



EFFECTIVENESS STUDY & SOURCE IDENTIFICATION PROJECT

Stormwater Education and Outreach: Addressing Challenges Through Behavior Change and Incentives, and Permittee Guidance for Evaluating the Effectiveness

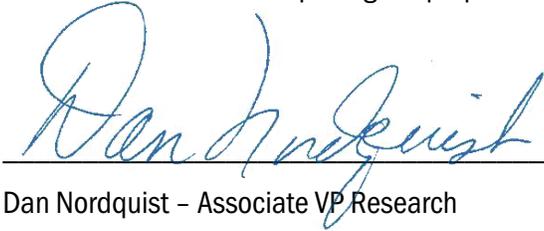
PROPOSAL | MAY 15, 2020



Prepared by the Washington Stormwater Center – Washington State University

In partnership with Osborn Consulting, Inc. (OCI)

WSU is committed to completing the proposed scope of work on budget and on time.



Dan Nordquist – Associate VP Research

Washington State University

May 12, 2020

1. PROJECT PURPOSE

Public Education and Outreach (E&O) strives to increase awareness of stormwater impacts and encourage behavior changes contributing to water quality and quantity problems within a watershed. Ecology recognizes the potential benefits of these programs on our states water bodies and includes E&O as a required component of Stormwater Management Programs (SWMP). More recent NPDES permits require permittees to develop targeted programs using Social Marketing methods, evaluate the effectiveness of these programs, and apply results to improve E&O programs. However, jurisdictions would benefit from tools to identify and select which stormwater problems and behaviors to focus on. In some jurisdictions, staff may benefit from clearer guidance on how to conduct and report effectiveness evaluations that can inform and improve future E&O efforts in a positive feedback loop of doing and learning. The purpose of this study is to address this problem, specifically:

1. **Determine what types of stormwater problems are amenable to, and best addressed, by behavior change efforts** by drawing on the institutional knowledge of the Washington Stormwater Center (WSC), a set of key informant interviews, a web-based survey of Phase I and II jurisdictions as well as regional stormwater educational groups, and a review of the scientific literature linking behaviors to water quality.
2. **Identify effective behavior changes tools** by conducting a broad literature review of E&O programs, organized by stormwater issue. The review will build on prior reviews and include studies from outside the Puget Sound and Washington State, evaluating the research quality of each existing E&O evaluation study to inform the quality of the evidence base for each E&O tool.
3. **Build an online tool to guide jurisdictions in prioritizing E&O efforts.** A website, to be housed at the Washington Stormwater Center, will be modeled on an existing database of BMP effectiveness (bmpdatabase.org) to include the effectiveness review material from objective 2. We will develop a plan that could be used (with subsequent funding) to add new studies nationwide in a systematic and quality-controlled manner, as the BMP database does. The website platform will also include a decision-support tool that permittees can use to choose which stormwater problems and E&O efforts to implement as well as examples of surveys and interview questions from other studies. The decision-support tool will allow flexibility given permittees' unique economic and ecological circumstances while drawing on nationwide evidence.
4. **Develop guidelines for evaluating effectiveness and reporting results** that aligns with Ecology's vision for permit compliance. This project will use interviews, literature search, and pilot testing to develop tools and templates that will provide permittees with guidance for evaluating and reporting on effectiveness of E&O programs that meets requirements defined in S5.C.11 and S5.C.2 of the Phase I and II permits, respectively.
5. **Develop a training manual that provides guidance for applying the tools** developed during this study, including examples. The manual will be developed in a format that can be used as "just in time training" or as a workbook for classroom style training.

2. PROJECT DESCRIPTION & SCOPE OF WORK

TASK 1.0: PROJECT ADMINISTRATION AND MANAGEMENT

Task 1 focuses on providing project administration and management, which is expected to include tracking and reporting project costs; developing, managing, and adjusting the project schedule as needed; preparing quarterly progress reports and invoices; and general project communications and coordination. See the *Project Management Strategy Section of this proposal on Page 9 for more details about this task.*

Table 1. Task 1 Deliverables and Schedule

Deliverable	Costs	Target Date
D1.1. Project Schedule	\$2,127	Two weeks after contract execution
D1.2. 1 st Status Report	\$3,765	2 weeks after quarter end
D1.3. 2 nd Status Report	\$3,765	2 weeks after quarter end
D1.4. 3 rd Status Report	\$3,765	2 weeks after quarter end
D1.5. 4 th Status Report	\$3,765	2 weeks after quarter end
D1.6. 5 th Status Report	\$3,765	2 weeks after quarter end
TASK TOTAL:	\$20,954	

