

General Information

Project Title	Wardwell Road/Bucsit Lane Water Quality and Stormwater Improvements
Project Short Description	Roadway reconstruction of Wardwell from Sportsman’s Club to Triple Crown Dr, installation of a fish-passage culvert, project installs infrastructure with water quality treatment such as vegetative filter strips and bio-retention, providing flow control, infiltration, and pollutant-removal to restore and protect private property and downstream ESA-listed (threatened)Coho and shellfish habitat in Woodward and Murden Cr and Murden Cove. Design project funded by the 13-15 Municipal Capacity Grant
Project Long Description	<p>Wardwell Road is in poor condition with substandard stormwater drainage infrastructure, with some areas having no controlled drainage at all. This results in sediment-laden water inundating private property, nearby wetlands and Woodward Creek (tributary to mainstem Murden Creek) in the Murden Cove Watershed-, carrying heavy metals, bacteria, excess nutrients, hydrocarbons, and other road runoff toxicants. Additionally, several intersecting gravel roadways with poor drainage contribute to observed water quality impacts. Not only does Murden Cove hold two statewide listings for water quality and habitat impairment, but City routine status and trends monitoring and targeted storm event water quality monitoring have identified impacts in sediment chemistry, water chemistry, shellfish and ESA-listed (threatened) Coho spawning habitat, and in-stream benthic macroinvertebrate diversity downstream of the project site in both Murden Creek and Murden Cove.</p> <p>In response to these observations, the City coordinated a partnership-based project (Murden Cove Watershed Project) involving local agencies, community volunteers, schools, and businesses to conduct characterization monitoring throughout the watershed, including the cove, to begin pollution source identification and elimination efforts. This partnership includes the Kitsap Public Health District, Bainbridge Island Watershed Council, Kitsap Conservation District, Sakai Intermediate School, Islandwood Homewaters Program, and Far Bank Enterprises.</p> <p>The proposed Wardwell Road Project was identified through the Murden Cove Watershed Project efforts and by city staff as an opportunity to reduce siltation and associated pollutant loads downstream in the watershed. Rather than patching and chip-sealing to address roadway surfacing repairs, City staff recommended a comprehensive reconstruction project with fish passage, drainage improvements designed to eliminate uncontrolled runoff, and stormwater quality treatment prior to discharge to associated wetlands and downstream waterbodies. The proposed work includes removal of surfacing, roadway</p>

General Information

excavation, conveyance installation and improvements, bio-retention swales (BMP), reconstruction of slopes with compost-amended vegetated filter strips (BMP), replacement of the fish passage culvert, fine grading to profile the roadway drainage, crushed surfacing, asphalt, shoulder dressing, and other work.

The design of this project was funded by the 2013-15 Biennial Municipal Stormwater Capacity Grant Program and completed in the summer of 2014. The project is anticipated to be construction-ready by the second quarter of 2015. This grant application is to fund the construction phase of the project in the summer of 2016

Total Cost \$930,181.00* Total Eligible Cost \$930,181.00*

Effective Date 7/1/2015 Expiration Date 6/30/2017

Project Category* Nonpoint Source Activity

- On-Site Sewage System
- Stormwater Activity
 - ✓ Stormwater Facility
 - Wastewater Facility

Will Environmental Monitoring Data be collected? Yes

Ecology Program Water Quality

Overall Goal The overall goal of the project is to provide drainage control that is currently substandard or lacking altogether, stormwater quality treatment, and fish passage via infrastructure installation, a fish passage culvert replacement, and enhanced road runoff treatment to include a rain garden, vegetated filter strips, and bioswales. This will control flow and allow for infiltration and pollutant removal, reducing the entrainment of sediment carrying metals, hydrocarbons, and other toxicants from the road surface to associated wetlands, ESA-listed (threatened) Coho habitat in Woodward Creek, Murden Creek and 303(d)-listed Murden Cove. Project drainage control measures will prevent inundation of adjacent private properties which consist of rural residential lots and small farms. This will reduce, to a limited degree, delivery of bacteria, phosphorus, nitrogen, and ammonia to adjacent surface waters from fertilizers, pesticides, household and yard wastes, and pet and livestock waste.

Recipient Contacts

Project Manager

Melva Hill
Melva Hill
WR Engineer
280 Madison Ave. N
Bainbridge Island, Washington
98110
(206) 780-3724

mhill@bainbridgewa.gov

Authorized Signatory

Kenneth Hammer
Kenneth Hammer
Engineering Manager
280 Madison Avenue
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Billing Contact

Melva Hill
Melva Hill
WR Engineer
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Bainbridge Island, Washington
98110
(206) 780-3724

mhill@bainbridgewa.gov

Other recipient signatures on printed agreement

To Add a Row

Enter a name and title

To Delete a Row

In the row you want to delete, remove the information in the

Recipient Contacts

When done, click the **SAVE** button
After SAVE, a new row will appear

Name
Douglas Schulze

Name and Title textboxes
When done, click the **SAVE** button
After SAVE, the row will be deleted
Title
City Manager

Water Quality Combined Financial Assistance

Organization: Bainbridge Island city of

WQC-2016-BainIs-00057

Location Information

Statewide * Yes No

Ecology Region * Northwest 100%
Click here to view map:

County * KITSAP 100%
Click here to view map:

Congressional District * District 06 100%
Click here to view map:

Legislative District * District 23 100%
Click here to view map:

WRIA * 15 - Kitsap 100%
Click here to view map:

Ecology Region Statewide 100%

County Statewide 100%

Congressional District Statewide 100%

Legislative District Statewide 100%

WRIA Statewide 100%

Latitude (expressed in decimals) 47.653925

Longitude (expressed in decimals) -122.528597

Facility Site ID

Facility Site Link

Scope of Work - Task 1 Project Admin: 1

Task Number	1		
Task Title	Project Administration/Management	Task Cost	\$39,610.00
Task Description	<p>A. The RECIPIENT will administer the project. Responsibilities will include, but not be limited to: maintenance of project records; submittal of requests for reimbursement and corresponding backup documentation, progress reports and recipient closeout report (including photos); compliance with applicable procurement, contracting, and interlocal agreement requirements; application for, receipt of, and compliance with all required permits, licenses, easements, or property rights necessary for the project; and submittal of required performance items.</p> <p>B. The RECIPIENT must manage the project. Efforts will include: conducting, coordinating, and scheduling project activities and assuring quality control. Every effort will be made to maintain effective communication with the RECIPIENT's designees; ECOLOGY; all affected local, state, or federal jurisdictions; and any interested individuals or groups. The RECIPIENT must carry out this project in accordance with any completion dates outlined in this agreement.</p>		
Task Goal Statement	Properly managed project that meets agreement and Ecology administrative requirements.		
Task Expected Outcomes	<p>* Timely and complete submittal of requests for reimbursement, quarterly progress reports and recipient closeout report.</p> <p>* Properly maintained project documentation</p>		
Recipient Task Coordinator			

Deliverable #	Description	Due Date	Received?	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
1.1	Progress Reports		(ECY Use Only)					
1.2	Recipient Closeout Report							
1.3	Project Outcome Summary Report							

Scope of Work - Additional Tasks: 2 - Construction Administration/ I

Task Number 2

Task Title Construction Administration/ I Task Cost \$63,376.00*

Task Description This task provides for addressing Ecology and other regulatory reporting requirements, and construction administration in accordance with City of Bainbridge processes and procedures. These tasks will be accomplished using existing City personnel. Staff salary and benefits are included in the City’s operating budget and no grant reimbursement is proposed.

Task Goal Statement Provide for the delivery of the construction phase of the project including meeting regulatory and reporting requirements.

Task Expected Outcomes Project delivered meeting budget, schedule, and scope requirements. Budget requirements include delivering the project within the authorized budget established for the project by the City. Schedule requirements include delivering the project within the grant program timeframe. Scope requirements include the description in the grant application, design requirements in accordance with the Contract, permitting and regulatory requirements, and grant reporting requirements, and City documentation requirements including acceptance of the work and payment approval.

Recipient Task Coordinator Bruce Oyloe

Deliverables

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 After SAVE a new row will appear
 Repeat these steps for each deliverable

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Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
2.1	Inspectors Daily Reports							

Scope of Work - Additional Tasks: 2 - Construction Administration/ I

2.2 Field Note Records

2.3 Pay requests

Task Number 3

Task Title Construction Phase Consulting Task Cost \$35,000.00*
Services

Task Description This task provides for contracted services for construction support by the design consultants and materials testing.

Task Goal Statement Quality control.

Task Expected Outcomes Project constructed in accordance with the Plans and Specifications and ensuring that materials incorporated meets the required specifications.

Recipient Task Coordinator Bruce Oyloe

Deliverables

To Add a Row

Enter a deliverable
When done, click the SAVE button
After SAVE a new row will appear
Repeat these steps for each deliverable

To Delete a Row

Delete data entered in a row
When done, click the SAVE button

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
3.1	submittals							
3.2	field reports							
3.3	test reports							
3.4	request for information							

Scope of Work - Additional Tasks: 4 - Construction Contract

Task Number	4		
Task Title	Construction Contract	Task Cost	\$792,195.00*
Task Description	Contracted road and drainage improvements		
Task Goal Statement	Perform physical work and documentation requirements in accordance with the Construction Contract.		
Task Expected Outcomes	Project constructed in accordance with the Plans and Specifications.		
Recipient Task Coordinator	Bruce Oyloe		

Deliverables

To Add a Row

Enter a deliverable
 When done, click the SAVE button
 After SAVE a new row will appear
 Repeat these steps for each deliverable

To Delete a Row

Delete data entered in a row
 When done, click the SAVE button

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
4.1	trip/weight tickets							
4.2	materials submittals							

Water Quality Combined Financial Assistance

Organization: Bainbridge Island city of

WQC-2016-BainIs-00057

Scope of Work Summary

Task Title	Task Cost
Construction Administration/ I	\$63,376.00
Construction Phase Consulting Services	\$35,000.00
Construction Contract	\$792,195.00
Project Administration/Management	\$39,610.00
	\$930,181.00

Total Eligible Costs
(from the General Information Form)
\$930,181.00

Water Quality Combined Financial Assistance

Organization: Bainbridge Island city of

WQC-2016-BainIs-00057

Subcategory

***Are you applying to refinance debt for a wastewater facility project that has been completed (i.e., standard refinance)?**

Yes No

Wastewater facility and stormwater facility projects with Preconstruction tasks may be eligible for up to 50 percent forgivable principal for the Preconstruction tasks.

***Is this a wastewater facility or stormwater facility project that includes Preconstruction tasks for which you are seeking funding and is the population of the community that will pay for the project less than 25,000 and is the median household income (MHI) of the community that will pay for the project less than the state MHI?**

Yes No

Projects or portions of projects that meet one of EPA's criteria for Green Project Reserve (GPR) receive priority for State Revolving Fund (SRF) loans and may be eligible for 25% forgivable principal for the GPR portion of the project.

***Are you willing to accept a SRF loan to pay for part of the project and may the project or a portion of the project meet EPA's GPR criteria and do you want to be considered for GPR subsidy?**

Yes No

Wastewater facility projects with Construction tasks may be eligible for grant, forgivable principal, and/or loan interest rates as low as 0% for the Construction tasks.

***Is this a wastewater facility project that includes Construction tasks for which you are seeking funding and is the population of the community that will pay for the project less than 25,000 and do you want to be considered for Financial Hardship subsidy?**

Yes No

Task Cost General Questions

Describe and provide calculations on how task costs were estimated. Explain how you calculated each task cost and why it is necessary for the project. Include steps taken to ensure the accuracy of cost estimates.

