DEPARTMENT OF ECOLOGY
State of Washington

Water Quality Program

Permit Submittal Electronic Certification

Permittee: KIRKLAND CITY

Permit Number: WAR045521 **Site Address:** 123 5TH AVE
Kirkland, WA 98033

Submittal Name: MS4 Annual Report Phase II Western

Version: 1 **Due Date:** 3/31/2022

Questionnaire

Number	Permit Section	Question	Answer
1	S5.A	Attach a copy of any annexations, incorporations or boundary changes resulting in an increase or decrease in the Permittee's geographic area of permit coverage during the reporting period per S9.D.6.	Not Applicable
2	S5.A	Attach updated annual Stormwater Management Program Plan (SWMP Plan). (S5.A.2)	SWMP2022_FINAL_2_03212022084135
3	S5.A	Implemented an ongoing program to gather, track, and maintain information per S5.A.3, including costs or estimated costs of implementing the SWMP.	Yes
4	S5.A.5.b	Coordinated among departments within the jurisdiction to eliminate barriers to permit compliance. (S5.A.5.b)	Yes
5	S5.C.1.	Have you convened an interdisciplinary team to inform and assist in the development, progress, and influence of the comprehensive stormwater planning program? (S.5.c.1). August 1, 2020	Yes
15	S5.C.1.c	Continue to design and implement local development-related codes, rules, standards, or other enforceable documents to minimize impervious surfaces, native vegetation loss, and stormwater runoff, where feasible? See S5.C.1.c.i. (Required annually)	Yes
16	S5.C.1.c	From the assessment described in S5.C.1.c.i (a), did you identify any administrative or regulatory barriers to implementation of LID Principles or LID BMPs? (Required annually)	No
17	S5.C.1.d	Developed a watershed inventory as outlined in S5.C.1.d.i? (Submitted by March 31, 2022)	Yes

17a	S5.C.1.d	Attach watershed inventory as described in S5.C.1.d.i.	Kirkland Receiving Water Asses_17a_ 03232022150532 Comment: Kirkland conducted a similar process and considered a range of issues as outlined in Ecology's Stormwater Management Action Planning Guidance.
18	S5.C.1.d	Developed a receiving water prioritization method and process as described in S.5.C.1.d.ii(a)-(c)? (Required by June 30, 2022.)	Not Applicable
20	S5.C.2	Did you choose to adopt one or more elements of a regional program? (S5.C.2)	Yes
20a	S5.C.2	If yes, list the elements, and the regional program.	1. Puget Sound Starts Here (PSSH) bus ads 2. Puget Sound Starts Here (PSSH) digital social media campaign via YouTube, Facebook. Ads presented in English, Spanish, Vietnamese, and Korean. Focused on auto maintenance. 3. Participation in regional Dumpster Summit and Dumpster Outreach Group
21	S5.C.2	Attach a description of general awareness efforts conducted, including your target audiences and subject areas, per S5.C.2.a.i.	21 - general awareness_21_032320 22151841
23	S5.C.2	Developed a behavior change campaign that is tailored to the community in accordance with S5.C.2.a.ii(c)? (Required no later than February 1, 2021)	Yes
23a	S5.C.2	Attach the strategy and schedule developed in accordance with S5.C.2.a.ii(c).	23a Strategy and Schedule for _23a_03212022091422
24	S5.C.2	Began implementing strategy outlined in S.5.C.2.a.ii(c) (S5.C.2.a.ii(d) – Required by April 1, 2021)	Yes
26	S5.C.2	Promoted stewardship opportunities (or partnered with others) to encourage resident participation in activities such as those described in S5.C.2.a.iii.	Yes
26a	S5.C.2	Attach a list of stewardship opportunities provided.	26a - stewardship opportunitie_26a_03212 022093542

27	S5.C.3.	Describe in Comments field the opportunities created for the public, including overburdened communities, to participate in the decision-making processes involving the development, implementation, and updates of the Permittee's SWMP and the SMAP. (S5.C.3.a)	Regular opportunity is provided for public input. Interested parties can provide feedback at any time at Kirkland's online reporting portal, Our Kirkland. The draft SWMP is posted to Kirkland's website, comments are requested via twitter, Facebook, e-newsletter, and press release. In addition, Kirkland is undergoing a Surface and Stormwater Utility Master Planning process, beginning in 2021. This has included attendance at many community events, a survey, and on-going communication through email list-serv and website updates. A questionnaire was conducted for public input for SMAP as well.
28	S5.C.3.	Posted the updated SWMP Plan and latest annual report on your website no later than May 31. (S5.C.3.b)	Yes
28a	S5.C.3.	List the website address in Comments field.	https://www.kirklandwa.gov/Government/Departments/Public-Works-Department/Storm-Surface-Water/Stormwater-Policies-and-Regulations
29	S5.C.4.	Maintained a map of the MS4 including the requirements listed in S5.C.4.a.i-vii?	Yes
30	S5.C.4.	Started mapping outfall size and material in accordance with S5.C.4.b.i? (Required no later than January 1, 2020)	Yes
30a	S5.C.4.	Attach a spreadsheet that lists the known outfalls' size and material(s).	Q30a_CityofKirkland_Outfalls_30a_03212022111040
31	S5.C.4.	Completed mapping connections to private storm sewers in accordance with S5.C.4.b.ii? (Required no later than August 1, 2023)	Yes
32	S5.C.4.	Developed an electronic format for map, with fully described mapping standards in accordance with S5.C.4.c? (Required no later than August 1, 2021)	Yes
33	S5.C.5	Informed public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste? (S5.C.5.b)	Yes

33a	S5.C.5	Actions taken to inform public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste.	City trains Police, Fire, Parks, and Planning (including Code Enforcement), Construction Inspectors, and all utility staff. Online training was created in 2021 for all staff and audience specific training for Fire and Police. City implements a Pollution Prevention Assistance program and spill kit program to educate businesses. City provides information to general public through BMP info cards, Facebook posts, utility inserts, postcards, and trainings. Staff also presented to the Juanita and Highlands Neighborhood Association's Meetings. Some City trucks are wrapped with spill prevention messaging.
34	S5.C.5	Implemented an ordinance or other regulatory mechanism to effectively prohibit non-stormwater, illicit discharges as described in S5.C.5.c.	Yes
35	S5.C.5	Implemented procedures for conducting illicit discharge investigations in accordance with S5.C.5.d.i.	Yes
35a	S5.C.5	Cite field screening methodology in Comments field.	Kirkland's methodology is based on the updated permit referenced manual, the 2020 IDDE Field Screening & Source Training Manual, locally adapted to Kirkland.
36	S5.C.5	Percentage of MS4 coverage area screened in the reporting year per S5.C.5.d.i. (Required to screen 12% on average each year.)	37.6

36a	S5.C.5	Cite field screening techniques used to determine percent of MS4 screened.	City of Kirkland Stormwater staff screen the MS4 through catch basin inspections. All catch basins in the city are inspected every two years. These inspections are tracked in our asset management system. During each inspection, the staff are observing the structural integrity of the structure and adjoining pipes, sediment accumulation levels, and if there is any unusual flow, odor, color, or other visual indicators that would suggest a pollutant is present. If there is a water quality concern, the staff will then report a spill through the spill hotline and create a spill response work order. This will trigger notification to the Water Quality Team for investigation and follow up and the Storm Maintenance Crew to clean the storm catch basin, as well as other storm structures that have been affected.
37	S5.C.5	Percentage of total MS4 screened from permit effective date through the end of the reporting year. (S5.C.5.d.i.)	100
38	S5.C.5	Describe how you publicized a hotline telephone number for public reporting of spills and other illicit discharges in the Comments field. (S5.C.5.d.ii)	Kirkland publicizes their spills hotline in a variety of ways, including: surface water web pages, presentations and educational events to public and staff, stickers that are handed out at the counter and at public events, on some staff business cards and email signatures, during discharge response education, annual winter preparedness utility bill insert, BMP rack cards, business pollution prevention guide, Kirkland's Erosion and Sedimentation Control Plans and notes, and Kirkland's public facing service request portal.

39	S5.C.5	Implemented an ongoing illicit discharge training program for all municipal field staff per S5.C.5.d.iii.	Yes
40	S5.C.5	Implemented an ongoing program to characterize, trace, and eliminate illicit discharges into the MS4 per S5.C.5.e.	Yes
41	S5.C.5	Municipal illicit discharge detection staff are trained to conduct illicit discharge detection and elimination activities as described in S5.C.5.f.	Yes
42	S5.C.5	Attach a report with data describing the actions taken to characterize, trace, and eliminate each illicit discharge reported to, or investigated by, the Permittee as described in S5.C.5.g. The submittal must include all of the applicable information and must follow the instructions, timelines, and format described in Appendix 12.	WAR045521-2021-ImportedIDDEs_03252022112243
43	S5.C.6.	Implemented an ordinance or other enforceable mechanism to effectively address runoff from new development, redevelopment, and construction sites per the requirements of S5.C.6.b.i-iii.	Yes
44	S5.C.6.	Revised ordinance or other enforceable mechanism to effectively address runoff from new development, redevelopment, and construction sites per the requirements of S5.C.6.b.i-iii. (Required no later than June 30, 2022)	Not Applicable
45	S5.C.6.	Number of adjustments granted to the minimum requirements in Appendix 1. (S5.C.6.b.i. and Section 5 of Appendix 1)	3
46	S5.C.6.	Number of exceptions/variances granted to the minimum requirements in Appendix 1. (S5.C.6.b.i., and Section 6 of Appendix 1)	0
47	S5.C.6.	Reviewed Stormwater Site Plans for all proposed development activities that meet the thresholds adopted pursuant to S5.C.6.b.i. (S5.C.6.c.i)	Yes
47a	S5.C.6.	Number of site plans reviewed during the reporting period.	606
48	S5.C.6.	Inspected, prior to clearing and construction, permitted development sites per S5.C.6.c.ii, that have a high potential for sediment transport as determined through plan review based on definitions and requirements in Appendix 7 – Determining Construction Site Sediment Damage Potential?	No
48a	S5.C.6.	If no, inspected, prior to clearing and construction, all construction sites meeting the minimum thresholds (S5.C.6.c.ii)?	Yes
49	S5.C.6.	Inspected permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls per S5.C.6.c.iii.	Yes
49a	S5.C.6.	Number of construction sites inspected per S5.C.6.c.iii.	559
49b	S5.C.6.	Inspected stormwater treatment and flow control BMPs/facilities and catch basins in new residential developments every 6 months per S5.C.6.c.iv?	Yes

50	S5.C.6.	Inspected all permitted development sites upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater facilities. (S5.C.6.c.v)	Yes
51	S5.C.6.	Verified a maintenance plan is completed and responsibility for maintenance is assigned for projects prior to final approval and occupancy being granted. (S5.C.6.c.v)	Yes
52	S5.C.6.	Number of enforcement actions taken during the reporting period (based on construction phase inspections at new development and redevelopment projects). (S5.C.6.c.ii-iv) (S5.C.7.c.viii)	22
53	S5.C.6.	Achieved at least 80% of scheduled construction-related inspections. (S5.C.6.c.vi)	Yes
54	S5.C.6.	Made Ecology’s Notice of Intent for Construction Activity and Notice of Intent for Industrial Activity available to representatives of proposed new development and redevelopment? (S5.C.6.d)	Yes
55	S5.C.6.	All staff whose primary job duties are implementing the program to control stormwater runoff from new development, redevelopment, and construction sites including permitting, plan review, construction site inspections, and enforcement are trained to conduct these activities? (S5.C.6.e)	Yes
56	S5.C.7.	Implemented maintenance standards that are as protective, or more protective, of facility function than those specified in the Stormwater Management Manual for Western Washington or a Phase I program approved by Ecology per S5.C.7.a.?	Yes
57	S5.C.7.	Updated maintenance standards specified in Stormwater Management Manual for Western Washington per S5.C.7.a? (Required no later than June 30, 2022)	Not Applicable
58	S5.C.7.	Applied a maintenance standard for a facility or facilities which do not have maintenance standards specified in the Stormwater Management Manual for Western Washington? If so, note in the Comments field what kinds of facilities are covered by this alternative standard. (S5.C.7.a)	Yes
58a	S5.C.7.	Note what kinds of facilities are covered by this alternative standard. (S5.C.7.a)	Contech Filterra, Biopod
59	S5.C.7.	Verified that maintenance was performed per the schedule in S5.C.7.a.ii when an inspection identified an exceedance of the maintenance standard.	Yes
59a	S5.C.7.	Attach documentation of maintenance time frame exceedances that were beyond the Permittee's control.	Not Applicable
60	S5.C.7.	Implemented an ordinance or other enforceable mechanisms to verify long-term operation and maintenance of stormwater treatment and flow control BMPs/facilities regulated by the permittee per (S5.C.7.b.i (a))?	Yes