TASK 2.0: MATCH STORMWATER PROBLEMS TO EFFECTIVE BEHAVIOR CHANGE TOOLS

To determine what types of stormwater problems are amenable to, and best addressed, by behavior change efforts, we will begin by conducting a set of at least 10 key informant interviews, drawing both from jurisdictions that participate in STORM, as well as those that do not, practitioners active in the PNW Social Marketing Association, regulatory staff, and attendees of regional stormwater meetings. These semi-structured informant interviews will seek to learn how jurisdictions make decisions about which stormwater E&O problems to tackle, how they choose E&O approaches, how they evaluate and learn from existing programs, and how jurisdictions might use a decision-support tool.

Interviews will inform the development of an online survey, a draft of which will be shared with the TAC for further input. After a small pilot test, the E&O leads of Phase I and Phase II jurisdictions as well as regional stormwater E&O programs will be invited by email and phone to participate in the online survey. In addition, survey participants will be recruited at MuniCon 2021. The survey will ask the same set of questions as informant interviews in a structured way that will present a more comprehensive picture of how jurisdictions are currently choosing and implementing E&O programs, as well as the barriers and problems they face.

The final step in Task 2 is a review of the scientific literature that links specific behaviors to water quality. This literature review is distinct from the review in Task 3, which focuses on whether E&O programs in stormwater have led to measurable behavior change. The Task 2 review will instead focus on the quality of scientific evidence linking a stormwater pollutant (including both toxicity and load) to water quality. Given that this literature is substantial, we will prioritize a high-level review for helping jurisdictions to use the scientific evidence base to prioritize which pollutants to focus on. Our goal is to produce a hierarchy of problems, similar to the one produced by the 2011 [Puget Sound Toxics Assessment](#). This hierarchy and evaluation of the quality of the existing evidence base will inform the decision-support tool in Task 4.

Table 2. Task 2 Deliverables and Schedule

Deliverable	Costs	Target Date
D2.1 Draft key informant interview questions; list of entities to contact	\$9,898	Q1
D2.2 Report on key informant interviews	\$12,653	Q1
D2.3 Draft web survey, with input from TAC addressed	\$11,742	Q2
D2.4 Final web survey; report on survey - Phase I/II E&O programs	\$11,945	Q3
D2.5 Annotated Bibliography: studies linking stormwater to water quality	\$17,504	Q3
TASK TOTAL:	\$63,741	

TASK 3.0: ASSESS THE EFFECTIVENESS OF EXISTING E&O TOOLS NATIONWIDE

The goal of this task is to identify effective behavior changes tools by conducting a broad literature review of the effectiveness of E&O programs, organized by stormwater issue. The review will build on prior reviews (e.g. *Residential*

Stormwater Survey Public Attitudes, Awareness and Behavior, Cunningham Consulting, 2011, for Kitsap County) and will include studies from outside Washington State. Both peer-reviewed academic studies as well as the (much larger) gray literature of consulting and project reports will be reviewed. Coordination with the TAC and stormwater participants in the PNW Social Marketing Association will help identify studies. The research quality of each existing E&O evaluation study (High, Medium, Low) will be evaluated to inform the quality of the evidence base for each E&O tool. Where possible, the original questionnaires or survey instruments used will be collected. This information will feed into the website decision-support tool and E&O evaluation repository in Task 4.

Table 3. Task 3 Deliverables and Schedule

Deliverable	Costs	Target Date
D3.1 Draft synthesis and annotated bibliography	\$14,062	Q2
D3.2 Revised synthesis and bibliography, with input from TAC addressed.	\$14,062	Q3
TASK TOTAL:	\$28,123	

TASK 4.0: CREATE A WEBSITE DECISION-SUPPORT TOOL

The goal of this task is to develop an online tool to guide jurisdictions in prioritizing E&O efforts. The website, which will be accessible via the Washington Stormwater Center (WSC) website, will be modeled on an existing database of BMP effectiveness (bmpdatabase.org). It will include the effectiveness review material from Task 2. The website will also host a decision-support tool that jurisdictions can use to choose which stormwater problems and E&O efforts to target. The tool will allow flexibility given jurisdictions’ unique economic and ecological circumstances as well as draw on the nationwide evidence base about effectiveness. We will develop a draft mock-up of the site and decision-support tool to be shared with the TAC for their input. After addressing comments from the TAC, we will build and populate the website. We will then re-survey all jurisdictions who participated in the survey in Task 2 to gather additional feedback on how the usefulness of the tool could be improved. Finally, we will develop a transition plan that could be used (with subsequent funding) to add additional studies nationwide in a systematic and quality-controlled manner.

