Department of Community Services

Transportation Division

November 1, 2017

Mark Riedel
Oregon Department of Environmental Quality
700 NE Multnomah St, Suite 600
Portland, OR 97232-4100

SUBJECT: NPDES MS4 Permit Annual Report 2017

Dear Mr. Riedel:

I am pleased to submit the enclosed National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System (NPDES MS4) Phase I Permit – Annual Report 2017. This report fulfills reporting requirements for the NPDES MS4 Phase I Permit #103004.

The report demonstrates the County's progress toward meeting the permit requirements and stormwater program goals for the past year. The report details the activities implemented, and program status.

Electronic downloads can be found at multco.us/water-quality-program/reports-and-plans. If you have any questions concerning this report, please contact Roy Iwai, Water Resources Specialist at (503) 988-0195, or by email at roy.iwai@multco.us.

Sincerely,

Ian B. Cannon, P.E.
Transportation Director

Multnomah County NPDES MS4 Phase I Permit
Stormwater Management Program

Annual Report 2017
Permit year 22

Submitted to:
Oregon Department of Environmental Quality
November 2017

Submitted in Accordance with the Requirements
of the National Pollutant Discharge Elimination System
(NPDES) Permit Number 103004, File Number 120542

Submitted by:
Water Quality Program
Department of Community Services
Multnomah County

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1. Introduction

Multnomah County implements a comprehensive stormwater management program with the goal of reducing pollutants into the municipal stormwater system to the maximum extent practicable. This program is maintained and prioritized in response to the federal Clean Water Act and the County's responsibility to protect the health and welfare of its citizens and natural environment. The Stormwater Management Plan is the main component of the stormwater management program. This plan is submitted to and approved by the Oregon Department of Environmental Quality (DEQ) under the National Pollutant Discharge and Elimination System Municipal Separate Storm Sewer Phase I (NPDES MS4 Phase I) permit. The County's roles and responsibilities for complying with the permit term falls under seven categories of Best Management Practices (BMPs) with a focus on operating and maintaining the County bridges and roads.

This Annual Report summarizes the implementation activities of Multnomah County's Stormwater Management Plan in the County's permit area for the Permit Year 22 (Fiscal year 2017: July 1, 2016 – June 30, 2017).

2. Program Overview

History

From 1995 to 2010, the Oregon Department of Environmental Quality (DEQ) regulated stormwater from Multnomah County through two separate NPDES MS4 Phase I Discharge permits: Permit #101314 for the areas within the City of Portland permit boundary and Permit #108013 for the areas within the Gresham permit boundary. Multnomah County was a co-permittee on both Portland and Gresham's MS4 Permit.

The County had a limited amount of regulatory area under each permit under the two separate MS4 permits. To reduce the administrative burdens for program management and reporting, Multnomah County requested to DEQ that the permit areas be combined under a single individual permit for the 2010 permit renewal. DEQ granted this request and issued the new individual Phase I permit on December 30, 2010.

Permit area description

Multnomah County is a unique jurisdiction with NPDES permit areas composed of several discrete urban pockets, and approximately twenty-eight miles of road and bridge right-of-ways. The terms "Portland Area" and "Gresham Area" are used in this report to provide clarity in the area descriptions, and to provide continuity from the previous reporting areas.

Within the Portland Area, Multnomah County is responsible for five Willamette River bridges (see Figure 2-1). A few small unincorporated pocket areas within the Portland Urban Services boundary are under Portland's stormwater management through an Intergovernmental Agreement with the City of Portland. These areas are also under the City of Portland's land use authority.

Within the Gresham Area, Multnomah County is responsible for approximately twenty-eight miles of arterial roadways in the Cities of Fairview, Troutdale, and Wood Village, and the unincorporated residential area known as "Interlachen" that is located between Fairview Lake and Blue Lake (see Figure 2-2). In 2007, Troutdale and Wood Village came under NPDES Phase II coverage, and the County roads in those communities also came into permit coverage. Some road segments shown in the following maps are served by Underground Injection Controls or lack curb/gutter systems and do not discharge to surface waters.

More specific details regarding the County's jurisdiction are provided in the Stormwater Management Plan (updated April 2011).

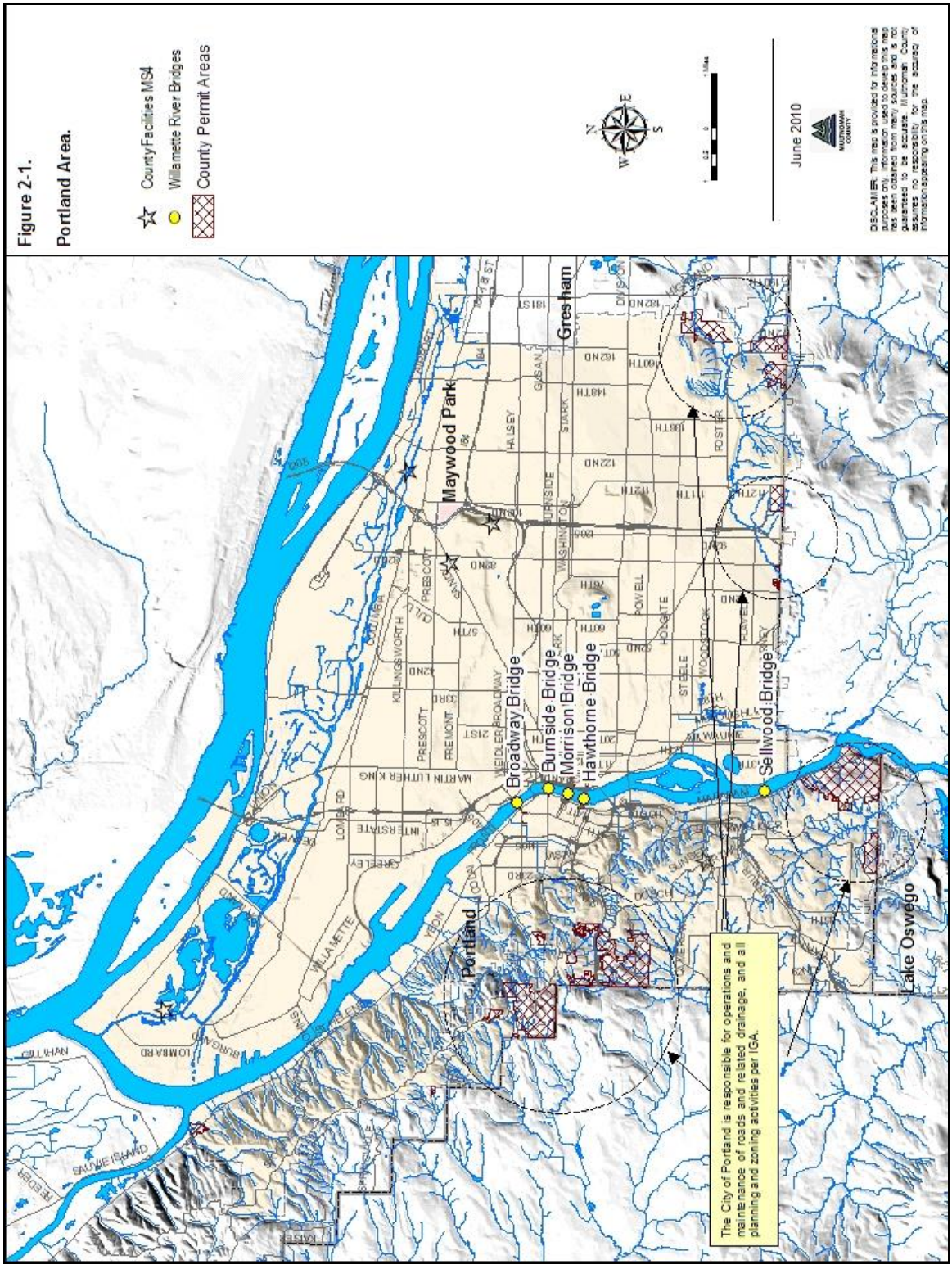


Figure 2-1.
Portland Area.
County Facilities MS4
Willamette River Bridges
County Permit Areas
June 2010
Gresham
Maywood Park
Portland
Lake Oswego
Broadway Bridge
Burnside Bridge
Morrison Bridge
Hawthorne Bridge
Sellwood Bridge
The City of Portland is responsible for operations and maintenance of roads and related drainage, and all planning and zoning activities per IGA.

