



Burnt Bridge Creek Partnership

DRAFT Implementation priorities and actions

July 19, 2021

July 2021 Burnt Bridge Creek Partnership –1

Good afternoon and welcome to our second full Burnt Bridge Creek Partnership meeting! Today we will be reviewing what was discussed at the Burnt Bridge Creek Implementation Workgroup meetings. We will also review some of the draft implementation priorities and actions to improve water quality in the Burnt Bridge Creek watershed.



Introductions

- Washington Department of Ecology
- City of Vancouver

July 2021 Burnt Bridge Creek Partnership – 2

My name is Devan Rostorfer and I am a Water Quality Specialist at the Washington State Department of Ecology. By now, I should have met most of you, but I also know that there are a few people in the meeting today who have never attended one before. In interest of time, I thought we could just have the people who have never attended a Burnt Bridge Creek Partnership meeting introduce themselves starting with City of Vancouver Staff that are new to this process. Department of Ecology? Anyone else? Thank you for being here.

Meeting Objectives

- 1 Review purpose of Burnt Bridge Creek Partnership and TMDL Alternative Restoration Plans.
- 2 Review what was discussed at each of the Burnt Bridge Creek workgroup meetings and present draft priorities and actions for implementation.
- 3 Discuss next steps.

July 2021 Burnt Bridge Creek Partnership - 3

For today's meeting our objectives are as follows. First, we will quickly review the purpose of the Burnt Bridge Creek Partnership and TMDL Alternative Restoration Plans, and then we will spend most of our time reviewing what was discussed at each of the Burnt Bridge Creek Implementation Workgroup meetings. From those meetings I have drafted meeting summaries, which include draft priorities and actions for implementation. I will present some of those today, and we will end the meeting by discussing next steps.

What we won't be discussing today...

- **Milestones, targets, and timelines**
 - Interim milestones
 - Checkpoints
 - Target dates
- **Criteria to measure progress**
 - Performance measures
 - Effectiveness monitoring
- **Funding Sources & Partnerships**

July 2021 Burnt Bridge Creek Partnership - 4

For those of you who have reviewed the meeting summaries, I just wanted to highlight what we won't be talking about today. Those drafts included some ideas for milestones, targets, and timelines, as well as criteria to measure progress. We won't have time to get into those today, but what I can assure you is that those are draft and open for input and refinement. We also won't have time to dig into much information about funding sources or partnerships today, but some of this information will be alluded to throughout the presentation.

Agenda

- Burnt Bridge Creek Partnership & Alternative Restoration Plan (10 min.)
- Draft priorities & implementation actions (80 min.) – 1:15 p.m.
 - Urban Forestry and Greenways (15 min.)
 - Sewer Connection and Septic Systems (15 min.)
 - Stormwater and Capital Improvements (15 min.)
 - *BREAK @ 2:00 p.m.* (5 min.)
 - Operations and Maintenance (15 min.)
 - Public Education and Outreach (15 min.)
- Next Steps (25 min.) – 2:35 p.m.

July 2021 Burnt Bridge Creek Partnership – 5

So what are we going to be talking about today? Here is a quick overview of the agenda. I have a lot of content to get through so I am going to try my best to move quickly. Please save your comments and questions for designated times at the end of each workgroup discussion. I have built a break into the agenda at 2:00pm but if you need to step away for a bio break or to take a call, feel free to do so. Any questions before we jump in?

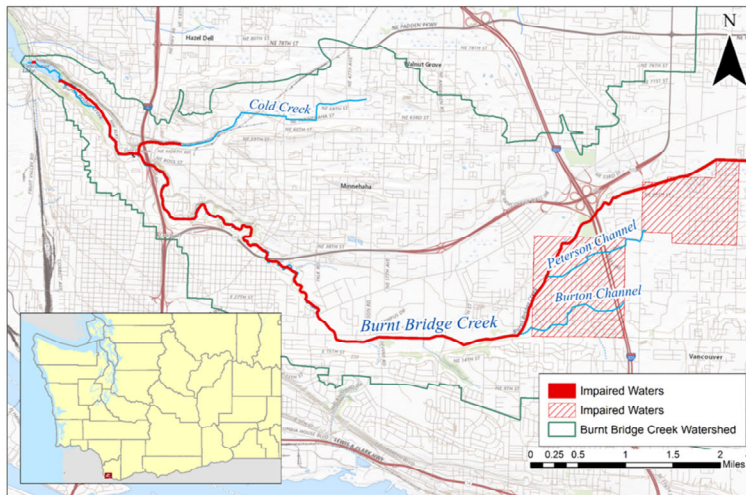


Review Burnt Bridge Creek Partnership & Alternative Restoration Plans

July 2021 Burnt Bridge Creek Partnership – 6

Now I am going to kickoff the meeting by reviewing the purpose of the partnership and alternative restoration plans.

Burnt Bridge Creek Impairments



Washington State's
impaired waters list
(303d)

- Temperature
- Bacteria
- Dissolved Oxygen
- pH

July 2021 Burnt Bridge Creek Partnership – 7

As many of you know the Burnt Bridge Creek watershed is on Washington State's Impaired Waters list for temperature, bacteria, dissolved oxygen, and pH.

Goals

- Develop TMDL Alternative Restoration *in advance of a* formal TMDL.
 - Implementation strategy to improve water quality.
 - Milestones, targets, and timelines.
 - Effectiveness monitoring plan
- **Result** = Voluntarily meet water quality standards through BMP implementation.

July 2021 Burnt Bridge Creek Partnership - 8

These impairments require Ecology to develop a TMDL, however, Ecology has chosen to develop an Alternative Restoration Plan in advance of a TMDL. The goal is to develop an implementation strategy to improve water quality, which includes milestones, targets, and timelines, and an effectiveness monitoring plan to evaluate progress. The desired result of this process is that this Alternative Restoration Plan will result in Vancouver voluntarily meeting water quality standards through implementation of best management practices to improve water quality.

What is a TMDL Alternative Restoration Plan?

- Developed *in advance* of a TMDL.
- Does not establish waste load allocations or effluent limits for permits.
- Achieved through voluntary implementation to make progress before TMDL is required.
- Must achieve **8 elements** of Alternative Restoration Plans

July 2021 Burnt Bridge Creek Partnership - 9

This will not necessarily result in us avoiding completing a traditional TMDL, but the goal is to implement BMPs that result in improved water quality so a TMDL is not necessary. What this plan will not do is establish waste load allocations or effluent for permits. Therefore, success is determined by the City's willingness and ability to voluntarily implement BMPs and demonstrate progress towards achieving water quality standards. The plan must also meet the 8 elements of Alternative Restoration Plans which are established by EPA .

How do we achieve EPA's 8 Elements for TMDL Alternative Restoration Plans?

1. Identify impaired waters
2. Analyze pollution reductions needed
3. Implementation plan explaining how to address pollution sources
 - Timeline and schedule
 - Milestones and target dates
4. Funding strategy and cost estimates
5. Stakeholders and partners
6. Estimation of when water quality standards will be achieved
7. Monitoring plan to evaluate effectiveness
 - Adaptive management process
8. Commitment to periodic evaluation

July 2021 Burnt Bridge Creek Partnership - 10

These include identifying impaired waters and analyzing pollution reductions needed. This was already achieved through the Burnt Bridge Creek Source Assessment. We must also develop an implementation plan, funding strategy, and implementation cost estimates, while Identifying the stakeholders and partners involved, and estimating when water quality standards will be achieved. Together, we must also develop a monitoring plan to evaluate effectiveness, which includes an adaptive management process, and a commitment to periodically evaluate progress.

Burnt Bridge Creek Timeline



July 2021 Burnt Bridge Creek Partnership - 11

Here is a quick overview of the timeline for this project. As many of you are familiar, Ecology completed assessment in 2008 to 2009, and a Burnt Bridge Creek Source Assessment was published in 2020. The Burnt Bridge creek Partnership was launched in February 2021 to develop the TMDL Alternative Restoration Plan. Our goal is to have a final draft TMDL Alternative Restoration Plan for the watershed by end of 2022.

Burnt Bridge Creek Partnership

Where have we been?

February 2021

Burnt Bridge Creek Partnership Kickoff

April-May 2021

Implementation workgroups assigned

- Urban Forestry & Greenways
- Sewer Connection and Septic Systems
- Stormwater and Capital Improvements
- Operations and Maintenance
- Public Education and Outreach

July 2021

Draft Implementation Priorities & Actions

July 2021 Burnt Bridge Creek Partnership - 12

To complete the plan, Implementation Workgroups were assigned working with Annette Gruffy. These workgroups include Urban Forestry and Greenways, Sewer Connection and Septic Systems, Stormwater and Capital Improvements, Operations and Maintenance, and Public Education and Outreach. These workgroups met in April and May, and since then I have worked to draft meeting summaries, which will ultimately become chapters in the plan. These summaries include the implementation priorities and actions, which we will learn more about today.

Any questions about the background, purpose and history before we transition into learning more about what was discussed at the workgroups?



DRAFT Priorities & Implementation Actions

July 2021 Burnt Bridge Creek Partnership - 13

Now lets get into the meat of today's presentation which is learning more about priorities and implementation actions to improve temperature, bacteria, dissolved oxygen, and pH conditions in Burnt Bridge Creek. Before presenting draft actions and priorities, I will provide some background on what I learned about Vancouver's programs from the workgroup meetings held in April in May. For some of you this may be repetitive information or you may already know this stuff because you work within the city! But since we have so many people in the meeting from different departments and people new to the process I thought it would be good to present the information from a beginners level to get everyone up to speed and on the same page.

Some of you have reviewed meeting summaries and submitted comments. Thank you so much for your time, input, and feedback. While I have read everyone's comments, I have not addressed them all fully at this time, but I plan to work with you over the next few weeks to finalize.

Urban Forestry & Greenways

Discussion Topics

- Urban Forestry – street and yard tree planting
- Greenways and Sensitive Lands
- Land Acquisition
- Instream restoration
- Challenges
- Education and Outreach

Workgroup Members: Charles Ray, Rich McConaghy, Brian Potter, Tim Esary, & Annette Griffy

July 2021 Burnt Bridge Creek Partnership – 14

We will start today's presentations with one of Vancouver's most successful efforts, which is the urban forestry and greenways programs. Topics discussed during the workgroup meeting included the urban forestry and greenways program, land acquisition, instream restoration, challenges, and education and outreach efforts. This workgroup was attended by Charles Ray, Rich McConaghy, Brian Potter, Tim Esary, and Annette Griffy.

Background – Urban Forestry Program

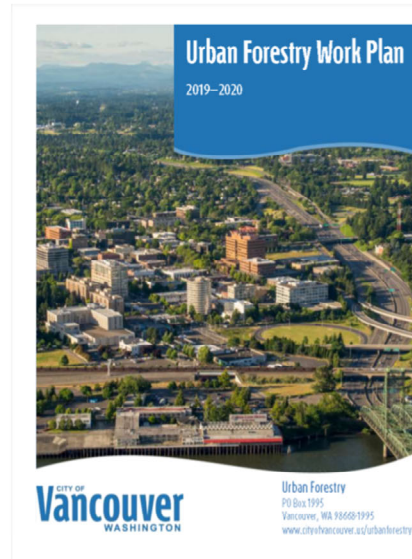
- Goal = achieve 28% tree canopy
- Focus = street and yard tree plantings
- Upland restoration focused on parks and schools.
- As of 2010 - 5,579 acres of tree canopy over 29,998 acres

July 2021 Burnt Bridge Creek Partnership - 15

The City of Vancouver's Urban Forestry program aims to maximize the environmental, social, and economic benefits that trees provide to city residents and visitors. Through this program, the City has set a goal to reach 28 percent tree canopy citywide by 2030. For residential planting, Vancouver focuses on planting street and yard trees with property owner support and participation. In upland areas, Vancouver focuses plantings on public property such as parks and schools. In 2010, there were approximately 5,579 acres of tree canopy, over 29,998 total land acres

Tree Canopy Assessment

- 2011 - Last study completed
- 2021 - Next study expected
- Completed every 5 to 10 years



July 2021 Burnt Bridge Creek Partnership - 16

One of the Urban Forestry Program's biggest projects in 2021 is completing a tree canopy assessment study, which is completed every 5 to 10 years. The last study was completed in 2011. The report and data for the 2021 study is expected to be available by fall of 2021.

Programs and partners

- Friends of Trees

- 16 years of tree planting in City of Vancouver
- Plants more than 500 trees and prunes more than 200 trees annually.



July 2021 Burnt Bridge Creek Partnership – 17

One of Vancouver's biggest partners for tree planting is Friends of Trees. Friends of Trees focuses its planting efforts on adding trees to transportation corridors and residential yards. Friends of Trees plants more than 500 trees and prunes more than 200 street trees annually throughout the City of Vancouver.

Background – Burnt Bridge Creek Greenway

- 8 miles of protected greenway
- Most publicly owned properties are restored
 - 200 acres of land in Greenway
 - Priority is planting 50-100 foot buffers
- 600,000 trees planted since 2005
- 10,000 cubic yards of invasive species removed.
- Volunteer events – Make a Difference Day and MLK Day.

