

THE FUTURE OF OUR WATER: ADDRESSING WATER QUALITY, SUPPLY, AND DEMAND

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Background

- Stormwater runoff is a big contributor to water pollution and is detrimental to public, aquatic, and environmental health (Fig. 1)
- Climate change will increase frequency of extreme weather events.
- Storm drain marking programs are meant to educate and raise awareness within the public to reduce pollutants that enter storm drains

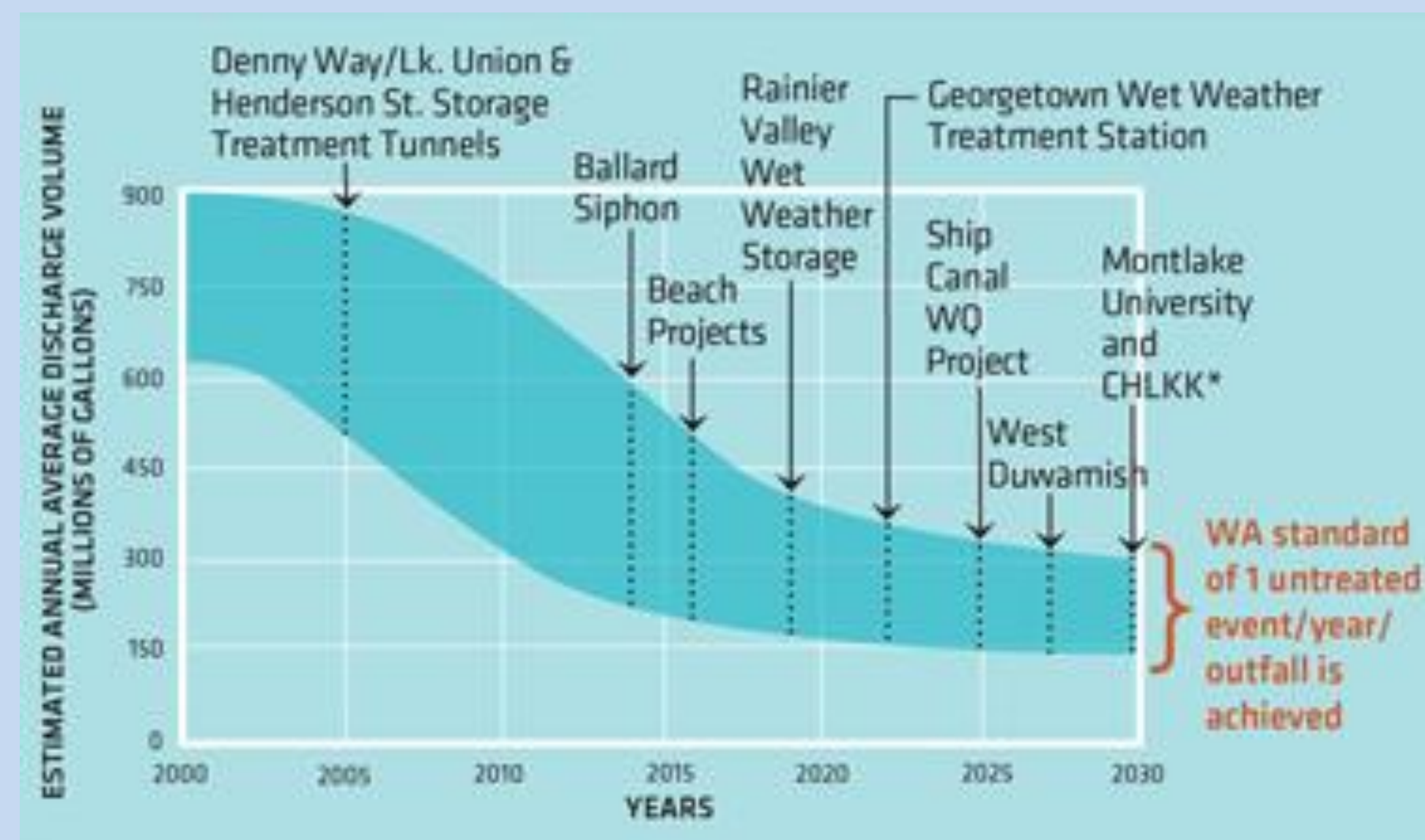


Figure 1: Past, current, and future annual average discharge volume of untreated wastewater to waterways in King County

Research Question

- What qualities do storm drain marking programs around Washington state have in common that makes their program effective in educating the public?

Internship/Methods

- Interned for Seattle Public Utilities (SPU) with their Stormwater Engagement / Pollution Prevention Group
- Conducted and analyzed expert interviews with 7 jurisdictions around WA state regarding their storm drain marking program
- Performed academic literature reviews on alternative solutions to decrease stormwater runoff pollution

Results

- 6/7 jurisdictions favored utilizing plastic or metal adhesives due to their cost-effectiveness, longevity, and ease of installation (Fig. 2)

- Having a streamlined volunteer onboarding system is crucial in bolstering volunteer participation

“It would be helpful on our end, just workload wise, to have a streamlined process” – City of Kirkland

- Having a robust GIS data tracking system –Cartegraph, (ESRI)

“We are trying to get Cartegraph. It is an app where we can better track physical structures, include past inspections, photographs, attachments and more.” - City of Mukilteo

- Some barriers/challenges commonly faced with storm drain marking programs are not having enough funding/staff and inadequate public outreach.

“I feel like every jurisdiction struggles with reaching out to all parts of the community and equitable engagement is often difficult.” – City of Tacoma

“I mean right now, it’s just me” – Clark County Public Works



Figure 2: Metal medallion with message

Alternative Solution

- Utilize green stormwater infrastructure (GSI) (Fig. 3) such as rain gardens, increasing pervious surfaces, cisterns, tree trenches, and green roofs.
- GSIs can help decrease stormwater runoff by capturing rainwater. This can potentially increase water supply and potentially reduce flooding



Figure 3: Green stormwater infrastructure examples

Implications

- This project aimed to determine effective qualities of a storm drain marking program for other cities around the US to follow and help address water quality
- Increase funding to hire more staff that would be able to further promote storm drain marking programs to bolster volunteer participation
- The hope of storm drain marking programs is to raise awareness and educate the public about the role of stormwater runoff in determining water quality
- GSIs should be utilized in as many public and private infrastructure as possible

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