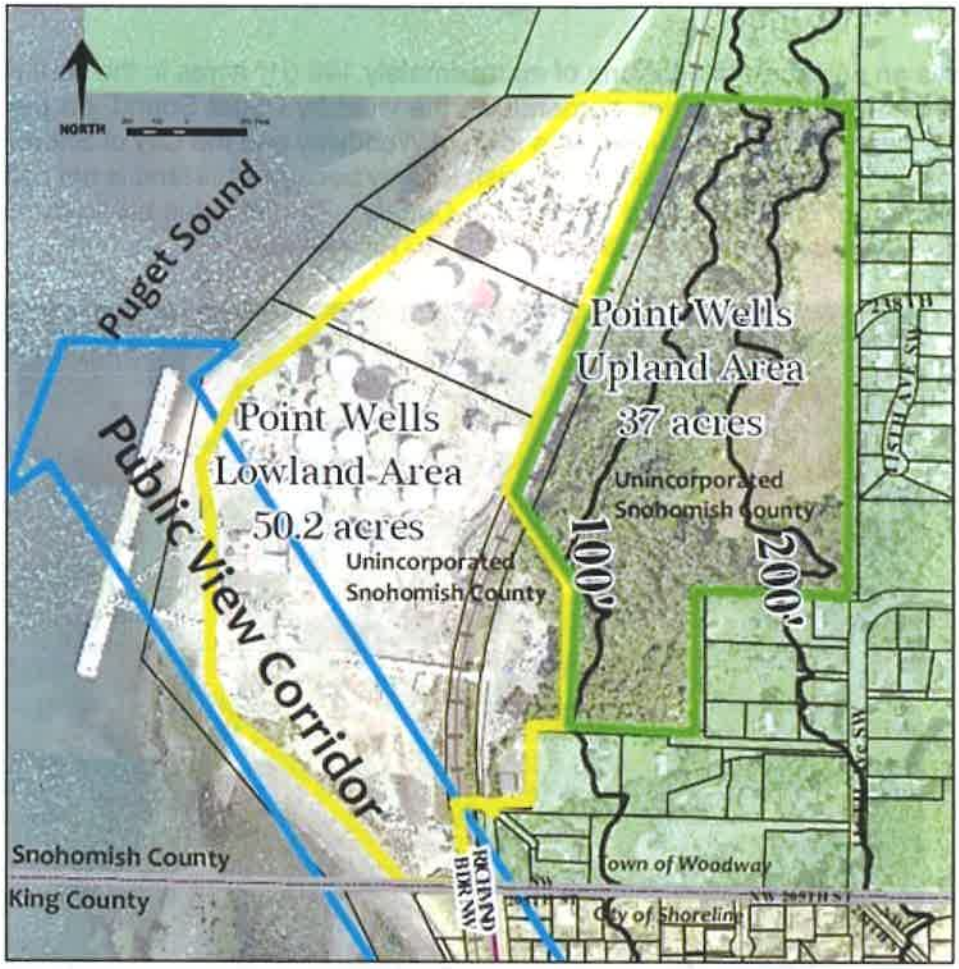
Figure 1 – Point Wells unincorporated island

[Note: Revise Figure 1 to delete the depicted Upland Area and to show it instead as being part of the Town of Woodway (this revision reflects Woodway's recent annexation of land east of the BNRR).]

[1] All the DEIS documents submitted by the developer list the lowland property as 61 acres. Since Woodway has annexed the upper bluff area, the unincorporated area is now 61 acres, not 100 acres.
[2] With Woodway's annexation of the upper bluff, the BNRR no longer bisects the unincorporated portion.

(Ord. 649; 596; 571)

~~The lowland area of this unincorporated island (see Fig. 2) is approximately 50 acres in size.~~[3] The only vehicular access to ~~the lowland portion is to~~ Point Wells is via[4] Richmond Beach Road and the regional road network via the City of Shoreline. However, there is potential easterly access through the Town of Woodway connecting to 116th Avenue West.[5]



~~Figure 2 – Upland and Lowland Areas at Point Wells~~

[Note: Delete Figure 2 as there is no longer a need to identify the upland area vs. the lowland area. The View Corridor arrow should be moved to Figure 1 or the old Figure 3].

~~The upland area of the Point Wells Island (see Fig. 2) is approximately 37 acres in size. The upland does not have access to Richmond Beach Drive due to very steep environmentally sensitive slopes that separate the upland portion from the lowland portion. However, the upland portion does have potential easterly access through the Town of Woodway via 238th St. SW.~~ [6]

~~All of the Point Wells Island was previously designated by the City of Shoreline as a "Potential Annexation Area" (PAA). The Town of Woodway, and Snohomish County, have previously identified all of the Point Wells unincorporated island as within the Woodway "Municipal Urban~~

[3] With Woodway's annexation of the upper bluff, there is no reason to distinguish between the upland and lowland area of the unincorporated island as the entire island is not the old lowland area.
[4] Again, no need to reference this as the lowland portion.
[5] The plan should recognize the second access road likely to be required by Snohomish County.
[6] With Woodway's annexation of the upper bluff, this paragraph is no longer needed.

(Ord. 649; 596; 571)

~~Growth Area" (MUGA). The Washington State Court of Appeals, in a 2004 decision, determined that the overlap of Shoreline's PAA and Woodway's MUGA does not violate the provisions of the Growth Management Act.~~ [7]

Snohomish County's designation of Point Wells as an "Urban Center"

In April of 2009, the Shoreline City Council adopted Resolution 285 which opposed the pending Snohomish County designation of Point Wells as an "Urban Center." The resolution cited the likely excessive impacts of up to 3,500 dwelling units on Shoreline streets, parks, schools, and libraries. The City submitted several comment letters to the County Council detailing the reasons for the City's opposition, reiterating the City's support for a mixed use development of a more reasonable scale at Point Wells, and pointed out that an "Urban Center" designation would be inconsistent with provisions of the County's plan as well as the Growth Management Act. Despite the City's opposition, in 2009 Snohomish County rezoned Point Wells as an Urban Center, and in 2010 adopted an Urban Center Development Code that applies to all Urban Centers in Snohomish County.[8]

Designation of a Future Service and Annexation Area (FSAA) at Point Wells

~~After a review of the topography and access options for Point Wells, the City of Shoreline no longer wishes to include the upland portion of this unincorporated island within its designated urban growth area. Because of the upland portion's geographic proximity and potential for direct vehicular access to the Town of Woodway, the City of Shoreline concludes that the upland portion should be exclusively within the Town of Woodway's future urban growth area. Any people living in future developments in the upland portion of the Point Wells Island would feel a part of the Woodway community because they would share parks, schools, and other associations facilitated by a shared street grid.~~[9]

~~Applying the same rationale to the lowland portion of the Point Wells Island, the City of Shoreline wishes to reiterate and clarify its policies. These lands all~~ Although there is potential easterly access to Point Wells through the Town of Woodway connecting to 116th Avenue West, presently ~~connect~~ Point Wells is connected to the regional road network only via Richmond Beach Drive and Richmond Beach Road in the City of Shoreline. Therefore future re-development of ~~the lowland area~~ Point Wells[10] would be most efficiently, effectively, and equitably provided by the City of Shoreline and its public safety partners, the Shoreline Fire Department and Shoreline Police Department.

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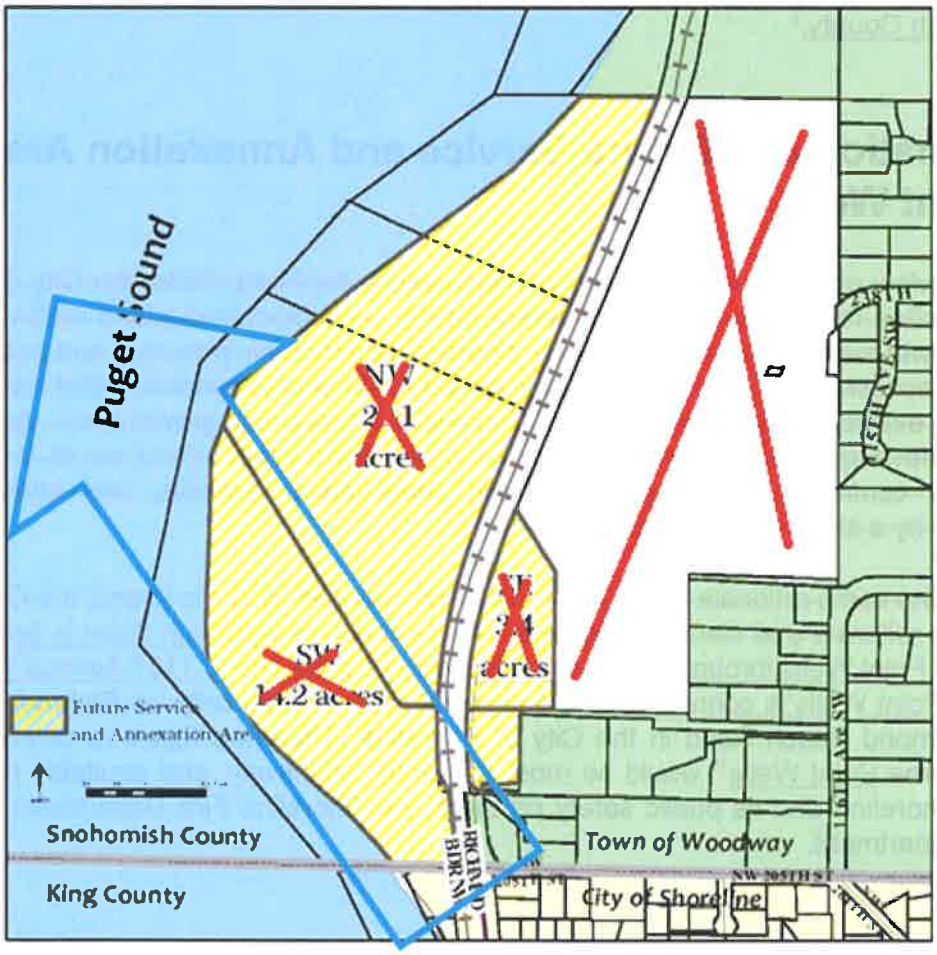
[7] Deleted from this section and moved to the section titled Designation of a Future Service and Annexation Area (FSAA) at Point Wells.
[8] Confirms that the area was in fact designated as an Urban Center.
[9] This paragraph is no longer needed since Woodway has annexed the upland portion.
[10] The changes to this paragraph recognize that there is no longer a need to refer to a "lowland portion" as the upland portion is no longer part of the unincorporated island.

(Ord. 649; 596; 571)

~~At such future time that the lowland portion of the~~ Should Point Wells ~~Island annexes~~ annex[11] to the City of Shoreline, the urban services and facilities necessary to support mixed use urban development would be provided in an efficient and equitable manner. These would include police from the Shoreline police department and emergency medical services and fire protection from the Shoreline Fire Department. In addition, the City would be responsible for development permit processing, code enforcement, parks, recreation and cultural services, and public works roads maintenance.

Future residents of ~~the lowland portion~~[12] of Point Wells would become a part of the Richmond Beach community by virtue of the shared parks, schools, libraries, shopping districts and road grid. As citizens of the City of Shoreline, they would be able to participate in the civic life of this "community of shared interests," including the City's Parks Board, Library Board, Planning Commission, or other advisory committees, and City Council.

*Policy PW-1 ~~The Lowland Portion of the~~ Point Wells ~~Island~~[13], as shown on ~~Figure 3~~ Figure 2, is designated as the City of Shoreline's proposed future service and annexation area (**FSAA**)*



~~Fig. 3~~ Fig. 2 – **City of Shoreline Future Service and Annexation Area**

[11] No need to refer to the lowland potion.
[12] No need to refer to the lowland potion.
[13] No need to refer to the lowland potion.

(Ord. 649; 596; 571)

[Revise Figure 2 to delete the indicated acreage figures. These figures are incorrect. The application submitted by the developer BSRE to Snohomish County and pages from the preliminary draft DEIS show that the Point Wells acreage is 61 acres. Also, in Figure 2, delete the depicted white-color Upland Area and show it as being part of the Town of Woodway (this revision reflects Woodway's recent annexation of land east of the BNRR). Finally, insert into this new Figure 2 the Public View Corridor graphic from previously numbered and to-be-deleted Figure 2 and its 100-foot and 200-foot elevation contours.]

A Future Vision for Point Wells

The Subarea Plan, intended to be a 20-year plan document, envisions a Point Wells development that could take longer than 20 years to become fully realized once a permit is approved to develop the site.[14] Because of the time horizon of the plan and future development, the City, in its decision-making, should consider the long-term costs of near-term actions and make choices that reflect a long-term perspective.

The City's vision for Point Wells is a world class environmentally sustainable community, both in site development and architecture. The redevelopment of the site should be predicated on remediation of the contaminated soil, and the restoration of streams and native plant regimes appropriate to the shoreline setting. New site design and improvements should incorporate low impact and climate friendly practices such as alternative energy sources, vegetated roofs, rainwater harvesting, rain gardens, bioswales, solar and wind technologies. Development at Point Wells should exhibit the highest quality of sustainable architecture, striving for gold or platinum LEED (Leadership in Energy and Environmental Design) certification.

> *Policy PW-2 The Vision for Point Wells is an environmentally sustainable mixed-use community that is a model of environmental restoration, low-impact and climate friendly sustainable development practices, and which provides extensive public access to the Puget Sound with a variety of trails, parks, public and semi-public spaces.*

Point Wells also represents a major opportunity to create a new subarea consistent with City objectives for economic development, housing choice, and waterfront public access and recreation. With almost 3,000 linear feet of waterfront, and sweeping 180 degree public views from Admiralty Inlet off Whidbey Island to Rolling Bay on Bainbridge Island, this site has unparalleled opportunity for public access, environmental restoration, education, and recreation oriented to Puget Sound.

The City's vision for Point Wells includes a mix of land uses, including residential, commercial, and recreational. The City recognizes that the site may be suited to a wide range of residential uses (e.g., market rate housing, senior housing, special needs housing, hotels, extended stay, etc.) as well as a range of commercial uses (e.g., office, retail, restaurant). Rather than proscribe the number or type of residential units, or the floor area of various types of commercial uses, the City prefers that flexibility be left to the developer to respond to market realities. However, whatever use mix is proposed must demonstrate that it conforms to adopted parking requirements, site design and building form policies cited below, and that generated traffic after mitigation does not exceed adopted city-wide level of service standards, and does not exceed the traffic limit for Richmond Beach Drive that is specified in this Subarea Plan. [15]

---

[14] Given the current timeline of several years before the hearing examiner makes a decision, and the likelihood of court appeals following the decision, the start of actual development is at least 5 years away.
[15] This confirms that the City's vision includes limiting traffic to maintain the City's LOS standards.

(Ord. 649; 596; 571)

There are at least three distinct sub-areas within the FSAA, identified on Fig. ~~3~~ 2 with the notations NW, SW, and SE. Because of their proximity to the single family neighborhoods to the east and south, maximum building heights in the SW and SE areas should be lower than in the NW subarea. Because of the large difference in elevation between the NW subarea and lands east of the railroad tracks, ~~much~~ taller buildings could be placed in this area without significantly impairing public views. Building placement in this area should avoid obstruction of the public view corridor shown on Fig. 2. The appropriate number, placement and size of taller buildings in NW subarea should be determined through the development permit and environmental review process.

The portion of the Puget Sound shoreline in the SW subarea is the most environmentally sensitive area and a candidate for habitat restoration. This area has sandy substrate, supports some beach grass and other herbaceous vegetation, and contains a fair amount of driftwood. This area should be a priority for open space and restoration including elimination of invasive plants, re-establishing native riparian and backshore vegetation.

> *Policy PW-3 Use and development of and near the Puget Sound shoreline and aquatic lands at Point Wells should be carefully designed and implemented to minimize impacts and achieve long-term sustainable systems. New bulkheads or over-water structures should not be permitted and the detrimental effects of existing bulkheads should be reduced through removal of bulkheads or alternative, more natural stabilization techniques.*

Any improvements in the westernmost 200 feet (within the jurisdiction of the Shoreline Management Act) of the NW and SW subareas should be limited to walkways and public use or park areas. Outside that shoreline area, buildings should be located and configured to maintain as much openness and public views across the site as possible, with taller structures limited to the central and easterly portions.

> *Policy PW-4 A public access trail should be provided and appropriate signage installed along the entire Puget Sound shoreline of the NW and SW subareas and secured with an appropriate public access easement document.*

The relatively lowland area west of the tracks (between 10 and 20 feet above sea level) is abutted east of the tracks by a heavily forested slope. See Fig. 1. The slope rises steeply (15% to 25% grades) from the railroad tracks to the top of the slope, which is at approximately elevation 200. See Figure 2. ~~The tree line at the top of the slope consists of mature trees from 50 to 100 feet in height, which further obscures public views of Point Wells from the portions of Woodway above elevation 200.~~ [16]

> *Policy PW-5 New structures in the NW subarea should rise no higher than elevation ~~200~~ 150 or be no taller than 90 feet, whichever is less.* [17]

New buildings east of the railroad tracks would be much closer to existing single family homes in Woodway and Richmond Beach. To reflect this proximity, buildings of a smaller scale are appropriate.

---

[16] Many of the trees at the top of the slope are likely to be cut down as part of the Upper Bluff development.
[17] Building to the full 200 foot elevation would make the buildings visible to the residents of the Upper Bluff development, and the City should recognize the 90 foot building height limit contained in the County's Urban Village zoning regulations.

(Ord. 649; 596; 571)

Policy PW-6 New structures in the SE Subarea should rise no higher than six stories.

In order to promote maximum openness on the site and prevent bulky buildings, the City should consider innovative regulations such as design standards and guidelines, building floor plate maxima, requiring a minimum separation between taller structures and the protection of public view corridors. Public views from city rights-of-way in the Richmond Beach neighborhood are a major part of the area's character, and provide a sense of place, openness, beauty and orientation. A prominent public view corridor across the lowland area, shown in Fig. 2, affords a public view from Richmond Beach Drive northwest to Admiralty Inlet and Whidbey Island. Placement and size of structures at Point Wells should be located and configured so as not obstruct this important public view corridor.

Policy PW-7 The public view from Richmond Beach Drive in Shoreline to Admiralty Inlet should be protected by a public view corridor across the southwest portion of the NW and SW subareas. New structures in the and SW subarea and the southwest portion of the NW subarea should rise no higher than six stories. [18]

Policy PW-8 New structures in the NW subarea should be developed in a series of slender towers separated by public view corridors.

Transportation Corridor Study and Mitigation

A traffic and safety analysis performed by the City in the summer of 2009 evaluated the nature and magnitude of impacts likely to accrue from the development of Point Wells as an "Urban Center" under Snohomish County zoning, as well as development scenarios assuming lesser orders of magnitude. This background information provided a basis for the City to conclude that, prior to the approval of any specific development project at Point Wells, the applicant for any development permit at Point Wells should fund, and the City oversee, the preparation of a detailed Transportation Corridor Study.

Corridor Study

The Transportation Corridor Study and Implementation Plan should include an evaluation of projected impacts on vehicular flow and levels of service at every intersection and road segment in the corridor. If a potential alternative access scenario is identified, it should be added to the corridor study. The Study should also evaluate and identify expanded bicycle and pedestrian safety and mobility investments, and identify "context sensitive design" treatments as appropriate for intersections, road segments, block faces, crosswalks and walkways in the study area with emphasis on Richmond Beach Road and Richmond Beach Drive and other routes such as 20th Ave. NW, 23rd Place NW, NW 204th Street and other streets that may be impacted if a secondary road is opened through Woodway.

Implementation Plan

The corridor study would be a step in the development of such a plan. The scope of the implementation plan should include a multimodal approach to mobility and accessibility to and from Point Wells, as well as detailed planning for investments and services to improve multimodal travel for adjacent communities between Point Wells and I-5. This could well include an integrated approach to accessing Point Wells, the Richmond Beach neighborhood, and Richmond Highlands with the Bus Rapid Transit system along Aurora Avenue, the I-5 corridor

[18] The height limitation in the view corridor helps preserve the views from existing neighborhoods. (Ord. 649; 596; 571)

itself - focusing on the interchanges at N. 205th and N. 175th , as well as the Sound Transit light rail stations serving Shoreline.