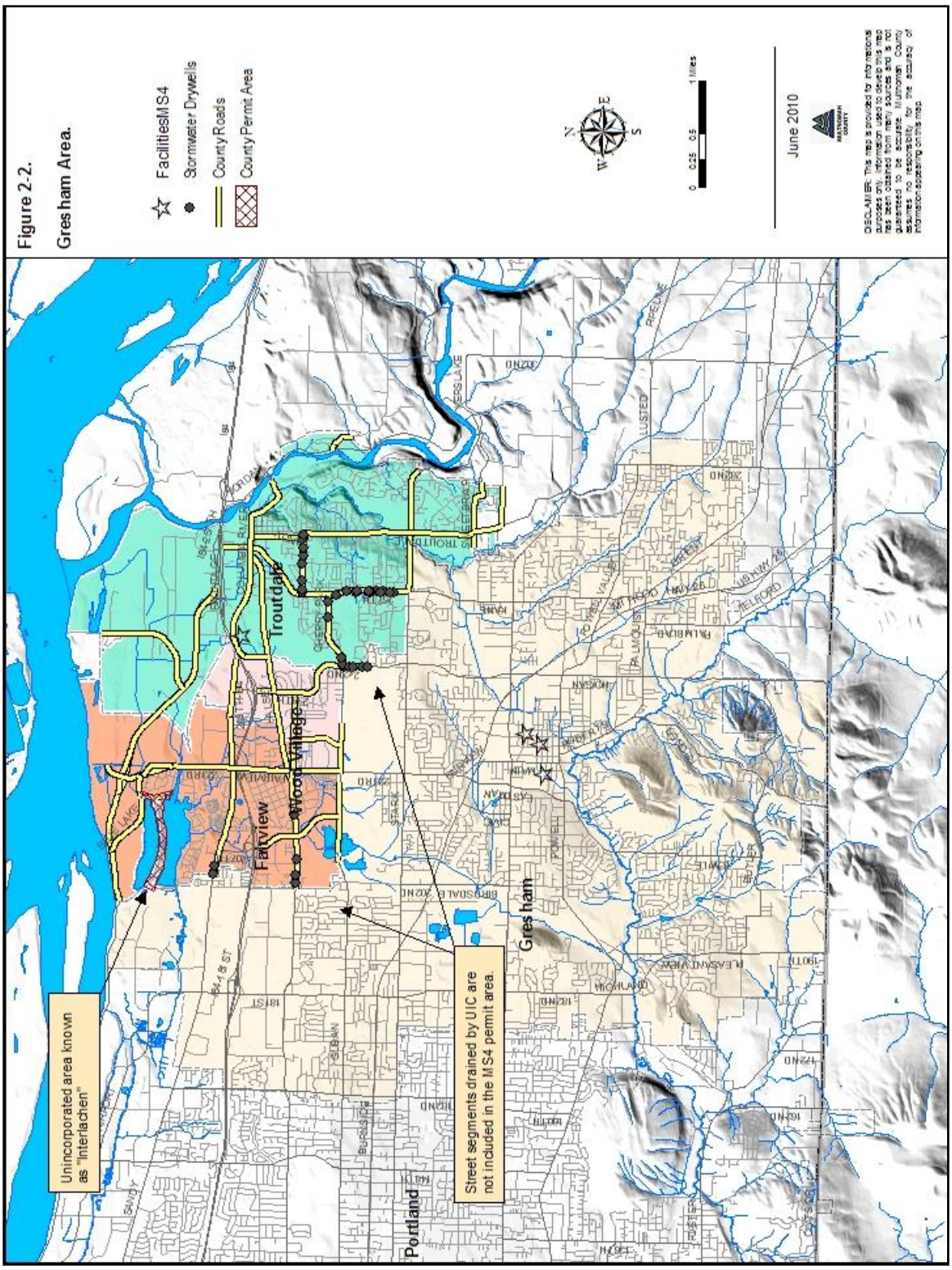


Figure 2-2.
Gresham Area.
FacilitiesMS4
Stormwater Drywells
County Roads
County Permit Area
June 2010
Unincorporated area known as "Interlachen"
Street segments drained by UIC are not included in the MS4 permit area.
Troutdale
Fairview
Wood Village
Gresham
Portland

Reporting requirements

The following table summarizes the requirements for the annual report as described in Schedule B.5 of the permit:

Permit reporting requirement	*Annual report section*
a. Status of each SWMP program element and progress in meeting measurable goals	BMP summary - status
b. Status or results of any public education program effectiveness evaluation conducted during the reporting year and summary of how the results were or will be used for adaptive management	BMP summary PI-1
c. Summary of the adaptive management process implementation during reporting year, including proposed changes or additions to BMPs	BMP summary – adaptive management
d. Proposed changes to SWMP elements designed to reduce TMDL pollutants	BMP summary
e. Summary of total stormwater program expenditures and funding sources over the reporting year and those anticipated in the next reporting year	Stormwater program budget
f. Summary of monitoring program results, including monitoring data and analyses	Environmental monitoring; also see Gresham and Portland permit annual reports
g. Proposed modifications to the monitoring plan	Environmental monitoring
h. Summary of the enforcement actions, inspections, public education programs, and illicit discharge screening and investigations	BMP summary
i. Overview of land use changes, concept planning and new development activities in the reporting year, including number of new post-construction permits issued and an estimate of the total new or replaced impervious surface area related to new development and redevelopment projects	Permit area description; BMP summary (ND, STR)
j. Results of ongoing field screening and follow up related to illicit discharges.	BMP summary (ILL-5)

Environmental monitoring

The City of Gresham and City of Portland have historically collected, managed, and analyzed stormwater and instream data on behalf of the County as the lead Permittee for the respective NPDES permits when the County was a co-permittee on both permits. Because the County's jurisdiction is part of the fabric of both permit areas, the data for each permit represented the overall quality of stormwater and instream health. This environmental monitoring was a component of the Intergovernmental Agreements (IGA) with both the City of Portland and City of Gresham.

Beginning December 2010, the County managed its stormwater program under a single individual permit. The monitoring requirements are met through a new IGA with the City of Gresham, and the monitoring plan is available online through the City of Gresham website.

The environmental data and analysis presented in the Annual Reports for City of Gresham independent of this report fulfill the monitoring requirement for the County's Annual Report, per the respective IGA. A monitoring summary is provided at the end of this report.

The data includes monitoring requirements from the County permit: two instream monitoring sites, two macroinvertebrate monitoring sites, and one mercury monitoring site. These are fulfilled by data from Fairview and Beaver Creeks, and the Columbia Slough Water Quality Facility.

Mercury monitoring

The mercury monitoring requirement is part of a special study to further the development of the Mercury TMDL. Two full years of Hg monitoring were completed during 2011-2013, which fulfills the mercury monitoring requirement as described in Table B-1 of the NPDES permit. To date, the Hg monitoring conducted by Multnomah County (and other MS4 Phase I permittees) has contributed to the characterization of urban stormwater runoff, a stormwater monitoring program objective. DEQ will review the monitoring data once all of the results from the MS4 permittees have been submitted. DEQ anticipates that additional Hg monitoring will not be required for the remainder of Multnomah County's permit term (Benjamin Benninghoff, personal communication 2013). Written request that the monitoring be eliminated was submitted to DEQ on November 1, 2013.

The mercury monitoring data analysis by the City of Gresham was included as an appendix to the 2013 Annual Report.

Adaptive management process

The assessment of BMPs occurs annually during preparation of the County NDPES annual report, to be submitted to DEQ by November 1 of each permit year. Among other reporting requirements, the MS4 annual report must contain (Schedule B.5) the following:

> *The status of implementing the stormwater management program and each SWMP program element, including progress in meeting the measurable goals identified in the SWMP.*

By providing a summary in the NPDES annual report of progress toward attaining BMP measurable goals (through data collection and tracking measures), the County both: 1) meets the aforementioned reporting requirement, and 2) facilitates a critical step in adaptively managing its stormwater program by assessing each BMP.

While preparing this MS4 annual report, the County collected data and feedback from staff responsible for implementing/reporting on each BMP to facilitate the BMP assessment process. Key factors considered in the annual evaluation include but are not limited to:

- *Was the BMP measurable goal attained? If not, describe circumstances why, and how progress will be made toward future attainment.*
- *For multi-year BMPs, were milestones or timelines met?*
- *Can we feasibly refine or improve the BMP to gain efficiency or effectiveness in removing stormwater pollutants?*
- *Are staffing/financial resources available to support such a BMP improvement or refinement?*

3. BMP Summary

The Multnomah County Stormwater Management Plan is a set of Best Management Practices (BMPs) designed to reduce stormwater pollutants to the maximum extent practicable. The County's stormwater management plan is made up of thirty-two BMPs grouped into seven categories as shown below. The following table summarizes the task, measurable goals, status, and changes for each BMP.

