



I ♥ STORM DRAIN

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State the problem in one very clear sentence.

Polluted stormwater runoff is the single biggest source of pollution damaging our Puget Sound ecosystem. It starts from the storm drain in front of my house.

Impact statement

If I take responsibility for maintaining 10 storm drains in my neighborhood, picking up litter and raking out leaves, then there will be less pollution getting into the stormwater pipes and flowing out into the streams and rivers of my watershed. If there is less pollution in my watershed then more salmon will survive. If more salmon survive then more Orca will survive. If we protect salmon populations, we support millions of dollars in direct and indirect economic benefit to our bioregion, and we honor Treaty agreements between the US Government and local Tribes. Wow.

Provide brief background knowledge

Stormwater originates as any form of precipitation that starts from the sky and eventually ends bodies of water in our watershed like lakes, streams, Puget Sound, etc. While all stormwater starts clean at the beginning of the journey, as stormwater passes through the cities and enters the storm drains, pollutants enter the stormwater. Pollutants can take the form of litter, car oils, sediments, etc. Normally most stormwater along with the pollution from storm drains end up in the Puget Sound. It is reasonable to assume pollution in our watershed isn't healthy for us or the local wildlife. To combat this the federal Clean Water Act was established to encourage everyone to be a part of the stormwater pollution solution by following BMP (Best Management Practices). But the Clean Water Act doesn't require action from homeowners or apartment residents. What better way to ensure a cleaner watershed than starting with our homes?

Curious about the importance of stormwater to our environment? Wondering about how stormwater gets polluted and the ramifications on our local ecosystems? Passionate about preventing the pollution of our local watershed? Thinking about ways to get involved? Please click on the featured link for further information: [Science of Stormwater](#)

Show how the project supports community goals (local policies, plans or performance measures of your school district or city government)

City of Kent Stormwater Management Plan

- **Drainage Utility Fee** - A fee paying for stormwater flooding and pollution prevention. Fee goes to the maintenance and inspection of bodies of water, stormwater infrastructure such as pipes and more.
Commercial storm drainage rates are calculated on impervious surfaces. Residential customers are billed a flat monthly rate of \$13.03. For property owners within the city limits, not receiving water and/or sewer service from the city, Storm Drainage is billed quarterly.
- Based on personal experience from living in Kent could more be done to manage stormwater? Why or why not?
Is this enough money to manage all the stormwater in Kent? Why or why not?
- **Drainage Master Plan** - Comprehensive manual addressing plans, policies, and issues regarding drainage systems for stormwater management.

Storm Water Management Program(SWMP)

What is it?

Comprehensive manual that addresses various management and maintenance of stormwater pollution and flooding solutions. Solutions include:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge and Elimination
- Controlling Runoff from New Development, Redevelopment and Construction Sites
- Municipal Operations and Maintenance

What is the purpose?

Protect water quality by reducing the discharge of pollutants that enter the city's stormwater system.

Introduction:

The city of Kent is an owner and regulator of its own sewer system, which means it is obligated to follow permits and regulations pertaining to stormwater management. Kent does this by developing a SWMP which is dedicated towards improving the water quality of stormwater by reducing pollutants in the water and mitigating stormwater flooding within our local community.

Permits

<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/phase1ww/wwphiipermits.html>

Page 3 Public Education:

To reduce pollution in stormwater and improve water quality, the first step is for the community to have access to resources and information that allows them to have the ability to create an impact. Education and outreach occur in stages, awareness, interest, understanding and then inspiration. First, the target audience is made aware of the problem, the audience is taken an interest in the topic/issue, then as the audience learns more they begin to understand the issue/topic. Finally, which then leads to inspiration to take action pertaining to the topic/issue.

Maintenance pg 25:

Part of ensuring good water quality, reducing pollutants and mitigating the impacts of flooding is the maintenance of the current municipal operations. When the proper infrastructure is functioning efficiently this prevents further pollution or flooding issues caused by faulty infrastructure.

Page 50 very cool stormwater “hotspots” map:



This map is an approximate representation of city-wide stormwater hotspots. A detailed list of hotspots is available from the public works department.

Identify your stakeholders. Who cares about this issue? Who needs to care?

- [City of Kent Council](#)
- [Kent School District](#)
- [King County](#)
- [Public Works Engineering/ Operations](#)
- **Communities of individuals and families living in Kent**

Describe the actual steps you will take to implement the solution you propose.