61	S5.C.7.	Annually inspected stormwater treatment and flow control BMPs/facilities regulated by the Permittee per S5.C.7.b.i(b)	Yes
61a	S5.C.7.	If using reduced inspection frequency for the first time during this permit cycle, attach documentation per S5.C.7.b.i (b)	Not Applicable
62	S5.C.7.	Achieved at least 80% of scheduled inspections to verify adequate long-term O&M. (S5.C.7.b.ii)	Yes
63	S5.C.7.	Annually inspected all municipally owned or operated permanent stormwater treatment and flow control BMPs/facilities. (S5.C.7.c.i)	Yes
63a	S5.C.7.	Number of known municipally owned or operated stormwater treatment and flow control BMPs/facilities. (S5.C.7.c.i)	718
63b	S5.C.7.	Number of facilities inspected during the reporting period.	718
63c	S5.C.7.	Number of facilities for which maintenance was performed during the reporting period.	182
64	S5.C.7.	If using reduced inspection frequency for the first time during this permit cycle, attach documentation per S5.C.7.c.i.	Not Applicable
65	S5.C.7.	Conducted spot checks and inspections (if necessary) of potentially damaged stormwater facilities after major storms as per S5.C.7.c.ii.	Not Applicable
66	S5.C.7.	Inspected municipally owned or operated catch basins and inlets every two years or used an alternative approach? Cleaned as needed? (S.5.C.7.c.iii)	Yes
66a	S5.C.7.	Number of known catch basins?	16269
66b	S5.C.7.	Number of catch basins inspected during the reporting period?	6120
66c	S5.C.7.	Number of catch basins cleaned during the reporting period?	1333
67	S5.C.7.	Attach documentation of alternative catch basin cleaning approach, if used. (S5.C.7.c.iii.(a)-(c))	Not Applicable
68	S5.C.7.	Implemented practices, policies and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the Permittee, and road maintenance activities under the functional control of the Permittee. (S5.C.7.d)	Yes
69	S5.C.7.	Documented practices, policies, and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the Permittee, and road maintenance activities under the functional control of the Permittee. (S5.C.7.d – Required by December 31, 2022)	Not Applicable
70	S5.C.7.	Implemented an ongoing training program for Permittee employees whose primary construction, operations or maintenance job functions may impact stormwater quality. (S5.C.7.e)	Yes

71	S5.C.7.	Implemented a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee in areas subject to this Permit that are not required to have coverage under an NPDES permit that covers stormwater discharges associated with the activity. (S5.C.7.f)	Yes
72	S5.C.7.	Updated, if needed, SWPPPs according to S5.C.7.f no later than December 31, 2022.	Yes
73	S5.C.8	Adopted ordinance(s), or other enforceable documents, requiring the application of source control BMPs for pollutant generating sources associated with existing land uses and activities per S.5.C.8.b.i. (Required by August 1, 2022)	Yes
73a	S5.C.8	Cite ordinance. (Required by August 1, 2022)	15.52.100 Source Control Best Management Practices
74	S5.C.8	Established an inventory per S5.C.8.b.ii. (Required by August 1, 2022.)	Not Applicable
75	S5.C.8	Implemented an inspection program S5.C.8.b.iii (Required by January 1, 2023).	Not Applicable
76	S5.C.8	Implemented a progressive enforcement policy per S5.C.8.b.iv (Required by January 1, 2023).	Not Applicable
77	S5.C.8	Attach a summary of actions taken to implement the source control program per S5.C.8.b.iii and S5.C.8.b.iv.	Not Applicable
78	S5.C.8	Attach a list of inspections, per S5.C.8.b.iii, organized by the business category, noting the amount of times each business was inspected, and if enforcement actions were taken.	Not Applicable
79	S5.C.8	Implemented an ongoing source control training program per S5.C.8.b.v?	Not Applicable
80	S7	Complied with the Total Maximum Daily Load (TMDL)-specific requirements identified in Appendix 2. (S7.A)	Not Applicable
81	S7	For TMDLs listed in Appendix 2: Attach a summary of relevant SWMP and Appendix 2 activities to address the applicable TMDL parameter(s). (S7.A)	Not Applicable
82	S8	Submitted payment for cost-sharing for Stormwater Action Monitoring (SAM) status and trends monitoring no later than December 1, 2019 (S8.A.1); and no later than August 15 of each subsequent year? (S8.A.2.a.)	Yes
84	S8	Submitted payment for cost-sharing for SAM effectiveness and source identification studies no later than December 1, 2019 (S8.B.1); and no later than August 15 of each subsequent year (S8.B.2.a or S8.B.2.c)?	Yes
86	S8	If conducting stormwater discharge monitoring in accordance with S8.C.1, submitted a QAPP to Ecology no later than February 1, 2020? (S8.C.1.b and Appendix 9)	Not Applicable

87	S8	If conducting stormwater discharge monitoring in accordance with S8.C.1, attach a data and analysis report per S8.C.1. and Appendix 9. (Due annually beginning March 31, 2021.)	Not Applicable
88	G3	Notified Ecology in accordance with G3 of any discharge into or from the Permittees MS4 which could constitute a threat to human health, welfare or the environment. (G3)	Yes
89	G3	Took appropriate action to correct or minimize the threat to human health, welfare, and/or the environment per G3.A.	Yes
90	Compliance with standards	Notified Ecology within 30 days of becoming aware that a discharge from the Permittee's MS4 caused or contributed to a known or likely violation of water quality standards in the receiving water. (S4.F.1)	Yes
91	Compliance with standards	If requested, submitted an Adaptive Management Response report in accordance with S4.F.3.a.	Not Applicable
92	Compliance with standards	Attach a summary of the status of implementation of any actions taken pursuant to S4.F.3 and the status of any monitoring, assessment, or evaluation efforts conducted during the reporting period. (S4.F.3.d)	Not Applicable
93	G20	Notified Ecology of the failure to comply with the permit terms and conditions within 30 days of becoming aware of the non-compliance. (G20)	Not Applicable
94	G20	Number of non-compliance notifications (G20) provided in reporting year. List permit conditions described in non-compliance notification(s) in Comments field.	Not Applicable

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Beth Goldberg — **Signature**

3/25/2022 12:03:13 PM — **Date**

City of Kirkland- Receiving Water Assessment

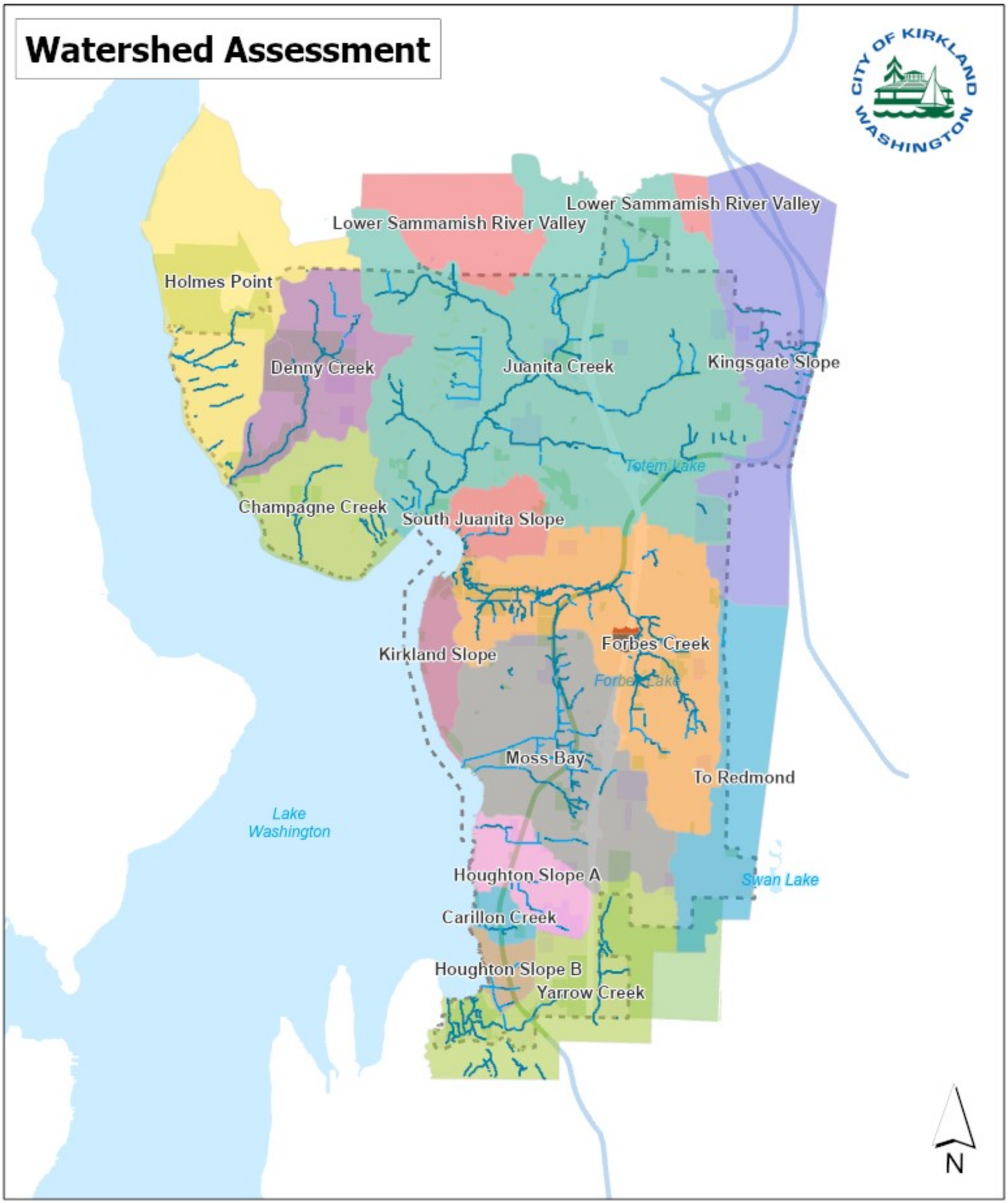
NPDES Permit Requirement S5.C.1.d.i.

