Rock Creek Watershed Restoration Master Plan Technical Report

Volume 1 of 3

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City of Twin Falls

Rock Creek Watershed Restoration Master Plan



Rock Creek Watershed Restoration Master Plan Technical Report

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Document no:	260123101052_c9799994	**Project manager:**	Erin Cox
Revision:	Final	**Prepared by:**	Erin Cox, Amber Lefers, and Shannon Kronz
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Jacobs

999 W. Main St
Suite 1200
Boise, ID 83702
United States

T +1.208.383.6208
www.jacobs.com

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Acronyms and Abbreviations

Acronym	Description
AG#	Agricultural Project Number
AERP/EWRP	Aquatic Ecosystem Restoration
AACE	Association for the Advancement of Cost Engineering
BCA	Benefit-Cost Analysis
BMP / BMPs	Best Management Practice(s)
BRIC	Building Resilient Infrastructure and Communities
BLM	Bureau of Land Management
City	City of Twin Falls
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Fund
CAAP	Concentrated Aquatic Animal Production
CDS/CPS	Congressional Directed Spending
cfs	Cubic Feet per Second
DTM	Digital Terrain Model
EA	Environmental Assessment
EAA	Economic Adjustment Assistance
EIS	Environmental Impact Statement
EQIP	Environmental Quality Incentives Program
ERU	Equivalent Resident Unit
FEMA	Federal Emergency Management Agency
FWS	Free Water Surface
gSSURGO	Gridded Soil Survey Geographic
HRT	Hydraulic Residence Time
HSG	Hydrologic Soil Group
IDEQ	Idaho Department of Environmental Quality
IDWR	Idaho Department of Water Resources
IPDES	Idaho Pollutant Discharge Elimination System
ISDA	Idaho State Department of Agriculture
IDDE	Illicit Discharge Detection and Elimination
LWCF	Land and Water Conservation Fund
LWM	Large Woody Material
LOIs	Letter of Intents
LiDAR	Light Detection and Randing
LID	Low Impact Design
MCM	Minimum Control Measure
MODA	Multi-Objective Decision Analysis
NRCS	Natural Resources Conservation Service
P4P	Pay-for-Performance
lb	Pound
PB	Practice-Based
PIFR	Preliminary Investigation Feasibility Report
PL	Public Law
REM	Relative Elevation Model
RC#	River Corridor Project Number
Master Plan	Rock Creek Watershed Restoration Master Plan
STAG	State and Tribal Assistance Grants
sq mi	Square mile
SWMP	Stormwater Management Program
EVAAL	Erosion Vulnerability Assessment for Agricultural Lands
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TP	Total Phosphorus
TSS	Total Suspended Solids
TFCC	Twin Falls Canal Company
US#	Urban Stormwater Project Number
EPA	United State Environmental Protection Agency
EDA	United States Economic Development Administration
WWTP	Wastewater Treatment Plant
WEEG	Water & Energy Efficiency Grants
WIIA	Water Infrastructure Improvement Act

1. Introduction and Background

Rock Creek is a defining natural feature of the Twin Falls area, connecting upland, agricultural, and urban landscapes before entering the Snake River. Because it receives water from both natural sources and major irrigation systems, the creek functions within a highly managed and interconnected watershed. These complex hydrologic and land-use interactions shape the creek's current condition and underscore the importance of a coordinated approach to watershed management. This chapter provides an overview of the watershed, its key characteristics, and the regulatory considerations that guide the need for this comprehensive Rock Creek Watershed Restoration Master Plan (Master Plan).

1.1 Watershed Overview

Rock Creek flows through the City of Twin Falls and is a tributary to the Snake River (**Figure 1-1**). The 300-square-mile watershed is a mix of federal land primarily used for grazing, agricultural cropland, dairy production, and urban land use. The watershed starts in the South Hills, flows through agricultural range land and irrigated farmland before flowing through a downtown corridor in a confined canyon and eventually draining into the Snake River.

As with many creeks and rivers in the western United States, irrigation practices intermingle water from outside the watershed with Rock Creek flows. Most notably, the Twin Falls Canal Company (TFCC) High Line and Low Line Canals (**Figure 1-1**) both import Snake River flow to the Rock Creek watershed and export a portion of Rock Creek water to watersheds west of Rock Creek.

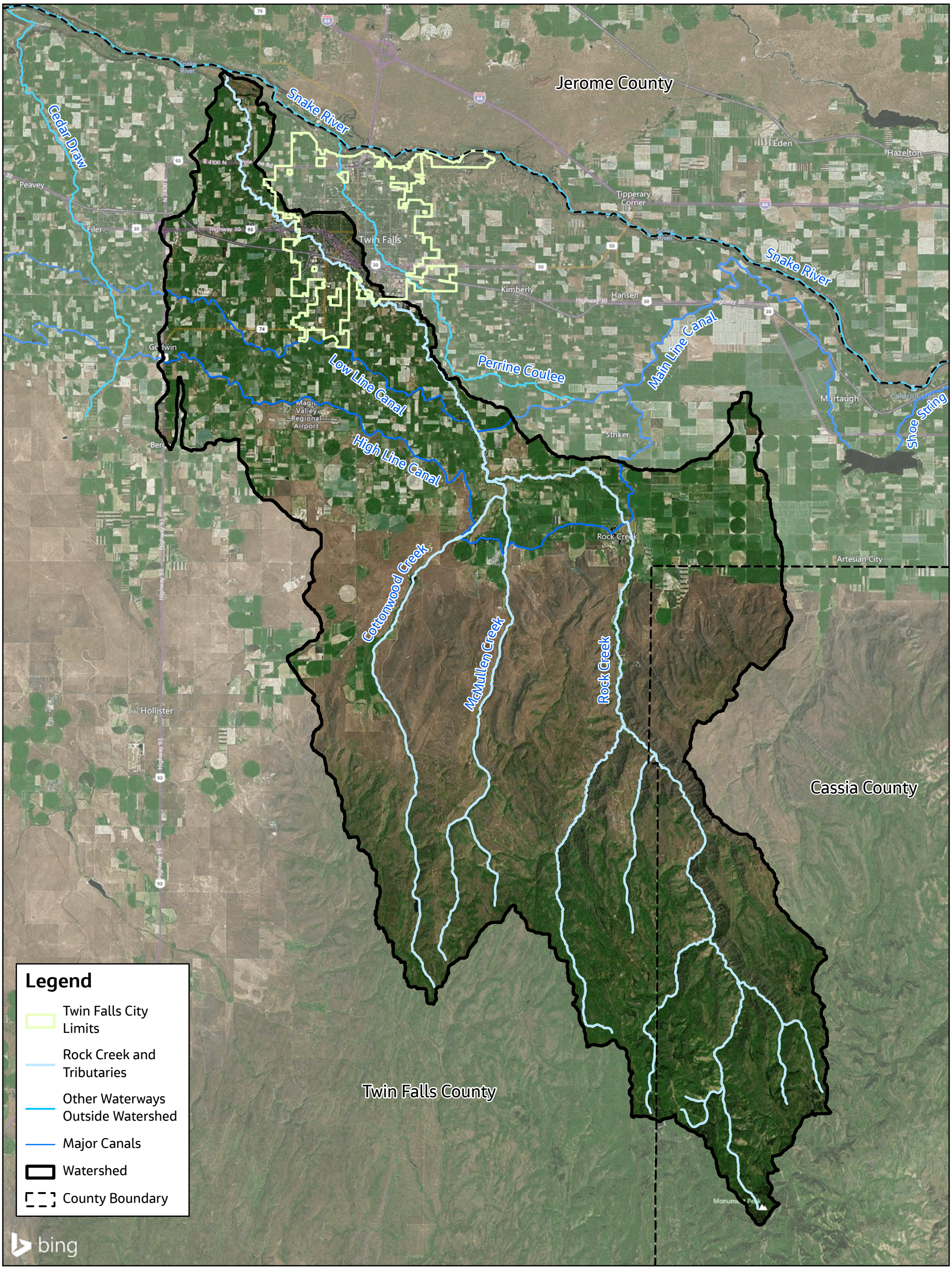
A more detailed watershed description can be found in **Chapter 2**.

1.2 Rock Creek History

Rock Creek's history is closely intertwined with the development of irrigated agriculture in the Twin Falls region. Beginning in the early 20th century, large-scale irrigation projects, most notably the TFCC system established in 1906, transformed the surrounding landscape into intensively farmed cropland dependent on diverted Snake River water. As the only natural perennial stream within the Twin Falls irrigation tract, Rock Creek became heavily influenced by irrigation return flows, tailwater runoff, and subsurface drainage rather than natural hydrology, especially during the summer months when it often ceased to flow without irrigation inputs. These irrigation practices, combined with highly erodible soils and historic reliance on furrow irrigation, contributed to chronic excessive sediment loads and nutrient-rich return flows.

Overlaying this agricultural legacy is Rock Creek's long-standing history as a municipal and industrial dumping ground. For much of the 20th century, the creek functioned informally as the City of Twin Falls' first sewer, receiving untreated wastewater and discarded materials before modern environmental regulations curbed these practices. Local officials acknowledge that "at one point in time it was really a dumping ground," a legacy still evident in the elevated sediment, phosphorus, and bacterial contamination documented in recent assessments. Although direct sewage disposal has ended, pollutants continue to enter through irrigation return flows, stormwater inflows, industrial inputs, and agricultural sources—issues being addressed today through federally-funded restoration efforts aimed at reducing sediment and nutrient loads, improving hydrologic function, and mitigating historic pollution impacts.

Continued urban growth in and around Twin Falls is expected to place additional pressure on the creek, increasing the potential for degraded water quality and regulatory scrutiny. These factors underscore the need for the Master Plan to guide restoration, address existing impairments, and maintain compliance with evolving state and federal water quality requirements.



Locator Map



Figure 1-1
Rock Creek Watershed Overview

Rock Creek Watershed
Restoration Master Plan

N

0 1 2 3 Miles

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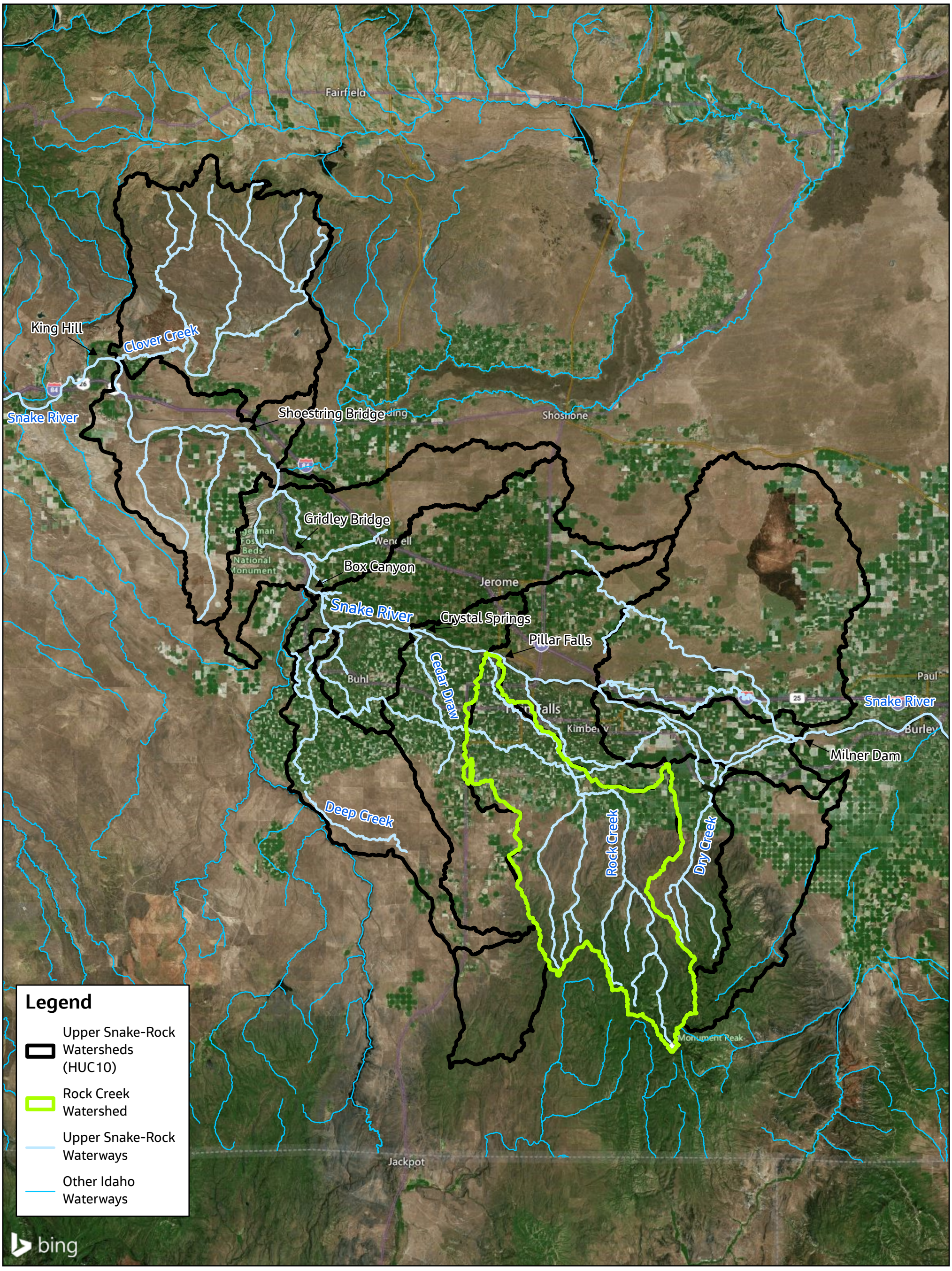
1.3 Regulatory Context

While the passing of the Clean Water Act in 1972 and improvements to cropping and irrigation practices have improved Rock Creek's water quality, current monitoring shows that elevated levels of nutrients, sediment, and bacteria remain persistent challenges. In fact, Idaho Department of Environmental Quality (IDEQ) water quality monitoring has identified Rock Creek as impaired for total phosphorus (TP), total suspended solids (TSS), *E. coli*, temperature, and flow regime modifications. Tributaries to Rock Creek including Cottonwood Creek and McMullen Creek are also listed as impaired for TSS, TP, and *E. coli*, reflecting the widespread impact of agricultural use and watershed alterations over the last century.

The Snake River, to which the City of Twin Falls' (City) Wastewater Treatment Plant (WWTP) discharges, is also impaired for TSS and TP. A total maximum daily load (TMDL) was prepared for the Upper Snake River watershed (of which Rock Creek is a tributary to, as shown in **Figure 1-2**) that sets water quality standards that would result in the Upper Snake River meeting the "fishable and swimmable" goals outlined in the Clean Water Act. According to the Upper Snake River 5-year review conducted in April 2010 (IDEQ 2010), implementation activities are underway in the watershed; however, water quality has continued to be an issue throughout the watershed (IDEQ 2019). Therefore, there is growing concern that the Twin Falls Wastewater Treatment Facility will be given more stringent effluent discharge limits as part of their regular permit renewal process. If that were to occur, costly upgrades to the facility would be needed.

To proactively improve water quality in Rock Creek (and correspondingly Snake River), this Rock Creek Watershed Restoration Master Plan aims to identify and prioritize projects and practices throughout the creek's watershed that the City can implement and support. As an added benefit to improving water quality in Rock Creek, the City also hopes that measurable reductions in TSS and TP in Rock Creek (and correspondingly Snake River) could be used to offset future reduction requirements for the City's wastewater treatment plant.



Locator Map



Figure 1-2
Upper Snake-Rock Watershed

Rock Creek Watershed
Restoration Master Plan

0 5 10 Miles

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1.4 Master Plan Funding

The Rock Creek Master Plan was funded by Congressionally Directed Funds obtained through US Representative Mike Simpson's office. Funds were distributed through the Natural Resource Conservation Service (NRCS). The total funding received was $5M; the Master Plan preparation cost a little less than $1M, leaving about $4M of already-allocated funding for moving some of the Master Plan recommendations.

1.5 Deliverables

Deliverables for this master plan include:

- Master Plan Report (this document) that identifies and prioritizes recommended water quality projects as well as documents the supporting work completed to prepare the master plan.
- Digital Story Map that has much of the same information as the master plan report but is intended for ongoing public outreach.

1.6 Data and References Used in Master Plan Development

Table 1-1 summarizes the data and references that were used in developing this master plan.

Table 1-1. Data and References Used in Master Plan

Data Category	Sub-Category	Data Description	Data Type	Data Source
Base Layers	Addresses	City of Twin Falls Address Points	GIS Points	City of Twin Falls
Base Layers	Basemap	2018 LiDAR	DEM	USGS (via the Idaho LiDAR consortium)
Base Layers	Basemap	Historic Aerials	Imagery	USDA, Google Earth
Base Layers	Basemap	Impervious Data	Raster file	MRLC
Base Layers	Boundaries	City of Twin Falls Address Parcels	GIS Polygons	City of Twin Falls
Base Layers	Boundaries	Cassia County Ownership Parcels	GIS Polygons	Cassia County
Base Layers	Boundaries	Twin Falls County Ownership Parcels	GIS Polygons	Twin Falls County
Base Layers	Boundaries	City Limits	GIS Polygons	City of Twin Falls
Base Layers	Boundaries	County Boundaries	GIS Polygons	Twin Falls/Cassia County
Base Layers	Boundaries	TFCC Boundary	GIS Polygon	Jacobs (originally TFCC)
Base Layers	Boundaries	Irrigation Organizations	GIS Polygon	IDWR
Base Layers	Land	ID Surface Management Agency	GIS Polygons	State
Base Layers	Land	National Structure Inventory	GIS Points	USACE
Base Layers	Land	Twin Falls Parks and Trails	GIS Polygons / Lines	City of Twin Falls
Infrastructure	Canal	TFCC Features from 2005 (Flow gage, seep, pond, spill)	GIS Points	TFCC from 2005
Infrastructure	Canal	TFCC Siphons	GIS Points	TFCC from 2005
Infrastructure	Canal	TFCC Headworks	GIS Points	TFCC from 2005
Infrastructure	Canal	TFCC Common Points	GIS Points	TFCC from 2005
Infrastructure	Canal	TFCC Checks	GIS Points	TFCC from 2005
Infrastructure	Canal	TFCC Automated Diversions	GIS Points	TFCC from 2005
Infrastructure	Canal	TFCC Deliveries (Headgate, tap, tap gate)	GIS Points	TFCC from 2005
Infrastructure	Canal	TFCC Misc Points (Structures)	GIS Points	TFCC from 2005
Infrastructure	Canal	TFCC Waterways	GIS Lines	TFCC from 2005
Infrastructure	Canal	TFCC Water Storage Areas	GIS Polygon	TFCC from 2005
Infrastructure	Canal	Gravity Irrigation	GIS Lines	City of Twin Falls
Infrastructure	Canal	Pressurized Irrigation	GIS Lines	City of Twin Falls
Infrastructure	Canal	Irrigation Structures	GIS Points	City of Twin Falls
Infrastructure	Sanitary Sewer	Sanitary Sewer Vaults	GIS Points	City of Twin Falls
Infrastructure	Sanitary Sewer	Sanitary Sewer Manholes	GIS Points	City of Twin Falls
Infrastructure	Sanitary Sewer	Sanitary Sewer Lift Station	GIS Points	City of Twin Falls
Infrastructure	Sanitary Sewer	Sanitary Sewer Lamp Well	GIS Points	City of Twin Falls
Infrastructure	Sanitary Sewer	Sanitary Sewer Pressurized Mains	GIS Lines	City of Twin Falls
Infrastructure	Sanitary Sewer	Sanitary Sewer Gravity Mains	GIS Lines	City of Twin Falls
Infrastructure	Sanitary Sewer	IDEQ Wastewater Monitoring Wells	GIS Points	IDEQ
Infrastructure	Geospatial Water Quality	IDEQ Wastewater Reuse	GIS Polygons	IDEQ
Infrastructure	Sanitary Sewer	IDEQ Wastewater HMU Buffers	GIS Polygons	IDEQ
Infrastructure	Sanitary Sewer	IDEQ IPDES Outfalls	GIS Points	IDEQ
Infrastructure	Sanitary Sewer	IDEQ Wastewater Reuse Lagoons	GIS Polygons	IDEQ
Infrastructure	Stormwater	Stormwater Manholes	GIS Points	City of Twin Falls
Infrastructure	Stormwater	Stormwater Manhole Drains	GIS Points	City of Twin Falls
Infrastructure	Stormwater	Stormwater Junction Box	GIS Points	City of Twin Falls
Infrastructure	Stormwater	Stormwater Catch Basin	GIS Points	City of Twin Falls
Infrastructure	Stormwater	Stormwater InOut	GIS Points	City of Twin Falls
Infrastructure	Stormwater	Stormwater Lines	GIS Lines	City of Twin Falls
Infrastructure	Stormwater	Stormwater Retention Area (Previously Park WRA)	GIS Polygons	City of Twin Falls
Infrastructure	Stormwater	IDEQ SW Delineations	GIS Polygons	IDEQ
Infrastructure	Stormwater	Stormwater Problem Areas	GIS Points	City of Twin Falls
Infrastructure	Water	Observation Wells	GIS Points	City of Twin Falls
Infrastructure	Water	Vertical Shafts	GIS Points	City of Twin Falls

Data Category	Sub-Category	Data Description	Data Type	Data Source
Infrastructure	Water	Springs	GIS Points	City of Twin Falls
Infrastructure	Water	Tile Drain Manholes	GIS Points	City of Twin Falls
Infrastructure	Water	Wells	GIS Points	City of Twin Falls
Infrastructure	Water	Tunnel Portal	GIS Points	City of Twin Falls
Infrastructure	Water	Tunnels	GIS Lines	City of Twin Falls
Infrastructure	Water	Tile Drains	GIS Lines	City of Twin Falls
Infrastructure	Water	Culverts	GIS Points	ITD
Infrastructure	Water	Dams	GIS Points	IDWR
Infrastructure	Wells	Injection Wells	GIS Points	IDWR
Infrastructure	Wells	Wells	GIS Points	IDWR
Publication	Reference	2010 IDEQ Upper Snake/Middle Snake TMDLs 5-Year TMDL Review	Document	IDEQ
Publication	Reference	2005 IDEQ Upper Snake Rock TMDL Modification	Document	IDEQ
Publication	Reference	2000 IDEQ Upper Snake/Rock Subbasin TMDL	Document	IDEQ
Publication	Reference	1999 IDEQ Upper Snake Rock Watershed Management Plan	Document	IDEQ
Publication	Reference	1997 IDEQ Middle Snake River Watershed Management Plan	Document	IDEQ
Publication	Reference	2016 IDEQ Waterbody Guidance	Document	IDEQ
Publication	Reference	2019 IDEQ Rock Creek Monitoring: Annual Report FY 2019	Document	IDEQ
Publication	Reference	The National Stormwater BMP Database	Document	The Water Research Foundation
Publication	Reference	Tile and Tunnel Drainage System Presentation	Document	TFCC
Publication	Reference	2000 USGS Interagency Field Manual for the Collection of Water Quality Data	Document	USGS
Publication	Reference	1990 EPA Lessons Learned: Rock Creek, Idaho and Tillamook Bay, Oregon Rural Clean Water Programs	Document	EPA
Publication	Reference	2023 Herrera Design Guidance for Presettling Upstream of Bioretention Facility	Document	Herrera
Publication	Reference	2024 USGS Using repeat Lidar to identify streambank erosion hotspots in North Carolina	Document	USGS
Publication	Reference	2013 Relief Visualization Toolbox	Document	Kokaji, Z; Zaksek, K; Pehani, P
Publication	Reference	2025 TFCC Website	Website	TFCC
Water Quality	Parameter Data	IDEQ WQ Data	Numeric	IDEQ
Water Quality	Parameter Data	USGS WQ Data	Numeric	USGS
Water Quality	Parameter Data	USGS Flow data	Numeric	USGS
Water Quality	Regulations	IDEQ Streams TMDL	GIS Lines	IDEQ
Water Quality	Regulations	IDEQ IPDES Permits	GIS Points	IDEQ
Water Quality	Geospatial Water Quality	IDEQ Monitoring Locations	GIS Points	IDEQ
Water Quality	Geospatial Water Quality	USGS Monitoring Locations	GIS Points	IDEQ
Watershed	Agriculture	Feed Lots (CAFOs >300 and AFOs <300)	GIS Points	ISDA
Watershed	Agriculture	Dairy Locations	GIS Points	ISDA
Watershed	Agriculture	Historic Crop Types (2014 - 2023)	GIS Polygons	USDA CropScape
Watershed	Agriculture	Global Croplands Data	Raster	USGS
Watershed	Flooding	Flood Zones	GIS Polygons	IDWR
Watershed	Flooding	Flood Hazard Boundaries	GIS Line	FEMA
Watershed	Flooding	Flood Hazard Zones	GIS Polygons	FEMA
Watershed	Land Type	Soil Data	GIS Polygons	USDA NRCS
Watershed	Land Type	Land Cover	Raster	NLCD
Watershed	Land Type	Geology	GIS Polygons	USGS
Watershed	Waterbodies	Perennial Streams	GIS Lines	IDEQ
Watershed	Waterbodies	Synthetic Perennial Streams	GIS Lines	IDEQ
Watershed	Waterbodies	HU8 Wetlands	GIS Polygons	NWI
Watershed	Waterbodies	Waterbody	GIS Polygons	NHD
Watershed	Waterbodies	Flowline	GIS Lines	NHD

1.7 Other Rock Creek Efforts

Restoration efforts on Rock Creek have been ongoing since the passing of the Clean Water Act in 1972. Various large-scale restoration plans and projects in the Rock Creek watershed, funded through the 319 Nonpoint Source Management Program include, but are not limited to, the following projects:

- **2001 Preliminary Restoration Plan for the Twin Falls Aquatic Ecosystem Restoration:** This plan was developed to identify restoration projects of a degraded aquatic ecosystem and promote sustainable use of the Perrine Coulee and Rock Creek by improving its riparian and wetland function while allowing for recreation opportunities.
- **2003 Rock Creek Rehabilitation Project**: This project focused on using best management practices (BMPs) to rehabilitate the stream, banks, and riparian area, and remove the on-site contributions that negatively impact the soil and water. This project included building a sediment pond near Deadman Gulch, clean-up of debris and removal of non-native vegetation at the North Grandview Site, removal of concrete and construction of a wetland at the Colonial Concrete Property, and re-vegetation of the stream bank at the Boyd Estate.
- **2005 Rock Creek Native Recovery Project:** This project was sponsored by IDEQ and Twin Falls County Parks and Waterways, and it removed non-native vegetation and debris along a 0.25-mile stretch of Rock Creek in Rock Creek Park. Native trees, wetland plants, and native grasses were replanted along this same stretch.
- **2018 Stargazer Wetlands Project**: This project were constructed to reduce sediment, nutrients, and bacteria in the H, I, and J Coulee laterals before discharging into Rock Creek.

In addition to these 319 Nonpoint Source Management Program projects, TFCC has also constructed several sediment ponds along major canals prior to irrigation return water discharging to Rock Creek or its tributaries.

1.8 Master Plan Limitations

While the Rock Creek Watershed Restoration Master Plan provides a clear and comprehensive guide for long-term improvement in the creek's water quality, there are several limitations that are typical for many master plans.

Specifically, the Rock Creek Watershed Restoration Master Plan does not cover:

- Water quality in High Line Canal, Low Line Canal, and other irrigation canals / laterals, other than accounting for the aggregate effects that these canals have on water quality in Rock Creek and its tributaries.
- Water quality discharging directly from NPDES permitted discharge facilities, other than their aggregate effects on water quality in Rock Creek and its tributaries.
- Water quality in groundwater seepage drains and tunnels.

Other limitations include:

- The level of design for the recommended projects is considered "concept level", and therefore, changes between the concepts presented in this master plan and the final design are expected.
- Final construction and land acquisition costs are expected to vary from the costs presented in this master plan, in accordance with industry standards.

- Other than the water quality data and corresponding site observations made during those data collection efforts, this master plan uses publicly available data. As projects are selected for design, site-specific data will be collected, which may reveal differences between the public data used for the master plan and site conditions.
- Because of the significant irrigation imports and diversions along with the interaction between surface irrigation and shallow groundwater, it is not practical to develop a comprehensive hydrologic, hydraulic, and water quality model of the Rock Creek watershed. Therefore, sizing recommended projects was based on engineering judgment and industry guidelines.

2. Watershed Description

The Rock Creek watershed is located in southern Idaho and composed of multiple terrain types, soils, and land uses. Rock Creek begins as a steep, shallow stream from runoff in the South Hills and then flows through the agricultural lands before flowing through the southern part of the City of Twin Falls. Finally, Rock Creek flows down into the steep canyon before converging with the Snake River.

The following sections describe the Rock Creek watershed in detail.

2.1 Physical Setting

The Rock Creek watershed is 307 square miles (sq. mi.) and located mostly in Twin Falls County (78%) with the remaining portion of the watershed in Cassia County (**Figure 1-1**, shown previously).

The main stem of Rock Creek is about 60 miles long, with the creek's headwaters created by snowmelt and groundwater seepage in the South Hills. Rock Creek continues through mountainous terrain owned by the U.S. Forest Service (Cassia Division of the Sawtooth National Forest) and then flows through land owned by the U.S. Bureau of Land Management (BLM). Rock Creek then flows through privately-owned agricultural farmland and ultimately flows through the City of Twin Falls prior to discharging to the Snake River.

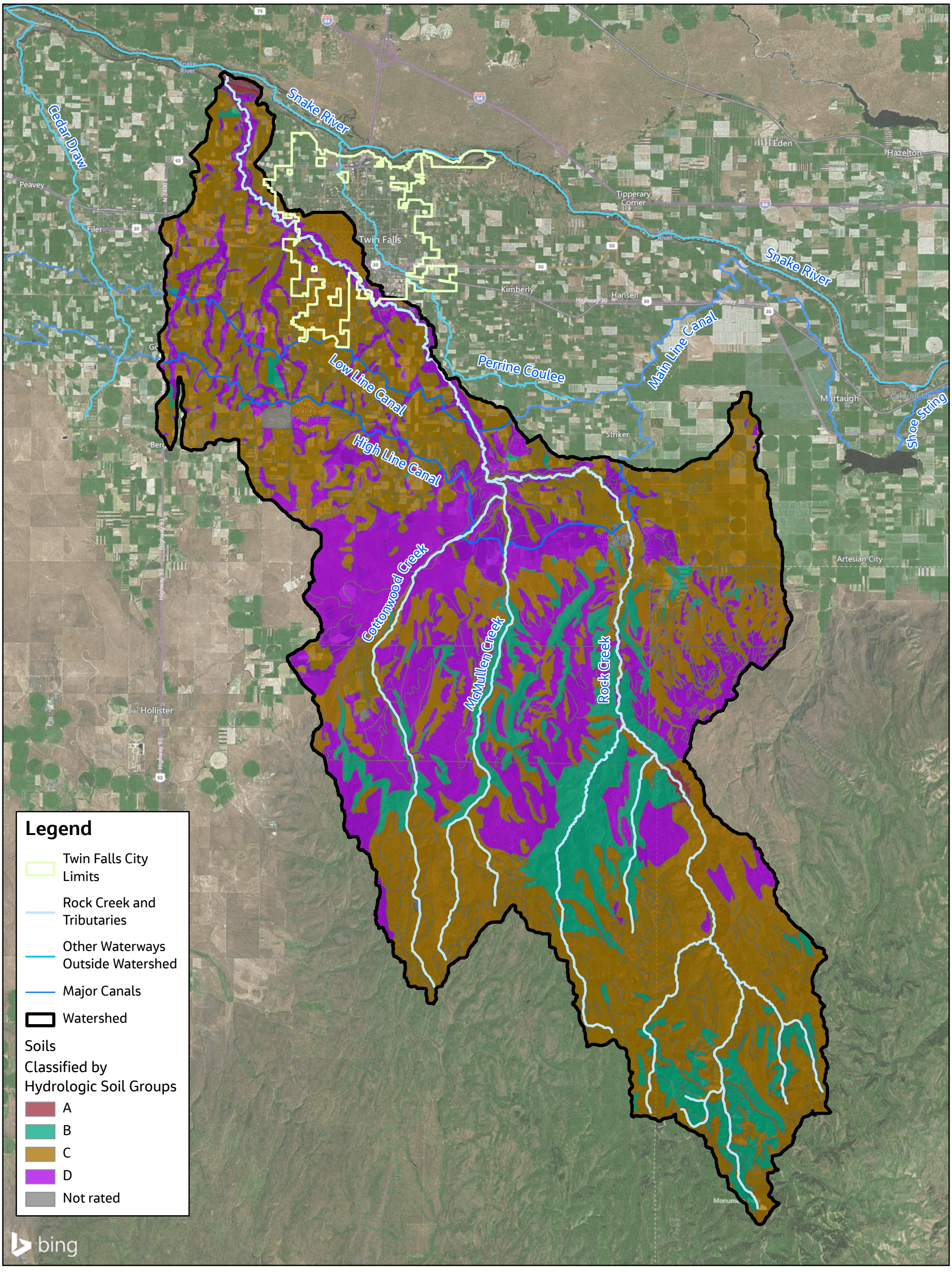
2.2 Land Ownership and Demographics

Public lands comprise the majority of the Rock Creek watershed—about 175 of the 300 square miles of the watershed, or 57% of the total area. These publicly owned lands include rangelands, canyon corridors, and upland areas that support grazing, wildlife habitat, and recreation. The remaining watershed area consists of privately-owned agricultural lands, dairy operations, and urban and suburban development, reflecting the diverse mix of uses that influence watershed conditions.

The watershed is home to approximately 26,000 residents, most of whom live within the City of Twin Falls. This concentration of population and development in the lower watershed means that municipal stormwater, transportation corridors, recreational use, and urban growth patterns can influence Rock Creek's water quality and hydrologic function prior to discharging to the Snake River. In contrast, the upper and mid-watershed remain sparsely populated, characterized primarily by grazing allotments and irrigated agricultural lands.

2.3 Soils

Comprehensive soils data from the National Resource Conservation Service's Gridded Soil Survey Geographic (gSSURGO) database was available for the entire watershed. The NRCS classifies runoff potential by Hydrologic Soil Group (HSG) with A soils having the lowest runoff potential and D soils having the highest runoff potential. HSG C soils are the most dominant in the watershed (58%) followed by HSG D soils (29%), as shown in **Figure 2-1**. The NRCS also classifies soils by erodibility index on a scale of zero to 0.069 with higher values indicating higher erosion potential. The southern, steeper portion of the watershed has low erodibility soils (**Figure 2-2**) with the agricultural portion of the watershed characterized by much higher erosion potential.



Locator Map



Figure 2-1
Rock Creek Soils Map

Rock Creek Watershed
Restoration Master Plan

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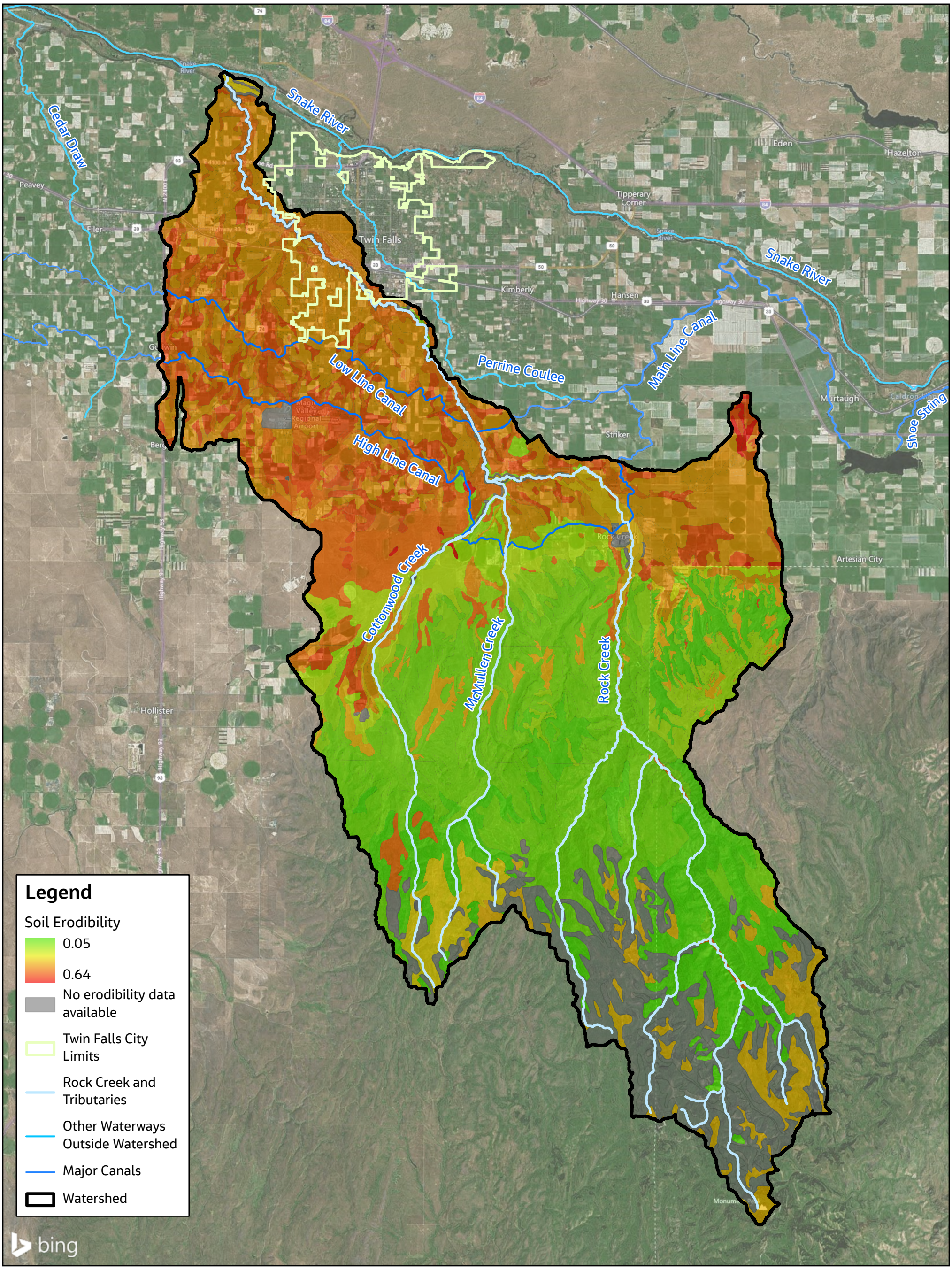

Locator Map



Figure 2-2
Rock Creek Soil Erodibility

Rock Creek Watershed
Restoration Master Plan

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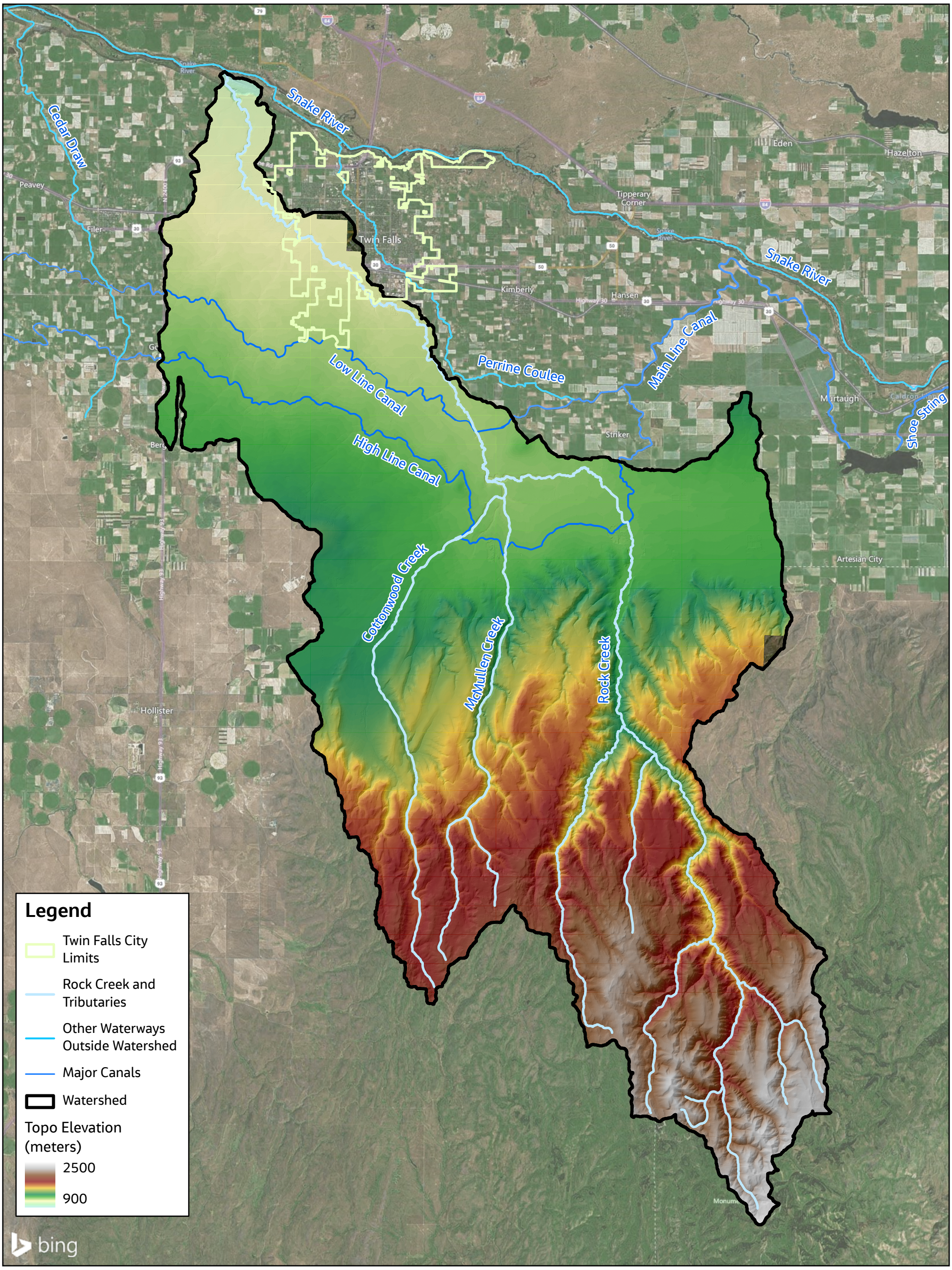
2.4 Topography

The Rock Creek watershed falls about 3,500 feet from the southern tip near Monument Peak to the outlet at the Snake River (**Figure 2-3**) with much of the elevation drop occurring in the upper portion of the watershed, as shown in **Figure 2-4**.

The upper watershed consists of mountainous terrain with steep slopes (**Figure 2-3**). The mountainous terrain transitions to a flatter terrain (**Figure 2-4**) throughout BLM owned land, privately-owned agricultural land, and City. At the downstream end of the watershed, the creek flows through the Snake River valley consisting of a steep, confined canyon until joining with the Snake River.

Topographic information was based on 2018 USGS Light Detection and Randing (LiDAR) data that was downloaded for Twin Falls County and Cassia County from the Idaho LiDAR Consortium (USGS 2018). The LiDAR data was used to develop a digital terrain model (DTM) with 1m-by-1m grid cells.



Locator Map



Figure 2-3
Rock Creek Watershed Topographic Map

Rock Creek Watershed
Restoration Master Plan

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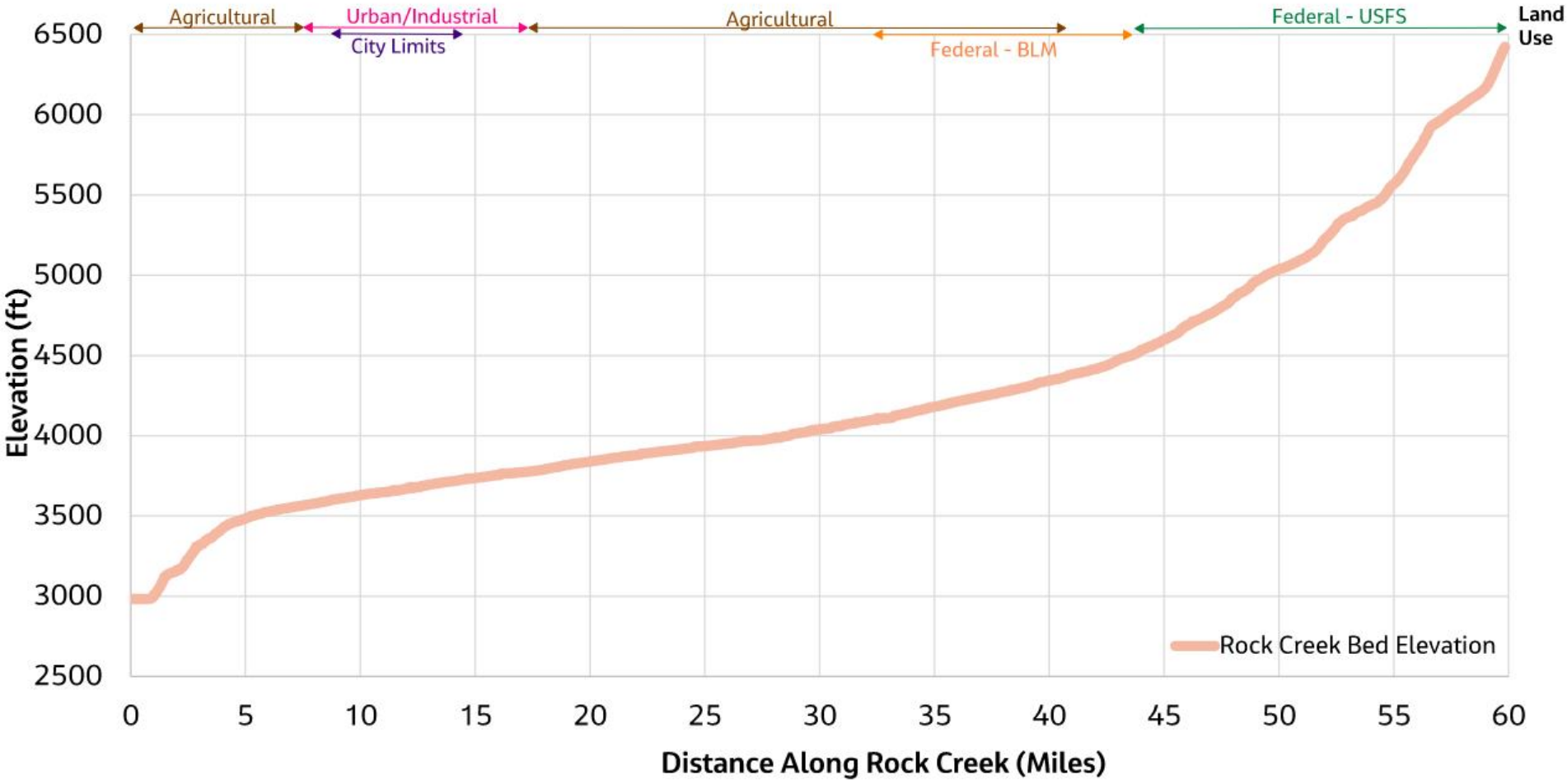
Figure 2-4. Rock Creek Elevation Profile



2.5 Tributary Reaches and Subwatersheds

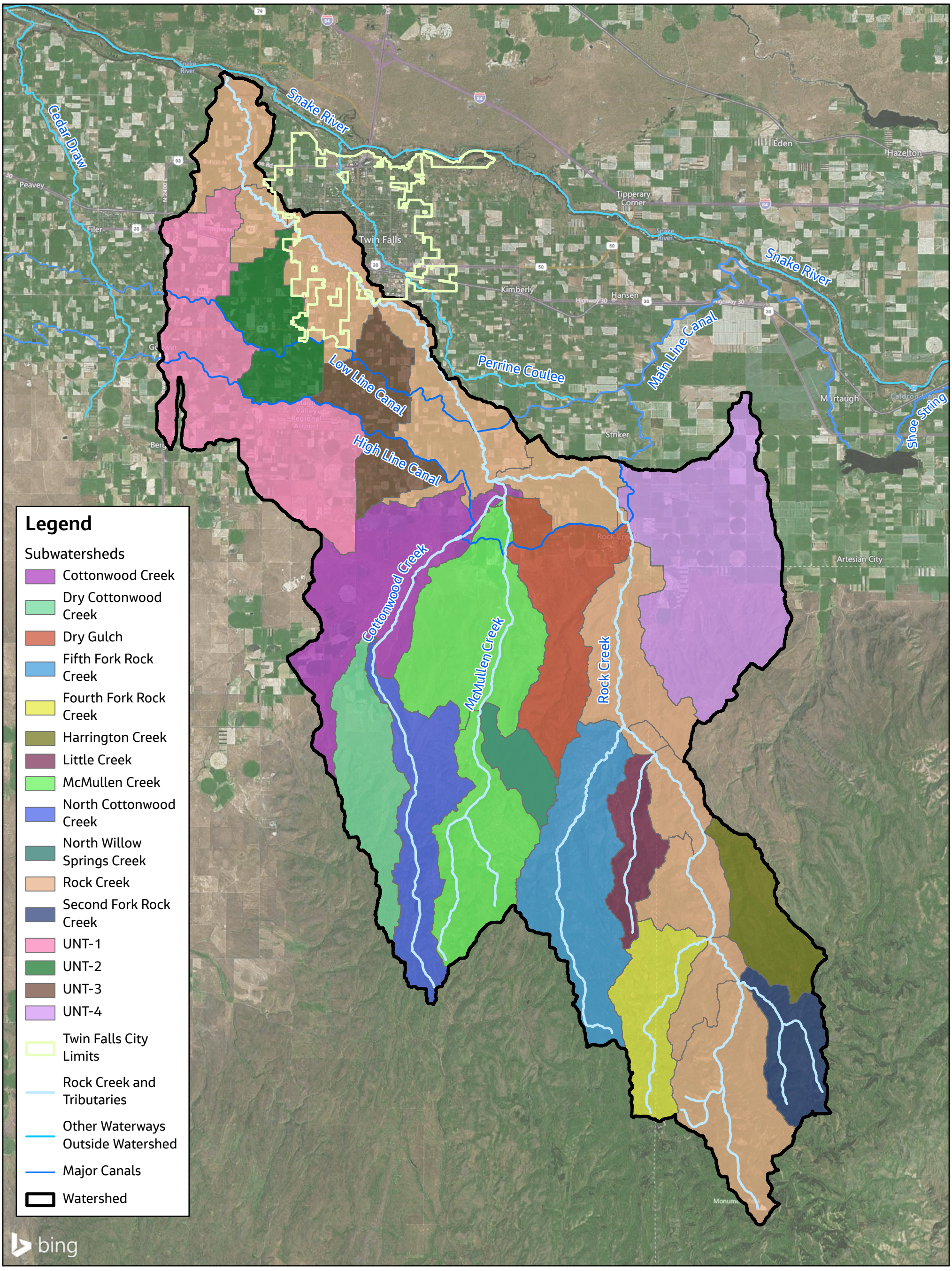
The Rock Creek watershed is made up of several tributary watersheds. The three largest are Unnamed Tributary 1 (10.8%), McMullen Creek (10.6%), and Unnamed Tributary 4 (9.7%) that each make up about 10 percent of Rock Creek's watershed, as shown in **Table 2-1** and **Figure 2-5**. The remaining notable tributaries are also shown in the same table and figure, as well as the portion of Rock Creek's drainage that either drains directly to the creek or through small drainages that discharge to the creek.

Table 2-1. Rock Creek Subwatersheds

Subwatershed	Area (sq. mi.)	Percent of Watershed (%)
Cottonwood Creek	20.4	6.7
Dry Cottonwood Creek	11.0	3.6
Dry Gulch	14.8	4.8
Fifth Fork Rock Creek	19.5	6.4
Fourth Fork Rock Creek	9.8	3.2
Harrington Creek	8.3	2.7
Little Creek	5.8	1.6
McMullen Creek	32.4	10.6
North Cottonwood Creek	13.4	4.4
North Willow Springs Creek	4.1	1.3
Second Fork Rock Creek	7.3	2.4
Unnamed Tributary (UNT-1)	33.2	10.8
Unnamed Tributary (UNT-2)	9.5	3.1
Unnamed Tributary (UNT-3)	10.5	3.4
Unnamed Tributary (UNT-4)	29.9	9.7
Direct Drainage to Rock Creek	76.8	25.0

2.6 Geomorphic Reaches

Figure 2-6 and **Figure 2-7** show the 14 mainstem geomorphic reaches (A-H) and tributary reaches. The geomorphic reaches were delineated based on the subwatershed delineation and tributary drainage lines, land ownership, and changes in terrain. The 14 geomorphic reaches were used to help identify potential locations for river corridor projects.