While the analysis of vehicle flows is appropriate as part of the study, the solutions should provide alternatives to vehicle travel to and from Point Wells - as well as more transportation choices than those that currently exist today for the Richmond Beach neighborhood and adjacent communities.

> *Policy PW-9 To enable appropriate traffic mitigation of future development at Point Wells, the developer should fund the preparation of a Transportation Corridor Study as the first phase of a Transportation Implementation Plan, under the direction of the City, with input and participation of Woodway, Edmonds, Snohomish County and WSDOT. The Study and Transportation Implementation Plan should identify, engineer, and provide schematic design and costs for intersection, roadway, walkway and other public investments needed to maintain or improve vehicular, transit, bicycle and pedestrian safety and flow on all road segments and intersections between SR 104, N 175th Street, and I-5 with particular attention focused on Richmond Beach Drive and Richmond Beach Road. Road segments that would be impacted by an alternate secondary access through Woodway should also be analyzed, which* would *include 20th Avenue NW, 23rd Place NW and NW 204th Street. The Study and Transportation Plan should identify needed investments and services, including design and financing, for multimodal solutions to improving mobility and accessibility within the Richmond Beach neighborhood and adjacent communities, including but not limited to investments on Richmond Beach Drive and Richmond Beach Road.*
>
> *Policy PW-10 The needed mitigation improvements identified in the Transportation Corridor Study and Implementation Plan should be built and operational concurrent with the occupancy of the phases of development at Point Wells.*

Richmond Beach Road and Richmond Beach Drive provide the only vehicular access to Point Wells at this time. Therefore, it is critical that identified impacts be effectively mitigated as a condition of development approval. It is also vital that the traffic generated from Point Wells be limited to preserve safety and the quality of residential neighborhoods along this road corridor. In the event that secondary vehicular access is obtained through Woodway to the Point Wells site, the mitigation and improvements of the impacts to those additional road segments must also occur concurrent with the phased development.

Historically, mobility and accessibility in Richmond Beach and adjacent communities has been dominated by the single occupancy vehicle. Provision of bicycle and pedestrian facilities has been limited because retrofitting an existing road network with these facilities is an expensive undertaking. The Richmond Beach Road corridor is served by limited Metro bus service and is beyond a reasonable walking distance from potential development within Point Wells. Though rail service to a station in Richmond Beach was evaluated by Sound Transit, no service is envisioned in the transit agency's adopted 20 year plan. Improved transit, bicycle and pedestrian mobility is a long-term policy objective, but the majority of trips in the area will likely continue to be by automobiles utilizing the road network. The City's traffic study completed in 2009, assuming a 4-lane Richmond Beach Road, [19] shows that if more than 8,250 vehicle trips a day enter the City's road network from Point Wells, it would result in a level of service "F" or worse at a number of City intersections. The City's Transportation Improvement Plan has scheduled Richmond Beach Road from 24th Ave NW to Dayton Ave. N to be rechanneled from

[19] It is important to note that previous traffic studies did not consider the amount of traffic that a 3-lane configuration of Richmond Beach Road could handle.

(Ord. 649; 596; 571)

4 lanes to 3 lanes in 2018. The rechannelization will reduce the capacity of this road segment so that current excess capacity is about 4,000 vehicle trips per day. If more than this number of vehicles enter Richmond Beach Road from Point Wells, it will result in a volume-to-capacity (v/c) ratio of over .90 on several City road segments and a level of service "F" or worse as a number of City intersections. [20] This would be an unacceptable impact incapable of being mitigated with Richmond Beach Road remaining at three lanes.

Policy PW-11 The City should address opportunities to improve mobility, accessibility, and multimodal east-west movement in the Richmond Beach Road Corridor between Puget Sound and I-5 as part of the update of the city-wide Transportation Management Plan. The City should also work with neighboring jurisdictions Woodway and Edmonds to improve north-south mobility. These opportunities should be pursued in a manner that reduces existing single occupancy vehicle trips in the corridor.

Policy PW-12 In view of the fact that Richmond Beach Drive between NW 199th St. and NW 205th St. is a local road with no opportunities for alternative access to dozens of homes in Shoreline and Woodway, the City designates this as a local street with a maximum capacity of 4,000 vehicle trips per day. ~~Unless and until 1) Snohomish County and/or the owner of the Point Wells Urban Center can provide to the City the Transportation Corridor Study and Mitigation Plan called for in Policy PW-9, and 2) sources of financing for necessary mitigation are committed, the City should not consider reclassifying this road segment.~~ [21]

Policy PW-13 With a 3-lane Richmond Beach Road, there is little excess traffic capacity under the City's 0.90 V/C standard for arterials. While the City generally supports a mixed-use development at Point Wells, the City does not support a development at Point Wells that would result in traffic measured at any point along Richmond Beach Road exceeding the City's 0.90 V/C standard. While certain mitigations may lessen the likelihood of the City's 0.90 V/C standard being exceeded, the City rejects increasing the City's 0.90 V/C standard for Richmond Beach Road (e.g., increasing it to 0.95 or higher) as a possible mitigation measure, and the City rejects acquiring private property in order to widen Richmond Beach Road to five lanes as a mitigation measure, and the City rejects as a mitigation measure reverting Richmond Beach Road to four lanes which would jeopardize the public's health and safety especially with increased traffic from Point Wells. [22]

Interjurisdictional Coordination

The City should work with the Town of Woodway and Edmonds to identify ways in which potential future development ~~in the lowland portion~~ of Point Wells could be configured or mitigated to reduce potential impacts on Woodway. ~~There is no practical primary vehicular access to the lowland part of Point Wells other than via Richmond Beach Road. However, the City should work with property owners and Woodway to provide a bicycle and pedestrian route between Woodway and Point Wells.~~ [23]

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[20] The Subarea Plan should recognize that RB Road is scheduled to be rechanneled to 3 lanes in 2018.
[21] The plan should not make promises to the future developer about changing the classification of RB Drive. Removing this sentence does not prevent the City from reclassifying the road if that makes sense in the future.
[22] Adding a new policy restates the City's LOS standards and position on acceptable mitigation for increased traffic on RB Road.
[23] With the likelihood of a second access road through Woodway, this sentence is no longer accurate.

(Ord. 649; 596; 571)

The Growth Management Act states that cities, rather than county governments, are the preferred providers of urban governmental services. Because urban governmental services and facilities in Shoreline are much closer to Point Wells than are similar services and facilities located in Snohomish County, it is most efficient for the City to provide those services.

Working with its public safety partners, Shoreline Fire Department and Shoreline Police Department, the City should invite Snohomish County to discuss an interlocal agreement to address the timing and methods to transition local governmental responsibilities for Point Wells from the County to the City. Included in these discussions should be responsibilities for permitting and inspection of future development at Point Wells, and possible sharing of permitting or other local government revenues to provide an orderly transition.

Policy PW-~~13~~ 14 The City should work with the Town of Woodway, City of Edmonds and Snohomish County toward adoption of interlocal agreements to address the issues of land use, construction management of, urban service delivery to, and local governance of Point Wells. ~~A joint SEPA lead-agency or other interlocal agreement with the County could assign to the City the responsibility for determining the scope, parameters, and technical review for the transportation component of the County's Environmental Impact Statement prepared for a future project at Point Wells. Under such agreement, this environmental analysis, funded by the permit applicant, could satisfy the policy objectives of the Transportation Corridor Study and Implementation Plan referenced at PW-10.~~ [24]

Policy PW-~~14~~ 15 In the event that development permit applications are processed by Snohomish County, the City should use the policies in this Subarea Plan as guidance for identifying required mitigations through the SEPA process and for recommending changes or additional permit conditions to achieve greater consistency with the City's adopted policies.

[24] This section is no longer needed as the County has continued forward with the Transportation component of the EIS without the City's Transportation Corridor Study.

(Ord. 649; 596; 571)

Mixed Use and Commercial Land Use

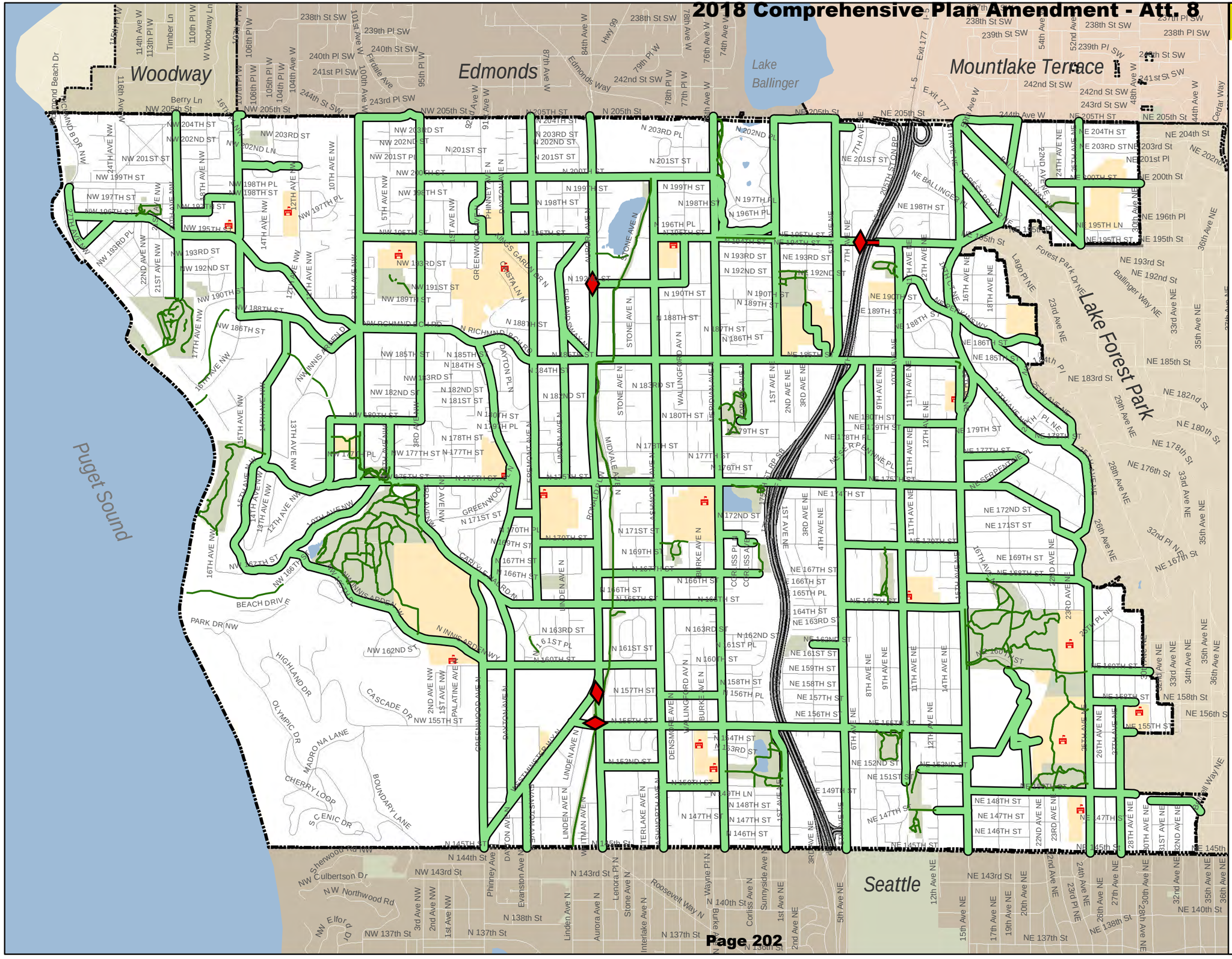
LU9: The Mixed-Use 1 (MU1) designation encourages the development of walkable places with architectural interest that integrate a wide variety of retail, office, and service uses, along with form-based maximum density residential uses. Transition to adjacent single-family neighborhoods may be accomplished through appropriate design solutions. Limited manufacturing uses may be permitted under certain conditions.

~~LU10: The Mixed-Use 2 (MU2) designation is similar to the MU1 designation, except it is not intended to allow more intense uses, such as manufacturing and other uses that generate light, glare, noise, or odor that may be incompatible with existing and proposed land uses. The Mixed-Use 2 (MU2) designation applies to commercial areas not on the Aurora Avenue or Ballinger Way corridors, such as Ridgecrest, Briarcrest, Richmond Beach, and North City. This designation may provide retail, office, and service uses, and greater residential densities than are allowed in low-density residential designations, and promotes pedestrian connections, transit, and amenities.~~

LU10: The Mixed-Use 2 (MU2) designation encourages the development of walkable places with architectural interest that integrate a wide variety of retail, office, and service uses. It does not allow more intense uses, such as manufacturing and other uses that generate light, glare, noise, or odor that may be incompatible with existing and proposed land uses. The Mixed-Use 2 (MU2) designation applies to commercial areas not on the Aurora Avenue or Ballinger Way corridors, such as Ridgecrest, Briarcrest, Richmond Beach, and North City. This designation may provide retail, office, and service uses, and greater residential densities than are allowed in low-density residential designations, and promotes pedestrian connections, transit, and amenities.

Figure L

Pedestrian System Plan



Legend

- Bridge
- Trail (Interurban, Other Trails)
- Pedestrian System

Other Map Features:

- School
- School Property
- Park

0 500 1,000 2,000 3,000 Feet

1 inch = 1,983 feet

CITY OF SHORELINE

N W E S

Shoreline Sidewalk Prioritization Scorecard

FINAL

Date: 5/22/18

Criterion	Metric	Max.	Actual
	Safety	**9**	
Safety	Location has a **collision history** (auto and/or pedestrian):		
	(1 Point) At least **one injury collision** within the past five years	1	
	(1 Point) At least **one pedestrian/auto collision** within the past five years	1	
	(1 Point) **Two** or more **pedestrian/auto collisions** within the past five years	1	
	Location is along a street with **speed limit**:		
	(0 Point) ≤ 25 mph	0 or	
	(1 Point) = 30 mph	1 or	
	(2 Points) ≥ 35 mph	2	
	Location is along a street with **classification** of:		
	(1 Point) Collector Arterial	1 or	
	(2 Points) Minor Arterial	2 or	
	(3 Points) Principal Arterial	3	
	Improvement provides an **alternative to travel** along a motorized facility (1 Point) Trail or path through park or undeveloped right-of-way)	1	
	Equity	**6**	
Equity	Improvement is within an area of concentrated need based on **age**:		
	(1 Point) Children:18 years or younger	1	
	(1 Point) Older Adults: 60 years or older*	1	
	Improvement is within an area of concentrated need based on **income** (1 Point) ≤ 80% of median income for a family of two**	1	
	Improvement serves a concentrated **community of color** (1 Point) Top 20% of population density of households of people of color	1	
	Improvement serves a concentrated community with **disabilities** (1 Point) Top 20% of population density of households of people with a disability	1	
	Improvement serves a concentrated community of **limited English speakers** (1 Point) Top 20% of population density of households with a limited English speaker	1	
	Proximity	**6**	
Proximity	(1 Point) Improvement is along a school's **suggested routes to schools** map	1	
	(1 Point) Improvement is located within a ¼ mile radius of a **park**	1	
	(1 Point) Connects to an **activity center** (within a retail/business area or within a ¼ mile radius of civic building or community service)	1	
	Improvement is located within the vicinity of a **transit stop**:		
	(1 Point) Improvement is located **along a street** with **transit stops**	1	
	(1 Point) Improvement is located within a **¼ mile radius** of a **bus stop**	1	
	(1 Point) Improvement is located within a **½ mile radius** of an existing or planned **BRT stop or Light Rail Station**	1	
	Connectivity	**2**	
Connectivity	(1 Point) **Extends** an existing pedestrian facility	1 or	
	(2 Point) **Closes gap** within an existing pedestrian facility	2	
	Total Project Score	**23**	

* Eligibility for the Older Americans Act starts at age 60.

** Eligibility threshold for King County Housing Authority residents is 80% of median income. U.S. Department of Housing and Urban Development (HUD) defines 50%-80% of median income as "Low Income".

2018 Comprehensive Plan Amendment - Att. 10

Date: 6/1/2018

Request: 15064

CITY OF SHORELINE

Geographic Information System

2018 Sidewalk Prioritization Plan

with Project Numbers and Quadrant Overlay

Legend

TMP Projects

- High
- Medium
- Low

- Green Network
- Existing Sidewalk
- Existing Trail
- Planned Trail
- Planned Pedestrian/Bike Bridge

Quadrant

- NW
- NE
- SW
- SE

N W E S

0 0.5 1 Miles

2018 PEDESTRIAN IMPROVEMENTS PRIORITIZATION MATRIX							SAFETY						EQUITY						PROXIMITY						CONNECTIVITY		TOTALS						QUAD.
LINE #	PROJECT #	STREET	FROM	TO	STREET CLASSIFICATION	DESCRIPTION	1 Injury Collision	1 Ped/ Auto Collision	2+ Ped/ Auto Collisions	Street Classification	Speed Limit	Alternative to travel	Age - Children	Age - Older Adults	Income	Community of Color	Disabilities	Limited English Speakers	School Walkshed	1/4 mile Park	1/4 mile Activity Center	Along a Street w/ a Transit Stop	1/4 mile bus stop	1/2 mile BRT or Light Rail Station	Extends	Closes Gap	Total Safety	Total Equity	Total Proximity	Total Connectivity	Total Score	Adjusted Score	Quadrant - NE, SE, SW, NW of 175th St. & Aurora Ave
1	64	N 175th St	Stone Ave N	Meridian Ave N	Principal Arterial	Construct sidewalks on the north and south sides of the street and improve existing sidewalks. Replace the existing asphalt walkway adjacent to Meridian Park Elementary School with a sidewalk.	1	0	0	3	2	0	0	0	1	1	1	1	1	1	1	1	1	1	0	2	6	4	6	2	18	18	SE NE
2	98	15th Ave NE	NE 150th St	NE 160th St	Principal Arterial	Construct sidewalks on the east side of the street	1	1	0	3	2	0	0	0	1	1	1	1	1	1	1	1	1	0	1	0	7	4	5	1	17	17	SE
3	81	15th Ave NE	NE 181st St	NE 196th St	Principal Arterial	Construct and improve sidewalks on the west and east sides of the street,	1	0	0	3	2	0	0	0	1	0	1	1	1	1	1	1	1	1	0	2	6	3	6	2	17	17	NE
4	57	Meridian Ave N	N 194th St	N 205th St	Minor Arterial	Construct sidewalks on the east side of the street	1	1	1	2	2	0	1	0	0	0	0	1	1	1	0	1	1	1	0	2	7	2	5	2	16	16	NE
5	73	19th Ave NE	NE 196th St	NE 205th St	Minor Arterial	Construct sidewalks on west and east sides of the street, where needed.	1	1	1	2	1	0	1	0	1	0	0	0	1	1	1	1	1	0	0	2	6	2	5	2	15	15	NE
6	34	Dayton Ave N	N 178th St	N Richmond Beach Rd	Minor Arterial	Construct sidewalks on one side of the street	1	0	0	2	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	0	4	5	6	0	15	15	NW
7	21	8th Ave NW	North side of Sunset Park	Richmond Beach Rd NW	Collector Arterial	Construct sidewalks on east side of the street	1	1	0	1	1	0	1	1	1	0	1	1	1	1	1	0	1	0	0	2	4	5	4	2	15	15	NW
8	48	Linden Ave N	N 175th St	N 185th St	Local Secondary	Construct sidewalks on the east side of the street from N 175th St to N 177th St, on	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	0	1	1	1	0	3	5	5	1	14	14	NW
9	40	Westminster Way N	N 145th St	N 153rd St	Principal Arterial	Construct sidewalks on both sides of the street	1	1	0	3	2	0	0	0	1	0	0	0	1	1	0	1	1	1	1	0	7	1	5	1	14	14	SW
10	25	3rd Ave NW	NW 189th St	NW 195th St	Collector Arterial	Construct sidewalks to fill in gaps on the east side of the street	1	1	0	1	1	0	0	1	1	0	1	0	1	1	1	1	1	0	0	2	4	3	5	2	14	14	NW

Projects highlighted in red are high priority, projects highlighted in yellow are medium priority, and projects highlighted in green are low priority.

