City of Kenmore

City of Kenmore - 18120 68th Avenue NE - P.O. Box 82607 - Kenmore, WA 98028
Phone: 425-398-8900 - Fax: 425-481-3236 - E-mail: cityhall@kenmorewa.gov

City of Kenmore
City Council Regular & Special Joint Planning Commission Meeting
Monday, April 20, 2015 at 7:00 p.m.
Kenmore City Hall, Council Chambers
18120 68th Ave. NE, Kenmore, WA 98028

If you have any questions or to confirm agenda items prior to the meeting, or if you require special accommodations, please call the City Clerk at 425-398-8900. You may also stop by City Hall at 18120 68th Avenue NE, Kenmore. Council agendas are also available on our website at www.kenmorewa.gov.

I. CALL MEETING TO ORDER

II. ROLL CALL

III. FLAG SALUTE

IV. AGENDA APPROVAL

V. CITIZEN COMMENTS

A. This is an opportunity to express your views on issues that are important to you and to the community. Please limit your comments to three (3) minutes.

VI. CONSENT AGENDA

A. Adopt Minutes for the March 23, 2015 City Council Meeting
DRAFT 03 23 2015 Minutes

B. Approve Kenmore Requested Priorities for King County
Agenda Bill & Attachment

C. Adopt Resolution No. 15-257 Expressing Support of a 2015 State Transportation Investment Package
Agenda Bill & Attachment

VII. BUSINESS AGENDA

A. Adoption of the 2015 Surface Water Master Plan - Richard Sawyer, Surface Water Program Manager
Agenda Bill & Attachment

B. SR 522 Update and Adoption of Resolution No. 15-255 Amending Change

Order Authority for the SR 522 West A Project - Kris Overleese, Public Works Director/City Engineer, and Kent Vaughan, Senior Civil Engineer
Agenda Bill & Attachments
PowerPoint Presentation

VIII. JOINT PLANNING COMMISSION AGENDA

A. Discuss Planning Commission Preliminary Recommendations on 2015 Comprehensive Plan Amendments - Debbie Bent, Community Development Director; Lauri Anderson, Senior Planner; and Planning Commissioners
Agenda Bill & Attachments

IX. STAFF REPORT

X. COUNCILMEMBER REPORTS & COMMENTS

XI. COUNCILMEMBER INITIATIVES

XII. ADJOURNMENT

Upcoming Meetings:

Tues., April 21, 2015	7:00 p.m.	Planning Commission Regular Meeting
Mon., April 27, 2015	---	City Council Regular Meeting **CANCELED**
Mon., April 27, 2015	---	TBD Board Regular Meeting **CANCELED**
Tues., May 5, 2015	7:00 p.m.	Planning Commission Regular Meeting
Mon., May 11, 2015	7:00 p.m.	City Council Regular Meeting

City of Kenmore, Washington
City Council Regular Meeting
Minutes
March 23, 2015

CALL TO ORDER – The regular meeting of the Kenmore City Council was called to order by Mayor David Baker at 7:00 p.m.

Councilmembers present: Mayor David Baker, Deputy Mayor Allan Van Ness and Councilmembers Brent Smith, Laurie Sperry, Milton Curtis, Nigel Herbig and Stacey Denuski

Staff present: Rob Karlinsey, City Manager; Kris Overleese, Public Works Director/City Engineer; Leslie Harris, Management Analyst; Cliff Sether, Police Chief; Rod Kaseguma, City Attorney; and Patty Safrin, City Clerk

FLAG SALUTE

Hannah Pennington led the flag salute.

AGENDA APPROVAL

It was Council consensus to approve the agenda as submitted.

PROCLAMATIONS

Proclamation Declaring June 27, 2015 Olympic & Paralympic Day in Kenmore - Mayor Baker read the proclamation into the record. Head Coach Dan Henderson, long-time paddling professional, National Team coach, and author, was present to accept the proclamation. He and Hannah Pennington, who is training here for the Paralympics in Rio de Janeiro, both thanked the City for their support.

Proclamation Recognizing the Inglemoor High School Girls' Basketball Team - Mayor Baker read the proclamation into the record. Team members came up to accept the proclamation and have their pictures taken with the Mayor.

CITIZEN COMMENTS

Cat Sullivan, 19121 61st Place NE, Apt. A, Kenmore, was present to speak as an activist for people in poverty and homelessness and to urge the City to provide more affordable, safe housing in the community. She submitted a handout to the Council.

Mark Prince, 19330 55th Avenue NE, Kenmore, was present to bring the Council's attention to new construction at NE 194th Street and 55th Avenue NE with an open ditch. He submitted a handout to the Council.

John Adamski, 5906 NE Arrowhead Drive, Kenmore, was present on behalf of his daughter to bring attention to the neighborhood enthusiasm for a Kenmore waterfront crew team rowing facility.

Mayor Baker thanked the citizens for their comments and reviewed some of the things the City is actively doing to address homelessness.

CONSENT AGENDA

Councilmember Curtis moved to approve the consent agenda as submitted. Councilmember Denuski seconded the motion to Adopt the Minutes for the February 17 and February 23, 2015 City Council Meetings and the January 2015 City Council Retreat Report; Approve Check Nos. 31711 - 31782 in the Amount of $299,623.06 and Electronically Transferred Payroll Funds Totaling $66,199.78 for the Period Ending March 13, 2015; and Receive and File December 2014 Financial Report for the City of Kenmore, Washington. The motion passed unanimously.

BUSINESS AGENDA

Kenmore Waterfront Activities Center (KWAC) Annual Report & Amendment No. 1 to Contract No. 14-C1298 - Rob Karlinsey, City Manager, and members of the KWAC Board were present to give a brief report and a short PowerPoint presentation about the kayaking program. They were also available to answer any questions.

Mayor Baker asked Attorney Rod Kaseguma if there was a conflict of interest for him, as his wife serves on the KWAC Board. Kaseguma explained the conflict of interest statutes and stated that there is no conflict of interest in this situation.

City Manager Karlinsey gave a brief introduction and called up members of the KWAC Board to speak about dragon boating, kayaking, paracanoe, coaching, and crew activities in 2014 and plans for 2015, as well as the contract amendment before the Council tonight. Duncan Cox, President of the Board, introduced Sheri Baker, Treasurer, Dan Henderson, Vice President of Kayaking; Doug Ritchie, Executive Vice President; and Debra Srebnik and Barit McCalister, Directors.

Sheri Baker thanked the City and the City Council for providing the amazing park facility. Dan Henderson stated that broad community support is important for the success of these programs, and they are now working on achieving broad participation to provide a rich experience for people in the program. Debra Srebnik stated that they were able to get a discount for the Lakeside summer rowing classes for Kenmore residents. Rob Karlinsey suggested that the City give scholarships to pay the difference for six to ten low income kids. Duncan Cox reviewed the contract amendments that are being requested. Doug Ritchie stated that it would be very helpful to have greater public access and public awareness of the park. He stated that they will need more storage and are requesting a shipping container for this purpose.

Mayor Baker suggested adding some language to the contract Amendment to address some of the Council concerns. City Manager Karlinsey suggested changes can be addressed again when the contract expires in 2016. Councilmember Curtis suggested a yearly review, coordinated with KWAC's annual report.

It was Council consensus add a yearly review, coordinated with KWAC's annual report, as part of the motion to approve the contract amendment.

Councilmember Denuski moved to approve Amendment No. 1 to the Kenmore Waterfront Activities Center Contract No. 14-C1298 with the above addition. Councilmember Herbig seconded the motion. The motion passed 7-0.

Annual Police Report for 2014 - Cliff Sether, Police Chief, was present to review the 2014 police report and answer any questions. He also introduced the new crime reporting that the City will be seeing in the next year or so. Currently, summary crime rates have eight categories, and the State will be going to a national system which has fifty categories. Shoreline and Kenmore were selected to do the rollout of the new system, which could be as early as fall of this year. It will take through 2017 before we have established a real baseline to compare with 2018 statistics. The result of having so many more categories will be to show a much higher crime rate than we currently show, because the additional subcategories that will be used are not included in the current eight categories. He stated that additional officer time will also be required.

It was Council consensus to accept the report as submitted.

STAFF REPORT

City Manager Karlinsey stated that a year ago Council Chambers was packed with lots of people due to the traffic deaths of a pedestrian and a bicyclist. He stated that the City remembers that and has not lost any momentum. A new traffic engineer will start work at the end of April. He asked the Council if they would like to make a decision on crew scholarships for low income children now, or wait until April 13th.

It was Council consensus to not go forward with scholarships.

Karlinsey stated that the Hank Heron comic strip is coming in the Weekly Update this week. He is trying to get Peter Kageyama on television on the New Day Northwest morning show with Mayor Baker, and will show him around the City so that he is familiar with the City before he does the workshops scheduled for April 6th and 7th. He noted that the Army Corps of Engineers is meeting with the City this week to discuss something they want to do at Squires Landing.

COUNCILMEMBER REPORTS & COMMENTS

Councilmember Smith stated that he likes the Rainworks idea that Councilmember Denuski sent an e-mail about last week.

Councilmember Sperry stated that she is excited about Peter Kageyama coming.

Councilmember Denuski suggested using the Rainworks idea by having Hank the Heron hiding around the City for adding fun to the Town Green and other parks and places in the City. She stated that KABOOM sent a “play desert map,” on which Councilmembers can set filters to view in different ways.

Deputy Mayor Van Ness stated that he attended a lot of meetings for ETP last week. He attended the WRIA 8 meeting on Thursday, where an Interlocal agreement for all cities and a 2015 work plan were discussed. He noted that the City of Kenmore is not listed as one of the projects, even though we have a lot of work to do at Swamp Creek.

Mayor Baker stated that King 5 news was here just before the Council meeting interviewing him on increased traffic and wear and tear on the City's roads. He stated that the ribbon cutting ceremony at Kenmore Air was a great event and very well attended.

ADJOURNMENT

Mayor Baker adjourned the regular meeting at 9:05 p.m.

_____
David Baker, Mayor

ATTEST:

_____
Patty Safrin, City Clerk

DRAFT

City Council Business Agenda Item
City of Kenmore, WA

Subject/Topic: Kenmore Requested Priorities for King County	For Council Meeting Agenda of: 20 April 2015 Department: Executive Prepared by: Rob Karlinsey and Nancy Ousley Initial & Date Approved by Department Head: NKO 10 APR 2015 Approved by City Attorney: _____ Approved by Finance Director: _____ Approved by City Manager: RBK
Proposed Council Action/Motion: Motion to Approve Kenmore Requested Priorities for King County	Exhibits/Attachments: Recommended Priorities List

Expenditure Required $0 Amount Budgeted n/a Appropriation Required n/a

INFORMATION/BACKGROUND:

The Council discussed identifying priorities for King County actions that would benefit Kenmore at the Annual Council Retreat in January 2015, and reviewed draft priorities on March 16, 2015. The proposed Requested Priorities for King County incorporates the Council's comments from the March 16 discussion.

Since the March 16, 2015 discussion, progress has been made on two of the priority items: the Water Taxi expansion study team met with City staff and toured potential landing sites in Kenmore; and King County Natural Resources and Parks staff have invited City to participate in discussions on the Willowmoor Floodplain Restoration Project.

Identifying and adopting legislative priorities at the Federal and State level has been helpful for the City in working with Congressional and State delegations, and having a comparable list for King County issues can help direct our resources and efforts in working with the County.

FISCAL CONSIDERATION:

COUNCIL GOAL/BUDGET OBJECTIVE BEING ADDRESSED:

All Council goals can be addressed in the City of Kenmore's work with King County

City Of Kenmore, Washington

Kenmore Requested Priorities for King County
April 2015

Metro Transit

More Parking for Metro Transit Customers in Kenmore: The Metro Transit Park & Ride lots in Kenmore are brimming and spilling over into residential streets and privately owned parking areas. The downtown's Kenmore Village parking lot has been serving as a de facto park & ride, but this lot will no longer be available when the Kenmore Village property changes hands and is redeveloped in the very near future. Metro needs to acquire and/or construct additional parking for their customers as soon as possible. One suggestion is to construct a structured parking lot at the Kenmore Park & Ride.

Increase Bus Routes and Capacity on Existing Bus Routes in Kenmore: Important Kenmore bus lines were eliminated in the County's recent round of Metro Transit budget cuts. These routes need to be restored, and consideration of other Kenmore routes, including a pilot town-around Kenmore trolley on wheels should be explored and pursued. Additional rider capacity is needed on Metro Route 306 and Sound Transit Route 522, and we request that King County join the City in supporting the additional Sound Transit rider capacity.

Passenger Only Ferry: The City is encouraged that King County is conducting a Water Taxi Service Area Expansion Study, and we appreciate the King County Transportation Department Marine Division's decision to include Kenmore in that study. As a regional commuter hub and a strategic north end location, Kenmore should be an ideal destination and launch point for a passenger only ferry.

Burke Gilman Trail

More Parking for Trailhead Users: The well-used Burke Gilman Trail through Kenmore brings in a multitude of commuters who park their cars in Kenmore and ride their bicycles to work in Seattle. Their preferred parking lot is Log Boom Park which happens to be along the Burke Gilman Trail. While biking into work is laudable and encouraged, Kenmore Parks should not bear the parking burden for Burke Gilman Trail commuters. The Log Boom Park parking lot is often filled will the cars of trail commuters, leaving few or no parking space for park users.

King County should create more vehicle parking for Burke Gilman trail users. Additional new parking opportunities include the construction of angled on-street parking along NE 175th Street

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near Log Boom Park and also the lease or acquisition of under-utilized privately owned parking lots in the vicinity of the trail.

Trail Beautification and Maintenance: King County Parks Department's recent landscaping improvements along the Burke Gilman Trail are noticed and appreciated. We encourage these efforts to continue. In addition, weeds in plant beds along the trail continue to be a problem. We request that more aggressive weeding and installation of native plants to keep down the weeds be made a higher priority along the Burke Gilman Trail in Kenmore.

Navigation Channel Dredging

Kenmore Navigation Channel: King County is the Local Sponsor Authority for the Kenmore Navigation Channel, which was constructed by the US Army Corps of Engineers in 1981, long before Kenmore's incorporation. We appreciate King County's partnership in advocating for long- overdue maintenance dredging of the Channel with the Corps and our Congressional Delegation. We will continue that partnership in pursuing next steps, now that the sediment characterization report has been completed by the Seattle District of the Corps of Engineers and its Dredged Material Management Program.

We request King County's support for funding in the State Budget for the Washington Department of Ecology to conduct further investigation on select Kenmore locations that have had elevated levels of certain chemicals in recent sediment studies. This investigation may help identify the source of the chemicals.

Sammamish River Recreational Channel: The Sammamish River Channel is also a Corps of Engineers project and King County is the Local Sponsor Authority. The Channel is very shallow near the mouth of the River and impedes recreational boat operations, including boats that use the WA Department of Fish and Wildlife Boat Launch in Kenmore. We request that King County convene the cities that border the River to identify actions that can improve river passage and other environmental features of the Sammamish River.

Sammamish River and North Lake Washington Aquatic Environment

Riparian Health: The Sammamish River's riparian health is not acceptable. The River's super heated state and inputs from its urban surroundings have adverse impacts on salmon migration and the River's ecosystem. We request that King County take a leadership role and convene the necessary agencies, including the cities that border the River, to create and execute a plan of action to restore the health of the River. We also request that King County add the City of Kenmore as a Stakeholder/ Project Partner in discussions regarding the Willowmoor Floodplain Restoration Project, an important effort for the Sammamish River habitat.

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Invasive Aquatic Weeds and Toxic Algae: The River and north end of Lake Washington is choked with noxious invasive weeds that interfere with the ecology of the River and impede recreational boat traffic. Even kayaks and standup paddle boards are hindered by the weeds. No single city can tackle this problem alone—the County, the River cities and state agencies need to work together in attacking the aquatic weed problem head on. In tandem with the Riparian Health request above, we request that King County take the lead in bringing the necessary agencies together to solve the problem of aquatic weeds in the Sammamish River and North Lake Washington.

Toxic algae is becoming a more frequent problem in the North Lake Washington, prompting recent Public Health notices to people and animals to avoid affected areas. This issue also needs King County's leadership in correcting the conditions that encourage the growth of the toxic algae.

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City Council Business Agenda Item
City of Kenmore, WA

Subject/Topic: Resolution No. 15-257 Expressing Support of a 2015 State Transportation Investment Package Proposed Council Action/Motion: Approve Resolution No. 15-257	For Council Meeting Consent Agenda of: April 20, 2015 Department: Executive Prepared by: Patty Safrin, City Clerk Initial & Date Approved by Department Head: 4-15-15 Approved by City Attorney: Approved by Finance Director: 4-15-15 Approved by City Manager: Exhibits/Attachments: Resolution No. 15-257

Expenditure Required $n/a Amount Budgeted $0 Appropriation Required $0

INFORMATION/BACKGROUND:

The Resolution expresses the City of Kenmore's strong support for a Transportation Investment Package that is currently being considered by the State Legislature.

The City has worked steadily over a number of years at the State and Federal levels for support for improvements to State Route 522 and the West Sammamish Bridge in Kenmore, and has made considerable local investments in those structures.

FISCAL CONSIDERATION:

Favorable action by the State Legislature this year on a transportation investment package will result in efficiencies in implementing improvements throughout the State, which will also enhance the State and local economy.

COUNCIL GOAL/BUDGET OBJECTIVE BEING ADDRESSED:

To continue to seek transportation funding and mitigation for State impacts on the City's transportation system.

CITY OF KENMORE
WASHINGTON
RESOLUTION NO. 15-257

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KENMORE, WASHINGTON, IN STRONG SUPPORT OF A 2015 STATE TRANSPORTATION INVESTMENT PACKAGE

WHEREAS, a healthy transportation system is a critical foundation of our State and local economies and our quality of life, as well as our global position as the nation's most trade-dependent state; and

WHEREAS, Washington State's transportation system is suffering from disrepair, with a backlog of maintenance and preservation needs, and data showing that the hours of congestion and delay on critical freeway corridors are getting significantly worse; and

WHEREAS, failing roads and bridges, congested highway corridors, and bottlenecked interchanges undermine the mobility of vehicles, buses, and freight-carriers to transport people and goods; and

WHEREAS, the Connecting Washington Task Force released a report in early 2012 identifying $50 billion in unfunded transportation needs and recommending an investment of $21 billion in State funding during the next ten years for maintenance, preservation, and strategic investments; and

WHEREAS, both chambers of the Washington State Legislature have released transportation packages, both of which make a good down-payment on transportation package investments; and

WHEREAS, this package provides critical funding for key highway corridor projects throughout the State, including significant funding to complete improvements to the portion of State Route 522 that runs through the City of Kenmore and the replacement of the West Sammamish Bridge; and

WHEREAS, the transportation package also provides a distribution of funds to cities and counties throughout the State to maintain local roadways and transportation systems; and

WHEREAS, the package also includes local transportation financing options that will better allow cities and counties to address their backlog of mobility and maintenance needs; and

WHEREAS, the transportation package additionally invests in grant programs that are vital for cities and counties, including the Transportation Investment Board (TIB), the Freight Mobility Strategic Investment Board (FMSIB), "Complete Streets," Safe Routes to Schools, and Bicycle-Pedestrian Safety; and

WHEREAS, the package also includes direct funding allocations for transit agencies, including providing Sound Transit with local authority to complete ST3; and

WHEREAS, the City of Kenmore strongly encourages the Washington State Legislature to adopt a transportation package that invests in needed infrastructure throughout Washington State, as the need for a solid transportation system is critical for the State economy and environment,

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF KENMORE, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The Kenmore City Council takes an official position in strong support of a comprehensive and balanced transportation investment package, including direct funding, grant funding, and financing options for local governments.

Section 2. The Kenmore City Council strongly encourages lawmakers to approve and sign into law a 2015 transportation revenue package.

ADOPTED by the City Council of the City of Kenmore, Washington, this 20th day of April, 2015.

CITY OF KENMORE

_____
David Baker, Mayor

ATTEST/AUTHENTICATED:

_____
Patty Safrin, City Clerk

FILED WITH THE CITY CLERK: April 14, 2015
PASSED BY THE CITY COUNCIL: April 20, 2015
RESOLUTION NO. 15-257

City Council Business Agenda Item
City of Kenmore, WA

Subject/Topic: Surface Water Master Plan	**For Council Meeting Agenda of:** April 20, 2015 **Department:** Public Works **Prepared by:** Richard Sawyer (RS) **To Be Presented By:** Richard Sawyer
Proposed Council Action/Motion: Adoption of the 2015 Surface Water Master Plan.	**Initial & Date** **Approved by Department Head:** KMO 4/8/15 **Approved by City Attorney:** NA **Approved by Finance Director:** **Approved by City Manager:** PJK **Exhibits/Attachments:** Attachment 1: Final 2015 Surface Water Master Plan

Expenditure Required NA **Amount Budgeted** NA **Appropriation Required** NA

INFORMATION/BACKGROUND:

The Surface Water Master Plan (Plan) is periodically updated as surface water management programs, policies and projects evolve over time. This evolution is in response to continually changing conditions, regulations, environmental stresses and other factors which affect surface water management in the City. This update is the City's third since incorporating in 1998 (2001, 2008 and 2015). Ideally, the Plan should be updated every 5 to 6 years and remain consistent with the City's Comprehensive Plan and National Pollution Discharge Elimination System (NPDES) Western Washington Phase II Municipal Stormwater Permit.

During the Plan update, staff has provided and discussed with Council components of the plan on issues such as surface water service charge rate reductions, private property surface water management (including drainage easements), beaver management, capital improvement program projects and Swamp Creek floodplain management. The Plan update is also closely tied to the update of the City's Comprehensive Plan Surface Water Element, which was updated and approved by Council in late 2014.

The Plan (Attachment 1) includes five sections, six appendices and associated figures and tables. The Plan is closely tied to two supplemental documents, which were presented to Council in January, including the Kenmore Operations & Maintenance Practices and Policies Manual (OMPPM) and the Kenmore Illicit Discharge Detection and Elimination (IDDE) Program Manual.

The goal of the update is to produce a readable and informative document that describes the surface water environment of Kenmore and educate readers about surface water programs, policies and projects implemented by the City.

Staff received positive feedback from Council at the 2/17/2015 Council meeting and from the Public during the public comment period, which included an open house on 2/19/2015 and subsequent week long comment period from 2/19 through 2/26. Two residents, which serve on HOA boards, had questions regarding private drainage facility maintenance and one resident had questions regarding low impact development.

Several minor changes were made to improve the draft Plan in preparation for the final version. This list outlines where more significant changes were made after the draft was presented to Council in February, including:

Section 3.3.1 Staff incorporated comments from the City Attorney's office in section 3.3.1 regarding private property surface water management. The overall intent was not changed, but the language was modified to provide a clear and precise message.

Section 5.3 A summary was added to conclude the Plan more effectively.

Appendix C This TMDL report was significantly changed to include results from 2013 monitoring and summarize the 5-year project.

Appendix D The retrofit report was modified to focus on publicly maintained drainage facilities. The overall result remained unchanged, but the figures were significantly modified.

Appendix F Programmatic Strategy SProg-09 was added, which describes the City's program to evaluate upstream projects through SEPA review.

Staff believes the plan as presented in Attachment 1 meets the needs of the City and the guidance provided by Council. Staff recommends that Council adopt the Plan as presented. The final step, as outlined in the Schedule section below, is to modify Kenmore Municipal Code to be consistent with this Plan. It is anticipated that the code modifications will be brought before Council for consideration this summer.

SCHEDULE:

July 22, 2013: Introduction to the Surface Water Master Plan update
July 21, 2014: Review updated policies
October 20, 2014: Review updated Surface Water Capital Improvement Program
November 17, 2014: Review updated Surface Water Element Goals and Policies
January 20, 2015: Review Swamp Creek Basin component of Surface Water Master Plan update
February 17, 2015: Review Draft Surface Water Master Plan update
February 19, 2015: Public Open House for Draft Surface Water Master Plan update
April 20, 2015: Adoption of Final Surface Water Master Plan update
July 2015: Update Kenmore Municipal Code to be consistent with Plan

FISCAL CONSIDERATION:

The City's adopted 2013-2014 Biennium Budget included $140,000 for updating the Surface Water Master Plan, including a Swamp Creek Basin Study, which was incorporated into the Master Plan. Approximately $110,000 of the budget was expended during 2013-2014 and the carryover balance will be used in 2015.

COUNCIL GOAL/BUDGET OBJECTIVE BEING ADDRESSED:

- Consistent with Kenmore's Vision Statement to see Kenmore as a community that actively protects natural and environmentally sensitive areas, significant open space, and trees.
- Consistent with City Council Goal: Address watershed issues affecting the City.
- Consistent with the City's 2015-2016 budget result: A sustainable, healthy environment and the preservation of natural resources.

City of Kenmore
Surface Water Master Plan

April 20, 2015

Acknowledgements

2015 City Council

David Baker, Mayor

Allan Van Ness, Deputy Mayor

Milton Curtis

Stacey Denuski

Nigel Herbig

Brent Smith

Laurie Sperry

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Hugh Mortensen, The Watershed Company

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List of Acronyms/Terms

AKART	All Known and Reasonable Treatments
BMP	Best Management Practice
BO	Biological Opinion
CIP	Capital Improvement Project
City	City of Kenmore
County	King County
CWA	Clean Water Act
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
ECOSS	Environmental Coalition of South Seattle
EPA	US Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
GMA	Growth Management Act
IDDE	Illicit Discharge Detection and Elimination
KCC	King County Code
KCSWDM	King County Surface Water Design Manual
KMC	Kenmore Municipal Code
LID	Low Impact Development
MS4	Municipal Separate Storm Sewer
N/A	Not Applicable
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
PSP	Puget Sound Partnership
QAPP	Quality Assurance Project Plan
RCW	Revised Code of Washington
ROW	Right of Way
RSMP	Regional Stormwater Management Program
SEPA	State Environmental Protection Act
SMA	Shoreline Management Act
SR	State Route
SWMMWW	Stormwater Management Manual for Western Washington
SWMP	Stormwater Management Program
TMDL	Total Maximum Daily Load
USACE	US Army Corps of Engineers
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resources Inventory Area

1. Introduction

This Surface Water Master Plan (Plan) presents strategies and projects for managing surface water and stormwater in the City of Kenmore (City) through 2020. This Plan builds upon previous planning efforts, including National Pollutant Discharge Elimination System (NPDES) compliance efforts that have been implemented in response to issuance of the first Phase II Municipal Separate Storm Sewer (MS4) permit in 2007.

What is NPDES?

NPDES or the National Pollutant Discharge Elimination System is the permit program under which States and sometimes other designated authorities (in this case, Washington State Department of Ecology) implement the requirements of the Federal Clean Water Act to control water pollution. Kenmore has a NPDES Phase II Permit for their municipal storm sewer system.

This Plan is organized by the following sections:

1) **Introduction** – Details the drivers behind the Plan and its relationship to other planning efforts, the goals for surface water management in the context of the City's goals and vision, achievements since the last Plan update, and surface water staffing and responsibilities.
2) **Surface Water Trends, Challenges, and Opportunities** – Describes regional trends in the management of surface water that will affect Kenmore, regulatory requirements, surface water management issues in Kenmore, and opportunities for improvement.
3) **Existing Policies** – Describes Kenmore's surface water management policies and provides recommendations for modifications and updates to existing policies and development of new policies.
4) **Current Conditions** – Describes the City's existing surface water and stormwater system conditions, including types and locations of infrastructure and facilities, natural resources, operations and maintenance (O&M), and programmatic management.
5) **The Next 6-10 Years** – Provides recommendations for capital projects and programmatic strategies that address issues described in previous sections.

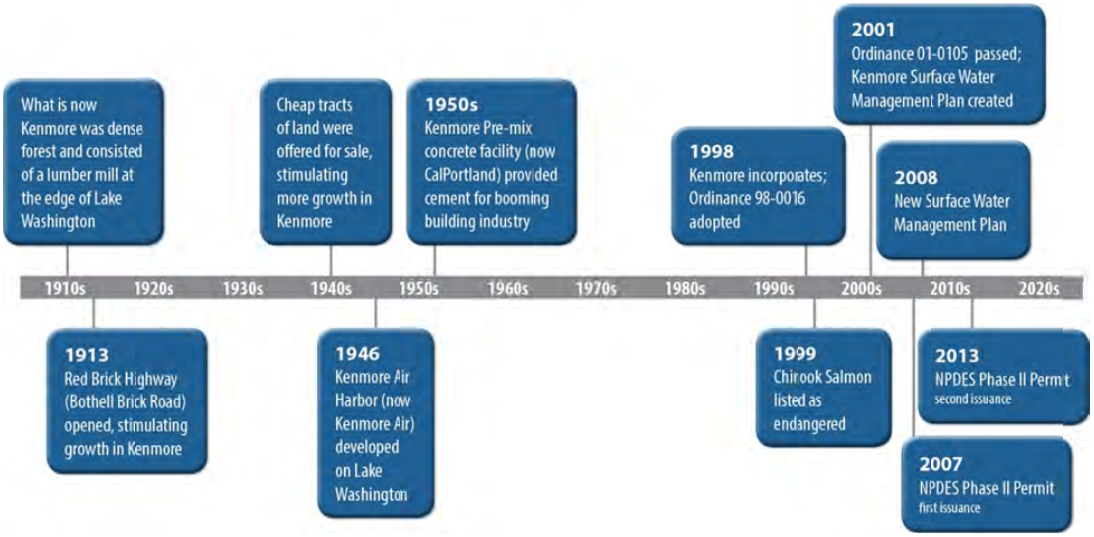
1.1 Kenmore Then and Now

Kenmore is located on the north end of Lake Washington and is surrounded by the Cities of Lake Forest Park, Bothell, Kirkland, Brier, and Lynnwood and Snohomish County (Figure 1-1).

Figure 1-1. Kenmore location

The history of land use, development, and stormwater regulations in Kenmore (Figure 1-2) and surrounding areas is important in the context of current and potential future stormwater planning.

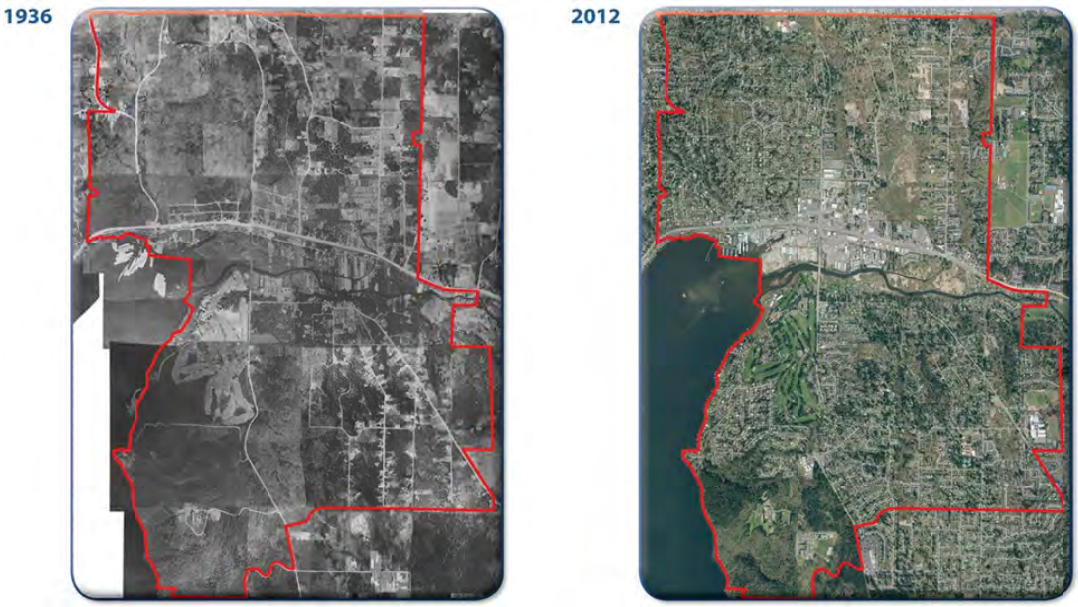
Figure 1-2. History of Kenmore development and surface water management



Kenmore's current population is over 21,000 (Washington State Office of Financial Management 2014), and the City is largely residential outside of the State Route (SR) 522 Commercial Business District. In the early 1900s, the area was densely forested and did not begin to develop until after the 1930s (based on a review of aerial photographs). A selective review of housing ages throughout Kenmore indicates that much of the development occurred in the 1950s through 1970s and started to taper off in the 1980s. Infill areas of new development appear to have started in the 1990s and are still occurring today. Select aerial photos (Figure 1-3) show general development in Kenmore since 1936 (the earliest aerial photograph available).

The City of Kenmore incorporated in 1998 from what was previously unincorporated King County (County). Following incorporation, the City adopted Ordinance 98-0016, which created a stormwater utility and stormwater utility fund for which rates are collected. The ordinance also adopted Chapters 9.04, 9.08, and 9.12 of the King County Code, which described the County's surface water management program at the time and effectively became the City's surface water management program. In 2001, through the passing of Ordinance 01-0105, the City adopted the Kenmore Stormwater Management Plan (SWMP). In 2008, a new SWMP was developed to: 1) address new regulatory requirements under the NPDES Phase II MS4 permit, for which Kenmore became a permit holder; 2) identify capital facility needs; and 3) recommend funding options for ongoing surface water management needs (Otak 2008). The 2008 SWMP is comprised of a series of technical memoranda that documented strategies for 2007-2012 NPDES Phase II permit compliance, City stormwater assets management, capital improvement projects (CIPs) and implementation schedules, and staffing needs and stormwater rate increases necessary for permit compliance.

Figure 1-3. Aerial photographs from 1936 and 2012 depicting land use changes in Kenmore



1.2 Need for an Updated Plan

There are a number of reasons for updating this Plan in 2014, including:

- Coordination with the City's 2014 Comprehensive Plan Update,
- Compliance with the second issuance of the NPDES Phase II MS4 Permit (effective August 2013), and
- Need for updated CIPs.

Figure 1-4 shows the planning framework into which the Surface Water Master Plan fits.

Figure 1-4. Surface water planning framework

1.2.1 Kenmore Comprehensive Plan

The City developed a Comprehensive Plan in 2001, which included a Surface Water Element and Capital Facilities Element (includes the Surface Water Capital Improvement Program) (City of Kenmore 2001). In 2014, City Council approved updates to the Surface Water and Capital Facilities Elements. The Surface Water Element update incorporated NPDES requirements that had emerged during the City's three NPDES Permit implementations since 2001. The Capital Facilities Element updated the Surface Water Capital

Improvement Program list, which had become outdated. The Surface Water Master Plan must be consistent with the Comprehensive Plan, which must also be consistent with:

- The Washington State Growth Management Act (GMA) (Chapter 36.70A Revised Code of Washington [RCW]),
- Puget Sound Regional Council's Vision 2040 (Puget Sound Regional Council 2009), and
- King County Countywide Planning Policies (King County 2012).

1.2.1.1 Washington State GMA

The GMA requires jurisdictions within urban growth areas, such as Kenmore, to conduct comprehensive city planning and to develop policies and regulations that protect the functions and values of critical areas.

1.2.1.2 Puget Sound Regional Council's Vision 2040

The Puget Sound Regional Council's Vision 2040 is a multi-county planning and regional growth strategy created to accommodate the 5 million people expected to live in our region by 2040.

> "…envision a significant share of the region's growth being accommodated in already urbanized areas, with the growth occurring in an environmentally sensitive manner. VISION 2040 also encourages the efficient use of urban land, maintaining natural hydrological functions and, where feasible, restoring them to a more natural state. VISION2040 promotes a sustainable approach, such that these goals are not seen as mutually exclusive."

1.2.1.3 2012 King County Countywide Planning Policies

King County first adopted Countywide Planning Policies in 1992 and updated the policies in 2012 to address changes in the GMA and reflect regional direction established in Puget Sound Regional Council's Vision 2040. As part of the 2012 Countywide Planning Policies, the County articulated a Vision for King County 2030. One ideal of that Vision is:

> Protected Critical Areas. Effective stewardship of the environment has preserved and protected the critical areas in the County, including wetlands, aquifer recharge areas, and fish and wildlife conservation areas. These critical areas continue to provide beneficial functions and values for reducing flooding, protecting water quality, supporting biodiversity, and enriching our quality of life for future generations as the region's population continues to grow.

Countywide Planning Policies are organized by topic. The Environment (EN) section's overarching goal: "The quality of the natural environment in King County is restored and protected for future generations." Several of the policies that support that goal apply to surface water and stormwater management. These policies (as stated in the 2012 Countywide Planning Policies) include:

- EN-2: Encourage low impact development (LID) approaches for managing stormwater, protecting water quality, minimizing flooding and erosion, protecting habitat, and reducing greenhouse gas emissions.
- EN-6: Coordinate approaches and standards for defining and protecting critical areas especially where such areas and impacts to them cross jurisdictional boundaries.

What is LID?

LID or Low Impact Development is a stormwater planning and best management practice technique that is designed to mimic natural hydrologic processes. Low impact development techniques often focus on preserving native vegetation and soils and utilizing infiltrative stormwater management practices.

- EN-7: Encourage basin-wide approaches to wetland protection, emphasizing preservation and enhancement of the highest quality wetlands and wetland systems.
- EN-8: Develop an integrated and comprehensive approach to managing fish and wildlife habitat conservation, especially protecting endangered, threatened, and sensitive species.
- EN-9: Implement salmon habitat protection and restoration priorities in approved Water Resource Inventory Area plans.
- EN-10: Coordinate and fund flood hazard management efforts through the King County Flood Control District.
- EN-11: Work cooperatively to meet regulatory standards for floodplain development as these standards are updated for consistency with relevant federal requirements including those related to the Endangered Species Act (ESA).
- EN-13: Collaborate with the Puget Sound Partnership to implement the Puget Sound Action Agenda and to coordinate land use and transportation plans and actions for the benefit of Puget Sound and its watersheds.
- EN-14: Manage natural drainage systems to improve water quality and habitat functions, minimize erosion and sedimentation, protect public health, reduce flood risks, and moderate peak storm water runoff rates. Work cooperatively among local, regional, state, national and tribal jurisdictions to establish, monitor and enforce consistent standards for managing streams and wetlands throughout drainage basins.
- EN-15: Establish a multi-jurisdictional approach for funding and monitoring water quality, quantity, biological conditions, and outcome measures and for improving the efficiency and effectiveness of monitoring efforts.

1.2.2 NPDES Phase II Permit

The primary changes made in the City's third issuance of the NPDES Phase II permit (2013) include the following which could affect Kenmore's SWMP:

- No minimum area threshold for controlling runoff from new development, redevelopment, and construction sites. The previous permit had a 1-acre threshold.
- LID principles and Best Management Practices (BMPs) are required and must be incorporated into local development code, rules, standards, and other enforceable documents. LID was encouraged, but not required in the previous permit cycle.
- All catch basins and inlets owned by the permittee must be inspected once every 2 years. The previous permit required 1 inspection before the end of the permit cycle.
- Water quality monitoring is now required by Phase II permittees (either through payment to a regional water quality monitoring fund or through individual efforts by the permittee). Water quality monitoring was not previously required.
- On-site stormwater management requirements include a LID Performance Standard that requires stormwater discharges to match developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 8 percent of the 2-year peak flow to 50 percent of the 2-year peak flow.

1.2.3 New Capital Projects

The capital projects identified in Kenmore's 2008 SWMP have been constructed, are on the books for construction, or are no longer relevant. At the same time, new issues have arisen and grant funding has become increasingly available for identified LID projects. Now is the time for a fresh look at the stormwater capital improvement program.

1.3 Surface Water Goals

Kenmore's primary goal for surface water management is to:

> Develop, maintain, manage and improve a surface water system that serves the community, enhances the quality of life, and protects the environment (Surface Water Element of 2014 Comprehensive Plan).

This is generally achieved through projects and programs that are designed to maintain, repair, and replace existing stormwater infrastructure; prevent and minimize flooding; prevent and minimize water quality issues; and preserve or improve aquatic habitat. The NPDES Phase II permit requires many elements that also support these goals. The Permit and other regulatory requirements are discussed in Section 2.

Kenmore's City vision is shown below (with surface water management-related elements in blue italics) (City of Kenmore 2000).

> As we look into the future, 20 years from now, we see Kenmore as a place that residents, businesses, and visitors find special with welcoming, courteous people, offering a high quality of life as a place to live, raise children, shop, work, recreate, and socialize. In 2020, we see Kenmore as…
>
> - A community that is family friendly with a small town feeling that recognizes its history, and is open to and values diversity.
> - A community that fosters a sense of belonging and pride, makes use of the vast skills of its citizens, and promotes volunteerism.
> - A community that has preserved the character of its single family residential neighborhoods, which offers a range of housing types and prices to ensure an adequate choice of attractive living accommodations, and promotes compatible housing.
> - A community that actively protects natural and environmentally sensitive areas, significant open space, and trees.
> - A community with an attractive, vital, pedestrian-friendly city center offering commercial, civic, cultural and park spaces, integrated with higher density housing.
> - A community with clear design standards creating attractive, functional, and enduring buildings and places.
> - A community that manages its traffic well, and is united by a safe and effective system of streets, transit routes, sidewalks, and trails, linking significant regional and local destinations.
> - A community that supports and encourages quality schools, diverse and continuing education opportunities.
> - A community with a network of parks, trails, open spaces, and recreational facilities providing for passive and active recreation, and waterfront access.
> - A community with clear public priorities that efficiently and effectively utilizes its public resources.
> - A community with an economic base that provides for the needs of its citizens and provides quality employment opportunities.
> - A community that is attentive to, and seeks to provide for, the health, safety, and welfare of all its citizens.
> - A community that is a good partner with citizens and governments throughout the region.
> - A community with an informed citizenry working with an open, responsive government that seeks out and integrates public input.

To achieve this vision, responsible commitments in planning and resources will be made. We share and support this vision for Kenmore.

In addition, City Council Goal #11 shown below is directly related to surface water management.

> City Council Goal #11: To address watershed issues affecting the City.

This Plan aims to be consistent and supportive of the City's vision and goals.

1.4 Achievements since Last Plan

Kenmore has made great strides in surface water management since the last Plan update in 2008. A full-time Surface Water Manager was hired in 2009 and a full-time Surface Water Technician was hired in 2012. These positions have allowed the City to effectively address the requirements of the NPDES Phase II permit, develop documents and tools to make program implementation easier, and complete several CIPs that were identified in the previous plan. Specific accomplishments include:

- Adoption of the 2009 King County Surface Water Design Manual (KCSWDM) (King County 2009).
- Updated Kenmore water quality municipal codes to comply with Phase II permit requirements.
- Mapping of the surface water and stormwater system in geographic information system (GIS) and making those maps publicly available online.
- Development of a stormwater pollution prevention manual.
- Participation in a stormwater attitudes survey in conjunction with neighboring communities in 2009 and 2012.
- Development of an O&M policies and practices manual.
- Development of an illicit discharge detection and elimination (IDDE) manual.
- Completion of a LID barriers summary to identify potential limitations of using LID.
- Completion of outfall reconnaissance surveys in Swamp Creek, Sammamish River, and Tributary 0057 evaluating potential for illicit discharges.
- Completion of on-going water quality measurements and evaluation in support of the Swamp Creek total maximum daily load (TMDL).
- Annual inspections of public and private stormwater treatment facilities.
- Annual inspections of public stormwater conveyance system.

1.4.1 Projects Constructed

The surface water-related projects below were either constructed or are in the process of being constructed.

- SR 522 Drainage Improvements (SR 522 Corridor Improvement Project)
- NE 181st Street Box Culvert (Tributary 0056)
- NE 175th Street Box Culvert (Tributary 0057)
- Juanita Drive NE Ditch Improvements
- Swamp Creek Property Acquisitions for Open Space
- NE 192nd Street Box Culvert (Little Swamp Creek - Scheduled 2015/2016)

1.5 Surface Water Staffing and Responsibilities

A simplified City of Kenmore organizational chart is shown in Figure 1-5, identifying where surface water management functions reside within the City's structure. Currently, the City has 2 full-time, dedicated surface water management staff including a Surface Water Manager and a Surface Water Technician. A temporary summer position is hired each year to support surface water inspection and outreach activities. Additionally,

City staff in other departments also support surface water management through development review and other activities described in section 1.6.1. O&M activities are currently implemented through Interlocal Agreements with King County and the neighboring City of Lake Forest Park as well as with private contractors.

Figure 1-5. City of Kenmore organizational chart

1.5.1 Responsibilities

Surface water functions include the following types of responsibilities:

- **Development review and permitting** – New development and redevelopment activities within the City require stormwater site plans showing how and where stormwater from the site will be treated and where it will discharge to the City's system (if applicable).
- **Water quality/NPDES compliance** – As a permittee, the City must comply with the NPDES Phase II MS4 Permit and relevant TMDLs. The permit is all encompassing and compliance requires a multi-faceted program and approach to surface water management.
- **Identification and implementation of capital projects** – Surface water related projects (e.g., stormwater infrastructure repair, culvert replacements, and stormwater retrofit) are the types of capital projects recommended by Surface Water Staff. Public Works engineers typically design or manage the design and construction of the projects once they are included in the Capital Improvement Program.

- **Response to complaints –** Drainage complaints ranging from flooding to water quality and ditch or hillslope erosion are received and addressed by Surface Water staff.
- **Education and outreach –** Individual choices in everyday life can greatly affect water quality, habitat, and flooding. Surface water education and outreach is important to the goal of preventing water quality issues, flooding, and/or habitat impacts. Education and outreach is also required by the NPDES Phase II MS4 Permit. The City participates in regional programs, pooling resources to accomplish societal change.
- **Regional forums and participation –** Surface Water staff participate in a variety of regional forums for the purpose of sharing information and resources and being part of the discussion regarding regional issues that affect Kenmore.

2. Surface Water Trends, Challenges, and Opportunities

The management of surface water and stormwater runoff can be challenging, especially for a city such as Kenmore that is geographically situated at the bottom of large upstream drainage areas that extend beyond the City limits. Unlike other public utilities, the functionality of stormwater infrastructure and the characteristics of runoff can be significantly affected by the actions of the public and individuals. Likewise, the runoff itself can impact property and aquatic habitat. These and other challenges are discussed in this section.

2.1 History — Jurisdictional and Surface Water Management

Stormwater regulations have evolved over the last 2 decades as more research has been conducted on the effects of stormwater runoff on water and natural resources. The current regulations continue to require greater flow controls and water quality treatment than in the past – generally prior to 1990 – and focus on impacts other than just flood control. Additionally, different types of stormwater BMPs are being implemented on the regional and national scales, and there has been a shift toward "greener" solutions (e.g., LID).

How does the Ecology SWMMWW differ from NPDES?

NPDES lays the groundwork for the requirements – what the permittee (e.g., Kenmore) has to do to comply. The permit references the Ecology manual (the current permit references Ecology's 2012 SWMMWW) that provides standards on how to meet the requirements.

An example of the shift toward greater flow control is shown in Table 2-1, which compares stormwater facility sizes needed for the same development under different versions of the Washington State Department of Ecology (Ecology) Stormwater Management Manual for Western Washington (SWMMWW).

Table 2-1. Evolution of flow control standards and facility sizes based on previous and current Ecology manuals

SWMMWW Year	Relative Facility Size Footprint*	Description
Pre-1992		Prior to 1992, no flow control was necessary.
1992 (Ecology 1992)		The 1992 manual required that peak flows for certain size events be matched.
2001 (Ecology 2001)		In 2001, Ecology added flow duration requirements to matching peak events, resulting in larger stormwater facility sizes.
2012 (Ecology 2014)		The 2012, Ecology required even greater flow control – particularly with regard to providing on-site stormwater flow control that matches between 8 percent and 50 percent of the 2-year flow event. This standard requires implementation of LID.

* For illustrative purposes, the footprint of a traditional stormwater detention facility was assumed.

2.2 Current Issues

Since incorporation in 1998, Kenmore's primary surface water issue has been flooding associated with Swamp Creek. Other surface water issues include the inheritance of stormwater facilities from King County during incorporation that are undersized or require significant maintenance, and the lack of stormwater treatment (water quality or flow control) in many parts of the City that were developed ahead of current regulations. As infill development occurs within the City, and also in upstream jurisdictions, additional surface water and stormwater conveyance and capacity issues have come to light.

2.2.1 Swamp Creek Flooding

Swamp Creek has been studied extensively over the years in an attempt to reduce flooding. Numerous actions have also been taken by King County and the City of Kenmore to reduce flood-related impacts. Figure 2-1 shows the history of actions taken and studies conducted at Swamp Creek since the 1950s. A description of current conditions in Swamp Creek is provided in Section 4 and Appendix A.

Figure 2-1. Timeline of actions and studies related to Swamp Creek

2.2.2 Inherited King County Facilities

Upon incorporation in 1998, Kenmore assumed responsibility for stormwater facilities previously constructed or maintained by King County. These facilities were sized according to the standards in place at the time of construction, and many are currently undersized. Additionally, several sediment management facilities were installed and, in many cases, these facilities must be maintained on a more frequent basis than was originally planned. The Wallace Park sedimentation pond is one example.

2.2.3 Existing Development

Much of Kenmore was developed prior to 1990 when regional stormwater regulations began to require stormwater facilities to retain or detain water to lower flow rates to the downstream conveyance and eventually control flow durations and provide water quality treatment as described above. The areas of the City that are currently lacking treatment are primarily on the west side of the City. Recent transportation projects along SR 522 and major Kenmore arterials have implemented modern stormwater treatment in those locations. As older neighborhoods redevelop, stormwater retrofit will improve conditions.

Why will stormwater retrofit occur as older neighborhoods redevelop?

New stormwater regulations require developers and property owners to implement stormwater treatment for redeveloped parcels. This is a shift from past requirements that only focused on stormwater treatment for newly developed parcels.

2.2.4 Upstream Jurisdictions

Kenmore is in the unfortunate geographic position of being downstream of large watersheds for which it has no control. The actions and inactions of upstream jurisdictions have created and can create impacts in the City of Kenmore. Swamp Creek is the primary example. The Cities of Lynnwood, Brier, Everett, Bothell, Mountlake Terrace and unincorporated areas of Snohomish County contribute runoff to Swamp Creek, which discharges to the Sammamish River in the City of Kenmore. Water and sediment transported from upstream reaches is slowed through the natural shift in gradient near Wetland #3 (located on the east side of 73rd Avenue NE) in Kenmore. The City has participated in regional forums with upstream jurisdictions to collectively manage stormwater runoff to reduce impacts for all stakeholders. However, there is more to be done.

2.3 Future Issues and Opportunities

There are a number of potential future surface water- and stormwater-related issues that the City will need to manage in the coming years, including compliance with changing permit conditions, implementation of new stormwater standards, and different maintenance needs for new facilities. Additionally, influences beyond the City's control (e.g., climate change and invasive species) may also affect surface water and stormwater management approaches.

On the positive side, Kenmore has the opportunity for incremental improvement in water quality, aquatic habitat, and flood conditions as portions of the City are redeveloped and more stringent stormwater controls are implemented according to current regulations. Additionally, the City may wish to start retrofitting its properties and roads to include new or updated stormwater facilities as grant funding is increasingly available for stormwater retrofit, particularly if LID techniques are included in the design.

2.3.1 Regulatory Changes

LID is soon to become the commonly used and preferred BMP for managing stormwater impacts. The NPDES Phase II MS4 Permit requires that permittees (e.g., Kenmore) require LID by the end of 2016. For cities like Kenmore that are largely built out already, the LID BMPs most likely to be incorporated are those that infiltrate into the ground (e.g., pervious pavement and bioretention facilities). These types of LID BMPs require maintenance personnel and different maintenance frequencies, tools, and skill sets. These LID solutions also provide ancillary benefits beyond stormwater treatment, including aesthetic, cooling, and air quality benefits. Implementing LID will require significant changes to established standards and will change how developments, roads, parcels and buildings look and function. However, Kenmore's surface water and topographic characteristics will provide challenges to implementing LID due to the abundance of shallow groundwater, steep slopes, and till soils throughout the City.

2.3.2 Invasive Species

Invasive species have wreaked havoc on native populations of fish, animals, and vegetation for centuries. The new threat in our region is the New Zealand Mud Snail. Although this snail has not been identified in Kenmore's streams, it is present in other streams draining to Lake Washington, including McAleer Creek in Lake Forest Park. This species is of concern because it can quickly dominate river and lakebed habitats, thus outcompeting native aquatic snails and insects, leading to implications for fish and other species that rely on these insect for their food source. Widespread presence of the New Zealand Mudsnail is almost inevitable. However, regional efforts are being made to educate biologists, contractors, and maintenance staff about methods to avoid proliferation. Decontamination of equipment when moving between streams is the best method to prevent spread of the species, but it does add time and costs to projects that involve in-water work.

2.3.3 Climate Change

Researchers at the University of Washington and elsewhere predict climate change could increase the frequency and intensity of precipitation events in the Pacific Northwest (Snover, et al. 2013), with heavy rainfall events becoming more severe, leading to increased periods of flooding in low-land areas. The City of Kenmore's downtown core is located in a low-lying area and already experiences flooding problems, so the impacts of heavier rain events could be worse than other areas of Puget Sound. Stormwater infrastructure designed to convey a certain size storm event may not be adequate if more frequent, higher-intensity, or longer duration storms become commonplace. Already unstable slopes could also experience more frequent slope failures due to prolonged saturated conditions. As the City upgrades its piped infrastructure and replaces culverts, there are opportunities to upsize systems to accommodate predicted future flow increases.

2.4 Regulatory Context

There are a variety of local, state, and federal regulations and permits pertaining to surface water and stormwater with which Kenmore must comply. Table 2-2 provides a summary of applicable regulations and permits. Regulations and permits that have been subject to recent revisions or planned future changes are highlighted in bold text and described in more detail below.

Table 2-2. Regulations and permits applicable to the City of Kenmore

Entity	Law	Program	Intent	Relevance to Kenmore Surface Water Management
Federal or Tribal	Clean Water Act (CWA)	NPDES MS4	Eliminate discharge of pollutants to nation's water and achieve water quality that supports beneficial uses (e.g., fishing and swimming)	NPDES permit delegates Kenmore responsible for water quality leaving the City's system. New NPDES Permit in effect as of August 1, 2013, with phased implementation schedule for new requirements.
		Other NPDES Permits (e.g., Industrial, Sand and Gravel, Boatyard, etc.)	Reduce discharge of pollutants to nation's water and hold permittees accountable for meeting water quality standards.	Requires entities in Kenmore that conduct certain pollutant-generating activities to obtain a permit and implement a plan to eliminate or minimize discharge of pollutants to Kenmore's receiving waters.
		Water quality standards (303(d) list)	Protect human health and the environment using research-based numeric criteria for acceptable values of constituents.	Requires development of a TMDL for each pollutant in water bodies at levels greater than the water quality standards. Kenmore is party to a TMDL for fecal coliform bacteria in Swamp Creek.
		Section 401 and 404	Limits filling and dredging activities in nation's waters.	Requires a permit for activities that produce discharge or dredge fill material to or from waters of the United States. Any in-water work, such as culvert replacements or stream restoration activities require Section 401 and 404 permits from the US Army Corps of Engineers (USACE).
	Tribal Agreements and Related Case Law	"Culvert Case" (March 29, 2013) - US District Court rules that the State of Washington must replace culverts that impede fish passage to their spawning grounds.	Protect fish populations in traditional fishing grounds of Indian Tribes.	The Muckleshoot Indian Tribe is party to the State Environmental Policy Act (SEPA) review of development proposals and programs. The March 29, 2013, US District Court ruling could lead to future implications for counties and cities whose culverts impede fish passage.
	National Flood Insurance Act, Flood Disaster Protection Act	National Flood Insurance Program (NFIP)	Reduce property damage and public safety threats from flooding.	City enacts restrictions/requirements on development in floodplain and residents get reduced flood insurance rates in return. The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) issued a Biological Opinion requiring changes to the NFIP to comply with the ESA.
	ESA	Chinook salmon listed as a threatened species	Prevent further decline of Chinook salmon populations through prohibition on "take" of the fish or their habitat.	City participates in Water Resources Inventory Area (WRIA) 8 Salmon Conservation Planning. Chinook salmon are present in Lake Washington.

Entity	Law	Program	Intent	Relevance to Kenmore Surface Water Management
State	SEPA (Chapter 43.21C RCW)	City of Kenmore reviews proposals and issues SEPA determinations	Identify and require mitigation for the environmental impacts or proposals and programs.	SEPA is used to address impacts that are not covered in other City requirements.
	Shoreline Management Act (SMA) (Chapter 90.58 RCW)	Kenmore Shoreline Master Program	Protect use and functions (e.g., economic, ecological, and aesthetic) of shoreline areas. Implemented by Kenmore Municipal Code (KMC) Title 16.	Kenmore's Shoreline Master Program was updated and made effective in 2012. The shoreline sub-element in the City's Comprehensive Plan addresses shoreline policies, some of which are related to surface water management.
	Hydraulic Code (Chapter 22-110 Washington Administrative Code [WAC])	WAC	Set requirements for placement of culverts and other hydraulic devices that may impact fish use.	Projects proposing work within the wetted perimeter of a stream must obtain a Washington Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (HPA), including culvert replacements and stream restoration work.
	GMA	City Comprehensive Plan, City zoning, and critical areas regulations	Regulate land use to meet growth targets while providing necessary services and protecting sensitive environmental resources.	City of Kenmore Comprehensive Plan and supporting municipal code sections address land use and growth management.

2.4.1 Federal Clean Water Act (CWA) - NPDES Phase II Permit

The federal CWA is implemented through a variety of regulations and programs. The most significant of these for the City is the NPDES MS4 Permit. Under Phase II of this program, the City must apply for a permit from the US Environmental Protection Agency (EPA) (or, in this case the State of Washington, which has been authorized to act as the EPA's agent) to discharge stormwater from streets, public facilities, and drainage network into waters of the United States.

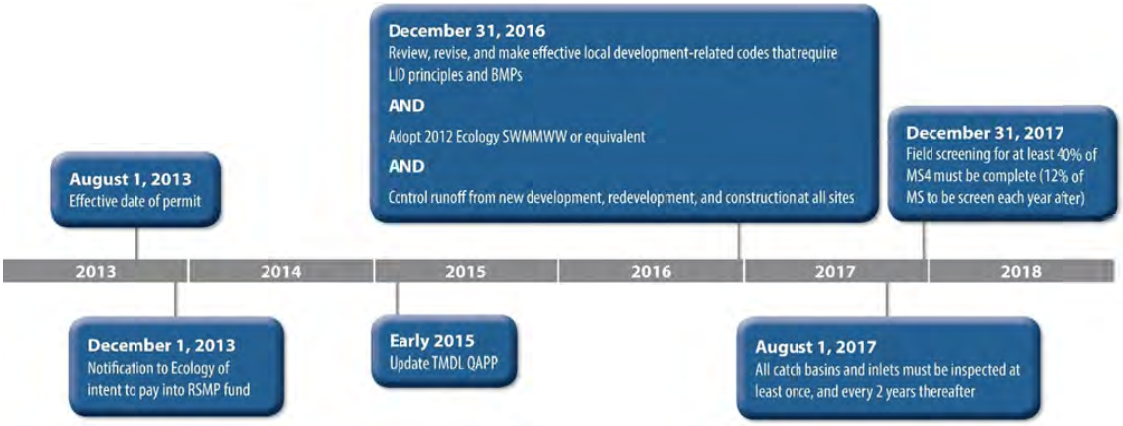
The City was issued its first NPDES Permit in 2007, which was effective from February 16, 2007, until February 15, 2012. The City's second permit was issued in 2012 and was effective from September 1, 2012, through July 31, 2013. The City's third, and current, permit was issued in 2012 and is effective from August 1, 2013, through July 31, 2018. The City's NPDES Permit authorizes the discharge of stormwater into surface and ground waters of the state, subject to several limitations and conditions designed to protect and improve water quality. The core of the permit revolves around the development and implementation of the Stormwater Management Program (SWMP) and compliance with Total Maximum Daily Load (TMDL) requirements. In each permit issuance, the SWMP has consisted of the same five components:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination (IDDE)
- Controlling Runoff from New Development, Redevelopment, and Construction Sites
- Municipal Operations and Maintenance (O&M)

SWMP implementation deadlines are staggered throughout the permit cycle to give permit holders time to develop and implement new or updated programs. Each permit issuance may see additional requirements added to existing programs or more stringent standards required (e.g., more frequent inspections or more stringent flow control standards for stormwater facilities).

There were a number of substantive new requirements in the 2013-2018 permit that are to be phased in over the 5-year permit cycle (Figure 2-2).

Figure 2-2. NPDES Phase II permit timeline of new requirements



The primary changes are:

- **Monitoring** – The Phase II permit includes monitoring and assessment requirements that allow permittees to conduct individual monitoring or pay into a Regional Stormwater Management Program (RSMP) fund that: 1) collects status and trends monitoring data, 2) conducts stormwater program effectiveness studies, and 3) performs source identification and diagnostic monitoring. Kenmore has opted to pay into the regional monitoring fund.
- **LID** – The Phase II permit requires permittees to adopt LID site-scale standards and update development-related codes in addition to adopting Ecology's 2012 SWMMWW or an equivalent manual which emphasizes the incorporation of LID standards and has a new LID performance standard for flow control.
- **O&M** – The Phase II permit has new inspection and maintenance frequencies, increasing catch basin inspections from once per permit cycle to every 2 years.
- **Threshold for sites requiring flow control** – The Phase II permit changes the threshold for controlling runoff from new development, redevelopment, and construction from 1 acre to all sites regardless of size.
- **IDDE** –The Phase II permit requires 40 percent of the MS4 to be field screened by December 31, 2017, and 12 percent of the MS4 to be screened each year thereafter.

These changes will mean a shift in how the City permits development projects, and inspects and maintains the stormwater system. Because the changes are required by regionally based permits, most cities and counties are making similar changes to their programs and collectively going through the process. Kenmore is active in regional stormwater groups and continued participation and collaboration will inform Kenmore's program adaptations.

2.4.2 Federal CWA – Total Maximum Daily Load (TMDL)

Under section 303(d) of the CWA, Washington State is required to develop lists of impaired water bodies (waters that are too polluted or otherwise degraded to meet water quality standards). Washington State performs a water quality assessment of all surface waters that have available data and categorizes them based upon the status of their water quality (ranging from "Category 1 - meets water quality standards" to "Category 5 - polluted"). Those water bodies whose beneficial uses (e.g., drinking, recreation, aquatic habitat, and industrial use) are impaired by pollutants are placed into the polluted category. These Category 5 polluted water bodies require a water cleanup plan, such as a TMDL, or other approved water quality improvement project. A TMDL identifies how much pollution is allowed in a water body so that the beneficial uses of the water are not impaired and allocates that amount among various sources.

The City currently has one TMDL for fecal coliform bacteria pollution in Swamp Creek. Ecology established the TMDL in 2006 and approved the City's Quality Assurance Project Plan (QAPP) for Swamp Creek Fecal Coliform Bacteria TMDL in 2008 (City of Kenmore 2008). The TMDL is primarily administered through its NPDES municipal stormwater permit. The City's QAPP was updated in February 2015.

2.4.3 Federal Endangered Species Act (ESA) – Chinook Salmon

Puget Sound Chinook salmon and bull trout were listed as threatened species under the ESA in 1999. To prevent further decline of the species and to encourage restoration, the ESA prohibits "take" of the species or its habitat. Those agencies or individuals found to be creating take of the species are subject to third-party lawsuits. The outcome of such lawsuits could have severe economic consequences for the region, such as curtailing of development or requirements for specific, potentially costly habitat restoration activities.

The listing of Puget Sound Chinook salmon required National Oceanic Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) to develop a recovery plan for the species. NMFS worked with the Shared Strategy for Puget Sound and other local partners to develop the Puget Sound Chinook Recovery

Plan, which was presented in 2005 and adopted in 2007. In 2008, a new state agency called the Puget Sound Partnership (PSP) became the responsible agency for implementing the plan. NMFS, PSP, as well as federal, state, tribal and local partners work together to implement the recovery plan.

Kenmore participates regionally in Water Resource Inventory Area (WRIA) 8 Salmon Recovery efforts and implements actions in the WRIA 8 Chinook Salmon Conservation Plan, as well as other guidelines such as the Regional Road Maintenance ESA Program Guidelines for road maintenance activities that contribute to conservation of Chinook salmon, bull trout and other aquatic species listed under the ESA.

2.4.4 Tribal Agreements - Culvert Case

In 1974, US District Court Judge George Boldt ruled that treaties signed in the 1850s guaranteed tribes the right to take fish "in common with" other residents of the area. The decision became known as the "Boldt" decision, and Boldt further held that Washington State had a duty to make sure fish were available to catch and that it had a duty to protect the environment. In 2007, US District Court Judge Ricardo Martinez ruled that the State was violating treaty rights by operating culverts that hinder fish passage.

In March 2013, the US District Court ruled that Washington State is not fulfilling obligations to remove barriers that impede fish movement. This has become known as the "Culvert Case," and requires the State to accelerate their program to upgrade and replace state-owned culverts. The ruling is under appeal, but, nonetheless, many jurisdictions around the State are assessing their culverts in anticipation of future rulings. Kenmore has assessed some of its culverts for fish passage and may wish to prioritize culverts specifically for fish passage modifications in the future to address potential future rulings.

2.4.5 National Flood Insurance Program (NFIP)

The NFIP was created in 1968 as a way to offer flood damage assistance in exchange for regulated development within the Federal Emergency Management Agency (FEMA) mapped 100-year floodplains. This program focuses on public health, safety, and welfare by protecting all new and substantially improved buildings. In exchange for a city regulating development in floodplains, property owners within that city obtain the ability to purchase flood insurance at substantially reduced rates.

The NFIP was revised based on findings from a NMFS study that showed how floodplain development can negatively affect aquatic habitat. NMFS issued a BO that required changes to the NFIP in order to meet the requirements of the ESA as well as protect buildings from flood damage. Kenmore complies with the NFIP by conducting a review of floodplain impacts on a case-by-case basis for all development within the City's 100-year floodplains, which include Swamp Creek, Little Swamp Creek and Sammamish River.

2.4.6 Other Related Regulations

In addition to directly related regulations (e.g., NPDES and CWA), the state Growth Management Act (GMA) (Chapter 36.70A RCW) and the state Shoreline Management Act (SMA) have significant overlap with surface water and SWMPs. The GMA requires jurisdictions within urban growth areas, such as Kenmore, to conduct comprehensive city planning and develop policies and regulations that protect the functions and values of critical areas. The City of Kenmore's Comprehensive Plan, zoning regulations, and supporting municipal code sections address land use and growth management.

The SMA of 1971 requires local governments to develop shoreline management programs that protect the public interest associated with shorelines of the State while, at the same time, recognizing and protecting private property rights consistent with the public interest.

Kenmore, a waterfront city, adheres to the SMA through the City's Shoreline Master Program (updated in 2012) and KMC Title 16: Environment, which includes sections on requirements for implementation of the program. Many of the priorities require involvement and cooperation of the Surface Water Management Division, as they involve managing surface water in the context of shoreline beneficial uses. Shorelines

covered under the City's Shoreline Master Program include the entire shoreline of Lake Washington within Kenmore and the Sammamish River, Swamp Creek, and portions of Little Swamp Creek.

2.4.6.1 Critical Areas

Critical areas include:

- Wetlands
- Areas with a critical recharging effect on aquifers used for potable water
- Fish and wildlife habitat conservation areas
- Frequently flooded areas
- Geologically hazardous areas

Critical areas are, more often than not, inexplicitly linked to the built and natural surface water and stormwater systems. The City's wetlands, streams, and open spaces provide beneficial surface water functions, and stormwater regulations are designed to protect these important functions. Title 18.55 of the KMC designates and classifies the City's critical areas such that they are ecologically protected and that life and property are protected from hazards while allowing reasonable use of private property.

2.4.6.2 Development Code

Land use and activities conducted in Kenmore directly affect surface water and stormwater management through the creation of impervious surfaces and pollution-generating activities. The City's code is designed to ensure that development is carried out in locations and methods that are safe, do not negatively impact public resources, and fit within the overall context of the City's neighborhoods. The City's Comprehensive Plan outlines goals and policies related to development activities, and the municipal code outlines how the goals and policies are to be met. Surface water management is included in KMC Title 13: Utilities and Public Works, and zoning, development standards, land alterations, and permits are located in other sections of the municipal code.

2.4.6.3 Transportation Standards

Most of the City's public stormwater infrastructure is located within road right-of-way (ROW). Pollutants from roadway runoff contribute to water quality issues in the City's water bodies. Transportation design standards affect the amount and quality of stormwater runoff that is conveyed and/or treated. Non-motorized transportation planning and design also involves coordination with surface water and stormwater management, as hard surfaces such as trails and sidewalks contribute flow to the surface water system.

Kenmore adopted the 1993 King County Road Standards (King County 1993), with a few minor amendments. The standards are located in KMC Title 12: Streets and Bridges. Kenmore is currently working on a new road standards manual, which is expected to be adopted in 2015. Subsequent amendments may be required to meet LID requirements before December 31, 2016.

3. Existing Policies

Surface water and stormwater management policies and current relevance are discussed in this section. These policies provide the framework for managing the City's natural surface water systems, MS4, and privately constructed storm sewer systems. Current financial policies guiding the management of the City's surface water management service charge are also included in this section.

Surface water and stormwater management policies have been established and administered primarily through the City's Comprehensive Plan, KMC, and the City's SWMP. The Surface Water Element of the City's Comprehensive Plan provides long-range goals and policies that support the community's vision of the City's future. The KMC establishes the surface water management program and outlines policies to fund and carry out the program's mission. The SWMP describes the program components that meet NPDES municipal stormwater permit requirements.

What's the purpose of having stormwater policies?

Kenmore's stormwater policies provide the basic framework and principles from which the stormwater utility operates and functions. Policy statements are intended to provide clarity to the City's goals for surface and stormwater management. Opportunities to update goals and policies coincide with updates to the City's Comprehensive Plan.

3.1 Comprehensive Plan – Surface Water Element

The City's Comprehensive Plan contains the community's vision of the City's future and a statement of the City's long-range goals and policies. The Plan serves as the guide for City staff and the City Council in making decisions regarding ordinances, regulations, and public facility investments to ensure the overall goals and policies are furthered by those decisions. The Surface Water Element of the Comprehensive Plan (established in 2001 and updated in 2014) addresses the surface water portion of that vision and has one primary goal:

> Develop, maintain, manage and improve a surface water system that serves the community, enhances the quality of life, and protects the environment.

Two objectives relate to obtaining the Surface Water Element goal:

- **Objective SW-1**: Effectively manage the City's MS4 and private surface water systems in a manner that reduces flooding, maintains water quality, and protects the natural environment.
- **Objective SW-2**: Protect, maintain, enhance, and restore natural surface water systems.

Tables 3-1 and 3-2 provides a summary of policies that support objectives SW-1 and SW-2, respectively, as well as a description of the policies and how they are implemented. References to supporting documentation are provided where appropriate.

Table 3-1. Objective SW-1 policies and implementation

Policy	Policy and Description	How is it Implemented?
SW 1.1	Comply with the current Western Washington Phase II Municipal Stormwater Permit (NPDES and Washington Waste Discharge General Permit).	The City's Surface Water Program Manager oversees the development, implementation, tracking, and reporting of the City's NPDES Municipal Stormwater Permit. An annual report and updated SWMP Plan is submitted to Ecology annually.
SW 1.2	Implement and update as necessary the City's SWMP Plan, which describes the City's programs for public education and outreach public involvement and participation; IDDE; controlling runoff from new development, redevelopment, and construction sites; municipal O&M; and TMDL.	The City updates the SWMP Plan, as needed, to meet NPDES Municipal Stormwater Permit requirements and submits it to Ecology annually.
SW 1.3	Adopt and implement an approved Surface Water Design Manual, as needed, which is equivalent to the Ecology SWMMWW.	Upon incorporation, the City adopted the 1998 KCSWDM (King County 1998). The City's 2007 NPDES Municipal Stormwater Permit required an update to the design manual and Ordinance 10-0305 adopted the 2009 KCSWDM, which became effective January 21, 2010, satisfying Permit requirements. The City's 2013 NPDES Municipal Stormwater Permit requires an update to the current design manual by December 31, 2016, and the City will review and consider King County's 2015 manual or Ecology's 2012 manual for adoption.
SW 1.4	Where feasible, the City will make LID the preferred and commonly used approach to site development. LID is a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.	This policy is primarily implemented through the City's Road Design and Construction Standards, Surface Water Design Standards, various KMC sections and the NPDES Municipal Stormwater Permit. These standards and regulations will see significant updates in 2015 and 2016 to meet requirements making LID the preferred and commonly used approach to site development.
SW 1.5	Implement a Capital Improvement Program that maintains and improves the MS4 in a manner that enhances and protects the City's natural environment; mitigates flooding problems; improves water quality; promotes a reliable and safe transportation network; and provides the community a safe and healthy place for living, working, and recreation.	The Surface Water Capital Improvement Program is periodically reviewed and updated through several processes, including: Capital Facilities Element updates of the Comprehensive Plan (2001 and 2014); budget updates (most recently for the 2015-2016 biennium budget); Surface Water Master Plan updates (2001, 2008, and 2015); and 6-year Capital Improvement Program updates (every 1-2 years to ensure appropriate prioritization).
SW 1.6	In an effort to protect public resources, water quality, and reduce flooding, the City manages private surface water systems by providing inspections, education, technical assistance, and, if necessary, enforcement action to private property owners within the City. The City does not operate or maintain privately owned surface water systems unless that system has been formally accepted by the City and is located within the ROW or within a tract or easement dedicated to the City for the purpose of operating and maintaining said system.	The City conducts annual inspections of privately owned and maintained surface water facilities and notifies owners of outstanding maintenance items, which must be completed by the property owner.

Policy	Policy and Description	How is it Implemented?
SW 1.7	Seek opportunities to design and implement surface water management facilities that are functional, serve as amenities, and serve multiple purposes such as those described in the Parks Element of the City of Kenmore Comprehensive Plan.	KMC Title 18: Zoning provides incentive to developers to combine stormwater tracts and recreational open space areas. Emerging LID techniques integrate site function with surface water management by utilizing BMPs such as permeable pavements and bio-filtration in landscaping.
SW 1.8	Participate in the RSMP, which includes effectiveness monitoring of SWMP activities and source identification information repository.	The City provides funds, annually, to the RSMP for effectiveness studies and source identification and diagnostic monitoring. Funds collected from multiple permit holders are combined into one regional program. By contributing funds to the RSMP, the City is in compliance with section S8 of its NPDES Municipal Stormwater Permit.

Table 3-2. Objective SW-2 policies and implementation

Policy	Policy and Description	How is it Implemented?
SW 2.1	Support shoreline management policies outlined in the Shoreline Element of the City of Kenmore Comprehensive Plan, which strive to preserve, protect, and enhance the City's abundant shoreline habitat.	Kenmore's Public Works Department and Planning and Community Development Department coordinate efforts to implement the Shoreline Element, primarily through appropriate project and permit review.
SW 2.2	Support natural environment policies outlined in the Natural Environment Element of the City of Kenmore Comprehensive Plan, which include protection of wetlands, plants and wildlife, maintaining and promoting a diversity of species and habitat, participation in WRIA 8 and using LID BMPs.	Kenmore's Public Works Department and Planning and Community Development Department coordinate efforts to implement the Shoreline Element, primarily through appropriate project and permit review.
SW 2.3	Implement critical and sensitive area regulations that protect and enhance surface waters, which may include but are not limited to buffers; setbacks; erosion and sediment control; mitigation; SEPA compliance; HPA compliance; and compliance with any other applicable local, state, and federal requirements.	The City's Development Department implements critical and sensitive area regulations through permits and code enforcement.
SW 2.4	Protect, enhance, and restore flood storage, conveyance functions, and ecological values of floodplains, wetlands, and riparian corridors through the development and implementation of CIPs, studies, and plans.	Each year, City departments construct and improve infrastructure through various CIPs. Environmental impacts, including those to surface water, are evaluated for each project and projects often improve surface water environments within their limits. Examples include recent park projects that have created or expanded wetland areas in the City. Recent transportation projects have installed stormwater treatment facilities where none previously existed and removed undersized culverts, which were replaced with fish-passable culverts.

Policy	Policy and Description	How is it Implemented?
SW 2.5	Promote and support opportunities for public involvement and participation, which may include, but are not limited to, stewardship groups, volunteer opportunities, and grant partnerships.	The City's volunteer program has expanded significantly over the last 2 years, including the creation of a dedicated volunteer coordinator position. Volunteers interested in surface water-related activities are connected with appropriate staff. Recent projects include construction of surface water informational displays, invasive species removal, and catch basin stenciling. The City also provided support for private parties seeking water quality grant funds. No formal stewardship groups have been formed in Kenmore, but City staff have communicated with interested residents and will continue to promote and support stewardship roles in the community.
SW 2.6	Promote and support opportunities for regional coordination and watershed-level management of the City's natural surface water systems. Kenmore often contains only a portion, and in some cases a very small portion, of the natural surface water systems that pass through the City. The City will actively pursue coordination with upstream jurisdictions and partners to manage these natural resources and share responsibility.	The City participates with WRIA 8 for large-scale management of the Lake Washington/Cedar/Sammamish Watershed. The City also coordinates with Swamp Creek Watershed partners for managing TMDL requirements for fecal coliform. Additionally, the City has provided support to private parties seeking water quality grant funds and has supported formation of stewardship groups.
SW 2.7	Participate in RSMP, which includes status and trends monitoring in receiving waters.	The City provides funds, annually, to the RSMP for status and trends monitoring. Funds collected from multiple permit holders are combined into one regional program. By contributing funds to the RSMP, the City is in compliance with section S8 of its NPDES Municipal Stormwater Permit.

3.2 Kenmore Municipal Code (KMC)

Ordinance 98-0016, passed in 1998, established the City's Surface Water Utility, adopted its Surface Water Management Program, and created the Stormwater Utility Fund. It adopted by reference, with slight modification, Chapters 9.04, 9.08, and 9.12 of King County Code (KCC) Title 9: Surface Water Management, along with all subsequent amendments (King County 2014). KCC Title 9 establishes surface water runoff policy, a surface water management program, water quality requirements, and groundwater protection requirements. Since that time, the City has codified its surface water management requirements within the KMC. Today, the City's Surface Water Management Program operates primarily through KMC Title 13: Utilities and Public Works that includes the following chapters, some of which are discussed below:

- KMC Chapter 13.30: General Provisions – outlines establishment of the stormwater utility.
- KMC Chapter 13.35: Surface Water Runoff Policy – outlines development policies.
- KMC Chapter 13.40: Surface Water - general policies are outlined and a utility fee structure is established.
- KMC Chapter 13.45: Water Quality – addresses water quality.
- Utility rates are adopted by resolution.