Locator Map



Figure 2-5
Tributary Reaches and Subwatersheds

Rock Creek Watershed
Restoration Master Plan

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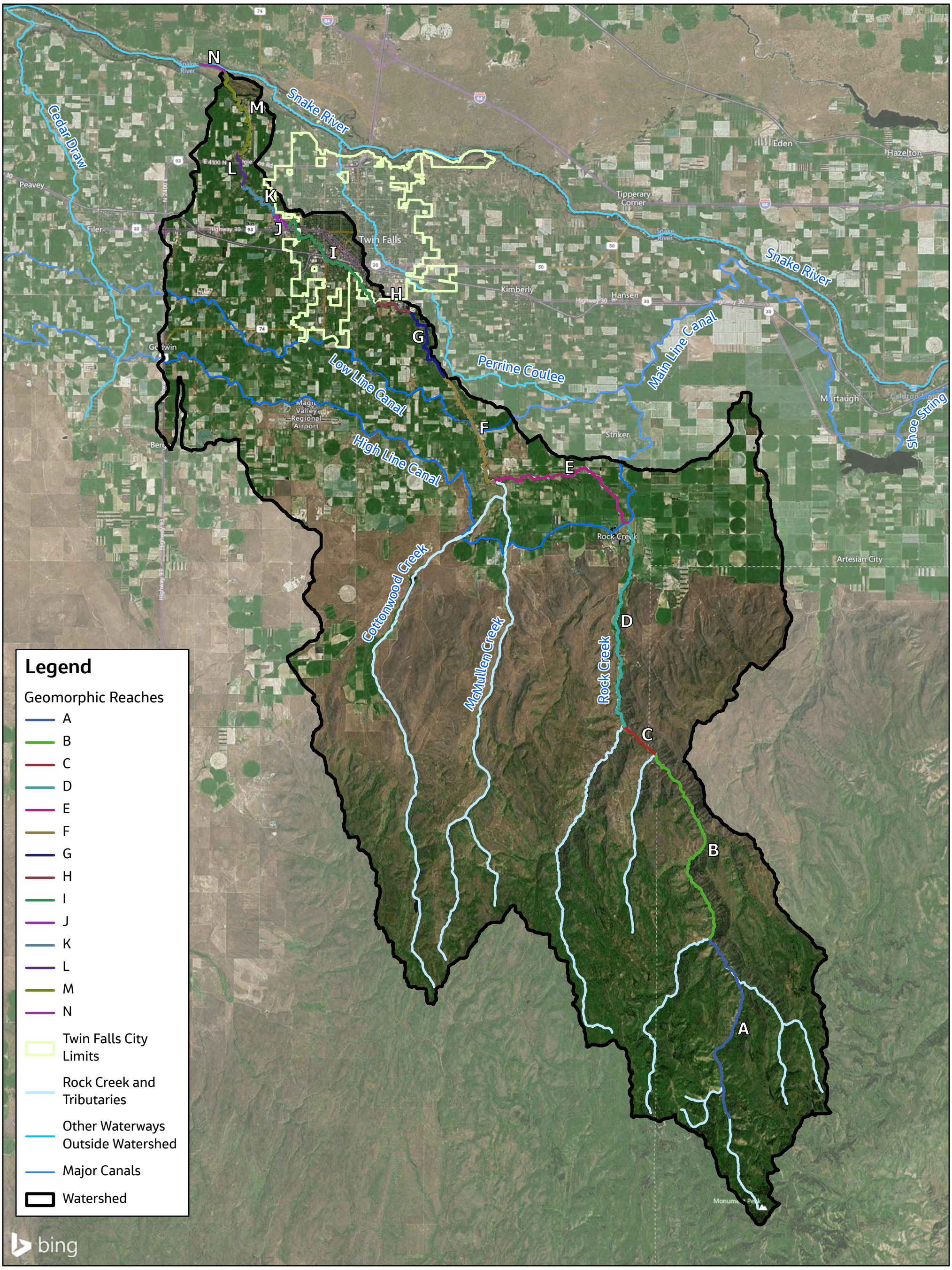

Locator Map



Figure 2-6
Rock Creek Geomorphic Reaches

Rock Creek Watershed
Restoration Master Plan

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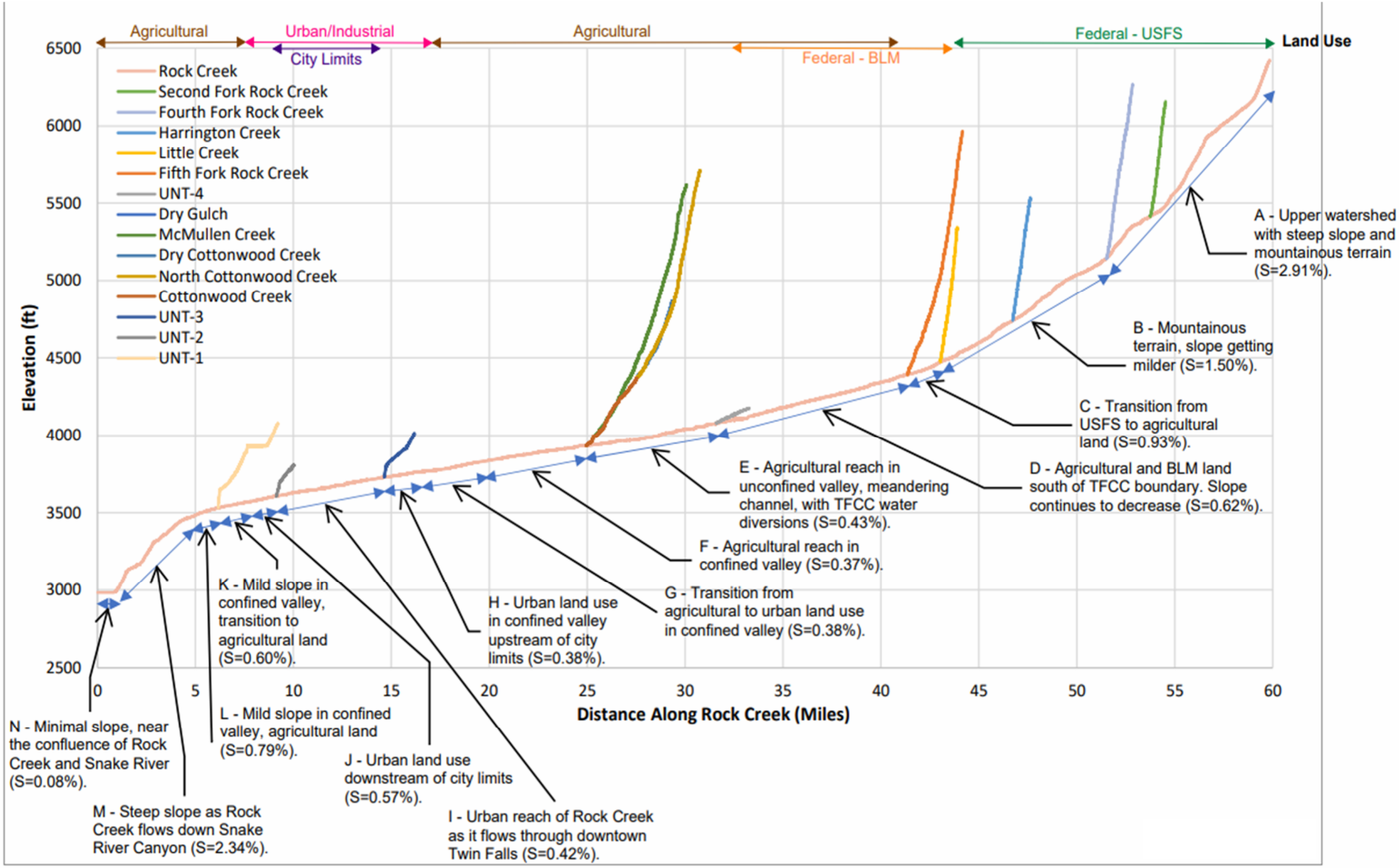
Figure 2-7. Rock Creek and Tributary Geomorphic Reach Profiles



2.7 Land Use

Understanding land use patterns is essential in watershed master planning because the way that land is used and managed directly influences runoff, pollutant loading, erosion potential, and overall watershed health. Different land uses, whether agricultural, urban, rangeland, or wetland, contribute uniquely to water quality conditions in Rock Creek, shaping both the challenges and the opportunities for restoration. By identifying how land cover, dairies and feedlots, and permitted discharges are distributed across the watershed, the City and its collaborators can better target management actions, prioritize projects, and design effective strategies to improve water quality.

2.7.1 Land Cover

Land cover was determined based on a combination of the 2024 National Land Cover Database (NLCD) and National Wetlands Inventory (NWI) (NLCD 2025 and NWI 2025). The dominant land cover in the Rock Creek watershed is shrub/scrub as shown in **Table 2-2** below and on **Figure 2-8**, which is primarily in the upper watershed on USFS and BLM land. Outside of federal lands, agricultural land use is the dominant land cover illustrating its ability to impact Rock Creek's water quality both positively and negatively. Finally, the almost 6 square miles (3,700 acres) of wetland throughout the watershed demonstrates the potential for water quality improvement through wetland restoration and enhancement particularly along Rock Creek.

Table 2-2. Land Cover

Land Cover Class	Area (sq. mi.)	Percentage
Shrub/Scrub	124	40%
Cultivated Crops	97	31%
Grassland/Herbaceous	61	20%
Developed	13	4%
Forested (Upland)	7	2%
Forested (Wetland)	6	2%

2.7.2 Dairies / Feedlots

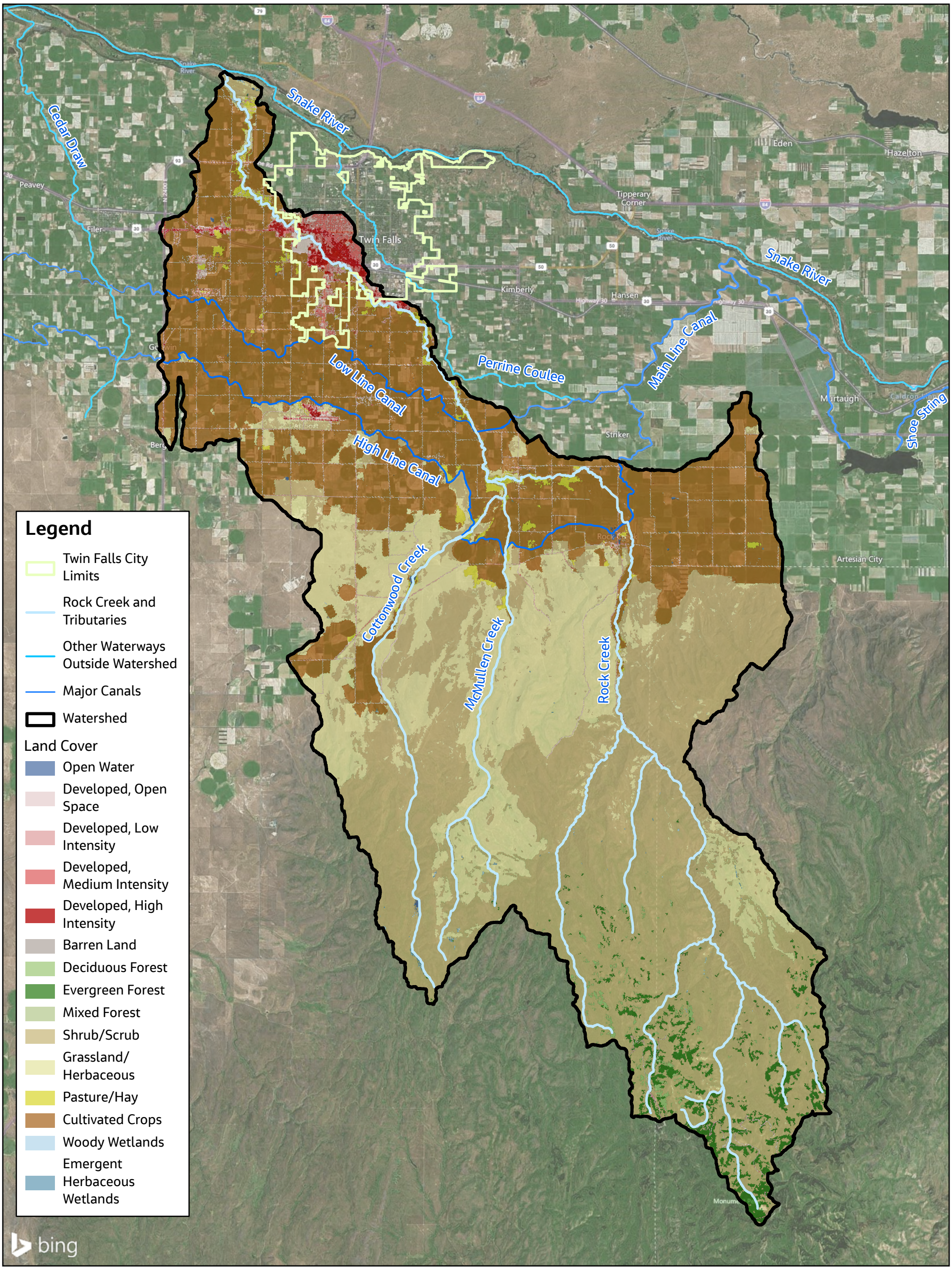
The Twin Falls region is a major dairy production hub, driven in large part by processors such as Chobani, which purchases nearly 2 billion pounds of Idaho milk annually and continues to expand its production capacity. This strong industrial demand underscores the scale and economic importance of dairies and feedlots within the Rock Creek watershed and highlights the need to evaluate their contributions to nutrient loading, manure management, and overall water quality. Within the Rock Creek watershed, there are 11 dairies and 24 feedlots (**Figure 2-9**). The dairies range in size from 290 to 5,250 animal units (AU) with a median size of 1,350 AU. The total AU for the dairies is approximately 19,000 (ISDA 2025). The feedlots vary in size from 30 to 5,800 AU with a median size of 300 AU. The total AU for the feedlots is 22,800 (ISDA 2025).

2.7.3 IPDES Permits

Idaho Pollutant Discharge Elimination System (IPDES) permits regulate point-source discharges to surface waters, requiring facilities releasing stormwater, industrial effluent, or process water to meet state water quality standards. These permits define allowable discharge limits, monitoring requirements, and best management practices for facilities whose operations have the potential to affect watershed conditions. As shown in **Figure 2-10**, there are 22 IPDES Permits in the Rock Creek watershed including (IDEQ 2025):

- 16 IPDES Permits for stormwater, construction, or multi-sector

- Three IDPES Permit for fish processors and concentrated aquatic animal production (CAAP)
- Two of IPDES Permits for industrial wastewater:
  - Amalgamated Sugar Co. (Discharge of non-contact cooling water into Rock Creek)
  - Independent Meat Co. (Discharge of non-contact cooling water into Rock Creek)



Locator Map



Figure 2-8
Rock Creek Watershed Land Cover

Rock Creek Watershed
Restoration Master Plan

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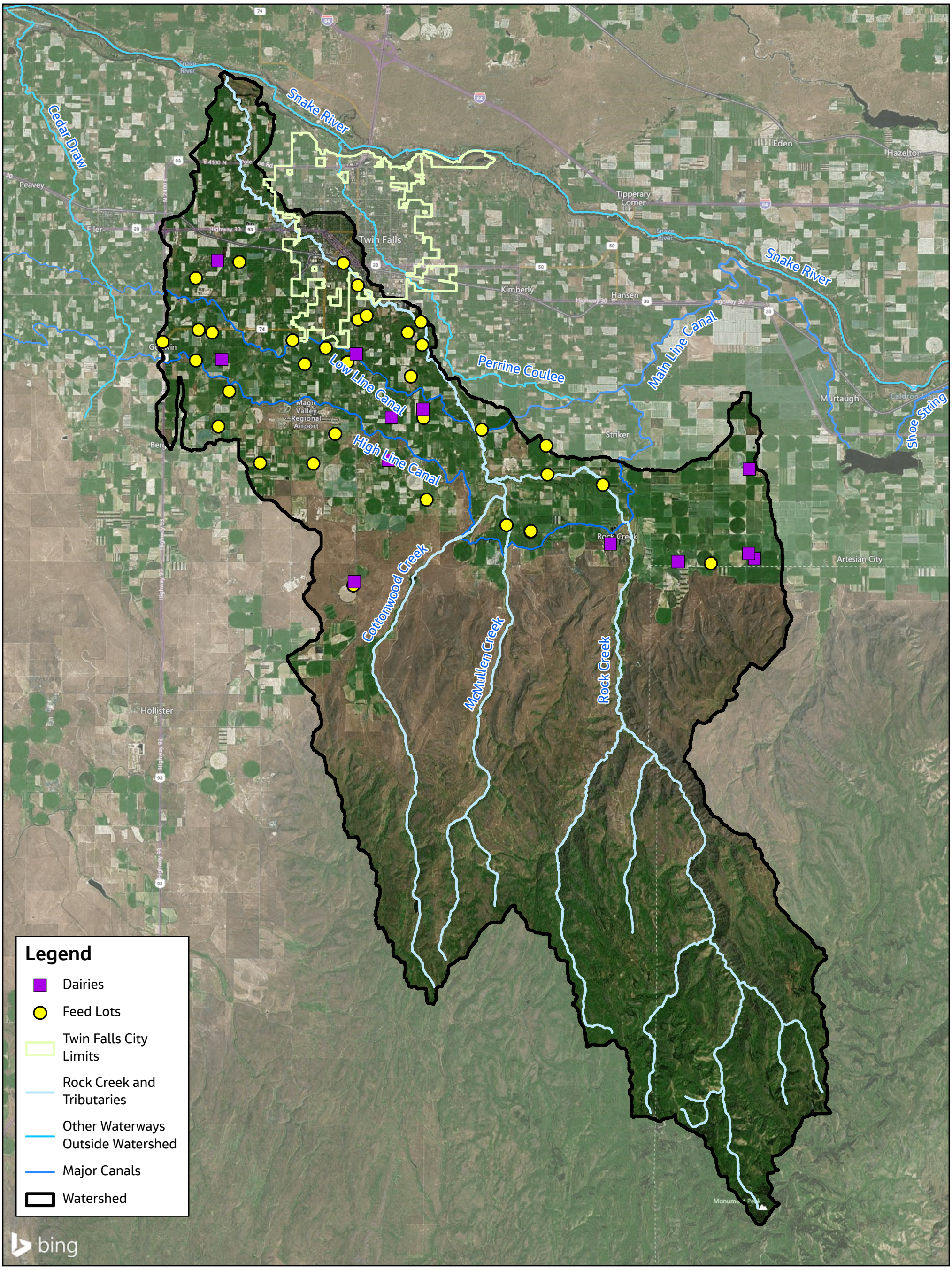

Locator Map



Figure 2-9
Dairies and Feed Lots in Rock Creek Watershed

Rock Creek Watershed
Restoration Master Plan

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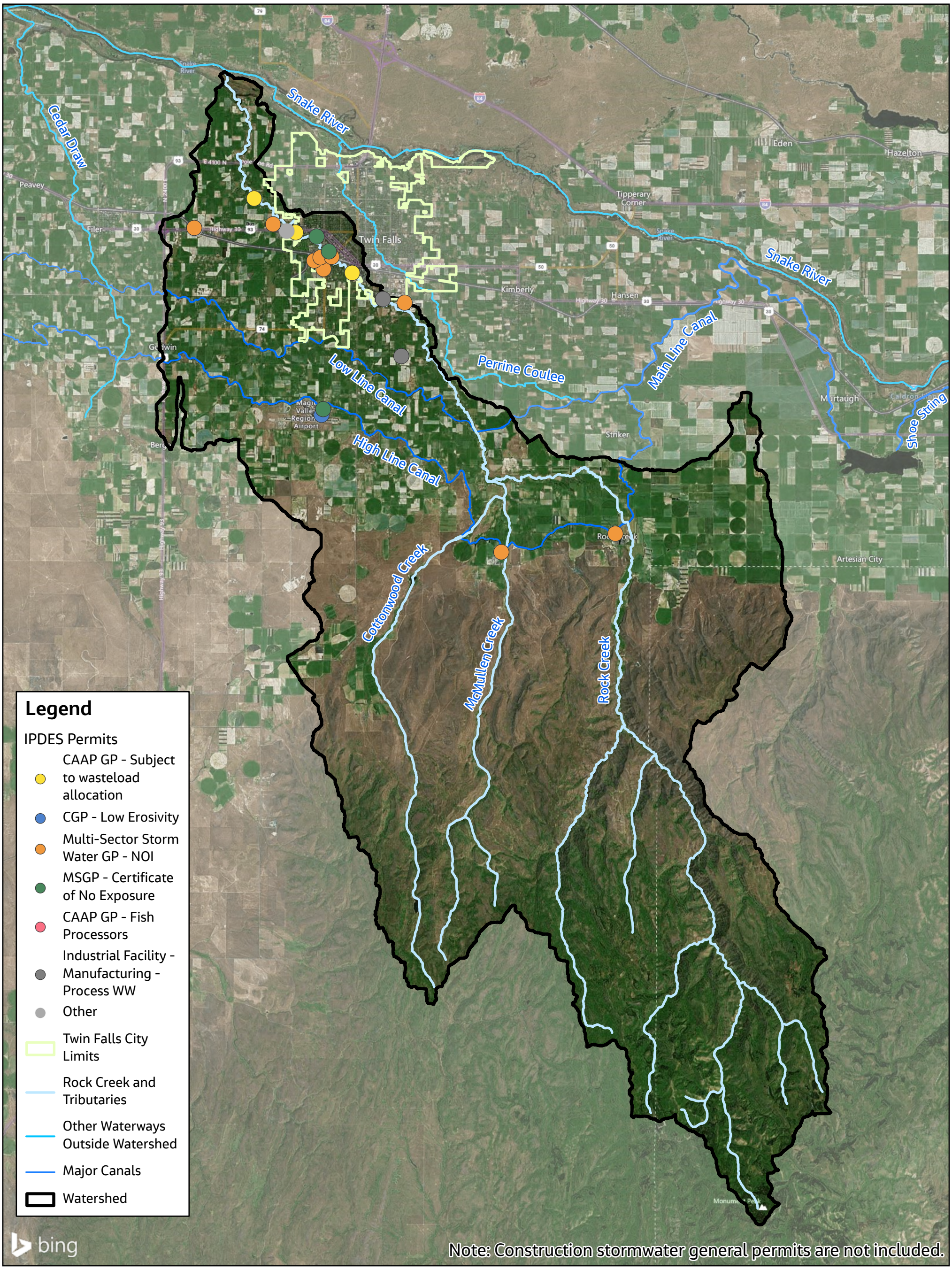

Locator Map



Figure 2-10
Discharge Permits in Rock Creek Watershed

Rock Creek Watershed
Restoration Master Plan

N

0 1 2 3 Miles

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2.8 Rock Creek Hydrology and Irrigation

Rock Creek's hydrology is heavily influenced by irrigation and groundwater management for agricultural operations (tile drains and seepage tunnels). Irrigation water is imported by the TFCC through the High Line and Low Line Canals and distributed by TFCC to serve over 82 square miles (~52,500 acres).

There are three flow regimes during the year:

- **Spring Runoff:** During the spring months, Rock Creek flow is dominated by snowmelt in the South Hills.
- **Late-Spring to Early Fall Irrigation Season:** Rock Creek flow conditions are dominated by irrigation imports, diversions, and returns.
- **Fall-Winter Low Flow:** After irrigation ceases, Rock Creek returns to base-flow conditions that is controlled by both natural seepage and irrigation water that has percolated to the water table.

2.8.1 Irrigation Canals

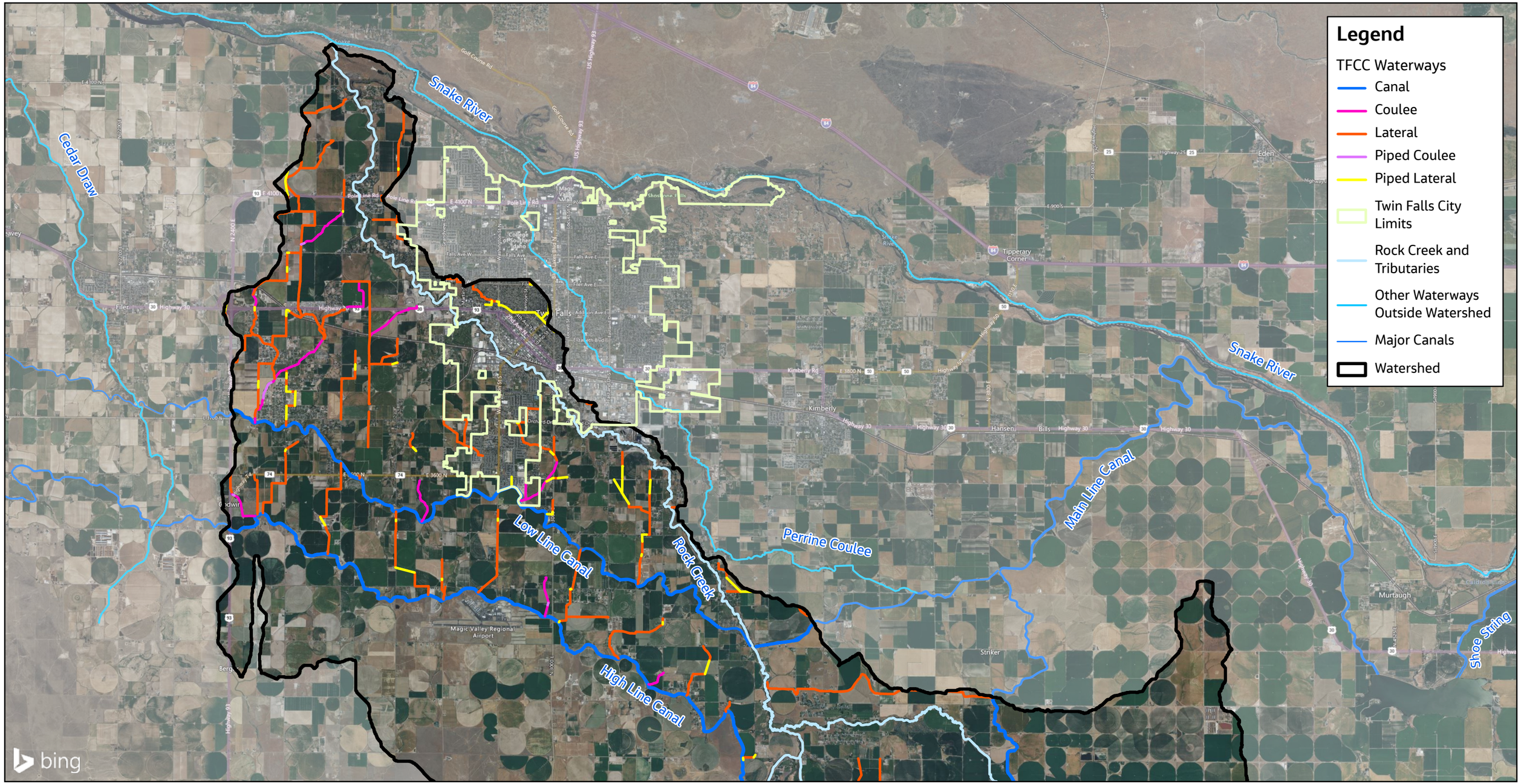
Modern-day irrigation practices began in the Rock Creek watershed in the early 1900s. TFCC is the entity responsible for most of the irrigation deliveries to the Rock Creek watershed. TFCC has two main canals (**Figure 2-11**), the High Line and the Low Line, that divert water from the Snake River at Milner Dam and flow west through Murtaugh Lake, the Rock Creek watershed, and watersheds to the west of the Rock Creek watershed.

TFCC provides water to over 200,000 acres with 110 miles of major canals and 1,000 miles of laterals (TFCC 2025). Within the Rock Creek watershed, TFCC provides irrigation water to 52,480 acres (82 square miles) with 44 miles of canals, 55 miles of laterals, and 749 deliveries. There are various privately-owned irrigation draws on Rock Creek as well. The private irrigation systems are located downstream of the Fifth Fork confluence and upstream of the Rock Creek General Store. During the summer months, the private irrigation systems may divert 100 percent of Rock Creek's flow in this area based on observations by IDEQ during water quality sampling. Rock Creek is replenished from irrigation returns and groundwater seeps further downstream.

2.8.2 Tile Drains and Seepage Tunnels

Irrigation water that exceeds crop water use—comprising transpiration plus soil-evaporation losses—infiltrates beyond the root zone once soil moisture storage is satisfied, ultimately percolating downward to recharge the shallow groundwater table. In addition, unlined canals also seep into the shallow water table causing the water table to rise to the extent that the higher water table can impact agricultural operations. In fact, within a few years after irrigation practices began in the early 1900s, farm fields began to flood. To address the seepage issues, clay drainage tiles, tunnels, and wells were constructed to lower the water table and prevent flooding in the agricultural fields. More recently, TFCC has begun lining portions of the High Line and Low Line Canals to reduce water loss, which in turn will reduce seepage from the canals into the shallow water table. The interaction with the TFCC irrigation system, privately owned canals, and seepage tile and tunnels system makes the Rock Creek watershed a highly managed, complex water system, as shown schematically in **Figure 2-12** and **Figure 2-13**.

Because the water in the tile drains and tunnels is primarily groundwater, the water quality is generally much better than surface water, so it is ideal when siting regional agricultural treatment projects to limit the amount of tile drain and tunnel flows that drain through the projects.



Locator Map



Figure 2-11
TFCC Waterways Map

Rock Creek Watershed
Restoration Master Plan

0 5,000 10,000 Feet

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Figure 2-12. Cross Section of Tunnel and Tile Drains within Rock Creek Watershed Geology (TFCC n.d.)

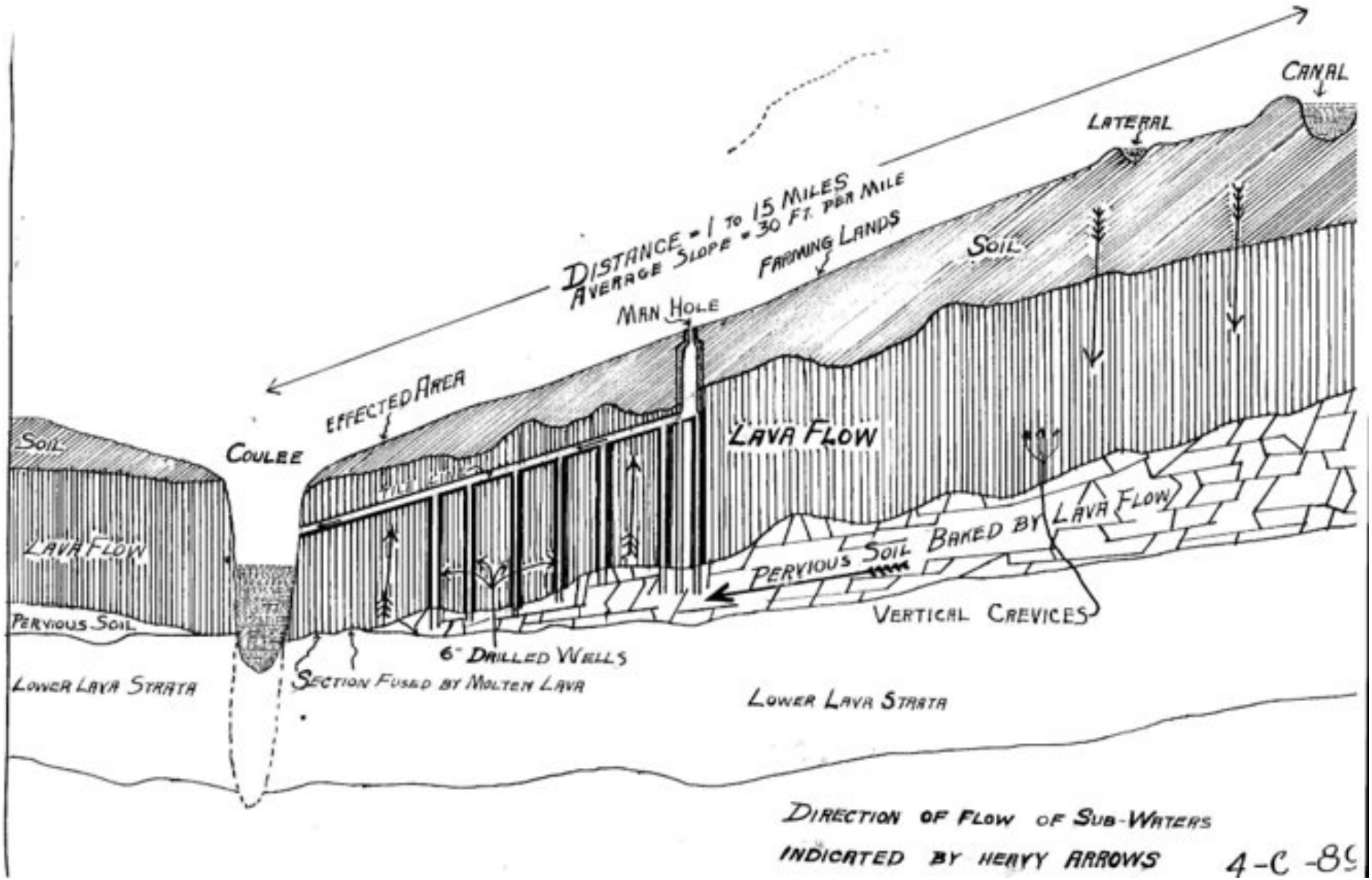
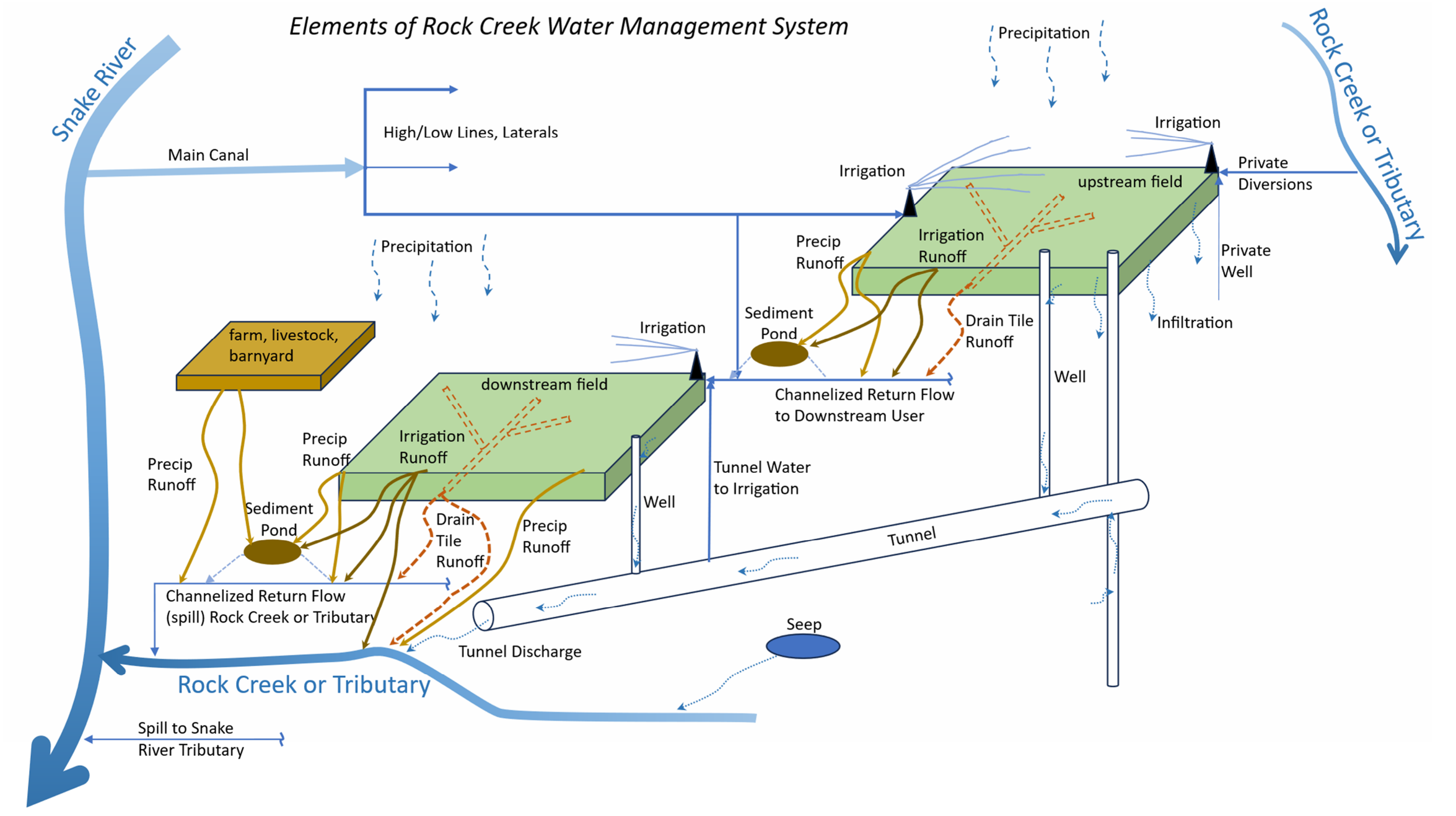


Figure 2-13. Tunnel and Tile Drains Schematic



2.8.3 Irrigation Methods

Irrigation season begins around April 15 and continues until October 15 each year. Typically, it takes two to three days to fill the main canals, which can cause accumulated sediment and debris to flush through the canals and ultimately to Rock Creek.

Irrigation water is applied in one of two ways:

1. Center pivot irrigation is the dominant irrigation method in the Rock Creek watershed, and NRCS has been actively working with farmers to switch to center pivot irrigation methods from furrow irrigation.
2. Furrow irrigation, which was historically the dominant irrigation method, but it has steadily decreased in use throughout the watershed because the furrow irrigation method uses more water. Another drawback for furrow irrigation is that the water quality of excess irrigation water leaving the fields and ultimately draining to Rock Creek is much worse than center pivot irrigation systems.

2.8.4 Injection Wells

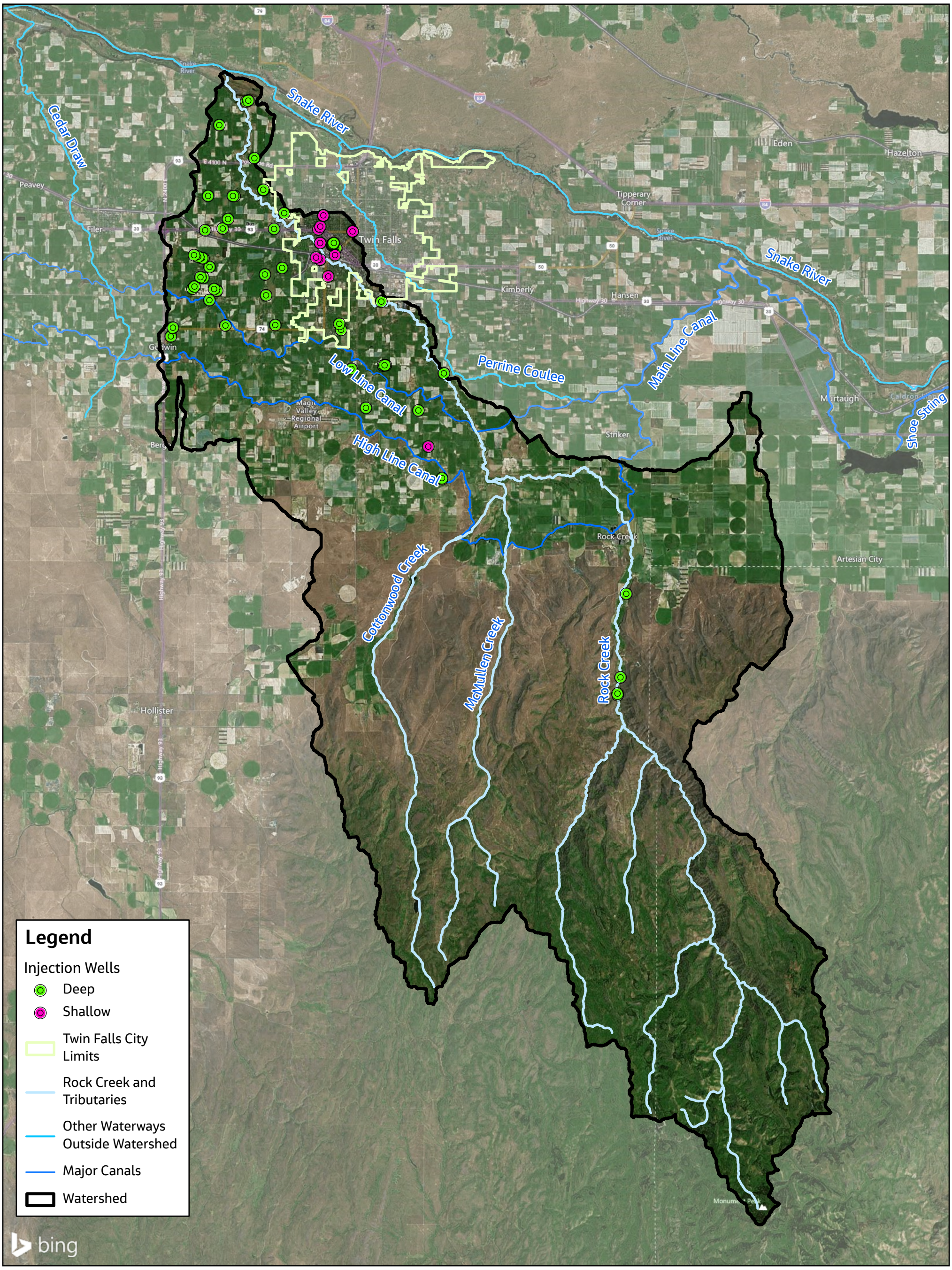
In Idaho, injection wells are a means to dispose excess stormwater, agricultural water, and facility heating/cooling water. IDEQ manages shallow and deep injection wells through the underground injection control program.

There are 76 active injection wells in the Rock Creek watershed (**Figure 2-14**), including 16 shallow injection wells (18 feet deep or less) and 60 deep injection wells (>18 feet deep) (IDWR 2025).

2.8.5 Sedimentation Ponds

Sedimentation ponds improve water quality by allowing sediment to settle in the pond prior to discharging into Rock Creek. Sedimentation also can reduce total phosphorus because a portion of the total phosphorus load is often bound to sediment particles.

There are several existing sedimentation ponds throughout the agricultural portion of the watershed. Most of these sedimentation ponds were constructed by or in collaboration with TFCC. Based on discussions with Brian Olmstead and Jason Brown, many of these sedimentation ponds could be expanded to further improve treatment and reduce the frequency that the pond fills up with sediment.



Locator Map



Figure 2-14
Injection Wells in Rock Creek Watershed

Rock Creek Watershed
Restoration Master Plan

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2.8.6 USGS Flow Data

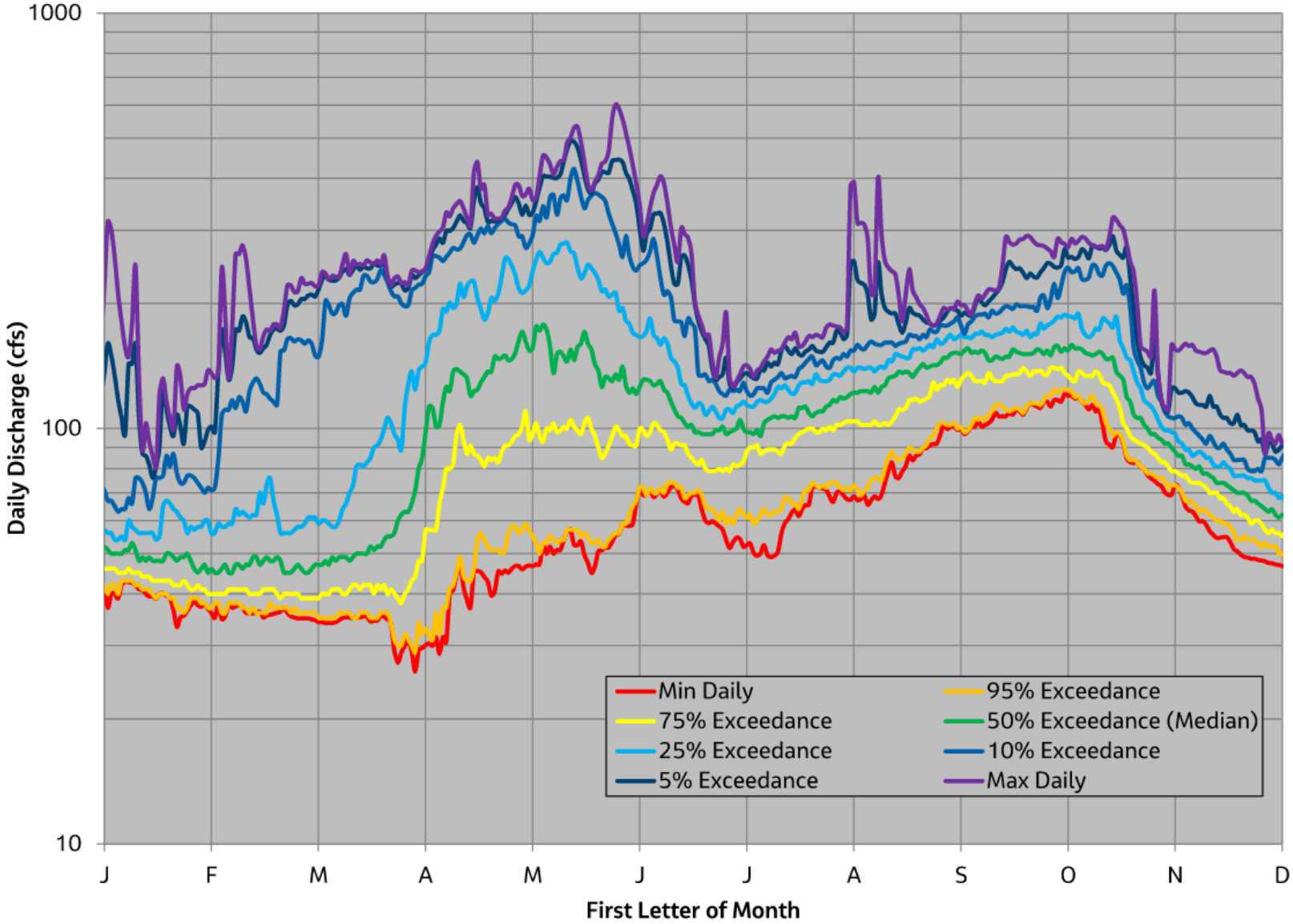
USGS monitors a flow gage on Rock Creek (USGS Gage No. 13092747) near the crossing of Addison Avenue (U.S. Route 30) over Rock Creek. USGS has monitored the flow and level at this location since the early 1990s. **Figure 2-15** shows Rock Creek flow throughout the calendar year (January – December) under varying dry (red and orange) to average (green) to wet (blue and purple) conditions. The flow data shows three general flow regimes on Rock Creek throughout the calendar year:

1. Usually starting late March (green line) but starting as early as February (darker blue lines), flow in Rock Creek greatly increases because of the spring runoff from the snowmelt in the mountains. Additionally, beginning in early April each year, water from the Snake River is delivered to water users via the TFCC High Line and Low Line Canals. The effect of the early irrigation imports is less noticeable in wetter years, but dryer years (such as the orange and red lines) show a spike in Rock Creek flow in early April.

2. Beginning in typically mid-June, flow in Rock Creek is heavily dominated by the effects of irrigation flows through the watershed that also drives seepage into the shallow water table, providing in essence a steady base flow to the creek. This flow gradually ramps up through mid-October as the volume of imported water steadily rises through the irrigation season.

3. After TFCC shuts down the High Line and Low Line Canals in mid-October, Rock Creek flow quickly drops off to more natural base flow conditions that continue until the winter / spring runoff begins the next year.

Figure 2-15. Rock Creek Annual Flow Hydrographs



3. Water Quality Data Collection and Analysis

While restoration of Rock Creek's watershed can mean several things, the primary intent of this master plan is to improve water quality in Rock Creek. Therefore, significant effort was invested in assessing historical and current water quality conditions throughout the Rock Creek watershed. Together, these data were used to help guide priority locations for and types of water quality improvement projects.

3.1 Key Conclusions from Water Quality Data

The following sections summarize key long-term trends, primary pollutant drivers, and the additional insights gained from the 2024–2025 data collection effort when compared to the existing historical data sets. The methods and results are described in greater detail in **Section 3.2**.

3.1.1 Historical Data (1968-2024)

The water quality data collected over the past 20 years on Rock Creek and its tributaries have indicated a significant seasonal trend in water quality data. Based on the three flow regimes (spring, summary, and winter), the Rock Creek water quality exhibits the following trends:

- During the increased flow during the spring months, sediment and sediment-bound phosphorus greatly increase in concentration. The high concentration of sediment and phosphorus are likely sources from erosion in the South Hills and unplanted farm fields.
- During the summer months (mid-April – mid-October), the flow in Rock Creek is influenced by irrigation canals including irrigation draws and returns used for agricultural irrigation. In general, historical sediment, nutrient, and bacteria levels were higher during the summer.
- During the winter months, Rock Creek experiences low flow which has shown higher influences from leaking septic tanks and sanitary sewer pipes.
- Throughout all months of the year, ruminant bacteria have been found throughout the watershed.

Since the 1970s, various cleanup efforts have improved Rock Creek's water quality, but additional improvements are needed to reduce TSS, TP, and *E. coli* below the recommended TMDL concentrations.

Figures showing the historical water quality data analysis are included in **Appendix C**.

3.1.2 Supplemental Data (2024-2025)

In general, the supplemental data collected by Jacobs in 2024 and 2025 showed similar conditions as the historical data, recognizing that the timeframe of the data collection was too short to evaluate any long-term trends. However, the supplemental data collection reinforced the conclusions on seasonal variability seen in the historical data and provided critical insight into how water quality can vary throughout the watershed. Specifically, the supplemental data showed that:

- Sediment (TSS) was significantly higher during the spring sampling events than the summer or winter sampling events. Additionally, TSS values in both the mainstem and tributaries were lowest upstream and increased moving downstream. The high TSS during the spring months may be caused by natural erosion from the snowmelt and sediment runoff from bare farm fields during spring precipitation events.
- Phosphorus followed a similar seasonal trend to TSS, with higher concentrations during the spring sampling events, indicating sediment-bound phosphorus. Sample results from summer 2025 had higher levels of phosphorus concentrations than summer 2024. Average flows during sampling

event periods appear slightly lower in the 2025 low flow season compared to the 2024 low flow season, which could partially contribute to high concentrations in 2025 as the lower flow may result in lower dilution of nutrients. Concentrations tended to increase moving downstream in the mainstem, while concentrations in the tributaries peaked in the mid-watershed. High levels of TP may be sourced from wastewater discharge, runoff from lawns and croplands, or runoff from animal manure storage, and such levels can naturally occur in soils and rocks.

- E. coli was lowest during the winter sampling events, corresponding with the colder temperatures and less bacteria growth. Microbial tracing results indicate a significant influence from bacteria sourced from ruminants throughout the watershed and during all seasons. Bacteria sourced from humans was detected at select locations mostly during the summer and winter sampling events, when there is increased interaction between the groundwater and the surface water due to agricultural irrigation.

A water quality sampling report was prepared for each of the six sampling events (Spring, Irrigation Season, Low-Flow (Fall) for both 2024 and 2025), which are included in **Appendix D**.

3.2 Detailed Water Quality Data Assessment

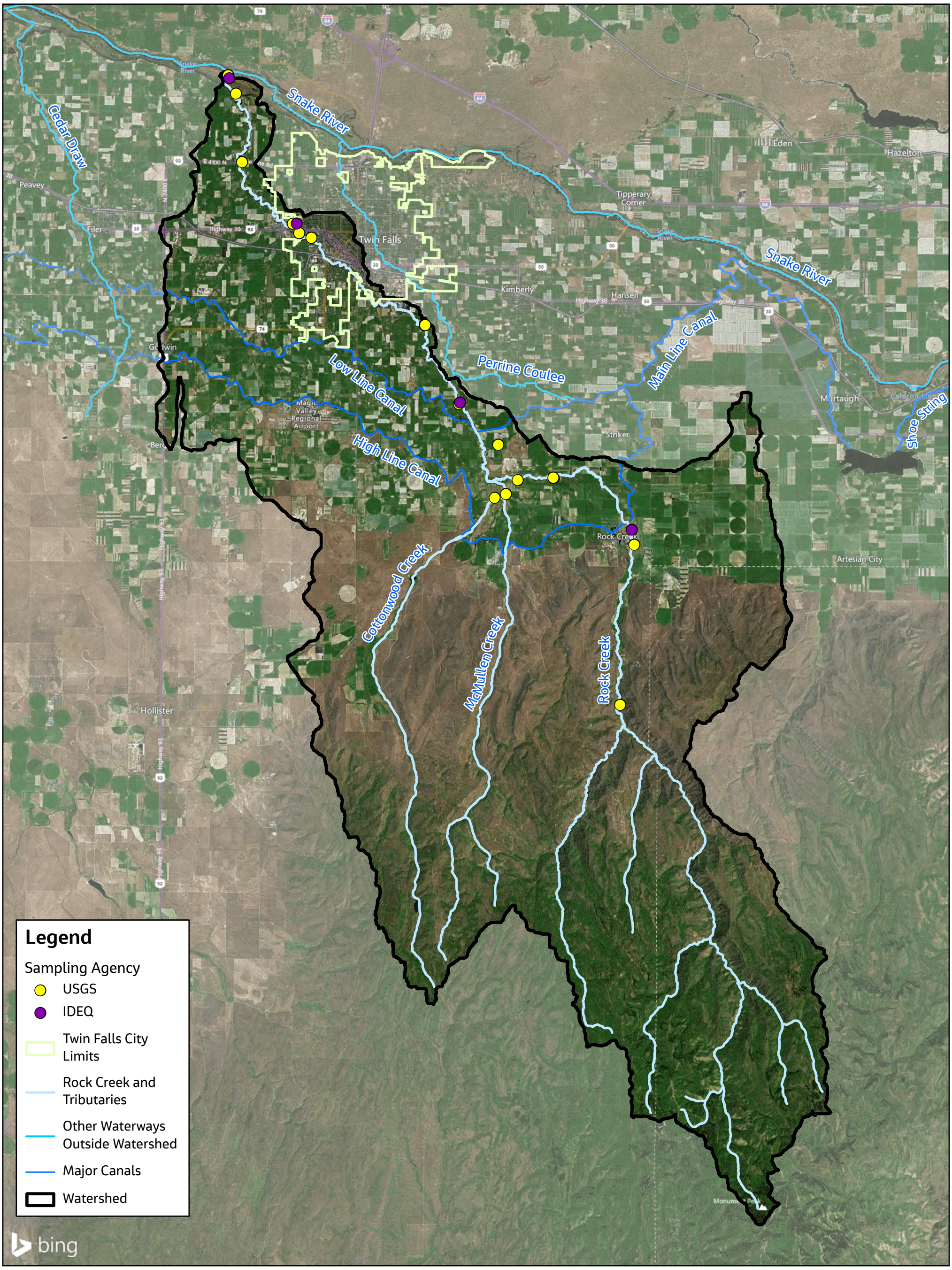
A comprehensive evaluation of water quality in Rock Creek requires integrating both historical records and recent monitoring data to understand long-term trends, pollutant sources, and spatial variability across the watershed. This section summarizes the historical context of water quality challenges, describes the available datasets collected by multiple agencies over several decades, and outlines the analytical methods used to assess conditions throughout Rock Creek and its tributaries. Together, these components provide the foundation for identifying water quality patterns and informing restoration priorities in the master plan.