PI	Public Involvement and Education
OM	Operations and Maintenance
ILL	Illicit Discharges Control
ND	New Development Standards
STR	Structural Controls
NS	Natural Systems
PM	Program Management

Managers and staff in several Multnomah County workgroups implement the Stormwater Management Program. The functional groups are:

Public Affairs	Public Affairs Office
Bridge Engineering	Department of Community Services
Bridge Maintenance	Department of Community Services
Land Use Planning	Department of Community Services
Transportation Planning	Department of Community Services
Code Compliance	Department of Community Services
Facilities	Department of County Assets
Emergency Response	Department of Community Services
Right-of Way Permits	Department of Community Services
Road Maintenance	Department of Community Services
Road Engineering	Department of Community Services
Asset Management	Department of Community Services
Nuisance Code	Health Department, Community Health Services
Program Management	Department of Community Services

PI – Public Involvement and Education

Overall goal: *To inform and educate the public about the causes of stormwater pollution, the effects on local streams and rivers, and the need for stormwater management, and to encourage active participation in pollution reduction efforts.*

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
PI-1 Participate in Regional Public Education Efforts	Provide County representative to attend the *Regional Coalition for Clean Rivers and Streams* (RCCRS) meetings. Plan and Implement public education campaign promoting behaviors that improve water quality.	Help develop and implement RCCRS annual strategy to promote behavior change through the RCCRS website, television, radio and social media. Evaluate education campaign effectiveness by November 1, 2014.	RCCRS continued to contract with EviroIssues to manage the River Starts Here outreach campaign for 2017. The River Starts Here annual report is attached as an appendix to this report. County staff led the formation of the Clean Rivers Coalition, a new statewide outreach collaboration. We planned and held a forum in November 2016 that attracted 35 attendees, formed an operational charter, and submitted a grant to develop a strategic plan.	The Clean Rivers Coalition continues preparing for a strategic plan to develop a statewide clean water outreach platform and campaign. DEQ is participating in this effort along with many partners across the state.
PI-2 Participate in Public Meetings	Attend public meetings related to water quality.	Track participation in watershed council and ad hoc committee meetings.	Water Quality (WQ) staff shared monitoring and project updates at regular monthly meetings of the Johnson Creek Watershed Council and Sandy River Watershed Council. WQ Staff participates in the Interjurisdictional Committee for Johnson Creek, a technical workgroup that coordinates stream monitoring and analysis for Johnson Creek watershed. WQ staff facilitates a similar group, known informally as the Beaver Creek Conservation Partnership. All meetings are held approximately once a month.	No change
PI-3 Distribute Public Education Information Regarding Stormwater	Make brochures and other educational materials from Soil & Water Conservation Districts and Watershed Councils available at the planning office. Ensure that public education materials are current and cover relevant topics.	Track the number of materials distributed at meetings, front counters and online.	Although the landowners who visit the planning office are largely rural property owners not included in the NPDES permit area, this public education outlet is maintained for the TMDL pollutant reduction. 159 brochures on various topics from septic maintenance, riparian	Because there are not stormwater specific brochures available, this BMP will likely be modified at permit renewal

			management and livestock care were taken from the office.	
PI-4 Conduct Training and Education for County Personnel	Send a representative(s) to water quality conferences when feasible. Share information learned in training with other staff. Train volunteers, maintenance and operations crews, as well as inspectors on impacts of activities on water quality and MS4 in addition to new approaches to water quality protection and proper reporting procedures.	Conduct a minimum of one staff training session a year.	WQ staff attended the regional Urban Ecology symposium (2/2017), and ACWA Stormwater Summit (5/2017). Vegetation staff continued to participate in regular meetings of the Cooperative Weed Management Areas group. Five road maintenance staff attended the ODOT Transportation 2 training (10/2016) and obtained the Road Scholar certificate. Nine staff attended the Skills Demo that featured water quality seminars (9/2016)	No change
PI-5 Implement the Adopt-a-Road Program	Develop a strategy to promote the adopt-a-road program. Track road segments where volunteer roadside litter removal and clean-up is performed through participation in County Adopt-A-Road programs.	Continue to advertise and support the adopt-a-road program as interest exists.	Adopt-a-road program is promoted though a an updated County webpage.. Thirty-two groups are active in Multnomah County. Clean ups range from once a month to once a year depending on the group. Adopt a Road is a trash pickup, but additional eyes on the road for illegal dumping is a benefit to the Roads program, as well as increasing the stewardship ethic in the community.	No changes
PI-6 Maintain Signage to Protect Water Quality	Determine whether any areas need to be marked or re-marked and provide staff and materials to carry this out. Maintain signs in right-of-way promoting watershed awareness, as requested by watershed councils.	Inspect drain markers and signage once per permit term at all catch basins and stream crossings in the permit area.	GIS mapping of catch basins was completed with drain marker inspection in 2012.	No change
PI-7 Provide Opportunities for Public Involvement During the CIP Process	Involve the public in the process of updating the Capital Improvement Plan and Program (every two years) and in evaluating the stormwater quality impacts and issues associated with the program.	Ensure opportunities for public participation in the CIP update process through public meetings. Ensure that public comment period is established for permit renewal.	The Capital Improvement Plan and Program (CIPP) is reviewed annually and updated biennially to ensure that limited resources for projects are efficiently and equitably allocated to the most critical capital needs, including where equity can be improved, as well as to leverage County funds. The CIPP is readily available for review online where feedback can be submitted to the County. In addition, as part of the development of the annual budget a robust public outreach process was conducted by the county to get feedback. FY 15 included the biennial update of the Capital	No change

			Improvement Plan and Program. Key components of the biennial update in FY 15 included programming corrections, updates to the Willamette River Bridges and Fish Passage Culvert criteria and project list. The public involvement program for the Sellwood Bridge project also continues from previous years. In FY16, the CIP was reviewed for final adoption of the budget and public outreach was conducted as part of the budget development and adoption process.	
PI-8 Facilitate Public Reporting of Illicit Discharges	Determine where signs need to be posted regarding illegal dumping and place them.	Install and maintain signage in all known areas that are problematic in terms of dumping.	No activity in permit area.	No change

OM – Operations and Maintenance

Overall goal: *To implement operations and maintenance practices for public streets, bridges, storm sewers, and other facilities to reduce pollutants in discharges from the municipal separate storm sewer system.*

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
OM-1 Review the RMOM for Potential Updates to Address Water Quality	Review the Road Maintenance Operations Manual annually. When manual revisions are made, conduct refresher staff training as provided for under BMP PI-4.	Annually review of the RMOM to ensure current practices are incorporated respect to water quality.	Discussions about online mobile-friendly versions were had with Asset management staff. Technology upgrades for intranet servers will add options for this update.	No change
OM-2 Inspect and Maintain the Storm Drainage System	Inspect the entire stormwater conveyance system on an annual basis. Utilize the record keeping system and database to record findings and follow-up work completed by field crews.	Establish criteria used to determine catch basin (CB) cleaning frequency to maintain effective pollutant removal by July 1, 2011. Clean all roadway catch basins (CB) a minimum of 2 times per year, unless catch basin cleaning records indicates less frequent or more frequent cleaning is appropriate.	Criteria for roadway CB and sweeping frequency were submitted to DEQ on June 22, 2011. The program involves remote data entry from vehicles in the field and GIS to store data. Catch basin fullness analysis using two years of cleaning showed that effective cleaning could be optimized with cleaning intervals between 1-3 times a year, depending on the catch basin type. Data was analyzed to determine cleaning frequency at individual catch basins for the next two-year cycle. Parking lot CBs maintained by County Facilities were inspected and cleaned on annual basis by Road Maintenance.	Catch basin cleaning frequency is adjusted depending on the fullness of the catch basin..
OM-3 Conduct Street Sweeping	Track street sweeping efforts to record the sweeping frequency.	Use catch basin cleaning records or inspections to inform the necessary sweeping frequency. Establish criteria used to determine street sweeping frequencies to maintain effective pollutant removal, and identify high priority street sweeping areas by July 1, 2011	(See OM-2 and PM-3) Sweeping routes were driven approximately twice a month for County arterial roads. Sweeping routes and frequency is adjusted for heavy leaf areas in fall.	See OM-2

OM-4 Properly Dispose of Road Waste Material	Identify alternatives for a new decant facility to be used for the dewatering of road wastes, or upgrades to the existing facility.	Annually review disposal options that protect water quality.	Vactor waste and sweepings are disposed at a private transfer facility. Vactor liquid is field decanted into public sewer trunk with approval from Fairview. Ditching spoils from the urban area will continue to be disposed at a waste facility.	No change
OM-5 Minimize Impacts from Anti-icing Operations	Continue to follow the County RMOM procedures for the application, collection, and washing of sanding materials applied to roadways. Continue to research alternative anti-icing methods.	Conduct street sweeping to recover sanding materials within two weeks after the Road Maintenance Manager determines that the roads are free from the threat of an ice or snow event.	Sanding materials were used very sparingly on steep hills and freeway ramps during ten freezing events in FY17 and were removed within two weeks after the threat of ice was gone. The effectiveness of MgCl has allowed us to reduce sanding materials.	No change
OM-6 Minimize Impacts from County Truck Hauling Practices	Follow the RMOM procedures for conducting equipment checks when hauling materials.	See OM-1	No activity in permit area.	See OM-1
OM-7 Minimize Impacts From Right-of-Way and Road Shoulder Maintenance	Conduct maintenance according to RMOM	See OM-1	No activity in permit area.	See OM-1
OM-8 Minimize Impacts from Ditch Maintenance	Conduct maintenance according to RMOM	See OM-1	No activity in permit area.	See OM-1
OM-9 Maintain County-owned stormwater facilities	Inventory facilities by January 1, 2013	Annual inspection of treatment facility	Road Maintenance contracted Bravo Environmental to inpsect Contech Stormfilters in two vaults. The vaults were visually inspected in FY17. Stormfilters on County bridges were inspected and replaced in FY17. Vegetated facilities were maintained by Road Maintenance staff and the inmate work crew labor. County Facilities maintains several Vortex units which were cleaned.	No change

ILL – Illicit Discharge

Overall goal: *To prevent, identify, investigate, and if appropriate, control/eliminate any non-stormwater discharges into the municipal separate storm sewer system.*