TREE PLANTING ON BURNT BRIDGE CREEK

July 2021 Burnt Bridge Creek Partnership – 18

In addition to the urban forestry program, Vancouver also has a Greenways and Sensitive Lands program focused on riparian areas of the burnt bridge creek mainstem. The Burnt Bridge Creek Greenway was originally established by the City of Vancouver Planning Department, which created a greenway zone where development was not allowed. Most of the area downstream of river mile 8 at is publicly owned by the City of Vancouver as a part of the Burnt Bridge Creek Greenway, and the majority of properties upstream of river mile 8 are privately owned. The City has focused planting on all properties in the greenway. As of now, most of the publicly owned areas in the greenway have been planted. It is estimated that the City of Vancouver owns approximately 200 acres of land in the Burnt Bridge Creek Greenway. Vancouver focuses primarily on planting buffers 50 to 100 feet from the shoreline. Since 2005, approximately 600,000 trees have been planted and maintained on the greenway, and 10,000 cubic yards of invasive species have been removed. Vancouver normally hosts two major volunteer planting events on Make a Difference Day and Martin Luther King Day to implement plantings in the Greenway.

Programs and partners

- Watershed Alliance of Southwest Washington

- Project Restore.
 - Tree planting on private property
 - Invasive plant removal
- 110 lots identified for restoration
 - 40 are businesses or vacant
 - 70 are private homeowners
- 1.3 miles of creek restoration on Burnt Bridge Creek
 - 28 properties enrolled
 - 26 have been restored



July 2021 Burnt Bridge Creek Partnership – 19

Another strong partnership Vancouver has established is with the Watershed Alliance of Southwest Washington to implement Project Restore. Project Restore is a public and private partnership funded by the City of Vancouver to improve water quality in Burnt Bridge Creek, by assisting creekside property owners to remove invasive plants, improve bank stability, and increase tree canopy and native vegetation on their properties. As of 2020, approximately 110 individual lots have been identified for restoration. Approximately 40 are businesses or vacant lots and 70 are private homeowner properties.

Over the past five years, the Watershed Alliance has enrolled 28 private and business properties in the Project Restore Program. As of March 2020, 26 properties have been restored and are being maintained after their initial invasive species treatment and planting. These properties total 1.3 miles of the Burnt Bridge Creek corridor.

Challenges

- Development pressure, limited resources, and willing landowners



July 2021 Burnt Bridge Creek Partnership -20

One of the biggest challenges Vancouver is currently facing in its urban forestry program is development pressure, limited resources, and lack of willing landowners. According to the previous Tree Canopy Assessment it was determined that Burnt Bridge creek lost approximately 381 acres of tree canopy due to private development activity. With increased development, there are also challenges with limited budget, staff, and resources within Vancouver's Urban Forestry program for education and outreach and other technical assistance activities. Private landowner willingness to plant new trees, maintain existing trees and landscapes, and reduce pesticides and fertilizer use remains a challenge.

Challenges

- Long-term maintenance of trees, especially in overburdened communities



July 2021 Burnt Bridge Creek Partnership – 21

Furthermore, another challenge within the urban forestry program is completing long-term maintenance of trees planted on private property, specifically in overburdened communities. The City currently completes maintenance on private property plantings for five years. In year six, the private property owner is responsible for maintenance of the planting. Developing resources to support long-term maintenance is necessary to support survival and health of urban tree canopy.

Challenges

- Funding for land acquisition and easements.
- Lack of strategic property acquisition plan



July 2021 Burnt Bridge Creek Partnership - 22

Another one of this biggest challenges associated with restoring riparian areas in Burnt Bridge Creek is the City's limited funding for property acquisition and conservation easements. The primary source of funding available to support land acquisition is generated by local utilities, which are paid by ratepayers. Vancouver's City Council has a policy placing a 5 percent cap on rate increases for utilities, which limits the funding available for stormwater, water, sewer, greenways, and land acquisition.

As of now, the City of Vancouver does not have a strategic property acquisition plan for acquiring additional properties for conservation. Any land acquisition occurs opportunistically as properties and funding become available. Developing a strategic land acquisition plan or vision for the City, may help support future acquisition of critical areas for water quality.

Challenges

- Instream restoration
 - Reconnecting floodplains
 - Restoring wetlands
 - Addressing eroding streambanks



July 2021 Burnt Bridge Creek Partnership - 23

To address warm water temperatures in the watershed, efforts that go beyond tree planting and shade may be needed in the watershed to restore instream habitat in burnt bridge creek. As of now, Vancouver has not completed a formal assessment or planning exercise to identify areas that are priorities for instream restoration, streambank stabilization, floodplain reconnection, or wetland restoration. The City is interested in pursuing these types of projects to help address warm water temperatures, but recognizes this would require a multi-year assessment, design, engineering, and permitting process. To implement a larger planning process, Vancouver would most likely rely on partnerships and grant funding to complete the assessment and design work necessary for instream restoration projects.

Challenges

- Bonneville Power Administration requirements
 - Trees cannot be more than 10 feet on areas 150 feet from center conductor
 - Tallest tree being planted is 20 feet tall
- Built infrastructure in buffers
 - Trails
 - Utilities
 - Homes
- Washington Department of Transportation funding



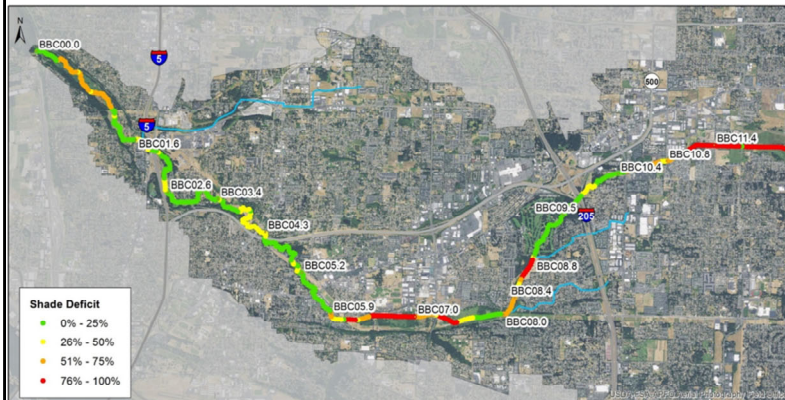
July 2021 Burnt Bridge Creek Partnership – 24

In conclusion, one of the biggest challenges in burnt bridge creek is built infrastructure and urbanization. Unfortunately, Much of the Burnt Bridge Creek Greenway is located underneath Bonneville Power Administration’s electricity transmission lines. Under these transmission lines, Vancouver is not allowed to plant trees taller than 10 feet. This 10-foot maximum tree height applies to areas 150 feet from the center conductor, which is 75 feet on each side of conductor infrastructure. The presence of electrical utilities in the greenway causes barriers to implementation and prevents the ability to achieve system potential tree height. The tallest tree Vancouver has planted in the greenway has a height of 20 feet. The paved walking path in the greenway also provides some constraint for planting minimum buffer widths in the watershed, which is 50 feet.

In addition to these physical constraints, there are funding restraints. Historically, the Washington Department of Transportation has paid money to the City of Vancouver for stormwater fees. This money was originally invested city-wide to support tree planting and other environmental efforts, but now WSDOT has restricted how and where WSDOT stormwater fee can be spent. The City of Vancouver can no longer use the funding to implement revegetation projects and

tree planting projects. This has caused challenges to Vancouver's source of funding for tree plantings.

Priorities from Source Assessment, 2018



- Upper watershed (RM 10-13) = 62%
- River miles 12-13 = 87% shade deficit
 - River miles 11-12 = 73% shade deficit

Middle watershed (RM 5-10) = 39%
River miles 7-8 = 83%

Lower watershed (RM 0-5) = 27%

July 2021 Burnt Bridge Creek Partnership - 25

As a reminder, here are the top priorities for tree planting in the Burnt Bridge Creek watershed. According to the Source Assessment, the upper watershed has the largest shade deficits, however, most of the upper watershed is privately owned and a large portion of the shade deficit is a privately owned wetland mitigation bank. The middle watershed, located between river miles 5-10 has the second highest shade deficit but much of these areas are under Bonneville power utilities, which have tree height restrictions. The lower watershed has the lower average shade deficit, but has the least barriers to implementation and therefore should be prioritized for planting.

Site potential tree height and overhang

- Tree Height = 41 meters tall or approximately 135 feet
- Overhang potential = .1 meters or approximately 13.5 feet
- System potential shade = 85 % forested watershed
- Minimum buffer width = 50 feet
- 45% of Greenway is forested

Priorities from Source Assessment, 2018



- **Temperature:** River miles 0, 5.9, and 7.0 had highest temperatures.
- **Dissolved Oxygen:** River miles 5.9, 7.0, 10.8, and 11.4 have most noncompliant days.

Priorities from Source Assessment, 2018

- **Upper watershed (RM 10-13) = 62% average shade deficit**
 - River miles 12-13 = 87% shade deficit
 - River miles 11-12 = 73% shade deficit
- **Middle watershed (RM 5-10) = 39% average**
 - River miles 7-8 = 83%
- **Lower watershed (RM 0-5) = 27% average**



DRAFT Implementation Actions **Urban Forestry and Greenways**

July 2021 Burnt Bridge Creek Partnership - 29

This information leads us to the draft implementation actions for urban forestry and greenways. I will not have the chance to cover all of the actions that have been drafted but I thought I would highlight a few of them.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Priority areas for urban forestry and greenways implementation

UF1.1 Prioritize restoration of urban forestry and greenways to areas with the highest average shade deficits.

- This includes the upper watershed located between river miles 10 and 13, and middle watershed located between river miles 5 and 10.

UF1.2 Prioritize phase one implementation to areas with shade deficits over 50 percent.

- These areas are located in the upper and middle watershed
- Specifically include the following locations and shade deficits: RM 12-13 = 87%, RM 7-8 = 83% and 11-12 = 73%.

July 2021 Burnt Bridge Creek Partnership - 30

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Greenways and sensitive lands

UF2.2 Focus property acquisition efforts upstream of river mile 8 and I-205 to extend the Burnt Bridge Creek Greenway into the upper watershed.

UF2.3 Where feasible, achieve a system potential tree height of 41 meters, or approximately 135 feet tall in the watershed. Achieve the maximum overhang potential of trees in riparian areas, which is 4.1 meters or approximately 13.5 feet.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Greenways and sensitive lands

UF2.5 Complete a shade deficit analysis of Burnt Bridge Creek tributaries including Burton Channel, Peterson Channel, and Cold Creek to identify opportunities for riparian restoration.

UF2.6 Identify wetland areas in the watershed for wetland enhancement and restoration. If possible, work with private property owners to acquire properties or place a conservation easement on wetland areas for conservation purposes.

UF2.7 Increase riparian buffer widths in areas where the river has less than 50 feet of riparian buffer implemented.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Urban Forestry

UF3.2 Complete the Vancouver Tree Canopy Assessment every 10 years to assess progress on preserving and restoring urban tree canopy.

UF3.3 Continue to plant trees in upland areas, focusing on Vancouver's Parks and Schools that are hydrologically connected to priority areas for water quality.

UF3.4 Prioritize implementation of urban forestry efforts on residential properties, which make up 44 percent of the watershed.

- Focus implementation on properties that are hydrologically connected to outfalls that influence priority water quality areas in the Burnt Bridge Creek watershed.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Other

UF4.1 Update local codes and ordinances to increase the required landscaped area percentage or to cap impervious surface area percentages in new development and redevelopment

UF4.4 Increase funding for Parks and Surface Water property acquisition programs to purchase and preserve more property for conservation and restoration

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Other

UF4.7 Identify unauthorized water withdrawals on Burnt Bridge Creek that are being withdrawn without a water right and provide education and outreach, and enforcement action to stop the withdrawal.

UF4.8 Remove riprap and bank armoring that has been implemented without authorization or a permit, and where feasible identify opportunities to reconnect the floodplain.

UF4.9 Identify and remove any manmade ponds or impoundments on Burnt Bridge Creek that are impacting water flow, causing eutrophication, or affecting water quality.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Other

UF4.13 Develop a strategic land acquisition plan for the Burnt Bridge Creek watershed focused on identifying high priority, critical conservation areas for future acquisition to protect water quality. Include shoreline management and critical areas, as well as critical aquifer recharge areas

UF4.14 Develop an instream restoration plan focused on identifying locations streambank stabilization, floodplain reconnection, or wetland restoration. Identify areas to enhance cold-water refuge areas, implement large wood, establish side-channels or off-channel habitat, and reduce erosion issues.

Funding Sources & Partners

Funding

- City of Vancouver's Stormwater Utility
- Washington Department of Transportation Stormwater Fees
- Water Quality Combined Funding Program
- Private Landowners

Partners

- Watershed Alliance of Southwest Washington
- Friends of Trees
- Lower Columbia Estuary Partnership
- Washington Department of Transportation
- Private Landowners

July 2021 Burrnt Bridge Creek Partnership - 37

Discussion

- Questions?
- Thoughts?
- Comments?
- Feedback?
- Concerns?
- Is there anything I missed?