Table 4. Task 4 Deliverables and Schedule

Deliverable	Costs	Target Date
D4.1 Draft mock-up (using InDesign or similar) of E&O effectiveness archive (Task 3) and decision-support tool	\$10,727	Q2
D4.2 Revised mockup addressing comments from TAC	\$3,054	Q3
D4.3 Final website operational	\$28,962	Q4
D4.4 Report on survey jurisdictions testing website; website refinements	\$3,962	Q5
D4.5 Transition plan for making website sustainable after SAM funding.	\$3,150	Q5
TASK TOTAL:	\$49,855	

TASK 5.0: DEVELOP GUIDANCE FOR E&O EFFECTIVENESS EVALUATION AND REPORTING

Although Tasks 2-4 assist jurisdictions with developing targeted E&O programs, the permits (sections S5.C.11/S5.C.2 of the Phase I/II) also require that permittees develop a plan for monitoring and evaluating the effectiveness these programs. Task 5 is intended to develop tools that will guide jurisdictions through this process that aligns with Ecology’s vision for compliance. The first step is to develop a vision for the guidance documents by interviewing Ecology staff to identify the minimum effectiveness evaluation components and reporting requirements and Stormwater E&O Staff to identify their needs for guidance. In addition, we will collect feedback on the E&O QAPP Template (developed for studies conducted per S8. Monitoring and Assessment) by interviewing Ecology and Stormwater E&O Staff who have used or reviewed the template to identify what is helpful and areas for improvement. Interview responses will be used to develop a summary that outlines the vision for the guidance documents.

Possible types of instruments, data, and analysis methods used to measure effectiveness will be identified by conducting a literature search and interviews. In the context of E&O studies, instrument are surveys, interview questionnaires, observation logs, etc., which are used to measure effectiveness based on responses from people. Common types of data collected using these instruments are qualitative (data that cannot be converted to numerical values such as responses to open ended questions) and quantitative (data that can be converted to numerical values such as response to multiple choice questions). Interviews with stormwater E&O staff will also be conducted to identify the types of instruments and data that they currently use or are likely to use. A synthesis of the literature will be developed that provides an overview of the instruments, data, and analysis methods identified.

A draft checklist and report template will be developed. The established vision for guidance documents along with the results from the literature search will supply the requisite focus for these documents. The draft checklist will outline a step by step process for evaluating effectiveness of E&O programs and the report template will define the minimum content needed to meet permit requirements.

The final checklist and report template will be developed through pilot testing. The purpose of pilot testing is to verify that the documents will meet permittees’ needs and Ecology’s vision for compliance. This is expected to include a pilot test team of stormwater E&O staff (targeting six people) using the draft documents to evaluate their E&O programs. A rubric will be developed for the pilot test team to assess the checklist and template usability as well as provide comments for improving the documents. Next, we will meet with the pilot test team as a group to discuss their comments. In addition, the draft documents will be submitted to Ecology for their review and comment to verify they align with their vision for permit compliance. Comments collected will be utilized to develop the final checklist and report template.

Table 5. Task 5 Deliverables and Schedule

Deliverable	Costs	Target Date
D5.1 Draft Interview Questions	\$1,980	Q1
D5.2 Summary of Vision for Guidance Documents addressing TAC comments	\$6,116	Q1
D5.3 Summary of Instruments/Data/Analysis Methods & Interview responses	\$9,848	Q1
D5.4 Draft Checklist & Report Template; rubric for pilot testing	\$9,037	Q2
D5.5 Summary of the Results from the Pilot Testing	\$8,693	Q3
D5.6 Final Checklist and Report Template with TAC comments addressed	\$4,738	Q4
TASK TOTAL:	\$40,412	

TASK 6.0: REPORT STUDY FINDINGS AND DEVELOP TRAINING MANUAL

A whitepaper and factsheet will be developed to provide an overview of the completed work and report the study findings. Attachment 1 provides an outline of the whitepaper. A training manual will also be developed that is incorporated into the whitepaper. The training manual will provide guidance for applying the website decision-support tools developed during this project in a format that can be used for “just in time training” or as a workbook for classroom style training. The training manual will include examples that demonstrate the application of the tools, including analysis methods for evaluating effectiveness.

