



Nonpoint Source Program Project Implementation Plan (PIP)

Project Title	Restore the Gore – Town of Vail Public Works Facility Nonpoint Source Project
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1.0 - Project Proposal Summary

Sponsor	
Organization Name	Town of Vail
E-mail address	kbertuglia@vailgov.com
Mailing Address	75 S. Frontage Road West
City, State and Zip	Vail, CO 81657
Telephone Number	970-474-3455
Tax ID Number: 84-0571385	DUNS Number: 100663637

Project Coordinator or Primary Contact	
Name	Kristen Bertuglia
Title	Environmental Sustainability Manager
E-mail Address	kbertuglia@vailgov.com
Mailing Address	75 S. Frontage Road West
City, State and Zip	Vail, CO 81657
Telephone Number	970-477-3455

Type of Entity (check on)	
<input checked="" type="checkbox"/>	Governmental Agency
<input type="checkbox"/>	Non-for-profit entity, including watershed groups
<input type="checkbox"/>	Commercial Organization

Project Start Date	Spring 2017	Project End Date	Fall 2018
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Project Funding	
CO NPS Funds Requested \$135,125 + Match (cash/in-kind) = 111,475 Total Project Cost \$246,600	
Federal Funds - Federal Cooperator Contribution (please do not include in the total) \$	

Project Location	
WQCC Regulation River Basin and Sub-watershed(s)	Upper Colorado River Basin, Eagle River Watershed, Gore Creek subwatershed. Station 357+50
Latitude (in decimal degrees): 39.642744 N	Longitude (in decimal degrees): 106.353556 W
12 digit USGS Hydrologic Unit Codes (HUCs)	HUC 1401000301



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Impaired Segment(s) Waterbody ID(s)	COUCEA08
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NPS Pollution Source categories to be addressed (Check all that apply)			
	Agriculture		Silviculture
	Habitat Modification (drainage/filling wetlands, stream bank destabilization)		Hydrologic Modification (changes to water flow as in reservoir, diversions, etc.)
X	Urban runoff/Unregulated stormwater		Groundwater Loading
	Mining		Natural Sources
	Construction		Other:

NPS Pollutants to be addressed (Check all that apply)			
	Excess Nitrogen	X	Pesticides
	Excess Phosphorus		Selenium
X	Sedimentation		Temperature
	Pathogens/Bacteria		pH
X	Metals		Habitat impact
	Low dissolved oxygen	X	Other: De-icing chemicals, runoff from fuel island and garage/vehicle maintenance

Estimate Load Reduction, if checked for excess nitrogen, excess phosphorus and/or sedimentation	
# pounds of nitrogen reduced by project	Reference:
# pounds of phosphorus reduced by project	Reference:
# tons of sediment load reduced by project Up to 80% of TSS/SSC by volume of stormwater delivered to combined treatment train.	Reference: Geosyntech and Wright Water Engineers, 2014; Contech, 2014; Contech 2015;
# pounds of metals reduced by project Total metals fraction sorbed to TSS/SSC portion of sediment particle size distribution will be reduced in direct proportion to the BMP's anticipated TSS/SSC reduction	Reference: Ibid; <i>sediment load reduction</i>
# pounds of selenium reduced by project	Reference:

Project Description: The Town of Vail Public Works Facility Nonpoint Source Project (“The Project”) will contribute to the restoration and protection of Gore Creek water quality by addressing polluted runoff at the Town of Vail Public Works Facility. This project will include the installation of multiple BMPs (bioswales/rain gardens, permeable pavers, jellyfish (filtration) stormwater quality vaults, and hydrodynamic separation devices) to address nonpoint source runoff generated at the site. The Project will also feature these constructed BMPs in public outreach and education materials.



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By signing and submitting the attached application, the authorized official agrees that the information provided in this application is, to the best of the applicant's knowledge and based on reasonable inquiry, true, accurate and complete.

Print Name and Title of Authorized Official: Kristen Bertuglia

Signature of Authorized Official: *Kristen Bertuglia* Date 1/8/2016



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2.0 - Statement of Need

Degraded aquatic life in small mountain communities is currently a widespread and serious water quality threat to Colorado's headwater streams, especially when considered in the context of increasing population and development pressures statewide. Since 2012, numerous miles of rivers in multiple towns received provisional 303(d) designations by the WQCD. As more biomonitoring data for in-town stream reaches become available, 303(d) listings for aquatic life use are likely to increase. Due to the difficulty of identifying specific pollutants and the distributed and costly nature of potential solutions, there are limited examples of success in addressing impairments.