Additional chapters relevant to the stormwater program include:

- KMC Chapter 1.20: Code Enforcement
- KMC Chapter 12.50: Street Standards
- KMC Chapter 15.25: Grading
- KMC Chapter 16.00: Environment
- KMC Chapter 20.00: Development Permits
- KMC Chapter 21.00: Financial Guarantees

3.2.1 KMC Chapter 13.35: Surface Water Runoff Policy

The City Council adopted KMC Chapter 13.35 to provide comprehensive management of surface water and stormwater with thorough permit review, construction inspection, enforcement, and maintenance associated with development and redevelopment within the City. The goals: Promote public health, safety, and welfare; preserve and utilize the many values of the City's natural drainage system (e.g., open space and fish and wildlife); reduce flooding, erosion, and sedimentation; prevent and mitigate habitat loss; enhance groundwater recharge; and prevent water quality degradation.

The City Council initially adopted the 1998 King County Surface Water Design Manual (KCSWDM), which provides standards and specifications for projects within the City. The manual outlines many "core requirements" that must be addressed by applicable projects, which include: discharge location, offsite analysis, flow control, conveyance, erosion and sediment control, O&M, financial guarantees and liability, and water quality. Other "special requirements" are also considered for applicable projects, including: area-specific requirements, flood hazard areas, flood protection facilities, source control, and oil control. In 2010, the City Council adopted the 2009 KCSWDM, which has a similar structure to the 1998 version but contains updated standards, specifications and thresholds to meet State requirements at that time. By December 31, 2016, City Council will adopt a Surface Water Design Manual to meet current State requirements outlined in the 2013 Western Washington Phase II Municipal Stormwater Permit and Ecology's 2012 Stormwater Management Manual for Western Washington (SWMMWW), as amended in December 2014.

3.2.2 KMC Chapter 13.40: Surface Water

KMC Chapter 13.40 was adopted by the City Council to provide comprehensive management of surface and storm waters with basin planning, land use regulation, construction of facilities, maintenance, public education and provision of surface water and stormwater management services. The chapter also establishes a sustainable surface water fund to financially support the City's surface water and stormwater management programs.

3.2.2.1 General Policies

Basin Coordination

The majority of the City's surface water basins are shared with other cities and counties and Kenmore, located on Lake Washington, is at the low point of these watersheds. Kenmore has limited ability to manage surface water and stormwater that emanates outside of City limits. Therefore, it is the City's policy to support basin-wide efforts that would improve downstream conditions within Kenmore. These efforts may include participation and support for regional watershed groups that focus on issues such as salmon recovery, flood reduction, pollutant load reduction, and water quality improvement. Private watershed associations are supported and encouraged by the City. The City also provides support for regional regulations that reduce stormwater runoff and improves stormwater quality from development, redevelopment, and construction sites.

Public Education

Historically, there has been a general lack of public knowledge about the relationship between human actions and surface water and stormwater management. Therefore, it is the City's policy to reduce or eliminate behaviors and practices that cause or contribute to adverse surface water and stormwater impacts through public education and outreach programs and by integrating education into code enforcement. The City may implement these programs locally or participate in regional public education and outreach programs. The City's surface water and stormwater education and outreach programs target many audiences, including the general public, school age children, business owners, and developers.

Impacts of Development

Developed parcels contribute to an increase in surface water and stormwater runoff to the surface water management system. In many cases, storm and surface water runoff also contain pollutants which contaminant the surface water management system and receiving water bodies. Developed parcels have had their native soils, vegetation, and trees removed and replaced with impervious surfaces such as streets, sidewalks, buildings, driveways, and parking lots and non-native pervious areas such as lawns, pastures, and open fields. Undeveloped parcels comprised of native soils, vegetation, and trees have little to no impact on the surface water and stormwater system.

The City implements many policies to mitigate the effects of development. Engineering, planning, and construction standards and regulations are continually updated as science and technology improve. The City's surface water funding structure is also influenced by development and land use, which is discussed in more depth in the following section.

City Streets and Highways

City streets and SR 522 contribute surface water and stormwater runoff to the surface water management system. However, the City Council recognizes that much of the City's surface water management system is located and operated within street ROWs.

Capital Improvement Program

The Surface Water Management Program prepares and updates a multi-year Capital Improvement Program which encompasses all of the program's activities related to the acquisition, construction, replacement, or renovation of capital facilities or equipment. All proposed new or retrofitted facilities are subject to a consistent and thorough needs analysis and updated appropriately. The program's capital facilities are planned and financed to ensure that the benefits of the facilities and the costs for them are balanced over time.

The Capital Improvement Program is a six year, living document that undergoes review and update through various processes. The Capital Facilities Element of the Comprehensive Plan contains a long-range program list. The Surface Water Master Plan (updated approximately every 5 years) and the biennium budget (updated every 2 years) prioritize, update, and budget surface water CIPs.

3.2.2.2 Surface Water Service Charge

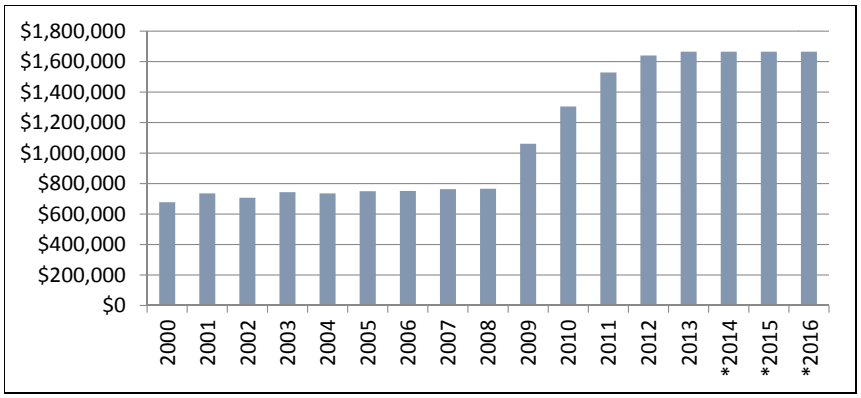
Surface water service charges are assessed for each parcel within the City. The assessment considers land use, parcel size, and impervious area to determine the annual surface water service charge. Residential and very lightly developed parcels are charged a flat rate service charge. Residential parcels, which account for a majority of the parcels in the City, have minimal variance in impervious area and determining the ratio of impervious area for each parcel is not cost effective to administer. Very lightly developed parcels (less than 10 percent impervious area) have much less impact to the City's surface water and stormwater systems than those that have higher impervious areas. Nonresidential parcels with impervious area ratios higher than 10 percent are charged a variable rate service charge. The rate is determined by the ratio of impervious area of the parcel and increases as the ratio increases. The City contracts with King County to collect surface water service charges. King County includes the service charge on each parcel's property tax statement, which is sent out twice a year.

Table 3-3 summarizes the rate categories and provides a history of the City's surface water service charge rates since incorporation in 1998. The 2008 Surface Water Master Plan update included a detailed financial analysis that resulted in a phased increase in service charge rates from 2009 through 2012. Additional rate increases may be considered in the future, if needed, to sustain surface water management services and capital projects, but rate increases are not currently planned through 2016. Figure 3-1 summarizes the City's surface water service charge annual revenue from 2000 through 2016.

Table 3-3. Summary of Kenmore's surface water management service charges

Class	Impervious Area Ratio	Annual Rates				
		1998-2008	2009	2010	1998-2008	2012-2016
Residential	NA	$85.02	$120.24	$143.40	$166.80	$167.40
Very Light	0 ≤ 10%	$85.02	$120.24	$143.40	$166.80	$167.40
Light	>10% to ≤ 20%	$198.40	$280.59	$334.63	$389.24	$390.64
Moderate	>20% to ≤ 45%	$410.98	$581.23	$693.18	$806.30	$809.20
Moderately Heavy	>45% to ≤ 65%	$793.60	$1,122.35	$1,338.53	$1,556.96	$1,562.56
Heavy	>65% to ≤ 85%	$1,006.16	$1,422.97	$1,697.05	$1,973.98	$1,981.08
Very Heavy	>85% to ≤ 100%	$1,317.94	$1,863.90	$2,222.92	$2,585.66	$2,594.96

Figure 3-1. Surface water service charge annual revenue



* Estimate

3.2.2.3 Surface Water Service Charge Rate Adjustments

Surface water service charge rate adjustments are available to parcel owners if the parcel owner qualifies for a low-income senior citizen exemption, the parcel qualifies as open space, or the parcel is served by a qualified flow control and/or water quality treatment facility.

Qualification for the low-income senior citizen exemption is determined by the County Assessor and is authorized under Chapter 84.36.381 RCW. Through the contract with King County for service charge collection, the County Assessor applies the rate adjustment to the parcel owner's property tax statement and surface water service charges are not collected from qualifying residential parcels.

The City recognizes that undeveloped parcels may conserve and enhance natural resources and protect streams or other aquatic habitats. Therefore, parcels may qualify for an open space rate adjustment if they are classified as open space or agricultural or timber lands under criteria contained in Chapter 84.34 RCW or for which the development rights have been sold to the City.

Design and construction of surface water facilities is a required and integral component of the development process. However, the City recognizes that privately maintained surface water facilities offer a benefit to the City's surface water systems. Therefore, parcels may qualify for a rate adjustment if the parcel is served by a qualified flow control and/or water quality treatment facility. The facility must be maintained at the expense of the parcel owner to the City's current maintenance standards. Currently, the City has adopted the maintenance standards in Appendix A of the 2009 KCSWDM.

The City recognizes that engineering standards have changed over time and the level of service provided by facilities can vary significantly depending on the age of the facility. To account for this variance in level of service, the City provides a four-tier rate adjustment depending on the design standard used for the facility. Facilities permitted prior to 1998 (designed under the 1969, 1977, 1979 or 1990 KCSWDM) may receive a 10 percent reduction in their total service charge. Facilities permitted from 1998 to 2009 (designed under the 1998 KCSWDM) may receive a 20 percent reduction in their total service charge. Facilities permitted from 2009 to 2016 (estimated date of next KCSWDM update) may receive a 30 percent reduction in their total service charge. Facilities permitted after 2016 may receive a 40 percent reduction in their total service charge. Table 3-4 summarizes the surface water facility rate reduction options.

Table 3-4. Private Facility Service Charge Reductions

	King County Surface Water Design Standard (KC SWDM) Version & Permit Year			
	Before 1998	1998-2009	2009-2016*	After 2016*
Service Charge Reduction	10%	20%	30%	40%

* Estimated year of KCSWDM update

The City recognizes that some larger parcels may be partially served by a qualified flow control and/or water quality treatment facility. In this scenario, the area of the parcel served by the facility may receive the appropriate reduction in the total area served by the facility and the non-served portion of the parcel will be charged at the full rate applicable to that parcel. Figure 3-2 provides an example of a partial surface water facility rate reduction.

Figure 3-2. Example surface water service charge calculation for parcels partially served by a qualified flow control and/or water quality treatment facility

In this example scenario, the total parcel size is 10 acres and has an impervious ratio of 70% (7 acres of impervious area on a 10 acre parcel), which places it in the "heavy" rate class. 3 acres of the parcel is treated by a surface water facility designed under the 2009 KCSWDM, which is eligible for a 30% reduction. The remaining 7 acres is charged at the full rate.

Total Service Charge =

(7 Acres) x (Heavy Rate)
+
(0.70) x (3 Acres) x (Heavy Rate)

3.2.3 KMC Chapter 13.45: Water Quality

City Council adopted this chapter to protect the City's surface and ground water quality by providing minimum requirements for reducing and controlling the discharge of contaminants. Water quality degradation can result either directly from one discharge or through the collective impact of many small discharges. Therefore, KMC Chapter 13.45 establishes policies restricting or prohibiting the discharge of contaminants into surface, storm, and ground waters.

Prohibited discharges are not allowed in surface, storm, and ground waters. The most common examples include sediment, trash, petroleum products, pesticides, herbicides, fertilizers, and soap. Some activities may result in allowable discharges if appropriate BMPs are implemented to eliminate or restrict prohibited discharges into surface, storm, and ground waters. Examples of activities that may result in allowable discharges with application of BMPs include application of pesticides, vehicle washing and maintenance, building washing and maintenance, and potable water line flushing. Common exceptions to discharge rules include dye testing and emergency response activities. If property and project owners are appropriately implementing BMPs and all known, available, and reasonable treatments (AKART) to prevent, control, or abate pollutants associated with a discharge, then an exception may be provided for the discharge.

Ordinance 09-0299 adopted the Stormwater Pollution Prevention Manual, which provides BMPs for commercial, multi-family, and residential properties. BMPs for a wide range of activities are addressed in the manual, including storage of hazardous materials; maintenance of vehicles, buildings, and ground surfaces; landscaping; animal handling; and swimming pool maintenance.

In addition to enforcement actions outlined in KMC Chapters 1.15: General Penalty and 1.20: Code Enforcement, Chapter 13.45 includes enforcement procedures specific to water quality. Generally, compliance with this chapter is achieved through public education, warnings, technical assistance, implementation of BMPs, and, if necessary, AKART. Immediate penalties may be assessed if the violation is a result of a flagrant act or if the discharge is posing a hazard to the public.

3.2.4 KMC Chapter 12.50: Street Standards

City Council adopted the 1993 King County Road Design and Construction Standards (KC RDCS), which provides additional standards and specifications for projects within the City specific to stormwater conveyance systems. The City is currently working on updates to these standards and by December 31, 2016 they will include low impact development (LID) standards, which may include elements such as permeable pavements, narrower road options and bioretention swales.

3.3 Administrative Policies

3.3.1 Private Property Surface Water Management

Surface water (which includes surface, storm, and ground water) impacts properties in Kenmore regardless of land use or ownership. Generally, the City is responsible for managing surface water in public ROWs, publicly owned properties, and dedicated easements on private property that have been formally accepted by the City for the purpose of managing surface water. Generally, private property owners are responsible for managing surface water on their property.

The City frequently responds to private property drainage questions, complaints, and issues. The City attempts to provide a consistent response to private property owners. City staff reviews existing surface water information on and around the property, including historical complaints, GIS information, and plat or construction documents. Staff will look to see if there are publicly maintained facilities involved or easements present. Site visits will be conducted to meet with the property owner and to assess adjacent ROW conditions to determine if public infrastructure or ROW is associated with the private property issue. If the ROW is associated with a private property surface water issue, staff will assess the situation case-by-case to determine a course of action.

Often property owners will want staff to assist them with assessing their problem. Staff may provide general assessments (*e.g.*, determinations that groundwater seeps are impacting the property) or education for property owners about the local drainage in the neighborhood and how it is potentially affecting their situation. Staff may walk the site with an owner to inspect drainage structures, look for maintenance issues, or look at downspouts to see where they discharge.

After assessing an issue, property owners will often ask staff to provide a solution to their problem or recommend a course of action. Staff will not direct or recommend any particular action and will always advise owners to consult a private professional if they are not comfortable managing the issues themselves. Staff may also direct property owners to publicly available resources, such as King County's small site drainage manual. Property owners often ask staff to recommend a contractor to design or conduct work. The City does not recommend any particular company or individual for surface water management services. In short, staff will provide general technical assistance to property owners, but it is up to the property owner to decide on a course of action, if needed, to address their private drainage issues.

When private property owners have an issue or dispute arising from neighboring private property and they want the City to legally address the issue with the neighboring property or properties, the City will generally advise the owner to consult a legal professional to address the issue. The City may become involved and can use the KMC to enforce surface water issues on private property when it involves water quality and critical area (*e.g.*, streams) violations. Otherwise, surface water is considered a "common enemy" to all property owners, and private property situations need to be addressed by the property owners themselves.

The City may occasionally determine that City involvement in a surface water management issue on private property is warranted, if some or all of the following criteria are met:

- The affected private property or properties are residential;
- The issue is beyond the control of the private property owner;
- The issue does not involve waters of the State (e.g., streams, wetlands, Lake Washington, etc.);
- The issue is not caused primarily by ground water;
- The issue is not caused by runoff from neighboring private properties;
- The private property owner will provide an easement to the City for the purpose of managing the surface water issue.

In evaluating these criteria, the City may also take into account factors including:

- The cost of addressing the issue, including whether resolution of the issue would require an expensive Capital Improvement Project; and
- The public benefit of addressing the issue.

3.3.2 Beaver Management

Beavers and beaver dams located in the public ROW or on public property that are not negatively impacting public infrastructure and do not appear to pose a hazard to the public welfare and safety will be allowed to remain. At the City's discretion, vegetation (e.g., significant trees) may be protected.

When beavers and beaver dams located in public ROWs or on public property that have potential to negatively impact public infrastructure or pose a hazard to the public welfare and safety, but could be controlled through engineered solutions (e.g., use of barriers or "Beaver Deceivers"), the City may choose to pursue these methods.

When beavers and beaver dams located in public ROWs or on public property that have potential to negatively impact public infrastructure or pose a hazard to the public welfare and safety, and the City determines that engineered solutions are not practical or recommended, then beaver removal is required. Non-lethal removal methods (e.g., live trapping and relocation) are the City's preferred choice, but, as a last resort, lethal control may be required if non-lethal methods are not effective.

Beavers and beaver dams located on private property are the responsibility of the property owner to manage. The City may require private property owners to remove beavers and associated dams when they impact public ROWs. The City may also require private property owners to assess tree damage caused by beavers if the trees pose a hazard to the public ROW and remove said trees if the hazard is confirmed.

4. Current Conditions

This section describes the conditions of Kenmore's physical setting, built environment, natural systems and the surface water and stormwater infrastructure that has been constructed to manage surface water and stormwater conveyance, storage, and treatment.

4.1 Physical and Biological Setting

The physical location of Kenmore is a big factor in the City's management of surface water and stormwater because much of the water that is conveyed through Kenmore comes from outside of its jurisdictional boundaries. Kenmore is located at the low point of 2 major drainages: the Sammamish River and Swamp Creek. It is situated on the northwestern shore of Lake Washington (Figure 4-1) and is approximately 6 square miles in size. Topographically, Kenmore is somewhat of a bowl shape with higher elevations to the north, east, and south (ranging from 100 to 500 feet above mean sea level) and low elevations in the downtown area where the Sammamish River valley cuts through the City and enters Lake Washington (around 18 feet above mean sea level). The Swamp Creek valley and floodplain forms another topographically low area in the City from its confluence with the Sammamish River in downtown Kenmore to the northern boundary of the City. Figure 4-2 shows relative elevation differences in the City and the topographically higher (darker) and lower (lighter) areas.

4.1.1 Geologic Conditions

Geologic conditions in Kenmore are typical of the Puget Sound lowland, consisting of Quaternary-age glacially deposited sediments that have been reworked by more recent river processes in the Sammamish and Swamp Creek valleys. Figure 4-3 shows surficial geology in Kenmore. The high points in the City are typically composed of glacial till, a very dense deposit of fine-grained material mixed with sand, gravel, cobbles, and sometimes very large boulders. Glacial till typically has very low permeability and is generally not well-suited for stormwater infiltration. The Swamp Creek and Sammamish River valleys are dominated by alluvium that consists of material that has eroded from the landscape upstream, been transported and reworked by the stream channel processes, and deposited in the floodplain and valley since the glaciers retreated. Other surficial geologic units in Kenmore are: 1) advance outwash, primarily noted on the west flanks of Swamp Creek and the north slopes of Finn Hill; 2) transitional beds stratigraphically beneath the advance outwash; 3) recessional outwash in a few small areas; and 4) landslide deposits.

How does geology influence surface water runoff?

Geologic conditions affect how much water runs off the landscape naturally, how much is infiltrated and how easily stream channels and hillslopes are eroded. The Swamp Creek drainage is mapped with naturally high potential for infiltration, but the stream channel bed and banks are also highly erodible.

From a surface water management standpoint, advance outwash typically represents the best opportunity for stormwater infiltration. Advance outwash generally consists of fine-to-medium sand that is fairly permeable and readily infiltrates water. Advance outwash can also be very erosive and prone to landslides, so the ability to infiltrate into this geologic unit will depend on proximity to steep slopes, thickness of the unsaturated zone, or ability to accept additional water.

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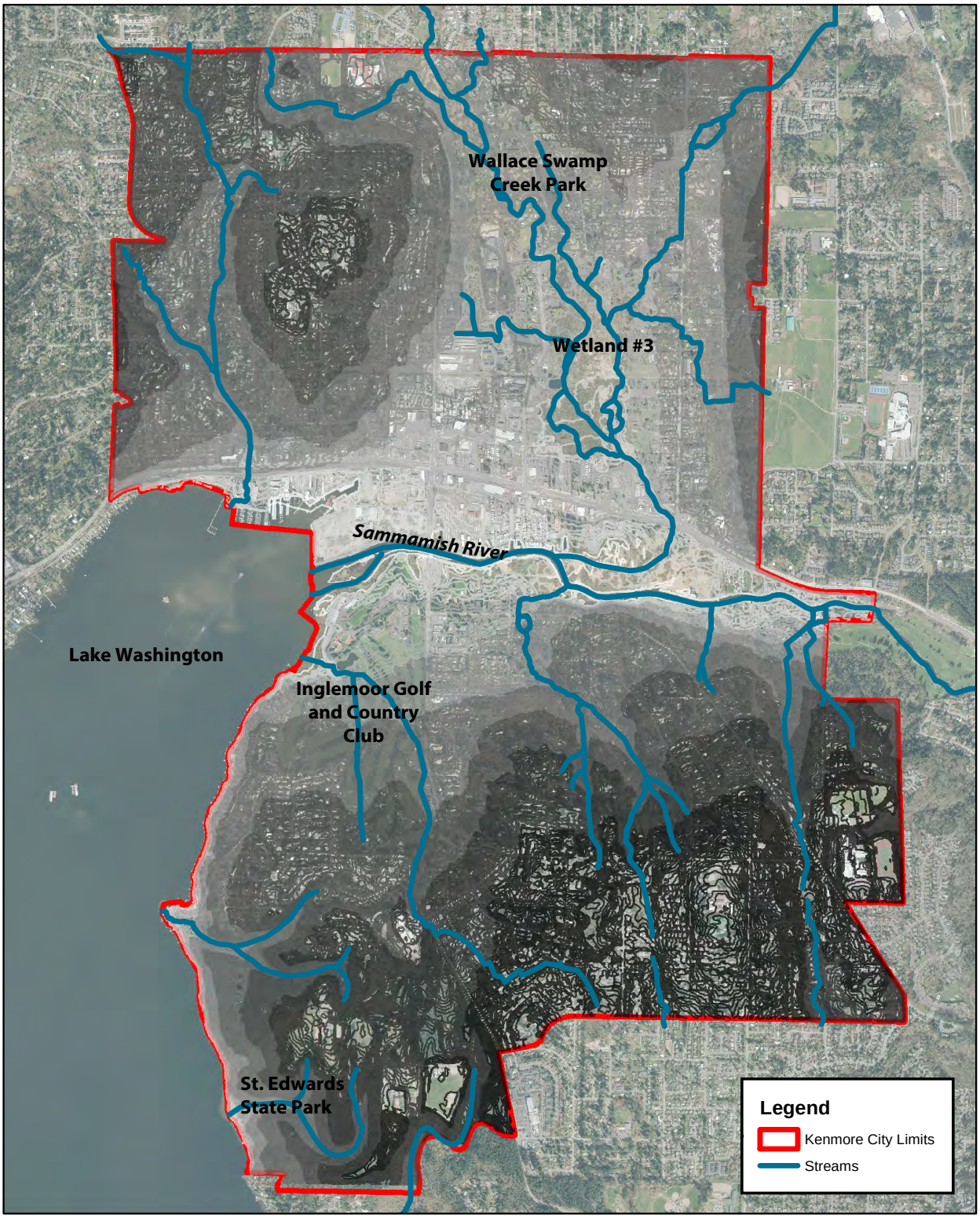
Figure 4-1
Kenmore Vicinity



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0 1,875 3,750 7,500 Feet

Figure 4-2
Kenmore
Topographic Features

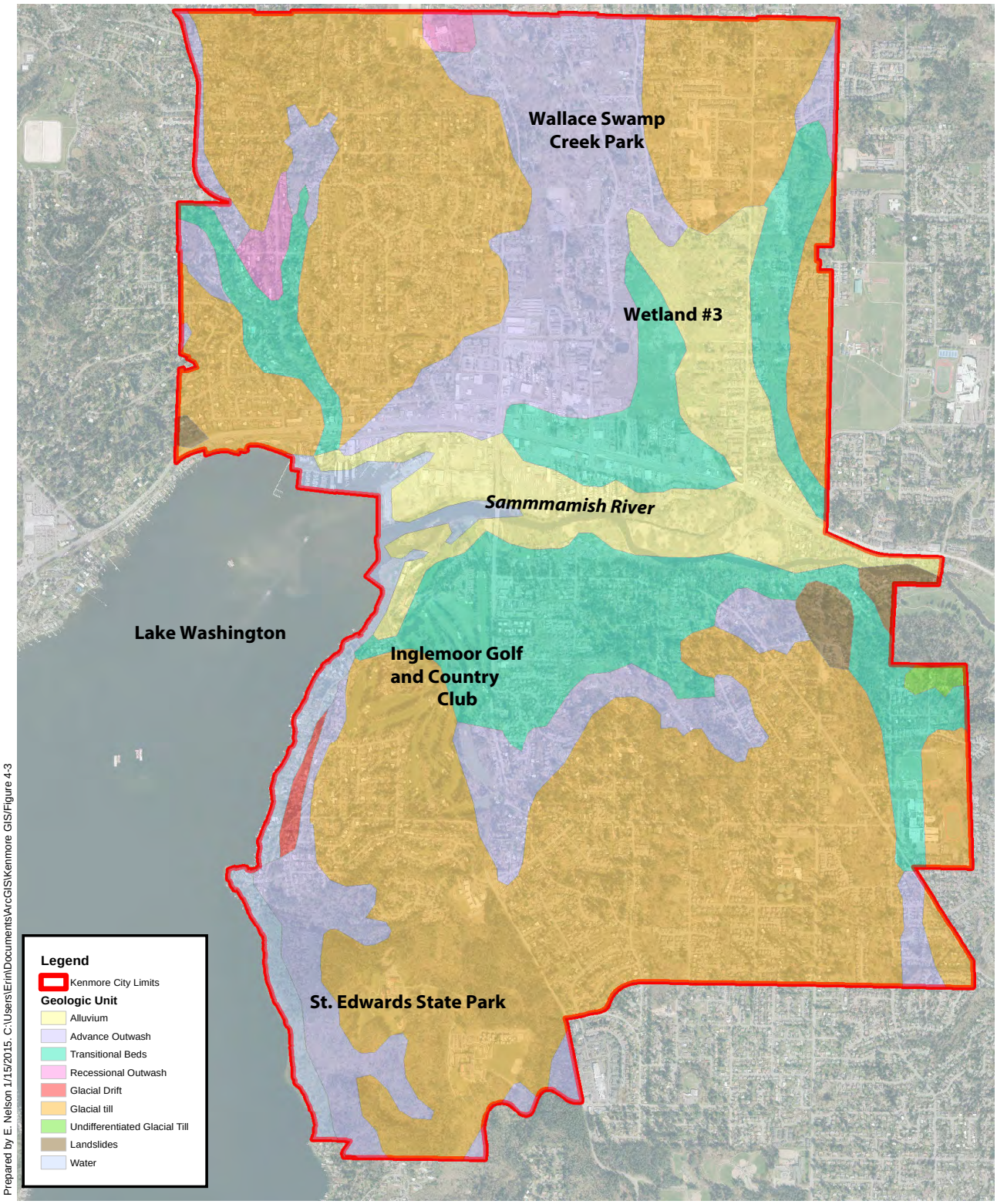


Figure 4-3
Kenmore Geology

4.1.2 Stream Channels and Drainage Basins

There are nearly 27 miles of stream channel in Kenmore, but only a few small stream systems that are wholly within City's jurisdictional boundaries. Figure 4-4 shows the locations of the drainage basins that make up Kenmore and Table 4-1 provides a summary of each drainage basin's acreage. The Sammamish River and Swamp Creek are the largest drainage basins in Kenmore, at 14 percent each, and approximately 60 percent of the City's water drains to these drainages. However, Kenmore contains only a fraction of the overall basin areas for each of these watersheds. The remaining drainage basins enter Lake Washington either directly through tributaries in Kenmore (i.e., Tributary 0056 and Arrowhead Creek), or to the south in Kirkland (i.e., Juanita Creek). Summary characteristics of each drainage basin, including physical characteristics, land use, zoning, and stormwater infrastructure are included on basin summary sheets in Appendix B.

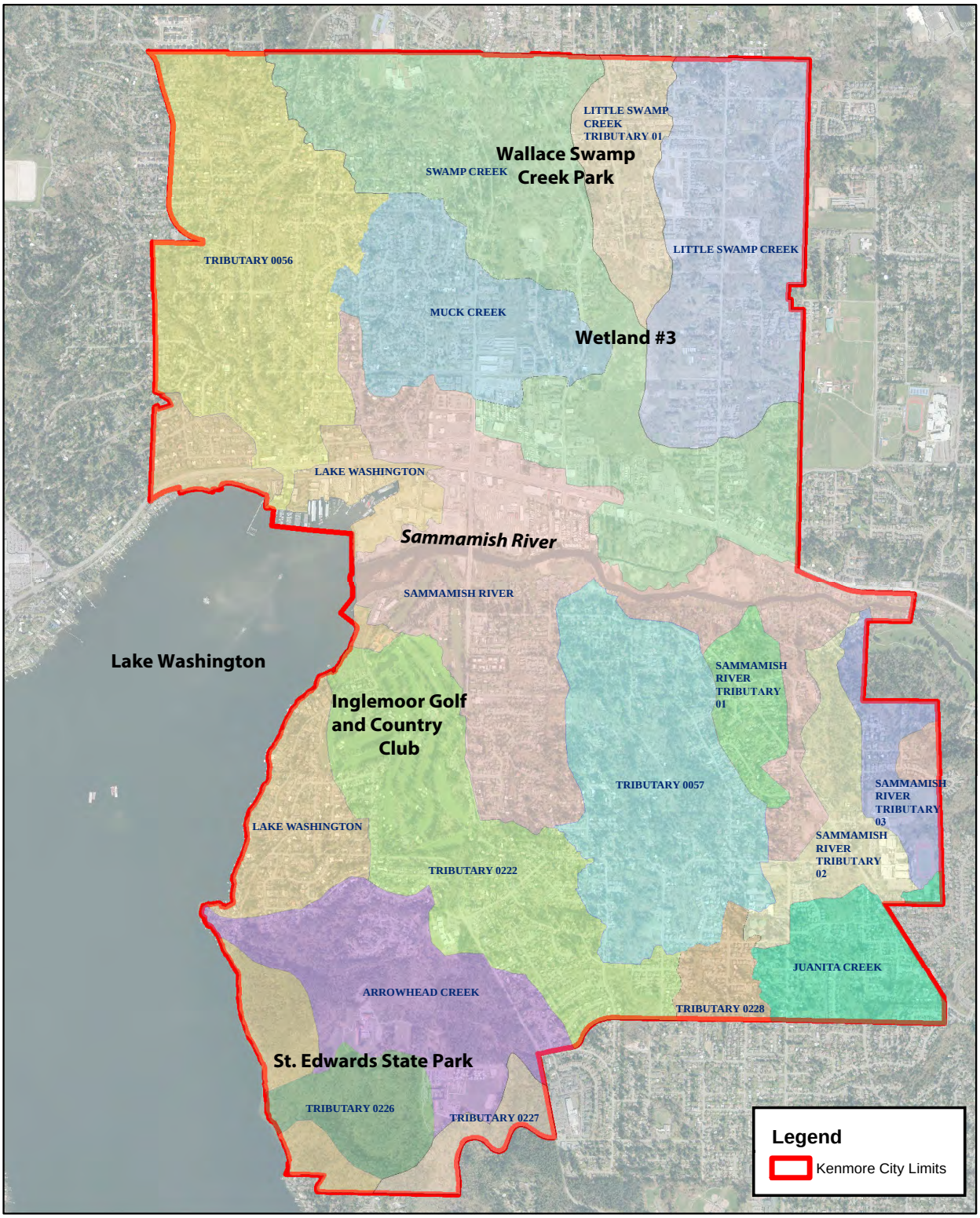
Table 4-1. Kenmore drainage basins and sizes

Drainage Basin	Watershed	Basin Size (acres)	Percent of City
Arrowhead Creek*	Lake Washington	250.88	6%
Juanita Creek	Lake Washington	117.97	3%
Lake Washington Drainages	Lake Washington	303.27	8%
Little Swamp Creek	Swamp Creek	330.60	8%
Little Swamp Creek Tributary 01	Swamp Creek	114.16	3%
Muck Creek*	Swamp Creek	206.36	5%
Sammamish River	Sammamish River	547.47	14%
Sammamish Tributary 01*	Sammamish River	65.49	2%
Sammamish Tributary 02*	Sammamish River	111.59	3%
Sammamish Tributary 03	Sammamish River	69.27	2%
Swamp Creek	Swamp Creek	567.98	14%
Tributary 0056	Lake Washington	407.47	10%
Tributary 0057*	Sammamish River	333.42	9%
Tributary 0222*	Lake Washington	347.69	9%
Tributary 0226*	Lake Washington	86.33	2%
Tributary 0227	Lake Washington	46.22	1%
Tributary 0228	Lake Washington	43.86	1%
	Total	3,950.03	100%

*Indicates drainage basin is 100% or nearly 100% contained within Kenmore city limits.

Streams in Kenmore are designated by type according to KMC Section 18.55.400: Designation and Rating of Streams as follows:

- **Type 1** streams are those streams identified as "shorelines of the State" under Chapter 90.58 RCW, including the Sammamish River and the main stem of Swamp Creek.
- **Type 2** streams are those streams that are:
  a. Natural streams that have perennial (year-round) flow and are used by salmonid fish, or
  b. Natural streams that have intermittent flow and are used by salmonid fish.
- **Type** 3 streams are those streams that are:
  a. Natural streams that have perennial flow and are used by fish other than salmonids, or
  b. Natural streams that have intermittent flow and are used by fish other than salmonids.
- **Type 4** streams are those natural streams with perennial or intermittent flow that are not used by fish.



Prepared by E. Nelson 1/15/2015 C:\Users\Erin\Documents\ArcGIS\Kenmore GIS\Figure 4-4

N

0 1,875 3,750 7,500 Feet

Figure 4-4
Kenmore Drainage Basins

Table 4-2 provides a summary of stream length of each type, including stream channels that are unclassified, and Figure 4-5 shows the location of stream channels in Kenmore and stream type designation.

Table 4-2. Summary of stream types and lengths in Kenmore

Stream Type	Example Stream Channels	Length of stream (miles)
Type 1	Sammamish River, main stem of Swamp Creek	7.7
Type 2	Little Swamp Creek, main stems of Tributaries 0056 and 0057	6.9
Type 3	Small tributaries to Tributaries 0056 and 0057	4.1
Type 4	Headwater tributaries	3.6
Unclassified	Upper reaches of streams that flow to Kirkland	4.6
	Total	**26.9**

WDFW's SalmonScape mapping application (http://apps.wdfw.wa.gov/salmonscape/map.html) was reviewed for a general overview of the type of salmonids documented in Kenmore and the general life history phases (i.e., spawning, rearing) known to occur in what reaches. Chinook, coho, sockeye, bull trout, and steelhead salmon have been documented in 1 or more stream reaches in Kenmore, including the Sammamish River, Swamp Creek, and Little Swamp Creek. Table 4-3 summarizes the overview from SalmonScape.

Table 4-3. List of documented salmonid presence in Kenmore stream reaches

Stream Reach	Salmon Species							
	Spring Chinook	Summer Chinook	Fall Chinook	Coho	Winter Steelhead	Sockeye	Kokanee	Bull Trout
Sammamish River	DP	DP	DS	DR	DP	DP	DP	DP
Swamp Creek (Main Stem)	DP	DP	DS	DS	DP	DS	ND	ND
Little Swamp Creek	DP	DP	MP	DR	DP	DP	ND	ND

DP = Documented Presence
DR = Documented Rearing
DS = Documented Spawning
MP = Modeled Presence
ND= No Documentation on SalmonScape

The SalmonScape application also lists fish passage barriers. Partial or total fish passage barriers include:

- SR 522 culvert on Tributary 0056
- 61st Avenue NE on Tributary 0056
- NE 192nd Street Crossing on Little Swamp Creek
- NE 195th Street Crossing on Little Swamp Creek
- Several driveway crossings on 80th Avenue NE on Little Swamp Creek
- Two roadway culverts on Holmes Point Drive

Additionally, other public and private blockages were noted downstream of SR 522 on Tributary 0056. Stream types, salmonid presence or absence, and confirmation of fish barriers were not confirmed for this Surface Water Master Plan. Rather, information from SalmonScape and City GIS data was used to provide an overview of current conditions.

4.1.3 Wetlands

Kenmore has several wetlands that are integral parts of the surface water and drainage network, including the largest wetland in Kenmore, Wetland No. 5603, commonly referred to as Wetland #3. Wetland #3 is located on the east side of 73rd Avenue NE, south of NE 192nd ST and is associated with Swamp Creek and its floodplain. It is approximately 92 acres in size and is designated as a Class 1 wetland according to KMC Section 18.55.30: Designation and Rating of Wetlands. The confluence of Little Swamp Creek and Swamp Creek is near the middle of Wetland #3 and a very large Great Blue Heron rookery is on the south end of this wetland as well. The other Class 1 wetland in Kenmore is Wetland No. 1601, located near the mouth of Swamp Creek on Lake Washington.

The City defines Class 1 wetlands as those wetlands that meet any of the following criteria:

1) Documented habitat for federal or State listed endangered or threatened fish, animal or plant species; or
2) Wetlands listed as high quality habitats in the Natural Heritage Information System; or
3) Wetlands with irreplaceable ecological functions, including sphagnum bogs and fens or natural forested swamps; or
4) Wetlands of exceptional local significance, specifically those wetlands proximal to and influenced by the main stem of Swamp Creek, the Sammamish River, or Lake Washington.

Table 4-4 summarizes the wetlands in Kenmore, their sizes, and their ratings. The wetlands are shown in Figure 4-5.

What is the role of wetlands in surface and stormwater management?

Wetlands naturally play an important role in surface water management. Wetlands typically attenuate peak flows by providing storage space for water to spread out and slow down, alleviating flooding problems. They also provide water quality benefits through filtering actions of vegetative matter, soils, and residence time as pollutants and sediments drop out of the water column in these flat environments. Kenmore's largest wetland, Wetland #3, likely serves some of these surface water management functions although flood-related problems still occur on Swamp Creek.

Table 4-4. Summary of Kenmore wetlands, sizes and ratings

King County Wetland Identification (Common Reference)	City of Kenmore Rating	Size (acres)
5601	3	0.3
1660	2	3.9
5604	2	6.2
5603 (Wetland #3)	1	92
5605	2	9.2
5120	2	12.5
5151	2	9.3
5152	2	26
5153A	4 (NWI)	0
5120	2	12.5
1601 (Inglewood Wetlands)	1 (A)	9.5
5130	2	8.5
1632	2	8
2701	2	1
5199	2	0.9
	Total	**199.8**

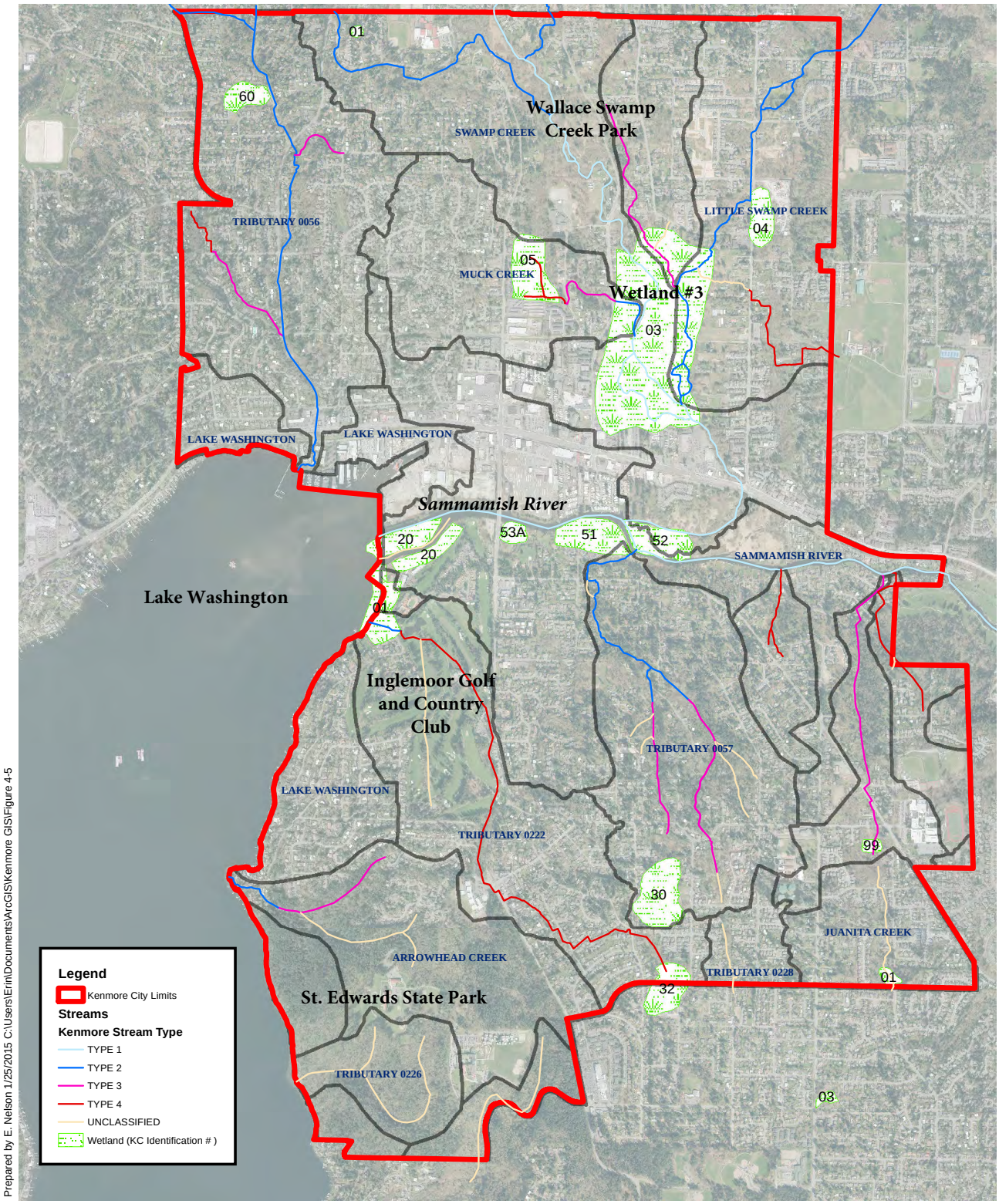


Figure 4-5
Kenmore Streams and Wetland Locations

4.2 Water Quality Conditions

Two Kenmore water bodies – Swamp Creek and the Sammamish River – are listed on Ecology's Category 5 303(d) list for impairment by various pollutants, including fecal coliform bacteria, high temperature, and low dissolved oxygen. Kenmore has been monitoring bacteria levels in Swamp Creek in an effort to identify sources and implement a source reduction strategy as part of the regional TMDL established by Ecology for Swamp Creek. The 2014 monitoring report is provided in Appendix C.

4.3 Overview of City's Built Environment

In addition to the City's physical and biological attributes, the built environment influences how and where surface water and stormwater runoff is conveyed. That influence starts with the City's zoning and density of development relative to geologic, topographic, and other drainage basin features. How the City's stormwater is managed can also be different dependent on the types of land uses in a given area.

How does the built environment affect stormwater runoff?

The type and density of development affect the quantity of hard surfaces (imperviousness) that create runoff, as well as the types of pollutants that could be transported from different surface types. Whereas, one single family home doesn't have a great impact, the cumulative effect of many does.

4.3.1 Zoning and Impervious Surfaces

Most of the City is zoned as residential R-6 (6 dwelling units per acre). Table 4-5 summarizes the zoning designations and statistics and Figure 4-6 show the City's current zoning.

Table 4-5. Zoning designation and percent of Kenmore

Zoning Designation	Percent of City
Community Business	<1
Downtown Commercial	1
Downtown Residential	1
Golf Course	4
Neighborhood Business	<1
Parks	13
Public/Semi-public	5
Residential R-1 (1 dwelling unit per acre)	7
Residential R-12 (12 dwelling units per acre)	2
Residential R-4 (4 dwelling units per acre)	15
Residential R-6 (6 dwelling units per acre)	45
Residential R-18 (18 dwelling units per acre)	1
Residential R-24 (24 dwelling units per acre)	1
Residential R-48 (48 dwelling units per acre)	<1
Regional Business	4
Total	100

Since the City is predominantly zoned single-family residential, the density of development is not as high as other urban or suburban areas; however, as infill is occurring, densities are increasing, especially in the downtown area. Table 4-6 summarizes the impervious surface coverages based on 2012 mapping completed for the City. Figure 4-7 shows impervious surfaces in Kenmore.

Table 4-6. Summary of impervious surfaces in Kenmore

Type of Impervious Surface	Acres	Percent of City
Roofs	~450	~12
Roadways	~310	~8
Other Surfaces (e.g., sidewalks, patios, parking lots)	~472	~12
Approximate Percent Impervious		**32**

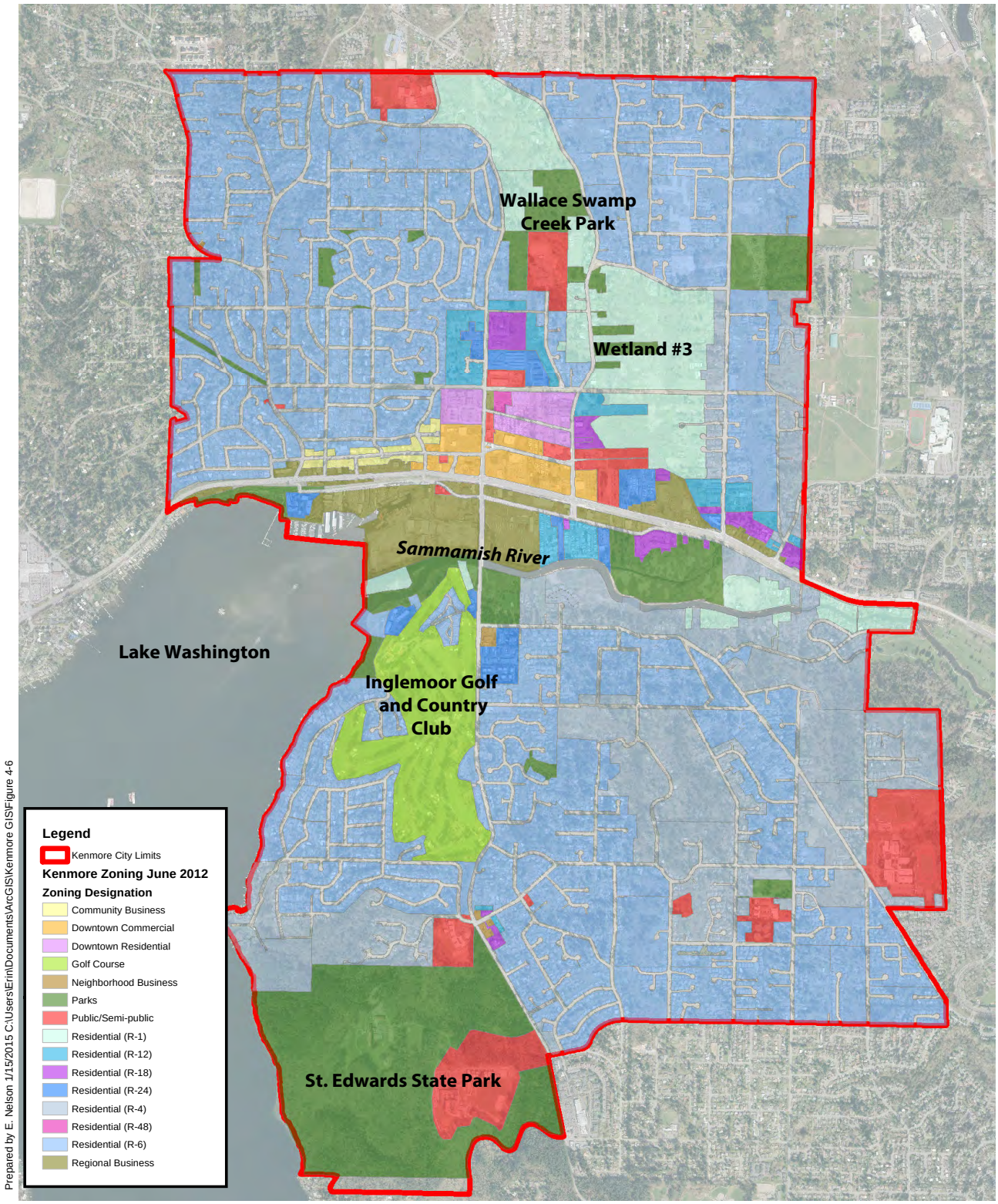


Figure 4-6
Kenmore Current
Zoning Designation

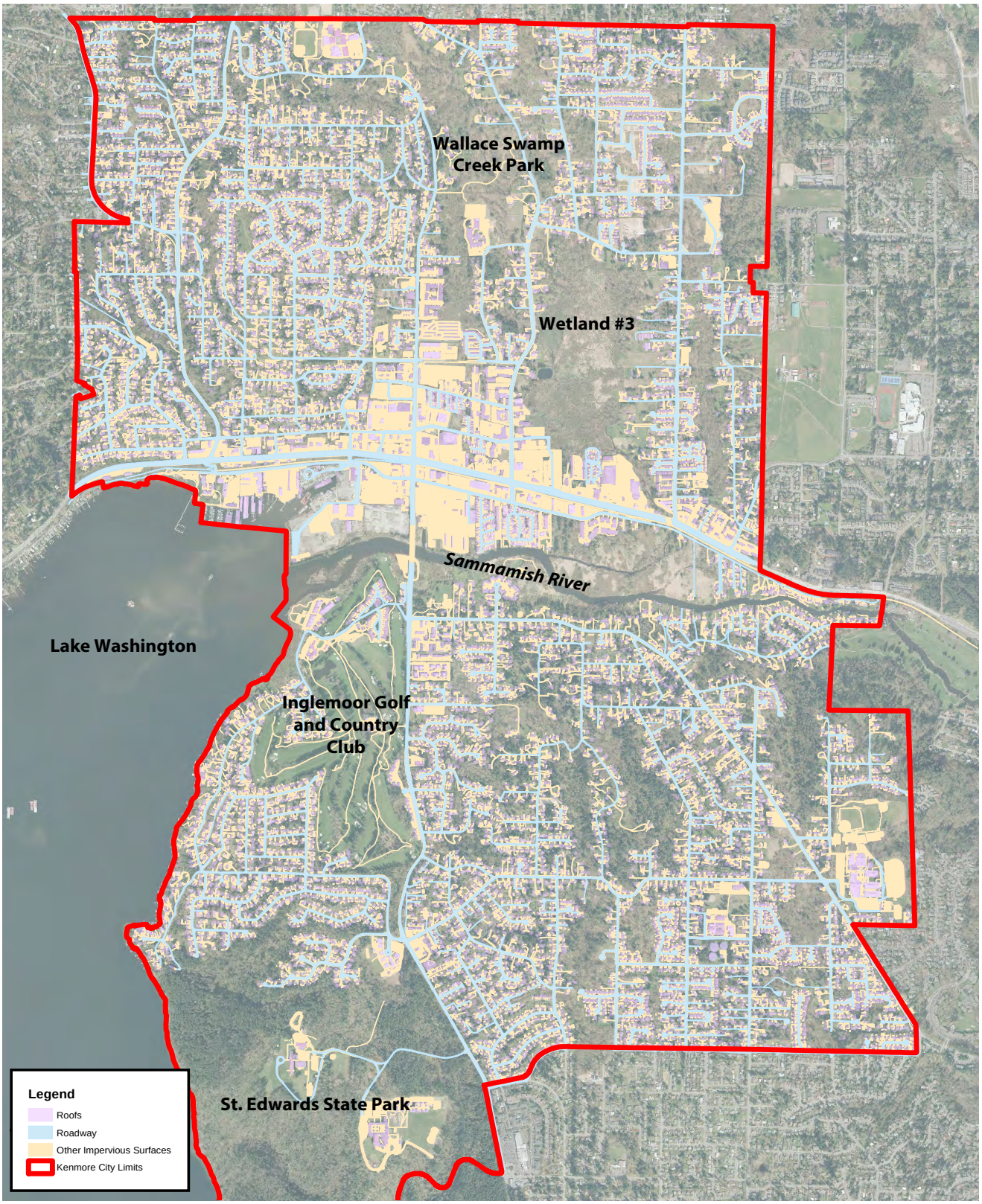


Figure 4-7
Kenmore Impervious Surfaces

There are some relatively large mostly undeveloped green spaces in Kenmore that are both publicly and privately owned including the following:

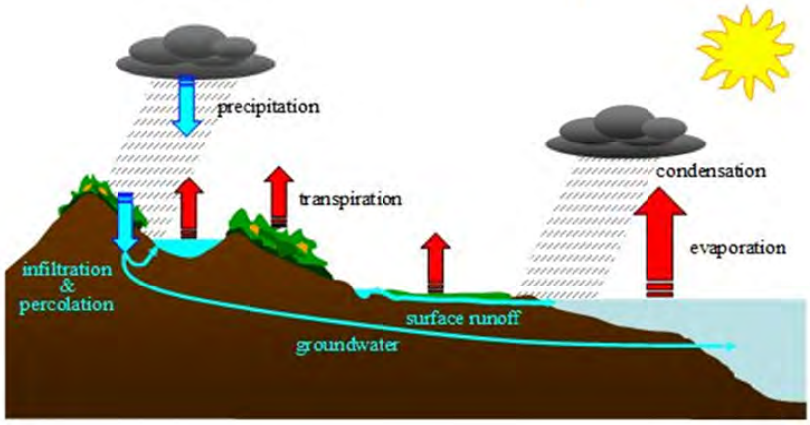
- Washington State Parks, Saint Edwards State Park - ~300 acres
- Inglewood Golf and Country Club - ~ 144 acres
- City of Kenmore Wallace Swamp Creek Park - ~25 acres

Other relatively undeveloped green spaces include:

- Wetland #3, which is a combination of both public and private ownership, but is largely undevelopable because of the wetland and floodplain;
- Open space adjacent to the Sammamish River that is also considered floodplain, wetland, or otherwise undevelopable property; and
- Ravines adjacent to tributary streams (e.g., Tributary 0057).

These areas, with the exception of the steep ravines, are good for surface water and stormwater management in that surface water can infiltrate into the ground and can generally be less confined and free to move across the landscape without damaging built infrastructure. The spaces also provide opportunities for vegetation that can support water quality treatment, water uptake, and evaporation and transpiration as shown in the generalized hydrologic cycle diagram in Figure 4-8.

Figure 4-8. Schematic of hydrologic cycle



4.3.2 Stormwater Infrastructure

As the landscape in Kenmore has developed, drainage infrastructure has been constructed to manage and convey surface water and stormwater flows away from properties (e.g., agricultural and logging properties) and roadways to prevent flooding and minimize impacts from prolonged wet conditions. Early stormwater management strategies consisted of developing conveyance systems that would collect and convey runoff from a property or road to the nearest receiving water body. As knowledge and awareness of stormwater impacts to natural resources and water quality have increased and stormwater regulations have evolved, stormwater management began to focus on construction of facilities that detain water and provide water quality treatment. Design and construction of these facilities began in earnest during the 1980s, but early design standards underestimated the volume needed to adequately protect the aquatic environment from the impacts of increased runoff. This resulted in many undersized facilities that are still operating today, but are much smaller than newer facilities. Flow control facilities slow the release of water (reducing peak flows and durations to small stream channels that experience erosion) and water quality facilities provide water quality

treatment, and reduce pollution (some facilities are a combination of flow control and water quality). The vast majority of stormwater runoff, whether conveyed directly or managed by a facility, is conveyed to a natural water body (e.g., Swamp Creek, the Sammamish River, or Lake Washington), so it is important to understand how actions upstream impact downstream.

The conveyance infrastructure matches the type of development in Kenmore, from rural roads with adjacent drainage ditches in the outlying areas to curb, gutter, and sidewalk configurations in the downtown area. Currently, Kenmore has a mix of an open and enclosed conveyance system of ditches and pipes, although it is predominantly enclosed. The conveyance system includes pipes, ditches, and other infrastructure that is owned and maintained by Kenmore and also infrastructure that is privately owned and maintained. The tables below provide a summary of the entire system as mapped in the City's GIS system, public and private. Table 4-7 provides a summary of the conveyance system types and lengths and who is responsible for maintenance; and Table 4-8 provides a summary of the enclosed conveyance system materials, sizes, and lengths. Figures 4-9 and 4-10 show locations and types of the open and enclosed conveyance systems.

Table 4-7. Conveyance system maintenance responsibility, type, length and percentage of system (in parentheses)

Maintenance Responsibility	Enclosed Conveyance Length (mi)	Open Conveyance Length (mi)	Catch Basins
City of Kenmore	74.12 (65.3%)	14.77 (77.8%)	4,262
City of Kenmore (Via Easement)	2.16 (1.9%)	0.19 (1.01%)	79
Private	36.81 (32.4%)	4.00 (21.05%)	1,849
NA	0.40 (0.4%)	0.03 (0.13%)	11
Total	**113.49**	**18.98**	**6,201**

Table 4-8. Enclosed conveyance material, sizes, and lengths

Pipe Material	Pipe Diameter and Length (miles)						
	<12 inches	12-24 inches	30-48 inches	54-72 inches	> 72 inches	No diameter reported	Total
Clay	0.03	0.00	0.00	0.00	0.00	0.00	**0.03**
Corrugated Metal Pipe	1.94	16.49	2.42	0.83	0.25	0.57	**22.51**
Concrete	2.49	30.36	0.73	0.01	0.00	0.21	**33.80**
Corrugated Polyethylene	3.51	23.24	0.42	0.05	0.00	0.06	**27.28**
Ductile Iron	0.64	1.47	0.02	0.00	0.00	0.01	**2.14**
Earthen	0.00	0.01	0.00	0.00	0.00	0.00	**0.01**
Metal	0.02	0.03	0.00	0.04	0.00	0.00	**0.09**
NA	1.49	2.64	0.04	0.03	0.00	4.29	**8.50**
Plastic	0.09	0.03	0.00	0.00	0.00	0.00	**0.11**
Polyvinyl Chloride	12.24	6.34	0.04	0.00	0.00	0.27	**18.90**
Rock	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Total	**22.54**	**80.61**	**3.67**	**0.96**	**0.25**	**5.43**	**113.45**

Pipes in Kenmore's publicly maintained systems are composed primarily of concrete (37%), corrugated polyethylene (26%), corrugated metal (22%) and polyvinyl chloride (9%). Pipe diameters of 12-inch (70%) and 18-inch pipe (10%) account for 80% of the public system. Pipes in Kenmore's privately maintained systems are composed primarily of polyvinyl chloride (33%), corrugated polyethylene (21%), corrugated

metal (16%), concrete (14%) and unknown (13%). Pipe diameters of 12-inch (33%), 6-inch pipe (24%), 8-inch (15%) and 4-inch (8%) account for 80% of the public system. Smaller diameter pipes (less than 12-inch) account for 48% of privately maintained systems, which is in contrast to publicly maintained systems that are comprised of mostly 12-inch pipes and larger. Private systems typically connect downspouts and small yard drains to the public drainage system. Larger privately maintained pipes are typically associated with private commercial drainage systems.

In addition to Kenmore's drainage conveyance systems, there are 152 publicly maintained stormwater treatment facilities with many more under construction or planned. There are also over 100 privately owned and operated drainage facilities including stormwater treatment ponds and vaults. Figure 4-11 shows the locations of these facilities. An analysis of where stormwater facilities are located and where there are none was completed for this plan to identify potential stormwater retrofit opportunities. The stormwater retrofit memorandum is in Appendix D. Section 4.5 describes the City responsibilities for operating and maintaining its stormwater treatment facilities and ensuring that privately owned facilities are also properly maintained and operated.

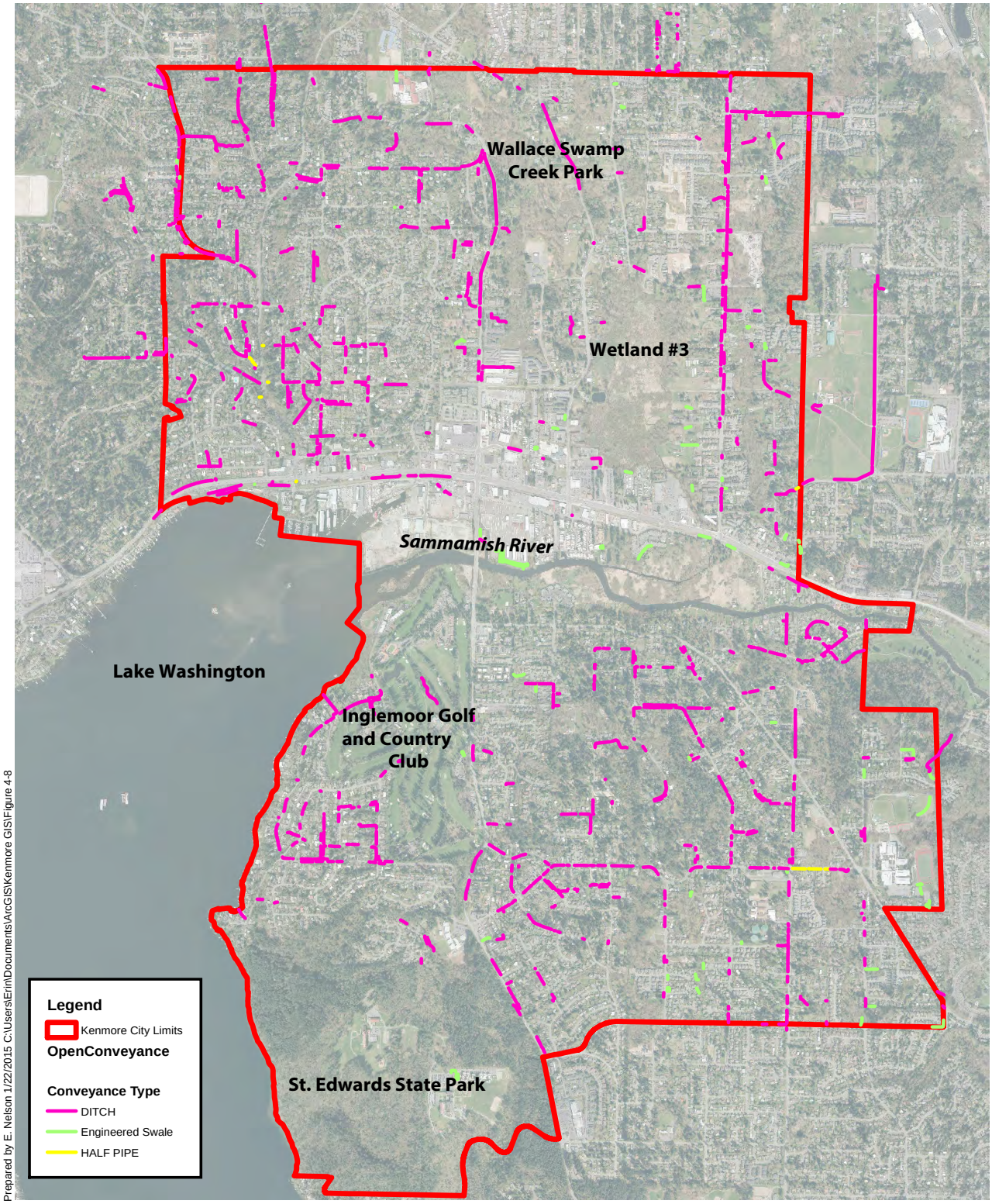


Figure 4-9
Location and Types of Open Conveyance

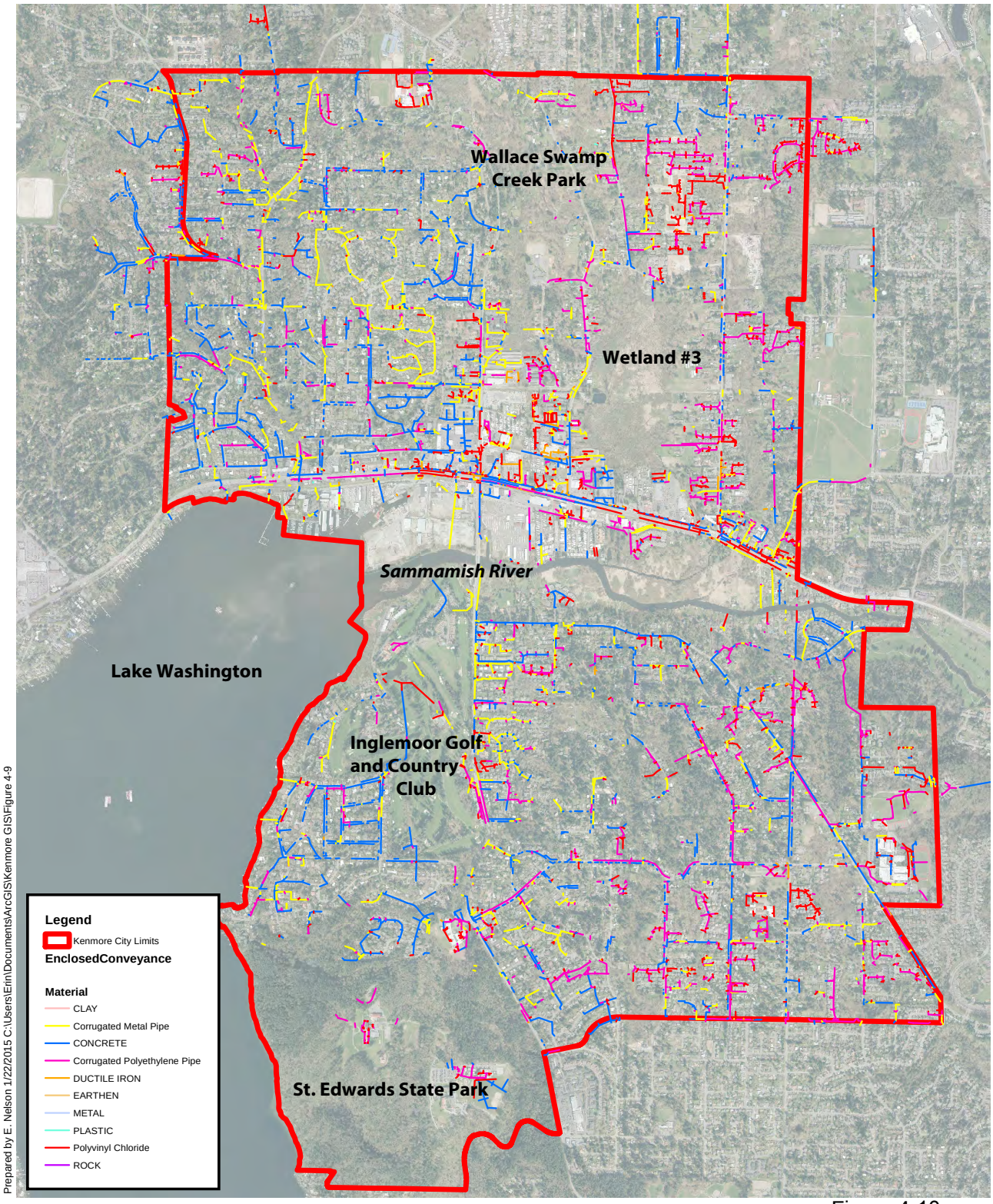


Figure 4-10
Location and Types of Enclosed Conveyance

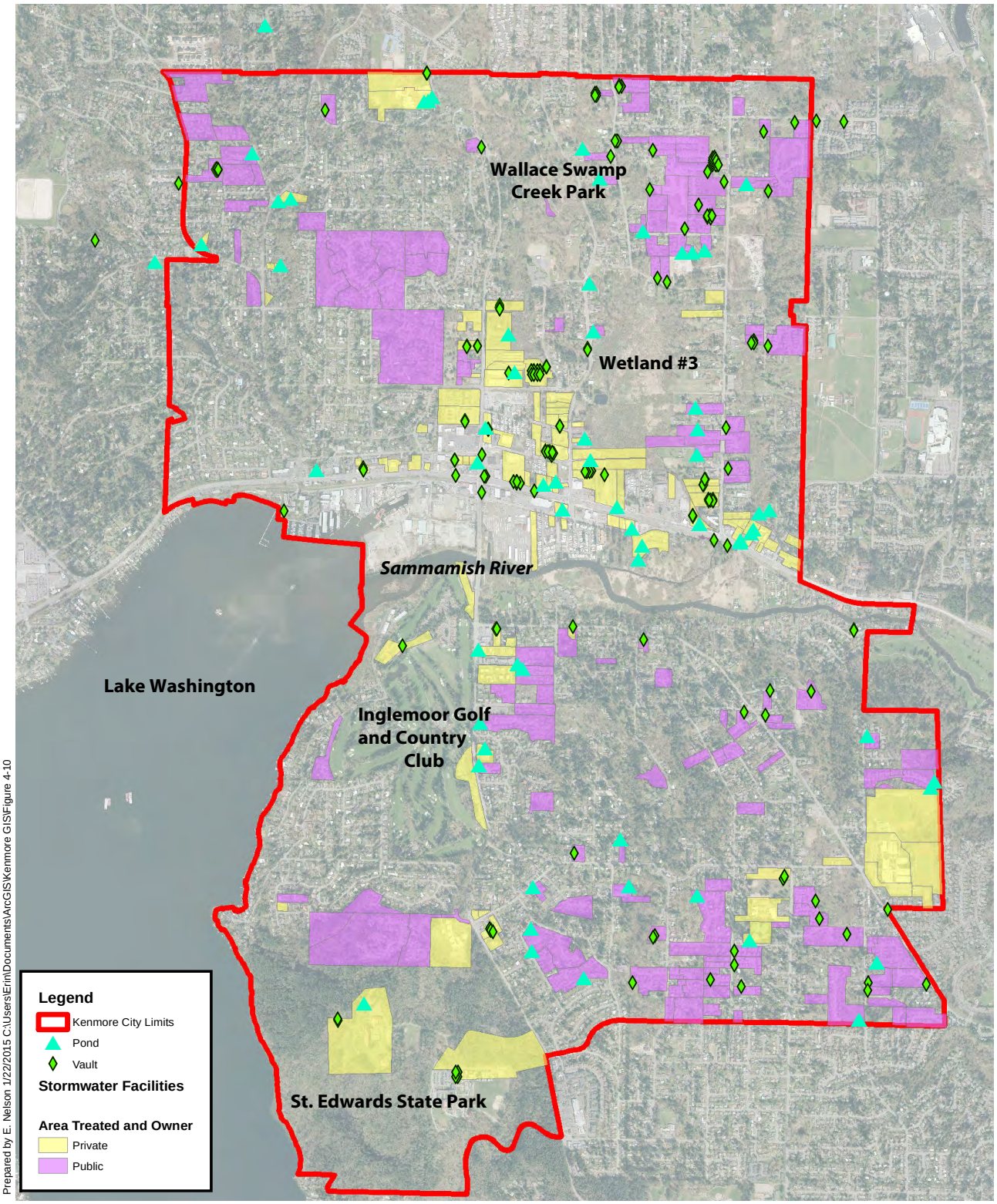


Figure 4-11
Location,Type, and Owner of Stormwater Facilities

4.4 Complaint History and Existing Problems

The City has 16 complete years of service request history (also referred to as citizen action requests), which includes data from 1999 through 2014. During this period, the City documented 1,555 surface water related service requests (Figure 4-12). From 1999 through 2006, the City averaged 63 service requests per year and during 2007-2014 the City averaged 131 service requests per year. In the last few years, service request volumes range from 130 to 180 per year. The top five categories of service request types include maintenance issues (36%), nuisance problems (20%) water quality concerns (13%), general inquiries (10%) and flooding (6%). Each service request is logged, routed to appropriate staff, investigated and responded to. January and December have the highest volumes of service requests with other months remaining relatively steady (Figure 4-13).

Drainage complaints reported to the City were reviewed to evaluate the types, locations, frequency, and timing of surface water and stormwater related problems. One of the most problematic areas in Kenmore is flooding associated with Swamp Creek in the vicinity of 73rd Avenue NE. This particular area has been the subject of many past studies and flood reduction projects. Additional analysis on the Swamp Creek flooding problem was also completed for this Plan and the summary memorandum is provided in Appendix A.

Other problematic areas in Kenmore have included localized flooding of smaller tributaries, such as Tributaries 0056 and 0057. Numerous slides have occurred on steep slopes on both public and private property, which will require additional evaluation with upcoming low impact development requirements to infiltrate runoff. Kenmore's topography and location at the bottom of its watersheds provide many challenges in managing shallow groundwater springs at many locations in the City, which will also require additional evaluation when implementing low impact development. The City continues to respond to these issues with maintenance, capital improvement projects and small works projects.

Figure 4-12. Number of drainage-related calls received between 1999 and 2014

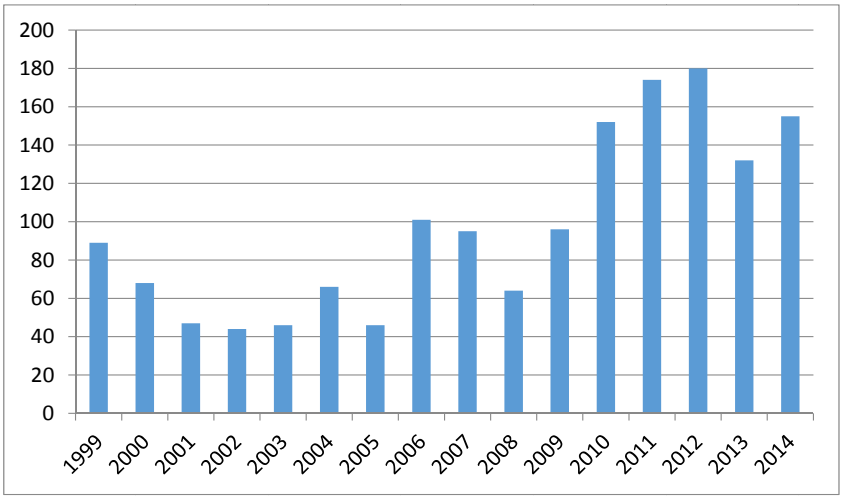
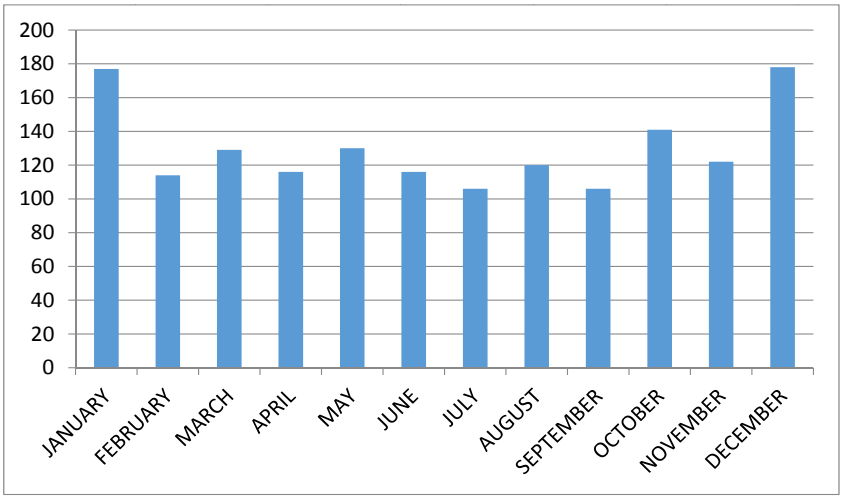


Figure 4-13. Drainage-related calls by month between 1999 and 2014



The predominant type of drainage-related call received was requests for maintenance of infrastructure, including ditches and catch basins (Figure 4-14). Nuisance issues and water quality complaints were also quite high. Drainage calls are categorized into 14 types based on the predominant factor causing the issue (Table 4-9). Drainage issues will often have several components but one main contributing factor. For instance, if an intersection flooded only because a catch basin needed maintenance then it was categorized as a maintenance issue, not flooding.

Figure 4-14. Drainage-related calls by type between 1999 and 2014

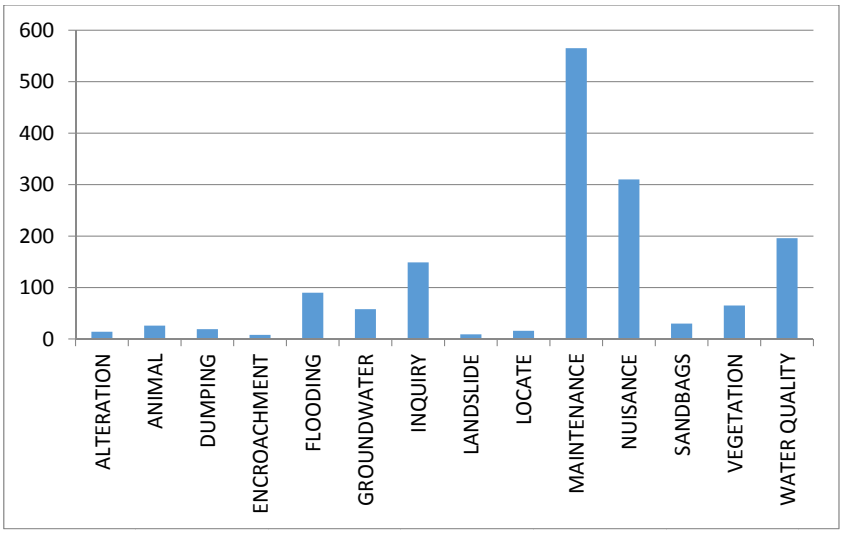


Table 4-9. Drainage call category descriptions

Drainage Call Categories	Description
Alteration	Drainage infrastructure has been altered without permission or permits
Animal	Animal related issues (beavers, nutria) or dead animals in drainage system
Dumping	Illegal dumping into drainage system
Encroachment	Private construction in right-of-way or drainage easement without permits
Flooding	Flooding that impacts roadway usage or habitable structures
Groundwater	Drainage issues resulting from groundwater
Inquiry	General drainage questions or comments
Landslide	Landslide issues
Locate	Requests to locate drainage infrastructure
Maintenance	Drainage system maintenance issues (i.e., clogged drains, broken grates, etc.)
Nuisance	Drainage issues, often of a flooding nature, that are not impacting the roadway or habitable structures (i.e., soggy yard, puddles, private drainage system issues, etc.)
Sandbags	Request for sandbags
Vegetation	Vegetation issue in drainage system (i.e., dangerous trees, excessive growth, etc.)
Water Quality	Reports of water quality issues (i.e., spills, odors, illegal activity, etc.)

4.5 Operations and Maintenance

O&M of the stormwater system is challenging and needs to be flexible and occur at many levels, because of the varied ownership and cross-jurisdictional connections, combination of constructed and natural features, and unpredictable frequency of storm events that cause major problems.