3.2.1 Historical Data

Rock Creek has long experienced water quality challenges from municipal, agricultural, and urban activities, and despite ongoing management efforts, it remains impaired for sediment, pathogens, and phosphorus. To better understand these conditions over time and historical watershed improvement efforts, a comprehensive assessment of historical monitoring data collected by USGS (1968–present) and IDEQ (2004–2024) across multiple watershed locations was facilitated. Rural Clean Water Program data from the 1980s was not comparable to current datasets and could not be included in the comprehensive data statistical analyses. These compiled data were standardized and analyzed to evaluate spatial and temporal water quality trends and provide a foundation for the master plan's recommendations.

3.2.1.1 Data Available

The Rural Clean Water Program (RCWP, Idaho Department of Health and Welfare, Division of Environment) began collecting data and producing Comprehensive Water Quality Monitoring Reports in the early 1980s (EPA 1990). Unfortunately, the data collected by the RCWP was not comparable to the supplemental 2024-2025 data as the 1980s data was flow weighted, summarized over time, and/or measured different metrics, so the RCWP data was not used in the historical data analysis. However, historical data was also collected on Rock Creek and its tributaries by United States Geological Survey (USGS) from 1968 to present across 17 locations (most not sampled the entire duration) and Idaho Department of Environmental Quality (IDEQ) from 2004 to 2024 at five locations (**Figure 3-1**). The USGS and IDEQ data were used in the historical water quality evaluation.



Locator Map



Figure 3-1
Historical Water Quality Sampling Sites (USGS and IDEQ)

Rock Creek Watershed
Restoration Master Plan

0 1 2 3 Miles

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3.2.1.2 Summary of Data Analysis Methods

USGS data was downloaded from the USGS water quality data website from the 17 sampling locations. Retained parameters from the USGS data included: copper, discharge, dissolved oxygen (concentration and percent saturation), fecal coliform, hardness, lead, mercury, nitrate/ nitrite, pH, specific conductivity, total dissolved solids, temperature, total Kjeldahl nitrogen, total phosphorus, turbidity, and zinc.

IDEQ data was received directly from IDEQ in a series of excel spreadsheets and PDFs. PDFs were copied into tabular format and single copies of each sampling date and location were compiled into one spreadsheet. Once data was tabulated in a single spreadsheet, it was brought into R studio for quality control and to ensure there were no duplicates. Retained parameters were: Bovine DNA, dissolved oxygen, dog DNA, E. coli, discharge, human DNA, nitrate/ nitrite, pH, poultry DNA, sheep DNA, specific conductivity, swine DNA, temperature, total phosphorus, total suspended solids, and turbidity.

Following compilation, statistical analyses were performed in R studio on the compiled dataset to compare water quality spatially throughout the watershed and temporally (long-term and seasonal trends) as well as between collection agencies.

3.2.1.3 Spatial Observations and Trends

By comparing historical water quality samples throughout the watershed, several spatial observations and trends were seen, as shown in **Appendix C** and summarized below:

- N+N, TP, TSS, turbidity, hardness, microbial activity (human and fecal coliform), copper, and lead all increased the further downstream in the watershed that the water quality sample was collected, indicating consistent downstream accumulation of pollutants.
- Microbial contamination was more variable, indicating point source pollution.
- Dissolved oxygen decreased downstream, also representing poorer water quality downstream.
- Upstream sites (reaches A through D) generally showed lower nutrient and metal concentrations, cooler temperatures, and more stable pH.
- Midstream sites represented a transition zone with rising nutrient and microbial concentrations, and downstream sites represented cumulative watershed impacts, with the highest concentrations of nutrients, metals, and microbial indicators.

3.2.1.4 Seasonal Observations and Trends

Seasonal trends illustrate the influence of spring runoff and agricultural / irrigation practices in the watershed. By comparing historical water quality samples throughout the year, several seasonal observations and trends were seen, as shown in **Appendix C** and summarized below:

- Discharge increases in most of the watershed during agricultural season since irrigation water that is transported to higher in the watershed from the Snake River runs off into Rock Creek.
- The following parameters were lower in agricultural season: dissolved oxygen, hardness, N+N, ruminant DNA (Rum2Bac), specific conductivity, total dissolved solids (TDS), dog DNA (DBACT).
- The following parameters were higher in agricultural season: chemical oxygen demand, temperature, E. coli/fecal coliform, mercury, TKN, TP, TSS, turbidity.

3.2.1.5 Long-Term Observations and Trends

Since the 1980s, TP, total Kjeldahl nitrogen, TDS, E. coli/fecal coliform, and DO (% saturation only) have decreased (**Appendix C**). However, there were several long-term increasing trends in temperature, pH, and nitrate + nitrite (N+N). Long-term trends were considered in the context of changing watershed conditions. The characteristics most associated with changes in water quality were land cover type and agricultural practices such as irrigation methods and best management practices. Nutrient levels, especially N+N, then E. coli and ruminant DNA, were linked with urban and agricultural development. Other characteristics highlighted that development on private lands is associated with sediment mobilization and human fecal pollution, while public forests and wetlands helped buffer against these effects. Lastly, other land type indicators emphasized the protective role of forest cover in maintaining clean, oxygen-rich waters and limiting organic pollution.

3.2.2 2024-2025 Supplemental Water Quality Data

Supplemental data was collected by Jacobs for two years (2024-2025) during the three different flow regimes (Spring, Irrigation season / Summer, Low-Flow / Fall) for a total of six sampling events. **Figure 3-2** shows the 21 water quality locations selected for supplemental water quality data collection. Twelve of these sampling sites were on the main stem of Rock Creek, and nine were on tributaries of Rock Creek. The sampling locations were determined through subbasin delineation, previously sampled locations (IDEQ and USGS), City input, and accessibility.

The tributary sample locations were not sampled during the first sampling event (spring 2024). The tributary sample locations were added to the sampling plan for the summer 2024 sampling event to help determine which tributary watersheds contributed pollutants to Rock Creek. During winter 2024, an additional sample location at the former fish hatchery tunnel was added to analyze the water quality of the tunnel and seepage tile system. Lastly, there were isolated instances where sampling at a particular site did not occur because of safety concerns; these instances are noted in the individual water quality sampling reports (**Appendix D**).

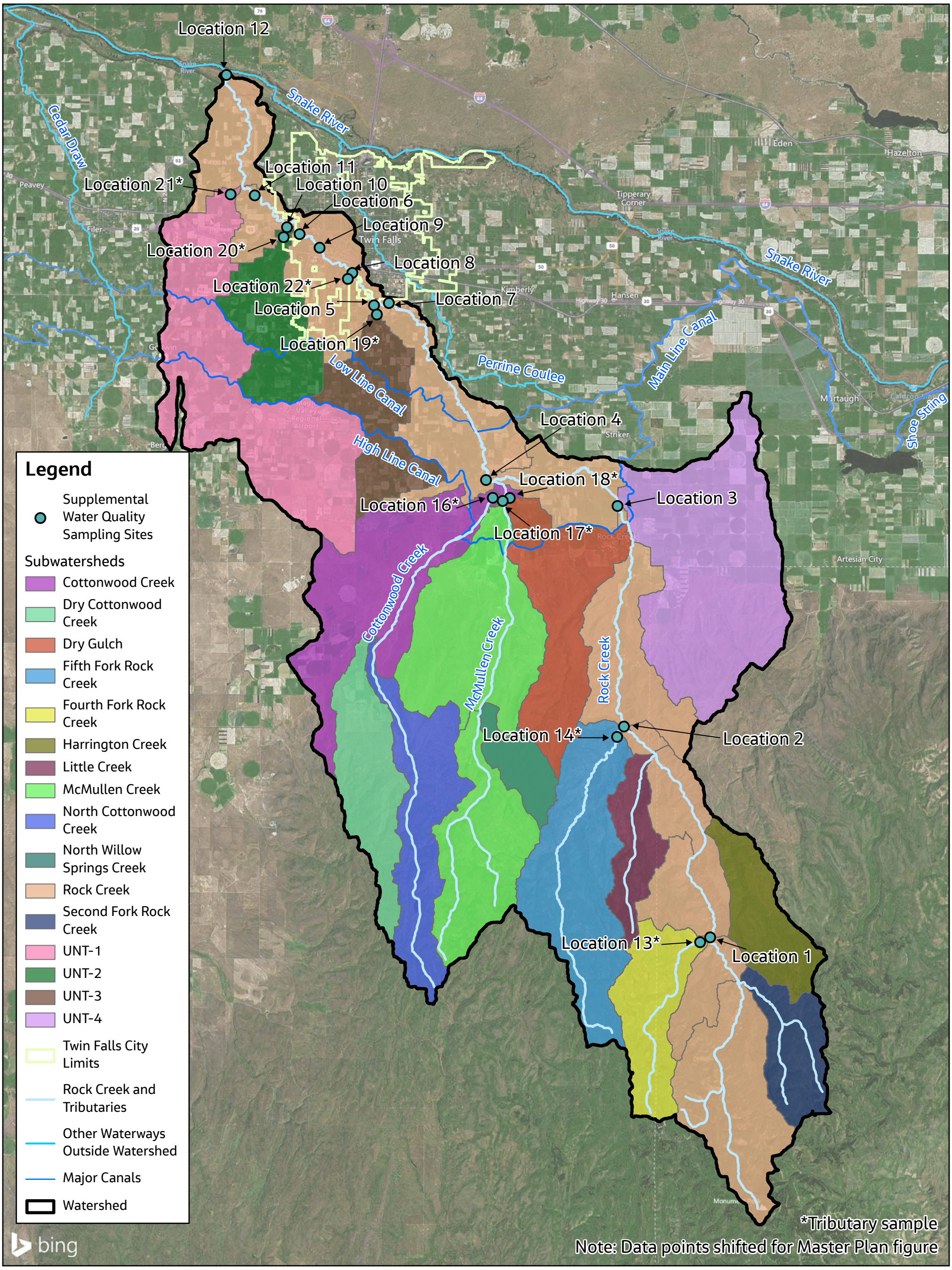
3.2.2.1 Data Collection Methods

Water quality samples were collected by two Jacobs' staff and in accordance with USGS-recommended procedures published in Interagency Field Manual for the Collection of Water-Quality Data (USGS 2000). Three types of samples were collected at each of the sampling locations: in-field parameter measurement, grab samples, and composite samples. In total, three in-field parameters were measured, 17 laboratory parameters were analyzed, and four microbial tracking tests were conducted at each sampling site.

The following sections describe observations and trends for TSS, TP, E. coli, and bacteria. Additional information on the sample methods, results from other analyzed parameters, and additional water quality observations from the supplemental water quality data can be found in **Appendix D**.

3.2.2.2 Hydrologic Conditions

Figure 3-3 and **Figure 3-4** show the hydrologic conditions in Rock Creek for 2024 and 2025, respectively, based on the USGS gage on Rock Creek at Addison Avenue. Recognizing that conditions throughout the watershed could vary, these graphs illustrate that in general, 2024 was a relatively wet year, and 2025 was a normal to slightly dry year. Specifically, the 2024 daily flow data shows a very high spring runoff flow between April – June with the peak near the maximum flow on record. The flow during the remaining months of 2024 was approximately the 50% exceedance flow. In 2025, the spring runoff was much lower than 2024 and was slightly lower than the 50% exceedance flow. The flow during the remaining months of 2025 was approximately the 50% exceedance flow.



Locator Map



Figure 3-2
2024-2025 Supplemental Water Quality Sampling Sites

Rock Creek Watershed
Restoration Master Plan

N

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Figure 3-3. 2024 Hydrology during Water Quality Sampling Events

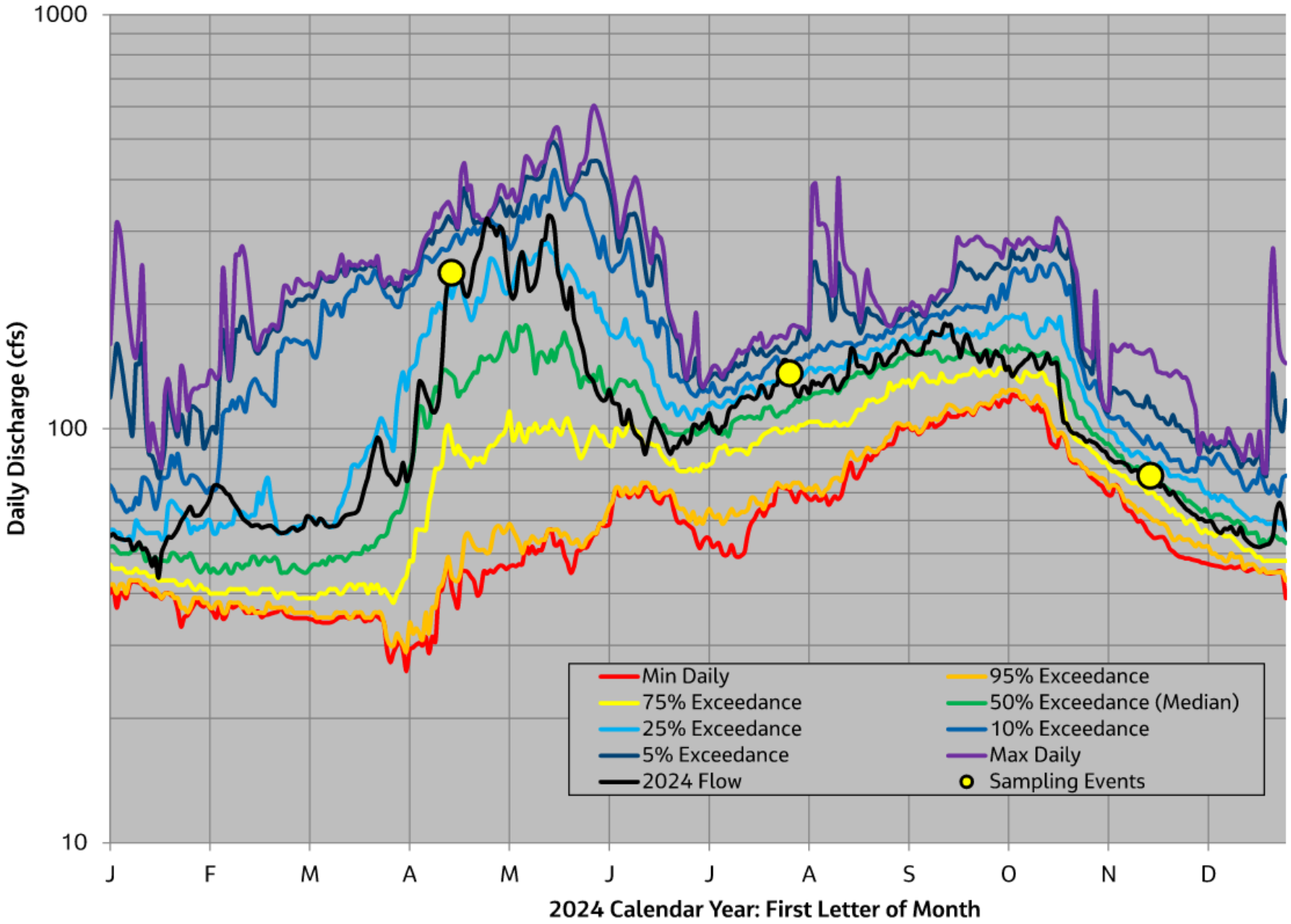
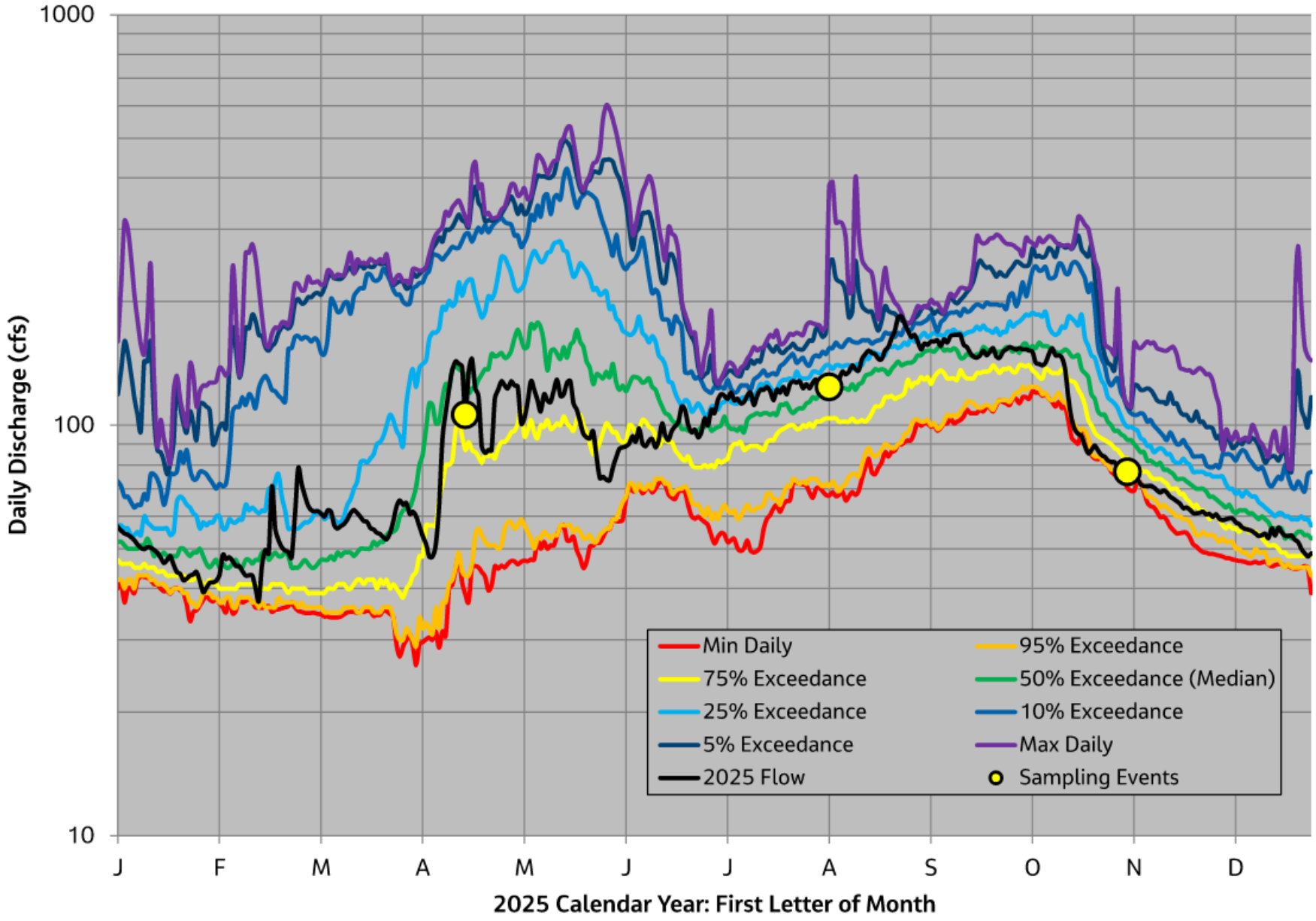


Figure 3-4. 2025 Hydrology during Water Quality Sampling Events



3.2.2.3 Spatial Observations and Trends

Spatial patterns in water-quality conditions along Rock Creek reflect the cumulative influence of land use, hydrologic inputs, and geomorphic setting across the watershed. As the creek transitions from predominantly federal lands in the headwaters to intensive agricultural production in the midstream reaches and ultimately to mixed agricultural and urban influences downstream, distinct trends emerge in sediment, nutrient, microbial, and temperature. This section summarizes those spatial observations and highlights where tributary inputs, irrigation return flows, and land-use practices most strongly shape water-quality conditions along Rock Creek.

TSS generally increases along Rock Creek as the creek flows through the agricultural portion of the watershed but remains relatively constant once it reaches the City limits (**Figure 3-5** and **Figure 3-6**).

TP results for the spring samples follow a similar trend to TSS, although less pronounced (**Figure 3-7** and **Figure 3-8**). E. coli and microbial results show peak levels near the agricultural areas where irrigation water and agricultural runoff start to influence Rock Creek (**Figure 3-9** and **Figure 3-10**). Similarly, N+N was detected once Rock Creek begins flowing through agricultural land use, as shown in **Figure 3-11**).

Lastly, microbial tracking results indicate that cattle is the most prevalent source of bacteria throughout the watershed, as described in the water quality sampling reports included in **Appendix D**. Bacteria from humans was detected in the water samples, primarily during the summer and winter sample events. The detections may be leaking septic systems when groundwater is high and/or an aging sanitary sewer system.

In the context of the geomorphic reaches described previously in **Chapter 2**, Rock Creek was divided into three sections for evaluating spatial observations and trends:

- **Upstream:** Geomorphic reaches A-D including Rock Creek Headwaters and Fourth Fork and Fifth Fork tributaries. These reaches reflect the effects of federal land use and grazing practices.
- **Midstream:** Geomorphic reaches D-H including Cottonwood Creek, McMullen Creek, Dry Gulch, and UNT-4 tributaries. This reach corresponds to high agricultural use and therefore highly impacted by agricultural runoff quality.
- **Downstream:** Geomorphic reaches I-M including Lower Rock Creek Mainstem and UNT-1, UNT-2, UNT-3 tributaries. The downstream portion of the watershed reflects cumulative watershed impacts both agricultural and urban, stormwater influences, with the high concentrations of nutrients, metals, and microbial indicators.

A statistical analysis found that the upstream portion of the watershed generally showed lower nutrient and metal concentrations, cooler temperatures, and more stable pH. The midstream portion of the watershed showed that tributaries including Cottonwood Creek contributed to localized variability, especially in TP and microbial indicators.

Additional information on spatial observations and trends along with graphs showing water quality results for the tributaries is included in **Appendix D**.

3.2.2.4 Seasonal Observations and Trends

Seasonal variability in hydrology, climate, and land-use practices drives distinct changes in water-quality conditions throughout the year in Rock Creek. Spring runoff produces the highest sediment and nutrient loads as snowmelt mobilizes soil particles and phosphorus-rich materials accumulated on agricultural lands, while the warmer summer months promote microbial activity, even as suspended-sediment concentrations decrease under stable, low-flow conditions as crops stabilize the soil on agricultural fields. Fall storm events and post-harvest field conditions contribute to discrete nutrient loading events,

particularly for nitrate and nitrite. This section summarizes these seasonal patterns and highlights the periods when each parameter most strongly exceeds or approaches TMDL thresholds.

TSS values were significantly high during the spring runoff sampling events during April, with most sites exceeding the TMDL limit (**Figure 3-5**). All TSS concentrations during irrigation season and low flow sampling events were below the TMDL concentrations.

TP results followed a similar trend to TSS, as shown in **Figure 3-7**. The TP concentrations during the spring sampling events were elevated and above the TMDL throughout the watershed. Most of the TP concentrations during the low-flow sampling events were at or below the TMDL concentration. During the irrigation season, TP levels compared to the TMDL threshold area variable with the 2024 sampling generally at or below and the 2025 sampling generally above.

E. coli levels were generally correlated with air temperature corresponding to biological growth being higher during the hotter and sunnier summer months (**Figure 3-9**).

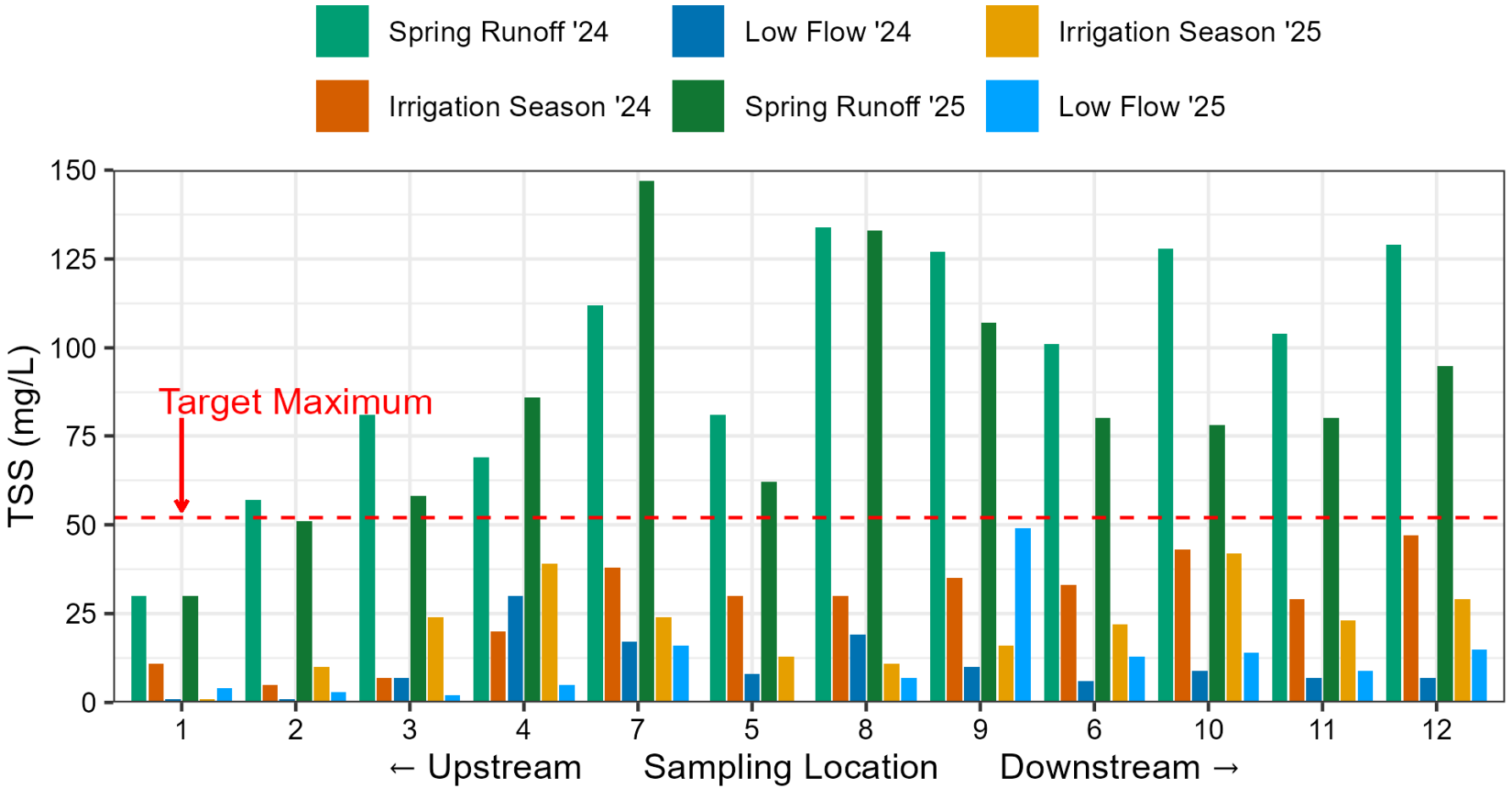
N+N concentrations were the highest during the November sampling events (**Figure 3-11**) likely due to fertilization practices and the influence of runoff on bare fields during fall storm events.

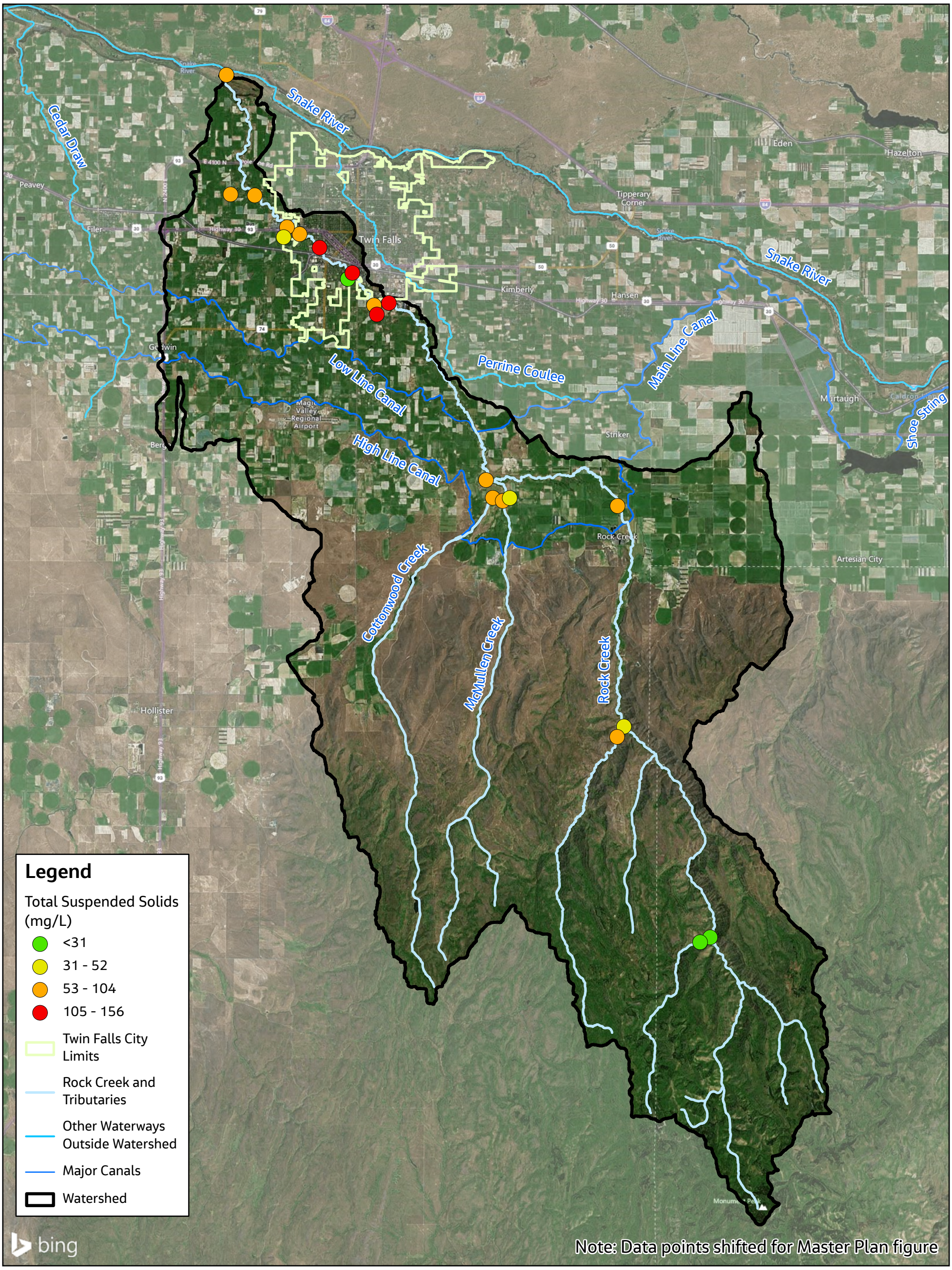
Additional information on seasonal observations and trends along with graphs showing water quality results for the tributaries is included in **Appendix D**.

3.2.2.5 Comparison to Historical Data

The 2024-2025 supplemental water quality data exhibits seasonal patterns consistent with the long-term record, reinforcing the dominant hydrologic drivers observed over the past two decades. Historical monitoring data (2004–2024) show a pronounced seasonal signal in total suspended solids, with peak TSS concentrations consistently occurring in April during snowmelt-driven runoff. Total phosphorus displays a similar pattern, with spring runoff transporting the highest annual loads as meltwater mobilizes sediment-bound and particulate phosphorus from agricultural landscapes. Both the legacy dataset and the 2024–2025 supplemental sampling indicate elevated pollutant contributions in the upper half of the watershed—most notably from Cottonwood Creek, McMullen Creek, and Dry Gulch—as Rock Creek transitions into the intensively farmed portion of the basin.

Figure 3-5. TSS Concentrations along Rock Creek Main Stem





Locator Map



Figure 3-6
TSS Concentrations throughout Rock Creek Watershed, Spring 2025 Sampling Event

Rock Creek Watershed
Restoration Master Plan

N

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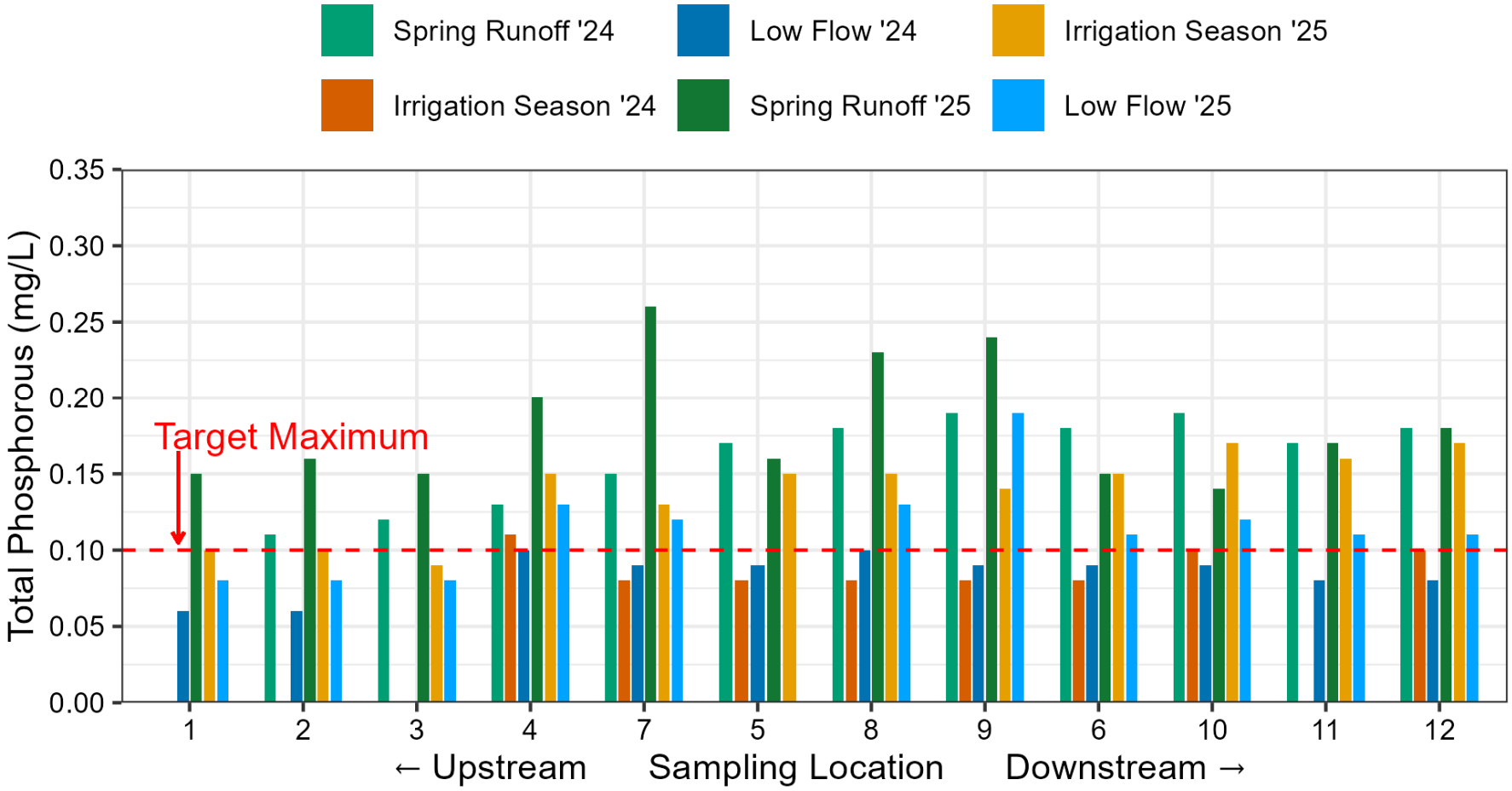
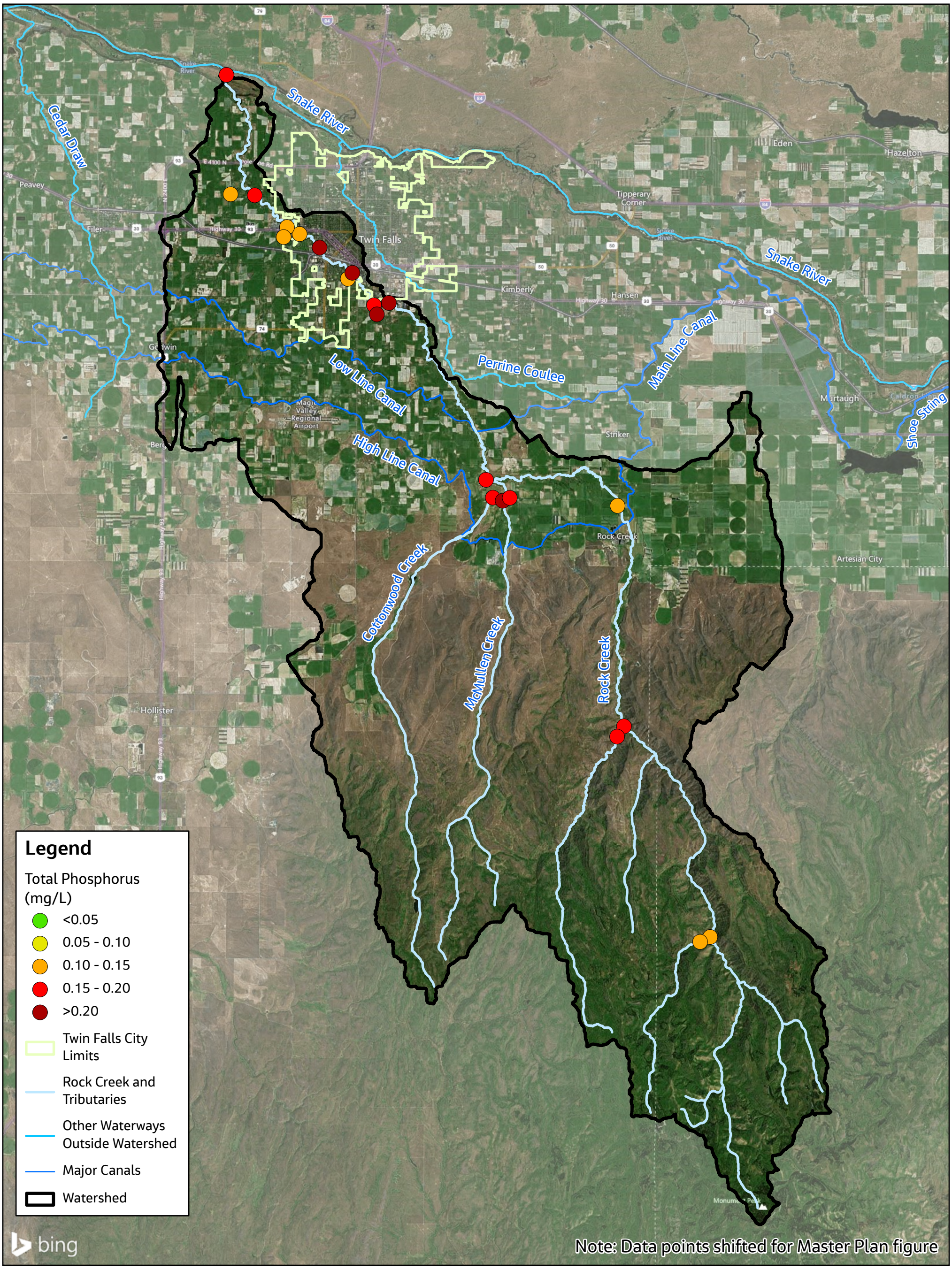
Figure 3-7. Total Phosphorus Concentrations along Rock Creek Main Stem





Locator Map



Figure 3-8
Total Phosphorus Concentrations throughout Rock Creek Watershed, Spring 2025 Sampling Event

Rock Creek Watershed
Restoration Master Plan

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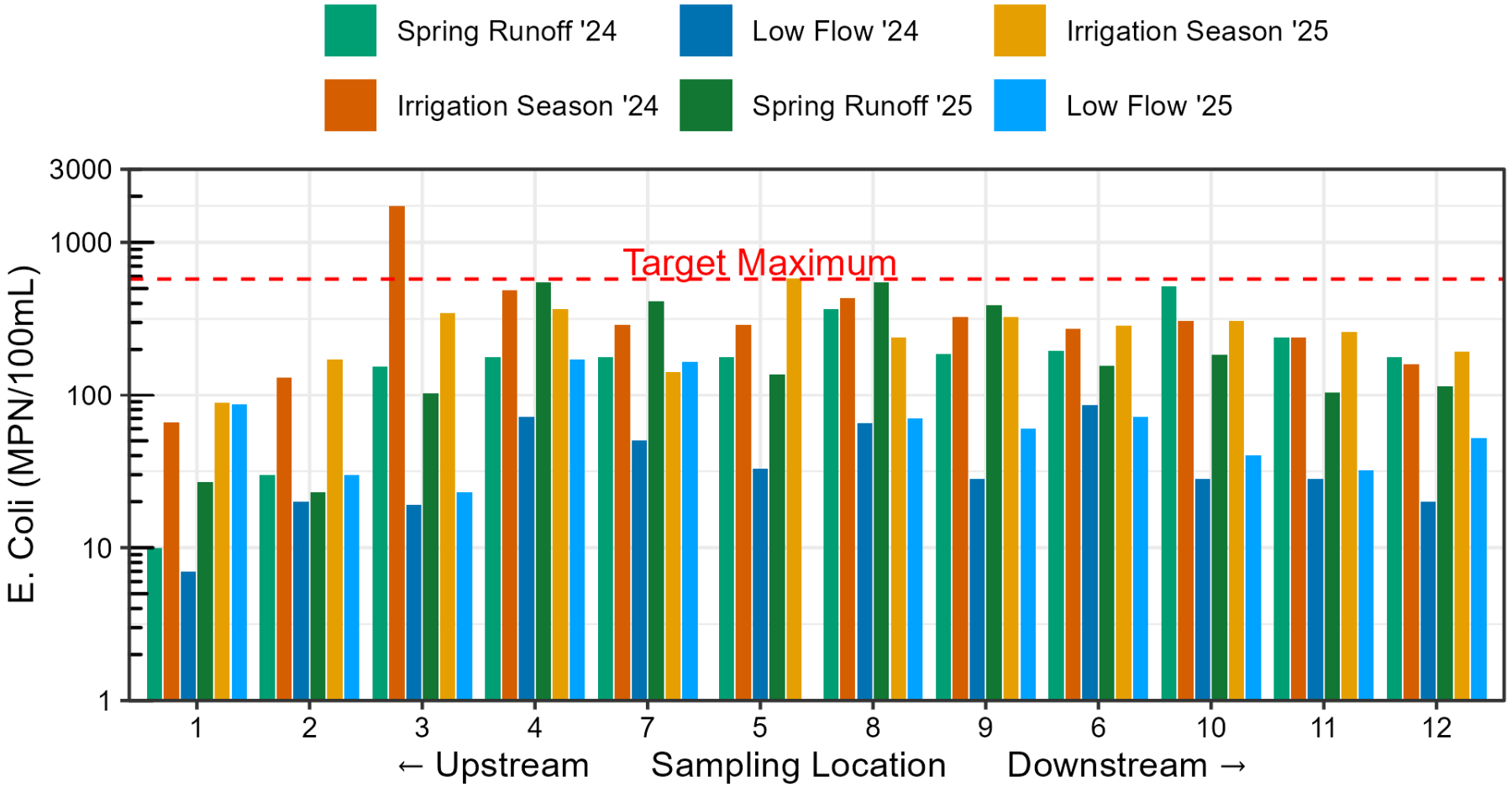
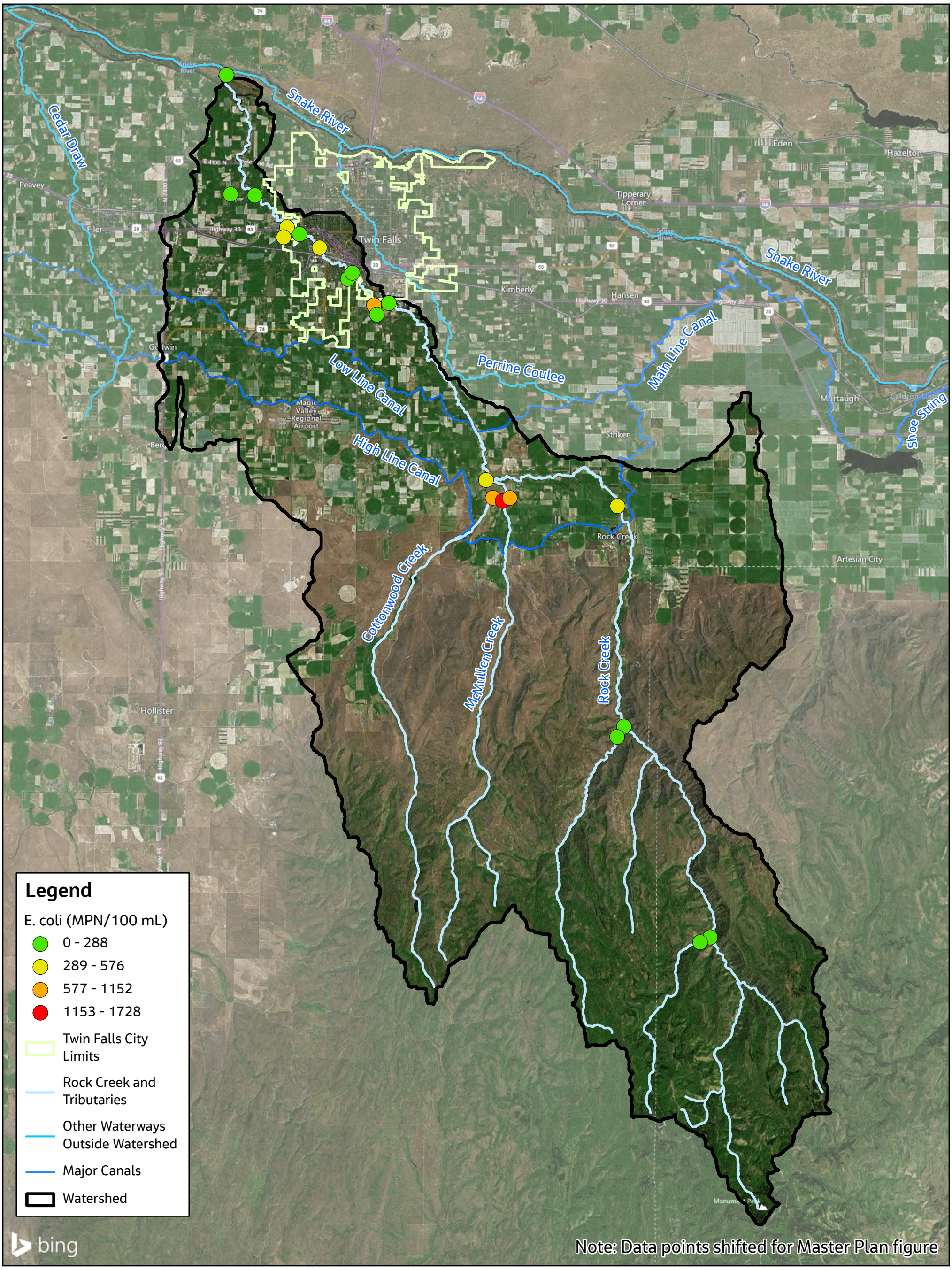
Figure 3-9. *E. coli* Concentrations along Rock Creek Main Stem





Locator Map



Figure 3-10
E. coli Concentrations throughout Rock Creek Watershed, Summer 2025 Sampling Event

Rock Creek Watershed
Restoration Master Plan

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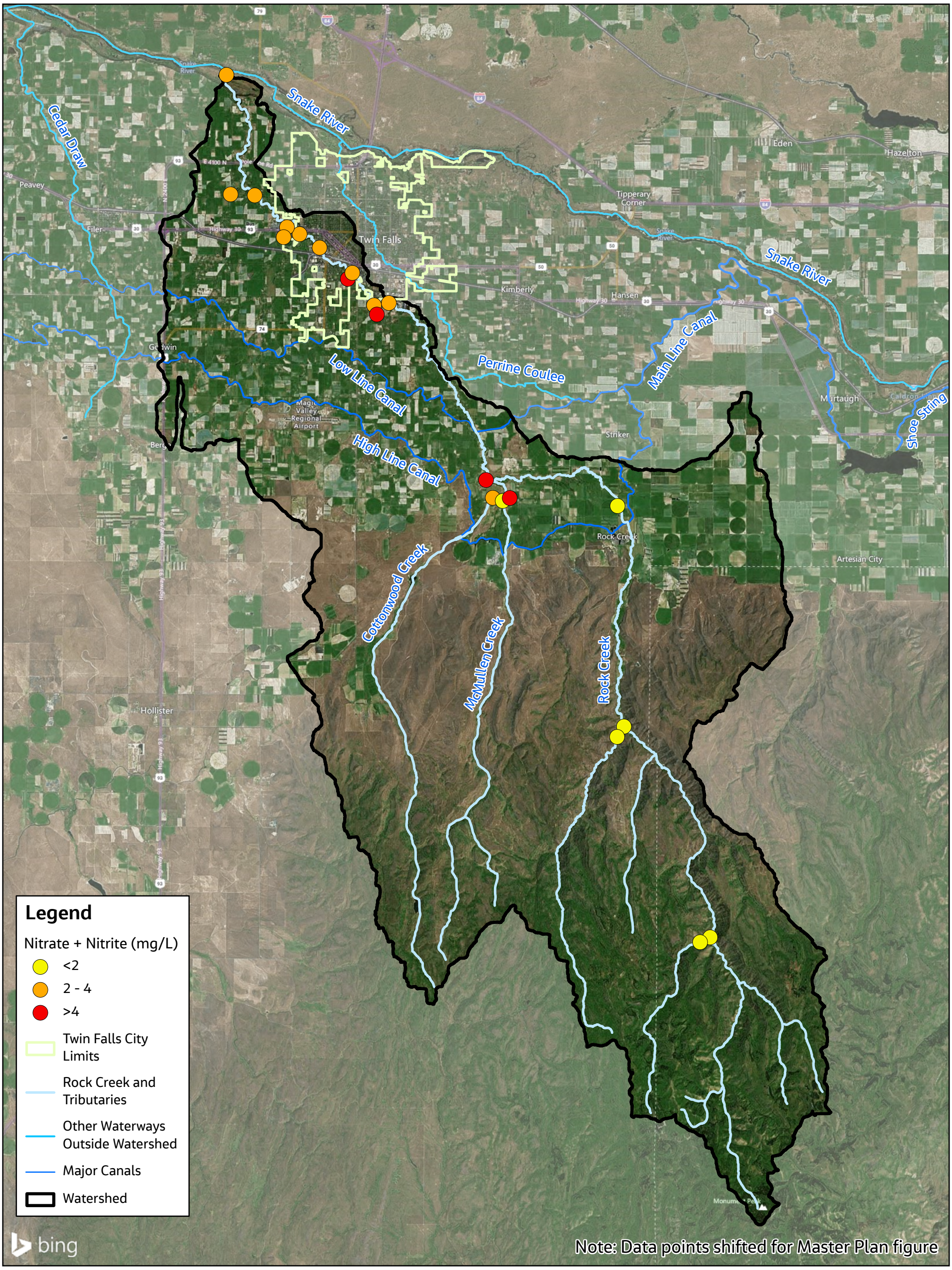

Locator Map



Figure 3-11
Nitrate + Nitrite Concentrations throughout Rock Creek Watershed, Fall 2024 Sampling Event

Rock Creek Watershed
Restoration Master Plan

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3.3 Agricultural Field Erosion Potential

Understanding agricultural field erosion potential is essential for identifying the areas most vulnerable to contributing elevated sediment and phosphorus loads to Rock Creek and for directing restoration measures where they will have the greatest impact. Erosion from exposed croplands is a primary source of sediment-bound nutrients—particularly phosphorus—that can degrade water quality and can contribute to downstream impairment. This knowledge can also help target conservation practices, prioritize producer outreach, and guide strategic investments in watershed restoration. The Erosion Vulnerability Assessment for Agricultural Lands (EVAAL) tool provides a science-based method for mapping relative erosion vulnerability and supporting data-driven decisions that address the root causes of sediment and nutrient loading to Rock Creek.

3.3.1 EVAAL Tool Background

The EVAAL is a GIS-based tool that was used to identify cropland areas that are more susceptible to erosion, which would have the potential to contribute higher amounts of sediment and phosphorus to Rock Creek. An EVAAL analysis produces a relative index called the erosion vulnerability index; in other words, EVAAL does not estimate actual sediment or nutrient runoff.

The EVAAL tool was developed by the Wisconsin Department of Natural Resources to determine the erosion vulnerability of agricultural areas, but the tool is flexible enough that it can be used in different regions of the country that have different soils and climate conditions. EVAAL considers crop rotations, slope, soil types, precipitation, and concentrated flow paths. The erosion vulnerability index measures the combination of soil loss potential and stream power index.