Gore Creek is a listed 303(d) impaired water body that fails to meet aquatic life use standards. WQCD's 2012 provisional listing status indicated unknown impairment causes. Since then, the Town of Vail (TOV) and multiple partners developed the Gore Creek Water Quality Improvement Plan (WQIP). This plan combined and examined all prior data collected on Gore Creek to date to understand and identify impairment causes. The plan identified 1) *loss of riparian habitat and buffer*, 2) *impacts of impervious surfaces and urban runoff*, and 3) *pollutants associated with land use activities* as the primary causes. The WQIP also recommended corrective actions, options for funding, collaboration, and next steps to address the issue. In combination with the WQIP, several additional planning documents including the Eagle River Watershed Plan (ERWC, 1996 & 2013), the [Gore Creek Strategic Action Plan](#) (SAP) (Lotic Hydrological, 2015), and the Eagle River Inventory and Assessment (Bledsoe, 2006), substantiate a body of work equivalent to- or exceeding the Nine Element EPA Watershed Plan components for Gore Creek.

As defined in the WQIP, Gore Creek's impairment stems from nonpoint source pollution. The tandem structural BMP projects implemented through this funding will *promote current restoration and future protection* of the impaired waters. These characteristics wholly align the project's intent and actions with current Colorado NPS program priorities. The Strategic Action Plan defined over 220 action items for the Town of Vail to improve the health and water quality of Gore Creek. This project received a *high priority* designation due to its geographic location and anticipated benefits per dollar spent. Funding this project will enable the town to begin working through a series of structural and programmatic projects aimed at improving riparian areas and reducing impacts associated with nonpoint source runoff.

2.1 – General Watershed Information

Gore Creek is a 102 square mile subwatershed of the Eagle River in the upper Colorado River basin. The stream runs for 20 miles from alpine headwaters through an 8000' high valley to its confluence with the Eagle River. Land uses within the watershed include Interstate 70, a major ski resort, high and low density residential and commercial development, local water supply, and resource development. Urban development in the Town of Vail exists primarily on the valley floor adjacent to the stream. Drinking water for the town is sourced from the valley fill aquifer. Colorado River Watch, USGS, CDPHE, CPW, USFS, local governments, and local NGOs maintain numerous monitoring sites. Primary runoff pollutants come from urban surfaces and present issues during winter snowmelt, spring runoff, and summer/fall stormwater episodes. Pesticides, herbicides, and fertilizers contribute to pollutant load, as do habitat loss and physical alteration. The TOV Public Works facility is the largest impervious surface the Town owns and operates. Activities at the Public Works facility include vehicle maintenance, snow storage, waste management and landscaping. As such, the facility is a large contributor of sediments and chemical pollutants into Gore Creek.



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2.2 – Waterbody Description

Gore Creek (HUC 1401000301) drains subalpine and montane life zones on the western slope of the Continental Divide. The stream features a snowmelt hydrology, with a spring runoff season between March and July and highest flows typically occurring in late June. Additional high flows occur during late summer and early fall thunderstorms. Flows can peak at over 2500 cfs during runoff and near a low of 10 cfs during mid-winter. The entire WQCD 305(b) (USGS water body ID segment COUCEA08) occurs within town boundaries where the Creek flows for over 10 miles. Gore Creek is a 4th order stream in the town reach and frequently alternates between a Rosgen B-type and C-type channel morphology. While some segments are physically unaltered and maintain floodplain connections, many other segments are encroached by urban development and show signs of lateral and vertical instability. Glacial processes strongly affected the upper Gore Creek Valley, and today the valley bottom is covered in an alluvial aquifer of sand, gravel, and larger sized deposits. The majority of land in the alluvial valley floor is urbanized in association with the completion of I-70 and build-out of Town of Vail and Vail Mountain Resort between 1955 and present. Episodic stormwater data on complex organics including pesticides and herbicides are sparse; pollutant fluxes in these categories are believed to play an important role in degrading aquatic life. Despite failing MMI scores, Gore Creek manages to support a healthy trout fishery with Gold Medal designation and species of concern including cutthroat occurring in one small section of the town reach.