Cities and counties with NPDES MS4 Permits, such as Kenmore (described in Section 2), are required to operate and maintain their systems according to standards set forth in the permit. All jurisdictions in Western Washington of a certain minimum size are subject to the same NPDES Permit standards, providing some level of certainty for Kenmore that upstream jurisdictions are maintaining their systems for stormwater that discharges to streams and rivers that flow into Kenmore.

The constructed stormwater system (e.g, pipes, ditches, vaults, ponds) flows to naturally formed stream channels, rivers, and wetlands in Kenmore and ultimately Lake Washington. Issues that occur in one part of the system can have profound effects on the other. Of particular challenge is managing the natural system in what is now an urban/suburban environment. Natural processes that used to occur in these natural systems without negative effects on infrastructure or properties can now cause damage because of human encroachment. Examples of natural processes include deposition of sediment, wood, and debris that alters the course of water flow or blocks stormwater outfalls and beaver dams that cause the same result. These are some of the problems that City staff encounter in management of the stormwater system that is linked to the natural system.

Although there is some predictability in seasonal weather patterns (the rainy season is typically during the winter months), the degree to how often and how much rainfall occurs is not predictable. This makes managing stormwater challenging - especially for dealing with known problem areas that need to be inspected prior to storm events.

The City documents its O&M procedures in a detailed Operations and Maintenance Practices and Policies Manual (City of Kenmore 2010) that is updated as necessary to be current with NPDES Phase II Permit requirements or changing procedures. The sections below provide a summary of how Kenmore operates and maintains the public stormwater system and the procedures that are in place to ensure that the private system is adequately maintained.

The City's current NPDES Phase II Permit has new requirements to adopt stormwater management standards equivalent to Ecology's 2012 SWMMWW by December 31, 2016, as well as revised inspection and maintenance requirements (described in Section 2). The City will need to modify its maintenance program to meet these new standards and requirements.,which may result in additional staffing and funding needs.

Kenmore's public stormwater system includes stormwater infrastructure that is within the City's ROW, or infrastructure for which the City has an easement or agreement to operate and maintain. Stormwater infrastructure and facilities associated with SR 522 are also operated and maintained by Kenmore.

Table 4-10 summarizes the types of O&M activities conducted, the general frequency of those activities, and the entity that does the work. Kenmore contracts out much of the labor to operations crews from Lake Forest Park or King County through Interlocal Agreements and uses maintenance contractors for other types of services.

Table 4-10. Summary of stormwater O&M tasks

O&M Task	General Frequency	Infrastructure	Ownership	Who Does the Work?
Inspection	Routine	Stormwater facilities	Public	City of Kenmore
			Private	City of Kenmore
		Catch basins	Public	City of Kenmore
	Storm-related spot checks	Culverts, known problem areas	Public/Private	Lake Forest Park City of Kenmore
Cleaning	Routine	Pipes	Public	Private Contractor
		Culverts associated with ditch conveyance	Public	Private Contractor
		Ditches	Public	Private Contractor
		Streets (vacuum sweeping)	Public	Lake Forest Park
		Private systems	Private	Property Owner
Maintenance	Routine (vegetation management)	Stormwater facilities	Public	Private Contractor Lake Forest Park
		Private systems	Private	Property Owner
	Non-routine (dependent on inspection results)	Stormwater facilities	Public	Lake Forest Park King County Roads Maintenance
		Pipes	Public	Private Contractor King County Roads Maintenance
		Private systems	Private	Property Owner
Repairs	Non-routine	Stormwater facilities	Public	If the project is too large for Lake Forest Park or King County, then a Small Works Project or CIP is created
		Culverts	Public	
		Pipes	Public	
		Ditches	Public	
		Private systems	Private	Property Owner

Because the stormwater system is a combination of private and public infrastructure, the facilities often cross between public and private properties. One of the problems that occur in the O&M of the public system is when the public system becomes private and responsibility becomes unclear. The City does not knowingly maintain private drainage systems and takes a conservative approach when dealing with private property drainage systems. Many drainage systems on private property may have an easement indicated on the plat. However, these systems will only be maintained by Kenmore if an easement, or other legally acceptable

document, has specifically provided Kenmore the right to access the drainage system and clearly indicates what actions the City is authorized to conduct on the drainage system. The City is not necessarily obligated to maintain private drainage systems because an easement exists. Easements may exist for many reasons, including: protecting the drainage system from being removed by the property owner, allowing the City access to inspect the system, and providing adequate space for the property owner to maintain the system.

4.5.1 Ensuring Private System Maintenance

The City relies on property owners to operate and maintain their own stormwater systems in a manner that contributes to the functionality of the system as a whole, and in many cases maintenance is required by code. The methods that the City uses to ensure that private systems are operated properly include annual facility inspections that detail any deficiencies, corrections that need to be made, and a timeline to make them, followed by repeat inspections to verify that corrections have been made. If deficiencies aren't corrected, the City can use other measures, including enforcement actions. As an incentive for complying with stormwater regulations, the City offers stormwater rate reductions for properly operating and maintaining private facilities (see Section 3 for a description).

4.6 Asset Management

Kenmore manages surface water and stormwater assets using a combination of GIS software and asset management software. Asset information for surface water and stormwater features (e.g., catch basins, pipes, ponds, etc.) is stored in GIS using ArcGIS, which is a GIS software developed by Environmental Systems Research Institute. Kenmore's surface water and stormwater assets have been thoroughly mapped and updated in GIS for many years. Surface water and stormwater GIS information is available through the City's online map application located on the City's webpage. Kenmore uses Cityworks, an asset management software developed by Azteca, Inc., to manage inspections, work orders, and service requests. Cityworks leverages the City's existing GIS information and adds the ability to track actions associated with any asset in GIS. In addition to assets, Cityworks also tracks and manages surface water and stormwater related service requests (historically called a citizen action request "CAR"). Service requests may include complaints, requests for maintenance, inquiries, reported water quality issues, etc., and are spatially referenced for easy reporting and analysis.

4.7 Coordination with Neighboring Jurisdictions

By virtue of its location at the bottom of two very large drainages that pass through Kenmore, the City must pursue coordination with upstream jurisdictions and partners to effectively manage natural resources and share responsibility. The City participates in the WRIA 8 Watershed Forum for the Lake Washington/Cedar/Sammamish Watershed. The City also coordinates with Swamp Creek watershed partners for managing the TMDL requirements for fecal coliform bacteria (as described in Section 2) and partners with other jurisdictions, such as Lake Forest Park and King County in sharing O&M resources through Interlocal Agreements.

4.8 Development and Business Support

The thresholds that trigger implementation of stormwater management on properties in Kenmore and elsewhere in Western Washington are changing with the most recent NPDES Phase II Permit. However, the manner with which the City ensures new development or redevelopment that triggers stormwater requirements meets the current standards is through the development review and permitting process conducted by the City' Development Services Department, which implements and enforces the City's stormwater management requirements.

4.8.1 Permit Review

In 2014, Kenmore received 30 engineering permit applications; issued 20 engineering permits (for plats, clearing and grading, and commercial and multi-family development); received 172 building permit applications; and issued 135 building permits (for new or remodeled residential, commercial, and multi-family buildings). These types of permits may involve drainage review and require stormwater management facilities if certain thresholds identified in the KCSWDM are triggered. The number of permits received and issued annually fluctuates with economic conditions and is dependent on how much growth and building is occurring. However, drainage review needs are expected to rise with the elimination of a lower size threshold for requiring stormwater management with the current NPDES Phase II Permit. The elimination of existing thresholds requiring stormwater management will be implemented no later than December 31, 2016.

4.8.2 Business Outreach and Technical Assistance

The City uses business outreach and technical assistance as the primary method for helping businesses and private property owners comply with surface water and stormwater regulations. One of the primary areas where outreach and technical assistance is provided is for illicit discharges to the stormwater system. The City uses its Illicit Discharge Detection and Elimination (IDDE) program to identify and resolve water quality problems. A detailed description of the program is in the City's IDDE Program Manual (City of Kenmore 2011). When a problem is identified, either through facility inspection, staff observation, or citizen complaint, a site visit is made to investigate and try to identify the source. If the source is tied to a property unknowingly or willingly discharging unallowable materials to the stormwater system, the City works with those individuals to try to correct the problem in the most expeditious way possible.

The City has utilized King County water quality staff and The Environmental Coalition of South Seattle (ECOSS), a non-profit environmental organization, to provide water quality outreach and technical assistance to Kenmore business owners and will continue to participate in these kinds of partnerships. King County conducts a water quality audit program in which qualified staff meet with business owners, often after a water quality issue has been discovered, and provide guidance and resources to bring the business back into compliance. ECOSS provides a more proactive outreach and education program to businesses, often before a water quality issue has occurred, which includes guidance on how to avoid illicit discharges and how to respond to spills if they occur (spill response kits are also provided to businesses).

4.9 Public Education and Outreach

Public education and outreach is a big component of surface water and stormwater management because of the collective impacts of individual decisions on water resources. Recognizing its importance, Ecology also requires NPDES Phase II permittees, such as the City, to conduct stormwater-related public education and outreach as a condition of the permit. The City has expanded its volunteer program significantly over the last 2 years, which included the creation of a dedicated volunteer coordinator position. Volunteers interested in surface water-related activities are connected with appropriate staff. Recent projects include construction of surface water informational displays, invasive species removal, and catch basin stenciling. The City has provided support for private parties seeking water quality grant funds. No formal stewardship groups have been formed in the City, but City staff has communicated with interested residents and will continue to promote and support stewardship roles in the community.

5. The Next 6-10 Years

Surface water and stormwater management has continued to evolve in the Puget Sound region over the past 2 decades. At the same time, the region has experienced tremendous growth. Kenmore, now in its second decade of incorporation, has made many strides in the management of its surface water and stormwater resources, and this Plan will help guide the City's strategy for the next several years.

The primary surface water and stormwater issues that the City will continue to manage include:

- Swamp Creek floodplain issues.
- Flooding-related issues. Flood-related issues typically result from undersized culverts, lack of appropriate drainage systems, or changes in local hydrology.
- Groundwater issues, particularly within geologically hazardous areas of the City.
- Compliance with NPDES Phase II requirements (to be phased in by December 31, 2016), including:
    - Adoption and implementation of Surface Water Manual equivalent to Ecology's 2012 SWMMWW,
    - Implementation of LID techniques.
    - Increased inspection and maintenance frequencies.
    - Increased development review.
    - Swamp Creek TMDL.
- Issues associated with older flow control and water quality facilities and conveyance systems, both public and private, which have reached or exceeded their functional lifespan. Many of these facilities and conveyance systems are 30 to 60 years old.

Opportunities to improve water quality and reduce flow volumes in Kenmore will occur as properties are redeveloped. However, the City should also take an active approach to implementing stormwater treatment where none currently exists through available grant opportunities or incentive programs for private citizens. Recommended projects and strategies are described in the sections below.

5.1 Capital Projects

Surface water capital projects were identified to address specific surface and storm water issues in Kenmore. These issues were identified by maintenance crews, through drainage complaints or City staff. Small Works capital projects (SW-20) are intended to provide annual funding for on-going, city-wide issues that are smaller in size. Table 5-1 lists the projects, problems addressed, and associated costs. Detailed information for each capital improvement project can be found in summary sheets located in Appendix E.

Table 5-1. Updated CIP list (not fiscally constrained)

CIP Number	Basin	Description	Cost
SW-08	Tributary 0056	Final design and construction of box culvert, rockery, new sidewalk, and stream channel reconstruction of Tributary 0056 adjacent to 61st Avenue NE.	$1,111,000
SW-17	Little Swamp Creek	Replace culverts and relocate Little Swamp Creek adjacent to 80th Avenue NE to alleviate flooding.	$1,264,000
SW-19	Little Swamp Creek	Replace existing culvert with a fish-passable box culvert to alleviate flooding at NE 192nd Street.	$395,000
SW-20	City-wide	Small works projects in various basins include repair and replacement of half-pipe conveyance structures, interception of groundwater seepage, installation of new stormwater infrastructure, and improvement of a diversion structure.	$50,000
SW-21	Tributary 0056	Use ground penetrating radar to evaluate and develop preliminary design of new rockery wall adjacent to Tributary 0056 and 61st Avenue NE.	$100,000

CIP Number	Basin	Description	Cost
SW-22	Tributary 0057	Evaluate rate and risks of on-going erosion in Tributary 0057 on infrastructure and properties to determine capital project, if necessary.	$25,000
SW-23	Swamp Creek	Design and construction of a Beaver Deceiver at Wallace Swamp Creek Park sedimentation pond.	$96,400
SW-24	Sammamish River Tributaries 02 and 03	Evaluate upstream sediment sources and causes of excessive maintenance for existing sedimentation vaults and determine whether vaults should be upsized or other upstream projects should be considered.	$25,000
SW-25	Tributary 0222	Replace failing stormwater detention tanks in the Strawberry Hills neighborhood.	$459,700
SW-26	Arrowhead Creek	Replace existing stormwater detention pipe with a larger pipe and control structure adjacent in the ROW of Juanita Drive NE to provide improved stormwater flow control.	$698,200
SW-27	City-wide	Re-establish ditches throughout the City that have been impacted with sedimentation, filled, or otherwise do not function properly.	$50,000
SW-28	Swamp Creek	Install LID facilities along NE 185th Street between 64th Avenue NE and 68th Avenue NE to manage runoff in the Northlake Heights neighborhood.	$1,500,000
T-06	Tributary 0056 Lake Washington	Install water quality facilities and improve conveyance systems along NE Bothell Way between 61st Avenue NE and 65th Avenue NE.	$633,500
		Total	**$6,408,200**

There are no capital projects being recommended for Swamp Creek Wetland #3 and associated floodplains at this time. The analysis conducted for this Plan determined that the flood reduction projects completed in 2005 were adequate to protect the City's road, 73rd Avenue NE (See Appendix A, Swamp Creek Memorandum). Some properties adjacent to 73rd Avenue NE continue to have impacts from Swamp Creek due to natural processes, sediment deposition and upstream flows. The City does not have plans to purchase privately owned properties. The current funding available for surface water capital projects is approximately $600,000 per year. A preliminary schedule for design and construction of these projects is shown in Figure 5-1, which does not consider the potential for grants and loans.

Figure 5-1. CIP preliminary project schedule

5.2 Programmatic Strategies

Programmatic strategies recommended below are strategies primarily focused on tasks that need to be completed for NPDES permit compliance. Table 5-2 lists the recommended programmatic strategies and estimated costs. Programmatic strategy project sheets are included in Appendix F.

Table 5-2. List of surface water programmatic strategies (not fiscally constrained)

Project Number	Description	Estimated Cost
SProg-01	LID Code Review - Conduct city-wide review of development codes and standards and revise where necessary to ensure that LID is the preferred and commonly used approach to site development.	$46,800
SProg-02	Adopt a new stormwater manual, revise engineering standards and procedures, and conduct education and outreach to implement the manual.	$28,600
SProg-03	Develop LID infeasibility tools (e.g., an infiltration potential map) to assist City staff and permit applicants with preliminary understanding of what types of BMPs may or may not be appropriate for site conditions.	$42,900
SProg-04	Evaluation of stormwater incentive and rebate programs, including voluntary rain garden programs and initiatives used by other jurisdictions, and review of current incentive, rebate, and stormwater discount program	$14,300
SProg-05	Easement management - Evaluate existing drainage easements and whether easements need to be acquired or renewed, or policies need to be developed to address this issue.	$20,800
SProg-06	Stormwater retrofit - Identify potential stormwater retrofit opportunities and prioritize and pursue grant funding.	$24,700
SProg-07	Evaluation of landslide and groundwater issues - Conduct review of on-going landslide and groundwater seepage issues in the City where routine complaints are received to evaluate potential solutions and measures to prevent additional impacts.	$31,200
SProg-08	Culvert assessment -Conduct fish barrier analysis of Kenmore culverts and prioritize for replacement and/or replacement.	$16,500
SProg-09	SEPA Notification for Upstream Projects–Create opportunities to provide input on projects in other jurisdictions that could impact Kenmore.	$69,920
	Total	**$295,720**

Two NPDES-related programmatic projects for LID code review and stormwater manual adoption (SProg-01 and SProg-02) are tasks that need to be completed by December 31, 2016, and will require engagement by City staff at multiple levels. A third NPDES-related project to develop LID infeasibility tools (SProg-03) will help development review staff and permit applicants better understand where they may and may not be able to implement certain stormwater BMPs, in the hope of saving time and money.

Other programmatic recommendations include:

- An evaluation of possible incentive and rebate programs to encourage voluntary implementation of on-site stormwater management on residential or commercial properties (SProg-04),
- A review of easements, or lack thereof, where drainage infrastructure crosses private properties and an analysis of appropriate action, if needed (SProg-05),
- Identification and prioritization of stormwater retrofit opportunities, preferably grant eligible, for which the City should pursue (SProg-06).
- Evaluation of geologic-related issues including landslides and groundwater seepage (SProg-07); and
- A culvert assessment to evaluate Kenmore's culverts with regard to fish passage barriers (SProg-08).
- Requests to upstream jurisdictions to notify Kenmore of projects under the State Environmental Policy Act such that the City has an opportunity to provide input on projects that could impact surface water flows or water quality in Swamp Creek and other drainages (SProg-09).

It will take decades to reverse the impacts from development that occurred prior to the requirement for stormwater flow control and water quality treatment. Two programmatic measures (SProg-04 and SProg-06) could help accelerate the trend to reverse impacts by treating small areas of stormwater runoff one parcel at a time. Impacts happen cumulatively, and the collective actions of many may help reverse them. Grant opportunities have become more available for stormwater retrofits in the last few years, as Ecology has recognized that the scale of the stormwater problem and that new regulations alone will not solve the problem.

5.3 Summary

This Surface Water Master Plan presents strategies and projects in support of the City's primary surface water management goal to:

> Develop, maintain, manage and improve a surface water system that serves the community, enhances the quality of life, and protects the environment (Surface Water Element of 2014 Comprehensive Plan).

This Plan builds upon previous planning efforts, and past successes including National Pollutant Discharge Elimination System (NPDES) compliance efforts that have been implemented in response to issuance of the first Phase II Municipal Separate Storm Sewer (MS4) permit in 2007, and construction of many surface water capital projects.

Current surface and stormwater issues in Kenmore are common in the Puget Sound Region and other urban and suburban areas—untreated impervious surfaces that contribute excess flows and polluted water to streams, rivers, and lakes. Through implementation of recommended capital projects and programmatic strategies, Kenmore-specific issues associated with this underlying problem will be addressed.

Incorporating new stormwater treatment, or upgrading existing stormwater facilities to provide better treatment is a regional trend, and there are opportunities for Kenmore to take advantage of grant funding available to implement these types of projects. This Plan provides recommendations for stormwater retrofit of both outdated and undersized facilities (Capital projects SW-25 and SW-26) and areas in the City where no treatment currently exists (Capital projects SW-28 and T-06 and Programmatic Project SProg-06).

Flood-reduction projects constructed by the City in 2005 in the vicinity of 73rd Avenue NE and NE 192nd Street and property acquisitions have currently alleviated flood impacts on City infrastructure at 73rd Avenue NE, however, private properties continue to be impacted by flooding adjacent to Wetland #3 on the east side of 73rd Avenue NE. An updated analysis of flooding on Swamp Creek was conducted for this Plan, and because the City's infrastructure appears to be adequately protected from current and future predicted flooding (if upstream conditions improve through implementation of more stringent development requirements), the City does not have any plans to purchase additional private properties at this time and there are no further recommendations for flood reduction projects in the Swamp Creek area in Kenmore. However, the City will implement new procedures to receive State Environmental Policy Act (SEPA) notification from upstream jurisdictions on projects that could impact Kenmore, so that the City has an opportunity to provide input on projects that affect flows coming into Kenmore via Swamp Creek or the Sammamish River (Programmatic Project SProg-09).

Flooding and erosion issues on Tributaries 0056 and 0057 and Little Swamp Creek are other current concerns in Kenmore that are addressed with new capital projects in this Plan (Capital projects SW-08, SW-17, SW-19, SW-21 and SW-22). Programmatic Project SProg-07 also addressed City-wide landslide and groundwater issues that contribute to erosion and flooding.

Low Impact Development (LID) is soon to become the commonly used and preferred Best Management Practice (BMP) for managing stormwater impacts. The NPDES Phase II MS4 Permit requires that permittees (e.g., Kenmore) require LID by the end of 2016. For cities like Kenmore that are largely built out already, the LID BMPs most likely to be incorporated are those that infiltrate into the ground (e.g., pervious pavement and bioretention facilities). These types of LID BMPs require maintenance personnel and different maintenance frequencies, tools, and skill sets. These LID solutions also provide ancillary benefits beyond stormwater treatment, including aesthetic, cooling, and air quality benefits. Implementing LID will require significant changes to established standards and will change how developments, roads, parcels and buildings look and function. However, Kenmore's surface water and topographic characteristics will provide challenges to implementing LID due to the abundance of shallow groundwater, steep slopes, and till soils throughout the City. Several programmatic projects are recommended in this Plan for the City to be prepared to comply with the Permit and effectively implement LID BMPs appropriately throughout the City.

Administrative policies are also addressed in this Plan, which include topics that have emerged as important surface water management issues in the City but had little to no documentation or prior guidance. These topics include how the City manages private property drainage issues, and beaver and beaver dam management (particularly when they pose a threat to public welfare and safety). Additionally, a programmatic project was created to address the issue of drainage easement management, renewal, and acquisition. Modifications of existing surface water service charge policies were also addressed and modified to reflect changes in private drainage facility management.

Developing, maintaining, managing and improving a surface water system that serves the community, enhances the quality of life, and protects the environment requires a regional effort that includes governments, businesses, developers and residents to work together. This Plan provides the framework for the City to strive towards reaching this goal. As Kenmore proceeds with Plan implementation, coordination and consultation with neighboring jurisdictions and regional partners will be valuable as many cities and counties are facing similar challenges and there are opportunities for collaboration and sharing of information and lessons learned. The City will need to educate and work with businesses, developers and residents to foster behaviors and actions that achieve the City's surface water management goal and community vision.

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Appendix A:

Swamp Creek Technical Memorandum

Swamp Creek Technical Memorandum

To: Richard Sawyer, City of Kenmore Surface Water Manager

From: Erin Nelson P.E.,L.G., Altaterra Consulting LLC
Hugh Mortensen, The Watershed Company

Date: December 8, 2014

Subject: Swamp Creek Technical Memorandum

1. Introduction

Swamp Creek flooding has been a persistant issue in Kenmore for decades in the vicinity of 73rd Avenue NE and NE 192nd Street, both in the main channel upstream of the bridge located near this intersection and in the wetland complex just downstream of this bridge. The Federal Emergency Management Agency (FEMA) King County and Kenmore have invested millions of dollars over the last 20 years to control flooding, sedimentation and improve habitat through various capital projects and property acquisitions. These projects have had varying degress of success in protecting public infrastructure and reducing the frequency of flooding in some locations. However, high flows and sediment loads continue to impact Swamp Creek. Staff have prepared this report to provide City Council and the City Manager capital project and programmatic alternatives, if desired, to address this issue. The report summarizes decades of research, provides results from updates to existing hydrologic model calculations and evaluates potential outcomes for Swamp Creek surface water levels in areas of continued flooding as sediment accumulates and high flows persist.

2. Swamp Creek Basin

The Swamp Creek watershed extends north to south from Snohomish County to the City of Kenmore where Swamp Creek meets the Sammamish River and enters Lake Washington (Figure 1). Over 95 percent of the 24 square-mile watershed is within Snohomish County, including about 20% in the City of Lynnwod and smaller portions within the cities of Bothell, Brier, Everett and Mountlake Terrace. Once Swamp Creek passes into Kenmore, it flows approximately 2,700 feet where it reaches a sediment pond in Wallace Swamp Creek Park. From the pond, it flows another 2,000 feet before reaching the 73RD Avenue NE bridge, which was constructed in 2005. From the bridge, Swamp Creek flows east-southeast into a large wetland complex (Wetland #3) where the main channel becomes braided into numerous shallow streams which wind through the wetland. Approximately 3,500 feet southeast of the bridge, Swamp Creek re-establishes itself as a single channel and continues under State Route 522 to the Sammamish River.

> "The Swamp Creek watershed lies on the intercity plateau, an upland till plateau between Puget Sound and the Snohomish River. Most of the northern two-thirds of the watershed is moderately sloped, undulating terrain draining to the stream network as it traversed the till plateau. Downstream of I-5, the stream corridor enters an outwash valley consisting of recessional outwash embedded in advance outwash, with the intervening till typical of glacial formations largely missing. The channel flows primarily through advance outwash between I-5 and Scriber Creek and again south of the county line: in between, the channel traverses recessional outwash.

(Personal communication, Derek Booth, University of Washington, January 25, 2002 described in *Snohomish County Drainage Needs Report* [Snohomish County, 2002]).”

Advance and recessional outwash deposits are typically very erodible and highly mobile under the high flows that have been documented in Swamp Creek. These geologic and topographic conditions north of Kenmore and Wetland #3 is consistent with the large volumes of sediment that are being transported and deposited in the downstream Swamp Creek reaches in Kenmore.

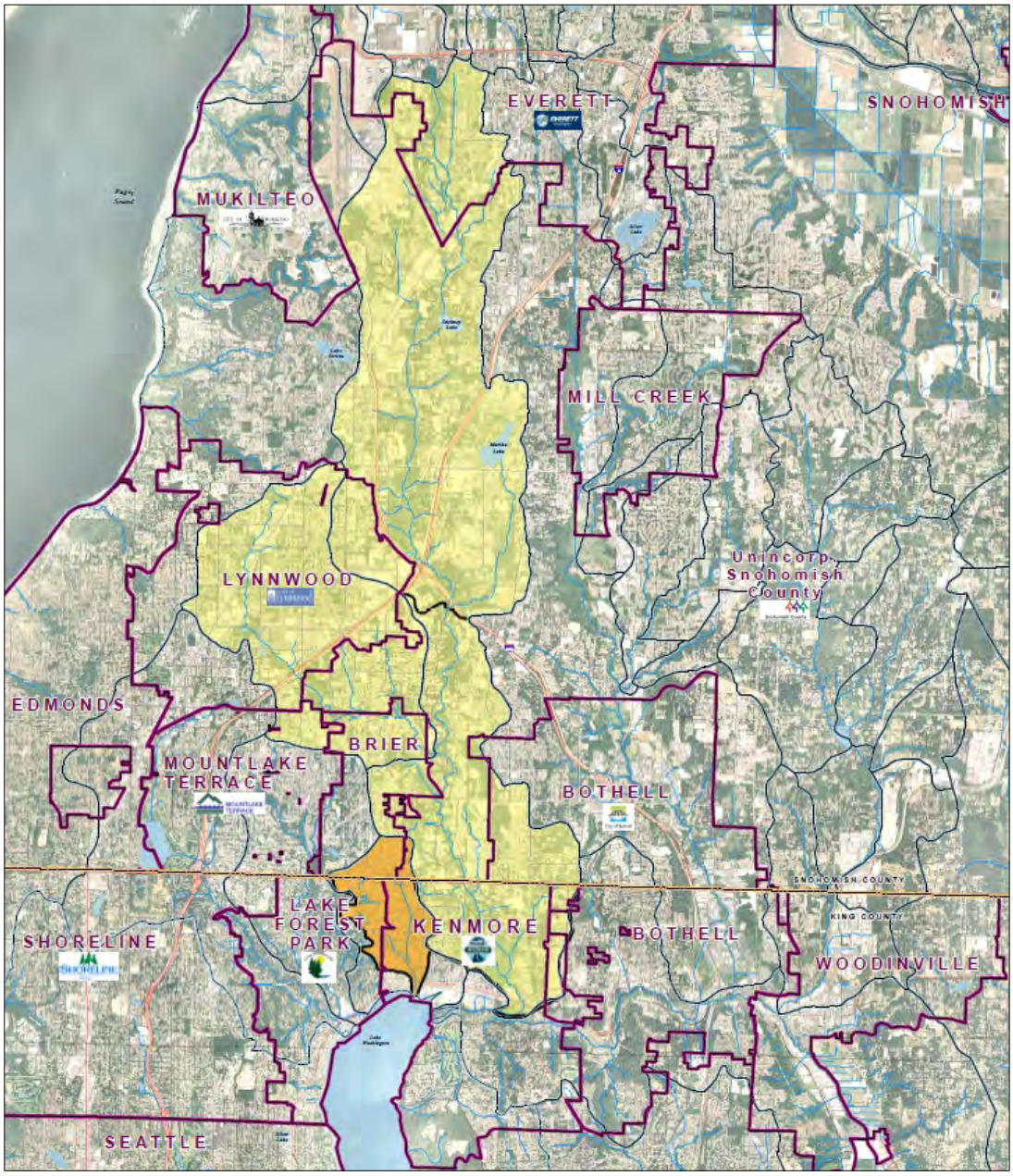


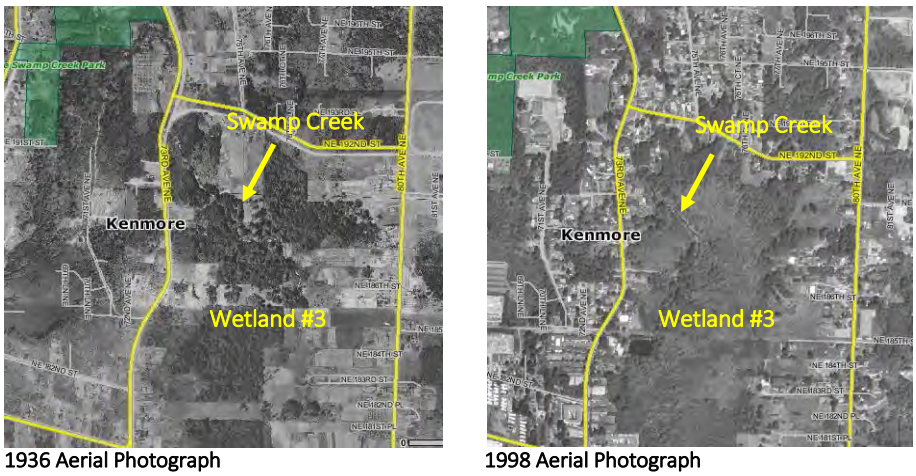
Figure 1. Swamp Creek Basin

3. History

Much like the rest of Puget Sound, the Swamp Creek basin has experienced significant increases in population and land development over the years. Even before the extensive development, historical documentation indicates that flooding associated with Swamp Creek has been occurring in Kenmore for decades.

3.1 Development

The Swamp Creek basin has experienced significant growth and development over the last 80 years. Snohomish County's population alone grew approximately 40% from 1990 to 2010 (Snohomish County Growth Monitoring Reports, 1999 and 2014). Aerial photographs of Kenmore from 1936 and 1998 show land use changes in the vicinity of Swamp Creek (Figure 2). Wetland #3 and the Swamp Creek channel configuration within the wetland have remained relatively unchanged in size. However, the surrounding land has been extensively developed.



1936 Aerial Photograph 1998 Aerial Photograph

Figure 2. Land use changes in the vicinity of Kenmore and Swamp Creek. Wetland #3 has been developed on its flanks and has largely filled in with woody vegetation, but remains undeveloped. Swamp Creek is in roughly the same configuration in both photos.

Surface water development standards and regulations began taking shape in the 1980's and have slowly become more stringent, particularly since the implementation of National Pollutant Discharge Elimination System (NPDES) municipal stormwater permits in Washington State over the last 10 years. Despite the stringent regulations, a significant amount of existing development, if not the majority of it, has been constructed with little to no surface water mitigation. A review of the hydrologic modeling parameters and predicted future land uses assuming built out conditions based on 2002 Snohomish County zoning indicated an increase of approximately 1,849 acres of effective impervious surfaces. The modeling estimated over 350 acre-feet of detention would be needed under the future land use assuming detention standards in Snohomish County Title 24 in 2002 (approximately 18 percent of the effective impervious area). Existing effective impervious area in the 2002 Snohomish County Drainage Needs Report was estimated to be 2,485 acres. Assuming that only a small fraction of the 2002 impervious surfaces in the Swamp Creek watershed were treated with stormwater detention facilities, and applying the ballpark ratio modeled above (acre-feet of detention required equals 18 percent of total effective impervious area), the 2002 existing impervious surfaces would require up to 470 acre-feet of detention to

meet the 2002 standards. One acre foot is equivelant to one foot of water covering an acre of area. Figure 3 provides a visualization of how mcuh area would be needed to detain 470 acre feet of water, using Kenmore as an example. Ecology's most recent 2012 Western Washington Stormwater Management Manual requires even more stringent standards with the goal of mimicing surface water flows that would have occurred under forested conditions prior to any development (Ecology 2012). The new standards would require even more area to manage flows.

Figure 3. Example of area needed to detain 470 acre-feet of stormwater, using Kenmore as a visual. Area shown would be under 4-feet of water to achieve the necessary volume.

3.2 Flooding

Within the City of Kenmore, Swamp Creek has flooded multiple times over the past 50 years, and the City and King County (prior to Kenmore's incorporation in 1998) have conducted several basin and flood reduction studies and implemented a variety of projects and approaches to minimize flood-related impacts to property and infrastructure. Still, Swamp Creek continues to flood.

Historical documentation indicates that flooding associated with Swamp Creek has been occurring in Kenmore for decades. 1934 photos from the University of Washington shows extensive flood damage near the mouth of Swamp Creek at the Sammamish River and Bothell Way (Photo 1 and Photo 2)

Property of MSCUA, University of Washington Libraries. Photo Coll 263

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Photo 1. Flood damage in 1934 on Swamp Creek

Property of MSCUA, University of Washington Libraries. Photo Coll 263

Photo 2. Cleaning up from flood damage on Swamp Creek in 1934

Large precipitation events that resulted in flooding occurred in 1997, 2005, 2006, and 2007 (Table 1) (Otak, City Council Packet March 23, 2009). Photos of these events and a 1980 flood event and Muck Creek flooding are shown in Photos 3 through 7.

Table 1. Summary of rainfall and flow statistics for storm events that caused flooding

Rainfall Summary	January 1997	December 2005	January 2006	December 2007
24-hour rainfall	2.32 inches	0.93 inches	2.63 inches	3.63 inches
1-day flood level	10 year	< 2 year	25 year	100 year
Total storm precipitation	4.7 inches (12/29 – 12/31)	2.4 inches (12/22 – 12/25)	3.1 inches (1/28 – 1/30)	4.7 inches (12/2 – 12/3)
Estimated flow (cfs)	970	425	700	1,100

Photo 3. January 1980 flood event at 19070 73rd Avenue NE(March 23, 2009, City Council Packet)

Photo 4. January 1997 flood eventat 19070 73rd Avenue NE (March 23, 2009, City Council Packet)

Photo 5. January 2006 flood event at Wallace Park (March 23, 2009, City Council Packet)

Photo 6. 2007 flood event (~1,100 cfs) at Wallace Park Bridge (March 23, 2009, City Council Packet)

Photo 7. Muck Creek flooding at 73rd Avenue NE crossing (March 23, 2009, City Council Packet)

3.3 Studies and Projects Completed

As part of efforts to reduce flooding on Swamp Creek, King County, the City of Kenmore, and Snohomish County have conducted various studies and constructed flood reduction projects. Figure 4 shows studies and actions completed over the years. A discussion of relevant studies and projects completed are described below.

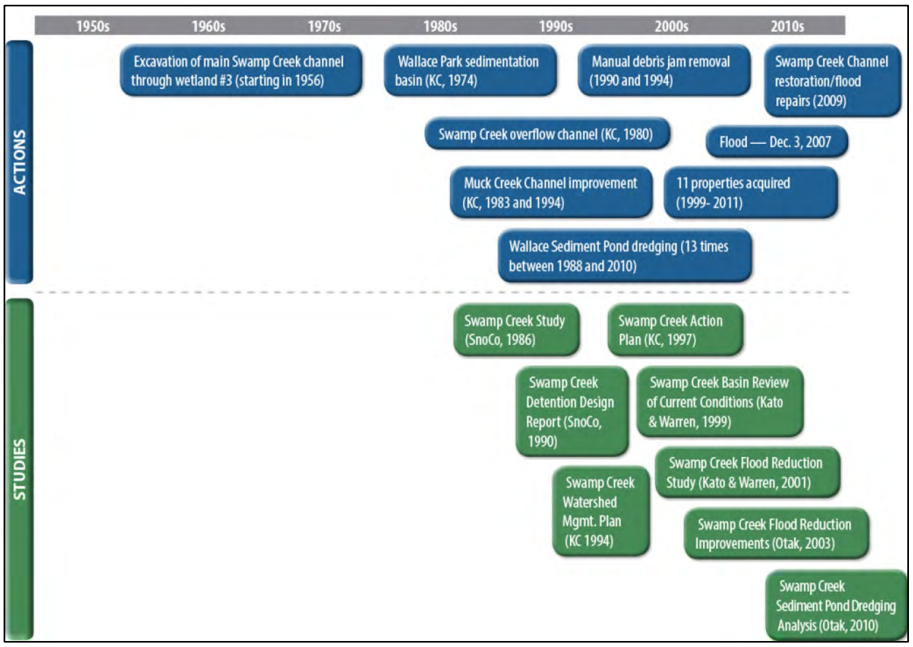

Figure 4. Actions and studies conducted on Swamp Creek

3.3.1 Sediment Transport Analysis

Sediment transport analysis was conducted in 2002 for the flood reduction projects that were completed in 2005 (West Consultants 2002). Hydraulic data coupled with estimates of sediment particle sizes in different reaches within the flood reduction project vicinity were used to evaluate the potential for sediment of various sizes to be mobilized under different flow scenarios. Some factors that influence sediment transport are sediment supply, particle sizes, channel gradient, and flow velocities. Swamp Creek was broken into reaches from the Wallace Swamp Creek Park sedimentation pond to the Sammamish River for sediment transport analysis. The reaches where flooding occurs currently include reaches 2, 3, and 4 shown in Figure 5 (between the 73rd Avenue bridge and approximately 600 feet downstream of the Tolt pipeline). Reaches 3 and 4 are downstream of the confluence with Muck Creek, and these reaches are flatter and have 50 percent lower average velocities for the 2-year flow event than reach 2. An analysis of incipient motion characteristics for sediment particle sizes within each reach was evaluated for general erosion, armoring, and deposition of sediments from upstream. In reaches 3 and 4, the incipient motion analysis indicates that Swamp Creek is not capable of transporting the majority of sediment that would be supplied from upstream, making it a depositional reach for flows ranging from the 1-year to 100-year events. The analysis indicates reach 2, between the 73rd Ave NE bridge and Muck Creek, is capable of transporting much of the upstream sediment load.

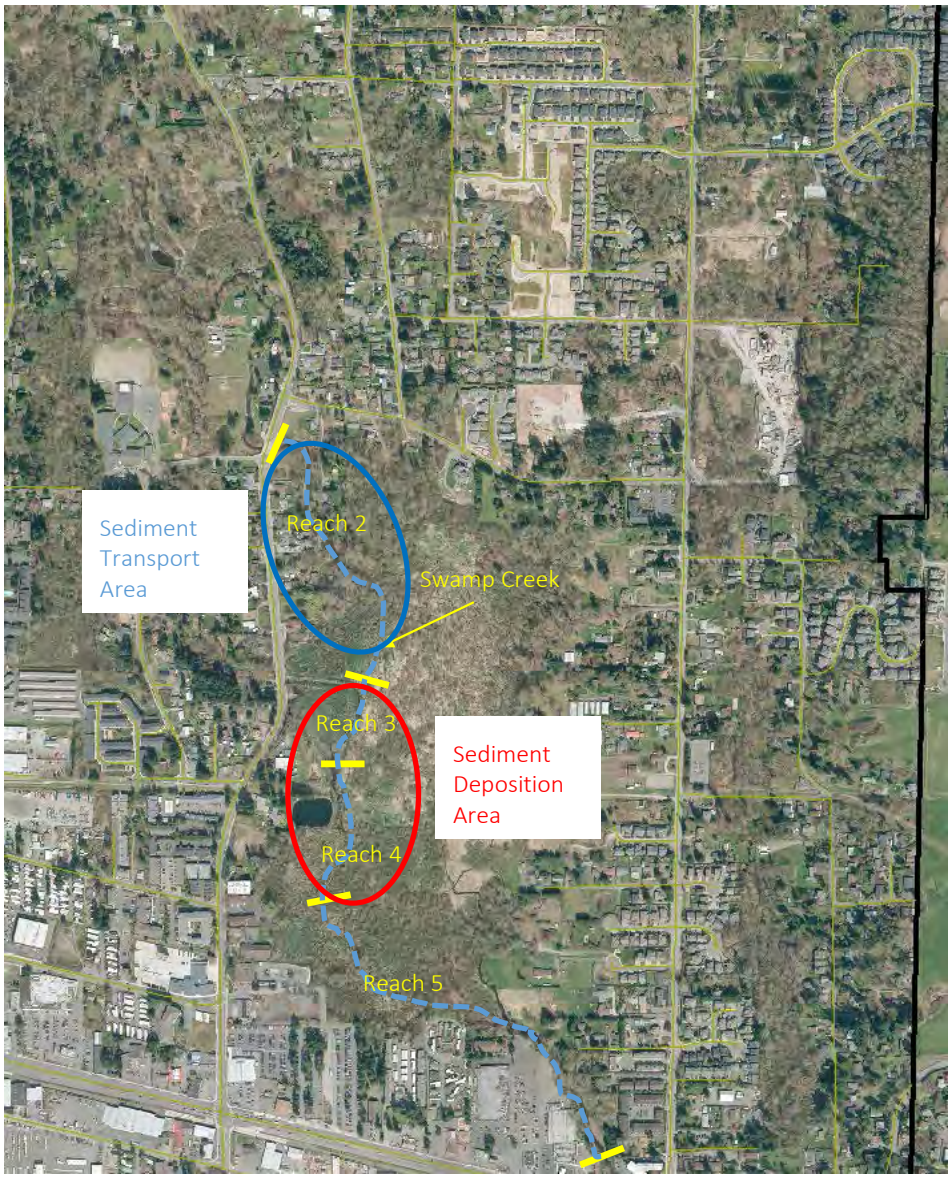

Figure 5. Approximate location of reaches evaluated in Sediment Trasnport Analysis (West Consultants. 2002)

3.3.2 Constructed City of Kenmore Capital Projects

The City has implemented several improvements geared at reducing flooding and flood damage adjacent to Swamp Creek. Table 2 lists the capital improvement projects completed prior to 2009, including the acquisition of several homes.

Table 2. Capital projects completed in Kenmore (pre-2009)

Year	Project Completed	
2008	FEMA flood damage repairs (from December 2007 flood)	
2006	Wallace Swamp Creek Park study and construction	Creation of habitat bypass channel
		Weir modifications
		Installation of plant materials
2005	73rd Avenue flood reduction improvements	Raise school access road
		Replace 73rd Avenue bridge over Swamp Creek
		Swamp Creek main channel flood reduction and habitat improvements
		Raise 73rd Avenue at Muck Creek
		73th Avenue drainage revisions
		Property acquisitions

Figure 6 shows City owned properties highlighted in orange that have been purchased by FEMA, King County and the City in an effort to manage Swamp Creek. Privately owned properties, shown in red, continue to experience impacts from Swamp Creek.

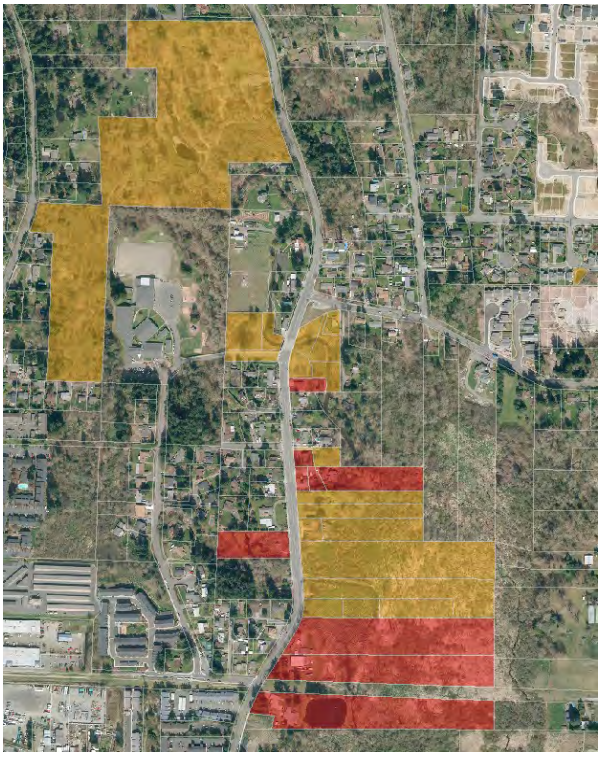

Figure 6 – City owned properties along Swamp Creek are highlighted orange. Privately owned properties that continue to experience impacts from Swamp Creek are shown in red.

Wallace Swamp Creek Park Sedimentation Pond

The Wallace Swamp Creek sedimentation pond provides an opportunity to understand the sediment volumes that are eroded from upstream Swamp Creek reaches and mobilized to downstream Swamp Creek reaches within Kenmore.

The City removes sediment from the Wallace Swamp Creek Park sedimentation pond (constructed by King County) almost every year. The City has considered ceasing dredging operations on occasions in the past due to the maintenance expense. The sedimentation pond has been the source of several recommended basin actions in the last 20 years, including the following:

- Expansion of the existing sedimentation basin to improve efficiency (King County 1997) – not completed.
- Creation of Wallace Park by-pass channel to divert flows around the sedimentation basin during maintenance (King County 1997) – completed.
- Construction of a new outlet structure to reduce overbank flood volumes, depths, and erosion during severe storms (Kato and Warren, 2001) – completed.
- Kenmore considered decommissioning the pond in 2001. GeoEngineers conducted a geomorphic evaluation and discussed potential ongoing downstream deposition, channel aggradation, and local flooding that may result.
- Repair of flood damage in the bypass channel and sedimentation pond from December 2007 flood event – completed in 2009.
- Otak conducted an analysis of sediment dredging in 2010 and recommended a potential trigger elevation of 55 feet based on the fall 2008 dredging design elevation and historical dredging data.

According to Otak's 2010 dredging analysis, sediment was removed from the pond 13 times between 1988 and 2010. The volume of sediment removed ranged from 500 cubic yards (2002) to 3,500 cubic yards (1996), with a mean dredging volume of 1,464 cubic yards. The sedimentation pond had significant accumulation of gravel and cobbles during a field visit in April 2013 (Photo 8) and was since dredged in August 2013 (3,400 cubic yards) and again in July 2014 (2,800 cubic yards).

Photo 8. Wallace Swamp Creek Park sedimentation pond looking upstream

4. Current Swamp Creek Conditions in Kenmore

The focus of this Swamp Creek evaluation was on Wetland #3 in the vicinity of flood-related problems. Current conditions described below are based on survey data collected in October 2013, a field visit in April 2014, and a description of current complaints (fall 2014) provided by the City.

4.1 Sediment Deposition in Wetland #3

Cross sections of Swamp Creek through Wetland #3 were surveyed during the 73rd Avenue flood reduction projects in 2004. Several of these cross sections were resurveyed in 2013 in order to evaluate sediment deposition rates in Wetland #3 and determine whether sediment deposition was reducing the Swamp Creek channel conveyance capacity in this area. Figures 7 (upstream) and Figure 8 (downstream) show the channel cross sections and relative position in the wetland. A comparison of the cross section data indicates deposition is occurring in the vicinity of 73rd Avenue NE and the confluence within Muck Creek. Downstream cross sections (Figure 8) indicate no deposition or slight erosion. Cross section F, the most northerly cross section surveyed in Wetland #3, shows some channel migration from west to east. Deposition as shown on the cross sections ranges from 1.5 to 6 feet in the area surveyed. If an average deposition of 3 feet is assumed across the reach (estimated to be 1,800 feet) and the average channel width is 20 feet, approximately 4,000 cubic yards of sediment were deposited in the 9 years between measurements (less than 450 cubic yards per year). These estimated provide an approximation of deposition rates in Wetland #3, which are consistent with the previous sediment transport evaluation that indicated this area is a depositional environment (West Consultants, 2002). The hydraulic model used in the 2004 flood reduction projects was re-ran with the 2013 cross section data to evaluate the effect of sedimentation on water surface levels. Model results indicate water level changes between the 73rd Avenue NE bridge and the Tolt pipeline range from a decrease of 0.71 feet to an increase of 0.47 feet at the 2-year flow event and a decrease of 0.12 feet to an increase of 0.22 feet at the 100-year flow event. The changes in water surface elevation occur at different cross sections through the wetland, and the greatest increases are on properties already owned by Kenmore. Modeling results are presented in Attachment A.

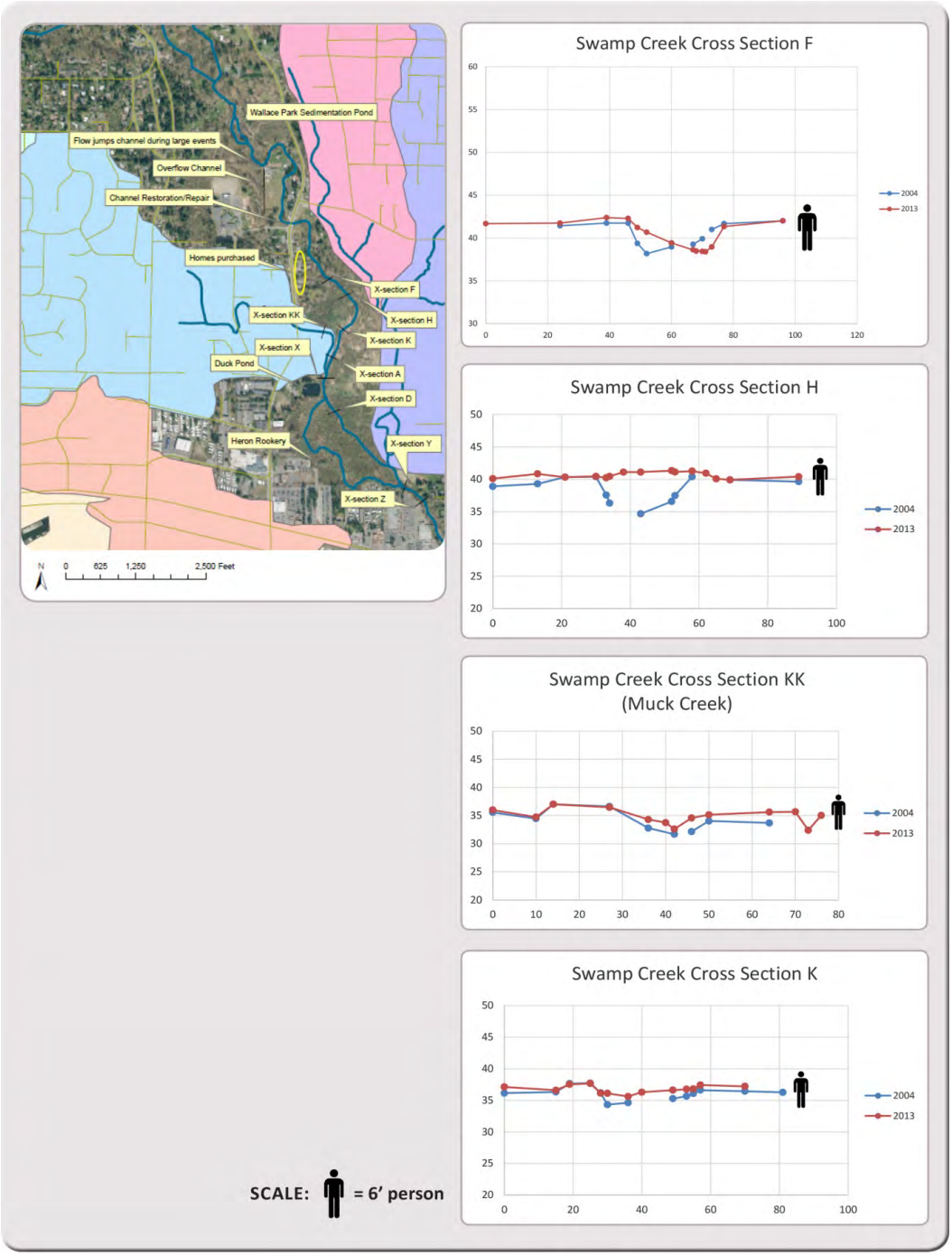

Figure 7. Upstream Wetland #3 cross sections

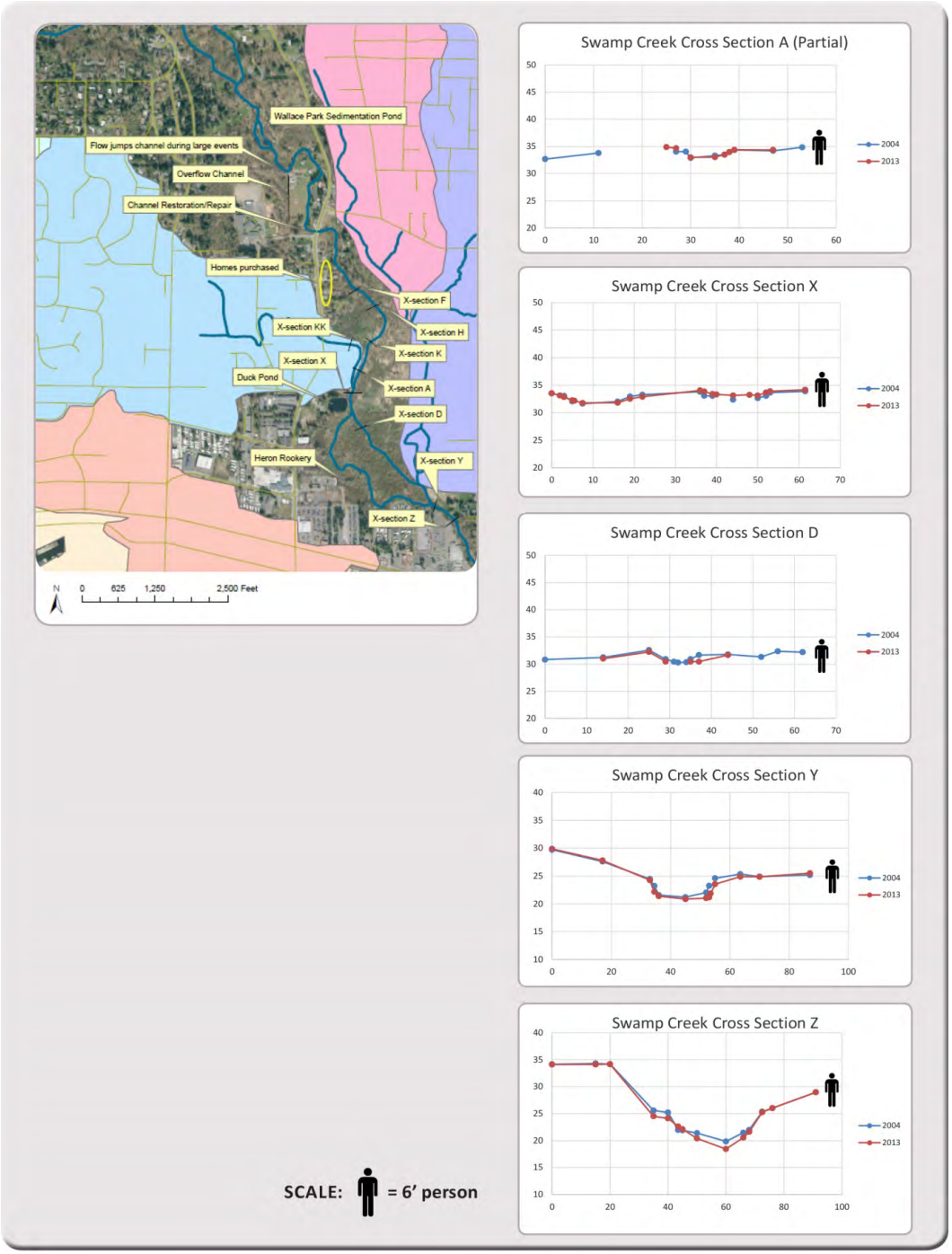

Figure 8. Downstream Wetland #3 cross sections

4.2 On-going Flooding

Based on recent complaints received by the City, several properties on the east side of 73rd Avenue NE adjacent to Wetland #3 continue to be affected by flooding, even by smaller flow events (i.e., 2-year or less). Many of these properties were expected to continue flooding even after the flood reduction projects (e.g., the 73rd Avenue NE bridge replacement) since the focus of those projects was to reduce flooding upstream of the 73rd Avenue NE bridge. Table 3 lists the house numbers and parcel identification numbers (PINs) on 73rd Avenue NE currently being affected and anticipated impacts reported in Otak's *Swamp Creek Flood Reduction Improvements- Phase I Design Report* (Otak, 2003).

In addition to a review of predicted flooding in Otak's 2003 study and current complaints received by the City, hydraulic modeling was conducted with the new 2013 cross section data that shows sedimentation to evaluate changes in water surface elevations at different flow events and whether 73rd Avenue NE would potentially be impacted by flooding during the 100-year flood event. Current predicted changes to water surface elevations at the 2-year event are also included in Table 3. Based on the current modeling results, 73rd Avenue NE should not be overtopped during the 100-year flood event.

Table 3. Summary of Current and Predicted Flooding Impacts

Swamp Creek Properties Along 73RD AVE NE (From North to South)			
House Number and Parcel Identification Number	Current Impacts (Updated Fall 2014)	Predicted Flooding*	Special Conditions
19034 *0114-100709*	Property Flooding December 2012	Property flooding at 5-year event (Otak 2003)	
19026 *0114-100698*	No Known Flooding of Property or Structures	Property flooding at 5-year event (Otak 2003) No change in 2-year water surface elevation (2014)	
19016 *0114-100697*	No Known Flooding of Property or Structures	Property flooding at 2-year event (Otak 2003) No change in 2-year water surface elevation (2014)	
19010 *0114-100702*	No Known Flooding of Property or Structures	No impacts noted (Otak 2003) No significant (<0.1 foot lower) change in 2-year water surface elevation (2014)	
18926 *0114-100700*	Property Flooding (Vacant) October 2014	Property flooding at 5-year event (Otak 2003) No significant (~0.14 foot lower) change in 2-year water surface elevation (2014)	City of Kenmore Owns Property
19004 *0114-100701*	No Known Flooding of Property or Structures	Potential house flooding (within 1 foot of finished first floor) at 5-year event (Otak 2003)	2005 agreement with City to accept funds to raise home.

		No significant (<0.1 foot lower) change in 2-year water surface elevation (2014)	City released of flooding liability
18922 *0114-100699*	Property Flooding October 2014	Potential house flooding (within 1 foot of finished first floor) at 2-year event (Otak 2003) No signicant (~0.13 foot lower) change in 2-year water surface elevation (2014)	2005 agreement with City to accept funds to raise home. City released of flooding liability
18904 *0114-101017*	Property flooding October 2014	Property flooding at 2-year event (Otak 2003) No significant (~0.13 foot lower) change in 2-year water surface elevation (2014)	
18908 *0114-101011*	Property flooding October 2014	Potential house flooding (within 1 foot of finished first floor) at 2-year event (Otak 2003) No significant (<0.1 foot lower) change in 2-year water surface elevation (2014)	2005 agreement with City to accept funds to raise home. City released of flooding liability
18918 *0114-101015*	Property flooding October 2014	Property flooding at 2-year event (Otak 2003) No significant (<0.1 foot) change in 2-year water surface elevation (2014)	2005 agreement with City to accept funds to raise home. City released of flooding liability
0114-100995 to *0114-101012*	Property Flooding (Vacant) October 2014	Property flooding at 2-year event (Otak 2003) Increase (~0.47 foot) in water surface elevation at 2-year event (2014)	City of Kenmore Owns Properties (9)
18522 *0114-100990*	Property flooding September 2013	No impacts noted in report. Increase (~0.27 foot) in water surface elevation at 2-year event (2014)	
18510 *0114-100985*	Property flooding September 2013	No impacts noted in report. Increase (~0.27 foot) in water surface elevation at 2-year event (2014	
18254 *0114-100979*	Property flooding September 2010	No impacts noted in report. No significant (<0.1 foot) change in 2-year water surface elevation (2014)	
18727 *0114-100410*	Property Flooding October 2014		

*Hydraulic modeling was conducted in 2003 and again in 2014 using new data obtained in Wetland #3 to evaluate changes in water surface elevation compared to the 2003 modeled results.

4.3 Ecological Conditions

Swamp Creek Wetland #3 is the largest wetland in Kenmore. It is a complex riparian wetland that receives hydrology from overbank flooding of Swamp Creek, Little Swamp Creek, and several smaller tributaries. It also receives groundwater inputs from seeps along the valley slopes. Wetland #3 qualifies as a Class 1 wetland per KMC 18.55.090 due to its exceptional local significance and proximity to and influence on Swamp Creek. While the wetland has not been formally rated under the state classification system (which was just revised in July), it would likely rate as either Category 1 or 2.

The wetland is dominated by native shrub and tree vegetation, but also contains large expanses of reed canary grass in the central portion that are likely relic agricultural pastures (see 1936 aerial photo – Figure 2). The wetland offers good forage and nesting habitat for birds (including a large great blue heron rookery) and good forage and shelter habitat for amphibians, reptiles, and small mammals. Ponded areas in the wetland provide resting sites for migrating and resident waterfowl.

Water depths appear to be increasing in and around the Oregon ash forest that supports the great blue heron rookery. While Oregon ash trees tolerate inundation better than most other native trees, there is a risk that future increases in water depths, especially during the growing season, will eventually cause the decline and subsequent loss of the rookery trees. The decline will most likely be gradual with the most inundated trees losing leaves and eventually dying over the course of several seasons. Nests will be abandoned as the trees die, either gradually or if they topple from loss of soil support and/or decay. In general, increasing water depths will favor reed canary grass and, where deep enough, some areas may transition to a more aquatic-bed (floating-leaved plants) vegetation type.

4.4 Factors that Contribute to Flooding

There are multiple factors that likely contribute to flooding in Swamp Creek and particularly adjacent to Wetland #3 in Kenmore. These factors have been discussed previously, but it's worth repeating here. Urbanization and resulting increases in impervious surface without commensurate stormwater controls are considered to be the primary factors that have contributed to continued flooding and sedimentation issues in this part of the basin (King County, 1997; Kato and Warren 1999). As alluded to above, there is not nearly enough detention in upstream basins to account for stormwater impacts in Kenmore. Other factors likely include:

- Previous filling of area wetlands that formerly provided natural flood storage (King County 1997).
- Kenmore's position in the watershed – Kenmore is at the lowest point within the basin, and sedimentation is common in low gradient reaches that are preceded by higher gradient erosive reaches such as are present in the Swamp Creek watershed in Snohomish County (Figure 9 shows the local gradient in the vicinity of Wetland #3).
- Change in active management of the Swamp Creek channel within Wetland #3 – sedimentation in Wetland #3 was likely managed in the past, starting with excavation of the main Swamp Creek channel in 1956. The open channel was likely maintained for many years through periodic dredging, as was common during this era to drain pasture land and adjacent crops.

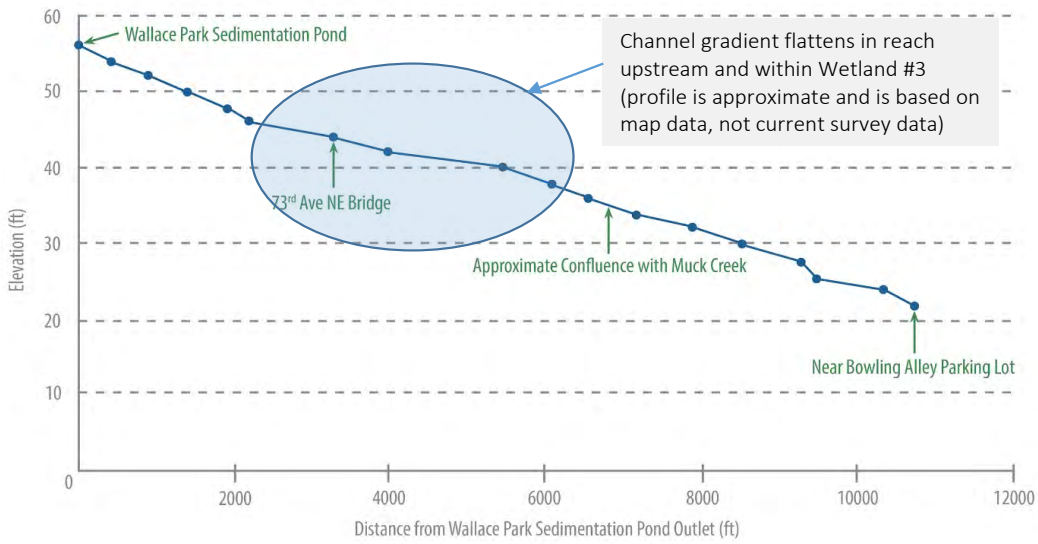

Figure 9. Swamp Creek channel profile in vicinity of Wetland #3

Since at least 1998 (see aerial photograph in Figure 2) and probably earlier, homes have been built adjacent to Wetland #3 in a floodplain environment. The location of infrastructure and homes in this area has resulted in property damage by flooding and acquisition by the City and King County to minimize losses.

5. Alternatives

The ultimate goal of this evaluation is to provide City Council with alternatives to address the ongoing flooding issues in Swamp Creek. While reviewing alternatives, it is important to consider the the current and potential future impacts of Swamp Creek with regard to three different goals, including protection of 1) public infrastructure 2) privately owned properties, and 3) wetland habitat. Updated modeling results indicate that 73rd Avenue NE will not be impacted by a 100-year storm event in both current or potential future conditions. No additional action would be required by the City for protection of public infrastructure for a relatively infrequent 100-year flow event.

Several privately owned properties along 73rd Avenue NE will be impacted in both current and potential future conditions (see Table 3). These properties are also identified on FEMA's Flood Insurance Rate Map (FIRM) as being located within the 100 year flood zone. The City is not legally obligated to protect these homes from Swamp Creek flood waters, which come from upstream jurisdictions (the overwhelming majority of the watershed is outside of Kenmore).

Wetland #3 is a high quality wetland. Under current conditions, the wetland will persist mainly in its current state that includes patches of invasive reed canarygrass with hedgerows, pockets, and large fringes of mainly native- shrubs and trees. Tree and shrub health may decline in the sediment deposition area shown on Figure 5 along with increases in wetland water levels. Future deposition of sediment and episodic heavy flows may alter the spatial distribution of plant and animal communities over time within the wetland, but the overall quality of the wetland would be expected to remain high.

5.1 Previous Basinwide Projects and Strategies

There are multiple ways to approach the flooding problem occuring in Kenmore, including: 1) developing strategies to reduce the causes of the problem (e.g. flow and sediment transport); 2) engineering solutions that deal with flooding where it occurs; and 3) protecting properties and infrastructure from flood damages when it occurs.

These are the types of projects and strategies that have been identified in previous studies, some of which have been implemented with varying degrees of success.

Table 4 lists previously identified flood reduction projects and strategies and the current relevance for today's flooding problem.

Table 4. Summary of Previously Identified Flood Reduction Projects and Strategies

Type of Project	Project Description	Current Relevance
Regional detention	Scriber Creek above confluence with Swamp Creek – Lynnwood and Snohomish County (1996)	Regional detention upstream in the Swamp Creek basin should continue to be pursued as one part of the overall approach to flood reduction in Kenmore. However, it will need to be widespread to make a difference and would take decades (if not longer) to achieve results.
	Topsoil site at 46th Avenue W and 204th Street SW – near Lynnwood Park and Ride (1996)	
	North of 164 th Street SW between Manor Way and 22nd Avenue W in Snohomish County (1996)	
	Downstream of Alderwood Mall – Lynnwood and Snohomish County (1996)	
	Wallace Park in Kenmore (1996)	Regional detention in Kenmore at Wallace Park will likely not be very effective without upstream detention given its low position in the watershed (95 percent of the basin is upstream).
Flood and Erosion Reduction	Sediment removal in Swamp Creek downstream of 73rd Avenue NE • Debris jams in this location in the early 1990s caused accumulation of sediment, logs, and litter, backing up water. Sediment removal was proposed as a follow-on project to debris jam removal that was conducted manually.	Estimates of sediment deposition in Swamp Creek within Wetland #3 is less than 450 cubic yards per year, less than half of what is removed from the Wallace Park sedimentation pond annually. Sediment removal to improve conveyance capacity may alleviate some of the localized flooding. Modeling was conducted to determine impacts from sedimentation and potential flood reduction benefits from dredging. Results are discussed below.
	Debris trap at 73rd Avenue NE	More information needed to evaluate this option.
	Wallace Park sedimentation basin expansion	Expansion of the sedimentation pond could reduce dredging frequency. It is unclear if it would reduce flooding. The sedimentation pond appears to collect larger material, whereas smaller material is likely passed through and settled out in Wetland #3.
	Interlocal coordination for regional stormwater facilities outside of King County	Still relevant in order to coordinate regional flow control to alleviate flooding in the entire Swamp Creek watershed.

Type of Project	Project Description	Current Relevance
Flood and Erosion Reduction (continued)	Selective local berming • Relief for some flooded properties	This could potentially be a short-term approach to limiting local property damage, but would not be considered a long-term solution.
	Improve capacity of Swamp Creek overflow channel (west side of Llama farm property)	May reduce flooding upstream of 73rd Avenue NE, but overflow channel re-enters Swamp Creek prior to Wetland #3 and may not have any effect on properties in that vicinity that are currently flooded.
	Leary/King bank stabilization • Plant streambank to alleviate residential flooding upstream of 73rd Avenue on Leary and King properties	May have limited effectiveness for flooding, but positive benefits for habitat.
	Carter Road bank stabilization coordination • Upstream source of sediment	Likely still relevant – needs evaluation with respect to sediment transport.
	Biofiltration swales in roadside ditches • Reduce sediment transport	Positive benefits for water quality and marginal reduction in sediment sources to Swamp Creek. Would need to be widespread to make a difference.
	Ongoing debris removal • Work with private property owners to manually remove debris on an as-needed basis in Wetland #3	Relevant in that debris jams have a role in local sedimentation and channel movement that could result in new areas being flooded.
	Wallace Park by-pass • By-pass to temporarily route flows around Wallace Pond during maintenance	This project was completed.
Open Space, Taxation, and Property Acquisition	Pursue acquisition of significant lands	Needs to be evaluated to determine if property acquisition upstream in areas that could be converted or modified to provide flood storage would deliver a flood-reduction benefit.
	Register interested residents into the Public Benefit Rating System (open space)	Unclear how this would alleviate flooding. Wetland #3 is undeveloped and critical areas regulations prevent future development.
	Pursue acquisition of chronic flood-prone properties	Several flood-prone properties have been acquired; consider further acquisition for current flood-prone properties.

Type of Project	Project Description	Current Relevance
Wetland Management	Long-term wetland management plan • Remove debris jams, restore old main channel in Swamp Creek Wetland #3 • Remove reed canary grass – re-introduce native vegetation • Annual channel maintenance	Similar to sediment removal in Swamp Creek project listed above under flood and erosion reduction, channel maintenance and wetland management may help improve conveyance through Wetland #3 and alleviate flooding.
	Wetland community link project • Long-term monitoring by community members	Could provide positive benefits, but may not be effective at reducing flood risks.
	Reed canary grass working group • Share information regarding control of reed canary grass	In addition to sedimentation, reed canary grass plays a role in limiting conveyance capacity in Wetland #3. Efforts to control reed canary grass should be explored.
Infrastructure	Replace 73rd Avenue NE bridge with a longer span	Project completed.
	Construct overflow spillway for Wallace Park sediment pond	Project completed.
	Construct berm north of the access road to Kenmore Elementary school	Project completed.
	Elevate police precinct parking lot and access road serving Kenmore Park and Ride	Police department has moved, however, property is still wet. Future redevelopment will need to identify options to reduce flooding.
	Construct berms to protect private properties located east of Kenmore Park and Ride	Redevelopment will need to identify options to reduce local flooding.
	Replace undersized culverts in Muck Creek, including culverts draining the Northshore Utility District headquarters	Project completed.
	Raise 73rd Avenue NE above the 100-year floodplain at the low point near Muck Creek	Project completed.

5.2 Upstream Alternatives

Regional detention facilities in jurisdictions upstream of Kenmore have been considered in the past (Table 4), and specific locations have been identified. As discussed above, the 2002 Snohomish County Drainage Needs Report hydrologic modeling indicated that up to 350 acre-feet of detention would be required for 1,800 acres of new effective impervious surfaces that will likely occur with future development. Much of the basin was developed prior to 1990 with little to no flow control, and, based on a limited review of Snohomish County documents, there is still very few detention facilities in the Swamp Creek basin. Retrofitting the existing impervious surfaces and providing detention for new impervious surfaces is a significant effort and would take decades (if not longer) to realize any effect in Kenmore. Nonetheless, steps should be taken to begin the process of controlling upstream flows, and the City should continue to work with Snohomish County and other upstream jurisdictions in this regard. Regional surface water development standards have become much more protective, however, therse standards are only applied as properties develop or redevelop.

Additionally, the City should work with Snohomish County and upstream jurisdictions to ensure that local flood reduction projects (e.g., increasing culvert capacities in Lynnwood and Snohomish County) do not exacerbate flooding in Kenmore. Undersized culverts that cause backwater flooding could be providing some flood reduction benefits downstream.

5.3 City of Kenmore Alternatives

The City of Kenmore's goal is to reduce flood-related impacts at the least possible cost. Considerable time and resources have been spent by the City and previously by King County on the Swamp Creek flooding issue. Millions of dollars have been spent on flood reduction efforts, including acquisitions of flood-prone properties and capital projects associated with infrastructure and conveyance improvements in Swamp Creek. The funding for much of this work was from King County as mitigation for and protection of the Brightwater Treatment Plant sanitary sewer trunk line that traverses the area.Potential flood-management alternatives the City could enact are described in Table 5.

Table 5. List of Alternatives

Alternative	Description	Considerations
1. Emergency Planning	This alternative assumes that no actions are taken until necessary – when flooding happens.	• Permitting for flood damage repairs would happen after the fact • Risk for property and infrastructure damage • Potential short- and long-term ecological consequences from emergency work or allowing elevated water levels • Lower up-front cost
2. Property Acquisition	Purchase up to 11 properties in what has historically been the flood-prone area	• Large up-front cost • May not completely solve flooding problem, if upstream or channel conditions change
3. Sediment Removal and Maintenance	Conduct routine channel maintenance, including debris, sediment, and reed canary grass removal to improve conveyance through Wetland #3	• Extensive permitting process • Slight water surface elevation improvement. See discussion below.

5.3.1 Alternative 1: Emergency Planning

Swamp Creek flooding has occurred for decades, even before the extensive development and urbanization that occurred in the upstream watershed. Part of the problem is the location of Kenmore at the bottom of the drainage basin. One potential approach to the on-going flooding problem is to manage it as it occurs. Despite property acquisition in flood-prone areas and implementation of infrastructure improvements and sediment management facilities, Swamp Creek still floods and will likely continue to regardless of actions that are taken in the future. Knowing that flooding will happen, one alternative would be to be ready for it when it does through emergency notification of potentially affected property owners, mobilization of crews to prevent damage, and follow-up flood damage repairs. As mentioned before, the potential risk to public infrastructure is believed to be minimal up to the 100-year storm event. Application of this alternative for private property flooding will have to be determined at the policy level.

Permitting

The normal course of action during an emergency is to mobilize contractors and equipment to conduct rapid repairs in the most expeditious way possible to remove the immediate threats to public safety and infrastructure. From an environmental permitting standpoint, the Washington Department of Fish and Wildlife Area Habitat Biologists are to be contacted as soon as possible ahead of, during, or immediately after the work. However, contact and on-site meetings are not always possible to arrange in short order, especially during large, regional, or particularly severe events. After the event, work involving wetland or stream sediment excavation or fill would need to be coordinated with the US Army Corps of Engineers (Corps) and/or the Washington State Department of Ecology. Additionally, any work within wetlands, streams, and/or their buffers would require coordination with the City of Kenmore Development Services

Department to assure compliance with the City's Critical Areas regulations, the State Environmental Policy Act (SEPA), and the Shoreline Master Program. The outcome of coordination is an agreed plan that studies or details environmental damage and often retroactively proposes design and implementation of a mitigation plan to offset impacts.

The "after-the-fact" permitting risk is that the project must first meet the definition of an emergency. Per WAC 220-110-020, "Emergency" means an immediate threat to life or public or private property; or an immediate threat of serious environmental degradation, arising from weather or stream flow conditions, other natural conditions, or fire. In addition, Kenmore Municipal Code 18.55.150.A exempts emergency activities necessary to prevent an immediate threat to public health, safety, property, or welfare. However, as an exempt activity, emergency work is still required to restore, rehabilitate, or replace critical area impacts to the prior condition or better. Proceeding on an emergency basis outside of the normal permitting route will require after-the-fact coordination and permitting at the local, state, and federal jurisdictional levels. The lack of pre-project coordination combined with the somewhat unpredictable actions of contractors working under time and weather constraints may result in agency-required repair/mitigation plans, studies, and evaluations that could be burdensome, and potentially pose significantly large costs to the City.

Ecological Consequences

From an ecological standpoint, the consequences of doing nothing until an emergency are best understood by reviewing both short- and long-term changes. In the short-term, the wetland will persist mainly in its current state that includes patches of invasive reed canarygrass with hedgerows, pockets, and large fringes of mainly native-species dominated shrubs and trees. Tree health will decline along with increases in wetland water levels. Current hydrualic modeling does not suggest increased water levels in the southern part of the wetland, but rather the middle segment. However,increased water levels in the southern part of the wetland, for whatever reason, could cause the Oregon ash forest[1] that supports the heron rookery to be lost, along with the rookery itself eventually (as discussed above). In the long-term, consequences from emergency repairs will be locally severe but episodic in nature as they will occur as frequently as the storms that cause them. Eventually, the region will experience another large storm event or series of events that cause water to overtop, threaten, and possibly damage 73rd Avenue NE. During such an event, the response will be to mobilize contractors with heavy equipment to clear out the stream channel. Due to the rapid need to remedy the emergency, the construction will proceed without the benefit of professional analysis, environmental review, work plans, construction plans, or erosion/sedimentation control plans. Emergency in-water dredging and other work will temporarily lower water quality and disrupt aquatic life, including salmon, and possibly cause long-term damage to wetland, riparian, and buffer vegetation.

Risks to Infrastructure

Choosing not to protect infrastructure in advance of an emergency has obvious risks for greater damages. Acquisitions of the most flood-prone properties have already occurred and projects associated with 73rd Avenue NE have been implemented to reduce risks to the City transportation network. Depending on the size and severity of future floods, the risk to properties and infrastructure could be minimal or substantial.

[1]Because of the importance of herons in Kenmore and the possibility that the current rookery trees could decline, the city should consider implementing a plan to establish Oregon Ash saplings in strategic locations through the wetland. This tree planting could also be staggered over a number of years such that a variety of tree ages and sizes would be available to herons as the trees mature over time.