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
ILL-1 Implement the Spill Response Program	Continue to follow and implement the Multnomah County Spill Response Plan. Track and record spills and information regarding spills as they occur.	Conduct spill response procedures when spills are reported.	County crews inspect the Spill Response Truck monthly to ensure proper spill control materials are stocked. Spill response was initiated on two events – Bus fuel leak on Buxton Rd; Diesel truck fuel leak on Sandy Blvd. Both events required absorbents followed by sweeping. No fuel was discharged to surface waters	No change
ILL-2 Address Spills from Private Truck Haulers	Report to the appropriate agency of the private truck hauling practices impacting the County right-of-way and the stormwater conveyance system.	Contact all private haulers when spills are observed to ensure proper clean up	See incident response from spills above.	No change
ILL-3 Require Erosion and Pollution Controls for Public Projects (formerly ILL-4 and ILL-5)	Execute formal contracting practices including pre-construction meetings, bonding, construction permit review, and erosion control inspections.	Inspect 100% of County project sites	FY 16 projects were all inspected for proper erosion control: • Pleasant Valley School flasher • Arterial pavement overlays	No change
ILL-4 Investigate Illegal Dumping	Continue to implement the existing field inspection program during routine maintenance activities. Record and report any noticeable illegal discharge and dumping in the right-of-way.	Clean up all reported discharge or debris dumped in the right-of-way	No threats to water quality were reported from illegal dumping activity in the permit area.	No change
ILL-5 Detect and Eliminate Illicit Discharges to the Storm Sewer	Continue to maintain the bridge restroom facility holding tanks quarterly. Document enforcement response plan for illicit discharges by November 1, 2011 Develop pollutant parameter actions levels and identify priority outfall locations by July 1, 2012.	Conduct quarterly maintenance of bridge facilities. Conduct tasks by date above, and annual inspection of dry weather flows at major outfalls.	Bridge facilities maintained quarterly without incident. Dry weather outfall inspection of four outfalls occurred in August 2016. . No visible signs of illicit discharge were observed.	No change

ND – New Development

Overall goal: *New Development Standards (ND) BMPs are designed to mitigate pollutant discharges and other water quality impacts associated with new development and redevelopment during and after construction.*

BMP Description	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
ND-1 Require Erosion Control for Private Development	Review and provide comments on applications for grading permits and hillside development permits. Perform Erosion and Sediment Control Inspections for all approved construction projects.	Inspect 100% of sites once during the permit review, and a second time during active construction.	No activity in Interlachen area during permit year.	No change
ND-2 Regulate Stormwater Discharge	Continue to review new development permit applications to ensure proper connection to the storm sewer system and application of design standards. Inspect stormwater facilities during and after construction to ensure that the site is compliant with design standards.	Conduct plan reviews and inspections for 100% of permitted projects.	No activity in Interlachen area during permit year.	No change

STR – Structural Controls

Overall goal: *To implement structural modifications (constructed facilities) to existing systems/development to reduce pollutants in discharges from the municipal separate storm sewer system.*

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
STR-1 Address Water Quality with New Capital or Roadway Improvement Projects	Develop criteria and strategy for when stormwater treatment will be incorporated into public projects. Conduct plan checks of stormwater quality treatment facilities that are included in capital improvement or roadway improvement projects to assure they follow standard design criteria that include stormwater quality considerations, and that the appropriate facility is selected for the intended purpose.	Identify strategy or criteria used to determine when stormwater quality treatment will be incorporated into Capital Improvement Projects by November 1, 2013.	The County submitted criteria for when stormwater treatment is incorporated into public projects to DEQ in 2013. Phase II of the Wood Village Blvd project is incorporated into the Arata Rd capital project. Stormwater treatment for existing impervious area on Arata Rd will include bioretention areas. Off-site stormwater treatment will be constructed for Sandy Blvd project: upgrade stormfilter vault on 223rd ave.	No change
STR-2 Retrofit Existing Facilities for Water Quality Benefit	Include consideration of stormwater treatment for water quality purposes in capital projects to reduce pollutants to the maximum extent practicable. Conduct a hydromodification assessment and develop a strategy to identify and prioritize potential retrofit projects by November 1, 2014.	Identify one retrofit project by November 1, 2013. Develop hydromodification and retrofit strategy by November 1, 2014.	Halsey St project was completed in 2016. Hydromodification Assessment and Stormwater Retrofit Strategy was submitted to DEQ on November 1, 2014.	No change
STR-3 Inventory and Map the County Storm Sewer System	Continue to update the County GIS storm sewer system map.	Complete GIS drainage system maps of the NPDES permit area by 2014, including catch basins, culverts, manholes, ditches and pipes systems.	Stormwater infrastructure mapping in GIS is completed.	No change

NS – Natural Systems

Overall goal: *to help preserve and restore the natural environment/functions to reduce pollutants in discharges from the municipal separate storm sewer system.*

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
NS-1 Conduct Vegetation Management Activities	Follow RMOM and IVM procedures. Maintain current Oregon Department of Agriculture (ODA) certifications for chemical applicators. Review and update integrated vegetation management practices (IVM) annually.	Review RMOM vegetation activities and the Integrated Vegetation Management Program (IVM) annually.	No new updates.	No change
NS-2 Specify Native Vegetation in ROW and Permitted Projects	Review the current contract specifications for landscaping in the right-of-way, and update as needed. Promote the use of native vegetation and develop contract specifications for landscaping. Condition plan approvals with invasive plants removal, if needed. Ensure contract specifications are followed which require certain landscaping materials and placement.	Inspect 100% of project sites for landscaping specifications.	No activity in the permit area	No change

PM – Program Management

Overall goal: *Program Management BMPs ensure effective program management, coordination, and reporting.*

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
PM-1 Stormwater Program Management	Continue to participate in the NPDES MS4 coordination meetings and any DEQ meetings. Continue to work with other NPDES MS4 permittees and DEQ to implement the stormwater management program. Review each BMP file annually. Prepare an annual report to demonstrate the County's compliance with requirements. Submit to DEQ.	Annually review BMP implementation data and submit annual report by November 1 each year.	Annual report submitted to DEQ.	No change
PM-2 Assess and Evaluate the Stormwater BMP Program	Evaluate progress of BMPs for annual report using adaptive management approach.	Develop an adaptive management approach by November 1, 2011.	The adaptive management approach was discussed mainly in the context of our catch basin and sweeping efficiency program.	No change
PM-3 Maintain Environmental Management Database	Pilot new GPS and onboard computer technology by July 2011. Develop GIS or other mapping technology to sync with GPS system by July 2012. Develop SAP work orders and tracking to integrate with GIS by July 2013.	Ensure tasks are completed by dates shown.	Work orders for Road Maintenance are captured in Cartegraph operations management system. Cartegraph uses GIS to capture catch basin cleaning and sweeping data.	No change

4. Stormwater Management Program Budget

Program activity within the County's NPDES permit area is divided between areas that were previously managed under the Portland area and Gresham area NDPES permits. The Water Quality program, consisting of one staff manages the County stormwater program, and portions of two Asset Management staff provide mapping and database services across the entire permit area. Services specific to the two areas are described below.

Gresham area stormwater related services:

- Road Maintenance expenditures and anticipated budget allocations within the Fairview and Interlachen incorporate items including drainage maintenance, right-of-way, surface management, vegetation management, general administration, emergency road hazard response and training.

- Road Engineering expenditures and anticipated budget allocations within Fairview and Interlachen incorporate drainage studies and reviews, environmental compliance review, as-built plan drafting and inventory, GIS database entry, and training.

- Land Use and Transportation Planning expenditures and anticipated budget for design review of capital improvements and right-of-way impacts to the County roads in Fairview, Troutdale, and Wood Village, and for design review and permits for development within the Interlachen Area.

Portland area stormwater related services:

- Bridge Maintenance expenditures and anticipated budget allocations within the Portland Permit area incorporate items including, drainage maintenance, right-of-way, surface management, vegetation management, general administration, emergency road hazard response and training.

- Bridge Engineering expenditures and anticipated budget allocations within the Portland Permit area incorporate drainage studies and reviews, environmental compliance review, as-built plan drafting and inventory, GIS database entry, and training.

- Multnomah County Road Maintenance, contracts the City of Portland and Clean Water Services to maintain and operate County owned roads to their respective standards in the urban unincorporated pocket areas through Intergovernmental Agreements.

- Road Engineering continues to retain authority to review access and impacts to the right-of-way including stormwater discharge when such discharges cannot be retained on site.

- Transportation Planning within the Portland Permit area includes development review in the unincorporated pockets where such development has the potential to access or impact the county right-of-way.

Funding for stormwater program expenditures are derived from two sources. The Land Use Planning receives funding from County's General Fund. The Transportation Division (Road and Bridge Services and

Transportation Planning) receive funding from the State Highway Trust Fund, which includes the State gasoline tax, weight/mile tax on trucks, and vehicle registration fees. Highway Trust Funds are constitutionally dedicated to road related issues. The County has no revenue from dedicated stormwater fees. This is a result of the County roads and unincorporated pockets being nested within other city jurisdiction's service areas.

The table below outlines program expenditures for Fiscal Year 2016 and provides the anticipated budget for Fiscal Year 2017.