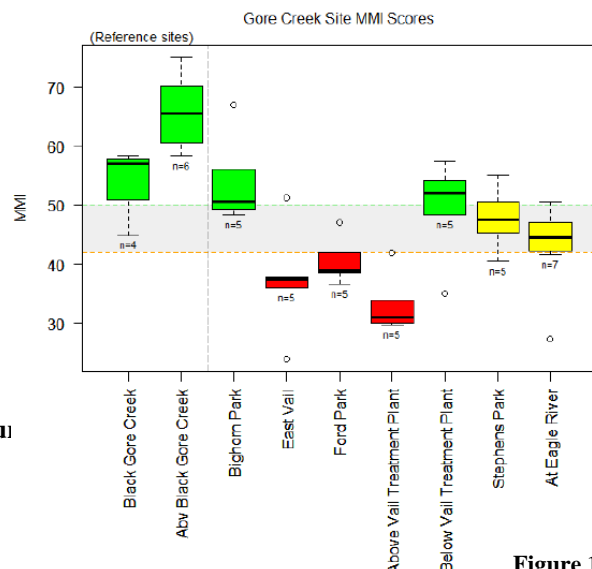
2.3 – Type of Water Quality Problem including Sources

Waterbody ID	Beneficial Uses	WQ Impairment	TMDL Status
COUCEA08	Aq Life Cold 1, Recreation E, Water Supply, Agriculture	Aquatic Life	NA (provisional listing)

Gore Creek has been provisionally 303(d) listed for aquatic life since 2012. Aquatic life is degraded by multiple pollutants and water quality stressors associated with urbanization of the Gore Valley. The Gore Creek WQIP identified the following issues as the primary causes for Gore Creek’s impairment:

- *Untreated stormwater runoff* from development including urban, residential, commercial, and recreational areas,
- *Pollutant loading from land management practices* including pesticides, herbicides, and fertilizers, as well as pollutants associated with snowmelt and runoff events; and,
- *Loss of riparian buffer, habitat, and wetlands* due to streamside development; with the concurrent lack of attenuation of the other two categories due degraded riparian conditions.

Macroinvertebrate community metrics, defined by the Colorado Multi-metric Index (MMI) fail to attain WQCD standards at multiple sites over multiple years (Figure 1). MMI results do not identify specific causes but indicate one or more systemic stressors which must be fully characterized by additional water





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quality investigations. USGS originally identified aquatic life impairment and directly linked it to urbanization in 2010 (Zuellig et al., 2010). Since then, numerous scientific investigations confirmed this condition (LRE WQIP, 2013; Lotic Hydrological Gore Creek SAP, 2015; unpublished datasets by ERWC, ERWSD, and TOV, available upon request).

Specific pollutant types, sources, and locations in the Gore Valley are too numerous to list. The WQIP and SAP highlight primary pollutant sources along with several hundred action items including site-specific projects, riparian restoration, structural BMPs, programmatic BMPS, and education/outreach efforts. These plans establish priority projects by level of anticipated impact and implementation feasibility.

The WQIP and SAP plans highlight the Public Works facilities as a significant source of polluted runoff that correlates strongly with the geographic start of impaired stream conditions. The types and frequencies of pollution-generating activities associated with the Public Works facilities coupled with the geographic correlation to impaired monitoring sites make this a high priority project. Public land ownership by the town and few permitting barriers establish a high feasibility for rapid project implementation.

2.4 – Water Quality Priorities

The WQIP concludes that higher pollutant loading is occurring from episodic runoff during snowmelt and stormwater events, which are difficult to capture and characterize by routinely-scheduled ambient monitoring. The town seeks to address this event-driven runoff loading by both reducing pollutant loads and interrupting transport pathways to Gore Creek. Reducing loads will occur via programmatic changes, changes to regulation, and education/outreach. Interrupting transport pathways will occur largely via riparian restoration and complete overhaul and upgrading of unregulated stormwater infrastructure to state-of-the science designs and LID installations. This project is an important component of interrupting transport pathways and was prioritized in the Gore Creek SAP.

The project is a single effort that represents one small part of the larger SAP. The SAP outlines a 5-year program of education and outreach, riparian habitat and streambank restoration, storm sewer upgrades and updates, monitoring, and a public-private cost share program to promote restoration on private property. The SAP defined over 220 action items for the Town of Vail to improve the health and water quality of Gore Creek. This project received a *high priority* designation due to its geographic location and anticipated benefits.