Table 6. Task 6 Deliverables and Schedule

Deliverable	Costs	Target Date
D6.1 Draft Whitepaper	\$11,507	Q5
D6.2 Final Whitepaper Addressing TAC Comments	\$3,665	Q5
D6.3 Draft Factsheet	\$5,280	Q5
D6.4 Final Factsheet Addressing TAC Comments	\$2,052	Q5
D6.5 Draft Training Manual	\$14,916	Q4
D6.6 Final Training Manual Addressing TAC Comments	\$535	Q5
TASK TOTAL:	\$37,954	

TASK 7.0: COORDINATE WITH TAC AND E&O COORDINATION GROUPS

The project team will form, coordinate with, and collect feedback from the TAC throughout the project. At the start of the project, we will finalize a committee of six to eight TAC members. Potential TAC members have been identified and are listed in the box below. Project team members will attend TAC meetings as needed to support communication and coordination of project concepts. We envision five formal meetings (approximately one per quarter) with the TAC; a project kick-off meeting and subsequent meetings to discuss TAC comments on project deliverables. Prior to each meeting, draft deliverables will be submitted to the TAC for their review and comment. The meetings will focus on discussions regarding deliverables and TAC comments. This provides an opportunity to confirm understanding of the intent of TAC comments before they are incorporated into the final deliverables. Preparation and follow up work for meetings includes developing and distributing a meeting agenda and meeting minutes to the TAC and developing a table of responses to comments on the task deliverables. Our budget assumes that two meeting will be held in person and the other three will be held via webinar.

Potential TAC Members
Eric Lambert, Clarks County
Peggy Campbell, Snohomish County
Michelle Perdue, Kitsap County
Ann Marie Pearce, Thurston County
Mary Eidmann, STORM
TBD – 2 City TAC Members

Table 7. Task 7 Deliverables and Schedule

Deliverable	Costs	Target Date
D7.1 List of TAC Committee Members	\$835	1 st Month of Project
D7.2 Meeting Agenda & Minutes; Comment Responses	\$4,319	Q1
D7.3 Meeting Agenda & Minutes; Comment Responses	\$3,517	Q2
D7.4 Meeting Agenda & Minutes; Comment Responses	\$3,832	Q3
D7.5 Meeting Agenda & Minutes; Comment Responses	\$4,004	Q4
D7.6 Meeting Agenda & Minutes; Comment Responses	\$3,517	Q5
TASK TOTAL:	\$20,015	

3. PROJECT TEAM DESCRIPTION

The project team combines extensive experience studying stormwater problems and solutions (Anand Jayakaran) with experience studying incentives and behavior change, including the use of social norms to induce behavior change (Joseph Cook). It also includes extensive experience designing, conducting, and evaluating the effectiveness of educational programs and managing stormwater research projects (Aimee Navickis-Brasch) and leading/coordinating with technical advisory committees (Laurie Larson-Pugh). The project team includes staff from Osborn Consulting and the Washington Stormwater Center. Brief descriptions of their relevant expertise are included in this section.



The Washington Stormwater Center (WSC), as the designated stormwater center for the State of Washington (RCW.90.48.545), has built an integrated stormwater program over the past nine years. As a partnership between Washington State University and the University of Washington, the WSC's primary mission is to provide stormwater leadership through research, education and training. Faculty at WSC have conducted award-winning research in stormwater runoff toxicology, and effective stormwater treatment practices that is widely published and accessed internationally. In addition, WSC staff work closely with several municipalities and have become the central point for stormwater research, technical and educational information to ensure these stormwater permittees successfully comply with stormwater permits. WSC prides itself in providing information that meets the rigorous academic and peer-review standards of a large research university.

WSC's role will be to ensure that the same rigor and peer review standards that they currently use are applied to this project. As an independent entity, WSC can provide a level of transparency and independence in how the information for this project is analyzed and synthesized. In combination with OCI, we have the requisite skills and staff to complete this project satisfactorily and inform the State of Washington's future stormwater permits and design manuals.