Program Area	*FY 2017 actual*	*FY 2018 budget*
Water Quality Program[1]	$196,503	$187,503
Asset Management[2]	$7,920	$7,920
Gresham area		
• Road Maintenance[3]	$317,717	$317,000
• Road Engineering[3]	$111,587	$114,787
Portland Area		
• Bridge Maintenance/Operations	$17,530	$18,479
• Bridge Engineering[4]	$38,815,789	$43,336,615
• Road Maintenance IGA	$0[5]	$100,000
• Road Engineering[6]	$12.897	$12,897

[1]*Figure includes entire Water Quality program includes one staff, monitoring budget for UIC, TMDL and NPDES programs, and additional program costs. Decrease from previous year is the result of the hire of a limited duration GIS technician for stormwater mapping.*
[2]*Estimate is based on a portion of time from two Asset Management staff.*
[3]*Budget estimate is based on actual spending from the previous year for time spent on water quality work plus a budget for training.*
[4] *The amount shown represents the entire Bridge Engineering program. The entire program is included because Bridge Services do not budget or collect charges for water quality tasks. Water quality best practices are integral in all aspects of design and construction and hence we are not able to be segregated from the other work. Increase in budget reflects Sellwood Bridge funding.*
[5]*Portland Road Maintenance IGA funds were used for non-water quality related maintenance, thus not reported here.*
[6]*Estimate of the amount of time spent on water quality issues in Portland area right-of-way.*

5. Monitoring Summary

Environmental monitoring for the NPDES MS4 Phase I permit includes instream monitoring, macroinvertebrate monitoring, stormwater sampling for mercury, and pesticide monitoring. This summary describes the instream and macroinvertebrate monitoring. In previous permit terms, the mercury monitoring was completed. Pesticide monitoring is slated to be done in conjunction with the County's underground injection control (UIC) Water Pollution Control Facility (WPCF) permit requirements. The County received the UIC WPCF permit in March 2014, and stormwater sampling began in fall of 2014.

Instream Data

Instream monitoring is required at two sites in the permit area for a range of pollutant parameters shown in the table below. Monitoring is coordinated with the City of Gresham; the County maintains an intergovernmental agreement with Gresham to contract monitoring services, including monitoring scope, and sampling methods. Fairview Creek and Beaver Creek are the two priority watersheds in the Gresham area. Fairview Creek results are summarized in the Gresham NPDES Annual Report.

Monitoring location	*Sampling frequency*	*Parameters*
Lower Beaver Creek (BCI1) Upper Beaver Creek (BCI2)	4 events/year	Biological Oxygen Demand (BOD5) Total suspended sediment (TSS) Hardness Temperature Dissolved Oxygen (DO) Conductivity pH Nitrate (NO3) Ammonia nitrogen (NH3-N) Total phosphorus (TP) Ortho-phosphorus (O-PO4) Copper, total and dissolved Lead, total and dissolved Zinc, total and dissolved E.coli bacteria
Lower Beaver Creek (BCI1) Upper Beaver Creek (BCI2)	1 event/year	Macroinvertebrate

Two sites in Beaver Creek are monitored by the County, one site at the boundary of the urban and agricultural land uses, and one near the mouth of the stream, where the stream joins the Sandy River. Instream monitoring results are generally within expected ranges, with exceedances in temperature and E.coli. Macroinvertebrate scores are low, which is consistent with previous sampling results.

Sample ID	Site ID	Date	Time	Rainfall 24-hr (in)	Field DO (mg/L)	Field pH	Field Temp (C)	Conductivity (µS/cm)	Turbidity (NTU)	BOD5 (mg/L)	DOC (mg/L)	TSS (mg/L)	NH3-N (µg/L)	Chloro-phyll-a (mg/M3)	NO3-N (µg/L)
W16G239-10	BCI1	7/28/2016	13:38	0.00	5.54	7.96	22.2	95.1	1.43	**2**		**2**	20	**2**	1200
W16G239-11	BCI2	7/28/2016	12:05	0.00	8.19	7.58	19.5	67.5	5.20	**2**		10	21	24	1000
W16G239-11	BCI2	7/28/2016	12:05	0.00	8.19	7.58	19.5	67.5	5.20	**2**		10	21	24	1000
W16G239-10	BCI1	7/28/2016	13:38	0.00	5.54	7.96	22.2	95.1	1.43	**2**		**2**	20	**2**	1200
W16G239-01	FCI0	7/28/2016	14:29	0.00	4.44	7.81	22.4	102.1	2.33	3		**2**	22	5.6	580
W16J207-11	BCI2	10/25/2016	12:01	0.10	10.65	6.95	12.2	53.0	5.50	**2**	2.22	12	**20**	**2**	4330
W16J207-10	BCI1	10/25/2016	13:16	0.10	6.53	7.14	12.7	58.9	4.90	**2**	2.70	2	**20**	**2**	3400
W17A228-11	BCI2	1/31/2017	12:23	0.02	NA	7.27	4.7	NA	NA	**2**	1.32	4	**20**		3.1
W17A228-10	BCI1	1/31/2017	13:18	0.04	NA	7.59	5.4	NA	NA	**2**	1.64	2	**20**		2.6
W17E014-11	BCI2	5/2/2017	12:10	0.03	8.76	6.64	11.5	49.2	6.82	**2**	1.43	5	**20**		2.2
W17E014-10	BCI1	5/2/2017	13:47	0.03	5.22	7.20	12.3	70.8	4.55	**2**	1.77	3	**20**		1.8

Sample ID	Site ID	Date	Time	Rainfall 24-hr (in)	O-PO4 (µg/L)	TKN (µg/L)	Total-P (µg/L)	Hardness (mg CaCO3/L)	Hg-Total (µg/L)	Cu-Total (µg/L)	Pb-Total (µg/L)	Zn-Total (µg/L)	Cu-Diss (µg/L)	Pb-Diss (µg/L)	Zn-Diss (µg/L)	E. coli (MPN/100ml)
W16G239-10	BCI1	7/28/2016	13:38	0.00	68	310	98	75.0	0.00100	1.080	0.100	3.0	0.954	**0.1**	1.88	31
W16G239-11	BCI2	7/28/2016	12:05	0.00	74	450	124	46.9	0.00154	2.140	0.150	2.7	1.930	**0.1**	1.63	660
W16G239-11	BCI2	7/28/2016	12:05	0.00	74	450	124	46.9	0.00154	2.140	0.150	2.7	1.930	**0.1**	1.63	660
W16G239-10	BCI1	7/28/2016	13:38	0.00	68	310	98	75.0	0.00100	1.080	0.100	3.0	0.954	**0.1**	1.88	31
W16J207-11	BCI2	10/25/2016	12:01	0.10	27	370	46	38.5	0.00217	3.740	0.171	2.8	3.440	**0.1**	1.50	120
W16J207-10	BCI1	10/25/2016	13:16	0.10	34	500	60	46.4	0.00231	2.000	0.113	7.2	1.720	**0.1**	4.65	57
W17A228-11	BCI2	1/31/2017	12:23	0.02	**20**	280	28	28.0	0.00135	0.632	0.117	2.6	0.400	**0.1**	1.08	63
W17A228-10	BCI1	1/31/2017	13:18	0.04	25	250	26	43.2	0.00128	0.737	**0.100**	3.3	0.543	**0.1**	2.23	10
W17E014-11	BCI2	5/2/2017	12:10	0.03	**20**	290	**25**	26.1	0.00150	0.814	0.119	2.0	0.627	**0.1**	0.891	98
W17E014-10	BCI1	5/2/2017	13:47	0.03	26	320	**25**	39.8	0.00135	0.885	**0.1**	3.5	0.725	**0.1**	1.73	41

Macroinvertebrate Site	B-IBI score
BCI1	24
BCI2	16

*Bold indicates values below detection limits
*Shaded cells indicate values above water quality standards

Pesticide monitoring data

Pesticide data was collected through the County's Underground Injection Control (UIC) Program, as described in the letter to DEQ, April 25, 2011. Details of the pesticide selection process are found in the County's UIC Monitoring Plan (2014), which can be downloaded from the County's Water Quality Program website (https://multco.us/water-quality-program/reports-and-plans).

The objective of this pesticide sampling is to fill data gaps about pesticides that may be commonly used along County's urban roadways and at County facilities. 179 different pesticides were screened using two methods to provide a baseline of pesticide information: Multi-residue Pesticide Screen (EPA 8141, 8270D, 8081B, 8321B) and the Chlorinated Acid Herbicide Profile (EPA 8151). Data were collected from two UICs and three facilities.

Three pesticides were detected from the two UICs on roadways, and two pesticides were detected at two County facilities.

Pesticide detections are given below. For lab reports, contact Multnomah County Water Quality Program at waterquality@multco.us.