March 2022

Basin Name	Receiving Water	Total Size (square miles)	Size within City (sq. miles)	Basin within City Limits (%)	Impervious Area (%)	Forested (%)	Primary Land Use	Primary Land Use (%)	Secondary Land Use	Secondary Land Use (%)	Salmon Use	Current 303(d) Listings	B-IBI	Water Quality Index	Stormwater Management Influence	Included in Prioritization?*
Carillon Creek	Carillon Creek/ Lake Washington	0.17	0.17	100%	41%	34%	Low Density Residential	50.1%	Medium Density Residential	21%	no data	NA	no data	84 (Good)	moderate	Yes
Champagne Creek	Champagne Creek/ Lake Washington	0.97	0.97	100%	32%	45%	Low Density Residential	88.0%	Park/Open Space	9%	Yes	NA	no data	78 (Moderate)	moderate	Yes
Denny Creek	Denny Creek/ Lake Washington	1.26	1.27	100%	25%	53%	Low Density Residential	65.6%	Park/Open Space	32%	Yes	Bioassessment (BIBI score)	Poor	83 (Good)	moderate	Yes
Forbes Creek	Forbes Creek/ Lake Washington	2.87	2.89	100%	39%	39%	Low Density Residential	69.0%	Park/Open Space	10%	Yes	Forbes Creek: temperature, dissolved oxygen, bioassessment, and bacteria; Forbes Lake: phosphorus	Poor	74 (Moderate)	moderate-high	Yes
Holmes Point	Unnamed Creeks/ Lake Washington	2.30	0.71	31%	23%	60%	Low Density Residential	85.0%	Park/Open Space	10%	no data	NA	no data	67 (Moderate)	moderate	Yes
Houghton Slope A	Lakeview Creek and NW College Creek (unnamed)/ Lake Washington	0.59	0.59	100%	49%	26%	Low Density Residential	56.2%	Medium Density Residential	21%	no data	NA	no data	78 (Moderate)	moderate	Yes
Houghton Slope B	Unnamed Creek/ Lake Washington	0.21	0.21	100%	43%	33%	Low Density Residential	77.7%	Medium Density Residential	10%	no data	NA	no data	89 (Good)	Low	Yes
Juanita Creek	Cedar, Billy, Totem Lake, Kingsgate creek tributaries of Juanita Creek/ Lake Washington	7.03	5.81	83%	43%	35%	Low Density Residential	62.6%	Commercial	8%	Yes	Dissolved oxygen, temperature, and bacteria; Totem Lake: dissolved oxygen	Poor	75 (Moderate)	moderate-high	Yes
Kingsgate Slope	Unnamed creeks/ Sammamish River	12.57	0.70	6%	34%	38%	Low Density Residential	47.4%	Industrial	19%	Yes	Dissolved oxygen, temperature, bioassessment and bacteria	no data	63 (Moderate)	moderate	Yes
Kirkland Slope	Lake Washington	0.33	0.33	100%	41%	31%	Residential	86.1%	Space	13%	no data	NA	no data	No Data	Low	Yes
Lower Sammamish River Valley	Sammamish River	12.57	0.05	0.4%	48%	43%	Low Density Residential	73.5%	Medium Density Residential	27%	Yes	Dissolved oxygen, temperature, bioassessment and bacteria	no data	63 (Moderate)	moderate	Yes
Moss Bay	Everest Creek and Unnamed Creek/ Lake Washington	2.32	2.32	100%	48%	30%	Low Density Residential	59.2%	Medium Density Residential	9%	no data	NA	no data	84 (Good)	moderate	Yes
South Juanita Slope	Unnamed creeks/ Lake Washington	0.45	0.45	100%	45%	33%	Low Density Residential	65.9%	Commercial	12%	no data	NA	no data	82 (Good)	moderate	Yes
To Redmond	Unnamed creeks/ Sammamish River	12.62	0.47	4%	40%	28%	Low Density Residential	85.6%	Commercial	6%	Yes	Dissolved oxygen, temperature, pH, bioassessment and bacteria	no data	71 (Moderate)	moderate	Yes
Yarrow Creek	Yarrow Creek and Cochran Springs Creek/ Lake Washington	8.25	0.90	11%	28%	50%	Low Density Residential	55.1%	Park/Open Space	31%	Yes	Dissolved oxygen, bacteria	Poor	85 (Good)	moderate	Yes

*Kirkland has selected to include all basins in the prioritization process

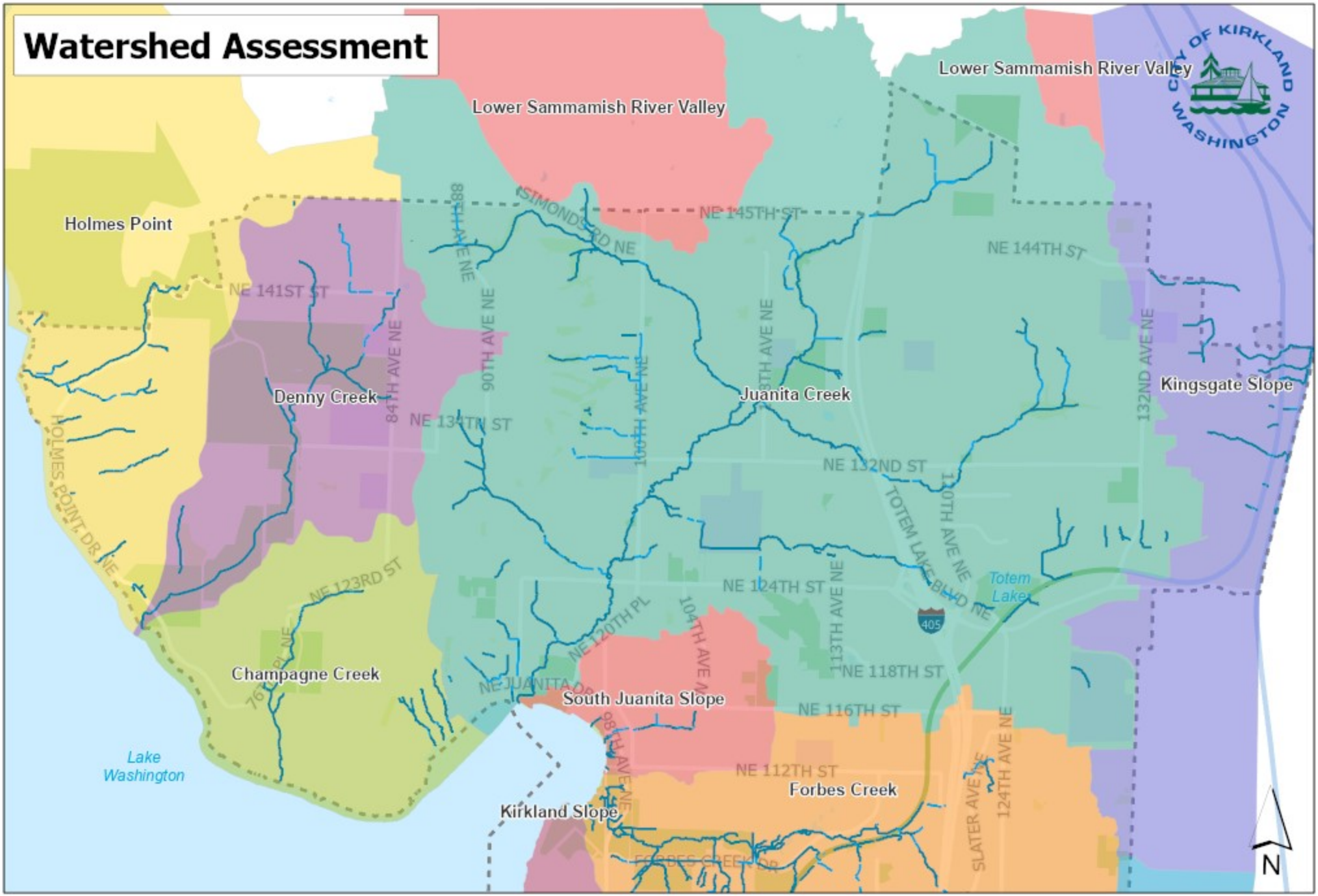
Watershed Assessment



Open
Pipe
Lower Sammamish River Valley
Carillon Creek
Champagne Creek
Denny Creek
Forbes Creek
Holmes Point
Houghton Slope A
Houghton Slope B
Juanita Creek
Kingsgate Slope
Kirkland Slope
Moss Bay
South Juanita Slope
To Redmond
Yarrow Creek

0 0.28 0.55 1.1 mi

Printed: 3/21/2022



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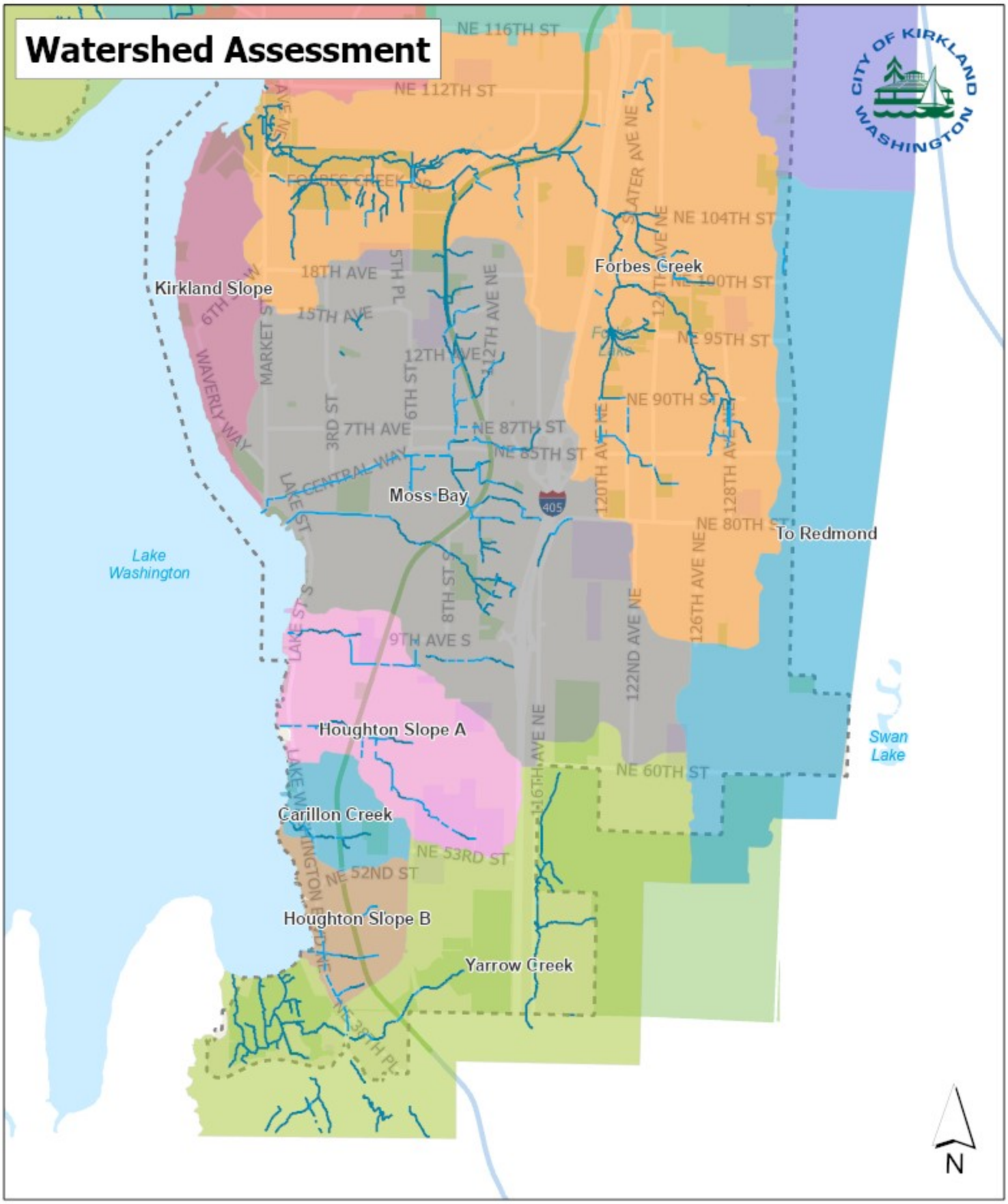
Watershed Assessment