Sewer Connection & Septic Systems

Discussion Topics

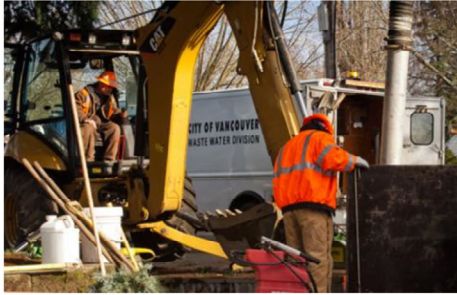
- Sewer Connection Incentive Program
- Septic System Jurisdiction – Clark County Public Health
- Septic System Inspections and Maintenance
- Education and Outreach
- Financing
- Sewer collection system and infrastructure
- Partners

Workgroup Members: Sheryl Hale, Eric Schadler, Annette Griffy, Dan Swensen

July 2021 Burnt Bridge Creek Partnership – 39

For our next topic I'd like to transition into the Sewer Connection and Septic Systems Workgroup. Workgroup members involved with this topic include Sheryl Hale, Eric Schadler, Annette Griffy, and Dan Swensen. Topics discussed included Vancouver's Sewer Connection Incentive Program, also known as the SCIP program, Clark County Public Health, septic inspections and maintenance, education and outreach, financing, sewer collection infrastructure, and partnerships.

Background

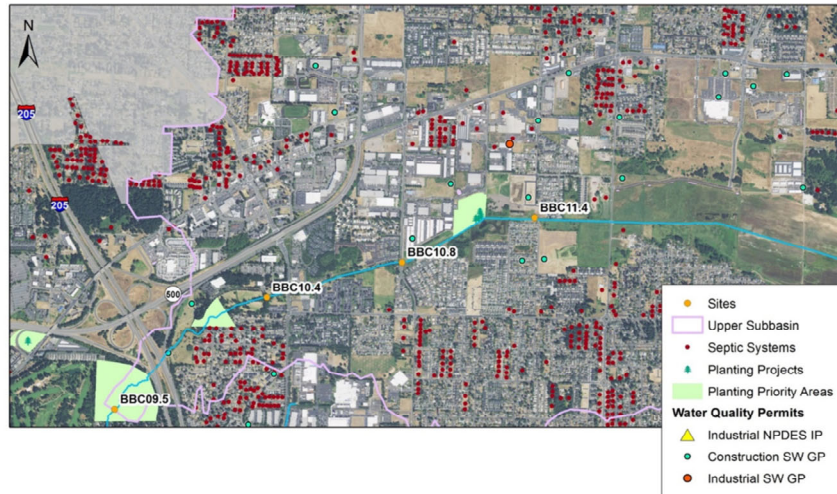


- Most of Burnt bridge Creek has sewer available.
- 2 Wastewater treatment facilities.

July 2021 Burnt Bridge Creek Partnership – 40

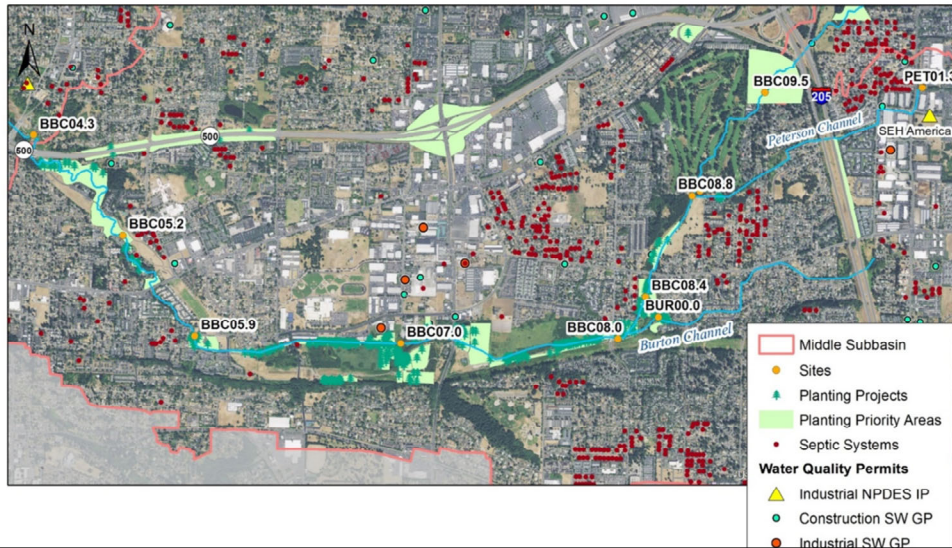
Most of the Burnt Bridge Creek watershed has sewer available to collect sanitary waste and convey it to Vancouver’s wastewater treatment facilities for treatment. However, there are still thousands of septic systems in the watershed.

Upper Watershed (RM 10-13) ~ 1,000 Septic Systems



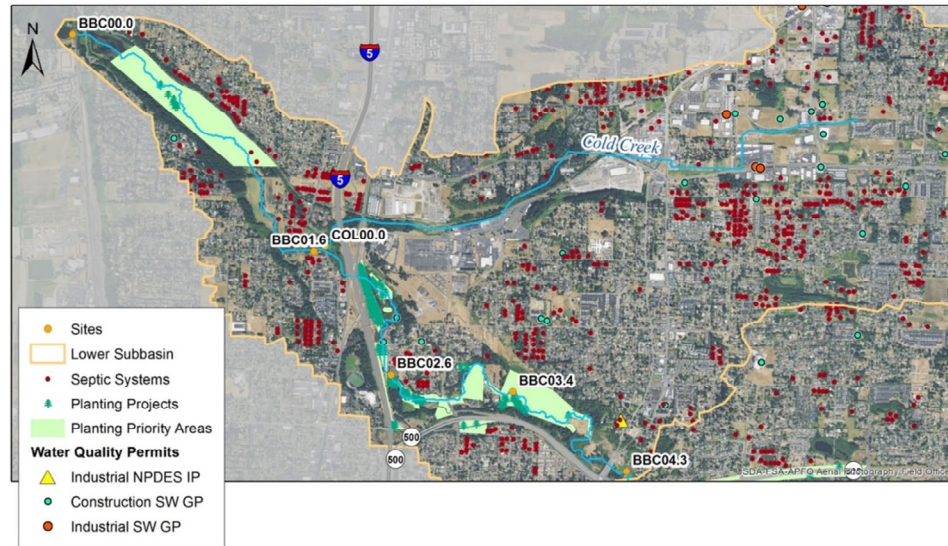
For example, the upper watershed between river miles 10 and 13 has an estimated 1,000 septic systems.

Middle Watershed (RM 5-10) ~2,000 Septic Systems



The middle watershed between river miles 5 and 10 has 2,000 septic systems. From a quantity perspective, the middle watershed is the highest priority for septic related work, which includes sewer connection and septic elimination. The middle watershed is also one of the highest high priorities for bacteria reductions

Lower Watershed (RM0-5) ~700 Septic Systems



The lower watershed between river miles 0 and 5 has 700 systems.

Overall, focusing on sanitary sewer connection and septic tank removal in the lower and middle watershed is a high priority due to documented bacteria issues. Efforts to remove septic tanks in the upper watershed could also help improve dissolved oxygen conditions, which are impaired in the upper watershed.

Sewer Connection and Incentive Program (SCIP)

- Developed in 1998
- Initial priority = proximity to surface water & areas with high density septic systems
- Goal = provide & extend sewer
- Connection to sewer is voluntary
- City allocated \$3 million annually in capital budget for SCIP



July 2021 Burnt Bridge Creek Partnership – 44

To help provide sewer service in the watershed, Vancouver developed the Sewer Connection Incentive Program (SCIP Program) in 1998 and launched the program in 2000. The purpose of this program is to improve water quality by building public sewer. SCIP is a part of Vancouver's capital improvements program and is primarily focused on sewer extension. Initial priorities for the SCIP program were providing sewers in areas around drinking water stations, and areas in close proximity to surface water. Overall, significant progress has been made providing sewer in Vancouver, but that does not mean that all homes that have direct access to public sewer, have taken the opportunity to connect. If a homeowner has a septic system in the City of Vancouver, and sewer becomes available, sewer connection is not mandatory; it is voluntary.

The City currently allocates approximately \$3 million dollars a year in the capital budget for the SCIP program.

SCIP Education and Outreach

SCIP Program



- Focused on sewer extension projects
- CCPH invited to participate and educate
- Goal = encourage sewer connection.
- No outreach happening within SCIP to septic owners
 - Need: Messaging to educate and encourage; Information on financing
 - Need: How to inspect and maintain system

July 2021 Burnt Bridge Creek Partnership - 45

Historically, outreach within the SCIP program has been completed when a new sewer line is being constructed. Normally, the SCIP program will have meetings with property owners. At this meeting, Vancouver will often invite CCPH to participate to provide information on septic system maintenance and repair, while Vancouver makes homeowners aware of the opportunity to connect to sewer. Vancouver's long-term goal is to encourage more people to connect to sewer. However, there is not currently any outreach happening within the SCIP program to remind people to connect. Future messaging related to sewer connection and septic systems should encourage homeowners to connect to sewer and provide information on financing. If septic owners cannot connect to sewer, or choose not to, education to residents should focus on continuing to inspect and maintain their systems in accordance with local requirements implemented by CCPH

Clark County Public Health's role

- Primary jurisdiction over septic systems
- CCPH has Final authority to allow septic repair or replacement
- CCPH normally requires connection if system is failing or in disrepair
 - Requirement may be waived if cost to connect is more than double cost of repair or replacement, or if fix is simple.

Well & Septic Inspection Certification

Get certified to inspect your own gravity-fed septic system and learn how to properly maintain your well and septic systems.

Get certified to inspect your septic system*
AND learn how to:

- ◊ Prevent costly repairs
- ◊ Protect your drinking water
- ◊ Maintain your well and septic systems

Well & Septic Inspection Certification and Maintenance for Homeowners Workshop

Where: Clark County Public Works Ops Center, bldg B1 (4700 NE 78th St, Vancouver)

Date: Tuesday, February 23

Time: 6 to 9 PM

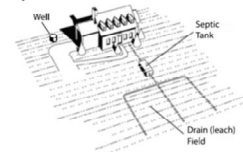
Cost: \$15 per household

Registration and details at:

www.brownpapertickets.com/event/2499349

*System must be owner occupied and gravity fed. Not valid for sale of house, homeowner can self-inspect every other inspection, alternating with a certified O&M professional.

Jointly Sponsored by: WSU Clark County Extension, Clark County Environmental Services, and Clark County Public Health.



WSU Extension programs and employment are available to all without discrimination. Reasonable accommodations will be made for persons with disabilities and special needs who contact 360-397-6000 and 90 days prior to an event.

Clark County Public Health is the organization that has primary jurisdiction over septic systems in Clark County. In most cases, if a septic system is failing or is in disrepair, CCPH will not allow a homeowner to repair or replace the septic system. Instead, CCPH will require connection to municipal sewer. However, CCPH does have language in their code for relief from this requirement if the cost to connect is much higher than the cost to repair or replace. CCPH has the final authority to determine if septic system repair or replacement is allowed, or if a landowner has to connect to sewer.

Septic System O&M

- O&M is required if not connecting to sewer.
- Workshops, education and outreach
- Septic inspections and maintenance
 - Inspections required every 3 years,
 - Maintenance recommended every 5 years
 - Replacement every 25-40 years.
- Past Due Operations and Maintenance notification letters
- Poop Smart Clark – septic system inspection and maintenance rebate program

July 2021 Burnt Bridge Creek Partnership – 47

If a homeowner does not connect to sewer and decides to keep their septic system, Vancouver recommends continuing routine septic system inspections and maintenance. Vancouver relies on CCPH to conduct necessary outreach to septic system owners for inspection and maintenance compliance through mailers, workshops, or other educational methods. CCPH has jurisdiction and enforcement authority for septic systems that are past due for inspections or maintenance. Historically, CCPH has sent past due operations and maintenance notification letters to septic owners, and has collaborated with WSU Extension to host workshops that teach septic owners how to care for their systems. CCPH is also working with the new Poop Smart Clark Pollution Identification and Correction program to develop a new inspection and maintenance rebate program to provide financial assistance to septic owners. Implementing this program in Burnt Bridge Creek, may help increase outreach, technical, and financial assistance to septic owners.

Age and condition of septic systems

- Many systems over 40 years old
- Condition and function of systems is unknown
- **First step** = identify septic system age and condition, past due for inspections and maintenance
- **Septic system prioritization**

July 2021 Burnt Bridge Creek Partnership - 48

It is assumed that there are many septic systems in the Burnt Bridge Creek watershed that over 40 years old. It is unknown what condition these systems are in and if they are functioning properly. Identifying septic system age and condition, and any systems that are past due for inspections and maintenance may be a good first step for prioritizing septic system outreach and education. Developing new partnerships and programs for proactive septic outreach is one of the main water quality needs in the Burnt Bridge Creek watershed.

Sewer Connection Financing

- 20-year financing program
- \$19,000 dollars = average cost to connect
- Incentive to connect in 2 years

July 2021 Burnt Bridge Creek Partnership - 49

The City of Vancouver currently provides a 20-year financing program for anyone eliminating a septic system that wants to connect to sewer. The City of Vancouver suggests that sewer connection may cost on average approximately \$19,000 dollars.