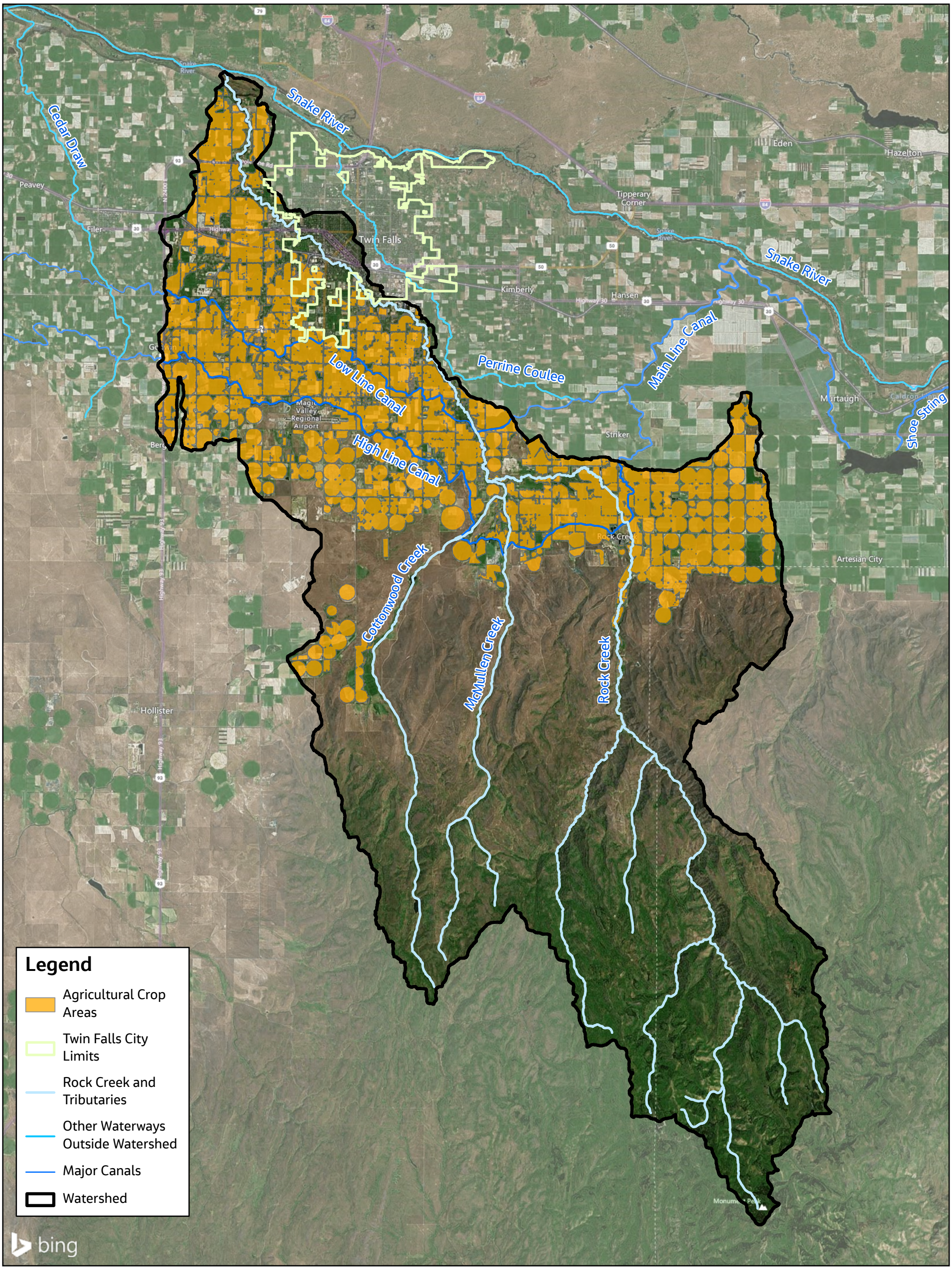
3.3.2 EVAAL Analysis Methods

The following data sources were used for the EVAAL analysis:

- Topography: LiDAR
- Crop areas (extents): USDA Cropscape and reviewed / edited manually based on aerial map review (**Figure 3-12**).
- Crop types / rotations: USGS Croplands

The EVAAL tool computes an erosion vulnerability index ranging from 0 to 3 with 3 being higher erosion potential. Two different approaches for using the EVAAL output were:

1. **Erosion hot spots**: Because the EVAAL tool computes a value for every raster cell, an approach for highlighting regions with higher erosion potential was needed. An iterative process was used to determine an index value that would create a map showing higher erosion regions within the watershed. The value that was selected was 2.3. Erosion hot spots would be used to help guide education and financial incentives for agricultural producers outlined in **Chapter 5**.
2. **Ranking potential regional runoff-focused agricultural projects**: The total amount of eroded material draining from a subwatershed (and to a regional project location) is a function of both watershed size and erosion potential. To account for both these factors, potential regional projects that are focused on treating spring runoff were screened based on watershed size multiplied by their average erosion vulnerability index. The same output was used as one of the water quality scoring criteria for runoff-focused agricultural projects described in **Chapter 4**.



Locator Map



Figure 3-12
Crop Area Extents Used in EVAAL Analysis

Rock Creek Watershed
Restoration Master Plan

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4. Process for Developing Master Plan Recommendations

There is no shortage of water quality improvement projects that could be built and initiatives that could be pursued in the Rock Creek watershed, but building every conceivable project or pursuing every possible initiative would be cost-prohibitive, time-consuming, and require extensive land dedication. Therefore, a successful Rock Creek Watershed Restoration Master Plan was designed to clearly identify projects and initiatives that were both scientifically effective and realistically achievable—those with proven effectiveness, practical feasibility, and strong implementation potential.

To that end, the Master Plan development process included a multi-faceted framework for selecting and prioritizing the most feasible, useful, and implementable projects and initiatives:

1. Visioning to align the City on the intended goals and outcomes;
2. Outreach to the community and City partners at the local, state, and federal level;
3. Collaborating with City staff, local watershed experts, and elected officials;
4. Engineering analysis and decision-making processes to both identify and screen potential project types and project locations throughout the watershed;
5. Developing a rigorous Multi-Objective Decision Analysis (called MODA for short) to provide a defendable and repeatable process for ranking the selected Top 20 projects; and
6. Identifying initiatives that can supplement large regional projects and sustain the momentum built through this Master Plan development process.

4.1 Public Engagement and Outreach

Public outreach played a critical role in developing the Rock Creek Watershed Restoration Master Plan, as it allowed the project team to directly incorporate community priorities, local knowledge, and stakeholder perspectives into the planning process. The goal was to foster meaningful collaboration to develop a shared community vision for restoring Rock Creek and create a Master Plan that reflects the values and priorities of the people who live, work, and recreate along the creek.

This effort began with a structured visioning phase within the City to refine the overarching goals, articulate a long-term vision for the creek, and establish priority themes to guide the planning process. These ideas were shaped by public and stakeholder input and were compiled into a visually rich Vision and Framework package that captures the community's aspirations for Rock Creek's future. The outreach effort then expanded to engage a wider network of agencies, landowners, community organizations, agricultural partners, and interested residents. A comprehensive public involvement plan guided this process and outlined the methods for reaching diverse audiences across the watershed. To support meaningful participation, the project team developed a variety of communication tools—presentations, survey instruments, workshop boards, and online content—for a series of workshops held at major project milestones. Feedback from stakeholder meetings, public workshops, and a comprehensive online survey was synthesized into a clear summary that was shared with the city and presented to City Council.

4.1.1 Public Engagement Goals

There were several goals for reaching out to both the public and agencies that have an interest in improving Rock Creek's water quality:

- Let the public know the City is leading preparation of this Master Plan and why this Master Plan is being developed.

- Confirm that interested people agree with the Master Plan development approach.
- Gain input on known problem areas or areas that are concerning.
- Get feedback on potential methods for improving Rock Creek's water quality.
- Describe the overall approach for selecting and ranking projects, and
- Inform the public of the selected Top 20 projects, next steps after the Master Plan completion, and how they can continue to get involved.

4.1.2 Levels of Involvement

A key consideration for any type of public engagement is balancing the time commitment that comes with being part of the process with the need to gain useful input. Therefore, groups were broken into four types of involvement in the Master Plan process, which are described in the following sections.

4.1.2.1 City Working Group

This group was comprised of primarily City staff with select individuals outside City staff on an as-needed basis. For example, Jason Brown (TFCC) and Brian Olmstead (Idaho Water Resource Board member, retired TFCC) joined the City Working Group to help review agricultural projects. The purpose of the City Working Group was to provide feedback on draft project recommendations, draft Master Plan, etc.

4.1.2.2 City Council

The City Council's role in this project was providing feedback on project updates presented at City Council meetings at various times throughout the Master Plan process and adopting the final Master Plan. Materials from the City Council presentations are also included in **Appendix E**.

4.1.2.3 Regional Representatives

Regional representatives included individuals from relevant local, state, and federal entities (such as IDEQ, IDWR, College of Southern Idaho, United States Army Corps of Engineers [USACE], BLM, etc.). This group also included a representative from Mike Simpson's office. This group's role was to provide feedback for messaging to the broader public prior to public workshops or meetings. Meeting / workshop materials are included in **Appendix E**.

- A chartering meeting with community leaders was held on October 15, 2024 with attendees from NRCS, TFCC, USFS, BLM, IDWR, and the City of Twin Falls. The meeting focused on the project vision, success factors, and background information on the watershed.
- An agricultural-group focused meeting was held on February 3, 2025 with attendees from NRCS, IDEQ, Idaho Dairymen's Association, College of Southern Idaho, TFCC, and the City of Twin Falls. The meeting was focused on implementation approaches for agricultural projects and best management practices.
- A workshop was held on June 10, 2025 to provide an overview and status update on the Master Plan process. Attendees were from College of Southern Idaho, Idaho Rivers United, Magic Valley Fly Fishers, IDWR, Ducks Unlimited, and the City of Twin Falls. In total, 12 community leaders attended the meeting and provided input on the project. Invitations were also sent to the University of Idaho Extension.
- A large meeting was held on December 16, 2025 to present the recommended and ranked Master Plan projects. Attendees were from NRCS, BLM, College of Southern Idaho, Idaho Dairymen's

Association, TFCC, and City of Twin Falls. Invitations were also sent to IDEQ, U.S. Army Corp of Engineers, USDA, BLM, IDWR, and USFS.

4.1.2.4 Public

This group includes both the general public and entities not included in the regional representatives group. This group's role was to provide feedback on information presented at public workshops and meetings. The list of public workshops and meetings are listed below with materials from those events included in **Appendix E**.

- A public workshop was held on June 18, 2025, at Rock Creek Park to gain community input. 50+ community members attended the workshop and provided input on locations of potential pollutants and ideas for locations and types of water quality improvement projects.
- A public online survey was developed to gather information on from on the community's input and perspective on the Rock Creek Watershed Restoration Master Plan project. A total of 136 responses were gathered and analyzed. As part of the online survey, an interactive map was shared with the community. The interactive map was developed using GIS and allowed community members drop pins at locations of known pollutant and/or locations for potential projects. 46 responses, including project recommendations and locations where impairment or sources of impairment exist, were received from the interactive map.
- The results from the public workshop and online survey indicated that Rock Creek is very important to the community, and there is overwhelming support for the project and vision. 85% of respondents from the online survey consider Rock Creek dirty, and 80% of responses from the online service support using public funds to improve water quality.

4.2 Identifying and Screening Potential Projects

Watershed master plans inherently begin by identifying the full range of potential projects that could improve water quality, habitat, and system resilience. To translate potential opportunities into effective projects, a master plan must apply a transparent, scientifically based screening process that evaluates each project's expected benefits, feasibility, and alignment with watershed needs. This approach allows the Rock Creek Watershed Restoration Master Plan to prioritize projects that provide meaningful reductions in sediment, nutrients, and bacteria while also balancing technical performance, cost, landowner and community support, regulatory considerations, and long-term implementation potential.

There are three primary mechanisms for reducing sediment, nutrients, and bacteria loads in Rock Creek:

1. Addressing the sources of these contaminants.
2. Treating runoff prior to reaching Rock Creek.
3. Improving water that is already in Rock Creek itself.

A successful Master Plan must determine the best combination of these three approaches considering a host of factors such as water quality benefit, reliability, public and landowner buy-in, funding needs, and regulatory and environmental considerations, and others.

Based on experience with previous successful watershed restoration efforts and the specific conditions of the Rock Creek watershed described in **Chapter 2** and **Chapter 3**, three types of water quality improvement projects were identified:

- **Urban Stormwater Projects:** These projects treat runoff from urban areas within the City of Twin Falls prior to reaching Rock Creek. These projects would fit into the second approach listed above for removing contaminants from Rock Creek.
- **Agricultural Regional Projects:** These projects treat spring runoff and/or summer irrigation return flows prior to that water entering or returning to Rock Creek. These projects also fit into the second approach.
- **River Corridor Projects:** These projects would stabilize eroding creek banks along Rock Creek and enhance natural connections between the creek and floodplain. These projects would fit into the third approach.

Figure 4-1 graphically illustrates the process that was used to identify, screen, and recommend the projects listed in this Master Plan. **Table 4-1** also summarizes some of the initial treatment opportunities that were identified based on the Rock Creek flow schematic (**Figure 2-12**, shown previously).

As the Master Plan projects are completed and Rock Creek's water quality continues to be monitored, if Rock Creek continues to show signs of impairment, this same selection process could be used to identify future recommended projects that were either screened out as part of this Master Plan or identify new projects.

Figure 4-1. Project Selection Process

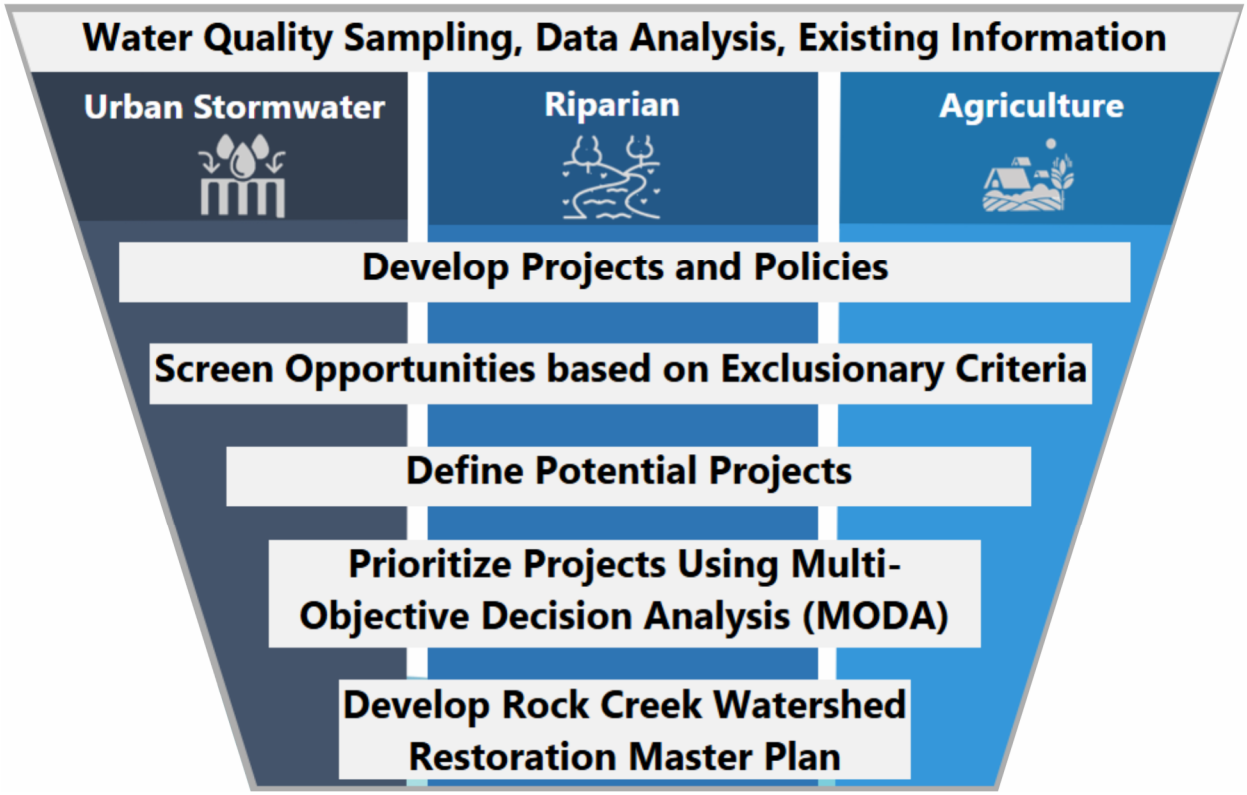

Table 4-1. Initial Identification of Treatment Opportunities in Rock Creek Watershed

Land Use	Elements of Rock Creek Watershed Water Management System	Feasibility of Master Plan Projects to Address Parameter *					Comment
		Total Phosphorus	Temperature	Total Suspended Solids	Bacteria	Runoff Volume	
Agricultural or Irrigated Lands	Diversion from Snake River (Main Canal)	-	-	-	-	-	The Master Plan is not considering changes to diversions or water rights.
	Water delivery to farms/fields/shareholders High/Low Line, Laterals, etc.	-	-	-	-	(see comments)	See Irrigation for volume.
	Private diversions within Rock Creek watershed (surface water or groundwater wells)	-	-	-	-	-	-
	Private water delivery to farms/fields	-	-	-	-	(see comments)	See Irrigation for volume.
	Irrigation	-	-	-	-	Yes	Optimize water volume applied to reduce runoff volume.
	Precipitation or irrigation runoff	Yes	Yes	Yes	Yes	(see comment)	Primary purpose of projects would be for water quality. Runoff volume reduction would likely be a secondary benefit. See Irrigation for primary runoff reduction opportunities.
	Channelized return flow to downstream user (channelized water delivered to downstream irrigation)	-	-	-	-	(see comments)	See Irrigation for volume.
	Channelized return flow (spilled) to Rock Creek or tributary	Yes	Yes	Yes	Yes	(see comments)	Primary purpose of projects would be for water quality. Runoff volume reduction would likely be a secondary benefit.
	Agricultural drain tile runoff (intercept runoff prior to joining channelized return flow or outfall to a tributary)	Yes	Yes	Yes	Yes	Yes (see comments)	Some water quality projects could achieve runoff volume reduction. See also Irrigation for Volume.
	Infiltrated water	-	-	-	-	-	-
	Tunnel discharge	Yes	(see comments)	Yes	Yes	-	Temperature: Tunnel water is generally cool water – not anticipating projects.
	Tunnel wells	Yes	(see comments)	Yes	Yes	-	Projects to consider similar to drinking water wellhead protection. Temperature: same as Tunnel Discharge.
	Tunnel water to Irrigation	-	-	-	-	-	
	Farm, livestock, barnyard, etc. runoff	Yes	Yes	Yes	Yes	(see comments)	Water quality projects may have a secondary benefit that reduce runoff volume.
	Seeps	Yes	(see comments)	Yes	Yes	-	Seep discharge is generally cool water – not anticipating projects.
	Sediment Ponds	Yes	Yes	Yes	Yes	-	-
	Spill to Snake River tributary	-	-	-	-	-	-
Urban	Urban stormwater runoff	Yes	Yes	Yes	Yes	Yes	-
Natural Areas	Ground water	-	-	-	-	-	-
	Surface water (Rock Creek and tributaries)	Yes	Yes	Yes	Yes	-	Water quality projects could include stream bank restoration, floodplain reconnection and wetland restoration, etc. Watershed BMPs may have a secondary benefit of reducing runoff volume within Rock Creek and its tributaries.
Climate	Precipitation	-	-	-	-	-	-

** Projects beyond the scope of the Master Plan are shown as a hyphen ("-"); projects may exist and may be considered and implemented by other stakeholders.*

4.2.1 Urban Stormwater Projects

Urban stormwater projects address the concentrated pollutant loads generated within the City of Twin Falls, where runoff from impervious surfaces can rapidly convey sediment, nutrients, bacteria, and other pollutants into Rock Creek during snowmelt and rainfall runoff events. Incorporating stormwater treatment, infiltration practices, and system retrofits allows the Master Plan to intercept and treat urban runoff before it reaches the creek, reducing pollutant loading and moderating hydrologic impacts such as erosion. These projects complement agricultural and river corridor strategies by targeting the urban portion of the watershed, where engineered and nature-based practices can result in immediate and measurable benefits to Rock Creek water quality.

4.2.1.1 Initial Project Location Identification

The urban portion of the Rock Creek watershed along with the 14 subwatersheds were delineated based on LiDAR data and City storm drain GIS data and are shown in **Figure 4-2**. The urban delineation map and outfall locations were used to determine potential locations of the urban water quality improvement projects. A combination of end-of-pipe solutions near existing stormwater outfalls and distributed solutions on existing vacant lots were evaluated as potential locations. This process yielded 16 initial stormwater projects locations that are shown in **Figure 4-2**.

4.2.1.2 Screening Process

Of the 16 original sites, nine were carried forward after screening for practicality, with long-term maintenance needs emerging as a key deciding factor alongside constructability, costs, land ownership, and the size of treatment facilities needed compared to available space. Lastly, the urban stormwater project lists were narrowed down to a final list of six project locations through workshops and discussions with City staff (**Figure 4-2**).

4.2.1.3 Treatment Approaches

Parallel to the stormwater delineation effort, a list of potential urban stormwater treatment approaches was developed using data from the International Stormwater Database. The database provided information on various stormwater technologies and their removal efficiencies for the primary pollutants of concern in the Rock Creek watershed (TSS, TP, and E. coli). Secondary pollutants of concern including total nitrogen, temperature, and flood control were also considered.

Using the database information combined with site / subwatershed conditions for each potential project location, a stormwater management approach was selected for each site. Given the primary pollutants of concern, potential sites were selected to use bioretention facilities where space was available. A conceptual schematic cross section of a biofiltration facility is included in **Appendix B**. One site was selected to be an underground stormwater proprietary treatment device because of insufficient space immediately adjacent to the existing storm sewer, although if a nearby lot becomes available, a bioretention facility could also be used at this site.

4.2.1.4 Sizing Approach

The concept-design footprint for each bioretention facility was estimated to be one percent of the contributing basin. Due to space limitations, flow splitters were included in the design when the required footprint was larger than the available space. The bioretention facilities assume an infiltration rate of 6 inches per hour. The underground treatment vault was sized based on an infiltration rate of 50 inches per hour. Therefore, the necessary treatment vault size is about eight times smaller than a bioretention facility.

The pretreatment pipes were sized based on the contributing basin area, estimated impervious area, the percent of flow treated, and Seattle Public Utilities and King County's "Design Guidance for Presettling Upstream of Bioretention Facility" (Herrera 2023).

4.2.1.5 Conceptual Designs and Costs

Conceptual designs and cost estimates were developed for each of the six Master Plan urban stormwater projects, which are included in **Appendix B**. Background for how the costs for each project were developed is included in **Section 4.3**.

In addition to the concept designs and cost estimates, a project cut sheet was created for each of the highest-ranking Master Plan urban stormwater projects (US2, US5, and US1), and these are included in **Appendix A**.

Legend

Urban Stormwater Project Locations

- Eliminated Based on Screening Criteria
- Eliminated Based on Discussions with City
- Final Master Plan
- Gravity Irrigation
- Stormwater Pipelines
- Urban Watersheds
- Twin Falls City Limits
- Rock Creek and Tributaries
- Other Waterways Outside Watershed
- Watershed

Locator Map



Figure 4-2
Urban Area within Rock Creek Watershed and Urban Stormwater Project Locations

Rock Creek Watershed
Restoration Master Plan

N

0 1,000 2,000 Feet

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4.2.2 Agricultural Projects

Agriculture is one of the defining land uses in the Rock Creek watershed and a major driver of the region's economic vitality. At the same time, the intensity and scale of agricultural production, combined with the irrigation infrastructure and erodible soils, make it a significant source of sediment and nutrient loading to Rock Creek. Spring snowmelt can mobilize phosphorus-rich sediments from fields and drainageways, while summer irrigation return flows often carry elevated nutrient concentrations after passing across fertilized cropland. Because these processes are inherent to working agricultural landscapes, watershed restoration must focus on strategically managing water as it leaves agricultural areas. The primary goal is to prevent pollution in the first place, and capture and treat polluted runoff in strategic locations that can have the greatest positive impact.

4.2.2.1 Initial Project Location Identification

Regional, large-scale agricultural projects were developed to treat agricultural runoff prior to discharging into Rock Creek or one of its tributaries. Two types of regional agricultural projects were identified through the master planning process:

- **Spring Runoff-Focused Agricultural Project**: These projects were designed to treat spring runoff, corresponding to the high spring TSS and TP concentrations. Initial potential project locations were identified through a qualitative review of regional drainage paths vulnerable to erosion. An initial list of 34 potential project locations was identified, as shown in **Figure 4-3**.
- **Irrigation Return Flow-Focused Project**: The second type of agricultural project was designed to treat irrigation return flows during the summer months when the TFCC canal system is servicing agricultural customers, and the canal return flow has high concentrations of nutrients from the farm field runoff. The locations of these agricultural projects were identified through conversations with the local watershed experts based on their observations and experience in the watershed and are shown in **Figure 4-3**.

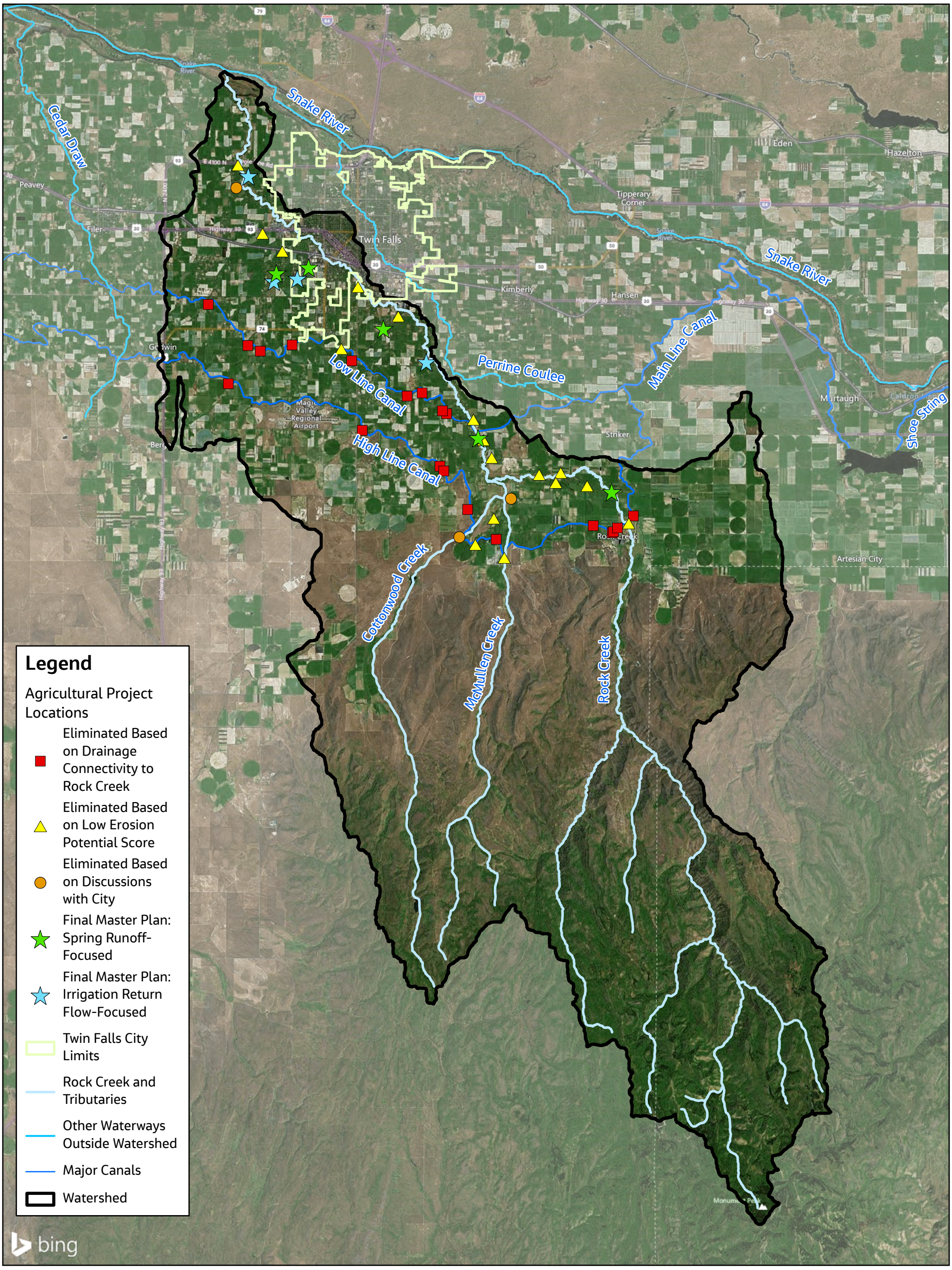
This collaborative, process-based approach helped generate a comprehensive list of candidate sites and informed the subsequent screening process that refined the list into the priority agricultural projects recommended in this Master Plan.

4.2.2.2 Screening Process

For the runoff-focused agricultural projects, the initial list was narrowed down to 20 (**Figure 4-3**) based on High Line and Low Line Canal siphon locations provided by TFCC. The siphon locations determined which agricultural regional drainages ultimately reach Rock Creek instead of being diverted out of the Rock Creek watershed via the two major canals.

For these remaining 20 potential projects, contributing watersheds were delineated and the overall erosion potential described in **Section 3.4** to narrow down the project list to six (**Figure 4-3**). Subsequent discussions with City staff and local watershed experts finalized the agricultural projects focused on spring runoff to four, which are shown in **Figure 4-3**.

For the projects focused on irrigation return flow, no screening was done other than reviewing and confirming the project locations identified by the local watershed experts with City staff. A total of five agricultural projects to treat summer irrigation return flows were identified, as shown in **Figure 4-3**, making a total of nine agricultural projects recommended for the Master Plan.



Locator Map



Figure 4-3
Agricultural Project Locations

Rock Creek Watershed
Restoration Master Plan

N

0 1 2 3 Miles

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4.2.2.3 Treatment Approaches

The treatment approach evaluation focused on comparing several conceptual treatment facility types and configurations to determine which combination of sediment capture, constructed wetland treatment, and subsurface polishing cells would provide the most effective and practical water-quality improvements for agricultural runoff in the Rock Creek watershed. Three different agricultural facility treatment options were evaluated:

1. Option 1 consists of a sediment pond and a free water surface (FWS) treatment wetland. This treatment approach would be highly effective for improving water quality by trapping both sediment and sediment-bound phosphorus but would have marginal treatment of dissolved phosphorus. This approach could have temperature impacts to Rock Creek during the hottest months of the year due to the open water areas that absorb heat during long, sunny days.

2. Option 2 consists of a sediment pond, a FWS treatment wetland, and a polishing wetland treatment cell. The polishing cell would be a subsurface flow through cell filled with biochar, zeolite, or other treatment media that can provide excellent removal of dissolved phosphorus, nitrogen, TSS, and other contaminants of concern. Further, because the polishing cell is subsurface flow, this approach could have modest temperature benefits for Rock Creek.

3. Option 3 consists of a sediment pond, subsurface treatment wetland (instead of a FWS treatment wetland), and a polishing wetland treatment cell. The sediment pond and subsurface / FWS treatment wetland for Option 3 are larger than Option 2. This approach would provide similar but improved sediment and phosphorus treatment as Option 2 due to the greater hydraulic residence time and treatment. This option could also provide temperature benefits to Rock Creek.

To determine best treatment option for the agricultural projects, the preliminary MODA score and cost estimate were prepared for all three options at a single site. Based on that preliminary MODA score and cost, Option 2 was ranked highest and, therefore, chosen as the treatment option for all agricultural projects.

4.2.2.4 Sizing Approach

For the sediment pond and FWS treatment wetland, the volume provided for the conceptual design was roughly estimated based on 0.25-inch of runoff over the contributing watershed. A half-inch of runoff is used for sizing water quality features in wetter climates, so one-half that runoff depth was selected to account for the more arid climate in southern Idaho. The footprint for the sediment pond and FWS treatment wetland was based on a depth of 10 feet and 5 feet, respectively. For the five projects designed to treat irrigation return, the facility size was estimated based on the estimated maximum irrigation return flow provided by local watershed experts.

For the polishing wetland treatment cell, hydraulic residence time (HRT) is a measure for how much time it takes for water to move through a treatment wetland, and it is an important component of wetland design because it directly influences performance, vegetation health, sedimentation effectiveness, and long-term function. An estimate of the needed HRT for the master plan agricultural projects was made by comparing the anticipated flows for the agricultural projects to flows used to design other successful polishing wetland treatment cells and adjusting the footprint of the polishing wetland treatment cell by the ratio of the flows.

4.2.2.5 Conceptual Designs and Costs

Conceptual designs and cost estimates were developed for each of the nine Master Plan agricultural projects, which are included in **Appendix B**. Background for how the costs for each project were developed is included in **Section 4.3**.

In addition to the concept designs and cost estimates, a project cut sheet was created for each of the highest-ranking Master Plan agricultural projects (AG5, AG6, AG3, AG9, and AG7), and these are included in **Appendix A**.

4.2.3 River Corridor Projects

River corridor projects focus on improving the physical condition and functional connectivity of Rock Creek itself—where channel form, bank stability, and floodplain access strongly influence sediment delivery, habitat quality, and overall watershed response. Because the creek's geomorphic condition governs how it conveys flow, dissipates energy, and interacts with its floodplain, restoring connectivity is a key strategy for reducing erosion and improving water quality. To identify locations where restoration would provide the greatest benefit, the Rock Creek corridor was evaluated for longitudinal, lateral, and vertical connectivity using a combination of GIS-based terrain analyses, LiDAR-derived metrics, and field observations. This assessment provided the foundation for identifying and screening potential project locations that address channel instability, floodplain disconnection, and other structural drivers of water-quality impairment.

4.2.3.1 Initial Project Location Identification

Initial river corridor project locations were identified by evaluating the connectivity of Rock Creek throughout the watershed. The Rock Creek watershed was analyzed for longitudinal, lateral, and vertical connectivity.

Longitudinal connectivity was evaluated using the Rock Creek channel profile and GIS layers for roads and diversions. Lateral connectivity was evaluated using the USGS topographic openness tool that uses slope angles derived from LiDAR data (USGS 2024). Using both the USGS reference as a guide and correlating results with in-field observations of creek bank conditions near water quality sampling sites, an openness value between 77 and 80 degrees was assigned a "moderate severity" and a value over 80 degrees was assigned a "high severity". **Figure 4-4** shows an example of the filtered openness tool output along with a photograph of an eroding bank in the same location (Kokaji et. all 2013).

Vertical connectivity was evaluated using a relative elevation model (REM), which estimates the elevation difference between a typical creek flow level and adjacent floodplain. An output example for a REM is shown in **Figure 4-5**. Floodplain areas with a low difference indicate high connectivity already and areas with very high difference would be cost-prohibitive to excavate. Therefore, initial project locations were identified based on differences between the creek and floodplain of about three to six feet as a guide.

Based on the lateral and vertical connectivity analysis, 25 initial project locations were identified, as shown in **Figure 4-7**.

4.2.3.2 Screening Process

A screening framework (**Figure 4-6**) was used to classify potential river corridor project locations into three tiers: higher, medium, and low. The project locations were screened based on their connectivity (lateral, vertical, and/or longitudinal), property ownership (public, private – individual, or private – entity), and the project location relative to water quality issues as determined by the collected water quality data. The 25 project locations fell into the three tiers as follows: five in the higher tier, 11 in the medium tier, and nine in the lower tier.

The screening tool results were presented to the City in a workshop. Based on those discussions, one higher-tier project was eliminated from the recommended Master Plan project list, and one medium tier project and one lower tier project were included in the final Master Plan project list. **Figure 4-7** also shows the final recommended Master Plan river corridor project locations.

Figure 4-4. River Corridor Project Screening – Openness Tool Example Corresponding to Eroding Bank

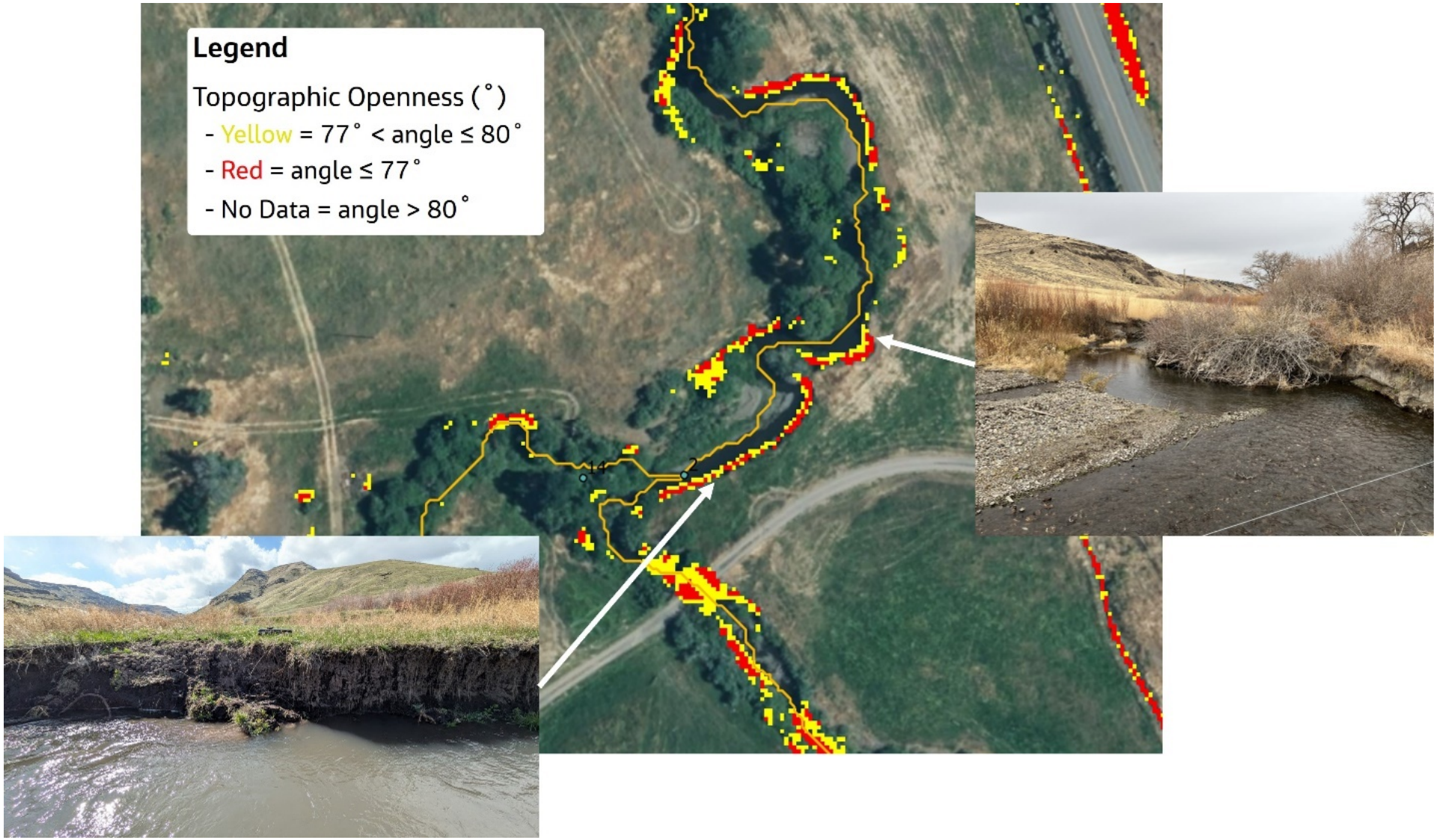


Figure 4-5. River Corridor Project Screening – Relative Elevation Model (REM) Example Output

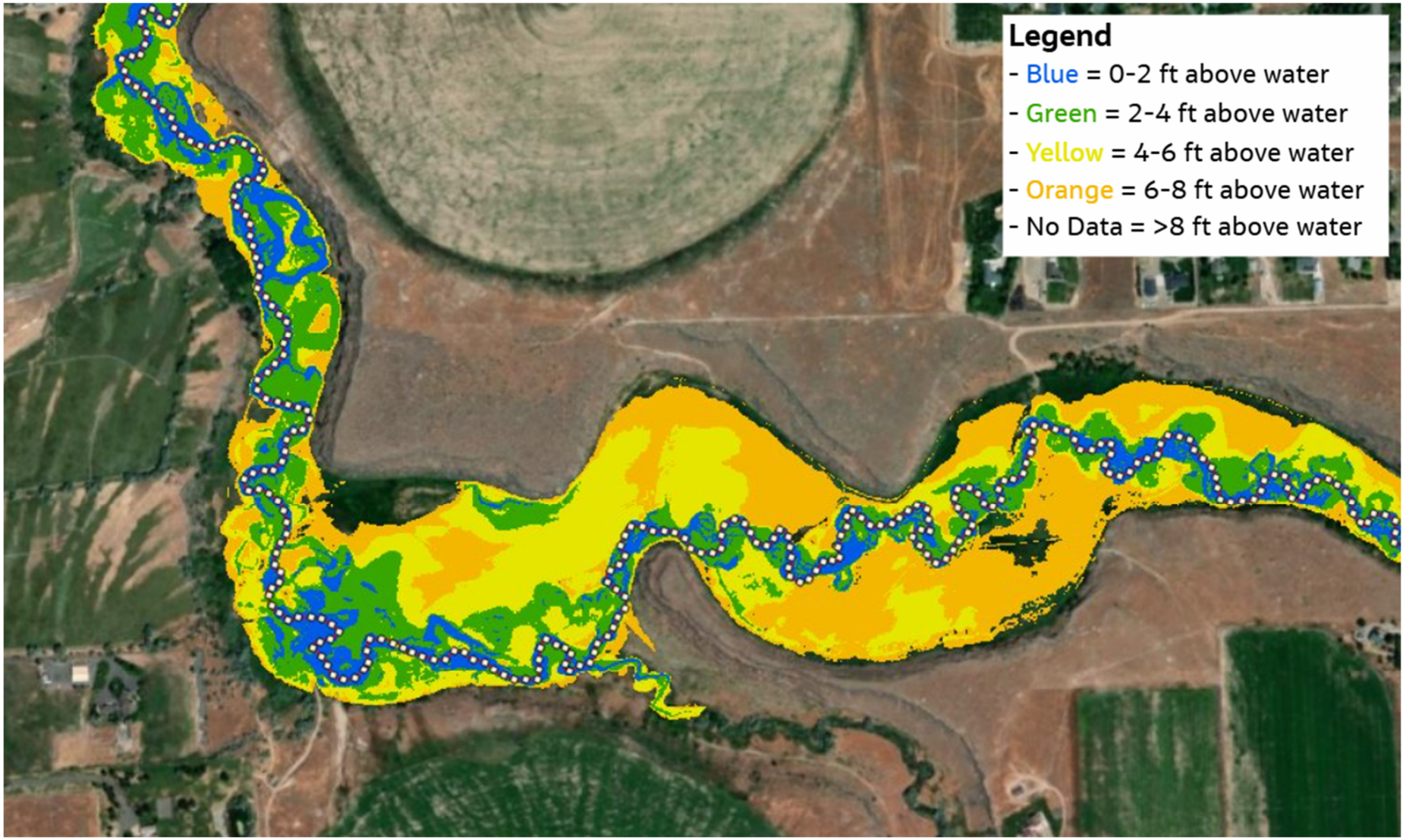
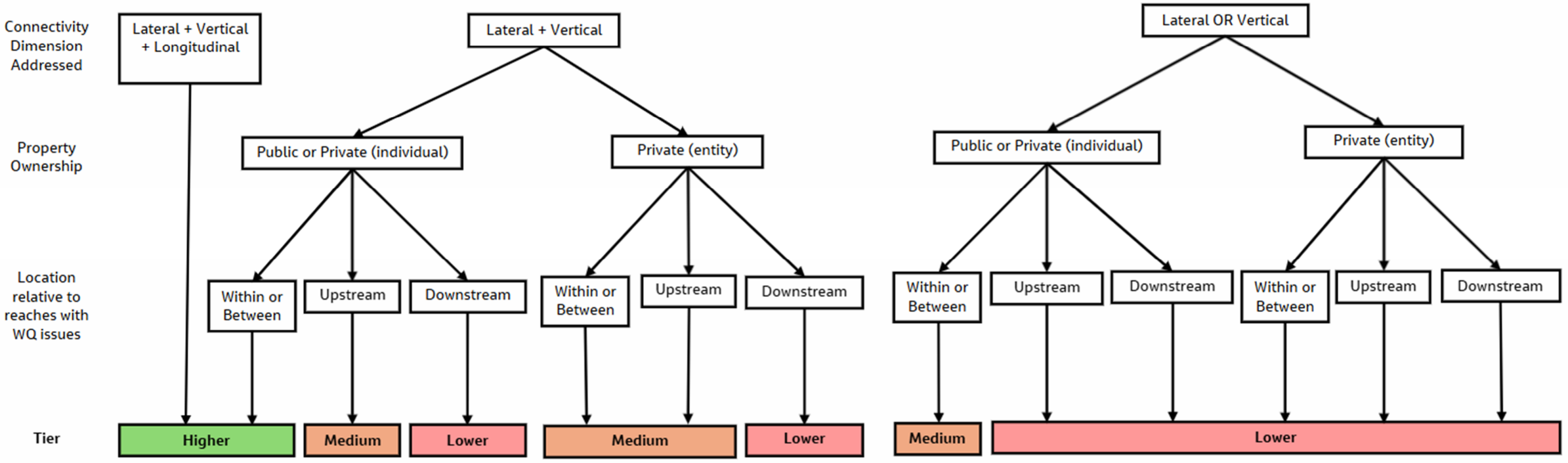
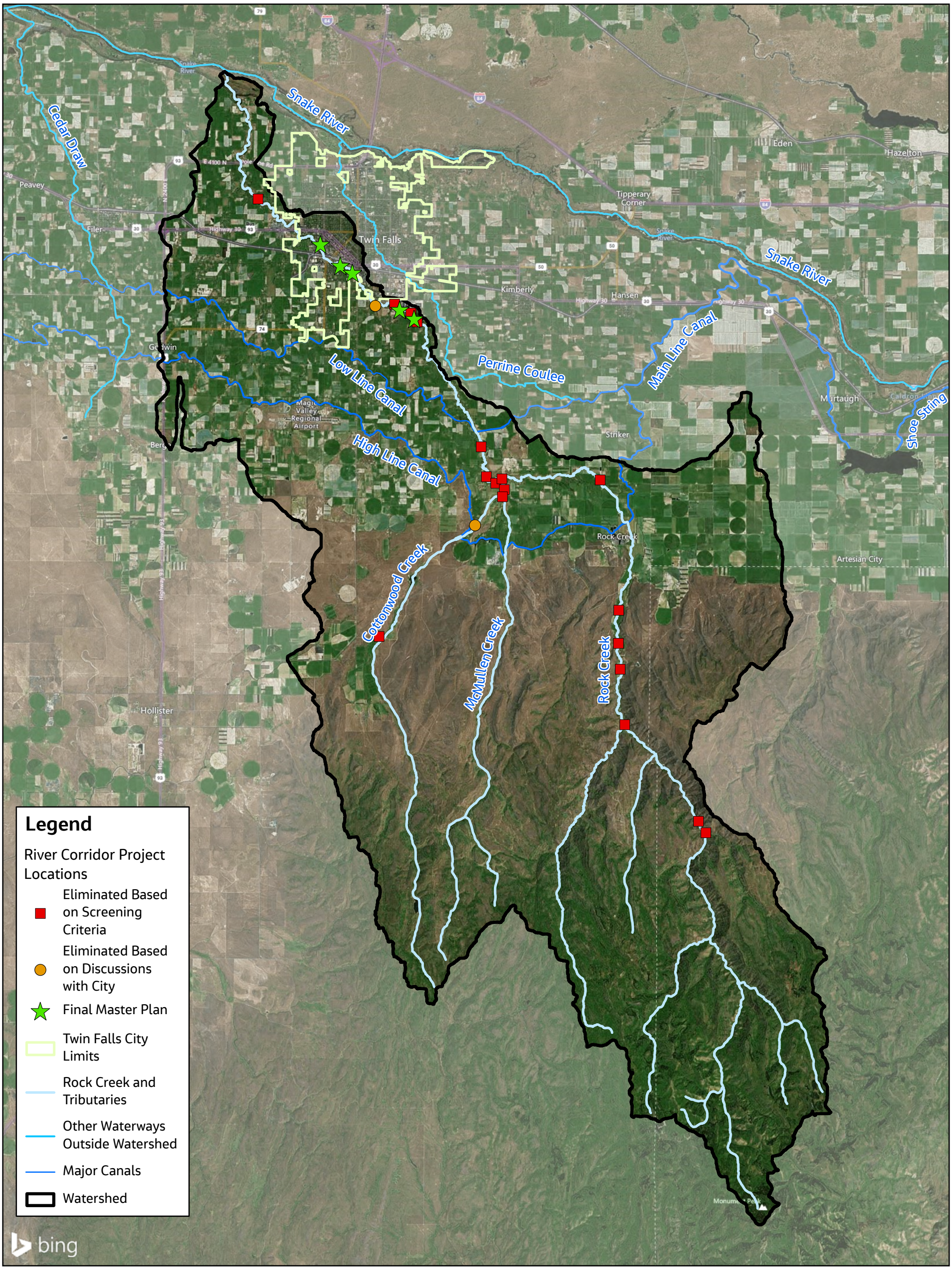


Figure 4-6. River Corridor Project Screening – Initial Screening Framework





Locator Map



Figure 4-7
River Corridor Project Locations

Rock Creek Watershed
Restoration Master Plan

N

0 1 2 3 Miles

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4.2.3.3 Riparian Restoration Approach

Experience from numerous river-corridor restoration efforts demonstrates that bank instability, whether expressed as lateral erosion, vertical incision, or both—typically results from a mismatch between existing channel and floodplain geometry and the hydrologic forces acting on the system. When the channel cannot dissipate energy through natural floodplain interaction, flows accelerate, shear stress increases, and sediment is mobilized, leading to chronic bank erosion and elevated sediment and nutrient loading to the creek.

Project locations exhibiting limited lateral connectivity present opportunities to re-establish the creek's relationship with its floodplain. Streambank stabilization, floodplain reconnection, and enhanced riparian shading can slow erosive forces, trap sediment, reduce peak temperatures, and promote vegetation communities that improve nutrient uptake and bank strength. Sites with restricted vertical connectivity, where the channel is incised below its floodplain, benefit from in-channel restoration or targeted floodplain reconnection measures. By reducing channel depth and restoring hydrologic exchange between the creek and adjacent floodplain surfaces, these treatments improve energy dissipation, increase groundwater–surface water interaction, and enhance natural sediment deposition processes. Together, these improvements reduce erosion risk and support biologically beneficial temperature regimes. Although some locations exhibited limited longitudinal connectivity, interventions such as culvert retrofits, step-pool channels, or barrier modifications were not advanced because they do not provide meaningful water-quality improvement relative to the Master Plan's goals.

The following list summarizes potential riparian design and restoration techniques and long-term practices that could be used based on site-specific circumstances, needs, and desired outcomes:

Bank Stabilization and Erosion Reduction

- Grading over-steepened or vertical banks to stable slopes.
- Installing toe-wood or vegetated toe protection to reduce shear stress and trap sediment.
- Using willow stakes, native shrub plantings, or brush layering to reinforce banks biologically.
- Placing large woody material (LWM) or small engineered log structures to reduce erosive velocities and promote sediment deposition.
- Applying soil lifts or vegetated geogrids where structural and vegetative stabilization are both required.

Riparian Vegetation Establishment and Shading

- Planting native riparian trees, shrubs, sedges, and grasses to improve bank stability, filter runoff, and lower stream temperatures.
- Re-establishing continuous tree canopy cover through focused shading projects in unshaded reaches.
- Removing invasive species and replacing them with native vegetation to improve bank resilience and nutrient uptake.
- Installing temporary irrigation for plant establishment in dry, exposed reaches.

Floodplain Reconnection and Hydrologic Restoration

- Creating inset floodplain benches to increase lateral connectivity and dissipate flow energy during high-flow events.

- Lowering or terracing over-elevated floodplain surfaces to allow more frequent inundation.
- Reconnecting side channels, backwaters, or abandoned floodplain features to enhance nutrient processing and flow dispersion.
- Removing or breaching berms, levees, or legacy fill that cut off the creek from its natural floodplain.
- Enhancing groundwater–surface water interactions by reducing channel incision where feasible.

In-Channel Habitat and Stability Enhancements

- Adding wood structures to create pool-riffle diversity, slow velocities, and encourage sediment sorting.
- Constructing riffles or riffle complexes that stabilize bed elevation, improve oxygenation, and enhance habitat.
- Installing simple flow-deflection structures (e.g., rock vanes or J-hooks) where appropriate to redirect erosive forces away from vulnerable banks.
- Augmenting bed material in armored or degraded reaches to improve substrate conditions and reduce incision risk.

Temperature and Nutrient Mitigation Through Riparian Function

- Increasing canopy cover to reduce solar heating and protect sensitive aquatic species.
- Expanding vegetated buffers to intercept runoff-borne nutrients and sediment before they reach the creek.
- Enhancing floodplain roughness (e.g., wood, vegetation clusters) to promote retention and settling of sediment-bound phosphorus.
- Creating shallow floodplain wetlands or backwater alcoves that support nutrient uptake and transform nitrogen.

Livestock and Land-Use Management in Riparian Areas

- Installing exclusion fencing in sensitive riparian zones to allow natural vegetation recovery.
- Developing managed access points or hardened stream crossings to reduce trampling and localized erosion.
- Partnering with agricultural operators to establish riparian buffer strips along tributaries draining to Rock Creek.

Upland–Riparian Transition Improvements

- Stabilizing contributing gullies, headcuts, or steep drainage pathways that feed sediment directly to the creek.
- Improving road/ditch drainage near the corridor to prevent concentrated flow from eroding banks.
- Implementing erosion control mats, wattles, or native seeding on disturbed areas adjacent to the riparian corridor.

Passive, Process-Based Restoration

- Allowing natural recovery through grazing exclusion and vegetation protection in less-disturbed reaches.
- Supporting natural recruitment of woody vegetation by improving moisture conditions and reducing stressors.
- Using beaver-based restoration approaches (e.g., beaver dam analogs or post-assisted log structures) in tributaries or low-gradient areas where appropriate to increase floodplain inundation, raise water tables, and trap sediment.