2018 PEDESTRIAN IMPROVEMENTS PRIORITIZATION MATRIX							SAFETY						EQUITY						PROXIMITY						CONNECTIVITY		TOTALS						QUAD.
LINE #	PROJECT #	STREET	FROM	TO	STREET CLASSIFICATION	DESCRIPTION	1 Injury Collision	1 Ped/ Auto Collision	2+ Ped/ Auto Collisions	Street Classification	Speed Limit	Alternative to travel	Age - Children	Age - Older Adults	Income	Community of Color	Disabilities	Limited English Speakers	School Walkshed	1/4 mile Park	1/4 mile Activity Center	Along a Street w/ a Transit Stop	1/4 mile bus stop	1/2 mile BRT or Light Rail Station	Extends	Closes Gap	Total Safety	Total Equity	Total Proximity	Total Connectivity	Total Score	Adjusted Score	Quadrant - NE, SE, SW, NW of 175th St. & Aurora Ave
11	102	NE 150th St	15th Ave NE	25th Ave NE	Collector Arterial	Construct sidewalks on south side of the street (excludes segment from 18th Ave NE to 20th Ave NE, Project #103)	1	0	0	1	1	0	1	1	1	1	0	1	1	1	1	1	1	0	0	0	3	5	5	0	13	13	SE
12	85	5th Ave NE	NE 175th St	NE 185th St	Minor Arterial	Construct sidewalks on the west and east sides of the street	1	1	0	2	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	0	6	1	5	1	13	13	NE
13	82	Perkins Way NE	10th Ave NE	21st Ave NE	Collector Arterial	Construct sidewalks on the south side of the street from 10th Ave NE to 21st Ave NE	1	0	0	1	0	0	0	1	1	1	1	1	1	1	0	0	1	1	0	2	2	5	4	2	13	13	NE
14	67	N 165th St	Interurban Trail	Meridian Ave N	Local Primary	Construct sidewalks on the north and south sides of the street and improve pedestrian path in the unimproved right-of-way	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	2	5	5	1	13	13	SE
15	56	Ashworth Ave N	N 195th St	N 200th St	Collector Arterial	Construct sidewalks on the west and east sides of the street.	1	0	0	1	1	0	1	0	1	1	1	1	1	1	1	0	1	1	0	0	3	5	5	0	13	13	NE
16	55	Ashworth Ave N	N 175th St	N 185th St	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	0	0	1	1	0	1	0	1	1	1	1	1	1	1	0	1	1	0	0	3	5	5	0	13	13	NE
17	41	NW 195th St	3rd Ave NW	Linden Ave N	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	1	0	1	0	0	0	1	1	1	1	1	1	1	0	0	1	1	1	0	3	5	4	1	13	13	NW
18	24	3rd Ave NW	NW 180th St	NW Richmond Beach Rd	Collector Arterial	Construct sidewalks on the east side of the street	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	0	1	0	0	0	4	5	4	0	13	13	NW
19	6a	NW 196th St	23nd Ave NW	21st Ave NW	Collector Arterial	Construct sidewalks on the south side of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	2	2	0	4	2	8	12	NW
20	47b	Fremont Ave N	N 175th St	N 185th St	Collector Arterial	Construct sidewalks on both sides of street	1	0	0	1	0	0	1	0	1	1	1	1	1	1	1	1	1	0	0	0	2	5	5	0	12	12	NW
21	204a	N 183RD ST	STONE AVE N	Ashworth Ave N	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	1	0	1	1	1	1	1	1	1	0	1	0	0	2	1	5	4	2	12	12	NE
22	212	12TH AVE NE	NE 152ND ST	NE 145TH ST	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	1	1	1	1	1	1	0	1	0	0	1	1	0	2	1	6	3	2	12	12	SE

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2018 PEDESTRIAN IMPROVEMENTS PRIORITIZATION MATRIX							SAFETY						EQUITY						PROXIMITY						CONNECTIVITY		TOTALS						QUAD.
LINE #	PROJECT #	STREET	FROM	TO	STREET CLASSIFICATION	DESCRIPTION	1 Injury Collision	1 Ped/ Auto Collision	2+ Ped/ Auto Collisions	Street Classification	Speed Limit	Alternative to travel	Age - Children	Age - Older Adults	Income	Community of Color	Disabilities	Limited English Speakers	School Walkshed	1/4 mile Park	1/4 mile Activity Center	Along a Street w/ a Transit Stop	1/4 mile bus stop	1/2 mile BRT or Light Rail Station	Extends	Closes Gap	Total Safety	Total Equity	Total Proximity	Total Connectivity	Total Score	Adjusted Score	Quadrant - NE, SE, SW, NW of 175th St. & Aurora Ave
23	206	N 195TH ST	AURORA AVE N	Dead End (Echo Lake)	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	1	0	1	1	1	1	0	1	1	0	1	1	1	0	1	5	4	1	11	12	NE
24	205	16TH AVE NE/ NE 185TH ST	NE PERKINS WAY	24th Ave NE	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	0	1	1	1	1	1	0	0	1	0	1	1	1	0	1	5	3	1	10	12	NE
25	203	LINDEN AVE N	N 195TH ST	Firlands Way N	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	0	1	0	1	0	1	0	1	0	0	1	1	0	0	1	3	3	0	7	12	NW
26	92	NE 175th St	15th Ave NE	22nd Ave NE	Collector Arterial	Construct sidewalks on both sides of the streets, where needed, to complete sidewalks on both sides of the streets	1	0	0	1	1	0	1	0	1	0	1	0	1	1	1	0	1	0	0	2	3	3	4	2	12	12	SE NE
27	84	24th Ave NE	15th Ave NE	25th Ave NE	Minor Arterial	Construct sidewalks on both sides of the street	1	0	0	2	1	0	0	1	1	1	1	1	0	1	1	0	1	0	0	0	4	5	3	0	12	12	NE
28	75	25th Ave NE	NE 195th St	NE 205th St	Local Primary	Construct sidewalks on the west and east sides of the street	1	0	0	0	1	0	1	0	1	0	0	0	1	1	1	0	1	0	0	0	2	2	4	0	8	12	NE
29	58	1st Ave NE	NE 192nd St	NE 195th St	Local Secondary	Construct sidewalks on the west and east sides of the street	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	2	1	0	4	2	7	12	NE
30	54	Ashworth Ave N	N 155th St	N 175th St	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	0	0	1	1	0	0	1	1	0	1	1	1	1	1	0	1	1	0	0	3	4	5	0	12	12	SE
31	52	N 192nd	Interurban Trail	Ashworth Ave N	Collector Arterial	Construct sidewalks on the south side of the street from the Interurban Trail to Ashworth Avenue N	1	0	0	1	0	0	1	0	1	1	1	1	1	1	0	0	0	1	0	2	2	5	3	2	12	12	NE
32	22	NW 180th St	3rd Ave NW	8th Ave NW	Collector Arterial	Construct sidewalks on one side of the street	1	1	0	1	0	0	1	1	1	0	1	1	1	1	0	0	0	0	0	2	3	5	2	2	12	12	NW
33	4	20th Ave NW	Saltwater Park entrance	NW 195th St	Local Primary	Construct sidewalks on one side of the street	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	2	0	3	0	5	12	NW

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2018 PEDESTRIAN IMPROVEMENTS PRIORITIZATION MATRIX							SAFETY						EQUITY						PROXIMITY						CONNECTIVITY		TOTALS						QUAD.
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34	118	N 192nd St	Ashworth Ave N	Wallingford Ave N	Local Secondary	Construct sidewalks on the south side of the street	1	0	0	0	0	0	1	0	1	1	1	1	1	1	0	0	1	1	1	0	1	5	4	1	11	11	NE
35	111	N 160th St	Dayton Ave N	Greenwood Ave N	Collector Arterial	Construct a sidewalk on the north side of the street to fill in the gap	1	1	0	1	1	0	0	0	0	0	0	0	1	1	1	0	1	1	0	2	4	0	5	2	11	11	SW
36	105	25th Ave NE	NE 145th St	NE 150th St	Collector Arterial	Construct sidewalks on the east side of the street	1	0	0	1	1	0	0	0	1	1	0	1	1	1	1	1	1	0	0	0	3	3	5	0	11	11	SE
37	100	NE 152nd St	11th Ave NE	15th Ave NE	Local Secondary	Construct sidewalks on the north and south sides of the street	1	0	0	0	0	0	1	1	1	1	1	1	0	1	1	0	1	1	0	0	1	6	4	0	11	11	SE
38	93	25th Ave NE	NE 165th St	NE 178th St	Collector Arterial	Construct sidewalks on the west and east sides of the street. Reduce sidewalk width or construct shoulder when topography is restrictive	1	0	0	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	3	6	2	0	11	11	SE
39	83	25th Ave NE	Perkins Way NE	NE 178th Street	Collector Arterial	Construct sidewalks on both sides of the street	1	0	0	3	0	0	0	1	1	1	1	1	0	1	0	0	1	0	0	0	4	5	2	0	11	11	NE
40	74	Ballinger Way NE	19th Ave NE	25th Ave NE	Local Secondary	Construct sidewalks on the southwest side of the street where needed	1	0	0	0	2	0	1	0	1	0	0	0	1	1	1	1	1	0	1	0	3	2	5	1	11	11	NE
41	46	Firlands Way N	N 185th St	N 195th St	Local Secondary	Construct sidewalks on the west and east sides of the street	1	0	0	0	0	0	0	1	1	1	0	1	1	1	1	0	1	1	1	0	1	4	5	1	11	11	NW
42	42	NW 200th St	3rd Ave NW	Aurora Ave N	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	0	0	1	0	0	0	1	0	1	0	1	1	1	1	1	1	1	1	0	2	3	6	1	12	11	NW
43	35	Dayton Ave N	Westminster Way N	N 165th St	Local Secondary	Construct sidewalks on the west and east sides of the street	1	1	0	0	2	0	0	0	1	0	0	0	1	1	1	1	1	1	0	0	4	1	6	0	11	11	SW
44	31	3rd Ave NW/Carlyle Hall Rd NW	N 175th St	Dayton Ave N	Collector Arterial	Construct sidewalks on the east side of the street and the west side of the street, where needed	1	1	0	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	2	3	0	6	2	11	11	SW
45	26	3rd Ave NW	NW 195th St	NW 205th St	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	1	0	1	1	0	0	1	1	0	1	0	1	1	0	1	1	0	0	0	4	3	4	0	11	11	NW

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46	6b	NW 196th St	Richmond Beach Dr NW	21st Ave NW	Collector Arterial	Construct sidewalks on the north side of the street and fill in gaps on the side of the street	1	1	0	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	2	4	0	4	2	10	10	NW
47	106a	27th Ave NE	NE 155th St	NE 158th St	Local Secondary	Construct and improve sidewalks on the west and east sides of the street, where needed.	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	2	0	3	10	SE
48	119	Wallingford Ave N	N 192nd St	N 195th St	Local Secondary	Construct sidewalks on the east side of the street	1	0	0	0	0	0	1	0	1	1	1	1	1	1	0	0	1	1	0	0	1	5	4	0	10	10	NE
49	101	NE 148th St	12th Ave NE	15th Ave NE	Local Secondary	Construct sidewalks on the north and south sides of the street	1	0	0	0	0	0	1	1	1	1	0	1	0	1	1	0	1	1	0	0	1	5	4	0	10	10	SE
50	71	1st Ave NE	NE 145th St	NE 155th St	Collector Arterial	Construct sidewalks on east and west sides of the street, where needed.	1	0	0	1	1	0	0	0	0	0	0	0	1	1	1	0	1	1	0	2	3	0	5	2	10	10	SE
51	69	N 160th St	Aurora Ave N	Ashworth Ave N	Local Secondary	Construct sidewalks on the north and south sides of the street	1	1	0	0	0	0	0	1	0	0	1	0	1	1	1	0	1	1	1	0	2	2	5	1	10	10	SE
52	68	N 157th St	Ashworth Ave N	Meridian Ave N	Local Secondary	Construct sidewalks on the north and south sides of the street and improve pedestrian path in the unimproved right-of-way	1	1	0	0	0	1	0	1	0	1	1	0	1	1	0	0	1	1	0	0	3	3	4	0	10	10	SE
53	53	N 195th St	Ashworth Ave N	Meridian Ave N	Local Secondary	Construct sidewalks on the north side of the street from Ashworth Avenue N to Wallingford Avenue N and on the north side of the	1	0	0	0	0	0	1	0	1	1	1	1	1	1	0	0	1	1	0	0	1	5	4	0	10	10	NE
54	49	Linden Ave N	N 185th St	N 188th St	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	1	1	1	0	0	0	0	1	0	0	0	1	1	1	0	1	1	0	0	4	1	5	0	10	10	NW
55	38	Greenwood Ave N	N 155th St	N 160th St	Collector Arterial	Construct sidewalks on the west side of the street and fill in gaps on the east side of the street	1	1	0	1	2	0	0	0	0	0	0	0	1	1	1	0	1	1	0	0	5	0	5	0	10	10	SW

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56	30	N Innis Arden Way	10th Ave NW	Greenwood Ave N	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	0	0	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	3	0	6	1	10	10	SW
57	28	NW 195th St	8th Ave NW	3rd Ave NW	Collector Arterial	Construct sidewalks on the north side of the street and fill in gaps on the south side of the street	1	1	0	1	1	0	0	0	0	0	0	0	1	1	1	0	1	0	0	2	4	0	4	2	10	10	NW
58	204b	N 183RD ST	Ashworth Ave N	Meridian Ave N	Local Secondary	Construct sidewalks on both sides of the street	1	1	0	0	0	0	0	0	0	1	1	0	1	1	1	0	1	0	0	2	2	2	4	2	10	10	NE
59	47c	Fremont Ave N	N 185th St	N 195th St	Collector Arterial	Construct sidewalks on both sides of street	1	0	0	1	0	0	0	1	1	0	1	0	1	0	1	1	1	0	0	0	2	3	4	0	9	9	NW
60	115	Ashworth Ave N	N 185th St	N 192nd St	Collector Arterial	Construct sidewalks on the west side of the street, where needed	1	0	0	1	1	0	0	0	1	0	0	0	1	1	1	0	1	1	0	0	3	1	5	0	9	9	NE
61	94	NE 168th St	15th Ave NE	25th Ave NE	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	5	0	4	0	9	9	SE
62	87	10th Ave NE	NE 175th St	NE 185th St	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	1	0	1	1	0	1	0	0	0	0	0	0	1	1	0	1	1	0	0	4	1	4	0	9	9	NE
63	80	Forest Park Drive NE	15th Ave NE	19th Ave NE	Collector Arterial	Construct sidewalks on both sides of the street	1	1	0	1	0	0	0	0	1	0	0	0	0	1	1	0	1	0	0	2	3	1	3	2	9	9	NE
64	39	Greenwood Ave N	N 160th St	Carlyle Hall Road N	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	0	0	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	3	0	6	0	9	9	SW
65	32	Dayton Ave N	N 165th St	N 171st St	Minor Arterial	Construct sidewalks on the west side of the street	1	0	0	2	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	4	0	5	0	9	9	SW
66	27	NW 205th St	8th Ave NW	3rd Ave NW	Minor Arterial	Construct sidewalks on the north and south sides of the street	1	0	0	2	1	0	0	0	0	0	0	0	1	1	0	1	1	0	1	0	4	0	4	1	9	9	NW
67	11	15th Ave NW	NW 195th St	NW 205th St	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	0	0	1	0	0	0	1	1	0	1	0	1	1	1	0	1	0	0	0	2	3	4	0	9	9	NW
68	210	8TH AVE NE	NE 155TH ST	NE 160TH ST	Local Secondary	Construct sidewalks on both sides of the street	1	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	1	0	2	2	1	4	2	9	9	SE
69	47d	Fremont Ave N	N 195th St	N 205th St	Collector Arterial	Construct sidewalks on both sides of street	1	0	0	1	0	0	0	1	0	1	0	1	1	0	0	1	1	0	0	0	2	3	3	0	8	8	NW

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70	213 a & b	NE 148TH ST/8TH AVE NE	5TH AVE NE/NE 145TH ST	8TH AVE NE/NE 152ND ST	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	1	1	0	2	1	2	3	2	8	8	SE
71	215	WALLINGFORD AVE N	NE 145TH ST	N 150TH ST	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0	1	0	1	1	3	1	6	8	SE
72	214	DENSMORE AVE N	N 150TH ST	N 155TH ST	Local Secondary	Construct sidewalks on both sides of the street	1	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0	1	0	2	1	3	1	7	8	SE
73	207	NE 180TH ST	I-5/ Trail Along the Rail	10th Ave NE	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	2	1	0	3	2	6	8	NE
74	201	NW 190TH ST	N Richmond Beach Rd.	8TH AVE NW	Local Secondary	Construct sidewalks on one side of the street	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	2	1	0	4	2	7	8	NW
75	97	NE 165th St	10th Ave NE	15th Ave NE	Local Secondary	Construct sidewalks on the south side of the street	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	0	0	2	1	1	4	2	8	8	SE
76	96	10th Ave NE	NE 155th St	NE 175th St	Local Primary	Construct and improve sidewalks on the west and east sides of the street, where needed, to complete sidewalks on both sides of the street	1	1	0	0	0	0	1	0	0	1	0	0	1	1	1	0	1	0	0	0	2	2	4	0	8	8	SE
77	90	NE 177th St	15th Ave NE	Serpentine Place NE	Local Secondary	Construct sidewalks on the north and south sides of the street	1	0	0	0	0	0	1	1	1	1	1	1	0	0	1	0	0	0	0	0	1	6	1	0	8	8	NE
78	86	8th Ave NE	NE 175th St	NE 185th St	Local Secondary	Construct sidewalks on the west and east sides of the street	1	1	1	0	0	0	1	0	0	0	0	0	0	1	1	0	1	1	0	0	3	1	4	0	8	8	NE
79	79	NE 196th St	15th Ave NE	19th Ave NE	Minor Arterial	Construct sidewalks on the north and south sides of the street	1	0	0	2	0	0	1	0	1	0	0	0	0	1	1	0	1	0	0	0	3	2	3	0	8	8	NE
80	78	NE 195th St	10th Ave NE	15th Ave NE	Collector Arterial	Construct sidewalks on the north and south sides of the street and construct pedestrian path in the unimproved right-of-way	1	1	0	1	0	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	4	1	3	0	8	8	NE

