

Technical Advisory Committee Meeting No. 5
SAM Study: Evaluation of Stormwater BMP Maintenance Conditions

February 7, 2025, 9:30-10:30 AM

Teams video call: [Click here to join the meeting on Teams](#)

Meeting ID: 239 034 679 287, Passcode: z3i7op6x

Audio only 206-800-4880 Phone Conference ID 257 236 824#

AGENDA & MINUTES

WELCOME

TAC members:

- Don McQuilliams, Bellevue
- Scott McQuary, Redmond
- Sammie Howe, Woodinville
- James Packman, Herrera
- [vacant], Sumner
- [vacant], Tacoma

Useful links:

- This [Study's webpage](#) on the SAM website
- NPDES [Phase I Permit](#) (section S5.C.10) & [Phase II Permit](#) (section S5.C.7) for Operations and Maintenance requirements for stormwater facilities
- SWMMWW [Appendix V-A: BMP Maintenance Tables](#)

CURRENT - TASK 6: White Paper, 30-40 minutes

- Draft White Paper
 - Overview and highlights
 - Summaries of the four technical tasks
 - Summary of task findings first, then details
 - Conclusions and Recommendations
 1. History/origins of maintenance standards
 2. BMPs and maintenance needs
 3. Adjusting maintenance frequencies
 4. Recordkeeping
 - Discussion and TAC review comments
 - Scott and Sammie added edits and comments to document.
 - Lighten language in Interview with Ecology section.
 - Anonymize cities (don't mention names).
 - Graphs: revise to City 1, City 2, etc. or Phase I and Phase II.
 - Pick list of response options for BMP conditions is a good idea.
 - Permit language is challenging to make easy to understand. The paper does a good job of making it digestible.
 - Challenging to align how different permittees record BMP O&M. Some data is collected different by different departments even within a jurisdiction.
 - Note that Bellevue's vegetation maintenance is not reflected in pilot data since there is a separate mowing program.

UPCOMING - TASK 7: Communications, 10 minutes

- No TAC review
- Fact sheet
 - Prepare written content

- Ecology format and publish on SAM website
- Example for reference:
 - [2019 SAM Study on Catch Basin Cleaning](#)¹
- Presentations
 - Central NPDES Permit Coordinators Forum, February 20
 - Stormwater Work Group, May 14
 - MuniCon 2025 - abstract accepted! May 20-21, Vancouver, WA
 - James and Don co-present

TASK 1: Contract, 5 minutes

- Herrera's previous contract with Bellevue expired 12/31/24.
- Shifting the remaining work to an oncall utilities contract
 - Jacobs Engineering (Herrera is a sub)
 - Scope and budget submitted, going through Jacobs review/admin process
- Don gave Notice to Proceed to continue work to stay on schedule
- Remaining deliverables to be completed by February 28, 2025 under existing budget.

NEXT STEPS, 5 minutes

- For TAC: nothing!
- For Study:
 - Finalize White Paper
 - Prepare fact sheet content
 - Prepare and give presentation to Central NPDES Permit Coordinators Forum on 2/20
 - Give presentation to Stormwater Work Group on 5/14

¹ https://www.ezview.wa.gov/Portals/_1962/Documents/SAM/FS%23015%20WesternWA_CatchBasinInspection_MaintenanceReview.pdf



[Regulations & Permits](#) > [Reporting requirements](#) > [Stormwater monitoring](#) > [Stormwater Action Monitoring](#) > [SAM effectiveness studies](#) > [BMP maintenance conditions](#)

Reporting requirements

[SAM effectiveness studies](#)

[Bioretention effectiveness
for 6PPD and PFAS](#)

[Bioretention infiltration](#)

[BMP maintenance
conditions](#)

Evaluation of Best Management Practices Maintenance Conditions

The city of Bellevue, in collaboration with Herrera Environmental Consultants, will evaluate the maintenance thresholds or conditions for the following stormwater Best Management Practices (BMPs): ponds, vaults, trenches, and tanks. Findings will suggest how permittees might adjust BMP maintenance efforts to maximize overall environmental outcomes to meet permit requirements.

Stormwater BMPs Maintenance Conditions Evaluation

TAC Meeting #5, February 7, 2025



Agenda



CURRENT WORK

TASK 6: White Paper

- Four technical tasks
- Conclusions and recommendations

UPCOMING WORK

TASK 7: Communications

- Fact sheet
- Presentations
- No TAC review

CONTRACT STATUS

NEXT STEPS

Task 6: White Paper

Goals

- Summarize findings and outcomes from Study
- Provide overall conclusions and recommendations

Document Organization

- Summaries first
- Four technical tasks:
 - Task 2 Survey of Municipal Stormwater O&M Programs
 - Task 3 Literature Review of Stormwater BMP Maintenance Standards
 - Task 4 Interviews with Ecology Staff
 - Task 5 Pilot O&M Data Analysis



White Paper – Conclusions and Recommendations

BMP Maintenance Standards in Western WA

- Derived from the 2001 Ecology stormwater manual (SWMMWW).
 - Based on the 1992 *Stormwater Management Manual for the Puget Sound Basin* and 1990 King County *Surface Water Design Manual*.
- Bibliography in SWMMWW is extensive
 - Some are old and could use verifying
 - Add citations for references in BMP Maintenance Tables
- Field testing in controlled setting to check/refresh some maintenance standards
 - Sediment accumulation: pipes, vaults, ponds
 - Vegetation growth: tall grasses, trees, blockage
 - Water ponding: acceptable fluctuations in water storage