Open
Pipe
Carillon Creek

Champagne Creek
Forbes Creek
Houghton Slope A
Houghton Slope B

Juanita Creek
Kingsgate Slope
Kirkland Slope
Moss Bay

South Juanita Slope
To Redmond
Yarrow Creek

0 0.13 0.25 0.5 mi

Printed: 3/21/2022

City of Kirkland Stormwater Management Program		Kirkland Education and Outreach Summary for 2021								
NPDES Phase II	**Permit Citation S5.C.2**	**a.i.(a)**		**a.i.(b)**		**a.i**				
		Target Audience				**Subject Areas**				
		General Public (including school age children)	Businesses, including home-based and mobile businesses	Engineers, contractors, developers and land use planners		General Impacts of stormwater on surface waters	Impacts from impervious surfaces	Low Impact Development (LID) principles and LID BMPs	Technical standards for stormwater site and erosion control plans	Stormwater treatment and flow control BMPs/facilities
Program Name	**Program Description**									
School Outreach and Education (K-12)	General stormwater & BMP education via in-school programming, virtual programs, and online curriculum. (83 programs, 1801 students).	X				X	X	X		
Storm Drain Marking	Program to install markers on new and existing storm drains by City staff, private businesses, and community volunteers.	X				X	X			
Flood Prevention and Leaf Management	Outreach to Kirkland residents regarding keeping storm drains clear of leaves to protect neighborhoods from flooding. Program provides stormwater education to the general public.	X				X				
Puget Sound Starts Here (regional)	Kirkland participates in regional advertising (including PSSH month and regional bus ads), media, and web projects with other stormwater permittees and ECONet organizations to advertise and inform the public of best practices and behaviors.	X	X			X				
Pet Waste Outreach	City staff provide education on disposal of pet waste at various events, signage and plastic bag stations at parks and other open spaces, mailers, etc.	X				X				
General Outreach	City uses newsletters, utility inserts, Twitter, Facebook, direct mailers, multiple City web pages to increase awareness of stormwater impacts on surface water, including seasonal tips and topics.	X	X			X	X	X		
STORM (Stormwater Outreach for Regional Municipalities) (regional)	Kirkland is an active participant of the STORM steering committee. The committee assists members in planning, regional grant applications, outreach campaigns, development of BMPs and capacity building.	X				X	X			
Private Drainage System Inspections and Technical Assistance Program	City staff contact property owners, inspect private storm drainage systems (beyond those required by the permit), and provide technical assistance with stormwater facility maintenance, dumpster and trash compactor maintenance, and prevention of illicit discharges. This work resulted in 14,000 cubic feet of sediment removal from private systems.	X	X			X	X	X	X	

City of Kirkland Stormwater Management Program		Kirkland Education and Outreach Summary for 2021								
NPDES Phase II	**Permit Citation S5.C.2**	**a.i.(a)**		**a.i.(b)**		**a.i**				
		Target Audience				**Subject Areas**				
		General Public (including school age children)	Businesses, including home-based and mobile businesses	Engineers, contractors, developers and land use planners		General Impacts of stormwater on surface waters	Impacts from impervious surfaces	Low Impact Development (LID) principles and LID BMPs	Technical standards for stormwater site and erosion control plans	Stormwater treatment and flow control BMPs/facilities
Program Name	**Program Description**									
Pollution Prevention Assistance Technical Assistance and Hazardous Waste Management and Reduction	Provides hands-on technical assistance and outreach to small businesses to develop practical methods for proper use and storage of automotive chemicals, cleaning supplies, other hazardous materials, equipment maintenance, and prevention of illicit discharges.		X			X	X			
Best Management Practices Information Cards	Provides brief, updated BMP information cards for specific audiences (e.g. residents, business owners, construction, mobile businesses, etc.)	X	X	X		X				
Cascade Gardener Classes	Kirkland promotes Cascade Water Alliance-sponsored online trainings on sustainable garden design and edible landscapes. Advertises other landscape-focused classes hosted by partner organizations (King County, King Conservation District).	X				X				
Paint Disposal Outreach	Kirkland works with local paint supply stores to distribute educational messaging about proper paint disposal to customers via stickers on paint cans and paint stir sticks with printed messaging. Kirkland also promotes the new PaintCare program and the Solid Waste division hosts paint take-back events.	X	X			X				
Yard Smart Rain Rewards	Kirkland provides free technical assistance and rebates to property owners to install stormwater retrofit projects like rain gardens, native landscaping, and cisterns on their property.	X	X			X	X	X		X
Developers Forum	Kirkland Developers forum is used to increase awareness of technical standards for stormwater site and erosion control plans, LID principles and techniques, stormwater treatment and flow control BMPs/facilities, and stormwater training opportunities.			X				X	X	X
IDDE Training	Kirkland provides online IDDE training for City of Kirkland staff. In 2021, Kirkland launched a new virtual video training for all Kirkland staff.	X				X	X			
IDDE Postcards	Kirkland sends postcards to properties near the site of spills/pollutants entering the stormwater system. The cards focus on raising awareness regarding the impacts of pollution.	X	X			X	X			
Tree Planting Rebate	Kirkland provides rebates to property owners to plant trees on their property to help reduce stormwater runoff in neighborhoods.	X						X		
Online interactive map of LID facilities in Kirkland	Kirkland provides an online map for property owners to identify and locate LID faciliites built on their properties and to access maintenance guides and resources.	X						X		

City of Kirkland Stormwater Management Program		Kirkland Education and Outreach Summary for 2021								
NPDES Phase II	**Permit Citation S5.C.2**	**a.i.(a)**		**a.i.(b)**		**a.i**				
		Target Audience				**Subject Areas**				
		General Public (including school age children)	Businesses, including home-based and mobile businesses	Engineers, contractors, developers and land use planners		General Impacts of stormwater on surface waters	Impacts from impervious surfaces	Low Impact Development (LID) principles and LID BMPs	Technical standards for stormwater site and erosion control plans	Stormwater treatment and flow control BMPs/facilities
Program Name	**Program Description**									
Rainwater in Kirkland story map	Kirkland posted a story map on the website that explores rainwater in Kirkland and how our community impacts water quality.					X	X			
Surface Water Master Plan Update Public Involvement	Kirkland staff educated and engaged community members to provide input on the Surface Water Master Plan Update. Efforts included outreach booths, direct mailers, social media, web page, a four-part video series, and a citywide survey.	X				X	X	X		X
Stormwater Retrofit Facilities Public Involvement	Kirkland engaged residents in the Cedar Creek watershed about designs for stormwater retrofit facilities. Efforts included direct mailers, community meetings, web page, surveys, and an email listserv.	X				X	X	X		X

Campaign Background, Purpose and Focus

Puget Sound is in trouble. Toxic runoff causes aquatic habitat damage, putting many of our indigenous aquatic species at risk. Most of the pollution reaching Puget Sound comes from polluted stormwater runoff. The purpose of this plan is to protect water quality in Puget Sound and local waterways by reducing sources of pollution. The focus is on increasing adoption of dumpster area best management practices (BMPs) by businesses, to prevent water quality violations. This social marketing plan provides valuable information about the priority audience desired benefits, barriers and motivators and tools that will work to promote positive behaviors for the benefit of the Puget Sound Watershed.

Situational Analysis

Strengths:

- Multi-jurisdictional collaboration and support.
- Internal and regional funding availability.
- Internal and regional expertise. Previous work on this topic has been conducted in the US and in the Puget Sound region.
- Management support (NPDES Permit mandate.)
- Aligns with other NPDES permit mandate to implement a Source control Program for existing Development.
- Recent experience working on successful regional social marketing campaigns, such as Natural Lawn Care and Don't Drip and Drive.
- Strong pathways for communication with haulers and share common goals.

Weaknesses:

- Jurisdictions experiencing budget shortfalls due to COVID 19, resulting in budget cuts across all departments.
- Businesses are under financial pressure due to the COVID 19 Stay at home orders and social distancing restrictions.
- Image of City being a regulator/enforcer not willing to work with public.

Opportunities:

- Water quality is a top priority for the community.
- Lessons learned from previous programs.
- Visibility and resources from a regional program to increase awareness and concern about the issue and influence social norms.

Threats:

- Not a priority for businesses trying to recover and normalize during and after COVID 19.
- Business community may not be aware of problems.
- High staff turnover in certain business sectors.

- May be hard to collect data on behavior change.
- Multiple languages to consider in certain sectors.
- Changes may require financial resources/incentives.

Research and Review of Prior Similar Efforts

Prior to the Dumpster Summit, research was conducted to assess the impact of dumpster issues on local water quality. This research includes:

- Qualitative information/observations from local government experts and consultants conducting business and local source control inspections, including members of the Business Inspection Group (BIG)
- Qualitative information/observations from private stormwater facilities inspectors conducting site visits at commercial businesses (associated with permit required inspections)
- Qualitative information from waste resources/solid waste experts
- Literature review of previous dumpster research and outreach efforts conducted:
  - The City of Bothell - *Dumpster Maintenance Assessment Final Report Prepared Dec. 21, 2016*
  - City of Bellevue - *Bel-Red/Northup Commercial Waste Audit – 2017*
  - City of Federal Way - *Trash Compactors and Dumpsters: Eliminating a Major Source of Stormwater Pollution*
- Dumpster audit data collected and aggregated from six jurisdictions. Audits inspected 451 total dumpsters. Lid status information was collected from 373 dumpsters, container leaking/damaged information was collected from 391 dumpsters, and a dumpster site condition rating was given to 147 dumpsters in Bellevue and Sammamish (2015 – 2019). To view the Baseline Dumpster Data Summary, see *Appendix A*

Other qualitative information:

- Business Inspectors interviewed emphasized that a multi-tier approach that combines a helpful educational intent with a layer of enforcement was the most effective way to create behavior change within the business community.
- Understanding how to establish trust is fundamental. Approaching businesses with educational tools and resource assistance is important. Experience shows that explaining why something matters, and the potential consequences, is far more effective than simply telling a business, they must do something. Also, “selling” source control as a good business practice can increase the businesses’ desire to learn more. Once a business agrees to participate in the program, specialists need to provide value to the business to establish credibility (T. Benson 2016, personal communication, Jul. 28.)
- Having a more extensive educational campaign with a region or sector-wide reach would help to increase the business inspection program’s effectiveness (A. Alfred, A. Peterson, and T. Zuehl, 2016, personal communication, Jul. 28.)
- Challenges cited by both Snohomish and Bothell include identifying which businesses to visit and locating problems. Often, businesses do not realize there may be a problem and might not seek assistance without the specialist pinpointing a problem.

Campaign Strategy Development

From September 2020 through October 2020, 20+ Stormwater Outreach for Regional Municipalities (STORM) member jurisdictions participated in a "Dumpster Summit." The Summit was funded by the City of Bellevue and facilitated by social marketing expert Nancy Lee. Participating jurisdictions were supported by project lead Laurie Deveraux and a core planning team, of which Kirkland was a part of. Summit participants brought together expertise in stormwater outreach, social marketing, waste resources, and business inspections. During the Summit, participants actively developed five different social marketing strategy teams addressing dumpster area best management practices (BMPs). In between the second and third Summit, participants collected barriers, benefits, and motivator surveys at businesses and multi-family properties. At the conclusions of the Summit, participants agreed to focus on one strategy to implement: closing dumpster lids every time for commercial businesses. Through this effort, participants employed the Social Marketing 10 Step Strategic Planning Model. Step details are outlined below in the *Social Marketing Strategy and Schedule Summary* section of this document.