The design is 50% complete and an Engineer’s Estimate has been prepared by Map Ltd. Engineering. Engineer’s Estimates should be within 10% of the lowest qualified bid on the project and preferably slightly higher. A 25% contingency is used to ensure that the project can be delivered within budget. City staff reviews all estimates to ensure that the costs are in line with expectations based on historical bidding data. An allowance has been allocated for consultant services. Design consultant services (\$30,000 anticipated) and materials testing services (up to \$5,000 anticipated). Design consultant services include preparing bid documents, responding to request for information, reviewing submittals, and field observations. Material testing services include sampling and testing of embankment and surfacing materials. The project will be managed, administered, and inspected by the City’s Public Works Department at a cost not to exceed 8% of the construction contract.

Describe the process used to control costs and ensure that this is a cost-effective project (e.g., value engineering for facilities projects, cost analysis for activities projects). Show the relationship between the cost of the project and the water quality benefit achieved.

Experienced City Staff of professional engineers, scientists, and technicians work to develop projects, procure consulting services, and administrate and inspect construction. Staff’s role is to make sure that the projects are in line with overall objectives and ensure quality design and construction. The City is providing formal reviews of this project at 50%, 90%, and 100% completion. Staff has worked with the Ecology Project Manager and Engineer in the development of the design to ensure that the project meets grant program goals.

Hard surfacing and basic drainage conveyances will ensure that the roadway and fronting properties are adequately drained and erosion minimized ensuring a basic level of water quality for stormwater run-off. Utilizing bio-retention swales below conveyances with potential for erosion and vegetated slopes buffering wetland areas will reduce sediment loading and other pollution. The project employs only basic drainage conveyances with the addition of vegetative slopes to protect adjacent wetlands and bio- swales and rain garden that are targeted at specific problem locations. For this basic project Value engineering is not warranted. The project will be considered effective if there is reduced uncontrolled and sediment-laden runoff in roadway drainage and improved water and habitat conditions downstream .

Upload Documents

Click the browse button.

Select your file.

Click **SAVE**, your file will be listed in the uploaded files section

Repeat for each file

To Delete a file, select the Delete checkbox next to the file and click SAVE

Ecology Loan Funding Request

Wastewater Facilities projects are eligible for loan funding only. Subsidies (grants, forgivable principal, and reduced interest loans) are available for applicants qualifying for Hardship or Preconstruction funding.

Loan Amount Requested \$0

Additional Funding Information

What loan term do you prefer? * 5 years 20 years N/A

If you've already begun work on your project, are you seeking interim refinancing of the incurred costs? * Yes No

Ecology Grant Funding Request

This represents the amount Ecology may provide.

Nonpoint source activity projects may request grant funding for 75% of the total eligible project cost.

Ceiling amounts and match requirements depend on the project and source of funds (Refer to the SFY2015 Water Quality Financial Assistance Guidelines available for download on the Application Menu) Grant requests cannot exceed \$500,000 (requires cash match). A 25 percent match is required for nonpoint source activity projects. A 50 percent match is required for onsite sewage system repair and replacement projects.

Grant Amount Requested \$697,636.00

If Ecology is not able to offer you grant funds, will you accept loan funds for part or all of the eligible project costs? * Yes No

If yes, what is the loan amount you will accept?

If yes, what loan term do you prefer? 5 years 20 years

Include secured matching funds in the "Secured Funds" table. If you have any questions about what's required for match, please see the current Water Quality Financial Assistance Guidelines available for download on the Application Menu.

Do you have any other funds committed to this project? * Yes No
If yes, provide the following information: *

Secured Funds

Source	Type	Amount Committed
State/Federal agency:	Cash	
State/Federal agency:		
State/Federal agency:		
Interlocal contributions:		
Interlocal contributions:		
Local agency: Bainbridge Island Capital	Cash	\$232,545.00
In-kind contributions:		
Other:		

Water Quality Combined Financial Assistance

Organization: Bainbridge Island city of

WQC-2016-BainIs-00057

Project Information

What is the population served by the Project?	258
What is the population served by the System?	1,000
What is the population served by the Applicant?	23,196
Project Length in months: (The difference between the effective date and the expiration date on the General Information Page)	23
Estimated Initiation of Operation Date	10/1/2016
Project Start Date (The date the actual work will start, or if interim refinance, the date the work started)	5/15/2016

Please identify all 12 digit HUCs in which the project work will be done.
[Click here for a map.](#)

HUC Code	Percentage
171100190404	100%

Water Quality Combined Financial Assistance

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WQC-2016-BainIs-00057

Water Body and Water Quality Needs Addressed

Check all type(s) of water bodies that this project targets: *

- Freshwater rivers
- Freshwater lakes
- Freshwater wetlands
- Ground water
- Direct marine water
- Saltwater estuary
- Other (specify)

Check all the resource protection and regulatory requirements that this project addresses: *

- Endangered or threatened salmonids
- Other Endangered Species Act protected species (specify)
- Protection of shellfish habitat [Click Here](#)
- National Pollutant Discharge Elimination System (NPDES) permit requirements
- State Waste Discharge Permit
- Other (specify)

Check all the water quality parameters that this project targets: *

- Dissolved oxygen
- Sediment
- Nitrogen
- Fecal coliform
- Phosphorus
- Temperature
- pH
- Other (specify)

Identify the water bodies, any impairments (Category 4A, 4B, and 5 waters), and listing parameters that your project will address. [Click Here](#) for more information on Shellfish growing areas.

Enter a Water Body Name and Listing Detail ID

When done, click the **SAVE** button

After SAVE a new row will appear

Repeat these steps for each Listing Detail ID

Water Body Name	Listing Detail ID	Map Link
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Are you addressing a TMDL? * Yes No

If Yes, List the TMDL(s) your project is addressing

Water Quality Combined Financial Assistance

Organization: Bainbridge Island city of

WQC-2016-BainIs-00057

Water Body and Water Quality Needs Addressed

To select multiple TMDLs, hold down the control key as you select

To deselect a TMDL, hold down the control key as you select

TMDL Name

Stormwater Facility Project Information

Check all the type(s) of project that apply:*

Retrofit an existing stormwater facility

- ✓ Install accepted low-impact development (LID) techniques
- ✓ Retrofit project with LID components

New or retrofit construction of vector waste facility

Installation of pre-treatment/oil control facilities upstream of existing drywells

Stormwater quality treatment and flow control to reduce stormwater flows to combined sewers

Installation of TAPE-approved General Use Level Designation treatment technologies

Other (specify)

Planning/design stage completed for construction project:

Check only one of the three options below that represents the present proposal. *

Identify all prerequisite planning documents

Include attachments as necessary

Stormwater projects must be consistent with the Stormwater Management Manual for Eastern or Western Washington, or Ecology approved equivalent manual.