The public works facility is the primary hub for town maintenance and transportation activity, as well as an important snow removal storage site. All these activities are capable of producing significant pollutant load to stormwater infrastructure. The site contains around 440 acres of surfaces that house the town's bus, snow removal, and heavy equipment fleets. Daily maintenance and refueling activities take place onsite. The project location also contains a 200,000+ gallon fuel depot. TOV has budgeted \$2 million towards water quality improvement projects on Gore Creek, however the SAP has identified over \$7 million in project recommendations.

This specific project will enable the town to improve water quality in a location that generates a significant pollutant load. It serves as a publicly-owned pilot location that is easy to monitor and maintain, and that provides an important educational/demonstration location for the new technologies



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including rain gardens/bioswales, permeable pavers, hydrodynamic separation devices and/or jellyfish filtration devices.

2.5 - Map of Watershed Location (Attached)

3.0 - Project Description

This project consists of a combined unregulated stormwater treatment train of up to 3 bioswales/rain gardens (or larger acreage of permeable pavement) coupled with a hydrodynamic separation/filtration system. The BMP combo will treat unregulated stormwater runoff from the town's public works facility prior to entering Gore Creek via both passive and active mechanisms.

3.1 - Environmental and Programmatic Goals

The overarching goal of the project is to improve Gore Creek water quality by reducing the amount of pollutants associated with unregulated stormwater runoff and impervious surfaces, including hydrocarbons, TSS, metals and debris from nonpoint sources in order to reduce macroinvertebrate stressors in Gore Creek, improve conditions and habitat quality. These improvements in water quality will be through implementation of projects included in the Gore Creek Water Quality Improvement Plan.

The following excerpt from the Restore the Gore Strategic Action Plan defines the adopted goals of the town's efforts on Gore Creek's water quality.

Purpose Statement

To ensure that Gore Creek is an outstanding example of environmental quality, recreation and wildlife habitat in a world-class resort community. The Town of Vail is committed to restoring the quality of the water in Gore Creek to ensure it is removed, and is never again listed, on the Colorado Department of Public Health and Environment's list of "impaired" streams.

Goals

1. *Restore the aquatic insect population to exceed the minimum standard set by CDPHE according to the MMI score within the allotted 10-year time frame.*
2. *Ensure Gore Creek water chemistry meets or exceeds regulatory standards*
3. *Ensure sediment loads meet or exceed regulatory standards*

3.2 - Objectives, Activities and Products (Note: Costs are calculated in the Excel Workbook Budget Table)

Vail Public Works Facility Model Stormwater Control Nonpoint Source Project Goals	Improve water quality in Gore Creek
Objective 1	Reduce pollutant loading from public works facility by constructing a tandem BMP treatment train to address both sediment and chemical pollutant loading
Activity 1	Construct either (3) rain garden/bioswales or establish significant permeable pavement acreage
Sub-activity 1	Finalize BMP type and site design using preliminary designs from Strategic Action Plan cutsheets
Products	BMP design documents
Sub-activity 2	Construct at least one BMP in first year funding becomes available



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Products	Either a rain garden/bioswale or XX acres of permeable pavement
Sub-activity 3	Construct remaining BMP(s) in second year of project
Products	Either two additional rain gardens/bioswales or XX acres of additional permeable pavement
Activity 2	Construct a hydrodynamic separator vault or Jellyfish-type active filtration vault
Sub-activity 4	Finalize BMP type and site design using preliminary designs from Strategic Action Plan cutsheets
Products	BMP design documents
Sub-activity 5	Construct vault
Products	Hydrodynamic separator vault or Jellyfish-type active filtration vault
Objective 2	Feature project in public outreach-education about Gore Creek Restoration
Activity 3	Highlight town public works facility unregulated stormwater improvements in at least 2 public outreach/education venues or methods
Subactivity 6	Hold at least 1 public tour/demo in the first year after completion, possibly via a Watershed Wednesday on LID with the ERWC
Products	Tour/demo handouts and other educational materials; Sign-in sheets; feedback/survey results
Subactivity 7	Utilize project summaries, photos, and factsheets in social media and private landowner outreach campaigns for LID redevelopment
Products	Written and web-based outreach materials
Objective 3	Apply lessons learned to additional BMP installation throughout Gore Creek Watershed
Activity 4	Quantify pollutant reductions via performance monitoring
Sub-activity 8	Develop and implement a pre/post installation monitoring SAPP
Sub-activity 9	Evaluate attainment of ongoing load reduction targets for town shop BMPs
Sub-activity 10	Upload water quality data to STORET and BMP performance data to the International Stormwater BMP database
Products	Division-approved SAPP; data from SAPP implementation; documentation of water quality data upload to STORET; BMP performance report, including identifying load reduction targets, ability to meet those targets; documentation of upload of performance monitoring results to International Stormwater BMP database
Activity 5	Refine planning and design of additional watershed actions based on actual BMP performance
Sub-activity 11	Parameterize a stormwater model (example: EPA SWMM) using TSS/SSC and/or runoff volume results from Town Shop BMPs
Sub-activity 12	Finalize BMP designs for at least 2 space-short BMP locations in East Vail area using results
Products	Planning and BMP design documents
Objective 4	Administer the project
Activity 6	Evaluate the project's success in meeting anticipated outcomes and success measures
Activity 7	Manage the project
Products	Semi-annual and final NPS template reports; invoices with progress reports