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81	70	N 152nd St	Aurora Ave N	Ashworth Ave N	Local Primary	Construct sidewalks on north and south sides of the street, where needed, to complete sidewalks on both sides of the street	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	1	0	2	1	1	4	2	8	8	SE
82	62	5th Ave NE	NE 185th St	NE 205th St	Collector Arterial	Construct sidewalks on the west and east sides of the street, where needed, to complete sidewalks on both sides of the street	1	1	0	1	1	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	4	0	4	0	8	8	NE
83	51	Carlyle Hall Rd N / N 165th St	Dayton Ave N	Aurora Ave N	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	1	0	1	0	0	0	0	1	0	0	0	0	1	1	0	1	1	0	0	3	1	4	0	8	8	SW
84	37	Greenwood Ave N	N 150th St	N 155th St	Collector Arterial	Construct and improve sidewalks on the west and east sides of the street	1	0	0	1	2	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	4	0	4	0	8	8	SW
85	36	Greenwood Ave N	N 145th St	N 150th St	Collector Arterial	Construct sidewalks on the east side of the street	1	0	0	1	2	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	4	0	4	0	8	8	SW
86	33	Dayton Ave N	N 171st St	N 178th St	Minor Arterial	Construct sidewalks on the east side of the street	1	0	0	2	1	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	4	0	4	0	8	8	NW
87	20	8th Ave NW	NW 195th St	NW 205th St	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	0	0	1	1	0	0	0	0	0	0	0	1	1	0	1	1	0	1	0	3	0	4	1	8	8	NW
88	19	8th Ave NW	Richmond Beach Rd NW	NW 195th St	Collector Arterial	Construct sidewalks on the east side of the street	1	0	0	1	1	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0	3	0	5	0	8	8	NW
89	120	N 150th St	Ashworth Ave N	Burke Ave N	Local Secondary	Construct sidewalks on the south side of the street	1	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	1	0	0	2	1	4	0	7	7	SE
90	107	NE 205th St	3rd Ave NE	6th Ave NE	Minor Arterial	Construct sidewalks on the south side of the street, in conjunction with the	1	0	0	2	1	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	4	0	3	0	7	7	NE
91	99	10th Ave NE	NE 151st St	East side of Paramount Park	Local Secondary	Construct sidewalks on the west and east sides of the street and improve pedestrian path in the unimproved right-of-way	1	0	0	0	0	1	0	0	0	1	1	0	0	1	0	0	1	1	0	0	2	2	3	0	7	7	SE
92	91	Serpentine Place NE	NE 175th St	NE 177th St	Local Secondary	Construct and improve sidewalks on the northwest and southeast sides of the street, where needed.	1	0	0	0	0	0	1	0	1	0	1	0	0	1	1	0	1	0	0	0	1	3	3	0	7	7	NE
93	89	NE 180th St	10th Ave NE	15th Ave NE	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	1	0	1	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	3	0	4	0	7	7	NE

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94	77	NE 195th St/10th Ave NE	Interstate 5	NE 185th St	Collector Arterial	Construct sidewalks on both sides of the street	1	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	1	1	0	0	3	1	3	0	7	7	NE
95	76	NE 200th St	North side of Bruggers Bog (ap	30th Ave NE	Local Secondary	Construct sidewalks on the north and south sides of the street	1	0	0	0	0	0	1	0	1	0	0	0	1	1	1	0	1	0	0	0	1	2	4	0	7	7	NE
96	65	NE 171st St/Corliss Pl N/N 170th S	Meridian Ave N	North side of James Keough Park	Local Secondary	Construct sidewalks on both sides of each street and construct/improve pedestrian path in the unimproved right-of-way	1	1	0	0	0	1	0	0	0	0	0	0	1	1	0	0	1	1	0	0	3	0	4	0	7	7	SE
97	45	NW 198th Street	Dayton Ave N	Fremont Ave N	Local Secondary	Construct sidewalks on the north and south sides of the street and improve pedestrian path in unimproved right-of-way	1	0	0	0	0	1	0	1	0	0	0	0	1	1	0	0	1	1	0	0	2	1	4	0	7	7	NW
98	43	Greenwood Ave N	NW 195th St	NW 200th St	Local Secondary	Construct sidewalks on the west and east sides of the street and improve pedestrian path in the unimproved right-of-way	1	0	0	0	0	1	0	1	0	0	0	0	1	1	0	0	1	1	0	0	2	1	4	0	7	7	NW
99	10	15th Ave NW	NW 188th St	NW 192nd St	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	1	0	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	3	0	3	1	7	7	NW
100	5	20th Ave NW	NW 195th St	NW 205th St	Collector Arterial	Construct sidewalks on the west side of the street	1	0	0	1	0	0	0	1	0	0	0	0	1	1	1	0	1	0	0	0	2	1	4	0	7	7	NW
101	3	NW 196th St	Richmond Beach Dr NW	24th Ave NW	Collector Arterial	Construct sidewalks on the south side of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	2	0	4	1	7	7	NW
102	209	8TH AVE NE	NE 165TH ST	NE 170TH St	Local Secondary	Construct sidewalks on both sides of the street	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	1	0	2	0	4	1	7	7	SE
103	208	NE 177TH ST	NE SERPENTINE PL	25th Ave NE	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	2	1	6	0	2	9	7	NE
104	211	12TH AVE NE	NE 155TH ST	NE 165TH ST	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0	0	2	1	1	3	2	7	7	SE
105	47a	Fremont Ave N	N 165th St	N 175th St	Collector Arterial	Construct sidewalks on the west side of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	2	0	4	0	6	6	NW

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106	121	NE 170th St	11th Ave NE	15th Ave NE	Local Secondary	Construct sidewalks on the south side of the street	1	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	1	0	0	0	1	1	4	0	6	6	SE
107	117	Evanston Ave N	N 145th St	N 150th St	Local Secondary	Construct sidewalks on the west side of the street	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1	0	0	2	1	3	0	6	6	SW
108	116	NW 201st St	12th Ave NW	15th Ave NW	Local Secondary	Construct sidewalks on the south side of the street	1	0	0	0	0	0	0	1	1	0	1	0	1	1	0	0	0	0	0	0	1	3	2	0	6	6	NW
109	95	NE 170th St	5th Ave NE	10th Ave NE	Local Secondary	Construct sidewalks on the north and south sides of the street	1	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	1	0	0	0	1	1	4	0	6	6	SE
110	88	NE 185th St/15th Pl NE	10th Ave NE	NE 180th St	Local Secondary	Construct sidewalks on both sides of the street and construct pedestrian path in the unimproved right-of-way	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	1	1	0	0	2	0	4	0	6	6	NE
111	72	NE 205th St	17th Ave NE	19th Ave NE	Local Secondary	Construct sidewalks on the south side of the street	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	1	1	1	3	1	6	6	NE
112	63	Corliss Ave N	N 180th St	N 185th St	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	2	0	4	0	6	6	NE
113	60	NE 195th St	5th Ave NE	Interstate 5	Local Secondary	Construct sidewalks on the north and south sides of the street	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	2	0	2	2	6	6	NE
114	50	N 170th St	Fremont Ave N	Aurora Ave N	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	2	0	4	0	6	6	SW
115	44	Dayton Avenue N	NW 195th St	NW 200th St	Local Secondary	Construct sidewalks on the east side of the street from NW 195th Street to NW 198th Street and on the west and east sides of the street from NW 198th Street to NW 200th Street	1	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	1	1	0	0	1	1	4	0	6	6	NW
116	13	Ridgefield Rd NW/ NW Innis Arden Drive	Springdale Ct NW	8th Ave NW	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	2	0	4	0	6	6	NW
117	106b	27th Ave NE	NE 145th St	NE 155th St	Local Secondary	Construct and improve sidewalks on the west and east sides of the street, where needed.	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	4	0	5	5	SE
118	123	NE 148th St	31st Ave NE	Bothell Way NE	Local Secondary	Construct sidewalks on the south side of the street	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	4	0	5	5	SE

Projects highlighted in red are high priority, projects highlighted in yellow are medium priority, and projects highlighted in green are low priority.

2018 PEDESTRIAN IMPROVEMENTS PRIORITIZATION MATRIX							SAFETY						EQUITY						PROXIMITY						CONNECTIVITY		TOTALS						QUAD.
LINE #	PROJECT #	STREET	FROM	TO	STREET CLASSIFICATION	DESCRIPTION	1 Injury Collision	1 Ped/ Auto Collision	2+ Ped/ Auto Collisions	Street Classification	Speed Limit	Alternative to travel	Age - Children	Age - Older Adults	Income	Community of Color	Disabilities	Limited English Speakers	School Walkshed	1/4 mile Park	1/4 mile Activity Center	Along a Street w/ a Transit Stop	1/4 mile bus stop	1/2 mile BRT or Light Rail Station	Extends	Closes Gap	Total Safety	Total Equity	Total Proximity	Total Connectivity	Total Score	Adjusted Score	Quadrant - NE, SE, SW, NW of 175th St. & Aurora Ave
119	114	NW 180th St	10th Ave NW	8th Ave NW	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	1	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	3	0	2	0	5	5	NW
120	110	NE 150th St	25th Ave NE	28th Ave NE	Local Secondary	Construct sidewalks on the north and south sides of the street	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	4	0	5	5	SE
121	66	N 167th St	Interurban Trail	South side of James Keough Park	Local Secondary	Construct sidewalks on the north and south sides of the street	1	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	1	0	0	0	2	0	3	0	5	5	SE
122	29	NW 175th St	6th Ave NW	St. Luke's Place N	Collector Arterial	Construct sidewalks on the north side of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	2	0	3	0	5	5	NW SW
123	9	NW 198th St	18th Ave NW	15th Ave NW	Local Secondary	Construct sidewalks on the north and south sides of the street and improve pedestrian path in unimproved right-of-way between the NW 198th Street cul-de-sac bulb and 15th Ave NW	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	4	0	5	5	NW
124	8	18th Ave NW	NW 197th St	NW 198th St	Local Secondary	Construct sidewalks on the west and east sides of the street	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	4	0	5	5	NW
125	7	NW 197th St	20th Ave NW	18th Ave NW	Local Secondary	Construct sidewalks on the north and south sides of the street	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	4	0	5	5	NW
126	1	Richmond Beach Dr NW	NW 196th St	NW 199th St	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	2	1	2	0	5	5	NW
127	122	NE 160th St	25th Ave NE	31st Ave NE	Local Secondary	Construct sidewalks on the south side of the street	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	2	0	4	4	SE
128	104	NE 158th St	25th Ave NE	28th Ave NE	Local Secondary	Construct sidewalks on the north and south sides of the street	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	2	0	4	4	SE
129	23	6th Ave NW	NW 175TH ST	NW 180TH ST	Local Secondary	Construct sidewalks on the west and east sides of the street	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	2	0	4	4	NW
130	14	Springdale Ct NW/ 14th Ave NW	NW 175TH ST	NW 188TH ST	Collector Arterial	Construct sidewalks on the west and east sides of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	2	0	4	4	NW
131	12	NW 188th St	15th Ave NW	Springdale Ct NW	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	2	0	4	4	NW

Projects highlighted in red are high priority, projects highlighted in yellow are medium priority, and projects highlighted in green are low priority.

2018 PEDESTRIAN IMPROVEMENTS PRIORITIZATION MATRIX							SAFETY						EQUITY						PROXIMITY						CONNECTIVITY		TOTALS						QUAD.
LINE #	PROJECT #	STREET	FROM	TO	STREET CLASSIFICATION	DESCRIPTION	1 Injury Collision	1 Ped/ Auto Collision	2+ Ped/ Auto Collisions	Street Classification	Speed Limit	Alternative to travel	Age - Children	Age - Older Adults	Income	Community of Color	Disabilities	Limited English Speakers	School Walkshed	1/4 mile Park	1/4 mile Activity Center	Along a Street w/ a Transit Stop	1/4 mile bus stop	1/2 mile BRT or Light Rail Station	Extends	Closes Gap	Total Safety	Total Equity	Total Proximity	Total Connectivity	Total Score	Adjusted Score	Quadrant - NE, SE, SW, NW of 175th St. & Aurora Ave
132	2	Richmond Beach Dr NW	NW 195th ST	NW 196th ST	Local Primary	Construct sidewalks on the west and east sides of the street	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	3	0	4	4	NW
133	113	10th Ave NW	NW 175th St	NW 180th St	Local Primary	Construct and improve sidewalks on the west and east sides of the street, where needed.	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	2	0	3	3	NW
134	18	10th Ave NW	NW Innis Arden Way	NW 175th St	Collector Arterial	Construct sidewalks on both sides of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	1	0	3	3	SW
135	16	NW 175th St	15th Ave NW	6th Ave NW	Collector Arterial	Construct sidewalks on the north and south sides of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	1	0	3	3	NW SW
136	15	15th Ave NW/NW 167th St	NW 175th St	NW Innis Arden Way	Collector Arterial	Construct sidewalks on both sides of the street	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	1	0	3	3	NW
137	202	N/NW 185TH ST	8TH AVE NW	Dayton Ave N	Local Secondary	Construct sidewalks on both sides of the street	1	0	0	0	0	0	1	1	1	0	1	1	1	0	1	0	1	0	0	2	1	5	3	2	11	2	NW
138	17	8th Ave NW	NW 175th St	South side of Sunset Park	Local Secondary	Construct pedestrian path	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	2	2	NW

Projects highlighted in red are high priority, projects highlighted in yellow are medium priority, and projects highlighted in green are low priority.

Comprehensive Plan

Amendment No. 9

TMP Pedestrian Plan Update

Aurora Avenue N Bridge

T49. Expand the city's pedestrian network. Prioritize projects shown on the Pedestrian System Plan included in the TMP using the following criteria:

- ~~Ability to be combined with other capital projects or leverage other funding;~~
- ~~Proximity to a school or park;~~
- ~~Located on an arterial;~~
- ~~Located in an activity center, such as Town Center, North City, Ballinger, or connects to Aurora Avenue N;~~
- ~~Connects to an existing walkway or the Interurban Trail;~~
- ~~Connects to transit; and/or~~
- ~~Links major destinations such as neighborhood businesses, high-density housing, schools, and recreation facilities.~~
- Safety
- Equity
- Proximity
- Connectivity

T50. Prioritize projects that complete the city's bicycle networks, as shown on the Bicycle System Plan included in the TMP, using the following criteria:

- Connects to the Interurban Trail;
- Completes a portion of the routes connecting the Interurban and Burke Gilman Trails;
- Provides access to bus rapid transit or light rail;
- Connects to existing facilities;
- Connects to high-density housing, commercial areas, or public facilities;
- Connects to a regional route, or existing or planned facilities in a neighboring jurisdiction;
- Links to a school or park; and/or
- Able to be combined with other capital projects or leverage other funding.

T51. Coordinate with the Washington State Department of Transportation to evaluate and design improvements to the interchange at NE 175th Street and I-5. Develop a funding strategy for construction.

T52. Continue to work with Seattle, King County, Sound Transit, and WSDOT to undertake a corridor study of 145th Street that would result in a plan for the corridor to improve safety, efficiency, and modality for all users.

Funding

T53. Aggressively seek grant opportunities to implement the City's TMP, and work to ensure that Shoreline receives regional and federal funding for its high- priority projects.

T54. Support efforts at the state and federal level to increase funding for the transportation system.

T55. Identify and secure funding sources for transportation projects,

Table of Contents

Pedestrian Improvements

The citizens of Shoreline continue to emphasize the importance of sidewalks for safety, enhanced mobility, convenience, and recreation. Shoreline has great potential to be a "walkable community" with many activities and resources within walking distance of neighborhoods. The roadway grid system in Shoreline provides multiple east-west and north-south connections, and the City offers a number of public spaces, including parks, shopping centers and community centers that can accommodate pedestrian facilities. One challenge for Shoreline is knowing where to start. The City must determine where to best spend limited resources to best serve the community.

Figure L, Pedestrian System Plan, identifies key pedestrian corridors in Shoreline that result in a complete pedestrian network throughout the City. Sidewalks are important as both transportation and recreational facilities. Therefore, the City's pedestrian network connects neighborhoods, schools, parks, commercial areas and transit facilities. Recently installed sidewalks along Aurora Avenue N and in North City, as well as the Interurban Trail, serve the City's primary commercial areas and significant transit corridors. If a street is not included on the Pedestrian System Plan, that should not be interpreted to mean that the street should not have sidewalks.

Figure M, Unimproved City Right-of-Way, identifies small sections of unused right-of-way that provide pedestrian connections between neighborhoods. These connections are not always part of the Pedestrian System Plan but are important, as they provide links throughout the City that can greatly shorten pedestrian trips. Other sections of unused right-of-way that are not identified on this map exist throughout Shoreline and may also serve to provide pedestrian connections and create public spaces such as parks or trails. Any requests for vacation of public right-of-way should be evaluated to ensure it cannot serve as a pedestrian connection.

~~**Figure N, Pedestrian Projects Plan,**~~ The Sidewalk Prioritization Plan and Matrix (which lives outside of the TMP) identifies the type and location of all projects needed to fully implement the Pedestrian System Plan. ~~The~~ In 2017 and 2018, the City ~~developed a~~ updated the ranking system and criteria to prioritize design and construction of pedestrian projects. A description of the prioritization process is included in Chapter 9.

Pedestrian System Plan

Legend

- Bridge
- Trail (Interurban, Other Trails)
- Pedestrian System

Other Map Features:

- School
- School Property
- Park

0 500 1,000 2,000 3,000 Feet

1 inch = 1,983 feet

Figure L

Pedestrian System Plan

Legend

- Existing Trails
- Planned Trails
- Planned Sidewalks on One-Side
- Planned Sidewalks on Both Sides
- Existing Sidewalks
- Existing Pedestrian Bridge
- Planned Pedestrian Bridge
- School
- School Property
- Park
- Planned Light Rail Station

0 500 1,000 2,000 3,000

Feet

1:23,000

CITY OF SHORELINE

Geographic Information System

Request: 18019

Figure N

Pedestrian Projects Plan

Legend

Bridge

Trail Facilities:

Trail (Interurban, Other Trails)

Proposed Pedestrian Facility Plan:

Proposed Pedestrian System

Sidewalk Lacking on BOTH SIDES

Sidewalk Lacking on ONE-SIDE

Other Map Features:

School

School Property

Park

0 550 1,100 2,200 3,300 Feet

1 inch = 1,900 feet

CITY OF SHORELINE

N W E S

Street and overall regional growth, traffic volumes are expected to increase on this roadway and improvements will be needed. In order to determine the multi-modal needs of this roadway, a corridor study that involves all of the affected jurisdictions including transit providers is needed.

❖ **Policy T43:** Pursue corridor studies on key corridors to determine improvements that address safety, capacity and mobility and support adjacent land uses.

Implementation Strategies

43.1. Involve stakeholders, including residents, in the development of corridor studies.

43.2. Determine the scope, estimated costs and funding options for projects identified in the studies as part of the study.

Pedestrian Project Improvements

Shoreline citizens continue to emphasize the importance of sidewalks for safety, enhanced mobility, convenience and recreation. Shoreline has great potential to be a "walkable community," with many activities and resources within walking distance of neighborhoods. The City's roadway grid system provides multiple east-west and north-south connections, and the City offers a number of public spaces including parks, commercial districts and community centers. With limited funds, it is challenging to know where to start and spend resources to best serve the community.

Pedestrian Project Improvements

~~Candidate projects were identified from multiple sources. Projects needed to complete the City's Pedestrian System plan comprise the majority of projects considered. Projects identified in the City's 2012-2017 TIP were also included, as well as new projects that construct non-motorized improvements in existing, undeveloped right-of-way.~~

~~Because the need for pedestrian improvements is so great, the City ranked the candidate projects using the following criteria:~~

- ~~Can be combined with other capital projects or leverage other funding.~~
- ~~Proximity to a school or park.~~
- ~~Located on an arterial.~~
- ~~Connects to an existing walkway or sidewalk.~~
- ~~Connects to transit routes.~~
- ~~Located in an activity center, such as Town Center, North City or Ballinger, or connects to Aurora Avenue N.~~
- ~~Links major destinations.~~

~~All criteria were equally weighted, resulting in a listing of high, medium and low priority pedestrian improvements. **Table 9.3, Priority Pedestrian Projects Recommended for Funding**, lists the high-ranking pedestrian projects (these projects are not listed in priority order).~~

In June 2017, the City began a year-long process to create a Sidewalk Prioritization Plan, as directed by the City Council. Major components of the project included developing a data-driven process for prioritizing pedestrian improvements and researching and recommending ways to fund them. The process included input from the citizen Sidewalk Advisory Committee (SAC), Council feedback, as well as public input through two open houses and online surveys. Staff used the Council feedback, the SAC recommendations, public feedback, as well as project technical analysis to develop the Sidewalk Prioritization Plan and Matrix that was approved by Council on June 4, 2018.

