

Appendix 6 Public Review

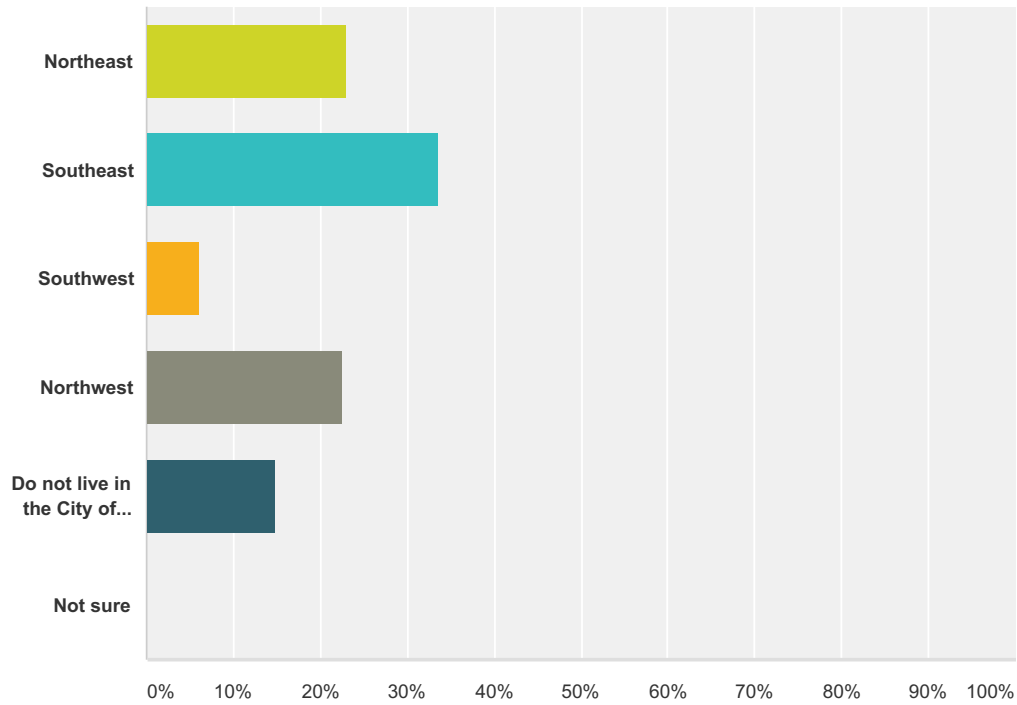
Included in this document:

- [May 2016 Survey Results](#)
- [July 8, 2016 Focus Group](#)
- [August 2016 Open House Flyer](#)
- [August 2016 Open House Comments](#)
- [Draft Plan Comments/Response](#)

Storm & Surface Water Plan Survey Results

Q1 In which area of the City do you live in?

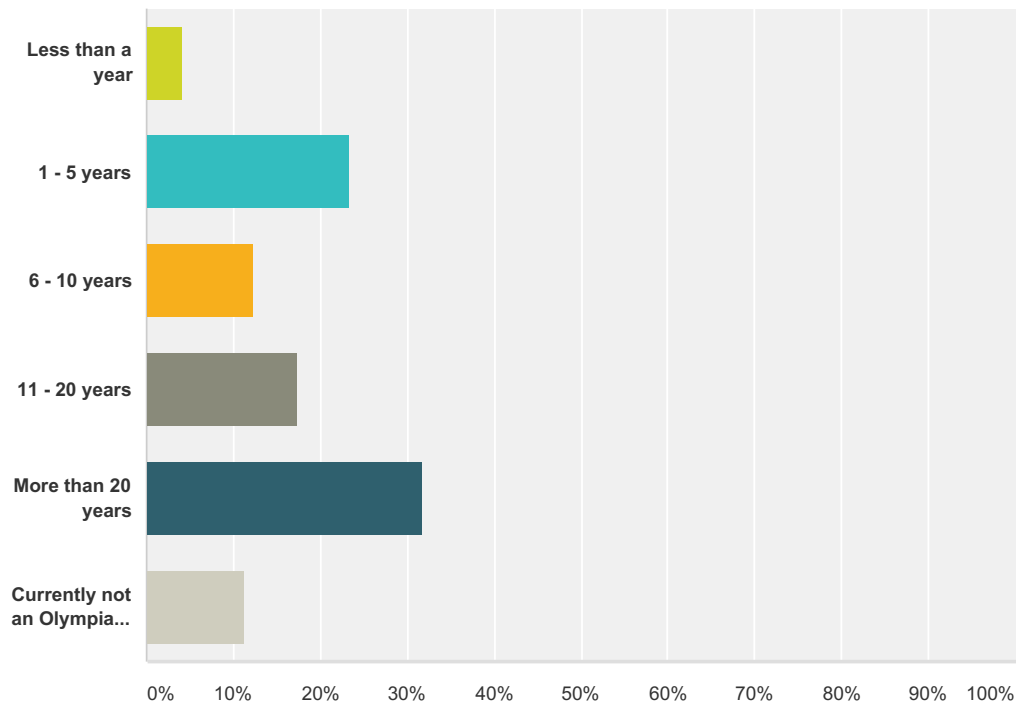
Answered: 196 Skipped: 0



Answer Choices	Responses	
Northeast	22.96%	45
Southeast	33.67%	66
Southwest	6.12%	12
Northwest	22.45%	44
Do not live in the City of Olympia	14.80%	29
Not sure	0.00%	0
Total		196

Q2 How long have you been a City of Olympia utility customer?

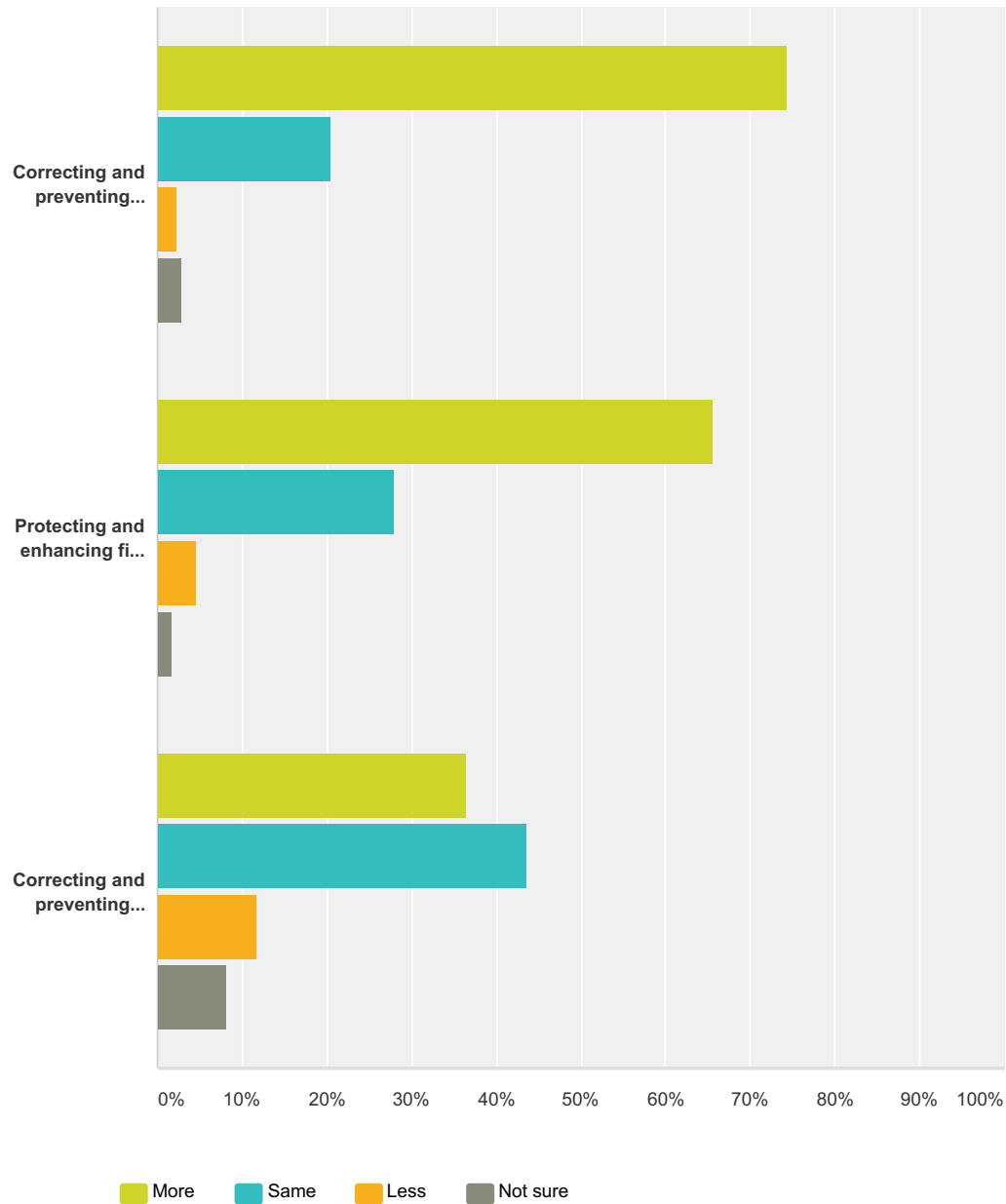
Answered: 196 Skipped: 0



Answer Choices	Responses	
Less than a year	4.08%	8
1 - 5 years	23.47%	46
6 - 10 years	12.24%	24
11 - 20 years	17.35%	34
More than 20 years	31.63%	62
Currently not an Olympia utility customer	11.22%	22
Total		196

Q3 Over the next 5 years, do you think the City should put More Emphasis or Less Emphasis on the following:

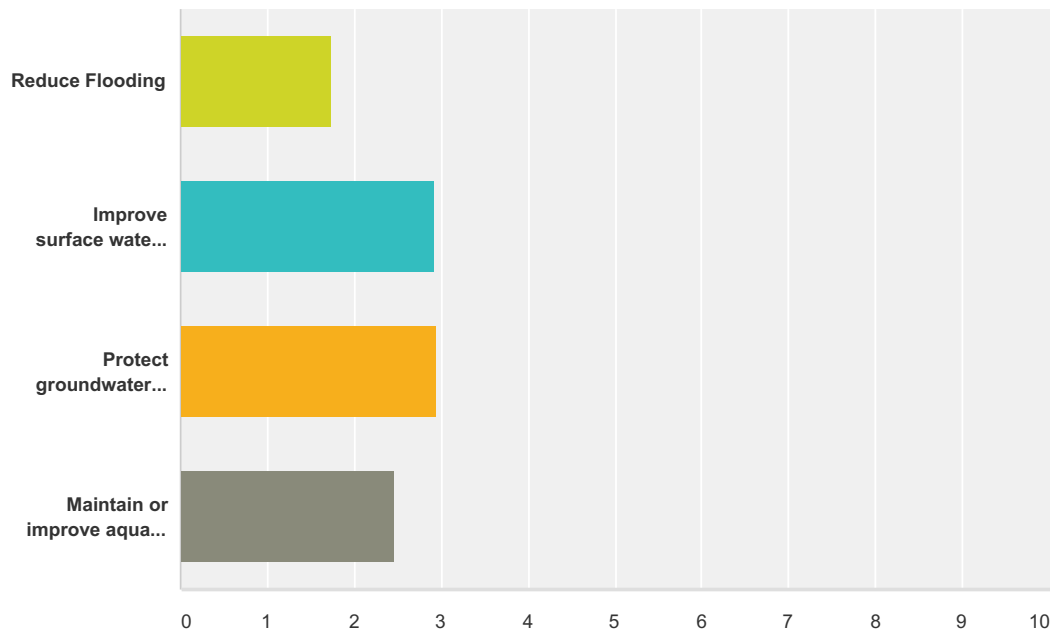
Answered: 172 Skipped: 24



	More	Same	Less	Not sure	Total
Correcting and preventing water pollution	74.27% 127	20.47% 35	2.34% 4	2.92% 5	171
Protecting and enhancing fish and wildlife habitat in local streams, lakes and wetlands	65.50% 112	28.07% 48	4.68% 8	1.75% 3	171
Correcting and preventing problems arising from minor flooding	36.47% 62	43.53% 74	11.76% 20	8.24% 14	170

Q4 Please rank your overall priorities for the Storm & Surface Water Utility. Aquatic habitat refers to our local rivers, streams, ponds, lakes, wetlands, and Puget Sound. Natural buffer areas around these aquatic ecosystems are key to protecting them. Rank (1) for Highest Priority and (4) for Lowest Priority:

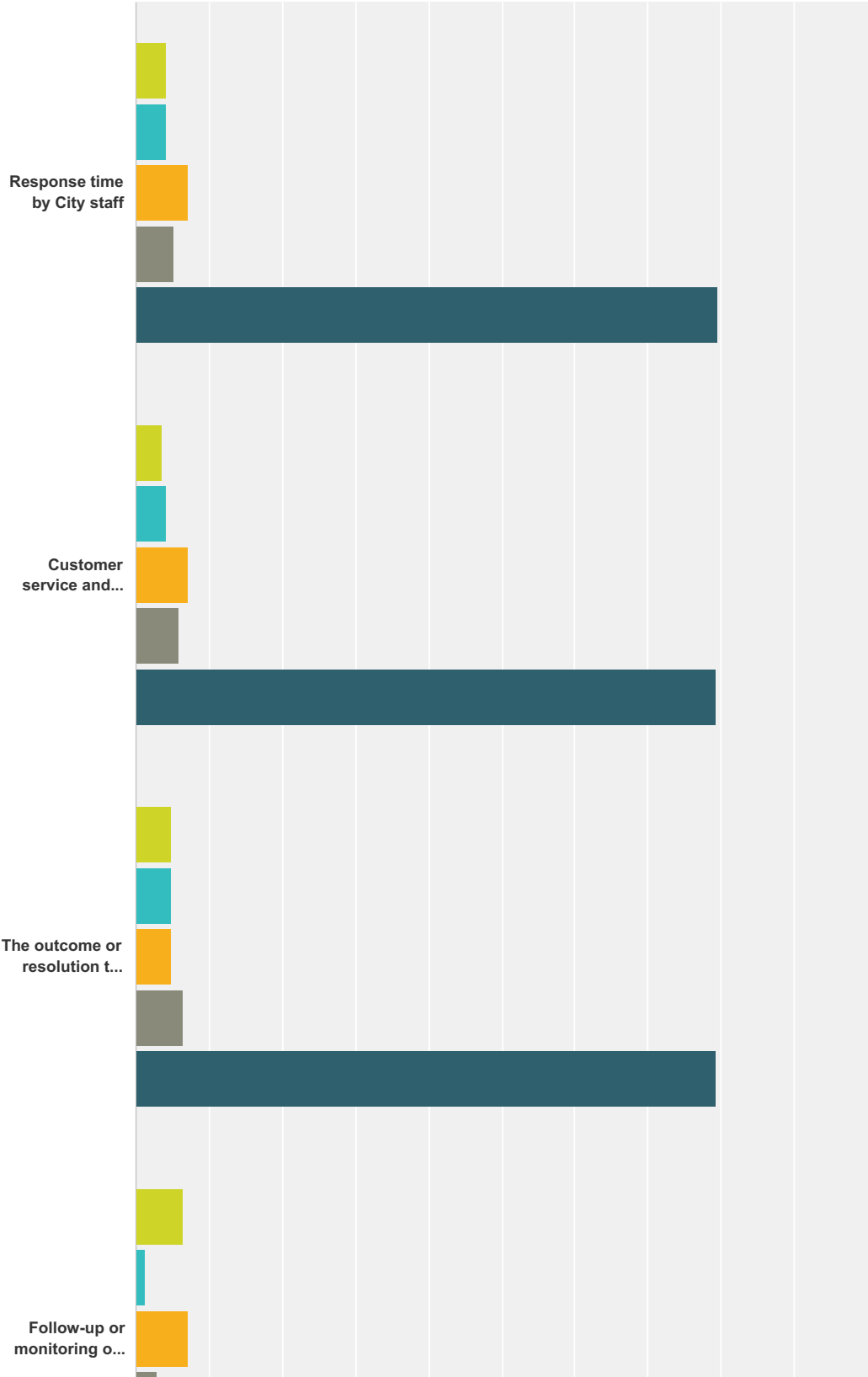
Answered: 168 Skipped: 28



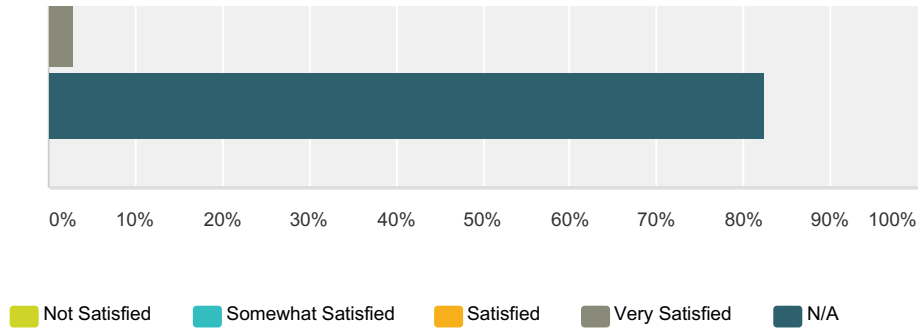
	1	2	3	4	Total	Score
Reduce Flooding	13.84% 22	7.55% 12	16.35% 26	62.26% 99	159	1.73
Improve surface water quality in our streams and Puget Sound	31.85% 50	35.03% 55	26.75% 42	6.37% 10	157	2.92
Protect groundwater quality	33.75% 54	31.25% 50	30.63% 49	4.38% 7	160	2.94
Maintain or improve aquatic habitat	22.02% 37	26.19% 44	27.38% 46	24.40% 41	168	2.46

Q5 If you have reported a stormwater issue to the Storm and Surface Water Utility in the past, how satisfied were you with:

Answered: 172 Skipped: 24



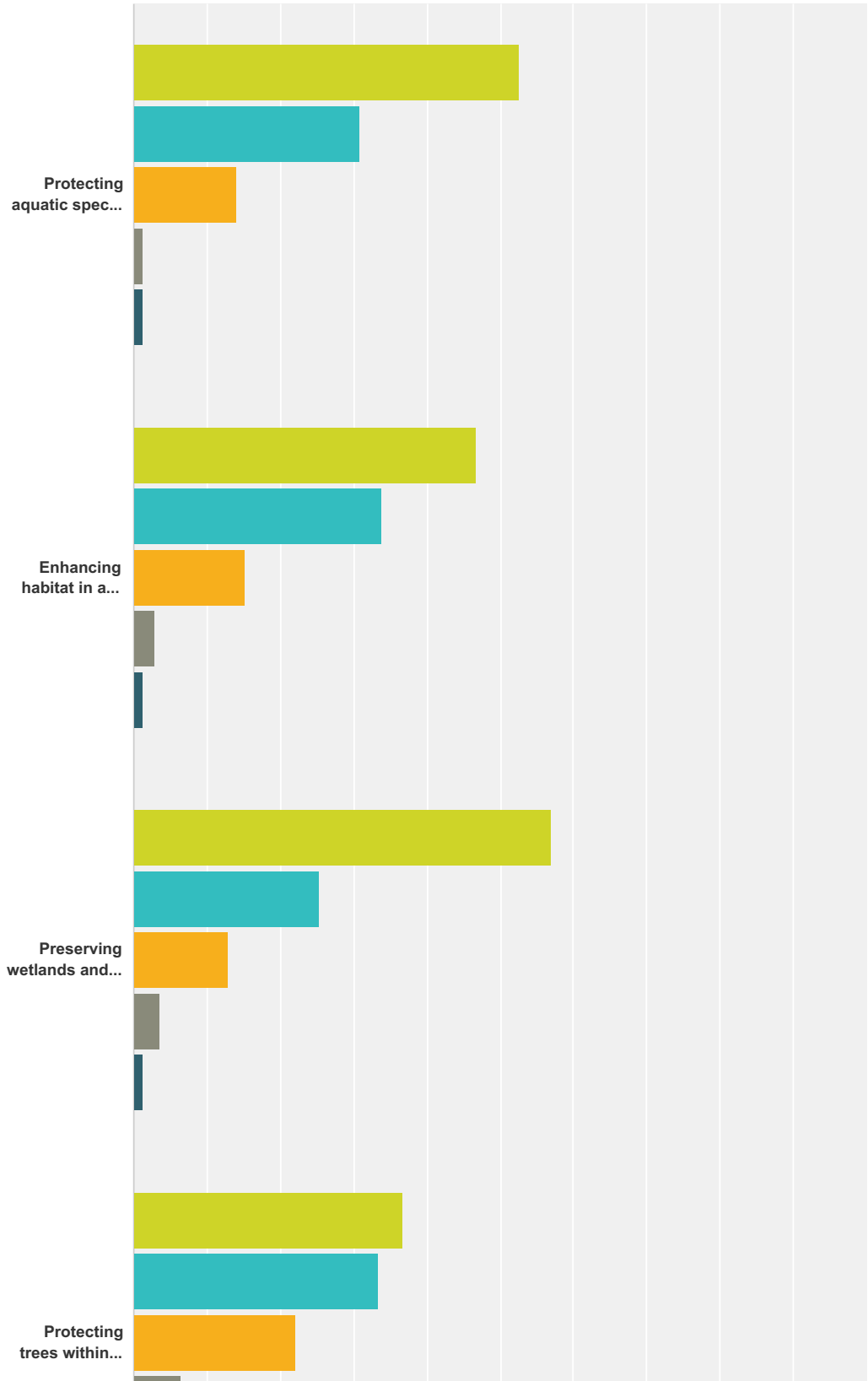
Storm & Surface Water Plan Survey



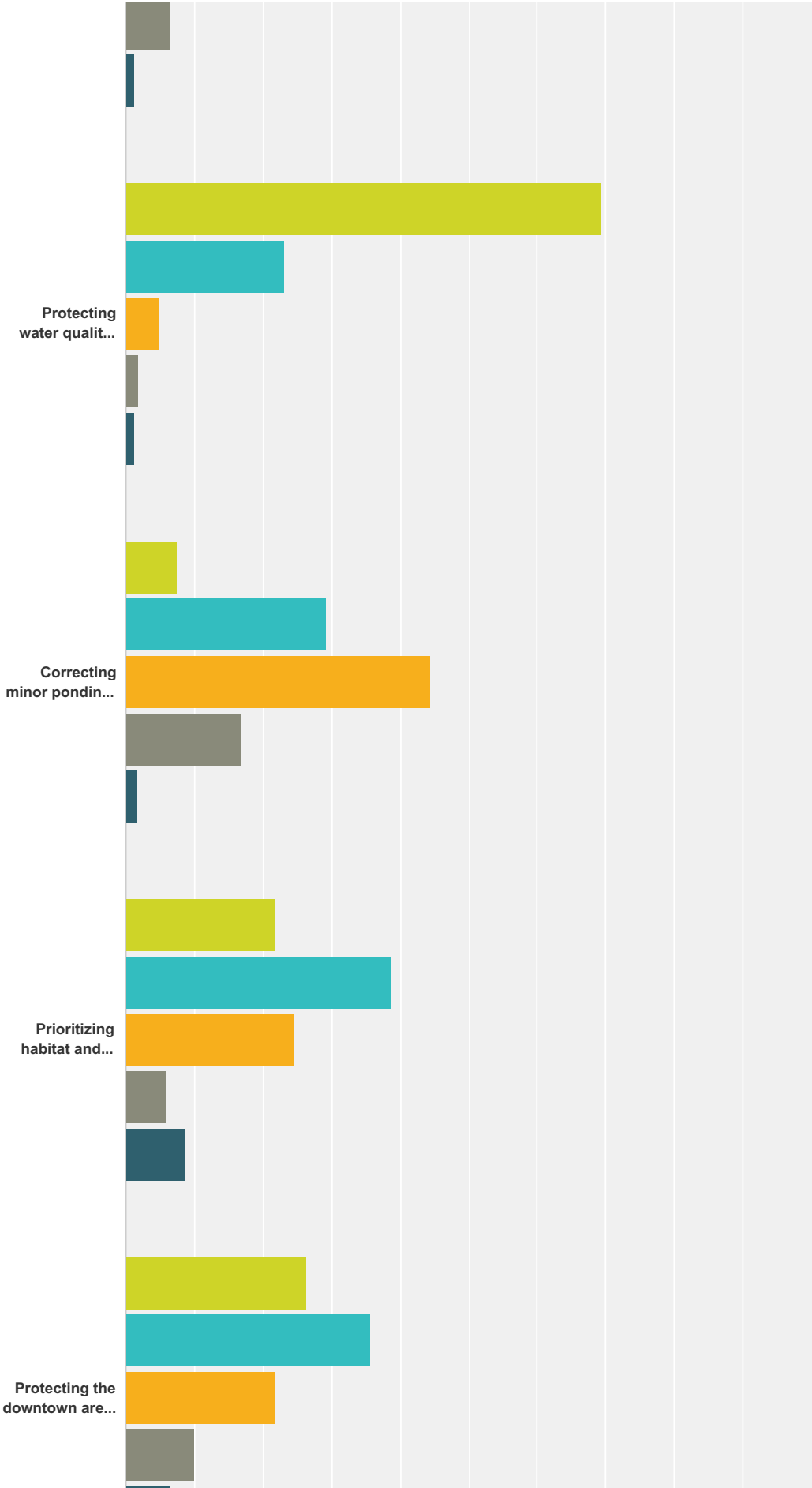
	Not Satisfied	Somewhat Satisfied	Satisfied	Very Satisfied	N/A	Total
Response time by City staff	4.09% 7	4.09% 7	7.02% 12	5.26% 9	79.53% 136	171
Customer service and communication with staff about the issue	3.53% 6	4.12% 7	7.06% 12	5.88% 10	79.41% 135	170
The outcome or resolution to the issue	4.71% 8	4.71% 8	4.71% 8	6.47% 11	79.41% 135	170
Follow-up or monitoring of the issue once resolved	6.43% 11	1.17% 2	7.02% 12	2.92% 5	82.46% 141	171

Q6 Please rate the following items based on importance for the Storm and Surface Water Utility's work:

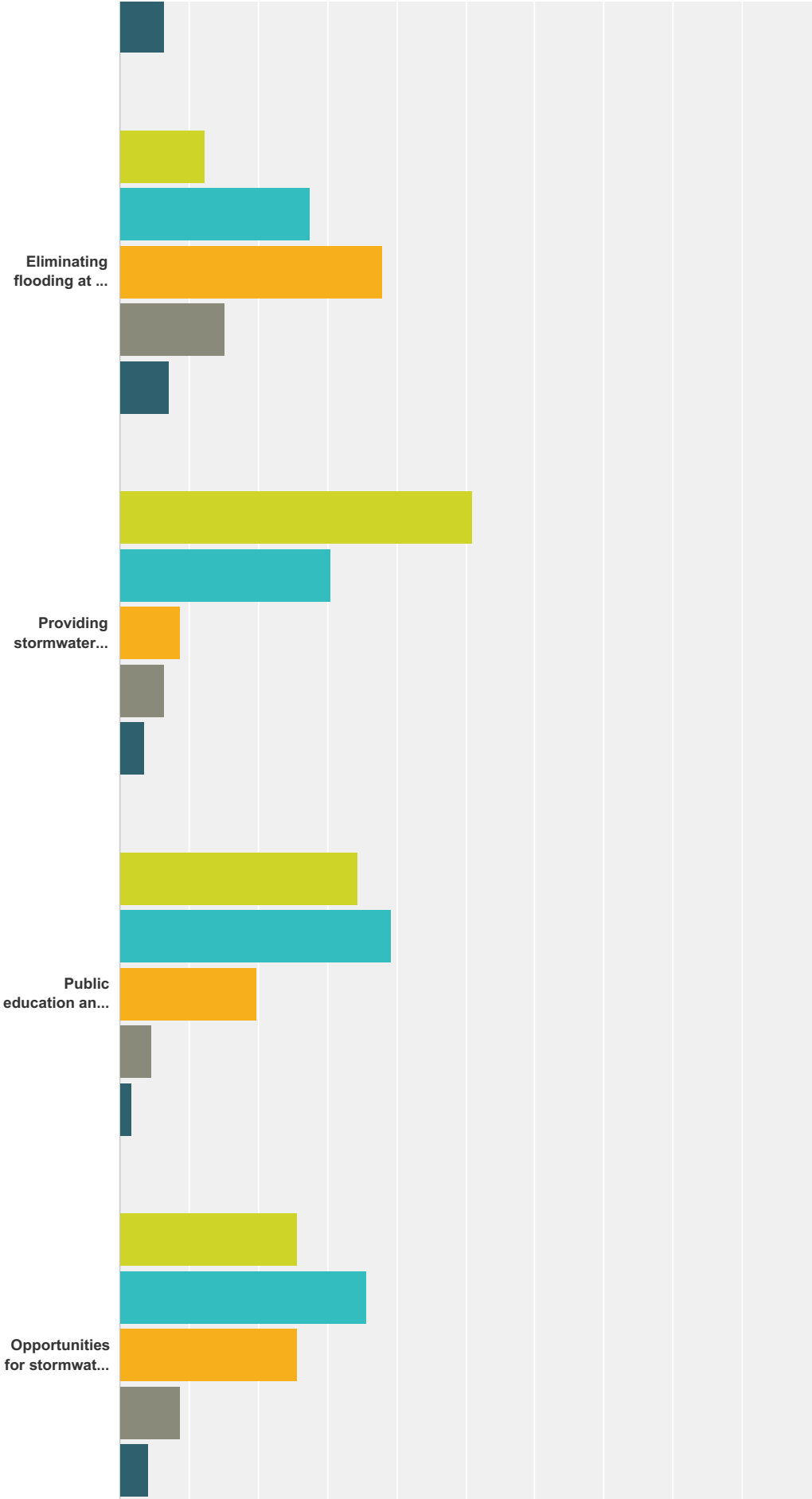
Answered: 172 Skipped: 24



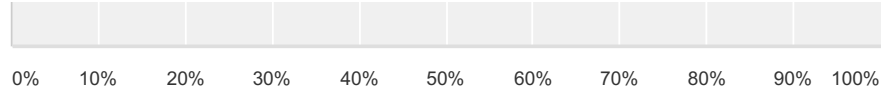
Storm & Surface Water Plan Survey



Storm & Surface Water Plan Survey



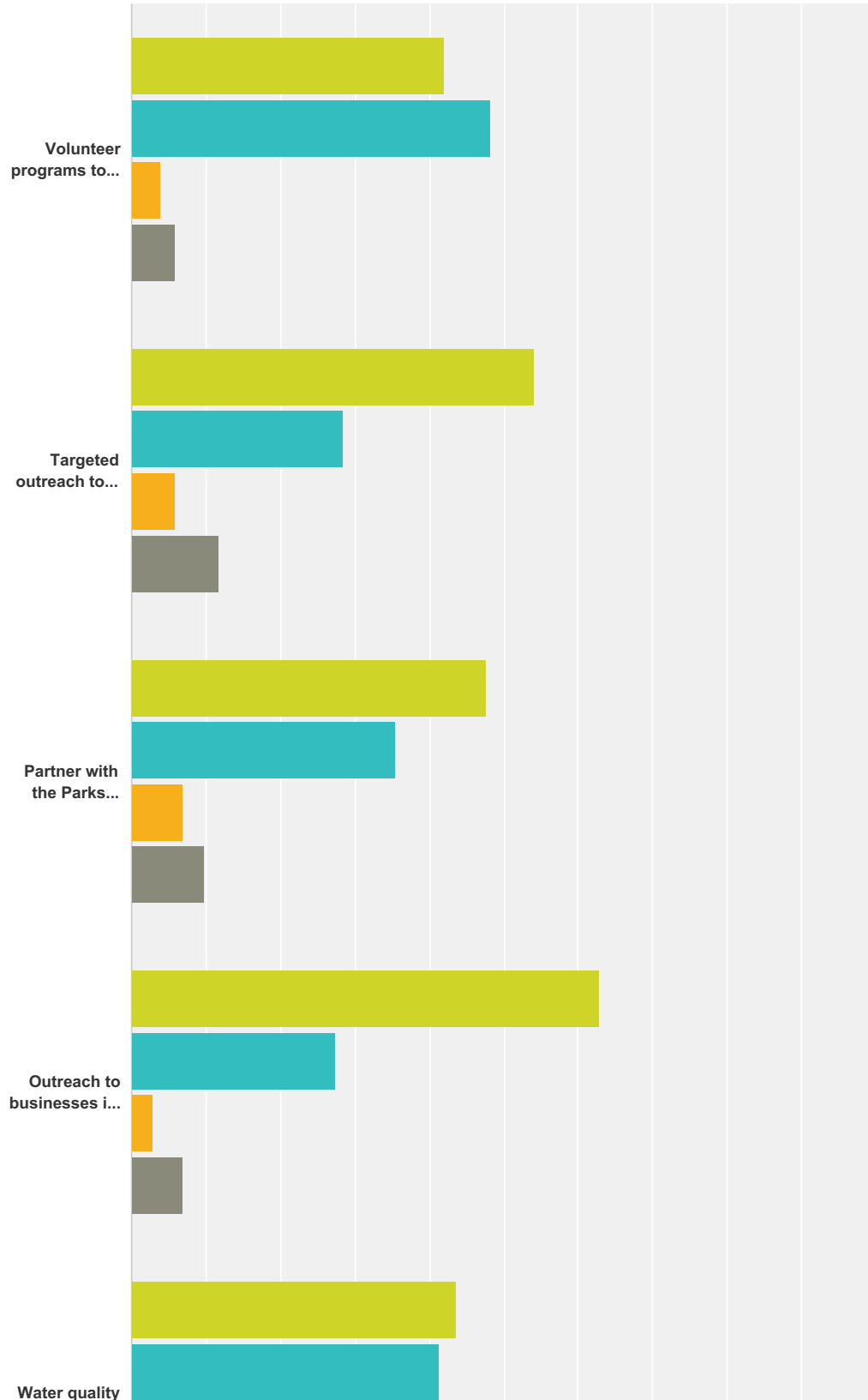
Storm & Surface Water Plan Survey



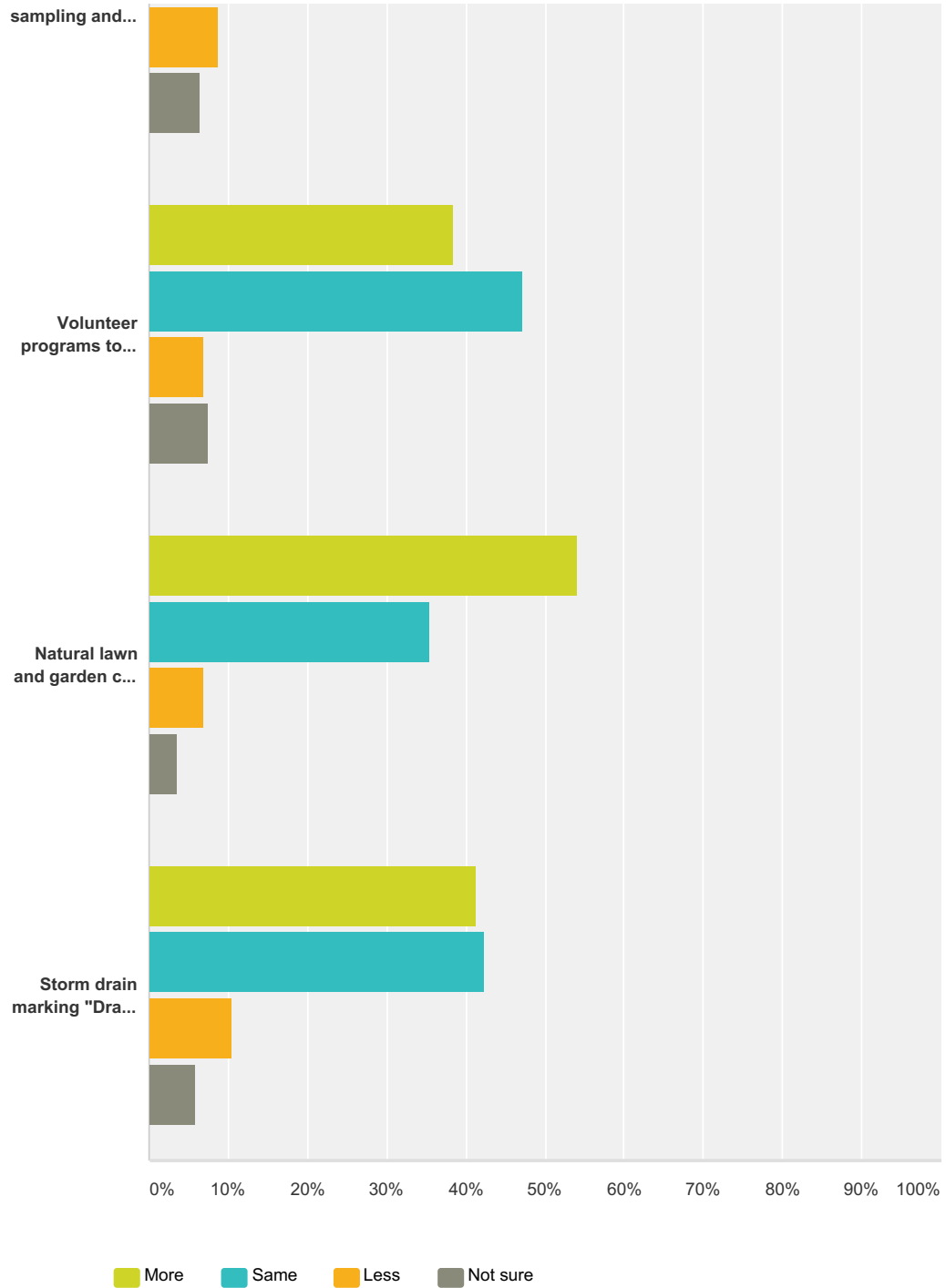
	Very Important	Important	Somewhat Important	Not Important	Not sure/Don't know	Total
Protecting aquatic species in our streams	52.63% 90	30.99% 53	14.04% 24	1.17% 2	1.17% 2	171
Enhancing habitat in and along streams	46.78% 80	33.92% 58	15.20% 26	2.92% 5	1.17% 2	171
Preserving wetlands and critical areas	57.06% 97	25.29% 43	12.94% 22	3.53% 6	1.18% 2	170
Protecting trees within the City and along streets	36.84% 63	33.33% 57	22.22% 38	6.43% 11	1.17% 2	171
Protecting water quality in Budd Inlet and Puget Sound	69.23% 117	23.08% 39	4.73% 8	1.78% 3	1.18% 2	169
Correcting minor ponding issues (large puddles) along roadways	7.60% 13	29.24% 50	44.44% 76	16.96% 29	1.75% 3	171
Prioritizing habitat and stormwater projects by watershed	21.76% 37	38.82% 66	24.71% 42	5.88% 10	8.82% 15	170
Protecting the downtown area from flooding due to sea level rise	26.32% 45	35.67% 61	21.64% 37	9.94% 17	6.43% 11	171
Eliminating flooding at the Cooper Point Road – Black Lake Boulevard intersection	12.28% 21	27.49% 47	38.01% 65	15.20% 26	7.02% 12	171
Providing stormwater treatment (cleaning the stormwater) for all areas of the City before it reaches a water body.	50.88% 87	30.41% 52	8.77% 15	6.43% 11	3.51% 6	171
Public education and training opportunities on how to prevent stormwater pollution	34.50% 59	39.18% 67	19.88% 34	4.68% 8	1.75% 3	171
Opportunities for stormwater utility rate reductions through incentives	25.73% 44	35.67% 61	25.73% 44	8.77% 15	4.09% 7	171

Q7 Do you think the City should put More Emphasis or Less Emphasis on the following current Utility programs?

Answered: 172 Skipped: 24



Storm & Surface Water Plan Survey



	More	Same	Less	Not sure	Total
Volunteer programs to restore habitat (Stream Team)	41.86% 72	48.26% 83	4.07% 7	5.81% 10	172
Targeted outreach to properties with aquatic habitat	54.07% 93	28.49% 49	5.81% 10	11.63% 20	172
Partner with the Parks Department to enhance habitat in Olympia Parks	47.67% 82	35.47% 61	6.98% 12	9.88% 17	172
Outreach to businesses in Olympia to prevent pollution	62.79% 108	27.33% 47	2.91% 5	6.98% 12	172

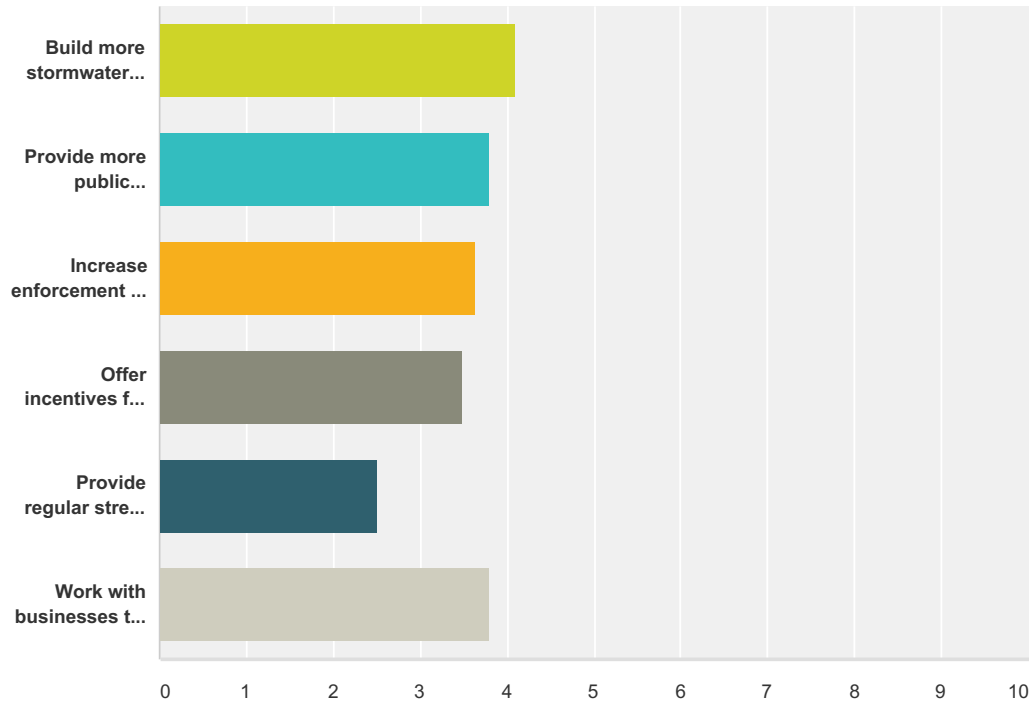
Storm & Surface Water Plan Survey

Water quality sampling and education in 4th and 5th Grade classrooms (through South Sound Green)	43.60% 75	41.28% 71	8.72% 15	6.40% 11	172
Volunteer programs to monitor habitat and wildlife conditions	38.37% 66	47.09% 81	6.98% 12	7.56% 13	172
Natural lawn and garden care education programs	54.07% 93	35.47% 61	6.98% 12	3.49% 6	172
Storm drain marking "Drains to Puget Sound"	41.28% 71	42.44% 73	10.47% 18	5.81% 10	172