3.3 - Environmental Permits

The Town of Vail permitting process applies, including Design Review Board Approval, engineering and erosion control plans, construction permits, and right-of-way permit from the Colorado Department of Transportation (CDOT) dependent upon installation of additional bioswale on north side of I-70.



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3.4 - Lead Project Sponsor Qualifications

The Town of Vail has hired a full-time Watershed Education Coordinator, invested in a substantial marketing and education campaign to raise awareness of issues facing the creek and has partnered with several local non-profits to plan and carry-out education, volunteer-driven restoration work, public presentations and symposia for the community. Town of Vail also has two environmental sustainability professionals on staff, as well as landscape architects, civil engineers and a flood plain engineer. Program oversight occurs via town council and intergovernmental partners such as the Eagle River Water and Sanitation District (ERWSD) and the local watershed NGO. In addition, the town has extensive experience partnering on prior NPS work addressing highway runoff and magnesium chloride, and traction sand impacts on Black Gore Creek along the Vail Pass I-70 corridor. Only one permitted discharger exists on the 303(d) reach - the water and sewer provider which is not identified as a primary contributing cause/stressor. The diffuse nature of causes and pollutant sources requires an inter-organizational approach in which the municipal government is the lead entity. By undertaking this Public Works Facility Nonpoint Source Project the Town of Vail is showing its commitment to restoring Gore Creek. Undertaking a major project like this demonstrates to the wider community that while the Town government is asking businesses and residents to make changes in landscaping practices, pest spraying and other activities, the Town is here to support them in those efforts and is also investing in updating its own facilities.

3.5 – BMP Operation and Maintenance

TOV is expanding stormwater BMPs throughout the community. This location is maintained by Public Works. Expected O&M activities include regular vacuum removal of accumulated pollutants in active separation devices, replacement of filters in treatment vaults, and as-needed cleaning of bioswales or permeable pavement surfaces to prevent clogging and performance decline. Operational knowledge gained at this location will benefit further planning, design, and installation of BMPs throughout the town, particularly with respect to permeable pavers which are often though to be unsuccessful in freeze-thaw environments and heavy road maintenance. The location is ideal for installation of advanced BMPs; it is fully under public ownership, allows for easy maintenance, is suitable for quantitative monitoring, and is accessible for outreach campaigns and video documentation of pollutant removal and effective infiltration similar to the City of Aspen's permeable paver parking lot site.

4.0 - Coordination Plan

4.1 - Lead Project Sponsor and Cooperating Organizations (*Complete in Appendix*)

TOV as the lead project sponsor assumes responsibility for match funding, design, build, and maintenance of the project. Cooperating organizations will included the Eagle River Water and Sanitation District (ERWSD), which water treatment and drinking water for the area, and the Eagle River Watershed Council (ERWC), which is a key stakeholder in all water resource related projects in the region.

4.2 - Local Support

TOV works with CDOT, ERWSD, ERWC, state and federal agencies, and other NGOs in the county to promote the health of Gore Creek and the greater Eagle River watershed. Within the community, the Vail Town Council has made Gore Creek health a top priority. This project is anticipated to receive full support of partners.

4.3 - Coordination with Other Projects and Organizations



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TOV is actively seeking and supporting projects relating to Gore Creek and is involved in habitat restoration projects and supports other monitoring and restoration work by ERWC. This project is part of the larger Gore Creek Strategic Action Plan and Urban Runoff Partnership. The Strategic Action Plan identified a number of unregulated stormwater and vegetation projects throughout town reach.