Once sewer is available, the City provides an incentive for residents to connect within 2 years. For the first 2 years, the cost of the sewer main fee is fixed. However, after 2 years the cost will increase. Due to elapsed time since sewers were constructed, many of the neighborhoods that that have benefitted from sewer extension have passed the 2 year incentive period and will now be charged higher costs. Therefore, it may be very expensive for septic owners to connect

SCIP Education and Outreach

- Outreach for SCIP may be challenging
- Costs to connect may differ greatly
- Opportunity:
 - Complete cost analysis before outreach
 - Develop cost-share, rebate, or grant assistance program

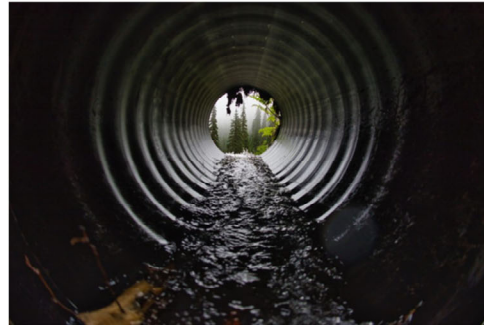
July 2021 Burnt Bridge Creek Partnership - 50

Overall, outreach to promote sewer connection in areas where there have been past SCIP projects may be challenging. When conducting outreach to promote sewer connection, it is essential to have accurate pricing information for different homes across the watershed. It is possible that individual neighborhoods had multiple SCIP projects, and that there could be different costs to connect within the same neighborhood from street to street.

One opportunity is for an entity to seek grant funding to develop a cost-share, rebate, or reimbursement program to help alleviate the financial burden to connect to sewer.

Sewer Collection System

- **High priorities**
 - Infiltration and Inflow
 - Root management
 - Manhole sealing and repair
 - Lateral connections
 - Lining
- **Inspection program**
 - Televising every 7 to 8 years
 - Dye and smoke testing as needed



July 2021 Burnt Bridge Creek Partnership - 51

: Shifting gears from septic to the sewer collection system, Vancouver completes regular operations and maintenance (O&M) on its sewer collection system to help prevent issues and to make sure the system is functioning optimally. One priority area for O&M is infiltration and inflow (I&I). Infiltration and inflow occurs when sewer pipes develop cracks, holes, or leaks, which results in water getting into the sewer system during wet weather, or waste leaching out of the conveyance system into soil and water during the dry season. To address I&I issues, Vancouver prioritizes manhole sealing, root management, and manhole repair to prevent infiltration and inflow. This maintenance work is completed on an as needed basis if issues are found. The city proactively implements root foam to help reduce issues with roots getting into sewer pipes causing cracks.

To find and fix I&I problems, Vancouver has a robust inspection program on its operations sides. They complete televising every 7 to 8 years to evaluate deterioration of pipes, looking for any major holes, cracks, or leaks. They also complete dye and smoke testing on an as needed, individual basis

Sewer Education and Outreach

- Focus areas
 - Fats, oils, and grease
 - Flushable wipes



July 2021 Burnt Bridge Creek Partnership - 52

Overall, there are three main operation and maintenance concerns for Vancouver’s sewer system. These include fats, oils, and grease (FOGs), roots, and flushable wipes. These three issues cause challenges not only in the sewer collection system but also at the treatment plants. Vancouver has an active root management program in house, but there are not formal education and outreach campaigns developed for FOGs, or for flushable wipes. The City does have a “flush bunny program” and will occasionally put a notice in billing mailers to educate the public about “unflushable” materials. Vancouver also has a staff person working at the national level to try to get labeling changed on flushable wipes to educate that the wipes are actually “unflushable” and cause significant impacts to municipal sewers. Vancouver also has one of the best fats, oils, and grease inspection program in the country that is implemented by sewer maintenance staff. This program visits restaurants to make sure grease traps are regularly cleaned and disposed properly.

Partners

- Clark County Public Health – Septic systems
- Clark Regional Wastewater District – Sewer
- Poop Smart Clark – Outreach, Education, Technical & Financial Assistance

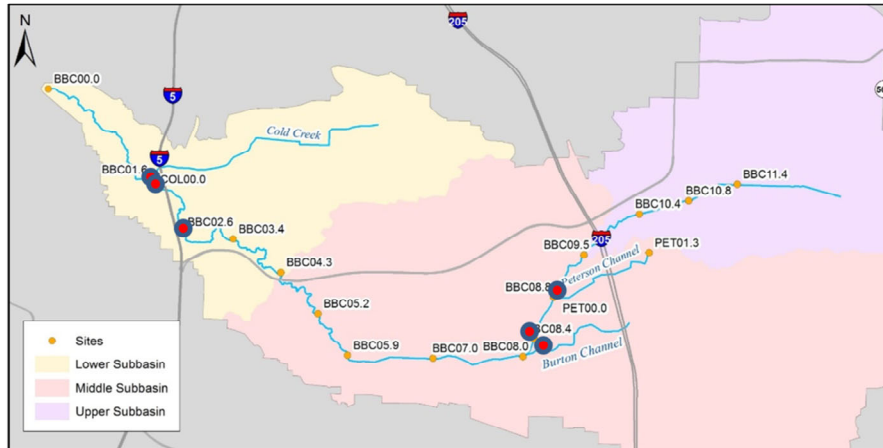
July 2021 Burnt Bridge Creek Partnership - 53

Going forward, partnership with other jurisdictions will be essential to long-term success.

Clark County Public Health is an important partner for septic system and sewer connection work in the Burnt Bridge Creek watershed. Additionally, Cold Creek, which is a high priority for bacteria reduction is the main area where Vancouver does not provide sewer service. A portion of cold creek is in Clark County's jurisdiction, and is therefore Clark County's responsibility. Clark Regional Wastewater District (CRWWD) provides wastewater services in the Cold Creek subbasin. CRWWD's involvement will be necessary for sewer connection and septic elimination work in Cold Creek.

Another opportunity is to collaborate with the new Poop Smart Clark pollution identification and correction program, which helps landowners with septic related assistance. In the future, Poop Smart Clark may consider expanding its programming to offer technical and financial assistance related to sewer connection.

Priorities from Source Assessment, 2018



Priority 1: Geometric means >200cfu/100ml in dry season & load reductions over 75 percent

July 2021 Burnt Bridge Creek Partnership - 54

As a reminder, here are the primary locations for bacteria reduction in the burnt bridge creek watershed.

The highest priority areas for bacteria reduction are located in the middle and lower watershed, therefore septic and sewer related work should focus on the middle and lower watershed.



DRAFT Implementation Actions **Sewer Connection and Septic Systems**

July 2021 Burnt Bridge Creek Partnership - 55

The following are draft implementation priorities and actions for sewer connection and septic systems.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Priority areas for sewer and septic implementation

SS1.1 Prioritize sewer and septic system implementation to areas with known bacteria problems in the lower and middle watershed.

- Phase 1 implementation should be targeted to Peterson Channel, Cold Creek, Burton Channel, and river miles 8.4, 2.6, and 1.6.

SS2.2 Delineate drainages and sewer areas that are contributing to priority areas for water quality. Identify specific neighborhoods, sewer lines, and parcels with potential to impact water quality.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Septic systems inspections and maintenance

- **SS2.1** Complete a septic systems record assessment to confirm which septic systems are draining to priority areas for water quality.
- **SS2.2** Complete a septic system records assessment to identify age, condition, and criticality of septic systems. Identify which septic owners are past due for septic system inspections and maintenance.
- **SS2.4** Implement a past due operation and maintenance lettering effort, with the goal to send mailers to landowners that are past due for septic systems inspection and maintenance.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Septic systems – inspections and maintenance

- **SS2.4** Utilize Poop Smart Clark to implement a septic system rebate program for inspections and maintenance. Develop new component of Poop Smart Clark to financially assist septic owners with sewer connection.
- **SS2.6** Utilize source tracing and pollution identification and correction methods to identify and confirm failing septic system that are contributing to water quality exceedances.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Sewer connection

- **SS3.1** Complete outreach to septic system owners that have not connected to sewer who are located in priority drainages for water quality.
- **SS3.4** Develop financial assistance programs for homeowners who want to connect to sewer. These may include applying for a grant to help landowners connect to sewer, implementing a rebate or cost-share program.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Sewer O&M

- **SS4.1** Complete sewer televising and inspection to identify, inventory, and map sewer repair needs, focusing on identifying cracks, leaks or holes in sewer pipes, presence of roots, and challenges with manholes. Document priority assets and geographic locations for O&M or replacement.
- **SS4.2** When necessary, utilize smoke testing and dye testing to investigate challenge with infiltration and inflow, and illicit connections.

July 2021 Burnt Bridge Creek Partnership - 60

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Sewer O&M

- **SS4.5** Prioritize sewer repairs and capital investments in areas with known bacteria issues in the middle and lower watershed, focusing on assets that are located within 200 feet of the stream.
- **SS4.6** Consider opportunities to include “proximity to known water quality concerns” in Vancouver’s criticality matrix when prioritizing infrastructure for maintenance, repairs, and capital improvement.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Sewer Capital Improvements

- **SS5.1** Prioritize sewer capital improvement projects in areas where there are known bacteria issues, specifically focusing on capital projects that will address infiltration and inflow issues, prevent or alleviate backflow or overflow issues, help fix issues with manholes, and improve the lining of sewer systems, especially where laterals and sewer mains connect.

Funding & Partners

Funding

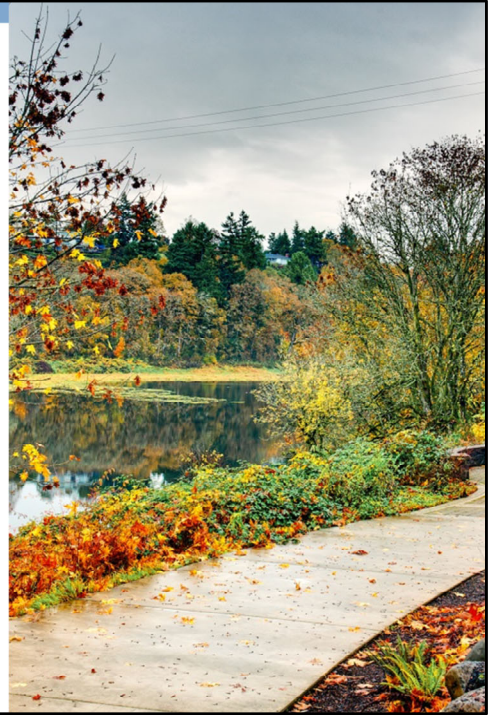
- City of Vancouver Sewer Utility
- Water Quality Combined Funding Program (Department of Ecology)

Partners

- Clark County Public Health
- Clark Regional Wastewater District
- Washington Department of Health
- Washington Department of Ecology
- Poop Smart Clark
- Private Landowners
- Washington State University Extension

Discussion

- Questions?
- Thoughts?
- Comments?
- Feedback?
- Concerns?
- Is there anything I missed?



Stormwater & Capital Improvements

Discussion Topics

- Implementation: assessments, activities and retrofits
- Illicit Discharge Detection and Elimination
- Source Control
- Private Stormwater Facilities
- Public Education and Outreach
- Agriculture and pet waste
- Impervious Surfaces

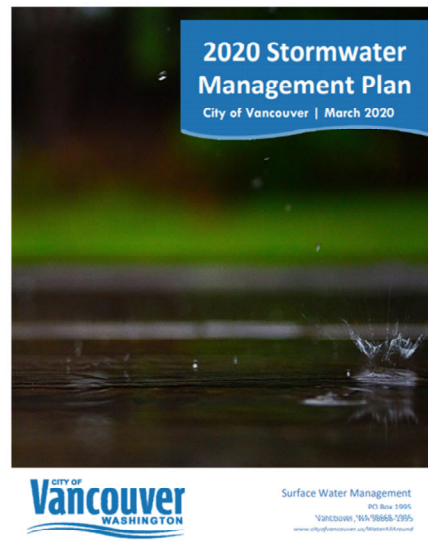
Workgroup Members: Kris Olinger, Nikki Guillot, Dan Swensen, Annette Griffy

July 2021 Burnt Bridge Creek Partnership - 65

Alright, for our next topic which is standing between us and a break, I'd like to transition into the Stormwater and Capital Improvements workgroup. Workgroup members involved with this topic included Kris Olinger, Nikki Guillot, Dan Swensen, and Annette Griffy. Topics discussed in this workgroup included stormwater assessments, activities, and retrofits, illicit discharge detection and elimination, source control, private stormwater facilities, public education and outreach, agriculture, pet waste, and impervious surfaces.

Background

- Western Washington Municipal Stormwater Permit
 - City of Vancouver – Phase II
 - Clark County – Phase I
 - Washington Department of Transportation
- Permit elements
 - Planning, mapping and documentation
 - Illicit discharge detection and elimination
 - Operations and maintenance
 - Runoff and flow controls for development
 - Source Control
 - Structural Stormwater Control
 - Public Education and Outreach
- Vancouver = 70 percent of Burnt Bridge Creek watershed or 13,030 acres



The Western Washington Municipal Stormwater Permit is the primary driver requiring local governments to manage and control stormwater runoff so that it does not pollute downstream waters. In the Burnt Bridge Creek watershed, there are three municipal stormwater permittees. Clark County has a Phase 1 stormwater permit, which regulates discharges in the most highly populated areas of the state. The City of Vancouver has a Phase 2 permit, which is implemented in jurisdictions with over 10,000 residents. The Washington Department of Transportation also implements the municipal stormwater permit on state roads.

Stormwater program elements include stormwater planning, mapping and documentation, illicit discharge detection and elimination, operations and maintenance, runoff and flow controls for development, source control for existing development, structural stormwater controls, and public education and outreach.