The Summit's primary goal was to collaboratively develop a Social Marketing behavior change campaign to be implemented regionally by jurisdictional partners across Western Washington. The ultimate outcome of this collaboration is to reduce stormwater pollution to surface waters through social marketing methods that motivate commercial businesses within the NPDES geographic area to keep dumpster lids closed. To view the Dumpster Summit 2020 summary, see *Appendix B.*

Toolkit Development

With many different populations and needs across the NPDES geographic area, the Dumpster Summit Team and the consultant brainstormed a basic toolkit and options for jurisdictions to employ based on budget and commercial business needs. The toolkit was developed and finalized during November 2020 and December 2020. Summary of the toolkit development and testing strategy:

- Review draft toolkit and provide recommended costs/rankings
- Survey Dumpster Summit Team on recommended toolkit items
- Analyze toolkit survey results
- Finalize basic toolkit and toolkit options based on Dumpster Summit Team survey
- Create toolkit collateral materials
- Finalize toolkit collateral materials
- Manage group ordering and distribution of toolkit items

Once the toolkit material concepts are created, the consultant's Market Intelligence Team will conduct qualitative research through online focus groups to determine which sign and slogan resonates best amongst commercial business dumpster users. The Market Intelligence Team will analyze the users' responses to inform the final sign and slogan. Once the toolkit is finalized, the consultant will work with the Dumpster Outreach Group (DOG) to plan the 2021 pilot, including timeline development and recommendations for evaluation and implementation. To see toolkit items and tiers, see *Appendix C.*

Regional Implementation

This campaign is designed to be broadly applicable across the region. Participating jurisdictions will be required to implement the basic toolkit package. There are optional toolkit items for jurisdictions

wishing to use them as add-ons to the basic toolkit. Basic toolkit items will be tested for effectiveness through traditional social marketing methods through a pilot campaign implementation and evaluation. Partner jurisdictions will be required to participate in a campaign launch meeting to ensure consistent pilot phase implementation and evaluation. Benefits of collaboration and regional implementation include:

- Dumpster lid issues will be elevated regionally across the business community simultaneously
- Social norming and social diffusion of dumpster BMPs will increase behavior adoption regionally
- Products of the campaign will be shared with jurisdictions implementing business inspection and local source control programs to increase BMP adoption
- Lessons learned during the pilot, and full implementation phases will be shared through intermittent check-in meetings and campaign evaluation

During and after the campaign, jurisdictions that participate in the campaign will be asked to track their activities and provide input on the pilot campaign to inform the project evaluation and a long-term implementation plan.

Local Relevancy of the Dumpster Lid Issue

Kirkland conducted dumpster audits of 61 businesses in 2015 and 25 businesses in 2020. Results of the audits show that 48% of lids were open during the 2015 audit and 32% of lids were open during the 2020 audit. Aggregated data from Kirkland, Bellevue, and Sammamish show that dumpsters used by multiple businesses were significantly more likely to have open lids than dumpsters used by a single business (Appendix A). In addition, downtown Kirkland businesses have been observed by program staff to have consistent issues with dumpster management and closing dumpster lids.

Implementing the dumpster lid outreach campaign will help Kirkland businesses keep dumpster lids closed, reduce water quality complaints, and help improve water quality in Lake Washington.

Dumpster Campaign Participation

Kirkland has had an active role in the dumpster campaign development. Kirkland staff have conducted dumpster audits and windshield surveys for dumpster management data. Kirkland staff were responsible for aggregating, analyzing, and reporting on all data presented in Appendix A. Staff are part of the dumpster campaign implementation team, have participated in the regional dumpster summit, collected, analyzed, and reported on regional audience research, participated in the toolkit survey, and have contributed funding to the campaign development.

Campaign Implementation

Kirkland will select at least two (2) dumpster sites for participation in the pilot campaign. Depending on the workload associated with evaluation, Kirkland may also select 2 control sites to evaluate for comparison. The pilot campaign will commence by April 1, 2021 with distribution and installation of Tier 1 toolkit items. In addition, Kirkland already has a robust storm drain marking program and will utilize this Tier 2 option if storm drain markers are not present at the pilot businesses. Sites will be evaluated on a regular basis through the end of 2021 according to the evaluation strategy developed through the implementation team. Results of the pilot phase will be evaluated, and Kirkland will use results to guide broad implementation in 2022.

Kirkland will work with property owners, property managers, businesses managers, and business employees to ensure items from the toolkit are deployed appropriately.

Kirkland will also consider adopting the Tier 2 dumpster champion idea by coordinating with our Solid Waste division to engage Kirkland's waste hauler, Waste Management, as a possible dumpster champion for the two pilot dumpster sites.

Pilot Phase Evaluation

The evaluation will summarize the pilot campaign results and lessons learned that could improve broad-scale implementation. The evaluation results will be aggregated based on information provided by participating jurisdictions.

Dumpster Behavior Change Campaign

Implementation Timeline Summary

Problem Research → Select Priority Behavior and Audience → Conduct Audience Research → Develop Strategy and Schedule → Implement Strategy → **Evaluate and Report**

	Complete by	*Task*
✓	**6/2020**	Collect data on dumpster area conditions and water quality issues (Step 1 Community Based Social Marketing)
✓	**11/2020**	Dumpster Summit Implementation, audience barriers, benefits, and motivators research, audience profile research (Steps 1-3 Community Based social marketing)
✓	**1/15/2021**	Finalize "Strategy and Schedule" documentation (Step 3 Community Based Social Marketing)
✓	**1/15/2021**	Begin toolkit items development ahead of pilot implementation
✓	**4/1/2021**	Begin implementing developed strategy (Pilot Campaign Phase, Step 4 Community Based Social Marketing)
✓	**1/2022**	Evaluate Pilot Campaign and make strategy adjustments to improve outcomes (Step 4 Community Based Social Marketing)
☐	**2/2022**	Implement campaign strategy broadly (Step 5 Community Based Social Marketing)
☐	**2/2024**	Compile and document campaign effectiveness data (Step 5 Community Based Social Marketing)
☐	**3/31/2024**	Finalize report documenting the changes in understanding and adoption of targeted behaviors resulting from the implementation of the strategy. Include planned or recommended changes to the campaign in order to be more effective. Describe the strategies and process to achieve the results.
☐	**4/1/2024-Ongoing**	Use results of the evaluation to continue to direct effective methods and implementation of the ongoing behavior change program.

Social Marketing Strategy and Schedule Summary:

PURPOSE	**Reduce stormwater pollution to surface waters**
FOCUS	**Dumpster Lids**
PRIORITY AUDIENCE	**Commercial businesses within the NPDES geographic area not closing lids**
BEHAVIOR	**Close dumpster lids every time something is put in the dumpster**
AUDIENCE INSIGHTS	
BARRIERS	• **Full so can't close** • **Can't reach** • **Heavy** • **Didn't think about it**
BENEFITS	• **Reduce pests** • **Reduce smell** • **Reduce illegal use** • **Cleaner look** • **Keep rain out**
MOTIVATORS	• **Reduce pests** • **It's against the law** • **Point out pollution** • **Reminder to close the lid** • **Items to make it easier (e.g., stool, hook, handle)**

COMPETITION	• **Not closing the lid**
	  • **Easier**
	  • **Saves time**

INFLUENTIAL OTHERS	• **Property Owners/Managers** • **City Inspectors** • **Neighbors**
POSITIONING	**We want businesses to see closing lids on dumpsters every time as a simple way to reduce illegal use, be compliant with regulations and have pest and odor-free dumpster areas that are clean for them and the environment.**

INTERVENTION STRATEGIES (4Ps)	
PRODUCT	
• Core	• Pest and odor-free dumpster areas
• Actual	• Permanent Signage and Stickers • Inspector Reports
• Augmented	• Step Stools • Tool for Lids • Consulting • Box Cutter
PRICE	
• Monetary Incentives	• Free stepstool • Free month for best behavior • Maybe free or discounted lid tool
• Monetary Disincentives	• Code enforcement • Cost to dispose of illegal dumping • Staff having to clean up or pay someone to do the cleaning, storm drain vactored
• Nonmonetary Incentives	• Pledges • Window stickers • Rewards (e.g., chocolate fish)
• Nonmonetary Disincentives	• Reminder letter for those not following behavior • Photos of unclosed lids
PLACE	
Tangible Goods	• Dumpster locations • At the start of the campaign site visit • Station
Services	• By appointment on site
PROMOTION	
• Messages	• Cleaner, less odors, fewer pests • Worthwhile • Multiple languages
• Messengers	• City staff • Property managers
• Creative Elements	• "Drop, Cover & Stroll!" • "Close the Lid on Pollution, Pests, Odors"
• Media Channels	• On dumpster, at site • Pavement around dumpster • Public recognition (e.g., social media) • Chamber of Commerce • Door/area leading to dumpster site
MONITORING AND EVALUATION	

• **Inputs Measured**	• **Staff time** • **Money spent for tool kit materials** • **Partner contributions** • **Consultant expenses**
• **Outputs Measured**	• **Number of site visits/businesses** • **Materials disseminated** • **Materials posted/put in place** • **Implementation of program elements. (on track? on budget?)**
• **Outcomes Measured**	• **Behavior adoption** • **Change in knowledge and beliefs, campaign awareness** • **Support and satisfaction with outreach** • **New partnerships and contributions gained**
• **Impacts Measured**	• **Cleaner dumpster areas, reduced odors, and vermin** • **Cleaner appearance in downtown and commercial areas, impacting economic development health** •
• **Techniques and Methodologies**	• **Minimum of three groups to conduct pilot comparing different toolkit tiers.** • **Implementer to assign participant groups.** • **Observation, audience surveys, and interviews (quantitative.)** • **Calculate ROI.**
• **Evaluation Timing**	• **Pre, mid-term, and post outreach (observations of dumpster lids/areas.)**
• **Evaluation Costs**	• **Expected cost efficiencies by joining with partner jurisdictions to share costs for consultant work and material production** • **Use the 10% rule of thumb for any consultant evaluation work** • **Observations will be conducted by staff**
BUDGETING & FUNDING	
• **Product-Related Costs**	• **Indirect costs for staff time to conduct technical assistance site visits, waste audits** • **Direct costs for "tools" signage and stickers**
• **Price Related Costs**	• **Recognition items like the window stickers (clings) "we keep it clean" or other incentives like free months service for best behavior**
• **Place Related Costs**	• **Costs related to the distribution of resources, such as a webpage**
• **Promotion Related Costs**	• **Costs for incentivizing trusted messengers or influencers**
• **Evaluation Related Costs**	• **Costs for analyzing pilot data** • **Fees for making program recommendations (consultant)**

• **Potential Funding Sources**	• **The coalition of local jurisdictions and other stormwater partners.** • **Partners in Waste Reduction & Recycling** • **State grant dollars available through salmon recovery funds** • **Consider appropriate corporate partners/sponsors like REI, local breweries that rely on clean water for their production process, or local shellfish/seafood producers (like Penn Cove or Taylor Shellfish)**