Project Type:

Stormwater Facility Planning and Design

- ✓ Stormwater Facility Construction

Stormwater Facility Design and Construction

Funding Prerequisite

Complete the Stormwater Project Analysis Form before submitting this application

Submit the plans and specifications with the application (upload documents below)*

SERP concurrence is required for stormwater construction projects

Complete the Stormwater Project Analysis Form before submitting this application

Complete the Stormwater Project Analysis Form before submitting this application

Upload Documents

Click the browse button

Select your file

Click **SAVE**, your file will be listed in the uploaded files section

Repeat for each file

To Delete a file, select the Delete checkbox next to the file and click SAVE

_Upload/13230-WARDELLBUCSITPLANS11-6-14(3).pdf

_Upload/13230_2-WardwellBucsitPreliminaryEngineerEstimate.KCHedits.pdf

_Upload/13230_3-WardwelDesignReport11-5-15.pdf

Project Permits:

Is this stormwater project required under a permit? * Yes ✓ No

If yes, provide the permit number

Stormwater Facility Project Analysis

Provide information on the designer and their qualifications including professional licenses, experience, and relationship with the applicant.

Include contact information for the designer.

Designer Name: MAP, Ltd., Silverdale, WA

Qualifications: Kenneth P. Fuhrer, P.E. and Susan P. Venard, P.E. make up the design team for this project. MAP Ltd. has 30 years of successful civil engineering experience. Their experience ranges from design of stormwater, water supply and sewerage facilities to site development. The engineers at MAP have experience in both the public and private sectors.

Contact Information: Kenneth "Pat" Fuhrer, PE 360-692-5525

Provide a project description that includes a location map and a topographical map of the drainage area overlain with project elements (buildings, swales, erosion control, structures, etc.)

These maps are included in the Design Project Report, attached and the soils map.

Upload Documents

Click the browse button.

Select your file.

Click **SAVE**, your file will be listed in the uploaded files section.

To Delete a file, select the Delete checkbox next to the file and click **SAVE**.

_Upload/13238-BASINMAP.pdf

_Upload/13238_2-WardwelDesignReport11-6-14.pdf

Provide the characteristics of the stormwater, including pollutant load and the land use in the area where the flow originates.

There is a discussion of the area, site, and basins in the attached Design Report.

Provide the design water quality and flow control flow rates for the project and a discussion of why the proposal flows are appropriate.

The attached reports address the flow rates and the water quality discussion.

If the project is a retrofit, provide discussion of how the proposed level of water quality treatment and flow control compare with the new and redevelopment standards.

Design Project Report contain the information from the Western Washington Hydrology Model 2012 outputs

If applicable, provide a discussion of the alternative projects evaluated and the reasons they are unacceptable

Stormwater Facility Project Analysis

This project Design Report addresses WQ and flow controls.

Provide the basic design data for the project proposal.

The project did provide for design alternatives and analysis in the attached Design Report.

If applicable, provide an estimate of the cost of the proposed project compared to the alternatives considered.

N/A

For infiltration sites, provide a discussion of the site suitability for the proposed project.

- * Include soil suitability to the site and depth to ground water if known
- * Include site characteristics that would likely yield a suitable site
- * Include the plan for further investigation that will be carried out in the design phase

Soils information is included in the attached.

Water Quality and Public Health Improvements

Define the water quality and public health problems the project will address.

Woodward Creek, Murden Creek, and Murden Cove provide critical habitat for numerous species that include mammals, shorebirds, shellfish and salmonids, specifically coho, chum, and cutthroat. Both streams and the cove are habitat for ESA-listed (threatened) Coho, and the cove lies within the Port Madison Commercial Shellfish Growing Area.

In addition to recreational shellfish harvesting, Island residents and visitors use Murden Cove for fishing, boating, kayaking, wading, and beachcombing.

Murden Cove is listed (Category 5) impaired waters for fecal coliform bacteria (Listing ID – 60190) and (Category 4C) impaired habitat for a continuous cover of ulvoid macroalgae (Listing ID – 21721) Further, based upon monitoring data submitted under previous Centennial Clean Water Fund Grant-funded monitoring, it is anticipated that Murden Creek will be listed (Category 5) impaired waters for fecal coliform bacteria in the upcoming draft statewide Freshwater Water Quality Assessment as well .

Through the elimination of uncontrolled and untreated sediment-laden road runoff which inundates adjacent wetlands, streams, and private properties surrounding the project site, this project will both directly and indirectly address these listings as well as the predominant water and habitat quality impacts observed downstream in Murden Creek and Murden Cove. The impacts were identified through the City's routine status and trends monitoring, targeted storm event water quality monitoring, and Murden Cove Watershed Project characterization monitoring. These impacts are detailed below.

Murden Cove routinely exceeds fecal coliform, temperature and dissolved oxygen criteria and periodically exceeds pH criteria. It routinely exceeds the chronic aquatic life criteria for ammonia, and periodically exceeds the acute aquatic life criteria as well. In addition to the continuous cover of nutrient-fed ulvoid macroalgae, Murden Cove warm weather algae blooms have increased in size and duration over the last few years (Eyes over Puget Sound, Ecology). Targeted storm event monitoring in Murden Cove shows high turbidity and suspended organic material, elevated nitrogen concentrations, chronic and acute aquatic life criteria exceedances for ammonia, and periodic chronic aquatic life criteria exceedances for copper during rain events.