With the help of the SAC, the 2011 TMP pedestrian prioritization criteria was updated to identify needs and prioritize pedestrian improvements based on:

- Safety
- Equity
- Proximity
- Connectivity

Over a year-long process, the SAC developed measurable metrics to support each criteria based on readily available data from the U.S. Census, the City's traffic collision history, street classifications, transit route plans, and Shoreline's geographic/amenity features (e.g. parks, streets, and schools), etc. Using Geographic Information Systems (GIS), the project team applied the updated criteria and metrics with an assigned point system to reprioritize the planned sidewalk projects in the TMP's Pedestrian System Plan. The result of this process is the Sidewalk Prioritization Plan and Matrix which displays a prioritized listing of pedestrian improvements. Because the TMP is intended to guide development through goals and policies, but not direct the specifics of development implementation, the Sidewalk Prioritization Plan and Matrix lives outside of the TMP. For more information about the Sidewalk Prioritization Plan, refer to the June 4, 2018 City Council staff memo, agenda item 9 (a).

Table 9.3, Priority Pedestrian Projects Recommended for Funding

STREET	FROM	TO	DESCRIPTION
20th Ave NW	Saltwater Park entrance	NW 195th St	Construct sidewalks on the west and east sides of the street
NW/N 195th St	3rd Ave NW	Aurora Ave N	Construct sidewalks on the north and south sides of the street
Ashworth Ave N	N 195th St	N 200th St	Construct sidewalks on the west and east sides of the street
Ashworth Ave N	N 185th St	N 192nd St	Construct sidewalks on the west side of the street, where needed
15th Ave NE	NE 181st St	NE 196th St	Construct and improve sidewalks on the west and east sides of the street, where needed, to complete sidewalks on both sides of the street
NE 165th St	10th Ave NE	15th Ave NE	Construct sidewalks on the south side of the street
15th Ave NE	NE 150th St	NE 165th St	Construct sidewalks on the east side of the street
NE 150th St	15th Ave NE	25th Ave NE	Construct sidewalks on south side of the street
25th Ave NE	NE 145th St	NE 150th St	Construct sidewalks on the east side of the street
N 192nd St	Across Aurora Ave N		Construct pedestrian and bicycle bridge across Aurora Ave N
N 175th St	Stone Ave N	Meridian Ave N	Construct sidewalks on the north and south sides of the street and improve existing sidewalks. Replace the existing asphalt walkway adjacent to Meridian Park Elementary School with a sidewalk.
1st Ave NE	NE 145th St	NE 155th St	Construct sidewalks on the east and west sides of the street, where needed, to complete sidewalks on both sides of the street
15th Ave NW	NW 195th St	NW 205th St	Construct sidewalks on the west and east sides of the street
3rd Ave NW	NW 189th St	NW 195th St	Construct sidewalks to fill in gaps on the east side of the street
NW/N 175th St	6th Ave NW	St. Luke's Place N	Construct sidewalks on the north side of the street
N Innis Arden Way	10th Ave NW	Greenwood Ave N	Construct sidewalks on the north and south sides of the street
3rd Ave NW/ Carlyle Hall Rd NW	NW 175th St	Dayton Ave N	Construct sidewalks on the east side of the street and the west side of the street, where needed
Fremont Ave N	N 165th St	N 205th St	Construct sidewalks on the west side of the street from N 165th St to N 175th St and on the west and east sides of the street from N 175th St to N 205th St
Linden Ave N	N 175th St	N 185th St	Construct sidewalks on the east side of the street from N 175th St to N 177th St, on the west and east sides of the street from N 177th St to N 182nd St and on the west side of the street from N 182nd St to N 185th St
N 170th St	Fremont Ave N	Aurora Ave N	Construct sidewalks on the north and south sides of the street
N 165th St	Dayton Ave N	Aurora Ave N	Construct sidewalks on the north and south sides of the street
N 192nd	Interurban Trail	Ashworth Ave N	Construct sidewalks on the south side of the street

STREET	FROM	TO	DESCRIPTION
NE 180th St	10th Ave NE	15th Ave NE	Construct sidewalks on the north and south sides of the street
NE 175th St/ 22nd Ave NE/ NE 171st St	15th Ave NE/ NE 171st St/ 22nd Ave NE	22nd Ave NE/ NE 175th St/ 25th Ave NE	Construct sidewalks on both sides of the streets, where needed, to complete sidewalks on both sides of the streets
NE 168th St	15th Ave NE	25th Ave NE	Construct sidewalks on the north and south sides of the street
NE 165th St	5th Ave NE	6th Ave NE	Construct a sidewalk on the north side of the street to fill in the gap
Westminster Way N	N 145th St	N 153rd St	Construct sidewalks on both sides of the street
Ballinger Way NE	19th Ave NE	25th Ave NE	Construct sidewalks on the southeast side of the street, where needed

A complete listing of all the candidate pedestrian projects, including their costs and ranking, is found in **Appendix H.** in the Sidewalk Prioritization Plan and Matrix. This list will be used to help the City develop its annual six-year Capital Improvement Plan (CIP) and the six-year Transportation Improvement Program (TIP). Although the complete project list identifies high-, medium- and low-priority projects, the City would take advantage of opportunities to construct improvements out of sequence. Circumstances that may result in construction of lower-priority projects before higher-priority projects include coordination with larger capital projects or when grant funding for a specific project may be secured. Construction of pedestrian improvements by private development may also result in projects being implemented out of sequence. The total estimated construction cost for implementation of the entire pedestrian system is $110-120 million. This estimate does not include the cost of large capital projects that incorporate pedestrian facilities, such as redevelopment of N/NE 175th Street, nor does it include design, environmental review or right-of-way acquisition.

The TMP proposes establishing four programs to implement the high-priority pedestrian projects. They include:

Priority Gap: This program is dedicated to completing missing gaps in sidewalks. Gaps are generally less than five blocks long. By filling in these missing segments, the City can achieve a larger benefit by connecting existing segments and completing continuous walkways along a street or corridor. The primary focus will be to complete sidewalks on one side of the street.

Transit Connections: Sidewalks that connect pedestrians to transit routes can help encourage ridership by providing people with a safer travel path and waiting areas. This program includes sidewalk projects that connect to transit corridors throughout the City.

Interurban Trail Connections: The Interurban Trail is the primary north-south, non-motorized pedestrian facility in the City. It serves as both a transportation facility and recreation facility. Residents have regularly expressed a desire for improved connections to the trail. This program will construct sidewalks that connect neighborhoods to the Interurban Trail.

School Connections: This program focuses on constructing sidewalks that connect to primary and secondary schools in Shoreline. Many of the schools in the City are not served by sidewalks, and parents are often reluctant to have children walk or bike to school because of the lack of sidewalks or safe pedestrian facilities. Additional sidewalks will provide safer travel routes for children and promote more walking.

~~**Appendix H** includes a matrix identifying the programs into which each of the candidate pedestrian projects fall. Some projects fall into more than one category.~~

As shown in **Figure M, Unimproved City Right-of-Way** (Chapter 5), there are several segments of unused right-of-way throughout the City that can be used for pedestrian and bicycle connections. Many of these segments are outside of the Pedestrian System Plan. Providing these connections results in better connectivity between neighborhoods and can reduce walking distances. These projects are generally smaller in scale and less expensive than typical sidewalk projects; however, they do not achieve many of the objectives of the larger system plan. These will be built as hard surface connections, such as asphalt, and will be ADA accessible if feasible.

In addition to the projects identified, upgrades to existing substandard sidewalks are needed. Many of these upgrades will be completed in conjunction with major capital projects that redesign an entire street. Additionally, private development that triggers frontage improvements will be required to construct new sidewalks or upgrade substandard sidewalks in accordance with the City's Master Street Plan.

❖ **Policy T44:** Expand the City's pedestrian network. Prioritize projects shown on the Pedestrian System Plan, using the following criteria:

- ~~Can be combined with other capital projects or leverage other funding~~
- ~~Proximity to a school or park.~~
- ~~Located on an arterial.~~
- ~~Connects to an existing walkway or the Interurban Trail.~~
- ~~Located in an activity center, such as Town Center, North City or Ballinger, or connects to Aurora Avenue N.~~
- ~~Connects to transit.~~
- ~~Links major destinations such as neighborhood businesses, high-density housing, schools and recreation facilities.~~
- Safety
- Equity
- Proximity
- Connectivity

Implementation Strategies

44.1. Create a sidewalk "gap" filling program dedicated to the design and construction of small sections of sidewalk, thereby completing larger, continuous walkways.

Discussion: By constructing short, missing segments of sidewalk (less than five blocks) in locations where there is a gap, the City can work to complete the larger pedestrian system, connecting parks, schools and other pedestrian destinations. Gaps will usually focus on completing sidewalks on one side of the street.

44.2. Develop a program as part of the City's CIP dedicated to completing sidewalks that connect to transit routes.

Discussion: The City's Pedestrian System Plan emphasizes completion of the sidewalk system on the arterial roadway network. Similarly, transit service in Shoreline is almost exclusively on arterial streets. Sidewalks that connect to transit will help encourage ridership as users have a safer path to and from their transit stop.

~~Appendix H: Pedestrian Projects Prioritization Matrix~~

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT DESCRIPTIONS					
Project Number	**Street**	**From**	**To**	**Street Classification**	**Project Description**
1	Richmond Beach Dr NW	NW 196th St	NW 199th St	Collector Arterial	Construct sidewalks on the west and east sides of the street
2	Richmond Beach Dr NW	NW 195th St	NW 196th St	Local Primary Street	Construct sidewalks on the west and east sides of the street
3	NW 196th St	Richmond Beach Dr NW	24th Ave NW	Local Primary Street	Construct sidewalks on the south side of the street
4	20th Ave NW	Saltwater Park entrance	NW 195th St	Local Primary Street	Construct sidewalks on the west and east sides of the street
5	20th Ave NW	NW 195th St	NW 205th St	Collector Arterial	Construct sidewalks on the west side of the street
6	NW 195th St	Richmond Beach Dr NW	21st Ave NW	Collector Arterial	Construct sidewalks on the north side of the street and fill in gaps on the side of the street
7	NW 197th St	20th Ave NW	18th Ave NW	Local Street	Construct sidewalks on the north and south sides of the street
8	18th Ave NW	NW 197th St	NW 198th St	Local Street	Construct sidewalks on the west and east sides of the street
9	NW 198th St	18th Ave NW	15th Ave NW	Local Secondary Street	Construct sidewalks on the north and south sides of the street and improve pedestrian path in unimproved right-of-way between the NW 198th St cul-de-sac bulb and 15th Ave NW
10	15th Ave NW	NW 188th St	NW 192nd St	Collector Arterial	Construct sidewalks on the west and east sides of the street
11	15th Ave NW	NW 195th St	NW 205th St	Collector Arterial	Construct sidewalks on the west and east sides of the street
12	NW 188th St	15th Ave NW	Springdale Ct NW	Collector Arterial	Construct sidewalks on the north and south sides of the street
13	Ridgefield Rd NW/ NW Innis Arden Dr	Springdale Ct NW	8th Ave NW	Local Primary Street	Construct sidewalks on the north and south sides of the street
14	Springdale Ct NW/14th Ave NW	NW 175th St	NW 188th St	Collector Arterial	Construct sidewalks on the west and east sides of the street
15	15th Ave NW/NW 167th St	NW 175th St	NW Innis Arden Way	Collector Arterial	Construct sidewalks on both sides of the street
16	NW 175th St	15th Ave NW	6th Ave NW	Local Primary Street/ Collector Arterial	Construct sidewalks on the north and south sides of the street
17	8th Ave NW	NW 175th St	South side of Sunset Park	Undeveloped right-of-way	Construct pedestrian path
18	10th Ave NW	NW Innis Arden Way	NW 175th St	Collector Arterial	Construct sidewalks on both sides of the street
19	8th Ave NW	Richmond Beach Rd NW	NW 195th St	Minor Arterial	Construct sidewalks on the east side of the street

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT DESCRIPTIONS					
Project Number	Street	From	To	Street Classification	Project Description
20	8th Ave NW	NW 195th St	NW 205th St	Minor Arterial	Construct sidewalks on the west and east sides of the street
21	8th Ave NW	North side of Sunset Park	NW 185th St	Local Street/ Collector Arterial	Construct sidewalks on east side of the street and the west side, where needed
22	NW 180th St	3rd Ave NW	8th Ave NW	Local Primary Street/ Collector Arterial	Construct sidewalks on the north and south sides of the street
23	6th Ave NW	NW 175th St	NW 180th St	Collector Arterial	Construct sidewalks on the west and east sides of the street
24	3rd Ave NW	NW 180th St	NW Richmond Beach Rd	Local Primary Street	Construct sidewalks on the east side of the street
25	3rd Ave NW	NW 189th St	NW 195th St	Collector Arterial	Construct sidewalks to fill in gaps on the east side of the street
26	3rd Ave NW	NW 195th St	NW 205th St	Collector Arterial	Construct sidewalks on the west and east sides of the street
27	NW 205th St	8th Ave NW	3rd Ave NW	Collector Arterial	Construct sidewalks on the north and south sides of the street
28	NW 195th St	8th Ave NW	3rd Ave NW	Collector Arterial	Construct sidewalks on the north side of the street and fill in gaps on the south side of the street
29	NW/N 175th St	6th Ave NW	St. Luke's Pl N	Collector Arterial	Construct sidewalks on the north side of the street
30	N Innis Arden Way	10th Ave NW	Greenwood Ave N	Collector Arterial	Construct sidewalks on the north and south sides of the street
31	3rd Ave NW/ Carlyle Hall Rd NW	N 175th St	Dayton Ave N	Collector Arterial	Construct sidewalks on the east side of the street and the west side of the street, where needed
32	Dayton Ave N	N 165th St	N 171st St	Minor Arterial	Construct sidewalks on the west side of the street
33	Dayton Ave N	N 171st St	N 178th St	Minor Arterial	Construct sidewalks on the east side of the street
34	Dayton Ave N	N 178th St	N Richmond Beach Rd	Minor Arterial	Construct sidewalks on the west and east sides of the street
35	Dayton Ave N	Westminster Way N	N 165th St	Minor Arterial	Construct sidewalks on the west and east sides of the street
36	Greenwood Ave N	N 145th St	N 150th St	Collector Arterial	Construct sidewalks on the east side of the street
37	Greenwood Ave N	N 150th St	N 155th St	Collector Arterial	Construct and improve sidewalks on the west and east sides of the street
38	Greenwood Ave N	N 155th St	N 160th St	Collector Arterial	Construct sidewalks on the west side of the street and fill in gaps on the east side of the street
39	Greenwood Ave N	N 160th St	Carlyle Hall Rd N	Collector Arterial	Construct sidewalks on the west and east sides of the street

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT DESCRIPTIONS					
Project Number	**Street**	**From**	**To**	**Street Classification**	**Project Description**
40	Westminster Way N	N 145th St	N 153rd St	Principal Arterial	Construct sidewalks on both sides of the street
41	NW/N 195th St	3rd Ave NW	Aurora Ave N	Collector Arterial	Construct sidewalks on the north and south sides of the street
42	NW 200th St	3rd Ave NW	Aurora Ave N	Collector Arterial	Construct sidewalks on the north and south sides of the street
43	Greenwood Ave N	NW 195th St	NW 200th St	Local Secondary Street/ Undeveloped right-of-way	Construct sidewalks on the west and east sides of the street and improve pedestrian path in the unimproved right-of-way
44	Dayton Ave N	NW 195th St	NW 200th St	Local Street	Construct sidewalks on the east side of the street from NW 195th St to NW 198th St and on the west and east sides of the street from NW 198th St to NW 200th St
45	NW 198th St	Dayton Ave N	Fremont Ave N	Local Secondary Street/ Undeveloped right-of-way	Construct sidewalks on the north and south sides of the street and improve pedestrian path in unimproved right-of-way
46	Firlands Way N	N 185th St	N 195th St	Local Secondary Street	Construct sidewalks on the west and east sides of the street
47	Fremont Ave N	N 165th St	N 205th St	Collector Arterial	Construct sidewalks on the west side of the street from N 165th St to N 175th St and on the west and east sides of the street from N 175th St to N 205th St
48	Linden Ave N	N 175th St	N 185th St	Collector Arterial	Construct sidewalks on the east side of the street from N 175th St to N 177th St, on the west and east sides of the street from N 177th St to N 182nd St and on the west side of the street from N 182nd St to N 185th St
49	Linden Ave N	N 185th St	N 188th St	Local Secondary Street	Construct sidewalks on the west and east sides of the street
50	N 170th St	Fremont Ave N	Aurora Ave N	Local Secondary Street	Construct sidewalks on the north and south sides of the street
51	N 165th St	Dayton Ave N	Aurora Ave N	Collector Arterial	Construct sidewalks on the north and south sides of the street
52	N 192nd	Interurban Trail	Ashworth Ave N	Local Secondary Street	Construct sidewalks on the south side of the street from the Interurban Trail to Ashworth Ave N
53	N 195th St	Ashworth Ave N	Meridian Ave N	Local Secondary Street	Construct sidewalks on the north side of the street from Ashworth Ave N to Wallingford Ave N and on the north and south sides of the street from Wallingford Ave N to Meridian Ave N

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT DESCRIPTIONS					
Project Number	Street	From	To	Street Classification	Project Description
54	Ashworth Ave N	N 155th St	N 175th St	Local Primary Street	Construct sidewalks on the west and east sides of the street
55	Ashworth Ave N	N 175th St	N 185th St	Local Primary Street	Construct sidewalks on the west and east sides of the street
56	Ashworth Ave N	N 195th St	N 200th St	Collector Arterial	Construct sidewalks on the west and east sides of the street.
57	Meridian Ave N	N 194th St	N 205th St	Minor Arterial	Construct sidewalks on the east side of the street
58	1st Ave NE	NE 192nd St	NE 195th St	Collector Arterial	Construct sidewalks on the west and east sides of the street
59	NE 195th St	1st Ave NE	5th Ave NE	Local Secondary Street	Construct a separated bicycle/pedestrian path on the north side of the street
60	NE 195th St	5th Ave NE	Interstate 5	Local Secondary Street	Construct sidewalks on the north and south sides of the street
61	NE 195th St	Across Interstate 5		Local Secondary Street	Replace or improve the pedestrian bridge over I-5
62	5th Ave NE	NE 185th St	NE 205th St	Collector Arterial	Construct sidewalks on the west and east sides of the street, where needed, to complete sidewalks on both sides of the street
63	Corliss Ave N	N 180th St	N 185th St	Local Secondary Street	Construct sidewalks on the west and east sides of the street
64	N 175th St	Stone Ave N	Meridian Ave N	Principal Arterial	Construct sidewalks on the north and south sides of the street and improve existing sidewalks. Replace the existing asphalt walkway adjacent to Meridian Park Elementary School with a sidewalk.
65	NE 171st St/ Corliss Pl N/N 170th St	Meridian Ave N	North side of James Keough Park	Local Secondary Streets	Construct sidewalks on both sides of each street and construct/improve pedestrian path in the unimproved right-of-way
66	N 167th St	Interurban Trail	South side of James Keough Park	Local Secondary Street/Local Primary Street	Construct sidewalks on the north and south sides of the street
67	N 165th St	Interurban Trail	Meridian Ave N	Local Primary Street/Local Secondary Street	Construct sidewalks on the north and south sides of the street and improve pedestrian path in the unimproved right-of-way
68	N 157th St	Ashworth Ave N	Meridian Ave N	Local Secondary Street	Construct sidewalks on the north and south sides of the street and improve pedestrian path in the unimproved right-of-way