#	Other (please specify)	Date
1	Save Ward Lake Water Quality	6/13/2016 5:13 PM
2	decrease treated discharge in south budd inlet	6/12/2016 5:05 PM
3	Incorporate TEK (Traditional Ecological Knowledge) into shoreline and water management	6/11/2016 8:33 PM
4	Please help olympia get ready for the coming population of Climate change refugees.	6/6/2016 6:34 AM
5	spend less money on fancy wet center to reduce rates for customers	6/5/2016 3:16 PM
6	Neighborhood-scale rain gardens	6/5/2016 8:51 AM
7	Removal of dam at the end of Capital Lake to let a natural wetland protect from flooding in the area.	6/4/2016 6:03 PM
8	Education and incentives would be a great way to mitigate the quality of storm water run-off. The best defense is cleaning at the source with rain gardens and collection. Also, I would love to reduce the LOTT charge on my utilities bill.	6/4/2016 4:51 PM
9	I have no idea what level these programs are no doing!	6/4/2016 4:25 PM
10	Educate the kids! They give us hope!	6/3/2016 10:13 PM
11	Check on surprise springs that seem to seep out of the water facility at 7th and Fir and run out at the Landmark Condos and Madison Viewpark	6/3/2016 12:46 PM
12	Partnering with the other local govt utilities on these issues.	6/3/2016 10:50 AM
13	bioswale/LID maintenance suggestions and training	6/2/2016 8:36 PM
14	Filtering storm water at the source (low points in neighborhoods) ; more rain gardens	6/2/2016 7:02 PM
15	SS GREEN is fabulous! Public still seems to need education re: lawn care, dog waste, etc., but existing programs seem to cover it adequately	5/25/2016 10:59 AM
16	Survey questions flawed: Assumes participants have any clue what you are currently doing in these areas, to be able to answer more, same, less. You are basically getting a rank of participant priorities (i.e. what sounds important), but convoluted answers because trying to answer through the lens of the designated choices....	5/25/2016 10:58 AM
17	Bring the Stormwater Guru on full-time	5/24/2016 12:36 PM
18	more use of permeable pavement to filter stormwater through the earth rather than (or in addition to) a separate treatment facility	5/24/2016 9:59 AM

Q8 What do you feel the Storm and Surface Water Utility should focus on to improve water quality? Rank the following in order of your preferences from Highest (1) to Lowest (7):

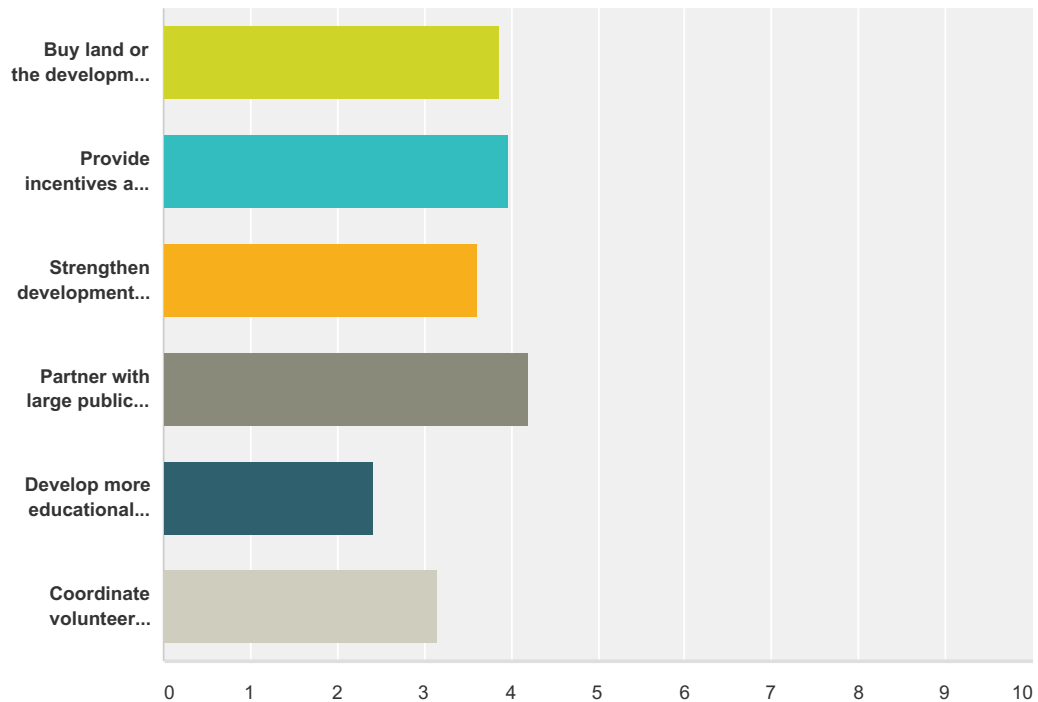
Answered: 157 Skipped: 39



	1	2	3	4	5	6	Total	Score
Build more stormwater treatment facilities (rain gardens, ponds, filters, etc.) in the public right-of-way	28.86% 43	20.13% 30	14.77% 22	11.41% 17	16.78% 25	8.05% 12	149	4.09
Provide more public education to encourage behaviors that reduce the discharge of pollutants	22.30% 33	12.16% 18	20.27% 30	23.65% 35	12.84% 19	8.78% 13	148	3.81
Increase enforcement to correct behaviors leading to the discharge of pollutants	20.14% 29	22.22% 32	13.89% 20	7.64% 11	15.97% 23	20.14% 29	144	3.63
Offer incentives for installing stormwater treatment facilities on private properties	9.59% 14	20.55% 30	19.86% 29	21.23% 31	15.75% 23	13.01% 19	146	3.48
Provide regular street sweeping on all public streets	8.00% 12	8.00% 12	10.00% 15	16.00% 24	17.33% 26	40.67% 61	150	2.51
Work with businesses to prevent stormwater pollution	13.79% 20	20.69% 30	25.52% 37	18.62% 27	14.48% 21	6.90% 10	145	3.80

Q9 Which of the following habitat protection strategies are most important for the Utility to pursue in order to protect and enhance habitat in Olympia? Rank the following in order of Most Important (1) to Least Important (6).

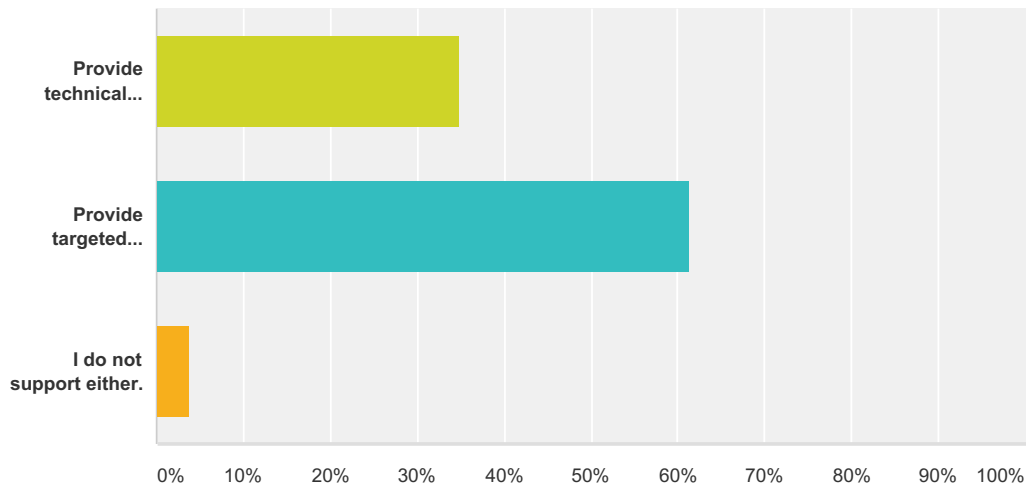
Answered: 149 Skipped: 47



	1	2	3	4	5	6	Total	Score
Buy land or the development rights on property with important habitat (wetlands, stream sides, etc.)	27.14% 38	20.71% 29	10.71% 15	10.71% 15	13.57% 19	17.14% 24	140	3.86
Provide incentives and technical assistance to private property owners for habitat stewardship activities (free plants, training, labor, etc.)	18.31% 26	24.65% 35	18.31% 26	19.72% 28	12.68% 18	6.34% 9	142	3.97
Strengthen development regulations that protect habitat	23.94% 34	14.79% 21	14.79% 21	12.68% 18	11.97% 17	21.83% 31	142	3.61
Partner with large public and private land owners on habitat projects, for example school districts	18.44% 26	26.24% 37	24.82% 35	20.57% 29	7.09% 10	2.84% 4	141	4.20
Develop more educational materials (videos, fact sheets, etc.) on backyard habitat techniques	5.67% 8	7.09% 10	12.77% 18	10.64% 15	26.95% 38	36.88% 52	141	2.43
Coordinate volunteer events to enhance and restore habitat	8.63% 12	10.07% 14	18.71% 26	25.18% 35	25.90% 36	11.51% 16	139	3.16

Q10 Which of the following do you support more?

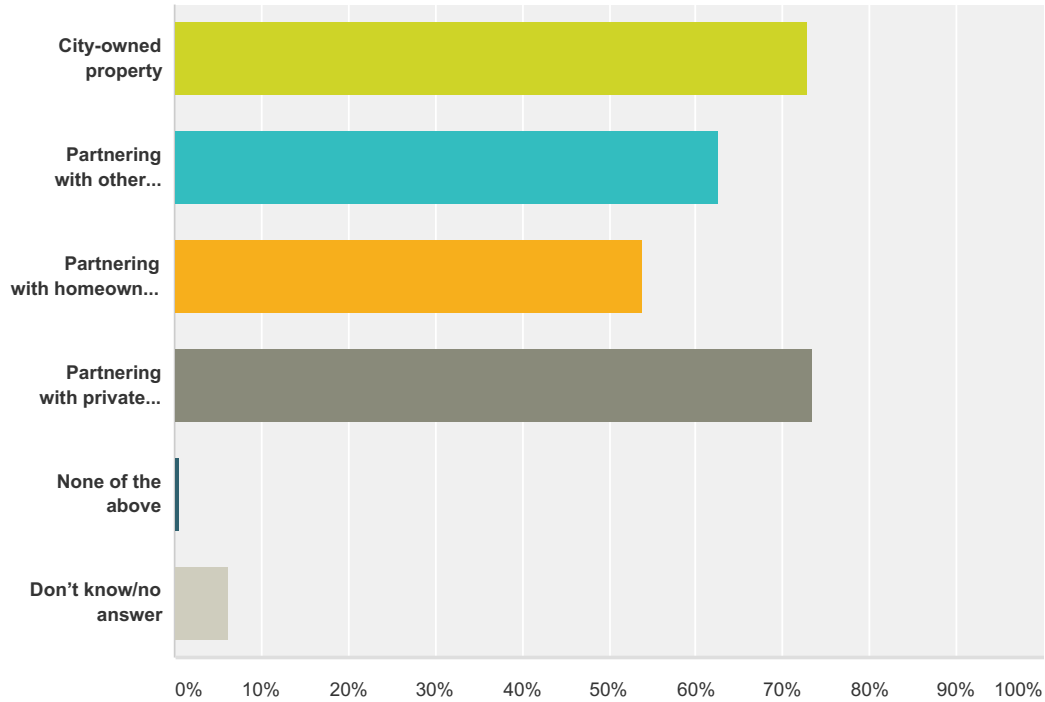
Answered: 158 Skipped: 38



Answer Choices	Responses	
Provide technical assistance to all private property owners in Olympia that want to enhance habitat on their property.	34.81%	55
Provide targeted technical assistance to property owners in Olympia that have important aquatic habitat on or adjacent to their property.	61.39%	97
I do not support either.	3.80%	6
Total		158

**Q11 On which type of properties should the Utility focus its habitat restoration efforts?
(check all that apply)**

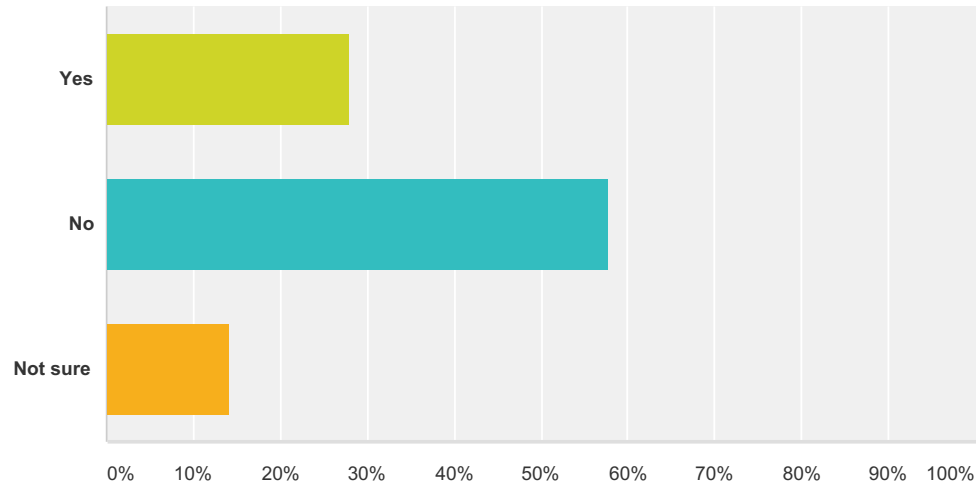
Answered: 158 Skipped: 38



Answer Choices	Responses	
City-owned property	72.78%	115
Partnering with other public agencies on their property	62.66%	99
Partnering with homeowners associations/neighborhood owned properties	53.80%	85
Partnering with private land owners of aquatic habitat or associated buffer areas	73.42%	116
None of the above	0.63%	1
Don't know/no answer	6.33%	10
Total Respondents: 158		

Q12 Do you live in a neighborhood that owns and maintains a private stormwater facility (for example, ponds, swales/ditches, etc.)?