Murden Creek consistently fails to meet state criteria for fecal coliform bacteria, temperature, and dissolved oxygen. It routinely exceeds the chronic aquatic life criteria for ammonia and typically presents phosphorous levels of the highest concern relative to other Puget Lowland Streams according to Ecology's Water Quality Index (>0.1 mg/L). Targeted storm event monitoring shows that Murden Creek additionally experiences high turbidity and excessive suspended organic material and periodically exceeds the chronic aquatic life criteria for aluminum during rain events.

City sediment sampling in the cove in 2008 identified the following toxicants: acenaphthylene, acenaphthene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene; fluorine, indeno(1,2,3-dc)pyrene, naphthalene, phenanthrene, pyrene, and motor oil/lube oil. Though sampling in 2013 saw decreasing concentrations of these elements in the cove, it identified increasing concentrations of diesel fuel/diesel range organics and first occurrences of bis(2-ethylhexyl)phthalate and butyl benzyl phthalate.

Sediment sampling in Murden Creek in 2008 found motor oil/lube oil, and 2013 sampling found new occurrences of diesel range organics, gasoline range organics, and butyl benzyl phthalate, as was found in the cove.

Lastly, evidence of sediment and metals impacts were observed in in-stream benthic macroinvertebrate diversity in Murden Creek downstream of the project site. Over the last seven years sediment-sensitive species have decreased from almost negligible to completely absent and sediment-tolerant species have fluctuated between 4.5% to greater than 19% of the total population. The Metals Tolerance Index has

increased to > 4, which indicates that heavy metals may also be impacting biological conditions. Overall, pollution-tolerant species have increased from <1% to 11.7% of the total population and pollution-intolerant species have decreased from > 21% to 10% of the total population.

Benthic macroinvertebrate diversity in Woodward Creek upstream of the project site measured in 2013 and 2014 demonstrated healthier, diverse populations with average population percentages of only 2.6% sediment-tolerant species, <10% pollution-tolerant species, and 58% pollution-intolerant species, as well as an average Metals Tolerance Index of <4, indicating that heavy metals do not appear to be impacting that location.

Describe the expected project results, including how the project will help achieve water quality and public health improvements and protection. For activity projects, describe the proximity of the proposed project area to specific water bodies.

The project is expected to provide drainage control that is currently substandard or lacking altogether and enhanced stormwater quality treatment. This will consist of traditional stormwater infrastructure enhanced by the addition of road runoff treatment to include a rain garden, compost-amended vegetated filter strips, and bioswales to control flow and allow for infiltration and pollutant-removal. These project components should disperse flow energy, allow for some infiltration and pollutant removal, and significantly reduce the entrainment of sediment in runoff, which carries heavy metals, hydrocarbons, and other toxicants from the road surface to Woodward Creek and, subsequently, Murden Creek and Murden Cove.

Additionally, project flow control measures are expected to prevent flooding and inundation of adjacent private properties which consist of rural residential lots and small farms. It is expected that this measure will reduce, to a limited degree, delivery of bacteria, phosphorus, nitrogen, and ammonia from fertilizers, pesticides, household and yard wastes, and pet and livestock waste to adjacent surface waters and wetlands.

However, this project is not designed to, nor expected to, address all of the water and habitat quality impacts observed. Based upon preliminary findings of the Murden Cove Watershed Project characterization monitoring, observed exceedances of physiochemistry such as temperature and dissolved oxygen at the Murden Creek long-term status and trends monitoring location appear to be land use/land cover influenced through the reduction of riparian habitat along some stream segments below the project site immediately upstream of the Murden Creek monitoring location. Although the proposed project may have an indirectly positive influence on those parameters, it is not expected to significantly address those challenges.

There is a second tributary, Meigs Creek, which enters mainstem Murden Creek at approximately the same location as Woodward Creek immediately above the long-term status and trends monitoring site. Meigs Creek flows through predominantly undeveloped wetlands and beaver habitat; however, there is some rural residential development and farms located adjacent to its headwaters which have a strong possibility of influencing nutrient and bacteria loading as well. Lastly, there are an additional 2 road crossings and 8-10 rural residential properties between the Murden Creek long-term status and trends monitoring location and Murden Cove.

However, these additional concerns are the focus of the Murden Cove Watershed Project partnership. As part of that project, the Kitsap Public Health District conducts door-to-door inspections of stream-adjacent properties to ensure proper on-site septic system performance, proper pet and livestock waste handling, proper household and food waste disposal, proper yard waste disposal, and responsible and limited use of fertilizers and pesticides. The City and the Kitsap Public Health District conduct joint shoreline surveys of properties along the cove, looking for sources of bacteria. The Sakai Intermediate School, Islandwood Homewaters Program, and the Bainbridge Island Watershed Council provide watershed-wide education

Water Quality and Public Health Improvements

and outreach focused on these pollutant sources. Lastly, the Kitsap Conservation District provides farm planning and technical assistance to farms in the watershed.

The proposed Wardwell Road project is a supplement to the Murden Cove Watershed Project efforts to identify and eliminate sources of observed pollutants and impacts in the watershed, and represents the City's commitment to reduce City stormwater drainage system impacts.

On a final note, Murden Cove is a bight along the central western Puget Sound shoreline and is subject to outside influence from other areas around Puget Sound. The Murden Cove bight is a deep, somewhat isolated, bight and is expected to have only limited exchange with Puget Sound, but that exchange has not been quantified. Recent nitrogen-cycling and loading research in Puget Sound suggests the ocean may be a significant contributor of nitrogen to the system (2014 Salish Sea Conference-Seattle, 2014 Joint Aquatic Sciences Meeting-Portland).

The project area lies on Woodward Creek and adjacent wetlands approximately ¼ mile above the confluence with mainstem Murden Creek. It is approximately another ¼ mile to the mouth of Murden Creek in Murden Cove.

Describe how much of the problem will be addressed by the project.

In terms of acreage of watershed, this project collects and treats 11.3 acres of the drainage basin approximately 1.5% of the 700 acres.