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT DESCRIPTIONS					
Project Number	Street	From	To	Street Classification	Project Description
69	N 160th St	Aurora Ave N	Ashworth Ave N	Local Secondary Street	Construct sidewalks on the north and south sides of the street
70	N 152nd St	Aurora Ave N	Ashworth Ave N	Local Primary Street/Local Secondary Street	Construct sidewalks on north and south sides of the street, where needed, to complete sidewalks on both sides of the street
71	1st Ave NE	NE 145th St	NE 155th St	Collector Arterial	Construct sidewalks on east and west sides of the street, where needed, to complete sidewalks on both sides of the street
72	NE 205th St	17th Ave NE	19th Ave NE	Minor Arterial	Construct sidewalks on the south side of the street
73	19th Ave NE	NE 196th St	NE 205th St	Minor Arterial	Construct sidewalks on the west and east sides of the street, where needed, to complete sidewalks on both sides of the street
74	Ballinger Way NE	19th Ave NE	25th Ave NE	Principal Arterial	Construct sidewalks on the southwest side of the street where needed
75	25th Ave NE	NE 195th St	NE 205th St	Local Primary Street	Construct sidewalks on the west and east sides of the street
76	NE 200th St	South side of Bruggers Bog	30th Ave NE	Local Secondary Street	Construct sidewalks on the north and south sides of the street
77	NE 195th St/10th Ave NE	Interstate 5	NE 185th St	Local Secondary Street/ Collector Arterial	Construct sidewalks on both sides of the street
78	NE 195th St	10th Ave NE	15th Ave NE	Unimproved right-of-way/Local Secondary Street	Construct sidewalks on the north and south sides of the street and construct pedestrian path in the unimproved right-of-way
79	NE 196th St	15th Ave NE	19th Ave NE	Minor Arterial	Construct sidewalks on the north and south sides of the street
80	Forest Park Dr NE	15th Ave NE	19th Ave NE	Collector Arterial	Construct sidewalks on both sides of the street
81	15th Ave NE	NE 181st St	NE 196th St	Principal Arterial	Construct and improve sidewalks on the west and east sides of the street, where needed, to complete sidewalks on both sides of the street
82	Perkins Way NE	10th Ave NE	21st Ave NE	Collector Arterial	Construct sidewalks on the south side of the street from 10th Ave NE to 21st Ave NE and on the north side of the street from 15th Ave NE to 21st Ave NE
83	25th Ave NE	Perkins Way NE	NE 178th St	Collector Arterial	Construct sidewalks on both sides of the street

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT DESCRIPTIONS					
Project Number	Street	From	To	Street Classification	Project Description
84	24th Ave NE	15th Ave NE	25th Ave NE	Minor Arterial	Construct sidewalks on both sides of the street
85	5th Ave NE	NE 175th St	NE 185th St	Minor Arterial	Construct sidewalks on the west and east sides of the street
86	8th Ave NE	NE 175th St	NE 185th St	Local Primary Street	Construct sidewalks on the west and east sides of the street
87	10th Ave NE	NE 175th St	NE 185th St	Collector Arterial	Construct sidewalks on the west and east sides of the street
88	NE 185th St/15th Pl NE	10th Ave NE	NE 180th St	Local Primary Street/ Unimproved right-of-way	Construct sidewalks on both sides of the street and construct pedestrian path in the unimproved right-of-way
89	NE 180th St	10th Ave NE	15th Ave NE	Collector Arterial	Construct sidewalks on the north and south sides of the street
90	NE 177th St	15th Ave NE	Serpentine Pl NE	Local Secondary Street	Construct sidewalks on the north and south sides of the street
91	Serpentine Pl NE	NE 175th St	NE 177th St	Local Secondary Street	Construct and improve sidewalks on the northwest and southeast sides of the street, where needed, to complete sidewalks on both sides of the street
92	NE 175th St	15th Ave NE	22nd Ave NE	Collector Arterial	Construct sidewalks on both sides of the streets, where needed, to complete sidewalks on both sides of the streets
	22nd Ave NE	NE 171st St	NE 175th St	Collector Arterial	
	NE 171st St	22nd Ave NE	25th Ave NE	Collector Arterial	
93	25th Ave NE	NE 165th St	NE 178th St	Collector Arterial	Construct sidewalks on the west and east sides of the street. Reduce sidewalk width or construct shoulder when topography is restrictive
94	NE 168th St	15th Ave NE	25th Ave NE	Collector Arterial	Construct sidewalks on the north and south sides of the street
95	NE 170th St	5th Ave NE	10th Ave NE	Local Secondary Street	Construct sidewalks on the north and south sides of the street
96	10th Ave NE	NE 155th St	NE 175th St	Local Primary Street	Construct and improve sidewalks on the west and east sides of the street, where needed, to complete sidewalks on both sides of the street
97	NE 165th St	10th Ave NE	15th Ave NE	Collector Arterial	Construct sidewalks on the south side of the street
98	15th Ave NE	NE 150th St	NE 165th St	Principal Arterial	Construct sidewalks on the east side of the street
99	10th Ave NE	NE 151st St	East side of Paramount Park	Local Secondary Street	Construct sidewalks on the west and east sides of the street and improve pedestrian path in the unimproved right-of-way

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT DESCRIPTIONS					
Project Number	**Street**	**From**	**To**	**Street Classification**	**Project Description**
99	10th Ave NE	NE 151st St	East side of Paramount Park	Local Secondary Street	Construct sidewalks on the west and east sides of the street and improve pedestrian path in the unimproved right-of-way
100	NE 152nd St	11th Ave NE	15th Ave NE	Local Secondary Street	Construct sidewalks on the north and south sides of the street
101	NE 148th St	12th Ave NE	15th Ave NE	Local Secondary Street	Construct sidewalks on the north and south sides of the street
102	NE 150th St	15th Ave NE	25th Ave NE	Collector Arterial	Construct sidewalks on south side of the street (excludes segment from 18th Ave NE to 20th Ave NE, Project #103)
103	NE 150th St	Approx. 18th Ave NE	20th Ave NE	Collector Arterial	Construct a sidewalk on the north side of the street to fill in the gap
104	NE 158th St	25th Ave NE	28th Ave NE	Local Secondary Street	Construct sidewalks on the north and south sides of the street
105	25th Ave NE	NE 145th St	NE 150th St	Collector Arterial	Construct sidewalks on the east side of the street
106	27th Ave NE	NE 145th St	NE 158th St	Local Secondary Street	Construct and improve sidewalks on the west and east sides of the street, where needed, to complete sidewalks on both sides of the street
107	NE 205th St	3rd Ave NE	6th Ave NE	N/A	Construct sidewalks on the south side of the street, in conjunction with the Washington State Department of Transportation
108	N 192nd St	Across Aurora Ave N		Local Secondary Street	Construct pedestrian and bicycle bridge across Aurora Ave N
109	Richmond Beach Saltwater Park Pedestrian Bridge			N/A	Repair/maintain and replace the pedestrian bridge at the park. Repair work includes replacement of the bridge deck, the addition of lateral bracing, repair of a specific pile cap and removal of an abandoned, asbestos wrapped utility line.
110	NE 150th St	25th Ave NE	28th Ave NE	Local Secondary Street	Construct sidewalks on the north and south sides of the street
111	N 160th St	Dayton Ave N	Greenwood Ave N	Minor Arterial	Construct a sidewalk on the north side of the street to fill in the gap
112	NE 165th St	5th Ave NE	6th Ave NE	Collector Arterial	Construct a sidewalk on the north side of the street to fill in the gap
113	10th Ave NW	NW 175th St	NW 180th St	Local Primary Street	Construct and improve sidewalks on the west and east sides of the street, where needed, to complete sidewalks on both sides of the street

~~PEDESTRIAN FACILITY IMPROVEMENTS PROJECT DESCRIPTIONS~~					
~~Project Number~~	~~Street~~	~~From~~	~~To~~	~~Street Classification~~	~~Project Description~~
~~114~~	~~NW 180th St~~	~~10th Ave NW~~	~~8th Ave NW~~	~~Local Primary Street~~	~~Construct sidewalks on the north and south sides of the street~~
~~115~~	~~Ashworth Ave N~~	~~N 185th St~~	~~N 192nd St~~	~~Collector Arterial~~	~~Construct sidewalks on the west side of the street, where needed~~
~~116~~	~~NW 201st St~~	~~12th Ave NW~~	~~15th Ave NW~~	~~Local Secondary Street~~	~~Construct sidewalks on the south side of the street~~
~~117~~	~~Evanston Ave N~~	~~N 145th St~~	~~N 150th St~~	~~Local Secondary Street~~	~~Construct sidewalks on the west side of the street~~
~~118~~	~~N 192nd St~~	~~Ashworth Ave N~~	~~Wallingford Ave N~~	~~Local Secondary Street~~	~~Construct sidewalks on the south side of the street~~
~~119~~	~~Wallingford Ave N~~	~~N 192nd St~~	~~N 195th St~~	~~Local Secondary Street~~	~~Construct sidewalks on the east side of the street~~
~~120~~	~~N 150th St~~	~~Ashworth Ave N~~	~~Burke Ave N~~	~~Local Secondary Street~~	~~Construct sidewalks on the south side of the street~~
~~121~~	~~NE 170th St~~	~~11th Ave NE~~	~~15th Ave NE~~	~~Local Secondary Street~~	~~Construct sidewalks on the south side of the street~~
~~122~~	~~NE 160th St~~	~~25th Ave NE~~	~~31st Ave NE~~	~~Local Secondary Street~~	~~Construct sidewalks on the south side of the street~~
~~123~~	~~NE 148th St~~	~~31st Ave NE~~	~~Bothell Way NE~~	~~Local Secondary Street~~	~~Construct sidewalks on the south side of the street~~

PEDESTRIAN FACILITY IMPROVEMENTS PRIORITIZATION

Project Number	Street	From	To	Funding	School Access	Located on an Arterial	Connects to Park	Connects to Existing Walkway	Activity Center	Connects to Transit	Links Major Destinations	TOTAL*
				Can the project be combined with or leverage other public funding?	Will the walkway be within 10 blocks of a school?	Will the walkway be located on an arterial?	Will the walkway connect to a park?	Will the walkway connect to an existing walkway?	Is the walkway in the Town Center, North City Business District, Ballinger Neighborhood or connect to Aurora Ave N?	Will the walkway provide access to high capacity transit, such as bus rapid transit or light rail or other transit routes?	Will the walkway connect neighborhood businesses, high density housing, schools and recreation facilities?	
4	20th Ave NW	Saltwater Park entrance	NW 195th St	X	X	X	X			X	X	6
41	NW/N 195th St	3rd Ave NW	Aurora Ave N		X	X		X	X	X	X	6
56	Ashworth Ave N	N 195th St	N 200th St		X	X	X	X		X	X	6
81	15th Ave NE	NE 181st St	NE 196th St	X	X	X		X		X	X	6
97	NE 165th St	10th Ave NE	15th Ave NE		X	X	X	X		X	X	6
98	15th Ave NE	NE 150th St	NE 165th St		X	X	X	X		X	X	6
102	NE 150th St	15th Ave NE	25th Ave NE		X	X	X	X		X	X	6
105	25th Ave NE	NE 145th St	NE 150th St		X	X	X	X		X	X	6
108	N 192nd St	Across Aurora Ave N		X		X		X	X	X	X	6

~~PEDESTRIAN FACILITY IMPROVEMENTS PRIORITIZATION~~

~~Project Number~~	~~Street~~	~~From~~	~~To~~	~~Funding~~	~~School Access~~	~~Located on an Arterial~~	~~Connects to Park~~	~~Connects to Existing Walkway~~	~~Activity Center~~	~~Connects to Transit~~	~~Links Major Destinations~~	~~TOTAL*~~
~~64~~	~~N 175th St~~	~~Stone Ave N~~	~~Meridian Ave N~~	~~X~~	~~X~~	~~X~~		~~X~~		~~X~~	~~X~~	~~6~~
~~71~~	~~1st Ave NE~~	~~NE 145th St~~	~~NE 155th St~~		~~X~~	~~X~~	~~X~~	~~X~~		~~X~~	~~X~~	~~6~~
~~11~~	~~15th Ave NW~~	~~NW 195th St~~	~~NW 205th St~~		~~X~~	~~X~~	~~X~~	~~X~~		~~X~~		~~5~~
~~25~~	~~3rd Ave NW~~	~~NW 189th St~~	~~NW 195th St~~		~~X~~	~~X~~	~~X~~	~~X~~		~~X~~		~~5~~
~~29~~	~~NW/N 175th St~~	~~6th Ave NW~~	~~St. Luke's PLN~~		~~X~~	~~X~~	~~X~~	~~X~~		~~X~~		~~5~~
~~30~~	~~N Innis Arden Way~~	~~10th Ave NW~~	~~Greenwood Ave N~~		~~X~~	~~X~~	~~X~~	~~X~~		~~X~~		~~5~~
~~31~~	~~3rd Ave NW/Carlyle Hall Rd NW~~	~~N 175th St~~	~~Dayton Ave N~~		~~X~~	~~X~~	~~X~~	~~X~~		~~X~~		~~5~~
~~47~~	~~Fremont Ave N~~	~~N 165th St~~	~~N 205th St~~		~~X~~	~~X~~	~~X~~	~~X~~		~~X~~		~~5~~
~~48~~	~~Linden Ave N~~	~~N 175th St~~	~~N 185th St~~		~~X~~	~~X~~		~~X~~	~~X~~	~~X~~		~~5~~
~~50~~	~~N 170th St~~	~~Fremont Ave N~~	~~Aurora Ave N~~		~~X~~			~~X~~	~~X~~	~~X~~	~~X~~	~~5~~
~~51~~	~~N 165th St~~	~~Dayton Ave N~~	~~Aurora Ave N~~		~~X~~	~~X~~		~~X~~	~~X~~	~~X~~		~~5~~
~~52~~	~~N 192nd~~	~~Interurban Trail~~	~~Ashworth Ave N~~		~~X~~			~~X~~	~~X~~	~~X~~	~~X~~	~~5~~
~~74~~	~~Ballinger Way NE~~	~~19th Ave NE~~	~~25th Ave NE~~			~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		~~5~~
~~89~~	~~NE 180th St~~	~~10th Ave NE~~	~~15th Ave NE~~		~~X~~	~~X~~		~~X~~	~~X~~	~~X~~		~~5~~

PEDESTRIAN FACILITY IMPROVEMENTS PRIORITIZATION

Project Number	Street	From	To	Funding	School Access	Located on an Arterial	Connects to Park	Connects to Existing Walkway	Activity Center	Connects to Transit	Links Major Destinations	TOTAL*
92	NE 175th St 22nd Ave NE / NE 171st St	15th Ave NE NE 171st St 22nd Ave NE	22nd Ave NE / NE 175th St / 25th Ave NE		X	X		X	X	X		5
94	NE 168th St	15th Ave NE	25th Ave NE		X	X	X	X		X		5
112	NE 165th St	5th Ave NE	6th Ave NE		X	X		X		X	X	5
40	Westminster Way N	N 145th St	N 153rd St		X	X		X		X	X	5
115	Ashworth Ave N	N 185th St	N 192nd St		X	X		X	X		X	5
3	NW 195th St	Richmond Beach Dr NW	24th Ave NW		X		X	X		X		4
5	20th Ave NW	NW 195th St	NW 205th St		X	X		X		X		4
10	15th Ave NW	NW 188th St	NW 192nd St		X	X		X		X		4
19	8th Ave NW	Richmond Beach Rd NW	NW 195th St		X	X		X		X		4
21	8th Ave NW	North side of Sunset Park	NW 185th St			X		X		X	X	4
26	3rd Ave NW	NW 195th St	NW 205th St		X	X		X		X		4
28	NW 195th St	8th Ave NW	3rd Ave NW		X	X		X		X		4
32	Dayton Ave N	N 165th St	N 171st St		X	X		X		X		4
33	Dayton Ave N	N 171st St	N 178th St		X	X		X		X		4

PEDESTRIAN FACILITY IMPROVEMENTS PRIORITIZATION

Project Number	Street	From	To	Funding	School Access	Located on an Arterial	Connects to Park	Connects to Existing Walkway	Activity Center	Connects to Transit	Links Major Destinations	TOTAL*
35	Dayton Ave N	Westminster Way N	N 165th St		X	X		X		X		4
37	Greenwood Ave N	N 150th St	N 155th St		X	X		X		X		4
38	Greenwood Ave N	N 155th St	N 160th St		X	X		X		X		4
39	Greenwood Ave N	N 160th St	Carlyle Hall Rd N		X	X		X		X		4
42	NW 200th St	3rd Ave NW	Aurora Ave N		X	X			X	X		4
49	Linden Ave N	N 185th St	N 188th St		X			X	X	X		4
54	Ashworth Ave N	N 155th St	N 175th St		X		X	X		X		4
55	Ashworth Ave N	N 175th St	N 185th St		X	X		X		X		4
62	5th Ave NE	NE 185th St	NE 205th St			X	X	X		X		4
63	Corliss Ave N	N 180th St	N 185th St		X		X	X		X		4
65	NE 171st St/Corliss Pl N/N 170th St	Meridian Ave N	North side of James Keough Park		X		X	X		X		4
66	N 167th St	Interurban Trail	South side of James Keough Park		X		X	X		X		4
69	N 160th St	Aurora Ave N	Ashworth Ave N		X			X	X	X		4
72	NE 205th St	17th Ave NE	19th Ave NE			X		X	X	X		4
73	19th Ave NE	NE 196th St	NE 205th St			X		X	X	X		4

PEDESTRIAN FACILITY IMPROVEMENTS PRIORITIZATION

Project Number	Street	From	To	Funding	School Access	Located on an Arterial	Connects to Park	Connects to Existing Walkway	Activity Center	Connects to Transit	Links Major Destinations	TOTAL*
75	25th Ave NE	NE 195th St	NE 205th St				X	X	X	X		4
77	NE 195th St/10th Ave NE	Interstate 5	NE 185th St		X	X	X	X				4
80	Forest Park Dr NE	15th Ave NE	19th Ave NE			X		X	X	X		4
82	Perkins Way NE	10th Ave NE	21st Ave NE	X	X	X		X				4
85	5th Ave NE	NE 175th St	NE 185th St		X	X		X		X		4
87	10th Ave NE	NE 175th St	NE 185th St		X	X		X		X		4
90	NE 177th St	15th Ave NE	Serpentine Pl NE		X			X	X	X		4
95	NE 170th St	5th Ave NE	10th Ave NE		X		X	X		X		4
96	10th Ave NE	NE 155th St	NE 175th St		X		X	X		X		4
103	NE 150th St	Approx. 18th Ave NE	20th Ave NE			X	X	X		X		4
106	27th Ave NE	NE 145th St	NE 158th St		X			X		X	X	4
110	NE 150th St	25th Ave NE	28th Ave NE		X		X	X		X		4
111	N 160th St	Dayton Ave N	Greenwood Ave N		X	X		X		X		4
1	Richmond Beach Dr NW	NW 196th St	NW 199th St			X	X			X		3
6	NW 195th St	Richmond Beach Dr NW	21st Ave NW		X			X		X		3

PEDESTRIAN FACILITY IMPROVEMENTS PRIORITIZATION

Project Number	Street	From	To	Funding	School Access	Located on an Arterial	Connects to Park	Connects to Existing Walkway	Activity Center	Connects to Transit	Links Major Destinations	TOTAL*
17	8th Ave NW	NW 175th St	South side of Sunset Park	X			X	X				3
20	8th Ave NW	NW 195th St	NW 205th St		X	X		X				3
24	3rd Ave NW	NW 180th St	NW Richmond Beach Rd		X			X		X		3
34	Dayton Ave N	N 178th St	N Richmond Beach Rd		X			X		X		3
36	Greenwood Ave N	N 145th St	N 150th St		X	X				X		3
43	Greenwood Ave N	NW 195th St	NW 200th St		X			X		X		3
44	Dayton Ave N	NW 195th St	NW 200th St		X			X		X		3
46	Firlands Way N	N 185th St	N 195th St		X				X	X		3
57	Meridian Ave N	N 194th St	N 205th St			X		X		X		3
67	N 165th St	Interurban Trail	Meridian Ave N		X			X		X		3
68	N 157th St	Ashworth Ave N	Meridian Ave N		X			X		X		3
86	8th Ave NE	NE 175th St	NE 185th St		X			X		X		3
93	25th Ave NE	NE 165th St	NE 178th St		X	X		X				3
100	NE 152nd St	11th Ave NE	15th Ave NE				X	X		X		3
101	NE 148th St	12th Ave NE	15th Ave NE				X	X		X		3