According to Otak's analysis presented to Kenmore City Council in March 2009, the Swamp Creek flood-reduction improvement projects resulted in modifications to the 100-year floodplain such that 73rd Avenue NE and some of the previously affected properties on 73rd Avnuee NE are now outside of the 100-year floodplain (Figure 10). Coupled with the City's recent modeling update, this would indicate that City infrastructure has low potential risk for impact up to the 100-year storm event.

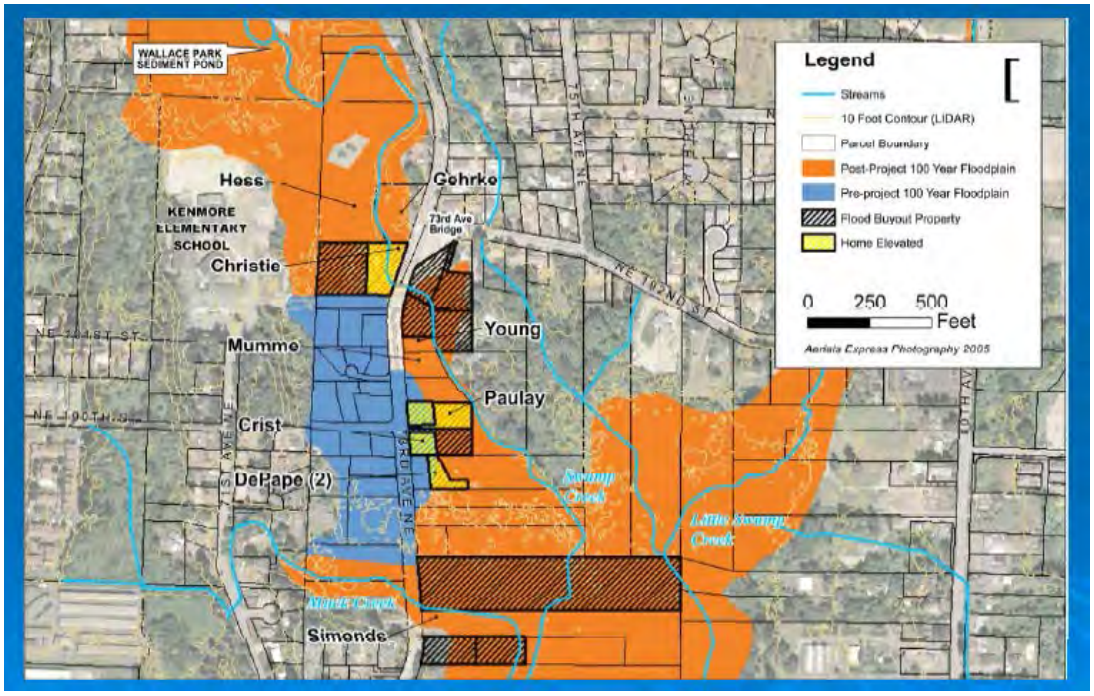

Figure 10. Pre- and post-Swamp Creek flood reduction project implementation 100-year floodplain. Prior to implementation of the 2008 flood reduction projects, the blue-shaded area was previously within the 100-year floodplain.

5.3.2 Alternative #2: Property Acquisition

Acquiring privately owned properties is an alternative to address private flooding impacts, however, as mentioned earlier, this alternative would not be required to protect public infrastructure. In the past, when the City has acquired properties along Swamp Creek, structures are removed and the property is returned to a natural state. Removal of structures and associated impervious areas on acquired private properties will have negligible impacts to the level of flood waters within Wetland #3.

The hatched and yellow properties in Figure 10 indicate properties that were either acquired or structurally modified to reduce flood damage. Since 2009, an additional 4 properties were acquired. In the area downstream of 73rd Avenue NE bridge crossing in the previous and current flood-prone area, there are up to 11 additional properties that are potentially at risk for flooding. Based on current King County assessment information (King County imap http://gismaps.kingcounty.gov/parcelviewer2/?pin=0114100708, accessed July 27, 2014), the total assessed value of these properties is $3,380,000.

If additional property acquisition was pursued, the cost of acquisition could be phased in over the years, similar to previous acquisitions, starting with the properties at greatest risk for flood damages.

5.3.3 Alternative #3: Sediment Removal and Maintenance

This alternative proposes to remove sediment within the central portion of Wetland #3 to establish a Swamp Creek channel similar to what currently exists near the 73rd Avenue NE bridge. Removal of sediment deposited in the Swamp Creek channel in Wetland #3 would provide minimally improved conveyance through the wetland and would not result in significant flood reduction based on modeled scenarios that evaluated sediment removal in Swamp Creek in the vicinity of Muck Creek and the Tolt pipeline. Sediment removal likely occurred in the past, either through farming practices at the time or for flood reduction. Based on estimated sedimentation rates from comparison of the 2004 and 2013 cross sections in Wetland #3 (~450 cubic yards annually) and depending on weather patterns that produce large storm events capable of mobilizing and transporting tons of sediment, channel maintenance could be part of a comprehensive strategy to improve ecological conditions and reduce flooding on some properties.

To make sediment removal a potentially more viable option, the scope of this alternative would have to expand beyond simply removing sediment in the channel and consider changing elevations throughout the wetland to achieve the goal of reducing flooding. Considering the flat topography of the wetland and the volume of water flowing in Swamp Creek, designing and constructing this type of project would be very challenging. Costs associated with this type of project, including ongoing maintenance, would likely exceed the cost of purchasing private properties.

Permitting

Permitting for sediment removal would require coordination and authorization from the Corps, the Washington State Departments of Ecology and Fish and Wildlife, and Kenmore Development Services pursuant to the City's Critical Areas regulations, SEPA, and the Shoreline Master Program.. Coordination with The Muckleshoot Indian Tribe is encouraged since they would comment on SEPA decisions and Corps permits. Prolonged analysis and discussion of dredging techniques, alternatives and effects on species of concern/listed species, and cultural resource impacts should be anticipated. Mitigation for impacts in the form of environmental restoration projects will likely be required.

There are regional examples where dredging has been conducted for flood reduction, however, most are in rivers that are classified as navigable, such as the Cedar River in Renton. King County has conducted sediment removal on May Creek, east of Renton, on a few occasions and successfully obtained permits from the Corps (Permit #NWS-2010-158) and other regulatory agencies. Should this option be pursued, consultation with jurisdictions that have successfully negotiated the permitting process would be warranted.

The project would likely be permitted through the Corps' Individual Permit process, which requires a substantially higher level of analysis, documentation, and justification compared to the more streamlined Nationwide permits. Though cumbersome, the fact that the City of Kenmore has undertaken pro-active and less intrusive actions in the past (e.g., sediment ponds, road improvements, property acquisition) will aid in the justification argument.

5.3.4 By-pass Pipe Alternative

One additional alternative considered was the construction of a high-flow bypass pipe around Wetland #3. This alternative is not viable for a number of reasons that would result in project costs that would likely exceed property acquisition costs and require long-term on-going maintenance. These include:

- Flood frequency – Properties adjacent to Wetland #3 are impacted by flooding at flow events as small as the 2-year return frequency. A high-flow bypass would need to be sized to accommodate events between under the 2-year and the 100-year to provide flood reduction benefits (sized for over 500 cubic feet per second).
- Length and diameter of pipe – Based on the size of the flow events that would need to be contained, a bypass pipe would need to be in excess of 5 feet in diameter. In order to bypass Wetland #3 where flooding is currently occuring, the pipe would need to extend from about Wallace Swamp Creek Park at the sediment pond to the Sammamish River, a distance of at least 8,000 feet depending on the route taken.
- Pipe maintenance and sediment management – Significant volumes of sediment are transported from upstream Swamp Creek reaches to the lower Swamp Creek reaches. The Wallace Swamp Creek sediment pond collects an average of 1,400 cubic yards of sediment each year and an additional large volume of sediment is transported downstream to Wetland #3 and beyond. The bypass pipe would have to be sized and sloped to accommodate sediment transport as well, or a larger sedimentation facility at the upstream end of the pipe would be need to effectively settle out material so that primarily only water was routed through the bypass pipe.
- Utility conflicts – There are a number of large utility corridors that transect the City of Kenmore, including Seattle's Tolt water pipeline and King County's brightwater effluent conveyance pipe. Potential conflicts with these and other utilities would require careful planning and may add cost to what would already be a very expensive endevour.

6. References

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Appendix B:

Basin Characteristic Summary Sheets

Tributary 0056

Basin Characteristics

Kenmore area: 407 acres
Other basin jurisdictions: Lake Forest Park

Highest elevation in Kenmore: 342 feet
Lowest elevation in Kenmore: 20 feet

Stream channel length in Kenmore: 2.6 miles

Wetland area: 5.7 acres

Zoning

Commercial: <1%
Neighborhood business, public/semi-public and regional business: 1.2%
Parks: 2%
Residential (R24): <1%
Residential (R6): 94%

Land Cover

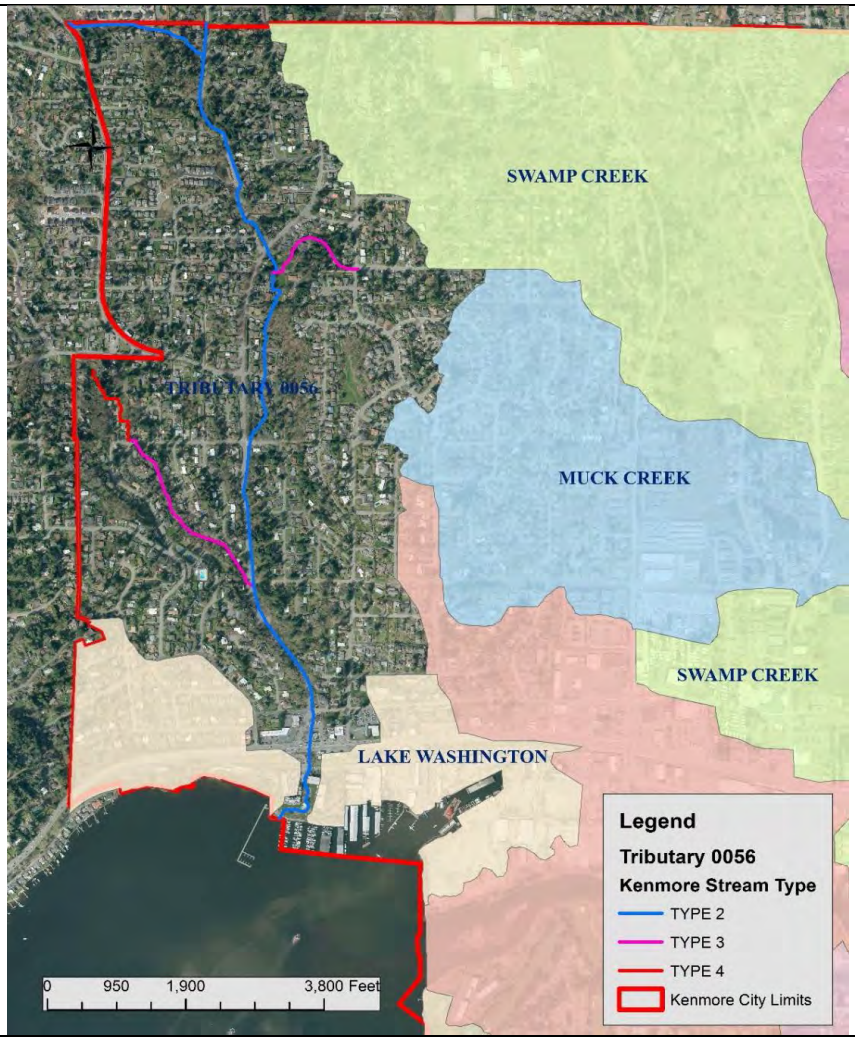
Roads: 50.9 acres
Roofs: 63.9 acres
Other impervious: 45.2 acres
Vegetated: 247 acres

Drainage System Characteristics

Open conveyance: 3.5 miles
Closed conveyance: 13.6 miles

Catch basins: 677
Manholes: 8

Private stormwater facilities: 6
Public stormwater facilities: 14



Tributary 0057

Basin Characteristics

Kenmore area: 333 acres
Other basin jurisdictions: none

Highest elevation: 500 feet
Lowest elevation: 18 feet

Stream channel length: 2.9 miles

Wetland area: 15.9 acres

Zoning

Parks: 1%
Public/semi-public: 2%
Residential (R4): 52%
Residential (R6): 45%

Land Cover

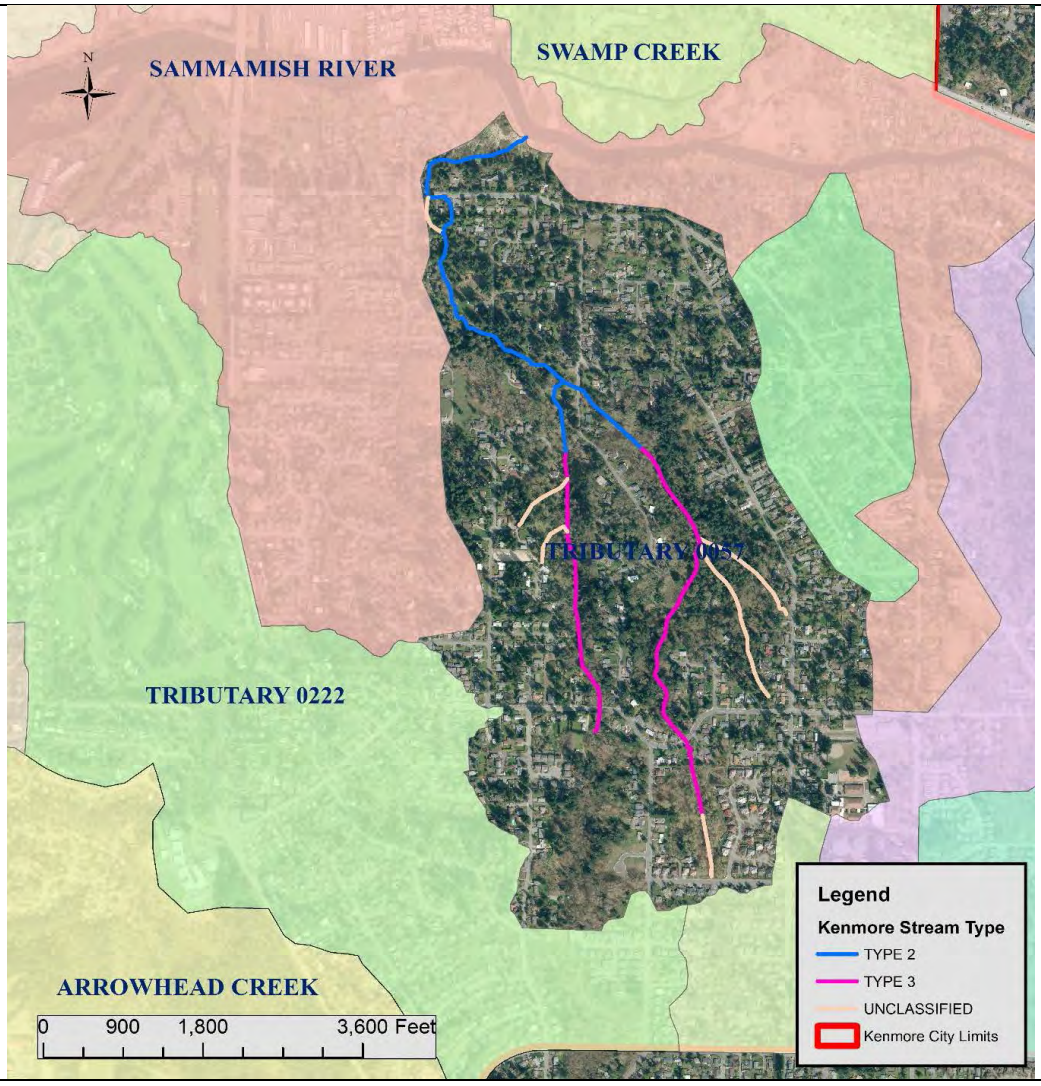
Roads: 20.6 acres
Roofs: 36.3 acres
Other impervious: 30.5 acres
Vegetated: ~245 acres

Drainage System Characteristics

Open conveyance: ~1.8 miles
Closed conveyance: ~7.2 miles

Catch basins: 351
Manholes: 2

Private stormwater facilities: 3
Public stormwater facilities: 17



Arrowhead Creek

Basin Characteristics

Kenmore area: 251 acres
Other basin jurisdictions: none

Highest elevation: 464 feet
Lowest elevation: 20 feet

Stream channel length: 1.1 miles

Wetland area: no wetlands mapped

Zoning

Parks: 45%
Public/semi-public: 21 %
Residential (R4): 27%
Residential (R6): 8%

Land Cover

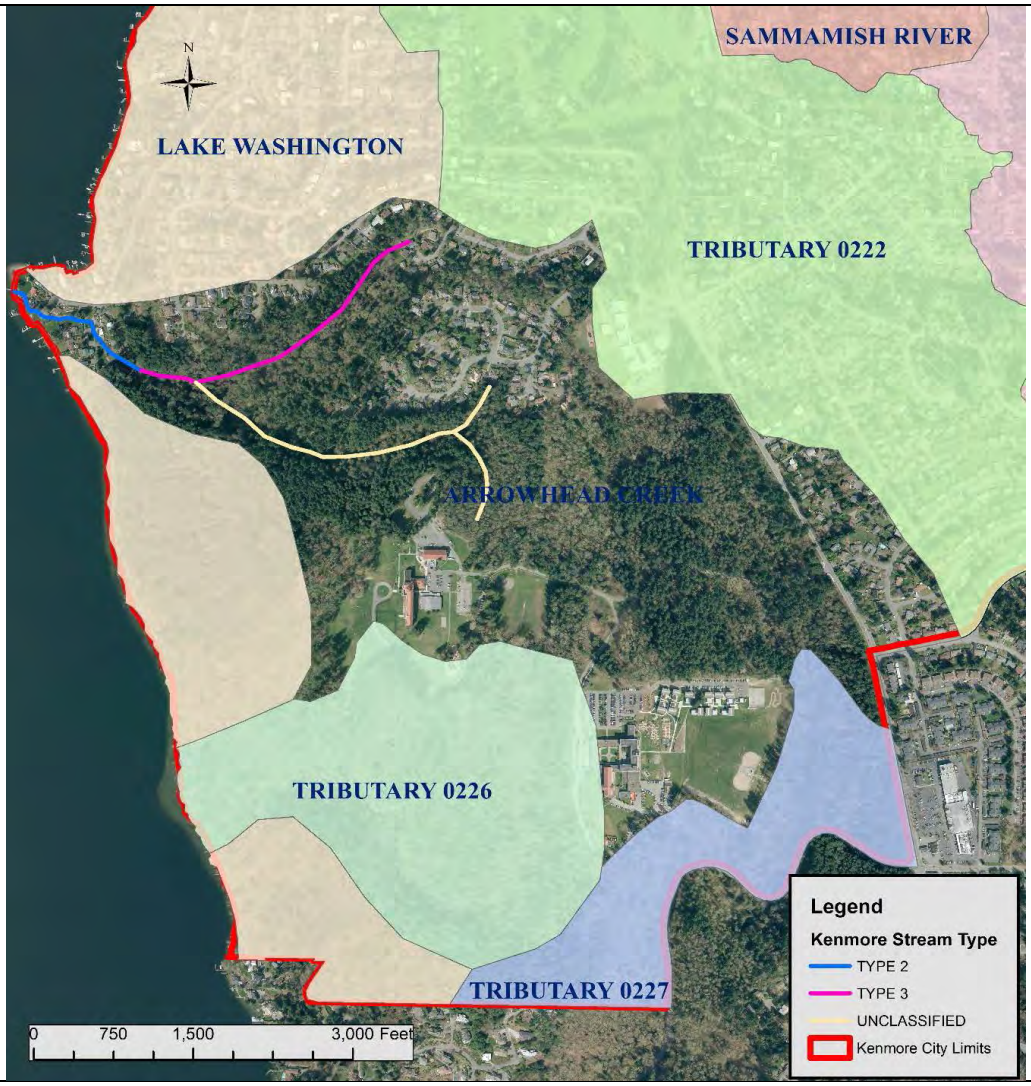
Roads: 11 acres
Roofs: 14 acres
Other impervious: 17 acres
Vegetated: 209 acres

Drainage System Characteristics

Open conveyance: 0.5 miles
Closed conveyance: ~3.9 miles

Catch basins: 184
Manholes: 1

Private stormwater facilities: 2
Public stormwater facilities: 4



Juanita Creek

Basin Characteristics

Kenmore area: 118 acres
Other basin jurisdictions: Kirkland

Highest elevation in Kenmore: 498 feet
Lowest elevation in Kenmore: 362 feet

Stream channel length in Kenmore: 0.41 miles

Wetland area: 1.56 acres

Zoning

Residential (R4): 2%
Residential (R6): 98%

Land Cover

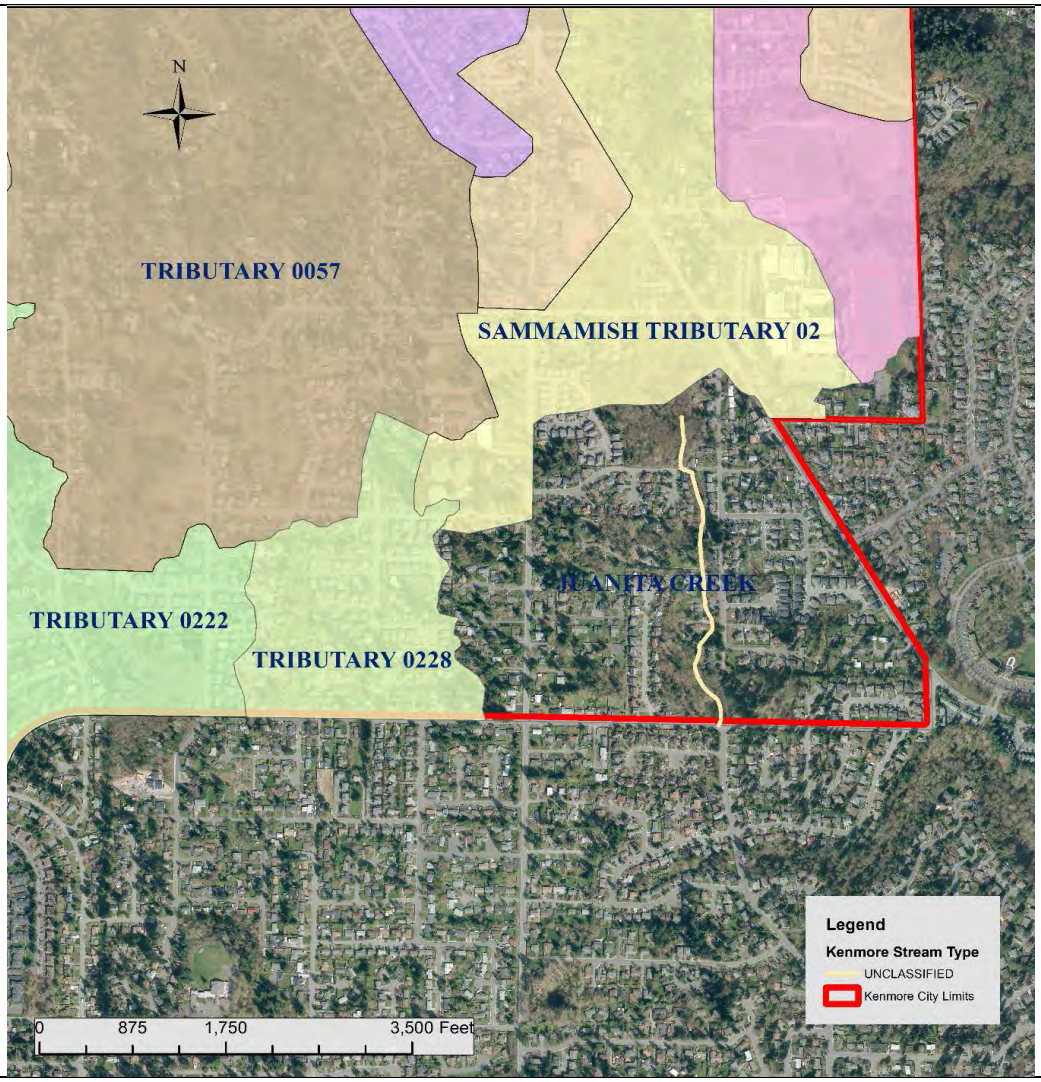
Roads: 11.5 acres
Roofs: 18.4 acres
Other impervious: 12.4 acres
Vegetated: ~75.7 acres

Drainage System Characteristics

Open conveyance: ~0.6 miles
Closed conveyance: ~3.6 miles

Catch basins: 204
Manholes: 2

Private stormwater facilities: 0
Public stormwater facilities: 13



Lake Washington Drainages

Basin Characteristics

Kenmore area: 303 acres
Other basin jurisdictions: many

Highest elevation in Kenmore: 400 feet
Lowest elevation in Kenmore: 18 feet

Stream channel length: no typed streams

Wetland area: 3.2 acres

Zoning

Commercial/regional business: 18%
Golf course: 2%
Parks: 26%
Public/semi-public: <1%
Residential (R24): 1%
Residential (R4): 8%
Residential (R6): 44%

Land Cover

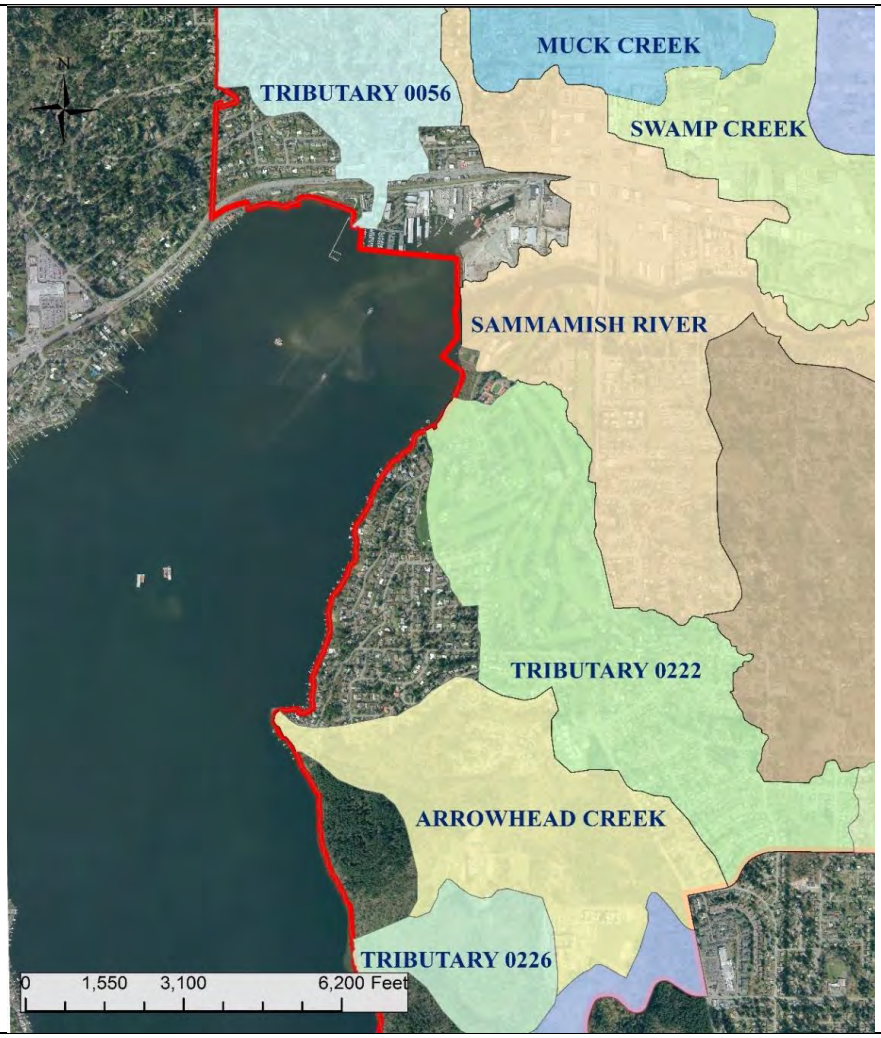
Roads: 26 acres
Roofs: 35 acres
Other impervious: 42 acres
Vegetated: 200 acres

Drainage System Characteristics

Open conveyance: 1.7 miles
Closed conveyance: ~7.0 miles

Catch basins: 353
Manholes: 3

Private stormwater facilities: 3
Public stormwater facilities: 2



Little Swamp Creek

Basin Characteristics

Kenmore area: 330 acres
Other basin jurisdictions: Unincorporated Snohomish County

Highest elevation in Kenmore: 244 feet
Lowest elevation in Kenmore: 24 feet

Stream channel length in Kenmore: 2.5 miles

Wetland area: ~30 acres

Zoning

Parks: 9 %
Residential (R1): 11%
Residential (R4): 13%
Residential (R6): 60%

Land Cover

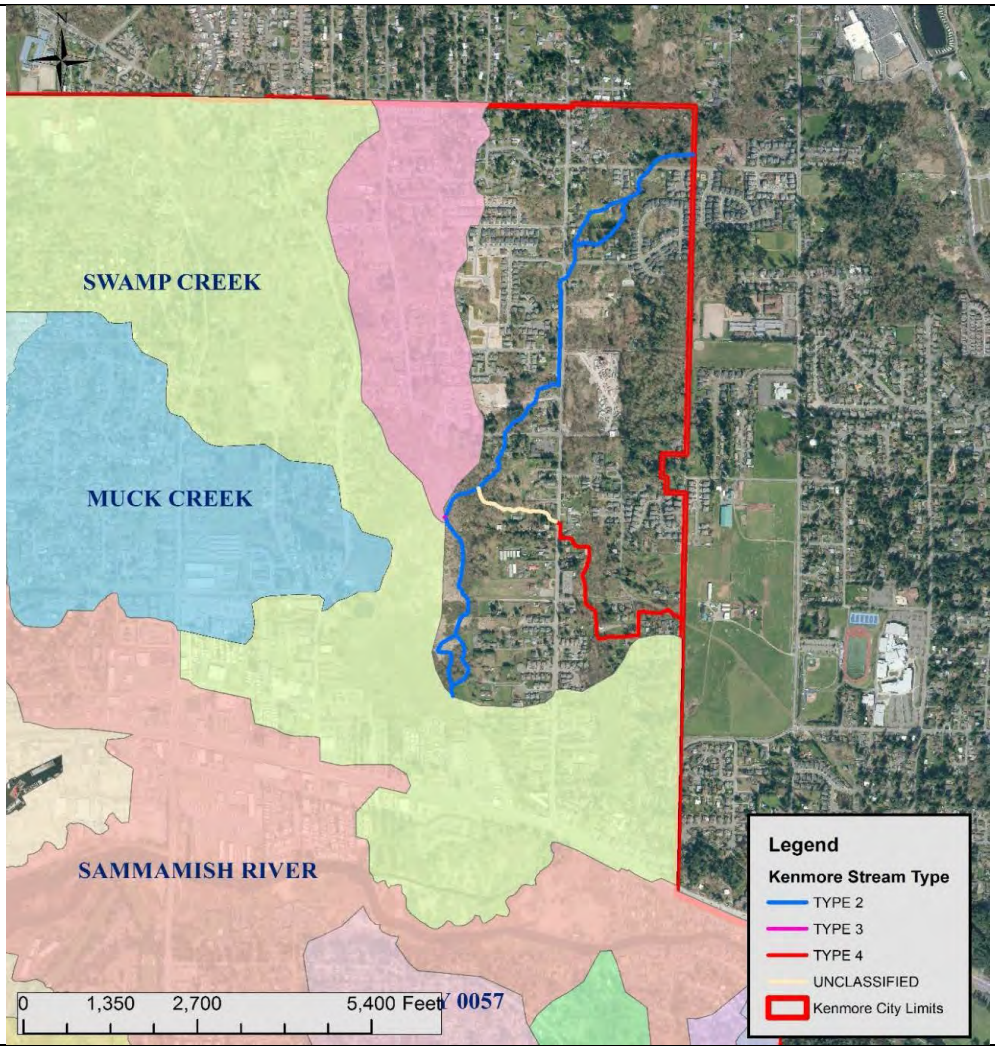
Roads: 23 acres
Roofs: 29 acres
Other impervious: 25 acres
Vegetated: 253 acres

Drainage System Characteristics

Open conveyance: 2.6 miles
Closed conveyance: ~10.1 miles

Catch basins: 568
Manholes: 5

Private stormwater facilities: 1
Public stormwater facilities: 23



Little Swamp Creek Tributary 01

Basin Characteristics

Kenmore area: 114 acres
Other basin jurisdictions: Unincorporated Snohomish County

Highest elevation in Kenmore: 244 feet
Lowest elevation in Kenmore: 34 feet

Stream channel length in Kenmore: 0.76 miles

Wetland area: ~11 acres

Zoning

Parks: <1 %
Residential (R1): 17%
Residential (R6): 83%

Land Cover

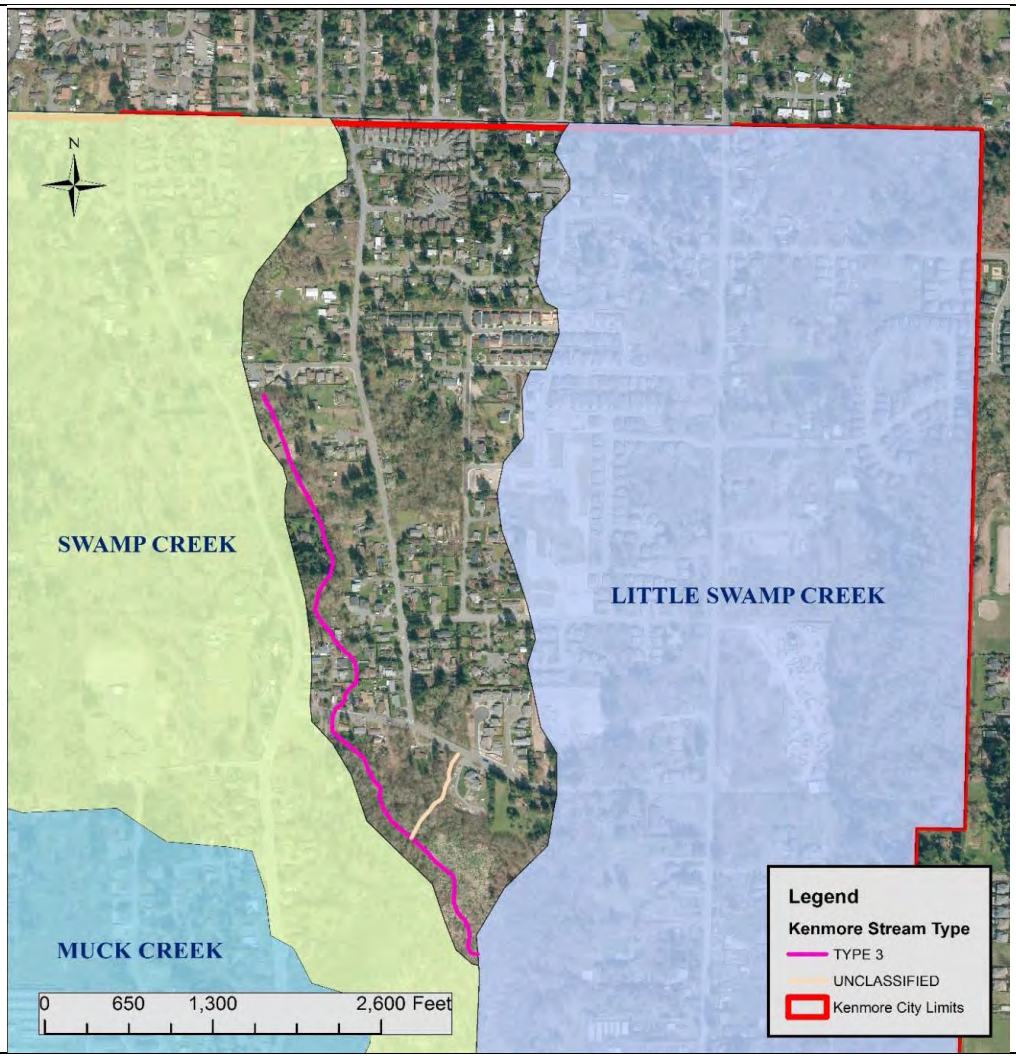
Roads: ~10 acres
Roofs: ~14 acres
Other impervious: ~10 acres
Vegetated: ~80 acres

Drainage System Characteristics

Open conveyance: 0.2 miles
Closed conveyance: 3.5 miles

Catch basins: 183
Manholes: 1

Private stormwater facilities: 1
Public stormwater facilities: 14



Muck Creek

Basin Characteristics

Kenmore area: 206 acres
Other basin jurisdictions: none

Highest elevation: 332 feet
Lowest elevation: 34 feet

Stream channel length: 0.7 miles

Wetland area: 19.3 acres

Zoning

Parks: 2%
Public/semi-public and regional business: 4%
Residential (downtown): 4%
Residential (R1): 7%
Residential (R6): 55%
Residential (R12-R48): 27%

Land Cover

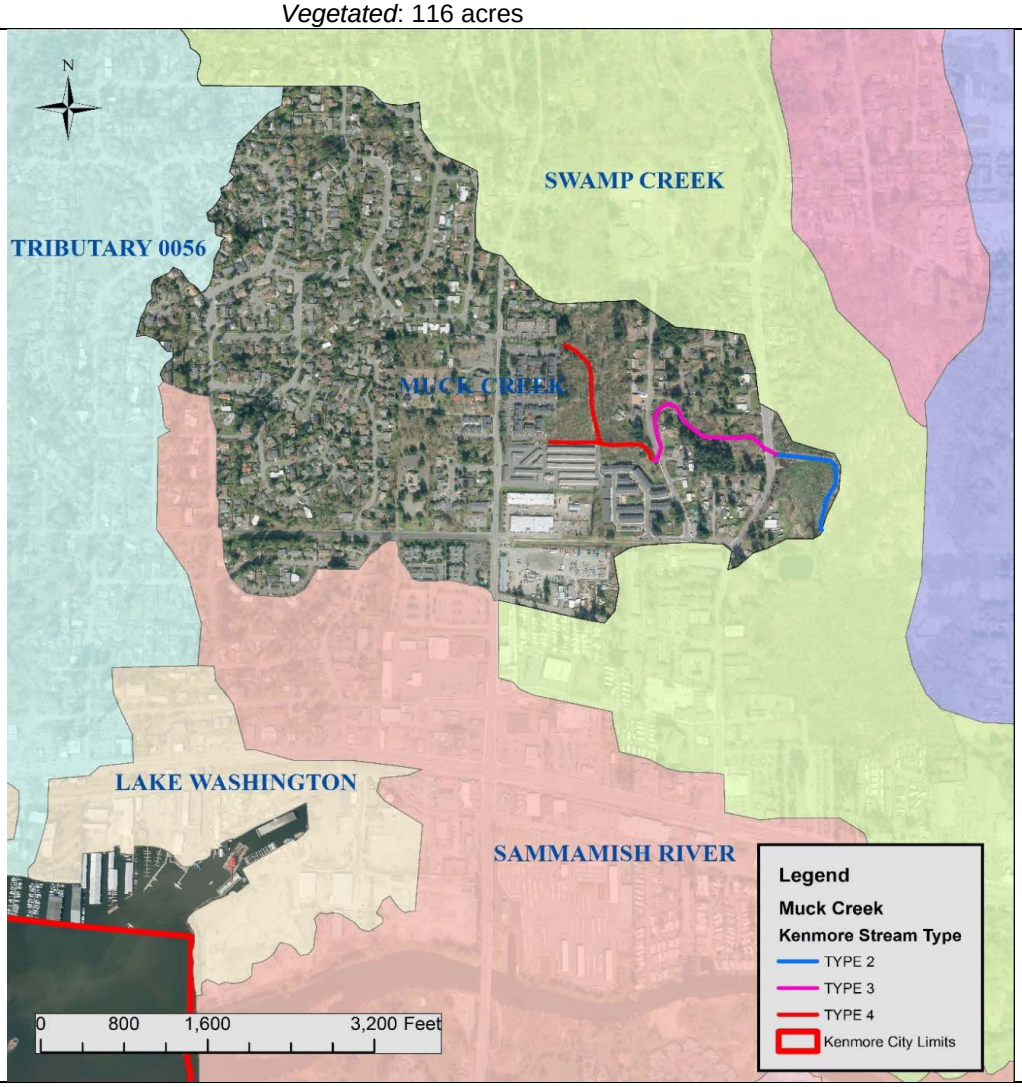
Roads: 21 acres
Roofs: 34 acres
Other impervious: 35 acres
Vegetated: 116 acres

Drainage System Characteristics

Open conveyance: ~1.0 mile
Closed conveyance: 8.7 miles

Catch basins: 494
Manholes: 3

Private stormwater facilities: 9
Public stormwater facilities: 11



Sammamish River Tributary 01

Basin Characteristics

Kenmore area: 65 acres
Other basin jurisdictions: none

Highest elevation: 424 feet
Lowest elevation: 20 feet

Stream channel length: 0.35 miles

Wetland area: no wetlands mapped

Zoning

Residential (R1): <1%
Residential (R4): 31%
Residential (R6): 69%

Land Cover

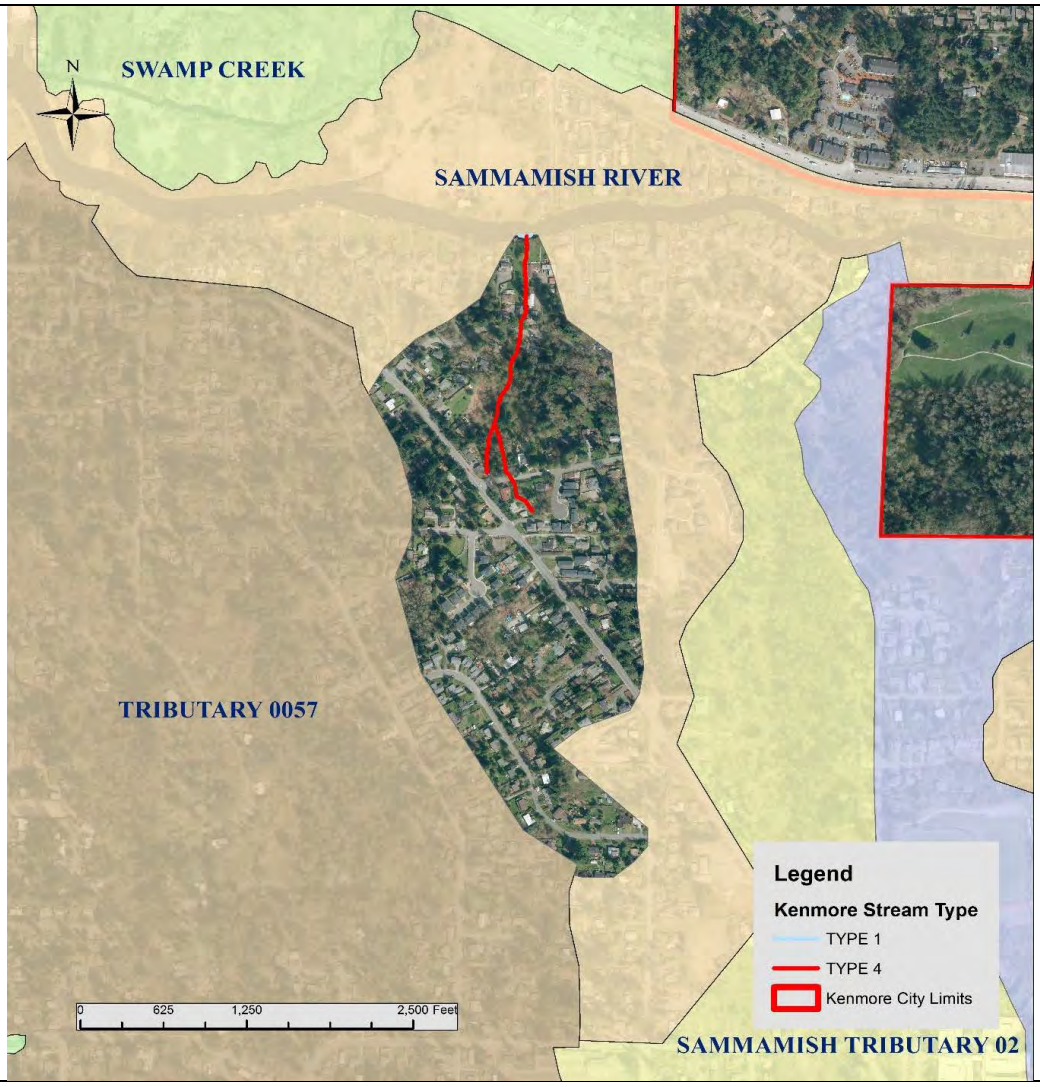
Roads: 5.6 acres
Roofs: 8.96 acres
Other impervious: 7.4 acres
Vegetated: 43 acres

Drainage System Characteristics

Open conveyance: 0.3 miles
Closed conveyance: ~2.9 miles

Catch basins: 157
Manholes: 1

Private stormwater facilities: 0
Public stormwater facilities: 9



Sammamish Tributary 02

Basin Characteristics

Kenmore area: 112 acres
Other basin jurisdictions: none

Highest elevation: 500 feet
Lowest elevation: 20 feet

Stream channel length: 0.93 miles

Wetland area: 1.40 acres

Zoning

Parks: 2%
Public/semi-public: 21 %
Residential (R1): <1%
Residential (R4): 68%
Residential (R6): 9%

Land Cover

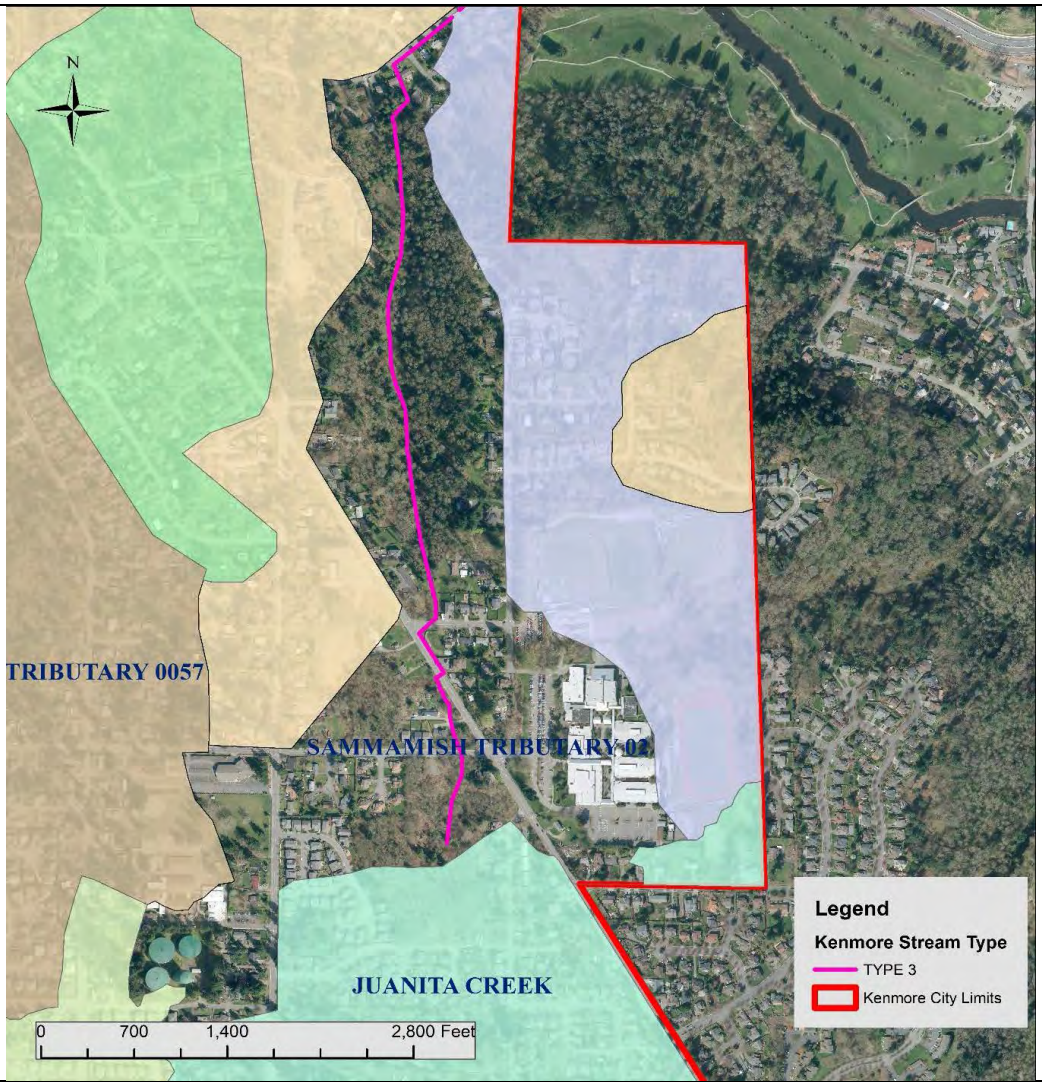
Roads: 7.1 acres
Roofs: 13.3 acres
Other impervious: 12.8 acres
Vegetated: ~79 acres

Drainage System Characteristics

Open conveyance: ~0.4 miles
Closed conveyance: ~3.5 miles

Catch basins: 176
Manholes: 13

Private stormwater facilities: 4
Public stormwater facilities: 8



Sammamish River Tributary 03

Basin Characteristics

Kenmore area: 69 acres
Other basin jurisdictions: none

Highest elevation: 450 feet
Lowest elevation: 20 feet

Stream channel length: 0.52 miles

Wetland area: no wetlands mapped

Zoning

Public/semi-public: 48%
Residential (R1): 1%
Residential (R4): 50%

Land Cover

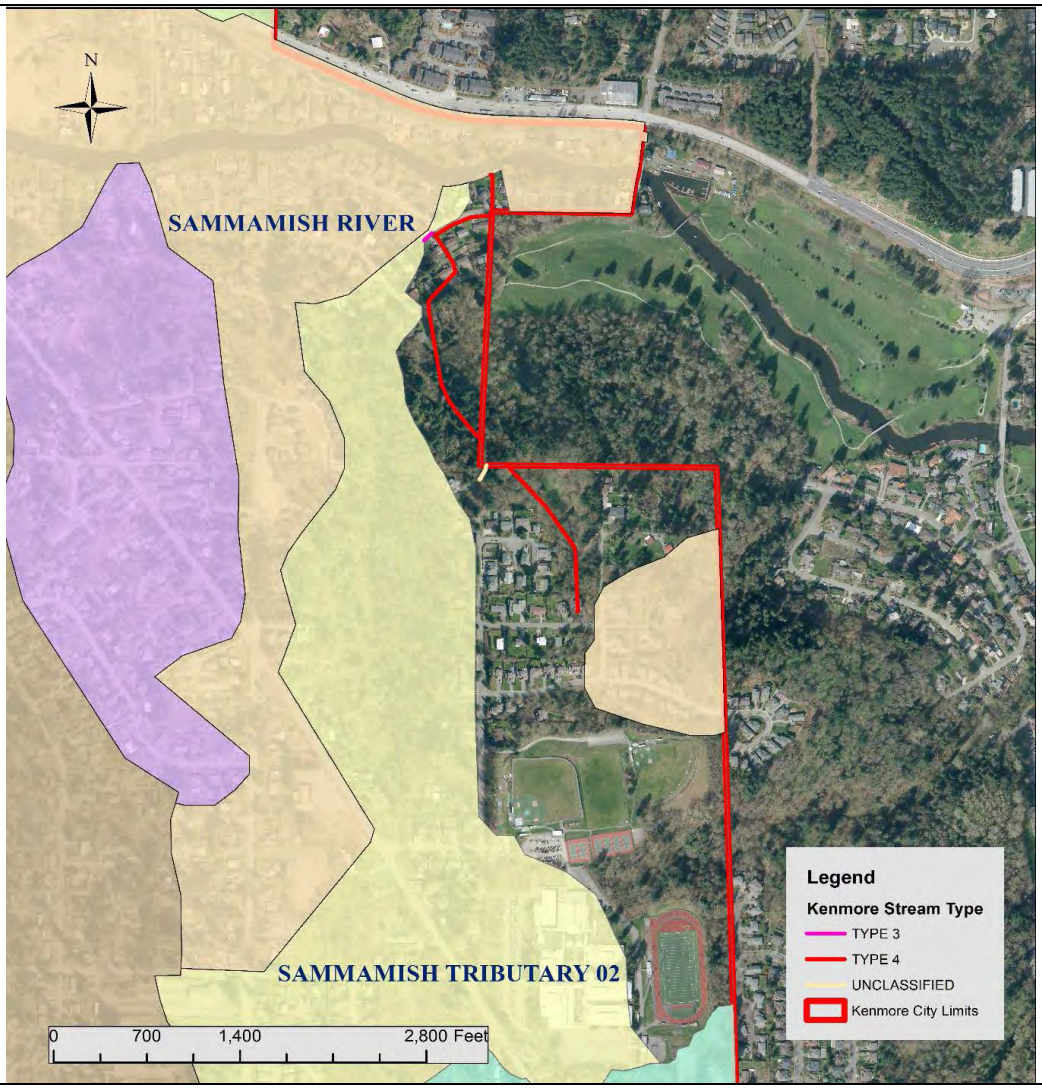
Roads: 2.6 acres
Roofs: 3.3 acres
Other impervious: 10.7 acres
Vegetated: 52 acres

Drainage System Characteristics

Open conveyance: 0.3 miles
Closed conveyance: ~2.1 miles

Catch basins: 102
Manholes: 2

Private stormwater facilities: 1
Public stormwater facilities: 4



Sammamish River

Basin Characteristics

Kenmore area: 534 acres
Other basin jurisdictions: Redmond, Bothell, Kirkland, and Bellevue

Highest elevation in Kenmore: 486 feet
Lowest elevation in Kenmore: 18 feet

Stream channel length in Kenmore: 2.1 miles

Wetland area: 32.8 acres

Zoning

Commercial/residential (downtown): 7%
Commercial/neighborhood/regional business: 14%
Parks/golf course: 14%
Public/semi-public: <1%
Residential (R1): 9%
Residential (R4): 20%
Residential (R6): 29%
Residential (R12/R18/R24): 8%

Land Cover

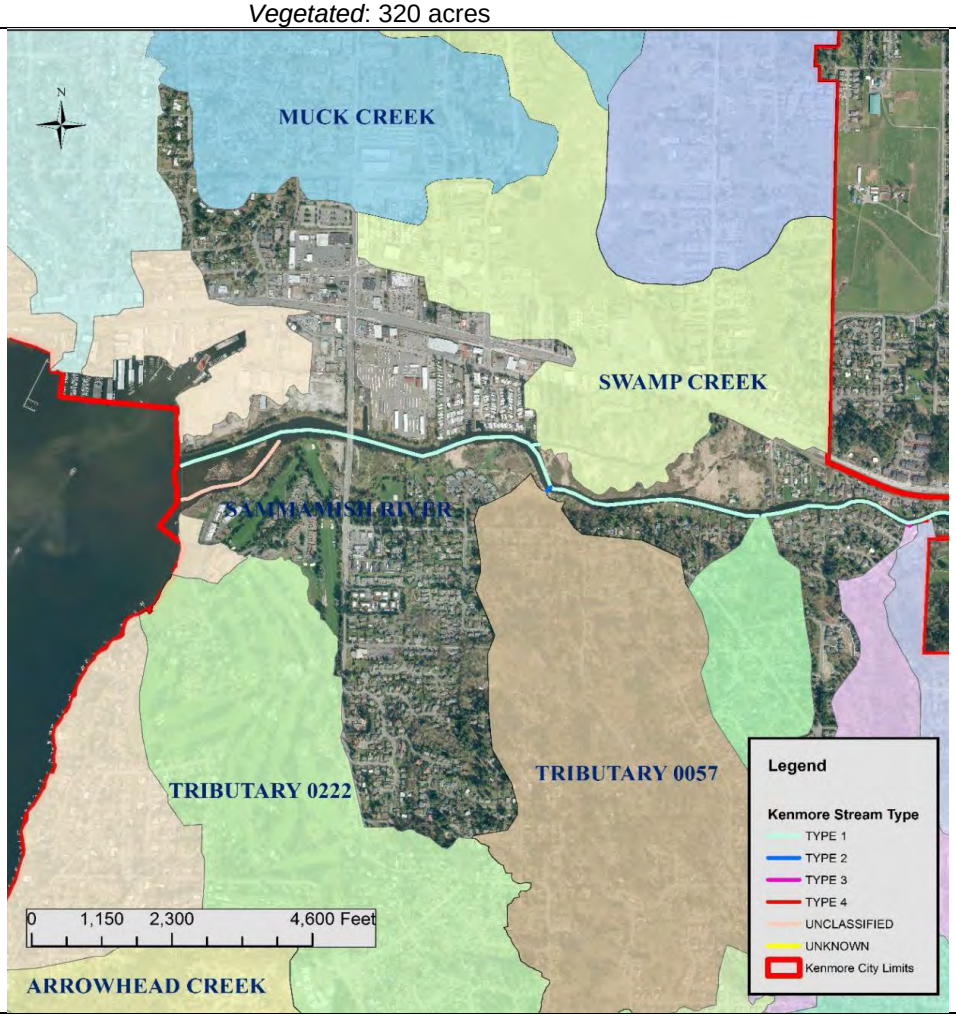
Roads: 48 acres
Roofs: 68 acres
Other impervious: 98 acres
Vegetated: 320 acres

Drainage System Characteristics

Open conveyance: 2.3 miles
Closed conveyance: ~20.9 miles

Catch basins: 1,228
Manholes: 19

Private stormwater facilities: 27
Public stormwater facilities: 21



Swamp Creek

Basin Characteristics

Kenmore area: 568 acres
Other basin jurisdictions: Brier, Lynnwood, and Unincorporated Snohomish County

Highest elevation in Kenmore: 294 feet
Lowest elevation in Kenmore: 18 feet

Stream channel length in Kenmore: 4.3 miles

Wetland area: ~74 acres

Zoning

Parks: 13%
Public/semi-public and regional business: 10%
Residential (downtown): 6%
Residential (R1): 23%
Residential (R4): 4%
Residential (R6): 31%
Residential (R12-R24): 10%

Land Cover

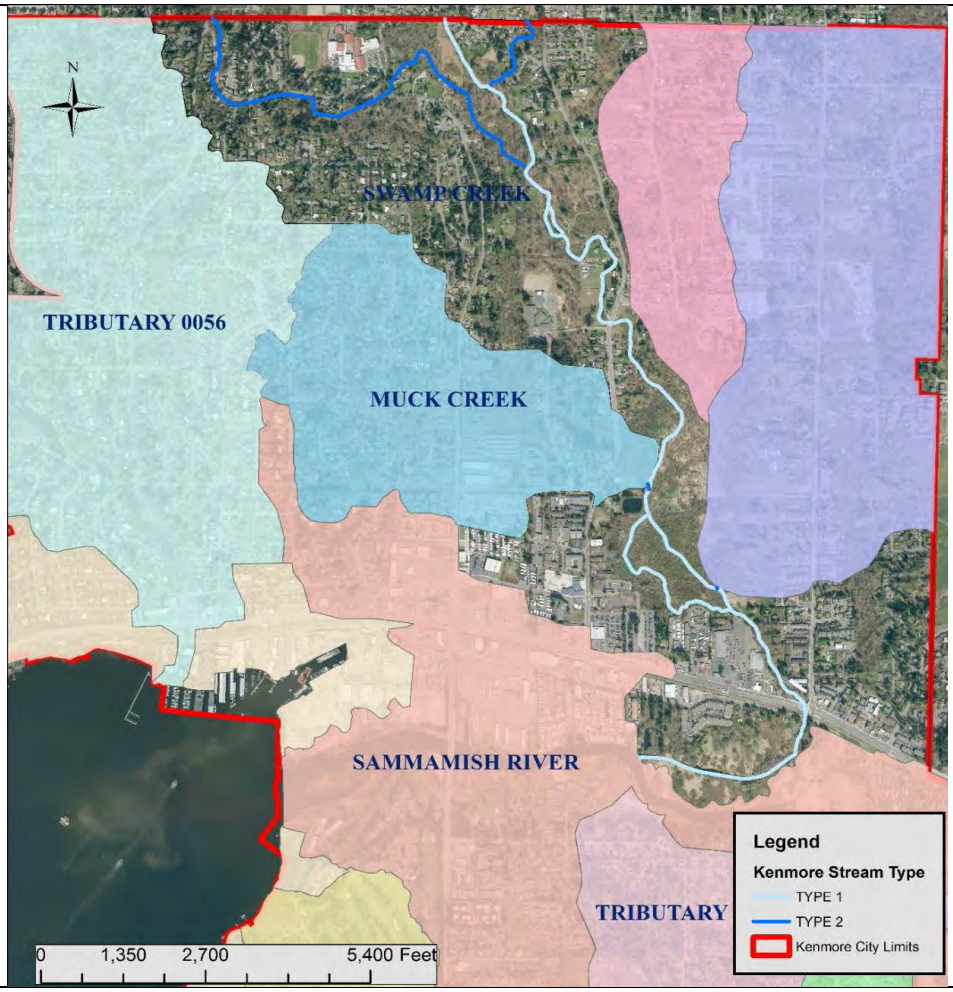
Roads: 39 acres
Roofs: 61 acres
Other impervious: 78 acres
Vegetated: 390 acres

Drainage System Characteristics

Open conveyance: 2.6 miles
Closed conveyance: ~15.8 miles

Catch basins: 1,037
Manholes: 15

Private stormwater facilities: 42
Public stormwater facilities: 10



Tributary 0222

Basin Characteristics

Kenmore area: 318 acres
Other basin jurisdictions: none

Highest elevation: 468 feet
Lowest elevation: 20 feet

Stream channel length: 2.4 miles

Wetland area: ~9 acres

Zoning

Golf course: 28%
Parks: 1 %
Neighborhood business: 28%
Public/semi-public: 1 %
Residential (R6): 41%
Residential (R12): <1%
Residential (R18): 1%

Land Cover

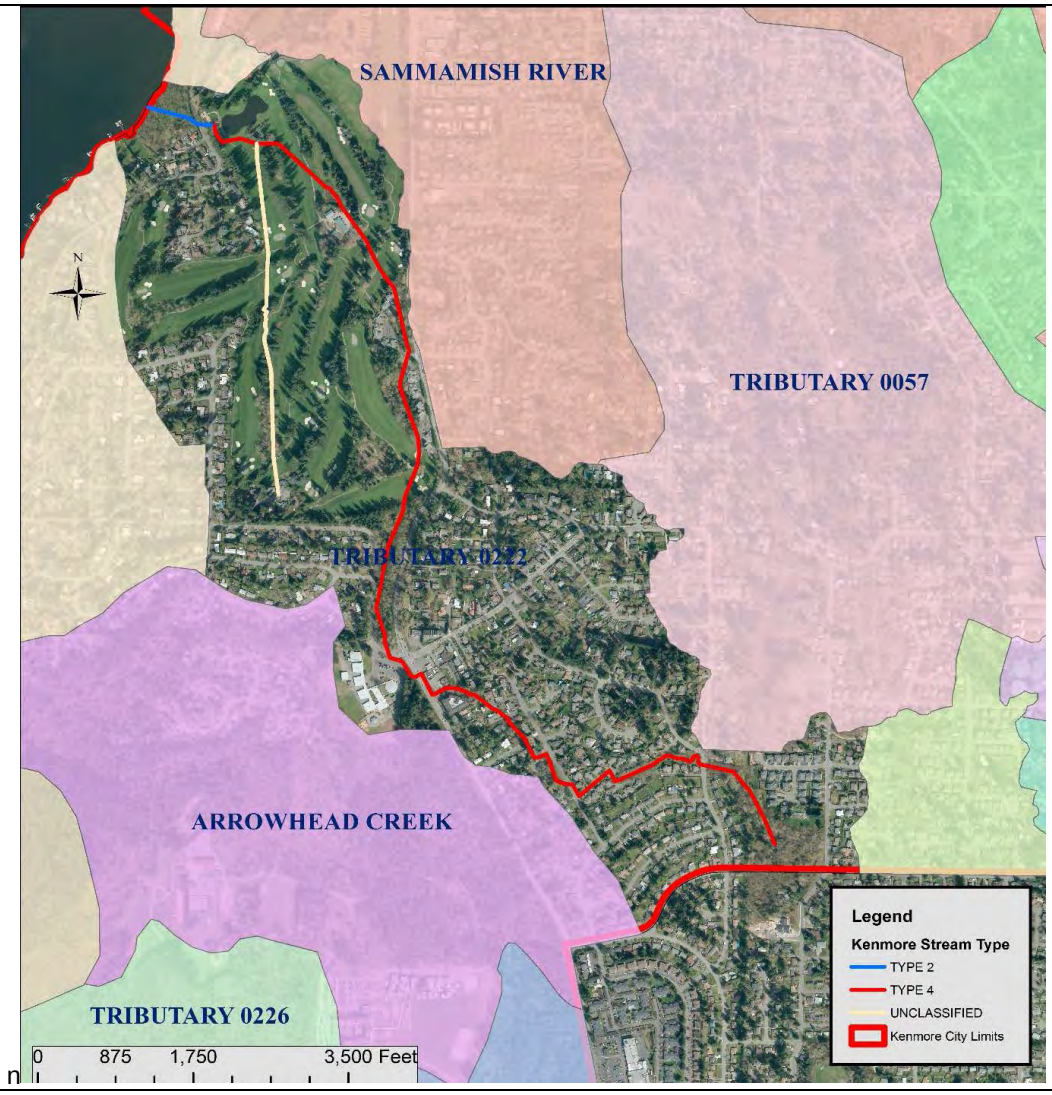
Roads: 24 acres
Roofs: 38 acres
Other impervious: 34 acres
Vegetated: 222 acres

Drainage System Characteristics

Open conveyance: 1.7 miles
Closed conveyance: ~8.6 miles

Catch basins: 408
Manholes: 2

Private stormwater facilities: 8
Public stormwater facilities: 12



Tributary 0226

Basin Characteristics

Kenmore area: ~86 acres
Other basin jurisdictions: none

Highest elevation: 438 feet
Lowest elevation: 18 feet

Stream channel length: 0.89 miles

Wetland area: no wetlands mapped

Zoning

Parks: 95%
Public/semi-public: 5%

Land Cover

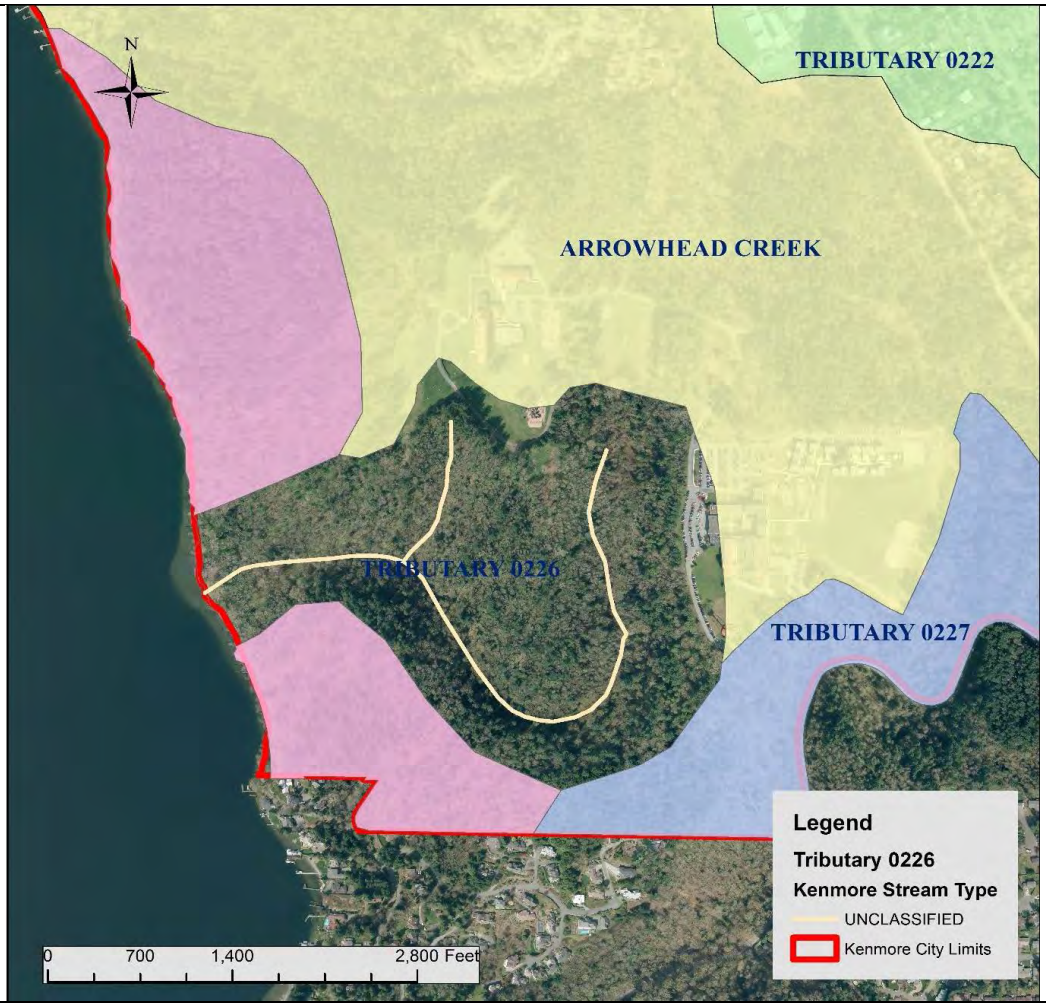
Roads: 0.5 acres
Roofs: 0.2 acres
Other impervious: 1.8 acres
Vegetated: ~83.5 acres

Drainage System Characteristics

Open conveyance: 0 miles
Closed conveyance: 0 miles

Catch basins: 5
Manholes: 0

Private stormwater facilities: 0
Public stormwater facilities: 0



Tributary 0227

Basin Characteristics

Kenmore area: ~46 acres
Other basin jurisdictions: Kirkland

Highest elevation in Kenmore: 452 feet
Lowest elevation in Kenmore: 192 feet

Stream channel length in Kenmore: 0.54 miles

Wetland area: no wetlands mapped

Zoning

Parks: 89%
Public/semi-public: 11%

Land Cover

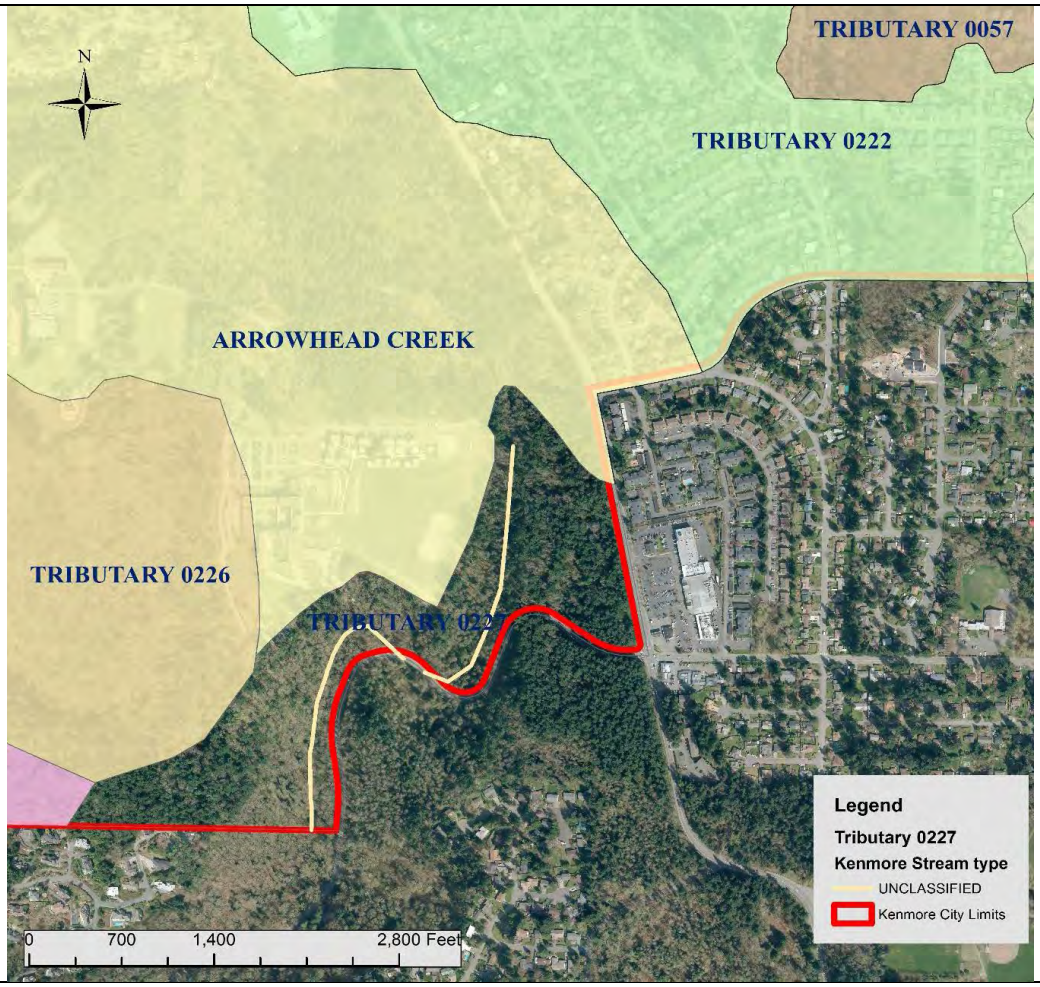
Roads: 0.4 acres
Roofs: 1 acre
Other impervious: 0.2 acre
Vegetated: 44.4 acres

Drainage System Characteristics

Open conveyance: 0 miles
Closed conveyance: 0 miles

Catch basins: 0
Manholes: 0

Private stormwater facilities: 0
Public stormwater facilities: 0



Tributary 0228

Basin Characteristics

Kenmore area: ~44 acres
Other basin jurisdictions: Kirkland

Highest elevation in Kenmore: 500 feet
Lowest elevation in Kenmore: 442 feet

Stream channel length in Kenmore: 0.21 miles

Wetland area: no wetlands mapped

Zoning

Public/semi-public: 3%
Residential (R4): 4%
Residential (R6): 93%

Land Cover

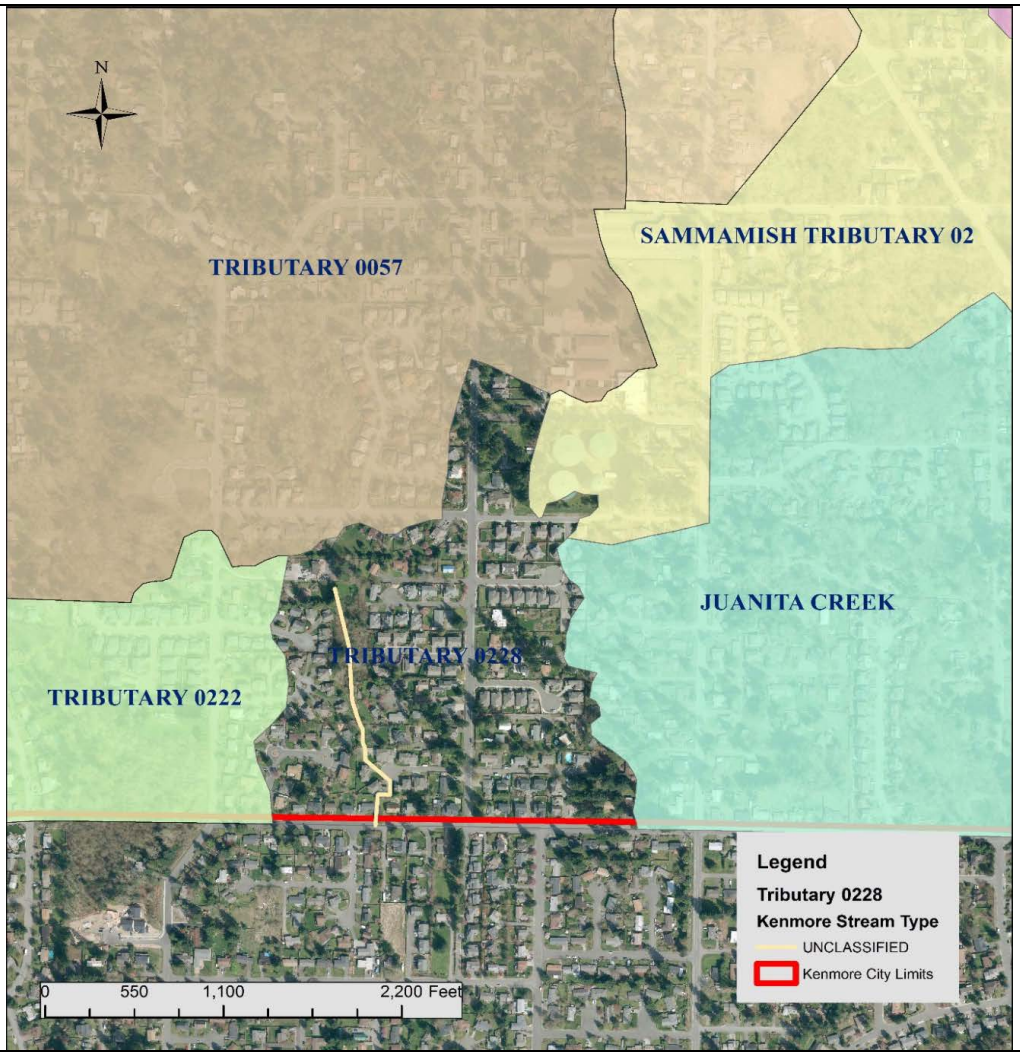
Roads: 5.9 acres
Roofs: 8.6 acres
Other impervious: 5 acres
Vegetated: ~24.5 acres

Drainage System Characteristics

Open conveyance: ~0.2 miles
Closed conveyance: ~2.2 miles

Catch basins: 153
Manholes: 2

Private stormwater facilities: 2
Public stormwater facilities: 21



Appendix C:

2014 Swamp Creek TMDL Monitoring Report

This report summarizes the Swamp Creek Fecal Coliform Total Maximum Daily Load (TMDL) program in Kenmore. The City conducted its first TMDL monitoring project from 2009 through 2013 under the 2007 Western Washington Phase II Municipal Stormwater Permit (Permit) and approved 2008 Quality Assurance Project Plan (QAPP). A second monitoring project will be conducted under the 2013 Permit and an approved 2015 QAPP.