For estimating reduction in targeted pollutants, unfortunately, the City does not have a detailed watershed model that allows for more specific estimates using land use/land cover and hydrology. However, as part of the Murden Cove Watershed Project, the partnership collects monthly in-stream instantaneous flow measurements at all sampling locations. In May 2014, a sampling site co-located with the proposed project site at Wardwell Road was added. Therefore, the City has monthly in-stream instantaneous flow measurements for both the project site and the long-term status and trends monitoring site in Murden Creek downstream of the project area and the confluence with the second tributary, Meigs Creek. This allows for an, admittedly very rough, estimate of percentage of flow the Woodward Creek tributary contributes to overall flow at the long-term status and trends monitoring site in Murden Creek.

Preliminary examination of flow data indicates that the reach between the proposed project site and the downstream long-term status and trends monitoring site is a "losing" stream under baseflow conditions (dry season), meaning stream water is lost to groundwater and downstream flows are less than upstream flows. However, during high flow conditions (wet season), it becomes a "gaining" stream, with downstream flows higher than upstream flows.

Based upon this information, the City used flow measurements taken in only heavy rainfall months when most runoff occurs to calculate percentage of flow. Based upon 2014 City rain gage data, May (4.11 in), September (3.07 in), and October (4.52 in) were the heavy rainfall months in 2014. Monthly flow measurements for these three months were used to calculate a percentage of flow for each month. Then, monthly percentages were averaged to calculate an average percentage of flow from the Woodward Creek tributary of approximately 80% as measured at the project site.

Given that there are no other road crossings or other obvious sources of sediment, metals, hydrocarbons or toxicants along the Woodward Creek reach between the project site and the confluence with mainstem Murden Creek and the second tributary, Meigs Creek, the City calculated a very gross estimate that approximately 80% of runoff pollutants observed at the downstream long-term status and trends site on Murden Creek will be addressed by the proposed project (with the assumption that the remaining 20% is being carried by the Meigs Creek tributary which has a road crossing near its headwaters).

These are very gross estimates based upon gross assumptions with large margins of error. Therefore, the City is targeting at least a 50% reduction in road runoff pollutant concentrations at the Murden Creek

Water Quality and Public Health Improvements

long-term status and trends monitoring site.

Given all of the factors that impact the overall health of aquatic species, it is not possible to calculate a percentage of improvement to target in the benthic macroinvertebrate community. However, it is expected that we will see consistently improving stream benthic macroinvertebrate diversity (particularly in sediment-intolerant and metals-intolerant species) over time.

Describe how you will measure and document success of the project.

Short term success will provide for a successful control of drainage and prevention of inundation to private property and associated wetlands.

The City's routine status and trends monitoring and targeted storm event monitoring downstream of the project will continue into the foreseeable future. These monitoring results include water chemistry and physiochemistry, sediment chemistry and composition, flow, and instream benthic macroinvertebrate diversity. These data are routinely assessed and periodically reported via printed reports, webpage updates, and presentations to City Council and the community.

In 2015, the City plans to contract with scientists in the King County's Department of Natural Resources and Parks – Water and Land Resources Division to provide an in-depth assessment of the City's benthic macroinvertebrate community from eight Island locations sampled annually (including 2013-2015 data from two sampling locations within the Murden Cove Watershed; one upstream of the project site and one downstream). Land use/land cover data and hydrologic metrics calculated from the City's automated continuous flow gaging stations will be compared to benthic community species composition and diversity to assess land use/land cover and flow-related impacts to these communities. This work will be documented in a written report with associated maps, figures, and GIS files.

These monitoring and assessment efforts provide an excellent baseline to which post-project monitoring results can be compared.

Describe how you will sustain the water quality and public health improvements for the long-term. As appropriate, include information on how you will address long term operations and maintenance (O&M). Include information on any effort to implement green infrastructure, or energy or water efficiency elements into the project.

Long term operations and maintenance will be conducted regularly in accordance with the city's Municipal Permit and the requirements in 2012 Stormwater Management Manual for Western Washington. The City's routine status and trends monitoring and targeted storm event monitoring downstream of the project will continue into the foreseeable future. City staff will continue pollutant source identification and elimination for any continued or new impacts observed in the watershed through joint efforts or partnerships such as the Murden Cove Watershed Project and joint shoreline surveys, through Kitsap Conservation District technical assistance to farms, and through City NPDES permit Illicit Discharge Detection and Elimination efforts.

To ensure that the bio-swales and vegetative slopes are successful the project will include specifications for plant establishment and landscape maintenance for a period of two years. During that period the City's Operations & Maintenance group will work with Engineering (Landscape Architect on Staff) and the Landscape Contractor to develop a long term maintenance plan. The City currently maintains bio-swales and rain gardens on Winslow Way which are maintained by O&M. With the improving economy the City reinstated this past year a program to hire temporary additional staff in the summer (Spring through Fall) which has better positioned the City to address landscaping in general which has resulted in improved landscape maintenance at facilities within the right-of-way and on City owned property.

Answer whichever questions apply to your project

Describe how this project is specifically required by a state or federal agency. Provide reference or documentation including permit conditions, Ecology orders, court orders, or other correspondence.

OR

Describe how this project implements specific actions in a TMDL Water Quality Improvement Report, Water Quality Implementation plan, or Watershed-Based Plan that includes the Environmental Protection Agency's "Nine Minimum Elements" See Section I of this document

Bainbridge Island lies within West Puget Sound (North Central Action Area). The action agenda for this action area identifies 13 local priority issues to address pressures on the West Sound ecosystem. The proposed project specifically addresses 1) loss of intact freshwater ecosystems (pressure – Land Development), 2) transportation network (pressure - Land Development), 3) polluted runoff from the built environment (pressure – Stormwater), 4) alteration of the hydrologic regime (increased flow/flooding) (pressure – Stormwater), and 5) loss and degradation of freshwater habitats (pressure – Other).