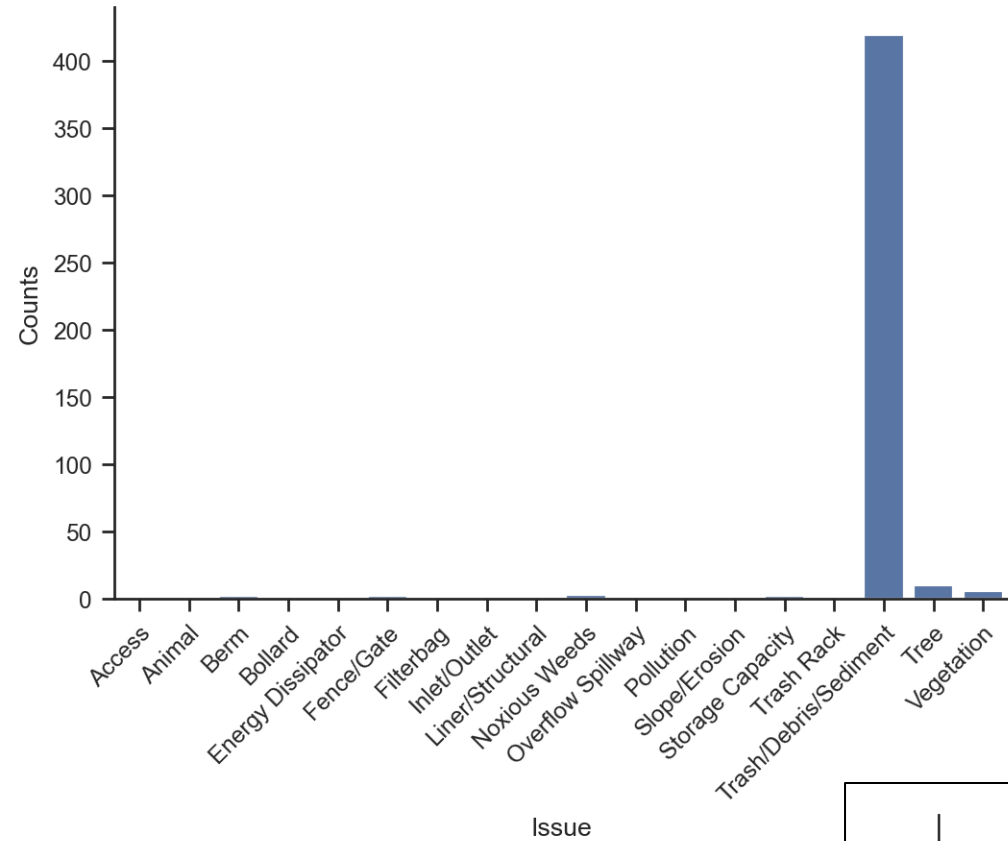
White Paper – Conclusions and Recommendations

BMPs and Maintenance Needs

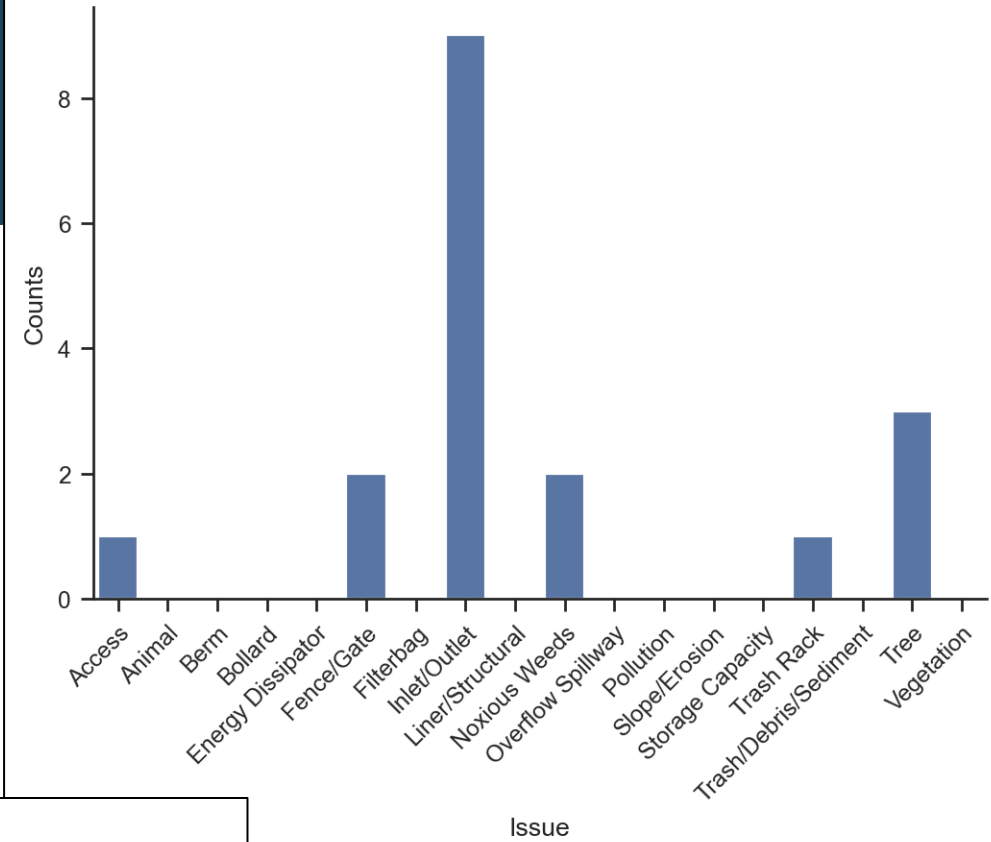
- Results of BMPs in use consistent from Survey (task 2) and Pilot Data Analysis (task 5)
- Most common BMP maintenance needs: vegetation management, sediment or trash removal
 - Noted issues: pipe blockage, noxious weeds, access.
 - Least common: BMP structure, slope erosion, overflow/spillway concerns, damage to a pond liner.
- BMP visit frequencies for inspection or maintenance
 - Most common: once per year
 - Secondary frequencies: approximately 100 days and 250-300 days, especially for ponds and trenches/swales
 - Pilot data analysis data limitations
 - Could not tie specific reasons to visit