Approximately 70 percent or 13,030 acres of the Burnt Bridge Creek watershed is covered by the City of Vancouver's the Municipal Stormwater Permit (MS4 Permit). In addition to the MS4 permit, there are two Industrial NPDES Individual Permits, and eleven Industrial Stormwater General Permits in the watershed. At the time of

the Source Assessment, there were approximately 90 construction stormwater general permits.

Implementation: assessments, activities, and retrofits

- SFAP = Stormwater Financial Assistance Program (Department of Ecology)
- 17 grants for stormwater
- LCFRB = Lower Columbia Fish Recovery Board Outfall Assessment



July 2021 Burnt Bridge Creek Partnership -67

To make progress on stormwater, Vancouver has leveraged multiple Stormwater Financial Assistance Program (SFAP) grants to implement stormwater improvements in the Burnt Bridge Creek watershed. Grant funding has provided essential funding to the City, as Vancouver's City Council has a policy capping stormwater utility rate increases at 5 percent, which is the primary source of funding for stormwater management. Currently, Vancouver has approximately 17 grants for stormwater management implementation .

These include assessment and studies, stormwater activities, and facility retrofit projects. Vancouver also has a grant through the Lower Columbia Fish Recovery Board, which is evaluating stormwater outfall conditions in Burnt Bridge Creek. The goal is to have a list of priority outfalls to implement improvements, and conceptual designs for priority outfall areas. The project will not only look at the conditions of outfalls, it will also make recommendations for instream habitat improvements in the creek, as well as recommendations for improvements to drainage areas contributing to the outfalls.

Implementation in Peterson and Burton Channel

- Subbasin-by-subbasin
 - Peterson Channel Assessment
 - Burton Channel Assessment
- SFAP Implementation of retrofits identified in Assessments.
- Goal = include assessments into Vancouver's CIP



July 2021 Burnt Bridge Creek Partnership -68

Overall, Vancouver has been completing stormwater assessments in Burnt Bridge Creek on a subbasin-by-subbasin basis. Peterson and Burton Channel are two assessment projects that have been selected. These assessments identify stormwater retrofit opportunities.. Peterson Channel has benefited from significant stormwater investment. Overall, Vancouver has implemented four SFAP grants in the Peterson Channel subbasin, which have included road retrofits, low impact development implementation, and monitoring. However, there are still areas in Peterson Channel that provide opportunities for stormwater retrofits.

As of now, the retrofit opportunities identified through the subbasin assessments have not been incorporated into Vancouver's Capital Improvement Plans (CIP) for stormwater projects, which is an important step for ensuring long-term success.

Illicit Discharge Detection and Elimination (IDDE)

- **Focus areas**
 - Business inspections
 - Drinking water resource protection areas
 - Businesses storing or managing hazard materials
- **Indicators:** Visual and odor, dry screening
- **Focus** = one subbasin per year, builds information into asset management system

July 2021 Burnt Bridge Creek Partnership -69

Shifting gears to illicit discharge detection and elimination, these activities are required through the City of Vancouver's stormwater permit. IDDE implementation has historically been focused on completing business inspections/ Vancouver also has focused IDDE efforts on drinking water resource protection areas, and businesses storing or managing hazardous material. Vancouver utilizes established IDDE guidance manuals to identify visual and odor indicators of illicit discharges. They are also incorporating visual screening into the outfall condition assessment funded by LCFRB. Each year, Vancouver focuses on one subbasin for IDDE work, and builds data from IDDE efforts into an asset management system. To implement IDDE programming, the City completes dry weather visual screening of outfalls, but water quality monitoring and source tracing is rarely utilized as an IDDE tool to track potential sources upstream in the stormwater system from outfalls to manholes. Cross connections are usually found by visible or odor indicators, or through the City's infrastructure televising program

IDDE

- Estimates 100-150 IDDE complaints annually.
- Challenges:
 - Remodels and home additions
 - Improper connection of downspouts
 - Contractor and plumbers obtaining required city building permits
- Corrected through enforcement – required by permit
- Coordination with sewer department

July 2021 Burnt Bridge Creek Partnership – 70

On average, Vancouver estimates it response to and investigates 100 to 150 complaints each year. Some complaints may be related to illicit discharges and cross connections. However, in the past, Vancouver has mostly identified cross connection challenges where downspouts were incorrectly connected to sanitary sewer. Remodels and home additions are also common situations where downspouts are connected to sewer, resulting in an illicit cross connection to the sanitary sewer collection system.

Vancouver eliminates any cross connections it identifies through enforcement. The stormwater team works with the sewer and building departments throughout the correction process.

If an illicit connection is found, there is no financial assistance available from the stormwater department to correct the issue, but sometimes the sewer department has provided financial support to landowners when the sanitary sewer is connected to the MS4. These instances are rare and must be eliminated per the City's permit.

Source Control

- New requirements in Phase II Municipal Stormwater permit
- Priorities businesses
- Assessing every property with parking lot
- **Current focus** = properties with “potential to pollute”
 - Source Control inventory development
 - Windshield survey ~ 8,200 businesses



July 2021 Burnt Bridge Creek Partnership -71

With new source control requirements in the Phase II Municipal Stormwater Permit, Vancouver is expanding its IDDE and source control program focus from prioritizing businesses to assessing every property with a parking lot. Within the new source control program, Vancouver is currently focused on source control inventory development.

To support inventory development, the City plans to conduct a windshield survey of properties with the “potential to pollute” and will document any pollution issues observed in the field. The city estimates that there are approximately 8,200 businesses that will be included in the windshield survey. Businesses with higher pollution potential, such as businesses with grease or storage drums on site, are a high priority.

Source Control

- 2022 – complete necessary ordinance revisions
- Develop outreach plan
- Develop source control focus group
- Complete interviews
- **Opportunity** = prioritize businesses and land uses with potential to contribute bacteria and nutrients

July 2021 Burnt Bridge Creek Partnership – 72

Vancouver plans to complete source control ordinance revisions no later than August 2022 and develop an outreach plan to support its source control program. This will include developing focus groups to engage broad demographics in the business community, as well as completing interviews on how to provide source control technical assistance most effectively. Businesses and land uses that have the potential to contribute bacteria, nutrients, temperature, and pH should be prioritized for source control inspections to improve water quality in burnt bridge creek.

Private Stormwater Facilities

- **1,400 private facilities estimated in Vancouver**
 - ~50% are deficient
- **Providing technical assistance**
 - Site visits
 - Contractor education
 - Providing engineering drawings
 - Annual Inspections







July 2021 Burnt Bridge Creek Partnership – 73

Another focus area for Vancouver’s stormwater program is private stormwater facilities. Vancouver has a private stormwater facilities inspection program, which has developed an inventory of private facilities. It is estimated that there are approximately 1,400 private stormwater facility structures throughout the city and that 50 percent of these structures are deficient and do not meet engineering or performance standards. Vancouver is providing technical assistance to private facility owners through site visits, contractor education, providing engineering drawings, and by completing annual inspections. The city has a protocol, which prioritizes facilities for inspections and technical assistance based on deficiencies and maintenance needs.

Private Stormwater Facilities

- Working with Homeowners Associations (HOA)
 - Multi-family properties
- Encouraging phased maintenance
- Working with HOA's challenging

Past Webinars

	Stormwater Facilities: Maintenance for Homeowners This webinar covers general topics related to the management of private stormwater facilities and is appropriate for residents of any neighborhood or HOA within Clark County. Learn more ->
	Stormwater Facilities: Small Neighborhood Focus This webinar is intended for residents within the Huntsinger, Keller, McMurdo HOAs, located in Vancouver. Learn More ->
	Stormwater Facilities: Parkview Village This webinar is intended for residents within the Parkview Village development in Vancouver. Learn more ->
	Stormwater Facilities: Northfield Community Association This webinar is intended for residents within the Northfield Community Association HOA in Vancouver. Learn more ->

July 2021 Burnt Bridge Creek Partnership - 74

The City is currently working with homeowners' associations (HOAs) and multifamily properties to implement phased maintenance on private facilities. Overall, HOAs are more complex to work with compared to multifamily properties due to challenges with a lack of leadership within HOAs. If there is no official property manager associated with the facility, then outreach is normally completed to HOA boards, but this is often difficult due to board turnover. Vancouver has tried implementing mailers and webinars to engage HOAs, but past webinars have not been well attended. New partnerships with Clark Conservation District are being developed to implement more HOA education.

Public Education and Outreach

- Source Control Webinar Series – 2022
- Pollution Prevention at Home Webinar Series
- EPA Wash Right Campaign
- Farmer’s Market Vendor Education
- Goal = Centralized spill kits

75

Vancouver plans to host a residential source control webinar series in 2022, with the goal that more homeowners and residents will attend. The long-term vision for Vancouver is to connect private stormwater facility education with source control education, and to engage with HOAs earlier in their establishment. When private facilities are not maintained or repaired, Vancouver has enforcement mechanisms in place to require correction. However, there are not financial resources available to assist HOAs, and HOAs are responsible for maintenance and repairs. Most of Vancouver’s enforcement actions on private facilities are implemented at private businesses rather than residential areas. Increasing enforcement efforts on private facilities in residential areas may result in more compliance with requirements, improved maintenance, and decreased deficiencies.

Vancouver is planning a new pollution prevention at home webinar series in collaboration with Clark Conservation District. This webinar series is focused on pollution prevention at residences, and Vancouver is collaborating with Clark County’s Green Neighbors program to provide education for property managers at multifamily properties. Additionally Vancouver is working with Washington State University Extension to develop a safe pest control webinar for multi-family properties. Vancouver plans to reach more people by collaborating with Waste Connections, who is a local solid waste hauler, to target addresses and names of individuals living in multi-family properties to start expand an existing “green apartment living” program.

Other outreach and education efforts include EPA funding for a “Wash Right” campaign focused on the proper use of disinfectants and power washing practices targeted at the downtown area.

Vancouver is also completing farmer's market education and is collaborating with the Parks Department's special events team to incorporate educational information into farmer's market vendor handbooks

The goal is to develop a centralized spill kit for Esther Short Park and Columbia Tech to help manage spills associated with events and food trucks. More detailed information on Vancouver's education and outreach is included in the Public Education and Outreach meeting summary. This includes education and outreach efforts related to urban forestry and greenways, and opportunities for Vancouver to improve education and outreach related to bacteria pollution.

Agriculture and Pet Waste

- No agriculture or manure ordinance in City
 - Defers to Clark Conservation District
- Questions about agriculture and manure enforcement in Vancouver
- Pet waste = Canines for Clean Water



July 2021 Burnt Bridge Creek Partnership – 76

Regarding agriculture source control, the City of Vancouver does not have an official agricultural or manure ordinance, and the City defers to Clark Conservation District and other agricultural assistance organizations to help landowners with agricultural challenges. Some HOAs may have their own covenants, conditions, and restrictions regarding animals, however, the City does not enforce the rules of individual HOAs. When completing windshield surveys for source control at businesses, Vancouver’s criteria is “potential to pollute,” therefore any major challenges associated with agriculture should be documented through the source control inventory and survey process. Properties with agricultural issues should be referred to agricultural assistance organizations to educate pet and livestock owners on proper practices for waste disposal.

The Canines for Clean Water Program is the main program Vancouver utilizes for pet waste education. This program is administered by Clark County. In the future, Vancouver may benefit from collaborating with Poop Smart Clark for education efforts related to pet waste, agriculture, and manure management.

Impervious Surfaces

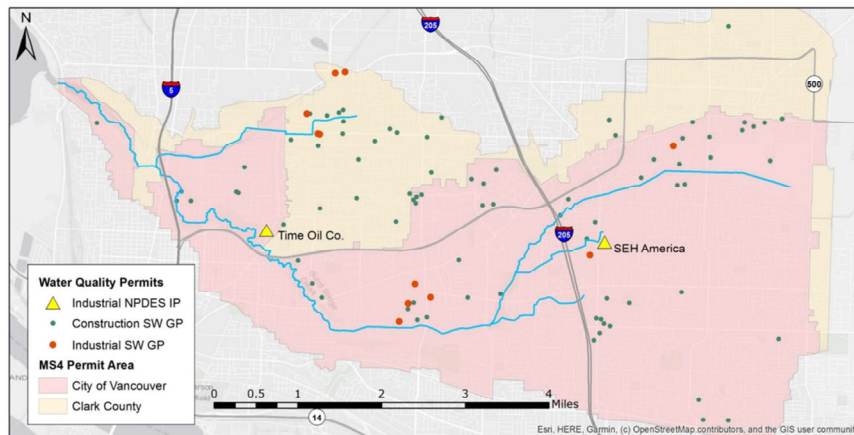
- Stormwater drainage fee
- Opportunity
 - Prioritize most densely impervious subbasins for stormwater activities and retrofits
 - Neighborhoods
 - Roads
 - Parks
 - Commercial Areas



July 2021 Burnt Bridge Creek Partnership - 77

In conclusion, Vancouver collects a stormwater drainage fee that is based on impervious and hard surfaces. The City of Vancouver calculates impervious surfaces in GIS except for single family residential, which is available upon request. This information can be used to prioritize the most densely impervious subbasins for implementation of stormwater activities and facility retrofits. Completing an analysis of the impervious area densities in drainage areas that contribute to priority areas for water quality may help prioritize neighborhoods, roads, and commercial areas for implementation of stormwater best management practices.