Osborn Consulting, Inc. (OCI) has extensive stormwater management experience, ranging from sizing stormwater BMPs to developing large stormwater capital improvement projects and planning efforts for local permittees. We consistently provide education and public outreach as part of this work, as well as the creative design and retrofits of detention, infiltration, and water quality treatment facilities. OCI provides stormwater research services for public agencies, which includes evaluating the effectiveness of stormwater management programs and specific BMPs, as well as the development of new treatment technologies.

KEY TEAM MEMBERS

Within the abbreviated resumes on the following pages, roles for the project key team members indicate the Tasks they will be leading. The project team is organized with the intent of providing collaboration and support across project team members and tasks to ensure a continuity of the project work.

JOSEPH COOK, PHD | WSU Principal Investigator & Lead for Tasks 2, 3, & 4; Task 5-6 Technical Support

Education: PhD, MS, Environmental Sciences and Engineering, University of North Carolina at Chapel Hill; BS, Natural Resources, Cornell University

Licenses/Registrations: Associate Professor (School of Economics), Washington State University, partial extension appointment on the economics and policy of green stormwater infrastructure (GSI).

Qualifications: Prof. Cook has over 20 years of experience as an environmental economist studying the preferences and behavior of households around the world. He joined WSU after ten years at the Evans School of Public Policy at the University of Washington. He has conducted 12 household surveys in six countries and was involved in two large randomized controlled trials (in California and Reno, Nevada) exploring how social comparisons reduce household water use. Joe has also consulted for the U.S. Millennium Challenge Corporation, the Asian Development Bank, the Hopi Tribe in Arizona, and Global Water Challenge.

Past Project Performance:

- **Streamflow Restoration Technical Guidance (to implement ESSB 6091), Department of Ecology.** Co-wrote report section on the potential role of economics in determining “Net Ecological Benefit” standard, including extensive annotated bibliography on valuing increased stream flows for fish.
- **Benefit-cost analysis of the Yakima Basin Integrated Plan (YBIP) Projects, Washington Legislature.** Team examined the benefits and costs of the components of the multi-billion-dollar YBIP. Cook led section on assessing the economic value of increased fish returns.
- **Technology for Trade: new tools and new rules for water use efficiency in agriculture and beyond, USDA National Institute of Food and Agriculture.** Co-PI leading component on simulation games to identify how irrigators interact with technologies and institutional innovations, and test behavioral responses and outcomes; manage direct budget ~\$550,000.

AIMEE NAVICKIS-BRASCH, PHD, PE | Project Coordinator (Task 1), Task 5 & 6 Lead, & Tasks 2-4 Technical Support

Education: PhD, Civil Engineering, University of Idaho; MS, Civil Engineering, Washington State University; BS, Mechanical Engineering, Gonzaga University

Licenses/Registrations: Civil Engineer, WA #45258; Adjunct Civil Engineering Professor at Gonzaga University

Qualifications: Aimee is uniquely qualified for this project with 27 years of stormwater experience, including serving as a PM/PI for multiple applied research projects with specialized expertise in educational, structural, and operational BMP studies. Aimee’s PhD dissertation focused on practical applications for stormwater management education and she has developed E&O tools used throughout Washington. Her approach to research incorporates Community-Based Participatory Research, where researchers, permittees, and regulatory agencies collaborate to produce findings that comply with policy requirements and inform practical applications. Aimee combines a mixture of solid project management understanding and a deep technical vision while balancing stakeholder needs to meet schedules and budgets.

Past Project Performance:

- **Eastern Washington Effectiveness Study Development, Eastern Washington Stormwater Collaborative Group (EWSWCG).** Aimee, as PM/PI for this project, assisted EWA permittees in meeting the Phase II NPDES Municipal Stormwater S8 Monitoring & Assessment requirements. Her work included developing QAPP templates for structural, operational, and educational effectiveness studies.
- **BMP Inspection & Maintenance Responsibilities for Privately Owned Facilities, Yakima County.** Aimee, as PM/PI, developed the Ecology-approved QAPP, designed survey and interview questions, will conduct interviews and data analysis, and develop final tech. evaluation report.
- **Back to the Earth, University of Idaho.** Aimee, as a research Assistant for this NSF funded project, was responsible for collaborating with Tribes to develop culturally relevant engineering curriculum focused on water quality, designed surveys and conducted interviews, analyzed qualitative and quantitative data, and developed the final report/publication.