4.4 - Similar Watershed Activities

TOV has strong partnerships with area partners including ERWSD and ERWC. These organizations frequently communicate to leverage individual actions and avoid duplication of efforts. TOV currently engages many projects in the area such as River Watch chemistry monitoring, CPW fishery monitoring, ERWC sediment monitoring with CDOT on Black Gore Creek, and ERWSD stream health monitoring. TOV engages on these projects either through financial support or direct involvement. The Project addresses part of the larger unregulated stormwater runoff issue and avoids conflicting with other projects by occurring directly under town control on town-owned property.

5.0 – Project Evaluation and Data Management

5.1 - SAPP Development

SAPP Development will take place in coordination with TOV partners and/or subcontractors. To implement the WQIP and Strategic Action Plan, the town frequently works with engineering and/or water resource consulting firms to develop and identify projects and monitor impacts. TOV will partner with these entities to develop appropriate monitoring procedures for pre-and post-project tracking. The town or a subcontractor of the town will be responsible for developing the SAPP in accordance with NPS program recommendations and WQCD credible data criteria. Data will not be collected or sampling will not start prior to the SAPP being approved by the WQCD NPS Program Coordinator.

5.2 – Monitoring Strategy

Monitoring will be incorporated into annual stormwater system maintenance and operations by the town's Public Works Department and/or the Environmental Sustainability Department. Water quality monitoring will begin at the site and current storm drains to produce a pre-construction baseline. Water quality monitoring will measure sediment fluxes (via TSS or SSC), de-icer compounds and/or dissolved solids such as chloride (or a proxy such as TDS), and other pollutants associated with vehicle and machinery use such as oil/grease/hydrocarbons. Initial emphasis may focus on capturing first-flush events to quantify preliminary pollutant types and magnitudes. Long term emphasis should focus on quantifying BMP performance via the effluent probability method. Achieving this requires flow-weighted Event Mean Concentration (EMC) data for parameters of interest.

The ideal SAPP purpose is to secure appropriate data for construction of a parallel standard probability plot using the effluent probability method. This method is currently the most-recommended BMP performance evaluation criteria by EPA and the International Stormwater BMP Database. Constructing a plot requires a minimum of 5 and ideally 10 or more EMC estimations from individual storm events for both influent and effluent parameters of interest. Additional data from snowmelt runoff periods may be treated separately. The choice of monitoring parameters will dictate the feasibility and cost to produce these outputs. Pollutant surrogate parameters such as TDS and conductivity, and TSS or SSC, can be relatively inexpensive to collect and analyze locally. Additional parameters requiring third-party lab analysis may quickly escalate analytical costs and labor. Reasonable BMP flow-through discharge estimates at time-of-sampling are also necessary to estimate EMC for runoff events.



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A secondary data quality goal for BMP monitoring is provide data and statistical analysis of a type and quality that will be eligible for inclusion in the International Stormwater BMP Database

5.3 – Data Management:

TOV Environmental Sustainability staff will manage data and publically archive results via WQX/STORET and in TOV electronic storage. Staff will upload monitoring results either annually or after successive monitoring event results are available. Although data becomes publicly available without warranty to future use at the time of upload, TOV may share data with project partners prior to public release.

5.4 - Models

Lack of pre-installation load estimations for pollutant runoff at the facility hinders initial SAPP development. In addition to pre-project runoff monitoring to estimate pollutant load, a simple stormwater runoff estimation model such as EPA's SWMM may potentially be useful to estimate loads and set reduction targets for BMP performance. The small site size, simplistic runoff structure, and small number of BMP structures may aid in accurate and ease in parameterizing a model.

6.0 - Budget

6.1 - Budget Table (Attached)

7.0 - Public Involvement

7.1 - Process for Public Involvement

The Gore Creek Water Quality Advisory Committee is comprised of community stakeholders including contractors, homeowners, property managers, local non-profits, local businesses and quasi-governmental organizations. The committee provided input and approved the Restore the Gore Strategic Action Plan and is expected to provide additional input to any potential 319 nonpoint source projects. Funding will be distributed through the town council budget and contract approval process, which is subject to public comment. Each project was previously presented to the Planning and Environmental Commission at regular public hearings.