Swamp Creek Basin

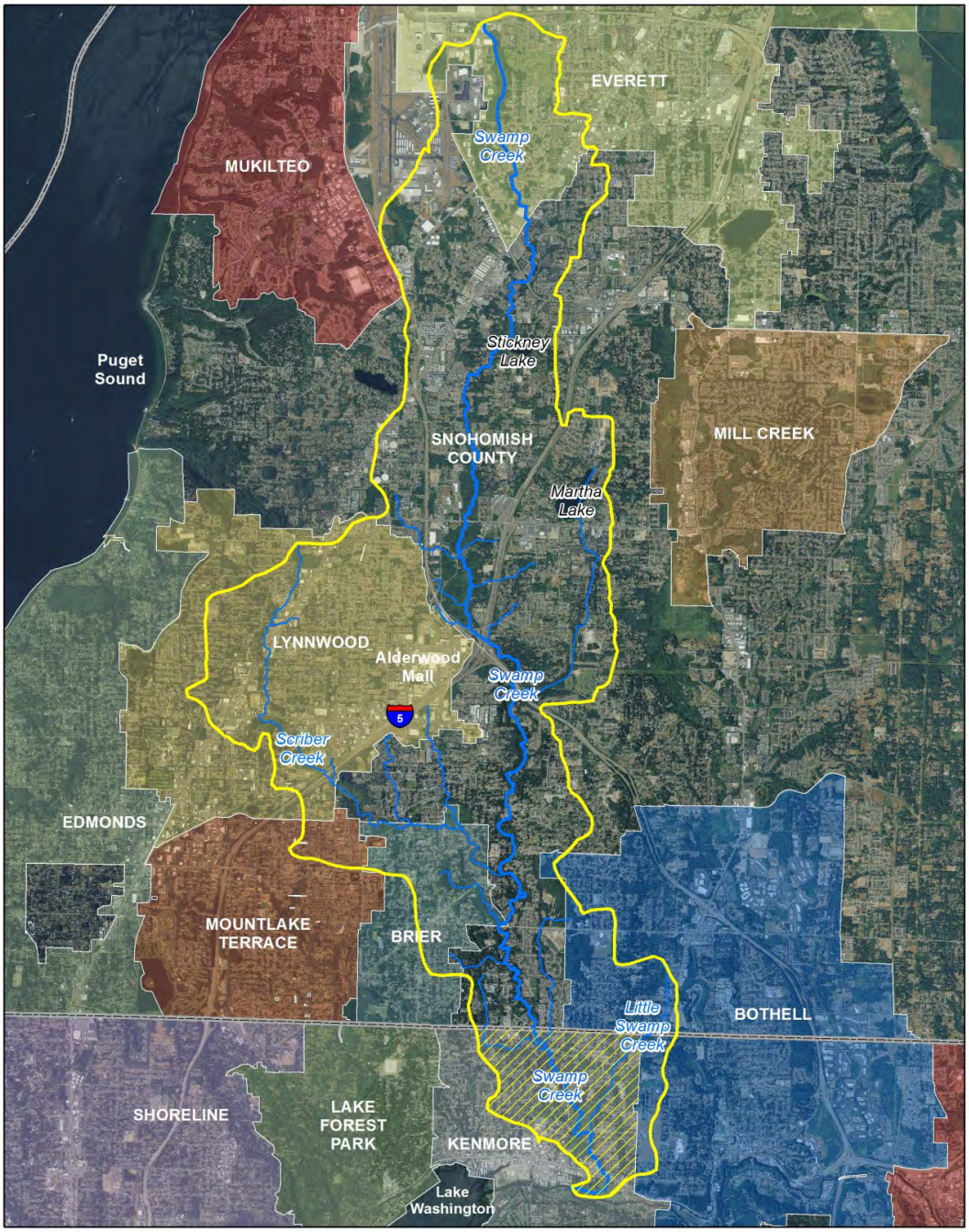
The 24 square mile Swamp Creek basin extends from its terminus at the Sammamish River in the City of Kenmore to its northern headwaters in the City of Everett. The watershed includes the Cities of Bothell, Brier, Everett, Lynnwood and Mountlake Terrace and unincorporated Snohomish County. Figure 1 shows the Swamp Creek Basin with Kenmore's portion hatched in yellow.

Swamp Creek is typical of Puget Sound lowland watersheds. In the gently sloping upper basin, Swamp Creek flows through a narrow valley which gradually broadens to a floodplain almost ¾ of a mile wide in the lower basin. The middle basin contains a narrow valley with steep slopes in excess of 15 percent just south of the I-405 and I-5 crossing. Elevation in the headwaters is approximately 520 feet, while the elevation at the mouth is about 20 feet above sea level. The stream gradient is flat, decreasing from about 50 feet per mile in the upper basin to less than 20 feet per mile near the mouth. Scriber Creek, Little Swamp Creek, and Martha Creek are the largest of the 19 streams tributary to Swamp Creek. Major lakes in the Swamp Creek watershed are Scriber Lake, Martha Lake, and Stickney Lake (Snohomish County SWM 1994, 2000).

Most of Swamp Creek and its tributaries are shallow and unsuitable for full-immersion swimming activities. However, several noteworthy exceptions are Martha Lake, and Stickney Lake. Wallace Swamp Creek Park in Kenmore and Scriber Lake in Lynnwood are both large enough and deep enough for swimming but this activity is not encouraged by Kenmore or Lynnwood. Although public access to the creek is largely limited to road crossings and a few parks, Swamp Creek is fully accessible to adjacent landowners, their children, and in some cases their neighbors. Limited boating opportunities exist where Swamp Creek meets the Sammamish River. The watershed is located within the US Census Defined Urbanized Area; therefore, it is expected that population growth and urban development will be concentrated in this area. Road density is highest in the Scriber Creek subbasin (Svrjcek 2006).

Kenmore has a population of about 20,000 and is primarily a residential community, with a small commercial area along State Route 522. The City is located in King County, just upstream of the confluence of the Sammamish River and Lake Washington. Swamp Creek flows through the middle of the City and joins the Sammamish River at the southernmost boundary of the city. The City comprises about eight percent of the Swamp Creek watershed. It is located at the terminus of the Swamp Creek watershed and, consequently, all pollution generated upstream has the potential to flow through the City of Kenmore.

Figure 1: Swamp Creek Basin Map



History of Swamp Creek Bacterial Pollution

Swamp Creek is polluted by bacterial pollution from a variety of sources throughout the watershed. Fecal coliform pollution is usually generated from a combination of both point and non-point sources. Nationally, one of the major non-point source contributions is urban stormwater runoff, which includes municipal stormwater discharges currently covered by National Pollutant Discharge Elimination System (NPDES) stormwater permits.

Non-point water pollution most commonly results from land use related activities, such as inadequate agricultural practices, failing onsite septic systems, and untreated stormwater runoff that does not originate from municipal separate storm sewer systems (MS4s). In rural areas, stormwater may carry wastes from domesticated animals. Stormwater from urban areas is more likely to carry pet wastes directly into nearby streams. Hobby farms are common on larger parcels within the Swamp Creek watershed. Urban and suburban development is continuing in the Swamp Creek watershed, increasing the water quality impacts from stormwater runoff.

Snohomish County performed water quality studies in Swamp Creek in the early 1990s. One study was conducted above station SCLU (north of Lynnwood) and the other was done as part of a larger one-year urban monitoring program. The purpose of the study was to examine the quality of water coming from residential, mixed, or small farmland uses. Although it turned out to be difficult to clearly show the effect of each type of land use, none of the five locations monitored met state bacteria standards. Fourteen Swamp Creek sites were tested as part of the urban monitoring study - 11 out of the 14 sites exceeded state bacteria thresholds. Swamp Creek was included on Washington's 1996 303(d) list because of numerous exceedances of fecal coliform bacteria standards, as monitored and documented by Ecology (Svrjcek, 2006).

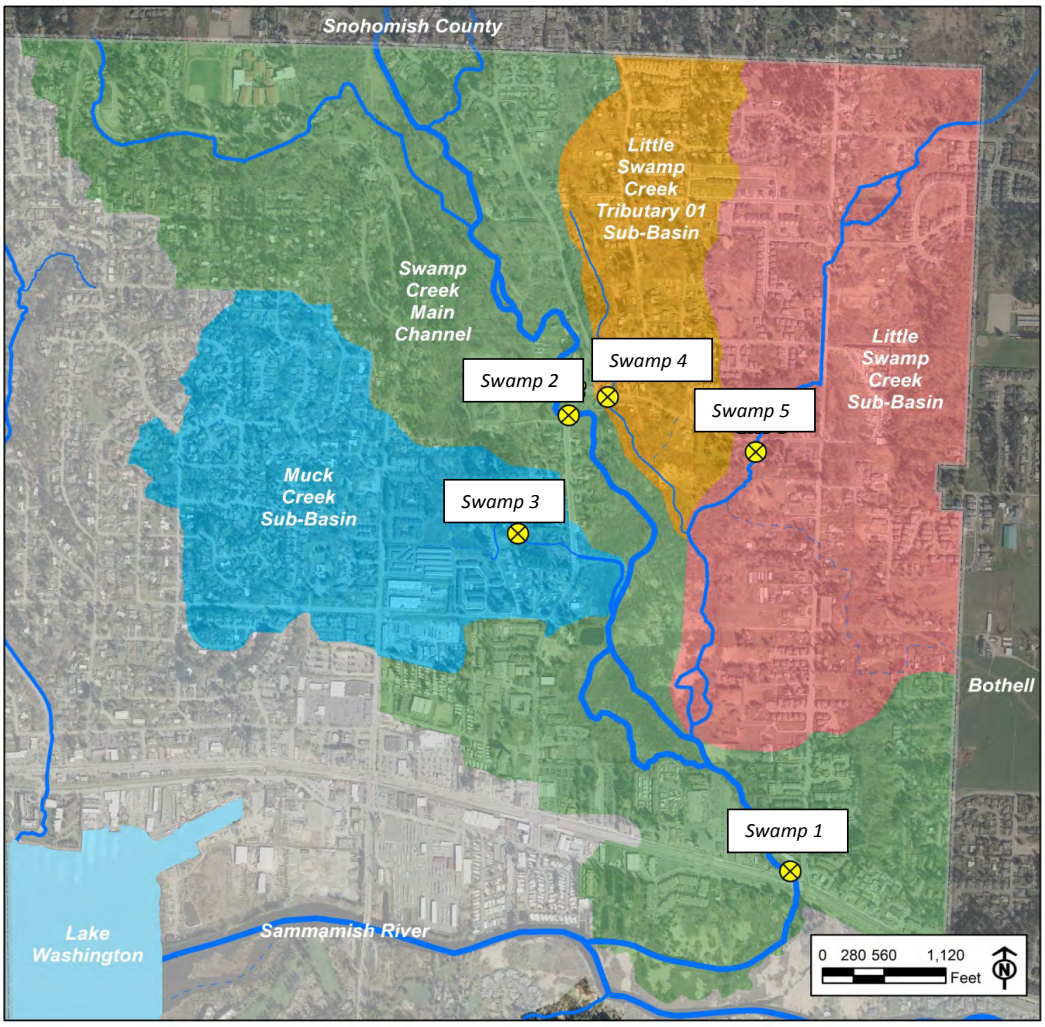
From 2000 to 2006, a consistent pattern of bacterial pollution was observed in Swamp Creek at each of the three long-term stations being monitored. The sites included SCLU north of Lynnwood, SCLD at the Kenmore/Snohomish County border and 0470 in Kenmore. All sites exceeded state criteria for bacteria at all times of the year. During the dry summer months when stream flows were low, bacteria levels rose far beyond both the geometric mean criterion of 50 cfu/100 mL and the 90th percentile criterion 100 cfu/100 mL. During the wetter months of the year, bacteria concentrations improved at each site (possibly due to dilution from increased runoff conditions), but not enough to meet state standards (Svrjcek, 2006).

As a result of the bacterial pollution problem, the Department of Ecology (Ecology) developed the Swamp Creek Fecal Coliform Total Maximum Daily Load Detailed Implementation Plan, (Svrjcek 2006). In this plan, Ecology established water quality monitoring requirements for local municipalities that collect, treat, and convey stormwater. Jurisdictions within the Swamp Creek basin, including Kenmore, were required to develop Quality Assurance Project Plans (QAPPs) to implement these TMDL requirements. Kenmore's first QAPP was developed and approved in 2008 and Swamp Creek fecal coliform concentrations were monitored from 2009 through 2013.

2009 – 2013 Swamp Creek Monitoring in Kenmore

The 2007 Permit required monitoring of fecal coliform bacteria concentrations in Swamp Creek. During this Permit period, sampling results in Swamp Creek continued to exceed State water quality standards for Permit holders, including Kenmore (Loch 2013, Lynnwood 2011, Kibbey 2013, Gaudette 2014, Shaw 2013). Kenmore monitored Swamp Creek bacteria concentrations from 2009 through 2013 at five sites shown below in Figure 2.

Figure 2: Kenmore Monitoring Sites



A total of 321 samples from the Swamp Creek basin were analyzed for fecal coliform concentrations between 2009 and 2013. The monitoring program included collection of 184 samples during the "wet season" months of October through April and collection of 137 samples during the "dry season" months of May through September. Table 1 provides fecal coliform concentration results from each sampling event during 2009 – 2013.

DATE	SWAMP 1		SWAMP 2		SWAMP 3		SWAMP 4		SWAMP 5	
	Fecal Coliform (CFU/100mL)		Fecal Coliform (CFU/100mL)		Fecal Coliform (CFU/100mL)		Fecal Coliform (CFU/100mL)		Fecal Coliform (CFU/100mL)	
		Replicate		*Replicate*		*Replicate*		*Replicate*		*Replicate*
1/2/2009	90		66		56		62		54	
2/23/2009	1060		47		258		72		20	
3/23/2009	2101		150		440		148		148	
4/23/2009	310		60		130		30		310	
5/8/2009	1100		130		72		18		210	
6/18/2009	78		150		230				520	
7/17/2009	240		180		350				150	
8/14/2009	1400		530		7100		4900		2700	
9/2/2009	380		220		1400		280		210	
10/2/2009	330		220		540		210		180	
11/4/2009	260		90		150		40		10	
12/11/2009	36		46		18		14		180	
1/19/2010	18		24		20		2		24	
2/18/2010	30		8		6		6		10	
3/11/2010	120		56		88		1700		250	
4/14/2010	22		32		48		2		36	
5/21/2010	110		120		100		10		140	
6/23/2010	40		5		220		20		95	
7/9/2010	38		22		42		28		6	
8/13/2010	40		25		60		5		40	
9/15/2010	94		22		220				46	
10/13/2010	140		4		110		16		6	
12/2/2010	130		8		10		2		4	
12/30/2010	190		12		2		2		16	
1/31/2010	200		14		8		2		6	
3/4/2011	470		8		20		2		86	
4/8/2011	260		58		34		2		54	
5/3/2011	440		190		120		26		200	
6/17/2011	90		40		220		15		460	
7/28/2011	180		160		80				200	
9/12/2011	380		170		75				70	
10/18/2011	580		120		210				50	
12/5/2011	580		35		70		10		15	
12/28/2011	2700		320		380		110		90	
1/31/2012	60		10		10		10		60	
3/5/2012	52		42		14		20		44	
3/27/2012	20		35		10		10		10	
4/20/2012	550	530	1200	1100	1600		340		1300	
5/16/2012	350	360	70	50	360		440	350	190	
6/27/2012	210	200	110	140	230		350		110	
8/1/2012	220	340	220	250	24				110	150
9/6/2012	35	95	370	100	140				200	
10/15/2012	200	220	260	100	560	360			160	180
12/20/2012	240		750		950		980		1400	
12/21/2012	320		410		80		10		50	
12/28/2012	100		160		120		10		50	
1/29/2013	60		30		340		30		60	
2/28/2013	100		110		100		40		120	
3/27/2013	84		12		140		12		24	
4/29/2013	78	80	50	58	1100	1200	14	12	50	48
5/21/2013	490	610	150	170	870	1000	240	220	1100	760
6/26/2013	200	240	240	190	220	150	10	10	220	190
7/24/2013	340	290	380	440	280	300			130	160
8/29/2013	1400	1300	1300	1300	3500	4500			4500	4000
9/27/2013	180	100	100	90	880	810			110	50
10/31/2013	94		26		420		62		80	
11/27/2013	140		50		20		30		80	
12/31/2013	16		32		56		140		84	

Table 1 *Fecal Coliform concentrations in Swamp Creek from 2009 – 2013*

During the first year of monitoring (2009), bacterial levels in Swamp Creek and tributaries to Swamp Creek exceeded water quality standards. All sites exceeded the geometric mean standard of 50 colonies/100 ml and all samples exceeded the "not-more-than-10 percent" (90th percentile) standard of 100 colonies/100ml. This was the case for both the dry season (May to September) and the wet season (October to April) samples. Consistent with the TMDL report, the bacteria concentrations of the dry weather samples exceeded the standard by a larger margin than did the samples taken during the wet season.

During the second year of monitoring (2010), bacterial levels in Swamp Creek and tributaries to Swamp Creek continued to exceed water quality standards at some sites. Two of the five sites exceeded the geometric mean standard of 50 colonies/100 ml during the dry season and one of five during the wet season. Three of the five sites exceeded the "not-more-than-10 percent" (90th percentile) standard of 100 colonies/100 ml during both the wet and dry seasons. This was an improvement from 2009 where all sites exceeded water quality standards all year.

During the third year of monitoring (2011), bacterial levels in Swamp Creek and tributaries to Swamp Creek continued to exceed water quality standards at some sites. Four of the five sites exceeded the geometric mean standard of 50 colonies/100 ml during the dry season and two of five during the wet season. Four of the five sites exceeded the "not-more-than-10 percent" (90th percentile) standard of 100 colonies/100 ml during the dry season and three of the five during the wet season.

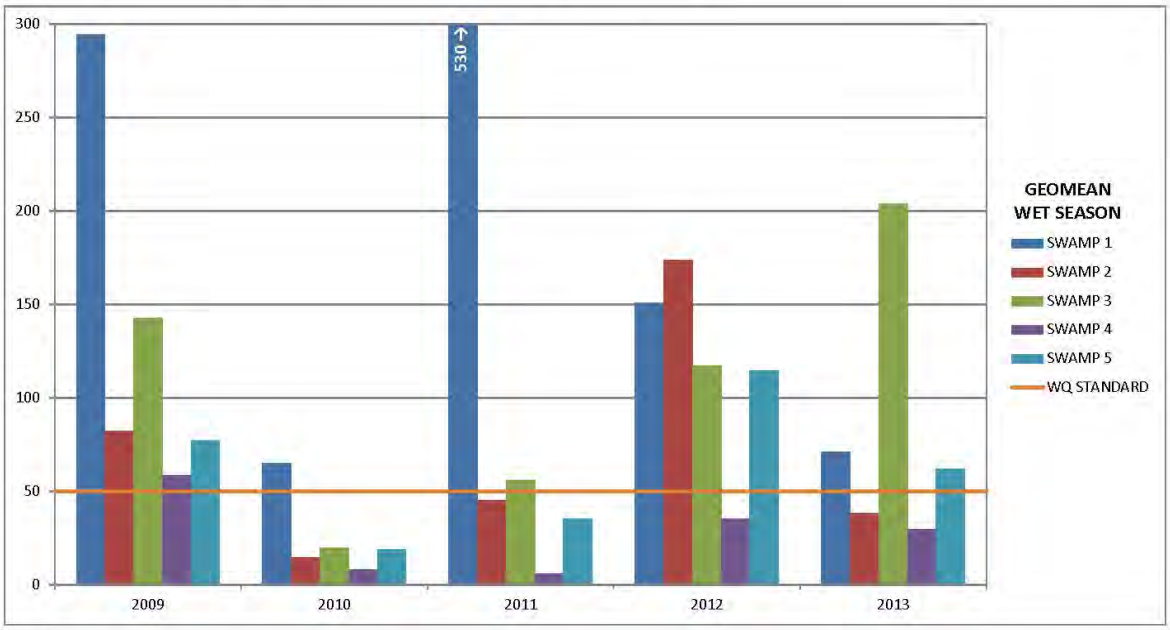
During the fourth year of monitoring (2012), bacterial levels in Swamp Creek and tributaries to Swamp Creek continued to exceed water quality standards at some sites. All five sites exceeded the geometric mean standard of 50 colonies/100 ml during the dry season and four of the five during the wet season. All five sites exceeded the "not-more-than-10-percent" (90th percentile) standard of 100 colonies/100 ml during both the dry and wet season.

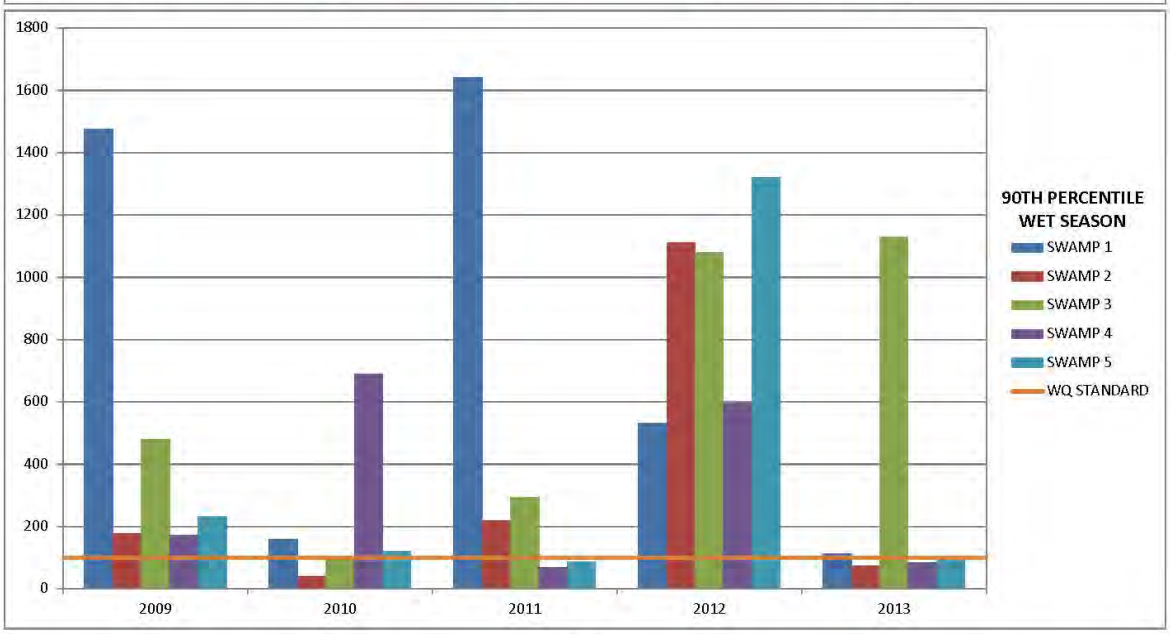
During the fifth and final year of monitoring (2013), bacterial levels in Swamp Creek and tributaries to Swamp Creek continued to exceed water quality standards at some sites. Four of the five sites exceeded the geometric mean standard of 50 colonies/100 ml during the dry season and three of five during the wet season. All five sites exceeded the "not-more-than-10-percent" (90th percentile) standard of 100 colonies/100ml during the dry season and two of the five during the wet season.

Forty three replicates (a second grab sample collected immediately following the first grab sample) at various sites were collected in order to evaluate variability in 2012 and 2013. Replicate sample variation between the first sample and the second sample had a range of 0 – 171 percent change with an average of 24 percent. The lab also performed duplicate analysis on random samples (total of 36 samples from 2009 - 2013) to determine variability within the same sample. Duplicate variation between the first sample and second sample had a range of 0 – 100 percent change with an average of 24%.

Figure 3 summarizes annual geomean and 90th percentile results collected during the wet season (October through April) for 2009 – 2013. Figure 4 summarizes annual geomean and 90th percentile results collected during the dry season (May through September) for 2009 – 2013.

FIGURE 3 Kenmore, WA Swamp Creek fecal coliform wet season results - 2009 through 2013.

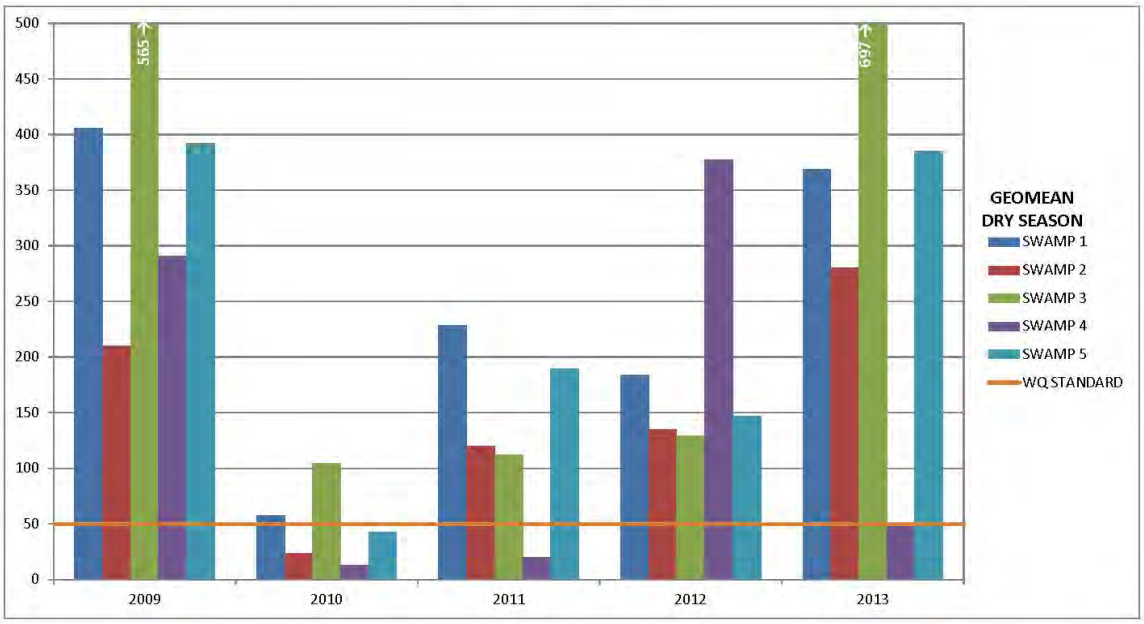


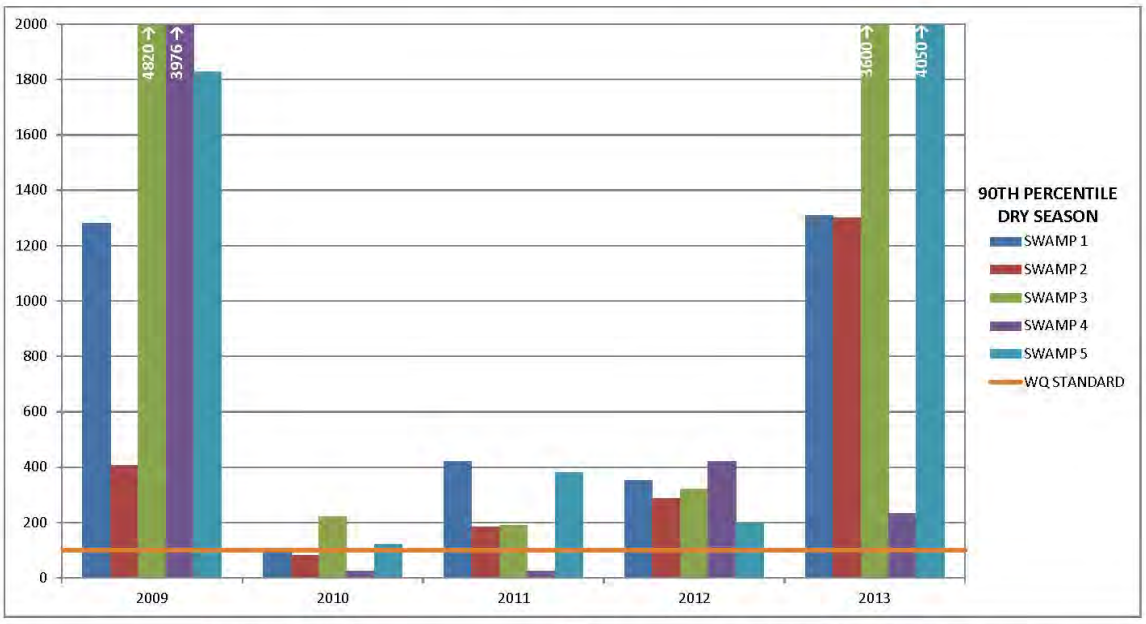


WET SEASON GEOMEAN					
	SWAMP 1	SWAMP 2	SWAMP 3	SWAMP 4	SWAMP 5
2009	294	82	143	58	77
2010	65	14	20	8	19
2011	530	45	56	6	35
2012	151	174	117	35	115
2013	71	38	204	30	62

WET SEASON 90TH PERCENTILE					
	SWAMP 1	SWAMP 2	SWAMP 3	SWAMP 4	SWAMP 5
2009	1476	178	480	173	232
2010	160	42	97	690	122
2011	1640	220	295	70	88
2012	532	1110	1080	596	1320
2013	112	74	1130	85	95

FIGURE 4 Kenmore, WA Swamp Creek fecal coliform dry season results - 2009 through 2013.





DRY SEASON GEOMEAN					
	SWAMP 1	SWAMP 2	SWAMP 3	SWAMP 4	SWAMP 5
2009	405	210	565	291	392
2010	58	24	104	13	43
2011	228	120	112	20	189
2012	184	135	129	378	147
2013	369	280	697	48	385

DRY SEASON 90TH PERCENTILE					
	SWAMP 1	SWAMP 2	SWAMP 3	SWAMP 4	SWAMP 5
2009	1280	406	4820	3976	1828
2010	104	82	220	26	122
2011	422	184	190	25	382
2012	353	286	321	422	196
2013	1310	1300	3600	234	4050

Table 3 provides a summary of the seasonal geomean and 90th percentile results over the entire five year monitoring program. Water quality standards were occasionally met depending on the season and site, but if all five years of data are combined and analyzed by season, then water quality standards for both geomean and 90th percentile values are exceeded except for the site Swamp 4 wet season geomean result.

		SWAMP 1	SWAMP 2	SWAMP 3	SWAMP 4	SWAMP 5
WET SEASON	GEOMEAN	152	56	87	22	55
	90TH PERCENTILE	580	347	716	191	208
DRY SEASON	GEOMEAN	222	136	289	64	203
	90TH PERCENTILE	1051	434	2030	395	1420

Table 3 *Geomean and 90th percentile fecal coliform values calculated from 2009 - 2013 data.*

Monitoring of fecal coliform concentrations in Swamp Creek from 2009 – 2013 revealed that water quality standards continued to be exceeded. Kenmore implemented several non-point source pollution controls within the City during this period, including:

- Public Education and involvement
- Management and maintenance of the City's storm sewer system
- Legal authorities and ordinances (i.e., pet wastes, illegal discharges, etc.)
- Pet waste management
- Assessment monitoring

Next Steps – 2015 and Beyond

Kenmore updated the Swamp Creek Fecal Coliform Bacteria TMDL QAPP as required by the 2013 Permit. A second monitoring project is required to begin by August 1, 2015 and monitoring is proposed at the same five sites as were proposed in the 2008 QAPP. Ongoing Swamp Creek TMDL activities in Kenmore include:

- Collect 12 fecal coliform samples at each site per calendar year (beginning by August 1, 2015).
- Targeted source identification and elimination activities will be conducted in the identified high priority area of Muck Creek (SWAMP 4).
- Inspect commercial animal handling areas and commercial composting facilities to ensure implementation of source control BMPs for bacteria.
- Conduct public education and outreach activities to increase awareness of bacterial pollution problems and promote proper pet waste management behavior.
- Install and maintain animal waste collection and/or educational stations at municipal parks and other Kenmore owned and operated lands reasonably expected to have substantial domestic animal (dog or horse) use and the potential for pollution of stormwater.
- Illicit Discharge Detection and Elimination (IDDE)-related field screening conducted under S5.C.3 of the Permit, which will include screening for bacteria sources in MS4 subbasins that discharge to Swamp Creek.

- Submit sample data to the Environmental Information Management System (EIM) database by May 31 of each year (beginning in 2016).
- Provide data summaries and narrative evaluation of the data in each annual report's TMDL summary to Ecology.

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Appendix D:

Stormwater Retrofit Memorandum

OSBORN CONSULTING INCORPORATED

1800 112TH AVENUE NE
SUITE 220E
BELLEVUE, WA 98004
(425) 451-4009

Date:	April 7, 2015
To:	Erin Nelson, PE, LG Altaterra Consulting, LLC
From:	Laura Ruppert, PE and Marie Phelan Amundson, EIT Osborn Consulting, Inc.
Subject:	Kenmore Surface Water Master Plan Retrofit Strategy Memorandum

This memorandum documents the stormwater retrofit strategy for stormwater management and water quality treatment for the City of Kenmore.

EXISTING CONDITIONS

Osborn Consulting, Inc. (OCI) utilized the Geographic Information System (GIS) to conduct a review of existing conditions within the City of Kenmore related to stormwater management. The City provided OCI with GIS map layers including parcels, sensitive areas, zoning, impervious surfaces, basin boundaries, and stormwater pipes, channels, and existing treatment facilities. Existing stormwater treatment facility drainage areas were also provided. Each stormwater facility has a recorded installation year, with approximately 53% installed since 1998. Thirty percent of the land is impervious, with the majority of land zoned for residential use.

RETROFIT STRATEGY

The purpose of the stormwater retrofit strategy is to provide the City with a framework for identifying opportunities to improve and expand upon existing stormwater treatment. To facilitate this, parcels were placed into one of five categories, where “old” is defined as prior to the 1998 design manual, and “newer” is post-1998:

- Areas that are **built-out** and **untreated**.
- Areas that are **built-out** and have **old facilities**.
- Areas that have development potential and are untreated.
- Areas that have development potential and old facilities.
- Areas that have **newer facilities**.

Table 1 identifies the different stormwater retrofit strategies associated with a variety of existing condition scenarios.

Table 1: Stormwater Retrofit Strategies		
Existing Condition	(Re-)Development Potential Existing % Impervious is < Zoning Requirements	Built-Out* Existing % Impervious is ≥ Zoning Requirements
Untreated	Install new facilities • Regional facilities • Partnering opportunity • Rely on developers to provide treatment • Focus on treatment of right-of-way (ROW)	Install new facilities • Focus on treatment of ROW • Incentivize private property owners to install treatment
Old Treatment (Pre-1998)	Retrofit old facilities • Modify facility size and/or control structure Install new facilities • Regional facilities • Partnering opportunity • Rely on developers to provide treatment • Focus on treatment of ROW	Retrofit old facilities • Modify facility size and/or control structure Install new facilities • Focus on treatment of ROW • Incentivize private property owners to install treatment
"Newer" Treatment (1998-current)	No retrofit recommended - assumes adequate treatment is provided or that other areas should have higher priority	
*Properties may still re-develop but will not increase % impervious compared to existing condition.		

METHODOLOGY

Potential area-specific retrofit opportunities were identified through a GIS analysis of existing data using the following steps:

1. Create a development GIS layer that shows parcels that can or cannot be developed in the future, based on current zoning.
2. Modify the existing stormwater facility GIS layer to include general categories of installation year.
3. Combine the development and existing stormwater facility GIS layers to evaluate the existing condition scenarios described in **Table 1**.

The process is described below.

Development

A "Development" layer was created to display parcels that are built-out or have development potential based on current zoning. The parcel GIS layer was modified with the addition of a "Development" field with the two choices of "Can Be Developed" and "Cannot Be Developed," according to current zoning.

OCI queried impervious surfaces and zoning categories. Impervious surfaces queried include rooflines, driveways, parking lots, patios/concrete pads, railroad yards, and walkways/sidewalks; ROW associated with roadways was not included in the query as ROW is not included in the zoning categories. The sum of the existing impervious area within each zoning category was divided by the total area of the zoning category to determine the average percent impervious. The average percent impervious was applied to each parcel within that zoning category. The City of Kenmore Zoning Code (Title 18) documents the maximum percent impervious allowable for each zoning category. OCI compared the average percent impervious calculated to the maximum allowable by the applicable zoning category to assess if there was potential for increased percent impervious. Parcels which did not meet the maximum allowable percent impervious were categorized as "Can Be Developed," while parcels which met or exceeded the maximum allowable were categorized as "Cannot Be Developed."

Several parcel-specific edits were made to the "Cannot Be Developed" parcels because of other conditions that would warrant them undevelopable, including the following:

- GIS information provided by the City for sensitive areas was used to identify areas where no future development will be allowed. These areas included wetlands, floodplains, and streams. Any parcel within a 150-foot buffer (which is the maximum width for wetlands and streams as shown in Chapter 18.55 Critical Areas of the Kenmore City Code) of these sensitive areas was removed from the query for development potential parcels and labeled "Cannot Be Developed."
- Parcels in some zoning categories were also removed, including parks, golf courses, and public or semi-public areas. OCI assumed these dedicated zoning areas would remain relatively unchanged in the future. These parcels were labeled "Cannot Be Developed."

The parcels remaining in the development potential query were labeled "Can Be Developed." A few flaws should be noted in this strategy.

1. Existing residential neighborhoods may not be utilizing the maximum lot impervious surface allowed in the zoning code, but are not likely to develop on a large scale.
2. Downtown Kenmore already meets the maximum impervious surface coverage for existing zoning categories, but also has parking lots, staging areas, trailer parks, etc. which could still be redeveloped.

See **Figure 1** for a map of the "Development" layer.

Facility Drainage Areas

The City of Kenmore provided a GIS shapefile with stormwater treatment facility structures and their corresponding drainage areas named "Facility Drainage Areas." OCI updated the existing shapefile to include an attribute for installation year, which was noted in the existing facility ID provided in GIS by the City. Only public facilities were considered for retrofit as privately owned facilities must be maintained by the owner. To determine which facilities lie in the "old facilities" class, OCI grouped the facilities by their installation date. Installation years were broken into the following groups:

- <1998
- 1998-2008
- 2009-2016
- >2016

These year ranges were chosen to generally correspond with Department of Ecology Manual updates. A new manual update will be released in 2016, which will apply to future retrofit analyses. However, for the current analysis, only the first three categories are considered. This analysis considers "old" to be pre-1998 installation. See **Figure 2** for a map of the "Facility Drainage Areas" layer.

Retrofit Potential

A "Retrofit Potential" layer was also copied from the parcel shapefile, and joined with the "Development" layer and the "Facility Drainage Areas" shapefiles. By querying the "Development" and "Facility Drainage Areas" layers, OCI overlapped those parcels that met the conditions of interest with regard to retrofit potential as described below:

- "Cannot Be Developed" and non-treated parcels were labeled **Built-Out & Untreated**;
- "Cannot Be Developed" and "Facility Drainage Areas" prior to 1998 were labeled **Built-Out & Old Facilities**;
- "Can Be Developed" and non-treated parcels were labeled **Dev Potential & Untreated**; and
- "Can Be Developed" and "Facility Drainage Areas" prior to 1998 were labeled **Dev Potential & Old Facilities**.

All other parcels were labeled "Newer Treated" and are not recommended for retrofit. See **Figure 3** for a map of the "Retrofit Potential" layer.

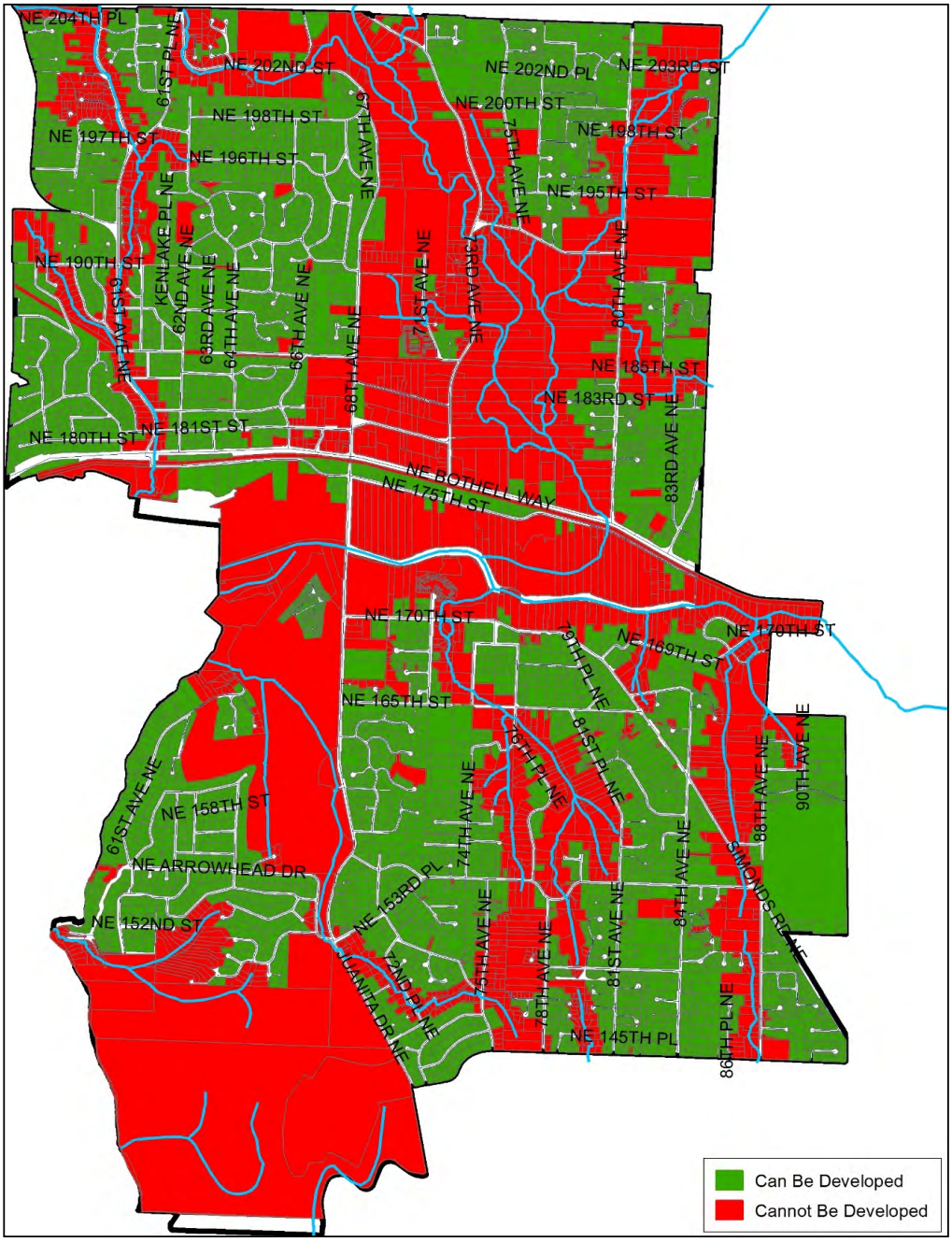


Figure 1: Development Layer

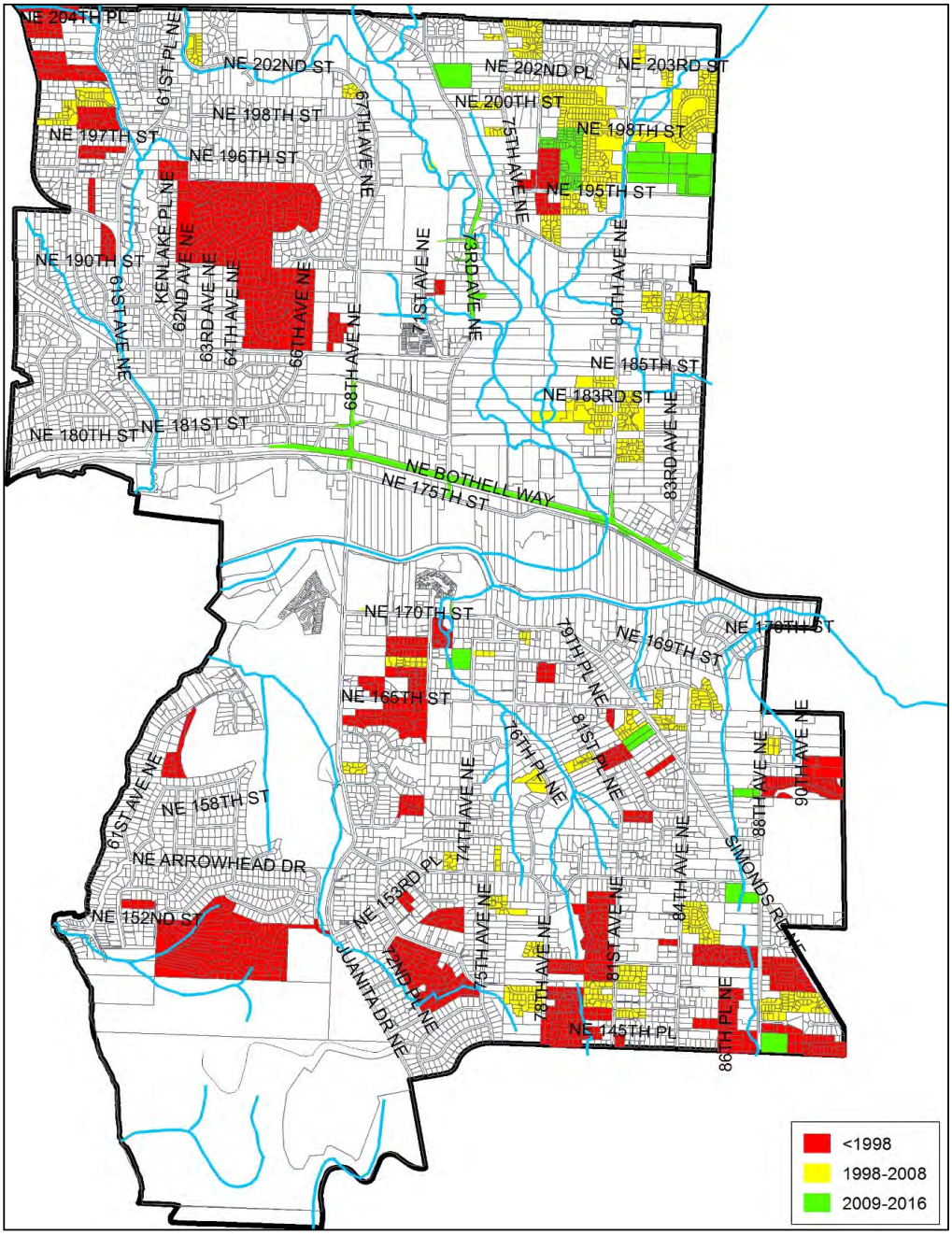


Figure 2: Facility Drainage Areas Layer

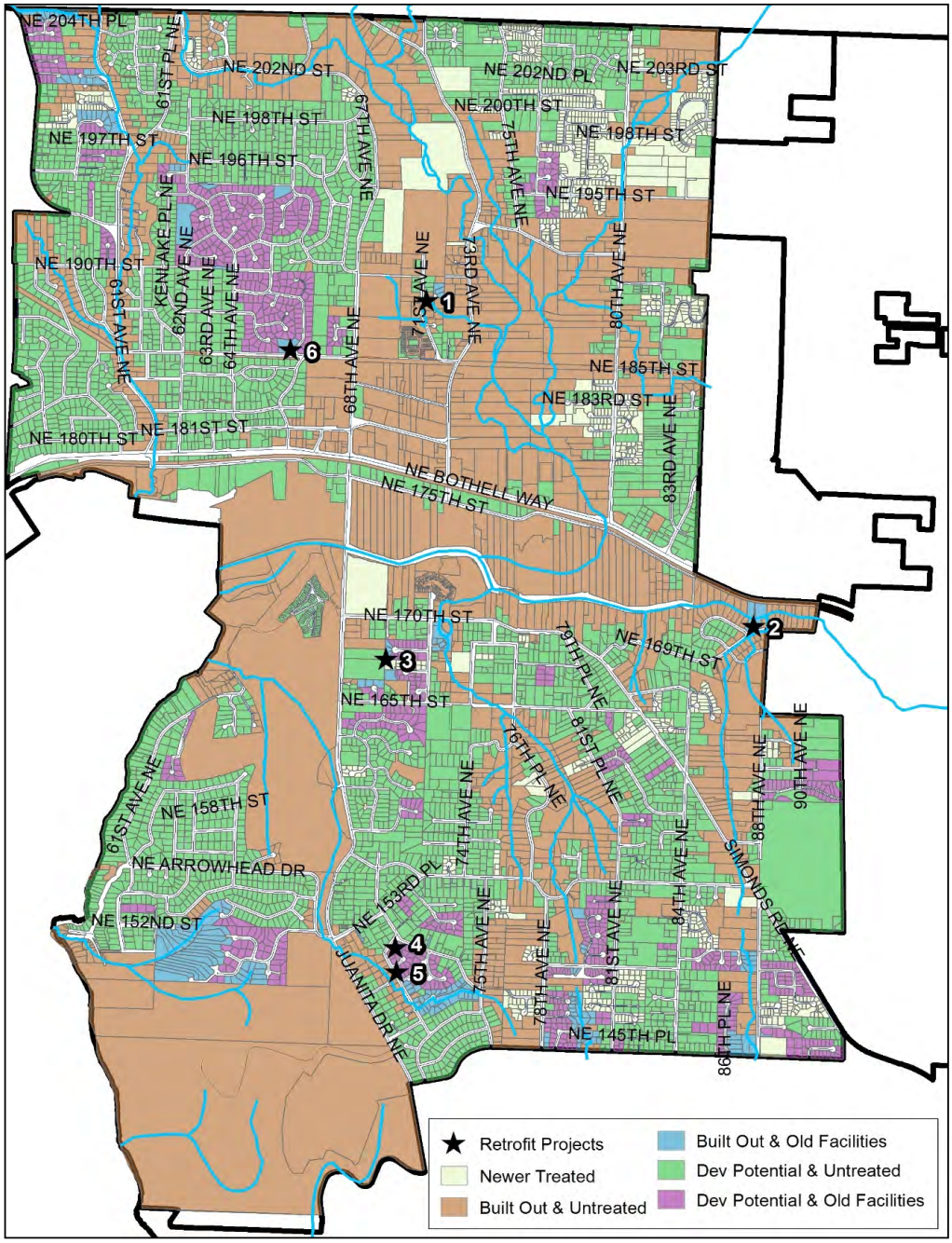


Figure 3: Retrofit Potential Layer

RETROFIT ANALYSIS

Using the layers developed above, it is possible to determine areas suitable for retrofit or installation of a new facility as described in **Table 1**. By reviewing ponds, vaults, and swales within the "Built Out & Old Facilities" and "Dev. Potential & Old Facilities" parcels, the City will be able to identify retrofit possibilities. The "Built Out & Untreated" and "Dev Potential & Untreated" parcels have the potential for new facilities. The City would need to provide treatment facilities for the "Built Out & Untreated" areas because existing developments are not required to install treatment facilities. "Dev Potential" parcels (a parcel which has not met or exceeded the maximum impervious area for the zoning designation), upon development or redevelopment, will require the developer to install facilities to meet current stormwater regulations.. Retrofit projects are typically less expensive and invasive than installing a new facility. Therefore, it is recommended that the City review the "Built Out" locations for potential retrofit projects, beginning with the old facilities before moving on to untreated locations requiring new facilities.

As an initial assessment, OCI focused on facilities located within the ROW or on City-owned properties adjacent to the "Old Facilities" parcels. Facilities within these parcels were analyzed for space and functionality of a retrofit project. Several meetings were conducted with the City to discuss problem areas, proposed development areas, and known capital improvement projects (CIPs). Six potential retrofit projects were developed with City input using the above process. These projects are outlined below in **Table 2**, and numbered on **Figure 3** above. The projects are preliminary examples of potential retrofit solutions within the City of Kenmore. As areas are developed or redeveloped, the City should reevaluate parcels using the process outlined in this report to develop and prioritize new projects as needed.

Table 2: Stormwater Retrofit Projects

Project Number	Project Name	Retrofit Potential
1	Muck Creek Duck Pond	Built Out & Old Facilities
2	Sammamish River Vaults	Built Out & Old Facilities
3	Inglewood Place Detention Pond	Built Out & Old Facilities
4	Bixby Knoll Pond 1	Dev Potential & Old Facilities
5	Bixby Knoll Pond 2	Dev Potential & Old Facilities
6	Northlake Heights Detention Pipes	Dev Potential & Old Facilities

1) Muck Creek Duck Pond

An existing pond on private property at 18810 71st Ave. NE serves as a duck pond (see **Figure 4**). The pond has filled with sediment and does not provide flow control. The pond may, however, provide water quality benefits. Potential retrofit options include converting the duck pond to a stormwater facility by dredging the pond to provide additional dead storage or adding a control structure to establish live storage.

Figure 4: Muck Creek Duck Pond

2) Sammamish River Vaults

Two existing vaults adjacent to the Sammamish River at NE 170th Street and NE 169th Place collect sediment from stormwater runoff that is routed to these facilities and require annual cleaning (see **Figure 5**). One vault is 6.5-feet by 12-feet, while the other is 6.5-feet by 10-feet. Inlet and outlet pipes are 30-inch diameter concrete pipes. The vaults were installed in 1990 and are likely undersized to meet current stormwater regulations. Replacing and upsizing the vaults, as well as replacing the 30-inch CMP pipes will provide increased storage capacity to improve water quality by allowing additional time for pollutants to settle.

Figure 5: Sammamish River Vaults

3) Inglewood Place Detention Pond

An existing detention pond was installed in 1988 (see **Figure 6**). The pond has an existing surface area of approximately 850 square feet, and is designed to treat runoff from NE 168th St. The pond outfalls to a piped conveyance system that flows to Juanita Drive NE, then to the Sammamish River. While the parcel is not large enough to extensively increase pond size, there is an opportunity to add water quality features, such as wetland vegetation or bio-filtration elements along NE 168th Street.

Figure 6: Inglewood Place Detention Pond

4) Bixby Knoll Pond 1

The Bixby Knoll Stormwater Pond 1 is located on 72nd Place NE, just west of NE 150th Street (see **Figure 7** for a photo of the pond exit). The pond was installed in 1977 and receives runoff from NE 150th Street and 73rd Avenue NE. The pond does not have a control structure, however a structure could be installed at the outlet to provide additional detention.

Figure 7: Bixby Knoll Stormwater Pond 1

5) Bixby Knoll Pond 2

The Bixby Knoll Stormwater Pond 2 is located at the corner of 72nd Place NE and NE 149th Place (see **Figure 8** for a photo of the pond outlet). The pond was installed in 1977 and receives runoff from NE 149th Place, NE 148th Place, and 72nd Place NE. No control structure is currently in place, however, a control structure could be installed at the outlet to provide additional detention. Water quality structures can be installed along 72nd Place NE to provide water quality treatment before runoff enters the pond.

Figure 8: Bixby Knoll Stormwater Pond 2

6) Northlake Heights Detention Pipes

Two 60-inch CMP detention pipes installed in 1978 are located at 66th Avenue NE and NE 185th Street (see **Figure 9**). A Department of Ecology grant-funded Low Impact Development (LID) project is currently being designed for the Northlake Heights Basin, which includes the detention pipes. The LID project may include detention pipe replacement as part of the project. Updated pipes and structures will provide flow control and contribute to water quality improvements proposed along NE 185th Street.

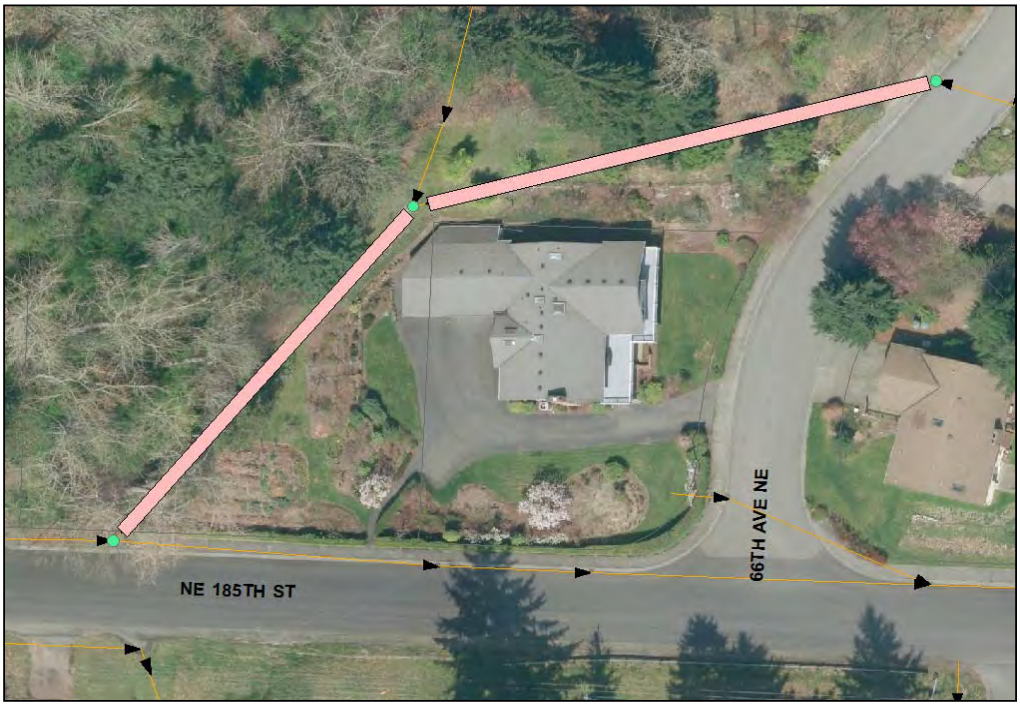


Figure 9: Detention Pipes along NE 185th Street

Appendix E:

Capital Improvement Project Summary Sheets

Project:	Tributary 0056 Erosion and Stream Repair		ID: SW-08
Location:	61st Avenue NE and NE 190th Street	Basin:	Tributary 0056
Project Type:	☐Water Quality ☐Fish Passage ☐Flow Control ☒Erosion ☐Drainage ☐Flooding	Preliminary Project Cost:	$1,111,000
Problem:	Stream channel and sidewalk erosion		

Project Overview

Tributary 0056 flows from north to south along the east side 61st Avenue NE. There are three problems where Tributary 0056 crosses NE 190th Street:

1. Stream channel bank erosion along a 155-LF section of rock wall has resulted in failed sections where rocks have fallen into the channel. The full extent of the damage is unclear.
2. Rock wall headwalls are at the inlet and outlet of the culvert and protect 61st Avenue NE from stream flow. Stream flows have eroded the existing slope and rock headwall north of NE 190th Street, resulting in an unstable headwall. Stream flows have been observed bypassing the culvert. It is unknown where the piping water goes.
3. Runoff from NE 190th Street concentrates at the northeast side of the street where the sidewalk transitions to gravel, causing the sidewalk to be undermined.

This project was identified by the City in 2013. A surface water field investigation report and recommendations were prepared by consultants in February 2013.

The preferred solutions include:

1. Conducting a geotechnical and structural evaluation of 155-LF of rock wall to determine stabilization measures necessary to protect 61st Avenue NE. If rock wall improvements are needed, stream improvements will likely be required for mitigation associated with stabilization of the rock wall and will also serve to redirect flow away from the stream bank.
2. Replacing the upstream culvert headwall with a concrete headwall in accordance with recommendations in the February 2013 surface water field investigation report.
3. Installing an asphalt berm along NE 190th Street from the existing curb to the edge of the first driveway to direct runoff to the stormwater system on 61st Avenue NE rather than the stream. This solution also involves filling the void under the existing sidewalk with grout or concrete.

Project benefits include protection of existing infrastructure (sidewalk and roadway) and improved stream habitat.

Rocks from wall that fell into the stream

Undercut sidewalk at NE 190th Street

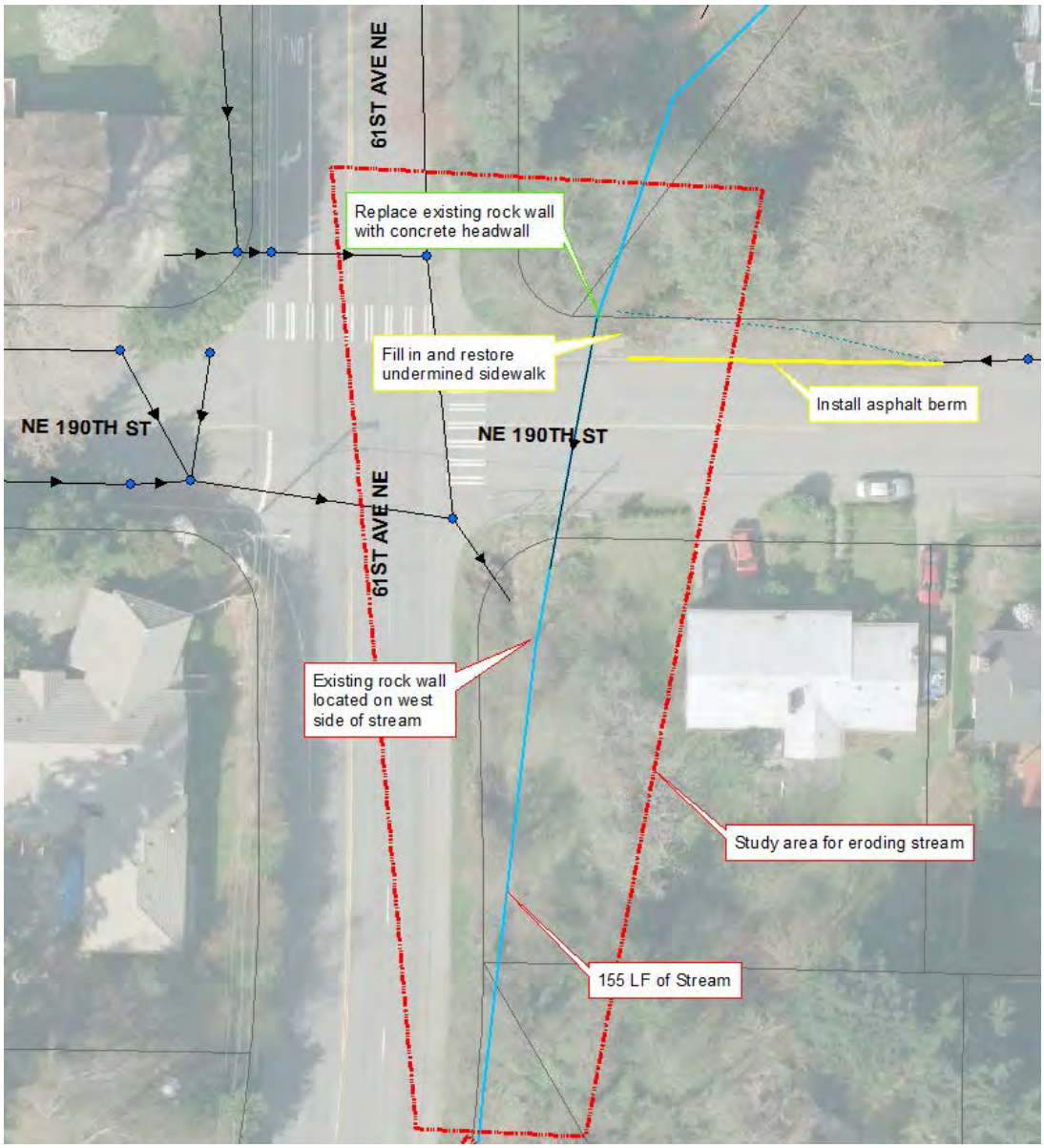
Conceptual Design

1 & 2. Conduct geotechnical and structural evaluations to determine the full extent of rock wall repair and mitigation necessary to protect existing infrastructure.

- The cost estimate assumes the entire 155-LF section of wall will need to be repaired. Geotechnical and structural evaluation will determine the actual amount of wall repair needed.
- Wall repairs below the stream's ordinary high water mark will likely require stream restoration mitigation, along the entire 155 LF. Stream restoration will include a modified channel cross-section that includes a floodplain bench, removal of invasive plant species, and installation of large woody debris and riparian planting.
- Resource agencies may encourage replacing the existing culvert with a wider, fish-passable culvert if headwall repairs are proposed. The cost estimate below assumes both headwalls are repaired and a new culvert is installed.
- The design schedule for stream restoration shall account for time to obtain temporary or permanent easements and in-water work permits from WDFW and USACE.

3. The preferred solution for the undermined sidewalk is to install an asphalt berm along the north side of NE 190th Street and fill in the damaged portion of the sidewalk with grout or concrete. A loss of parking will occur. This work is within the City ROW and above the stream's ordinary high water mark, so the solution can be designed and constructed faster than the in-water work described above.

Considerations for Implementation	• Bundle all improvements with work below the ordinary high water mark as one project with one set of permit documents. • Remove vegetation, with the exception of trees. If tree removal is necessary, a tree removal permit will be required. Environmental permitting will include a SEPA checklist, WDFW HPA, USACE permits, and Tribe coordination. • Temporary construction easements may be needed for in-stream work along 61st Avenue NE. Acquiring permanent easements will allow more flexibility in stream restoration design.


61ST AVE NE
Replace existing rock wall with concrete headwall
Fill in and restore undermined sidewalk
Install asphalt berm
NE 190TH ST
NE 190TH ST
61ST AVE NE
Existing rock wall located on west side of stream
Study area for eroding stream
155 LF of Stream

Planning-level Cost Estimate

Asphalt Berm				
Item	**Unit**	**Unit Cost**	**Quantity**	**Cost**
Water Pollution/Erosion Control	%	5%		$75
SPCC Plan	LS	$500	0	$0
Traffic Control	%	7%		$100
Clearing & Grubbing	SY	$5	20	$100
Extruded Curb	LF	$15	81	$1,215
Subtotal				$1,490
Contractor overhead, profit, and mobilization			10%	$149
Washington State Sales Tax			9.5%	$142
Construction Contingency			50%	$745
Subtotal Construction Costs				$2,526
City Staff Time			10%	$253
Administration and engineering design			20%	$505
Design Contingency			20%	$505
Permitting				$0
Land acquisition and easements	SF	$5	0	$0
			Total Berm Cost	**$3,800**
			Geotechnical/Structural Analysis	**$5,000**

Rock Wall and Stream work				
Item	**Unit**	**Unit Cost**	**Quantity**	**Cost**
Water Pollution/Erosion Control	%	5%		$21,000
SPCC Plan	LS	$500	1	$500
Traffic Control	%	7%		$29,000
Rock wall repair (along 61st Ave NE)	LF	$1,000	155	$155,000
Temporary Stream Bypass	LS	$24,000	1	$24,000
Stream restoration	LF	$460	155	$71,300
New Concrete Headwall	EA	$50,000	2	$100,000
HMA CL 1/2 IN PG 64-22	TON	$200	10	$2,000
Fish Passage Culvert (83-In. X 53-In.)	LF	$700	30	$21,000
Subtotal				$423,800
Contractor overhead, profit, and mobilization			10%	$42,380
Washington State Sales Tax			9.5%	$40,261
Construction Contingency			50%	$211,900
Subtotal Construction Costs				$718,341
City Staff Time			10%	$71,834
Administration and engineering design			20%	$143,668
Design Contingency			20%	$143,668
Permitting				$15,000
Land acquisition and easements	SF	$5	1,860	$9,300
			Total Rock Wall and Stream Work Cost	**$1,101,900**
		Combined Total		**$ 1,111,000.00**

Project:	Little Swamp Creek Flooding		ID: SW-17
Location:	80th Avenue NE – Between NE 200th Street and NE 193rd Place	Basin:	Little Swamp Creek
Project Type:	☐Water Quality ☐Fish Passage ☐Flow Control ☐Erosion ☐Drainage ☒Flooding	Preliminary Project Cost:	$1,264,400
Problem:	Stream flooding roadway		

Project Overview

Little Swamp Creek flows from north to south along 80th Avenue NE and crosses from the east side to the west side of the street just south of NE 198th Street. The project site is located between NE 200th Street and NE 193rd Place. There are two problems at this location:

1. A channel on the west side of 80th Avenue NE overflows the culverts at NE 200th Street and NE 198th Street, causing roadway flooding. Culvert inlet capacity and debris clogs are the assumed problems.
2. Little Swamp Creek overtops multiple road and driveway culverts, flooding both public ROW and private properties between NE 198th Street and NE 193rd Place.

The City of Kenmore has begun to obtain additional ROW along the west side of 80th Avenue NE and will continue to do so as properties develop. The additional ROW allows room to modify the Little Swamp Creek cross section and alignment.

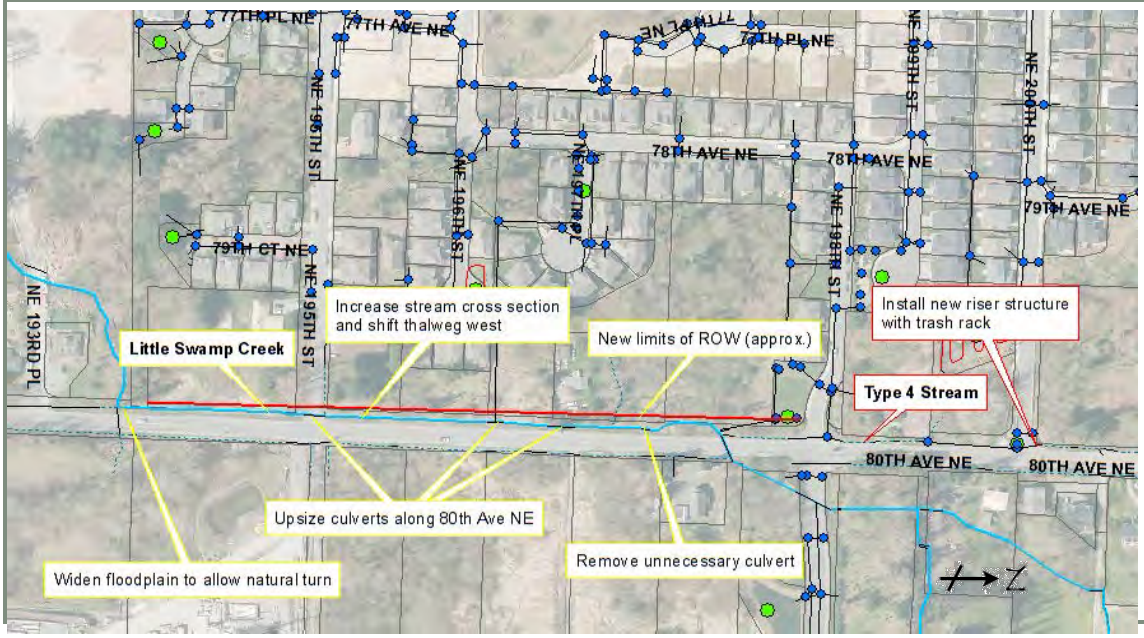
Solutions to the problems include:

1. Installing a trash rack/debris barrier at the NE 200th Street culvert inlet to prevent debris clogs and maintain inlet capacity. Mowing vegetation along the Type 4 stream banks to maintain channel conveyance capacity.
2. Removing 1 culvert and replacing 3 undersized culverts with larger, fish-passable culverts. Modifying the Little Swamp Creek cross section to include a floodplain bench. Installing riparian plantings and floodplain bench. Allowing channel to meander within the extended ROW.

Project benefits include flood reduction and improved stream habitat.

Existing stream channel along 80th Avenue NE

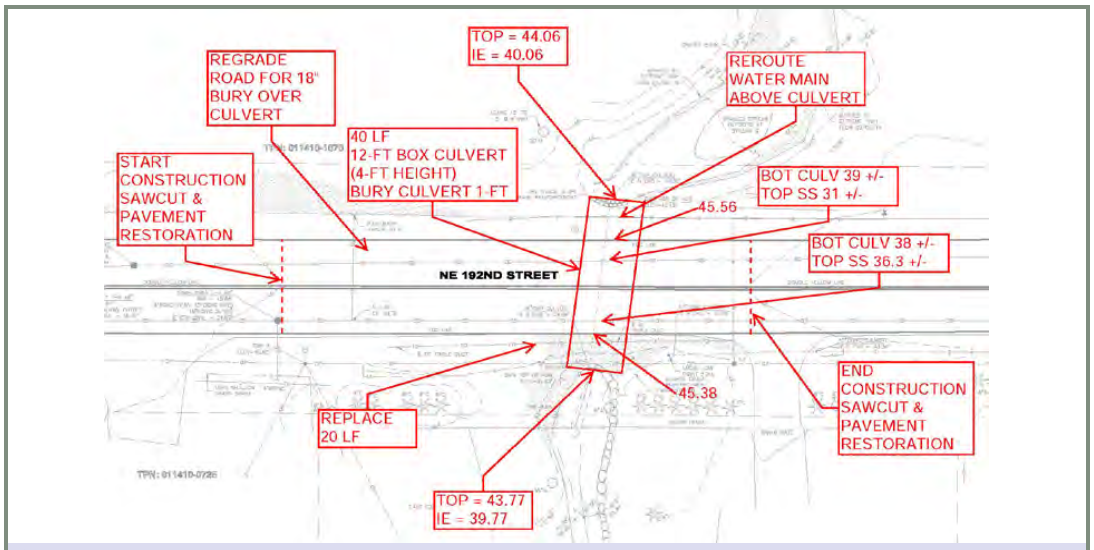
Conceptual Design	Solutions for flooding at Type 4 stream (indicated with red in the figure below): • Install a trash rack/debris barrier at the NE 200th Street culvert inlet to capture debris and prevent downstream system clogging. This solution assumes debris clogs reduce inlet capacity. • Verify conveyance capacity of the existing culverts (NE 200th Street and NE 198th Street). Solutions for flooding in Little Swamp Creek (indicated with yellow in the figure below): • Modify the Little Swamp Creek cross section to include the floodplain. Move the thalweg away from 80th Avenue NE and allow the stream to meander and fully utilize the newly obtained ROW. • Remove 1 unnecessary culvert (verify with property owner that field access is no longer needed). • Replace 3 existing undersized culverts with fish-passable culverts. • Widen the floodplain at the 90-degree bend in Little Swamp Creek downstream of NE 195th Street. Install large woody debris on the outside of the turn and install rocks to help facilitate the sharp turn.
Considerations for Implementation	• Environmental permitting will include a SEPA checklist, WDFW HPA, and USACE permits. • ROW acquisition will need to be completed before Little Swamp Creek stream restoration can commence. • Downstream analyses and coordination with downstream projects (e.g., the 192nd Culvert Options Analysis) will need to be conducted to ensure properties are not adversely affected, and the downstream culvert replacement project at NE 192nd Street is not impacted. The new channel will have increased roughness and floodplain, which will help to reduce stream velocity. The detention effect of the undersized culverts is assumed to be minimal as floodwater overtopped the culverts and remained in the creek. • Temporary stream bypass and fish exclusion should be used during construction. • Traffic control will be needed.



Cost Estimate

Item	Unit	Unit Cost	Quantity	Cost
Water Pollution/Erosion Control	%	5%		$17,000
SPCC Plan	LS	$500	1	$500
Traffic Control	%	5%		$17,000
Clearing & Grubbing	SY	$5	1700	$8,500
Excavation Incl. Haul	CY	$35	840	$29,400
Cement Conc. Sidewalk	SY	52	333.333333	$17,333
Temporary Stream Bypass	LS	$24,000	1	$24,000
Trash Rack / Debris Barrier	EA	$1,000	1	$1,000
HMA CL 1/2 IN PG 64-22	TON	$200	30	$6,000
Fish Passage Culvert (83-In. X 53-In.)	LF	$700	120	$84,000
Streambed Gravel	CY	$50	280	$14,000
Large Woody Debris	EA	$1,200	55	$66,000
Planting and Bioengineered Restoration	SY	$40	1700	$68,000
Subtotal				$352,733
Contractor overhead, profit, and mobilization			10%	$35,273
Washington State Sales Tax			9.5%	$33,510
Construction Contingency			50%	$176,367
Subtotal Construction Costs				$597,883
City Staff Time			10%	$59,788
Administration and engineering design			20%	$119,577
Design Contingency			20%	$119,577
Permitting				$15,000
ROW acquisition contingency				$352,500
Total Project Cost				**$1,264,400**

Project:	Little Swamp Creek Culvert Replacement at NE 192nd Street		ID: SW-19
Location:	NE 192nd Street – West of 80th Avenue NE	Basin:	Little Swamp Creek
Project Type:	☐Water Quality ☒Fish Passage ☐Flow Control ☐Erosion ☐Drainage ☒Flooding	Preliminary Project Cost:	$395,000
Problem:	Flooding at low point in road		
Project Overview	Flooding occurs at the NE 192nd Street culvert carrying Little Swamp Creek at the low point in the road. Based on modeling results, the road floods at the 25-year event because the culvert is undersized. Modeling showed flooding to be as high as 1 foot on the roadway. This is the depth at which most cars and sport utility vehicles can float. This project was identified by the City in 2006. OCI was contracted in 2014 to develop the 192nd Culvert Final Options Analysis Report (OCI 2014). Several options were considered: high-flow bypass, existing culvert replacement with a fish-passable culvert, a street elevation increase, and a no-build alternative. The preferred solution is to replace the existing culvert with a 12-foot by 3-foot fish-passable culvert. Project benefits include flood reduction and improved fish passage. Additional modeling or analysis may be needed to determine impacts to downstream Swamp Creek.	 Culvert at NE 192nd Street (downstream side)	
Conceptual Design	The preferred solution is installation of a 12-foot by 3-foot box culvert in place of the existing culvert. This size conveys the 100-year event without flooding or overtopping. Other solutions considered: • High-flow bypass o A 24-inch bypass culvert was considered in conjunction with a riser structure, which would convey flows in the 25-year event and higher. o This option will likely not be approved by WDFW because it does not meet code requirements for culvert depth. • 1-foot road elevation increase o This option is not feasible because the water levels rise more than 5 feet during large storm events. • No-build o This option would allow continued flooding and debris blockage of the culvert.		
Considerations for Implementation	• Environmental permitting will require a SEPA checklist, WDFW HPA, and USACE permits. • A geomorphologic assessment is recommended. • A downstream analysis should be conducted to evaluate how or if downstream infrastructure or properties could be affected by improvements. • Temporary stream bypass and fish exclusion should be used during construction. • Coordination with the upstream Little Swamp Creek Flooding CIP (included in the SWMP as CIP #7) will need to be conducted to ensure upstream project is not adversely affected (no modeling or analysis has been performed to determine impacts of the preferred solution to the upstream or downstream system). • Traffic control will be needed. • Cost estimate is from the options analysis report discussed in the narrative above, with the addition of a geomorphologic analysis.		