ANI JAYAKARAN, PHD | Task 2 Technical Support, Project QA/QC, & Technical Resource

Education: PhD Agricultural and Biological Engineering; MS Civil Engineering, Ohio State University; BE Civil Engineering, Bangalore University, India

Licenses/Registrations: Associate Professor (WSU Extension), Adjunct Associate Professor (Clemson University), Civil Engineer WA #53011, SC#30732

Qualifications: Anand (Ani) is an Associate Professor with WSU Extension and the WSC. His role is to meet education and research needs in a region experiencing the impacts of high urbanization, and a changing climate. His work involves disseminating strategies to manage water resources using Green Stormwater Infrastructure (GSI) and

Stormwater Action Monitoring | Stormwater Education & Outreach Effectiveness & Guidance Study

Washington State University

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improving current engineering designs using ecological engineering principles. He aims to provide research-based solutions to stormwater managers through applied research and outreach.

Past Project Performance:

- **The Effectiveness of Trees in Mitigating Stormwater Runoff in Western Washington:** Ani is leading a technical team that is measuring the hydrologic budget of several native tree species, in order to quantify the individual trees play in the management of urban stormwater runoff.
- **The Effects of Mulch on Stormwater Treatment and Maintenance Effort in Bioretention Systems:** Ani is leading a multi-disciplinary team that is evaluating the role that mulch plays in altering flow and treatment in urban bioretention systems.
- **Stormwater Strategic Initiative Advisory Team Member:** Ani was appointed for a period of two years to this technical expert panel that makes funding recommendations, develops and monitors implementation strategies, and advises on key issues and barriers to progress in recovering and protecting Puget Sound.
- **Urban Stormwater Characterization, Control and Treatment:** Ani co-authored this article that was featured in Water Environment Research. <https://doi.org/10.3390/w11030520>

LAURIE LARSON-PUGH | Task 7 Lead, TAC Coordination, & Task 5 Technical Support

Education: Bachelor of Science in Landscape Architecture, WSU

Licenses/Registrations: Social Marketing Certification, U of W Professional Development

Qualifications: Laurie Larson-Pugh manages the WSC's Municipal Program. Working with permittees across the state Laurie provides products, resources, and training resources that they can use to successfully manage stormwater and stay in compliance with their permits.

Past Project Performance:

- **WSU Puyallup Research and Extension Center Clarks Creek Water Quality Science, Restoration and Education Implementation Program.** Laurie was science tech and project lead for the Clarks Creek project with the goal of identifying the fecal coliform sources contributing to contamination levels. She coordinated a citizen group to collect data, which identified people feeding a non-migratory hybridized duck as the source. She organized an E&O program that successfully changed human behavior, which resulted in reduction of fecal coliform levels below state requirements.
- **Washington State Stormwater Municipal Conference (MuniCon).** As manager of MuniCon, Laurie organizes and executes this conference focused on high-priority issues and challenges faced by Municipal NPDES permittees statewide. She works closely with a diverse group of permittees to identify priority topics and training needs relevant to the current permit requirements to develop conference content.
- **Business Inspection Group (BIG) Source Control Report.** As Project Lead, Laurie managed and assisted BIG in surveying WWA Phase I/II permittees regarding their source control programs. She worked with the City of Olympia to analyze the data used to create a resource for WWA Phase II permittees meet permit requirement S5.C.8.

4. PROJECT MANAGEMENT STRATEGY

Joseph Cook will serve as the Principle Investigator (PI). Aimee Navickis-Brasch, PhD, PE (PM) will serve as the project coordinator, holding monthly Project Check-In Meetings via webinar with the Ecology Project Manager and internally between members of the project team. The project will begin with an initial two-hour kick-off workshop with the team leads, Ecology, and the TAC in order to:

- Confirm the vision and goals for this study
- Identify studies/reports to include in the project literature search
- Identify Ecology and Phase I & II Staff to interview
- Define communication protocol and process for reviewing deliverables
- Schedule project milestone deadlines and future meetings
- Confirm plan for coordination with the TAC (Task 7)

The team will utilize proven internal controls to ensure a streamlined delivery of on-budget and on-schedule tasks throughout the duration of this project. Aimee will employ OCI's established and proven QA/QC policy and manual that are used on every project, for every deliverable. Professionalism is a core value at OCI and making sure we provide a quality product to our clients is the foundation of that value. Quality control begins with the individual and every team member is responsible for the quality of his or her work. We have processes in place to verify procedures and results at every step, resulting in a final product that meets clients' expected value outcome.