1. Walk around my neighborhood to identify 10 storm drains close to my house/apartment once every 3 months on the same day I will go out and clean the 10 designated storm drains. As most of the leaves come down in the fall. The worst of the rainstorms wash the summer build up of pollution into the drains. Salmon come up stream at this time, right into the worst of the toxic runoff.

Using the very cool stormwater hotspot map featured above I decided to monitor 10 storm drains located close to the hot spot. As hotspots are areas where high levels of stormwater pollution are anticipated.

2. I will use paper bags for organic waste and recyclable bags for non-organic waste to dispose of waste I find in the storm drains. I will record in a google document the type of waste I find. Take pictures of some of the storm drains (before and after pictures). Even record the pollution that could not be cleaned (car oil, large pieces of trash, etc.)

Organic:

Leaves, sticks, fruit, food, etc.

Non-organic:

Plastic bags and bottles, cans, paper, rubble, debris. etc.

3. I will connect with student led groups in my area such as green teams, clubs, and/or classes that would be potentially interested in this project. Present the project to at least one club and form a "Storm Drain Scouting team" where a few other students also monitor 10 stormdrains every week. If some of the students live near stormwater hotspots then they can monitor storm drains near the hotspots. Compile the weekly findings into the google document.

If and When school comes back, especially Mill Creek Middle School is located near many stormwater hotspots. Mill Creek is especially affected by flooding and stormwater pollution, as it's at the bottom of a hill, but it also makes it an optimal location to study and protect storm drains.

If your neighborhood is facing flooding and stormwater pollution issues, your neighborhood may be a stormwater hotspot and an excellent place to begin storm drain monitoring.

4. After a few months compile all the data into statistics.

Example Qs:

- How much litter was found in all the storm drains?

- How much organic/ non-organic waste was cleaned up?
 - Map the areas each student was in charge of and see if there are trends.
5. Present findings to Kent City Council to present ways to further prevent litter and waste from entering or clogging up storm drains.
 6. I will find out what the street cleaning rotation is for my neighborhood and what time of year the street sweeper vacuum truck comes through. I will find out what the budget is for street sweeping in my city and if it is adequate for the seasonal cleanup that is necessary. I will use this information to engage more students and families in doing their part.

This is it! Document the impact your project had with evidence and data. Be sure to describe how your impact directly supports one or more community needs or goals (local policies, plans or performance measures).

How will you communicate your impact to all of the stakeholders you identified? Some Ideas: Infographic, video, tiktok, instagram, facebook, blog post, written report, newsletter article, letter to the editor, slides, in-person presentation, virtual presentation, school announcement, classroom announcement, family discussion, other...

- Blogs for every week a student goes out to show them investigating and cleaning the storm drains. (tiktok, social media)
- Using the data/ statistics compiled, the findings can be used to present to city council, school board, local organizations, etc.
- Informative Op-Ed or article on the experience of being a Storm Drain Scout, the importance of keeping storm drains clean, the implications of having a large amount of people doing the same project.

Reflect on your experience: What skills did you gain? How did your understanding expand? How do you feel about the process and the impact you made? What's next?

Example:

After my initial investigation and designating 10 storm drains to monitor, I noticed that litter and leaves would block the openings in the storm drain causing the street to start flooding when it rained, which happens frequently in Kent. Even though I clean the storm drains weekly, some of the storm drains that were closer to Kent Kangley frequently flooded. To gain a better understanding of why this is happening, I go to the Kent Meridian Environmental Club and present the idea of a "Storm Drain Scouts" team. A team where each member is responsible for 10 storm drains and recording the impacts of the waste that enters the storm drains. Four other students joined my mission, totaling to 50 storm drains being monitored weekly.

After a few months we concluded most common types of waste I see weekly are leaves and pieces of plastic bags which are the main culprits for clogging the storm drains. They noted that the plastic bags are from local stores such as Target, Ross, and convenience stores. While the leaves source from a mix between lawns of homeowners and trees located near Kent Kangley.

We engineered nets placed near the storm drains to catch some of the debris to lower the likelihood of flooding due to clogging from waste build up. Which made it easier to clean the storm drains and record data. By the end of 5 months, we compiled data quantifying how much waste we prevented from entering our local watersheds. (See graph below)

With this data we presented the issue of flooding resulting from storm drains being clogged up due to waste, to Kent City Council. With the purpose of encouraging them to support policies, incentives and departments that aid in preventing the further pollution of stormwater and flooding.

Currently, we have 12 students total as storm drain scouts, adding up to 120 storm drains being monitored weekly in Kent alone.