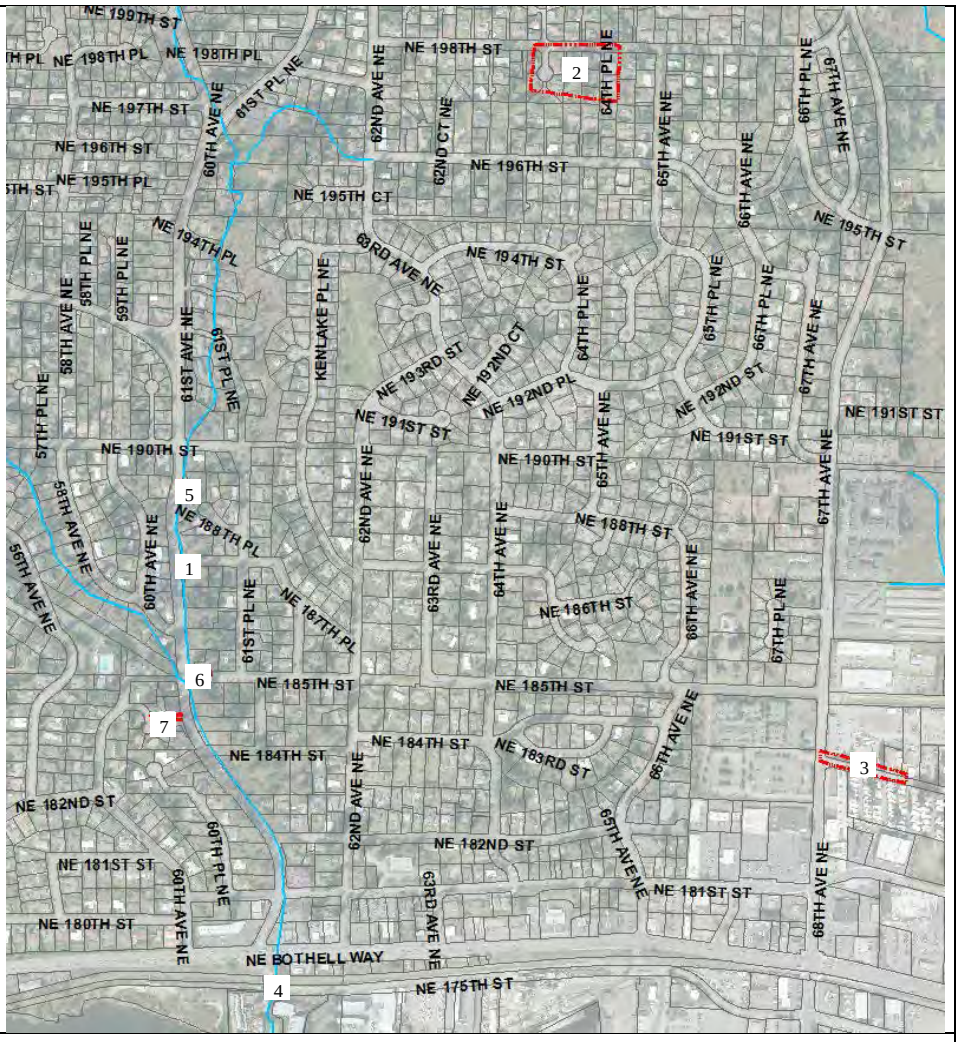


Cost Estimate

Item	Unit	Unit Cost	Quantity	Cost
Mobilization	LS		1	$13,275.10
Force Account	LS	$25,000	1	$25,000.00
Traffic Control	LS	$30,000	1	$30,000.00
Temporary Erosion and Sediment Control	LS	10%	1	$14,090.10
Removing Asphalt Conc. Pavement	SY	$20	342	$6,844.00
Removing 36-inch culvert	LF	$17	41	$697.00
12 WF x 40 LF x DF Box Culvert	LF	$1,100	40	$44,000.00
Structural Fill (Beneath culvert)	CY	$65	60	$3,900.00
Installation Box Culvert	LS	$44,000	1	$44,000.00
Replace Water Main	LF	$110	50	$5,500.00
Reroute Fiber Optic Duct Bank	LS	$5,000	1	$5,000.00
Crushed surfacing base course	TON	$50	106	$5,275.00
HMA CL ½ IN PG 64-22	TON	$150	117	$17,535.00
Structure Excavation Class B Incl. Haul	CY	$50	163	$8,150.00
			Subtotal	$223,266.20
		Washington State Sales Tax	9.5%	$21,210.29
		Subtotal Construction Line Item (+ tax)		**$244,476.49**
		Easement Acquisition		$0.00
		Engineering Design	40%	$89,306.48
		Permitting	15%	$33,489.93
		Construction Management	10%	$22,326.62
		Geomorphologist		$5,000
		Soft Cost Subtotal		**$150,123.03**
		Total Project Cost		**$395,000.00**

Project:	Small Works Projects		ID: SW-20
Location:	**20-1: 61st Ave NE and NE 187th St.** **20-2: 64th Ave NE and NE 198th St.** **20-3: NE 182nd St. and 68th Ave NE** **20-4: NE 175th St., south of SR-522** **20-5: 61st Ave NE, south of NE 190th St.** **20-6: NE 185th St. and 61st Ave NE** **20-7: Connecting 60th Pl NE & 61st Ave NE**	Basin:	**Tributary 0056, Swamp Creek, and Muck Creek**
Project Type:	☐**Water Quality** ☐**Fish Passage** ☐**Flow Control** ☒**Erosion** ☒**Drainage** ☒**Flooding**	Preliminary Project Cost:	**$50,000 per year**
Problem:	**Erosion and drainage problems at various locations**		
Narrative	The annual small works projects will consist of an evolving list of projects. Several currently identified problem areas are included in this CIP as an example. New problem areas will be identified each year. Seven locations (shown on the overview map on the next page) in Kenmore have erosion or drainage problems with solutions that City staff are capable of designing and constructing without outside assistance. Three locations (numbers 1, 5, and 6) have issues with half pipes leading from private property to Tributary 0056. The half pipes are broken or deteriorating and causing erosion problems in the stream. A fourth location (number 7) with a deteriorating half pipe is impacting the City right-of-way by depositing debris onto the roadway. Location number 2 is experiencing groundwater seepage issues resulting in surface water flow down the steep street. Flooding and icy roads are a concern in this area. (Note: photo at the right was taken during a period with no rainfall.) A private drive to the east of this location is experiencing similar issues. At NE 182nd St. and 68th Ave NE (number 3), topography along NE 182ND St. conveys surface water northward onto private property, which is located in an enclosed depression. Just south of SR-522 at NE 175th Street (number 4), a diversion structure has poor access and requires frequent maintenance. Maintenance crews have trouble with the gate, ladder, and fence. The diversion procedure also requires some modifications to improve functionality of the structure. Potential solutions and benefits for each type of project are outlined in the following pages. The annual budget for these types of projects is $50,000 per year.	 **Half pipe at location number 23.** **Groundwater flows at location number 10.**	

Overview Map



Schedule

SW-20 Annual Small Works Projects	Annual Program											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alternative Analysis												
Preliminary Design												
Permitting												
Final Design and PS&E												
Advertise and Contractor Procurement												
Construction												

Project:	Half Pipe Projects		ID:	SW-20 (1,5,6,7)
Location:	**20-1: 61st Ave NE and NE 187th St.** **20-5: 61st Ave NE, south of NE 190th St.** **20-6: NE 185th St. and 61st Ave NE** **20-7: Connecting 60th Pl NE & 61st Ave NE**	Basin:	**Tributary 0056**	
Project Type:	☐**Water Quality** ☐**Fish Passage** ☐**Flow Control** ☒**Erosion** ☒**Drainage** ☒**Flooding**	Preliminary Project Cost:	**N/A**	
Problem:	**Erosion and deteriorating half pipes**			
Narrative	Three locations (numbers 1, 5, and 6) have issues with half pipes leading from private property to Tributary 0056. The half pipes are broken or deteriorating and causing erosion problems. A fourth location (number 7) with a deteriorating half pipe is impacting the City right-of-way by depositing debris onto the roadway. These projects were identified by the City in 2013 during a field walk of Tributary 0056. The preferred solution to resolve the issue of deteriorating half pipes is to replace the existing half pipes with new tightline pipes. Outfalls to Tributary 0056 shall be placed above the ordinary high water mark with energy dissipation to minimize erosion. Existing erosion damage shall be repaired to match the surrounding ground cover. The existing half pipe between 60th Pl. NE and 61st Ave NE (number 7) is not within an easement. The proposed pipe shall be re-aligned through existing right-of-way or easement, establish a new easement or require the property owner to repair the system. The proposed pipe connects to the existing storm drainage system. Project benefits include reduced erosion in and adjacent to Tributary 0056 and reduced debris deposition and flooding within the right-of-way.	 **Tributary 0056.**		

Conceptual Design	Preferred Solutions:
	• Location numbers 1, 5, and 6:
	  o Replace existing half pipe with 12-inch PVC or HDPE tightline.
	  o Pipe anchors may be needed to ensure pipe does not move.
	• Location number 7:
	  o Establish a permanent easement for the tightline alignment.
	  o Replace existing system with 12-inch PVC or HDPE tightline.
	  o Pipe anchors may be needed to ensure pipe does not move.			

Considerations for Implementation	• Proposed pipe sizes are based on the sizes of surrounding pipes. No analysis was conducted to verify conveyance capacity. • Field visits should be conducted to assess if additional inlets should be added. • Vegetation removal is necessary, but removing trees shall be avoided. If tree removal becomes necessary, a tree removal permit is required. • Protect existing roadway, sidewalks, and property. Restore disturbed areas to original condition. • Environmental permitting including SEPA checklist and WDFW HPA. • Temporary construction easements may be needed for half pipe replacement on private property. • In-stream work should be minimized. • Traffic control may be needed.			

Project:	Groundwater Seepage		ID: SW-20 (2)
Location:	**20-2: 64th Ave NE and NE 198th St.**	Basin:	**Swamp Creek**
Project Type:	☐Water Quality ☐Fish Passage ☐Flow Control ☐Erosion ☒Drainage ☒Flooding	Preliminary Project Cost:	**N/A**
Problem:	**Groundwater seepage causing flooding**		
Narrative	Location number 2, in the cul-de-sac of 64th Ave NE, is experiencing groundwater seepage issues, which send flow down the steeply sloped street. Flooding on private property and icy roads are a concern in this area. This project was identified by the City in 2013 from complaints submitted by residents in the cul-de-sac. The preferred solution for this project is to capture and convey the groundwater flow before it reaches the surface. One inlet is proposed to be installed in the grassy area between the driveways for 19704 64th Ave NE and 19712 64th Ave NE. A second inlet is proposed to be installed on the property of 19722 64th Ave NE, which is shown in the photo on the right side of this page. A series of pipes should lead from these inlets to the existing catch basin at NE 198th St. Project benefits include reduced flooding and hazardous conditions on 64th Ave NE. A similar issue is occurring at 64th Pl NE, a private drive to the east of 64th Ave NE. The City is not responsible for alleviating flooding on that roadway. However, this CIP design would work for this issue as well, should the residents wish to resolve the problem.	 **Groundwater seepage at 19722 64th Ave NE (looking north toward NE 198th St.).**	
Conceptual Design	Preferred Solution: • Install two catch basins along 64th Ave NE at the locations mentioned in the narrative. Inlets shall be placed within the right of way where they can collect surface water from the yards. • Install 12-inch PVC storm drain pipe connecting the proposed catch basins to the existing storm drain system at 64th Ave NE and NE 198th St. (CB 2627) o If additional groundwater collection is desired, PVC storm drain pipe may be replaced with an interceptor trench comprised of: perforated pipe in a gravel backfill trench wrapped in a non-woven geotextile fabric. Perform additional analysis to estimate the amount of groundwater that may be collected and verify the conveyance capacity of the downstream system prior to implementing this solution.		
Considerations for Implementation	• Coordinate with adjacent properties mentioned in the narrative. • All work will be performed within the right-of-way. Should any work be required on private property, temporary construction easements will be needed. • Roadway and properties (including lawns, driveways, etc.) should be restored to original condition following construction. • The 12-inch pipe diameter was assumed based on other pipes in the region. No analysis was conducted to determine the size required to convey the groundwater.		

Project:	Stormwater Infrastructure Installation		ID: SW-20 (3)
Location:	**20-3: NE 182nd St. and 68th Ave NE**	Basin:	**Muck Creek**
Project Type:	☐Water Quality ☐Fish Passage ☐Flow Control ☐Erosion ☒Drainage ☒Flooding	Preliminary Project Cost:	**N/A**
Problem:	**Runoff from ROW flooding private property**		

Narrative

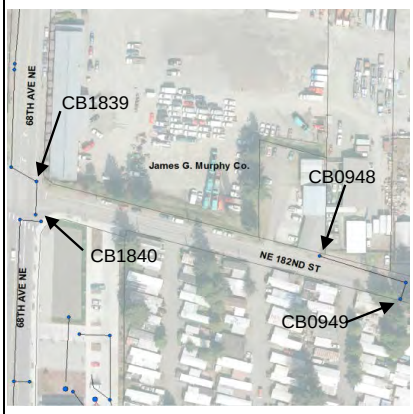
At NE 182nd St. and 68th Ave NE (location 15), runoff from the City right-of-way is flooding private property due to a lack of conveyance system. Drainage issue complaints have been filed at James G. Murphy Co. No other sites have reported issues, but may be experiencing flooding as well.

An recent City project constructed intersection improvements at NE 182nd St. and 68th Ave. NE in 2014. A stub out for a new system at the northeast corner (CB1839) may have been included with this work (to be confirmed by the City).

This project was identified by the City after complaints from the James G. Murphy Co. were filed.

The preferred solution includes adding a collection and conveyance system along NE 182nd St. in conjunction with the proposed intersection improvements. The City shall provide stub outs for businesses along NE 182nd St.

Project benefits include alleviating flooding on nearby properties. By combining the conveyance installation with improvements along NE 182nd, the City is saving money, resources, and time.



NE 182nd St. and 68th Ave NE., James G. Murphy Co. to the northwest.

Conceptual Design

Preferred Solution:

- Install conveyance system connecting existing catch basins on north side of NE 182nd St.
  - Install two 12-inch pipes and one catch basin type 1 between existing catch basins CB0948 and CB1839.
- Install conveyance system on the south side of NE 182nd St.
  - Install three 12-inch pipes and two catch basins type 1 between existing catch basins CB0949 and CB1840.

Considerations for Implementation

- No analysis has been conducted to size the conveyance system. Proposed sizes and types are assumed based on surrounding systems.
- All work should be within the City right-of-way.
- Coordinate with intersection improvement designers for construction.
- Traffic control is assumed to be part of the intersection improvement project.

Project:	Diversion Structure Improvement		ID: SW-20 (4)
Location:	**20-4: NE 175th St., south of SR-522**	Basin:	**Tributary 0056**
Project Type:	☐Water Quality ☐Fish Passage ☐Flow Control ☐Erosion ☒Drainage ☐Flooding	Preliminary Project Cost:	**N/A**
Problem:	**Poor access and frequent maintenance issues**		
Narrative	South of SR-522 at NE 175th St (location 4), a diversion structure has poor access and requires frequent maintenance. Maintenance crews have trouble with the gate, ladder, and fence. The diversion procedure also requires some improvements. This project was identified by City maintenance crews in 2013. Potential solutions include replacing the old and rusted flap gate, replacing the aging ladder, improving maintenance crew access, and developing an enhanced diversion procedure. Better access may include coordinating with King Co. on creating easier access to the diversion structure (i.e. a gate or opening in the fence with limited access). Project benefits include easier maintenance for City crews, improved functionality of the diversion structure, improved safety for the maintenance crews, and prolonged life of the culverts in the area.	 **Diversion structure at Burke-Gilman Trail at NE 175th St., looking east.**	
Conceptual Design	Potential Solutions: • Replace the existing flap gate. • Replace the existing ladder with a new, more accessible ladder. • Improve access to the diversion structure. • Improve the diversion procedure. This may include adding a storage building that houses diversion materials (i.e. sand bags or a bladder dam on site. • Update the O&M Manual to include the improvements.		
Considerations for Implementation	• Coordinate with King Co. for any improvements to the fence. • Environmental permitting may be required. • The tree adjacent to the diversion structure shall not be affected by the project. • Protect existing trail and roadway. • Traffic control may be needed.		

Project:	61st Avenue NE Ground Penetrating Radar Evaluation and Preliminary Design		ID: SW-21
Location:	61st Ave NE and NE 190th Street	Basin:	Tributary 0056
Project Type:	☐Water Quality ☐Fish Passage ☐Flow Control ☒Erosion ☐Drainage ☐Flooding	Preliminary Project Cost:	$100,000
Problem:	Stream eroding near roadway		

Narrative

Tributary 0056 flows from north to south along the east side 61st Ave NE. There are three problems where Tributary 0056 crosses NE 190th St.:

1. Stream channel bank erosion along a 155-LF section of rock wall has resulted in failed sections where rocks have fallen into the channel. The full extent of the damage is unclear.
2. Rock wall headwalls are at the inlet and outlet of the culvert and protect 61st Ave NE from stream flow. Stream flows have eroded the existing slope and rock headwall north of NE 190th St. resulting in an unstable headwall. Stream flows have been observed bypassing the culvert. It is unknown where the piping water goes.
3. Sidewalk on the northeast side of NE 190th St. is being undermined by runoff from NE 190th St. Runoff concentrates where the sidewalk transitions to gravel, causing the sidewalk to be undermined.

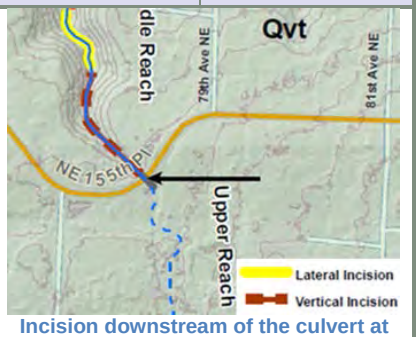
This project was identified by the City in 2013. A surface water field investigation report and recommendations was prepared by consultants in February 2013.

This project is to provide preliminary analysis and design necessary for repair of the rock wall adjacent to 61st Avenue NE using ground penetrating radar geophysical techniques that are minimally intrusive.

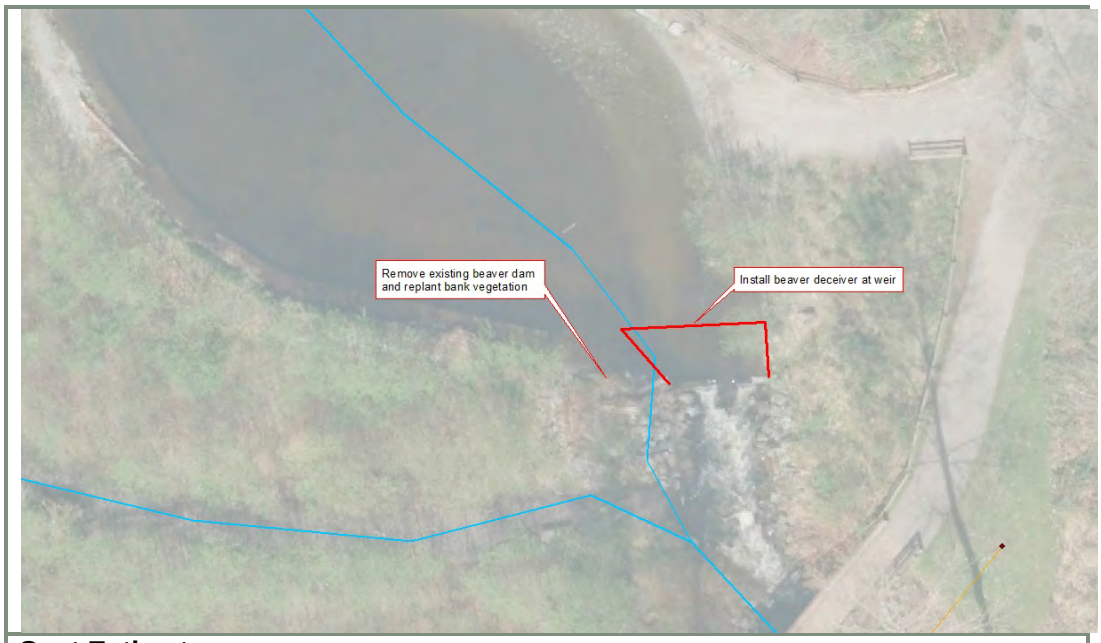
The preliminary cost estimate for this project is $100,000.

Rocks from wall which fell into the stream.

Undercut sidewalk at NE 190th St.

Project:	**Tributary 0057 Perched Pipe**		**ID: SW-22**
Location:	**NE 155th Place – East of 78th Avenue NE**	**Basin:**	**Tributary 0057**
Project Type: **Problem:**	☐**Water Quality** ☒**Fish Passage** ☐**Flow Control** ☒**Erosion** ☐**Drainage** ☐**Flooding** **Perched pipe eroding stream**	**Preliminary Project Cost:**	**$25,000**
Project Overview	A culvert carrying flows from Tributary 0057 is located at NE 155th Place. The culvert outfall is located roughly 10 feet above the stream bed, causing erosion and subsequent downstream sedimentation. This project was identified by the City in a previous CIP plan. This project requires additional analysis to determine the best solution and any risks to public infrastructure and downstream properties if nothing is done. Stream channel monitoring is recommended to evaluate the rate and severity of erosion and potential impacts on infrastructure and properties. The estimate for this work is approximately $25,000 ($5,000 for City staff time; $20,000 for a consultant to conduct stream channel geomorphic monitoring).	 **Incision downstream of the culvert at NE 155th Place** (Graphic courtesy of the Tributary 057 Sediment Study provided by Gray & Osborne, Inc.)	

Project:	Wallace Pond Beaver Deceiver		ID: SW-23
Location:	Wallace Park 19907 73rd Avenue NE	Basin:	Swamp Creek
Project Type: Problem:	☐Water Quality ☐Fish Passage ☐Flow Control ☐Erosion ☐Drainage ☒Flooding Beavers damming stream	Preliminary Project Cost:	$96,400
Project Overview	Beavers have taken up residence in the Wallace Park Sediment Pond. The beavers dam the pond outlet weir, causing the pond water surface elevation to rise and more water to flow through the fish passage channel and/or overtop the berm separating the pond from the fish passage channel. (During a site visit that was conducted by OCI on April 8, 2014, evidence of a wash-out over the berm was observed.) A bypass pipe system may have been installed when the sediment pond was constructed. This pipe could not be found during the site visit on April 8, 2014. Plans for the sediment pond will need to be reviewed to determine existence and location of the bypass pipe. The preferred solution for the beaver dam problem includes installing a Beaver Deceiver near the pond outlet weir. The Beaver Deceiver (a trapezoidal-shaped culvert fence) would regulate the water level of the beaver dam and keep the outlet weir or culvert open. Project benefits include maintaining the design flow distribution through the pond and the fish passage channel. The Beaver Deceiver will not deter the beavers from cutting down trees.	 Beaver dam at weir outlet	
Conceptual Design	The preferred solution is installation of a Beaver Deceiver around the weir outlet of sediment pond. • Beaver Deceiver perimeter must be 40 feet or more. • Wire fencing used for deceiver should extend at least 2 feet above the water surface elevation to ensure beavers do not climb over the fence. • A footing of wire fencing should also be installed so beavers cannot dig under the Beaver Deceiver. • If the beavers dam the length of the deceiver, it may be necessary to install a pipe under the water surface to allow flow through the deceiver.		
Considerations for Implementation	• The schedule of this improvement is recommended to co-occur with sediment pond dredging to take advantage of shared permitting, bypass, and fish exclusion costs. • Environmental permitting will include a SEPA checklist, WDFW HPA, and USACE permits. Design may also require mitigation for buffer impacts. • Temporary stream bypass will be needed. • Plans for sediment pond shall be reviewed to determine location of high-flow bypass pipe. • May require beaver management during construction. • Routine maintenance is suggested to ensure Beaver Deceiver is functioning properly. • Wire fencing may be placed around individual trees or around the pond to protect trees from beavers. (Fencing needs to be 3 to 4 feet high and is not included in cost estimate.)		



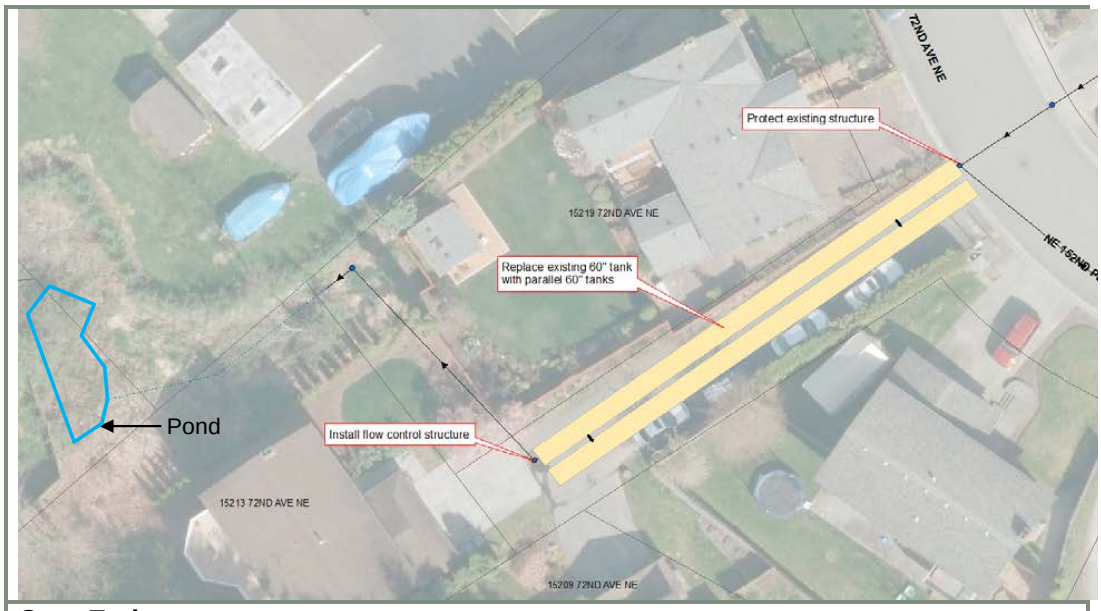
Cost Estimate

Item	Unit	Unit Cost	Quantity	Cost
Water Pollution/Erosion Control	%	5%		$1,500
SPCC Plan	LS	$500	1	$500
Clearing & Grubbing	SY	$5	200	$1,000
Temporary Stream Bypass	LS	$15,000	1	$15,000
Planting and Bioengineered Restoration	SY	$40	200	$8,000
Beaver Deceiver	EA	$6,000	1	$6,000
Subtotal				$32,000
Contractor overhead, profit, and mobilization			10%	$3,200
Washington State Sales Tax			9.5%	$3,040
Construction Contingency			50%	$16,000
Subtotal Construction Costs				$54,240
City Staff Time			10%	$5,424
Administration and engineering design			20%	$10,848
Design Contingency			20%	$10,848
Permitting				$15,000
Land acquisition and easements	SF	$5	0	$0
Total Project Cost				**$96,400**

Project:	Sammamish River Vaults		ID: SW-24
Location:	NE 170th Street and NE 169th Place	Basin:	Sammamish Tributary 02 and 03
Project Type: Problem:	☐Water Quality ☐Fish Passage ☐Flow Control ☐Erosion ☐Drainage ☒Flooding Undersized vaults fill with sediment	Preliminary Project Cost:	$25,000
Project Overview	Two existing vaults adjacent to the Sammamish River collect sediment and require annual cleaning. One vault is 6.5 feet by 12 feet, while the other is 6.5 feet by 10 feet. Inlet and outlet pipes are 30-inch diameter concrete pipes. The vaults were installed in 1990 and may be undersized. This project was identified by City maintenance crews because the vaults require frequent cleaning. Before a solution is recommended for these vaults, additional analyses are recommended to determine the source of sediment and whether upstream sediment controls could reduce maintenance frequency. The project cost assumptions include $5,000 for City staff time and $20,000 for a consultant to evaluate sediment sources in the system.	 Catch Basin Type 2 and Vaults (looking north toward the Sammamish River)	

Project:	Strawberry Hills Tank Replacement		ID: SW-25
Location:	72nd Avenue NE and NE 152nd Place	Basin:	Tributary 0222
Project Type: Problem:	☐Water Quality ☐Fish Passage ☐Flow Control ☐Erosion ☒Drainage ☐Flooding Failing tank requires replacement	Preliminary Project Cost:	$459,700
Project Overview	A 120-LF, 60-inch detention tank was installed in 1978 underneath 71st Place NE, a private road. In 1980, maintenance of the facility fell to King County. The natural drainage channel which was previously the outfall for the tank was deemed inadequate by King County because of erosion. Therefore, the downstream system was tightlined with two 12-inch CMP pipes to a pond at NE 152nd Court. CCTV inspection performed by the City showed that the tank is failing. It has collapsed beams and water marks at the top of the pipe. Surface settling has also been reported at the upstream and downstream catch basins. The existing tank does not comply with current flow control standards (2005 Ecology). The City has received complaints of flooding at the downstream pond. This project was identified by the City through video inspections and maintenance evaluations in 2013. The preferred solution is to replace the failing detention tank with two 120 LF 60-inch detention tanks and replace the existing catch basin and restrictor with control structures. Project benefits include improved stormwater flow control. Peak flows are reduced by 80 percent at the 2-year storm and 75 percent at the 50-year storm compared to the current, un-detained condition.	 71st Place NE – location of underground detention tank	
Conceptual Design	Preferred solution: • Replace 120-LF failing 60-inch CMP tank with 2 (two) 120-LF, 60-inch PVC detention tanks. • Install a new riser and flow control structure. Other scenarios considered under the WWHM (see Appendix for results): • Remove detention. This option was used for comparison. • Replace existing detention tank with new tank of the same dimensions. Replace existing catch basin and restrictor with control structure. This option provides minimal detention. • Size pond or tank to pass 2005 Ecology flow control requirements. There is not enough space at the site for this option.		

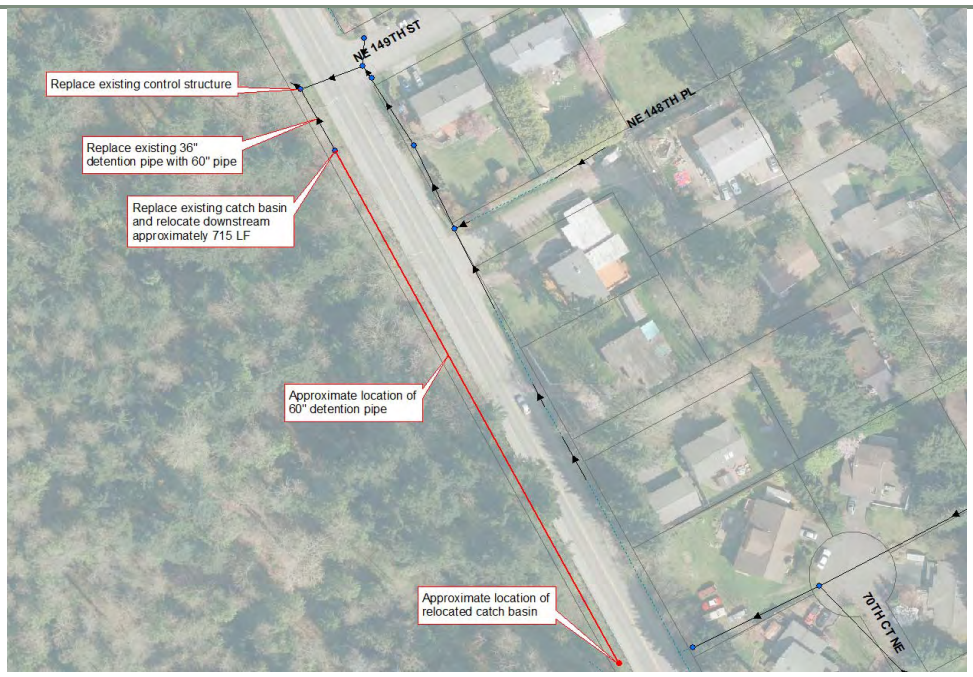
Considerations for Implementation	Preferred solution:
	• Protect existing homes, structures, and roadway during construction.
	• Restore driveway to pre-project condition.
	• CCTV the downstream conveyance system and evaluate the remaining life of those pipes.
	• Coordinate with homeowners on installation and restoration of tank under private drive.
	  o 15219 72nd Avenue NE
	  o 15213 72nd Avenue NE
	  o 15209 72nd Avenue NE
	• The proposed solution will not provide a full retrofit for the existing basin due to the limited space available.		



Cost Estimate

Item	Unit	Unit Cost	Quantity	Cost
Water Pollution/Erosion Control	%	5%		$9,000
SPCC Plan	LS	$500	1	$500
Traffic Control	%	7%		$12,700
Potholing	EST	$1,000	1	$1,000
Sawcut Pavement	LF	$5	290	$1,450
Remove Asphalt Conc. Pavement	SY	$28	280	$7,840
Roadway Excavation Incl. Haul	CY	$92	650	$59,800
Shoring or Extra Excavation Class B	SF	$1	900	$900
Catch Basin Type 2, 54 In. Diam. Flow Control Structure	EA	$6,000	1	$6,000
Schedule A 60" Storm Sewer Pipe	LF	$260	240	$62,400
HMA CL 1/2 IN PG 64-22	TON	$200	96	$19,200
Subtotal				$180,790
Contractor overhead, profit, and mobilization			10%	$18,079
Washington State Sales Tax			9.5%	$17,175
Construction Contingency			50%	$90,395
Subtotal Construction Costs				$306,439
City Staff Time			10%	$30,644
Administration and engineering design			20%	$61,288
Design Contingency			20%	$61,288
Permitting				$0
Land acquisition and easements	SF	$5	0	$0
Total Project Cost				**$459,700**

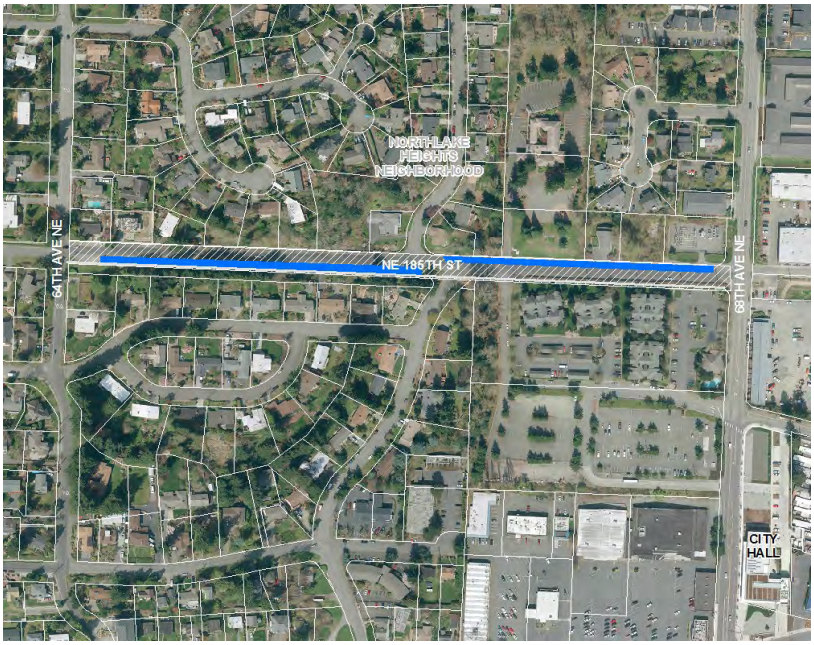
Project:	Opportunity Fund: Juanita Drive Detention Facility		ID: SW-26
Location:	NE 149th Street and Juanita Drive NE	Basin:	Arrowhead Creek
Project Type:	☐Water Quality ☐Fish Passage ☒Flow Control ☐Erosion ☒Drainage ☐Flooding	Preliminary Project Cost:	$698,200
Problem:	Control structure and tank system not functioning		
Project Overview	An existing 36-inch diameter pipe along Juanita Drive NE at NE 149th Street likely functioned as a detention facility until the control structure was removed (reason for removal is unknown). Approximately 15 acres east of Juanita Drive NE drain to the system, which then discharges to a natural drainage area. A flooding complaint was received from a private lot downstream in 2010. Then, in 2013, this project was identified by the City during a maintenance stormwater infrastructure inspection. The preferred solution includes replacing the control structure and upsizing the detention pipe for increased flow control. Project benefits include increased detention compared to the current, un-detained condition: peak flows would be reduced by 67 percent at the 2-year storm and 52 percent at the 50-year storm. The preferred solution does not meet current flow control requirements (2005 Ecology). A larger detention tank and stormwater pond sized to retrofit the system to meet current flow control standards were considered; however, adequate space was not available.	 vegetation along Juanita Drive NE	
Conceptual Design	Preferred solution: • Replace existing catch basin Type 2 - 54-inch with new control structure. • Replace and relocate existing catch basin Type 2. • Replace 57 LF of 36-inch CMP detention pipe with 715 LF of 60-inch detention pipe. • Check condition of 12-inch CMP outlet pipe. If in poor condition, replace along with control structure and detention pipe. (Not included in the cost estimate.) Other scenarios considered under the WWHM (see Appendix for results): • No action: do not restore detention. This option was used for comparison. • Replace both the flow control structure and the existing 57 LF 36-inch diameter detention tank. This option provides minimal detention benefits compared to the current condition. • Size pond or detention pipe to pass 2005 Ecology flow control requirements. Preliminary sizing indicates there is not enough space at the site for this option. Infiltration was not considered at this location due to its close proximity to the road and steep slopes.		
Considerations for Implementation	Preferred solution: • Assumed no easements will be needed. • Traffic control will be needed. • Tree removal will likely be necessary. • This solution does not provide a full retrofit for the existing basin due to limited space available.		


NE 149TH ST
Replace existing control structure
Replace existing 36" detention pipe with 60" pipe
Replace existing catch basin and relocate downstream approximately 715 LF
NE 148TH PL
Approximate location of 60" detention pipe
Approximate location of relocated catch basin
70TH CT NE

Cost Estimate

Item	Unit	Unit Cost	Quantity	Cost
Water Pollution/Erosion Control	%	5%		$13,700
SPCC Plan	LS	$500	1	$500
Traffic Control	%	7%		$19,200
Clearing & Grubbing	SY	$5	800	$4,000
Remove Tree	EA	$500	10	$5,000
Structure Excavation Cl B Incl. Haul	CY	$20	1320	$26,400
Shoring or Extra Excavation Class B	SF	$1	5075	$5,075
Catch Basin Type 2, 48 In. Diam.	EA	$4,000	1	$4,000
Catch Basin Type 2, 54 In. Diam. Flow Control Structure	EA	$6,000	1	$6,000
Schedule A 60" Storm Sewer Pipe	LF	$260	715	$185,900
Hydroseed	SY	$6	800	$4,800
Subtotal				$274,575
Contractor overhead, profit, and mobilization			10%	$27,458
Washington State Sales Tax			9.5%	$26,085
Construction Contingency			50%	$137,288
Subtotal Construction Costs				$465,405
City Staff Time			10%	$46,540
Administration and engineering design			20%	$93,081
Design Contingency			20%	$93,081
Permitting				$0
Land acquisition and easements	SF	$5	0	$0
Total Project Cost				**$698,200**

Project:	Northlake Heights LID Retrofit		ID: SW-28
Location:	NE 185TH Street between 64th Avenue NE and 68th Avenue NE	Basin:	Swamp Creek Muck Creek
Project Type:	☒Water Quality ☐Fish Passage ☒Flow Control ☐Erosion ☐Drainage ☒Flooding	Preliminary Project Cost:	$1,587,863
Problem:	No stormwater treatment		
Project Description	Ecology provided a grant to the City to design a surface water project that LID techniques which will improve water quality and reduce flooding impacts in an area that currently has minimal surface water management in place. Design of the project began in late 2013 and 90 percent plans were produced in 2014 with the intent to apply for construction grants in 2015. The selected site drains the Northlake Heights neighborhood north of NE 185th Street, which is largely underserved in terms of flow control or water quality treatment. The basin flows east and discharges into Muck Creek and eventually Swamp Creek. The downstream end of this basin experiences localized flooding and sedimentation issues and the confluence of Muck Creek and Swamp Creek also experience flooding and sedimentation issues as well as high bacteria concentrations (Swamp Creek has a TMDL for fecal coliform). This project will reduce flows and improve water quality in runoff from the Northlake Heights neighborhood as well as provide the City an opportunity to install and monitor LID facilities, which will become a regulatory requirement for the City by the end of 2017.	 **The Northlake Heights LID retrofit project offers opportunities to replace impervious areas with native vegetation, install LID facilities, and improve pedestrian access and safety along NE185th Street**	
Conceptual Design	Conceptual design includes: • Reducing impervious areas of NE 185th Street. • Replacing impervious areas with native vegetation. • Treating runoff with bioretention (NE 185th Street and maximum amount of off-site runoff that is practical). • Installing sidewalk between 64th Avenue NE and 68th Avenue NE.		
Considerations for Implementation	• Steep topography will require strategic placement of biofiltration facilities in order to control flows into the biofiltration facilities. • Geotechnical analysis will be required to determine infiltration rates and groundwater levels near proposed sites of biofiltration. • Traffic control will be needed.		



Cost Estimate

Item	Unit	Unit Cost	Quantity	Cost
Water Pollution Erosion Control	%	5%	-	$35,000
Traffic Control	%	7%	-	$49,000
Clearing and Grubing	Acre	$15,000	0.8	$12,000
Bioretention	LF	$300	875	$262,500
Stormwater Detention Pipes	LF	$550	420	$231,000
Excavation Incl. Haul	CY	$50	740	$37,000
Landscaping and Establishment	SY	$52	1580	$82,160
Cement Conc. Sidewalk	SY	$40	750	$30,000
Cement Conc.Curb Ramp	EA	$1600	9	$14,400
Cement Conc. Curb & Gutter	LF	$30	920	$27,600
		Subtotal		**$780,660**
		Contractor overhead, profit, and mobilization	10%	$78,066
		Washington State Sales Tax	9.5%	$74,163
		Construction Contingency	50%	$390,330
		Subtotal Construction Costs		**$1,323,219**
		City Staff Time	0%	$0
		Administration and engineering design	20%	$264,644
		Design Contingency	0%	$0
		Permitting	0%	$0
		Land acquisition and easements	0%	$0
		Total Cost		**$1,587,863**

Schedule

	2015												2016											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Preliminary Design																								
Permitting																								
Final Design and PS&E																								
Advertise and Contractor Procurement																								
Construction																								

Project:	SR 522 Corridor Improvement Project Surface Water Component (West A)		ID:	T-06
Location:	SR 522 between 61st Avenue NE and 65th Avenue NE	Basins:	Tributary 0056 and Lake Washington	
Project Type:	☒Water Quality ☐Fish Passage ☐Flow Control ☐Erosion ☒Drainage ☐Flooding	Preliminary Project Cost:	$633,500	
Problem:	Aged conveyance system with no water quality treatment			

Project Description

Surface water improvements are only a component of this transportation project; however, the improvements are significant enough to warrant mentioning in the surface water capital improvement program. This project is a continuation of previous completed phases of the SR 522 Corridor Improvement Project, which have already installed water quality treatment facilities and conveyance system improvements east of 65th Avenue NE to the eastern border of the City.

Currently, the project area discharges untreated stormwater runoff to Tributary 0056 and Lake Washington. The project will install several Filterra systems designed to remove pollutants such as total suspended solids, nutrients, dissolved metals, and oil from stormwater runoff. Much of the aged conveyance infrastructure will be replaced.

Project Location

Project Cost Estimate

Total Project Cost	$15,150,735
Surface Water Component:	
City Surface Water Funds	**$633,500**
Surface Water Grant Funds	$475,125
Total	$1,108,625

Schedule

	2014				2015				2016			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
ROW												
Final Design												
Construction												
Closeout												

Appendix F:

Programmatic Strategy Project Summary Sheets

Project:	LID Code Review		ID: SProg-01
Project Type:	NPDES compliance	Preliminary Project Cost:	$46,800
Deadline:	December 31, 2016		

Project Description

Permit Language

No later than December 31, 2016, permittees shall review, revise, and make effective their local development-related codes, rules, standards, or other enforceable documents to incorporate and require LID principles and LID BMPs. For permittees in Lewis and Cowlitz counties, the deadline for this requirement is no later than June 30, 2017; for the City of Aberdeen the deadline for this requirement is no later than June 30, 2018.

The intent of the revisions shall be to make LID the preferred and commonly used approach to site development. The revisions shall be designed to minimize impervious surfaces, native vegetation loss, and stormwater runoff in all types of development situations. Permittees shall conduct a similar review and revision process, and consider the range of issues, outlined in the following document: Integrating LID into Local Codes: A Guidebook for Local Governments (Puget Sound Partnership 2012).

Goal:
Allow LID, where feasible

How?
Revise codes and standards such that barriers to LID implementation are removed

Who?
City staff (planning, development review, engineering) and/or consultant

When?
Deadline for code revision is December 31, 2016

2014	2015				2016			
QTR4	QTR1	QTR2	QTR3	QTR4	QTR1	QTR2	QTR3	QTR4
Tasks: • Attend training • Make list of codes to review • Coordinate with other City staff (send a memo describing what needs to be done, or have a kick-off meeting. • Review comprehensive plan for LID policies	Tasks: • Begin code review. • Narrow list of codes that may require revisions. • Meet with relevant staff where code revisions may be necessary. • Jointly develop strategy for code revisions. • Determine public outreach and City Council schedule for revising codes.		Tasks: • Conduct first public and City Council outreach • Work with planning to ensure comprehensive Plan update is consistent with potential revised codes. • Draft proposed amendments, standard revisions, and implementation procedures		Tasks: • Public and Council review on draft amendments and standard revisions • Revise drafts based on feedback from the public and City Council		Tasks: • Finalize amendments and revisions. • Final Council Approval and Adoption.	

What?

The following Kenmore codes likely have some language that either supports implementation of LID, or would prevent implementation.

Code	Elements	Considerations
Critical Areas (Ch. 18.55)	All	Ensure compatibility with LID and allowances only where appropriate
Vehicles and Traffic (Title 10)	Fire Lanes (Ch. 10.30)	
	Parking (Ch. 10.20)	May need to add something for future LID facilities in ROW that may affect parking
Streets and Bridges (Title 12)	ROW (Ch. 12.35)	Access, covenants, etc.
	Street Standards (Ch. 12.50)	Street and driveway setbacks, widths, constructed drainage, etc.
	Utilities on City ROW (Ch. 12.55)	Utility conflicts with LID facilities (once in place), other potential issues?
	Sidewalks, Planting Strips, and Street Trees (Ch. 12.70)	Planting strips as LID facilities? Curb and gutter?
Utilities and Public Works (Title 13)	Side Sewer Connections (Ch. 13.05)	Restoration of LID facilities in ROW?
	Design, Installation, and Repair of Sewage Disposal Systems (Ch. 13.10)	Septic system placement relative to LID facilities?
	Surface Water Policy (Ch. 13.35)	New manual adoption
	Surface Water Management Program (Ch. 13.40)	Adjustments, incentives?
Buildings and Construction (Title 15)	Fire Code (Ch. 15.10)	Driveway, road dimensions?
	Building Codes (Ch. 15.20)	Roof loads----vegetated roofs? Plumbing for water reuse (cisterns?)
	Land Alterations (Ch. 15.25)	Vegetation, trees, and soil protection and restoration? Protection of LID facilities
Environment (Title 16)	Shorelines (all chapters)	Check for consistency that code doesn't preclude LID.
Land Division (Title 17)	Subdivisions and Short Subdivisions (Ch. 17.20)	Lot widths, configurations, clustered development, vegetation and soils preservation, etc.
Zoning (Title 18)	Landscaping Standards (Ch. 18.35)	Check for consistency with LID
	Parking and Circulation (Ch. 18.40	Access, parking spaces, widths
	Signs (Ch. 18.42)	Placement relative to LID facilities in ROW?
	Adequacy of Public Facilities and Services (Ch. 18.45)	Check for consistency relating adequacy (road widths, access, etc.) with LID
	Downtown Design Standards (Ch. 18.52)	Check for consistency---building, roads, access, parking, etc. to allow for LID
	Critical Areas (Ch. 18.55)	Ensure LID is consistent with critical areas codes, allowed where appropriate, disallowed where not
	Tree Management and Protection (Ch. 18.57)	Consistency for LID
	Animals (Ch. 18.70)	Manure management---away from LID facilities
	Density Incentives (Ch. 18.80)	LID?
	Site Plan Review (Ch. 18.105)	
	Master Plans (Ch. 18.120)	Impervious surface coverage, vegetation retention, open space, road and sidewalk widths, etc.
Land Use Policies and Procedures (Title 19)	Environmental Procedures (Ch. 19.35)	Review categorical exclusions, procedures, etc. related to LID

Cost Estimate

Task	Description	Estimated Level of Effort (hrs)	Personnel	Estimated Cost
1	Conduct Code Review	80	Staff and/or Consultant	$ 10,000.00
2	Develop strategy for revisions and public review	40	Staff and/or consultant	$ 6,000.00
3	Public outreach, council meetings	80	Staff	$ 8,000.00
4	Draft and Final Revisions to Codes	120	Staff	$ 12,000.00
			Subtotal	$ 36,000.00
			Contingency (30%)	$ 10,800.00
			TOTAL	$ 46,800.00

Project:	Stormwater Manual Adoption		ID: SProg-02
Project Type:	NPDES compliance	Preliminary Project Cost:	$28,600
Deadline:	December 31, 2016, for manual adoption		

Project Description

The NPDES Phase II Permit references Ecology's 2012 SWMMWW requirements and standards in numerous sections. In order for the City to comply with the permit, it will either have to adopt the 2012 Ecology manual or an equivalent manual (2015 King County Manual, in progress) by December 31, 2016.

This process will take time, not only to decide the most appropriate manual for Kenmore, but also to educate planning and development review staff and permit applicants about the new stormwater requirements. Implementation of LID techniques on a city-wide basis will likely take more time at first as this represents a paradigm shift from previous stormwater practices.

Goal:
Adopt a new stormwater management manual

How?
Review options and make a timely decision such that the necessary internal and external outreach can be conducted ahead of the implementation date

Who?
City staff (engineering, planning, and development review)

When?
Deadline for manual adoption is December 31, 2016.

Cost Estimate

Task	Description	Estimated Level of Effort (hrs)	Personnel	Total
1	Review and compare manual options	20	Staff	$ 2,000.00
2	Adoption Process	80	Staff	$ 8,000.00
3	Staff and community education and outreach	120	Staff	$ 12,000.00
			Subtotal	$ 22,000.00
			Contingency (30%)	$ 6,600.00
			TOTAL	$ 28,600.00

Project:	Develop LID Infeasibility Tools		ID: SProg-03
Project Type:	NPDES compliance support	Preliminary Project Cost:	$42,900
Deadline:	Not applicable		

Project Description

The NPDES Phase II Permit requires use of low impact development BMPs according to Ecology's 2012 SWMMWW unless it is not feasible according to infeasibility criteria outlined in the manual.

Kenmore may choose to help development review staff and applicants ahead of time by mapping those areas that are clearly not feasible for infiltrative LID because of steep slopes, landslide hazards, or high groundwater and wetland conditions.

This programmatic project creates a broad-scale map of the City, showing areas that should not be considered for infiltration, and those that based on mapped surficial geology would be considered high, medium, or low potential for infiltration.

Goal:
Develop a map of infiltration potential to help applicants and development review staff understand where to consider LID techniques

How?
Existing geologic mapping, landslide maps, and field visits

Who?
Consultant and/or City staff

When?
No specific deadline.

Cost Estimate

Task	Description	Estimated Level of Effort	Personnel	Total
1	Review Existing Data	40	Consultant/Staff	$ 6,000.00
2	Conduct GIS analysis	100	Consultant/Staff	$ 15,000.00
3	Field Validation	40	Consultant/Staff	$ 6,000.00
4	Map Preparation and Report	40	Consultant/Staff	$ 6,000.00
			Subtotal	$ 33,000.00
			Contingency (30%)	$ 9,900.00
			TOTAL	$ 42,900.00

Project:	Evaluation of Stormwater Incentive and Mini Grant Programs		ID: SProg-04
Project Type:	Volunteer Stormwater Retrofit	Preliminary Project Cost:	$14,300
Deadline:	Not applicable		

Project Description

Much of the City of Kenmore was developed prior to the requirement for any stormwater treatment. In order to reverse the impacts that have occurred from past development, stormwater facilities will need to be put in place to treat surfaces.

Many jurisdictions have voluntary incentive programs to encourage homeowners to install residential rain gardens to treat residential runoff on-site. This programmatic project evaluates and considers implementing such a program in Kenmore. The focus would be primarily on residential properties, but could be considered for other types of land uses as well.

In this evaluation, other incentive programs that are currently in place should be considered.

Goal:
Evaluate stormwater incentive and mini-grant programs

How?
Review other jurisdictions programs and successes, consolidate list of Kenmore's current incentives

Who?
City staff

When?
No specific deadline.

Cost Estimate

Task	Description	Estimated Level of Effort	Personnel	Total
1	Review Incentive Programs from Other Jurisdictions	20	Staff	$ 2,000.00
2	Consolidate list of Kenmore's incentives	10	Staff	$ 1,000.00
3	Prepare recommendation for Council	40	Staff	$ 4,000.00
4	Implement recommendation	40	Staff	$ 4,000.00
			Subtotal	$ 11,000.00
			Contingency (30%)	$ 3,300.00
			TOTAL	$ 14,300.00

Project:	Easement Management		ID: SProg-05
Project Type:	Policy	Preliminary Project Cost:	$20,800
Deadline:	Not applicable		

Project Description

The City's stormwater infrastructure sometimes crosses private parcels for which a drainage easement has not been maintained or was never obtained. There are various situations that date back to before the City incorporated.

This situation can create challenges for maintenance and repair when problems arise at the interface of public and private property.

This programmatic project is to review existing drainage easements and determine how easements should be managed. Additionally, other solutions, such as moving public pipes into city ROW should be considered.

Goal:
Evaluate existing drainage easements

How?
Consider range of solutions for dealing with public infrastructure on private property.

Who?
City staff

When?
No specific deadline.

Cost Estimate

Task	Description	Estimated Level of Effort	Personnel	Total
1	Conduct GIS and paper analysis of drainage easements and public stormwater pipes	60	Staff	$ 6,000.00
2	Alternative evaluation and policy formulation	60	Staff	$ 6,000.00
3	Policy recommendation for Council	40	Staff	$ 4,000.00
			Subtotal	$ 16,000.00
			Contingency (30%)	$ 4,800.00
			TOTAL	$ 20,800.00

Project:	Stormwater Retrofit		ID: SProg-06
Project Type:	Accelerate stormwater retrofit through pursuit of identification and of grant-funding opportunities	Preliminary Project Cost:	$24,700
Deadline:	Not applicable		

Project Description

Much of the City of Kenmore was developed prior to the requirement for any stormwater treatment. In order to reverse the impacts that have occurred from past development, stormwater facilities will need to be put in place to treat surfaces.

In addition to encouraging voluntary stormwater retrofit, the City should undertake its own stormwater retrofit projects, where appropriate, taking advantage of available grant funding.

A retrofit strategy memorandum was prepared for this Plan and outlines areas of the City that would be good candidates for retrofit. Additionally, specific facilities were reviewed for potential retrofit as well. The retrofit memorandum is in Appendix D.

Goal:
Pursue regional stormwater retrofit grants for Kenmore projects

How?
Identify potential projects and prepare grant applications

Who?
City staff and consultants

When?
No specific deadline.

Cost Estimate

Task	Description	Estimated Level of Effort	Personnel	Total
1	Prepare list of candidate stormwater retrofit sites	20	Staff	$ 2,000.00
2	Develop prioritized short-list of sites that would be grant eligible	20	Staff	$ 2,000.00
3	Develop conceptual designs for grant applications	100	Consultant	$ 15,000.00
			Subtotal	$ 19,000.00
			Contingency (30%)	$ 5,700.00
			TOTAL	$ 24,700.00

Project:	Landslide and Groundwater Issues		ID: SProg-07
Project Type:	Evaluation of geologic issues associated with landslides and groundwater seepage	Preliminary Project Cost:	$31,200
Deadline:	Not applicable		

Project Description

Many of the drainage complaints received by the City were related to landslide or groundwater issues.

This programmatic project is to evaluate the areas of the City that are particularly susceptible to high groundwater, groundwater seepage, or landslides and develop possible strategies to mitigate impacts or prevent future problems.

Goal:
Evaluate landslide and groundwater issues in Kenmore

How?
Review drainage complaint data and geologic maps and conduct field investigations

Who?
City staff and consultants

When?
No specific deadline.

Cost Estimate

Task	Description	Estimated Level of Effort	Personnel	Total
1	Review drainage complaints and geologic maps	20	Staff/Consultant	$ 3,000.00
2	Conduct Field Investigations	40	Staff/Consultant	$ 6,000.00
3	Develop menu of strategies for dealing with similar types of problems	100	Staff/Consultant	$ 15,000.00
			Subtotal	$ 24,000.00
			Contingency (30%)	$ 7,200.00
			TOTAL	$ 31,200.00

Project:	Stream Culvert Assessment		ID: SProg-08
Project Type:	Conduct fish passage barrier analysis of streams in Kenmore	Preliminary Project Cost:	$16,500
Deadline:	Not applicable		

Project Description

The recent "Culvert Case" related to treaty rights has prompted Washington State Department of Transportation and other jurisdictions to review their culverts for fish passage and begin the process of prioritizing culverts for replacement.

This programmatic project is to conduct a review of Kenmore's culverts for streams that are presumed to have fish habitat according to Washington Department of Natural Resources (DNR). A prioritized list would be repaired for culverts to be replaced or modified as resources are available or other projects are conducted in the vicinity.

Goal:
Evaluate culverts for fish passability in Kenmore

How?
Conduct field assessment and rank culverts according to criteria established by DNR.

Who?
City staff and consultants

When?
No specific deadline.

Cost Estimate

Task	Description	Estimated Level of Effort	Personnel	Total
1	Overlay maps with DNR stream typing to determine presumed fish presence	8	Staff/Consultant	$ 1,000.00
2	Determine which streams need to be field screened	12	Staff/Consultant	$ 1,200.00
3	Field culvert evaluations	22	Staff/Consultant	$ 3,000.00
4	Analysis, prioritization, and report preparation and recommendations	55	Staff/Consultant	$ 7,500.00
			Subtotal	$ 12,700.00
			Contingency (30%)	$ 3,810.00
			TOTAL	$ 16,510.00

Project:	SEPA Notification for Upstream Projects		ID: SProg-09
Project Type:	Opportunities to provide input through SEPA process	Preliminary Project Cost:	$62,920
Deadline:	Not applicable		

Project Description

This project involves requesting jurisdictions upstream of Kenmore, particularly those within the Swamp Creek basin, to include the City on all projects requiring SEPA notification so that the City has an opportunity to provide input on projects that could impact surface water flows and/or water quality in Swamp Creek or other drainages.

For proposed upstream projects, particularly in the Swamp Creek basin, the City will strive to obtain flow control to the maximum extent feasible. This may be achieved through providing official comment on projects or appealing projects if needed.

Goal:
Establish mechanism for which City can be made aware and provide input on upstream projects.

How?
Request notification under State Environmental Policy Act (SEPA) for projects in upstream jurisdictions in the Swamp Creek drainage basin.

Who?
City staff

When?
No specific deadline. Except for Task 1, costs are expect to be incurred annually.

Cost Estimate

Task	Description	Estimated Level of Effort	Personnel	Total
1	Request SEPA notification for up to 8 jurisdictions	10	Staff	$ 1,000.00
2	Screen SEPA notifications (assume 10 per week)	130	Staff	$ 13,000.00
3	Review notices relevant to Swamp Creek or Surface Water issues (assume 2 per week)	104	Staff	$ 10,400.00
4	Provide comments on up to 24 projects per year	240	Staff	$ 24,000.00
			Subtotal	$ 48,400.00
			Contingency (30%)	$ 14,520.00
			TOTAL	$ 62,920.00

City Council Business Agenda Item
City of Kenmore, WA

Subject/Topic: New Change Order Policy for SR 522 West A **Proposed Council Action/Motion:** Adopt Resolution 15-255 Amending the Change Order Policy for the SR 522 West A Project	**For Council Meeting Agenda of:** 04/20/2015 **Department:** Engineering **Prepared by:** Kent Vaughan **To Be Presented By:** Kent Vaughan / Kris Overleese **Initial & Date** **Approved by Department Head:** KV for KO **Approved by City Attorney:** Via Email **Approved by Finance Director:** ✓ **Approved by City Manager:** RYK **Exhibits/Attachments:** Attachment A: Resolution 15-255 Attachment B: Resolution 11-190

Expenditure Required:	Amount Budgeted	Appropriation Required
$0	$0	$0

INFORMATION/BACKGROUND:
In 2009, City Council established a Change Order Policy for all Capital Construction Projects in the City's Purchasing Policies and Procedures. The existing staff authority limits to approve change orders are:

City Engineer: $25,000
City Manager: $50,000

Staff is proposing to amend the existing policy for the SR 522 West A project to establish an authority limit for the Project Manager, and establish higher staff change order authority limits for the Public Works Director / City Engineer and City Manager. The proposed limits for the SR 522 West A project are:

Project Manager:	$10,000
Public Works Director / City Engineer:	$50,000
City Manager:	$150,000

DISCUSSION:
All construction projects experience some level of errors and omissions in the contract documents or changed conditions in the field (especially with underground work). For each capital project, staff generally budgets a 10% Construction Contingency, which is considered industry standard. For context, the SR 522 West A project has slightly over $1,000,000 in Construction Contingency.

The new policy is intended to improve efficiencies in processing change orders for the SR 522 West A and reduce the potential for contractor delays and additional costs during construction. Each change order on the project will:

- Be prepared by an experienced construction manager (KBA);

- Be thoroughly evaluated for legitimacy / entitlement;
- Include an assessment of the change as it relates to the current contract and an independent engineer's estimate of the change;
- Be thoroughly reviewed internally by KBA, City and WSDOT staff and other funding agencies (as appropriate) before being executed.

Based on past experience with the previous SR 522 construction phases, staff estimates that the new policy will allow staff to process 90% of change orders administratively, within the confines of the approved project budget. Periodically during construction of the West A project, staff will provide a project budget update as a Receive & File on selected City Council consent agendas.

STAFF RECOMMENDATION:
Staff recommends the adoption of Resolution 15-255 amending the change order policy for SR 522 West A at this time.

FISCAL CONSIDERATION: N/A

COUNCIL GOAL/BUDGET OBJECTIVE BEING ADDRESSED:
Council goal 1: To focus and emphasize multimodal transportation safety in the City of Kenmore with a specific focus on pedestrian, bicycle and other means of travel.

Attachment A

CITY OF KENMORE
WASHINGTON

RESOLUTION NO. 15-255

A RESOLUTION OF THE CITY COUNCIL OF KENMORE, WASHINGTON, AMENDING THE CITY'S PURCHASING AND CONTRACTING POLICIES ADOPTED UNDER RESOLUTION NO. 11-190 TO AUTHORIZE CHANGE ORDER AMOUNTS FOR THE SR522 WEST A PROJECT WITHIN APPROVED BUDGET AND REPEALING RESOLUTION NO. 09-173.

WHEREAS, RCW 35A.11.010 and RCW 35A.11.020 authorizes the City Council to contract and purchase on behalf of the City; and

WHEREAS, in 2009, the City Council adopted Resolution No. 09-173 authorizing certain change order amounts for capital construction projects; and

WHEREAS, in 2011, the City Council adopted Resolution No. 11-190, which updated and adopted the City's purchasing and contracting policies, and which also authorized change order amounts for capital construction projects; and

WHEREAS, the City Council desires to amend Resolution No. 11-190 to establish authorized change order amounts for the SR 522 West A project; and

WHEREAS, the City Council desires to repeal Resolution No. 09-173, as it has been updated and superseded by Resolution No. 11-190;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF KENMORE, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. Amendment. That portion of Section IV.A of Resolution No. 11-190, entitled "Change Orders," is amended to read as follows:

Change Orders:

A. Except as provided in Section B below, the City Council authorizes the City Manager and the City Engineer to approve changes to work or contract for capital construction projects in the following amounts not to exceed in the aggregate the approved project budget:

City Manager:	$50,000
City Engineer/Public Works Director:	$25,000

B. The City Council authorizes the City Manager, City Engineer/Public Works Director and Project Manager to approve changes to work or contract for the SR 522 West A project, in the following amounts not to exceed in the aggregate the approved project budget:

Project Manager:	$10,000
City Engineer/Public Works Director:	$50,000

City Manager or Designee: $150,000

Section 2. Repealed. Resolution No. 09-173 is hereby repealed.

PASSED BY THE CITY COUNCIL OF THE CITY OF KENMORE, WASHINGTON, AT A REGULAR MEETING THEREOF THIS __ DAY OF APRIL, 2015.

CITY OF KENMORE

_____
David Baker, Mayor

ATTEST/AUTHENTICATED:

_____
Patty Safrin, City Clerk

Attachment B

CITY OF KENMORE
WASHINGTON
RESOLUTION NO. 11-190

A RESOLUTION OF THE CITY OF KENMORE, WASHINGTON, ADOPTING UPDATED PURCHASING AND CONTRACTING POLICIES AND PROCEDURES; AND REPEALING RESOLUTION NOS. 01-147 AND 06-114.

WHEREAS, the City of Kenmore adopted purchasing and contracting policies by Resolution 01-147 to ensure efficient and cost-effective procurement of goods and services; and

WHEREAS, the City amended said policies by Resolution 06-114 to conform to an amendment to RCW 39.04.105; and

WHEREAS, the City has determined that it is necessary and appropriate to update the current purchasing and contracting policies; and

WHEREAS, the City desires to also amend the purchasing and contracting policies to conform to a 2009 legislative amendment to RCW 39.04.155 which increased the small public works limit from $200,000 to $300,000; and

WHEREAS, the City Council desires to repeal Resolution No. 01-147 and Resolution No. 06-114;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF KENMORE, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. Purchasing and Contracting Policies and Procedures. The City Council hereby adopts the City of Kenmore Purchasing and Contracting Policies and Procedures attached hereto as Exhibit "A" and incorporated herein by reference.

Section 2. Repealer. Resolution Nos. 01-147 and 06-114 are hereby repealed.

PASSED BY THE CITY COUNCIL OF THE CITY OF KENMORE, WASHINGTON, AT A REGULAR MEETING THEREOF ON THE 24th DAY OF OCTOBER, 2011.

CITY OF KENMORE

Mayor David Baker

ATTEST/AUTHENTICATED:

Lynn Suskin, City Clerk

Approved as to form:

Rod Kaseguma, City Attorney

CITY OF KENMORE

PURCHASING and CONTRACTING POLICIES and PROCEDURES

ADOPTED JULY, 2001
AMENDED FEBRUARY, 2006
AMENDED OCTOBER, 2011

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EXHIBIT A. Formal, Competitive Sealed Bids for a Public Works Project			

I. POLICY STATEMENT

It is the policy of the City to use consistent procedures for all departments to procure goods and services for City operations. This consistency should facilitate the most efficient and cost-effective manner of procurement in compliance with applicable laws and regulations, and in accordance with best practices. All procurement of goods and services shall provide the City with the best quality for the best price. All purchases of supplies, materials, equipment and services are to be made within budgetary limitations and for the purpose of the goals and objectives approved in the City's budget. Purchases which cause a fund to exceed budgetary limits shall be pre-authorized by the City Council and formally approved through a budget amendment process. All payments for purchases made by the City shall be ultimately approved by the City Council through the voucher approval process.

The City Manager and Finance Director will oversee the procurement and contracting procedures of the City and may amend the procedures and attached Exhibits as needed. This responsibility includes developing, recommending, implementing, and monitoring policies and procedures that ensure the fiscal responsibility of the City in expending revenues as it relates to the procurement of goods and services for City operations.

Local Businesses: The City encourages participation by vendors with business locations within Kenmore and will try to contact an appropriate Kenmore vendor when seeking price quotations for the procurement of goods and services.

Compliance by City Employees: All employees must follow established policies and procedures for procurement of equipment, materials, supplies, and services (including purchased services, consultant services, and construction services).

Basis:
The procurement policies and procedures of the City shall be based on the Revised Code of Washington (RCW); adopted resolutions and ordinances of the City of Kenmore City Council, which may be more restrictive than the RCW; guidelines from the State Auditor's Office; and the Municipal Research and Services Center.

If grant funds are involved in the proposed procurement, applicable requirements should be obtained from the funding agency. Such requirements may be more restrictive than the City's policy.

II. REGULATIONS AND REFERENCE

The City of Kenmore is an optional Code City under Chapter 35A RCW, with a population exceeding 20,000. As a code city, Kenmore is governed by the following:

RCW 35A.40.200
General law relating to public works and contracts (attached)

Every code city shall have the authority to make public improvements and to perform public works under authority provided by general law for any class of city and to make contracts in accordance with procedure and subject to the conditions provided therefor, including but not limited to the provisions of: (1) Chapter 39.04 RCW, relating to public works; (2) RCW 35.23.352 relating to competitive bidding for public works, materials and supplies; (3) RCW 9.18.120 and 9.18.150 relating to suppression of competitive bidding; (4) chapter 60.28 RCW relating to liens for materials and labor performed; (5) chapter 39.08 RCW relating to contractor's bonds; (6) chapters 39.12 and 43.03 RCW relating to prevailing wages; (7) chapter 49.12 RCW relating to hours of labor; (8) chapter 51.12 RCW relating to workers' compensation; (9) chapter 49.60 RCW relating to antidiscrimination in employment; (10) chapter 39.24 RCW relating to the use of Washington commodities; and (11) chapter 39.28 RCW relating to emergency public works.

RCW 35A.40.210
Public work or improvement -- Procedures – Purchases (attached)

Procedures for any public work or improvement for code cities shall be governed by RCW 35.23.352.

Purchases for code cities with twenty thousand population or more shall be governed by RCW 35.22.620. Purchases for code cities with under twenty thousand population shall be governed by RCW 35.23.352. (Note: Kenmore population is more than 20,000).

Attached for reference:

Chapter 39.04 RCW Public Works
RCW 39.04.155 Small works roster contract procedures – Limited public works process - Definition
RCW 39.04.280 Competitive bidding requirements-Exemptions
RCW 39.04.350 Bidder responsibility criteria – Supplemental criteria
RCW 35.22.620 Public works or improvements – Limitations on work by public employees – Small works roster – Purchase of reused or recycled materials or products
RCW 35.23.352 Public works –Contracts – Bids –Small works roster – Purchasing requirements, recycled or reused materials or products

III. PURCHASES OF SUPPLIES, MATERIALS AND EQUIPMENT NOT RELATED TO PUBLIC WORKS

A. Approval Authority:

Amount	Approval Authority	Payment Procedure Requirements
$0 – less than $50	**Petty Cash Custodian**	**Petty Cash System Receipt or Invoice**
$50 – less than $2,000	**Budget Authority; and Department Director or Designee**	**Invoice**
$2,000 – less than $10,000	**Department Director**	**3 Quotes Purchase Order or Contract**
$10,000 – less than $50,000	**City Manager**	**3 Quotes Purchase Order or Contract**
$50,000 and more	**City Manager Approves City Council Awards**	**Competitive Bid Contract**

B. Processes:

NOTE: Purchases may not be broken into multiple projects or purchases to avoid compliance with state statutes and City Policies.

1. **Purchases less than $2,000**
   Purchases can be made for less than $2,000 by Department Directors or their designee, within budgetary authority and a supporting invoice; a purchase order is not required.

2. **Purchases between $2,000 and less than $10,000**
   Three quotations are required to assure that the City obtains quality goods at reasonable prices. A purchase order approved by the Department Director is required.

3. **Purchases between $10,000 and less than 50,000:**
   Three documented quotations are required. A purchase order approved by the City Manager is required.

4. **Purchases $50,000 and more:**
   A Competitive Bid Process resulting in a contract is required. The City Manager may execute the contract after the City Council has awarded the bid and approved the purchase.

C. Cooperative Purchasing (Piggybacking) under RCW 39.34

The City may join in cooperative purchasing arrangements with other public agencies for supplies, materials and equipment by entering into written Intergovernmental Cooperative Purchasing Agreements (also known as interlocal agreements). The City Council must approve all Intergovernmental Cooperative Purchasing Agreements. Several agreements have been approved by the Kenmore City Council and include: KCDA, City of Tacoma (supplies), US Communities, Thurston County.

When state contracts are used through the Washington State Office of State Procurement (OSP), no further bidding requirements are needed.

Public agencies which have filed an Intergovernmental Cooperative Purchasing Agreement with each other may make purchases from each other's procurements and contract if the Vendor has agreed to such participation. A separate contract or purchase order between the City of Kenmore and the vendor is necessary. When purchasing under another agency's contract, the City of Kenmore is responsible for compliance with statutes (including bid limits) governing purchases by or on behalf of itself except to the extent identified by RCW 39.34.030.
Before making a purchase under such an agreement, the City must ensure that:
1) The other agency advertised in accordance with its own statutory procurement requirements and policies; 2) The other agency posted the bid or solicitation notice on a web site established and maintained by a public agency, purchasing cooperative, or similar service provider, for purposes of posting public notice of bid or proposal solicitations, or provided an access link on the state's web portal to the notice (RCW 39.34.030 (5) (b); and3) The request for bids allows for the contract to be used by more than one local government.

D. Leases of Equipment without Option to Purchase

Leases without an option to purchase are not subject to bid limits and do not need to be competitively bid. Department heads may negotiate lease agreements for materials, supplies, and equipment when an outright purchase is not the preferred alternative. All leases shall adhere to the approval authority schedule (dollar amounts equal total lease payments.)

E. Other Purchases

- Federal Government – RCW 39.32.070-.090 authorizes cities to purchase equipment, supplies and materials from the federal government. There is no requirement for advertising or inviting bids. However, an ordinance or resolution must be passed before purchase is made.
- Surplus Property from another government – The City may purchase surplus property from another government without regard to bid laws (RCW 39.33.010.)

IV. PUBLIC WORKS PROJECTS (RCW 35A.40.210, RCW 35.23.352)

RCW 39.04.010 defines the term "public works" as all work, construction, alteration, repair or improvement, other than ordinary maintenance, executed at the cost of the City. Ordinary maintenance is work performed by employees of the City. Maintenance when performed by contract should be considered public works for purposes of prevailing wages and bid laws.
See WAC 296-127-010 (7)(a) for further definition of public works (attached).

To determine if a public works project must be competitively bid based on bid limit dollar amounts, the total cost of each project or purchase must be estimated. Materials, supplies, equipment and labor on the construction of that project and applicable sale and use taxes are to be included.

The City may use employees to perform public work projects with estimated costs not exceeding $40,000 for a single craft or trade or $65,000 for multiple crafts or trades (RCW 35.23.352).

A project cannot be split into phases for the purpose of avoiding minimum dollar restrictions (RCW 35.22.620.)

RCWs 47.24.050 and RCW 35.77.020 govern construction or repairs of streets or bridges. These statutes authorize cities to contract with the county in which they reside for repair or construction of any or all the City's streets, sidewalks, traffic control devices, drainage systems or bridges. No bidding requirements apply to such projects.

A. Approval Authority

Projects over $300,000 must be competitively bid per RCW 39.04.155.

If the estimated project cost is $300,000 or less, the City is authorized to use the small public works roster procedures set forth in RCW 39.04.155 (attached).

Amount	Approval Authority	Process
0 - $2,000	Department Director or Designee	Quotes from SWR Purchase Order or Contract
$2,000 -less than $25,000	Department Director	Quotes from SWR Purchase Order or Contract
$25,000 -less than $50,000	City Manager	Quotes from SWR Contract
$50,000 – $300,000	City Council	Small Works Roster Bids or Advertisement for Bids Contract
More than $300,000	City Council	Advertised Competitive Bid Contract

Change Orders:
Per City of Kenmore Resolution No. 09-173, The City Council authorizes the City Manager and the City Engineer to approve changes to work or contract for capital construction projects in the following amounts not to exceed in the aggregate the approved project budget.
City Manager: $50,000
City Engineer: $25,000

B. Procedures

Limited Public Works Process for Contracts Less than $35,000

The City shall follow the procedures set forth in RCW 39.04.155(3), which provides among other things that electronic or written quotations from a minimum of three contractors on the appropriate
Small Works Roster is required. In the alternative, the City may opt to bid the project under the Small Works Roster procedures or Advertise for Bids.

Projects $35,000 to Less than $150,000

The City may advertise for bids or follow the small works roster procedures set forth in RCW 39.04.155 by inviting telephonic, written or electronic quotations from all appropriate contractors on the Small Works Roster. In the alternative, the City may invite telephonic, written or electronic quotations from at least five (5) contractors who are on the appropriate Small Works Roster who have indicated the capability of performing the kind of work being contracted, in a manner that will equitably distribute the opportunity among the contractors on the appropriate roster. Equitably distribute means that the City may not favor certain contractors on the appropriate small works roster over other contractors on the appropriate small works roster who perform similar services.

Projects $150,000 to $300,000

The City may advertise for bids or follow the small works roster procedures set forth in RCW 39.04.155 by inviting telephonic, written or electronic quotations from all appropriate contractors on the Small Works Roster. As an alternative, quotations may be invited from at least five contractors on the appropriate small works roster who have indicated the capability of performing the kind of work being contracted, in a manner that will equitably distribute the opportunity among the contractors on the appropriate roster. However, if the City chooses to solicit bids from less than all the appropriate contractors on the appropriate small works roster, the City shall notify the remaining contractors on the appropriate small works roster that quotations on the work are being sought. The City has the sole option of determining whether this notice to the remaining contractors is made by: 1) publishing notice in a legal newspaper in general circulation in the area where the work is to be done; 2) mailing a notice to these contractors; or 3) sending a notice to these contractors by facsimile or other electronic means.

Projects Over $300,000

Formal, competitive sealed bids are required pursuant to RCW 35.22.620.

C. Competitive Bidding Exceptions

Competitive bidding requirements may be waived as authorized in RCW 39.04.280 for:

(a) Purchases that are clearly and legitimately limited to a single source of supply;
(b) Purchases involving special facilities or market conditions ;
(c) Purchases in the event of an emergency (see below);
(d) Purchases of insurance or bonds; and
(e) Public works in the event of an emergency

In non-emergency situations, written documentation demonstrating the appropriateness of the competitive bidding **exception** purchase shall be submitted to the Finance Department in advance of the purchase. The Finance Director or the City Manager, (and the City Attorney, when needed) will determine whether a vendor or procurement can be defined as a sole source.

In emergency situations, the contract and the basis for the exception from competitive procurement shall be recorded and open to public inspection immediately after the award of the contract in accordance with RCW 39.04.280.

D. Emergency Contracts

If an emergency exists, as declared by the City Manager, or other person or persons designated by the City Council to act in the event of an emergency may:

(a) waive competitive bidding requirements,
(b) award all necessary contracts on behalf of the City to address the emergency situation. If a contract is awarded without competitive bidding due to an emergency, a written finding of the existence of an emergency must be made and entered into the public record for public inspection with the contract no later than two weeks following the award of the contract. The City Council shall approve such contracts within 30 days of the declaration of the emergency.
(c) For purposes of this section "emergency" means unforeseen circumstances beyond the control of the municipality that either: (a) Present a real, immediate threat to the proper performance of essential functions; or (b) will likely result in material loss or damage to property, bodily injury, or loss of life if immediate action is not taken.
(d) Before awarding a contract, verification must be provided that the contractor meets the responsibility criteria of RCW 39.04.350 attached.