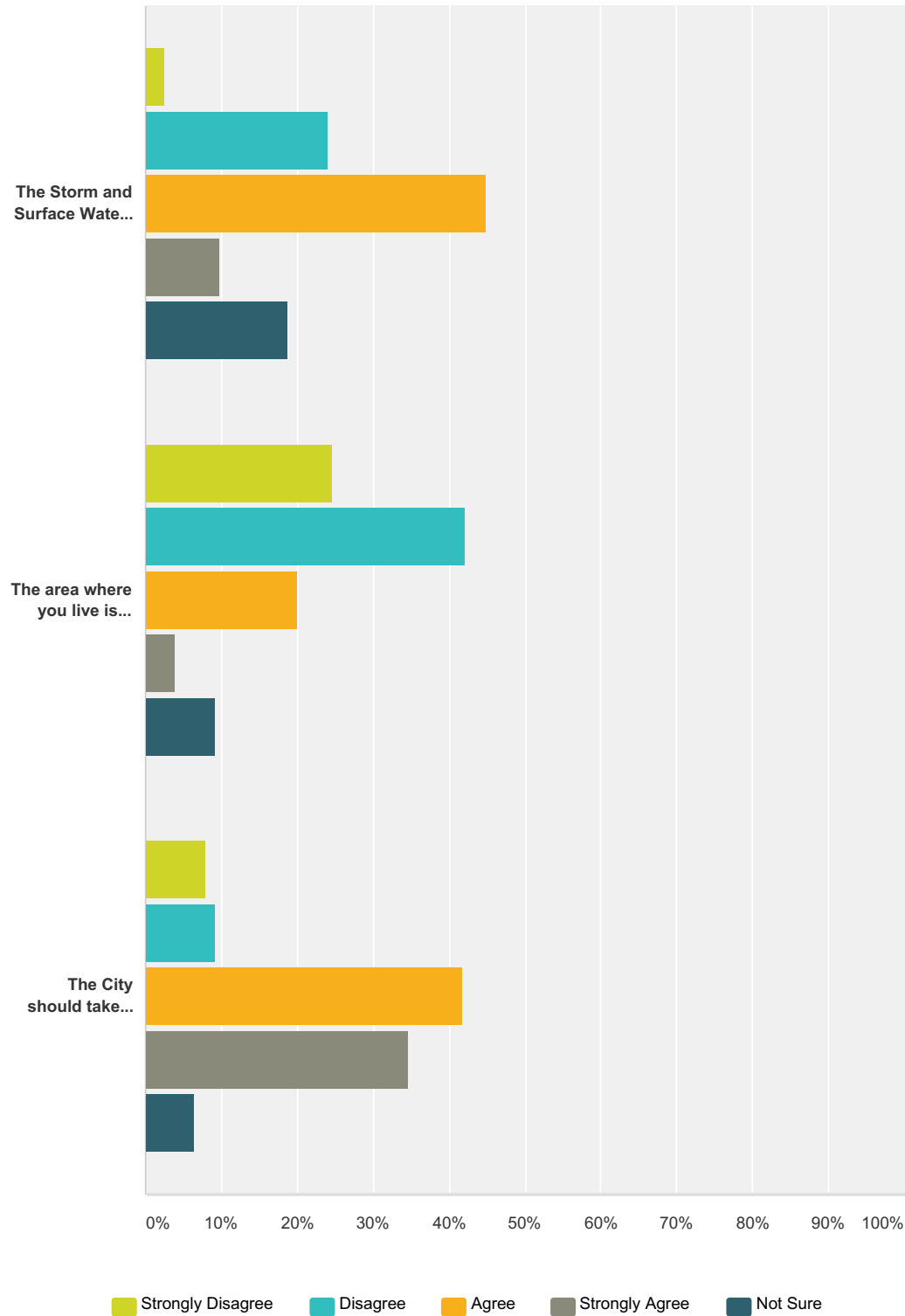
Answered: 154 Skipped: 42



Answer Choices	Responses	
Yes	27.92%	43
No	57.79%	89
Not sure	14.29%	22
Total		154

Q13 Please rate whether you agree or disagree with the following statements:

Answered: 154 Skipped: 42



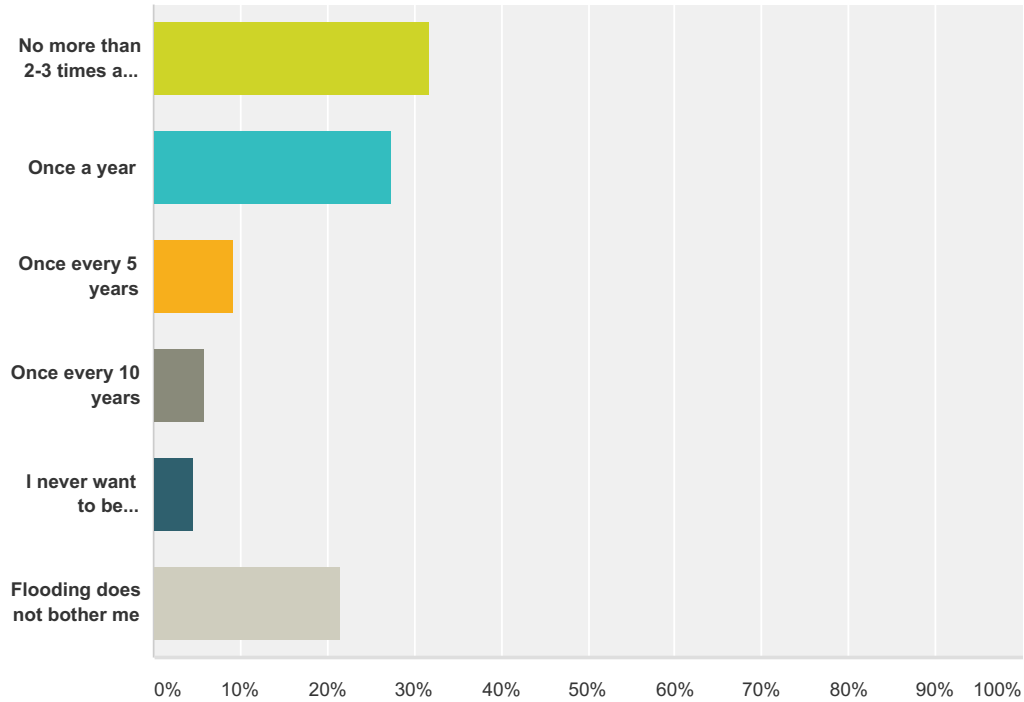
	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Sure	Total
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Storm & Surface Water Plan Survey

The Storm and Surface Water Utility should dedicate more resources/funding to correct flooding issues.	2.60% 4	24.03% 37	44.81% 69	9.74% 15	18.83% 29	154
The area where you live is susceptible to flooding during heavy storm events.	24.68% 38	42.21% 65	20.13% 31	3.90% 6	9.09% 14	154
The City should take reasonable steps to mitigate the effects of climate change and sea level rise.	7.84% 12	9.15% 14	41.83% 64	34.64% 53	6.54% 10	153

Q14 How often do you reasonably expect to be inconvenienced by stormwater related flooding issues in the City?

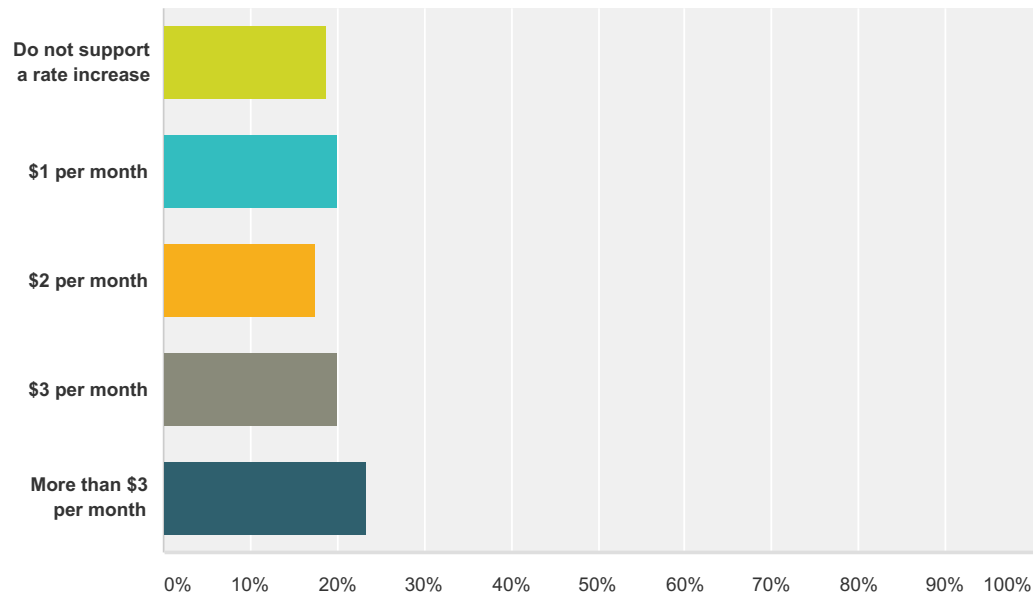
Answered: 154 Skipped: 42



Answer Choices	Responses	
No more than 2-3 times a year	31.82%	49
Once a year	27.27%	42
Once every 5 years	9.09%	14
Once every 10 years	5.84%	9
I never want to be inconvenienced	4.55%	7
Flooding does not bother me	21.43%	33
Total		154

Q15 The Utility has many goals and challenges ahead to prevent flooding and improve both water quality and aquatic habitat. To what extent, if at all, would you support a monthly rate increase to fund this work?

Answered: 154 Skipped: 42

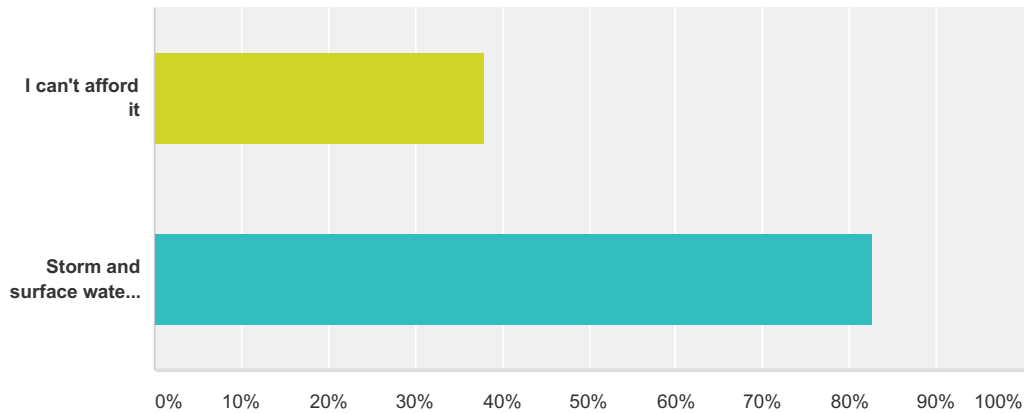


Answer Choices	Responses	
Do not support a rate increase	18.83%	29
\$1 per month	20.13%	31
\$2 per month	17.53%	27
\$3 per month	20.13%	31
More than \$3 per month	23.38%	36
Total		154

Storm & Surface Water Plan Survey

Q16 What would be the main reason you would be inclined to oppose a rate increase? (mark all that apply)

Answered: 29 Skipped: 167



Answer Choices	Responses
I can't afford it	37.93% 11
Storm and surface water rates are already too high	82.76% 24
Total Respondents: 29	

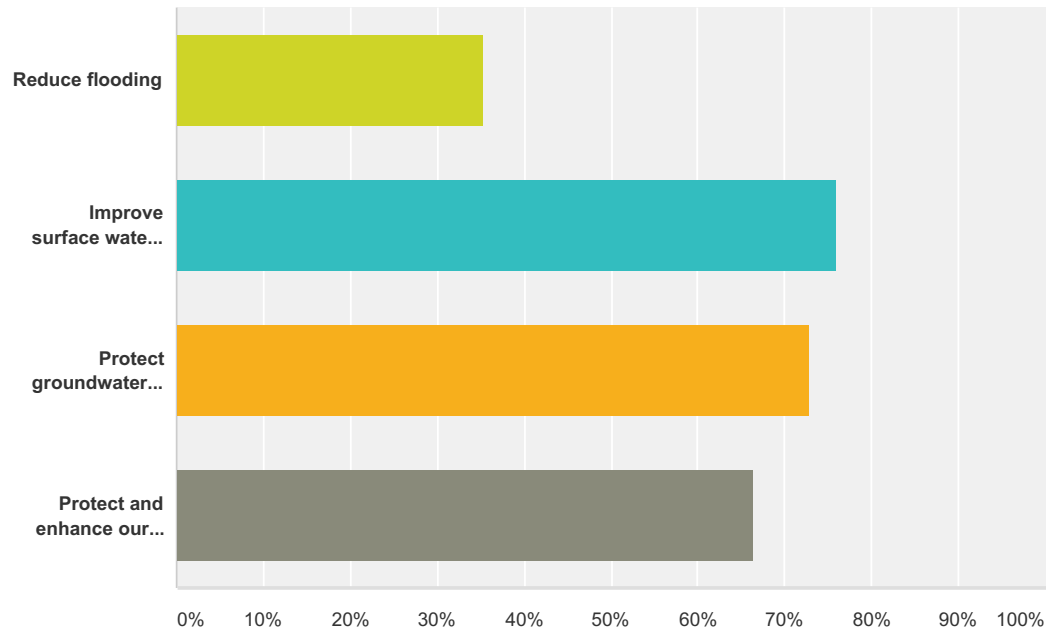
#	Other (please specify)	Date
1	There are too many other assessments, levies already	6/12/2016 9:27 AM
2	Too much waste in all branches of any Government	6/10/2016 10:37 PM
3	As a homeowner and business owner in have to opeate budgets for both within my means. Especially as a small business owner, I pay a large amount of taxes already to city, state, and federal governments. Anytime anything new is suggested to be done, it always seems to come with yet another new tax. Government needs to learn, like it's citizens who provide the taxes, that they have a finite amount of resources. And learn to prioritize budgets and efficiency, rather than just always looking to add yet another tax or fee.	6/9/2016 10:48 PM
4	Flat tax is regressive, costs should be in line with income.	6/8/2016 4:26 PM
5	The utility already wastes too much money	6/5/2016 3:21 PM
6	A clear presentation of where funds would actually be distributed would be of necessity for me to approve a rate increase.	6/5/2016 9:43 AM
7	The City needs to take a good hard look internally for cost savings before asking the citizens for cost increases.	6/4/2016 8:37 PM
8	Development fees that are targeted at DEVELOPERS on bigger projects and not people building there own home should be taking up the these extra expenses. Also, increasing fees on commercial properties that have a certain percentage of the lot developed can subsidize any increase in costs. I repeat not single family home owners! But yes to landlords that own and operate more than one rental unit. The latter being a way to keep incentive for renting a room or adu in the city.	6/4/2016 5:02 PM
9	City Should work with the budget they have, and focus their efforts on matters that are important, and let go of areas that are irrelevant.	6/3/2016 8:20 PM
10	The City of Olympia is constantly raising taxes. Prioritize!!!	6/2/2016 9:26 PM