In summary, river corridor treatment approaches in the Master Plan focus on bank stabilization, riparian restoration, and floodplain reconnection—strategies that directly address the structural drivers of erosion and improve the creek's capacity to naturally reduce sediment and nutrient loads.

4.2.3.4 Approach to Estimating Geometry of River Corridor Projects

Bank stabilization extents were estimated to eliminate areas of high and moderate severity bank slopes. The height for the bank stabilization was based on a rough estimate of the average difference between the creek bed and floodplain bench. Where floodplain benches were proposed to be lowered, the lowered elevation was used.

For floodplain lowering, an average excavation depth of 3 feet was used recognizing that the depth will vary in a final design.

4.2.3.5 Conceptual Designs and Costs

Conceptual designs and cost estimates were developed for each of the five Master Plan river corridor projects, which are included in **Appendix B**. Background for how the costs for each project were developed is included in **Section 4.3**.

In addition to the concept designs and cost estimates, a project cut sheet was created for each of the highest-ranking Master Plan river corridor projects (RC2 and RC3), and these are included in **Appendix A**.

4.3 Cost Estimating Approach

Conceptual designs and planning-level cost estimates were developed for each of the Master Plan projects to provide a preliminary understanding of their scale, configuration, investment requirement, and implementation needs, which were essential for project prioritization. These conceptual designs illustrate the general layout and major functional components of each proposed facility, including grading concepts, treatment mechanisms, conveyance modifications, anticipated footprint requirements, and potential integration with existing infrastructure.

Construction costs were estimated based on a combination of experience from previous construction projects, specific site conditions such as access, and the conceptual designs shown in **Appendix B**. Recognizing that the design could change considerably between the conceptual and final design, costs are expected to vary between the costs presented in this Master Plan and the final construction cost. The Association for the Advancement of Cost Engineering (AACE) guidelines for expected accuracy of a cost estimate based on the level of design was used.

A conceptual design is generally considered to be less than a 10% design, as no site-specific data has been collected at this stage. AACE considers a Class 5 (0 to 2% design) or a Class 4 (1% to 15% design) cost estimate to be appropriate for this level of design. A Class 5 estimate accuracy was used, which can

range from -50% to +100% when comparing the estimate at conceptual design to the final construction estimate. By comparison, a Class 4 cost accuracy range is considered to be -30% to +50%.

The low-end and high-end values using the Class 5 range are also reported in the cost estimates included in **Appendix B**.

4.4 Project Prioritization

Because it is cost-prohibitive to build all 20 recommended projects at once or even over the span of a few years, we developed a rigorous Multi-Objective Decision Analysis, called MODA for short, to help the City prioritize the 20 projects. The MODA process involved several steps, and each step was completed through a collaborative and iterative process with key City representatives.

Steps in MODA Process

1. **Step 1:** Develop several criteria that would raise or lower the project's importance and/or make the project easier to move forward to construction. These criteria do not include the estimated project cost, which is factored in later.
2. **Step 2:** Create a scoring approach for each criterion.
3. **Step 3:** Determine the relative importance of each criterion recognizing that some criteria hold more weight for determining a project's importance or making a project easier to get to construction.
4. **Step 4:** Assign scores for each criterion for all 20 projects.
5. **Step 5:** Compute a score for each project based on the scores assigned in Step 4 and the relative importance factors from Step 3. This score does not yet factor in project cost.
6. **Step 6:** For each project, combine the score computed in Step 5 with an index score representing the project's cost to come up with an overall combined score.
7. **Step 7:** Rank each project based on the combined overall score from Step 6.

4.4.1 Step 1: Developing Criteria

For the MODA process, five main criteria and various sub-criteria were developed based on a combination of the Master Plan's purpose, experience moving projects forward, and discussions with City staff.

Table 4-2 summarizes the MODA criteria and sub-criteria. For all the project types (urban stormwater, agricultural, and river corridor), the main criteria and all sub-criteria except water quality improvement were chosen to all be the same. Because the drivers for how much a project could provide water quality treatment are different for the different project types, the water quality sub-criteria were set differently for each project type. Further, because runoff-focused agricultural projects and irrigation return flow-focused projects have very different flow regimes, these projects were also scored differently for water quality improvement.

Table 4-2. Main Criteria and Sub-Criteria for Each Project Type

Agricultural Spring Runoff Focused	Agricultural Irrigation Return Flow Focused	River Corridor	Urban Stormwater
Non-Monetary Criteria	**Non-Monetary Criteria**	**Non-Monetary Criteria**	**Non-Monetary Criteria**
1. Water quality improvement	**1. Water quality improvement**	**1. Water quality improvement**	**1. Water quality improvement**
1a. Expected Sediment Loading Contributing to Sediment or Wetland Basin	1a. Presence of Furrow Irrigation Practices	1a. Area of Bank Restoration / Stabilization	1a. Treatment Area * Impervious %
1b. # of Animal Units in Watershed	1b. Approximate Irrigation Return Flows	1b. Area of Floodplain Reconnection / Restoration	
1c. Expected Water Quality Treatment	1c. Expected Water Quality Treatment	1c. Proximity to City Portion of Rock Creek	
1d. Proximity to City Portion of Rock Creek	1d. Proximity to City Portion of Rock Creek		
2. Aids in future WW permit compliance	**2. Aids in future WW permit compliance**	**2. Aids in future WW permit compliance**	**2. Aids in future WW permit compliance**
3. Successful implementation	**3. Successful implementation**	**3. Successful implementation**	**3. Successful implementation**
3a. Willingness of landowner	3a. Willingness of landowner	3a. Willingness of landowner	3a. Willingness of landowner
3b. Ease of permit acquisition	3b. Ease of permit acquisition	3b. Ease of permit acquisition	3b. Ease of permit acquisition
3c. Complexity of annual O&M	3c. Complexity of annual O&M	3c. Complexity of annual O&M	3c. Complexity of annual O&M
3d. Complexity of major maintenance	3d. Complexity of major maintenance	3d. Complexity of major maintenance	3d. Complexity of major maintenance
3e. Frequency of major maintenance	3e. Frequency of major maintenance	3e. Frequency of major maintenance	3e. Frequency of major maintenance
3f. Ease of Access	3f. Ease of Access	3f. Ease of Access	3f. Ease of Access
4. Additional benefits	**4. Additional benefits**	**4. Additional benefits**	**4. Additional benefits**
4a. Flood damage mitigation	4a. Flood damage mitigation	4a. Flood damage mitigation	4a. Flood damage mitigation
4b. Habitat value	4b. Habitat value	4b. Habitat value	4b. Habitat value
4c. Recreational value	4c. Recreational value	4c. Recreational value	4c. Recreational value
4d. Opportunity for collaboration	4d. Opportunity for collaboration	4d. Opportunity for collaboration	4d. Opportunity for collaboration
4e. Opportunity to build momentum	4e. Opportunity to build momentum	4e. Opportunity to build momentum	4e. Opportunity to build momentum
4f. Could help meet pending MS4 requirements	4f. Could help meet pending MS4 requirements	4f. Could help meet pending MS4 requirements	4f. Could help meet pending MS4 requirements
4g. Aesthetic value	4g. Aesthetic value	4g. Aesthetic value	4g. Aesthetic value
5. Projected Additional Non-City Funding	**5. Projected Additional Non-City Funding**	**5. Projected Additional Funding**	**5. Projected Additional Funding**
5a. Likelihood of additional funding	5a. Likelihood of additional funding	5a. Likelihood of additional funding	5a. Likelihood of additional funding
5b. Estimated funding amount	5b. Estimated funding amount	5b. Estimated funding amount	5b. Estimated funding amount
Capital Cost (Class 4-5)	**Capital Cost (Class 4-5)**	**Capital Cost (Class 4-5)**	**Capital Cost (Class 4-5)**

4.4.2 Step 2: Create Scoring Approach

For each sub-criteria, a scoring approach was developed such that high scores would increase a project's priority and low scores would decrease the project's priority. Most scoring approaches were based on a qualitative 1 to 5 scoring range, but some scoring sub-criteria (namely water quality improvement) were typically based on a calculation.

Table 4-3 through **Table 4-6** summarize the scoring approach for each project type.

4.4.3 Step 3: Assign Relative Importance

The relative importance for each main criterion was assigned separately by several City staff, and the average of each of the assigned importance was used in the MODA. Sub-criteria weights that fed into the main criteria were assigned by Jacobs staff and reviewed by City staff. Weight percentages for each main criterion and sub-criterion are listed in **Table 4-7**.

A sensitivity analysis was completed once the preliminary MODA scores were assigned to assess whether using the average or an individual City staff's weights made a significant difference in the MODA outcomes. In general, project ranking was fairly consistent (within 3 to 5 ranking orders) except for a few projects such as US1, US3, and RC3. These projects had rankings that differed by 9, 14, and 8 spots depending on the weights used.

General consistency in ranking with some projects having a wider variability demonstrates that the tool is robust and that the weighting factors / scores do have an impact on a project's score.

4.4.4 Step 4: Assign Scores

Table 4-8 through **Table 4-11** summarize the scores and the corresponding rationale for all the project types.

4.4.5 Steps 5 through 7: Compute Overall Project Scores and Rank

Table 4-12 summarizes each of the 20 project scores including and not including the cost factored in. If a project scores the highest possible score in every sub-criterion possible, the MODA tool would assign that project a score of 100. Based on previous experience, creating a maximum possible cost score that is slightly less than the MODA score is the most equitable approach, so a maximum cost score of 75 was selected, creating a maximum possible combined score of 175.

Table 4-3. Urban Stormwater Scoring Approach

Non-Monetary Criteria	Measure	Poor Outcome	Medium Outcome	Excellent Outcome
1. Water quality improvement				
1a. Treatment Area * Impervious %	1-5, 5 is best	Treatment area is less than 10 acres	Treatment area is between 40 and 70 acres	Treatment area is greater than 100 acres
2. Aids in future WW permit compliance	1-5, 5 is best	Can neither calculate sediment / nutrient removal with industry standard methods or practically monitor sediment / nutrients.	Can calculate sediment / nutrient removal using industry standard methods but monitoring is either not possible or would add significant costs to project.	Can **both** monitor influent / effluent water quality **and** sediment / nutrient removal can be calculated with industry standard methods.
3. Successful implementation				
3a. Willingness of landowner	1-5, 5 is best	Privately owned by entity or individual with no contact or known opposition to project implementation	Landowner has been contacted and expressed neutral or conditional interest (e.g., wants more information, has concerns, or is waiting on funding/permitting). OR State or Federally owned	Landowner is actively supportive or has previously partnered on stormwater-related education and outreach. OR Already Owned by City
3b. Ease of permit acquisition	1-5, 5 is best	Requires individual federal permits (e.g., Section 404/401 Clean Water Act) and multiple state/county permits. High likelihood of public notice, mitigation requirements, and long review timelines.	Eligible for general federal permits (e.g., Nationwide Permit 43 for stormwater management) but still requires state-level water quality certification, local floodplain or zoning approvals, and moderate coordination.	Located outside jurisdictional waters or wetlands. Requires only local permits (e.g., grading, stormwater), or is on City-owned land with pre-approved permitting pathways. No federal or state permits required.
3c. Complexity of annual O&M	1-5, 5 is best	Requires new City staff hires, specialized training, and new equipment. High cost and coordination burden.	Can be completed by existing City staff, but requires additional equipment or contracted services.	O&M can be completed with existing City staff, resources, and equipment.
3d. Complexity of major maintenance	1-5, 5 is best	Requires specialized materials, contracted services, or engineering expertise (e.g., in-water dredging, structural repairs, engineered soil mixtures). May involve regulatory re-approval.	Involves a mix of earthwork and vegetation management, such as sediment removal, replanting, or minor grading. Can be done with contracted support or trained staff.	Primarily earthwork or vegetation maintenance (e.g., sediment scooping, mowing, weed removal). Can be completed by existing City staff with standard equipment.
3e. Frequency of major maintenance	1-5, 5 is best	Requires major maintenance more frequently than every 10 years, such as sediment basin cleanouts or wetland replanting due to high sediment and/or runoff load.	Requires major maintenance approximately every 15–20 years, based on expected sediment accumulation or vegetation lifecycle.	Requires major maintenance less frequently than every 30 years, due to resilient design, low sediment input, or passive self-maintaining features.
3f. Ease of Access	1-5, 5 is best	Location is not adjacent to a public roadway.	Location is (or will be) on publicly owned land but requires traffic control on a collector or arterial roadway.	Location is (or will be) on publicly owned land and requires minimal traffic control.
4. Additional benefits				
4a. Flood damage mitigation	1-5, 5 is best	No known flooding issues downstream.	Project is within watershed contributing to known flooding issues.	Project significantly reduces downstream flows in an area with known flooding issues.
4b. Habitat value	1-5, 5 is best	None or Limited Habitat Value	Natural Habitat Created but Limited Habitat Connectivity	Natural Habitat Created with Habitat Connectivity
4c. Recreational value	1-5, 5 is best	None or Limited Recreational / Aesthetic Value	Provides opportunity for future recreational activities OR Provides aesthetic enhancements to existing streetscapes or park areas	Would enhance existing recreational opportunities
4d. Opportunity for collaboration	1-5, 5 is best	No known partners or stakeholders interested. Project is isolated from broader initiatives or community efforts.	One or more potential partners (e.g., watershed groups, conservation districts, agencies) have expressed interest but no formal collaboration is in place.	Project is part of a multi-party effort with high likelihood that formal commitments (e.g., MOUs, joint funding, shared implementation) could be signed. Collaboration enhances project scope or impact.
4e. Opportunity to build momentum	1-5, 5 is best	Uncertain if project on its own will create positive public perceptions. May be seen as isolated or low-impact. OR Prior poor experiences with similar projects. OR Project is in a restricted area with little to no public access or visibility.	Project has potential to build momentum if successful, especially with good outreach or visible results. Prior success on similar projects or community interest exists.	Project is expected to catalyze future projects, shift public perception, or influence policy. High visibility, strong community support, or strategic timing.
4f. Could help meet pending MS4 requirements	1-5, 5 is best	Limited or no potential for education and outreach. Within city limits with no public access OR Outside city limits away from high-traffic roads.	Opportunity for education and outreach with additional effort. Within city limits with modest visibility OR Outside city limits but near high-traffic roads.	Excellent opportunity for education and outreach with little additional effort. Within city limits, high visibility.
4g. Aesthetic value	1-5, 5 is best	Project is either isolated from the general public view OR the improvements do not provide aesthetic value.	Project has aesthetic value and could be accessible to the public at some point in the future as the City expands.	Provides aesthetic enhancements to existing streetscapes or park areas
5. Projected Additional Funding				
5a. Likelihood of additional funding	1-5, 5 is best	Project type is a poor fit for known funding programs, or there is no local/state precedent for securing outside funding for similar efforts.	Project is a reasonable fit for one or more funding programs (e.g., federal, state, foundation), and there is some experience within City staff, consultants, or community partners in securing similar funding.	Project is a strong fit for multiple funding sources, including non-federal options (e.g., private foundations, state programs, local match). City staff or partners have a track record of success securing these funds.
5b. Estimated funding amount	1-5, 5 is best	Expected funding would cover less than 25% of total project cost. City would need to contribute more than $1M in capital.	Expected funding would cover at least 50% of total cost, but City contribution would still be greater than $1M.	Expected funding would cover at least 66% of total cost, and City contribution would be less than $1M. Project may be eligible for full funding with match or stacking.
Capital Cost (Class 4-5)	2025 $	Planning, engineering, and construction cost in 2025$		

Table 4-4. Agricultural Runoff-Focused Scoring Approach

Non-Monetary Criteria	Measure	Poor Outcome	Medium Outcome	Excellent Outcome
1. Water quality improvement				
1a. Expected Sediment Loading Contributing to Sediment or Wetland Basin	1-5, 5 is best	[EVAAL Mean Value * Watershed Size (acres)] is less than 200 [EVAAL Mean Value * Watershed Size (acres)] < 200	[EVAAL Mean Value * Watershed Size (acres)] is equal to or greater than 200 and up, and including, 1,000. 200 </= [EVAAL Mean Value * Watershed Size (acres)] </= 1,000	[EVAAL Mean Value * Watershed Size (acres)] is greater than 1,000. [EVAAL Mean Value * Watershed Size (acres)] > 1,000
1b. # of Animal Units in Watershed	# of animal units	# of Animal Units in Watershed (more is greater improvement potential)		
1c. Expected Water Quality Treatment	1-5, 5 is best	Captures minimal spring runoff **Or** Project includes practices that will modestly improve treatment for phosphorous sediment (i.e. only expands storage / footprint of existing basin)	Captures Spring Runoff **but** Too small to treat 0.5 inches of Spring Runoff, **but** Provides significant water quality improvement for summer flows. **Or** Project includes practices that will moderately improve treatment for phosphorous and sediment (i.e. includes expanded sediment basin and adds a subsurface wetland)	Captures Spring Runoff **and** Sized to treat 0.5 inches of Spring Runoff, **and** Project includes practices that will significantly improve treatment for phosphorous and sediment as well as reducing temperature entering Rock Creek. (i.e. includes sediment basin, subsurface wetland, and polishing cell)
1d. Proximity to City Portion of Rock Creek	1-5, 5 is best	Downstream of the City or More than 10 miles upstream of City Limits	Upstream of the Rock Creek Park Between 3 and 7 miles upstream of City Limits	Discharges to Rock Creek within City Limits
2. Aids in future WW permit compliance	1-5, 5 is best	Can neither calculate sediment / nutrient removal with industry standard methods or practically monitor sediment / nutrients.	Can calculate sediment / nutrient removal using industry standard methods but monitoring is either not possible or would add significant costs to project.	Can **both** monitor influent / effluent water quality **and** sediment / nutrient removal can be calculated with industry standard methods.
3. Successful implementation				
3a. Willingness of landowner	1-5, 5 is best	Privately owned by entity or individual with known opposition to project implementation or no contact	Landowner has been contacted and expressed neutral or conditional interest (e.g., wants more information, has concerns, or is waiting on funding/permitting). OR State or Federally owned	Landowner is actively supportive or has previously partnered on conservation projects. OR Owned by City
3b. Ease of permit acquisition	1-5, 5 is best	Requires individual federal permits (e.g., Section 404/401 Clean Water Act) and multiple state/county permits. High likelihood of public notice, mitigation requirements, and long review timelines.	Eligible for general federal permits (e.g., Nationwide Permit 43 for stormwater management) but still requires state-level water quality certification, local floodplain or zoning approvals, and moderate coordination.	Located outside jurisdictional waters or wetlands. Requires only local permits (e.g., grading, stormwater), or is on City-owned land with pre-approved permitting pathways. No federal or state permits required.
3c. Complexity of annual O&M	1-5, 5 is best	Requires new City staff hires, specialized training, and new equipment. No landowner support for labor or equipment. High cost and coordination burden.	Can be completed by existing City staff, but requires additional equipment or contracted services. OR Landowner can provide annual maintenance but requires additional equipment and some additional training.	O&M will be fully or primarily conducted by the landowner, with documented commitment (e.g., signed agreement, conservation plan). Tasks align with landowner's existing operations. OR O&M can be completed with existing City staff, resources, and equipment.
3d. Complexity of major maintenance	1-5, 5 is best	Requires specialized materials, contracted services, or engineering expertise (e.g., in-water dredging, structural repairs, wetland regrading). May involve regulatory re-approval.	Involves a mix of earthwork and vegetation management, such as sediment removal, replanting, or minor grading. Can be done with contracted support or trained staff.	Primarily earthwork or vegetation maintenance (e.g., sediment scooping, mowing, invasive species removal). Can be completed by landowner or existing City staff with standard equipment.
3e. Frequency of major maintenance	1-5, 5 is best	Requires major maintenance more frequently than every 10 years, such as sediment basin cleanouts or wetland replanting due to high sediment and/or runoff load.	Requires major maintenance approximately every 15–20 years, based on expected sediment accumulation or vegetation lifecycle.	Requires major maintenance less frequently than every 30 years, due to resilient design, low sediment input, or passive self-maintaining features.
3f. Ease of Access	1-5, 5 is best	Access to project site requires new access road across properties owned by more than one landowner.	Access to project site is across private property owned by same landowner as project site.	Access to project site is immediately adjacent to or on public land / right-of-way
4. Additional benefits				
4a. Flood damage mitigation	1-5, 5 is best	No known flooding issues downstream.	Project is within watershed contributing to known flooding issues.	Project significantly reduces downstream flows with known flooding issues downstream.
4b. Habitat value	1-5, 5 is best	None or Limited Habitat Value	Natural Habitat Created but Limited Habitat Connectivity	Natural Habitat Created with Habitat Connectivity
4c. Recreational value	1-5, 5 is best	None or Limited Recreational /r Aesthetic Value	Provides opportunity for future recreational activities OR Provides aesthetic enhancements to existing streetscapes or park areas	Would enhance existing recreational opportunities
4d. Opportunity for collaboration	1-5, 5 is best	No known partners or stakeholders interested. Project is isolated from broader initiatives or community efforts.	One or more potential partners (e.g., watershed groups, conservation districts, agencies) have expressed interest but no formal collaboration is in place.	Project is part of a multi-party effort with high likelihood that formal commitments (e.g., MOUs, joint funding, shared implementation) could be signed. Collaboration enhances project scope or impact.
4e. Opportunity to build momentum	1-5, 5 is best	Uncertain if project on its own will create positive public perceptions. May be seen as isolated or low-impact. OR Prior poor experiences with similar projects. OR Project is in a restricted area with little to no public access or visibility.	Project has potential to build momentum if successful, especially with good outreach or visible results. Prior success on similar projects or community interest exists.	Project is expected to catalyze future projects, shift public perception, or influence policy. High visibility, strong community support, or strategic timing.
4f. Could help meet pending MS4 requirements	1-5, 5 is best	Limited or no potential for education and outreach. Within city limits with no public access OR Outside city limits away from high-traffic roads.	Opportunity for education and outreach with additional effort: Within city limits with modest visibility OR Outside city limits but near high-traffic roads.	Excellent opportunity for education and outreach with little additional effort. Within city limits, high visibility.
4g. Aesthetic value	1-5, 5 is best	Project is either isolated from the general public view OR the improvements do not provide aesthetic value.	Project has aesthetic value and could be accessible to the public at some point in the future as the City expands.	Provides aesthetic enhancements to existing streetscapes or park areas
5. Projected Additional Non-City				
5a. Likelihood of additional funding	1-5, 5 is best	Project type is a poor fit for known funding programs, or there is no local/state precedent for securing outside funding for similar efforts.	Project is a reasonable fit for one or more funding programs (e.g., federal, state, foundation), and there is some experience within City staff, consultants, or community partners in securing similar funding.	Project is a strong fit for multiple funding sources, including non-federal options (e.g., private foundations, state programs, local match). City staff or partners have a track record of success securing these funds.
5b. Estimated funding amount	1-5, 5 is best	Expected funding would cover less than 25% of total project cost. City would need to contribute more than $1M in capital.	Expected funding would cover at least 50% of total cost, but City contribution would still be greater than $1M.	Expected funding would cover at least 66% of total cost, and City contribution would be less than $1M. Project may be eligible for full funding with match or stacking.
Capital Cost (Class 4-5)	2025 $	Planning, engineering, and construction cost in 2025$		

Table 4-5. Agricultural Irrigation Return Flow-Focused Scoring Approach

Non-Monetary Criteria	Measure	Poor Outcome	Medium Outcome	Excellent Outcome
1. Water quality improvement				
1a. Presence of Furrow Irrigation Practices	1-5, 5 is best	Negligible observed presence of furrow irrigation in the immediate vicinity of irrigation ditch	Mix of furrow and center-pivot irrigation in the immediate vicinity of irrigation ditch	Furrow irrigation dominates in the immediate vicinity of irrigation ditch
1b. Approximate Irrigation Return Flows	Peak Irrigation Return Flow, cfs	Approximate Irrigation Return Flow (cfs)		
1c. Expected Water Quality Treatment	1-5, 5 is best	Captures minimal spring runoff **Or** Project includes practices that will modestly improve treatment for phosphorous sediment (i.e. only expands storage / footprint of existing basin)	Captures Spring Runoff **but** Too small to treat 0.5 inches of Spring Runoff, **but** Provides significant water quality improvement for summer flows. **Or** Project includes practices that will moderately improve treatment for phosphorous and sediment (i.e. includes expanded sediment basin and adds a subsurface wetland)	Captures Spring Runoff **and** Sized to treat 0.5 inches of Spring Runoff, **and** Project includes practices that will significantly improve treatment for phosphorous and sediment as well as reducing temperature entering Rock Creek. (i.e. includes sediment basin, subsurface wetland, and polishing cell)
1d. Proximity to City Portion of Rock Creek	1-5, 5 is best	Downstream of the City or More than 10 miles upstream of City Limits	Upstream of the Rock Creek Park Between 3 and 7 miles upstream of City Limits	Discharges to Rock Creek within City Limits
2. Aids in future WW permit compliance	1-5, 5 is best	Can neither calculate sediment / nutrient removal with industry standard methods or practically monitor sediment / nutrients.	Can calculate sediment / nutrient removal using industry standard methods but monitoring is either not possible or would add significant costs to project.	Can **both** monitor influent / effluent water quality **and** sediment / nutrient removal can be calculated with industry standard methods.
3. Successful implementation				
3a. Willingness of landowner	1-5, 5 is best	Privately owned by entity or individual with known opposition to project implementation or no contact	Landowner has been contacted and expressed neutral or conditional interest (e.g., wants more information, has concerns, or is waiting on funding/permitting). OR State or Federally owned	Landowner is actively supportive or has previously partnered on conservation projects. OR Owned by City
3b. Ease of permit acquisition	1-5, 5 is best	Requires individual federal permits (e.g., Section 404/401 Clean Water Act) and multiple state/county permits. High likelihood of public notice, mitigation requirements, and long review timelines.	Eligible for general federal permits (e.g., Nationwide Permit 43 for stormwater management) but still requires state-level water quality certification, local floodplain or zoning approvals, and moderate coordination.	Located outside jurisdictional waters or wetlands. Requires only local permits (e.g., grading, stormwater), or is on City-owned land with pre-approved permitting pathways. No federal or state permits required.
3c. Complexity of annual O&M	1-5, 5 is best	Requires new City staff hires, specialized training, and new equipment. No landowner support for labor or equipment. High cost and coordination burden.	Can be completed by existing City staff, but requires additional equipment or contracted services. OR Landowner can provide annual maintenance but requires additional equipment and some additional training.	O&M will be fully or primarily conducted by the landowner, with documented commitment (e.g., signed agreement, conservation plan). Tasks align with landowner's existing operations. OR O&M can be completed with existing City staff, resources, and equipment.
3d. Complexity of major maintenance	1-5, 5 is best	Requires specialized materials, contracted services, or engineering expertise (e.g., in-water dredging, structural repairs, wetland regrading). May involve regulatory re-approval.	Involves a mix of earthwork and vegetation management, such as sediment removal, replanting, or minor grading. Can be done with contracted support or trained staff.	Primarily earthwork or vegetation maintenance (e.g., sediment scooping, mowing, invasive species removal). Can be completed by landowner or existing City staff with standard equipment.
3e. Frequency of major maintenance	1-5, 5 is best	Requires major maintenance more frequently than every 10 years, such as sediment basin cleanouts or wetland replanting due to high sediment and/or runoff load.	Requires major maintenance approximately every 15–20 years, based on expected sediment accumulation or vegetation lifecycle.	Requires major maintenance less frequently than every 30 years, due to resilient design, low sediment input, or passive self-maintaining features.
3f. Ease of Access	1-5, 5 is best	Access to project site requires new access road across properties owned by more than one landowner.	Access to project site is across private property owned by same landowner as project site.	Access to project site is immediately adjacent to or on public land / right-of-way
4. Additional benefits				
4a. Flood damage mitigation	1-5, 5 is best	No known flooding issues downstream.	Project is within watershed contributing to known flooding issues.	Project significantly reduces downstream flows with known flooding issues downstream.
4b. Habitat value	1-5, 5 is best	None or Limited Habitat Value	Natural Habitat Created but Limited Habitat Connectivity	Natural Habitat Created with Habitat Connectivity
4c. Recreational value	1-5, 5 is best	None or Limited Recreational /r Aesthetic Value	Provides opportunity for future recreational activities OR Provides aesthetic enhancements to existing streetscapes or park areas	Would enhance existing recreational opportunities
4d. Opportunity for collaboration	1-5, 5 is best	No known partners or stakeholders interested. Project is isolated from broader initiatives or community efforts.	One or more potential partners (e.g., watershed groups, conservation districts, agencies) have expressed interest but no formal collaboration is in place.	Project is part of a multi-party effort with high likelihood that formal commitments (e.g., MOUs, joint funding, shared implementation) could be signed. Collaboration enhances project scope or impact.
4e. Opportunity to build momentum	1-5, 5 is best	Uncertain if project on its own will create positive public perceptions. May be seen as isolated or low-impact. OR Prior poor experiences with similar projects. OR Project is in a restricted area with little to no public access or visibility.	Project has potential to build momentum if successful, especially with good outreach or visible results. Prior success on similar projects or community interest exists.	Project is expected to catalyze future projects, shift public perception, or influence policy. High visibility, strong community support, or strategic timing.
4f. Could help meet pending MS4 requirements	1-5, 5 is best	Limited or no potential for education and outreach. Within city limits with no public access OR Outside city limits away from high-traffic roads.	Opportunity for education and outreach with additional effort: Within city limits with modest visibility OR Outside city limits but near high-traffic roads.	Excellent opportunity for education and outreach with little additional effort. Within city limits, high visibility.
4g. Aesthetic value	1-5, 5 is best	Project is either isolated from the general public view OR the improvements do not provide aesthetic value.	Project has aesthetic value and could be accessible to the public at some point in the future as the City expands.	Provides aesthetic enhancements to existing streetscapes or park areas
5. Projected Additional Non-City				
5a. Likelihood of additional funding	1-5, 5 is best	Project type is a poor fit for known funding programs, or there is no local/state precedent for securing outside funding for similar efforts.	Project is a reasonable fit for one or more funding programs (e.g., federal, state, foundation), and there is some experience within City staff, consultants, or community partners in securing similar funding.	Project is a strong fit for multiple funding sources, including non-federal options (e.g., private foundations, state programs, local match). City staff or partners have a track record of success securing these funds.
5b. Estimated funding amount	1-5, 5 is best	Expected funding would cover less than 25% of total project cost. City would need to contribute more than $1M in capital.	Expected funding would cover at least 50% of total cost, but City contribution would still be greater than $1M.	Expected funding would cover at least 66% of total cost, and City contribution would be less than $1M. Project may be eligible for full funding with match or stacking.
Capital Cost (Class 4-5)	2025 $	Planning, engineering, and construction cost in 2025$		

Table 4-6. River Corridor Scoring Approach

Non-Monetary Criteria	Measure	Poor Outcome	Medium Outcome	Excellent Outcome
1. Water quality improvement				
1a. Area of Bank Restoration / Stabilization	Normalized Area Score	Stabilized Bank Length (ft) * Average Height of Eroded Bank (ft)		
1b. Area of Floodplain Reconnection / Restoration	Normalized Area Score	Area of Floodplain Reconnection / Restoration (acres)		
1c. Proximity to City Portion of Rock Creek	1-5, 5 is best	Downstream of the City or More than 10 miles upstream of City Limits	Upstream of the Rock Creek Park Between 3 and 7 miles upstream of City Limits	Discharges to Rock Creek within City Limits
2. Aids in future WW permit compliance	1-5, 5 is best	Can neither calculate sediment / nutrient removal with industry standard methods or practically monitor sediment / nutrients.	Can calculate sediment / nutrient removal using industry standard methods but monitoring is either not possible or would add significant costs to project.	Can **both** monitor influent / effluent water quality **and** sediment / nutrient removal can be calculated with industry standard methods.
3. Successful implementation				
3a. Willingness of landowner	1-5, 5 is best	Privately owned by entity or individual with known opposition to project implementation or no contact	Landowner has been contacted and expressed neutral or conditional interest (e.g., wants more information, has concerns, or is waiting on funding/permitting). OR State or Federally owned	Landowner is actively supportive or has previously partnered on conservation projects. OR Owned by City
3b. Ease of permit acquisition	1-5, 5 is best	Requires individual federal permits (e.g., Section 404/401 Clean Water Act) and multiple state/county permits. High likelihood of public notice, mitigation requirements, and long review timelines.	Eligible for general federal permits (e.g., Nationwide Permit 43 for stormwater management) but still requires state-level water quality certification, local floodplain or zoning approvals, and moderate coordination.	Located outside jurisdictional waters or wetlands. Requires only local permits (e.g., grading, stormwater), or is on City-owned land with pre-approved permitting pathways. No federal or state permits required.
3c. Complexity of annual O&M	1-5, 5 is best	Requires new City staff hires, specialized training, and new equipment. No landowner support for labor or equipment. High cost and coordination burden.	Can be completed by existing City staff, but requires additional equipment or contracted services. OR Landowner can provide annual maintenance but requires additional equipment and some additional training.	O&M will be fully or primarily conducted by the landowner, with documented commitment (e.g., signed agreement, conservation plan). Tasks align with landowner's existing operations. OR O&M can be completed with existing City staff, resources, and equipment.
3d. Complexity of major maintenance	1-5, 5 is best	Requires specialized materials, contracted services, or engineering expertise (e.g., in-water dredging, structural repairs, wetland regrading). May involve regulatory re-approval.	Involves a mix of earthwork and vegetation management, such as sediment removal, replanting, or minor grading. Can be done with contracted support or trained staff.	Primarily earthwork or vegetation maintenance (e.g., sediment scooping, mowing, invasive species removal). Can be completed by landowner or existing City staff with standard equipment.
3e. Frequency of major maintenance	1-5, 5 is best	Requires major maintenance more frequently than every 10 years, such as sediment basin cleanouts or wetland replanting due to high sediment and/or runoff load.	Requires major maintenance approximately every 15–20 years, based on expected sediment accumulation or vegetation lifecycle.	Requires major maintenance less frequently than every 30 years, due to resilient design, low sediment input, or passive self-maintaining features.
3f. Ease of Access	1-5, 5 is best	Access to project site requires new access road across properties owned by more than one landowner.	Access to project site is across private property owned by same landowner as project site.	Access to project site is immediately adjacent to or on public land / right-of-way
4. Additional benefits				
4a. Flood damage mitigation	1-5, 5 is best	No known flooding issues downstream.	Project is within watershed contributing to known flooding issues.	Project significantly reduces downstream flows with known flooding issues downstream.
4b. Habitat value	1-5, 5 is best	None or Limited Habitat Value	Natural Habitat Created but Limited Habitat Connectivity	Natural Habitat Created with Habitat Connectivity
4c. Recreational value	1-5, 5 is best	None or Limited Recreational Value	Provides opportunity for future recreational activities	Would enhance existing recreational opportunities
4d. Opportunity for collaboration	1-5, 5 is best	No known partners or stakeholders interested. Project is isolated from broader initiatives or community efforts.	One or more potential partners (e.g., watershed groups, conservation districts, agencies) have expressed interest but no formal collaboration is in place.	Project is part of a multi-party effort with high likelihood that formal commitments (e.g., MOUs, joint funding, shared implementation) could be signed. Collaboration enhances project scope or impact.
4e. Opportunity to build momentum	1-5, 5 is best	Uncertain if project on its own will create positive public perceptions. May be seen as isolated or low-impact. OR Prior poor experiences with similar projects. OR Project is in a restricted area with little to no public access or visibility.	Project has potential to build momentum if successful, especially with good outreach or visible results. Prior success on similar projects or community interest exists.	Project is expected to catalyze future projects, shift public perception, or influence policy. High visibility, strong community support, or strategic timing.
4f. Could help meet pending MS4 requirements	1-5, 5 is best	Limited or no potential for education and outreach. Within city limits with no public access OR Outside city limits away from high-traffic roads.	Opportunity for education and outreach with additional effort. Within city limits with modest visibility OR Outside city limits but near high-traffic roads.	Excellent opportunity for education and outreach with little additional effort. Within city limits, high visibility.
4g. Aesthetic value	1-5, 5 is best	Project is either isolated from the general public view OR the improvements do not provide aesthetic value.	Project has aesthetic value and could be accessible to the public at some point in the future as the City expands.	Provides aesthetic enhancements to existing streetscapes or park areas
5. Projected Additional Funding				
5a. Likelihood of additional funding	1-5, 5 is best	Project type is a poor fit for known funding programs, or there is no local/state precedent for securing outside funding for similar efforts.	Project is a reasonable fit for one or more funding programs (e.g., federal, state, foundation), and there is some experience within City staff, consultants, or community partners in securing similar funding.	Project is a strong fit for multiple funding sources, including non-federal options (e.g., private foundations, state programs, local match). City staff or partners have a track record of success securing these funds.
5b. Estimated funding amount	1-5, 5 is best	Expected funding would cover less than 25% of total project cost. City would need to contribute more than $1M in capital.	Expected funding would cover at least 50% of total cost, but City contribution would still be greater than $1M.	Expected funding would cover at least 66% of total cost, and City contribution would be less than $1M. Project may be eligible for full funding with match or stacking.
Capital Cost (Class 4-5)	2025 $	Planning, engineering, and construction cost in 2025$ (millions)		

Table 4-7. Scoring Criteria Weights

Criteria Number & Description	Weight
1.0: Water Quality Improvement	**25%**
1.1 River Corridor 1.1: Area of bank restoration/stabilization	11%
1.2 River Corridor 1.2: Area of floodplain reconnection/restoration	5%
1.3 River Corridor 1.3: Proximity to City Portion of Rock Creek	9%
1.1 Urban Stormwater: Treatment Area * Impervious %	25%
1.1 Ag Runoff Focused: Expected Sediment Loading Contributing to Basin	8%
1.2 Ag Runoff Focused: Number of Animal Units in Watershed	6%
1.3 Ag Runoff Focused: Expected Water Quality Treatment	8%
1.4 Ag Runoff Focused: Proximity to City Portion of Rock Creek	4%
1.1 Ag Irrigation Return Flow Focused: Presence of Furrow Irrigation Practices	7%
1.2 Ag Irrigation Return Flow Focused: Approximate Irrigation Return Flows	6%
1.3 Ag Irrigation Return Flow Focused: Expected Water Quality Treatment	8%
1.4 Ag Irrigation Return Flow Focused: Proximity to City Portion of Rock Creek	4%
2.0: Aids in future WW permit compliance	**24%**
3.0: Successful implementation	**20%**
3.1: Willingness of landowner	6%
3.2: Ease of permit acquisition	1%
3.3: Complexity of annual O&M	4%
3.4: Complexity of major maintenance	4%
3.5: Frequency of major maintenance	4%
3.6: Ease of access	2%
4.0: Additional benefits	**15%**
4.1: Flood damage mitigation	2%
4.2: Habitat value	2%
4.3: Recreational value	3%
4.4: Opportunity for collaboration	2%
4.5: Opportunity to build momentum	2%
4.6: Could help meet pending MS4 requirements	3%
4.7: Aesthetic value	2%
5.0: Projected additional non-city funding	**16%**
5.1: Likelihood of additional funding	8%
5.2: Estimated funding amount	8%

Table 4-8. Urban Stormwater Project Scores

			Scores						Rationale					
Non-Monetary Criteria	Worst Outcome	Best Outcome	US1 - Near Livestock Yd.	US2 - Along Rock Cr.	US3 - Fairfield St W & 7th Ave	US4 - Addison & 6th Ave	US5 - Addison & Monroe	US6 - Filer & Quincy	US1 - Near Livestock Yard	US2 - Along Rock Creek	US3 - Fairfield St W & 7th Ave	US4 - Addison Ave & 6th Ave	US5 - Addison Ave & Monroe St	US6 - Filer Ave W & Quincy St
1. Water quality improvement														
1a. Treatment Area * Impervious %	1	5	2.0	2.0	1.0	1.0	1.5	0.5	49 acres treated * 70% impervious = 34 acres	47 acres treated * 70% impervious = 33 acres	15 acres treated * 60% impervious = 9 acres	10 acres treated * 60% impervious = 6 acres	31 acres treated * 50% impervious = 16 acres	3 acres treated * 30% impervious = 1 acres
2. Aids in future WW permit compliance	1	5	4.0	4.0	4.0	4.0	4.0	4.0	Can monitor WQ in influent/effluent, but would add cost.	Can monitor WQ in influent/effluent, but would add cost.	Can monitor WQ in influent/effluent, but would add cost.	Can monitor WQ in influent/effluent, but would add cost.	Can monitor WQ in influent/effluent, but would add cost.	Can monitor WQ in influent/effluent, but would add cost.
3. Successful implementation														
3a. Willingness of landowner	1	5	1.0	5.0	5.0	1.0	5.0	1.0	Privately owned. No contact with landowner.	Owned by City.	Owned by City.	Privately owned. No contact with landowner.	Owned by City.	Privately owned. No contact with landowner.
3b. Ease of permit acquisition	1	5	5.0	3.0	5.0	5.0	5.0	5.0	Not adjacent to any waterways or wetlands.	Adjacent to Rock Creek - may need a Nationwide Permit depending on exact extents of creek and adjacent wetlands.	Not adjacent to any waterways or wetlands.	Not adjacent to any waterways or wetlands.	Not adjacent to any waterways or wetlands.	Not adjacent to any waterways or wetlands.
3c. Complexity of annual O&M	1	5	2.0	2.0	1.0	2.0	2.0	2.0	Bioretention facility would be a new type of BMP for the City to maintain; however, once trained, annual O&M would be relatively straightforward.	Bioretention facility would be a new type of BMP for the City to maintain; however, once trained, annual O&M would be relatively straightforward.	Regular vault clean-out for trash and debris would likely require specialized equipment, and potentially be needed more than once per year.	Bioretention facility would be a new type of BMP for the City to maintain; however, once trained, annual O&M would be relatively straightforward.	Bioretention facility would be a new type of BMP for the City to maintain; however, once trained, annual O&M would be relatively straightforward.	Bioretention facility would be a new type of BMP for the City to maintain; however, once trained, annual O&M would be relatively straightforward.
3d. Complexity of major maintenance	1	5	2.0	2.0	1.5	2.0	2.0	2.0	Would require replacement of bioretention mix that would likely have to be custom mixed given lack of community-wide demand for the material. Can be done with either contracted support or trained staff.	Would require replacement of bioretention mix that would likely have to be custom mixed given lack of community-wide demand for the material. Can be done with either contracted support or trained staff.	Would require replacement of media used in vaults that would have to be special ordered from the manufacturer.	Would require replacement of bioretention mix that would likely have to be custom mixed given lack of community-wide demand for the material. Can be done with either contracted support or trained staff.	Would require replacement of bioretention mix that would likely have to be custom mixed given lack of community-wide demand for the material. Can be done with either contracted support or trained staff.	Would require replacement of bioretention mix that would likely have to be custom mixed given lack of community-wide demand for the material. Can be done with either contracted support or trained staff.
3e. Frequency of major maintenance	1	5	3.0	3.0	2.0	3.0	3.0	3.0	With regular O&M, facility should last 15-20 years.	With regular O&M, facility should last 15-20 years.	Design life less than bioretention facilities given that these practices are used in areas without much space, so relative loading to practice is more intense.	With regular O&M, facility should last 15-20 years.	With regular O&M, facility should last 15-20 years.	With regular O&M, facility should last 15-20 years.
3f. Ease of Access	1	5	5.0	2.0	3.0	4.0	3.0	4.0	Location would be acquired by City. Dirt road next to parcel to be used for Vactor trucks to park for clean out.	Pretreatment pipe is placed in turning lane of Shoshone road. Traffic control needed for maintenance. Bioretention facility is in canyon next to Rock Creek, more difficult location for O&M.	Vaults located on roadway. Traffic control needed for maintenance.	Bioretention located on Addison Ave and alley way. Vactor truck may be able to conduct maintenance of pretreatment pipe from alley way. Limited to minimal traffic control needed.	Pretreatment pipe location under Addison Ave. Traffic control needed for maintenance.	No pretreatment pipe. Bioretention facility limited to overflow from roadway. Less extensive maintenance required.

Table 4-8. Urban Stormwater Project Scores (continued)

Non-Monetary Criteria	Worst Outcome	Best Outcome	US1 - Near Livestock Yd.	US2 - Along Rock Cr.	US3 - Fairfield St W & 7th Ave	US4 - Addison & 6th Ave	US5 - Addison & Monroe	US6 - Filer & Quincy	US1 - Near Livestock Yard	US2 - Along Rock Creek	US3 - Fairfield St W & 7th Ave	US4 - Addison Ave & 6th Ave	US5 - Addison Ave & Monroe St	US6 - Filer Ave W & Quincy St
4. Additional benefits														
4a. Flood damage mitigation	1	5	1.0	1.0	1.0	3.0	3.0	1.0	No known flooding issues.	No known flooding issues.	No known flooding issues.	Project located in watershed with flooding issues. Potential to reduce flooding on a small-scale.	Project located In watershed with flooding issues.	No known flooding issues.
4b. Habitat value	1	5	2.0	5.0	1.0	2.0	2.0	2.0	Limited habitat value by adding green space.	Project near to Rock Creek and within floodplain. Natural habitat created.	Underground treatment system, no habitat value	Limited habitat value by adding green space.	Limited habitat value by adding green space.	Limited habitat value by adding green space.
4c. Recreational value	1	5	1.0	5.0	1.0	2.0	2.0	3.0	Minimal recreational value. Located in industrial part of town.	Project next to walking/biking trail. Opportunity to enhance trail system.	Underground treatment system, no recreational value	Minimal recreational value but in residential neighborhood	Minimal recreational value but in residential neighborhood	Provides small park space in residential neighborhood
4d. Opportunity for collaboration	1	5	3.0	3.5	3.0	2.0	3.0	2.0	Limited opportunity for collaboration. Located in industrial part of town.	Along Rock Creek trail. Potential collaboration with fishing groups.	Limited opportunity for collaboration. Located in industrial part of town and located underground.	Located in residential area. Opportunity for collaboration limited to neighborhood.	Potential for collaboration with school district.	Located in residential area. Opportunity for collaboration limited to neighborhood.
4e. Opportunity to build momentum	1	5	2.0	3.5	1.0	2.0	2.0	2.0	Limited opportunity to build momentum.	Visible project along walking trail, opportunity to build momentum within the community.	Underground treatment system, not a visible project. Limited opportunity to build momentum.	Limited opportunity to build momentum.	Limited opportunity to build momentum as a stand-alone project.	Limited opportunity to build momentum.
4f. Could help meet pending MS4 requirements	1	5	3.0	5.0	2.0	4.5	5.0	4.0	Limited potential for public outreach. In industrial area of town. Provides treatment of stormwater.	Opportunity for community outreach in visible area near Rock Creek walking trail. Provides treatment of stormwater at end of pipe.	Limited potential for public outreach. Underground system. Provides treatment of stormwater.	Opportunity for community outreach in visible area near arterial road (Addison Ave).	Opportunity for community outreach in visible area near arterial road (Addison Ave). Large impact on flooding issues.	Opportunity for community outreach in visible area near arterial road (Filer Ave). Provides limited treatment of stormwater from overflow from Filer Ave.
4g. Aesthetic value	1	5	5.0	5.0	1.0	5.0	5.0	5.0	Would improve Minidoka Ave streetscape	Would improve aesthetic value of trail along Rock Creek valley	No aesthetic value	Would improve Addison Ave streetscape	Would improve Addison Ave streetscape	Would improve Filer Ave streetscape
5. Projected Additional Funding														
5a. Likelihood of additional funding	1	5	4.0	4.0	4.0	1.5	1.5	1.5	In Urban Renewal Area RAA Old Towne-2	In Urban Renewal Area RAA Old Towne-2	In Urban Renewal Area RAA Old Towne-2	While project would technically be eligible for 319 funds, unlikely to receive a grant award. Project is also too small scale to attract private grant awards.	While project would technically be eligible for 319 funds, unlikely to receive a grant award. Project is also too small scale to attract private grant awards.	While project would technically be eligible for 319 funds, unlikely to receive a grant award. Project is also too small scale to attract private grant awards.
5b. Estimated funding amount	1	5	4.0	5.0	4.5	2.0	2.0	2.0	In Urban Renewal Area RAA Old Towne-2	In Urban Renewal Area RAA Old Towne-2	In Urban Renewal Area RAA Old Towne-2	While total project costs are already less than $1M, if grant money were to be received, the bulk of the project would still need to be funded by City.	While total project costs are already less than $1M, if grant money were to be received, the bulk of the project would still need to be funded by City.	While total project costs are already less than $1M, if grant money were to be received, the bulk of the project would still need to be funded by City.
Capital Cost (Class 4-5)	22	0	2.9	1.4	2.1	0.7	1.0	0.6						

Table 4-9. Agricultural Runoff-Focused Project Scores

			Scores					Rationale				
Non-Monetary Criteria	Worst Outcome	Best Outcome	AG1 - Near Rock Cr & HL Canal	AG2 - Near Rock Cr & LL Canal	AG4 – Near E 3600 N & N 3100 E	AG8 - Deadman Gulch Upstream of S Park Ave W	AG9 - Trib Near KTFI Radio Tower	AG1 - Near Rock Creek & High Line Canal	AG2 - Near Rock Creek & Low Line Canal	AG4 – Near E 3600 N & N 3100 E	AG8 - Deadman Gulch Upstream of S Park Ave W	AG9 - Tribuary Near KTFI Radio Tower
1. Water quality improvement												
1a. Expected Sediment Loading Contributing to Sediment or Wetland Basin	1	5	5.0	4.0	4.0	4.5	4.0	Mean EVAAL Score = 2.12 Mean EVAAL Score * #Acres = 7,652	Mean EVAAL Score = 2.27 Mean EVAAL Score * #Acres = 1,309	Mean EVAAL Score = 2.07 Mean EVAAL Score * #Acres = 1,126	Mean EVAAL Score = 2.17 Mean EVAAL Score * #Acres = 2,659	Mean EVAAL Score = 2.00 Mean EVAAL Score * #Acres = 1,914
1b. # of Animal Units in Watershed	0	3,000	3,000	0	320	500	2,100	Data sources: feedlot and dairy geospatial data from Idaho State Department of Agriculture (ISDA, 2024). Drainage areas delineated by Jacobs.				
1c. Expected Water Quality Treatment	1	5	4.5	4.5	4.5	4.5	4.5	Includes sed basin, surface wetland, and polishing cell, so slightly lower score than a 5 because less temp treatment	Includes sed basin, surface wetland, and polishing cell, so slightly lower score than a 5 because less temp treatment	Includes sed basin, surface wetland, and polishing cell, so slightly lower score than a 5 because less temp treatment	Includes sed basin, surface wetland, and polishing cell, so slightly lower score than a 5 because less temp treatment	Includes sed basin, surface wetland, and polishing cell, so slightly lower score than a 5 because less temp treatment
1d. Proximity to City Portion of Rock Creek	1	5	1.0	2.0	4.0	4.0	1.0	17.1 miles upstream of City Limits. Project is located outside City Limits	8.6 miles upstream of City Limits. Project is located outside City Limits	1.6 miles upstream of City Limits. Project is located outside City Limits	1.7 miles upstream of Rock Creek Park. Project is located outside City Limits	Downstream of City Limits
2. Aids in future WW permit compliance	1	5	4.0	4.0	4.0	4.0	4.0	Can monitor WQ in influent/effluent, but would add cost and logistics related to monitoring outside the City.	Can monitor WQ in influent/effluent, but would add cost and logistics related to monitoring outside the City.	Can monitor WQ in influent/effluent, but would add cost and logistics related to monitoring outside the City.	Can monitor WQ in influent/effluent, but would add cost and logistics related to monitoring outside the City.	Can monitor WQ in influent/effluent, but would add cost and logistics related to monitoring outside the City.
3. Successful implementation												
3a. Willingness of landowner	1	5	1.0	2.0	2.0	3.5	2.0	Landowners in the area have shown little interest in improving water quality draining from their properties.	No information on landowner willingness	No information on landowner willingness	Jason indicated that landowner might be open to a project in this area, plus partly a retrofit of existing ponds.	No information on landowner willingness
3b. Ease of permit acquisition	1	5	2.0	3.0	3.0	1.0	3.0	Potential for significant USACE permitting if the drainage ditch is considered jurisdictional	Likely will need a Nationwide Permit from the USACE of some sort.	Likely will need a Nationwide Permit from the USACE of some sort.	Likely will require an Individual Permit given the existing sediment basins are along Deadman Gulch	Likely will need a Nationwide Permit from the USACE of some sort.
3c. Complexity of annual O&M	1	5	3.0	3.0	3.0	3.0	3.0	Annual O&M will likely require some contracting of additional services.	Annual O&M will likely require some contracting of additional services.	Annual O&M will likely require some contracting of additional services.	Annual O&M will likely require some contracting of additional services.	Annual O&M will likely require some contracting of additional services.
3d. Complexity of major maintenance	1	5	1.0	1.0	1.0	1.0	1.0	Requires replacement of polishing cell media, and dredging of sediment pond / surface wetland.	Requires replacement of polishing cell media, and dredging of sediment pond / surface wetland.	Requires replacement of polishing cell media, and dredging of sediment pond / surface wetland.	Requires replacement of polishing cell media, and dredging of sediment pond / surface wetland.	Requires replacement of polishing cell media, and dredging of sediment pond / surface wetland.
3e. Frequency of major maintenance	1	5	1.0	1.0	1.0	1.0	1.0	Media in polishing cell will likely need to replaced within 5-10 years.	Media in polishing cell will likely need to replaced within 5-10 years.	Media in polishing cell will likely need to replaced within 5-10 years.	Media in polishing cell will likely need to replaced within 5-10 years.	Media in polishing cell will likely need to replaced within 5-10 years.
3f. Ease of Access	1	5	3.0	5.0	5.0	2.0	3.0	Facilities would require crossing one private property	Sites are right off existing road	Sites are right off existing road	Multiple properties but private access roads.	Sites are in rear of property.