E. Small Works Roster

The City of Kenmore or another city, through an interlocal agreement, shall maintain the Small Works Roster. The **City's small works roster is the eCityGov roster** as of November 30, 2007 accessed through the Shared Procurement Portal.

V. ARCHITECTURAL, LANDSCAPE ARCHITECTURAL, ENGINEERING SERVICES, & LAND SURVEYING

A. Approval Authority

Amount	Approval Authority	Process
Up to $2,000	Department Director or Designee r	Negotiated Contract from A&E List
$2,000 – less than $10,000	Department Director	Negotiated Contract from A&E List
$10,000 –less than $50,000	City Manager	Negotiated Contract from A&E List
$50,000 or more	City Council	Request for Qualifications Negotiated Contract

B. Process

RCW 39.80 requires the City to utilize a Request for Qualification (RFQ) selection process for architectural and engineering (A&E) services and to negotiate a contract with the most highly qualified firm. Notification to consultants may be done through either an annual advertisement or a project specific advertisement.

Negotiated Contracts Less Than $50,000

The City uses the A&E roster maintained by eCityGov, who will conduct the required annual advertisement inviting firms to submit a statement of qualifications and performance data. The City may also create a list advertised in accordance with RCW 39.80. If there are no consultants on the roster or the City's lists, then the City will prepare a Request For Qualifications advertisement for the specific project.

Negotiated Contracts for $50,000 or more

The initiating department shall prepare a Request for Qualifications (RFQ) and publish it in the City's official newspaper, in advance of the department's requirements for professional services. An RFQ may also be used if there are no firms on the roster with sufficient and specialized experience. The RFQ and its publication are intended to reach those potentially interested consultants that can provide the services required within the established time frame. The city will strive to obtain at least three statements of qualifications for any project.

VI. OTHER PROFESSIONAL AND SERVICE CONTRACTS

A. Approval Authority

Amount	Approval Authority	Process
Up to $2,000	Department Director or Designee	Purchase Order/Contract Roster
$2,000 –less than $15,000	Department Director	Purchase Order/Contract Roster
$15,000 – less than $50,000	City Manager	Request for Proposal or Negotiated Contract from Roster
Over $50,000	City Council	Request for Proposal Negotiated Contract

B. Process

Contracts for other (non A&E) professional services such as specialized attorney services, computer programmers, actuarial consultants, planners, bond counsel, etc., may be procured through a purchase order or negotiated contract with a firm or individual on the ECityGov roster or by an advertised Request for Proposal (RFP). All contracts must be reviewed and approved by the City Attorney.

Negotiated Contracts Less Than $50,000

The City may use the eCityGov roster to select firms or individuals. A purchase order or contract over $15,000 must be approved by the City Manager.

Negotiated Contracts for $50,000 or more

The initiating department shall prepare a Request for Proposal (RFP) and publish it in the City's official newspaper, in advance of the department's requirements for the services. An RFP may also be used if there are no firms on the roster with sufficient and specialized experience. The city will strive to obtain at least three proposals for any project. A contract of $50,000 or more must be approved by the City Council.

VII. CODE OF ETHICS

See City of Kenmore Administrative Policy and Directives 1. Code of Ethics for additional discussion of the following areas:

CONFLICT OF INTEREST

No City employee shall engage in any act which is in conflict with or creates an appearance of conflict with, the performance of official duties. Any potential conflicts should be reported to the City Manager.

SOLICITATIONS OF DONATIONS

The City will not accept donations of materials or services in return for a commitment to continue or initiate a purchasing relationship.

GIFTS AND GRATUITIES

No City employee shall solicit, accept or seek anything of economic value as a gift, gratuity, or favor from any person, firm or corporation involved in a contract or transaction which is or may be the subject of official action of the City;

VIII. DEFINITIONS

A&E Professional Services - Those services within the scope of practice of architecture, engineering, landscape architecture, or land surveying.

Best Practice Purchasing - Whenever formal written quotes/bids or telephone quotes are not required, competitive relationships with vendors/suppliers/contractors will be shopped or negotiated to assure competitiveness and reasonableness in achieving low cost, good quality and service.

Budget Authority - Person(s) authorized to spend funds up to amounts as budgeted on behalf of the city.

Competitive Sealed Bid - Notice to bidders is advertised and sealed bids are required. Usually, the bid document is very detailed and specific.

Emergency - A situation which results from the occurrence of a disaster, such as, but not limited to flood, hurricane, riot, power outage, disease, or a situation which may lead to the impairment of the health, safety or welfare of the public, if not immediately attended to.

Lowest Responsible Bidder - Before award of a public works contract, a bidder must meet certain responsibility criteria. See **RCW 39.04.350** attached.

Procurement – Procurement is the purchase of materials, supplies, or equipment. It also includes obtaining services supported by a contract.

Proposal - The consultant's proposal describing key personnel, technical approach, experience and familiarity with the area, time schedules, work plan, cost, and other information relating to the specific service being sought.

Professional Services (other than A&E) - An occupation wherein the labor and skill involved is predominantly mental or intellectual rather than physical or manual. Professions included in this category are: Accountants, artists, attorneys, bond brokers, computer programmers/consultants, insurance brokers, economists, financial analysts, planners, real estate appraisers, and codification of municipal ordinances.

Public Works – Means all work, construction, alteration, repair, or improvement other than ordinary maintenance, executed at the cost of the state or of any municipality, or which is by law a lien or charge on any property therein. All public works, including maintenance when performed by contract shall comply with chapter 39.12 RCW Prevailing Wages on Public Works.

Request for Bid (RFB) - A process through which written or electronic bids are solicited from contractors on an agency's small public works roster for public works contracts in which price is the primary basis for consideration and contract award.

Request for Proposal (RFP) - A solicitation sent to known vendors or consultants, usually prepared by a department head or designee, which indicates in a general manner the work or type of service which the city desires to contract. RFPs generally solicit qualifications, approach, price, and ideas from experienced and knowledgeable vendors and consultants.

Request for Qualifications (RFQ) – A method of soliciting competitive proposals that considers and evaluates companies based on a basis of demonstrated competency and qualification rather than price. This process is typically used for A&E services where price is not a consideration. An RFQ will generally result in a negotiated contract.

Roster - Small Public Works - A process through which there is competition for public works contracts following notification, normally through a request for bids (RFB), to some or all public works contractors who have requested placement on a roster kept by the local government agency for projects $300,000 or less.

ECityGov Shared Procurement Portal – A system of rosters established by the eCityGov Alliance as a means of soliciting and notifying businesses and contractors about opportunities to respond to bids and proposals. Authorized through an interlocal agreement, this is the City of Kenmore's official Small Public Works and A&E Roster.

Statement of Qualifications - A response to a Request for Qualifications wherein the prospective consultant provides information relating to the proposer's qualifications to perform the type(s) of work being sought, and may include brochures, resumes of key personnel, descriptions of work completed in other places, references, etc. Price may not be used as an evaluation criterion in requesting Statements of Qualifications in response to an RFQ for architectural, engineering, landscape architectural, and land surveying services.

Telephone Quote - Soliciting prices and other terms from vendors by phone wherein records of each contact are maintained.

Written Quotation - A written record of prices and other terms provided by prospective vendors in response to written solicitation sent to the prospective vendors by the City.

EXHIBIT A. Formal, Competitive Sealed Bids for a Public Works Project

An Advertisement or Request for Bid of a Public Works Project should include the following information:

- The title of the project.
- Brief description of the nature and scope of work including the materials and equipment to be furnished.
- The location where detailed plans, specifications, and contract documents are available for review or purchase
- The date, place, and time that the bids are due.
- Notice that bids received after the scheduled bid submittal deadline will not be considered.
- Notice of the requirement of a bid proposal deposit in the amount of 5% of the amount bid in the form of a cashier's check, certified check, money order, or surety bond in favor of the City of Kenmore, which must accompany the bid.
- Notice that the City reserves the right to reject any and all bids and to waive minor irregularities in the bidding process.
- Date, time and place of bid opening.
- The name and telephone number of City contact person.
- Notice that the successful bidder will be required to pay prevailing wages for the work to be performed.
- Statement that the City is an equal opportunity employer and invites responsive bids from all qualified responsive bidders.
- Notice that all bid documents are public record and subject to disclosure.

The Advertisement for Bid must be posted in City Hall or on the City Web Site and published in a newspaper of general circulation by the City Clerk once a week for two consecutive weeks with the last publication being at least 13 days prior to the last date upon which bids will be received.

Detailed Plans and Specifications

Detailed plans and specifications of public works project will be prepared at the direction of the requesting department director, along with an estimate of the cost of such work. The plans and specifications will be approved by the Director and a certified copy filed with the City Clerk. The plans and specifications will be posted on sites such as Builders Exchange.

Any changes or clarifications to the contract documents, specifications, or design drawings made after advertising and before the bid submittal deadline, should be issued to all document holders as numbered and dated addenda. A copy of the addenda must be filed with the City Clerk.

Bid Log

The City Clerk must prepare a log (this is a formal public record) containing the following information:

a. The name, address and phone number of every contractor who received a copy of the Detailed Plans and Specifications for the project and the date and time specifications were provided.

b. If communications with prospective bidders occur during the bid period, record the substance of the communication on the bid log.

Bid Opening

The City Clerk will be present at all bid openings to verify the date and time of bid submittals; open each bid proposal; announce the bids of each submitter; record the unit prices, sales tax, delivery charge if applicable, and total cost of each bid proposal. A tabulation of bid results will be prepared by the City Clerk and is available to the public immediately following the formal bid opening.

Bid Award

The requesting department will evaluate the bids for responsiveness, unbalanced bids, and whether the price is within the budget. The requesting department will also determine and document that the bidder submitting the lowest responsive bid meets the bidder responsibility criteria of RCW 39.04.350(1) and any supplemental bidder responsibility criteria established and included in the bidding documents, consistent with RCW 39.04.350(2). The requesting department shall then prepare a contract including review as to form by the City Attorney, and submit the documentation to the City Manager for approval and submission to the City Council.

All bid proposal deposits must be returned to the unsuccessful bidders; the 5% bid bond of the successful bidder will be retained until a contract is entered into and a payment and performance bond for the work is furnished, with surety satisfactory to the City Council. If the bidder fails to enter into the contract in accordance with his or her bid and fails to furnish a payment and performance bond within 20 days from the date of being notified of award, the 5% guaranty will be forfeited to the City of Kenmore.

Bid Protest

A party may protest bid solicitations. The City must receive a written protest at least three business days prior to the bid submittal deadline.

Per **RCW 39.04.105**:If the City receives a written protest from a bidder for a public works project which is the subject of competitive bids, the City shall not execute a contract for the project with anyone other than the protesting bidder without first providing at least two full business days' written notice of the City's intent to execute a contract for the project; provided that the protesting bidder submits notice in writing of its protest no later than two full business days following bid opening. Intermediate Saturdays, Sundays, and legal holidays are not counted.

Public Record

Immediately after opening of the bids, the original of every bid proposal and a copy of the bid log will be filed with the City Clerk for retention; the bids are a public record. A copy of the proposal of the successful bidder should remain with the initiating department until completion of the project.

Rejection of Bids

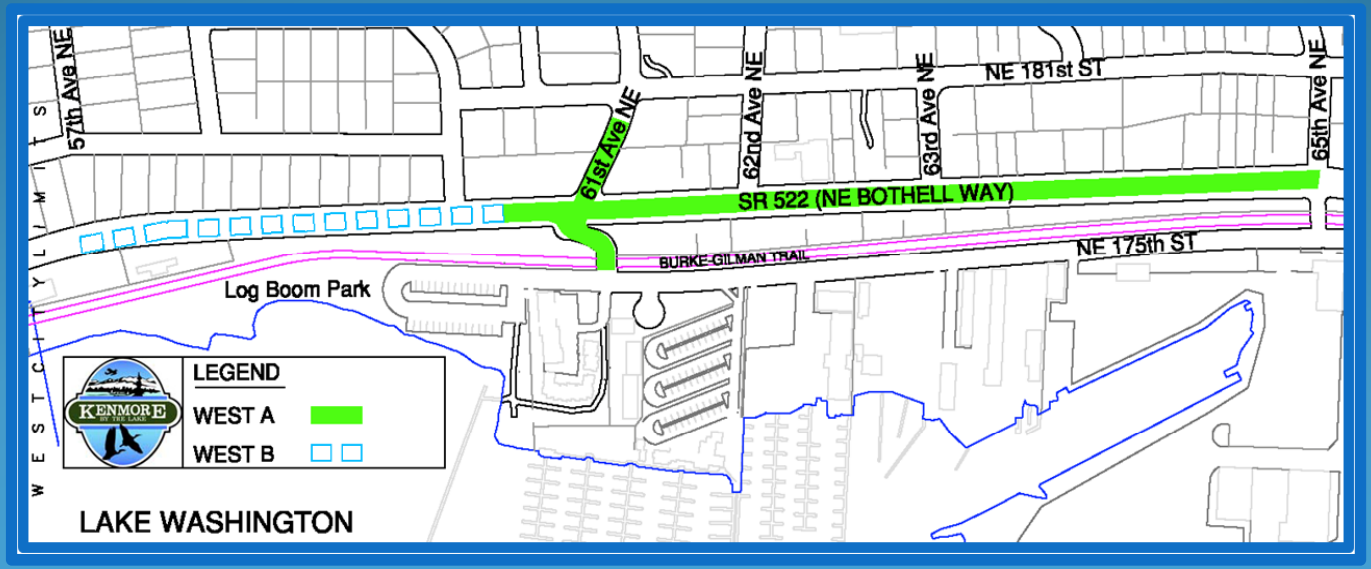
Based on the evaluation of bids, the initiating department may recommend that all bids be rejected. The City Council may also reject any or all bids when the public interest will be served. If bids are rejected, the initiating department will inform the bidders in writing. A rejection of bids may occur and is not limited to the following reasons:

1. The bids exceed the engineering estimate and or the amount the city has available for the project,
2. The bidder(s) does not meet the mandatory bidder responsibility criteria of RCW 39.04.350 (1) or any supplemental bidder responsibility criteria established in the bidding documents.

Any contact made by the bidder with a member of the City Council that regards the Request for Bid may be grounds for bid rejection.

SR 522 West A Project Update

City of Kenmore
Kent Vaughan – Senior Civil Engineer
Kris Overleese – Public Works Director / City Engineer



Goals for this Evening

- Request Council Action to Amend Change Order Policy for the SR 522 West A Project
- Give Brief Construction Update

West A – Change Order Policy

Change Orders

- All construction projects experience some level of errors and omissions in the contract documents or changed conditions in the field.

Existing Staff Authority Limits

(within the confines of the approved project budget)

- City Engineer: $25,000
- City Manager: $50,000

West A – Change Order Policy

<u>Proposed Staff Authority Limits</u>
(within the confines of the approved project budget)

- Project Manager: $10,000
- Public Works Director / City Engineer: $50,000
- City Manager: $150,000

WHY?

- To improve efficiency in processing change orders and;
- To reduce the potential for contractor delays and additional costs during construction.

West A – Change Order Policy

Checks and Balances

- All Project Change Orders will:
  - Be prepared by an experienced construction manager (KBA);
  - Be thoroughly evaluated for legitimacy / entitlement;
  - Include an assessment of the change as it relates to the current contract and an independent engineer's estimate of the change;
  - Be thoroughly reviewed internally by KBA, City and WSDOT staff (and other funding agencies as appropriate) before being executed.

West A – Prelim. Contractor Schedule

Phase of Work*	2015				2016			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Phase 1 – North Side								
Phase 2 – South Side								
Phase 3 / 4 – Center Median / Paving								
Close-out								

NOTES

- Construction started April 13, 2015.
- Contract has 280 working days to complete work.

* **Night work and/or temporary road closures will be needed.**

Staff Recommendation for Council Action

- Staff recommends adoption of Resolution 15-255 Amending the Change Order Policy for the SR 522 West A Project

City Council Business Agenda Item
City of Kenmore, WA

Subject/Topic: Joint meeting with the Planning Commission to preview the 2015 Comprehensive Plan Update, particularly the Vision Statement, Housing Element, Public Services Element, Utilities Element, and policies on healthy/active living and sustainability. **Proposed Council Action/Motion:** Provide feedback to the Planning Commission	**For Council Meeting Agenda of:** 04/20/15 **Department:** Community Development **Prepared by:** Debbie Bent, Community Development Director and Lauri Anderson, Senior Planner **Initial & Date** **Approved by Department Head:** AB 4/13/15. **Approved by City Attorney:** N/A **Approved by Finance Director:** **Approved by City Manager:** RJK **Exhibits/Attachments:** 1. Draft Vision Statement 2. Existing Vision Statement 3. Draft Housing Element 4. Draft Public Services Element 5. Draft Utilities Element 6. Draft Policies for Healthy/Active Living and Sustainability

Expenditure Required $0 **Amount Budgeted**: $25,000 **Appropriation Required** $0

INFORMATION/BACKGROUND: The State-mandated 2015 update to the City's Comprehensive Plan is due by June 30 of this year. The April 20 joint meeting provides a preview of proposed substantive amendments to the comprehensive plan and it gives Council an opportunity to provide feedback or direction before the Commission deliberates and makes a final recommendation. The last joint meeting on February 23, 2015 was to discuss the Vision Statement survey results. The Planning Commission public hearing on the project will occur on April 21, and the Planning Commission will deliberate at their May 5 meeting. Staff anticipates formal presentation of the Planning Commission's final recommendations at a special joint meeting with the City Council on June 1. Council adoption of an ordinance for amendments to the Comprehensive Plan is anticipated at the June 22 Council meeting. A Council Public Hearing will only be required if the Council wants to incorporate new or substantive changes that are beyond the scope of amendments considered by the Planning Commission.

As directed by the City Council last September, substantive amendments to the Comprehensive Plan have been limited to the Vision Statement and three Elements, or chapters—the Housing Element, the Public Services Element, and the Utilities Element. The Council also endorsed the addition of some new policies about healthy/active living (in response to a new State requirement) and sustainability—although these were not to be major work program items.

Although the other Comprehensive Plan components have been reviewed and minor updates considered as necessary to make them "current," the Planning Commission recommendations for these Elements will not be ready for presentation to the City Council until June 1. No changes are being proposed to the recently-

adopted Parks, Recreation and Open Space, Shoreline, and Surface Water Elements.

The draft Vision Statement, the three Elements, and the draft policies about healthy/active living and sustainability are attached for your review and discussion. Text in the goals, objectives and policies is shown in the standard underline/strike-through format, with the changes to the current Comprehensive Plan language highlighted in yellow. Although the factual background information at the beginning of each Element has been rewritten to include updated information, these changes are not highlighted. The Planning Commission did, however, review these background information changes. You will note that not all of the figures are presented in the draft Elements; they are being prepared and will be incorporated into the public hearing draft.

Following is a brief summary of the major changes:

Vision Statement: The Planning Commission reviewed the Vision Statement survey responses, combined some concepts, and reorganized the phrases in priority order. They added a new focus on Kenmore as a "vibrant waterfront community." They eliminated the phrase about "a community with clear public priorities that efficiently and effectively utilizes its public resources" believing that this statement was not really part of a community vision. They also added a new concept: supporting local arts and culture.

Housing Element: This Element was reviewed with staff from A Regional Coalition for Housing (ARCH). A policy was added to support housing options and services to allow seniors to stay in their homes or neighborhoods. Other policies recognize the City's role in supporting affordable housing for all income levels as outlined in the King County Countywide Planning Policies. A significant implementation strategy would be adoption of a Housing Strategy Plan that would outline action steps and priorities.

Public Services Element: Information in this Element was reviewed with the Northshore Fire Department, Kenmore Library staff, the Northshore School District, and human services providers (when information was not available online). The Planning Commission added a new policy about supporting community engagement techniques that encourage a diversity of voices, including social media and the City's website. An important new implementation measure is to encourage human services providers to update information on human services needs and gaps in service in Kenmore, and how those gaps might be filled.

Utilities Element: Information in this Element was reviewed with Puget Sound Energy, Republic Services, and the Northshore Utility District. The City Attorney's Office provided background information on franchises and franchise agreements, particularly as related to telecommunications providers. The Planning Commission recommends addition of a policy to strengthen language about the provision of excellent service as part of franchise agreements, when possible. They also have included policies about taking steps to increase opportunities for future utility line undergrounding and minimizing impacts of personal wireless services, telecommunication facilities, and towers on adjacent land uses through careful siting and design. Supporting Northshore Utility District in efforts to use reclaimed water is recommended. A significant implementation measure would address regulations for alternative energy sources, such as solar, wind and/or thermal.

Policies for Healthy/Active Living and Sustainability: The State Growth Management Act now requires that Comprehensive Plan land use elements consider urban planning approaches that increase physical activity. The Planning Commission is recommending the addition of only two policies to the Land Use Element to specifically address this requirement, as many existing policies in the Plan support these approaches. They also recommend a few policies to address healthy/active living in general, given ongoing City support for the Let's Move campaign. Local food policy recommendations are in response to the King County Countywide Planning Policies that address this topic.

The Commission is recommending several policies related to sustainability, including a goal that a Sustainability Action Plan be developed outlining steps the community (including citizens, businesses, City

Administration and the City Council) can take to support sustainable economic prosperity, social equity and environmental health. We encourage Council to contact staff with questions or concerns about the recommendations prior to the June 20 meeting so that staff and the Planning Commission will be prepared on the 20th.
FISCAL CONSIDERATION: None at this time.
COUNCIL GOAL/BUDGET OBJECTIVE BEING ADDRESSED: The Comprehensive Plan is the document describing community goals, objectives and policies to achieve the Council-adopted community vision.

Attachment 1

KENMORE COMPREHENSIVE PLAN
REVISED VISION STATEMENT

Planning Commission's Recommendation: March 17, 2015

As we look into the future, we see Kenmore as a place that residents, businesses and visitors find welcoming, with courteous people, and that offers a high quality of life to live, raise children, shop, work, recreate, and socialize. **In 2035, we see Kenmore as a vibrant waterfront community that**

- is connected both visually and physically to its waterfront, recognizing it as a significant local and regional asset
- supports an active, healthy citizenry with well-maintained parks, trails, open spaces, and recreational opportunities
- protects natural and environmentally sensitive areas, significant open space, trees, and air and water quality
- provides a safe, reliable and effective system of streets, sidewalks, bike ways, trails, and transit routes, linking significant local and regional destinations
- has its own sense of place and an identifiable, walkable downtown offering commercial, civic, cultural and park spaces, integrated with higher density housing
- has an economic base that provides a range of goods and services, offers quality employment opportunities, and supports local businesses
- has clear design standards creating attractive, functional, and enduring buildings and places
- supports the character of its single family residential neighborhoods
- offers a diversity of housing types to provide a choice of attractive living accommodations for all residents
- supports the safety, health, and welfare of all of its citizens
- supports and encourages education and quality schools
- supports local arts, culture and history
- is inclusive and family friendly, with a small town feeling, that fosters a sense of belonging and pride
- encourages volunteerism and public involvement and works as a good partner with citizens and governments throughout the region

To achieve this vision, responsible commitments in planning and resources will be made. We share and support this vision for Kenmore.

KENMORE COMPREHENSIVE PLAN
VISION STATEMENT

City Council Approval: March 13, 2000

As we look into the future, twenty years from now, we see Kenmore as a place that residents, businesses and visitors find special with welcoming, courteous people, offering a high quality of life as a place to live, raise children, shop, work, recreate, and socialize. In 2020, we see Kenmore as…

- A community that is family friendly with a small town feeling, that recognizes its history, and is open to and values diversity
- A community that fosters a sense of belonging and pride, makes use of the vast skills of its citizens, and promotes volunteerism
- A community that has preserved the character of its single family residential neighborhoods, which offers a range of housing types and prices to ensure an adequate choice of attractive living accommodations, and promotes compatible housing
- A community that actively protects natural and environmentally sensitive areas, significant open space, and trees
- A community with an attractive, vital, pedestrian-friendly city center offering commercial, civic, cultural and park spaces, integrated with higher density housing
- A community with clear design standards creating attractive, functional, and enduring buildings and places
- A community that manages its traffic well, and is united by a safe and effective system of streets, transit routes, sidewalks, and trails, linking significant regional and local destinations
- A community that supports and encourages quality schools, diverse and continuing education opportunities
- A community with a network of parks, trails, open spaces, and recreational facilities providing for passive and active recreation, and waterfront access
- A community with clear public priorities that efficiently and effectively utilizes its public resources
- A community with an economic base that provides for the needs of its citizens and provides quality employment opportunities
- A community that is attentive to, and seeks to provide for, the health, safety, and welfare of all its citizens
- A community that is a good partner with citizens and governments throughout the region
- A community with an informed citizenry working with an open, responsive government that seeks out and integrates public input

To achieve this vision, responsible commitments in planning and resources will be made. We share and support this vision for Kenmore.

HOUSING ELEMENT

INTRODUCTION

Purpose

This Housing Element is intended to promote and maintain residential neighborhoods, ensure a range of densities and housing types for all incomes, address special needs housing, and protect the quality of the residential environment. When the community was first incorporated, community visioning efforts showed some trends in housing preferences, including a preference for adding single-family dwellings at about the same lot size as surrounding lots, and acceptance of accessory dwelling units. Also indicated was a desire to control the location of attached housing by placing it in Central Kenmore, and not dispersing small-scale attached dwellings in neighborhoods.

Growth Management Act Requirements

The Growth Management Act (GMA) states that Comprehensive Plans are to encourage the availability of affordable housing to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock. Housing elements are to make an inventory and analysis of existing and projected housing needs; include a statement of goals, policies, and objectives for the preservation, improvement, and development of housing; identify sufficient land for housing, including low income, special needs, and multiple housing types; and make adequate provision for existing and projected housing needs of all economic segments of the community.

Countywide Planning Policies

The county-wide population growth forecast has been established by the Washington State Office of Financial Management (OFM), as required by the GMA. Each jurisdiction in King County agreed to a housing target (population allocations converted into households) for the years 2006-2031, in Countywide Planning Policies (CPPs). The household target for Kenmore is 3,500. The city is committed to ensuring there is capacity in the Comprehensive Plan and implementing regulations to meet this target. Actual growth would occur based upon market forces.

The CPPs identified the countywide housing needs of moderate-, low-, and very-low-income households, which are equal to 16 percent, 12 percent and 12 percent, respectively, of all housing. The CPPs also state that each city shall address the housing needs of all economic segments and strive to provide housing affordability to accommodate a proportionate amount of the countywide needs.

Beyond ensuring capacity for growth and support for affordable housing, the CPPs focus local government housing elements toward other objectives, such as:

- New housing accessible to employment, shopping, and transit.
- Neighborhoods that promote healthy human activity.
- Fair housing.
- Regional collaboration on inter-jurisdictional housing issues.

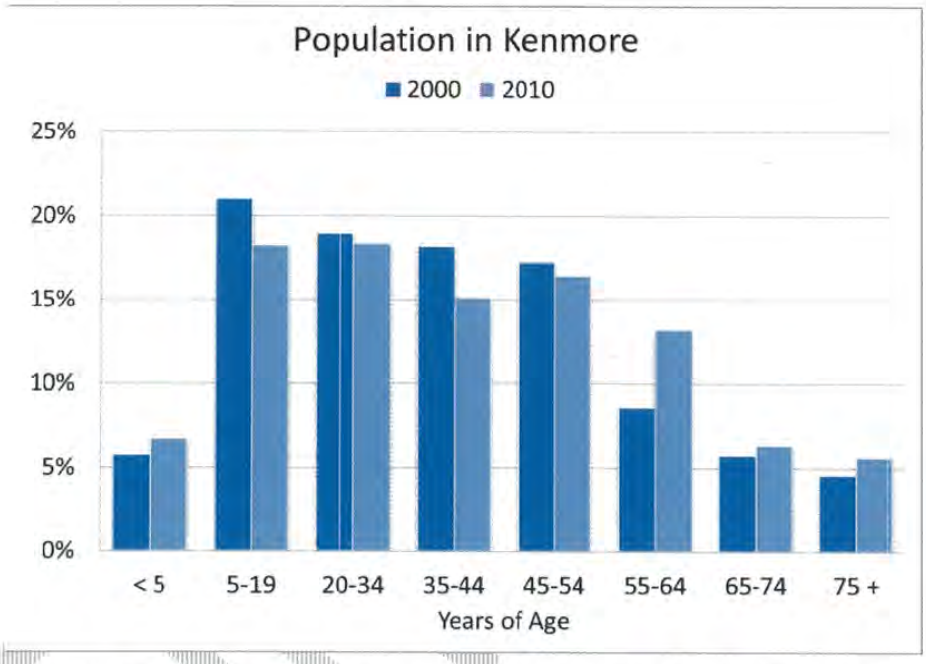
EXISTING CONDITIONS

The following discussion draws from the East King County Housing Analysis, produced for all member cities of A Regional Coalition for Housing (ARCH) and made a part of this Comprehensive Plan update.

Population and Households

Kenmore's population grew ten (10) percent in the 2000s, from 18,678 to 20,460. Population declined, however, among school-age children and adults 35 to 44 years old (Housing Analysis, Exhibit D-1; and Figure H-1, below). The city's proportion of senior citizens (65 years and older) is similar to countywide figures. As in other cities, the seniors' segment has not increased significantly as of 2010, but Baby Boomers (age 55 – 65) will increase that figure over the next decade.

FIGURE H-1



Kenmore had roughly 700 (14 percent) more households in 2011 than in 2000, but the types of households remained virtually unchanged (Housing Analysis, Exhibit B). The city has a greater percentage of married-couple families (56 percent) than King County overall (Figures H-2 and H-3, below), but is typical for east King County in that respect. ("East King County," or EKC, refers here to member cities of ARCH.) The city also maintains a somewhat lower proportion of one- and two-person households than the rest of east King County (58 percent; Housing Analysis, Exhibit C-2).

FIGURE H-2

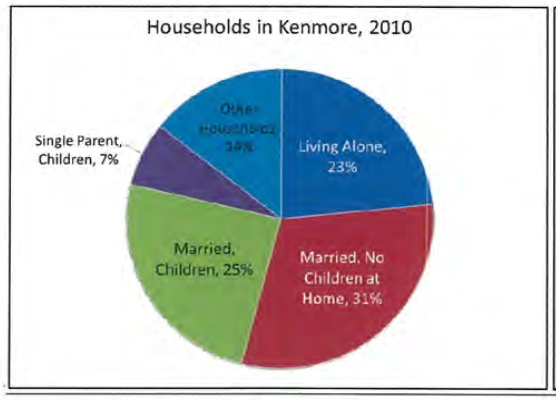
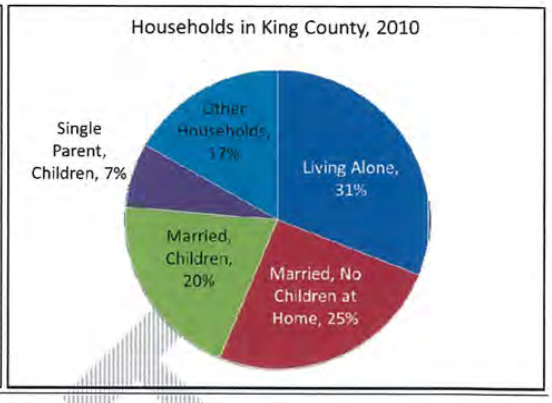


FIGURE H-3

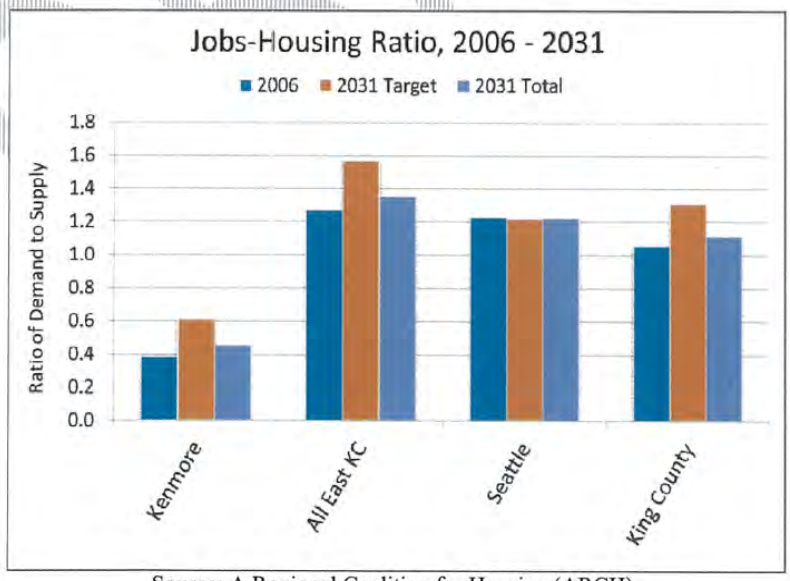


Source: 2010 Census (U.S. Census Bureau)

Kenmore Jobs and Wages

Employment can be an important contributor to housing demand within a community, both in terms of the amount and affordability of housing. Although Kenmore's employment growth during the 1990s was relatively high (24 percent), this was mostly offset by lost jobs (26 percent) between 2000 and 2010. The Jobs-Housing Ratio is a way to measure demand for housing from local employment relative to the local housing supply (a ratio less than 1.0 means less demand for housing from the local workforce than is available in the city). As of 2006, the city's jobs-housing ratio was just under 0.4 and based on growth projections would increase to just over 0.4 by 2031 (see Figure H-4). This is much lower than the countywide ratio and the ratio of most other cities in east King County. This means that most Kenmore residents work in other cities, compared to other areas, and the housing demand from existing jobs is relatively low.

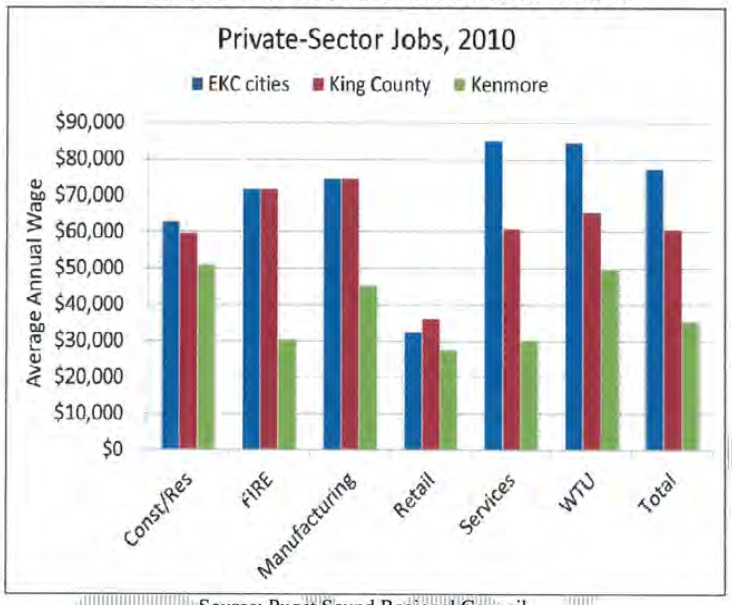
FIGURE H-4



Source: A Regional Coalition for Housing (ARCH).

While the demand for housing from local employment is lower than other nearby communities, jobs in Kenmore tend to pay less than jobs countywide in the same sector (Figure H-5, below), which implies a demand for relatively affordable housing from the local workforce.

FIGURE H-5
AVERAGE WAGES BY INDUSTRY SECTOR



Source: Puget Sound Regional Council.

Household Incomes

Approximately 20 percent of the households in Kenmore fall within the standards defined as very low- or low-income. This is slightly lower than countywide figures, but higher than east King County (Figure H-6). The rental market is the primary source of housing for these populations.

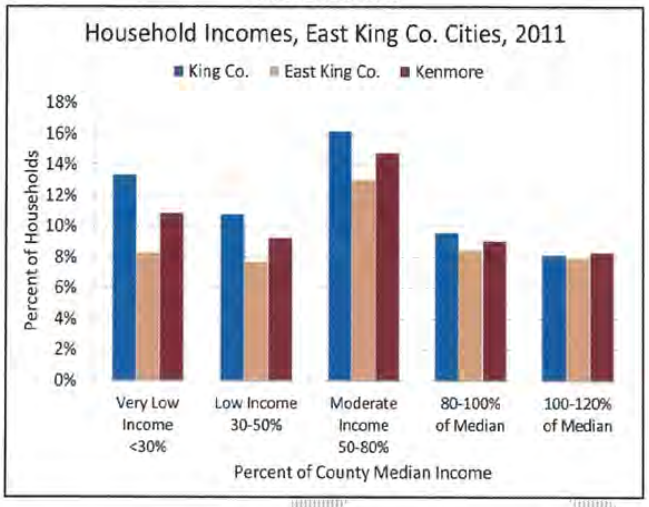
TABLE H-A
HOUSEHOLDS BY INCOME CATEGORY

HOUSEHOLD INCOME CATEGORY		PERCENT OF TOTAL HOUSEHOLDS			
		KENMORE			KING CO.
		1990*	2000	2011	2011
< 30% of median:	Very Low-Income		8%	11%	12%
30% to 50% of median:	Low-Income	17%	8%	9%	12%
50% to 80% of median:	Moderate-Income		16%	15%	16%
> 80% of median:	Middle- and Higher-Income	83%	69%	65%	60%

"Median" refers to the (King County) Area Median Income.
* "Kenmore Census Designated Place." The city was not incorporated until 1998, and the Kenmore CDP is a slightly different geographic area but the closest with available data. Income category break-outs not available for 1990.

Source: 1990 and 2000 Census (U.S. Census Bureau) and 2006-2010 CHAS (Comprehensive Housing Affordability Strategy; U.S. Housing and Urban Development).

FIGURE H-6



Source: 2011 American Community Survey, 5-year Estimates (U.S. Census Bureau).

Northshore School District records show that 18 percent of the students qualify, based on income, for free or reduced lunches at school (Northshore website). Almost nine (9) percent of the students live in a household with an income below the poverty level (Housing Analysis, Exhibit G-3).

Number and Types of Housing Units

Kenmore added 12 percent more housing units during the 2000s—somewhat slower than the growth of the 1990s, but in line with projections in the 2005 Comprehensive Plan. Kenmore also grew a bit more slowly than King County and the rest of the Eastside. (See Exhibits A and L-1 of the East King County Housing Analysis.) The city's mix of housing types changed very little during that time (Table H-B, below).

TABLE H-B
NUMBER AND TYPE OF HOUSING UNITS, KENMORE

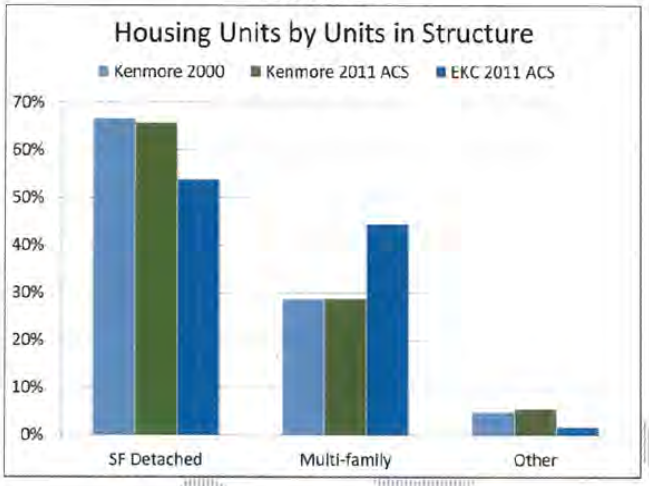
TYPE OF HOUSING	2000		2014	
	UNITS	% OF TOTAL	UNITS	% OF TOTAL
Single-family Detached	5,235	70%	6,276	71%
Multi-family	1,892	25%	2,268	26%
Mobile Homes	361	5%	291	3%
Total Units	7,488	100%	8,835	100%

Source: U.S. Census Bureau, 2000 Census, and
Washington State Office of Financial Management (OFM), 2014.

Compared to King County and most of east King County, Kenmore has a relatively low percentage of multi-family housing. Less than 30 percent of Kenmore's housing is multi-family (Figure H-7, below; Housing Analysis, Exhibit L-1). Approximately 25 percent of the multi-family units are condominiums.

Approximately 350 multi-family units have been built or begun construction since 2006, about 25 percent of overall housing growth in this period (2014 Buildable Lands Report; not all reflected in Figure H-7). About 40 percent of these newer units are condominiums.

FIGURE H-7



Source: 2000 Census and 2011 American Community Survey, 5-Year Estimates (U.S. Census Bureau).

Kenmore is one of the few communities in east King County with any significant number of manufactured homes (close to 300; Washington State OFM). Most of Kenmore's manufactured homes are located in five parks with a small number located on individual lots. Units are a mixture of owner occupied and rental units. Homes are in a wide range of physical condition, including some units that are getting past their useful life. Overall availability of manufactured housing has been decreasing in King County as parks are redeveloped with other uses. One concern is that manufactured housing has offered a relatively affordable form of housing and is being replaced with more expensive housing.

Several multi-family housing projects are in the planning or construction stages. The largest proposed multi-family development is Lakepointe, which would provide 1,200 new housing units; the exact mix of owner-occupied and rental units in the project is yet to been determined.

Another project, which has been approved, is the first major residential redevelopment project in the Downtown district. Located on a former Metro park-and-ride site, the property will have up to 325 apartments within walking distance of shopping and transit. Pursuant to local zoning requirements, twenty-five (25) percent of the units will be affordable to moderate-income households. The first phase of 138 apartments started construction in 2014.

Kenmore has permitted 31 accessory dwelling units as of 2011, or about one for every 167 detached single-family homes—almost exactly the same as the average for all of east King County (Housing Analysis, Exhibit Q-1). (This compares to a rate of one for every 32 detached homes in Mercer Island, the city with the highest ratio of ADUs.)

Prices of Market Rate Housing

Homeownership

Kenmore has a homeownership rate of 74 percent, which is at the upper end of ownership rates for cities in east King County, and greater than the countywide average. Kenmore has also had a relatively significant increase in the rate of homeownership since the early 1990s, while most cities have seen homeownership rates stable or decreased in that period.

The average home sale price in the first quarter of 2014 in Kenmore was $413,000 (Central Puget Sound Real Estate Research Committee). This is lower than the average prices in nearby communities and in King County overall ($474,000). On average, Kenmore's home prices fell 14 percent during the recent recession, less than east King County in general (21 percent); but as seen across most of the Eastside, prices have more than recovered.

Condominium units provide a relatively affordable homeownership alternative for Kenmore residents. The average sale price for condominiums in early 2014 was $169,000—similar to condo prices in Bothell and Woodinville, and low compared to the averages across east King County and King County overall (Central Puget Sound Real Estate Research Committee).

Rental Housing

Rental housing makes up about 25 percent of housing supply in Kenmore, a significantly smaller portion of overall housing than east King County as a whole and King County. Average rents are slightly higher in the Kenmore/Bothell market than in the Shoreline market (Table H-C, below), but low compared to the rest of east King County and the county overall.

TABLE H-D
AVERAGE RENTS, 2014 (SPRING)
PROPERTIES WITH 20 OR MORE APARTMENTS

LOCATION	SIZE OF UNIT (BEDROOMS/BATHROOMS)					AVERAGE
	0/1	1/1	2/1	2/2	3/2	All Units
Bothell/Kenmore	$724	$1,036	$1,145	$1,227	$1,693	$1,163
Shoreline/Lake Forest Park	$815	$946	$1,084	$1,230	$1,562	$1,070
Eastside	$1,139	$1,281	$1,366	$1,656	$1,877	$1,474

Source: The Apartment Vacancy Report (Dupre+Scott Apartment Advisors).

Rental vacancy data indicate that Kenmore has relatively few apartments available (Housing Analysis, Exhibit P-2; Table H-E, below).

TABLE H-E

APARTMENT VACANCY RATES
PROPERTIES WITH 20 OR MORE APARTMENTS

LOCATION	PERCENT OF TOTAL UNITS	
	Spring, 2013	Spring, 2014
Kenmore/Bothell	5.0%	3.6%
Shoreline/Lake Forest Park	2.3%	1.9%
Eastside	3.3%	3.7%
King County	3.3%	4.3%

Source: The Apartment Vacancy Report (Dupre+Scott Apartment Advisors).

Age of Housing

Kenmore's housing stock is somewhat older than the rest of east King County, but a bit younger than that of King County overall. Fifteen (15) percent of all homes in the community are less than 10 years old (similar to the rest of east King County), and 45 percent have been built since 1980 compared to 55 percent for the rest of east King County (Housing Analysis, Exhibit O).

Rental Housing for People Needing Supportive Services

Kenmore has a range of housing for people who need supportive services, particularly for the elderly and those individuals with physical disabilities. The housing includes adult family homes, assisted living facilities, boarding homes, group living, and nearby nursing homes.

An estimated six (6) percent of the people in Kenmore are over the age of 75 years (Housing Analysis, Exhibit D-1). Supplemental Security Income supports people with disabilities in over 200 (3 percent) Kenmore households (Housing Analysis, Exhibit K-1).

Kenmore has two licensed assisted living facilities (boarding homes) with 106 beds and 21 licensed adult family homes with 117 beds (Housing Analysis, Exhibit Q-2). Adult family home residents include elderly people, individuals with limited mobility (use of wheelchair), developmental disabilities, mental illness, diabetes, terminal illnesses, brain injury, and those recovering from strokes. The number of persons living in supported living situations (i.e., group quarters) has increased almost 50% since 2000 (Housing Analysis, Exhibit K-2).The closest nursing home to Kenmore is in Bothell. The North Creek Health and Rehab Center (10909 NE 185th) nursing home has 112 beds.

Assisted Rental Housing

A variety of publicly assisted rental housing is available in Kenmore, including the Greenleaf family housing and Northwood senior housing operated by the King County Housing Authority (KCHA), Heron Run family and Heron Landing senior housing operated by DASH, Copper Lantern (rental and ownership housing) operated by LIHI and Shadrack family shelter operated by Hopelink. In addition, the Housing Authority operates a voucher program for the rental of privately held units. This federal program currently assists approximately 20 Kenmore households with rental subsidies. (Lower income tenants in the City of Kenmore may also apply for emergency funding from King County in the event they are faced with eviction due to nonpayment of rent. This assistance is available through the Multi-Service Center of Northeast King County.)

Housing Affordability

According to policies established by the U.S. Department of Housing and Urban Development, a household should spend no more than 30 percent of its income on housing, including utilities. If they pay more than that, they are considered "housing cost burdened." Table H-F shows incomes and affordable housing costs for various income levels.

TABLE H-F
AFFORDABLE HOUSING COSTS BASED ON KING COUNTY MEDIAN INCOME, 2014.

	VERY LOW INCOME		LOW INCOME		MODERATE INCOME	
	30% of Area Median		50% of Area Median		80% of Area Median	
Household Size	Annual Income	Affordable Monthly Cost	Annual Income	Affordable Monthly Cost	Annual Income	Affordable Monthly Cost
1	$18,522	$463	$30,870	$772	$49,392	$1,235
2	$21,168	$529	$35,280	$882	$56,448	$1,411
3	$23,814	$595	$39,690	$992	$63,504	$1,588
4	$26,460	$662	$44,100	$1,103	$70,560	$1,764
5	$28,577	$714	$47,628	$1,191	$76,205	$1,905

Source (income figures): U.S. Department of Housing and Urban Development.

Using the federal affordability definition, 13% of Kenmore's housing is affordable to very low and low income households and 15% to moderate income households (Housing Analysis, Exhibit M-2). The amount of housing affordable to low- and very low-income families is similar to Bothell and slightly below King County, but higher than other cities in east King County. The amount of housing affordable at the moderate-income level is similar to the rest of east King County, but lower than Bothell and Countywide figures. Table H-G compares the housing affordability of Kenmore, east King County, and King County overall against countywide housing needs.

Most of Kenmore's housing affordable to lower incomes is rental housing. Thirty-five (35) percent of the rental units in Kenmore were affordable to very low and low-income families in 2014. This is similar to countywide figures, but a much higher rate of affordability in rental housing than other cities in east King County.

About seven (7) percent of the single-family owner-occupied housing units in Kenmore are affordable to families earning up to 80 percent of median income, and an additional 4 percent affordable to families earning 80 to 100 percent of median income (Housing Analysis, Exhibit M-2, and Table H-G, below). These figures are similar to east King County, but somewhat lower than King County. Note that Kenmore has a relatively high percentage of homes affordable to low income households, which may be partially attributable to the city's relatively high number of manufactured homes.

TABLE H-G
AFFORDABLE HOUSING AND COUNTYWIDE HOUSING NEEDS, 2010

HOUSEHOLD INCOME LEVEL		PCT OF TOTAL HOUSING UNITS AFFORDABLE AT INCOME LEVEL			COUNTYWIDE HOUSING NEED
		Kenmore	East King Co.	King County	
< 30% of median:	Very Low-Income	3%	2%	4%	12%
30% to 50% of median:	Low-Income	10%	5%	11%	12%
50% to 80% of median:	Moderate-Income	15%	17%	20%	16%
80% to 100% of median:	Middle-Income	7%	18%	15%	10%
> 100% of median:	Higher-Income	65%	59%	50%	50%

Source: 2006-2010 CHAS (Comprehensive Housing Affordability Strategy; U.S. Housing and Urban Development).

Cost-Burdened Households

Despite the relative affordability of Kenmore, 38 percent of the city's households, and 42 percent of the renting households, are housing cost-burdened (Housing Analysis, Exhibit H-1). Both figures are similar to countywide figures, but high for east King County. Moreover, of cities in east King County, Kenmore has the highest percentage of severely cost-burdened households (paying more than half their incomes on housing) at 17 percent.

HOUSING TARGETS AND CAPACITY

The city's 2006–2031 growth target established by the King County Countywide Planning Policies is 3,500 households. Subtracting actual development, the remaining growth target (2012–2031) is 2,980 households. On an annualized basis, this means the city should expect and plan for 149 additional units each year. The Kenmore Land Use Plan provides enough zoned capacity to exceed the 2031 household target, as shown in Table H-I. Mixed-use areas provide more than half of the city's present capacity for new housing.

TABLE H-I
EXISTING HOUSING UNITS, CAPACITY, AND TARGETS, KENMORE

Housing Type	2012 Existing		Remaining Capacity		Total if Built to Capacity	
	Units	Pct	Units	Pct	Units	Pct
Single-family Dwellings	6,471	74%	1,352	30%	7,823	59%
Multi-family Dwellings, total	2,264		3,151		5,415	
In residential-only zones	2,264	26%	742	16%	3,006	23%
In mixed-use zones	0	0%	2,409	53%	2,409	18%
Total	8,735		4,503		13,238	

Source: 2014 Buildable Lands Report (King County).

SUMMARY OF LOCAL HOUSING STRATEGIES

Since incorporation, the city has taken action in several areas to address local housing needs. These include:

- Updates to the Downtown area plan have increased opportunities for creating new housing in the Downtown. This has allowed the city to have sufficient capacity to meet its 2006–2013 housing growth targets.
- The city rezoned the old Park and Ride site to allow housing development, with a requirement that 25 percent address local affordable housing needs. The first phase of development of this property began in 2014. To help enhance affordability on the property, the city approved a twelve-year property tax exemption on residential improvements.
- The city adopted regulations to allow Accessory Dwelling Units, with over 30 ADUs permitted to date.
- The city has waived a portion of impact fees for several projects that incorporated housing affordable to low-income households.
- The city has been an ongoing member of ARCH. Through the ARCH Trust Fund process, the city has regularly committed local funds for affordable housing projects in Kenmore and throughout the region, assisting over 170 units affordable to lower-income households.
- Through participation in the countywide CDBG Consortium, 25 local homeowners have received Housing Repair loans since 2005.

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RESIDENTIAL NEIGHBORHOODS SUB-ELEMENT

GOAL 26. PROMOTE AND MAINTAIN STRONG RESIDENTIAL NEIGHBORHOODS.

OBJECTIVE 26.1 Encourage repair and maintenance of existing housing.

Policy H-26.1.1 Encourage private reinvestment in residential neighborhoods and private rehabilitation of housing by providing information, technical assistance, and referrals to appropriate agencies and organizations.

Policy H-26.1.2 Provide regular and appropriate levels of investment in transportation, surface water, and parks maintenance and improvements within residential neighborhoods, consistent with the City's capital improvement priorities. Encourage special districts to provide services and maintain infrastructure within residential neighborhoods consistent with adopted service and capital improvement plans. ~~*(See Policy LU-1.3.3)*~~

Policy H-26.1.3 In cooperation with King County, Puget Sound Energy, or other agencies, promote the use of weatherization programs in existing housing.

Objective 26.2 Promote safe, physically accessible, well maintained, and well designed residential environments with associated open spaces.

Policy H-26.2.1 Encourage housing design and development that promotes public safety including "Crime Prevention through Environmental Design" components as described in ~~*Policy LU-8.4.1*~~ the Land Use Element.

Policy H-26.2.2 Ensure development regulations address accessible housing and transportation services. Residential structures as well as physical improvements, such as parking, streets, and sidewalks, should allow for mobility and accessibility by all residents, including the elderly and persons with disabilities, consistent with ~~Policy T-35.1.7~~ the Transportation Element. Promote awareness of Universal Design improvements that increase housing accessibility.

Policy H-26.2.3 Prepare and implement development and design standards that acknowledge neighborhood character and address compatibility with surrounding development consistent with Land Use and Community Design Element goals, ~~objectives~~ and policies~~, including Policies LU-7.2.1, LU-7.2.2, LU-9.1.1, LU-9.2.1, LU-9.2.2 LU-9.2.3 and LU-9.2.4~~.

Policy H-26.2.4 Encourage energy and water efficiency in existing and new housing developments, as addressed in the Utilities Element ~~Policies U-51.1.1, U-51.1.3, and Objective 51.3 and associated policies~~.

Policy H-26.2.5 ~~Review and amend zoning and subdivision regulations to ensure~~ Ensure adequate setbacks, landscaping, and buffering are required between housing developments of significantly differing densities and between housing and commercial areas.

Policy H-26.2.6 Ensure critical area regulations provide sufficient buffer widths consistent with the quality and class of the environmentally sensitive area. Restrict intrusion into sensitive areas by nearby residents and visitors.

Policy H-26.2.7 Encourage cluster residential development along with open space, consistent with ~~Policy LU-10.3.1~~the Land Use Element.

Policy H-26.2.8 Encourage property consolidation in the Downtown, through density bonuses or other incentives, to create mixed-use and multi-family developments that offer a range of site and community benefits such as private and public open spaces and plazas, structured parking, and other amenities.

Policy H-26.2.9 Plan for residential neighborhoods that promote the health and well-being of residents by supporting active living and by reducing exposure to harmful environments.

OBJECTIVE 26.3 Plan appropriate land use designations and zoning categories to accommodate projected household growth.

Policy H-26.3.1 Plan for an adequate supply of land ~~in appropriate land use designations and zoning categories~~ to accommodate projected growth, including but not limited to, affordable housing, multifamily housing, and special needs housing.

~~Policy H-26.3.2. Through the Comprehensive Plan, Zoning Code, and Subdivision Code, allow for a variety of housing types and lot configurations including varied single-family lot sizes, multi-family housing, mixed-use development, cluster development, Urban Planned Developments and other housing forms. Consider neighborhood character as well as housing needs when applying zones, and use and development standards.~~

Policy H-26.3.~~3~~2 Ensure zoning regulations accommodate a range of housing styles and types in appropriate locations, such as single-family detached dwellings, townhouses, apartments, accessory dwellings, designated manufactured homes ~~built to the highest state standards~~, and other ~~styles and~~ types. Consider neighborhood character as well as housing needs when applying zones, land use, and development standards.

OBJECTIVE 26.4 Identify and support Kenmore's Downtown as a center for commercial, civic, cultural, park, and higher density housing uses and activities.

Policy H-26.4.1 Develop mixed-use, higher density districts in Downtown Kenmore, meeting community goals to develop community identity, vital business and service opportunities, concentration of higher density housing, and multi-modal transportation services.

Policy H-26.4.2 Offer density bonuses and density transfers to achieve a compact, vital Downtown, as well as meet environmental and affordable housing goals.

GOAL 27. PROVIDE HOUSING OPPORTUNITIES IN KENMORE FOR PEOPLE WITH SPECIAL NEEDS.

OBJECTIVE 27.1 Provide opportunities for the development of ~~emergency, transitional~~, short-term and permanent housing for people with special needs.

Policy H-27.1.1 Allow opportunities for assisted housing, for people with special needs, by:

~~a. Adopting land use policies and regulations that treat government-assisted housing and other low-income housing the same as housing of a similar size and density;~~

~~b~~a. Permitting group living situations, including those where residents receive such supportive services as counseling, foster care or medical supervision in accordance with state and federal laws; and,

~~c.~~b. Encouraging developers and owners of assisted housing units to undertake activities to establish and maintain positive relationships with neighbors.

Policy H-27.1.2 Ensure that group home providers have received appropriate licenses from federal or state agencies where appropriate~~.~~

~~Policy H-27.1.3 Consider establishing a small fund to help human service organizations and law enforcement provide temporary, emergency housing, such as vouchers for a limited stay at an area hotel.~~

~~Policy H-27.1.4 Consider developing a volunteer program offering emergency housing repairs to persons or families with low incomes or significant human service needs.~~

Policy H-27.1.3 Support housing options and services that enable seniors to stay in their homes or neighborhoods.

OBJECTIVE 27.2 **~~Develop~~ Support and promote community facilities and programs that are important to the safety, health, and social needs of families, children and persons with special needs.**

Policy H-27.2.1 Increase coordination among providers of social, health, counseling, and other services to families, children, and persons with special needs including seniors citizens, persons with physical or mental disabilities, persons with terminal illness, or other special needs.

Policy H-27.2.2 Work with transit and transportation providers to increase access ~~to~~ between special needs housing and community facilities and programs in Kenmore or the Northshore area.

Policy H-27.2.3 Support the location of social, recreational, health, safety and other services in Kenmore to serve people with special needs.

~~Policy H-27.2.4 Encourage the development of special needs housing in proximity to needed services.~~

Policy H-27.2.4 Support a range of housing options and services to help homeless persons and families move to long-term financial independence.

Policy H-27.2.5 Work with other jurisdictions and health and social service organizations to develop a coordinated, regional approach to homelessness.

HOUSING AFFORDABILITY SUB-ELEMENT

GOAL 28. ***~~INTEGRATE LOW INCOME HOUSING INTO THE KENMORE COMMUNITY~~. MAKE ADEQUATE PROVOSIONS FOR A PROPPORTIONATE AMOUNT OF THE EXISTING AND PROJECTED COUNTYWIDE NEED FOR HOUSING AT ALL INCOME LEVELS.***

OBJECTIVE 28.1 **Encourage retention of the existing housing stock in Kenmore as a source of affordable housing.**

~~Policy H-28.1.1 Publicize funding sources, such as King County's housing stability grants, to help lower income homeowners who are at risk of losing their homes due to foreclosure.~~

Policy H-28.1.~~2~~1 ~~Encourage~~ Promote the use of housing rehabilitation assistance (from King County, for example) to lower-income homeowners and to landlords who rent to lower-income people. ~~and; increase utilization of King County housing rehabilitation programs. Consider the following roles for the City's active participation:~~

~~"Market" the availability of the King County housing rehabilitation programs to area residents, particularly in the CDBG eligible neighborhood in central Kenmore, through direct mailings, City bulletin boards, and websites.~~

~~Work with private businesses and/or foundations to develop a community homeownership project. Activities could include selecting a specific home and using volunteers to make improvements such as yard clean up and painting. An area youth group and a home improvement store could, for example, partner to undertake such a project. Private foundations and businesses frequently will grant/donate funds for this type of activity.~~

~~Seek local bank financing commitments to support strategies. Contact banks within the community asking them to 1) pledge funding for home improvement loans for area residents, 2) assist with informing residents of the lenders interest in making loans, and 3) provide a report (quarterly or semi-annually) of loans made within the community.~~

Policy H-28.1.~~3~~2 Encourage relocation assistance and replacement housing to be developed, where feasible, to help very low- and low-income households when displacement is unavoidable. For mobile home parks in particular, ~~develop~~ consider a funding pool to assist low and moderate income residents in deteriorating and obsolete mobile homes to find alternative housing in the community, or help to establish preferences in nearby housing for persons giving up their obsolete homes.

OBJECTIVE 28.2 ~~Strive to meet the City's growth targets and affordable housing needs.~~ Adopt programs and regulations that support housing affordable to very low, low, and moderate-income households, comparable to the countywide need. [1]

[1] See Countywide Planning Policies

~~Policy H-28.2.1~~ ~~Strive to meet the City's housing targets as identified in the Countywide Planning Policies for King County. The City's growth target for the years 2022 equals 2,325 households.~~

~~Policy H-28.2.2~~ ~~Plan for housing to meet the needs of all economic segments of the population in Kenmore as directed in the King County Countywide Planning Policies. Plan for construction or preservation of housing units affordable to households as follows:~~

~~Percent of Median Income~~	~~Percent of Household Growth Target~~	~~Number of Households~~
~~less than 50%~~	~~24%~~	~~558~~
~~between 50 and 80%~~	~~17%~~	~~395~~
~~between 80 and 120%~~	~~20%~~	~~465~~
~~more than 120%~~	~~39%~~	~~907~~
~~Total~~		~~2,325~~

Policy H-28.2.~~3~~1 Support efforts of private developers, both for-profit and not-for-profit, to preserve or develop affordable housing, including housing with on site services, for very low-, low- and moderate-income families ~~with incomes of 80 percent of the area median or less, including housing with onsite services~~. Consider the following roles for the City's active participation:

a. ~~Review proposed plans and when~~ Whenever possible, integrate affordable ~~proposed~~ housing plans into ~~transportation, flood control and park planning activities~~ proposals for development of publicly-owned properties.

b. Play a partnership role with nonprofit housing project sponsors by supporting applications for CDBG, HOME, and other Federal, State or local funding sources for the projects.

c. Enter into a long-term partnership with one or more nonprofit housing developers to identify sites and decide on the timing of applications for public funding.

~~d. Provide funding to fill a gap in the financing of construction.~~

~~e.~~d. Actively support affordable housing projects~~, without providing financing, through~~ by expediting the permitting process, reducing development fees, or ~~other~~ similar measures.

Policy H-28.2.~~5~~2 ~~Consider requesting a membership and partnership role.~~ Participate in A Regional Coalition for Housing (ARCH) to help develop and preserve affordable housing in the community and region.

Policy H-28.2.~~6~~3 Identify and catalogue real property owned by the City that is no longer required for its purposes and is suitable for the development of affordable housing for very-low to moderate income households. ~~Provide the inventory to the State Office of Community Development in accordance with State Law~~.

~~Policy H-28.2.4 Create homeownership opportunities for first-time homebuyers. Consider the following roles for the City's active participation:~~

~~a. Increase the use of existing County and State resources by area residents through a "marketing" role. This can be accomplished through various methods including direct mailings, a homebuyer's fair or posting program information in area locations such as the Library. Also included could be information about any homebuyer education sessions being conducted by local banks.~~

~~b. Encourage non-profit developers, such as HomeSight, Seattle Habitat for Humanity, and Northwest Housing Development, to create homeownership housing in Kenmore, including single-family homes and condominiums.~~

Policy H-28.2.4 Use density bonuses, inclusionary programs, and other methods with mixed-use and multi-family developments to provide housing affordable to low- and moderate-income households.

Policy H-28.2.5 Use local resources, as available, to leverage other public and private funding for the creation or preservation of affordable housing.

Policy H-28.2.6 Ensure that affordable housing achieved through public incentives or assistance remains affordable for the longest possible term.

Policy H-28.2.7 Collaborate with other local governments directly and through membership associations (e.g. Puget Sound Regional Council) on regional housing strategies, especially related to providing low- and very-low income housing.

Policy H 28.2.8 Support legislation and funding at the county, state, and federal levels that would promote the city's housing goals and policies.

OBJECTIVE 28.3 Provide zoning and development standards that ~~allow~~ integrate ~~for~~ affordable housing ~~types that can be~~ compatibly ~~integrated~~ into the community.

Policy H-28.3.1 Allow designated manufactured homes built to ~~the highest~~ state standards on single-family lots.

Policy H-28.3.2 Allow ~~for~~ and accommodate accessory dwelling units in single-family districts.

~~Policy H-28.3.3 Allow density bonuses and other incentives for multi-family developments that provide below-market-rate rental or ownership housing affordable to low- and moderate-income households.~~

Policy H-28.3.~~4~~.3 Pursue land use policies and regulations that:

a. Result in lower development costs without loss of adequate public review, environmental quality or public safety; and,

b. Do not reduce design quality, inhibit infrastructure financing strategies, or increase maintenance costs for public facilities.

Policy H-28.3.~~5~~ 4 ~~Encourage large-scale and mixed-use developments to provide a mix of housing types affordable to a range of incomes through density bonuses, inclusionary housing programs, or other methods. Affordable units could be developed onsite or offsite at other priority locations to carry out other City goals~~. Promote fair housing for all persons and ensure that no city policies, programs, regulations or decisions result in housing discrimination.

IMPLEMENTATION STRATEGIES

~~The Housing Element policies would require new or increased commitments of City resources to prepare new regulations, review/amend existing regulations, create educational or incentive programs, or coordinate with adjacent jurisdictions.~~ To organize and carry out these goals, objectives and policies, as well as to prepare the City for the next Comprehensive Plan update, the City will undertake the following:

- Work with neighborhoods when new policies, plans or programs are proposed to ensure that their unique issues are considered.
- Adopt a Housing Strategy Plan that outlines action steps and priorities.
- Implement the Strategy Plan in coordination with ARCH.
- Maintain communications with, or participation in, regional agencies and projects.
- Monitor housing needs and supply over time, especially data that indicate progress toward meeting a proportionate share of the countywide needs for affordable housing.
- Evaluate and report results of the Strategy Plan and how the goals, objectives, and policies of this Housing Element have been achieved.
- Revise the Strategy Plan as needed to achieve more of the Housing Element's goals, objectives, and policies.

~~New programs, rules, or regulations would be needed to address:~~

- ~~Strategies to provide affordable housing.~~
- ~~Publicizing housing funding sources.~~
- ~~Relocation assistance programs for low income households.~~
- ~~Defining role for the City to encourage low income housing.~~
- ~~Defining role for the City to encourage new homeownership opportunities.~~
- ~~Considering emergency housing funding.~~
- ~~Considering emergency housing repair volunteer program.~~
- ~~Cataloguing City property no longer needed for public purposes, that may be suitable for housing~~

- ~~Determining methods to encourage a mix of housing types, including potential inclusionary housing programs.~~

- ~~Property consolidation incentives for Downtown.~~

~~A review of existing programs, rules and regulations would be needed to ensure they meet the policies, including:~~

- ~~Development and design standards addressing neighborhood character and compatibility with surrounding development.~~

- ~~Zoning allowances to assure variety in housing types.~~

- ~~Density bonuses, density transfer regulations.~~

- ~~Housing types allowances.~~

- ~~Zoning allowances for special needs housing.~~

- ~~Energy and water conservation requirements.~~

- ~~Development cluster regulations.~~

- ~~Street, sidewalk, and accessibility standards.~~

~~Additional or continuing efforts would need to be made to coordinate with adjacent jurisdictions or to participate in regional programs, including:~~

- ~~Membership in A Regional Coalition for Housing (ARCH)~~

- ~~Coordination with local and regional human service providers.~~

REFERENCES

A Regional Coalition for Housing (2014). East King County Housing Analysis, Redmond, WA.

PUBLIC SERVICES ELEMENT

INTRODUCTION

The Public Services Element focuses upon citizen participation and communication, efficient municipal services, emergency services, education, and human services. Public services and facilities are a key determinant in the community's quality of life and the capacity of the City to address future development.

Growth Management Act Requirements

A goal of the Growth Management Act (GMA) is to ensure that those public facilities and services necessary to support development are adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.

Countywide Planning Policies

The King County Countywide Planning Policies overarching goal for public services is that residents have access to the services needed in order to advance public health and safety, protect the environment, and carry out the Regional Growth Strategy. Coordination between jurisdictions and service providers should result in providing residents with a full range of services.

EXISTING CONDITIONS/FORECAST OF FUTURE NEEDS

Overview

Multiple agencies and districts provide services in the Kenmore City limits, including a fire district and two school districts. Several governmental buildings that house special district and City functions are located in the City. Governmental facilities are located on **Figure PS-1**. This Element focuses on City services, human services, emergency services, and education. Parks and recreation are more fully addressed in the **Parks, Recreation and Open Space Element**, and water and sewer services are addressed in the **Utilities Element**.

City Services

The City of Kenmore has a council-manager form of government. Seven City Council members are elected at large by the registered voters in the City. The City Council elects a Mayor from among the Council members to serve a two-year term as the Chairperson of the Council. The City Council also appoints a City Manager who manages the day-to-day operations of the City.

In addition to the City Manager, there are 30.75 regular positions as of January 2015, organized into five departments: City Manager, Public Works, Finance and Administration, Community Development, and Development Services.

City Attorney and all legal and court services are provided on a contract basis. An additional staff member serves under contract as Police Chief, coordinating public safety resources. There are approximately 1.48 regular City employees per 1,000 population (assuming the Year 2014 population of 21,370).

Figure PS-1
Public Services and Facilities

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The City is responsible for the following services:

- General Administration: General administration includes all aspects of the finance and City Clerk functions for the City, including cash and investment management, accounting and preparation of quarterly financial reports, the annual financial report, accounts receivable, cashiering, general ledger, payroll, records retention, information technology, and human resources. General administration also includes city management functions, including day-to-day direction to, and leadership of, the organization, franchise negotiations, communications, events and volunteerism, economic development, human services, City Council policy and administrative support, and government relations.

- Public Safety: Public safety functions include police, jail, prosecuting attorney, public defender, and court services, and animal control, all of which are contracted with King County. The City's emergency management functions are handled in-house in coordination with the Northshore Fire Department and other regional partners.

- Community Development: Community development functions include developing City Council policy recommendations on such matters as land use regulation and comprehensive planning, managing the capital improvement program for parks, and permit review. Land use permits, right-of-way permits, engineering permits, and commercial and residential building permits are received and issued at City Hall.

- Public Works: Public works functions include management of the City's transportation capital improvement program, maintenance of parks and streets, surface water policy and maintenance of storm water facilities, engineering services, and fleet management. Public works functions also include maintenance of City facilities, including City Hall.

City functions are managed in the 21,000 square foot City Hall building at 18120 68th Avenue NE. At the time of construction, it was anticipated that the building would be adequate to house City functions for twenty years or more.

Human Services

Many residents of Kenmore require a broad range of human services to meet their daily needs. These services generally fall into three categories: **family services, senior services, and youth services**. The types of services range from transportation for seniors, to recreational opportunities for teens, to family counseling, to homeless services. Generally, the lower the income of the family or individual, the greater is their need for subsidized assistance to make the service affordable.

Services currently provided to Kenmore residents generally are made available through several very strong agencies located outside of the City limits. As a result, the current location of service providers is not convenient to many Kenmore residents in need of the services they offer.

The following pages provide a partial inventory of services available in the Kenmore area. Services were selected because of a Kenmore location, a known Kenmore clientele, or because funding has been provided by the City to serve the area.

Family Services

An array of services is available serving the needs of Kenmore families:

- **Seventeen (17) childcare providers** in Kenmore have a capacity for approximately 628 children, including daycares, preschools, Champions after-school programs at Arrowhead and Moorlands elementary schools, and a Northshore YMCA after-school program at Kenmore Elementary School.

- **Child Care Resources** Homeless Program, based in Seattle, provides funding for child care for homeless children in King County to allow their family the time they need to work on finding housing or a job.

- **The Kenmore Elementary PTA** Social Service Crisis Support program provides crisis support for Kenmore Elementary students, which includes emergency food, clothing, counseling, medical, and transportation costs.

- **Northshore Youth and Family Services (NYFS),** located in Bothell, provides drug and alcohol prevention programs for youth and mental health programs for individuals and families.

- **The Center for Human Services'** two Family Support Centers provide early learning, youth development, parent education/support and community resources to the residents of North King County. The family centers are located in Bothell and Shoreline, and the agency partners to provide services on-site at churches and low-income housing complexes in Woodinville, Kenmore, Lake Forest Park and Shoreline.

- **The Northshore YMCA**, located in Bothell, services the Kenmore area. It provides physical fitness programs and parent-child programs at the site in addition to a variety of youth and senior programs. A gym, pool, weight room and meeting rooms are located in its facility. The YMCA offers scholarships for those who are unable to afford services.

- **Hopelink,** with centers in Kirkland and Shoreline, is the largest provider in the area of services for low and moderate-income families. Its services include a food bank, emergency and transitional housing, employment programs, transportation, utility assistance, and other emergency financial assistance. In 2013, Hopelink opened a food bank in Kenmore through a partnership with Northlake Lutheran Church.

- **The Kenmore Family Emergency Shelter**, operated by Hopelink and currently undergoing remodeling, will provide eleven apartments for emergency shelter for homeless families.

- **The HealthPoint Dental Program**, with a location in Bothell, offers affordable dental services to low income and marginalized communities in suburban King County.

- **The Health Point Medical Program,** also located in the Bothell center, offers family practice, obstetric, and pediatric medical services with supportive behavioral health and case management programs.

- **Seattle-King County Public Health** is a provider of basic health services including maternity support services and case management services for young mothers. Services are available through the Northshore Public Health Center in Bothell.

- **Crisis Clinic 2-1-1 Community Information Line** provides information and referral services to all King County residents by coaching callers on how best to present their problem, explaining how the social service system works, and empowering callers to find solutions when there are no resources.

- **Crisis Clinic 24-hour Crisis Line** provides emergency telephone intervention for all King County residents in crisis or emotional distress every day of the year, listening and providing feedback and referrals to other agencies or direct linkage to emergency mental health services as needed.

- **Lifewire** (formerly **Eastside Domestic Violence Program)** provides a variety of direct services designed to address the immediate needs of survivors of domestic violence and their children in north and east King County.

- **Wonderland Developmental Center** in Shoreline serves children with developmental disabilities and their families.

- **ATWORK!,** based in Bellevue, is a provider of employment training and case management for persons with disabilities.

- **Various Other agencies** also provide services to families in Kenmore.

Senior Services

Services for Kenmore seniors are made available primarily through two area non-profit organization:

- **The Northshore Senior Center** is the primary provider of senior services for Kenmore residents. Among the services available are: adult day programs, senior transportation services; health, nutrition and exercise programs; occupational therapy; and an extensive list of outings and social events. The Senior Center provides services at its Bothell location. It also delivers some services at multiple sites throughout the area, including in Kenmore. The Kenmore Senior Center, located at 6910 NE 170th Street in Rhododendron Park, offers a variety of activities (such as social activities, educational programs, and health courses).

- **The Northshore YMCA** in Bothell is the only other major provider of senior programs. Senior fitness programs and social activities are available.

Youth Services

While a wide range of activities is available to Kenmore youth, only a few facilities are actually located in the community:

- **The Northshore YMCA** in Bothell provides teen recreational activities at its pool and gym, and events off-site, in addition to its teen leadership and Youth in Government programs. The Drop In Teens program provides a place for teens to meet friends, play games and get homework support. A Late Night program on Saturdays also is available. The Northshore YMCA operates the Hang Time after school program at Kenmore Junior High.

- **Friends of Youth** provides shelter and transitional housing for homeless youth. The Youth Haven Emergency Shelter in Kirkland serves youth ages 11-17.

- **Northshore Youth & Family Services** provides counseling out of its Bothell facility and at Cascadia College. It also offers a teen-parenting program for first-time teen moms.

- **Alliance of People with disAbilities'** youth programs teach skills to prepare King County youth with disabilities for life as an adult.

- **Crisis Clinic Teen Link** is an anonymous help line answered by teen volunteers each evening from 6-10 p.m., providing a confidential, safe place for youth to seek comfort and support.

- **The Kenmore Public Schools** are a major source of in-community services. The schools offer counseling and referral as well as health services.

The City presently provides funding for human services through awards to individual agencies. The City also participates in an interlocal agreement with Bellevue, Issaquah, Kirkland, Mercer Island, Sammamish, Redmond, and Shoreline to pool a portion of human services funds into single contracts with approved human services programs. The City of Bellevue is the lead administrator of these funds.

Library Services

The King County Library System (KCLS) is one of the busiest library systems in the U.S. and includes 48 public libraries throughout King County (excluding those in Seattle). KCLS has served Kenmore since before incorporation.

The Kenmore Library originated in 1957 through the efforts of the Kenmore Elementary School PTA. Opening day was July 21, 1958. The site was a small red barn on 73rd Avenue NE near where Swamp Creek crosses the road. KCLS provided books and services and the community contributed funds and labor.

In 1976 the Kenmore Library was relocated into a 2,112 sq. ft. modular building at 18138 73rd NE. In July 2011, the library moved again into a new 10,000 square foot library at 6531 Northeast 181st Street in Kenmore's downtown. The new facility was awarded the Civic Design Honor by The American Institute of Architects (AIA), Washington Chapter, in 2012.

In 2013, the Kenmore Library had 332,267 checkouts, compared with Lake Forest Park's 256,136 checkouts and Bothell's 1,168,305 checkouts. KCLS as a whole had more eBooks downloaded in 2013 than any other library system in the country.

Residents in Kenmore also use the Bothell Regional Library, the Lake Forest Park Medium Library, and the Kingsgate Large Library Branches.

Kenmore established a Library Advisory Board in 2007 to serve in an advisory capacity to Kenmore City officials on matters regarding the Kenmore Library. Advisory Board members also act as a liaison between the Kenmore Library, the City of Kenmore, and KCLS. The Library Advisory Board consists of eight voting members who serve three-year terms. All members are appointed by, and serve at the pleasure of, a majority of the Kenmore City Council.

Fire/Emergency Services

King County Fire Protection District No. 16 – Northshore Fire Department

The Northshore Fire Department (District) provides fire prevention, fire suppression, and emergency medical services to the Cities of Kenmore and Lake Forest Park. It operates from two fire stations, Station 51 in Kenmore, and Station 57 in Lake Forest Park.

In total, the Fire District serves over eleven square miles. The estimated population served is approximately 33,000. The State Office of Financial Management (OFM) reports year 2014 population estimates of 21,370 and 12,750 for Kenmore and Lake Forest Park, respectively.

Both fire stations serve the Kenmore area, as well as other parts of the District and adjacent jurisdictions. Station 51 is centrally located within the downtown commercial area of Kenmore at 7220 NE 181st Street.

At the time of this writing, the District employs 48.5 full time employees, 40 of which are uniformed personnel including firefighters, lieutenants, and Battalion Chiefs. The other eight and a half employees make up the Fire Prevention, Training, and Administrative Divisions of the District. At any given time in the District, there is a minimum of nine emergency responders on duty. Out of the nine responders, there is a minimum of six on duty at Station 51 in Kenmore, and three on duty at Station 57 in Lake Forest Park. The proportional distribution of staffing between the two fire stations closely aligns with the number of calls for service and the population served between the two cities.