PEDESTRIAN FACILITY IMPROVEMENTS PRIORITIZATION

Project Number	Street	From	To	Funding	School Access	Located on an Arterial	Connects to Park	Connects to Existing Walkway	Activity Center	Connects to Transit	Links Major Destinations	TOTAL*
104	NE 158th St	25th Ave NE	28th Ave NE		X		X	X				3
109	Richmond Beach Saltwater Park Pedestrian Bridge			X			X	X				3
120	N 150th St	Ashworth Ave N	Burke Ave N		X			X		X		3
121	NE 170th St	11th Ave NE	15th Ave NE		X			X		X		3
122	NE 160th St	25th Ave NE	31st Ave NE		X		X	X				3
123	NE 148th St	31st Ave NE	Bothell Way NE		X			X		X		3
7	NW 197th St	20th Ave NW	18th Ave NW		X		X					2
12	NW 188th St	15th Ave NW	Springdale Ct NW		X	X						2
13	Ridgefield Rd NW/ NW Innis Arden Dr	Springdale Ct NW	8th Ave NW					X		X		2
14	Springdale Ct NW/14th Ave NW	NW 175th St	NW 188th St			X	X					2
15	15th Ave NW/NW 167th St	NW 175th St	NW Innis Arden Way			X	X					2
16	NW 175th St	15th Ave NW	6th Ave NW				X	X				2
18	10th Ave NW	NW Innis Arden Way	NW 175th St			X	X					2
22	NW 180th St	3rd Ave NW	8th Ave NW			X		X				2
27	NW 205th St	8th Ave NW	3rd Ave NW		X	X						2

PEDESTRIAN FACILITY IMPROVEMENTS PRIORITIZATION

Project Number	Street	From	To	Funding	School Access	Located on an Arterial	Connects to Park	Connects to Existing Walkway	Activity Center	Connects to Transit	Links Major Destinations	TOTAL*
45	NW 198th St	Dayton Ave N	Fremont Ave N		X			X				2
58	1st Ave NE	NE 192nd St	NE 195th St				X	X				2
61	NE 195th St	Across Interstate 5			X		X					2
70	N 152nd St	Aurora Ave N	Ashworth Ave N						X	X		2
84	24th Ave NE	15th Ave NE	25th Ave NE			X		X				2
88	NE 185th St/15th Pl NE	10th Ave NE	NE 180th St		X			X				2
99	10th Ave NE	NE 151st St	East side of Paramount Park				X	X				2
107	NE 205th St	3rd Ave NE	6th Ave NE			X				X		2
113	10th Ave NW	NW 175th St	NW 180th St		X			X				2
117	Evanston Ave N	N 145th St	N 150th St					X		X		2
118	N 192nd St	Ashworth Ave N	Wallingford Ave N		X			X				2
119	Wallingford Ave N	N 192nd St	N 195th St		X			X				2
2	Richmond Beach Dr NW	NW 195th St	NW 196th St							X		1
8	18th Ave NW	NW 197th St	NW 198th St		X							1

PEDESTRIAN FACILITY IMPROVEMENTS PRIORITIZATION

Project Number	Street	From	To	Funding	School Access	Located on an Arterial	Connects to Park	Connects to Existing Walkway	Activity Center	Connects to Transit	Links Major Destinations	TOTAL*
9	NW 198th St	18th Ave NW	15th Ave NW		X							1
23	6th Ave NW	NW 175th St	NW 180th St					X				1
53	N 195th St	Ashworth Ave N	Meridian Ave N		X							1
59	NE 195th St	1st Ave NE	5th Ave NE					X				1
60	NE 195th St	5th Ave NE	Interstate 5					X				1
76	NE 200th St	South side of Bruggers Bog	30th Ave NE				X					1
78	NE 195th St	10th Ave NE	15th Ave NE		X							1
79	NE 196th St	15th Ave NE	19th Ave NE			X						1
83	25th Ave NE	Perkins Way NE	NE 178th St			X						1
91	Serpentine Pl NE	NE 175th St	NE 177th St		X							1
114	NW 180th St	10th Ave NW	8th Ave NW		X							1
116	NW 201st St	12th Ave NW	15th Ave NW					X				1

*Projects ranked 5-6 are considered high priority projects. Projects ranked 3-4 are considered medium priority projects. Projects ranked 1-2 are considered low priority projects.

PEDESTRIAN FACILITY IMPROVEMENTS FUNDING SOURCES				
Project Number	Street	From	To	Funding Sources
1	Richmond Beach Dr NW	NW 196th St	NW 199th St	Private development mitigation
2	Richmond Beach Dr NW	NW 195th St	NW 196th St	Private development mitigation
3	NW 195th St	Richmond Beach Dr NW	24th Ave NW	Private development mitigation
4	20th Ave NW	Saltwater Park entrance	NW 195th St	Park/Trail Bond, TIB - SP
5	20th Ave NW	NW 195th St	NW 205th St	CIP, Voter Approved Bond, City General Fund
6	NW 195th St	Richmond Beach Dr NW	21st Ave NW	Private development mitigation
7	NW 197th St	20th Ave NW	18th Ave NW	CIP, Voter Approved Bond, City General Fund
8	18th Ave NW	NW 197th St	NW 198th St	CIP, Voter Approved Bond, City General Fund
9	NW 198th St	18th Ave NW	15th Ave NW	CIP, Voter Approved Bond, City General Fund
10	15th Ave NW	NW 188th St	NW 192nd St	CIP, Voter Approved Bond, City General Fund
11	15th Ave NW	NW 195th St	NW 205th St	CIP, Voter Approved Bond, City General Fund
12	NW 188th St	15th Ave NW	Springdale Ct NW	CIP, Voter Approved Bond, City General Fund
13	Ridgefield Rd NW/ NW Innis Arden Dr	Springdale Ct NW	8th Ave NW	CIP, Voter Approved Bond, City General Fund
14	Springdale Ct NW/ 14th Ave NW	NW 175th St	NW 188th St	CIP, Voter Approved Bond, City General Fund
15	15th Ave NW/ NW 167th St	NW 175th St	NW Innis Arden Way	CIP, Voter Approved Bond, City General Fund
16	NW 175th St	15th Ave NW	6th Ave NW	CIP, Voter Approved Bond, City General Fund
17	8th Ave NW	NW 175th St	South side of Sunset Park	Park/Trail Bond
18	10th Ave NW	NW Innis Arden Way	NW 175th St	CIP, Voter Approved Bond, City General Fund
19	8th Ave NW	NW Richmond Beach Rd	NW 195th St	CIP, Voter Approved Bond, City General Fund
20	8th Ave NW	NW 195th St	NW 205th St	TIB - SP
21	8th Ave NW	North side of Sunset Park	NW 185th St	Parks and Recreation Bond
22	NW 180th St	3rd Ave NW	8th Ave NW	CIP, Voter Approved Bond, City General Fund
23	6th Ave NW	NW 175th St	NW 180th St	CIP, Voter Approved Bond, City General Fund
24	3rd Ave NW	NW 180th St	NW Richmond Beach Rd	CIP, Voter Approved Bond, City General Fund
25	3rd Ave NW	NW 189th St	NW 195th St	TIB - SP
26	3rd Ave NW	NW 195th St	NW 205th St	CIP, Voter Approved Bond, City General Fund

PEDESTRIAN FACILITY IMPROVEMENTS FUNDING SOURCES				
Project Number	Street	From	To	Funding Sources
27	NW 205th St	8th Ave NW	3rd Ave NW	CIP, Voter Approved Bond, City General Fund
28	NW 195th St	8th Ave NW	3rd Ave NW	CIP, Voter Approved Bond, City General Fund
29	NW/N 175th St	6th Ave NW	St. Luke's Pl N	CIP, Voter Approved Bond, City General Fund, TIB - SP
30	N Innis Arden Way	10th Ave NW	Greenwood Ave N	Private development mitigation, CIP, Voter Approved Bond, General Fund
31	3rd Ave NW/ Carlyle Hall Rd NW	N 175th St	Dayton Ave N	CIP, Voter Approved Bond, City General Fund
32	Dayton Ave N	N 165th St	N 171st St	CIP, Voter Approved Bond, City General Fund
33	Dayton Ave N	N 171st St	N 178th St	CIP, Voter Approved Bond, City General Fund
34	Dayton Ave N	N 178th St	N Richmond Beach Rd	CIP, Voter Approved Bond, City General Fund
35	Dayton Ave N	Westminster Way N	N 165th St	CIP, Voter Approved Bond, City General Fund
36	Greenwood Ave N	N 145th St	N 150th St	CIP, Voter Approved Bond, City General Fund, TIB - SP
37	Greenwood Ave N	N 150th St	N 155th St	CIP, Voter Approved Bond, City General Fund, TIB - SP
38	Greenwood Ave N	N 155th St	N 160th St	CIP, Voter Approved Bond, City General Fund, TIB - SP
39	Greenwood Ave N	N 160th St	Carlyle Hall Rd N	Private development mitigation, CIP, Voter Approved Bond, General Fund
40	Westminster Way N	N 145th St	N 153rd St	TIB - SP
41	NW/N 195th St	3rd Ave NW	Aurora Ave N	Safe Routes to School, CIP, Voter Approved Bond, City General Fund
42	NW 200th St	3rd Ave NW	Aurora Ave N	CIP, Voter Approved Bond, City General Fund
43	Greenwood Ave N	NW 195th St	NW 200th St	CIP, Voter Approved Bond, City General Fund
44	Dayton Ave N	NW 195th St	NW 200th St	CIP, Voter Approved Bond, City General Fund
45	NW 198th St	Dayton Ave N	Fremont Ave N	CIP, Voter Approved Bond, City General Fund
46	Firlands Way N	N 185th St	N 195th St	Department of Ecology, CIP, Voter Approved Bond, City General Fund
47	Fremont Ave N	N 165th St	N 205th St	CIP, Voter Approved Bond, City General Fund
48	Linden Ave N	N 175th St	N 185th St	Private Development Mitigation, CIP, Voter Approved Bond, City General Fund

PEDESTRIAN FACILITY IMPROVEMENTS FUNDING SOURCES				
Project Number	Street	From	To	Funding Sources
49	Linden Ave N	N 185th St	N 188th St	Private Development Mitigation, CIP, Voter Approved Bond, City General Fund
50	N 170th St	Fremont Ave N	Aurora Ave N	Private Development Mitigation
51	N 165th St	Dayton Ave N	Aurora Ave N	TIB - SP
52	N 192nd	Interurban Trail	Ashworth Ave N	Safe Routes to School, Parks and Recreation Bond
53	N 195th St	Ashworth Ave N	Meridian Ave N	STP - EP
54	Ashworth Ave N	N 155th St	N 175th St	CIP, Voter Approved Bond, City General Fund
55	Ashworth Ave N	N 175th St	N 185th St	CIP, Voter Approved Bond, City General Fund
56	Ashworth Ave N	N 195th St	N 200th St	Safe Routes to School, CIP, Voter Approved Bond, City General Fund
57	Meridian Ave N	N 194th St	N 205th St	TIB - SP, Parks and Recreation Bond
58	1st Ave NE	NE 192nd St	NE 195th St	CIP, Voter Approved Bond, City General Fund
59	NE 195th St	1st Ave NE	5th Ave NE	Parks and Recreation Bond
60	NE 195th St	5th Ave NE	Interstate 5	STP - EP
61	NE 195th St	Across Interstate 5		Sound Transit Mitigation, STP - EP
62	5th Ave NE	NE 185th St	NE 205th St	Sound Transit Mitigation, CIP, Voter Approved Bond, City General Fund
63	Corliss Ave N	N 180th St	N 185th St	CIP, Voter Approved Bond, City General Fund
64	N 175th St	Stone Ave N	Meridian Ave N	Impact Fee
65	NE 171st St/Corliss Pl N/N 170th St	Meridian Ave N	North side of James Keough Park	Parks and Recreation Bond
66	N 167th St	Interurban Trail	South side of James Keough Park	CIP, Voter Approved Bond, City General Fund
67	N 165th St	Interurban Trail	Meridian Ave N	CIP, Voter Approved Bond, City General Fund
68	N 157th St	Ashworth Ave N	Meridian Ave N	CIP, Voter Approved Bond, City General Fund
69	N 160th St	Aurora Ave N	Ashworth Ave N	CIP, Voter Approved Bond, City General Fund
70	N 152nd St	Aurora Ave N	Ashworth Ave N	Private Development Mitigation, CIP, Voter Approved Bond, City General Fund
71	1st Ave NE	NE 145th St	NE 155th St	Sound Transit Mitigation, CIP, Voter Approved Bond, City General Fund
72	NE 205th St	17th Ave NE	19th Ave NE	TIB - SP
73	19th Ave NE	NE 196th St	NE 205th St	CIP, Voter Approved Bond, City General Fund
74	Ballinger Way NE	19th Ave NE	25th Ave NE	Private Development Mitigation

PEDESTRIAN FACILITY IMPROVEMENTS FUNDING SOURCES				
Project Number	Street	From	To	Funding Sources
75	25th Ave NE	NE 195th St	NE 205th St	CIP, Voter Approved Bond, City General Fund
76	NE 200th St	South side of Bruggers Bog	30th Ave NE	CIP, Voter Approved Bond, City General Fund
77	NE 195th St/ 10th Ave NE	Interstate 5	NE 185th St	CIP, Voter Approved Bond, City General Fund
78	NE 195th St	10th Ave NE	15th Ave NE	STP - EP
79	NE 196th St	15th Ave NE	19th Ave NE	CIP, Voter Approved Bond, City General Fund
80	Forest Park Dr NE	15th Ave NE	19th Ave NE	CIP, Voter Approved Bond, City General Fund
81	15th Ave NE	NE 181st St	NE 196th St	CIP, Voter Approved Bond, City General Fund
82	Perkins Way NE	10th Ave NE	21st Ave NE	STP - EP, CIP, Voter Approved Bond, City General Fund
83	25th Ave NE	Perkins Way NE	NE 178th St	STP - EP
84	24th Ave NE	15th Ave NE	25th Ave NE	CIP, Voter Approved Bond, City General Fund
85	5th Ave NE	NE 175th St	NE 185th St	Sound Transit Mitigation, CIP, Voter Approved Bond, City General Fund
86	8th Ave NE	NE 175th St	NE 185th St	CIP, Voter Approved Bond, City General Fund
87	10th Ave NE	NE 175th St	NE 185th St	CIP, Voter Approved Bond, City General Fund
88	NE 185th St/ 15th Pl NE	10th Ave NE	NE 180th St	CIP, Voter Approved Bond, City General Fund
89	NE 180th St	10th Ave NE	15th Ave NE	CIP, Voter Approved Bond, City General Fund
90	NE 177th St	15th Ave NE	Serpentine Pl NE	CIP, Voter Approved Bond, City General Fund
91	Serpentine Pl NE	NE 175th St	NE 177th St	CIP, Voter Approved Bond, City General Fund
92	NE 175th St	15th Ave NE	22nd Ave NE	CIP, Voter Approved Bond, City General Fund
	22nd Ave NE	NE 171st St	NE 175th St	
	NE 171st St	22nd Ave NE	25th Ave NE	
93	25th Ave NE	NE 165th St	NE 178th St	CIP, Voter Approved Bond, City General Fund
94	NE 168th St	15th Ave NE	25th Ave NE	CIP, Voter Approved Bond, City General Fund
95	NE 170th St	5th Ave NE	10th Ave NE	Safe Routes to School
96	10th Ave NE	NE 155th St	NE 175th St	CIP, Voter Approved Bond, City General Fund
97	NE 165th St	10th Ave NE	15th Ave NE	Safe Routes to School
98	15th Ave NE	NE 150th St	NE 165th St	Private development mitigation

PEDESTRIAN FACILITY IMPROVEMENTS FUNDING SOURCES				
Project Number	Street	From	To	Funding Sources
99	10th Ave NE	NE 151st St	East side of Paramount Park	Parks and Recreation Bond, CIP, Voter Approved Bond, City General Fund
100	NE 152nd St	11th Ave NE	15th Ave NE	Parks and Recreation Bond
101	NE 148th St	12th Ave NE	15th Ave NE	Parks and Recreation Bond
102	NE 150th St	15th Ave NE	25th Ave NE	CIP, Voter Approved Bond, City General Fund
103	NE 150th St	Approx. 18th Ave NE	20th Ave NE	CIP, Voter Approved Bond, City General Fund
104	NE 158th St	25th Ave NE	28th Ave NE	Safe Routes to School, CIP, Voter Approved Bond, City General Fund
105	25th Ave NE	NE 145th St	NE 150th St	CIP, Voter Approved Bond, City General Fund
106	27th Ave NE	NE 145th St	NE 158th St	CIP, Voter Approved Bond, City General Fund
107	NE 205th St	3rd Ave NE	6th Ave NE	CIP, Voter Approved Bond, City General Fund
108	N 192nd St	Across Aurora Ave N		STP - EP, Private development mitigation
109	Richmond Beach Saltwater Park Pedestrian Bridge			CIP, Voter Approved Bond, City General Fund
110	NE 150th St	25th Ave NE	28th Ave NE	CIP, Voter Approved Bond, City General Fund
111	N 160th St	Dayton Ave N	Greenwood Ave N	CIP, Voter Approved Bond, City General Fund
112	NE 165th St	5th Ave NE	6th Ave NE	CIP, Voter Approved Bond, City General Fund
113	10th Ave NW	NW 175th St	NW 180th St	CIP, Voter Approved Bond, City General Fund
114	NW 180th St	10th Ave NW	8th Ave NW	CIP, Voter Approved Bond, City General Fund
115	Ashworth Ave N	N 185th St	N 192nd St	CIP, Voter Approved Bond, City General Fund
116	NW 201st St	12th Ave NW	15th Ave NW	CIP, Voter Approved Bond, City General Fund
117	Evanston Ave N	N 145th St	N 150th St	CIP, Voter Approved Bond, City General Fund
118	N 192nd St	Ashworth Ave N	Wallingford Ave N	CIP, Voter Approved Bond, City General Fund
119	Wallingford Ave N	N 192nd St	N 195th St	CIP, Voter Approved Bond, City General Fund
120	N 150th St	Ashworth Ave N	Burke Ave N	CIP, Voter Approved Bond, City General Fund
121	NE 170th St	11th Ave NE	15th Ave NE	CIP, Voter Approved Bond, City General Fund

PEDESTRIAN FACILITY IMPROVEMENTS FUNDING SOURCES				
Project Number	**Street**	**From**	**To**	**Funding Sources**
122	NE 160th St	25th Ave NE	31st Ave NE	CIP, Voter Approved Bond, City General Fund
123	NE 148th St	31st Ave NE	Bothell Way NE	CIP, Voter Approved Bond, City General Fund

Acronyms:
CIP - City of Shoreline Capital Improvement Program
EP - Enhancements Program
PE - Pedestrian Enhancements
SP - Sidewalk Program
STP - Surface Transportation Program
TIB - Transportation Improvement Board

PEDESTRIAN FACILITY IMPROVEMENTS PROGRAMS							
Project Number	**Street**	**From**	**To**	**Priority Gap**	**Transit Connection**	**Interurban Trail Connection**	**School Connection**
1	Richmond Beach Dr NW	NW 196th St	NW 199th St		X		
2	Richmond Beach Dr NW	NW 195th St	NW 196th St		X		
3	NW 195th St	Richmond Beach Dr NW	24th Ave NW		X		X
4	20th Ave NW	Saltwater Park entrance	NW 195th St	X	X		X
5	20th Ave NW	NW 195th St	NW 205th St		X		X
6	NW 195th St	Richmond Beach Dr NW	21st Ave NW		X		X
7	NW 197th St	20th Ave NW	18th Ave NW				X
8	18th Ave NW	NW 197th St	NW 198th St				X
9	NW 198th St	18th Ave NW	15th Ave NW				X
10	15th Ave NW	NW 188th St	NW 192nd St	X	X		X
11	15th Ave NW	NW 195th St	NW 205th St		X		X
12	NW 188th St	15th Ave NW	Springdale Ct NW				X
13	Ridgefield Rd NW/ NW Innis Arden Dr	Springdale Ct NW	8th Ave NW		X		
14	Springdale Ct NW/ 14th Ave NW	NW 175th St	NW 188th St				
15	15th Ave NW/ NW 167th St	NW 175th St	NW Innis Arden Way				
16	NW 175th St	15th Ave NW	6th Ave NW				
17	8th Ave NW	NW 175th St	South side of Sunset Park				
18	10th Ave NW	NW Innis Arden Way	NW 175th St				