Sample date	*Analyte*	*Result*	*QL*	*Unit*	*Method*	*Site*
10/13/2016	2,4-D	0.13	0.08	ug/L	Modified EPA 8151A	Hansen Complex
10/13/2016	2,4-D	0.36	0.08	ug/L	Modified EPA 8151A	SW Cherry Park
10/13/2016	Triclopyr	0.21	0.08	ug/L	Modified EPA 8151A	SW Cherry Park
10/13/2016	Diphenylamine	0.11	0.06	ug/L	Modified EPA 8270D	SW Cherry Park
10/13/2016	2,4-D	0.089	0.08	ug/L	Modified EPA 8151A	SW 257th Ave
10/13/2016	2,4-D	0.098	0.08	ug/L	Modified EPA 8151A	SW 257th Ave
10/13/2016	Aldrin	0.29	0.12	ug/L	Modified EPA 8081B	SW Cherry Park (Field dup)
10/13/2016	Chlordane	3	0.6	ug/L	Modified EPA 8081B	SW Cherry Park (Field dup)
10/13/2016	Dieldrin	1.8	0.6	ug/L	Modified EPA 8081B	SW Cherry Park (Field dup)
10/13/2016	2,4-D	0.39	0.08	ug/L	Modified EPA 8151A	SW Cherry Park (Field dup)
10/13/2016	Dicamba	0.099	0.08	ug/L	Modified EPA 8151A	SW Cherry Park (Field dup)
10/13/2016	Triclopyr	0.21	0.08	ug/L	Modified EPA 8151A	SW Cherry Park (Field dup)
10/13/2016	Diphenylamine	0.12	0.06	ug/L	Modified EPA 8270D	SW Cherry Park (Field dup)
2/15/2017	Pentachlorophenol	0.42	0.16	ug/L	Modified EPA 8151A	Hansen Complex
2/15/2017	Pentachlorophenol	0.23	0.16	ug/L	Modified EPA 8151A	SW 257th Ave
2/15/2017	2,4-D	0.097	0.08	ug/L	Modified EPA 8151A	SW Cherry Park (Field dup)
2/15/2017	Diphenylamine	0.068	0.06	ug/L	Modified EPA 8270D	SW Cherry Park (Field dup)

APPENDIX A. Regional Coalition for Clean Rivers and Streams Annual Report 2016

Regional Coalition for Clean Rivers and Streams

Fiscal Year 2016-2017 Annual Report

July 31, 2017

Prepared by:

enviroissues

THE RIVER STARTS HERE

FY 2016-17 Overview

The Regional Coalition for Clean Rivers and Streams (Coalition) continued its work in FY 2016-17 – initiated in the mid-1990s – of delivering coordinated messages to target behaviors linked to stormwater pollution from residential sources. The Coalition used print and digital advertising and direct outreach at community events to promote stormwater messaging. The Coalition researched TV and digital advertising options and deployed the previously developed *The River Starts Here* creative concept through a digital advertising campaign. The Coalition also included continued participation in the Clean Rivers and Streams Forum to develop collaborative relationships among agencies within and beyond the Portland metropolitan region.

Coalition participants are based in the Portland metropolitan region and include:

- Clackamas County Water Environment Services on behalf of members of the Clackamas co-permittee group
    - Clackamas County Service District No. 1
    - City of Gladstone
    - City of Lake Oswego
    - City of Milwaukie
    - City of Oregon City
    - City of West Linn
    - City of Wilsonville
    - Oak Lodge Sanitary District
    - Surface Water Management Agency of Clackamas County
- Clean Water Services (serving cites and other urban areas in Washington County)
- Multnomah County
- City of Gresham

This report covers July 1, 2016 - June 30, 2017. Supporting materials are included in an appendix.

Background

As identified in the 2013 Strategic Plan, the mission of the Coalition is to collaborate across the Portland metropolitan region to improve watershed health by changing household behaviors, curbing polluted runoff and better connecting people with the environments in which they live and play. Coalition members leverage their collective resources to conduct community outreach. Coalition activities complement individual agency efforts to raise awareness of stormwater runoff and affect behavior change to prevent pollution and protect regional surface water quality. Coalition activities support commitments relative to state permits under the federal Clean Water Act (administered by the Oregon Department of Environmental Quality), including Total Maximum Daily Load and Municipal Separated Storm Sewer System (MS4) programs, as well as compliance with the federal Endangered Species Act.

Participants in the Coalition have diverse roles in conducting stormwater education and outreach. Clean Water Services, City of Gresham and Clackamas County Water Environment Services each have developed specific outreach programs for their jurisdictions. The Clackamas co-permittee group has

used the creative materials developed by the Coalition to varying degrees. Multnomah County has permit requirements related to its roads and bridges.

The most recent cost sharing agreement among Coalition members was executed in December 2016. As of July 2017, Coalition members are in the process of finalizing a new Memorandum of Agreement under the Managing Oregon Resources Efficiently Intergovernmental Agreement (MORE-IGA) for FY 2017-18 activities.

REGIONAL AUDIENCE

The Coalition targets behaviors from residential sources linked to stormwater pollution prevention. Information and messages used by the Coalition are intended to reach those making purchasing and management decisions about yard care, pets and auto maintenance activities – some of the most likely sources of stormwater pollution from residents. Coalition activities address a range of surface water contaminants, including nutrients and toxics from fast-releasing synthetic fertilizers and chemical pesticides applied to yards and lawns, nutrient loads from car washing soaps, metals and other toxics from vehicle maintenance (and unmaintained vehicles), *E. coli* from pet waste, turbidity from eroded soils and other contaminants from illicit discharges.

KEY MESSAGES

The Coalition's key messages focus on raising awareness about pollution from stormwater runoff and motivating actions to protect surface water quality through action at the household level. The key messages are:

- Stormwater runoff is now our number one source of water pollution. When it rains, pollutants from your home, car, and garden wash into our rivers and streams.
- Bacteria from uncollected dog waste washes into our rivers and streams. You can protect our water by picking up after your pets.
- Yard and garden products wash into our rivers and streams. You can protect our water by using compost and slow-release fertilizer.
- Motor oil, solvents, and soaps wash into our rivers and streams. You can protect our water by keeping car-care chemicals out of storm drains.

FY 2016-17 ACTIVITIES AND RESULTS

Activities during the reporting period focused on continuing to implement the Coalition's existing strategic plan with messaging and outreach using *The River Starts Here* creative concept.

Strategic Plan Implementation

The Coalition acted on strategic plan goals as summarized below:

Goal 1: Maintain a functioning Coalition

Coalition members began preparing an updated cost sharing approach and budget for FY 2017-18. Discussions with additional agencies that wish to join the Coalition are active and ongoing. Specifically, members discussed the Coalition and its benefits during a Clean Rivers and Streams Forum meeting in October 2016 which was a continuation of discussions at the initial forum held in April 2016. The Coalition also developed and submitted a grant proposal in June 2017 to the Meyer Memorial Trust's Willamette River Initiative to help fund a strategic plan and develop a brand and campaign materials.

Goal 2: Develop and adapt creative products to fulfill the Coalition's mission

The Coalition continued to use collateral materials developed with *The River Starts Here* creative concept through newspaper and web advertising. The river motif was adapted to help promote summer river events. Coalition representatives also continued to use temporary tattoos and branded T-shirts and banners to help promote clean water messages at individual outreach events held throughout the year. Coalition member Clackamas Water Environment Services contributed a raindrop costume/prop inspired by *The River Starts Here* logo to bring awareness and fun at community events.

Figure 1: Raindrop costume

The Coalition also improved its website (TheRiverStartsHere.org) by adding a calendar of river-related events at which members conduct outreach using Coalition collateral and messaging.

Goal 3: Practice adaptive management

The Coalition is committed to leveraging available resources to maximize impact while setting the stage for future collaboration among agencies. The Coalition acted on recommendations in the previous annual report including performing direct, person-to-person outreach at community events to reach new audiences and following research-based recommendations for digital advertising.

Market Research and Digital Advertising Recommendations

The Coalition contracted with EnviroIssues to conduct market research regarding Metro area TV stations and digital advertising platforms to support planning for 2016-2017 outreach efforts. EnviroIssues contacted local television stations, including KOIN affiliate advertising agency, LIN Digital, and compiled

information on advertising capabilities, recommendations and costs. EnviroIssues also researched web-based advertising options and compiled a digital media buying guide with specific recommended ad purchases tailored to Coalition audiences at several price points. Based on the research, EnviroIssues made overall recommendations for communication and outreach efforts.

The Coalition implemented a modified suite of digital ads based on recommendations in the media buying guide for the 2017 campaign, and also chose to work with LIN Digital to place Facebook sponsored posts promoting summer river events. See Appendix A for market research and digital advertising recommendations and supporting documentation.

The River Starts Here Messaging and Outreach

Advertising

The ad campaign conducted during the fiscal year was two-fold. Its major components included:

1. Continuing to enhance awareness and prompt behavior change through strategically-placed digital ads using *The River Start Here* creative collateral, and
2. Promoting partner-hosted summer river events using a mix of social media and print advertising and providing face-to-face outreach at the events.

The River Starts Here digital ad campaign

The Coalition placed a coordinated package of targeted image-based digital ads using *The River Starts Here* creative collateral and linked to the Coalition's Facebook page and website. The digital ad campaign followed the digital advertising recommendations developed earlier in the fiscal year, modified to fit the available budget, and ran between May 24 and June 30, 2017. Digital ads were placed on the Google Display Network, Instragram, and Twitter. Ads were targeted to users in ZIP codes within the service areas of Coalition members. Targeting was further refined to homeowners and by interest in relation to themes of dogs, auto maintenance, and yard and garden care.

Google Display Network

The Coalition placed four ads on the Google Display Network (Figure 1) for the first time. The four ads comprised the largest share of the total budget for *The River Starts Here* digital campaign. The ads appeared on a network of independent sites across the web and featured graphics and short copy with clean water messaging. Their reach included web users who might not use Twitter and Facebook.