IMPLEMENTATION PLAN-

WHAT	WHO	WHEN
Baseline Dumpster Data Collected and summarized	Jurisdictions	2018-2020
Project coordination and oversight	Core Planning Team/Consultant	Feb. 2020 – Mar. 2024
Dumpster Summit Implementation, a summary of audience research and social marketing plan	Laurie Deveraux, Nancy Lee, Core Planning Team, Participating Jurisdictions	Sept-Nov. 2020
Toolkit development & costs	Consultant	December 2020
Develop a campaign strategy and schedule document	Core Planning Team/Consultant	Early January 2021
Finalize list of participating partners	Core Planning Team	February 2021
Finalize basic partner toolkit	Core Planning Team/Consultant	Mar. 1 2021
Creative campaign concept	Consultant	January 2021
Message testing	Consultant	February 2021
Develop Pilot Phase, selection of pilot sites, implementation and evaluation plan	Core Planning Team/Consultant	February 2021
Finalize partner toolkit, signage stickers, handouts, pledges, and clings	Core planning Team/Consultant	Mar. 1 2021
Toolkit material ordering and production	Consultant	March 2021
Finalize Pilot implementation and evaluation metrics	Core Planning Team/Consultant	March 2021
Implementation meeting with partners	Core Planning Team/Consultant	Mar. 15, 2021
Launch Campaign Pilot Phase	Jurisdictions	Apr. 1, 2021

Tracking/follow-up with partners	Core Planning Team	April - September
Ongoing site evaluation and monitoring	Jurisdictions	April-September
Collect and aggregate Pilot Evaluations from jurisdictions	Consultant	
Begin drafting Pilot evaluation summary report	Core Planning Team	October 2021
Finalize evaluation of Pilot Phase, ROI on toolkit options	Jurisdictions/Core planning Team/Consultant	December 2021
Adapt/modify campaign based on pilot evaluation	Partners, Core Planning Team	January 2022
Broad-scale implementation	Jurisdictions	Feb. 2022 – Dec 2023
Ongoing site monitoring and evaluation	Jurisdictions	Feb. 2022 – Dec 2023
Develop evaluation report outline	Core Planning Team	November 2023
Final evaluation and reporting	Jurisdictions/Core Planning Team	Jan.-Mar. 2024

Appendix A

I. Baseline Dumpster Data Summary

Dumpster audit data was available from six jurisdictions: Bellevue, Bothell, Federal Way, Kirkland, Redmond, and Sammamish. Data were collected between 2015 and 2019. Audits inspected 451 total dumpsters. Lid status information was collected from 373 dumpsters, container leaking/damaged information was collected from 391 dumpsters, and a dumpster site condition rating was given to 147 dumpsters in Bellevue and Sammamish using City of Bellevue's 2017 audit methodology.

A summary of the data reveals that:

- Of the 373 dumpsters where lid status was noted, 128 lids (34%) were open or missing.
- Of the 391 dumpsters where container leaking/damaged information was collected, 47 containers (12%) were observed to be damaged or leaking.
- The average dumpster site condition given to the 147 dumpsters evaluated in Bellevue and Sammamish was 1.7 (scale of 1 to 3). Summary data are reported in Table 1.1 below.

Data were analyzed to explore pollution by business type, use by single or multiple businesses, presence of proper labels, lid status, and container status. Key findings include:

- No statistically significant differences emerged based on business type. However, automotive businesses were slightly more likely to have lids open, while retail businesses were slightly more likely to have containers free of damage/leaks.
- Dumpsters used by multiple businesses were significantly more likely to have containers with lids open and containers that were leaking/damaged.
- Businesses with oil containers were significantly more likely to have leaking/damaged containers and had significantly higher dumpster condition ratings than businesses without oil containers.
- Businesses with open lids were significantly more likely to have additional water quality concerns based on a 1-3 scale rating compared to businesses with closed lids.

T*able 1.1 – Summary dumpster audit data*

Jurisdiction	# of Businesses	# With Lid Open	Percent Lids Open	# Inspected	# Leaking/Damaged	Percent Leaking/Damaged
Bellevue	111	28	25%	111	14	13%
Bothell	102	35	34%	102	2	2%
Federal Way	N/A	N/A	N/A	78	20	26%
Kirkland	61	29	48%	61	3	5%
Redmond	60	24	40%	N/A	N/A	N/A
Sammamish	39	12	31%	39	8	21%
Total	**373**	**128**	**34%**	**391**	**47**	**12%**

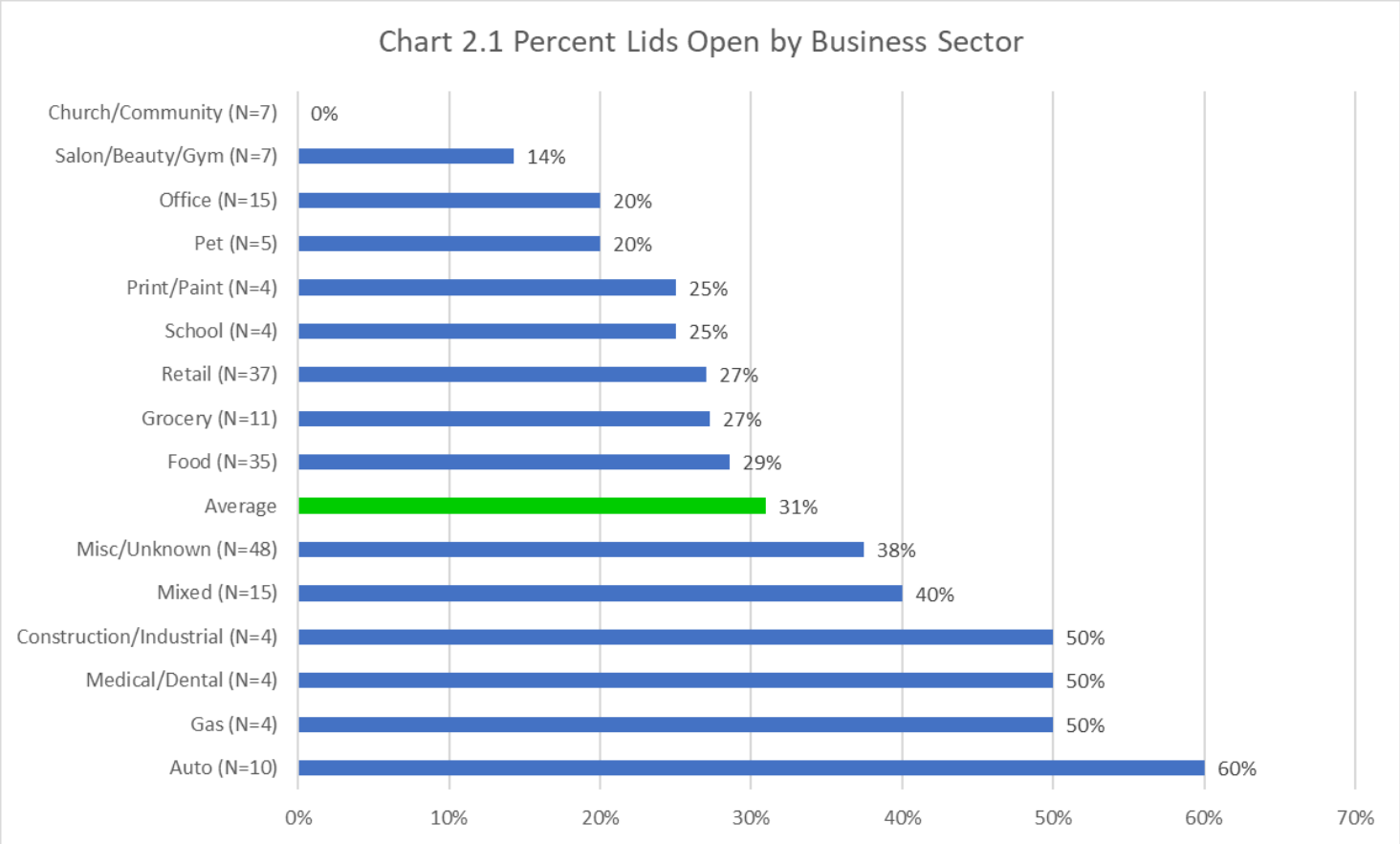
II. Business type

Information on business type and dumpster condition was collected from 210 businesses in Bellevue, Kirkland, and Sammamish. Data from the reporting jurisdictions were reclassified into common business sector categories for data analysis purposes.

While a high degree of variability was observed across businesses sectors, data analysis revealed no statistically significant* differences between business type with regard to lid status or dumpster condition. It is likely the business group sample sizes are too small to make definitive conclusions regarding pollution by business sector.

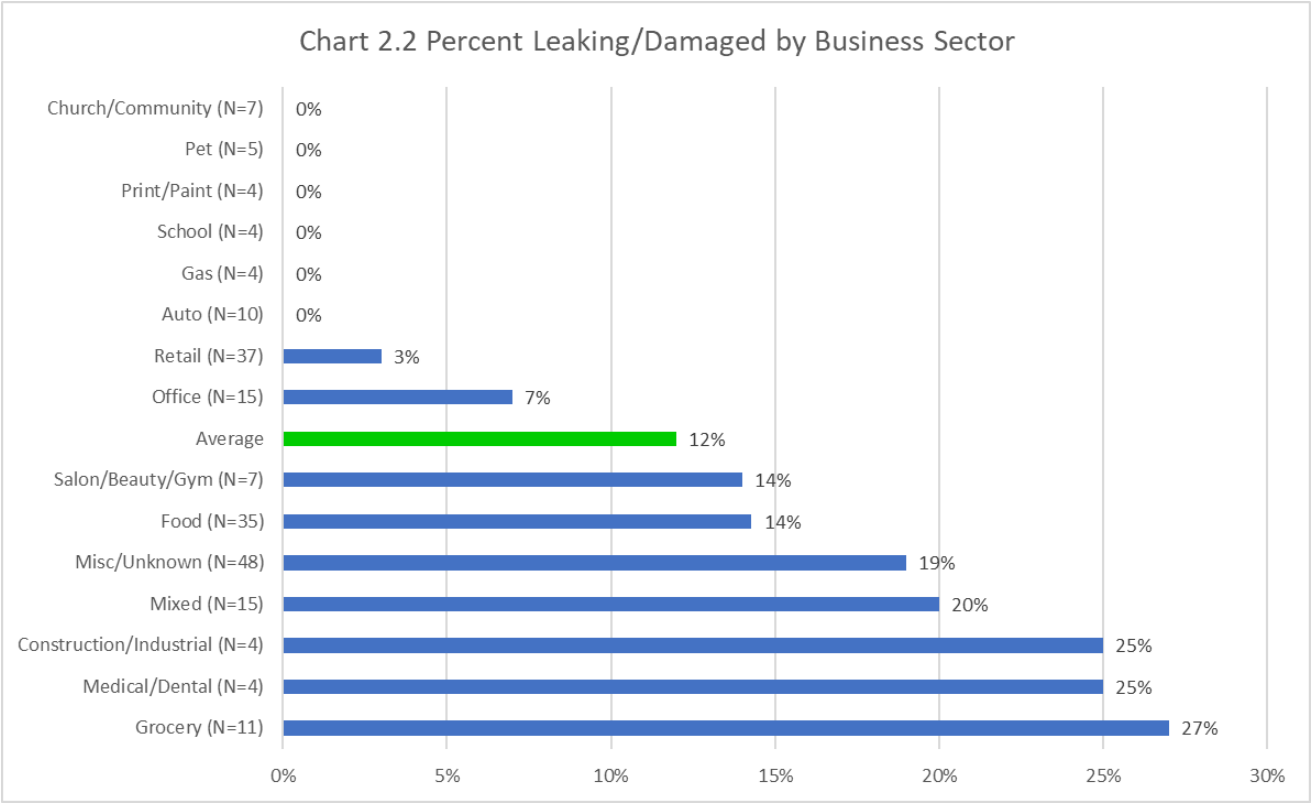
Automotive businesses approached statistical significance for being more likely to have an open lid (*p=0.06*). Retail businesses approached statistical significance for being more likely to have a dumpster/container free of damage (*p=0.08*).

Percentage of lids open (Chart 2.1) ranged from 0% at Church/Community Centers (n=7) to 60% at Automotive businesses (n=10).