Storm & Surface Water Plan Survey

11	Until the city is able to get a handle on our youth homelessness issues, high rates of unemployment, lack of mental health services, lack of affordable housing, and increase in poverty based crime across all four corners of Olympia - I will not support new revenue spending on privileged activities. Saving parks and wetlands while admirable and something I have long supported for decades, is not enough for our community. Our community of humans need more right now. Bring us questions about how you want to serve the real, basic, human needs in our community and I will provide a resounding YES!	6/2/2016 7:10 PM
12	Non resident	5/24/2016 9:07 PM
13	Be more efficient with the money you have. My bills (taxs fees) keep going up and I just can' tell my boss to give me more money SO your organization needs to do what I ahve to be more efficient priortitize what you want to do.	5/24/2016 2:50 PM

Q17 What would be the main reason you would be inclined to support a rate increase? (mark all that apply)

Answered: 125 Skipped: 71



Answer Choices	Responses
Reduce flooding	35.20% 44
Improve surface water quality in our streams and Puget Sound	76.00% 95
Protect groundwater quality	72.80% 91
Protect and enhance our aquatic habitat	66.40% 83
Total Respondents: 125	

#	Other (please specify)	Date
1	Mitigate effects of climate change and sea level rise	6/10/2016 1:05 AM
2	Sea level rise seems like an expensive problem.	6/8/2016 7:27 AM
3	proactive versus reactive stewardship	6/7/2016 5:43 PM
4	The public needs to be educated in what is ground water pollutants along with food and wild life pollutant! Like round Up... This product should be band! It has carcinogens that kills fish, birds, bees and now humans . These types of poisons should be known to all. Most people have no idea they are killing everything!	6/7/2016 6:43 AM
5	Support the education, outreach, and improvements needed to help Olympia survive the next 100 years	6/6/2016 6:36 AM
6	daylight streams	6/5/2016 2:34 PM
7	Restore the Deschutes Estuary	6/4/2016 10:18 PM
8	Return Capital Lake to an estuary.	6/4/2016 6:37 PM
9	SEA. LEVEL. RISE. Plan for mitigating and adapting to SLR is essential, and we need to start now.	6/3/2016 10:20 PM

Storm & Surface Water Plan Survey

10	I'm under the impression that StreamTeam programs are well funded. Water quality should be a top priority. I'm not sure what the current budget is or what the budget needs are, so this is difficult to answer.	5/25/2016 11:10 AM
11	For reasons stated in survey: Drastically decreasing the toxic content of stormwater flowing straight to surface waterways & the Puget Sound!!, protecting/restoring/acquiring high quality habitat, restoring lower quality habitat - as in keep our current green space undeveloped, collaboratively developing and implementing policy to protect surface/groundwater and habitat, and Education! Education! Education! - improving citizen behaviors on large scale would have large impact as well.	5/25/2016 11:07 AM
12	Flow control!	5/25/2016 9:20 AM
13	Sea level rise protection!	5/24/2016 10:09 PM
14	I'm not a guru or anything. Just going with my gut.	5/24/2016 12:41 PM

Storm & Surface Water Plan Survey

Q18 Is there anything else you would like the City to consider as we develop the Storm & Surface Water Plan?

Answered: 62 Skipped: 134

#	Responses	Date
1	Save Ward Lake	6/13/2016 5:20 PM
2	Information available to residents on specific project issues of how other comparable municipalities dealt with or solved their problem including the costs.	6/12/2016 9:29 AM
3	Working with the State to eliminate the 5th street dam and re-establish something like a natural estuary	6/11/2016 8:42 PM
4	Focus on the nasty manmade pollutants such as cars and lawn chemicals and leave the septic people alone	6/10/2016 10:39 PM
5	Setting up workshops for local residents to be more educated about storm and surface water would be very beneficial. Working with more school aged children on a regular basis will set future generations up to be more aware and involved with issues that involve storm and surface water.	6/10/2016 10:33 AM
6	Thanks for asking. The storm drains on our street are sometimes overwhelmed, and the storm water ends up in watershed park, Un treated, and sometimes in our basement. We do our best to keep the drains flowing, but some rain events are simply too big for the drains to handle.	6/10/2016 9:54 AM
7	Connect people to their pollution.	6/10/2016 9:38 AM
8	Incentives for rain catchment systems on private property (small scale and large scale, e.g. rain barrels to large cisterns)	6/10/2016 1:07 AM
9	Learn to prioritize and streamline. Live within a budget like the taxpayers and small business owners have to. Engage the public in discussions for moving forward and actually listen to the people who provide the taxes that provide your jobs. And when the majority of people oppose an idea, follow the will of the people, rather than force an unpopular idea upon your constituents for ideological reasons.	6/9/2016 10:52 PM
10	Thanks for this survey and great video!! :-)	6/9/2016 7:52 AM
11	Stay within your existing budget.	6/9/2016 6:00 AM
12	it was difficult to say what the City should do more or less of because I'm not familiar with what the current focus of resources are, what have been the accomplishments and what the outstanding needs are.	6/8/2016 8:25 PM
13	I would like the City to be cautious of any plans that would raise costs for low-income residents.	6/8/2016 4:29 PM
14	More incentives for building rain gardens and removing bulkheads from shoreline properties for homeowners. Also more outreach about pollution prevention to businesses and residents is a must!!	6/7/2016 10:18 PM
15	I have my personnel opinions about this, born and grown up in Olympia certain developments have confused me. I thought this was a good survey. Thank you for reaching out.	6/7/2016 6:20 PM
16	Partnerships with Land Trusts, Conservation District, others to share the works load and expertise. Integrate Green stormwater infrastructure into long term planning. Better street tree policies and space- physical space, to accommodate healthy growth for large trees with less issues with sidewalks. Hire landscape architects who integrate ecology and public space thinking- don't just rely on engineers, though of course they are critical but they don't think outside of the box enough.	6/7/2016 5:46 PM
17	I think you're doing a great job!	6/7/2016 7:18 AM
18	I may seem harsh about my lack of support for flood victims, but seriously. It's Oly. It rains, and global warming is NOT news. Move to higher ground. I wish this survey were more clear about what it's asking on the issue of flooding. Is it the pollution say from treatment plant overflow? Or the damage to property?	6/6/2016 10:43 PM
19	Sealevel rise is going to happen, so we should relocate effected businesses and structures, strengthen shoreline planning regulations and not allow more development in flood zones.	6/6/2016 3:41 PM
20	Tax developers who create these externalities in the first place to fund programs to remediate the harms they cause.	6/6/2016 8:15 AM
21	street erosion	6/6/2016 6:37 AM

Storm & Surface Water Plan Survey

22	When considering street related storm water work give priority to projects that will also provide walkability benefits. For example the West Bay project that included sidewalks.	6/5/2016 5:31 PM
23	Daylight streams and restore stream/shallow aquifer interaction	6/5/2016 2:36 PM
24	Draw down retention areas and wetlands ahead of rainy season, if these areas have outflows and other areas to divert excess water to. Example: Royal Gardens Wetland has outflow pipe that could be used to divert water during spring and summer to eliminate anticipated high water in rainy season. These areas, when they maintain maximum level for long periods affect groundwater levels in surrounding areas and don't allow adequate time for recovery after above average rain seasons. 2016 is good example of high levels that could be mitigated to help recover in advance of 2017 winter.	6/5/2016 1:21 PM
25	Thank you for requesting public input. I would be interested in the results of the survey.	6/5/2016 9:44 AM
26	To ask whether we should protect against sea-level rise is certainly warranted. However, different areas of Olympia present different challenges and different potential rewards when it comes to sea-level rise. For example, the need and potential reward is great when considering anything south of State St, excluding the Isthmus. That calculation is different entirely - opposite in fact - when considering West Bay, where there currently is NO investment or significant infrastructure to protect. The Isthmus is somewhere in between. Thus, I would like to see sea-level rise questions further differentiated by region and neighborhood.	6/5/2016 9:18 AM
27	I would like the city to focus on seeing the entire water system in a natural continuous, connected way, and to focus more on stewardship of nature and less on human convenience. Given the realities of climate change I would like to see the city protect and value the natural environment while we still can.	6/5/2016 8:53 AM
28	For rate increases have a slight increase for those using an average amount of water, no increase or a slight decrease for those using less than average and a larger increase for those using more than average. Balance it so funds are increased but at the same time there is an incentive for users to decrease the amount of water they use. Also, take into account water capture features such as rain barrels, grey water systems, swales, ect. Thanks!	6/5/2016 8:29 AM
29	We cannot expect the city to solve the climate change changes and flooding issues caused by it. If you can, great, but I will not expect it. What I am looking for is cleaner healthier water. Not putting and preventing pollutants in Puget Sound or other water bodies.	6/5/2016 7:42 AM
30	Occasional flooding doesn't bother me. But taking into account the climate change/sea level rise, I feel like we would have to move downtown Olympia to actually 'save it' since it is so close to the water. I guess more education about the projected impact rising sea levels might actually have would be a better place to start.	6/5/2016 7:24 AM
31	No, and thank you	6/4/2016 10:30 PM
32	Set the River Free	6/4/2016 10:19 PM
33	Innovation and solid hard work is the answer to solving may of the issues, not rate increases. Please do not increase rates. There are solutions and enough is enough.	6/4/2016 8:38 PM
34	Homeless populations "camping" in our parks and open space areas means increases feces and other pollution in our surface water	6/4/2016 7:24 PM
35	Please consider the return of Capital Lake to an estuary as possibly addressing several goals for surface water solutions.	6/4/2016 6:40 PM
36	This may or may not tie into the plan, but I live in the northeast district. I have a disabled son that uses a wheelchair. There are so many curbs uncut in our neighborhood that we often don't even use the old, neglected sidewalks most of the time. Before the city's tarts dumping money into incentivizing downtown for big Seattle developers and finding yet another way to get the working class people of this city to pay for it. Let's focus on making our current neighborhoods a better, safer, place to live for the people that live in them land holders or not.	6/4/2016 5:06 PM
37	How about helping homeowners capture rainwater for yard watering and toilet flushing use?	6/4/2016 4:11 PM
38	Make sure that a portion of the funds go to employees in the field for self care and protection.	6/4/2016 10:52 AM
39	Let's bring SLR into the limelight. It's all important - everything in the survey is important - and, we need to start talking more about the elephant in the room.	6/3/2016 10:20 PM
40	Yes, why on earth do we have a combined sewer and stormwater system? This is the real issue that should be addressed. Start implementing a solution now (impact fees etc.) So you will have the funds to take care of it in 5-7 years.	6/3/2016 8:22 PM
41	Incentives for housing developers to choose as high as possible on the LID list. E.g., maximum allowed reduction of permit fee for full infiltration, 2nd highest reduction for 2nd choice, etc.	6/3/2016 10:57 AM

Storm & Surface Water Plan Survey

42	I don't think it's appropriate to be making ecology policy decisions based upon the results of a survey. Without data and context, my opinion is uninformed. I trust the talented staff at the City of Olympia to evaluate the data and make the tough choices about priorities. You're qualified and I'm not. Science should not be based on popular opinion.	6/2/2016 9:54 PM
43	The city and the state could prioritize one thing to do the most for habitat improvement and that would be to make Capitol Lake an estuary. I've been a big supporter of Olympia and measures like 3% for parks and sidewalks, but the city council's relentless desire to fund something new by raising taxes makes me want to move to the county. Please prioritize and operate within your budget. Enjoy our gorgeous city hall (which your predecessors chose to build in the flood plain).	6/2/2016 9:32 PM
44	keep up the good work and give Otis a raise	6/2/2016 8:40 PM
45	Fund the plan so it gets done	6/2/2016 7:08 PM
46	Make the isthmus a park.	5/27/2016 10:46 PM
47	Take out the 5th Avenue dam so that salmon, water fowl and other marine life can enjoy a healthy Olympia estuary again.	5/25/2016 3:08 PM
48	Continue to work on hybrid stormwater / habitat areas.	5/25/2016 12:55 PM
49	Bring in your social scientists. These are the people who understand people: how to message your requests, how to solicit feedback, how to get invested participation, how to facilitate collaborative efforts, etc. The development of this plan should be led by social scientists, natural and physical scientists and bureaucrats are stakeholders at the table. The latter are there to vet the plan for their areas of expertise, not guide the process. That is not their area of expertise. Be collaborative! Work with non-profits, districts, government at all levels, community organizations, etc. Create plans/ideas together and folks will have a vested interest in implementation and stewardship. Don't know any of your staff, so not personal, - Don't send leaders, planners, and implementers who do not actively listen, value others perspectives, etc. to the collaborative table. Common error in collaborative nat resource mgt - Don't send the person with tenure or the person in charge - send someone who works great on a team, great communicator, inspires others, and follows through! Hire someone new if needed. Set the process up for success.	5/25/2016 11:16 AM
50	Keep education and water quality a priority. You-all do great work! Thank you.	5/25/2016 11:12 AM
51	Please don't ignore or gloss over the important relationship between flow control and habitat protection.	5/25/2016 9:21 AM
52	im not sure how the money is partitioned now - providing that information would improve my answers to the survey.	5/25/2016 7:26 AM
53	Install backflow prevention devices/tide gates, etc. in stormwater lines that flow into Capitol Lake and Budd Inlet so there is no possibility of stormwater coming up in downtown Olympia. Ensure that all I&I issues are quickly addressed. Target the problematic areas of the system first, we know where they are. Combined sewers in the downtown area should be separated as opportunities arise.	5/25/2016 6:29 AM
54	More emphasis on sea level rise.	5/24/2016 10:10 PM
55	Use funds you have already more efficiently. Set your priorities and goals. Thank you for your time and efforts.	5/24/2016 2:52 PM
56	Of course we can't have it our way all the time, but I only support a rate increase if I support the direction the City is heading with projects. Restoring Puget Sound? Great, let's talk about the estuary. Sea-level rise and flooding? Ok, let's talk about a slow retreat from downtown. If the City is going to continue to have unrealistic expectations about what it can manage in the future, then I don't trust the City with additional money.	5/24/2016 2:27 PM
57	I think your (our) biggest challenge relating to flooding is sea level rise. Minor flooding in heavy rain events is ok in my book. Thanks for asking.	5/24/2016 2:26 PM
58	Thank you!	5/24/2016 1:52 PM
59	Is there anyway we could clean up Capitol Lake. We used to swim there as children. I would like my grandchildren the opportunity to be able to do this too!	5/24/2016 12:56 PM
60	I appreciate going to the people, but it's a good idea to listen to a Stormwater Guru, as well. To me, your main job is a health protection service- human and non-human, both. If flooding endangers someone's life, it's a problem. If it makes it annoying to get to work, your resources can be spent elsewhere. I care about the habitat for animals in and around town, but I care about drinking water more because I'm selfish- love drinking water. If you could keep us safe and help the animals and plants our developments have harmed, that'd be ideal. The Stormwater Guru probably knows the best way to do that.	5/24/2016 12:45 PM
61	I would like to see the city use trees along roadways that are fruit bearing trees are native to the PNW. I see so many non native trees in neighborhoods or ones that people are allergic too.	5/24/2016 12:33 PM
62	look into permeable pavement!	5/24/2016 10:02 AM

**Aquatic Habitat Focus Group
Storm and Surface Water Plan
July 8, 2016, 2:00-4:00 p.m.**
Jesse Barham (Associate Planner)
and Laura Keehan (Senior Planner)

City of Olympia: Jesse Barham (Associate Planner) and Laura Keehan (Senior Planner)

Focus Group: 11 Meeting Participants and 2 Email Contributors

BACKGROUND INFORMATION – CITY OF OLYMPIA STAFF PRESENTATION

The Olympia Storm and Surface Water Utility is in the process of updating their strategic plan for the next 10 years. We would like your feedback on our proposed strategies to address the Utility's mission to protect and enhance aquatic habitat City-wide. We have provided the relevant goals and policies from the City's Comprehensive Plan, a progress report about the work of the Aquatic Habitat Pilot Project from October 2014 to April 2016, and the draft Goals/Objectives/Strategies as background (see attached).