Priorities from Source Assessment, 2018



~70% or 13,030 acres is covered by the City of Vancouver MS4 permit

78

As a reminder, here is a map showing City of Vancouver's MS4 Permit coverage area, which makes up 70 percent of the watershed or approximately 13,030 acres.

Priorities from Source Assessment, 2018

Roads and residential areas greatest land uses

- Lower watershed: RM 0-5
 - 45% residential
 - 29% roads
 - 7% commercial, manufacturing, mining
 - Vancouver / Clark County MS4 and some WSDOT
- Middle watershed: RM 5-10
 - 45% residential
 - 24% roads
 - 15% commercial, manufacturing, mining
 - Mostly Vancouver MS4, some Clark County & WSDOT
- Upper watershed: RM 10-13
 - 43% residential
 - 21% roads
 - 11% commercial, manufacturing, mining
 - City of Vancouver and Clark County MS4

July 2021 Burnt Bridge Creek Partnership – 79

Overall, residential land uses and roads are the most significant land uses in the watershed that have the potential to facilitate stormwater runoff. Efforts to prioritize stormwater management actions to areas with known water quality issues can help improve water quality in Burnt Bridge creek.



DRAFT Implementation Actions **Stormwater and Capital Improvements**

July 2021 Burnt Bridge Creek Partnership – 80

The following are some recommended Draft implementation actions based on discussions from the stormwater capital improvements workgroup.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Priority areas for stormwater management

SWM1.1 Prioritize stormwater management efforts to improve bacteria conditions in the middle and lower watershed

- Prioritize Burton Channel, Cold Creek, and Peterson Channel, as well as river miles (RM) 8.4, 2.6, and 1.6 for having dry season bacteria exceedances over 200 cfu/100ml

SWM1.2 Focus nutrient source control efforts to river miles 5.9, 7, 9.5, and 11.4. Prioritize stormwater management efforts to improve dissolved oxygen conditions at these locations.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Stormwater retrofits and capital improvements

SWM2.1 Incorporate proximity to impaired surface water into Vancouver's criticality matrix when prioritizing stormwater retrofits in asset management and capital improvement programs.

SWM2.3 Complete mapping to delineate drainage areas contributing to priority areas for water quality in Burnt Bridge Creek

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Stormwater retrofits and capital improvements

SWM2.4 Incorporate results from the subbasin studies completed in Burton Chanel and Peterson Channel into Vancouver's Capital Improvement Program. Prioritize implementation of projects that will help improve water quality in priority areas of Burnt Bridge Creek.

SWM2.5 Collaborate with Clark County to complete a basin study of Cold creek to identify retrofit opportunities to improve water quality.

SWM2.10 Complete an audit of local codes, ordinances, and standards to identify opportunities to improve local codes to encourage adoption of low impact development in new development and redevelopment projects. When possible, increase building setbacks, reduce parking lots sizes, and increase vegetation area and root zone requirements.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Stormwater retrofits and capital improvements

SWM2.12. Implement stormwater retrofits to treat runoff from roads. This includes encouraging WSDOT to install flow control and water quality treatment BMPs to manage runoff from I-205, I-5, and SR-500.

SWM 2.13 Provide technical assistance to private facility owners through site visits and by completing annual inspections.

- Prioritize facilities in drainage areas contributing to known water quality impairments.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Illicit Discharge Detection and Elimination (IDDE)

SWM3.1. Focus Illicit Discharge Detection and Elimination (IDDE) efforts in subwatersheds that have known bacteria impairments, starting with Burton Channel, Peterson Channel, and Cold Creek, river miles 8.4, 2.6 and 1.6.

SWM3.3 Implementing monitoring and source tracing in areas with known bacteria issues to identify and trace pollution issues in Burnt Bridge Creek. This may include pollution identification and correction efforts and microbial source tracking upstream from outfalls, into Vancouver's infrastructure and manholes

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Illicit Discharge Detection and Elimination (IDDE)

SWM3.4 Prioritize implementation of infrastructure televising, smoke testing, and dye testing in Burton Channel, Peterson Channel, Cold Creek, and at river miles 8.4, 2.6 and 1.6.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Source Control

SWM4.3 Prioritize businesses and land use types that have the greatest potential to contribute bacteria or nutrients to Burnt Bridge Creek for source control inspections

SWM4.4 Focus implementation of pet and goose waste BMPs at parks, along trails and greenways, and other public areas in subwatersheds with wet and dry season bacteria issues.

SWM4.11 Work with Royal Oaks Golf Club to implement operational and structural source control efforts to reduce nutrient loading

July 2021 Burnt Bridge Creek Partnership - 87

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Source Control – Agriculture

SWM4.7 Develop, adopt, and enforce a citywide agricultural and manure management ordinance. Collaborate with Poop Smart Clark to provide technical and financial assistance to landowners to address bacteria issues on private property.

SWM4.8 Provide funding support to Clark Conservation District or other agricultural service organizations to support implementation of agricultural technical assistance, planning, and BMP implementation in Burnt Bridge Creek.

Funding Sources & Partners

Partners

- **Jurisdictional**
 - Clark County Clean Water Division
 - Washington Department of Transportation
- **Implementation**
 - Urban Forestry Program
 - Stormwater Partners of Southwest Washington
 - Water Resources Education Center
 - Watershed Alliance of Southwest Washington
 - Clark Conservation District
 - LINC?

Funding Source

- City of Vancouver Stormwater Utility
- WSDOT
- Clark County
- Water Quality Combined Funding Program – Department of Ecology

July 2021 Burnt Bridge Creek Partnership – 89

These actions are not just the responsibility of the City of Vancouver. There are other jurisdictions and many partners involved with stormwater management in Burnt Bridge creek. It will take long-term collaboration and coordination to make progress towards improving water quality.

Discussion

- Questions?
- Thoughts?
- Comments?
- Feedback?
- Concerns?





BREAK @ 2:00 p.m.

5 minutes

July 2021 Burnt Bridge Creek Partnership - 91

Operations & Maintenance (stormwater)

Discussion Topics

- Urban Forestry and Greenways
- Stormwater O&M
- Balancing retrofits and maintenance
- IDDE – Coordinating with sewer
- ERTS complaints and spill response
- Leaf management
- Challenges

Workgroup Members: Brian Potter, Tim Esary, Tim Buck, Aron Rice, Annette Griffy

July 2021 Burnt Bridge Creek Partnership – 92

Welcome back to the meeting everyone and thank you for staying with me through this. Our next workgroup to cover is operations and maintenance. Specifically this group was more focused on O&M as it relates to Vancouver's stormwater program. Discussion topics for this workgroup included urban forestry and Greenways, stormwater O&M, Balancing retrofits and increasing maintenance workload, IDDE, ERTS complaints and spill response, leaf management, and challenges. Workgroup members include Brian Potter, Tim Esary, Time Buck, Aron Rice, and Annette Griffy.

Background on O&M

- 26 Employees
- Activities
 - Street sweeping
 - Vactoring
 - Flushing
 - Infrastructure televising
 - Annual facility maintenance
 - Outfall inspections
 - Maintenance repairs
 - Erosion control and construction stormwater
 - Maintenance and stewardship of Greenway – tree planting, mowing, irrigation, invasive species management



July 2021 Burnt Bridge Creek Partnership – 93

The City of Vancouver’s stormwater operations and maintenance (O&M) team employees 26 people. Activities completed by O&M staff include street sweeping in neighborhoods and on arterials, vactoring, flushing, and infrastructure televising. Keeping sweepers functional and on the road is one of the biggest challenges Vancouver’s O&M program faces. Staff also complete annual facility maintenance, outfall inspections, and maintenance repairs.

Implementation of erosion control practices related to the construction stormwater permit are also completed through O&M staff. The team also completes all stewardship on the Burnt Bridge Creek Greenway, including tree planting, mowing, irrigation, and invasive species management.

Urban Forestry and Greenways

- Focus of O&M work
 - Root zone management
 - Spraying
 - Irrigation
 - Vegetation maintenance



July 2021 Burnt Bridge Creek Partnership - 94

Within urban forestry maintenance, the primary focus of O&M staff is root zone management, spraying, and irrigation. All of the Vancouver maintenance staff are licensed herbicide applicators. Irrigation of plantings is completed using a truck that brings in water. There are some concerns about compacting soils when driving the irrigation truck in planting areas; however, Ecology's water resources program denied a water rights permit to withdraw water off Burnt Bridge Creek for irrigation, therefore trucking in water for irrigation is the only option.

To reduce maintenance needs, Vancouver uses mulch in their site preparation for weed suppression. The use of mulch also helps promote water retention and reduces the need to spray herbicide. Once the mulch breaks down, Vancouver eventually introduces cover crop to planted areas

One challenge within the urban forestry program is completing long-term maintenance of trees planted on private property, specifically in overburdened communities. The City currently completes maintenance on private property plantings for five years. In year six, the private property owner is responsible for maintenance of the planting. Developing resources to support long-term

maintenance is necessary to support survival and health of urban tree canopy.

Stormwater O&M

- **Objective:** Meet terms and conditions of stormwater permit
 - Completes inspections
 - Implements operational BMPs
 - Maintenance on certain asset types
- **Opportunity**
 - Prioritize O&M to geographic areas with water quality issues



July 2021 Burnt Bridge Creek Partnership - 95

Stormwater is one of the biggest focuses areas for O&M staff. The primary objective of the stormwater O&M team is to meet the terms and conditions of the municipal stormwater permit. To meet those conditions, the City completes inspections on a significant number of assets and implements a wide array of operational BMPs. While the city does not prioritize specific geographic locations for implementation of O&M, the city focuses instead on completing maintenance on certain asset types. One opportunity to improve water quality may be to prioritize implementation of maintenance activities to geographic areas with known water quality issues.

Challenges

- Slow draining areas
- Areas with dry wells
- Assets reaching end of useful life
- Preventing pollutant loading to groundwater

96

Some of the most challenging areas for Vancouver's O&M implementation are slow draining areas and areas with dry wells. One specific area is the Hearthwood neighborhood. This specific neighborhood has the majority of surface water infiltrated into perforated pipes and dry wells. The original assets are now reaching the end of their useful life, and while some fixes have been implemented, some assets and fixes are starting to fail. The area also has high infiltrating soils, so there may be a need to implement water quality treatment in certain areas to prevent pollutant loading to groundwater.

Challenges

- Balancing replacement and retrofits with maintenance
- New stormwater facilities = more maintenance

97

Vancouver can only maintain, sweep, flush and clean assets so much before replacement is needed. In some areas, focus is less on O&M and more on risk mitigation and avoiding infrastructure failure. One challenge going forward is balancing the implementation of new stormwater facility retrofits with creating more stormwater maintenance work in the City. While the city recognizes the benefits of stormwater retrofits, the City is also trying to manage the workload for maintenance staff. Every time a new stormwater BMP is implemented, maintenance needs are increased

Coordination with sewer department

- IDDE
- Eliminating cross connections
- Televising
- Addressing sewer issues in MS4



98

Another activity supported by O&M staff is illicit discharge detection and elimination. All of Vancouver O&M staff receive annual training on IDDE. The primary way that cross connections and other infrastructure issues are identified is through the City's infrastructure televising program. Televising is primarily implemented through sewer O&M. If an issue is identified, the stormwater maintenance team works closely with the city's engineers and sewer department to address issues and correct cross connections. If there is a sewer backup issue or if an issue arises at the wastewater treatment plant that affects the stormwater system, then the sewer and stormwater maintenance teams coordinate more closely.

ERTS complaints and spill response

Vancouver
Public Works
to the rescue.

- O&M team first to respond
- Initiate notifications
- Coordinate response
- Contain and cleanup spill

99

The O&M team is also the first to respond to ERTS complaints and initiate appropriate notifications and response. The team also handles all spill response efforts and coordinates with Ecology's spill response program and City engineering staff. If a complaint or spill report is received, Vancouver's primary goal is containment, followed by cleaning up the spill, and completing the proper reporting, notification, and documentation of the issue.

Leaf Management

Too many leaves?
Get the coupon!

Help keep storm drains
clear & prevent flooding.

Rake & take leaves for
free disposal with a coupon.



City of Vancouver
Public Works

Visit: www.cityofvancouver.us/LeafCoupon

- Coordinate with Vancouver solid waste program
- Capture and contain leaf material
- Free leaf pickup coupon
- Disposal and composting encouraged
- Leaf ordinance

100

Another activity implemented by the O&M team is fall leaf management. Vancouver's O&M staff partner with the solid waste program to implement best practices for leaf management. The goal is to conduct outreach to neighborhoods in the fall to capture and contain as much leaf material as possible. Vancouver usually adds an extra shift for staff in the fall to increase staff capacity to provide leaf pickup services in problem areas. Vancouver's solid waste department provides a free leaf pickup coupon to help incentivize leaf containment, management, and disposal. Vancouver has adopted a city ordinance that does not allow leaves to be raked into the street, and highly discourages raking into the street to keep leaves out of the stormwater system. Disposal or composting is encouraged. Prioritizing leaf cleanup outreach and implementation to areas with dissolved oxygen challenges, may help improve water quality by keeping leaves out of Burnt Bridge Creek.