PONDS

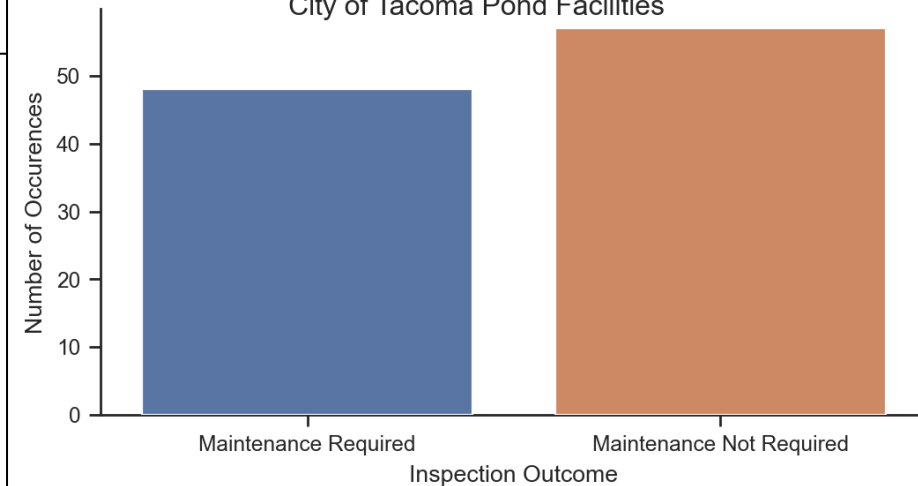
City of Bellevue Pond Facilities



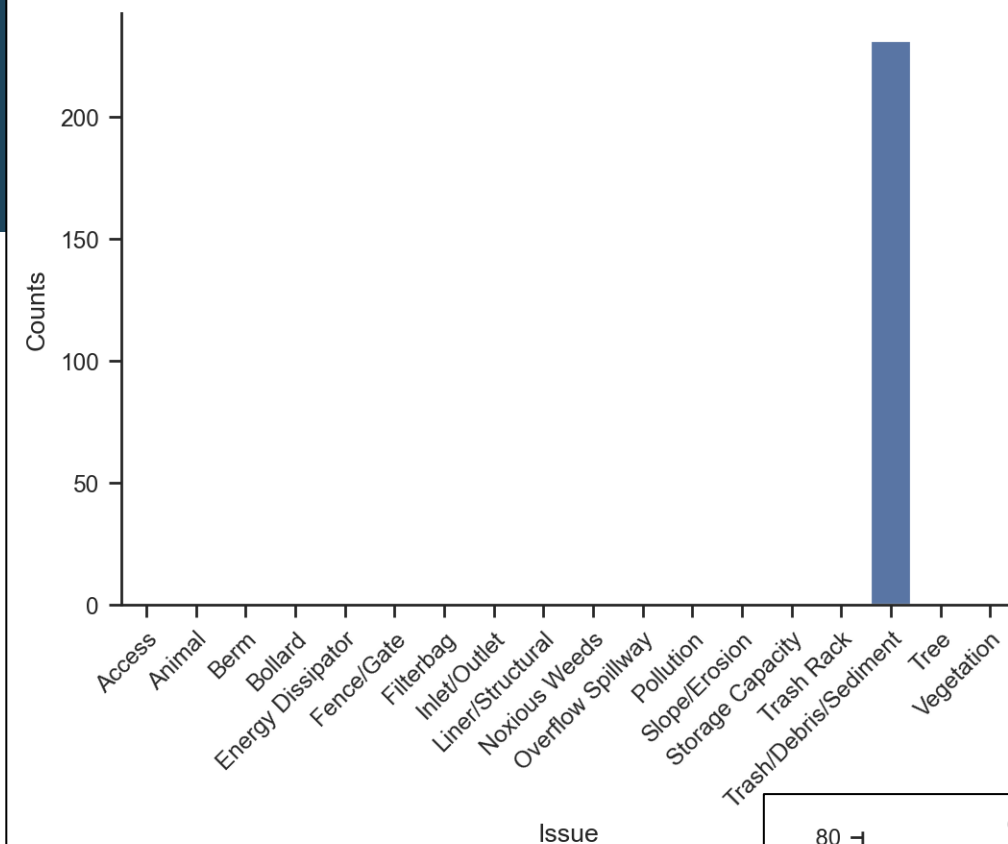
City of Redmond Pond Facilities



City of Tacoma Pond Facilities

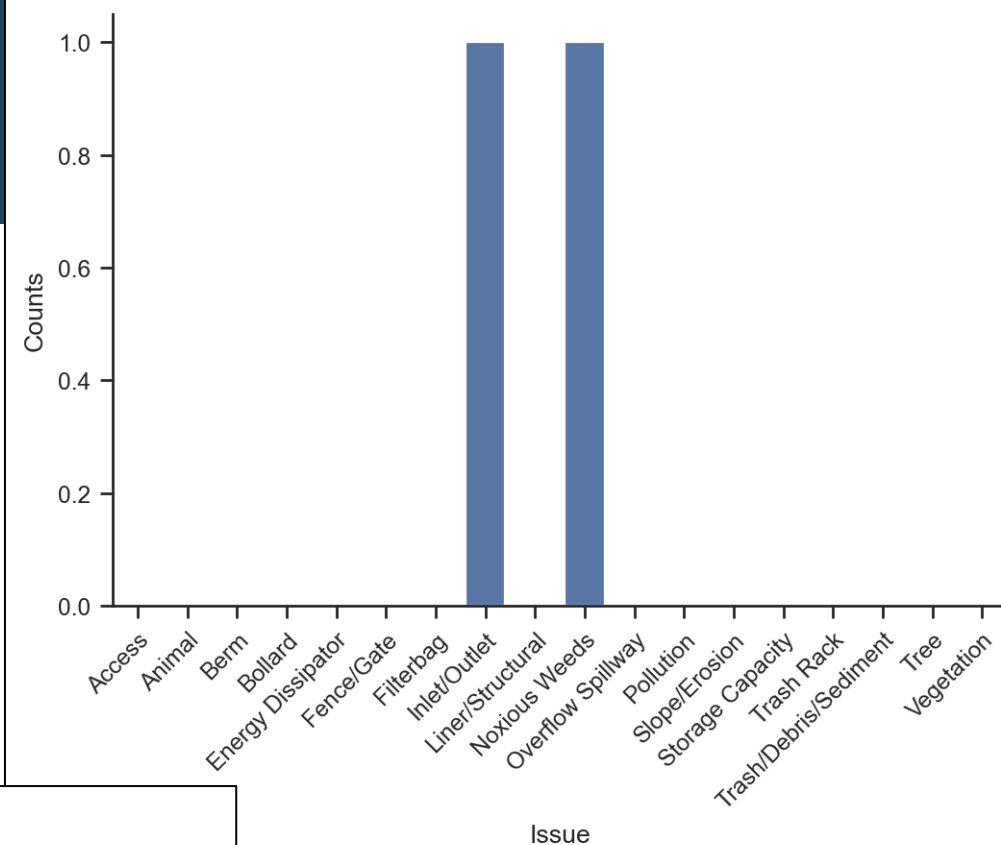


City of Bellevue Trench/Swale Facilities

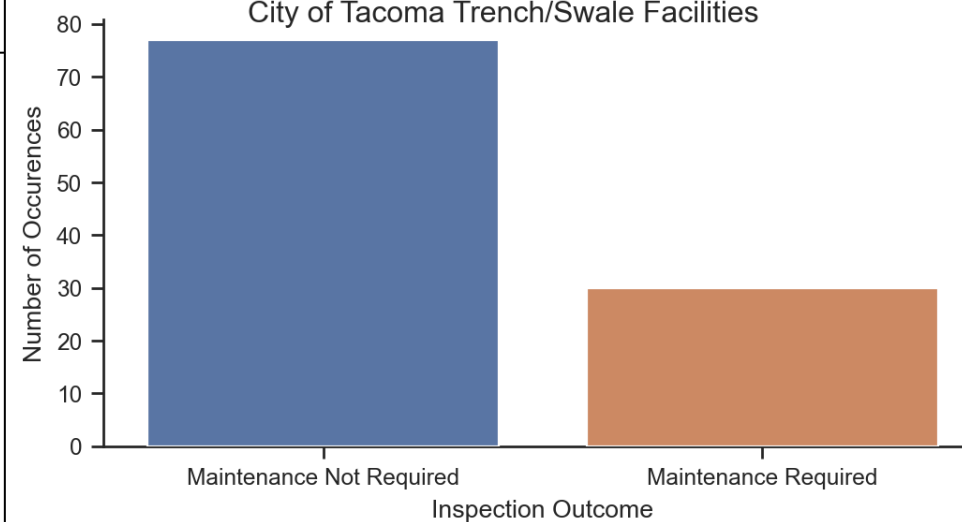