Storm and Surface Water Utility's Mission: We provide services that protect against flooding, improve water quality, and enhance aquatic habitat.

Current Utility Resources for Aquatic Habitat Work

Staff:

- 2.5 City employees are available to work on aquatic habitat (including planning, technical support, and environmental education/citizen science).
- 1 Six-person Washington Conservation Corps Crew provides seasonal labor.
- 1 intern or Americorps volunteer (6-10 months a year).

Other Resources:

- Funds for plants, supplies, etc. (\$10k+ annually)
- Potential capital funding - for acquisition or larger capital improvement (e.g. fish passage)
- Grants
- Volunteers

QUESTIONS AND GROUP FEEDBACK – INPUT PROVIDED AT THE MEETING BY ATTENDEES

General

- Water quality should be a part of work in other city departments, not just the SSW Utility.

Question 1 - After reviewing the pilot program report what are your thoughts on the direction we have taken? Anything you think we should focus more on? Aspects that should be emphasized less?

- Focus less on removing ivy, give up.
- You can be successful in ivy removal. A forest of native plants is better than ivy. If ivy is allowed to grow it will destroy the native ecosystems, native plants (herbs, shrubs and trees) and everything that is dependent on them.
- Question how much of your limited resources should go toward Ivy control given your mission. Maybe Utility's role should be more to help connect interested groups with other resources like Thurston CD, etc.?
- Appreciate the help of the Utility on the heron rookery. The CNA supports this too.
- LOTT does not treat all stormwater downtown, only some and not for all contaminants.
- Strengthen the understanding between water quality and flooding—more education.
- Want more information about the program to the public. More education for general public.

- Demonstration projects are effective education.
- NW and SE have street flooding and the city could put rain gardens in to help remedy.
- Good examples in Seattle/Portland Green Streets Programs and Thornton Creek Project.
- Define what you're going to accomplish and why.
- Resources are limited so be smart about where to invest money and time. City may not be best entity to do every project, may be another organization.
- Focus more on influencing city regulations because SSW Utility is best entity to do this.
- Put up some notices at the bakery, etc. where local citizens could find out more about the Mission Creek pilot project and get involved. The buffer properties could be part of the project.

Question 2 The Utility's resources are limited. Please rank these priorities:

- Working on vegetation management in and adjacent to aquatic resources (streams, wetlands, Budd Inlet shoreline). Is working on City-owned land more important (e.g. Parks, Water Resources); provide support for stewardship activities on private property ; or partner with homeowners associations on critical area/tree tract management**
- Larger capital projects (West Bay Shoreline Restoration or Ellis Creek Fish Passage)**
- Education and outreach to the community - In general across the city, or target owners and properties with aquatic resources?**
- Tracking the condition of local aquatic resources (macroinvertebrate monitoring in streams, citizen science programs);**
- Buy land or development rights on property with important habitats**

- Important to keep the overall goal in mind, rather than individual small projects. Approach from the system level because approach may be different for different stream systems. Look at long term view rather than short.
- It's easy to look at low hanging fruit like Mission Creek, but it overlooks Moxlie Creek and that takes the short view. It's an oversight to leave Moxlie in a pipe.
- Tracking the condition of aquatic resources should be a higher priority. Address the harder projects and state what interim steps could be taken.
- Take the watershed approach. Revisit the old plans and update them. It's where you can plan the bigger projects.
- A lot of what we need to do we already know. Moxlie, Ellis, Schneider, West Bay Shoreline are projects only the city can do. You can't buy it all, but prioritize based on imminent threat and habitat degradation.
- Work with Capital Land Trust and other partners.
- Many opportunities for partnerships. Would love to leverage resources with the city.
- There's a lot of available science—prioritization tools for this area already exist.
- Tracking of conditions needs to be in place and cannot be ignored.
- Tool to be used is a case by case exercise that should be based on professional judgement.
- Action is education.
- Have the creek systems been prioritized?
- Caution against using anadromous fish as the decision criteria. Some of the creeks are of high importance for other reasons.
- What role does Utility have in private development proposed for important habitat areas? Is Utility being heard by other departments? Utility should have more role in review process.
- There are regulations regarding low impact development going through approval process now that may help new development review.
- Low impact development can only prevent things from getting worse, it won't improve things.
- What is Utility's habitat role in private development review? Utility should have more influence.
- Basin planning approach can have a huge impact, e.g., Green Cove Basin project/zoning.

- County is doing basin planning in McLane basin now, and Deschutes soon. Also doing LID update now.
- League of Women Voters did a water resources study in 2008, noting the Tribe vetoed the Water Resource Inventory Plan for the Deschutes River. Water quality issues in town are more important for Budd Inlet than the upper Deschutes.
- Don't reduce wildlife to salmon, take an ecosystem approach. It's about the whole ecosystem. Don't give up on ivy removal.
- Just bringing back the salmon may not bring back the whole ecosystem, so don't focus only on target species.
- Don't only focus on one species. Work toward natural process restoration.
- We will never get back to what we had, but we can try to restore what we can.
- It's important for city to take lead role in restoring its own properties and they're great demonstration projects. Start with city properties.
- Don't make it hard for citizens to do restoration on their property, make it easy. Have a program to help the citizen.
- Most people need support and training from the city to restore habitat on their properties properly.
- Targeting properties with aquatic habitat resources is more important than other properties.
- Education is needed about how to deal with slopes, invasives, and stream sides.
- Steep slope vegetation management and drainage workshop in the past was well attended.
- Do you partner with Stormwater Stewards and WSU? Seems like a good marriage.
- HOAs are getting stronger and is an excellent way to get education out. Also NextDoor is useful.
- How can the city be a push or tipping point for some issues, e.g., partnership with WA Toxics Coalition educating or banning some yard chemicals. Look beyond what the utility has done in the past for new partnerships.
- Think of monitoring and adaptive management, not just monitoring. Evaluate the effectiveness of what you've been doing and hold yourself accountable. Monitoring can help you be accountable. TRPC did a CAO effectiveness study and it was helpful study.
- Baseline information needed for monitoring to be effective and it's expensive. It's hard to do.
- Need to evaluate effectiveness in order to learn from mistakes, change course, and be accountable to the public. TRPC report (Morrison) or 2014 King County CAO Effectiveness Monitoring effort (Lucchetti). GIS analyses, etc. see:
<http://www.kingcounty.gov/depts/dnrp/wlr/sections-programs/science-section/critical-areas.aspx>

Question 3 - Olympia is a matrix of urban and suburban development. This development over the decades has put ongoing pressure on aquatic habitat in Olympia and much of what was developed before 1990 did not construct stormwater treatment. How do you think this should affect our aquatic habitat goals? Invasive species? Stormwater/surface water quality concerns? Where to focus our efforts? (Geographically, habitat types, programmatically)

- Think about the Green Streets model, how many small retrofits could you do to deal with stormwater rather than large capital projects? Look at stormwater as a resource. There's a lot of opportunity for retrofit.
- We need to fix old development with retrofits. Example- rain gardens in some parking spaces downtown. There's more maintenance by the utility needed for LID.
- Combined sewer in Olympia may become a problem.
- Depending on the watershed, the priorities may be different. Prioritize watersheds, and then prioritize the type of work needed in each watershed. Watershed approach to prioritizing.
- The Tribe and SPSSEG have a lot of basin prioritization work done already.
- Don't limit to only city limits. Work with County, State, etc.
- Update the city's existing basin plans.
- Concerned about infiltrating all the stormwater rather than having as much evapotranspiration as forested condition. Where is planting trees in your program?

- Roof gardens transpire back to the air.
- Evaluate graywater options. What are other jurisdictions doing.
- Infiltrating stormwater is unlikely to negatively affect the water table.
- Integrate flooding, habitat and water quality more in our planning and projects.
- Work with school districts on their properties.
- Work with other government owned properties. Also, other common-owned properties.
- Think about getting the habitat skill set to other utilities and city operations.

Question 4 - The Draft Plan Goals, Objectives and Strategies (attached) are listed roughly in priority order to achieve the objectives given the mission of the Utility and the City Comprehensive Plan. Do you agree with these rankings? What might you change? Are there other objectives and strategies that we may be missing?

- Objective 3B and 3C should be combined, it will be simpler. Enhancing and restoring are very similar.
- Restoring is the most difficult and often most ignored.
- Restore on city property and restore on private property could be two separate objectives.
- Consider having mid-plan check-ins before the end of the ten year plan. Can use adaptive management if things are not working as planned.
- Next step might be evaluating watersheds basin by basin using a set of criteria.
- Not sure you can set priorities overall because this will be watershed dependent. Look at multiple criteria for each basin and describe it in the plan.
- Indian/Moxlie is one of the most severely impacted ecosystems in the city.
- The plan should be a resource for other city departments for planning and projects.
- Split the “hows” out of the strategies.
- Can you combine or simplify some of the strategies?
- Can you prioritize the basins and then prioritize the actions within the priority basins? That can help guide the work of the utility over the years.
- By managing more stormwater onsite you’re decentralizing the maintenance too, which is more difficult.
- It’s important to engage the citizens in stewardship so they value the resource. Maintenance will then be less.
- Climate change. Storm/stormwater water flows? Sea Level Rise? Drought? Precip timing and amounts? What are implications for the Utility of modeled predictions?

Question 5 - If there was one project or program (or type of project/program) that the Utility should focus on to further the aquatic habitat goals of the Utility, what would that be?

- Utility fee fairness is important—incentivize protection of aquatic habitat.
- Riparian vegetation is important—shade and cooling next to streams. Wetland vegetation is also very important.
- Need for wetland restoration and planting is great.
- Storm drain labeling is important outreach tool.
- Prioritize the drainage basins

Written Response 1 - provided in hard copy at meeting

1. Define the objective
 - a. Why do we care about aquatic habitat?
 - b. What is the intended outcome?
 - c. How will we measure progress?
2. Recognize our limitations. Our aquatic/marine habitats will not go back to a natural state anytime soon in the urban area because of the way the land has been developed to date. And we will not get rid of English ivy.
3. Listen to local experts like Harry Branch and Tom Holz. They know what they’re talking about and their assistance is free.
4. Involve the public as much as possible, esp. owner and residents in adjacent lands.

5. My Guess is that riparian vegetation could be the single most important factor. Shade and filtration.
6. Every day and in every way, think “bang for the buck”. Is this activity the one that produces the most improvement per thousand dollars spent. And don’t forget the staff and overhead costs. Is there a better/cheaper way to achieve a result?

Written Response 2 – provided in hard copy at meeting

Thanks for inviting me to a focus group meeting about the Aquatic Habitat. In addition to the meeting (2 PM Friday, with Jesse Barham at City Hall) My Primary Concern!!! Moxlie Creek

Goal 3. Protect, enhance, and restore aquatic habitat functions provided by wetlands, streams, lakes, marine shoreline, and riparian areas citywide

Moxlie Creek has been in a pipe under downtown Olympia for over one hundred years. This fact alone should shake and confound our planning for the future. How can we imagine providing for habitat when an important resource is buried? Goal 3 seems to address it (see above) when it speaks to “...restore aquatic habitat ...” *but an explicit statement of restoration is needed. Here are some of the reasons:*

For one hundred years the stormwater has mixed with the clean water coming down the pipe from Watershed Park. This impact could best be addressed if Moxlie Creek were an open creek. Then the maintenance of the stormwater outflows could be readily monitored. Pollution multiplies in darkness and filth. In daylight, there would be the potential for diversion to raingardens and then to rejoin the creek as cleaner water. This process would be visible and would provide a further opportunity for downtown to witness its role in the nearshore habitat reconstruction. This has been proven in other communities around Puget Sound.

For one hundred years the surrounding soils have lacked the moisture that a flowing stream brings, robbing the soils and microorganisms that have provided the base of the food chain. Other cities have recognized a buried creek as a call for correction. Why has Olympia not included the daylighting as an element in its Comprehensive Planning tools?

For one hundred years the community has built above and around the flood plain of Moxlie Creek, and it has been a poor area of town. The hodge podge of development in the Moxlie Creek floodplain must be reckoned with as a testament to lack of proper regard for the **true asset of the region**. Now that we are likely seeing more development, it behooves the City to redress this wrong.

For one hundred years the tide has come up the pipe and receded, twice a day. The tide brings phytoplankton that is food for a range of animals and insects. This base of the food chain has the useful character of providing food for larger animals, and birds. A habitat-focused planning tool cannot overlook the importance of a resource such as Moxlie Creek. Best available science does not include leaving a stream that connects to salt water in a culvert, buried. Indeed there has been a recent decision where State Supreme Court has explicitly called for correcting blocked waterways.

One hundred years ago a decision was made which needs to be redressed. Much research today indicates that walkable cities are the future. **The vitality of the community is grounded in respecting its water.** Addressing the most egregious errors in water management sends a signal that our community is united in its intention to “protect, enhance and restore aquatic habitat functions”.

QUESTIONS AND GROUP FEEDBACK – EMAIL CONTRIBUTORS

Email Response 1

After reviewing the Comprehensive Plan Goals and Policies, the Habitat Stewardship Report and other documents, I see many good ideas. I'd like to see some of them taken a step further by examining watersheds and factors within them in more detail.