OCI has extensive experience managing large data sets across multi-disciplinary teams. We will utilize standardized templates and tools for collecting and managing data to ensure consistency across all team members. We will develop a project folder on a secure shared site that provides City of Tacoma Team, Ecology, and the TAC access to the collected information and project deliverables. We will use a comment/response table that outlines a consistent format for comments and tracking responses.

5. PROJECT BUDGET & SCHEDULE

Figure 1. Proposed Project Schedule

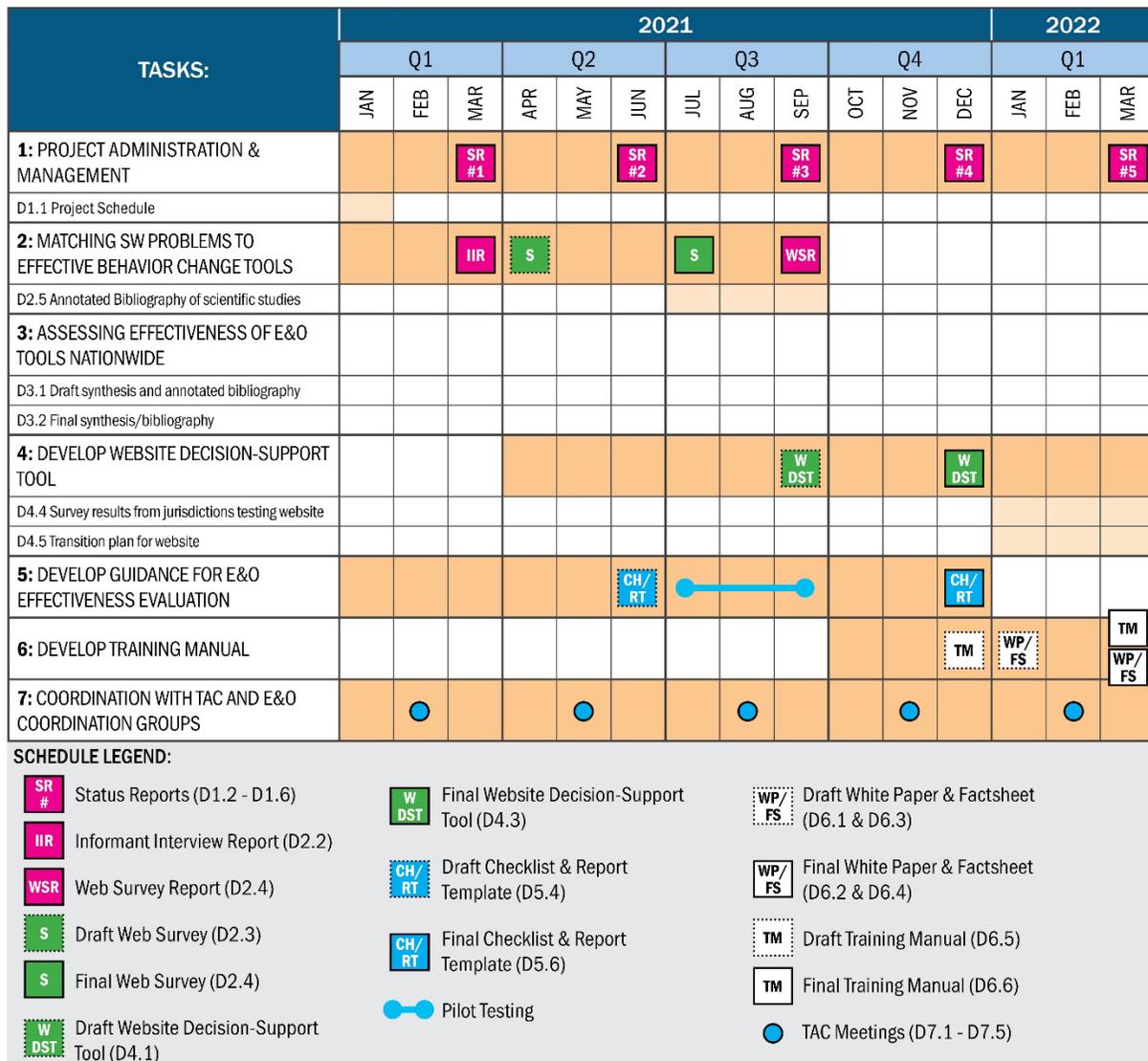


Table 8. Proposed Project Budget

Task #	Task Name & Deliverables	Estimated Cost
1	PROJECT ADMINISTRATION AND MANAGEMENT	\$20,954
2	MATCH STORMWATER PROBLEMS TO EFFECTIVE BEHAVIOR CHANGE TOOLS	\$63,741
3	ASSESS THE EFFECTIVENESS OF EXISTING E&O TOOLS NATIONWIDE	\$28,123
4	CREATE A WEBSITE DECISION-SUPPORT TOOL	\$49,855
5	DEVELOP GUIDANCE FOR E&O EFFECTIVENESS EVALUATION AND REPORTING	\$40,412
6	REPORT STUDY FINDINGS AND DEVELOP TRAINING MANUAL	\$37,953
7	COORDINATE WITH TAC AND E&O COORDINATION GROUPS	\$20,015
Total Estimated Cost		\$260,053

Attachment 1 – Overview of Whitepaper Table of Contents

Chapter Title and Description
Executive Summary Purpose: Provide an overview of the project, abbreviated responses to questions, recommendations for applying results, and recommendations for future work. The Factsheet developed will serve as the Executive Summary.
Chapter 1. Introduction Purpose: Introduce the project and provide an overview of the White Paper contents.
Chapter 2. Matching Stormwater Problems to Effective Behavior Change Tools Purpose: Provide a summary of lessons learned from key informant interviews, survey of jurisdictions, and overview of science linking behaviors to pollutants.
Chapter 3. Assessing Effective E&O Tools Nationwide Purpose: Provide overview of existing knowledge of how effective E&O programs have been in addressing stormwater problems.
Chapter 4. Website Decision Support Tool Purpose: Describe website decision support tool and provide directions for how jurisdictions might use it.
Chapter 5. Guidance for E&O Effectiveness Evaluation and Reporting Purpose: Provide an overview of the Task 5 work complete, a summary of the vision for guidance; summary of the types of instruments, data, and analysis method identified from literature; results from pilot testing; and final checklist and report template.