Challenges

- Unhoused population living near Burnt Bridge Creek has increased
- Homeless Assistance and Response Team (HART)
- Talkin 'Trash
- RV Pump out programs



101

One of the biggest challenges Vancouver's O&M is involved with are challenges associated with the increased unhoused population in Vancouver and encampments in the Greenway. Due to challenges with covid-19 and economic conditions, the City of Vancouver is not relocating any encampments, which has resulted in a significant number of non-permanent structures on public property. The City is now collaborating with social assistance programs and police through the Homeless Assistance and Response Team (HART), which recently hired an encampment coordinator to work with community members on implementing best practices for litter cleanup and sanitation.

Some of the encampments are located in areas that are not meeting water quality standards for bacteria, and others are located in close proximity to streams in riparian areas that have been planted with trees. Efforts to reduce the impacts of encampments have been implemented in some areas, but there are still challenges. For example, Vancouver has established safe park areas, and has hosted RV pump out programs, provided handwashing, portable sanitation facilities, and dump out locations. Another new program is the "Talkin' Trash" program, which is managed by Share Vancouver, which is a homeless resource organization. This program employs the unhoused population and drops off disposable bags for employees to clean up litter, which are picked up later. Progress made by this program is documented in the solid waste annual report.

While encampments may be one source of pollution in the watershed, many other sources of pollution are challenging to manage. Significant work is needed to address stormwater, sewer, septic systems, and other nonpoint sources of pollution, as well as pollution sources from

encampments. Vancouver's O&M team plays a large role in providing many of the essential services that help prevent and reduce pollution from entering the Burnt Bridge Creek watershed.



DRAFT Implementation Actions **Operations and Maintenance**

July 2021 Burnt Bridge Creek Partnership – 102

That was just a quick overview of all of the things Vancouver’s O&M team does and I feel that with that summary, I barely skimmed the surface. The following are draft implementation actions recommended for operations and maintenance to improve water quality in Burnt Bridge Creek.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Priority areas for operations and maintenance

OM1.1 Prioritize operations and maintenance activities to drainage areas contributing to bacteria water quality issues in the middle and lower watershed.

- This include Burton Channel, Cold Creek, and Peterson Channel, as well as river miles (RM) 8.4, 2.6, and 1.6.

OM1.2 Prioritize infrastructure televising in areas with bacteria and nutrient pollution challenges to support IDDE efforts.

OM1.3 Prioritize street sweeping, vactoring, and implementation of erosion control BMPs and the construction stormwater permit to areas with pH exceedances. This includes areas contributing to river mile 0 and Burton Channel.

July 2021 Burnt Bridge Creek Partnership – 103

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Priority areas for operations and maintenance

OM1.5 Continue infrastructure assessment to understand age, condition, performance, and criticality of infrastructure. Identify which assets are reaching the end of their useful life, and prioritize them for replacement.

OM1.8 Document and create a database of neighborhoods, roads, and assets that have operations and maintenance challenges.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Urban Forestry and Greenways

OM2.5 Develop financial and technical assistance resources for landowners to complete long-term maintenance on tree-plantings, after the 5-years of maintenance through Project Restore ends. Maintenance on planting sites should be completed for at least 10 years post implementation.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Stormwater

OM3.3 Coordinate with sewer O&M staff to identify and eliminate cross connections. When necessary, utilize investigative monitoring, smoke testing, and dye testing to investigate challenge with infiltration and inflow, and illicit connections.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Other

OM3.5 Prioritize leaf cleanup outreach and implementation to areas with dissolved oxygen challenges to help improve water quality by keeping leaves out of Burnt Bridge Creek, which can lower dissolved oxygen levels when decomposing. This includes river miles 5.9, 7, 9.5, and 11.4.

OM3.6 Provide support and resources for the Talkin' Trash program to support cleanup of encampment areas in Burnt Bridge Creek. When and where feasible, host RV pump out programs, provide dump out locations, and waste receptacles.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Other

OM3.9 Create a dedicated source of funding for infrastructure maintenance. Seek out additional grant funds to support maintenance efforts. When possible, account for lifecycle maintenance needs in project scoping, grant applications, funding requests, staffing plans, and municipal budgeting efforts

Funding Sources & Partnership

Funding

- City of Vancouver – Stormwater & Sewer Utility

Partners

- Clark County Clean Water Division
- Washington Department of Transportation
- Talkin' Trash
- Homeless Assistance and Response Team (HART)
- Volunteers
- Private Landowners
- City of Vancouver Sewer & Solid Waste Departments

Discussion

- Questions?
- Thoughts?
- Comments?
- Feedback?
- Concerns?
- Is there anything I missed?



Public Education & Outreach

Discussion Topics

- Urban Forestry and Greenways
- Water Resources Education Center
- Student Watershed Monitoring Network
- Partnerships and collaboration
- Stormwater
- Sewer connection and septic systems
- Diversity, equity, and inclusion
- Challenges

Workgroup Members: Rick McConaghy, Jessica George, Charles Ray, Loretta Callahan, Nikki Guillot, Kris Olinger, Annette Griffy

July 2021 Burnt Bridge Creek Partnership - 111

Our final topic for the day is public education and outreach. This workgroup was attended by Rich McConaghy, Jessica George, Charles Ray, Loretta Callahan, Nikki Guillot, Kris Olinger, and Annette Griffy. The topics discussed in this group were urban forestry and greenways, the Vancouver Water resources education center, the student watershed monitoring network, partnerships and collaboration, stormwater, sewer connection and septic systems, diversity equity and inclusion, and challenges.

Background

- **Goals:**

- Raise awareness
- Inspire behavior change
- Promote stewardship



- **Partnerships**

- Friends of Trees
- Columbia Springs
- Watershed Alliance of Southwest Washington
- Lower Columbia Estuary Partnership
- Clark Conservation District
- Schools Neighborhoods
- Church groups
- Businesses
- Clark County Nature Network
- Washington Service Corps
- AmeriCorps
- Master Gardener Program

112

The City of Vancouver has established strong public education and outreach programs to raise awareness, inspire behavior change, and promote stewardship for the environment and water quality. To implement water quality education and outreach activities, Vancouver has partnered with many community organizations, which are listed on your screen

Urban Forestry and Greenways



- **Target audience:** Property owners who want to remove or plant trees & volunteers.
- Thousands of volunteers engaged annually
- 2-year workplan guides work
- Annual report summarizes activities
- Performance measures & effectiveness measured

113

One of Vancouver's focus areas for education and outreach efforts is urban forestry. The audience for urban forestry outreach is everyone in the City of Vancouver, with a focus on property owners that want to remove or plant trees, and volunteers. Normally, Vancouver engages thousands of volunteers each year through the Urban Forestry Program. The goal of engaging volunteers is to build community stewardship, as most of the trees in Vancouver are located on private property, and most of the opportunity to restore and plant trees is located on private property.

All of the urban forestry education and outreach work is established in a 2-year work plan, and yearly activities are summarized in an annual report. Vancouver collects urban forestry performance measures to measure effectiveness of education efforts and to determine if education and outreach efforts are resulting in behavior change in the community.

Urban Forestry Outreach Methods



- Social media
- Printed resources: Brochures, Flyers, Posters
- Events: Arbor Day & Arbor Month, Old Apple Tree Festival, Heritage Tree Program, Pop-up Arboretums, Heritage Tree Tours, Tree talk workshops.
- Training: Tree care and lawn maintenance, tree stewards training
- Neighborhood stewards
- AmeriCorps & Seasonal Interns
- Urban Forestry Commission
- Volunteers

114

Some of the outreach methods used by the urban forestry program include social media, brochures, flyers, and posters, which are available in multiple languages.

These printed resources help promote the urban forestry program and provide technical assistance. Additionally, the program hosts and promotes multiple events throughout the year including Arbor Day and Arbor Month, as well as the Old Apple Tree Festival, and the Heritage Tree Program. Other events include pop-up arboretums with signage to educate the public about trees, heritage tree tours, and biking and walking tours of trees. The program also hosts events about tree care and lawn maintenance. Tree talk workshops are hosted to educate the public on a wide array of topics.

The City hosts an annual neighborhood tree stewards training, and recruits neighborhood stewards to serve as urban forestry liaisons between the community and the City. AmeriCorps members and seasonal interns are hired each year to help with education and outreach efforts. Vancouver also has an active Urban Forestry Commission of appointed members of the public who provide input on Vancouver's urban forestry program.

COVID-19 Impact

- Updated technical information
- Updated website
- Developed more online materials & videos
- Monthly newsletter

115

Over the last year, education and outreach activities were greatly impacted by Covid-19. During this time, the urban forestry education and outreach team has focused on maintaining, updating, and promoting technical information related to urban forestry management. The program focused on updating its website and developing more online materials and [educational videos](#). The urban forestry program also publishes a monthly newsletter and seasonally appropriate articles, as well as periodic news releases.

Water Resources Education Center

- Opened in 1996
- Hosts K-12 Field Trips, Workshops, Special Events
- Goal = Reopen January 2022
- Beach and Greenway Cleanups
- Streamside Chats
- Columbia River Festival



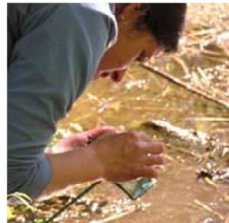
116

Shifting gears, the water resources education center is another very large arm of Vancouver's education and outreach program, which has been open since 1996. This Center hosts K-12 field trips, workshops and special events focused on water quality education. The Center has been closed since 2020 due to Covid-19, and intends to reopen on January 1, 2022. During the closure, staff focused on improving web materials, developing videos, and creating social media content.

Historically, the Center hosted a number of volunteer events including beach and greenway cleanups. They also conducted outreach along the Burnt Bridge Creek Greenway, and hosted streamside chats to learn about macroinvertebrate health and water quality. The Center also hosts the annual Columbia River Festival, which is an opportunity for the greater Vancouver community to celebrate the region's water resources.

Student Watershed Monitoring Network

- Water quality curriculum
- Watershed monitoring
- Virtual Essay contest
- FieldScope



117

The Water Resources Education Center also facilitates the student watershed monitoring network, in partnership with Clark County. The student watershed monitoring network works with schools to provide water quality curriculum, and to complete student watershed monitoring. Normally, students gather at an annual congress to present on their projects, but a virtual essay contest is being considered to conclude the program in 2021. Fortunately, this program was able to continue through Covid-19. The data collected by the student watershed monitoring network is collected and managed using FieldScope, which allows students to share data.

Partnerships and Collaboration



- Watershed Alliance of Southwest Washington
- Columbia Springs
- Clark County Public Health
- Talkin' Trash - Solid Waste Management Program & Share Vancouver

118

The Water Resources Education Center collaborates with Watershed Alliance of Southwest Washington, and provides funding to the organization to complete stewardship, outreach, and to host film events. They also collaborate with Columbia Springs to host summer camps and salmon in the classroom. Coordination with Clark County Public Health is also underway to provide education and outreach on toxic reduction, solid waste, and litter management. Staff from the Water Resources Education Center are also coordinating with solid waste on the new, "Talkin' Trash" program, which I mentioned earlier.

The Water Resources Education Center publishes a monthly newsletter highlighting events and activities. They also publish an annual report summarizing all of the work completed by the Water Resources Education Center.

Stormwater

- Pollution Prevention
- Source Control
- Wash Right Campaign
- Pet waste



119

Stormwater education and outreach has been challenging over the last year, as many of the programs and grants were focused on in-person, direct contact, and providing technical assistance, which has been challenging during covid-19. However, even with challenges, many outreach efforts were implemented to educate the public on stormwater since 2020.

One of the focus areas for stormwater outreach has been implementing pollution prevention education, focusing specifically on small quantity waste generators. Vancouver completes waste audits and provides technical assistance focused on pollution prevention and resource control. The City has also been working on a safe pest control program for multi-family properties, in partnership with Clark County Green Neighbors, Washington State University Extension, Clark Public Utilities, and Energy Trust. Vancouver is planning to have a webinar series on pollution prevention at home, in collaboration with Clark Conservation District.

Additionally, Vancouver has a source control grant, which is focusing on construction site pollution prevention. Vancouver is collaborating with the Washington Stormwater Center, American Society of Civil Engineers, and the Southwest Washington Contractors Association to implement the education. Pollution prevention outreach is also being provided to Vancouver's Farmer's Market vendors including . Vancouver is working with the city's Parks special events team on spill response education at the farmer's market and is putting educational material in the farmer's market handbook. The goal is to develop a centralized spill kits for Esther Short Park and Columbia Tech to help manage spills associated with events and food truck.

Recently, a new Wash Right campaign was developed through an Environmental Protection Agency grant, focused on power washing, disinfectants, and car washing. The focus for the grant is downtown Vancouver, and the storm drains connected to the Columbia River.

For pet waste management, Vancouver relies on the Canines for Clean Water program to educate pet owners on proper practices for pet waste disposal. The Canines for Clean Water Program is implemented by Clark County.

