Supplemental Budget Request

Status: Pending

Public Works **Stormwater**

Supp'l ID # 3166 **Fund** 364 **Cost Center** 364100 **Originator:**

Expenditure Type: One-Time **Year** 1 **2021** **Add'l FTE** ☐ **Add'l Space** ☐ **Priority** 1

Name of Request: Academy Rd Phase 2 Design

X 2/19/21

Department Head Signature (Required on Hard Copy Submission) **Date**

Costs:

Object	*Object Description*	*Amount Requested*
6110	Regular Salaries & Wages	$18,065
6290	Applied Benefits	$16,844
6630	Professional Services	$75,000
6699	Other Services-Interfund	$24,000
7199	Other Miscellaneous/Inte	$4,000
7380	Other Improvements	($51,074)
8301.132	Operating Transfer In	($86,835)
Request Total		***$0***

1a. Description of request:

The Academy Road Project Phase 1 was initiated on June 1, 2015. This project was a joint Whatcom County and City of Bellingham stormwater retrofit project focused on improving water quality in the Lake Whatcom Watershed. Whatcom County provided funding for the design and construction of the project, the City of Bellingham provided the property. The project construction began in the summer of 2015 and received final completion in May of 2016. The project has never met design treatment expectations due partially to excessive sediment fouling the treatment media in the treatment cells, high flows and greater quantity of flows than anticipated and a continuous base flow that didn't provide the treatment media sufficient dry out periods.

After several seasons of operation, it was determined that the system required an upgrade to obtain much better water quality treatment performance. The project is located wiithin Bellingham city limits. City of Bellingham is the intended permanent recipient of this joint project and is presently unwilling to accept this project in it's current state. Whatcom County has initiated two investigative efforts to better understand the current system's limitations and to verify actual stormwater flows. This information will be used as site specific background information in the desing and upgrade of this facility.

As an early implementation of this type of treatment cell and treatment media, many of the specific complexities of this type of system were not known and consequently not adequately accommadated in the final design. The majority of the funding was provided by a Washington Department of Ecology grant, partially as an incentive to try out this new technology. Since this project was installed much has been learned about the specific applications and limitations of this type of system. This project seeks to leverage that new knowledge and greatly enhance the performance of the current Academy Road Stormwater Improvement. This upgrade is being referenced as Academy Road Stormwater Improvements Phase II.

1b. Primary customers:

The City of Bellingham will be taking over the operation and management of this facility upon the successful completion of this upgrade. The 100,000 people and associated businesses that rely on Lake Whatcom are also beneficiaries of this project which is intended to have a long service life.

Supplemental Budget Request

Status: Pending

Public Works — Stormwater

Supp'l ID # 3166 **Fund** 364 **Cost Center** 364100 **Originator:**

2. Problem to be solved:

Whatcom County's investment in the Academy Stormwater Improvement Project is well over one million dollars. The City of Bellingham has also contributed the site which included demolishing an existing house. The value of lakeside real estate and the level of investment to date in this project justifies optimizing the performance of this under performing system. The City of Bellingham is currently unwilling to accept the project without improvements. The initial county/city agreement contemplated the city accepting the project functioning within the design parameters which the system is currently unable to do without upgrades.

3a. Options / Advantages:

After consulting with staff from the City of Bellingham's Stormwater and Maintenance and Operations divisions, Whatcom county solicited proposals for qualified firms to perform an evaluation of the Academy Road Stormwater Facility. In May of 2018, Whatcom County contracted with a local consulting firm to conduct that evaluation. The scope of the consultants contract and results were shared with City of Bellingham staff.

The three main areas evaluated were:
Are flows entering the treatment system higher that expected?
Are levels of Total Suspended Solids and debris entering the treatment system higher than expected? and
Is the hydraulic conductivity of the treatment media lower than expected.?

The guidance provided while useful was not intended to provide engineering level specifications for modifications to the system. Recommendations were divided between options possible to improve basic functioning (Tier 1), options for increasing performance within the existing structures (Tier 2) and options for increasing performance through additions to the existing facility (Tier 3). The report also recommended some near term (immediate) activities that could be done.

Since the completion of the report, the City of Bellingham has installed a pipe to greatly reduce the off site sediment entering the system, Whatcom County has initiated a water quantity monitoring study to verify actual flow rates as well as making minor modifications to improve existing performance of the system.

Options reviewed were, do nothing or make minor adjustments, increase performance to as close to original design treatment as possible using existing footprint as much as possible and redesign and construct an optimum treatment option.

We anticipate moving forward with the aim to achieve as close to the original design treatment.

3b. Cost savings:

Costs savings would result by improving efficiency of remova. The Total Maximum Daily Load (TMDL) requires the county and City of Bellingham to provide water quality removal where possible. The opportunities for installing systems of this size are limited within the Lake Whatcom watershed. Iincreasing the efficiency of the existing system is potentially more cost effective than leaving the system as is and developing new systems in the same basin area.

The combined city/county costs well exceed 1.5 million dollars to date. The potential that the area treated is actually bigger than initially determined and could contribute up to 50% more phosphorus. This project seeks to maximize the benefit of the current investment by adding additional treatment capacity to the same site. Every additional pound of phosphorus treated is leveraging the existing investment. For example, the current estimated treatment is 40 lbs annually. Since the system is off line half of the time then it is safe to use 20 pounds annually as the total treated amount. Calculating the cost per pound of phosphorus for treating the design target of 40 lbs at 1.5 million, the per pound cost is $37,500. If you reduce that to 20 pounds, which is now the case since the system is off line 50% of the time, the per pound cost is $75,000. Investing another $500,000 to achieve the original design treatment rate of 40 pounds would provide a $50,000 per pound treatment rate. If the system could be upgraded to treat 60 pounds for that same extra $500,000, the cost per pound would be $33,334 per treated pound.

An average construction cost per treated pound for the watershed has been calculated at around $50,000 per pound, which would be the original design outcome.

4a. Outcomes:

The outcome to be delivered is that the treatment system delivers the removal of 40 pounds of phosphorus annually. Currently the system is run at half capacity which at best is providing 20 pounds of remova; annually. Based on our recent evaluation, the contributing area is about 50% larger than initially determined which would potentially generate closer to 60 pounds of phosphorus annually. If it is reasonably feasible through the upgrade, the system would ideally treat 60 pounds annually.

4b. Measures:

Two options are available to determine if we have met our outcome goals. The first is to modify the system to provide continuous phosphorus removal, which would include multiple treatment cells to allow for adequate dry out period. The second method to measure success would be to modify the system as part of the upgrade to facilitate sample collection to verify treatment performance.

5a. Other Departments/Agencies:

The project is currently operated by the City of Bellingham Maintenance and Operations Department. At present the system is working at 1/2 capacity as the existing system is run online every other day to allow the media to have some dry out, which is essential for the media to provide phosphorus removal. Part of the up grade will further automate the system operation to reduce the time commitment for future operations.

The other group impacted is the Stormwater Division of Whatcom County Public Works. Design and construction management as well as project coordination with the City of Bellingham will fall to Stormwater staff.

5b. Name the person in charge of implementation and what they are responsible for:

For Whatcom County, Kraig Olason and Kevin Thompson will be the primary responsible individuals. For the City of Bellingham Mike Olinger, Assistance Director of Operation, Public Works, will be the county's primary contact.

6. Funding Source:

The $86,835 for this request will come from the existing project budget in the Lake Whatcom Stormwater Utility District. This will supplement REET funds that were already budgeted within the project for a current budget of $150k.