TRENCHES/ SWALES

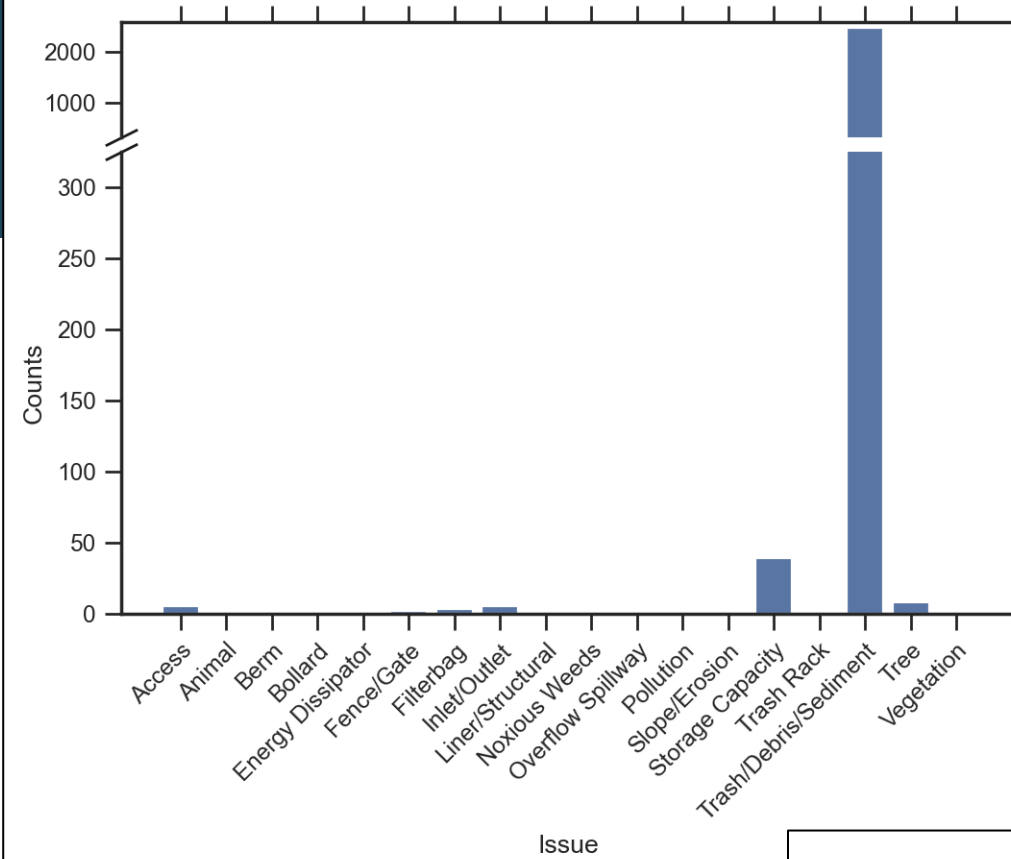
City of Redmond Trench/Swale Facilities



City of Tacoma Trench/Swale Facilities

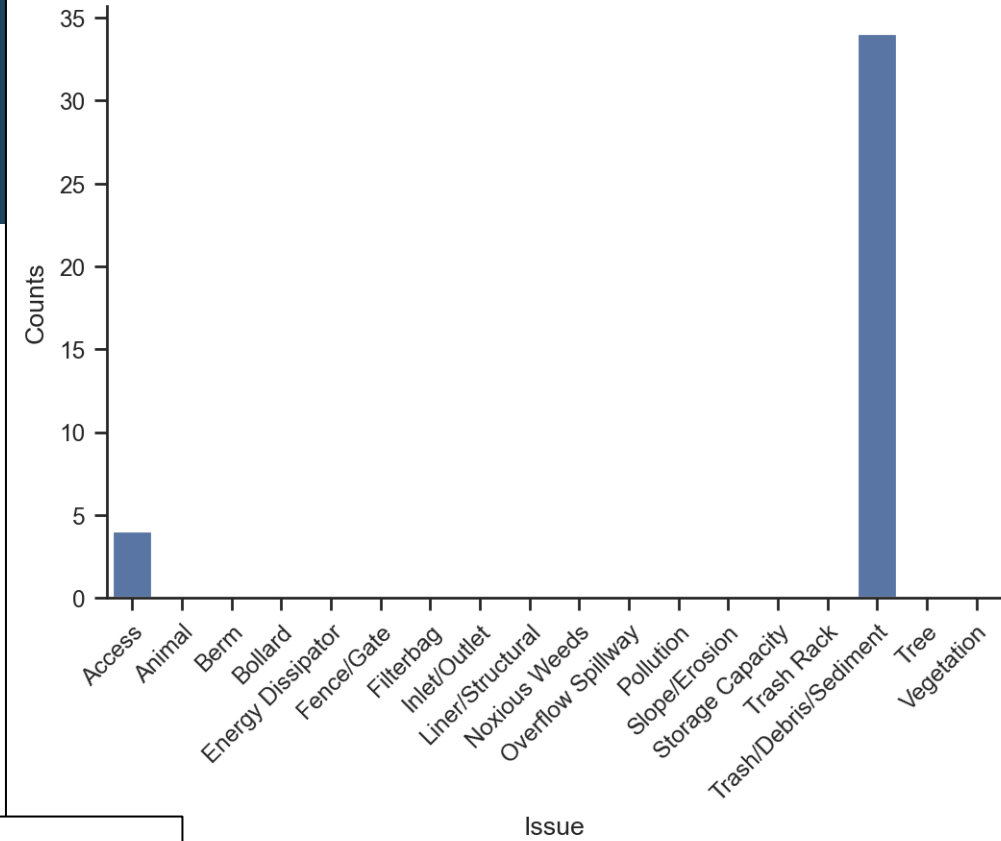


City of Bellevue Vault Facilities

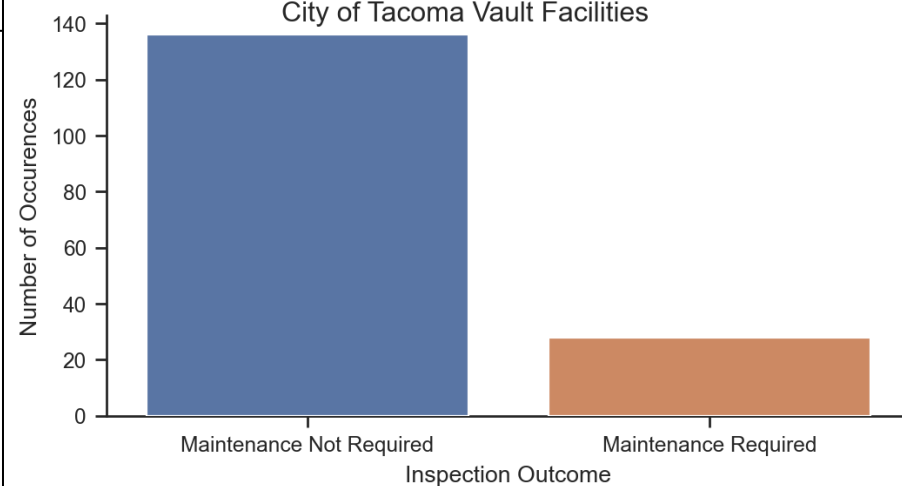


VAULTS/ TANKS

City of Redmond Vault Facilities