The ads featured a call to action and highlighted *The River Starts Here* brand. Google Display Network ads provided the lowest cost per impression of any of the ad placements in the digital campaign.

Metrics summary	
Cost	$4,637
Impressions	2.4 million
CPM*	$1.90
Clicks	10,669
CTR†	0.44%

* CPM is cost per 1,000 impressions.
† CTR is click-through-rate.

Figure 2: Ads placed on the Google Display Network

Twitter

Three ads were placed on Twitter. Each included messaging encouraging a specific action to protect water quality along with the hashtag #theriverstarshere. The ads were targeted to users with relevant interests.

Metrics summary	
Cost	$972
Impressions	177,700
CPM	$5.47
CTR	986
Engagement rate	0.54%
Likes	8

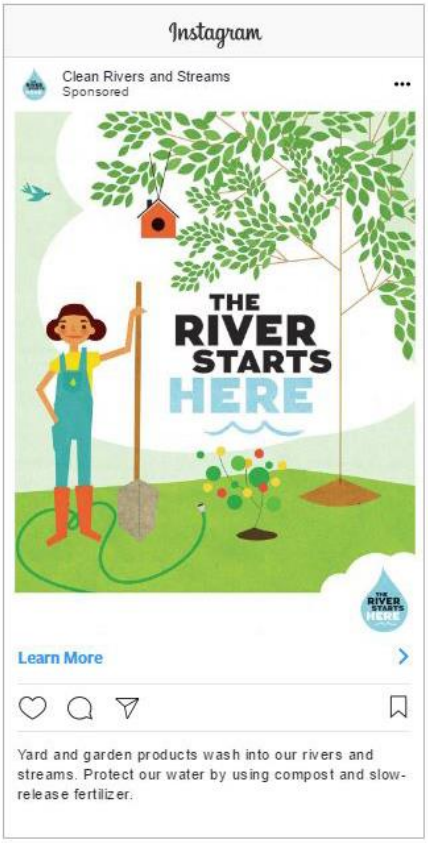
Figure 3: Ads placed on Twitter

Instagram

The Coalition placed an ad on Instagram for the first time in 2017. The ad targeted gardeners – an audience that uses Instagram to share yard and garden photos – and featured a call to action in the ad copy.

The Instagram ad is valuable as small part of a varied advertising package, offered a high-quality placement in users' feeds, and precise targeting of an important audience for clean water messages. While the cost per thousand impressions for both Twitter and Instagram (about $5) was higher than the Google Display network, it was still of value as part of the Coalition's varied advertising package.

Figure 4: Ad placed on Instagram



Metrics summary	
Cost	$524
Impressions	102,484
CPM	$5.14
Reach	40,106
Unique clicks	19
Click through rate	0.02%

Table 1: *The River Starts Here* digital ad campaign summary

Ad	Theme	Cost	Impressions	CPM	CTR
Twitter					
Twitter	Autos	$394	7,382	$7.18	1.48%
Twitter	Pets	$525	102,030	$5.15	0.53%
Twitter	General (River)	$53	68,288	$5.77	0.44%
Total/average (Twitter)		**$972**	**177,700**	**$5.47**	**0.54%**
Google Display					
Google Display	General (River)	$1,450	864,113	$1.68	0.43%
Google Display	Gardeners	$821	376,672	$2.18	0.39%
Google Display	Pets	$1,672	801,139	$2.09	0.51%
Google Display	Autos	$462	276,657	$1.67	0.34%
Total/average (Google)		**$4,637**	**2,433,274**	**$1.90**	**0.44%**
Instagram					
Instagram	Gardeners	$525	102,484	$5.14	0.02%
TOTAL		**$5,901**	**2,598,765**	**$2.27**	**0.45%**

Promotion of summer river events

Facebook

The Coalition conducted a campaign on Facebook to build awareness of summer outreach events on local rivers. Event posts on the Coalition's Facebook page were sponsored in targeted users' news feeds. The Facebook campaign was conducted by LIN Digital on behalf of the Coalition.

As of June 30, 2017, the sponsored event for June 24 Tualatin River Discovery Days was complete and the Big Float on July 15 was in progress. For the Big Float, sponsored event posts were in English and in Spanish. Additional sponsored event posts are scheduled for two other events later in the summer.

Figure 5: Sponsored Facebook event for Tualatin River Discovery Days and The Big Float

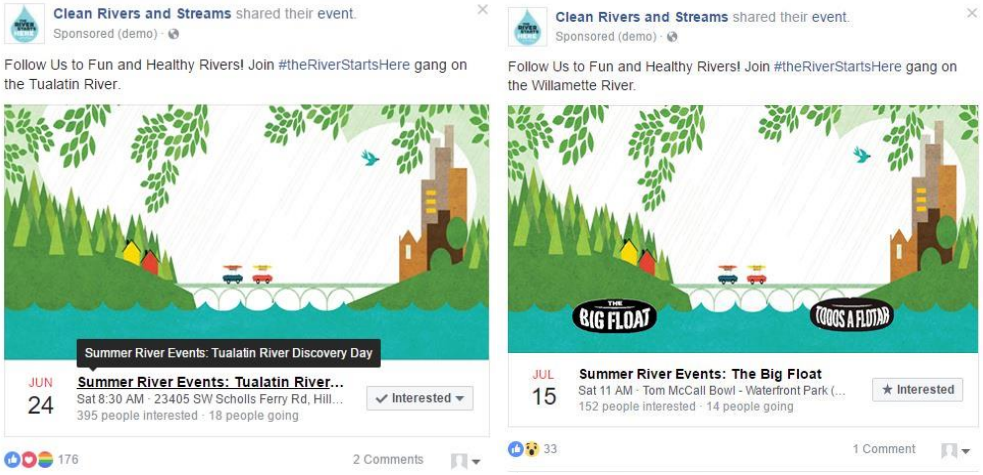


Table 2: Sponsored Facebook events summary

	Tualatin River Discovery Day	The Big Float, English	The Big Float, Spanish	Total
Impressions	47,804	14,306	3,663	**65,773**
Clicks	287	432	92	**811**
Click-through rate	0.6%	3.0%	2.5%	**1.2%**
Reach	46,534	13,587	3,430	**63,551**
Page likes	0	27	8	**35**
Post likes	14	80	18	**112**
Cost	$901	$498	$143	**$1,542**

Display and digital ads in Pamplin Community Newspapers

Print and digital ads were placed in Pamplin Community Newspapers in the Coalition area to promote four summer river events. The advertisement shown in Figure 5 was used in newspapers near the Tualatin River. The print and digital ads were modified and run in additional newspapers for subsequent events during summer 2017. A summary of print ads is shown in Table 3.

Table 3: Print advertisement placement and circulation

Pamplin Community Newspapers	Circulation	Readership
Complete as of June 30, 2017		
Beaverton	7,000	16,800
Hillsboro	10,000	24,000
Forest Grove	5,000	12,000
Planned to run July 5, 6, and 7		
Lake Oswego	7,250	18,125
Tigard/Tualatin	5,250	13,125
Wilsonville	3,500	8,750
Planned to run August 30		
West Linn	3,900	9,750
Clackamas / Oregon City	17,000	42,500
Planned to run September 11		
Gresham	10,000	25,000
Molalla	3,500	8,750
TOTAL	**122,400**	**306,000**

Figure 6: Display ad, Pamplin Media Group

The digital ad, shown in Figure 6, was placed on Pamplin Media Group websites (Beaverton Valley Times, Forest Grove News Times, and Hillsboro Tribune) between June 15 and 24 in advance of the Tualaltin River Discovery Day. Subsequent ads were placed on the websites of the other Pamplin papers in advance of the other summer river events. The digital ads were provided at no additional cost with the purchase of print ads.

Metrics summary	
Cost	N/a
Impressions	15,109
Clicks	31
Click-through rate	0.2%

Figure 7: Web advertisements, Pamplin Media Group

Clackamas Water Environment Services ads in the Business Tribune (Pamplin Media)

In addition to the ads placed in Pamplin Media products directly by the Coalition, member agency Clackamas Water Environment Services made a $2,985 investment in display and digital ads in the Portland Business Tribune using The River Starts Here creative collateral.

Campaign Summary

Overall, the 2016-17 campaign focused on providing a combination of highly targeted digital outreach and promoting in-person events that allow high-quality, interactive outreach.

Table 3: 2016-17 Coalition digital and print ad placement and circulation

Media	Outlet	Investment	Impressions	Average CPM
Digital	Google Display	$4,637	2,433,272	$1.90
Digital	Twitter	$972	177,700	$5.47
Digital	Instagram	$524	102,484	$5.14
Digital	Facebook (KOIN)	$1,542	65,773	$39.02
Digital	Pamplin websites	N/a	15,109	N/a
Print	Pamplin newspapers	$966	52,800 *	$18.30
	TOTAL / AVERAGE	$8,641	2,847,138	$3.03

* Pamplin newspaper impressions are derived from estimated readers

Community Events and Agency Collaboration

Representatives of member agencies promoted Coalition messages throughout the fiscal year and produced collateral materials emphasizing *The River Starts Here* brand and messages to support community events.