Diversity, Equity, and Inclusion

- Accessibility of documents
- Language translation services
- Community based social marketing (CBSM)
- City-level equity map
- Working with community development organizations
- Developing financial and technical assistance resources

120

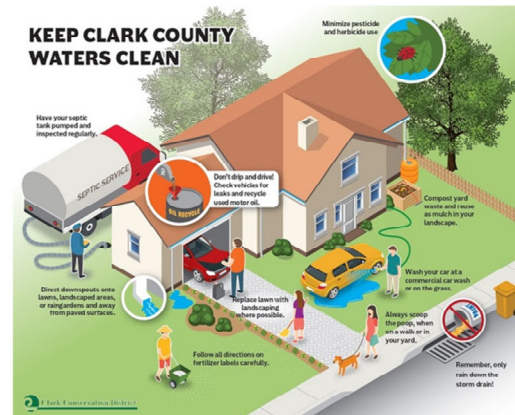
A big focus for Vancouver's education and outreach programs currently is diversity, equity, and inclusion. The city has completed significant work to integrate equity into its programs. The first step was to focus on accessibility of documents and providing language translation services. The current stormwater permit requires Vancouver to implement community-based-social-marketing (CBSM) practices to utilize demographic data to understand the diversity of residents, and ensure education efforts are reaching all audiences living in the watershed and effecting shade. CBSM also encourages strong surveying work before and after implementation to assess behavior change and effectiveness of education. Vancouver has been working on its CBSM and DEI efforts, and is currently developing a city-level equity map to help inform education and outreach efforts. Vancouver is still working to develop more opportunities to engage non-English speakers. The City is also working to develop relationships with community development organizations to help facilitate targeted, culturally appropriate, outreach and education.

One challenge is that some of the middle portions of the watershed, which also have the most challenges with water quality, have some of the greatest challenges with equity. There are concerns that overburdened communities may have more challenges with maintaining tree plantings on their properties or with connecting to sewer, or maintaining septic systems, or private stormwater facilities. Determining how to work with these community members and provide technical and financial support will be essential to long-

term success. Additionally, in areas that have more rental properties, it is continually difficult to increase participation in environmental programs. It is also challenging to encourage rental property owners to invest in environmental activities and sustainable lawn care practices. Many rental owners are only interested in lawn care and stormwater practices that require minimal maintenance.

Sewer connection and septic systems

- Vancouver focus = sewer extension
- CCPH = Vancouver relies on CCPH for education and outreach
 - Past due operations and maintenance notification letters
 - Inspection and maintenance rebate program



121

Finally, sewer connection and septic systems is one of the biggest opportunity areas for education and outreach in the watershed. Currently, Vancouver relies on CCPH to conduct outreach to septic system owners for inspection and maintenance through mailers, workshops, or other educational methods. Historically, CCPH has sent past due operations and maintenance notification letters to septic owners, and has collaborated with WSU Extension to host workshops that teach septic owners how to care for their systems. CCPH is also working with the new Poop Smart Clark Pollution Identification and Correction program to develop a new inspection and maintenance rebate program to provide financial assistance to septic owners. Implementing this program in Burnt Bridge Creek, may help increase outreach, technical, and financial assistance to septic owners. Identifying septic system age and condition, and any systems that are past due for inspections and maintenance may be a good first step for prioritizing septic system outreach and education. Developing new partnerships and programs for proactive septic outreach is one of the main water quality needs in the watershed, as well as developing new resources to support landowners with sewer connection.

Sewer Connection and Incentive Program

SCIP Program



- Outreach focused on new sewer construction
- Goal = encourage connection to sewer
- Provide accurate pricing & financing information

122

Historically, outreach within the Sewer Connection Incentive Program (SCIP) has been completed to support sewer development projects, when a new sewer line is being constructed. Normally, the SCIP program will have meetings with property owners at the beginning of a project. At this meeting, Vancouver will often invite CCPH to participate to provide information on septic system maintenance and repair, while Vancouver makes homeowners aware of the opportunity to connect to sewer.

Vancouver's long-term goal is to encourage more people to connect to sewer. However, there is no additional outreach happening within the SCIP program, except for the initial project meetings when sewers are being installed. When conducting outreach to promote sewer connection, it is essential to have accurate pricing information for different homes across the watershed. It is possible that individual neighborhoods had multiple SCIP projects, and there could be different costs to connect within the same neighborhood.

Further messaging related to sewer connection and septic systems should encourage homeowners to connect to sewer and to provide information on financing. However, if septic owners cannot connect to sewer, or choose not to,

education to residents should focus on continuing to inspect and maintain their systems in accordance with local requirements implemented by CCPH.



DRAFT Implementation Actions **Public Education and Outreach**

July 2021 Burnt Bridge Creek Partnership – 123

Based on this information gathered during the workgroup, the following are draft priorities and implementation actions for public education and outreach in burnt bridge creek

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Target Audiences

ED1.1 Prioritize outreach and education to homeowners with septic systems on properties adjacent to Burnt Bridge Creek and its tributaries.

ED1.2 Prioritize outreach and education to public and private landowners with riparian properties adjacent to the highest shade deficits on Burnt Bridge Creek mainstem and tributaries.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Urban Forestry and Greenways

ED2.4 Prioritize outreach to private landowners in riparian areas to promote tree planting projects through Project Restore. Prioritize outreach to private landowners in upland areas through Friends of Trees.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Stormwater

ED3.1 Collaborate with Clark County and the Washington Department of Transportation, and the Stormwater Partners for Southwest Washington, to develop and implement stormwater education activities in the Burnt Bridge Creek watershed.

ED 3.2 Increase the number of dog waste facilities in the Burnt Bridge Creek watershed. Utilize Canines for Clean Water education for public education and outreach.

- Establish relationships with business that provide pet waste removal services to foster new programs to remove dog waste from watersheds. Partnerships with local veterinarians, groomers, pet boarding, shelters, pet stores, and dog licensing should also be explored to educate on water quality.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Stormwater

ED3.3 Prioritize stormwater source control outreach for bacteria and nutrient pollution to areas with known water quality problems.

- **ED5.4** Provide education on best practices for fertilizer application for tree care and lawn maintenance. Prioritize education and outreach to areas with dissolved oxygen impairments.

ED3.4 Prioritize pollution prevention education that focuses on bacteria and nutrient reduction practices for pet waste, livestock, lawn care, and humans.

ED3.7 Continue to develop education and outreach programs for Homeowners Associations (HOAs) focused on private stormwater facility maintenance, and best practices for pesticide and fertilizer application, and other pollution prevention activities.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Sewer Connection and Septic Systems

ED4.1 Collaborate with Clark County Public Health and Clark Regional Wastewater District to develop and implement new outreach materials for septic systems and sewer connection.

ED4.2 Commit to hosting an annual Well and Septic workshop in the Burnt Bridge Creek watershed in partnership with Clark County Public Health, Washington State University Extension, and other Poop Smart Partners.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Sewer Connection and Septic Systems

ED4.4 Complete outreach to septic system owners that have not connected to sewer who are located in priority drainages for water quality.

ED4.5 Develop financial assistance programs for homeowners who want to connect to sewer. These may include applying for a grant to help landowners connect to sewer, implementing a rebate or cost-share program, or developing other tax incentives to encourage homeowners to connect to sewer.

July 2021 Burnt Bridge Creek Partnership – 129

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Other

ED5.5 Continue to implement the new Talkin; Trash program, which employ houseless individuals to complete community litter clean up. Consider opportunities to prioritize implementation in areas on the greenway where there have been impacts to riparian vegetation. Explore opportunities to incorporate sanitation education into the program, including developing new RV pump out programs to manage sanitary waste from unhoused populations.

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Other

ED5.8 Develop technical and financial assistance resources to help support implementation of water quality best management practices and maintenance in overburdened communities. Ensure education and outreach materials are accessible and translated into non-English languages

Overview of DRAFT Implementation Actions

Note: Due to time limitations, this is not a full comprehensive list of all actions

Other

ED5.12 Conduct outreach and education to landowners who have....

- completed unauthorized water withdrawals off Burnt Bridge Creek.
- implemented riprap or bank armoring without a permit.
- installed manmade ponds or impoundments on Burnt Bridge Creek

ED5.16 Complete outreach to private landowners with erosion issues on private property and identify opportunities for streambank stabilization and riparian restoration.

July 2021 Burnt Bridge Creek Partnership – 132

Discussion

- Questions?
- Thoughts?
- Comments?
- Feedback?
- Concerns?
- Is there anything I missed?





Next Steps

July 2021 Burnt Bridge Creek Partnership – 134

Once again thank you all for your participation and time to get us to this point. Your time spent filling out worksheets, attending the workgroup meetings, and providing review and feedback has certainly helped me get up to speed and I am excited that we are at a point where we have identified some opportunities.

Next steps

- 1. Reconvene workgroups?**
 - Urban Forestry and Greenways
 - Sewer Connection and Septic Systems
 - Stormwater and Capital improvement
 - Operations and Maintenance
 - Public Education and Outreach
- 2. Review Meeting Summaries & Draft Implementation Actions**
- 3. Incorporate comments into summaries**
- 4. Request additional information / review additional sources**
 - Reports & assessments
 - Mapping
 - Permits
 - Past projects
- 5. Assign responsibility of implementation actions**

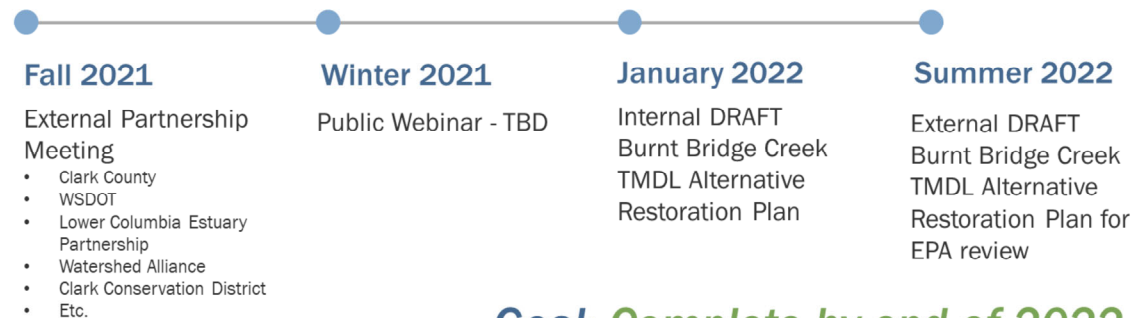
135

For next steps – if needed, there may be a chance that we need to reconvene workgroups or meet one-on-one with staff. Until then, my main focus is going to be reviewing your comments in the meeting summaries and revising the draft implementation actions based on your feedback. I will also be reviewing additional sources of information, and look forward to working with you to assign responsibility of implementation actions to the appropriate teams and departments at Vancouver and to take time to align actions with existing permit requirements.

Burnt Bridge Creek Partnership

Where are we going?

Summer 2021: *Continue information gathering & learning*



Goal: Complete by end of 2022

July 2021 Burnt Bridge Creek Partnership - 136

From timeline perspective I plan to continue gathering and compiling information and learning through the end of summer. Come fall of 2021, my goal is to convene an external partnership meeting to bring in other partners with jurisdictions that have interest in the watershed. In winter, I am also considering hosting a public webinar, with the goal that a final internal draft of the Alternative Restoration Plan will be drafted by January 2022. My goal is to have a final version ready to send to EPA by Summer of 2022 for their review and acceptance by the end of 2022. EPA's review is primarily focused on making sure the plan achieves the 8 required elements of TMDL Alternative Restoration Plans. Once accepted, the watershed will have category 5 listings changed to "category-5 alt" which is a new listing in Washington State and EPA Region 10.

Information needed to achieve EPA requirements

1. Implementation cost estimates
2. Criteria to measure progress
3. Implementation milestones, targets, and timelines
4. Effectiveness monitoring plan
5. Commitment to evaluate implementation progress

July 2021 Burnt Bridge Creek Partnership - 137

As a reminder, there is still a lot of information that needs to be developed in this plan to satisfy EPA requirements. Some of these include developing implementation cost estimates, criteria to measure progress, targets and timelines, an effectiveness monitoring plan, and a commitment to evaluate implementation progress and make a determination if the plan is working. This may sound like a lot – but I am confident that we can do it.

Future topics

To be discussed at a future date...

- Point Sources
 - SEH America
- Local water use
 - Consumptive uses
 - Critical aquifer recharge areas
- Other?

July 2021 Burnt Bridge Creek Partnership – 138

In addition to that information, there are also topics that we have not had a chance to discuss yet. These include point sources of pollution, and mainly SEH America, which is a major thermal discharger in the watershed. Local water use and critical aquifer recharge areas are also topics I would like to learn more about from you. Just a quick question – are there other topics that you think we should explore in this plan? Am I missing anything?

Engaging External Partners – Fall 2021

- **Jurisdiction**

- Clark County Clean Water Division
- Clark County Public Health
- Clark Regional Wastewater District
- Washington Department of Transportation

- **Implementation**

- Lower Columbia Estuary Partnership
- Watershed Alliance of Southwest Washington
- Clark Conservation District
- Friends of Trees

- **Other**

- Lower Columbia Fish Recovery Board
- Washington Department of Fish and Wildlife
- Environmental Protection Agency

Anyone else?

July 2021 Burnt Bridge Creek Partnership – 139

One of the most important next steps is engaging other partners. As you heard in the presentation today there are a lot of other organizations that have an interest and responsibility in burnt bridge creek. I have developed a list of external partners that I have identified – but I am curious to hear from you – am I missing anyone else?



**If we had no limits,
what could we
achieve?**



www.ecology.wa.gov



As always thank you for your commitment to clean water.



Questions?





Thank You!

Devan Rostorfer | Water Quality Specialist & TMDL Lead
Devan.Rostorfer@ecy.wa.gov
360-409-6693

July 2021 Burnt Bridge Creek Partnership – 143