During 2014, out of a total of 3,525 requests for service, the majority of calls received were for medical emergencies—including motor vehicle accidents with or without injury and extrication (2,666 calls = 76%). Another 444 calls (12.5%) pertained to other types of emergency issues, including someone smelling smoke, carbon monoxide incidents, gasoline spills, downed power lines and other hazards (including a few calls for service that were cancelled once District personnel arrived on the scene). Seventy-one fire responses (2%) involved fires in structures, automotive vehicles, public utilities and outside areas. Ninety-one non-emergency requests for assistance (2.5%) involved helping citizens with lock-outs, assisting with patient care, and even addressing minor flooding issues.

The number of calls for service has increased by 10.3% over the last ten years (3,196 in 2004 and 3,525 in 2014). It is anticipated that the call volume will continue to increase at this relatively stable rate. However, the majority of the increase will be in Kenmore due to its higher rate of projected growth.

The District's facilities are relatively new and were constructed with future growth trends taken into consideration. The Kenmore station can accommodate additional response units when the increase in the number of calls for service dictates additional staffing.

Within Kenmore in 2013, the average response times for priority fire or EMS calls for service was 3:42 minutes for areas north of the Sammamish River and 5:53 minutes for areas to the south of the Rriver.

The District has automatic aid agreements with all of its neighboring jurisdictions. These mutually beneficial agreements reduce response times, especially to the fringe areas of a jurisdiction. They also provide additional staffing for labor intensive incidents such as structure fires and incidents involving technical rescues. In 2014, the District received assistance from neighboring agencies 241 times, and provided assistance 621 times.

Police Services

Kenmore contracts with the King County Sheriff's Office for one police chief (sergeant) and 13 police officers, including 12 patrol officers, and a burglary/larceny detective. The City also contracts for various support services, i.e. major crimes, bomb disposal, etc. Since police services are contracted from the King County Sheriff's Office, all vehicles and equipment are provided by the County in the cost of the officers. All of the Kenmore officers work out of Kenmore City Hall at 18120 68th Avenue NE.

As of 2013, the City had 14 officers with support services equaling 15.97 FTEs, and the level of service was about 75 officers per 1,000 population (including commissioned officers).

Dispatch calls for service between 2008 and 2013 were as follows:

- 2008 – 3,130

- 2010 – 3,287
- 2013 –3,342

Crimes are divided into Part I and Part II offenses. Part I offenses include criminal homicide, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson. Part II offenses include all other crimes not considered Part I, such as simple assaults, forgery/counterfeiting, fraud, embezzlement, stolen property, prostitution, sex offenses (except forcible rape or prostitution), drug violations, gambling, offenses against the family and children, driving under the influence, liquor violations, drunkenness, disorderly conduct, etc.

In Kenmore, Part I offenses tend to include burglary and larceny cases. Part II offenses in Kenmore tend to include assault, forgery/fraud, vandalism, and driving while under the influence. When reviewing data by patrol district, sector E-2 in the northeast portion of the City generates more dispatched calls for service than the other patrol districts. Refer to **Figure PS-2** for patrol districts.

In Kenmore as a whole, the crime rate is shown in **Table PS-A**.

TABLE PS-A
KENMORE CRIME RATE STATISTICS PER 1,000 POPULATION

OFFENSE	2008	2010	2013
Part I – Crime Rate	18	21	17
Part II – Crime Rate	33	38	21

Source: Police Services Data, 2013.

Police response times between 2008 and 2013 are shown in the **Table PS-B**. Response times vary by the priority nature of the call. The variation in Critical Dispatch times is due to a number of factors, such as how many officers are on duty at the time of the call, the time of day the call was received, or traffic congestion.

Staffing needs are determined through the contracting process. Facility/equipment repair or renovation needs do not apply since police services are contracted.

Dedicated officers under contract to cities do not provide service to patrol districts in unincorporated areas.

TABLE PS-B
POLICE RESPONSE TIMES

DATE	PRIORITY	AVERAGE RESPONSE TIME
2008	X	4.06 min.
	1	7.25 min.
	2	10.74 min.
2010	X	2.55 min.
	1	6.79 min.
	2	10.23 min.
2013	X	3.64 min.
	1	5.57 min.
	2	8.13 min.

Notes:
Priority X Critical Dispatch – In progress events that pose obvious danger to life
Priority 1 Immediate Dispatch – Events requiring immediate police action
Priority 2 Prompt Dispatch – Less critical situations that may escalate
Note: The variation in Critical Dispatch times is due to factors such as staffing available, number of calls received, number of months included in assessment, etc.

Source: Police Services Data, 2013.

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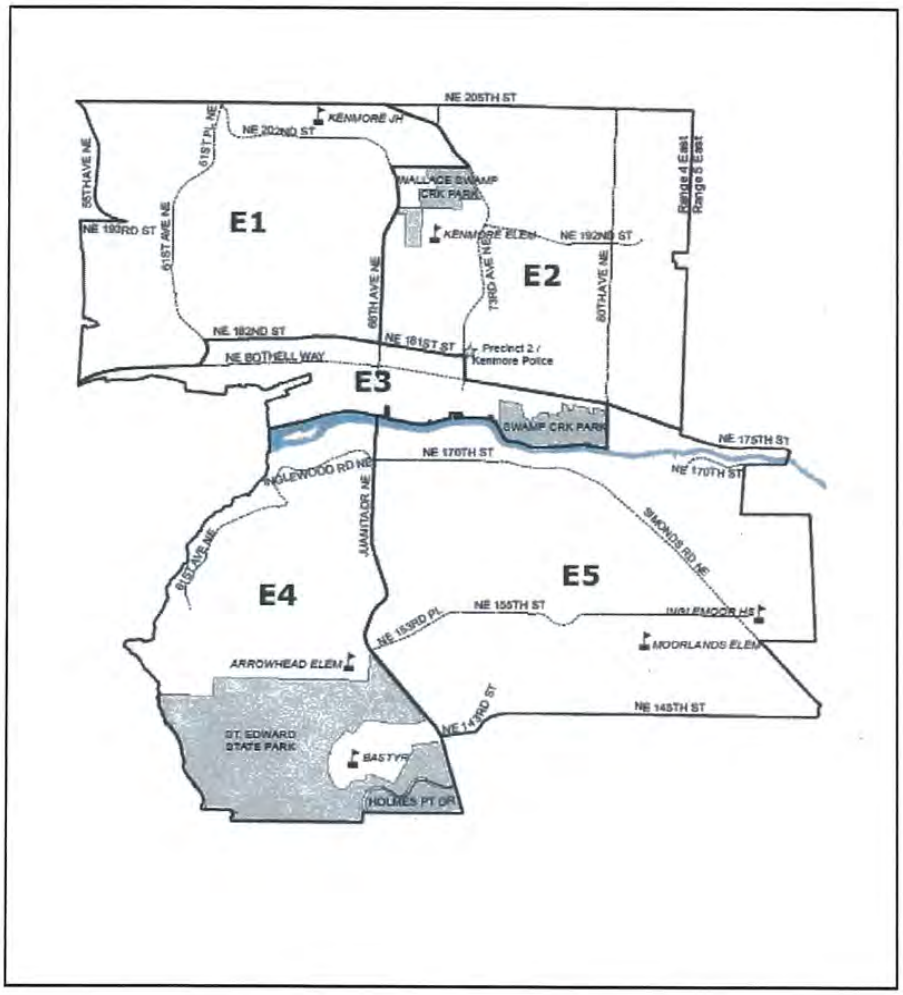

City of Kenmore Patrol Districts

This map is intended for planning purposes only and is not guaranteed to show accurate measurement.

Source: Police Service Highlights & Data Report: 2012

Figure PS-2 Not to Scale April, 2015

Schools

The Northshore School District serves six jurisdictions: King County, Snohomish County, the City of Bothell, the City of Kenmore, the City of Kirkland, and the City of Woodinville. The District boundaries are shown in **Figure PS-3.**

Lake Washington School District serves King County and the Cities of Kirkland and Redmond. The northern boundary of this District bisects St. Edward State Park in Kenmore. Refer to **Figure PS-4.** As there is no residential population living with school-age children in this area, no additional information on the Lake Washington School District is included in the Element. The Northshore School District is addressed below.

Northshore School District

Five schools are located within Kenmore City limits, including three elementary schools, one junior high school and one high school:

- Arrowhead Elementary
- Kenmore Elementary
- Moorlands Elementary
- Kenmore Junior High School
- Inglemoor High School

Schools in the immediate vicinity of the City include Sorenson Early Childhood Center, Westhill, Lockwood, and Shelton View Elementaries; Canyon Park and Northshore Junior Highs; and Bothell High School. These nearby schools serve a portion of Kenmore residents.

Attendance boundaries for the high schools show that the greater part of Kenmore is within the Inglemoor High School attendance boundaries. Students on the northeast side of Kenmore, east of 80th Avenue NE, are within the Bothell High School attendance boundaries.

The Northshore School District will open a new high school, North Creek, in north Bothell off 35th Avenue between 188th and 192nd streets in Snohomish County and implement grade reconfiguration (move to K-5 elementary, 6-8 middle and 9-12 high schools) in the fall of 2017 to provide greater academic and other opportunities for students. Boundary adjustments will also be made in fall 2017 to create a service area and feeder pattern for North Creek High School and to help balance districtwide enrollment.

School Classroom Size, Capacities, and Deficiencies

The Northshore School District establishes its level of service by defining class size goals. Refer to **Table PS-C**. The student capacity of a school is determined by the classroom size goal as well as the building area.

TABLE PS-C
NORTHSHORE SCHOOL DISTRICT
STANDARD OF SERVICE

CLASSROOM TYPE	AVERAGE STUDENTS PER CLASSROOM
ELEMENTARY (K-6)	
Kindergarten	23
Regular, alternative, gifted	24
Special education, mid-level	12
Special education, functional skills & academics	8
Integrated regular & special education	21
JUNIOR HIGH (7-9)	
Regular, alternative, gifted	27
Special education, mid-level	12
Special education, functional skills & academics	8
SENIOR HIGH (10-12)	
Regular, alternative, gifted	27
Special education, mid-level	12
Special education, functional skills & academics	8
Vocational education	27

Source: 2014 Capital Facilities Plan, Northshore School District 417

The design capacity and scheduled capacity of the schools within Kenmore and outside of Kenmore, which serve Kenmore residents, are shown in **Table PS-D**. To provide planning time and space for teacher preparation, some facilities will only support a design capacity utilization of 85%. Scheduled capacity reflects the specific programs that take place in each room.

Capacity information includes portables at the school. To optimize instructional program flexibility and maximum service levels in the most cost-effective way possible, the District maintains 10-15% of its total design capacity in portables.

TABLE PS-D
NORTHSHORE – SCHOOL STUDENT CAPACITIES AND ENROLLMENT

SCHOOL	DESIGN CAPACITY	SCHEDULED CAPACITY	OCTOBER 2013 ENROLLMENT	% UTILIZED CAPACITY[1]
ELEMENTARY				
Arrowhead	597	454	367	76%
Kenmore	646	526	475	81%
Lockwood	669	609	484	91%
Moorlands	765	693	592	91%
Shelton View	574	550	468	96%
Westhill	598	526	472	88%
JUNIOR HIGH				
Canyon Park	1,258	1,093	799	87%
Kenmore	1,054	928	682	88%
Northshore	1,195	970	675	81%
SENIOR HIGH				
Inglemoor	2,125	1,807	1,546	85%
Bothell	2,251	1,918	1,493	85%

[1]Percentage reflects design, scheduled and utilized capacities, reflecting the different types of school spaces (classrooms, gym, music room, etc.) and programmatic requirements that may limit number of students per class.

Source: 2014 Capital Facilities Plan, Northshore School District 417

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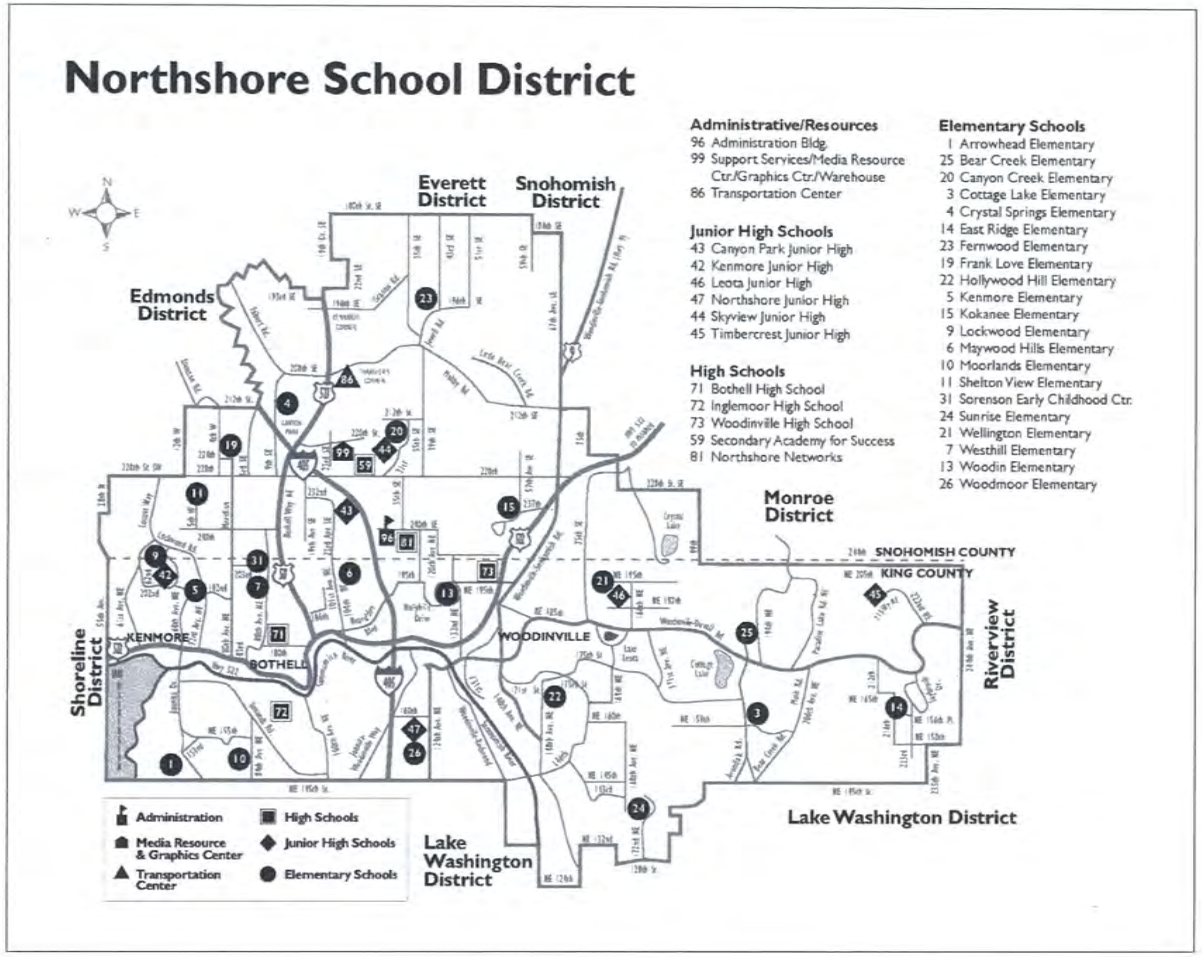


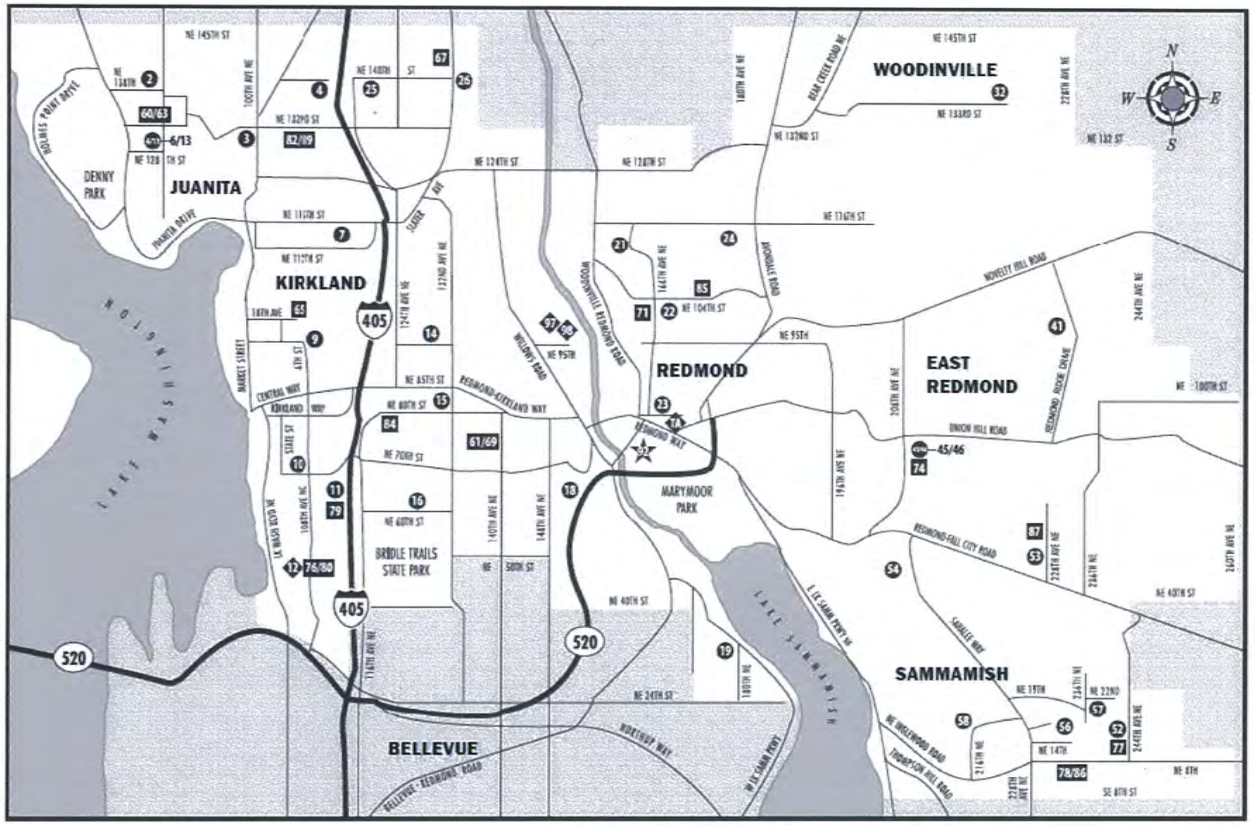
Northshore School District

This map is intended for planning purposes only and is not guaranteed to show accurate measurements.
Source: Northshore School District

Figure PS-3

Not to Scale

April, 2015



Lake Washington School District

This map is intended for planning purposes only and is not guaranteed to show accurate measurements.
Source: Lake Washington School District

Figure PS-4

Not to Scale

April, 2015

Future Growth

To determine planned improvements, the District projects student enrollment at the elementary, junior and senior high levels. Increases in enrollment at the elementary level continue to drive capacity challenges, particularly in the north half of the district (Northshore School District 417, 2014 Capital Facilities Plan). Projected enrollment in 2025 is 21,579 FTE, compared with a projected enrollment of 19,753 FTE in 2015.

Improvements planned for schools in the District that may impact Kenmore include:

- Construction of the new North Creek comprehensive high school;
- Improvements to existing District facilities including but not limited to mechanical systems, flooring, building controls, roofing, boilers, circulation, security, casework and seismic upgrades;
- Improvements to District facilities to meet current ADA requirements;
- Energy efficiency improvements; and
- Upgrades to playfields and gymnasiums, including tracks, tennis courts, athletic fields, and artificial turf.

Impact Fees

Impact fees are calculated based upon the District's cost per dwelling unit and can be used to purchase land for school sites, make site improvements, construct schools and purchase/install temporary facilities (portables).

Currently, the District is not eligible to collect any impact fees for growth. The District is making several boundary line adjustments to increase District-wide facility utilization and accommodate planned growth. After future evaluations of these changes, the District may request impact fees if enrollment increases resulting from new development affect eligibility and require new facility construction.

Bastyr University

Bastyr University is located along Juanita Drive on privately owned property adjacent to St. Edward State Park. The University was founded in 1978 in Seattle by practicing naturopathic physicians and moved to its location in Kenmore in 1996. In 2012, the University opened a second campus in San Diego, California.

The University is a leading institution of science-based natural medicine. The University offers 18 baccalaureate, masters and doctoral degree programs, along with two certificate programs, in the following areas of study:

- Naturopathic Medicine
- Nutrition
- Acupuncture and Oriental Medicine
- Exercise Science
- Counseling Psychology
- Health Psychology
- Herbal Sciences
- Holistic Landscape Design
- Integrated Human Biology
- Midwifery
- Ayurvedic Sciences

In 2013/2014, the University estimated an enrollment of over 1,123. There is a full-time faculty of 76, part-time adjunct faculty totaling 189, and 8 research faculty.

The University has a ten-year Master Plan, approved by the City, which sets out future enrollment projections and proposed development. The Master Plan approval extends through December 31, 2020.

GOALS, OBJECTIVES, AND POLICIES

Following are the public services goals, objectives and policies.

GOAL 43. ENSURE THAT CITY GOVERNMENT REMAINS OPEN AND RESPONSIVE TO ITS INFORMED CITIZENRY.

OBJECTIVE 43.1 Strengthen communication between government and the people.

Policy PS-43.1.1 Strive for communication with citizens, business owners, property owners, and others by:

- Providing a newsletter to the general public and working with local newspapers to provide information about the City, public meetings, plans, programs, policies, and regulations.
- Using signage, as appropriate, to alert citizens to City meetings and events.
- ~~Establishing new forms of communication such as the~~Using the City web site and social media to provide information about the City, its elected officials, public meetings, plans, programs, policies and regulations.
- Useing other methods of communication, such as focus groups, advisory committees, and consultations to inform the community, business, and development community about City plans, programs, policies, and regulations.
- Coordinating with public and private schools to involve youth in the City's plans and programs, such as park and recreation plans, volunteer programs, and other aspects of City plans and programs that would benefit from youth involvement.

Policy PS-43.1.2 Prior to action on City plans and regulations, seek and integrate public input through public workshops, meetings, and hearings.

Policy PS-43.1.3 Support community engagement techniques that will encourage a diversity of voices.

OBJECTIVE 43.2 Actively seek public involvement.

Policy PS-43.2.1 Encourage City staff and elected officials to regularly attend civic and community organization meetings.

Policy PS-43.2.2 Seek broad representation on boards, commissions, and advisory groups.

Policy PS-43.2.3 Work with civic organizations to educate the general public on the responsibilities of government and their participation.

OBJECTIVE 43.3 **~~Promote~~Encourage and facilitate charitable giving, community service and volunteerism.**

Policy PS-43.3.1 ~~Promote volunteerism to address appropriate public needs by p~~Provid~~inge~~ for recruiting, training, organization, and recognition of volunteers within the community to address appropriate public needs.

GOAL 44. PROVIDE EFFICIENT MUNICIPAL SERVICES THAT MEET THE NEEDS OF THE COMMUNITY.

OBJECTIVE 44.1 **When appropriate, ~~C~~contract ~~to the greatest extent possible~~ with public agencies and private providers for the cost-efficient delivery of quality municipal services.**

Policy PS-44.1.1 Establish clear level of service standards, and regularly evaluate alternatives for the cost-effective delivery of services.

Policy PS-44.1.2 On a regular basis, evaluate contracts for the delivery of service.

OBJECTIVE 44.2 **Provide sufficient resources, staffing, and procedures to provide quality City-managed services to the community.**

~~Policy PS-44.2.1 Provide resources, staffing, and procedures sufficient to ensure that City-managed services are adequate to achieve quality services to the community, consistent with adopted City plans, policies, and regulations.~~

Policy PS-44.2.~~2~~1 Prepare an annual report on the achievement of Comprehensive Plan goals, objectives and policies, as well as progress towards implementing functional and capital facility plans. Determine through the budget review process if resources and staffing are sufficient to meet desired outcomes.

OBJECTIVE 44.3 **Develop and implement permit processes that are timely, predictable, and fair to all affected parties.**

Policy PS-44.3.1 Review development regulations to ensure they are necessary and directly relate to implementation of the Comprehensive Plan and other State and Federal mandates. Eliminate duplicative and unnecessary regulations.

Policy PS-44.3.2 Provide procedures to process permits in a timely fashion.

Policy PS-44.3.3 Implement uniform application, public notice, permit review, and appeal procedures.

Policy PS-44.3.4 Strive to involve the public in the permit process such that their comments may be heard and considered:

a. Provide public notice of major development proposals;

b. Encourage, and facilitate where possible, early communication between developers and neighbors about the project and its impacts; and,

c. Educate the citizens about development rules and help them effectively participate in the development and land use regulation process. Reports and documents should be made available in advance and available on the City's website, at City Hall, the library, and other appropriate locations.

GOAL 45. SUPPORT AND PROVIDE A HIGH LEVEL OF POLICE PROTECTION, FIRE SUPPRESSION, AND EMERGENCY SERVICES.

OBJECTIVE 45.1 **Provide and maintain a police system sufficient to meet the community's public safety needs.**

~~Policy PS-45.1.1 Provide and maintain a police system sufficient to meet the community's safety needs:~~

- ~~Provide a level of service of 0.89 officers per 1,000 residents including support services.~~

Policy PS-45.1.1 Provide community crime education programs. Provide or encourage those programs or activities that stimulate neighborhood cohesiveness such as Neighborhood Watch programs, community clubs, and others.

Policy PS-45.1.2 Include "Crime Prevention through Environmental Design" components in site design guidelines for new development ~~per Policy LU-8.4.1~~as discussed in the Land Use Element.

OBJECTIVE 45.2 **Support the fire service provider in its efforts to provide a ~~fire and~~Fire Prevention, Fire Suppression and ~~e~~Emergency ~~m~~Medical Services response system sufficient to meet the community's public safety needs.**

~~Policy PS-45.2.1 Support the fire service provider to maintain a fire and emergency medical response system sufficient to meet the community's public safety needs:~~

- ~~Support the Northshore Fire District's current level of service at 1 firefighter per 900 persons with plans to increase staffing levels to meet State and Federal guidelines for minimum numbers of fire fighters at the scene of an emergency, without reliance on automatic aid.~~

Policy PS-45.2.1 Continue to coordinate review of development plans with ~~the King County Fire Marshall,~~ the Northshore Fire ~~District 16~~Department~~,~~ and the Northshore Utility District to ensure Uniform Fire Code and fire flow requirements are met.

- ~~Encourage and support the Northshore Fire District 16 to develop the capacity to perform building plan reviews and inspections for compliance with the Uniform Fire Code.~~

Policy PS-45.2.2 Continue to coordinate efforts to maintain an effective fire code inspection program with the Northshore Fire Department, to ensure that all commercial, multifamily, and public facilities developments provide safe environments for citizens to live, work and visit.

OBJECTIVE 45.3 **Establish an emergency management office and system.**

Policy PS-45.3.1 Establish emergency management procedures for the City in consultation with the Northshore Utility District, the Northshore Fire ~~District 16~~Department, adjacent jurisdictions, King County, Snohomish County, and the State.

Policy PS-45.3.2 Participate in regional emergency management programs.

Policy PS-45.3.3 Work with the community to educate citizens about emergency preparedness and encourage citizens to be prepared for natural disasters.

GOAL 46. SUPPORT THE PROVISION OF QUALITY EDUCATIONAL OPPORTUNITIES TO THE KENMORE COMMUNITY.

OBJECTIVE 46.1 Support public and private education providers in providing the best education for members of the community.

Policy PS-46.1.1 Inventory public and private education facilities.

Policy PS-46.1.2 Coordinate and communicate with the appropriate school districts on issues of mutual interest including, school facility location/expansion, impacts of new development, impacts of school facilities and activities on the community, parks and recreation programs, population and growth projections, and school involvement in the community.

~~Policy PS-46.1.3 Adopt school district capital facility plans and impact fees to mitigate the demands on the school systems of new development.~~

OBJECTIVE 46.2 Encourage diverse and continuing education opportunities.

Policy PS-46.2.1 Inventory public and private education programs that serve Kenmore.

Policy PS-46.2.2 Recognize Bastyr University as an important institution providing higher education in the ~~Northshore community~~region. Establish regular communication with the University regarding traffic and circulation, parks and recreation, and other areas of community concern.

Policy PS-46.2.3 Support continuing education programs offered by the University of Washington – Bothell campus, Bastyr University, Shoreline and Cascadia ~~Community~~ Colleges, the King County Library System, and other providers.

OBJECTIVE 46.3 Provide adequate library services in the community.

~~Policy PS-46.3.1 Maintain inclusion in the King County Library System District.~~

Policy PS-46.3.~~2~~1 In partnership with the King County Library System, encourage increased local library services to the Kenmore community. ~~Increase the library space and volumes per capita from the Year 2000 levels of 0.13 square feet per capita and 1.717 volumes per capita.~~

~~Policy PS-46.3.3 Encourage a Downtown location for a relocated, expanded library. Consider a combined City Hall, community center, and library in a Downtown location.~~

~~Policy PS-46.3.4 Support recommendations to increase partnerships with the City and School District, and increase technology and services to the community, contained in the 1999 "Kenmore Library Service Needs Assessment."~~

GOAL 47. SUPPORT THE PROVISION OF EFFECTIVE AND ACCESSIBLE HUMAN SERVICES THAT ADDRESS COMMUNITY CONCERNS

OBJECTIVE 47.1 Coordinate with existing human service providers to make the most effective use of resources committed to human services including family, senior, youth, health, etc. in the Kenmore community.

~~Policy PS-47.1.1 Implement the City's "Year 2000 Housing and Community Development Needs Assessment" report.~~

Policy PS-47.1.~~2~~1 Increase coordination among providers of services with the aim of expanding services to Kenmore residents. Work with the talent base already available in the service provider community to develop comprehensive approaches to meet the needs of residents. Consider the following roles for active City involvement:

a. Convene meeting(s) of providers serving Kenmore to develop plans for increased or more focused services in ~~the~~ Kenmore. ~~Consider whether this effort should be split into three categories of services: families, seniors, and youth and then be brought back together for crosscutting purposes. Include members of the target groups, such as youth, wherever feasible to enhance community participation and "buy-in."~~

b. Improve community information ~~bases~~ on services available to Kenmore residents. ~~Prepare a Community Resources Information Guide brochure on available services.~~ City Hall ~~could~~ should continue to ~~also~~ be a central source for information ~~and referral~~ on services available to Kenmore residents.

OBJECTIVE 47.2 Make health and human services more accessible to the Kenmore community.

Policy PS-47.2.1 Help make health and human services more accessible and less subject to the barriers of inadequate transportation and facilities space. Consider the following roles for active City participation:

~~a. Seeking a small, affordable storefront service space that service providers could use on a rotating basis during the week to deliver services. The City should meet with service providers to determine their willingness and ability to provide services in Kenmore. The City could provide seed money to lease a "rotating use" storefront community space for services delivery, and could also consider the expenditure of a small amount of funds to support a portion of the costs of leasing a centrally-located space.~~

~~b~~a. ~~Increasing~~Facilitating improved transportation services for Kenmore residents. The City should meet with Metro transportation services and Sound Transit staff to develop increased transit service within Kenmore

and routes between Kenmore and ~~Bothell/Woodinville~~neighboring communities.

~~e~~b. Supporting partnerships between schools and local service agencies for space to operate youth programs and services at school sites.

Policy PS-47.2.2 Support the efforts of the Kenmore Senior Program, and the Northshore Senior Center, to provide a variety of recreational, social, educational, and wellness programs to the Kenmore Community~~. Encourage a central location for services, such as part of a Community Center in the Downtown~~.

Policy PS-47.2.3 Help prevent obesity through programs that make Kenmore a healthy place to live, learn and thrive.

OBJECTIVE 47.3 **Recognize the City's limited resources by applying municipal funds to fill gaps in services or to leverage federal, state or regional funding received.**

Policy PS-47.3.1 Encourage agencies and human services providers to update information on community needs and available services, with recommendations on how providers might reduce or eliminate gaps in service for Kenmore residents.~~Determine the gaps in human services after consultation with existing human service providers as indicated in Objective 47.1 and associated policies.~~

Policy PS-47.3.2 Utilize Federal and State funding, or other ~~municipal~~grant fundsing, to help expand programs to fill gaps in services.

IMPLEMENTATION STRATEGIES

These Public Services policies would require new or increased commitments of City resources to prepare new regulations, review/amend existing regulations, create educational or incentive programs, or coordinate with adjacent jurisdictions.

New programs, rules, or regulations would be needed to address:

- ~~Recruitment and increased utilization of volunteers~~
- Preparation of an ~~A~~annual report ~~preparation~~ on the status of Comprehensive Plan goals, objectives, and policies, and implementing plans
- ~~Establishment of emergency management system procedures~~
- ~~Promoting and siting a combined civic center potentially having City hall, a community center, and library~~
- ~~Defining the City's role, and potential funding, for human services~~
- Inventorying educational facilities and programs serving Kenmore.
- Encouraging agencies and human services providers to update information on community needs and available services, with recommendations on how providers might reduce or eliminate gaps in service for Kenmore residents.
- Development of a recreational guide to promote locations and opportunities for physical activity.

~~A review of existing programs, rules and regulations would be needed to ensure they meet the policies, including:~~

- ~~Citizen communication methods and procedures~~
- ~~Evaluation process for contracts for the delivery of service~~
- ~~Permit review procedures~~
- ~~Police staffing and programs.~~

Additional or continuing efforts would need to be made to coordinate with adjacent jurisdictions or participate in regional programs, including:

- ~~Encourage~~Coordinate with the Northshore Fire ~~District 16~~Department ~~to develop capacity for code review and~~ in their development review and inspections programs
- Participate in regional emergency management systems
- Coordinate with school districts and Bastyr University
- Coordinate with the Library District
- Facilitate meeting(s) with human service providers.

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UTILITIES ELEMENT

INTRODUCTION

Purpose

City residents rely on a number of basic services that help define their quality of life and maintain their health and well being. Water supply and sewage and solid waste disposal systems and the delivery of natural gas, electricity, and telecommunication services are considered "utilities." These services are often taken for granted, yet without coordination and conscientious planning for future growth, service may be interrupted, inadequate, or prohibitively expensive. The Utilities Element addresses electricity, telecommunications (telephone, cable, internet), and natural gas provision as well as water, wastewater, and solid waste services. The Element also addresses conservation and recycling.

Growth Management Act Requirements

The Growth Management Act (GMA) has the goal of ensuring that those public facilities and services necessary to support development shall be adequate to serve the development at the time development is available for occupancy and use without decreasing current service levels below locally established minimum standards. A Utilities Element is required to address the general location, proposed location and capacity of existing and proposed utilities, including electrical lines, telecommunication lines, and natural gas lines.

Countywide Planning Policies

The King County Countywide Planning Policies include general policies to ensure adequate infrastructure for planned development within the King County Urban Growth Boundary. Growth is to be directed to centers and urbanized areas with existing infrastructure capacity.

EXISTING CONDITIONS/FORECAST OF FUTURE NEEDS

Electricity

Puget Sound Energy (PSE) is a private utility providing electric and natural gas service to homes and businesses in the Puget Sound region and portions of Eastern Washington, covering 10 counties and approximately 6,000 square miles. PSE provides electrical power to more than 1.2 million electric customers throughout 8 counties. Within the City of Kenmore, PSE serves approximately 9,468 metered customers.

Existing Distribution System

To provide the City of Kenmore with electricity, PSE builds, operates, and maintains an extensive integrated electric system consisting of generating plants, transmission lines, substations, switching stations, sub-systems, overhead and underground distribution systems, attachments, appurtenances, and metering systems.

PSE generates approximately 46 percent of the electricity for its customers from its own generation plants--hydro, thermal, solar and wind. PSE currently has about 3,000 megawatts of power-generating capacity, and purchases the rest of its power supply from a variety of other utilities, independent power producers and energy marketers across the western United States and Canada.

The PSE electric transmission facilities in City of Kenmore are important components of the electric energy delivery grid serving the city and Puget Sound region. As electricity reaches the City, the voltage is reduced and redistributed through lower-voltage transmission lines, distribution substations, overhead and underground distribution lines, smaller transformers, and to individual meters. PSE operates and maintains approximately 5.8 miles of 115 kilovolt (kV) high-voltage transmission lines, 1 switching station, 2 substations, 53 miles of overhead and 48 miles of underground 12kV distribution lines in Kenmore. **Figure U-1** shows the locations of existing primary electric transmission lines and substations within the City.

Regulatory Environment

PSE's operations and rates are governed by the Washington Utilities and Transportation Commission (WUTC). PSE electric utility operations and standards are further governed by the Federal Energy Regulatory Commission (FERC), the National Electric Reliability Corporation (NERC), and the Western Electricity Coordinating Council (WECC). These respective agencies monitor, assess and enforce compliance and reliability standards for PSE. The residents of Kenmore and the region rely on the coordinated effort between PSE and City for the adoption and enforcement of ordinances and/or codes to protect transmission and distribution line capacity and support federal and state compliance of safe, reliable, and environmentally sound operation of PSE's electric facilities. Routine utility maintenance work, including vegetation management, is required to maintain compliance with FERC, NERC, and WECC regulations.

Planned Upgrades to System

In order for PSE to meet regulatory requirements, it updates and files an Integrated Resource Plan (IRP) with the WUTC every two years. The IRP presents a long-term forecast of the lowest reasonable cost combination of resources necessary to meet the needs of PSE's customers to provide dependable and cost effective service over the next 20 years. The current plan, which was filed in May of 2013, details both the energy supply and transmission resources needed to reliably meet customers' wintertime, peak-hour electric demand over the next 20 years. The plan, which will be updated in the fall of 2015, forecasted that PSE would have to acquire approximately 4,900 megawatts of new power-supply capacity by 2033. This resource need is driven mainly by expiring purchased-power contracts and expected population and economic growth in the Puget Sound region. The IRP suggests that roughly more than half of the utility's long-term electric resource need can be met by energy efficiency and the renewal of transmission contracts. This reduces the need down to 2,200 MW by 2033. The IRP states that the rest of PSE's gap in long-term power resources is likely to be met most economically with added natural gas-fired resources.

As part of its planning for the future, PSE must maintain compliance with the Washington Energy Independence Act (I-937). This voter-approved law requires utilities to provide 15 percent of their customers' electricity from renewable sources by 2020. PSE today is the top utility producer of renewable energy in the Northwest, with 773 megawatts of generating capacity from its three large wind farms in Washington.

PSE will be systematically deploying smart grid technology at each level of infrastructure to enhance and automate monitoring, analysis, control and communications capabilities along its entire grid. Smart grid technologies can impact the electricity delivery chain from a power generating facility all the way to the end-use application of electrical energy inside a residence or place of business. The ultimate goals of smart grid are to enable PSE to offer more reliable and efficient energy service, and to provide customers with more control over their energy usage.

PSE's Renewable Energy Advantage Program (REAP) voluntarily encourages the growth of renewable electricity production in its service area in support of WAC 458-20-273 through payments to the customer for energy produced. Currently, there are approximately 3,000 small customer-owned generation facilities. The generation facilities are interconnected with PSE's electrical distribution system. Dependent upon a customer's consumption, surplus energy can be exported onto the grid. The vast majority of these renewable systems are solar panel installations. Although this provides a modest portion of PSE's electrical supply portfolio, the number of customer-owned installations continues to increase every year. This voluntary set of rules allows Washington state utilities the option of participating in an incentive program for eligible customers who use solar PV, wind or anaerobic digesters to generate their own electricity. The incentives are available to individuals and businesses within the City. There are 29 small customer-owned generation facilities in Kenmore, one of which is at Kenmore City Hall.

Specific transmission and substation construction that is anticipated in Kenmore in the next 10 years includes reconstruction of the existing Moorlands-Vitulli transmission line that was built in the 1940s between the Moorlands substation in Kenmore and the Vitulli substation in Bothell. This five-mile long line brings power to customers in Kenmore and Bothell and is approaching its capacity limits, making it at risk of overloading during periods of high energy usage—putting customers at risk for power outages. The transmission line is scheduled for reconstruction in 2015. The new line, generally running along NE 195th Street, will include a high capacity conductor, new poles, and associated equipment.

Two proposed substations (Spruce and Chickadee) may also serve Kenmore in the future, but are not proposed for construction within the next 10 years.

Conversion to Underground Service

The cost of undergrounding of electric facilities is regulated by the Washington Utilities and Transportation Commission (WUTC). Underground installations by PSE must be done in accord with the rates and tariffs on file with the WUTC.

Undergrounding may be two to four times the cost of installing overhead lines, plus the cost of trenching and hard surface restoration. The latter may result in costs up to 10 times the amount of overhead line installation. In addition, there are costs to the customer, particularly affecting commercial customers, for installing lines from the transformer to the meter at the building.

Challenges to undergrounding include environmental constraints such as wetlands and buffers, as well as the need for easements when large pad-mounted equipment such as transformers and switches cannot be accommodated in the right-of-way.

Energy Conservation Programs

PSE currently has several energy conservation programs for residential, commercial, and industrial customers. While these programs may change from year-to-year, current programs range from technical assistance and information to referrals and financial assistance. PSE maintains an "Energy Efficiency Hotline" to help direct customers to the various conservation programs. For residential customers PSE offers a free, do-it-yourself home energy audit as well as several free informational brochures. PSE also provides weatherization assistance for low-income customers.

Policy on Electric and Magnetic Fields

Electric and magnetic fields exist in nature as well as around all types of electrical devices. The electric and magnetic fields around all electrical appliances and power lines fall within the extremely low frequency (ELF) range. For several years, scientists reflecting a broad range of scientific disciplines have considered the question of whether EMF presents a hazard to human health. The scientific consensus, according to PSE, is that current evidence does not confirm the existence of any health consequences from exposure to low level EMF. PSE's policy statement says that Puget Sound Energy has and will continue to:

- Follow all applicable laws and regulations governing the installation of electrical facilities
- Remain informed about important developments in EMF research.
- Share accurate and objective information about EMF with customers.

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Figure U-1
Private Utilities

Natural Gas

Natural gas utility service for the City of Kenmore also is provided by Puget Sound Energy (PSE). Currently, PSE provides natural gas to more than 770,000 customers, throughout 6 counties, covering an approximately 2,900 square-mile area. Within the City of Kenmore, PSE serves 5,612 metered customers.

Existing Distribution System

PSE controls its gas-supply costs by acquiring gas, under contract, from a variety of gas producers and suppliers across the western United States and Canada. PSE purchases 100 percent of its natural-gas supplies needed to serve its customers. About half the natural gas is obtained from producers and marketers in British Columbia and Alberta, and the rest comes from Rocky Mountain States. All the gas PSE acquires is transported into PSE's service area through large interstate pipelines owned and operated by Williams Northwest Pipeline. PSE buys and stores significant amounts of natural gas during the summer months, when wholesale gas prices and customer demand are low, and stores it in large underground facilities. PSE then withdraws the natural gas in winter when customer usage is highest, ensuring that a reliable supply of gas is available.

To provide the City of Kenmore and adjacent communities with natural gas, PSE builds, operates, and maintains an extensive system consisting of transmission and distribution natural gas mains, odorizing stations, pressure regulation stations, heaters, corrosion protection systems, above ground appurtenances, and metering systems. When PSE takes possession of the gas from its supplier, it is distributed to customers through more than 21,000 miles of PSE-owned natural gas mains and service lines.

PSE receives natural gas transported by Williams Northwest Pipeline's 36" and 30" high pressure transmission mains at pressures ranging from 500 PSIG to 960 PSIG. The custody change and measurement of the natural gas occurs at locations known as Gate Stations. PSE currently has 39 such locations throughout its service territory. This is also typically where the gas is injected with the odorant mercaptan. Since natural gas is naturally odorless, this odorant is used so that leaks can be detected. The Gate Station is not only a place of custody transfer and measurement but is also a common location of pressure reduction through the use of "pressure regulators". Due to state requirements, the pressure is most commonly reduced to levels at or below 250 PSIG. This reduced pressure gas continues throughout PSE's high pressure supply system in steel mains ranging in diameter of 2" to 20" until it reaches various other pressure reducing locations. PSE currently has 755 pressure regulating stations throughout its service territory. These locations consist of Limiting Stations, Heaters, District Regulators, and/or high pressure Meter Set Assemblies.

The most common of these is the intermediate pressure District Regulator. It is at these locations that pressures are reduced to the most common levels ranging from 25 PSIG to 60 PSIG. This reduced pressure gas continues throughout PSE's intermediate pressure distribution system in mains of various materials consisting of polyethylene and wrapped steel that range in diameters from 1-1/4" to 8" (and in a few cases, larger pipe). The gas flows through the intermediate pressure system until it reaches either a low pressure District Regulator or a customer's Meter Set Assembly.

To safeguard against excessive pressures throughout the supply and distribution systems due to regulator failure, over-pressure protection is installed. This over-pressure protection will release gas to the atmosphere, enact secondary regulation, or completely shut off the supply of gas. To safeguard steel main against corrosion, PSE builds, operates, and maintains corrosion control mitigation systems to prevent damaged pipe as a result of corrosion.

Currently within the City of Kenmore PSE operates and maintains: 6 miles of high pressure main, 5 District Regulators, 79 miles of intermediate and low pressure main, and approximately 87 miles of service lines. **Figure U-1** shows the locations of existing primary natural gas transmission lines within the City.

Regulatory Environment

PSE's operations and rates are governed by the Washington Utilities and Transportation Commission (WUTC). PSE natural gas utility operations and standards are further regulated by the U.S. Department of Transportation (DOT), including the Pipeline and Hazardous Materials Administration (PHMSA). PHMSA's Pipeline Safety Enforcement Program is designed to monitor and enforce compliance with pipeline safety regulations. This includes confirmation that operators are meeting expectations for safe, reliable, and environmentally sound operation of PSE's pipeline infrastructure. PHMSA and the WUTC update pipeline standards and regulations on an ongoing basis to assure the utmost compliance with standards to ensure public safety. The residents within Kenmore rely on the coordinated effort between PSE and the City for the adoption and enforcement of ordinances and/or codes to support on the safe, reliable, and environmentally sound construction, operation and maintenance of PSE's natural gas facilities.

Planned Upgrades to System

The Integrated Resource Plan (IRP), filed with the WUTC every two years, identifies methods to provide dependable and cost effective natural gas service that address the needs of retail natural gas customers. Natural gas sales resource need is driven by design peak day demand. The current design standard ensures that supply is planned to meet firm loads on a 13-degree design peak day, which corresponds to a 52 Heating Degree Day (HDD). Currently, PSE's supply/capacity is approximately 970 MDth/Day at peak. This figure will be updated in the fall of 2015. The IRP suggests the use of liquefied natural gas (LNG) for peak day supply and to support the needs of emerging local maritime traffic and truck transport transportation markets.

To meet regional and City natural gas demand, PSE's delivery system is modified every year to address new or existing customer growth, load changes that require system reinforcement, rights-of-way improvements, and pipeline integrity issues. Ongoing system integrity work in Kenmore may include the replacement of DuPont manufactured polyethylene main and service piping and certain qualified steel wrapped intermediate pressure main and service piping. Ongoing pipe investigations throughout the city will determine the exact location of any DuPont pipe and qualified steel wrapped pipe to be replaced. In addition, ongoing investigation will determine locations where gas lines may have been cross bored through sewer lines, necessitating subsequent repairs.

Energy Conservation Programs

PSE currently has several energy conservation programs for residential, commercial, and industrial customers. While these programs may change from year-to-year, current programs range from technical assistance and information to referrals and financial assistance. PSE maintains an "Energy Efficiency Hotline" to help direct customers to the various conservation programs. For residential customers PSE offers a free, do-it-yourself home energy audit as well as several free informational brochures. PSE also provides weatherization assistance for low-income customers.

Hazardous Liquid Pipelines

According to the Northshore Fire Department, there are no hazardous liquid transmission pipelines located in Kenmore.

Telecommunications

Telecommunications services are regulated by several entities, including the Federal Communications Commission and the Washington Utilities and Transportation Commission. As these telecommunication entities frequently merge and often provide overlapping services, analysis of service by individual carrier is difficult.

Telephone

Telephone service is provided within the city by a number of providers—both landline and cellular. Carriers include New Cingular Wireless (formerly AT&T) and Verizon.

Cable

Cable service is provided within the city by Comcast and other providers, including Frontier and Wave. The City's franchise agreement with Comcast provides free cable service to City Hall, the Northshore Fire District headquarters, the Library, Northshore Utility District headquarters, Fire Station 54, the Police Precinct, and schools.

Internet

Internet services within the city also are provided by a number of private carriers, including Comcast.

Local Water Service

The Northshore Utility District (NUD) provides public water service to the entire City of Kenmore. As of December 31, 2014, approximately 6,819 NUD water service connections were located in the City of Kenmore--31% of the District's total. NUD is organized as a special purpose district that has the authority to operate under Title 57 of the Revised Code of Washington (RCW).

The District owns and operates a water distribution and storage system. All water is purchased from Seattle Public Utilities (SPU) through connections to the Tolt Pipelines No. 1 and 2, and the Tolt Eastside Supply Line. The district has an additional connection to SPU at the Maple Leaf pipeline, used only in emergency situations. SPU is responsible for water quality treatment. The current water supply contract with SPU expires in 2062.

The current Comprehensive Water System Plan for the District was completed in 2009. This plan evaluates the existing system and its ability to meet anticipated requirements for water source, quality, transmission storage, and distribution for a twenty-year period (2006-2026) in accordance with the Growth Management Act. District population estimates for the planning period are based on the 2000 Transportation Analysis Zone (TAZ) projections provided by the Puget Sound Regional Council and Utility District staff determinations.

According to the Plan, the District has sufficient capacity in its existing storage and distribution system to meet growth needs to the 2026 planning horizon and beyond. The SPU contract water supply is sufficient to provide adequate water to the District to at least the year 2025. And although the Plan indicates that

average day and peak season demands at build out exceed the SPU supply contract amount, the shortfall is minimal, and may ultimately be eliminated as conservation measures and water-use habits continue to reduce demand. In addition, reclaimed water projects may introduce new cost-effective supply options. As a member of the Snohomish River Regional Water Authority, NUD holds a water right for the Snohomish River but is not currently withdrawing water under this water right. Although NUD has drilled a groundwater well in west Bothell, no water right was granted by the State and groundwater is not considered to be a viable water supply option for the district.

The 2009 plan includes a $13 million six-year Capital Improvement Plan and a $19 million 10-year plan. Projects include water supply source development, improvements to the distribution system, metering and telemetry improvements, and emergency preparedness. The majority of these projects constitute ongoing upgrades to the system.

The Northshore Utility District 2009 Water System Comprehensive Plan should be referred to directly for detailed information about the District and its facilities. **Figure U-2** shows existing water mains and reservoirs in the City of Kenmore.

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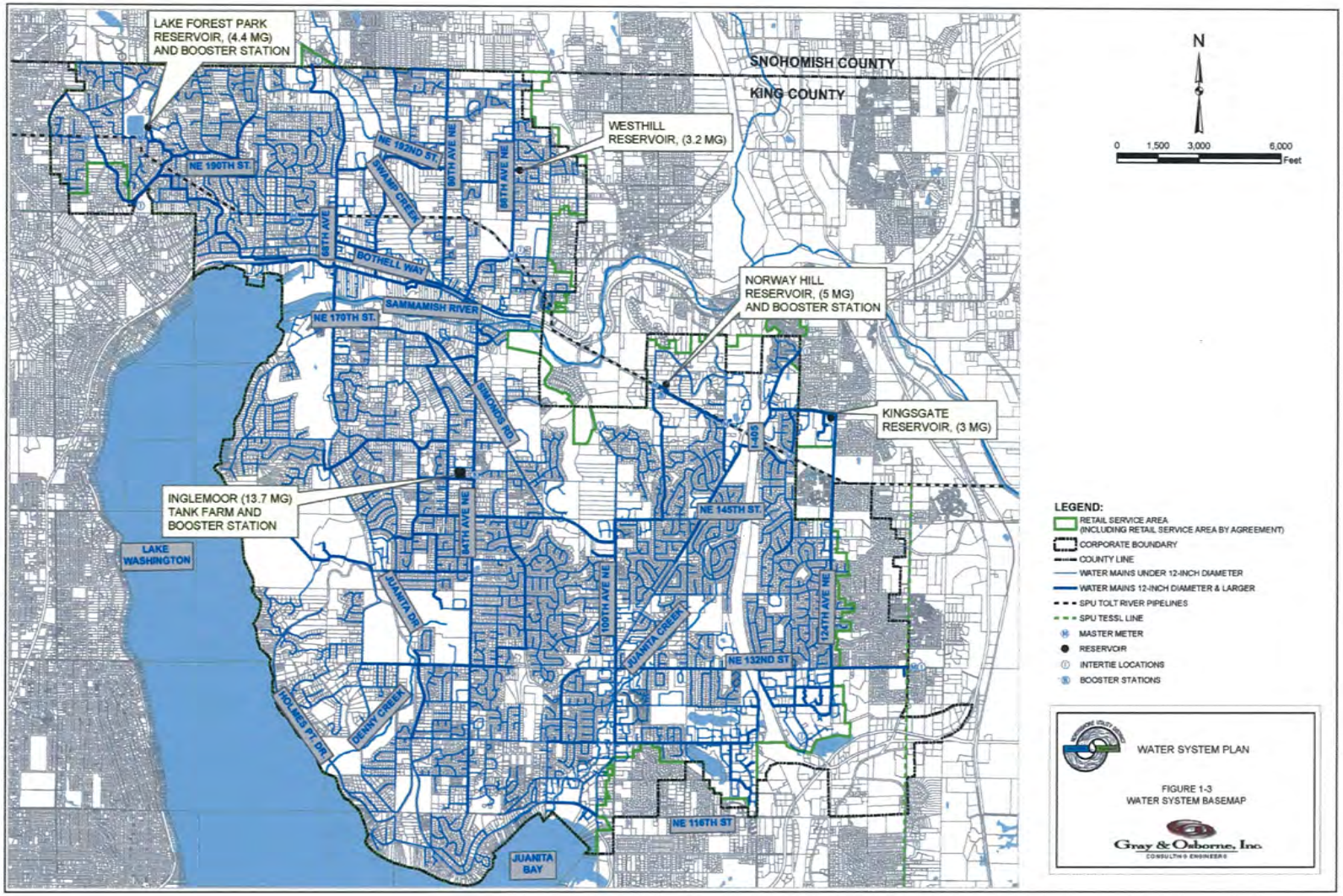

Figure U-2

Not to Scale

April, 2015

Regional Water Service

The Seattle Public Utilities Tolt Pipelines No. 1 and 2 cross the city of Kenmore from east to west, primarily along the NE 185th Street alignment. At 61st Avenue NE the pipeline alignment turns in a northwest direction to the western City boundary.

Several taps into the Tolt Pipeline exist within the city to provide service.

Local Wastewater Service

The Northshore Utility District (NUD) provides public sewer service to the entire City of Kenmore. As of December 31, 2014, 6,211 of NUD's 21,232 sewer service connections were in Kenmore. The district is organized as a special purpose district that has the authority to operate under Title 57 of the Revised Code of Washington (RCW).

The District owns and operates a wastewater collection system consisting of collection sewers, trunk sewers, lift stations, and force mains. Wastewater treatment is provided by King County Department of Natural Resources, Wastewater Treatment Division at plants in Renton and at West Point in Seattle. The wastewater agreement with the County extends to 2036.

The current Comprehensive Wastewater System Plan for the District was completed in 2009. The 2009 plan evaluates the existing collection system and identifies improvements needed to meet the needs of current and future sewer customers in light of changing regulatory requirements, population growth, development trends, and aging facilities for the time frame of 2006-2026. District population estimates for the planning period are based on the Transportation Analysis Zone (TAZ) projections provided by the Puget Sound Regional Council and Utility District staff determinations.

The Plan includes a policy of providing public sewer service to areas within its sewer service area. NUD published a Sewer System Buildout Catalog in 2006, with the goal to provide sewer service to the majority of parcels served by on-site septic systems within 8 years. As of December 31, 2014, 877 parcels within the District were served by on-site septic systems. Of those 877 parcels, 550 have district sewer service available but have not yet connected.

The 2009 plan recommends projects for the 2006-2026 time frame that include construction of new and supporting facilities, and upgrades as well as other improvements that will increase system efficiency. The plan includes a $29 million ten-year capital improvement plan.

The Northshore Utility District 2009 Wastewater Comprehensive Plan should be referred to directly for detailed information about the District and its facilities. **Figure U-3** shows the existing District boundary and sewer service area, with some Kenmore facilities. Currently unsewered areas are shown on **Figure U-4**.

Regional Wastewater Facilities

King County Department of Natural Resources, Wastewater Treatment Division operates regional facilities within Kenmore. These include the Kenmore Pump Station/Logboom Regulator System, Swamp Creek Trunk, and Kenmore Interceptor. The Kenmore Pump Station/Logboom Regulator System controls flows in the Kenmore Lakeline, a 48-inch diameter, five-mile long pipeline constructed in Lake Washington between Kenmore and Matthew's Beach. This system conveys sewage from King County's North Service Area to Matthews Beach Pump Station and from there to the West Point Treatment Plant. The Kenmore Interceptor is a 72-inch diameter sewer within Kenmore that enters the city from the east.

The Swamp Creek Trunk is a 36-inch pipeline conveying sewage from the Swamp Creek basin to the Kenmore Pump Station. This facility serves the Swamp Creek Basin in King County as well as the Snohomish County Service Area. Currently, flows from the Swamp Creek Basin are conveyed from the Alderwood Sewer District's 36-inch trunk at the county line through an 18-inch Northshore Utility District main to NE 192nd Street, where the Swamp Creek Trunk currently ends.

The 2014 Comprehensive Review of the Regional Wastewater Service Plan (originally adopted in 1999) states that, with the operation of the new Brightwater treatment facility, there is sufficient treatment plant capacity for the region until the 2030s. It is expected that NUD's wastewater will continue to receive treatment at the Renton plant and at West Point in Seattle, but that some wastewater treatment service may be transferred to Brightwater in the future.

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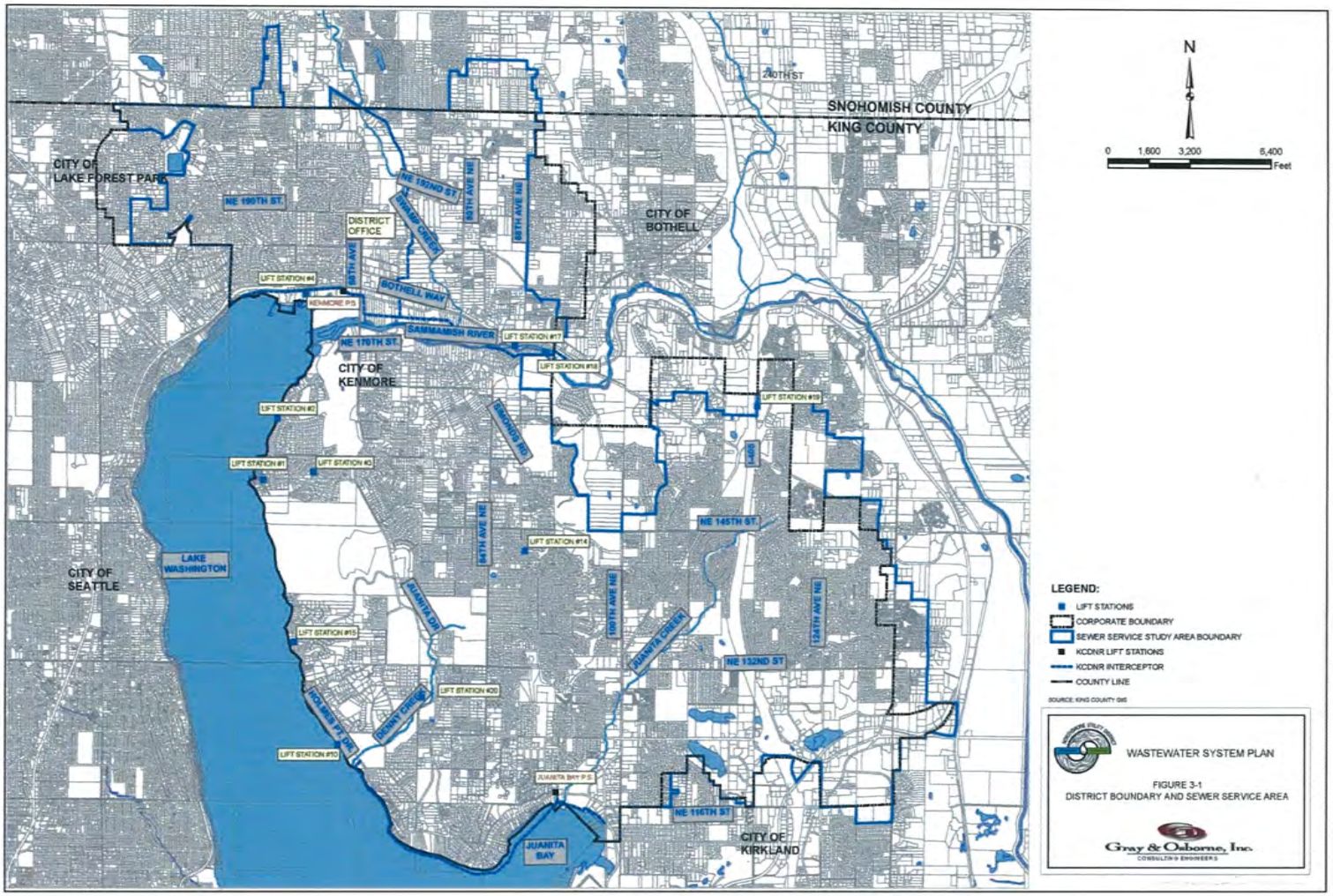

Figure U-3

Not to Scale

April, 2015

Figure U-4
Unsewered Areas

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Solid Waste

Coordination of Service

The King County Department of Natural Resources and Parks, Solid Waste Division, operates King County's transfer and disposal system comprised of a regional landfill, eight transfer stations, and two rural drop boxes for residential and non-residential self-haul customers and commercial haulers. Kenmore has an interlocal agreement with King County that guarantees the tonnage and associated revenue to allow the Solid Waste Division to operate the system through 2040.

Unincorporated areas of King County are served by private garbage collection companies which receive oversight through the Washington State Utilities and Transportation Commission (WUTC). When an area incorporates, it has the option to establish a franchise with a private hauler but is not required to do so. If a local jurisdiction enters into a franchise, the franchise regulations would supersede state regulations and the private hauler is no longer regulated by the State. The City of Kenmore has elected to allow the state to continue to regulate the private hauler serving the City. The City has no immediate plans to establish a franchise, but may wish to establish one at some point in the future. Republic Services is the garbage/recycling service provider to Kenmore.

General Waste Collection

Republic Services collects residential and commercial solid waste and recycling on a weekly basis in the City of Kenmore. In 2013, Republic served 5,565 residential customers and 437 commercial customers.

The company collects and then hauls garbage to the King County Houghton Transfer Station in Kirkland. Except for construction debris, which is recycled, refuse at the transfer station is trucked to the Cedar Hills Landfill.

The 2006 Solid Waste Transfer and Waste Export System Plan identifies the need for a new "Northeast Lake Washington" transfer station in the northeast part of King County. King County presently is reviewing this plan to determine whether in fact a new transfer station is needed.

It is expected that the Cedar Hills Landfill will be operational through 2030 based on current tonnage forecasts and 70% recycling goal. The Draft 2013 Comprehensive Solid Waste Management Plan explores the concept of using emerging technologies for waste disposal, rather than pursuit of additional landfill space once Cedar Hills is no longer operational.

Recycling

In Kenmore, recycling collection services are provided to single-family and multi-family residences, as well as to commercial customers with individual agreements. Kenmore has a 57% recycling rate—well above the national average residential recycling rate of 30%.

Recycling material is collected curbside every other week and taken to Republic Services Recycling in south Seattle. Yard waste is collected at curbside and taken to Cedar Grove Compost where it is composted then sold for use in gardens and flower beds.

GOALS, OBJECTIVES, AND POLICIES

Following are the utility goals, objectives and policies.

GOAL 48. ENSURE THAT ALL HOUSEHOLDS ARE SERVED OR CAN BE SERVED BY WATER AND SANITARY SEWER UTILITIES AT ACCEPTED SERVICE LEVELS.

OBJECTIVE 48.1 **Coordinate with the Northshore Utility District, the King County Department of Natural Resources Wastewater Treatment Division, and the City of Seattle to ensure that sufficient sanitary sewer infrastructure and treatment, water supply, infrastructure, and fire flow are available or can be provided to all areas of the community to meet existing and future needs and to protect environmental quality.**

Policy U-48.1.1 Ensure City regulations allow for improvements and additions to water and sewer facilities as needed to accommodate growth and provide reliable service.

Policy U-48.1.2 Furnish regular updates of population, employment and development projections to the Northshore Utility District, King County and the City of Seattle in order to ensure appropriate services will be available as needed.

Policy U-48.1.3 Coordinate with the Northshore Utility District in the amendment and implementation of its Water System Plan and ~~Sewer~~ Wastewater System Plan in order to achieve shared goals and objectives of providing reliable, service to Kenmore citywide, and to ensure consistency with City's Comprehensive Plan.

Policy U-48.1.4 Coordinate with the Northshore Utility District and ~~the~~ Northshore Fire District 16 to ensure adequate fire flow in all areas of the City.

Policy U-48.1.5 If an areawide water or sewer deficiency is identified, ensure that the applicable service providers remedy the deficiency through capital improvement programs and long-term funding strategies. If financing and level of service remedies cannot solve the deficiency, the City may change zoning to address the problem.

Policy U-48.1.6 Coordinate with the appropriate service providers to ensure water system plans include aggressive conservation and re-use measures, as well as development of new sources to support planned land uses with reliable service at minimum cost ~~and in allocating water for fisheries, navigation, power, recreation, as well as municipal and commercial uses~~.

Policy U-48.1.7 In partnership with the City of Seattle, identify appropriate shared uses along the Tolt Pipeline in consideration of environmental features.

Policy U-48.1.8 Through memorandums of understanding or other methods, ensure the implementation of the County's Regional Wastewater ~~Comprehensive~~Service Plan results in full mitigation of siting, construction, and operational impacts of new or expanded facilities in Kenmore.

Policy U-48.1.9 To address ground and surface water quality, ensure Northshore Utility District sewer plans require hook-ups to the sanitary sewer system in the case of septic system failures when reasonably available. Work with the Northshore Utility District to determine the circumstances under which hook-up would be appropriate. Determine if funding sources are available in the case of economic hardship.

Policy U-48.1.10 Ensure new development is served by the public sanitary sewer system.

Policy U-48.1.11 Ensure that the implementation of the County's Regional Wastewater ~~Comprehensive~~Service Plan and the Northshore Utility District's ~~Comprehensive Sewer~~Wastewater System Plan minimizes failures, overflows, and contamination affecting the City's surface waters.

GOAL 49. PROVIDE SOLID WASTE COLLECTION AND DISPOSAL SERVICES TO THE COMMUNITY CONSISTENT WITH SOLID WASTE MANAGEMENT PLANS.

OBJECTIVE 49.1 Monitor the delivery of solid waste services provided by King County and waste handlers to ensure appropriate service levels are provided at a reasonable cost.

Policy U-49.1.1 Support the planning of solid waste services, and the provision of disposal capacity on a regional basis.

Policy U-49.1.2 Monitor the levels of solid waste service and costs currently provided to the Kenmore community through the Washington State Utilities and Transportation Commission's oversight of the local private hauler.

Policy U-49.1.3 Coordinate with current service providers to ensure that waste pick-up and curb-side recycling services are reliable.

Policy U-49.1.4 Coordinate with service providers to educate citizens about safe hazardous waste disposal.

Policy U-49.1.45 Provide educational materials to the public which inform that waste burning is prohibited and identify appropriate solid waste services that are available.

~~**OBJECTIVE 49.2 Establish a municipal solid waste plan.**~~

~~Policy U-49.2.1 Prepare a municipal solid waste plan which:~~

~~a. Compares existing services in the community to services in adjacent similar communities.~~

~~b. Considers the establishment of a municipal solid waste franchise.~~

~~c. Considers requiring trash pick-up for all residents and businesses of the City.~~

GOAL 50. ENSURE THAT PRIVATELY PROVIDED UTILITIES, INCLUDING ELECTRICITY, NATURAL GAS, CABLE TELEVISION, AND OTHER TELECOMMUNICATIONS, ARE AVAILABLE OR CAN BE PROVIDED TO SERVE THE COMMUNITY.

OBJECTIVE 50.1 Ensure utility providers make improvements and additions to improve service and accommodate growth in a timely manner.

Policy U-50.1.1	Ensure City regulations allow for improvements and additions to electric, natural gas, cable television, and telecommunication facilities as needed to accommodate growth~~, and~~ provide reliable service, and support economic development.
Policy U-50.1.2	Furnish regular updates of population, employment, and development projections to private utilities and service providers in order to ensure appropriate services will be available as needed.
Policy U-50.1.3	Require franchise agreements where necessary for private utility use of the City rights-of-ways.
Policy U-50.1.4	Whenever possible, ensure that franchise agreements support the provision of excellent utility service to Kenmore customers.
Policy U-50.1.~~4~~5	Coordinate with other jurisdictions in the implementation of multi-jurisdictional electric facility additions and improvements.
Policy U-50.1.~~5~~6	Support the availability and efficient use of natural gas.
Policy U-50.1.~~6~~7	Encourage state of the art telecommunication services ~~as a means~~ to mitigate the transportation impacts of development and growth through such means as telecommuting and videoconferencing.
Policy U-50.1.~~7~~8	Support cable television services that meet the cable-related needs and interests of all segments of the community, taking into account the cost of meeting such needs and interests. Encourage the completion of the "universal line up" where the region will be able to receive the same channels and programming.
Policy U-50.1.~~8~~9	Support the relocation of utility poles to protect the public safety and to further the Comprehensive Plan goals and realization of the Vision Statement.
OBJECTIVE 50.2	**Coordinate the timing and location of utilities to minimize cost and disruption.**
Policy U-50.2.1	Strive to notify private utilities and service providers of construction work in the public rights-of-way which may affect their equipment. Encourage coordination of public and private utility trenching activities for new construction and maintenance and repair of existing roads.
Policy U-50.2.2	Promote when reasonably feasible, co-location of new public and private utility distribution facilities in shared trenches and coordination of construction timing to minimize construction-related disruptions to the public and reduce the cost to the public of utility delivery.
Policy U-50.2.3	Encourage use of the Utility Notification Center ("Call Before You Dig") prior to site construction or development,
OBJECTIVE 50.3	**Facilitate the provision of reliable utility service in a way that minimizes environmental and safety impacts while allowing for a fair and reasonable price for the utility's product.**

~~Policy U-50.3.1~~ ~~Encourage the development of regional and statewide policies regarding exposure to electromagnetic fields (EMF) through a process involving local, regional and State governments, as well as electric utilities. Encourage the use of best available science in the development of the policies.~~

Policy U-50.3.~~2~~1 Review periodically, the state of scientific research on electromagnetic fields (EMF), and make changes to policies if the situation warrants.

Policy U-50.3.~~3~~2 Require utilities to define alternative routes to avoid impacts to environmentally sensitive areas where possible.

OBJECTIVE 50.4 **Encourage undergrounding of overhead utilities and co-location of utilities to reduce aesthetic impacts, minimize the need for pruning of trees and shrubs, and reduce power loss during severe weather events.**

Policy U-50.4.1 To the extent feasible, require underground utility networks in new developments in the City.

Policy U-50.4.2 Where undergrounding is not presently feasible, require developers to install empty conduit or take other measures to facilitate future undergrounding of aerial utilities.

Policy U-50.4.~~2~~3 Where significant work in existing rights-of-way will occur, investigate with service providers the possibility of buried lines where existing overhead lines are presently located and encourage them to underground if feasible.

Policy U-50.4.~~3~~4 Consider creating a funding mechanism for undergrounding of utilities on a continuing basis in developed areas.

Policy U-50.4.5 Minimize impacts of personal wireless services, telecommunication facilities, and towers on adjacent land uses through careful siting and design.

~~Policy U-50.4.4~~ ~~Require co-location of utility facilities and equipment where feasible to minimize aesthetic impacts and increase efficiency in service.~~

Policy U-50.4.~~5~~6 Require communication facilities and poles, including cell or radio towers, to consider existing sites and co-locating prior to establishing new sites.

Policy U-50.4.~~6~~7 Consider view corridors when reviewing utility pole or facility placement.

GOAL 51. ENCOURAGE RESOURCE AND ENERGY CONSERVATION.

OBJECTIVE 51.1 **Promote and support water conservation efforts.**

Policy U-51.1.1 Support water conservation programs of the Northshore Utility District for residential, commercial and industrial users.

Policy U-51.1.2 Consider water conservation principles when constructing, maintaining and improving City facilities and parks.

Policy U-51.1.3 Promote the use of water conservation features in the design or rehabilitation of residential structures.

Policy U-51.1.4 Work with the Northshore Utility District to address the feasibility of using reclaimed water from the Brightwater plant for irrigation.

OBJECTIVE 51.2 Encourage increased solid waste reduction and recycling.

Policy U-51.2.1 Support King County and waste-hauler programs for increased waste reduction, composting and recycling in accordance with the adopted King County Solid Waste Management Plan, and with any future City solid waste plans.

OBJECTIVE 51.3 Promote and support energy conservation.

Policy U-51.3.1 Continue to enforce State Energy Code requirements.

Policy U-51.3.2 Review and update codes as necessary regarding solar energy and other alternative energy sources.

~~Policy U-51.3.3 Support the planting of trees along street edges to create a pleasing environment and to increase energy efficiency by reducing heat absorbed by asphalt that increases ambient temperatures.~~

Policy U-51.3.~~4~~3 Establish standards for street widths, parking lots, and landscaping to moderate temperature, provide shade, and minimize impervious surfaces.

Policy U-51.3.~~5~~4 Promote higher density and infill developments that are located near major transportation and transit links.

Policy U-51.3.~~6~~5 Encourage the rehabilitation of existing buildings as an alternative to demolition, where appropriate, to encourage the conservation of energy, building materials, and historic preservation.

IMPLEMENTATION STRATEGIES

The Utility Element policies ~~would~~ require ~~new or increased~~ commitments of City resources to prepare new regulations, review/amend existing regulations, create educational or incentive programs, or coordinate with adjacent jurisdictions.

New programs, rules, or regulations ~~would~~may be needed to address:

- ~~A municipal solid waste plan~~
- ~~Regulations requiring undergrounding of utilities.~~
- Alternative energy sources, such as solar, wind and/or thermal

A review of existing programs, rules and regulations ~~would be~~ is needed to ensure they meet the policies, including:

- ~~Right-of-way, c~~Coordination of utility construction and relocation of poles in the right-of-way
- Updated communication facility r~~R~~egulations addressing co-location, alternate siting, and view corridors
- Energy code requirements
- Street tree and landscaping requirements
- Street and parking area standards.

Additional or continuing efforts would need to be made to coordinate with adjacent jurisdictions or participate in regional programs, including:

- Coordination with the Northshore Utility District, City of Seattle, and King County regarding water and wastewater services
- Coordination with private utilities including Puget Sound Energy~~, GTE,~~ and ~~AT&T~~telecommunications carriers
- ~~Participation in multi-jurisdictional, multi-agency review of EMF science and affect upon regulations~~
- Coordination with the County and franchisees regarding solid waste and recycling services and programs.
- Cross promotion of agency activities and programs in support of recycling and conservation.

City business may be conducted in a manner that leads by example through activities such as:

- Use of water-conserving fixtures in City facilities
- Use of alternative energy sources
- City recycling programs
- Native plantings in parks to reduce irrigation needs

REFERENCES

2014 Comprehensive Review of the Regional Wastewater Service Plan, Seattle, WA.

King County Solid Waste Division, Department of Natural Resources and Parks (2013). Draft 2013 Comprehensive Solid Waste Management Plan, Seattle, WA.

King County Solid Waste Division, Department of Natural Resources and Parks (December 2014). Personal communication from Thea Severn, Manager of Planning and Communication Section, to Lauri Anderson, Senior Planner.

King County Solid Waste Division, Department of Natural Resources and Parks (May 2014). 2013 Solid Waste Division Annual Report, Seattle, WA.

King County Solid Waste Division, Department of Natural Resources and Parks (September 2006). Solid Waste Transfer and Waste Export System Plan, Seattle, WA.

Northshore Fire District (December 2014). Personal communication from Jeff La Flam, Fire Marshal, to Lauri Anderson, Senior Planner.

Northshore Utility District (December 2014). Personal communication from Dave Kaiser, Engineering Manager, to Lauri Anderson, Senior Planner.

Northshore Utility District (2009). Wastewater System Plan. Prepared by Gray and Osborne, Inc., Seattle, WA.

Northshore Utility District (2009). Water System Plan. Prepared by and Osborne, Inc., Seattle, WA.

Puget Sound Energy (April 2015). Personal communications from David Matulich, Municipal Liaison Manager – Snohomish County & Northern King County, to Lauri Anderson.

Republic Services (December 2014). Personal communications from Janet Prichard, Municipal Manager, to Lauri Anderson, Senior Planner.

Attachment 6

HEALTHY/ACTIVE LIVING AND SUSTAINABILITY: RECOMMENDED POLICIES

Healthy/Active Living

Policies to address State requirement:

Land Use Element Policy LU-1.1.3: Use incentives, regulations and programs to support land use patterns and development standards that encourage physical activity through walking and bicycling.

Land Use Element Policy LU-1.1.4: Encourage businesses to locate in Kenmore so that residents have more opportunities to walk or bicycle to work.

Policies to address healthy/active living, generally:

Public Services Policy PS-47.2.3: Help prevent obesity through programs that make Kenmore a healthy place to live, learn and thrive.

Public Services Implementation Strategy: Development of a recreational guide to promote locations and opportunities for physical activity.

Land Use Objective 2.1: Encourage the availability of healthy, affordable, culturally acceptable food for all community residents.

> Policy 2.1.1: Through land use regulations and economic development, encourage locally-based food production, distribution and choice.
>
> Policy 2.1.2: Where appropriate, encourage the development of community gardens and farmers' markets as a means to encourage community-building, support local agriculture and promote economic development.

Sustainability

Land Use Element

Goal 2: Develop and maintain a sustainability action plan, outlining steps the community (including citizens, businesses, City Administration and the City Council) can take to support sustainable economic prosperity, social equity and environmental health in Kenmore.

Community Design Sub-Element:

Objective 10.5: Encourage sustainable design and development.

> Policy 10.5.1: Support green building.

Utilities Element

Policy 49.1.4: Coordinate with service providers to educate citizens about safe hazardous waste disposal.

Public Services Element:

Policy PS-43.1.3: Support community engagement techniques that will encourage a diversity of voices.

Amended Objective 43.3: ~~Promote~~Encourage and facilitate charitable giving, community service and volunteerism.