Appendix Contents

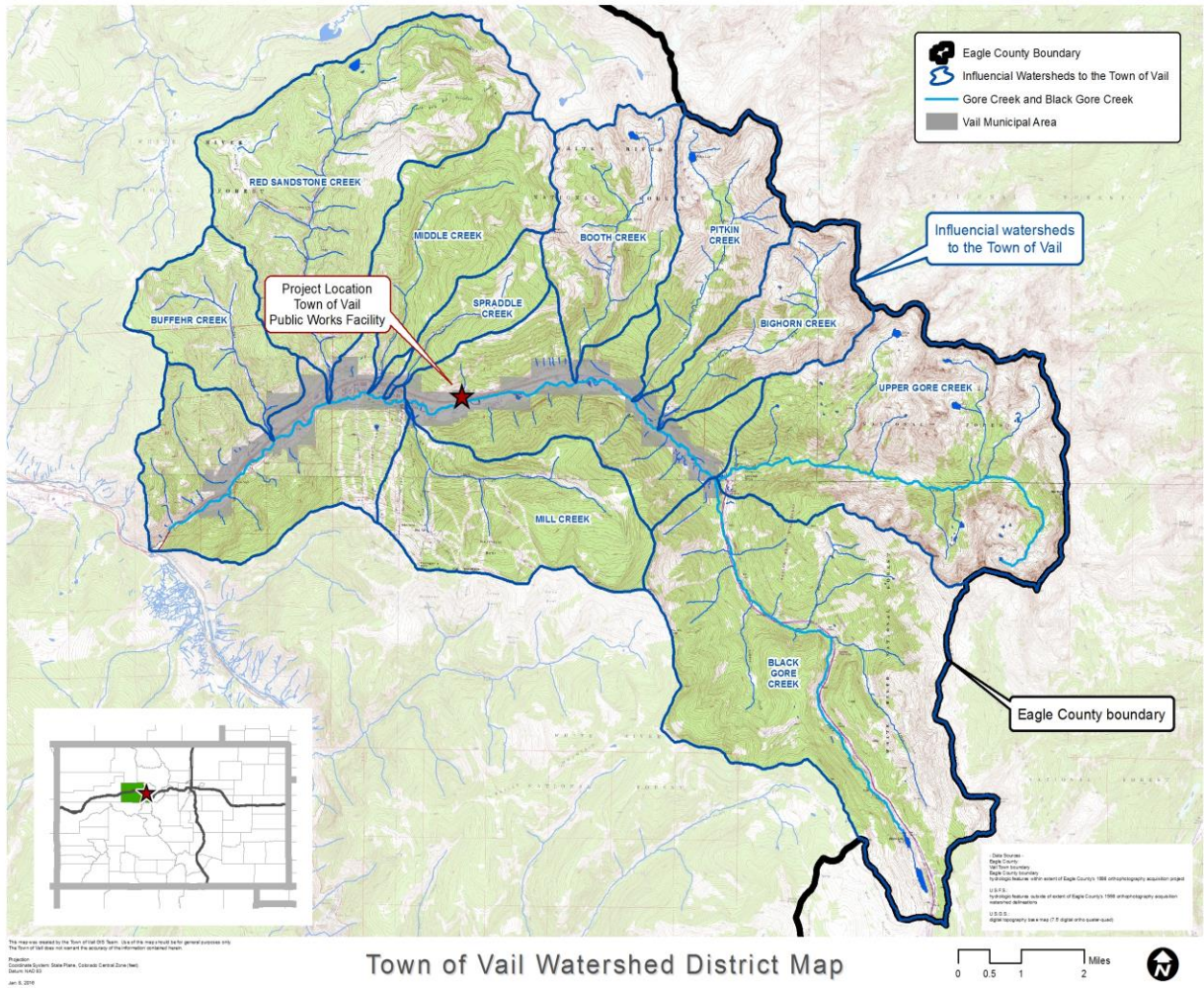
- A) Budget Table – See Submitted Excel Workbook
- B) Project Map
- C) Lead Project Sponsor and Cooperating Organizations
- D) Evaluation Table
- E) Preliminary Site Design from Strategic Action Plan-See Submitted PDF
- F) Town of Vail Financial Audit – See Submitted PDF
- G) Pre-Award Risk Assessment Questions- See Submitted PDF

APPENDICES:

B) 2.5 Map of Watershed Location:



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C) Lead Project Sponsor and Cooperating Organizations