Table 4-9. Agricultural Runoff-Focused Project Scores (continued)

Non-Monetary Criteria	Worst Outcome	Best Outcome	AG1 - Near Rock Cr & HL Canal	AG2 - Near Rock Cr & LL Canal	AG4 – Near E 3600 N & N 3100 E	AG8 - Deadman Gulch Upstream of S Park Ave W	AG9 - Trib Near KTFI Radio Tower	AG1 - Near Rock Creek & High Line Canal	AG2 - Near Rock Creek & Low Line Canal	AG4 – Near E 3600 N & N 3100 E	AG8 - Deadman Gulch Upstream of S Park Ave W	AG9 - Tribuary Near KTFI Radio Tower
4. Additional benefits												
4a. Flood damage mitigation	1	5	1.0	1.0	1.0	3.0	2.0	Immediately adjacent to Rock Creek, which is within deep valley.	Immediately adjacent to Rock Creek, which is within deep valley.	Limited downstream infrastructure on drainage corridor prior to reaching Rock Creek.	Downstream canal / ditch is along developed areas.	Downstream canal / ditch has some downstream development.
4b. Habitat value	1	5	3.0	5.0	3.5	3.5	3.0	Surface wetland provides some habitat, but not connected to larger corridors.	Along Rock Creek valley	Surface wetland provides some habitat, and smaller drainage corridor connects to Rock Creek	Surface wetland provides some habitat, and smaller drainage corridor connects to Rock Creek	Surface wetland provides some habitat, but not connected to larger corridors.
4c. Recreational value	1	5	1.0	1.0	1.0	1.0	1.0	Negligible recreation opportunities	Negligible recreation opportunities	Negligible recreation opportunities	Negligible recreation opportunities	Negligible recreation opportunities
4d. Opportunity for collaboration	1	5	4.0	4.0	4.0	4.0	4.0	With polishing cell, likely have opportunity to collaborate with other (yet specifically unidentified) collaborators	With polishing cell, likely have opportunity to collaborate with other (yet specifically unidentified) collaborators	With polishing cell, likely have opportunity to collaborate with other (yet specifically unidentified) collaborators	With polishing cell, likely have opportunity to collaborate with other (yet specifically unidentified) collaborators	With polishing cell, likely have opportunity to collaborate with other (yet specifically unidentified) collaborators
4e. Opportunity to build momentum	1	5	3.5	3.5	4.0	4.0	3.5	With polishing cell, have high opportunity to build momentum, but slightly lower score since it would be well upstream of the City	With polishing cell, have high opportunity to build momentum, but slightly lower score since it would be well upstream of the City	With polishing cell and location near the City, have high opportunity to build momentum.	With polishing cell and location near the City, have high opportunity to build momentum.	With polishing cell, have high opportunity to build momentum, but slightly lower score since it would be on the far downstream end of Rock Creek
4f. Could help meet pending MS4 requirements	1	5	2.5	2.5	2.5	2.5	2.5	Difficult to access but polishing cell provides opportunity for mailers that the City could send out to its residents.	Difficult to access but polishing cell provides opportunity for mailers that the City could send out to its residents.	Difficult to access but polishing cell provides opportunity for mailers that the City could send out to its residents.	Difficult to access but polishing cell provides opportunity for mailers that the City could send out to its residents.	Difficult to access but polishing cell provides opportunity for mailers that the City could send out to its residents.
4g. Aesthetic value	1	5	1.5	1.5	3.0	3.0	1.5	Provides some aesthetic value, but isolated from public view and a fair ways away from the City limits.	Provides some aesthetic value, but isolated from public view and a fair ways away from the City limits.	Provides some aesthetic value, and future City expansion could be integrated into city-scape.	Provides some aesthetic value, and future City expansion could be integrated into city-scape.	Provides some aesthetic value, but isolated from public view behind private property and along railroad.
5. Projected Additional Non-City												
5a. Likelihood of additional funding	1	5	4.0	4.0	4.0	4.0	4.0	With polishing cell, grants are likely available from a wider group.	With polishing cell, grants are likely available from a wider group.	With polishing cell, grants are likely available from a wider group.	With polishing cell, grants are likely available from a wider group.	With polishing cell, grants are likely available from a wider group.
5b. Estimated funding amount	1	5	2.0	2.0	2.0	2.0	2.0	If funding is obtained, likely between 25-50% funding, leaving > $1M in city costs remaining	If funding is obtained, likely between 25-50% funding, leaving > $1M in city costs remaining	If funding is obtained, likely between 25-50% funding, leaving > $1M in city costs remaining	If funding is obtained, likely between 25-50% funding, leaving > $1M in city costs remaining	If funding is obtained, likely between 25-50% funding, leaving > $1M in city costs remaining
Capital Cost (Class 4-5)	22	0	20.2	3.9	7.6	11.4	9.3					

Table 4-10. Agricultural Irrigation Return Flow-Focused Project Scores

			Scores					Rationale				
Non-Monetary Criteria	Worst Outcome	Best Outcome	AG3 - Near Rock Cr & E 3500 N	AG5 - Near RR and S Park Ave W	AG6 - Near RR and N 2800 E	AG7 - Deadman Gulch Trib Upstream of S Park Ave W	AG10 - Between Rock Cr & Sunway Dr	AG3 - Near Rock Creek & E 3500 N	AG5 - Near Railroad and S Park Ave W	AG6 - Near Railroad and N 2800 E	AG7 - Deadman Gulch Tributary Upstream of S Park Ave W	AG10 - Between Rock Creek & Sunway Dr
1. Water quality improvement												
1a. Presence of Furrow Irrigation Practices	1	5	3.0	5.0	5.0	4.0	5.0	Moderate amount of furrow irrigation in vicinity	Predominantly furrow irrigation in the vicinity with channelized flow to the location	Predominantly furrow irrigation in the vicinity	Mix of furrow and center-pivot irrigation in the vicinity, with furrow irrigation having slightly more of the land area	Significant furrow irrigation near canal
1b. Approximate Irrigation Return Flows	0	5	4.0	3.0	3.0	5.0	5.0	Per Brian, 1-4 cfs	Per Brian, 1-3 cfs	Per Brian, 1-3 cfs	Per Brian, 2-5 cfs	Per Jason, 3-5 cfs
1c. Expected Water Quality Treatment	1	5	3.5	3.0	3.5	3.0	2.5	Includes sed basin, surface wetland, and polishing cell. Treats spring runoff, but sized to treat the spring flows (~300 acres) would be somewhat larger.	Includes sed basin, surface wetland, and polishing cell. Treats spring runoff, but facilities sized for spring runoff (~500 acres) would be much larger	Includes sed basin, surface wetland, and polishing cell. Treats spring runoff, but sized to treat the spring flows (~200 acres) would be somewhat larger.	Includes sed basin, surface wetland, and polishing cell. Treats spring runoff, but facilities sized for spring runoff (~600 acres) would be much larger	Includes sed basin, surface wetland, and polishing cell. Treats a little spring runoff from ag sources (about 75 acres), which will reduce over time as urbanization expands (would normally get a 1.5 or 2), but bumped to 2.5 since project would still get urban runoff now and in the future.
1d. Proximity to City Portion of Rock Creek	1	5	3.0	4.5	4.5	4.0	1.0	4.9 miles upstream of City Limits. Project is located outside City Limits	Within City Limits, drains through agricultural land before reaching Rock Creek	Located just outside current City Limits	2 miles upstream of Rock Creek Park. Project is located outside City Limits	Downstream of City Limits
2. Aids in future WW permit compliance	1	5	4.0	4.0	4.0	4.0	4.0	Can monitor WQ in influent/effluent, but would add cost.	Can monitor WQ in influent/effluent, but would add cost.	Can monitor WQ in influent/effluent, but would add cost.	Can monitor WQ in influent/effluent, but would add cost.	Can monitor WQ in influent/effluent, but would add cost.
3. Successful implementation												
3a. Willingness of landowner	1	5	5.0	2.0	2.0	3.0	4.0	Per input from Brian and Jason, very willing landowner	No information on landowner willingness	No information on landowner willingness	Jason indicated that landowner might be open to a project in this area	Existing pond retrofit
3b. Ease of permit acquisition	1	5	4.0	2.0	2.0	3.5	4.0	Will need some coordination with USACE, but unlikely that major permits are needed because existing pond is manmade	Higher potential that an individual permit is needed based on the appearance of wetlands throughout project area.	Higher potential that an individual permit is needed based on the appearance of wetlands throughout project area.	Because of proximity to Deadman Gulch, final design may require getting a nationwide permit.	Will need some coordination with USACE, but unlikely that major permits are needed because existing pond is manmade
3c. Complexity of annual O&M	1	5	3.0	3.0	3.0	3.0	3.0	Annual O&M will likely require some contracting of additional services.	Annual O&M will likely require some contracting of additional services.	Annual O&M will likely require some contracting of additional services.	Annual O&M will likely require some contracting of additional services.	Annual O&M will likely require some contracting of additional services.
3d. Complexity of major maintenance	1	5	1.0	1.0	1.0	1.0	1.0	Requires replacement of polishing cell media, and dredging of sediment pond / surface wetland.	Requires replacement of polishing cell media, and dredging of sediment pond / surface wetland.	Requires replacement of polishing cell media, and dredging of sediment pond / surface wetland.	Requires replacement of polishing cell media, and dredging of sediment pond / surface wetland.	Requires replacement of polishing cell media, and dredging of sediment pond / surface wetland.
3e. Frequency of major maintenance	1	5	1.0	1.0	1.0	1.0	1.0	Media in polishing cell will likely need to replaced within 5-10 years.	Media in polishing cell will likely need to replaced within 5-10 years.	Media in polishing cell will likely need to replaced within 5-10 years.	Media in polishing cell will likely need to replaced within 5-10 years.	Media in polishing cell will likely need to replaced within 5-10 years.
3f. Ease of Access	1	5	4.0	4.0	3.0	2.0	2.5	Just off existing road	Just off Steele Street	Couple of properties, but existing gravel access road	Multiple properties but private access roads.	Multiple properties currently, but potential for that to reduce over time with expansion of residential subdivision

Table 4-10. Agricultural Irrigation Return-Flow-Focused Project Scores (continued)

Non-Monetary Criteria	Worst Outcome	Best Outcome	AG3 - Near Rock Cr & E 3500 N	AG5 - Near RR and S Park Ave W	AG6 - Near RR and N 2800 E	AG7 - Deadman Gulch Trib Upstream of S Park Ave W	AG10 - Between Rock Cr & Sunway Dr	AG3 - Near Rock Creek & E 3500 N	AG5 - Near Railroad and S Park Ave W	AG6 - Near Railroad and N 2800 E	AG7 - Deadman Gulch Tributary Upstream of S Park Ave W	AG10 - Between Rock Creek & Sunway Dr
4. Additional benefits												
4a. Flood damage mitigation	1	5	1.0	1.0	1.0	1.0	1.0	Primarily used to treat small irrigation flows, so even if flooding, minimal flood reduction benefit	Primarily used to treat small irrigation flows, so even if flooding, minimal flood reduction benefit	Primarily used to treat small irrigation flows, so even if flooding, minimal flood reduction benefit	Primarily used to treat small irrigation flows, so even if flooding, minimal flood reduction benefit	Primarily used to treat small irrigation flows, so even if flooding, minimal flood reduction benefit
4b. Habitat value	1	5	4.0	3.0	3.5	3.5	4.0	Adjacent to Rock Creek	Some local habitat created from project but limited connectivity	Adjacent to larger wetland area along RR tracks	Adjacent to Deadman Gulch corridor	Adjacent to Rock Creek valley
4c. Recreational value	1	5	1.0	1.0	1.0	1.0	1.5	Negligible recreation opportunities	Negligible recreation opportunities	Negligible recreation opportunities	Negligible recreation opportunities	Slightly higher score than 1 because it could be integrated into future urban developments
4d. Opportunity for collaboration	1	5	4.0	4.5	4.0	4.0	4.0	With polishing cell, likely have opportunity to collaborate with other (yet specifically unidentified) collaborators	Within RAA Southwest area	Could be shifted slightly to be within RAA Southwest, but would lower other scores if given the same as AG5.	With polishing cell, likely have opportunity to collaborate with other (yet specifically unidentified) collaborators	With polishing cell, likely have opportunity to collaborate with other (yet specifically unidentified) collaborators
4e. Opportunity to build momentum	1	5	4.5	4.0	4.0	4.5	3.5	With polishing cell and local landowner / relative who is a champion for the project, have high opportunity to build momentum.	With polishing cell, have high opportunity to build momentum.	With polishing cell, have high opportunity to build momentum.	Based on Jason's feedback, potential to be one of the higher impact projects.	With polishing cell, have high opportunity to build momentum, but slightly lower score since it would be on the far downstream end of Rock Creek
4f. Could help meet pending MS4 requirements	1	5	3.0	2.5	2.5	2.5	3.0	Difficult to access but polishing cell provides opportunity for mailers that the City could send out to its residents. Plus have champion with close connections to project, so could have presentation / local PR opportunities	Better access than AG6 or AG7, but in industrial area, so same score as those two projects.	Difficult to access but polishing cell provides opportunity for mailers that the City could send out to its residents.	Difficult to access but polishing cell provides opportunity for mailers that the City could send out to its residents.	Closer to residential areas that are expanding.
4g. Aesthetic value	1	5	1.5	2.5	2.0	2.0	3.0	Provides some aesthetic value, but isolated from public view and a fair ways away from the City limits.	Provides some aesthetic value, and close to the City, but in an industrial area.	Provides some aesthetic value but somewhat isolated from the City.	Provides some aesthetic value but somewhat isolated from the City.	Provides some aesthetic value, and will likely be surrounded by residential properties at some point.
5. Projected Additional Non-City Funding												
5a. Likelihood of additional funding	1	5	4.0	5.0	4.5	4.0	4.0	With polishing cell, grants are likely available from a wider group.	With polishing cell, grants are likely available from a wider group, and located within the RAA southwest area	With polishing cell, grants are likely available from a wider group.	With polishing cell, grants are likely available from a wider group.	With polishing cell, grants are likely available from a wider group.
5b. Estimated funding amount	1	5	2.0	5.0	4.5	2.0	2.0	If funding is obtained, likely between 25-50% funding, leaving > $1M in city costs remaining	RAA could contribute most of funding.	RAA could contribute most of funding but project location would need to be tweaked from concept location.	If funding is obtained, likely between 25-50% funding, leaving > $1M in city costs remaining	If funding is obtained, likely between 25-50% funding, leaving > $1M in city costs remaining
Capital Cost (Class 4-5)	22	0	2.4	2.2	2.1	2.9	2.9					

Table 4-11. River Corridor Project Scores

			Scores					Rationale				
Non-Monetary Criteria	Worst Outcome	Best Outcome	RC1 - Upstream of Amal. Sugar	RC2 - Old Fish Hatchery	RC3 - Victory Ave	RC4 - Amal. Sugar	RC5 - Livestock Yard	RC1 - Upstream of Amalgamated Sugar	RC2 - Old Fish Hatchery	RC3 - Victory Ave	RC4 - Amalgamated Sugar	RC5 - Livestock Yard
1. Water quality improvement												
1a. Area of Bank Restoration / Stabilization	0	20,000	8,744	4,856	6,972	14,352	2,136	Calculated score based on average bank height times length	Calculated score based on average bank height times length	Calculated score based on average bank height times length	Calculated score based on average bank height times length	Calculated score based on average bank height times length
1b. Area of Floodplain Reconnection / Restoration	0	10	2.2	4.6	1.5	6.3	2.8	Calculated score from GIS	Calculated score from GIS	Calculated score from GIS	Calculated score from GIS	Calculated score from GIS
1c. Proximity to City Portion of Rock Creek	1	5	3.5	5.0	5.0	4.0	5.0	2.7 miles upstream of City Limits. Project is located outside City Limits	Within city limits	Within city limits	1.7 miles upstream of City Limits. Project is located outside City Limits	Within city limits
2. Aids in future WW permit compliance	1	5	2.0	2.0	2.0	2.0	2.0	Impractical to calculate sediment / nutrient removals, and would require long-term monitoring at both upstream and downstream ends of project.	Impractical to calculate sediment / nutrient removals, and would require long-term monitoring at both upstream and downstream ends of project.	Impractical to calculate sediment / nutrient removals, and would require long-term monitoring at both upstream and downstream ends of project.	Impractical to calculate sediment / nutrient removals, and would require long-term monitoring at both upstream and downstream ends of project.	Impractical to calculate sediment / nutrient removals, and would require long-term monitoring at both upstream and downstream ends of project.
3. Successful implementation												
3a. Willingness of landowner	1	5	1.5	5.0	5.0	**1.0**	1.5	Location is on parcels with two different owners - AS Company and private landowner. AS Company may be interested in partership. Interst of landowner unknown.	Owned by City	Owned by City	Owned by AS Company. AS Company may be interested in partership.	Private landowner. City has been in previous discussion with landowner and would like to aquire land in the future. Timeline for aquiring land is unknown.
3b. Ease of permit acquisition	1	5	1.0	1.0	1.0	1.0	3.0	Length of bank stabilization would trigger individual 404/401 permit.	Length of bank stabilization would trigger individual 404/401 permit.	Length of bank stabilization would trigger individual 404/401 permit.	Length of bank stabilization would trigger individual 404/401 permit.	Length of bank stabilization could likely fit under a nationwide permit.
3c. Complexity of annual O&M	1	5	5.0	5.0	5.0	5.0	5.0	Project type and design approach is such that annual O&M would be minimal / not needed.	Project type and design approach is such that annual O&M would be minimal / not needed.	Project type and design approach is such that annual O&M would be minimal / not needed.	Project type and design approach is such that annual O&M would be minimal / not needed.	Project type and design approach is such that annual O&M would be minimal / not needed.
3d. Complexity of major maintenance	1	5	3.0	3.0	3.0	3.0	3.0	Floodplain restoration / reconnection would likely require maintenance that includes sediment removal and (native vegetation replanting)	Floodplain restoration / reconnection would likely require maintenance that includes sediment removal and (native vegetation replanting)	Floodplain restoration / reconnection would likely require maintenance that includes sediment removal and (native vegetation replanting)	Floodplain restoration / reconnection would likely require maintenance that includes sediment removal and (native vegetation replanting)	Floodplain restoration / reconnection would likely require maintenance that includes sediment removal and (native vegetation replanting)
3e. Frequency of major maintenance	1	5	4.0	4.0	4.0	4.0	4.0	Project type and design approach is such that frequency of major maintenance would primarily be driven by high flood flows. Some risk that those would occur more frequently than what would create a 5.0 score, so selected 4.	Project type and design approach is such that frequency of major maintenance would primarily be driven by high flood flows. Some risk that those would occur more frequently than what would create a 5.0 score, so selected 4.	Project type and design approach is such that frequency of major maintenance would primarily be driven by high flood flows. Some risk that those would occur more frequently than what would create a 5.0 score, so selected 4.	Project type and design approach is such that frequency of major maintenance would primarily be driven by high flood flows. Some risk that those would occur more frequently than what would create a 5.0 score, so selected 4.	Project type and design approach is such that frequency of major maintenance would primarily be driven by high flood flows. Some risk that those would occur more frequently than what would create a 5.0 score, so selected 4.
3f. Ease of Access	1	5	2.0	5.0	5.0	3.0	3.5	Project site and access road are on Amalgamated Sugar's property however the site requires a new access road which must descend the canyon walls to access the project site.	Project site located on City of Twin Falls Property, no new access roads are required	Project site located on City of Twin Falls Property, no new access roads are required	Project site and access road are on Amalgamated Sugar's property	Access to the site can be accomplished via existing City of Twin Falls park trails until reaching the project site which is on private property

Table 4-11. River Corridor Project Scores (continued)

Non-Monetary Criteria	Worst Outcome	Best Outcome	RC1 - Upstream of Amal. Sugar	RC2 - Old Fish Hatchery	RC3 - Victory Ave	RC4 - Amal. Sugar	RC5 - Livestock Yard	RC1 - Upstream of Amalgamated Sugar	RC2 - Old Fish Hatchery	RC3 - Victory Ave	RC4 - Amalgamated Sugar	RC5 - Livestock Yard
4. Additional benefits												
4a. Flood damage mitigation	1	5	1.0	1.0	1.0	1.0	1.0	Rock Creek is within a large, deep valley, so no buildings or roadways are at risk of flooding.	Rock Creek is within a large, deep valley, so no buildings or roadways are at risk of flooding.	Rock Creek is within a large, deep valley, so no buildings or roadways are at risk of flooding.	Rock Creek is within a large, deep valley, so no buildings or roadways are at risk of flooding.	Rock Creek is within a large, deep valley, so no buildings or roadways are at risk of flooding.
4b. Habitat value	1	5	5.0	5.0	5.0	5.0	5.0	Project can significantly improve the habitat along Rock Creek.	Project can significantly improve the habitat along Rock Creek.	Project can significantly improve the habitat along Rock Creek.	Project can significantly improve the habitat along Rock Creek.	Project can significantly improve the habitat along Rock Creek.
4c. Recreational value	1	5	2.0	3.5	5.0	2.0	3.5	Located adjacent to Amalgamated Sugar complex with limited access opportunities.	Recreational opportunities could be integrated with the former fish hatchery site.	Project is along existing paths in the Rock Creek valley	Located adjacent to Amalgamated Sugar complex with limited access opportunities.	Recreational paths could be extended along the valley.
4d. Opportunity for collaboration	1	5	3.0	4.0	3.0	4.0	3.0	Could provide a collaboration opportunity with Amalgamated Sugar, but project is just upstream of their site.	Provides an opportunity to combine future of old fish hatchery site with environmental improvements. And Recreational groups likely interested in collaborating.	Recreational groups likely interested in collaborating.	Provides a collaboration opportunity with Amalgamated Sugar.	Recreational groups likely interested in collaborating.
4e. Opportunity to build momentum	1	5	1.5	4.0	4.0	4.0	3.0	Project on its own will not likely make noticeable change in the creek by the time it reaches more visible stretches of the creek.	By integrating this project with the future of the old fish hatchery site, could create excitement about the opportunities to improve the creek.	By adding information and education opportunities, could create excitement about the opportunities to improve the creek.	Amalgamated Sugar is a visible part of the community, so PR efforts for restoring this stretch of the creek could build momentum for future projects.	Would require some additional effort for visibility, but close to downtown.
4f. Could help meet pending MS4 requirements	1	5	1.0	2.5	4.0	3.0	3.0	Limited opportunity for on-site education, and remote (flyers, etc.) education materials would not have the visual "wow" factor.	Would require additional features at the old fish hatchery for it to be a destination. Remote education and outreach (flyers) "wow" factor would be modest.	Low effort to place signage along pedestrian path that highlights the project and how it improves water quality in the creek.	Limited opportunity for on-site education, but flyers, etc. used for education materials would have the visual "wow" factor of converting one of the ponds to a restored creek.	If pedestrian access were to be extended to the site after it was completed, low effort for signage.
4g. Aesthetic value	1	5	1.0	3.5	5.0	1.0	4.0	Currently isolated	Has aesthetic value and could be integrated into repurposing site of old fish hatchery.	Has aesthetic value and along existing trail.	Currently isolated	Has aesthetic value and could be integrated into trail extension.
5. Projected Additional Funding												
5a. Likelihood of additional funding	1	5	3.5	3.5	3.5	3.5	3.5	Generally meets scoring criteria for a medium score, and score was bumped given the history of private or non-profit groups funding these types of projects.	Generally meets scoring criteria for a medium score, and score was bumped given the history of private or non-profit groups funding these types of projects.	Generally meets scoring criteria for a medium score, and score was bumped given the history of private or non-profit groups funding these types of projects.	Generally meets scoring criteria for a medium score, and score was bumped given the history of private or non-profit groups funding these types of projects.	Generally meets scoring criteria for a medium score, and score was bumped given the history of private or non-profit groups funding these types of projects.
5b. Estimated funding amount	1	5	2.0	2.0	2.0	2.5	2.0	Project funding would potentially be in the 25-50% range, and City would likely need to still contribute more than $1M.	Project funding would potentially be in the 25-50% range, and City would likely need to still contribute more than $1M.	Project funding would potentially be in the 25-50% range, and City would likely need to still contribute more than $1M.	Project funding would potentially be in the 25-50% range, and City would likely need to still contribute more than $1M. Score bumped slightly because of potential funding from Amalgamated Sugar if ponds are abandoned.	Project funding would potentially be in the 25-50% range, and City would likely need to still contribute more than $1M.
Capital Cost (Class 4-5)	22	0	3.5	2.6	2.4	5.9	1.9					

Table 4-12. Overall Project Scores and Ranking

Project Name	Cost (Million $)	Results Based on MODA Value	Results Based on MODA Value and Cost Weights	Rank Based on MODA Value	Rank Based on MODA Value and Cost Weights
US2 - Along Rock Creek	$1.4	64.0	134.0	1	**1**
AG5 - Near Railroad and S Park Ave W	$2.2	62.7	129.9	2	**2**
AG6 - Near Railroad and N 2800 E	$2.1	60.9	128.4	3	**3**
AG3 - Near Rock Creek & E 3500 N	$2.4	57.3	123.7	4	**4**
AG9 - Between Rock Creek & Sunway Dr	$2.9	55.8	120.5	6	**5**
RC3 - Victory Ave	$2.4	53.9	120.4	9	**6**
AG7 - Deadman Gulch Tributary Upstream of S Park Ave W	$2.9	55.5	120.2	7	**7**
US5 - Addison Ave & Monroe St	$1.0	48.1	119.5	14	**8**
RC2 - Old Fish Hatchery	$2.6	51.9	117.6	12	**9**
US1 - Near Livestock Yard	$2.9	51.9	116.6	11	**10**
US3 - Fairfield St W & 7th Ave	$2.1	47.4	115.0	16	11
US4 - Addison Ave & 6th Ave	$0.7	39.6	112.2	18	12
RC5 - Livestock Yard	$1.9	43.7	112.0	17	13
AG2 - Near Rock Creek & Lowline Canal	$3.9	50.8	111.9	13	14
US6 - Filer Ave W & Quincy St	$0.6	36.5	109.2	20	15
RC4 - Amalgamated Sugar	$5.9	47.6	101.7	15	16
AG4 – Near E 3600 N & N 3100 E	$7.6	53.5	101.4	10	17
RC1 - Upstream of Amal Sugar	$3.5	38.1	100.5	19	18
AG8 - Deadman Gulch Upstream of S Park Ave W	$11.4	55.9	90.2	5	19
AG1 - Near Rock Creek & High Line Canal	$20.2	54.0	56.9	8	20

5. Recommended Initiatives, Policies, and Programs

Improving water quality in Rock Creek cannot be achieved by the City alone or by solely constructing the individual projects described in **Chapter 4**. Lasting watershed recovery also depends on the systems, partnerships, policies, and day-to-day practices that shape how land and water are managed across the entire Rock Creek watershed. Throughout the Master Plan process, the City of Twin Falls deliberately and thoughtfully brought together community members, state and federal agencies, irrigation entities, and conservation partners, recognizing that no single jurisdiction or sector can solve the Creek's water quality challenges alone.

True, durable restoration demands a coordinated approach that incorporates multiple tools, diverse funding sources, and shared responsibility across urban and agricultural landscapes. It requires alignment among agencies, landowners, and watershed users; consistent messaging and public engagement; and a commitment to both large transformative projects and the many smaller, incremental improvements that, together, can improve watershed conditions over time. The initiatives, programs, and policies outlined in this Master Plan build the framework needed to support that collective effort. They establish the collaborative partnership that can accelerate progress, the regulatory readiness that positions the City for future requirements, and the education and incentive systems that empower agricultural producers and urban residents alike to take action.

By pairing these actions with targeted restoration projects, Twin Falls can move beyond short-term fixes toward a comprehensive watershed strategy—one that strengthens community ownership, reduces pollution at its sources, and most importantly, provides lasting improvement to Rock Creek's water quality that will make Rock Creek a healthy, vibrant resource for the entire Magic Valley.

5.1 Rock Creek Watershed Restoration Collaborative

A thriving future for Rock Creek begins with a committed, collaborative partnership carrying out the projects and programs recommended by this Master Plan. Establishing a dedicated Rock Creek Watershed Restoration Collaborative will form the backbone of long-term success, uniting an impactful group behind a single, shared vision: improving the health and resilience of Rock Creek.

By serving as a neutral, trusted convener, the Collaborative can:

- Champion a shared commitment to restoring Rock Creek by bringing together the City, farmers, regulators, industries, conservation groups, recreation advocates, and community members.
- Drive and sustain the momentum needed to create long-term, measurable improvements in the health of Rock Creek.

This Collaborative will work with all partners on a wide range of activities including:

- Pursuing regional, state, and federal funding through a Strategic Funding Plan that reduces the community's costs to implement the Master Plan recommendations,
- Leading implementation of Master Plan recommendations,
- Tracking progress towards completing the Master Plan recommendations, and
- Providing education and outreach to urban and rural community members.

To accelerate implementation and accountability, the Collaborative will include key partners from:

- City of Twin Falls staff, including engineering, parks, and wastewater plant representatives
- State and federal agencies such as NRCS, IDWR, and IDEQ
- Agricultural stakeholders such as Twin Falls Canal Company and Idaho Dairymen's Association
- Environmental organizations such as Friends of Rock Creek, Idaho Rivers United, and Ducks Unlimited
- Recreation groups such as Magic Valley Fly Fishers and paddling groups
- Multi-disciplinary groups such as College of Southern Idaho, Magic Valley Land Trust, and Rock Creek Institute

It is recommended that the Collaborative funds a management position that would be responsible for organizing the Collaborative, organizing the Watershed Collaborative Funding Council described in **Chapter 6**, and achieving the overall goals of the Rock Creek Watershed Restoration Master Plan.

It is also recommended that the Collaborative fund a separate watershed educational specialist due to the broad, crosscutting role this position can play in advancing watershed outcomes. The watershed education specialist would:

- Support City staff in public outreach and education for their MS4 permit compliance requirements.
- Serve as a trusted liaison between the City, farmers, agronomists, and partners.
- Support consistent, clear messaging about water quality goals and available incentives.
- Identify the types of incentives and program designs that are most meaningful and workable for producers.
- Help identify funding opportunities and partners to expand incentive offerings.
- Provide and promote information on projects—funded by the Watershed Collaborative, City, or others—that benefit farmers while improving water quality.

Additional information on the activities for the watershed education specialist is included in **Section 5.5**.

5.2 City Stormwater Program and Utility

As the City of Twin Falls prepares for forthcoming MS4 permit requirements under Idaho's IPDES program, the community faces both regulatory obligations and strategic opportunities. Implementing a comprehensive stormwater program and establishing a sustainable funding mechanism through a stormwater utility will be essential for meeting state and federal standards, improving water quality, and advancing the goals of the Rock Creek Watershed Restoration Master Plan. The following sections outline the regulatory context, core program elements, and funding approaches that position Twin Falls to proactively manage stormwater, reduce pollution, and support long-term watershed health.

5.2.1 Stormwater Program

Under the federal Clean Water Act, stormwater discharges from Municipal Separate Storm Sewer Systems (MS4s) must be authorized by permit. EPA's Phase I rules (1990) require "large" and "medium" MS4s, generally those serving populations of 100,000 or more, to obtain permit coverage, while the Phase II rules extend permitting to "smaller" MS4s located in urban areas with a population of at least 50,000 (and

to other small MS4s designated by the permitting authority to protect water quality). In Idaho, the Idaho Department of Environmental Quality (IDEQ) assumed responsibility for stormwater (including MS4) permits on July 1, 2021 as part of the state's phased assumption of the Idaho Pollutant Discharge Elimination System (IPDES). The City of Twin Falls has been informed that it will soon be required to obtain an MS4 Permit and comply with all permit conditions once it is issued.

The permit requirements include six minimum control measures (MCMs), which align well with the intent of the Rock Creek Watershed Restoration Master Plan:

1. Public education and outreach on stormwater impacts (e.g., targeted messaging on lawn care, pet waste, and litter).
2. Public participation and involvement (e.g., stakeholder workshops, volunteer cleanups, accessible reporting channels).
3. Illicit discharge detection and elimination (IDDE), including an ordinance, system mapping, investigation procedures, and corrective actions.
4. Construction site runoff control for projects that can discharge to the MS4, using enforceable erosion and sediment control requirements.
5. Post-construction stormwater management for new development and redevelopment (e.g., LID/green infrastructure) to reduce pollutant loads.
6. Pollution prevention/good housekeeping for municipal operations and facilities (e.g., street sweeping, yard management, materials handling).

In addition to the six MCMs listed above, IDEQ adds special conditions for MS4s that discharge to impaired waters, which will include the City of Twin Falls as both Rock Creek and Snake River are impaired. Other MS4 permittees that also discharge to impaired waters like the City of Nampa have been required to implement water quality improvement projects and other non-structural controls to treat runoff from already-developed parts of the City. Examples of projects and non-structural controls include:

- Green infrastructure/low-impact development (LID) retrofits—such as bioretention, infiltration galleries, permeable pavements, and green streets.
- Detention/retention basins (new or retrofits) that provide or enhance treatment through forebays, storage, or polishing cells.
- Energy dissipation and filtration trenches that help reduce sediment and trash at discharge points.
- Stream, riparian, and floodplain restoration in receiving reaches, including buffer plantings, bank stabilization, and floodplain reconnection, that reduce sediment and nutrient loads and improve habitat.
- Operational improvements such as enhanced street sweeping, targeted catch-basin cleaning, and upgraded materials-handling practices at public works yards reduce pollutant loading from municipal operations and support the Phase II "pollution prevention/good housekeeping" minimum control measure.

All these activities provide synergy with the Master Plan and Rock Creek restoration efforts. Actions and projects recommended in this Master Plan can serve as Water Quality projects and demonstrate early progress toward forthcoming MS4 permit obligations. Aligning outreach around Rock Creek as a focal watershed can also amplify public participation outcomes and improve pollutant-source control at the neighborhood scale.

5.2.2 Stormwater Utility

A well-designed stormwater utility gives Twin Falls a reliable and equitable way to fund Rock Creek water-quality improvements and a new MS4 permit required Stormwater Program. By adopting a user-fee system, the City creates a dedicated, long-term enterprise fund that is separate from the general fund and focused on a wide range of pollution reduction strategies including stormwater infrastructure projects, staffing, equipment maintenance, equipment purchases, monitoring, public education, and compliance activities.

Specific benefits of a dedicated stormwater enterprise fund include:

- Stronger program capacity and consistent MS4 compliance under NPDES/IPDES,
- Capacity for proactive operation and maintenance such as street sweeping, catch-basin cleaning, and pond maintenance,
- Faster delivery of stormwater infrastructure improvements that reduce pollution and flooding,
- Improved creditworthiness and local match for grants and low-cost loans,
- Transparent accounting that builds public trust and supports performance tracking, and
- Broader cost sharing that includes tax-exempt campuses and institutions.

There are a host of options for how stormwater revenues could be generated. Several options are listed below, and determining which approaches work best for the City would be evaluated as part of a stormwater utility rate study, which this Master Plan recommends as the first step towards creating a successful stormwater utility.

1. **Impervious-area user fees (ERU/SFEU model) on the utility bill:** Charge each parcel based on impervious surface—often using an "Equivalent Residential Unit" (ERU) for non-residential and tiered rates for single-family homes.
2. **Charging tax-exempt properties:** Unlike property taxes, stormwater utilities typically bill all parcels—including tax-exempt institutions.
3. **Tiered residential + measured non-residential structures:** Commonly designed as fixed tiers for single-family (by impervious ranges) and measured ERU billing for commercial/industrial/ institutional parcels.
4. **Rate modifiers and credits:** Incorporate intensity-of-development factors, land-use coefficients, or credit programs (e.g., on-site detention, GI retrofits) to align charges with runoff reduction.
5. **Plan review & development inspection fees:** Cost-recovery charges for stormwater plan review, construction inspection, and related approvals.
6. **System development charges / capitalization recovery / impact fees:** One-time fees on new or intensified development to buy into system capacity or recover capital costs.
7. **Special assessments / benefit districts**: Assessment districts (e.g., by frontage or benefit) to finance drainage or water-quality improvements in targeted areas.
8. **Dedicated property-tax or general-fund contributions (blended funding):** Some programs blend user fees with general fund or dedicated levies; manuals stress diversified sources for stability.
9. **Debt financing backed by stormwater fees**: Revenue bonds or loans (e.g., Clean Water SRF) repaid from a predictable fee revenue to deliver large capital projects.

10. **Grants and cost-share leveraged by fee revenue:** Federal/state grants (e.g., SRF, SOS, USDA) often require local match—stormwater fees supply the match and ongoing O&M.
11. **Interlocal or regional cost-sharing:** Multi-jurisdictional agreements to spread costs across the watershed and streamline delivery.

5.3 Integrated Permitting Plan

An Integrated Permitting Plan is not a single formal "permit," but rather a planning and coordination approach recognized by EPA under the Clean Water Act that allows a municipality to strategically sequence and prioritize its stormwater and wastewater permit obligations in one unified plan.

This section defines a potential permit compliance pathway that prioritizes watershed restoration and distributed load reduction to meet Clean Water Act (CWA) obligations while preserving affordability for WWTP ratepayers and supporting long-term resilience. Rather than committing immediately to a single, high-capital expenditure tertiary upgrade at the WWTP, the City could implement an Integrated Municipal Stormwater and Wastewater Plan ("Integrated Plan") that sequences the highest value actions across the WWTP, MS4, and the Rock Creek/Snake River watershed.

5.3.1 Regulatory Framework and Idaho Context

The Integrated Plan would be incorporated into the City's IPDES permit. The USEPA created this voluntary pathway in 2012, and Congress codified it in Clean Water Act §402(s) via the Water Infrastructure Improvement Act (WIIA), enabling integrated plans to be reflected in permits, including multi-term compliance schedules where authorized by water-quality standards.

The USEPA's Integrated Planning Framework allows a municipality to prioritize actions across wastewater, MS4, and other CWA drivers, and EPA's 2019 memorandum clarifies how regions and states should implement WIIA, including technical assistance and the ability to incorporate integrated plans into permits with sequenced schedules consistent with 40 CFR 122.47. In fact, the USEPA encourages watershed-based permitting, including integrated municipal permits, multisource watershed permits, and coordinated individual permits, to align permit conditions with TMDLs and watershed goals and to facilitate market-based strategies such as water-quality trading. IDEQ now administers the IPDES program statewide and has implemented integrated permitting approaches for other municipalities.

5.3.2 Integrated Permitting Portfolio

The City would develop an Integrated Plan and request that IDEQ incorporate it into the next IPDES permit cycle (or through a permit modification). The plan will pair WWTP "no-regrets" process optimizations with distributed, verifiable load-reduction projects that address dominant sources and stressors in Rock Creek and the Snake River.

5.3.2.1 Portfolio Components

With an Integrated Plan, the City would deploy a phased, integrated portfolio, combining Rock Creek riparian/floodplain reconnection, priority agricultural BMPs, urban green-street retrofits, and WWTP optimization, to deliver quantifiable TP/TSS load reductions, accelerate watershed recovery, and enable adaptive, cost-effective IPDES permit compliance. Components of a potential permitting portfolio could include the recommended Master Plan projects, MS4 permit requirements, agricultural field-scale best management practices, operational changes at the WWTP, and smaller WWTP capital projects.

5.3.2.2 Compliance Mechanisms

The City would request that IDEQ use a watershed-based approach or an integrated municipal permit construct, aligning conditions and schedules to the Integrated Plan and relevant TMDLs, with adaptive management milestones. Water quality credit trading could be established by applying point-to-nonpoint trading to recognize verified off-site reductions (e.g., riparian restoration and ag BMPs) toward meeting permit load requirements at lower cost. Idaho's guidance defines baselines, ratios, monitoring, and enforceable documentation.

5.4 NRCS Watershed Plan

The NRCS's mandate is to support the agricultural community through a variety of education and funding programs. One of their requirements for accessing funds is to have an approved NRCS Watershed Plan. While the name "Watershed Plan" implies that it is similar to this Watershed Restoration Master Plan, the NRCS Watershed Plan is much more focused on impacts and benefits to the environment such as endangered species, wetlands, waterways, and cultural resources, to name a few. From a federal regulatory context, the Watershed Plan is very similar to an Environmental Assessment (EA) or Environmental Impact Statement (EIS) with the main difference being that the Watershed Plan covers the entire watershed whereas an EA or EIS are often for a specific project. Components of the NRCS Watershed Plan include:

- Summary
- Purpose and Need for Action
- Scope of Environmental Assessment / Environmental Impact Statement
- Affected Environment
- Alternatives
- Environmental Consequences
- Consultation, Coordination, and Public Participation
- Preferred Alternative

An EA / EIS type document takes considerable effort to prepare, but some of these items, such as purpose and need for action, public participation, alternatives, and preferred alternative, are all elements that the NRCS Watershed Plan can leverage from this Master Plan. This Master Plan recommends that another early action is to begin preparing the NRCS Watershed Plan to open up NRCS funding opportunities.

5.5 Outreach and Education

Education is a critical bridge between planning and action. The following sections outline tailored strategies to engage City residents and agricultural landowners in support of shared water-quality goals.

5.5.1 Urban Outreach and Education

Outreach and education to City residents, businesses, and institutions would occur as part of the City's upcoming MS4 permit requirements. Staffing and resources for this effort would be funded through the recommended City Stormwater Utility described earlier in this chapter.

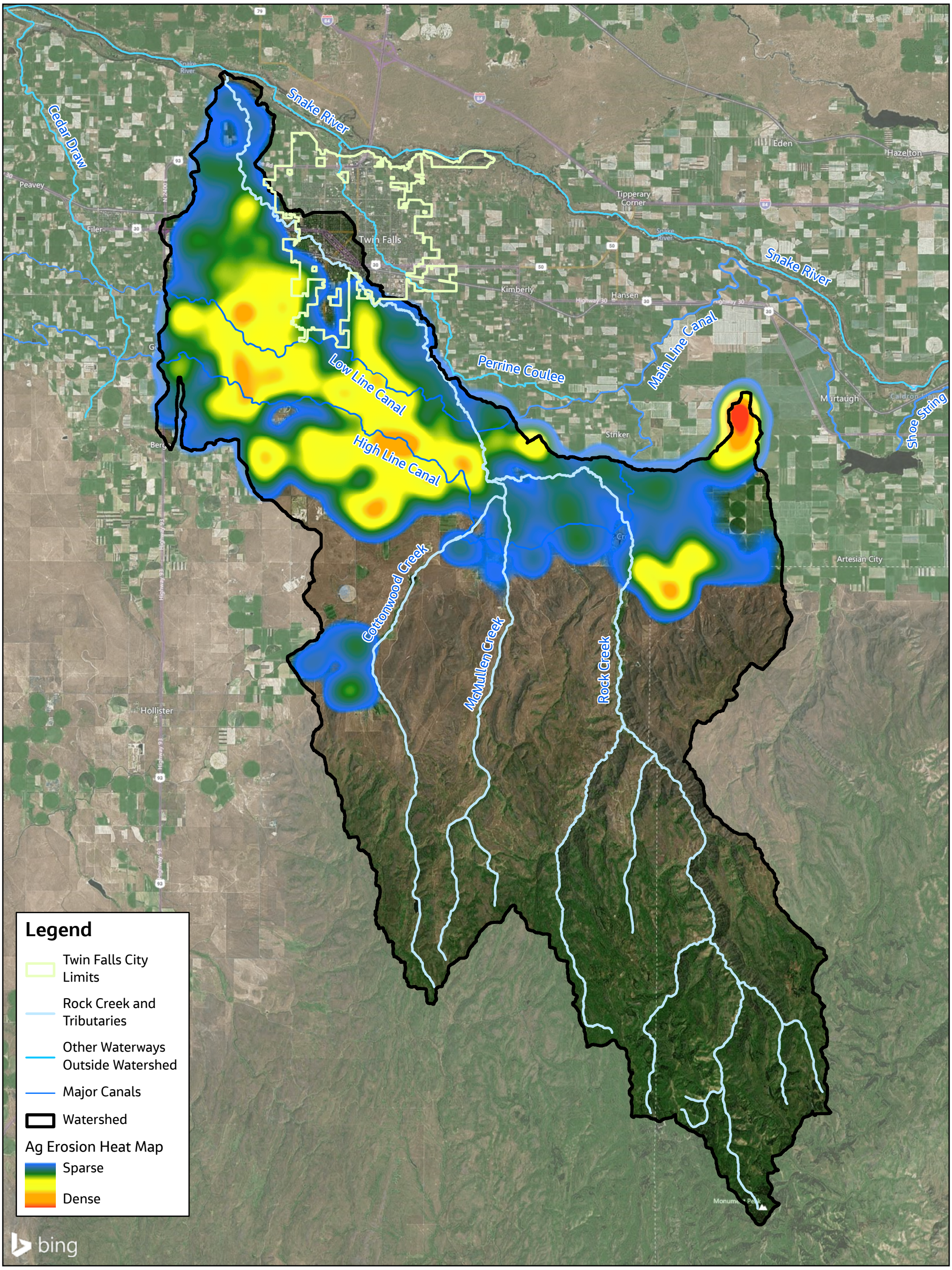
5.5.2 Agricultural Outreach and Education

Figure 5-1 shows areas of high erosion potential in the agricultural part of the watershed based on the EVAAL analysis described in **Chapter 3**. Therefore, implementing on-field agricultural best management practices can be a key tool to reducing overall sediment, nutrient, and bacteria loading to the creek. Because all the agricultural land is privately-owned, getting landowners and tenants on board with improving agricultural practices is necessary. One way to accomplish that is through education.

Supporting outreach and education for the agricultural community strengthens participation in best management practices and incentive programs. Education also builds trust, improves consistency in messaging, and helps identify what approaches are most workable for producers. Finally, when coordinated with urban outreach as part of the City's stormwater program described in the previous section, education efforts in the agricultural community can reinforce a shared, watershed-wide vision of a cleaner, improved Rock Creek.

An agricultural outreach and education expert could be strategically designed to overlap with staff focused on urban audiences, creating efficiencies and consistent watershed-wide messaging. Whether communicating with producers or urban residents, the focus would remain on shared goals, practical solutions, and mutual benefits. This integrated approach strengthens trust, reduces duplication, and ensures that both agricultural and urban actions are aligned within a single watershed strategy.

These outreach and education initiatives would be led by the Watershed Collaborative described earlier in this chapter. The Watershed Collaborative is able to support multiple participants while staying aligned with water quality goals that will benefit farmers and landowners, agronomists influencing management decisions, and the City.



Locator Map



Figure 5-1
Erosion Potential Hot Spots on Cropland Areas

Rock Creek Watershed
Restoration Master Plan

N

0 1 2 3 Miles

CITY OF TWIN FALLS
PEOPLE SERVING PEOPLE

Jacobs

5.6 Agricultural Financial Incentive Programs

Agriculture is the dominant land use in the Rock Creek watershed, and these areas provide the City's best opportunity to prevent nutrients, sediment, and bacteria from reaching Rock Creek and its tributaries. A focused, voluntary financial incentive program will translate this opportunity into action by rewarding on-field practices with proven water-quality benefits while supporting farm productivity and resilience. Building on existing relationships and the City's capacity for program administration and outreach, the program will leverage City funds with external sources (e.g., state, federal, and private) to maximize leverage and participation. Clear eligibility, simple applications, and outcome-based tracking will ensure incentives drive measurable load reductions and align directly with the City's compliance needs. In short, paying for performance upstream reduces the need for costly investments downstream and advances a shared vision of a healthier Rock Creek.

5.6.1 Need for Incentive Program

This incentive model maximizes nutrient and sediment reduction per dollar by targeting funds where they deliver the greatest impact, while making participation easy through simple contracts, rapid payments, and agronomist support. It turns voluntary interest into verified load reductions that directly align with the City's compliance needs, and it scales quickly through shared administration and stacked incentives—accelerating visible improvements in Rock Creek and strengthening long-term farm viability.

By supporting voluntary, farm-based incentives, Twin Falls can:

- Reduce nutrients, sediment, and bacteria upstream while lowering the need for costly downstream infrastructure,
- Leverage established relationships with the agricultural community,
- Use existing expertise in program administration and outreach, and
- Leverage external funding sources that can be leveraged or matched with City resources.

Incentive-based programs encourage real, on-the-ground improvements by supporting farmers and agronomists who manage water and nutrients every day. Incentives work because they:

- Address pollution at the source by targeting on-field practices with proven water quality benefits,
- Support farm productivity and resilience,
- Are flexible, practical, and voluntary, allowing the program to meet farmers where they are, and
- Deliver measurable water quality benefits because accountability is built into program tracking.

5.6.2 Recommended Incentive Program Structure

There are several approaches that have been used in the past throughout the country, which include:

- **City-Led Agricultural Incentives:** Twin Falls could create and administer a tailored incentive program for farmers, landowners, and agronomists that prioritizes practices with demonstrated water quality benefits. This approach allows the City to align incentives directly with compliance needs while maintaining oversight and tracking outcomes.
- **Collaborative-Led Incentives:** Partnering with a watershed organization to administer agricultural incentives has the potential to expand the reach of an agricultural incentive program and credibility among producers. This model leverages trusted local relationships and can improve participation, especially among smaller operations.

- **Agronomist-Focused Incentives:** Creating incentives specifically for agronomists recognizes their influential role in crop management decisions. Supporting agronomists who promote nutrient efficiency, reduced runoff, and soil health can create ripple effects across many farms with limited administrative burden.
- **Targeted Incentives for Most Vulnerable Properties:** A focused incentive track for areas or operations associated with persistent water quality challenges allows resources to be concentrated where the greatest improvements can be achieved. This approach combines accountability with support, rewarding improvement for the betterment of everyone.

The recommended structure for the Rock Creek watershed is the Collaborative-led incentive program that would work with producers in the watershed to reduce nutrient and sediment loads to Rock Creek by implementing and maintaining proven practices. Overall, this recommended structure reduces administrative burden on the City while increasing participation and credibility among producers. It also allows incentive dollars to be directed toward practices that support both farm viability and water quality goals, creating shared value rather than imposing one-sided solutions. By pooling partner resources, the program can offer more competitive and flexible incentives than the City could provide on its own, increasing uptake and effectiveness.

With this structure, incentives could be based on any one of or combination of approaches:

- Pay-for-Performance (P4P): Annual payments per verified pound of TP/TSS reduced (e.g., $/lb TP; $/ton sediment). Suitable for riparian buffers, irrigation conversions, drainage water management, targeted cover crops.
- Practice-Based (PB): Fixed cost-share (e.g., 60–90%) or flat rates for BMPs with well-established load-reduction factors (e.g., grassed waterways, sediment basins, manure storage covers).
- Outcome Bonuses: Multipliers for near-stream locations, multi-practice “stacks”, or multi-year BMP maintenance.

Eligible applicants could include agricultural operators, owners, and accredited agronomists working within the Rock Creek watershed. Priority would be given to:

- Farmers and ranchers with parcels within 300 feet of Rock Creek/ditches,
- EVAAL erosion “hot spots” (**Figure 5-1**, shown previously), and
- Fields draining to known water quality problem areas as identified through water quality sampling.

Participants could combine City incentives with existing NRCS/EQIP/CSP or Idaho DEQ funding programs such that the City would only for the unfunded portion (“gap-funding”) to maximize acres enrolled.

5.6.3 Incentivized Practices

The following is a potential list of potential practices that are known to reduce nutrient and TSS pollution in agricultural watershed that could be included in the new incentive program for Rock Creek:

- Nutrient management: Apply 4R practices (right source, rate, time, place) with variable-rate N-P; use in-season soil/plant testing; split applications; consider controlled-release or inhibitors; and calibrate manure timing, rates, and setback distances.
- Erosion & runoff control: Implement reduced-till/strip-till and retain residue; seed cover crops after silage/row crops; install grassed waterways and WASCOBs; use contouring/terraces; and stabilize field entrances and lanes.

- Irrigation efficiency: Convert flood to sprinkler or precision pressurized systems; add surge valves; use soil-moisture sensors/ET data for scheduling; and capture/reuse tailwater with end-of-field checks or return systems.
- Riparian/edge-of-field: Establish vegetated buffers/filter strips; exclude livestock with off-channel water; stabilize eroding banks; add sediment forebays; construct two-stage ditches; and implement drainage water management (e.g., controlled drainage, saturated buffers).

5.6.4 Funding Sources

The program would combine multiple funding sources (City dollars, federal and state cost-share, and private/philanthropic contributions) to stretch every dollar and accelerate enrollment, while prioritizing investments in the highest-benefit locations and keeping administration lean. It will align with CWSRF-funded watershed projects, so that field practices and riparian work reinforce one another for bigger water-quality gains.

5.6.5 Performance Tracking

Performance will be tracked through an annual scorecard (participation, restored acreage/streambank, cumulative nutrient and sediment reductions, and unit costs), and the program will use adaptive management to recalibrate incentive levels, targeting, and practice offerings each year based on measured results and producer feedback.

5.6.6 Digital Incentives Hub

Many incentives already exist, but they are often hard to navigate for individual farmers. Therefore, this Master Plan recommends that the Watershed Collaborative create and host a centralized, web-based Incentives Hub that would:

- Serve as a centralized, easy-to-navigate resource that clearly presents available water quality incentives and support programs,
- Highlight City and external programs,
- Clearly explain eligibility and timelines,
- Reduce confusion and application barriers, and
- Improve transparency and coordination.

This hub could be developed as part of an existing webpage or integrated with broader urban water quality programming, reinforcing the idea that agricultural and urban efforts are part of a unified watershed approach. Over time, the hub can be expanded to showcase success stories and watershed progress.

5.7 Long-Term Water Quality and Flow Monitoring

Long-term water quality and flow monitoring is essential for tracking progress, guiding decisions, and right-sizing recommended projects. Ongoing data collection allows the City and its partners to:

- Establish reliable baseline conditions,
- Understand how flow changes throughout the watershed,
- Observe trends as projects as projects and programs are implemented,
- Celebrate water quality improvements, and

- Adapt strategies based on what is working.

The following sections detail the recommended future water quality and flow monitoring efforts in the Rock Creek watershed in coordination with the Rock Creek Watershed Restoration Collaborative.