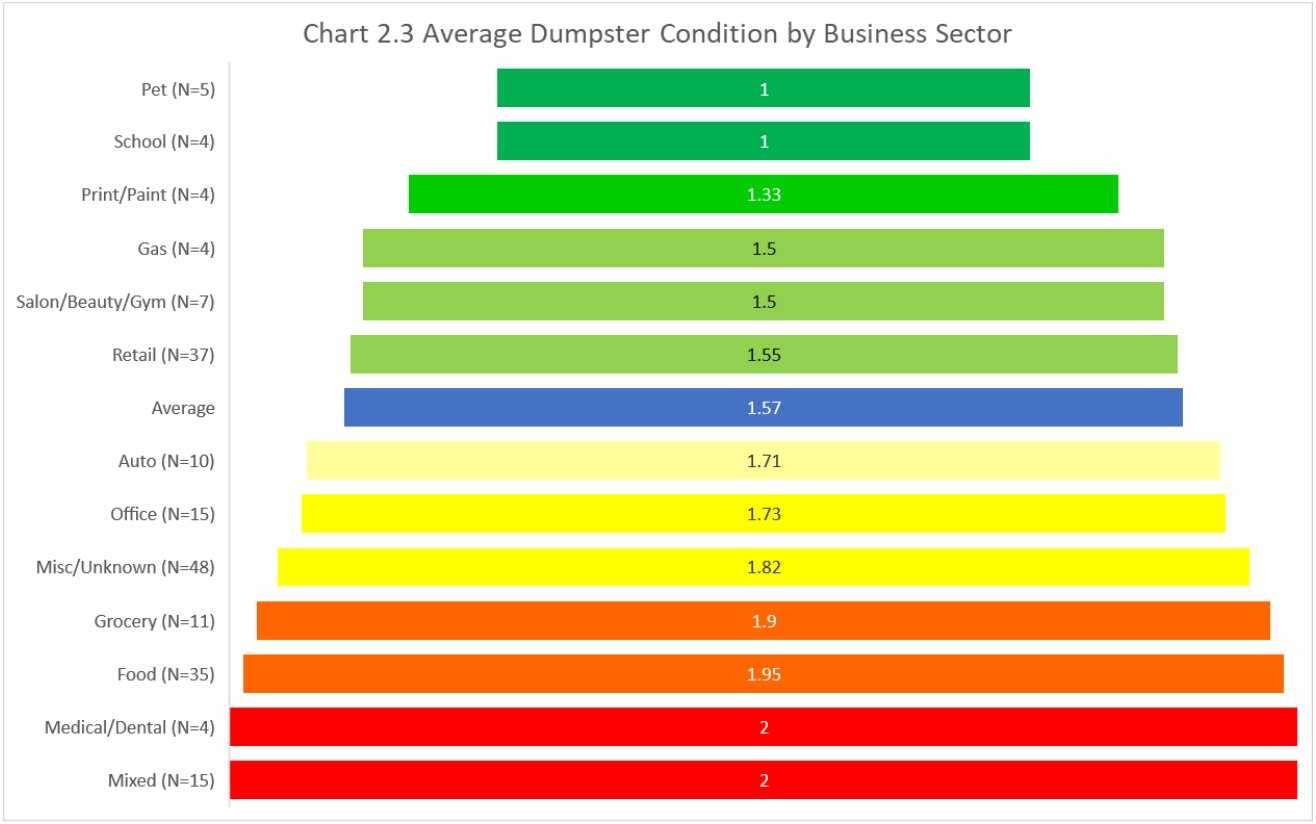


**Statistical significance is the probability that the observed result would have occurred due to sampling error alone. A p-value lower than 0.05 indicates statistical significance.*

Percentage of containers leaking and/or damaged (Chart 2.2) ranged from 0% at Church/Community Centers (n=7), Pet/Veternarian (n=5), Print/Paint (n=4), Schools (n=4), Gas Stations (n=4), and Automotive businesses (n=10) up to 27% at Grocery Stores (n=11).



Average rated dumpster condition (Chart 2.3) ranged from 1.0 at Pet/Veternarian (n=5) and Schools (n=4) to 2.0 at Medical/Dental (n=4) and Mixed Use (n=15).

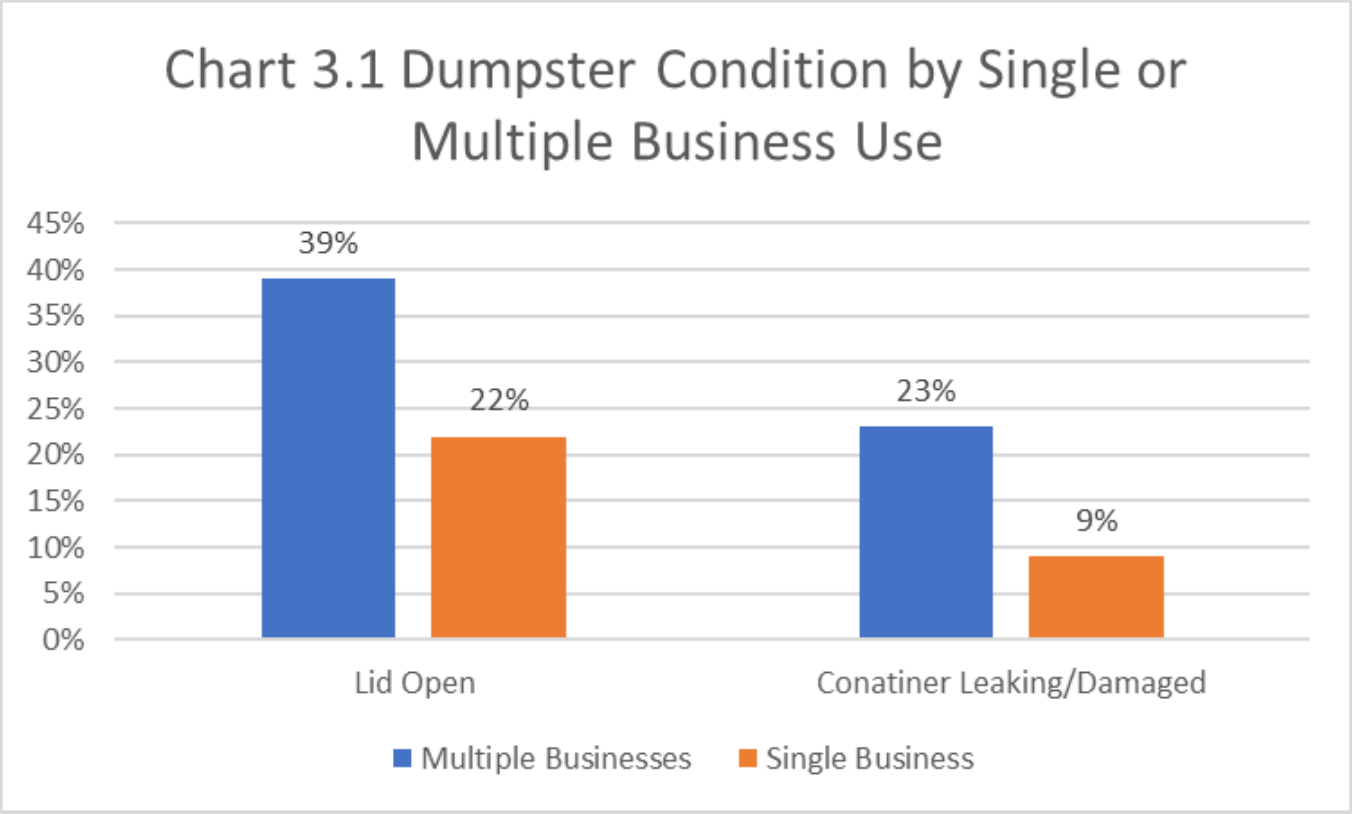


III. Use by single or multiple businesses

Information on dumpster use by single or multiple businesses was collected from 154 businesses in Bellevue, Kirkland, and Sammamish to learn whether the amount of businesses using one waste account affects site condition. Sites with multiple businesses were significantly more likely to have lids open (*p=0.02*) and significantly more likely to have containers that were leaking/damaged (*p=0.02*) compared to sites with a single business.

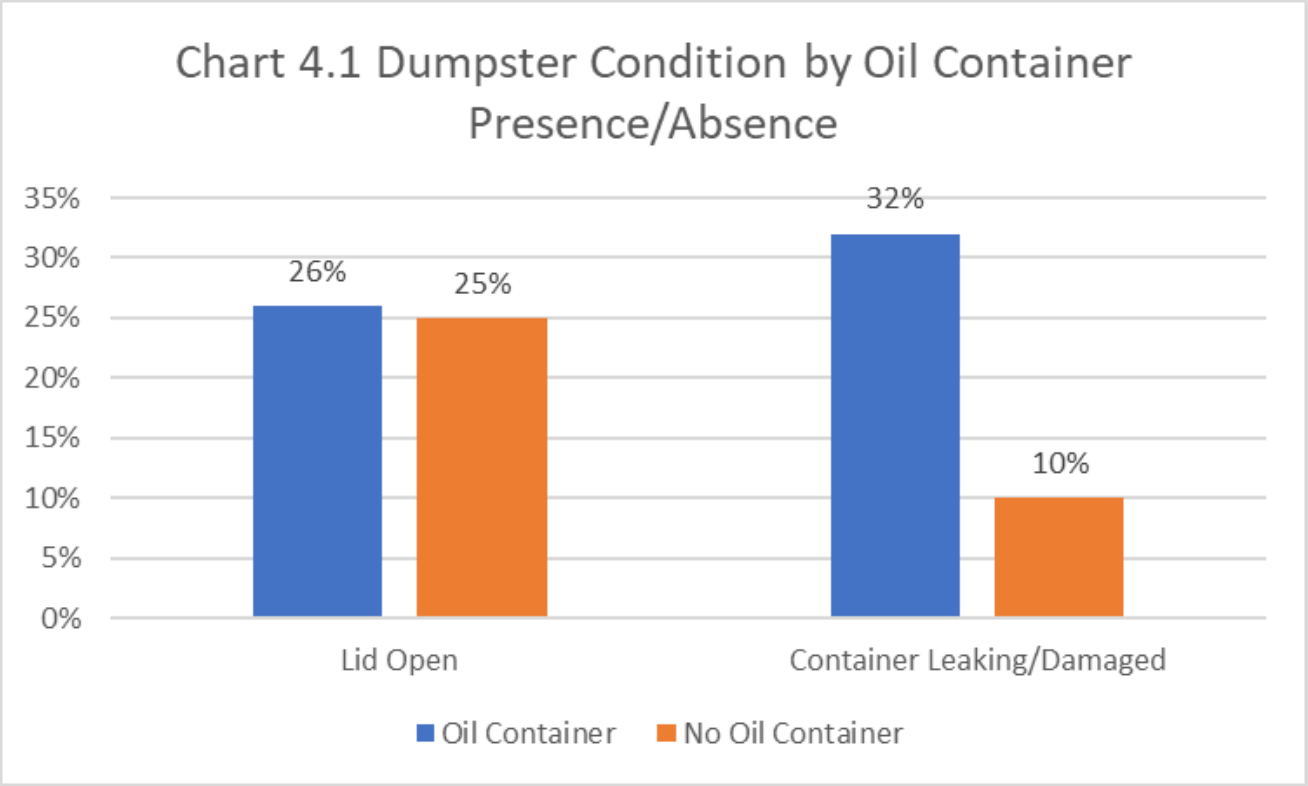
Notably, multiple-business sites had open lids in 39% of observations compared to 22% of single-business sites. Multiple-business sites had leaking/damaged containers in 23% of observations compared to 9% of single-business sites (Chart 3.1).

Average dumpster condition at multiple-business sites was 1.87 compared to an average condition of 1.60 at single-business sites.