This project is also in alignment with two of the three Puget Sound Partnership Strategic Initiatives: 1) Protection of habitat in support of salmon recovery, and 2) Protection of water quality and nearshore habitat from rural and agricultural runoff.

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If applicable, provide the name of the Ecology TMDL Lead or Stormwater permit manager and the last date of contact.

If in the Puget Sound basin (WRIAs 1-19), describe how the project meets the goals of the Puget Sound Partnership Action Agenda.

If you are a local government entity, in accordance with RCW 70.235.070, describe what policies or measures you have put in place to reduce greenhouse gas emissions apart from this project

If the project is a facility construction project, describe the design or construction elements that will result in

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Coordination with State and Federal Priorities

reduced greenhouse emissions in accordance with RCW 70.235.070

Project Team

Describe roles and responsibilities of each team member. Include contractors and partner agency roles, as applicable Include the estimated amount of time each team member will devote to the project. (For example, what percent of each team member's work week will be devoted to this project?) *

The project will be administrated and managed by the City of Bainbridge Island Public Works Department Staff: K. Chris Hammer, PE, PMP – Engineering Manager; Melva Hill – Engineer 1/Surface and Stormwater Program Manager; Cami Apfelbeck, M.S. Geological Sciences – Water Resources Specialist/ Water Quality and Flow Monitoring Program Manager; and Bruce Oyloe – Engineer 1 / Specializing in Stormwater projects.

The City of Bainbridge Island Public Works has both a Capital Group and Water Resources Group in its Engineering Department. The Capital Group has a proven track record of delivering a wide range of transportation, utility, and facility projects with valuations exceeding \$10M dollars. The City is one of few of its size to maintain a comprehensive water quality and flow monitoring program within its Water Resources group. These groups collaborate to develop and deliver water quality improvement projects. With a community with environmental aspirations and progressive staff water quality is an aspect of our culture . We challenge ourselves to develop projects that are appropriate for the context of our watersheds and innovative to address water quality.

The City is a small organization and the project is a collaborative effort of the individuals listed above in the Engineering Division and other work groups within the City including Planning and Community Development and Operations and Maintenance. Bruce Oyloe is the project manager. Bruce has over 25 years of experience in capital projects. He has been with the City for over 8 years and is known for his collaborative approach working with O&M, Planning, and outside agencies. Bruce and Chris Hammer have collaborated to evolve the City's stormwater utility capital program to be more comprehensive and address more complex projects.

The City has contracted civil engineering and surveying with Map Ltd of Silverdale, Washington to design this project and expects to contract with this firm to provide construction support services. Map has designed several storm water projects with for the City in recent years including the recently completed Dripping Water Creek Fish Passage Culvert project.

Describe the relevant skills and qualifications of each team member (do not submit resumes) *

K. Chris Hammer, PE, PMP – Engineering Manager. Chris has over 23 years of experience with a wide range of facilities, transportation, and utilities infrastructure projects. Chris has worked both as a consultant and for public agencies in a wide range of roles including management, project management, design, and construction administration and inspection. As Engineering Manager for the City for the past 4 years Chris has been responsible for developing the City's capital improvement program oversight of the delivery of storm-water improvement projects.

Bruce Oyloe - Engineer 1 has had over 35 years of experience with a wide range of military, public and private facilities, and utilities infrastructure projects. Bruce has worked both as a owners representative and for public agencies in a wide range of roles including project management, design, and construction administration, plan review and inspection. As Contracts Coordinator and Engineer 1 for the City for the past 8 years Bruce has been responsible for implementing stormwater projects within City's capital improvement program.

Project Team

Cami Apfelbeck, M.S. Geological Sciences – Water Resources Specialist/ Water Quality and Flow Monitoring Program Manager has been with the city for 6 years. Cami specializes in surface water and groundwater management, reporting and technical support including monthly status and trends monitoring, BIBI monitoring, groundwater monitoring, and sediment monitoring. She operates permanent monitoring stations and a weather station.

Melva Hill – Water Resources Program Manager/ Surface and Stormwater Program Manager has over 35 years of experience with a wide range projects types; utilities, transportation, fueling facilities including USTs,, facilities and transportation. As both a consultant and for public agencies she has served in a wide range of roles including program management, project management, plan review, design, construction and construction inspection.

Discuss your commitment to maintain staff competencies and responsibilities over the life of the project *

The City of Bainbridge Island maintains an Engineering Division that is capable of delivering a wide range of transportation, utility, and facilities projects. This includes designing basic project in house and managing larger value and more complex efforts designed by consultants. The division is sized to administer/ inspects construction of all projects including State and Federal grant funded projects. The City has a successful track record of developing and delivering capital projects including innovative and award winning projects such as the Winslow Way Reconstruction Project that received the Best City Project award from Federal Highways. This project incorporated many innovative low impact water quality elements into a parking intensive urban main street. The City developed the permeable gutter system for roadways an innovative targeted use of permeable concrete that is a practical solution to infiltrate roadway run off. This system allows infiltration along our roadways at higher location on the watersheds reducing the extent of tight lined conveyances.

Project Development, Local Support, and Past Performance

Describe the decision making process used to select this project. Describe efforts to include the community in the decision making process. Why was this project chosen as the best solution over other projects? If the project is described in a local plan, list and discuss the plan. *

Roadway repair and reconstruction has been a priority for the City/ City Council over the past few years following a period of financial hardship due to the economy when the City suspended its road preservation program for three years. This project is included in the City's 6 year capital improvement plan where it is programmed third in a group of six roadway reconstruction projects. The first of these projects is currently under construction, the second is scheduled to begin design this winter, and the third project (this project) is currently under design.

As the City develops projects we consider water quality within the context of the watershed to be an important consideration. Wardwell road is located within the Murden Cove Watershed. This watershed is currently the focus of a water quality project that is a collaborative effort between the School District , Kitsap County Health Department, and the City of Bainbridge Island. The City could simply repair the roadway surfacing of the existing roadway. This project represents an opportunity to provide drainage incorporating low impact development techniques to reduce sediment loading from intersecting roadways and lack of conveyances improving water quality to nearby wetlands and Murden Creek.