5.7.1 Water Quality Monitoring

The supplemental water quality data collected as part of the Master Plan effort evaluated numerous parameters and at the same sites over a 2-year period (**Appendix D**). Moving forward, it is recommended for long-term water quality data to be collected for the following parameters:

- Total suspended sediment
- Total Phosphorus
- Temperature
- Nitrate + Nitrite
- E. coli

Further, the approach for the spatial coverage of sampling sites used in the 2024-2025 supplemental water quality data collection effort should change to focus water quality sampling in areas with upcoming projects. A few main stem sites should continue as monitoring sites, with varying focus areas in the watershed to better pinpoint hot spots for sediment, nutrients, and bacteria entering the creek. The following locations are recommended for long-term water quality monitoring:

- Upper Watershed Sites: Provides a baseline reference for water quality in Rock Creek
    - Location 1 (Rock Creek downstream of the convergence with Fourth Fork)
- Middle Watershed Sites: Provides assessment of water quality changes driven by agricultural runoff
    - Location 3 (Rock Creek at Rock Creek Store)
    - Location 4 (Rock Creek downstream of convergence with Cottonwood Creek)
- Lower Watershed Sites: Provides assessment of water quality changes driven by urban runoff and provide public education and outreach opportunities
    - Location 8 (Rock Creek at Old Fish Hatchery)
    - Location 9 (Rock Creek near Victory Ave)
    - Location 10 (Rock Creek at Rock Creek Park)
    - Location 12 (Rock Creek near convergence with Snake River)

Water quality samples should be collected four times annually. In addition to collecting samples in the three flow regimes discussed in **Section 2.8.6**, an additional spring sample should be added along with close coordination with Twin Falls Canal Company for when canals are opened. One spring sample should be just before the canals open and the other spring sample shortly after. The third sample should be collected during the middle of irrigation season (Late July or early August). The last sample should be collected in early winter (November).

5.7.2 Flow Measurements

Long-term flow monitoring is recommended for the Rock Creek watershed since irrigation imports, diversions, and practices make building a tool that would accurately predict how the flow in Rock Creek responds to snowmelt and precipitation events not feasible.

Currently, USGS collects continuous flow measurement data at a single location in the Rock Creek watershed just upstream of Rock Creek Park near Addison Avenue. It is recommended that the Rock Creek Watershed Restoration Collaborative contract with the USGS to add two additional continuous flow monitoring gages in the watershed. The first location should be further upstream in the watershed near the High Line or Low Line Canals to determine the monitor the influence of the irrigation canal system. The second location should be located upstream of the High Line Canal.

To supplement the long-term, continuous USGS flow gages, discrete measurements should be collected manually in the field during water quality sampling events so that flow data collected throughout the watershed can be paired with the water quality data to determine the pollutant loading at various points in the watershed and track the progress of the Rock Creek Watershed Restoration Master Plan.

6. Strategic Funding Approach

The successful implementation of the Rock Creek Watershed Restoration Master Plan will depend on sustained and strategic investment from a wide array of funding programs. These include federal grants, state cost-share programs, local match, cooperative agreements, and low-interest loans. Given the diversity of project types and initiatives, no single funding source will meet all needs. Instead, the Master Plan is built around a coordinated, collaborative-led funding strategy.

To ensure a unified and efficient approach, the Watershed Collaborative will lead the overall funding pursuit – coordinating strategy, timing, application standards, and cross-project positioning. At the same time, individual partners (e.g., the City, irrigation/water entities, nonprofits, state agencies) may lead specific proposals where they hold statutory eligibility, asset ownership, permitting authority, or established agency relationships. This collaborative-led, partner-enabled model allows Twin Falls to advance multiple opportunities in parallel while maintaining a coherent overall strategy.

This chapter outlines the funding landscape as of the date of this Master Plan and alignment / misalignment for the Master Plan recommendations. It is intended to guide decision-makers, support grant readiness, and ensure the Master Plan translates into built projects and measurable improvements. **Table 6-1** through **Table 6-6** summarize the numerous potential grant and loan programs that could provide funding for Master Plan recommendations.

6.1 Funding Pathways

Implementing watershed-scale projects requires a deliberate and aligned funding approach. Twin Falls' project portfolio includes drainage basin retrofits, regional wetlands, floodplain reconnection, sediment reduction practices, and public education initiatives, each with unique eligibility, match requirements, and timelines. A strategic framework will help the Watershed Collaborative coordinate opportunities, avoid fragmented or duplicative efforts, and build momentum through early wins.

Because no single source covers all needs, Twin Falls will work across multiple funding pathways:

- **Congressional Directed Spending (CDS) - *USACE Environmental Infrastructure, FEMA Pre-Disaster Mitigation via CDS, EPA STAG/CPF Community Grants*:** These are flexible and powerful funding sources for urban stormwater and river corridor projects; typically requiring a 25% cost-share with a strong emphasis on public benefit and readiness.
- **Idaho DEQ – *Idaho DEQ §319, Clean Water State Revolving Fund (SRF) & Sewer Overflow & Stormwater Planning Grants (OSG)*:** These programs can fund the backbone for planning, design, and capital in municipal stormwater and watershed projects; LOI-based cycles and integration with long-range capital planning. These funds have the potential to support urban, agricultural, and/or river corridor projects.
- **DOI Reclamation – WaterSMART - *Aquatic Ecosystem Restoration (AERP/EWRP), Water & Energy Efficiency Grants (WEEG)*:** These funds have a strong potential for river corridor restoration (up to 65% federal share) and quantified water savings packages.
- ***FEMA Mitigation – BRIC***: FEMA mitigation programs are currently in a state of flux. However, it is expected that these programs, or similar, will become available and will continue to support risk reduction and community resilience.
- **Nonpoint Source & Agricultural Incentives - *Idaho DEQ §319 Subgrants; State Agricultural BMP Grants; NRCS EQIP; NRCS Watershed and Flood Prevention (PL-566)*:** These are core approaches for funding agricultural wetland polishing cells, sediment ponds, and urban retrofits tied to TMDLs and often stackable with producer cost-share.

- **Parks, Community, and Engagement - *LWCF ORLP (1:1 match); USDA UAIP (no match)*: These** are targeted programs for park-stormwater co-benefits, education, and community engagement.
- **Partnerships & Cooperative Agreements - *BLM East Idaho Rivers & Plains Restoration* Landscape:** This program amplifies river corridor and riparian investments on/adjacent to public lands and can expand scope with aligned federal initiatives.

6.2 Roles, Responsibilities, and Decision-Making

Watershed-scale funding is most successful when roles are clearly defined and when partners understand who is responsible for leading proposals, coordinating with agencies, preparing technical materials, and tracking deadlines. Because Twin Falls' project types span multiple jurisdictions and land ownerships, the Master Plan relies on the Collaborative governance model rather than a single entity acting alone.

This section describes how the Watershed Collaborative could organize its funding efforts, how opportunity leads are selected, and how decisions are made. It also outlines criteria for determining whether to pursue or decline a given funding opportunity.

6.2.1 Governance Structure

The governance framework is intentionally simple: the Watershed Collaborative Funding Council guides strategy, the Opportunity Lead drives individual applications, and the Grants Coordination Hub provides technical and administrative support. Together, they form a streamlined system that reduces duplication, improves competitiveness, and ensures that every funding pursuit strengthens the overall watershed effort.

6.2.1.1 Watershed Collaborative Funding Council

- **Role:** Leads the overall funding effort.
- **Core functions:** Prioritizes funding opportunities and selects which to pursue. Assigns Opportunity Leads for each application. Maintains shared standards, templates, application calendars, and the living funding matrix. Ensures coordination across jurisdictions and project types.
- **Why it matters:** Provides unified strategy and avoids competing or duplicative applications within the watershed.

6.2.1.2 Opportunity Lead

- **Role:** The organization that is best positioned and legally eligible to submit a specific grant or loan application.
- **Core Functions**: Lead preparation, submission, and management of the application. Coordinate technical content with partners and the Grants Coordination Hub. Maintain compliance and reporting once awarded.
- **Why it matters:** Ensures each proposal is led by the entity with the correct eligibility, ownership, and agency relationship.

6.2.1.3 Grants Coordination Hub

- **Role**: A centralized support function (staffed by the City, a consultant team, or a shared-services collaborative) that standardizes and streamlines grant development and compliance tasks.

- **Core Function**: Maintain templates, boilerplate narratives, budget formats, match tracking, and reporting tools. Manage a shared benefit-cost analysis (BCA) and benefits template for the purpose of maintaining standard inputs and assumptions, curating data sources, providing pre-built benefit calculation models, and ensuring consistency across submissions. Coordinate schedules, submission logistics, and required attachments. Provide grant-writing and compliance support to Opportunity Leads.
- **Why it matters:** Improves proposal consistency and reduces administrative burden across partners.

6.2.2 Go / No-Go Process

The Watershed Collaborative should use a Go/No-Go process so that staff and financial resources are focused on the highest-value funding opportunities. This review quickly identifies whether a project is viable for the specific funding program, whether the applicant (Opportunity Lead) is eligible, and whether the Collaborative has the match, readiness, and bandwidth required to succeed.

The goal of the Go/No-Go process is not to simply filter opportunities out, but to establish clear next steps: move forward, pause until additional work is completed, or decline and revisit in a future cycle. This ensures an efficient pipeline and prevents rushed, low winning probability applications. To that end, there are several evaluation criteria that should be used to make a go/no-go decision:

1. **Opportunity Lead Eligibility**
   - Project ownership, operations, and long-term maintenance responsibilities are clear.
   - Required partners (e.g., City, irrigation entity, producer, landowner) are committed and available.
2. **Project Readiness and Technical Basis**
   - A clear problem statement and scope of work exist.
   - Concept-level (or better) engineering/design is available—or achievable before the deadline.
   - Required feasibility documentation is in place (e.g., Preliminary Investigation Feasibility Report [PIFR] for Public Law [PL]-566, alternatives analysis, preliminary design).
   - Environmental and permitting pathways are understood (National Environmental Policy Act [NEPA]/CE, USACE 404, floodplain requirements, state/federal land).
3. **Match Availability and Financial Feasibility**
   - Required match (cash or in-kind) is identified and allowable.
   - Match commitments can be secured before the deadline (e.g., council/board approvals).
   - Long-term O&M responsibilities are established and financially feasible.
   - Cost-share structure aligns with partner funding cycles and budget timing.
4. **Strategic Alignment and Competitiveness**
   - Project clearly aligns with the program's priorities (e.g., water quality, flood reduction, habitat, resilience, community benefits).
   - The project benefits are quantifiable (e.g., load reductions, acres restored, damages avoided).

- The project is competitive relative to known priorities in the region/state.
- Climate, resilience, or nature-based solution components strengthen competitiveness.

5. **Partner Capacity and Timing**
   - The Opportunity Lead, Grants Coordination Hub, and/or key partners have the administrative bandwidth to prepare the application.
   - Consultants, if needed, are available within schedule and budget.
   - Necessary data (maps, cost estimates, monitoring data, modeling outputs) can be completed in time.
   - The deadline realistically fits the level of effort.
6. **Program Risk and Certainty**
   - Program rules, cycles, and funding availability are reasonably stable (or risks are understood and acceptable).
   - The project does not rely on assumptions about future awards from uncertain sources.
   - Dependencies (landowner agreements, permitting, interagency MOUs) are manageable.

Following review, each opportunity would receive one of three determinations:

- **GO:** Proceed with full application development; OL confirmed; responsibilities assigned.
- **PAUSE/DEFER:** Viable opportunity, but prerequisites (match, design, permits, data) need attention first.
- **NO-GO:** Opportunity not suitable due to eligibility, readiness gaps, or insufficient competitiveness.

6.2.3 Priority Funding Pathways by Project Type

Different project types align with different programs. This section and **Table 6-5** translate the Master Plan's recommendations into practical funding routes by category, clarifying which sources are most viable, how they stack, and what preparation improves competitiveness.

- **Urban Stormwater (Top 10 Projects US1, US2, US5)**
  - Primary Pathways
    - CDS: USACE Environmental Infrastructure; EPA Community Grants (STAG/CPF); FEMA PDM via CDS
    - Idaho DEQ – CWSRF: Low-interest financing with potential principal forgiveness; supports planning/design/construction
  - Secondary Pathways
    - FEMA BRIC (post-pause; high ceilings)
    - EDA Public Works/EAA (when linked to jobs/private investment)
    - USDOT PROTECT (when also protecting transportation assets)
    - IDEQ §319 (for sub-elements tied to TMDLs or nine element watershed plans and quantifiable pollutant reductions).

- **River Corridor (Top 10 Projects RC2, RC3)**
  - Primary Pathways
    - WaterSMART – AERP/EWRP
    - CDS – USACE Environmental Infrastructure.
    - CWSRF (watershed/nonpoint elements with direct WQ benefit)
    - IDEQ §319 Water Quality components (for projects tied to TMDLs or nine element watershed plans and quantifiable pollutant reductions)
  - Secondary Pathways
    - BLM East Idaho Rivers & Plains partnerships (cooperative agreements)
    - USDOT PROTECT (where protecting transportation assets)
    - IDEQ §319 Water Quality components
- **Agricultural (Top 10 Projects AG3, AG5, AG6, AG7, AG9)**
  - Primary Pathways
    - NRCS EQIP (producer contracts and technical assistance)
    - IDEQ – State Agriculture BMP Grants and §319 Subgrants (multi-partner, TMDL-aligned)
    - NRCS Watershed & Flood Prevention (PL-566) for watershed-scale work (start with PIFR if a new start)
  - Secondary Pathways
    - WaterSMART – WEEG (quantified water/energy savings where applicable).
    - CDS (NRCS WPF) for larger watershed packages

6.2.4 Next Steps for Implementing a Funding Approach

A coordinated approach to funding will benefit from practical follow-through that strengthens readiness, aligns partner capacity, and positions priority projects for competitive opportunities. The following activities represent useful next steps the Watershed Collaborative and its member organizations may consider as they begin implementation. These actions build on the governance structure and funding pathways described earlier in this chapter and provide a pathway for turning the Master Plan's recommendations into early wins and durable funding pipelines.

6.2.4.1 Build and Maintain a Shared Funding Calendar

Developing a shared 12- to 18-month funding calendar could help partners anticipate opportunities and prepare ahead of deadlines. A calendar might include anticipated Letter of Intents (LOIs), Notices of Funding Opportunities (NOFOs), deadlines, level-of-effort estimates, and any governing body approvals needed. Aligning projects with expected funding windows can help the Watershed Collaborative stage efforts and assign Opportunity Leads efficiently. Regular updates, especially during peak cycles, would help keep all partners aligned.

6.2.4.2 Establish a Cost-Share and Leverage Strategy

Identifying potential cost-share sources in advance may help partners move quickly when competitive windows open. A cost-share approach might include maintaining a local/utility match reserve, understanding how different programs can be stacked (e.g., CDS with CWSRF, §319 with EQIP), and outlining eligible in-kind contributions. A leverage strategy could also include building relationships with private funders for park, greenspace, and community engagement co-benefits. Early clarification of O&M expectations may also strengthen competitiveness.

6.2.4.3 Manage Risks and Build Adaptive Strategy

Funding cycles and agency priorities shift, so anticipating potential risks may help maintain momentum. Useful activities might include preparing parallel pathways in case of program pauses, starting permit applications, beginning land/ROW discussions early, and maintaining standardized templates to reduce administrative burden. Partners may also explore ways to distribute workload or bring in temporary support during heavy grant cycles.

6.2.4.4 Develop Shared Application Toolkits

A consistent suite of tools and templates could streamline proposal development and improve the quality and cohesion of submissions. These may include standardized one-pagers, a readiness checklist, budget formats, and a shared benefit-cost analysis (BCA) and benefits templates with flood, damage, and water quality information. Common maps, schematics, and visuals can also strengthen messaging and save time across multiple applications.

6.2.4.5 Maintain a Program Alignment Snapshot

A simplified overview of top-fit programs for key project types can serve as a quick reference for partners preparing proposals. This snapshot may distill essential elements such as match requirements, eligibility, likely timing, and alignment to urban stormwater, river corridor restoration, agricultural, and community-based projects. Keeping this resource current would help partners quickly assess funding options.

6.2.4.6 Maintain Governance Cadence and Clear Decision-Making

A regular cadence of Watershed Collaborative Funding Council meetings may help keep priorities aligned and ensure that Opportunity Leads have the support they need. Quick application of the Go/No-Go criteria can help partners allocate limited time and resources effectively. A simple dashboard or shared tracker may support transparency, help avoid duplication, and highlight areas where additional readiness work is needed.

6.2.4.7 Coordinate Communications and Stakeholder Engagement

Coordinated messaging across partners can improve credibility with funders. Activities might include maintaining consistent narratives for Congressional engagement, checking eligibility and alignment with state and federal program staff, and ensuring local councils and boards are informed early when match commitments or approvals could be needed.

6.2.4.8 Track Performance and Update the Living Matrix

Monitoring progress across funding pursuits can help the Watershed Collaborative refine its approach over time. Tracking funding secured, leverage ratios, readiness milestones, and deadlines met can inform future cycles. Updating the funding matrix regularly may ensure partners always have access to current requirements, timing, and program details.

Table 6-1. Grants and Loans: Program Names and Descriptions

Program Name	Funding Source	Funding Agency	Description	Who can apply?
Congressionally Directed Spending Environmental Infrastructure Assistance	Federal	USACE (US Army Corps of Engineers)	Provides funding to assist with the design and construction of certain infrastructure in specified municipalities, counties, and states. This assistance supports projects at publicly owned and operated facilities, such as design and construction of water distribution works, stormwater collection efforts, surface water protection projects, and environmental restoration projects, among others.	Nonprofit entities or state, local, or tribal governments
Congressionally Directed Spending Natural Resources Conservation Service, Watershed and Flood Prevention Operations	Federal	USDA-NRCS/RD/FD/ Related	Any individual project may not exceed a watershed or sub-watershed size of 250,000 acres. At least 20 percent of the project's benefits must be directly related to agriculture. Requires technical review from NRCS. Projects are required to complete a four-step process including: 1. Preliminary feasibility study (PIFR) 2. Watershed Plan development 3. Implementation of Watershed Plan 4. Commencement of construction for authorized watershed conservation • If a project is a "new start" it is eligible only for PIFR funding at a level of $55,000. Funding cannot be requested for stages 2-4 until the PIFR is completed.	Nonprofit entities or state, local, or tribal governments
Congressionally Directed Spending Pre-Disaster Mitigation	Federal	FEMA (Federal Emergency Management Agency)	Congressionally directed spending makes federal funds available to state, local, tribal, and territorial governments to plan for and implement sustainable cost-effective measures designed to reduce the risk to individuals and property from future natural hazards, while also reducing reliance on federal funding from future natural disasters.	State, local, tribal, and territorial governments
BRIC (Building Resilient Infrastructure and Communities)	Federal	FEMA (Federal Emergency Management Agency)	This program is currently in a funding pause with expected changes. This program may become available in 2026 by this name or under a new program identity. This program replaces the Pre-Disaster Mitigation (PDM) grant program, providing discretionary grants for infrastructure projects, planning, design and technical assistance to improve pre-disaster community resilience and reduce disaster suffering, mitigate loss of life and decrease disaster costs.	Local governments, cities, townships, counties, special district governments, and tribal governments must apply through their state
FMA (Flood Mitigation Assistance) Grant	Federal	FEMA (Federal Emergency Management Agency)	This program is currently in a funding pause with expected changes. This program may become available in 2026 by this name or under a new program identity. This program provides funding for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program, such as project scoping, technical assistance, community flood mitigation projects, individual structure/property-level flood mitigation projects, and management costs.	Local governments, cities, townships, counties, special district governments, and tribal governments must apply through their state
PROTECT (Promoting Resilient Operations for Transformative Efficient and Cost Saving Transportation) Discretionary Grant	Federal	USDOT (US Department of Transportation)	This new discretionary program provides funding for projects that help make surface transportation more resilient to natural hazards through support of planning activities, resilience improvements, community resilience and evacuation routes, and at-risk coastal infrastructure.	**Planning/Resilience Improvement/Community Resilience/Evacuation Routes Grants:** State Governments (including D.C. and Puerto Rico); MPOs; Local Governments; Special Purpose Districts or Public Authorities with a Transportation Function; Tribal Governments; Federal Land Management Agency applying with a State or groups of States. **At-Risk Coastal Infrastructure Grants:** same list above with the following differences (States including US territories)
UAIP (Urban Agriculture and Innovative Production) Competitive Grants	Federal	Department of Agriculture	This program supports planning and implementation projects that expand the efforts of farmers, gardeners, citizens, government officials, schools, and other stakeholders in urban areas and suburbs to support food access, infrastructure needs, educational endeavors, and development of policies related to urban agriculture.	City, township, and county governments; independent school districts; Native American tribal governments and organizations; nonprofit organizations; public housing authorities; special district governments
LWCF (Land and Water Conservation Foundation) Outdoor Recreation Legacy Partnership Program	Private	Land and Water Conservation Foundation	This program enables urban communities to create new outdoor recreation spaces, reinvigorate existing parks, and form connections between people and the outdoors in economically underserved communities.	State agencies, local units of government (cities, counties, and park districts), and federally recognized tribes must apply directly to the state
Congressionally Directed Spending Community Grants	Federal	EPA (Environmental Protection Agency)	These grants are earmarks for projects with a water quality nexus that share the same eligibilities as the CWSRF program. Congress appropriates resources for specifically named community water infrastructure projects identified as Congressionally Directed Spending (CDS) and Community Project Funding (CPF) items (Community Grants) in Appropriations Acts. Funding is provided in the State and Tribal Assistance Grants (STAG) account for these drinking water, wastewater, stormwater infrastructure, and water quality protection Community Grants projects.	Political subdivisions
Public Works Program (water, sewer)	Federal	Economic Development Administration, Department of Commerce	Assist communities and regions in devising and implementing long-term economic development efforts through a variety of non-construction and construction projects. This program empowers distressed communities to revitalize, expand, and upgrade their physical infrastructure, and generate or retain long-term, private sector jobs and investment.	State, county, city, or political subdivision, institutes of higher education, public or private non-profits, district organization, indian tribe or consortium of indian tribes

Table 6-1. Grants and Loans: Program Names and Descriptions (continued)

Program Name	Funding Source	Funding Agency	Description	Who can apply?
Economic Adjustment Assistance Program (water, sewer)	State	Economic Development Administration, Department of Commerce	This program assists state and local interests in designing and implementing strategies to adjust or bring about change to an economy. The program focuses on areas that have experienced or are under threat of serious structural damage to the underlying economic base.	State, county, city, or political subdivision, institutes of higher education, public or private non-profits, district organization, indian tribe or consortium of indian tribes
Nonpoint Source (Federal §319) Subgrants – Idaho	State Federal pass-through	Idaho Department of Environmental Quality (IDEQ)	Competitive grants to reduce nonpoint source pollution and improve water quality in lakes, streams, rivers, and aquifers in Idaho; projects must reduce pollutant loads and align with TMDLs and DEQ priorities.	Entities implementing NPS projects; applicants apply through DEQ's AmpliFund (various local sponsors such as conservation districts, local governments, Tribes, nonprofits).
State Agricultural BMP Grants – Idaho	State (Idaho Legislature via DEQ)	Idaho Department of Environmental Quality (IDEQ)	Grants to implement agricultural and ranching BMPs to reduce water pollution and meet TMDL objectives; shovel-ready projects with partners and leverage preferred.	Producers and local sponsors (e.g., conservation districts, watershed groups) through DEQ's AmpliFund; multi-partner implementation required.
Clean Water State Revolving Fund (CWSRF) – Idaho	Federal/State SRF (EPA + State match)	Idaho Department of Environmental Quality (IDEQ)	Low-interest loans (with potential principal forgiveness) for wastewater, stormwater, and eligible nonpoint source/watershed projects that provide direct water quality benefits.	Eligible public entities (e.g., cities, districts, tribes) via DEQ LOI and application process.
Sewer Overflow & Stormwater Planning Grants (OSG) – Idaho (via DEQ)	Federal/State (SRF planning funds)	Idaho Department of Environmental Quality (IDEQ)	Planning grants to support sewer overflow and stormwater management planning activities.	Eligible public entities via DEQ LOI and application process.
Environmental Quality Incentives Program (EQIP) – Idaho	Federal	USDA Natural Resources Conservation Service (NRCS)	Financial and technical assistance to producers to implement conservation practices addressing soil, water, air, plant, and wildlife resource concerns.	Eligible agricultural producers and non-industrial private forest land managers through local NRCS offices (continuous sign-up with ranking deadlines).
Water & Waste Disposal Loan & Grant Program – Idaho	Federal	USDA Rural Development	Loans and grants for drinking water, wastewater, solid waste, and stormwater systems in rural areas and towns with populations of 10,000 or less.	State and local governmental entities, private nonprofits, and federally recognized tribes serving eligible rural areas.
Emergency Community Water Assistance Grants (ECWAG) – Idaho	Federal	USDA Rural Development	Grants to prepare for or recover from an emergency that threatens availability of safe, reliable drinking water in eligible rural areas; includes contamination events.	Rural public bodies, nonprofits, and federally recognized tribes; rural areas/towns ≤10,000 and income thresholds apply.
WaterSMART – Water & Energy Efficiency Grants (WEEG)	Federal (WaterSMART, DOI)	U.S. Bureau of Reclamation (USBR)	50/50 cost-share grants for projects that conserve and use water more efficiently, support renewable energy, mitigate conflict risk, and improve water supply reliability in the Western U.S.	States, Tribes, irrigation/water districts, and authorities or organizations with water/power delivery authority; certain nonprofits in partnership with those entities.
WaterSMART – Aquatic Ecosystem Restoration Projects (AERP/EWRP)	Federal (WaterSMART, DOI)	U.S. Bureau of Reclamation (USBR)	Cost-shared funding to study, design, and construct large-scale aquatic ecosystem restoration projects that improve fish/wildlife habitat, connectivity, water quality, and temperature.	States, Tribes, irrigation/water districts, authorities with water/power delivery authority; nonprofit conservation orgs in partnership with Category A entities.
Aging Infrastructure Grants – Idaho Water Resource Board (IWRB)	State (Legislature appropriation)	ID Water Resource Board / ID Dept. of Water Resources	Competitive grants to rehabilitate or improve existing irrigation water delivery, storage, drainage, and related infrastructure (non-municipal).	Irrigation/water user entities (e.g., irrigation districts, canal companies, boards of control, groundwater districts, municipalities for irrigation systems).
BLM – East Idaho Rivers & Plains Restoration Landscape (Partnership Funding)	Federal (BLM; Investing in America/BIL)	U.S. Bureau of Land Management (Idaho)	BLM investment to restore riparian and wetland habitats, remove invasives, and build climate resilience across East Idaho public lands; potential partner/cooperative agreements.	Partnerships with BLM via cooperative agreements or assistance agreements (coordinate with BLM Idaho).

Table 6-2. Grants and Loans: Funding Details

Program Name	Total Annual Funding Available	Minimum Grant Award	Maximum Grant Award	Local Cost Share Required	Level of Effort for Application	Funding Cycle	Period of Performance	Program Status (as of February 2026)	Notice of Funding Opportunity (NOFO) Announced Date	Application Deadline	Additional Notes	Program Weblink
Congressionally Directed Spending Environmental Infrastructure Assistance	Varies by fiscal year appropriation (expected $200 million)	N/A smallest has been $100K for single water monitoring project	N/A largest has been $1.1B for 7 state project	25%	3	Annual	varies (typically 3-5)	Open	N/A	4/16/2025 (deadline to Mike Simpson's office)		https://simpson.house.gov/constituent-services/community-funding-projects.htm https://www.appropriations.senate.gov/fy-2026-congressionally-directed-spending
Congressionally Directed Spending Natural Resources Conservation Service, Watershed and Flood Prevention Operations	OBBA projection is $150,000,000 per year (FY 25 $25.2 million)	NA	$9 million (FY 25)	25%	3	Annual	varies	Open	N/A	2/25/2026		
Congressionally Directed Spending Pre-Disaster Mitigation	$200,000,000 estimated	$75,000	$10,000,000	25%	3	Annual	3 years	Open	N/A	4/16/2025 (deadline to Mike Simpson's office)		https://www.fema.gov/grants/mitigation/learn/pre-disaster/fy24-congressionally-directed-spending
BRIC (Building Resilient Infrastructure and Communities)	$1,000,000,000 estimated	N/A	$50,000,000 estimated	25%	3	Annual	3 years	May be offered in 2026	7/1/2026	8/30/2026		https://www.fema.gov/grants/mitigation/learn/building-resilient-infrastructure-communities
FMA (Flood Mitigation Assistance) Grant	$800,000,000 estimated	N/A	$50,000,000 estimated	25%	3	Annual	3 years	May be offered in 2026	7/1/2026	7/1/2026		https://www.fema.gov/grants/mitigation/learn/flood-mitigation-assistance
PROTECT (Promoting Resilient Operations for Transformative Efficient and Cost Saving Transportation) Discretionary Grant	$800,000,000 estimated	Planning Grants: $100,000 Resilience Grants: $500,000	N/A	Planning Grants: None Resilience Grants: 20%	3	Annual	4 years to obligate, funding expenditure deadlines not specified (dependent on the fund source)	May be offered in 2026	10/25/2026	2/10/2027	Use of natural infrastructure or nature-based solutions could include Urban Stormwater and Regional Agricultural BMPs, if the connection can be made to transportation.	https://www.transportation.gov/rural/grant-toolkit/promoting-resilient-operations-transformative-efficient-and-cost-saving
UAIP (Urban Agriculture and Innovative Production) Competitive Grants	$27,000,000 estimated	None	$350,000	Not Required	2	Annual	3 years	Expected	2/1/2026	4/1/2026		https://www.usda.gov/topics/urban/grants
LWCF (Land and Water Conservation Foundation) Outdoor Recreation Legacy Partnership Program	$224,145,000	$300,000	$1,500,000	1:1 Ratio	1	Annual	2-3 years	Open	Rolling	Rolling		https://lwcfcoalition.org/orlp
Congressionally Directed Spending Community Grants	Varies by FY appropriation	N/A	N/A	25%	2	Annual	3 years	Open	N/A	4/16/2025 (deadline to Mike Simpson's office)		https://www.epa.gov/sustainable-water-infrastructure/epa-community-grants-program-basics
Public Works Program (water, sewer)	varies by fiscal year, ~$120 million	N/A	Average award is $1.4 million range is $600,000 to $5 million (est.)	20-50%	3	rolling	12-48 months	Open		There are no application submission deadlines.	Applications will be accepted on an ongoing basis until the publication of a new PWEAA NOFO, cancellation of this PWEAA NOFO, or all available funds have been expended.	https://www.eda.gov/fundingopportunities/ https://grants.gov/search-results-detail/346815
Economic Adjustment Assistance Program (water, sewer)	varies by fiscal year estimating $40 million	N/A	Average award is $1.4 million range is $600,000 to $5 million (est.)	20-50%	3	rolling	12-48 months	Open		No application deadlines. Applications are accepted on an ongoing basis.		https://www.eda.gov/fundingopportunities/ https://grants.gov/search-results-detail/346815

Table 6-2. Grants and Loans: Funding Details (continued)

Program Name	Total Annual Funding Available	Minimum Grant Award	Maximum Grant Award	Local Cost Share Required	Level of Effort for Application	Funding Cycle	Period of Performance	Program Status (as of February 2026)	Notice of Funding Opportunity (NOFO) Announced Date	Application Deadline	Additional Notes	Program Weblink
Nonpoint Source (Federal §319) Subgrants – Idaho	Varies (dependent on federal allocation)	N/A	$250,000	Yes – minimum 40% match	2	annual	Typically up to 3 years (varies by award)	Expected	Anticipated 4/15/2026	Anticipated 7/15/2026		https://www.deq.idaho.gov/funding/nonpoint-source-subgrants-in-idaho/
State Agricultural BMP Grants – Idaho	$279,000	N/A	$250,000	Yes – minimum 40% match	2	Annual;	Typically up to 3 years (varies by award)	Expected	Anticipated Mid-March 2026	Anticipated 4/15/2026	40% match; award ceiling $250k; FY2026 cycle timing per DEQ announcements; SFY2026 total example listed at $279k.	https://www.deq.idaho.gov/funding/nonpoint-source-subgrants-in-idaho/
Clean Water State Revolving Fund (CWSRF) – Idaho	Varies	N/A	N/A	Loan repayment; match not required for loans; some grants/principal forgiveness possible	3	FY2027 LOIs due Jan 9, 2026 (includes OSG)	Varies by project financing	Closed	Anticipated September, 2026	Jan 9, 2026 (LOI)	Includes Clean Water Emerging Contaminants and planning grants; contact DEQ for schedules.	https://www.deq.idaho.gov/funding/grants-and-loans/
Sewer Overflow & Stormwater Planning Grants (OSG) – Idaho (via DEQ)	Varies	N/A	N/A	Varies	2	FY2027 LOIs due Jan 9, 2026	Varies	Closed	Anticipated September, 2026	Jan 9, 2026 (LOI)	Part of DEQ grants & loans portal.	https://www.deq.idaho.gov/funding/grants-and-loans/
Environmental Quality Incentives Program (EQIP) – Idaho	Varies	N/A	N/A	Yes – producer cost share (percentage varies by practice and eligibility)	3	Continuous sign-up	Varies by contract (typically 1–3+ years)	Expected	N/A – continuous sign-up	Varies by ranking period	Work with local NRCS field office to apply.	https://www.nrcs.usda.gov/programs-initiatives/environmental-quality-incentives-program/idaho/environmental-quality
Water & Waste Disposal Loan & Grant Program – Idaho	Varies	N/A	N/A	Varies; grants may be combined with loans to keep user costs reasonable	Not specified; applications accepted year-round	Year-round application (RD Apply)	Varies by project	Open	N/A (program of record)	None (rolling)	Eligible uses include stormwater collection, transmission, and disposal; can fund planning, land, permits, and equipment.	https://www.rd.usda.gov/programs-services/water-environmental-programs/water-waste-disposal-loan-grant-program-0
Emergency Community Water Assistance Grants (ECWAG) – Idaho	Varies	0.15	1	Not required; partnerships encouraged	Not specified; accepted year-round	Year-round	Varies	Open	N/A (program of record)	None (rolling)	Water source grants up to $1,000,000; water transmission line grants up to $150,000.	https://www.rd.usda.gov/programs-services/water-environmental-programs/emergency-community-water-assistance-grants-1
WaterSMART – Water & Energy Efficiency Grants (WEEG)	Varies; multiple funding groups	0.5	5	Yes – 50% non-Federal (cost-share reductions rare)	Not specified; competitive NOFO with two rounds typical	Annual	2–3 years typical (by funding group)	Expected	14-Nov-26	22-Feb-27	Applicants must be in Reclamation states; quantifiable water savings and/or renewable energy components required.	https://www.usbr.gov/watersmart/weeg/
WaterSMART – Aquatic Ecosystem Restoration Projects (AERP/EWRP)	Up to $95M (FY25/26 combined NOFO estimate)	0.5	10	Yes – at least 35% (Federal share up to 65%)	Not specified; substantial for design/construction proposals	Rolling two-period FY25/26 NOFO: 1st deadline 4/15/25; final closing 2/17/26	Varies; Task A (Study/Design) or Task B (Construction)	Open	Dec 10, 2024 (posted)	Apr 15, 2025; Feb 17, 2026	Nature-based solutions eligible; removal/modification of fish barriers; monitoring and design activities eligible under Task A.	https://www.usbr.gov/watersmart/aquatic/index.html
Aging Infrastructure Grants – Idaho Water Resource Board (IWRB)	Varies (initial $75M program appropriation; rounds funded periodically)		2	Yes – grants may cover up to 50% of total project cost	Not specified; competitive with application package	Periodic rounds; Round 7 applications expected due 8/1/26	Up to 3 years (extensions possible)	Expected	Anticipated June 2065 (Round 7 opening)	Anticipated Aug 1, 2026 (Round76)	Recent awards totaled $22.9M across 38 projects; municipal drinking/wastewater systems are ineligible.	https://idwr.idaho.gov/iwrb/programs/financial/aging-infrastructure-grant/
BLM – East Idaho Rivers & Plains Restoration Landscape (Partnership Funding)	Part of $161M Restoration Landscape portfolio (multi-state)			Varies by agreement	Not specified; varies	Varies; opportunities posted as available	Varies by agreement	Open	Varies	Varies	Focus on riparian/wetland restoration, habitat, and resilience; complements BIL investments.	https://www.blm.gov/sites/default/files/docs/2023-05/BLM-ID-East-Idaho-Rivers-and-Plains-Restoration-Landscape-Factsheet_Final.pdf

Table 6-3. Grants and Loans: Project Type and Phase Eligibility

Program Name	Grant Program Alignment By Project Type					Project Phases Eligible Under Grant Program				
	Urban Stormwater	Agricultural Projects	River Corridor	Agricultural Incentives	Community Engagement	Land Acquisition	Planning / Design	Construction	O&M	Training / Education
Congressionally Directed Spending Environmental Infrastructure Assistance	Strong	Strong	Strong	Strong	Strong	X	X	X	X	X
Congressionally Directed Spending Natural Resources Conservation Service, Watershed and Flood Prevention Operations	Weak	Strong	Weak	Strong	Weak	X	X	X	X	X
Congressionally Directed Spending Pre-Disaster Mitigation	Strong	Strong	Strong	Strong	Strong	X	X	X	X	X
BRIC (Building Resilient Infrastructure and Communities)	Strong	Possible	Possible	Weak	Weak		X	X		
FMA (Flood Mitigation Assistance) Grant	Weak	Weak	Weak	Weak	Weak		X	X		
PROTECT (Promoting Resilient Operations for Transformative Efficient and Cost Saving Transportation) Discretionary Grant	Possible	Possible	Possible	Weak	Weak	X	X	X		
UAIP (Urban Agriculture and Innovative Production) Competitive Grants	Possible	Weak	weak	Weak	Strong		X	X		X
LWCF (Land and Water Conservation Foundation) Outdoor Recreation Legacy Partnership Program	Possible	Possible	Weak	Weak	Weak	X		X		
Congressionally Directed Spending Community Grants	Strong	Strong	Strong	Possible	Possible	X	X	X		X
Public Works Program (water, sewer)	Strong	Strong	Strong	Possible	Possible		X	X		
Economic Adjustment Assistance Program (water, sewer)	Strong	Possible	Possible	Weak	Possible		X	X		
Nonpoint Source (Federal §319) Subgrants – Idaho	Strong	Strong	Strong	Strong	Strong		X	X		X
State Agricultural BMP Grants – Idaho	Weak	Strong	Weak	Strong	Weak	X	X	X	X	
Clean Water State Revolving Fund (CWSRF) – Idaho	Strong	Strong	Possible	Possible	Possible	X	X	X		
Sewer Overflow & Stormwater Planning Grants (OSG) – Idaho (via DEQ)	Strong	Weak	Weak	Weak	Weak		X	X		
Environmental Quality Incentives Program (EQIP) – Idaho	Weak	Strong	Weak	Weak	Weak			X		
Water & Waste Disposal Loan & Grant Program – Idaho	Weak	Weak	Weak	Weak	Weak		X	X		
Emergency Community Water Assistance Grants (ECWAG) – Idaho	Weak	Possible	Possible	Weak	Weak		X	X		
WaterSMART – Water & Energy Efficiency Grants (WEEG)	Possible	Possible	Possible	Weak	Weak		X	X		
WaterSMART – Aquatic Ecosystem Restoration Projects (AERP/EWRP)	Weak	Weak	Strong	Weak	Weak		X	X		
Aging Infrastructure Grants – Idaho Water Resource Board (IWRB)	Strong	Possible	Weak	Weak	Weak		X	X		
BLM – East Idaho Rivers & Plains Restoration Landscape (Partnership Funding)	Strong	Possible	Strong	Possible	Weak		X	X		

Table 6-4. Grants and Loans: Top 10 Project Eligibility

Program Name	Top 10 Projects Alignment with Funding Source										
	Project US2	Project AG5	Project AG6	Project AG3	Project AG9	Project AG7	Project RC3	Project RC2	Project US1	Project US5	Ag Incentives
Congressionally Directed Spending Environmental Infrastructure Assistance	X	X	X	X	X	X	X	X	X	X	X
Congressionally Directed Spending Natural Resources Conservation Service, Watershed and Flood Prevention Operations		X	X	X	X	X					X
Congressionally Directed Spending Pre-Disaster Mitigation	X	X	X	X	X	X	X	X	X	X	X
BRIC (Building Resilient Infrastructure and Communities)	X	Possible	Possible	Possible	Possible	Possible	Possible	Possible	X	X	
FMA (Flood Mitigation Assistance) Grant											
PROTECT (Promoting Resilient Operations for Transformative Efficient and Cost Saving Transportation) Discretionary Grant	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	
UAIP (Urban Agriculture and Innovative Production) Competitive Grants	Possible								Possible	Possible	
LWCF (Land and Water Conservation Foundation) Outdoor Recreation Legacy Partnership Program	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	
Congressionally Directed Spending Community Grants	X	X	X	X	X	X	X	X	X	X	
Public Works Program (water, sewer)	X	X	X	X	X	X	X	X	X	X	
Economic Adjustment Assistance Program (water, sewer)	X	Possible	Possible	Possible	Possible	Possible	Possible	Possible	X	X	
Nonpoint Source (Federal §319) Subgrants – Idaho	X	X	X	X	X	X	X	X	X	X	X
State Agricultural BMP Grants – Idaho		X	X	X	X	X					X
Clean Water State Revolving Fund (CWSRF) – Idaho	X	X	X	X	X	X	Possible	Possible	X	X	
Sewer Overflow & Stormwater Planning Grants (OSG) – Idaho (via DEQ)	X								X	X	
Environmental Quality Incentives Program (EQIP) – Idaho		X	X	X	X	X					
Water & Waste Disposal Loan & Grant Program – Idaho											
Emergency Community Water Assistance Grants (ECWAG) – Idaho		Possible	Possible	Possible	Possible	Possible	Possible	Possible			
WaterSMART – Water & Energy Efficiency Grants (WEEG)	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	
WaterSMART – Aquatic Ecosystem Restoration Projects (AERP/EWRP)							X	X			
Aging Infrastructure Grants – Idaho Water Resource Board (IWRB)	X	Possible	Possible	Possible	Possible	Possible			X	X	
BLM – East Idaho Rivers & Plains Restoration Landscape (Partnership Funding)	X	Possible	Possible	Possible	Possible	Possible	X	X	X	X	

Table 6-5. Grants and Loans: Other Potential Funding Avenues

Funding Opportunity	Description	Repayment	Revenue Generation/Repayment Source	Applicability to Twin Falls	Funding Amount	Feasibility	Cost to Implement	Initial Screening
Conduit Funding	Twin Falls obtains a grant or loan and passes it on to a sub-recipient (e.g. CBO). All grant requirements are passed through as well. Pass-through loans for nonpoint source, nature-based, and non-treatment works projects are exempt from many CWSRF requirements (Davis-Bacon, BABA, federal cross-cutters).	Loans Only	CWSRF funds for will pass through from IDEQ through Twin Falls to sub-recipient(s) and must be repaid using repayment sources identified in rows 10 and 13. Twin Falls will be responsible for collection of these repayments and the repayment of the CWSRF loan.	Could be used to fund projects implemented by partner organizations (e.g. green infrastructure, green space, road improvements, etc.).	Varies	High	Low	Consider later as partnership opportunities become more clear.
State Revolving Fund Sponsorship Loan	Sponsorship lending pairs a traditional publicly owned treatment works (POTW) project with a nontraditional one, usually an NPS project. Twin Falls would receive a loan with a reduced interest rate as compensation for also sponsoring a nontraditional project. This works best when the combined project (POTW + NPS) cost is equal or less than the standalone POTW cost when financed at a normal interest rate. Non traditional projects could include green streets, bioretention, green infrastructure portions of the project.	Yes - Twin Falls	CWSRF funds for the sponsored project will pass through Twin Falls to the NPS/GI project sponsor and do not need to be repaid. Twin Falls will be responsible for repayment of the infrastructure portion of the project using repayment sources identified in rows 14-17.	Could be used to fund projects implemented by partner organizations (e.g. green infrastructure, permeable sidewalks, green alleys, bioretention).	Varies	Medium	Low	Consider later as partnership opportunities become more clear.
Linked Deposit	The Idaho CWSRF program purchases a reduced-rate certificate of deposit from a private financial institution. The financial institution then loans out the deposited funds (at a slightly lower interest rate) to individuals for smaller-scale water quality projects.	Yes - individual property owners only	Twin Falls works with IDEQ to establish a new linked deposit program for the benefit of Twin Falls. Not a loan to Twin Falls. Individual loans to business and property owners repaid using their own income/revenue.	Could be used to fund projects implemented by partner organizations (e.g. schools). The linked-deposit structure is could be used to reach individual borrowers for small-scale water quality projects such as septic replacement.	Medium	Medium	Medium	Consider later as partnership opportunities become more clear.
Credit Enhancement	CWSRF program guarantees bonds for a partner organization (with a lower credit rating), allowing the partner organization to use the CWSRF AAA+ bond rating to access lower interest rates for funding. At the same time, this arrangement allows the CWSRF program to stretch its assistance capabilities further since a guarantee does not require the same cash outlay as a traditional loan	Yes	Revenue from bond sale for non-municipal entity; memebership fees, corporate subsidies, on-bill financing, fees paid by developers, fundraising campaigns, charitable donations, sales revenues	Could be used to fund projects implemented by partner organizations (e.g. green infrastructure, green space, road improvements, etc.).	Varies	Low - Unlikely that a partner organization would pursue bonds.	Medium	Consider later as partnership opportunities become more clear.
Anchor Institution Capital Campaign	Partner with local businesses (e.g. breweries) to donate a portion of proceeds to advance projects being led by partners.	No	corporate charitable donations; percent of product sales; fundraising campaigns	Could be used to fund projects implemented by partner organizations (e.g. green infrastructure, green space, road improvements, etc.).	Small	High	Medium	Consider later as partnership opportunities become more clear.
New Markets Tax Incentives	Recruit new businesses (e.g. grocery store, restaurant, tourism) to open in Twin Falls by offering tax incentives.	No	Tax credits for investors to attract private investment to fund projects in low-income areas and are spread over 7 years. The tax credits help bridge financing gaps to enhance project viability. Long-term revenue generation through job creation and economic growth in the targeted community. Remainder of capital stack may come from traditional bank financing, grants, corporate subsidies, and other sources identified in this matrix.		Small	Low	High	Consider later as partnership opportunities become more clear.
Green Bank	Recruit a Community Development Financing Institution (CDFI) to expand their mission to provide affordable financing to private property owners for green stormwater and nature-based resilience investments.	Yes	Seed money from grants, SRF loans, charitable donations, corporate subsidies, fees paid by developers, recycling capital, and securitization by bundling group of loans into securities and selling them to investors.		Medium	Medium	Medium	Consider later as partnership opportunities become more clear.
Bonds	Issue bonds to pay for the projects.	Yes	General fund, tax revenue, grants, government subsidies, stormwater utility fees, local improvement district fees, corporate subsidies, on-bill financing, fees paid by developers		High	Low	Low	Consider later, how the bonds would be repaid would need to get figured out.
Levy	Pass a levy to fund the projects. A levy is a direct property tax imposed by the local government. The revenue from a levy is used for specific purposes, such as funding school operations, maintenance, or smaller projects. Property owners pay the levy based on the assessed value of their property	No	Special assessment, property tax, impact fees, excise taxes, utility taxes		High	Low	Medium	Consider later, need to better define infrastructure needs first.
General Fund (includes Twin Falls PUD fees, impact fees, etc)	Use Twin Falls 's general fund to pay for the projects. This could include user fees.	No	Customer fees, service charges, usage fees, special assessments, impact fees, investment interest earnings, on-bill financing, fees paid by developers		High	Very Low	Low	Consider later, not feasible now.
Community-Based Public-Private Partnership (CBP3)	Set up a CBP3 contract to have a 3rd party implement the infrastructure, where they are paid based on clear metrics that they need to achieve.							Not likely applicable.
Tax-increment financing	Use levies or tax increment financing to fund the projects.							Not likely applicable.

Appendix A. Master Plan Top 10 Projects – Cut Sheets

Rock Creek Watershed Restoration Master Plan

Water Quality Improvement Projects

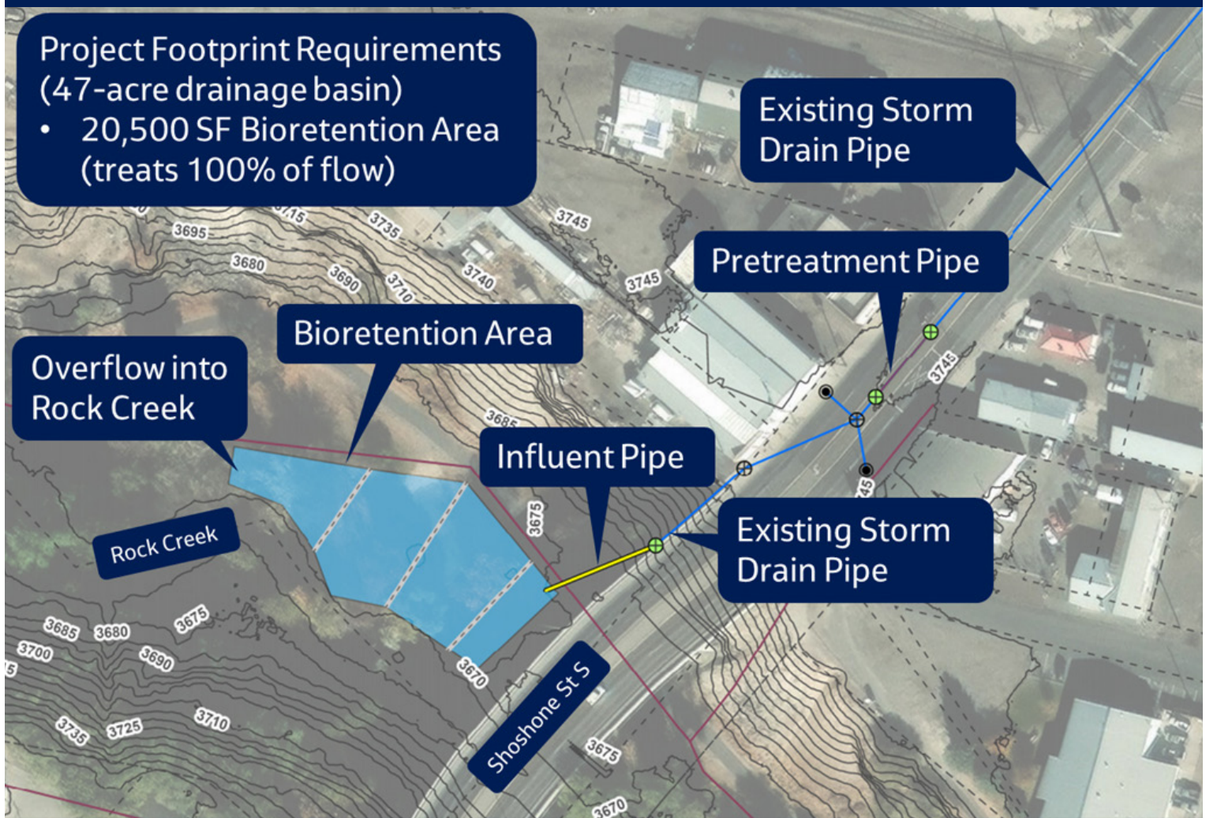
Project Type: Urban Stormwater Project | Project ID: US2 Along Rock Creek

Project Summary

This project is an urban stormwater project consisting of a stepped bioretention facility located near Shoshone Street South and Rock Creek.

Link to Project Location Map

Link to Detailed Project Concept Design Exhibit



Cost Estimate: $1,400,000

Note: Because the cost estimate is based on a conceptual design, final construction cost could be up to 50% lower or 100% higher than listed.

Projected Additional Non-City Funding

Likelihood of Additional Funding	●●●●○
Estimated Funding Amount	●●●●●

This project is located within the Urban Renewal Area RAA Old Towne-2.

Water Quality Improvement

Treatment (Impervious) Area	●●○○○

This project would treat 100% of the flow from the 47-acre, 70% impervious drainage area. Treated flow would have significantly lower sediment and phosphorus in the outflow. The project on its own is not expected to significantly improve water quality in Rock Creek because the contributing watershed in the bioretention facility is a small fraction of the overall Rock Creek watershed.

Aids in Future Wastewater Compliance

Aids in Future Wastewater Permit Compliance	●●●●○

Total phosphorus removal from this project could be easily measured by collecting flow data and water quality samples from the inlet and outlet.

Successful Implementation

Willingness of the Landowner	●●●●●
Ease of Permit Acquisition	●●●○○
Complexity of Annual O&M	●●○○○
Complexity of Major Maintenance	●●○○○
Frequency of Major Maintenance	●●●○○
Ease of Access	●●○○○

The property is owned by the City and access is through City-owned properties; therefore, no property acquisition is required.

Annual O&M: Clean out sediment in the pretreatment pipe 1-2 times/year. Remove weeds and debris, and check for erosion/sediment accumulation in bioretention facility 1-2 times/year.

Major Maintenance: Replace bioretention soil mix every 15-20 years.

Additional Benefits

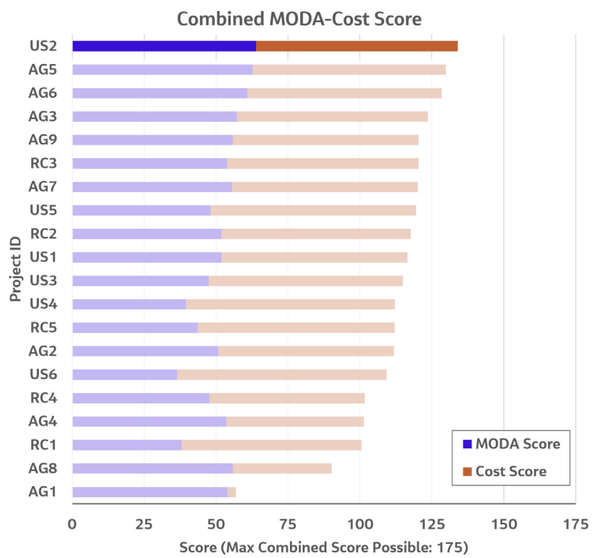
Flood Damage Mitigation	●○○○○
Habitat Value	●●●●●
Recreational Value	●●●●●
Opportunity for Collaboration	●●●◐○
Opportunity to Build Momentum	●●●◐○
Could Help Meet MS4 Requirements	●●●●●
Aesthetic Value	●●●●●

Since this project is adjacent to Rock Creek and the Rock Creek Canyon Parkway, the City could potentially partner with fishing organizations for water quality improvement and paddling and recreational groups for trail beautification. Additionally, this project could help the City meet future MS4 Permit requirements.