IV. Container type

Information on whether a business had an oil container was collected at 148 businesses in Bellevue and Sammamish. Of those, 31 businesses had oil containers. Businesses with oil containers were almost equally likely as businesses without oil containers to have dumpster lids open. However, businesses with oil containers were significantly more likely ($p < .01, n=148$) to have containers that were leaking or damaged compared with businesses without oil containers (Chart 4.1). Businesses with oil containers had an average dumpster condition rating of 2.26 compared to an average of 1.56 at businesses without oil containers, representing a statistically signicant difference ($p < .01, n=148$).



V. Presence of proper labels

Of the 146 businesses for which label information was collected, 144 had proper labels displayed on the container. No further analysis was conducted based on presence of labels due to lack of available data.

VI. Lid status

Lid status was evaluated for 373 businesses to determine whether lids were open or closed. Open lids were observed at 128 businesses (34%). Businesses with open lids also had significantly worse ($p < 0.01, n=138$) dumpster condition ratings than businesses with lids closed, indicating a higher degree of water quality concerns at containers with open lids.

VII. Container status

Container status was evaluated for 391 businesses to determine whether containers were leaking or damaged. Leaking/damaged containers were observed at 47 businesses (12%). The average dumpster condition at containers that were leak and damage free was 1.57 and the average condition at containers with leaks and/or damage was 2.48, representing a statistically significant difference.

Dumpster Summit 2020

A Collaborative Social Marketing Workshop

The Dumpster Outreach Group started in early 2020 as a Workgroup within STORM (STormwater Outreach for Regional Municipalities) with the shared goals to:

- Comply with NPDES Permit Social Marketing requirement,
- Prevent stormwater pollution from occurring around commercial and multifamily dumpsters,
- Address common issues around dumpsters found during Private Drainage and Local Source Control Inspections, and
- Begin creating regionally consistent campaign outreach materials for commercial and multifamily customers to address common regional issues.

Dumpster Summit Details

The Dumpster Summit was a social marketing campaign planning workshop held over Zoom for 4 half-days. The Dumpster Summit included 30 participants from 25 different jurisdictions in Puget Sound. Attendees agreed to attend all four collaborative workshop sessions, committed to doing audience research as identified in the summit, and most planned to use the campaign as their social marketing permit requirement.

Each session, partners were guided by local Social Marketing expert, Nancy Lee, through the 10 steps to creating a social marketing campaign. The group was divided into 5 teams for break-out sessions. Each team created an individual social marketing plan during the Dumpster Summit.

- Two groups focused on commercial audience closing dumpster lids
- One group focused on multi-family audience closing dumpster lids
- Two groups focused on commercial audience reporting leaking dumpsters

The two teams working on encouraging commercial properties to close lids on dumpsters combined during the last half of the Dumpster Summit.

Dumpster Summit Numbers

- **4** half-days (**14** hours)
  September 14, 8:30 – 12:00
  September 15, 9:00 – 12:00
  October 27, 8:30 – 12:30
  October 29, 8:30 – 12:00
- **30** Partners
- **25** Jurisdictions
- Over **400** cumulative hours of learning and creating during the Dumpster Summit.
- Over 250 hours spent collecting surveys and meeting with teams outside of the Dumpster Summit.
- **68** Commercial audience surveys
- **147** Multi-family audience surveys

Results

Four Social Marketing Plans were developed. The plan to target the commercial audience to close the lids on their dumpster(s) was chosen by the majority to be the focus of a shared regional Social Marketing Campaign.

Many more jurisdictions plan to join in the effort for the chosen campaign. The remaining plans will be held onto for future development. The interest level in participating in the other plans was high but willingness to lead was low. They survey data collected is a valuable resource for outreach and education development.

Dumpster Summit Logistics

The City of Bellevue hired social marketing expert Nancy Lee to facilitate the Dumpster Summit. However, this was a collaborative effort with the active participation of partners during and outside of the workshop.

- The initial **Dumpster Summit Planning Team** included Laurie Devereaux (Bellevue), Tally Young (Redmond), Susan McCleary (Olympia), Laura Haren (Kent), Lisa Werre (Sammamish), and Kim Jones (Newcastle). The planning team served in all the planning efforts including scheduling, logistics, and communications.
- **New Planning Team** members joined just before and during the event offering special assistance. Cameron Coronado (Lynnwood) managed the event via Zoom. Aaron Hussmann (Kirkland) and Zachariah Van Ry (Bellevue) created survey monkey tools and managed data for the commercial and multifamily audience research surveys.
- **Team Leads** were partners who helped lead each break-out group during the Dumpster Summit and coordinate other efforts as needed outside of the Dumpster Summit workshop sessions. Laurie Devereaux, Laura Haren, Susan McCleary, Lisa Werre, and Tally Young served as Team Leads.

Dumpster Summit Partners were jurisdictions who are part of STORM (STormwater Outreach for Regional Municipalities). Participants were invited to participate at a regional meeting and by word of mouth. Participant number was originally set by the small room size but stayed small when we went virtual as we charted new territory with an online workshop.

Participants were surveyed before the Dumpster Summit to create 5 break-out teams. Teams were formed based on:

- Topic of interest (Lids, Leaking, Bulky Waste, Recycled Cooking Oil Collection, and Trash Compactors)
- Audience (Multifamily, Commercial, Residential, Hauler, Property Managers)
- Other preferences (topic, willingness to lead break-out team, work with neighboring jurisdictions, experience with social marketing, experience working with commercial audience, experience with solid waste)

Each Partner was asked to conduct at least 2 Audience Research Surveys in their jurisdiction after the first half of the Dumpster Summit.

- The Commercial Audience Teams identified businesses with open dumpsters and conducted surveys mostly by phone.
- The Multifamily team sent the survey to residents via a Survey Monkey tool sent out by property managers of properties identified as having observed open dumpster lids.

What worked

- Workshop format, not a training. Participants were asked to participate 100% and commit to
    - attending all 4 sessions
    - completing intercept surveys & report
- Zoom – having point person to manage the calls and break-out groups
- Schedule – 4 half-days, not more than 4 hours in one day.
- Sharing tasks – partners to manage data, schedule meetings, and lead teams
- Break out teams
    - Carefully sorted
    - Each with leader
    - Each with mixed expertise
- Planning Team – advisory group before, during, and after event
- Survey Monkey – for planning as well as a data collection tool for audience research

Consider for future large collaborative efforts

- The size of group felt right for participation
- Consider a Memorandum of Understanding for participating jurisdictions, especially depending on level of commitment
- The group missed the energy of being together in-person and side conversations. While the Zoom platform worked remarkably well, having some in-person option for at least part of the project would be ideal.
- Consider Intercept Survey Practice – There were varying levels of comfort and confidence in performing surveys.

Dumpster Summit Partners by Jurisdiction			
City of Bellevue	Laurie Devereaux	City of Newcastle	Kim Jones
City of Bellevue	Zachariah Van Ry	City of Olympia	Susan McCleary
City of Bellevue	Thania Barrios	City of Redmond	Tally Young
City of Burien	Paige Morris	City of Redmond	Anne Dettelbach
City of Des Moines	Ben Stryker	City of Renton	Kristina Lowthian
City of Kent	Laura Haren	City of Sammamish	Lisa Were
City of Kent	Meara Heubach	City of Shoreline	Christie Lovelace
City of Kirkland	Aaron Hussmann	City of Tacoma	Sarah Norberg
City of Lacey	Emily Watts	City of Tumwater	Meredith Greer
City of Lake Forest Park	Cory Roche	City of Woodinville	Leah Uhl
City of Lakewood	Diana Halar	King County	Robert Bernhard
City of Lynnwood	Cameron Coronado	Kitsap County	Kim Pledger
City of Marysville	Jessie Balbiani	Snohomish County	Bradley Wright
City of Monroe	Megan Darrow	Thurston County	Kelsey Crane
City of Mukilteo	Brian Wirt	Thurston County	Skyler Specht

Dumpster Lid Campaign Toolkit Items and Cost

January 2021

TIER 1: Everyone Completes	
COMMUNICATION ELEMENTS	**ESTSIMATED COST TO JURISDICTION**
Pledges from Property Owners	NA
Informational Instructions/Guidelines/Requirements	NA
Talking Points for Speaking with Those Taking Out Garbage	NA
Talking Points for Speaking with Haulers	NA
Signs/Stickers on Dumpsters	$4.45
Signs in Dumpster Area	$7.95
Signs on Door to Dumpster Area Committing to the Pledge	$7.95
Signs on Doors Leading to Dumpster Area Prompting Behavior	$7.95
TANGIBLE PRODUCT ELEMENTS	
Stepping Stool	$8.99
TIER 2: Optional items in addition to Tier 1	
COMMUNICATION ELEMENTS	**ESTSIMATED COST TO JURISDICTION**
Signage on Ground Around Dumpsters	$21.55
Storm Drain Marking	$4.55
Window Cling	$1.85
Ropes/Straps to Dumpsters	$1.80
Hydraulic attachments to Dumpsters	NA
EDUCATION & SERVICE ELEMENTS	
In Person Training/Consulting for All Using the Dumpsters	NA
Select & Train a Dumpster "Champion" • Specific to one business with multiple employees or • A property manager for a shared dumpster with several businesses This person would be in charge of the waste and would be the one to dump all of the waste at the business, so they are the most responsible for proper disposal and care of dumpster materials/area. They ensure the area is cleaned daily, make sure it's ready on collection day, and check on it after collection. The Dumpster Champion would identify the people not doing the proper behavior.	NA
Waste Audit: Auditing to help comm. biz reduce waste and avoid overflowing dumpsters	NA
Providing Talking Points for Instructing Employees	NA

Notes:

**Costs for items are based on a 150 per-unit calculation and do not include shipping or taxes*

**Final size and costs of materials may be slightly adjusted during the creative development and market intelligence process*

City of Kirkland Annual Report Question 26a.

Attach a list of Stewardship Opportunities

Storm Drain Marking: Volunteers mark neighborhood storm drains with labels stating "Puget Sound Starts Here – Only Rain Down the Drain." The purpose of these markers is to raise awareness regarding connection between our neighborhoods and local water bodies.

Green Kirkland Partnership Stewardship Events: The Green Kirkland Partnership is an alliance between the City of Kirkland, nonprofit partners, businesses and the community to restore and maintain more than 500 acres of natural areas in the City. Most of the restoration work is completed by our dedicated volunteers. The Green Kirkland mission is to restore and maintain healthy forested and natural parklands by building a supportive community that works together to protect Kirkland's valuable natural resources for current and future generations. Achieving this involves training volunteers in restoration activities and providing support from restoration partners, contractors and skilled natural areas staff. The Partnership's activities include community-based restoration efforts like replanting areas with native trees and invasive plant removal; as well as education, outreach and engagement with our community. Typically, opportunities for stewardship are offered multiple times per week, however in response to COVID-19, events are held less frequently and with social distancing precautions.

Cross Kirkland Corridor Adopt-a-Trail: Local volunteers have adopted quarter-mile segments of the corridor and pledged to remove litter twice per year. They also have the option of doing a yearly invasive plants removal project in their section. All 23 segments are currently adopted. Adopters include Kirkland neighborhood associations, businesses, individuals, families and community service groups.

Park Pet Waste Steward Volunteer Program: Volunteers help monitor and count the frequency of un-scooped dog waste in local parks to help identify problem areas and establish baseline data for future outreach efforts.

Water Watchers: Water Watchers is a community-based water monitoring program operated by the Sno-King Watershed Council. Water Watcher volunteers in Kirkland monitor physical and chemical indicators of stream health on local creeks. Data collected by the volunteers helps inform the community regarding watershed health and supplement water quality data collected by City staff.