Describe how you plan to sustain the long-term water quality benefits of this project. *

The City's routine status and trends monitoring and targeted storm event monitoring downstream of the project will continue into the foreseeable future. City staff will continue pollutant source identification and elimination for any continued or new impacts observed in the watershed through joint efforts or partnerships such as the Murden Cove Watershed Project and joint shoreline surveys , through Kitsap Conservation District technical assistance to farms, and through City NPDES permit Illicit Discharge Detection and Elimination efforts.

To ensure that the bio-swales and vegetative slopes are successful the project will include specifications for plant establishment and landscape maintenance for a period of two years. During that period the City's O&M group will work with Engineering (Landscape Architect on Staff) and the Landscape Contractor to develop a long term maintenance plan. The City currently maintains bio-swales and rain gardens on Winslow Way which are maintained by O&M. With the improving economy the City reinstated this past year a program to hire temporary additional staff in the summer (Spring through Fall) which has better positioned the City to address landscaping in general which has resulted in improved landscape maintenance at facilities within the right-of-way and on City owned property.

Describe how you have developed and fostered local, regional and statewide partnerships that will contribute to the success of the project. Describe tangible contributions made by these partners. For nonpoint activity projects implementing BMPs, upload landowner agreements or letters of commitment. *

The proposed Wardwell Road project is a supplement to the Murden Cove Watershed Project efforts to identify and eliminate sources of observed pollutants and impacts in the watershed and represents the City's commitment to reduce City stormwater drainage system impacts.

Based upon preliminary findings of the Murden Cove Watershed Project characterization monitoring , observed exceedances of physiochemistry such as temperature and dissolved oxygen at the Murden Creek long-term status and trends monitoring location appear to be land use/land cover influenced through the reduction of riparian habitat along some stream segments below the project site immediately upstream of the Murden Creek monitoring location. Although the proposed project may have an indirectly positive

Project Development, Local Support, and Past Performance

influence on those parameters, it is not expected to significantly address those challenges.

There is a second tributary, Meigs Creek, which enters mainstem Murden Creek at approximately the same location as Woodward Creek immediately above the long-term status and trends monitoring site. Meigs Creek flows through predominantly undeveloped wetlands and beaver habitat; however, there is some rural residential development and farms located adjacent to its headwaters which have a strong possibility of influencing nutrient and bacteria loading as well. Lastly, there are an additional 2 road crossings and 8-10 rural residential properties between the Murden Creek long-term status and trends monitoring location and Murden Cove.

Therefore, these additional concerns are the focus of the Murden Cove Watershed Project partnership (Project Poster attached). As part of that project, the Kitsap Public Health District conducts door-to-door inspections of stream-adjacent properties to ensure proper on-site septic system performance, proper pet and livestock waste handling, proper household and food waste disposal, proper yard waste disposal, and responsible and limited use of fertilizers and pesticides. The City and the Kitsap Public Health District conduct joint shoreline surveys of properties along the cove, looking for sources of bacteria. The Sakai Intermediate School, Islandwood Homewaters Program, and the Bainbridge Island Watershed Council provide watershed-wide education and outreach focused on these pollutant sources. Lastly, the Kitsap Conservation District provides farm planning and technical assistance to farms in the watershed.

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_Upload/13289-2014_MurdenCoveWatershedPoster.pdf

Describe past project performance on similar water quality projects. Include overall management of project, meeting project timelines and deliverables, water quality benefits achieved, fiscal accountability, and water quality benefits achieved compared to project cost. *

The City of Bainbridge Island maintains an Engineering Division that is capable of delivering a wide range of transportation, utility, and facilities projects. This includes designing basic project in house and managing larger value and more complex efforts designed by consultants. The division is sized to administer/inspects construction of all projects including State and Federal grant funded projects. The City has a successful track record of developing and delivering capital projects including innovative and award winning projects such as the Winslow Way Reconstruction Project that received the Best City Project award from Federal Highways. This project incorporated many innovative low impact water quality elements into a parking intensive urban main street. The City developed the permeable gutter system for roadways an innovative targeted use of permeable concrete that is a practical solution to infiltrate roadway run off. This system allows infiltration along our roadways at higher location on the watersheds reducing the extent of tight lined conveyances.

Readiness to Proceed

Describe the steps you have taken to be ready to proceed immediately with the project. Provide detailed information and documentation on project elements such as status of designs, permits, interlocal agreements, landowner agreements, easements, other secured funding, staff, or agency approvals. If applicable, describe the environmental review completed such as: *

- * National Environmental Policy Act (NEPA)
- * Environmental Review Process (SERP) - ([Click Here](#))
- * State Environmental Policy Act (SEPA) - ([Click Here](#))
- * Cultural Resource Assessment - ([Click Here](#))

The design is 70% complete for the proposed project at the time of application. The final design will be completed by end of year 2014.

All permanent improvements will be located within the existing right-of-way. Temporary construction easements are desirable for transitions at driveways but not absolutely necessary at a few locations. The City has made initial contact with fronting property owners.

The City coordinated with ECOLOGY and Fish and Wildlife in developing the design. The City will be submitting SEPA and JARPA permits for the project by year's end 2014. The project requires some filling of wetland areas to provide for vegetative slopes. Securing a permit for this activity from the Army Corp of Engineers is expected to be the longest timeframe permitting item.

It is anticipated that project Contract documents will be on the shelf ready for construction and permits secured by end of year 2015.

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Application Modification Comments

Ecology Comments - Enter the date of the modification request and describe the modifications requested.

Please update Total Project Cost, Total Eligible Cost and Task Costs.

Total Project Cost = total cost of all water quality improvements

Total Eligible Cost = grant amount you are requesting from Ecology + your required match.

Please fix incorrect congression district.

Applicant Comments - Enter the date of the modifications made and describe the modifications made.

November 20, 2014. I have modified the Total Eligible Cost and each of the Task costs. Congressional District corrected.