Clean Rivers and Streams Forum

The Clean River and Streams Forum was conceived as part of a series of workshops with goals to create a vision for broad regional collaboration, create a formal organizational structure and operational model, and begin planning and developing creative campaigns at the regional level.

Clean Rivers Forums were held in April and October 2016. From these two forums, an operational charter was developed, and a name for the statewide group was selected: Clean Rivers Coalition.

The Clean Rivers Coalition steering committee consists of representatives from the cities of Keizer, Gresham, Salem, and Eugene, along with Multnomah County and Marion County, the Oregon Environmental Council, Clean Water Services. The Coalition developed and submitted a grant proposal in June 2017 to the Meyer Memorial Trust's Willamette River Initiative to help fund a strategic plan and develop a brand and campaign materials.

Additional community events

The River Starts Here messaging was also disseminated at the following community events during FY 2016-17:

- The Big Float, July 2016
- Clackamas Down the River Clean-up, Sept. 2016
- Clackamas County Health and Wellness Sustainability Fair, Aug. 2016
- City of Gresham Vance Park Pollinator & Community Garden Grand Opening, June 2017
- Tualatin River Discovery Days, June 2017

Figure 8: The Big Float

Figure 9: Clackamas Down the River Clean-up

Figure 10: Clackamas County Health and Wellness Sustainability Fair

Figure 11: Tualatin River Discovery Days

WEBSITE: THERIVERSTARTSHERE.ORG

TheRiverStartsHere.org launched in June 2015. Web content includes an image slider with Coalition messages, links to member websites, the Coalition's latest posts on Facebook and Twitter, and additional web resources. For the 2017 campaign season a calendar of summer river events was added (Figure 12).

Total traffic on the website increased substantially from the previous year due to referrals from some of the ads placed by the Coalition. Traffic from digital ads is also reflected is the devices used to access the site. Nearly 90 percent of sessions were on mobile and tablet devices in FY 2016-17, compared to about 25 percent in the previous year.

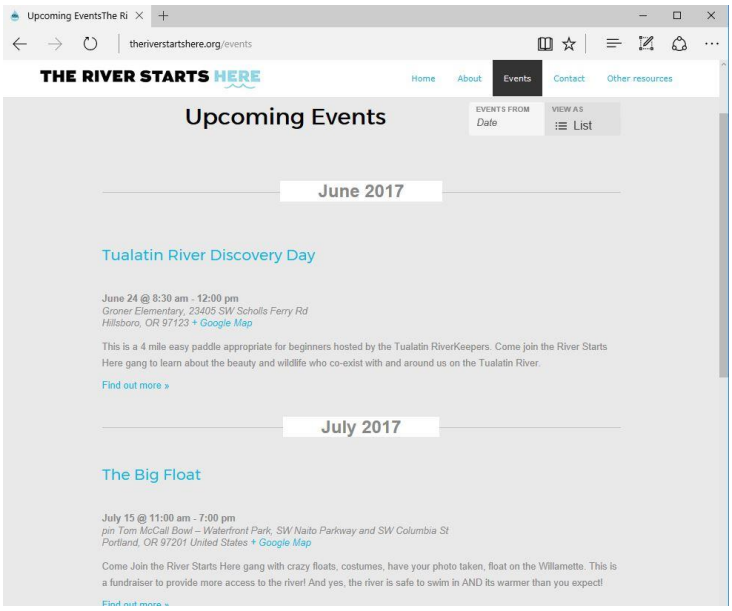
Web analytics show the website is of value to some visitors, but the high bounce rate suggests others did not find the information they expected.

Returning visitors accounted for about 12 percent of all visits during the fiscal year and spent over a minute on the site, on average, compared to just 13 seconds for new visitors.

Table 4: TheRiverStartsHere.org analytics overview

	2015-16	2016-17
Total sessions	1,194	7,558
Bounce rate, all traffic	89%	92%
Bounce rate, search (organic) traffic	87%	72%
Time on site	35 seconds	20 seconds
Traffic type		
Direct	36%	78%
Organic (search engine)	19%	3%
Referral	45%	18%
Sessions by device		
Mobile	16%	71%
Tablet	9%	17%
Desktop	74%	12%

Figure 12: The event calendar on TheRiverStartsHere.org listing upcoming summer river events.



SOCIAL MEDIA

The Coalition continued posting to its previously established social media channels. Social media messages build on existing conversations and connect with organizations around the region. The Coalition delivers its messages following its seasonal messaging calendar.

Facebook page, Clean Rivers and Streams

The Coalition's Facebook page experienced increased use compared to the previous fiscal year. Increased reach and engagement reflect more posts, ads run by KOIN for the *Water, Do Your Part* campaign and sponsored posts for summer river events. A summary of Coalition Facebook account use is as follows:

Table 5: Facebook page overview

	2015-16	2016-17
Reach	1,171	391,433
Daily engaged users	92	2,673
New likes	37	158
Posts	7	45

Lifetime total likes: **914**

Twitter (@riverstartshere)

The Coalition increased its Twitter posts compared to the previous fiscal year and increased the number of followers by 99. A summary of use during the fiscal year is as follows:

Table 6: Twitter account overview

	2015-16	2016-17
Followers	1,343	1,442
Following	1,325	1,544
Coalition tweets during period	11	54

FY 2016-17 BUDGET

Table 7: FY 2016-17 expenditures

	Services	Cost
Ads		
Pamplin Community News	Print and digital ad placements in local newspapers and news websites	$3,180 *
Pamplin Community News	Print and digital ads placed by Clackamas County Water Environment Services in the Portland Business Tribune	$2,985
Facebook	Sponsored posts promoting summer river events	$7,000 *
Google Display Network	Digital ads on Display Network websites, targeting Coalition audiences	$4,596
Twitter	Digital ads, targeted to Coalition audiences	$972
Instagram	Digital ads, targeted to Coalition audiences	$525
Subtotal, ads		**$16,273**
Event sponsorships		
The Big Float	Sponsorship including event table and event admissions shared with community groups serving traditionally underserved communities	$3,000
Collateral materials		
Raindrop costume		$239
Coordination support		
EnviroIssues	Meeting facilitation and member coordination, website maintenance, social media authoring	$10,205
	TOTAL	**$32,702**

* Though allocated through the FY 2016-17 budget, a portion of the funds for Pamplin Community News and Facebook promoting summer river events ran after the fiscal year concluded on June 30, 2017.

OBSERVATIONS

The following observations are based on results of FY 2016-17 activities and suggest future direction the Coalition may take.

Regional collaboration: The Clean Rivers and Streams Forum led to discussions resulting in a funding request to develop a strategic plan and campaign which would expand the Coalition's activities beyond the Portland Metro region. The current Coalition members may consider consolidating strategy and messaging or working in tandem with this new group. In either case, accessing additional funding will allow for increased reach of clean water messages through new strategic opportunities.

Social media: The Coalition expanded its social media presence in FY 2016-17 compared to the previous year by placing more posts throughout the year, advertising, and helping raise awareness of community events. There is opportunity to further maximize the impact of social media activity by creating and following a strategic approach that links Coalition messages with current events; finesses the tone, timing, and content of posts; and links messages with partners and topics of public interest to encourage greater online interaction and organic reach.

Website: The Coalition website serves multiple purposes and audiences. For members of the public it shares messages promoting river-friendly actions. For potential funding partners it describes the Coalition's membership and mission. There is opportunity to reevaluate the purpose and approach to the Coalition's web presence to best meet the goals for both audiences.

During FY 2016-17 most visits to the website were made from mobile devices which has not been observed previously. EExploring new web content to engage visitors and meet their expectations, especially those using smart phones and tablets, will help extend average time on page and reduce the bounce rate.

Community events: The Coalition continued to expand its activities promoting and participating in community events. In the future, Coalition members may consider encouraging further individual use of its messages and creative collateral by member agencies. There is also an opportunity after the 2017 summer river events are finished to evaluate those activities as a whole and identify which tactics were most effective at connecting with target audiences and establish standardized tracking metrics for future evaluation and decision-making.

Digital advertising: The Coalition implemented the most multi-faceted web-based advertising campaign in its history during the 2016-17 fiscal year. Ads on the Google Display network offer by far the lowest cost per impression of all the ads placed during the fiscal year. Sponsored Facebook events were the costliest ads placed in 2016-17 on a per-impression basis. The click through rate, which indicates the share of users who saw the ad and were interested enough to click, was highest for the summer river events promotions on Facebook, and lowest on Instagram. There is opportunity in the future to increase engagement with ads across platforms by emphasizing how the viewer can benefit by engaging with ads.

CONCLUSION

Based on campaign results, important points to consider for 2017-18 campaign will further optimize the Coalition's investment in outreach and advertising and increase measurable outcomes.

- Evaluate and refresh the Coalition's social media strategy to promote organic reach and connect with new and expanded audiences.
- Evaluate and refine the Coalition's web presence to best meet goals and increase its relevance to visitors.
- Further optimize digital ads by focusing on low-cost advertising that also encourages engagement that can be tracked and reported through analytics.
- Develop and follow a campaign strategy that integrates multiple goals of promoting behavior change with Coalition messages and engagement online and through community outreach events.
- Plan for and collect standardized metrics at in-person outreach events to enable assessment, reporting and identification of the most successful tactics.