City of Tacoma Vault Facilities



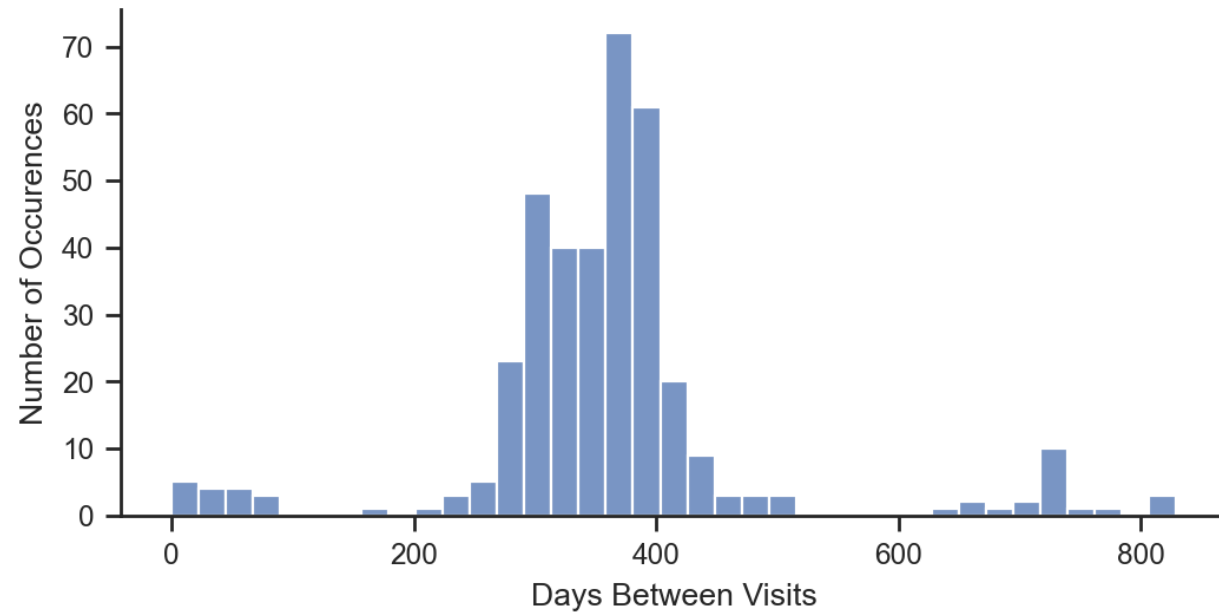
White Paper – Conclusions and Recommendations

Adjusting Maintenance Frequencies

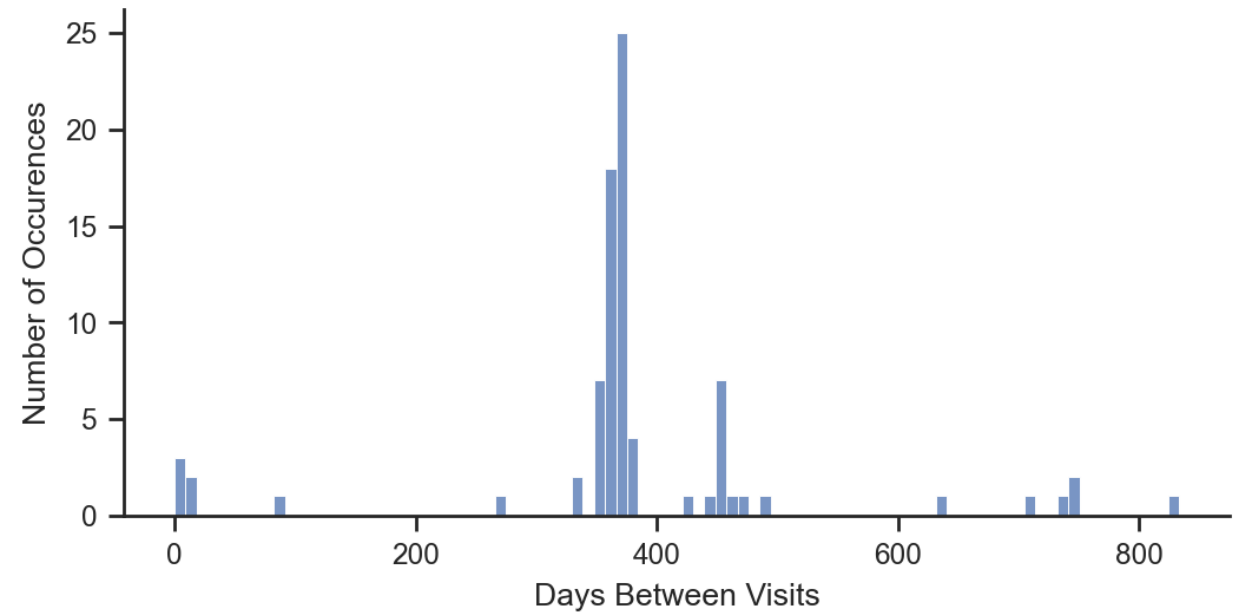
- Secondary BMP visit frequencies: 100 days, 250-300 days
 - Examine what drives non-yearly visits
 - How do they affect maintenance outcomes?
- Tie maintenance outcomes to the maintenance standards
 - Demonstrate BMP performance under non-standard conditions
- Regular analysis of maintenance frequencies
 - Once per permit cycle
- Preventative maintenance approach
 - Balance between higher routine cost vs. lower risk for failure events