Lead Sponsor



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Agency Name	Town of Vail		
Agency Address	75 S. Frontage Road West		
Role/contribution	Primary Sponsor and project management/execution		
Contact Person	Kristen Bertuglia	Telephone	970-477-3455
E-mail address	kbertuglia@vailgov.com		

Cooperators			
Agency Name	Eagle River Water and Sanitation District		
Agency Address	846 Forest Rd., Vail, CO 81657		
Role/contribution	Area body responsible for Sanitary and Storm Sewer systems		
Contact Person	Siri Roman, Waste Water Manager	Telephone	970-476-7480
E-mail address			

Cooperators			
Agency Name	Eagle River Watershed Council		
Agency Address	330 Broadway St., Eagle CO, 81631		
Role/contribution	Assistance in monitoring and public process, and data collection		
Contact Person	Holly Loff, Executive Director	Telephone	970-827-5406
E-mail address			

Cooperators			
Agency Name	Lotic Hydrological, LLC		
Agency Address	PO Box 1524, Carbondale, CO 81623		
Role/contribution	Consultant		
Contact Person	Seth Mason, Principal Hydrologist	Telephone	970-903-7561
E-mail address			

D) Section 5.2 Evaluation Table



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Environmental Goal: Improve Gore Creek water quality by reducing the amount of pollutants associated with stormwater runoff and impervious surfaces, including hydrocarbons, TSS, metals and debris from nonpoint sources in order to reduce macroinvertebrate stressors in Gore Creek, improve conditions and habitat quality.				
Programmatic Goal (s): Implementation of projects included in the Gore Creek Water Quality Improvement Plan				
	Responsible Party	Products or Outcomes	Evaluation Methods	Measures of Success
Objective 1: Reduce pollutant loading from the public works facility				
Activity 1: Construct rain garden/bioswales or permeable pavement	1) Eagle River Water & Sanitation District Lab	1) BMP design documents 2) Rain garden/bioswale permeable pavement	1) Degree to which designs meet industry standards 2) Degree to which as-built is consistent with design	1) At least 2 BMPs installed
Activity 2: Construct hydrodynamic separator or filtration vault	1) Town of Vail 2) Alpine Engineering	1) BMP design documents 2) Separator or filtration vault	1) Degree to which designs meet industry standards 2) Degree to which as-built is consistent with design	1) Remove at least 1 cubic yard of debris from separator every 6 months
Objective 2: Feature project in public outreach				
Activity 3: Highlight stormwater improvements in at least 2 public outreach/education venues or methods	1) Town of Vail 2) Lotic Hydrological	1) Handouts and other educational materials 2) Sign in sheets 3) Feedback/survey results 4) Written and web-based outreach materials	1) Completeness, accuracy, effective presentation of information 2) Number of participants 3) Number of favorable responses to feedback/survey 4) Magnitude of distribution	1) Materials meet evaluation criteria 2) At least 20 participants 3) 70% favorable responses in feedback/survey 4) At least 3 inquiries about transfer of technology in first year 5) 10 website visits in first year after completion
Objective 3: Apply lessons learned				
Activity 4: Quantify pollutant reductions	1) Town of Vail	SAPP Data Documentation of data upload BMP performance report Documentation of	Degree to which SAPP template is adequately completed Degree to which data quality objectives are met Completeness of data upload	SAPP approval 80% of the data quality objectives are met 100% of the data can be accessed in STORET 60% of the BMP performance



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		performance monitoring results upload	documented Degree to which BMP performance expectations are met (degree to which load reduction targets are met) Completeness, accuracy, quality control of evaluation, organization of the report Degree to which performance results meet International Stormwater database requirements	expectations are met Report meets evaluation criteria 100% performance monitoring results uploaded to International Stormwater database
Activity 5: Refine planning and design	1) Town of Vail	Planning and BMP design documents	Degree to which planning documents meet standard practices Degree to which design meets industry standards	Designs meet standard practices Designs meet industry standards
Objective 4: Administer the project				
Activity 6: Evaluate project success Activity 7: Manage the project	1) Town of Vail	Semi-annual and final reports Invoices with progress reports	Degree to which reporting templates are followed Completeness and accuracy of reports Degree to which reports and invoices are submitted on time	Reports meet template requirements Reports meet evaluation criteria 90% of reports and invoices are submitted on time



Colorado
Department
of Public Health
and Environment

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