Chapter 6. Training Manual Purpose: Provide training and examples for applying the tools, checklist and report template, and website in a format that allows for both “just in time training” and classroom style training.
Chapter 5. Conclusion Purpose: Provide a summary of the work completed and recommendations for future work and/or research.
Appendix <ul style="list-style-type: none">• Interview Questions and Summary of Responses• TAC agenda, minutes, and responses to TAC comments

DATE MAY 15, 2020
TO DAN NORDQUIST, ASSOCIATE VP OF RESEARCH, WASHINGTON STATE UNIVERSITY
FROM TARELLE OSBORN, PE, PRINCIPAL, OSBORN CONSULTING, INC.
SUBJECT LETTER OF COMMITMENT REGARDING STORMWATER ACTION MONITORING (SAM)
EFFECTIVENESS STUDY & SOURCE IDENTIFICATION PROJECT

Dear Mr. Nordquist,

Osborn Consulting, Inc. (OCI) is committed to supporting the Washington Stormwater Center (WSC) to deliver the **Stormwater Education and Outreach: Addressing Challenges Through Behavior Change and Incentives and Permittee Guidance for Evaluating the Effectiveness**, funded by Stormwater Action Monitoring (SAM). We understand and are committed to meeting the schedule and budget of the project as described in the Request for Study Proposals and demonstrated in our team's proposal.

OCI's role on the consultant team includes:

- Project Coordination (Task 1)
- Task Lead for Developing Guidance for E&O Effectiveness Evaluation and Reporting (Task 5)
- Task Lead for Reporting Study Findings and Developing Training Manual (Task 6)
- Additional Technical Support for Tasks

Civil engineering for stormwater-driven projects is the core expertise provided by OCI. We have worked closely with permittees statewide for 15 years to develop innovative yet practical and cost-effective stormwater solutions. This experience allows us to efficiently evaluate site conditions, identify alternatives, and develop customized solutions to our clients' drainage issues, while also meeting Ecology's grant and stormwater management requirements.

Since 2004, OCI has successfully delivered innovative projects for our clients, including local cities, counties, ports, tribal districts, and neighborhood groups, as well as federal government agencies. We work collaboratively with our clients and project stakeholders to deliver high quality solutions to exciting design challenges in our region. Our locations in downtown Bellevue, Seattle, and Spokane allow us to provide our clients with quick response time and immediate accessibility to our experienced staff.

Sincerely,



Tarelle Osborn, PE
Principal
Osborn Consulting, Inc.