PONDS

City of Bellevue Pond Facilities

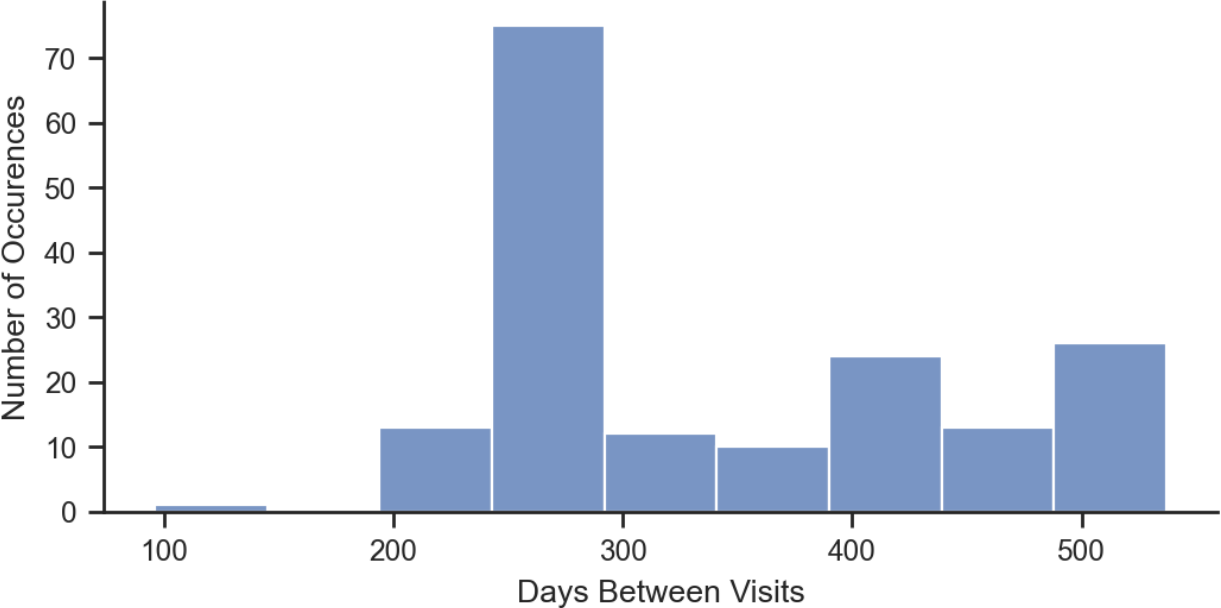


City of Tacoma Pond Facilities

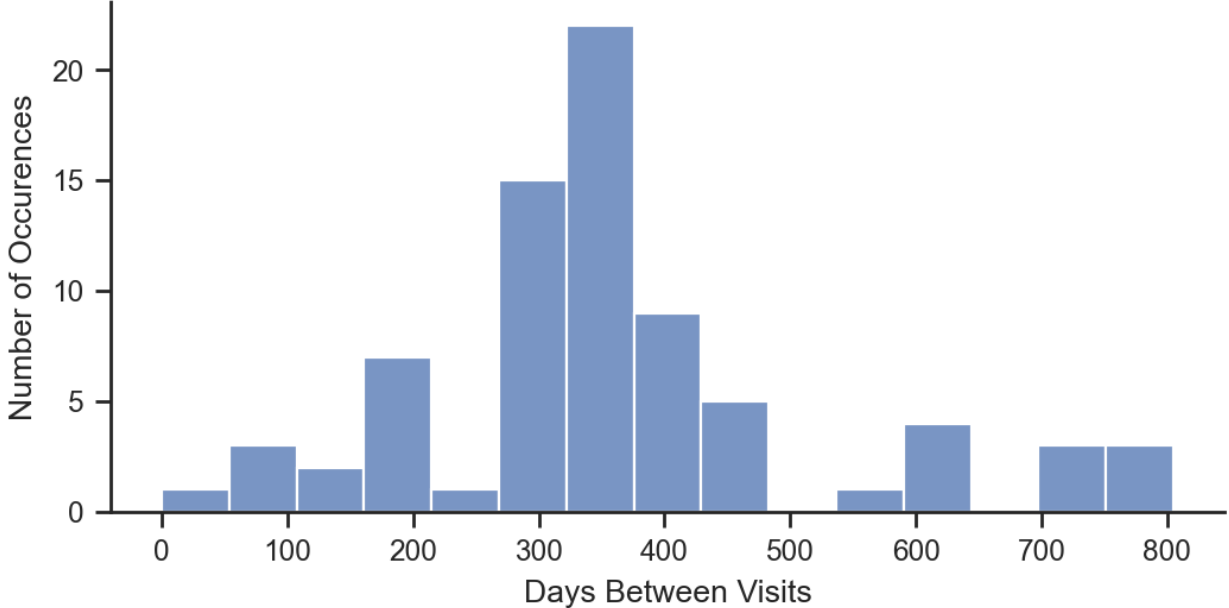


TRENCHES/SWALES

City of Bellevue Trench/Swale Facilities

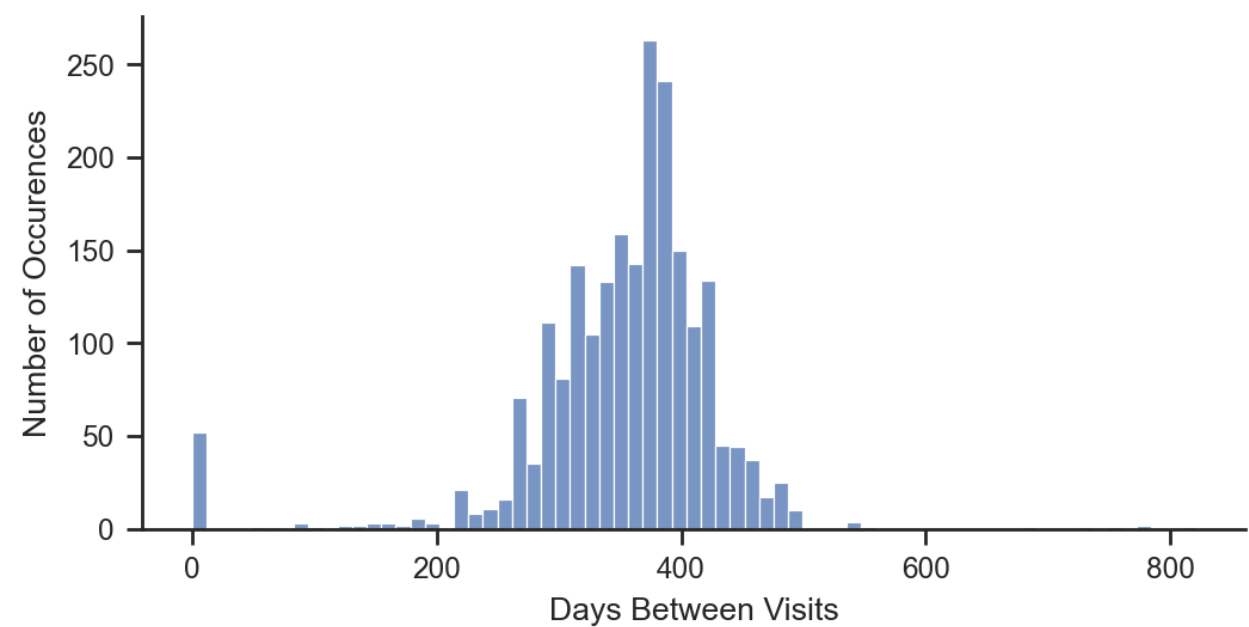


City of Tacoma Trench/Swale Facilities

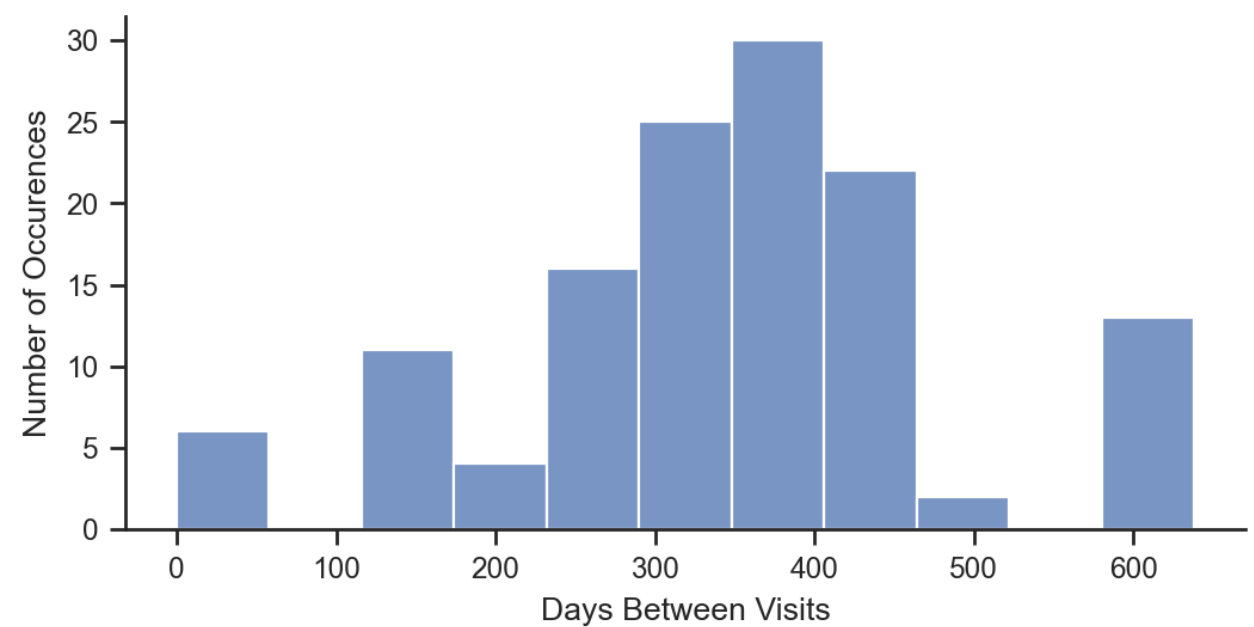


VAULTS/TANKS

City of Bellevue Vault Facilities



City of Tacoma Vault Facilities



White Paper – Conclusions and Recommendations

Recordkeeping

- Variable approaches and methods
 - From paper/pen to tablets
 - Mix of software: asset management, permit compliance, spreadsheet
- BMP Status
 - Pass/fail
 - Tied to maintenance standards
- Notes and comments in O&M records
 - Use sparingly
 - Capture status from searchable standardized responses
- Terminology
 - Use common terms from stormwater manuals



Fact Sheet

Written Content

- Draft text about Study:
 - Why the study matters, how will the information be used
- 2 pages
- 2-3 images

Ecology SAM Program Coordinator

- Review text
- Format into Fact Sheet template
- Publish on SAM website

Example: [2019 SAM Study on Catch Basin Cleaning](#)



Presentations

Stormwater Work Group

May 14 meeting (rescheduled from Feb 12)

Central NPDES Permit Coordinators Forum

February 20, Zoom

MuniCon 2025

May 20-21, Vancouver, WA

Contract

Previous Contract

- Expired end of 2024

New Contract

- Work order under Utilities Oncall Contract
- Jacobs Engineering
 - Herrera is a subcontractor
- All work completed by 2/28/25
 - Except SWG presentation on 5/14/25



Next Steps

TAC

- Nothing!
- Thank you for your service!

Study

- Finalize White Paper
- Prepare fact sheet content
- Presentation to Central NPDES Permit Coordinators on 2/20
- Contract ends 2/28
- Presentation to Stormwater Work Group on 5/14