(1) Under Draft Goals it's suggested that we apply a watershed-based approach. This is especially important where the Puget Sound Basin is concerned.

Watersheds are often divided into three categories, the upper, middle and lower watersheds. The Eastern side of the Puget Sound Lowland (PSL) ecoregion, the lower watersheds draining the

Cascades, is already heavily developed. There isn't enough land left to buy and set aside to significantly impact broad areas of this region. We're going to need to better manage land in developed areas. There are countless examples of regulatory success and I believe that's our goal here: To improve the regulatory process. We can make significant improvements. There's plenty of ecology going on in urban areas as demonstrated repeatedly in studies published in journals like Urban Ecology.

(2) The City's urban matrix for priority and impaired habitats should include species down to the size of plankton with particular emphasis on these smaller species. Because phytoplankton photosynthesize, they must live in the well-lit surface layer (the euphotic zone) of a body of water.

The City's Comp Plan calls for restoration efforts based on the best scientific information available, the goal being to restore natural processes and improve the health and condition of Budd Inlet and its tributaries and maintain or improve healthy stream flows that support diverse populations of aquatic life.

In pursuit of these goals, Olympia should add the option of daylighting streams to its Goals and Policies. This would improve the flux between a stream and the adjoining shallow aquifer and it would result in improvement within the stream itself.

(3) When it rains in urban Olympia, water that infiltrates soil has nowhere to go because it can't get through the ubiquitous concrete pipe into the stream to which it would normally drain. In parts of West Olympia the water table resides at the surface. Then when it rains less frequently, water that enters a stream such as Schneider Creek can't get into the surrounding soils. There is no holding capacity in a pipe and we have increased desiccation.

The hyporheic zone is the area of the interaction between a stream and the adjoining, shallow aquifer. Restoring the hydrogeology of this zone can result in greater retention and transfer of water, which results in decreased flooding and desiccation. It also can result in a greater exchange and retention of nutrients and dissolved oxygen throughout the zone, creating conditions for a rich microbial community, influences that can help remediate contamination.

(4) Exposing a stream to sunlight and atmospheric oxygen can make big improvements.

Nitrates travel on the average 18 times farther downstream in buried rather than open streams.

Stream burial in the lower, more urbanized portions of the watershed, has a greater effect on N export than an equivalent amount of stream burial in the upper watershed. Bringing sunlight to a stream in a lower watershed can dramatically improve primary production and nutrient and contaminant reduction.

In conclusion, many cities in the Lowland Ecoregion including Everett, Edmonds and Seattle, are embracing stream daylighting projects. People love streams. The option of daylighting streams should at least be considered and yet it seems to be nowhere in Olympia's bag of tricks. The option effectively does not exist.

Here's an article explaining the significance of the hyporheic zone:

Introduction

Streams are connected to the adjacent unconfined aquifers through the river banks and the bed, and the hyporheic zone consists in the part of the aquifer whose biochemical properties are different from both the surface and the subsurface water. The peculiar properties of the hyporheic environment depend on the exchange of water between the stream and the aquifer, and the environmental consequences of this linkage have recently been subject to a growing interest by many researchers [see, e.g., Jones and Mulholland, 2000]. A large number of field studies have confirmed that water and water-borne nutrients and contaminants are frequently exchanged between rivers and aquifers [e.g., Harvey and Bencala, 1993; Wondzell and Swanson, 1996; Wroblicky et al., 1998; Battin et al., 2003]. This exchange exerts a strong influence on the quality of both surface and subsurface waters. Solutes carried by the stream penetrate into the sediments and are retained for times that are typically much longer than the average in-stream advective timescale [Boano et al., 2007a]. As a result, the in-stream concentrations of pollutants are affected by the exchange with the hyporheic

zone, as observed in many field studies [e.g., Bencala and Walters, 1983; Harvey and Bencala, 1993; Johansson et al., 2001]. The exchange flux also provides the hyporheic sediments with nutrients and dissolved oxygen from the stream, which determine favorable conditions for the development of a rich microbial community [Brunke and Gonser, 1997; Boulton et al., 1998].

<http://onlinelibrary.wiley.com/doi/10.1029/2008GL033554/full>

Here's an article published by 11 EPA scientists explaining nitrogen transport in buried streams

Abstract

Nitrogen (N) uptake in streams is an important ecosystem service that reduces nutrient loading to downstream ecosystems. Here we synthesize studies that investigated the effects of urban stream burial on N-uptake in two metropolitan areas and use simulation modeling to scale our measurements to the broader watershed scale. We report that nitrate travels on average 18 times farther downstream in buried than in open streams before being removed from the water column, indicating that burial substantially reduces N uptake in streams. Simulation modeling suggests that as burial expands throughout a river network, N uptake rates increase in the remaining open reaches which somewhat offsets reduced N uptake in buried reaches. This is particularly true at low levels of stream burial. At higher levels of stream burial, however, open reaches become rare and cumulative N uptake across all open reaches in the watershed rapidly declines. As a result, watershed-scale N export increases slowly at low levels of stream burial, after which increases in export become more pronounced. Stream burial in the lower, more urbanized portions of the watershed had a greater effect on N export than an equivalent amount of stream burial in the upper watershed. We suggest that stream daylighting (i.e., uncovering buried streams) can increase watershed-scale N retention.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4505844/>

And some articles on urban streams recognizing the potential for improvement and hyporheic flux:

- <http://search.proquest.com/openview/47aba6c0f17717c21c33647402c302b4/1?pq-origsite=gscholar>
- <http://onlinelibrary.wiley.com/doi/10.1111/j.1752-1688.2004.tb01591.x/abstract>
- <http://www.sciencedirect.com/science/article/pii/S0169204606001277>
- [http://onlinelibrary.wiley.com/doi/10.1046/j.1523-1739.2002.01067.x/abstract?userIsAuthenticated=false&deniedAccessCustomisedMessage=Email Response 2](http://onlinelibrary.wiley.com/doi/10.1046/j.1523-1739.2002.01067.x/abstract?userIsAuthenticated=false&deniedAccessCustomisedMessage=Email+Response+2)

Q1.a. *First, the utility is spending a minimal amount of funds on aquatic habitat. The amount of stormwater utility funding for aquatic habitat goals should be increased. The main focus should be on daylighting streams and land acquisition. We should focus on these efforts before land covering streams is further developed or aquatic habitat land is gone or too expensive to buy.*

Q1.b. *I believe the utility is tackling "low hanging fruit", i.e. education, invasive species, and tree planting in its pilot project. Although these activities are valuable they should come after more important projects such as daylighting streams, and land acquisition.*

Q2. *Larger projects, such as daylighting streams, buying land or development rights on lands associated with aquatic habitats should be ranked as the highest priorities. My ranking daylighting streams, e, a, b, c, d.*

Q3. *The Utility should focus its efforts in Olympia. We should try to restore as much of our aquatic habitat as possible and improve water quality. Daylighting streams would be an important step in this process. It would also provide the people of Olympia additional scenic waterways. Once streams are daylighted, birds and aquatic species would increase and the health of Puget Sound would be improved. These visual urban waterways would enhance people's understanding of aquatic habitats. As urban development and impervious surface increase, it will be increasingly difficult to meet the Utilities stormwater goals. That is why acquiring aquatic habitat land is so crucial.*

Q4.a. *Goal #3C and its accompanying strategies should be ranked higher. It should come under goal #3B. Strategy 3A4 should be ranked higher. It should come after strategy 3A1.*

Q4.b. *Strategy 3A4*: Acquire important habitat areas or easements as opportunities arise (partner with other departments/organizations). This policy is too passive it should be stronger. I suggest the wording be changed to: *Identify and acquire* important habitat areas or easements (partner with other departments/organizations as needed)

Q4.c. *There should be a goal for daylighting streams and creeks.*

The utility should partner with Parks and Recreation on programs, for example members of PRAC, the UAC, and OPC developed recommendations for an urban forestry program. These recommendations have not been implemented. Many of the urban forestry goals would also serve to enhance and preserve aquatic habitats. The Utility should work with Parks and Recreation on projects that would meet combined goals.

Q5. *Daylighting Moxlie Creek.*



You are invited to an
Open House

for the Storm and Surface Water Plan Update!

Drop in and review the strategies proposed in the Storm and Surface Water Plan update. Talk with staff, learn more about the plan, and give us your thoughts on what's important. We want to hear from you!

A short overview presentation will be given at 5:30.

Wednesday, August 10

5:00 - 6:30 p.m.

Council Chambers, Olympia City Hall

601 4th Avenue E., Olympia



Storm and Surface Water Plan Open House August 10, 2016

Written Comments Received

- I did not see mention of infiltration infrastructure. Also, I hope catch basins will be integrated into park planning. (No more rain prisons).
- With technology the storm water could be processed to power “something” that could pay for itself.
- Catch flood waters at their most powerful and with technology use those powers to power something or store energy.
- 65-0!
- For Marcus—check ditches and culverts on Wiggins.

Public Comments and Responses on the **Draft Storm and Surface Water Plan August 2017**

COMMENT	STAFF RESPONSE
Water Quality Challenges are summarized as among other things a necessary reliance on the public to control non-point sources. The term “source” doesn’t necessarily mean “origin”. A source can be a bottleneck, a place where substances from different origins come together. Many non-point origins of surface runoff could be listed as one known source, the ubiquitous curb and gutter. Has the City considered removing curbs and gutters and replacing them with natural swale?	Thank you for your comment. The Utility’s local analyses as well as studies performed by Ecology both concur that runoff from pollution generating surfaces are a primary source of pollution that is effecting surface water quality. (See Appendix 3.) As such the Utility proposes to address the problem at numerous levels: 1) Reducing pollutants before they enter the roadway (through education and code enforcement actions). 2) Remove pollutants from the roadway before they enter the stormwater system. (i.e., targeted street sweeping) 3) Removing pollutants from the stormwater system before they enter surface waters (media filters, bio-filtration and other LID) and sediment removal from catch basins and storm ponds. 4) Targeted retrofits of existing roadway and stormwater systems in high traffic sub-basins. Existing shallow communications and gas utilities and water services within the planter strips have been a challenge to creating new bioretention swales. 5) Enforce design and construction standards for new developments (public and private) requiring Low Impact Development, which includes bioretention swales.
Aquatic Habitat Challenges are summarized as habitat fragmentation and general impacts of urban development. Aquatic habitat means more than anything habitat for plankton. Phytoplankton are the base of the food web, they incorporate nitrates into the system and generate dissolved oxygen. Nitrates travel 18 times farther in a buried pipe than one on the surface.	Thank you for your comment. Supporting a full range of ecosystem processes will be considered in Utility aquatic habitat work.
Most surface water once ran in streams. Diverting a stream into a pipe separates the stream from its hyporheic zone, the area of saturation surrounding the stream. Contamination could be remediated here by among other things living organisms. Has the City considered daylighting any streams?	In the past the City removed a section of Indian Creek near Plum and I-5 from a culvert. Planning work is currently underway for potential restoration of piped streams/estuaries at West Bay Park. Other longer sections of piped streams in Olympia (e.g. Schneider and Moxlie) have many logistical, spatial and cost concerns due to the legacy of development and/or fill on adjacent parcels, space required for a functional stream/estuary restoration, degraded water quality and habitat upstream (high percentage of untreated impervious surfaces in the watersheds). Funding for these expensive projects is challenging in an environment with limited resources available and regional focus on projects with larger benefits per unit cost and better connectivity to healthy intact habitats.

Public Comments and Responses on the **Draft Storm and Surface Water Plan August 2017**

COMMENT	STAFF RESPONSE
The most important section of a stream is its estuary, the all-important mixing zone where freshwater and nutrients enter the marine environment. An intertidal culvert in an estuary is a plugged up septic environment, the worst of all worlds. Has the City considered restoring any stream estuaries?	In 2012 an estuary restoration project was implemented at the City-owned Allison Springs property in southern Eld Inlet. In 2013 the stream estuary at the mouth of Mission Creek in Priest Point Park was restored. The City Parks department is actively working on a planning process at West Bay Park that will likely involve restoration of the estuary at the mouth of Garfield Creek. Examination of other potential stream estuary restoration projects has been limited due to a lack of connection to high-quality adjacent habitats and intact natural processes, location on private property, legacy infrastructure and development, and financial constraints.
The worst contamination in Budd Inlet is in the form of PCBs and dioxin. These are not from surface runoff they're from groundwater intrusion. What is the City doing to identify and control ongoing sources?	The Washington State Department of Ecology (Ecology) Toxics Cleanup Program manages or oversees cleanup of contaminated sites under the state's cleanup laws. The City works with Ecology to address legacy contamination when appropriate. The City actively participates in projects to manage and clean up contaminated sites on City property. The City notifies Ecology of all land use applications to verify the appropriate cleanup actions occur during the development process on private property.
Rain water is necessary to re-fill the aquifer, but the plan does not show how that will be accomplished. Rather, it takes the approach which talks about "non-point" runoff, but to turn back and realize that rain should stay where it falls, requires some re-thinking the urban environment. What percentage of rainwater might stay on the East side if there were swales along each street instead of curbs, gutters and storm drains? What about rain gardens? Couldn't there be an incentive for homeowners who want to forego a lawn and instead build a rain garden? If you are going to rely on the public to control these non-point sources, then the public should be given incentives (help in creating/maintaining) rain gardens.	New low impact development rules were adopted by the City in 2016. These rules require stormwater to be managed and infiltrated onsite to the extent possible for new development projects. Soil characteristics in some parts of the City do not lend themselves to infiltration. The City has an active raingarden incentive program that will reimburse up to \$400 for installation of a raingarden on private property.
Aquatic Habitat challenges really start with the micro-organisms that create the base of the food chain. Giving priority to healthy streams in the SSWP would mean projecting the cost to daylight streams so that phytoplankton have a chance to grow and consume some of the pollutants. I'm no scientist, but these things seem obvious. Business as usual will not create a healthy Sound Sound. Please use you clout and scientific know-how to turn this document into a plan to correct 100 years of mis-management. Instead, what I see is finger pointing and a blue print for more loss.	Thank you for your comment. The implementation of the Plan will work to address legacy problems. The Plan emphasizes installing water quality treatment on older streets and neighborhoods to protect local streams and improve riparian areas and estuaries. Fixing these legacy water quality and habitat problems is a focus of the plan. Working on these complex issues is a priority compared to basic stormwater management work of minimizing flooding. Daylighting streams and estuaries is complex, often expensive, and considered in the context of other local and regional priorities and connectivity to adjacent functional habitat.

H. Branch (email communication, November 17, 2017)

Z. Hartung (email communication, November 22, 2017)