PEDESTRIAN FACILITY IMPROVEMENTS PROGRAMS							
Project Number	Street	From	To	Priority Gap	Transit Connection	Interurban Trail Connection	School Connection
19	8th Ave NW	NW Richmond Beach Rd	NW 195th St		X		X
20	8th Ave NW	NW 195th St	NW 205th St				X
21	8th Ave NW	North side of Sunset Park	NW 185th St	X	X		
22	NW 180th St	3rd Ave NW	8th Ave NW				
23	6th Ave NW	NW 175th St	NW 180th St				
24	3rd Ave NW	NW 180th St	NW Richmond Beach Rd		X		X
25	3rd Ave NW	NW 189th St	NW 195th St	X	X		X
26	3rd Ave NW	NW 195th St	NW 205th St		X		X
27	NW 205th St	8th Ave NW	3rd Ave NW				X
28	NW 195th St	8th Ave NW	3rd Ave NW	X	X		X
29	NW/N 175th St	6th Ave NW	St. Luke's Pl N		X		X
30	N Innis Arden Way	10th Ave NW	Greenwood Ave N		X		X
31	3rd Ave NW/ Carlyle Hall Rd NW	N 175th St	Dayton Ave N		X		X
32	Dayton Ave N	N 165th St	N 171st St		X		X
33	Dayton Ave N	N 171st St	N 178th St		X		X
34	Dayton Ave N	N 178th St	N Richmond Beach Rd		X		X
35	Dayton Ave N	Westminster Way N	N 165th St		X		X
36	Greenwood Ave N	N 145th St	N 150th St		X		X
37	Greenwood Ave N	N 150th St	N 155th St	X	X		X
38	Greenwood Ave N	N 155th St	N 160th St		X		X
39	Greenwood Ave N	N 160th St	Carlyle Hall Rd N		X		X
40	Westminster Way N	N 145th St	N 153rd St	X	X		
41	NW/N 195th St	3rd Ave NW	Aurora Ave N	X	X		X
42	NW 200th St	3rd Ave NW	Aurora Ave N		X		X
43	Greenwood Ave N	NW 195th St	NW 200th St		X		X
44	Dayton Ave N	NW 195th St	NW 200th St		X		X
45	NW 198th St	Dayton Ave N	Fremont Ave N				X
46	Firlands Way N	N 185th St	N 195th St		X		X
47	Fremont Ave N	N 165th St	N 205th St		X		X
48	Linden Ave N	N 175th St	N 185th St		X		X
49	Linden Ave N	N 185th St	N 188th St		X		X
50	N 170th St	Fremont Ave N	Aurora Ave N	X	X		X
51	N 165th St	Dayton Ave N	Aurora Ave N		X		X
52	N 192nd	Interurban Trail	Ashworth Ave N	X	X	X	X
53	N 195th St	Ashworth Ave N	Meridian Ave N	X			X
54	Ashworth Ave N	N 155th St	N 175th St		X		X

PEDESTRIAN FACILITY IMPROVEMENTS PROGRAMS							
Project Number	Street	From	To	Priority Gap	Transit Connection	Interurban Trail Connection	School Connection
55	Ashworth Ave N	N 175th St	N 185th St		X		X
56	Ashworth Ave N	N 195th St	N 200th St	X	X	X	X
57	Meridian Ave N	N 194th St	N 205th St	X	X		
58	1st Ave NE	NE 192nd St	NE 195th St	X			
59	NE 195th St	1st Ave NE	5th Ave NE				
60	NE 195th St	5th Ave NE	Interstate 5				
61	NE 195th St	Across Interstate 5					X
62	5th Ave NE	NE 185th St	NE 205th St		X		
63	Corliss Ave N	N 180th St	N 185th St		X		X
64	N 175th St	Stone Ave N	Wallingford Ave N				X
65	NE 171st St/ Corliss Pl N/ N 170th St	Meridian Ave N	North side of James Keough Park		X		X
66	N 167th St	Interurban Trail	South side of James Keough Park		X	X	X
67	N 165th St	Interurban Trail	Meridian Ave N		X	X	X
68	N 157th St	Ashworth Ave N	Meridian Ave N		X		X
69	N 160th St	Aurora Ave N	Ashworth Ave N		X	X	X
70	N 152nd St	Aurora Ave N	Ashworth Ave N		X		
71	1st Ave NE	NE 145th St	NE 155th St	X	X		X
72	NE 205th St	17th Ave NE	19th Ave NE		X		
73	19th Ave NE	NE 196th St	NE 205th St		X		
74	Ballinger Way NE	19th Ave NE	25th Ave NE		X		
75	25th Ave NE	NE 195th St	NE 205th St		X		
76	NE 200th St	South side of Bruggers Bog	30th Ave NE				
77	NE 195th St/ 10th Ave NE	Interstate 5	NE 185th St				X
78	NE 195th St	10th Ave NE	15th Ave NE				X
79	NE 196th St	15th Ave NE	19th Ave NE				
80	Forest Park Dr NE	15th Ave NE	19th Ave NE		X		
81	15th Ave NE	NE 181st St	NE 196th St		X		X
82	Perkins Way NE	10th Ave NE	21st Ave NE				X
83	25th Ave NE	Perkins Way NE	NE 178th St				
84	24th Ave NE	15th Ave NE	25th Ave NE				
85	5th Ave NE	NE 175th St	NE 185th St		X		X
86	8th Ave NE	NE 175th St	NE 185th St		X		X
87	10th Ave NE	NE 175th St	NE 185th St		X		X
88	NE 185th St/ 15th Pl NE	10th Ave NE	NE 180th St				X
89	NE 180th St	10th Ave NE	15th Ave NE		X		X

PEDESTRIAN FACILITY IMPROVEMENTS PROGRAMS							
Project Number	Street	From	To	Priority Gap	Transit Connection	Interurban Trail Connection	School Connection
90	NE 177th St	15th Ave NE	Serpentine Pl NE		X		X
91	Serpentine Pl NE	NE 175th St	NE 177th St	X			X
92	NE 175th St	15th Ave NE	22nd Ave NE		X		X
	22nd Ave NE	NE 171st St	NE 175th St				
	NE 171st St	22nd Ave NE	25th Ave NE				
93	25th Ave NE	NE 165th St	NE 178th St				X
94	NE 168th St	15th Ave NE	25th Ave NE		X		X
95	NE 170th St	5th Ave NE	10th Ave NE		X		X
96	10th Ave NE	NE 155th St	NE 175th St	X	X		X
97	NE 165th St	10th Ave NE	15th Ave NE	X	X		X
98	15th Ave NE	NE 150th St	NE 165th St		X		X
99	10th Ave NE	NE 151st St	East side of Paramount Park	X			
100	NE 152nd St	11th Ave NE	15th Ave NE	X	X		
101	NE 148th St	12th Ave NE	15th Ave NE		X		
102	NE 150th St	15th Ave NE	25th Ave NE		X		X
103	NE 150th St	Approx. 18th Ave NE	20th Ave NE	X	X		
104	NE 158th St	25th Ave NE	28th Ave NE				X
105	25th Ave NE	NE 145th St	NE 150th St	X	X		X
106	27th Ave NE	NE 145th St	NE 158th St	X	X		X
107	NE 205th St	3rd Ave NE	6th Ave NE	X	X		
108	N 192nd St	Across Aurora Ave N			X		
109	Richmond Beach Saltwater Park Pedestrian Bridge						
110	NE 150th St	25th Ave NE	28th Ave NE		X		X
111	N 160th St	Dayton Ave N	Greenwood Ave N	X	X		X
112	NE 165th St	5th Ave NE	6th Ave NE	X	X		X
113	10th Ave NW	NW 175th St	NW 180th St				X
114	NW 180th St	10th Ave NW	8th Ave NW				
115	Ashworth Ave N	N 185th St	N 192nd St	X	X		
116	NW 201st St	12th Ave NW	15th Ave NW				
117	Evanston Ave N	N 145th St	N 150th St		X		
118	N 192nd St	Ashworth Ave N	Wallingford Ave N	X			
119	Wallingford Ave N	N 192nd St	N 195th St				X
120	N 150th St	Ashworth Ave N	Burke Ave N				X
121	NE 170th St	11th Ave NE	15th Ave NE		X		
122	NE 160th St	25th Ave NE	31st Ave NE				X
123	NE 148th St	31st Ave NE	Bothell Way NE				

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT COSTS				
Project Number	Street	From	To	Project Cost [1]
1	Richmond Beach Dr NW	NW 196th St	NW 199th St	$830,486
2	Richmond Beach Dr NW	NW 195th St	NW 196th St	
3	NW 196th St	Richmond Beach Dr NW	24th Ave NW	$486,000
4	*20th Ave NW*	*Saltwater Park entrance*	*NW 195th St*	$367,500
5	20th Ave NW	NW 195th St	NW 205th St	$726,221
6	NW 195th St	Richmond Beach Dr NW	21st Ave NW	$192,127
7	NW 197th St	20th Ave NW	18th Ave NW	$907,278
8	18th Ave NW	NW 197th St	NW 198th St	
9	NW 198th St	18th Ave NW	15th Ave NW	
10	15th Ave NW	NW 188th St	NW 192nd St	$621,841
11	15th Ave NW	NW 195th St	NW 205th St	$1,513,774
12	NW 188th St	15th Ave NW	Springdale Ct NW	$1,663,013
13	Ridgefield Rd NW/ NW Innis Arden Dr	Springdale Ct NW	8th Ave NW	
14	Springdale Ct NW/ 14th Ave NW	NW 175th St	NW 188th St	$1,791,647
15	15th Ave NW/ NW 167th St	NW 175th St	NW Innis Arden Way	$2,062,310
16	NW 175th St	15th Ave NW	6th Ave NW	$1,910,195
17	8th Ave NW	NW 175th St	South side of Sunset Park	$131,984
18	10th Ave NW	NW Innis Arden Way	NW 175th St	$1,404,408
19	8th Ave NW	Richmond Beach Rd NW	NW 195th St	$566,064
20	8th Ave NW	NW 195th St	NW 205th St	$1,444,649
21	8th Ave NW	North side of Sunset Park	NW 185th St	$1,038,754
22	NW 180th St	3rd Ave NW	8th Ave NW	$598,198
23	*6th Ave NW*	*NW 175th St*	*NW 180th St*	$1,208,000
24	3rd Ave NW	NW 180th St	NW Richmond Beach Rd	$559,410
25	3rd Ave NW	NW 189th St	NW 195th St	$277,691
26	3rd Ave NW	NW 195th St	NW 205th St	$1,461,391
27	NW 205th St	8th Ave NW	3rd Ave NW	$626,795
28 [2]	*NW 195th St*	*8th Ave NW*	*3rd Ave NW*	$1,760,000
29	NW/N 175th St	6th Ave NW	St. Luke's Pl N	$1,273,720
30	N Innis Arden Way	10th Ave NW	Greenwood Ave N	$2,735,483
31	3rd Ave NW/ Carlyle Hall Rd NW	N 175th St	Dayton Ave N	$1,381,365
32	Dayton Ave N	N 165th St	N 171st St	$487,690
33	Dayton Ave N	N 171st St	N 178th St	$1,906
34	Dayton Ave N	N 178th St	NW Richmond Beach Rd	$896,149
35	Dayton Ave N	Westminster Way N	N 165th St	$2,447,540
36	*Greenwood Ave N*	*N 145th St*	*N 150th St*	$630,000
37	*Greenwood Ave N*	*N 150th St*	*N 155th St*	

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT COSTS				
Project Number	Street	From	To	Project Cost (1)
38	Greenwood Ave N	N 155th St	N 160th St	$395,021
39	Greenwood Ave N	N 160th St	Carlyle Hall Rd N	$1,196,380
40	*Westminster Way N*	*N 145th St*	*N 153rd St*	*$2,134,000*
41	*NW/N 195th St*	*3rd Ave NW*	*Aurora Ave N*	*Cost estimate for this project included with Project #28.*
42	NW 200th St	3rd Ave NW	Aurora Ave N	$2,064,675
43	Greenwood Ave N	NW 195th St	NW 200th St	$886,417
44	Dayton Ave N	NW 195th St	NW 200th St	$575,747
45	NW 198th St	Dayton Ave N	Fremont Ave N	$301,951
46	*Firlands Way N*	*N 185th St*	*N 195th St*	*$1,944,668*
47	*Fremont Ave N*	*N 165th St*	*N 205th St*	*$1,260,000*
48	*Linden Ave N*	*N 175th St*	*N 185th St*	*$1,774,500*
49	*Linden Ave N*	*N 185th St*	*N 188th St*	
50	N 170th St	Fremont Ave N	Aurora Ave N	$674,201
51	N 165th St	Dayton Ave N	Aurora Ave N	$1,226,478
52	N 192nd St	Interurban Trail	Ashworth Ave N	$364,989
53	N 195th St	Ashworth Ave N	Meridian Ave N	$548,219
54	Ashworth Ave N	N 155th St	N 175th St	$2,650,776
55	Ashworth Ave N	N 175th St	N 185th St	$1,455,877
56	*Ashworth Ave N*	*N 195th St*	*N 200th St*	*$441,000*
57	Meridian Ave N	N 194th St	N 205th St	$828,885
58	*1st Ave NE*	*NE 192nd St*	*NE 195th St*	*$157,500*
59 (3)	NE 195th St	1st Ave NE	5th Ave NE	$325,000
60	NE 195th St	5th Ave NE	Interstate 5	$249,785
61	NE 195th St	Across Interstate 5		$500,000 - $3,000,000 (4)
62	5th Ave NE	NE 185th St	NE 205th St	$2,920,628
63	Corliss Ave N	N 180th St	N 185th St	$807,157
64	N 175th St	Stone Ave N	Meridian Ave N	$133,652
65	NE 171st St/ Corliss Pl N/N 170th St	Meridian Ave N	North side of James Keough Park	$500,190
66	N 167th St	Interurban Trail	South side of James Keough Park	$1,745,832
67	N 165th St	Interurban Trail	Meridian Ave N	$1,290,568
68	N 157th St	Ashworth Ave N	Meridian Ave N	$731,367
69	N 160th St	Aurora Ave N	Ashworth Ave N	$663,363
70	N 152nd St	Aurora Ave N	Ashworth Ave N	$454,714
71	*1st Ave NE*	*NE 145th St*	*NE 155th St*	*$1,364,000*
72	NE 205th St	17th Ave NE	19th Ave NE	$172,161
73	*19th Ave NE*	*NE 196th St*	*NE 205th St*	*$900,000*
74	*Ballinger Way NE*	*19th Ave NE*	*25th Ave NE*	*$1,050,000*

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT COSTS				
Project Number	Street	From	To	Project Cost [1]
75	25th Ave NE	NE 195th St	NE 205th St	$1,390,242
76	NE 200th St	South side of Bruggers Bog	30th Ave NE	$1,098,885
77	NE 195th St/ 10th Ave NE	Interstate 5	NE 185th St	$1,503,545
78	NE 195th St	10th Ave NE	15th Ave NE	$760,959
79	NE 196th St	15th Ave NE	19th Ave NE	$550,605
80	Forest Park Dr NE	15th Ave NE	19th Ave NE	$760,870
81	15th Ave NE	NE 181st St	NE 196th St	$1,032,123
82	Perkins Way NE	10th Ave NE	21st Ave NE	$1,583,452
83	25th Ave NE	Perkins Way NE	NE 178th St	$1,653,889
84	24th Ave NE	15th Ave NE	25th Ave NE	$1,434,067
85	*5th Ave NE*	*NE 175th St*	*NE 185th St*	*$3,717,000*
86	8th Ave NE	NE 175th St	NE 185th St	$1,485,063
87	10th Ave NE	NE 175th St	NE 185th St	$1,506,192
88	NE 185th St/ 15th Pl NE	10th Ave NE	NE 180th St	$2,320,558
89	NE 180th St	10th Ave NE	15th Ave NE	$724,923
90	NE 177th St	15th Ave NE	Serpentine Pl NE	$842,626
91	Serpentine Pl NE	NE 175th St	NE 177th St	$652,053
92	NE 175th St	15th Ave NE	22nd Ave NE	$3,951,336
	22nd Ave NE	NE 171st St	NE 175th St	
	NE 171st St	22nd Ave NE	25th Ave NE	
93	25th Ave NE	NE 165th St	NE 178th St	$1,868,466
94	NE 168th St	15th Ave NE	25th Ave NE	$1,340,620
95	NE 170th St	5th Ave NE	10th Ave NE	$726,293
96	10th Ave NE	NE 155th St	NE 175th St	$1,667,781
97	NE 165th St	10th Ave NE	15th Ave NE	$478,230
98	*15th Ave NE*	*NE 150th St*	*NE 165th St*	*$719,250*
99	10th Ave NE	NE 151st St	East side of Paramount Park	$265,076
100	NE 152nd St	11th Ave NE	15th Ave NE	$480,626
101	NE 148th St	12th Ave NE	15th Ave NE	$343,439
102	NE 150th St	15th Ave NE	25th Ave NE	$674,228
103	*NE 150th St*	*Approx. 18th Ave NE*	*20th Ave NE*	*$356,000*
104	NE 158th St	25th Ave NE	28th Ave NE	$427,881
105	*25th Ave NE*	*NE 145th St*	*NE 150th St*	*$923,000*
106	27th Ave NE	NE 145th St	NE 158th St	$1,683,463
107	*NE 205th St*	*3rd Ave NE*	*6th Ave NE*	*$262,500*
108	*N 192nd St*	*Across Aurora Ave N*		*$3,675,000*
109	*Richmond Beach Saltwater Park Pedestrian Bridge*			*$1,050,000*

PEDESTRIAN FACILITY IMPROVEMENTS PROJECT COSTS				
Project Number	**Street**	**From**	**To**	**Project Cost** [1]
110	*NE 150th St*	*25th Ave NE*	*28th Ave NE*	$380,000
111	N 160th St	Dayton Ave N	Greenwood Ave N	$233,161
112	NE 165th St	5th Ave NE	6th Ave NE	$48,994
113	10th Ave NW	NW 175th St	NW 180th St	$791,342
114	NW 180th St	10th Ave NW	8th Ave NW	$365,607
115	Ashworth Ave N	N 185th St	N 192nd St	$457,617
116	NW 201st St	12th Ave NW	15th Ave NW	$366,956
117	Evanston Ave N	N 145th St	N 150th St	$364,949
118	N 192nd St	Ashworth Ave N	Wallingford Ave N	$180,559
119	Wallingford Ave N	N 192nd St	N 195th St	$272,244
120	N 150th St	Ashworth Ave N	Burke Ave N	$186,281
121	NE 170th St	11th Ave NE	15th Ave NE	$282,507
122	NE 160th St	25th Ave NE	31st Ave NE	$365,259
123	NE 148th St	31st Ave NE	Bothell Way NE	$310,259
			Total [5]	**$119,709,273**

[1] Cost estimates for most sidewalk projects were generated using planning level assumptions. Sidewalk projects adjacent to single family residential land uses were assumed to have five foot wide sidewalks, with an estimated cost of $275.71 per lineal foot. Sidewalk projects adjacent to land uses other than single family residential were assumed to have eight foot wide sidewalks at a cost of $314.73 per lineal foot. The estimates include curb, gutter, and a five-foot wide amenity zone. Costs for projects in italicized font were developed for the 2012-2017 TIP and incorporate a higher level of detail.

[2] Cost estimate for this project was developed for the 2012-2017 TIP and includes Project #41

[3] Cost estimate based upon project costs for the N 195th Street Trail project completed in 2010, with additional funding for utility relocation

[4] Cost estimate range for this project assumes the scope of work could range from minor repair and upgrades to complete replacement.

[5] Total includes project cost estimate for complete replacement of the pedestrian bridge at NE 195th Street