Project Score / Rank

Combined MODA-Cost Score:	MODA (without cost) Rank:	Combined MODA-Cost Rank:
134.0 (max of 175)	**1 out of 20**	**1 out of 20**

Link to Detailed MODA Project Score Rationale



Rock Creek Watershed Restoration Master Plan

Water Quality Improvement Projects

Project Type: Agricultural Project | Project ID: AG5 Near Railroad & South Park Avenue West

Project Summary

This project is an agricultural project consisting of a sediment pond, surface treatment wetland, and a polishing wetland treatment cell near the railroad and South Park Avenue West. Its primary function is to treat irrigation return flows.

Link to Project Location Map

Link to Detailed Project Concept Design Exhibit



Cost Estimate: $2,200,000

Note: Because the cost estimate is based on a conceptual design, final construction cost could be up to 50% lower or 100% higher than listed.

Projected Additional Non-City Funding

Likelihood of Additional Funding	●●●●●
Estimated Funding Amount	●●●●●

Since this project includes a polishing treatment wetland cell, grants are likely available from a wider group. Additionally, this project is in the Urban Renewal Area RAA Southwest area.

Water Quality Improvement

Maximum Irrigation Return Flow	●●●○○
Presence of Furrow Irrigation Practices	●●●●●
Expected Water Quality Treatment	●●●○○
Proximity to City Portion of Rock Creek	●●●●◐

This project would significantly reduce sediment and phosphorus entering Rock Creek from irrigation return flows that range from about 1 to 3 cfs. The drainage into the irrigation return channel is primarily from furrow irrigation. This project is expected to improve the water quality draining into Rock Creek during irrigation season (mid-April through mid-October).

Aids in Future Wastewater Compliance

Aids in Future Wastewater Permit Compliance	●●●●○

Total phosphorus removal from this project could be easily measured by collecting flow data and water quality samples the inlet and the outlet.

Successful Implementation

Willingness of the Landowner	●●○○○
Ease of Permit Acquisition	●●○○○
Complexity of Annual O&M	●●●○○
Complexity of Major Maintenance	●○○○○
Frequency of Major Maintenance	●○○○○
Ease of Access	●●●●○

The property is owned by a private entity. The project site can be accessed from Steele Street. There is a high potential that an individual permit is needed for construction of the project due to the appearance of wetlands in the area.

Annual O&M: Remove large debris from the sediment pond. Remove weeds and debris from surface treatment wetland.

Major Maintenance: Dredge sediment and fine debris from the sediment pond every 5-10 years depending on the sediment inflow. Replace media in the polishing treatment wetland cell every 5-10 years.

Additional Benefits

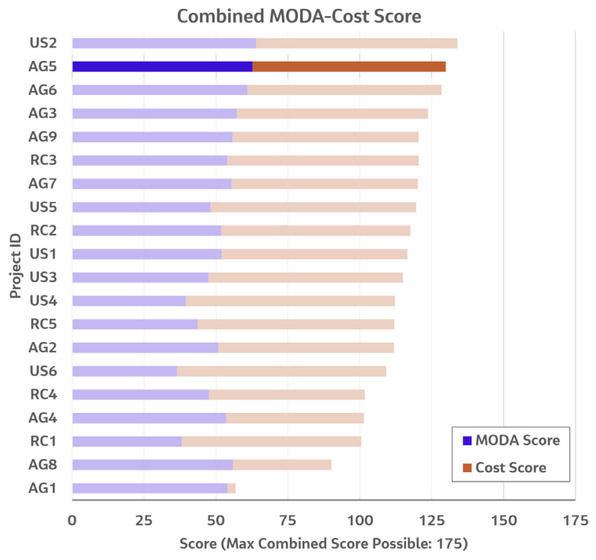
Flood Damage Mitigation	●○○○○
Habitat Value	●●●○○
Recreational Value	●○○○○
Opportunity for Collaboration	●●●●◐
Opportunity to Build Momentum	●●●●○
Could Help Meet MS4 Requirements	●●◐○○
Aesthetic Value	●●◐○○

This project is in the Urban Renewal Area RAA Southwest area which increases opportunity for collaboration. The wetland treatment train with the polishing treatment wetland cell has a high opportunity to build momentum in the community.

Project Score / Rank

Combined MODA-Cost Score:	MODA (without cost) Rank:	Combined MODA-Cost Rank:
129.9 (max of 175)	**2 out of 20**	**2 out of 20**

Link to Detailed MODA Project Score Rationale



Rock Creek Watershed Restoration Master Plan

Water Quality Improvement Projects

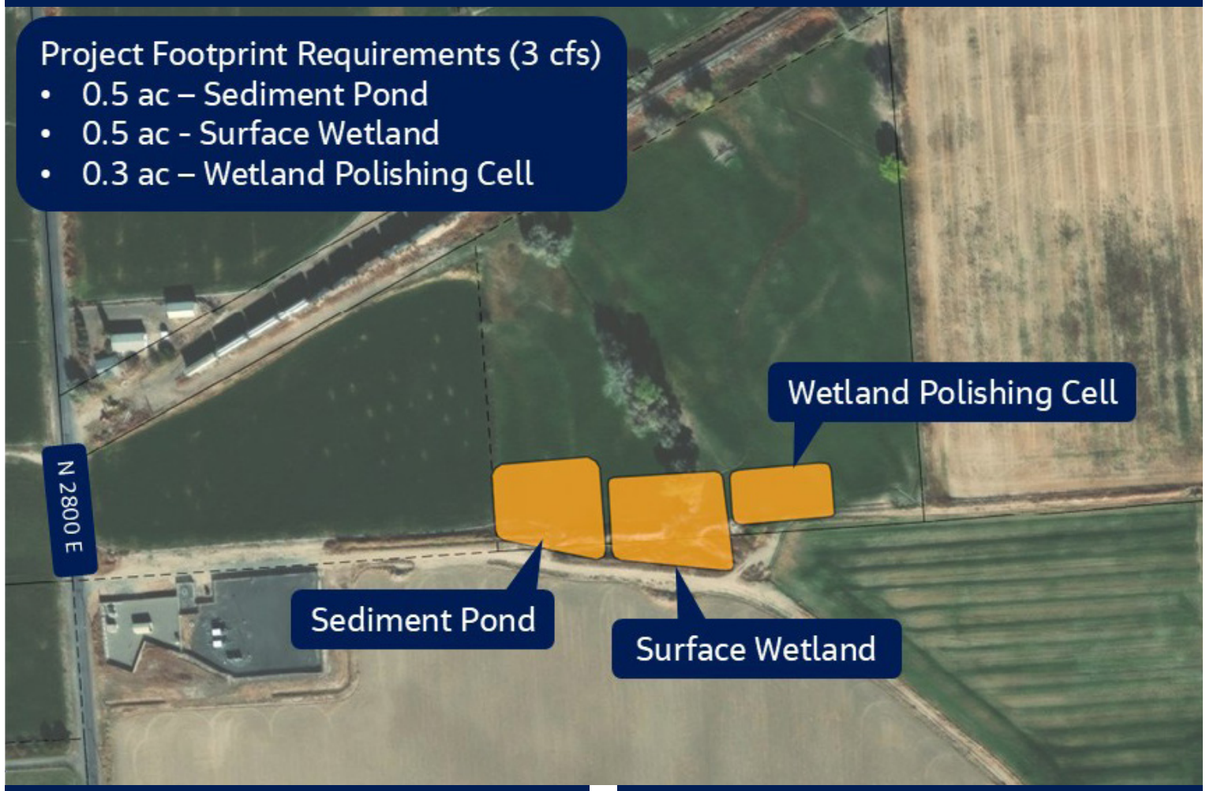
Project Type: Agricultural Project | Project ID: AG6 Near Railroad & North 2800 East

Project Summary

This project is an agricultural project consisting of a sediment pond, surface treatment wetland, and a polishing treatment wetland cell near the railroad and North 2800 East. Its primary function is to treat irrigation return flows.

Link to Project Location Map

Link to Detailed Project Concept Design Exhibit



Cost Estimate: $2,100,000

Note: Because the cost estimate is based on a conceptual design, final construction cost could be up to 50% lower or 100% higher than listed.

Projected Additional Non-City Funding

Likelihood of Additional Funding	●●●●◐
Estimated Funding Amount	●●●●◐

Since this project includes a polishing treatment wetland cell, grants are likely available from a wider group. Additionally, the project area could be shifted to be inside the Urban Renewal Area RAA Southwest area.

Water Quality Improvement

Max Irrigation Return Flow	●●●○○
Presence of Furrow Irrigation Practices	●●●●●
Expected Water Quality Treatment	●●●◐○
Proximity to City Portion of Rock Creek	●●●●◐

This project would significantly reduce the amount of sediment and phosphorus that enter Rock Creek from irrigation return flows that range from about 1 to 3 cfs. The drainage into the irrigation return channel is primarily from furrow irrigation. This project is expected to improve the water quality draining into Rock Creek during irrigation season (mid-April through mid-October).

Aids in Future Wastewater Compliance

Aids in Future Wastewater Permit Compliance	●●●●○

Total phosphorus removal from this project could be easily measured by collecting flow data and water quality samples the inlet and the outlet.

Successful Implementation

Willingness of the Landowner	●●○○○
Ease of Permit Acquisition	●●○○○
Complexity of Annual O&M	●●●○○
Complexity of Major Maintenance	●○○○○
Frequency of Major Maintenance	●○○○○
Ease of Access	●●●○○

The property is owned by a private entity. The project site access is limited through private properties and a gravel access road. There is a high potential that an individual permit is needed for construction of the project due to the appearance of wetlands in the area.

Annual O&M: Remove large debris from the sediment pond. Remove weeds and debris from surface treatment wetland.

Major Maintenance: Dredge sediment and fine debris from the sediment pond every 5-10 years depending on the sediment inflow. Replace media in the polishing treatment wetland cell every 5-10 years.

Additional Benefits

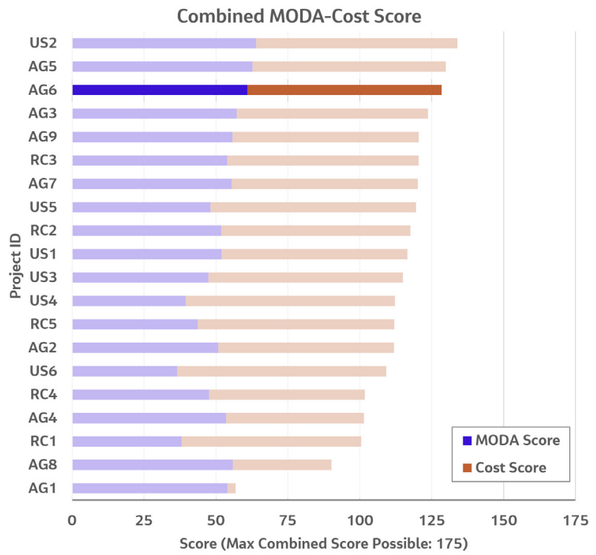
Flood Damage Mitigation	●○○○○
Habitat Value	●●●◐○
Recreational Value	●○○○○
Opportunity for Collaboration	●●●●○
Opportunity to Build Momentum	●●●●○
Could Help Meet MS4 Requirements	●●◐○○
Aesthetic Value	●●○○○

This project is just outside the Urban Renewal Area RAA Southwest area, but the project location could be shifted so that it is within the boundary. The wetland treatment train with the polishing treatment wetland cell has a high opportunity to build momentum in the community.

Project Score / Rank

Combined MODA-Cost Score:	MODA (without cost) Rank:	Combined MODA-Cost Rank:
128.4 (max of 175)	**3 out of 20**	**3 out of 20**

Link to Detailed MODA Project Score Rationale



Rock Creek Watershed Restoration Master Plan

Water Quality Improvement Projects

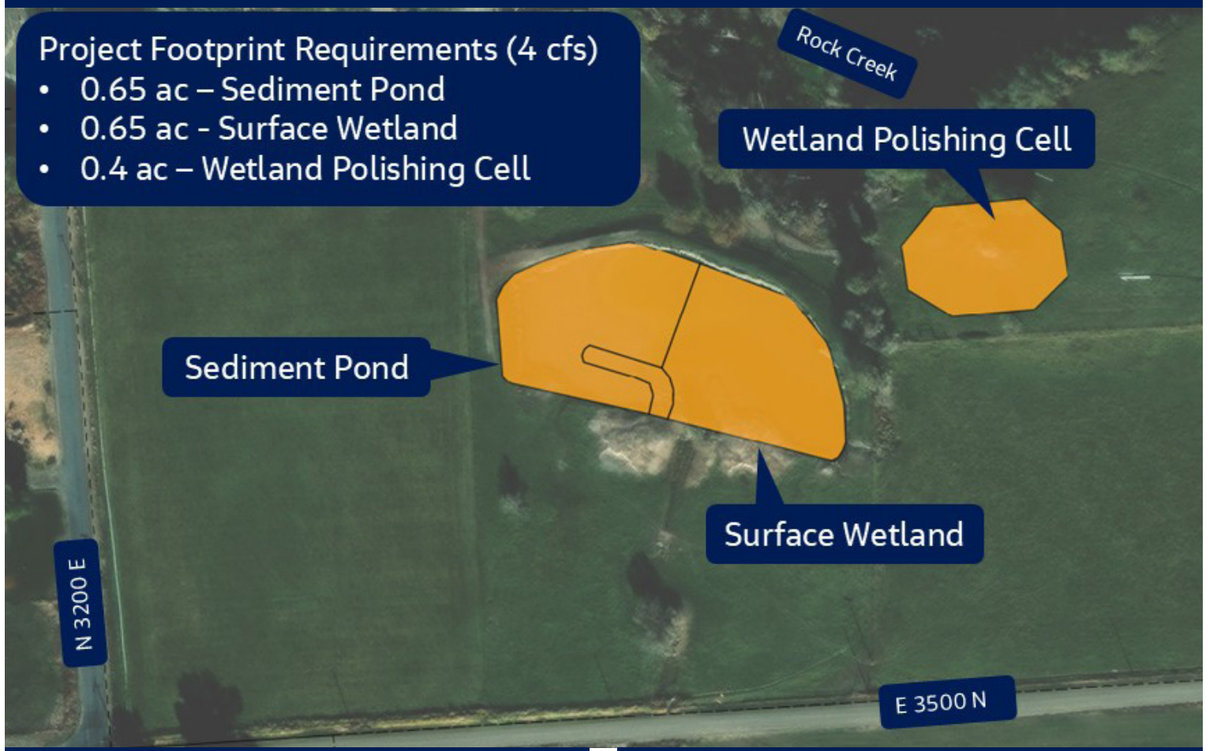
Project Type: Agricultural Project | Project ID: AG3 Near Rock Creek & East 3500 North

Project Summary

This project is an agricultural project that would enhance an existing sediment pond by retrofitting the sediment pond, adding a surface treatment wetland, and adding a polishing treatment wetland cell adjacent to Rock Creek near North 3200 East and East 3500 North. Its primary function is to treat irrigation return flows.

Link to Project Location Map

Link to Detailed Project Concept Design Exhibit



Cost Estimate: $2,400,000

Note: Because the cost estimate is based on a conceptual design, final construction cost could be up to 50% lower or 100% higher than listed.

Projected Additional Non-City Funding

Likelihood of Additional Funding	●●●●◐
Estimated Funding Amount	●●●●◐

Since this project includes a polishing treatment wetland cell, grants are likely available from a wider group. Additionally, the project area could be shifted to be inside the Urban Renewal Area RAA Southwest area.

Water Quality Improvement

Max Irrigation Return Flow	●●●●○
Presence of Furrow Irrigation Practices	●●●○○
Expected Water Quality Treatment	●●●◐○
Proximity to City Portion of Rock Creek	●●●○○

This project would significantly reduce the amount of sediment and phosphorus that enter Rock Creek from irrigation return flows that range from about 1 to 4 cfs. There is a moderate amount of furrow irrigation in the drainage area. This project is expected to improve the water quality draining into Rock Creek during irrigation season (mid-April through mid-October).

Aids in Future Wastewater Compliance

Aids in Future Wastewater Permit Compliance	●●●●○

Total phosphorus removal from this project could be easily measured by collecting flow data and water quality samples the inlet and the outlet.

Successful Implementation

Willingness of the Landowner	●●●●●
Ease of Permit Acquisition	●●●●○
Complexity of Annual O&M	●●●○○
Complexity of Major Maintenance	●○○○○
Frequency of Major Maintenance	●○○○○
Ease of Access	●●●●○

The property is owned by a private entity and has a very willing landowner. The project site access is off an existing road. It is unlikely major permits are needed since the existing pond is manmade.

Annual O&M: Remove large debris from the sediment pond. Remove weeds and debris from surface treatment wetland.

Major Maintenance: Dredge sediment and fine debris from the sediment pond every 5-10 years depending on the sediment inflow. Replace media in the polishing treatment wetland cell every 5-10 years.

Additional Benefits

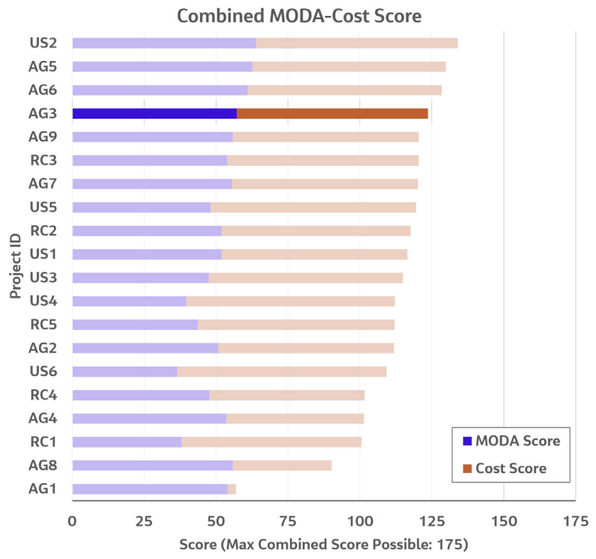
Flood Damage Mitigation	●○○○○
Habitat Value	●●●●○
Recreational Value	●○○○○
Opportunity for Collaboration	●●●●○
Opportunity to Build Momentum	●●●●◐
Could Help Meet MS4 Requirements	●●●○○
Aesthetic Value	●◐○○○

This project is adjacent to the Rock Creek valley, so it can enhance the creek's natural habitat corridor. The treatment train with the polishing treatment wetland cell has a high opportunity to build momentum in the community.

Project Score / Rank

Combined MODA-Cost Score:	MODA (without cost) Rank:	Combined MODA-Cost Rank:
123.7 (max of 175)	**4 out of 20**	**4 out of 20**

Link to Detailed MODA Project Score Rationale



Rock Creek Watershed Restoration Master Plan

Water Quality Improvement Projects

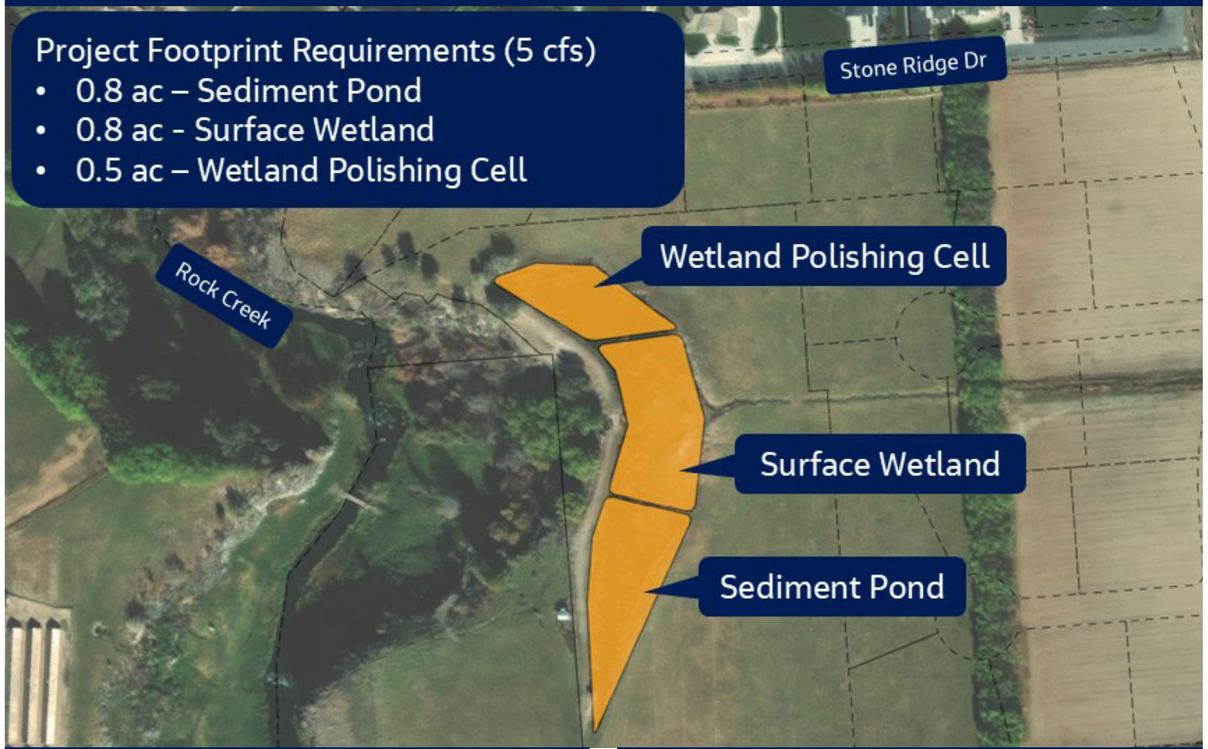
Project Type: Agricultural Project | Project ID: AG9 – Between Rock Creek & Sunway Drive

Project Summary

This project is an agricultural project that would enhance an existing sediment pond by retrofitting the sediment pond, adding a surface treatment wetland, and adding a polishing treatment wetland cell adjacent to Rock Creek near Sunway Drive. Its primary function is to treat irrigation return flows.

Link to Project Location Map

Link to Detailed Project Concept Design Exhibit



Cost Estimate: $2,900,000

Note: Because the cost estimate is based on a conceptual design, final construction cost could be up to 50% lower or 100% higher than listed.

Projected Additional Non-City Funding

Likelihood of Additional Funding	●●●●○
Estimated Funding Amount	●●○○○

Since this project includes a polishing treatment wetland cell, grants are likely available from a wider group.

Water Quality Improvement

Max Irrigation Return Flow	●●●●●
Presence of Furrow Irrigation Practices	●●●●●
Expected Water Quality Treatment	●●◐○○
Proximity to City Portion of Rock Creek	●○○○○

This project would significantly reduce sediment and phosphorus entering Rock Creek from irrigation return flows that range from about 3 to 5 cfs as well as stormwater runoff from the City. The drainage into the irrigation return is primarily from furrow irrigation, which would reduce over time as urbanization expands. This project is expected to improve the water quality draining into Rock Creek during irrigation season (mid-April through mid-October).

Aids in Future Wastewater Compliance

Aids in Future Wastewater Permit Compliance	●●●●○

Total phosphorus removal from this project could be easily measured by collecting flow data and water quality samples the inlet and the outlet.

Successful Implementation

Willingness of the Landowner	●●●●○
Ease of Permit Acquisition	●●●●○
Complexity of Annual O&M	●●●○○
Complexity of Major Maintenance	●○○○○
Frequency of Major Maintenance	●○○○○
Ease of Access	●●◐○○

This project would retrofit an existing sediment pond located on private property. The project site can be accessed by multiple private properties, which may be reduced over time with the expansion of residential subdivision.

Annual O&M: Remove large debris from the sediment pond. Remove weeds and debris from surface treatment wetland.

Major Maintenance: Dredge sediment and fine debris from the sediment pond every 5-10 years depending on the sediment inflow. Replace media in the polishing treatment wetland cell every 5-10 years.

Additional Benefits

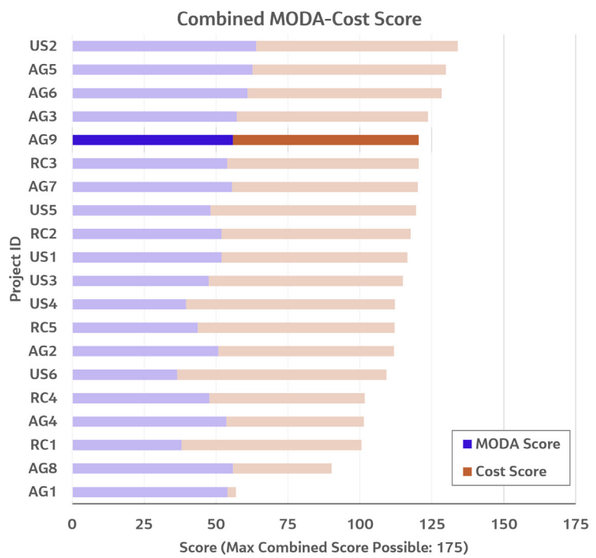
Flood Damage Mitigation	●○○○○
Habitat Value	●●●●○
Recreational Value	●◐○○○
Opportunity for Collaboration	●●●●○
Opportunity to Build Momentum	●●●◐○
Could Help Meet MS4 Requirements	●●●○○
Aesthetic Value	●●●○○

This project is adjacent to the Rock Creek valley, so it can enhance the creek's natural habitat corridor. The wetland treatment train with the polishing treatment wetland cell has a high opportunity to build momentum in the community, but this project is located on the far downstream end of Rock Creek.

Project Score / Rank

Combined MODA-Cost Score: **120.5 (max of 175)**	MODA (without cost) Rank: **5 out of 20**	Combined MODA-Cost Rank: **5 out of 20**

Link to Detailed MODA Project Score Rationale



Rock Creek Watershed Restoration Master Plan

Water Quality Improvement Projects

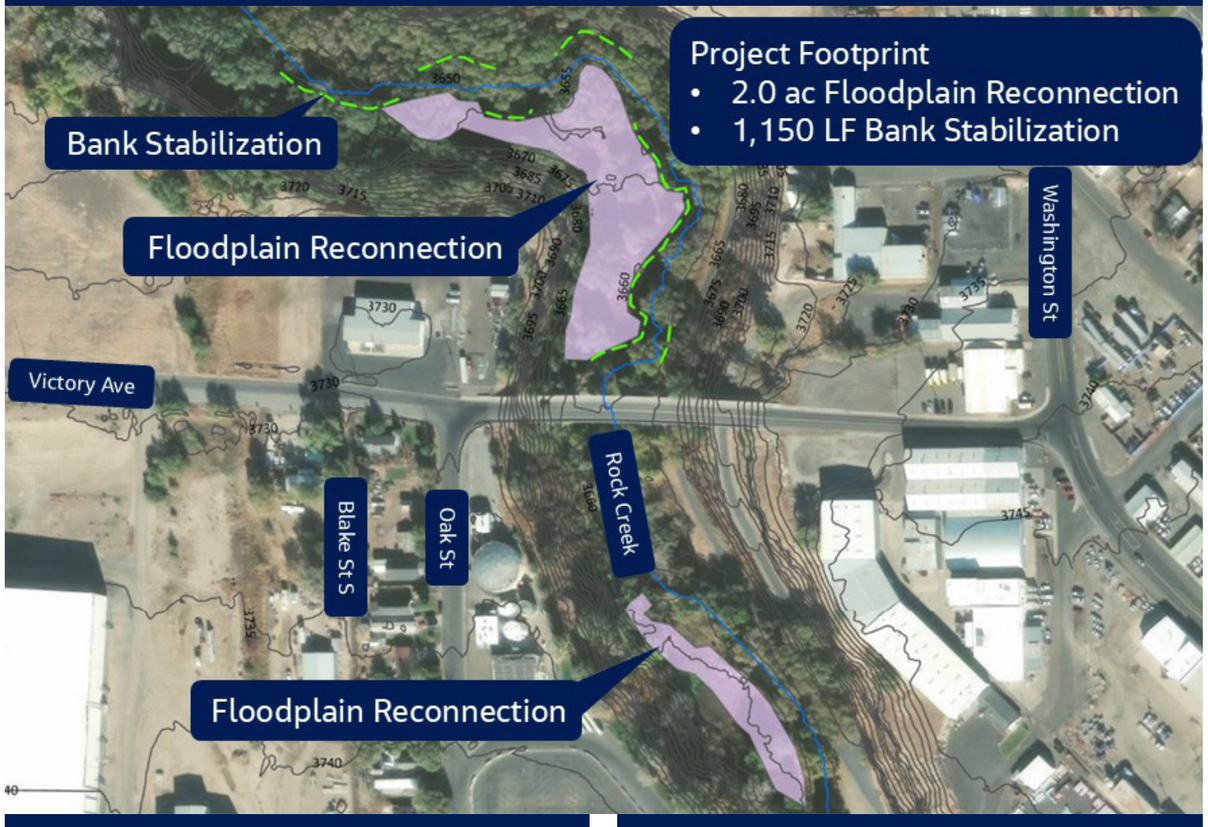
Project Type: River Corridor Project | Project ID: RC3 – Near Victory Avenue

Project Summary

This project is a river corridor project consisting of bank restoration and floodplain reconnection adjacent to Rock Creek near Victory Avenue.

Link to Project Location Map

Link to Detailed Project Concept Design Exhibit



Cost Estimate: $2,400,000

Note: Because the cost estimate is based on a conceptual design, final construction cost could be up to 50% lower or 100% higher than listed.

Projected Additional Non-City Funding

Likelihood of Additional Funding	●●●◐○
Estimated Funding Amount	●●○○○

This project could be a reasonable fit for federal, state, or foundation funding programs.

Water Quality Improvement

Area of bank restoration: ~7,000 sq. ft.

Area of floodplain restored: 1.5 acres

Proximity to City Portion of Rock Creek	●●●●●

This project is within city limits and includes moderate bank restoration and minimal floodplain reconnection.

Aids in Future Wastewater Compliance

Aids in Future Wastewater Permit Compliance	●●○○○

For river corridor projects, it is not practical to calculate or monitor sediment and nutrients removal given the flow distribution across the creek and floodplain.

Successful Implementation

Willingness of the Landowner	●●●●●
Ease of Permit Acquisition	●○○○○
Complexity of Annual O&M	●●●●●
Complexity of Major Maintenance	●●●○○
Frequency of Major Maintenance	●●●●○
Ease of Access	●●●●●

This project is on City-owned property. The length of bank stabilization would require individual 404/401 permits.

Annual O&M: Not required.

Major Maintenance: Sediment removal and replanting of native vegetation after high flood flow events.

Additional Benefits

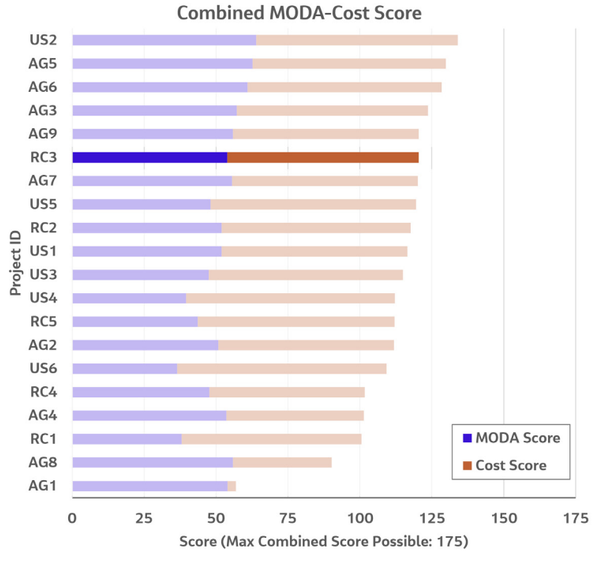
Flood Damage Mitigation	●○○○○
Habitat Value	●●●●●
Recreational Value	●●●●●
Opportunity for Collaboration	●●●○○
Opportunity to Build Momentum	●●●●○
Could Help Meet MS4 Requirements	●●●●○
Aesthetic Value	●●●●●

This project is within the Rock Creek valley, so it can improve the creek's natural habitat corridor and aesthetics along the existing trail. This project could include educational signage along the Rock Creek Canyon Parkway to help meet pending MS4 requirements and build momentum.

Project Score / Rank

Combined MODA-Cost Score:	MODA (without cost) Rank:	Combined MODA-Cost Rank:
120.4 (max of 175)	**9 out of 20**	**6 out of 20**

Link to Detailed MODA Project Score Rationale



Rock Creek Watershed Restoration Master Plan

Water Quality Improvement Projects

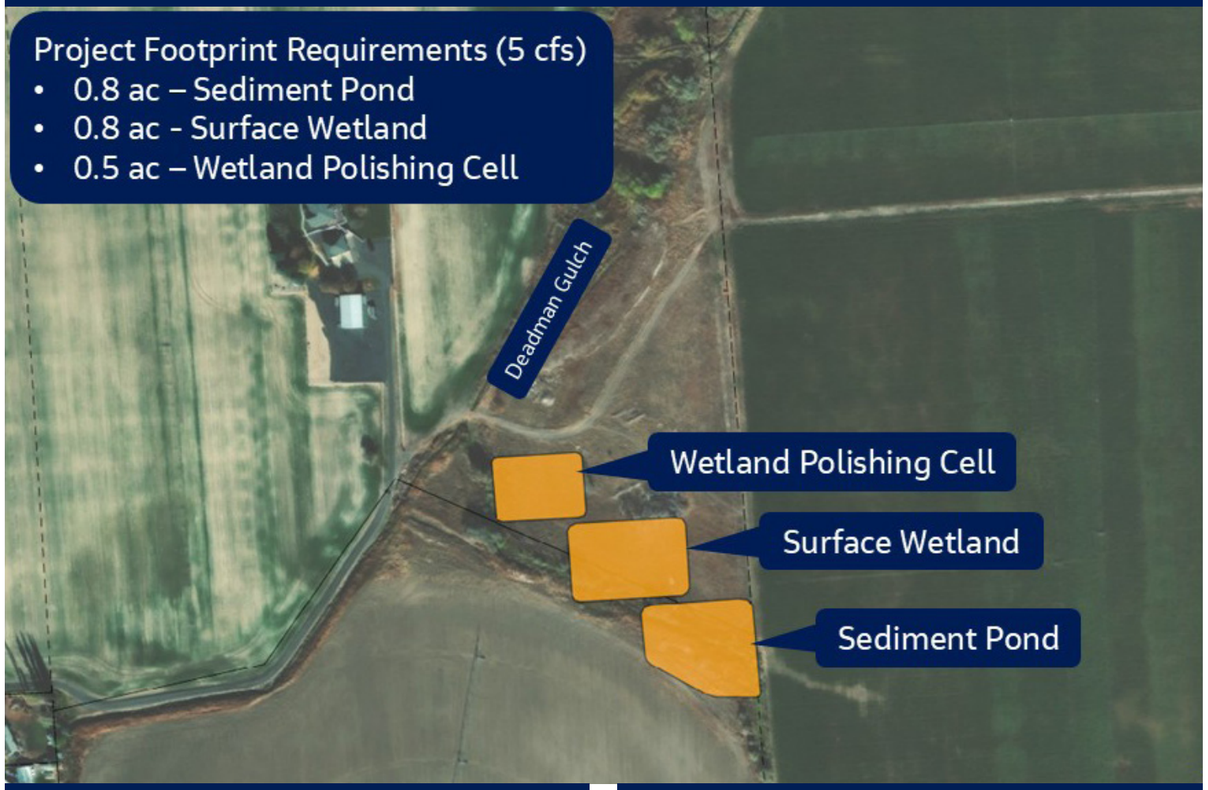
Project Type: Agricultural Project | Project ID: AG7 – Tributary to Deadman Gulch Upstream of South Park Avenue West

Project Summary

This project is an agricultural project consisting of a sediment pond, surface treatment wetland, and a polishing treatment wetland cell on a tributary to Deadman Gulch, upstream of South Park Avenue West. Its primary function is to treat irrigation return flows.

Link to Project Location Map

Link to Detailed Project Concept Design Exhibit



Cost Estimate: $2,900,000

Note: Because the cost estimate is based on a conceptual design, final construction cost could be up to 50% lower or 100% higher than listed.

Projected Additional Non-City Funding

Likelihood of Additional Funding	●●●●○
Estimated Funding Amount	●●○○○

Since this project includes a polishing treatment wetland cell, grants are likely available from a wider group.

Water Quality Improvement

Max Irrigation Return Flow	●●●●●
Presence of Furrow Irrigation Practices	●●●●○
Expected Water Quality Treatment	●●●○○
Proximity to City Portion of Rock Creek	●●●●○

This project would significantly reduce the amount of sediment and phosphorus that enter Rock Creek from irrigation return flows that range from about 2 to 5 cfs. The drainage area is a mix of furrow and center-pivot irrigation. This project is expected to improve the water quality draining into Rock Creek during irrigation season (mid-April through mid-October).

Aids in Future Wastewater Compliance

Aids in Future Wastewater Permit Compliance	●●●●○

Total phosphorus removal from this project could be easily measured by collecting flow data and water quality samples the inlet and the outlet.

Successful Implementation

Willingness of the Landowner	●●●○○
Ease of Permit Acquisition	●●●◐○
Complexity of Annual O&M	●●●○○
Complexity of Major Maintenance	●○○○○
Frequency of Major Maintenance	●○○○○
Ease of Access	●●○○○

This project is located on private property who may be open to a project in this area. The project site can be accessed by multiple private properties, but through private access roads. Because of the project's proximity to Deadman Gulch, a nationwide permit would likely be required.

Annual O&M: Remove large debris from the sediment pond. Remove weeds and debris from surface treatment wetland.

Major Maintenance: Dredge sediment and fine debris from the sediment pond every 5-10 years depending on the sediment inflow. Replace media in the polishing treatment wetland cell every 5-10 years.

Additional Benefits

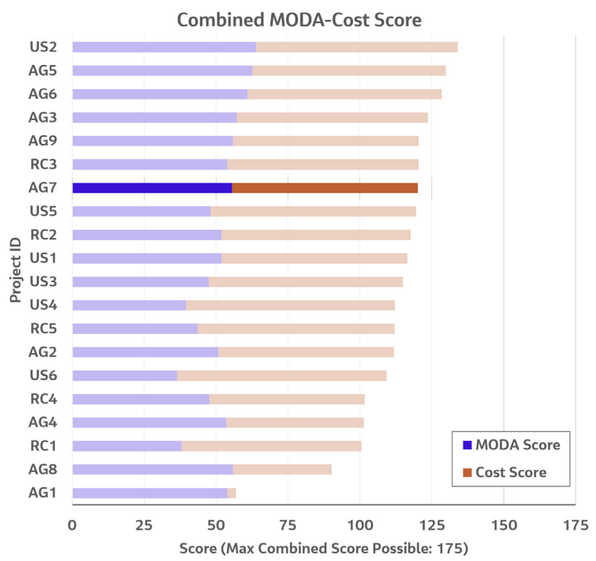
Flood Damage Mitigation	●○○○○
Habitat Value	●●●◐○
Recreational Value	●○○○○
Opportunity for Collaboration	●●●●○
Opportunity to Build Momentum	●●●●◐
Could Help Meet MS4 Requirements	●●◐○○
Aesthetic Value	●●○○○

This project is adjacent to the Deadman Gulch corridor, so it can enhance an existing natural habitat corridor. Because of the project location and willingness of the landowner, this project had the potential to build momentum and be one of the higher impact projects.

Project Score / Rank

Combined MODA-Cost Score: **120.2 (max of 175)**	MODA (without cost) Rank: **7 out of 20**	Combined MODA-Cost Rank: **7 out of 20**

Link to Detailed MODA Project Score Rationale



Rock Creek Watershed Restoration Master Plan

Water Quality Improvement Projects

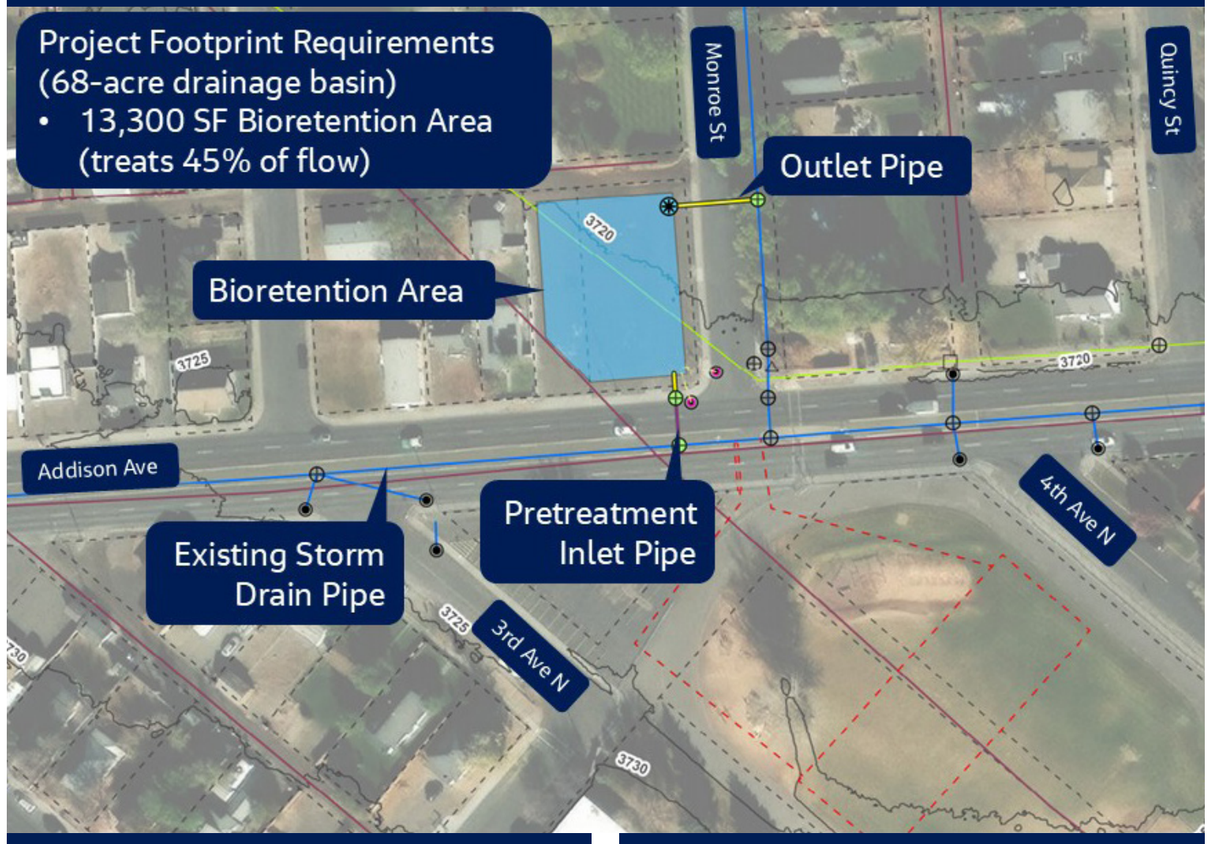
Project Type: Urban Stormwater Project | Project ID: US5 – At Addison Avenue & Monroe Street

Project Summary

This project is an urban stormwater project consisting of a bioretention facility near the intersection of Addison Avenue and Monroe Street.

Link to Project Location Map

Link to Detailed Project Concept Design Exhibit



Cost Estimate: $1,000,000

Note: Because the cost estimate is based on a conceptual design, final construction cost could be up to 50% lower or 100% higher than listed.

Projected Additional Non-City Funding

Likelihood of Additional Funding	●◐○○○
Estimated Funding Amount	●●○○○

Since this project includes a polishing treatment wetland cell, grants are likely available from a wider group.

Water Quality Improvement

Treatment (Impervious) Area	●◐○○○

This project would treat about 45% of the flow from the 68-acre, 50% impervious drainage area. Treated flow would have significantly lower sediment and phosphorus in the outflow. The project on its own is not expected to significantly improve water quality in Rock Creek because the contributing watershed to the bioretention facility is a small fraction of the overall Rock Creek watershed and the project is in the middle of drainage basin.

Aids in Future Wastewater Compliance

Aids in Future Wastewater Permit Compliance	●●●●○

Total phosphorus removal from this project could be easily measured by collecting flow data and water quality samples the inlet and the outlet.

Successful Implementation

Willingness of the Landowner	●●●●●
Ease of Permit Acquisition	●●●●●
Complexity of Annual O&M	●●○○○
Complexity of Major Maintenance	●●○○○
Frequency of Major Maintenance	●●●○○
Ease of Access	●●●○○

The property is owned by the City and access is through City-owned properties, therefore, no property acquisition is required.

Annual O&M: Clean out sediment in the pretreatment pipe 1-2 times/year. Conduct weeding, debris removal, and check for erosion/sediment accumulation in bioretention facility 1-2 times/year.

Major Maintenance: Replace bioretention soil mix evert 15-20 years.

Additional Benefits

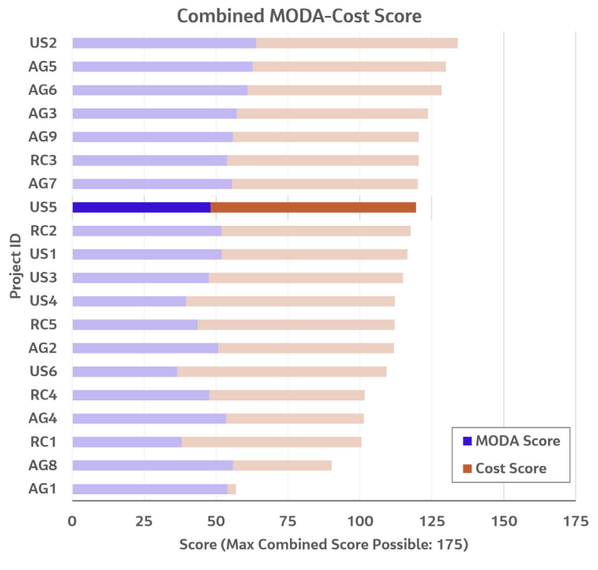
Flood Damage Mitigation	●●●○○
Habitat Value	●●○○○
Recreational Value	●●○○○
Opportunity for Collaboration	●●●○○
Opportunity to Build Momentum	●●○○○
Could Help Meet MS4 Requirements	●●●●●
Aesthetic Value	●●●●●

This project is within a watershed with flooding issues. This project could provide an opportunity for community outreach in a visible area and improve the streetscape near an arterial road. Additionally, this project could help the City meet future MS4 Permit requirements.

Project Score / Rank

Combined MODA-Cost Score:	MODA (without cost) Rank:	Combined MODA-Cost Rank:
119.5 (max of 175)	**14 out of 20**	**8 out of 20**

Link to Detailed MODA Project Score Rationale



Rock Creek Watershed Restoration Master Plan

Water Quality Improvement Projects

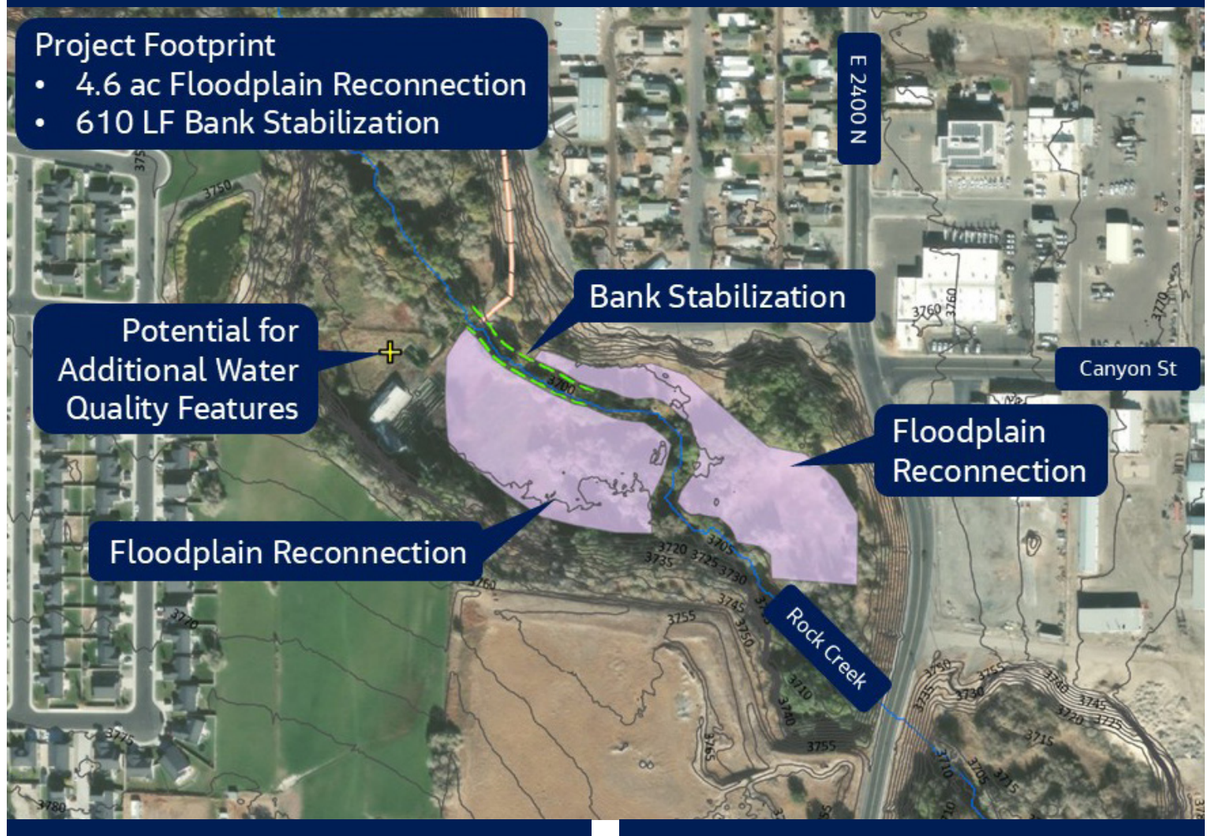
Project Type: River Corridor Project | Project ID: RC2 – Near Old Fish Hatchery

Project Summary

This project is a river corridor project consisting of bank restoration and floodplain reconnection adjacent to Rock Creek at the city-owned former fish hatchery.

Link to Project Location Map

Link to Detailed Project Concept Design Exhibit



Cost Estimate: $2,600,000

Note: Because the cost estimate is based on a conceptual design, final construction cost could be up to 50% lower or 100% higher than listed.

Projected Additional Non-City Funding

Likelihood of Additional Funding	●●●◐○
Estimated Funding Amount	●●○○○

This project could be a reasonable fit for federal, state, or foundation funding programs.

Water Quality Improvement

Area of bank restoration: ~4,900 sq. ft.

Area of floodplain restored: 4.6 acres

Proximity to City Portion of Rock Creek	●●●●●

This project is within city limits and includes a moderate bank restoration and major floodplain reconnection.

Aids in Future Wastewater Compliance

Aids in Future Wastewater Permit Compliance	●●○○○

For river corridor projects, it is not practical to calculate or monitor sediment and nutrients removal given the flow distribution across the creek and floodplain.

Successful Implementation

Willingness of the Landowner	●●●●●
Ease of Permit Acquisition	●○○○○
Complexity of Annual O&M	●●●●●
Complexity of Major Maintenance	●●●○○
Frequency of Major Maintenance	●●●●○
Ease of Access	●●●●●

This project is located City-owned property. The length of bank stabilization would require individual 404/401 permits.

Annual O&M: Not required.

Major Maintenance: Sediment removal and replanting of native vegetation after high flood flow events.

Additional Benefits

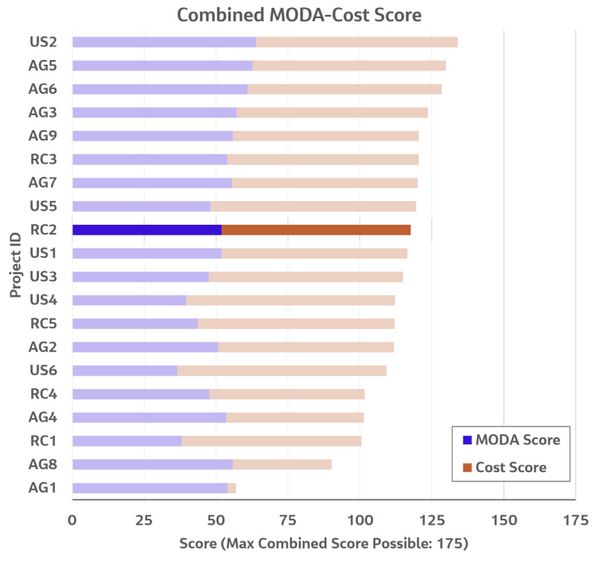
Flood Damage Mitigation	●○○○○
Habitat Value	●●●●●
Recreational Value	●●●◐○
Opportunity for Collaboration	●●●●○
Opportunity to Build Momentum	●●●●○
Could Help Meet MS4 Requirements	●●◐○○
Aesthetic Value	●●●◐○

This project is in the Rock Creek valley, so it can enhance the creek's natural habitat corridor and aesthetics along the existing trail. Recreational opportunities could be integrated into the project site at the former fish hatchery location, increasing the opportunity to build momentum. This project could include educational signage to help meet pending MS4 requirements and build momentum.

Project Score / Rank

Combined MODA-Cost Score:	MODA (without cost) Rank:	Combined MODA-Cost Rank:
117.6 (max of 175)	**12 out of 20**	**9 out of 20**

Link to Detailed MODA Project Score Rationale



Rock Creek Watershed Restoration Master Plan

Water Quality Improvement Projects

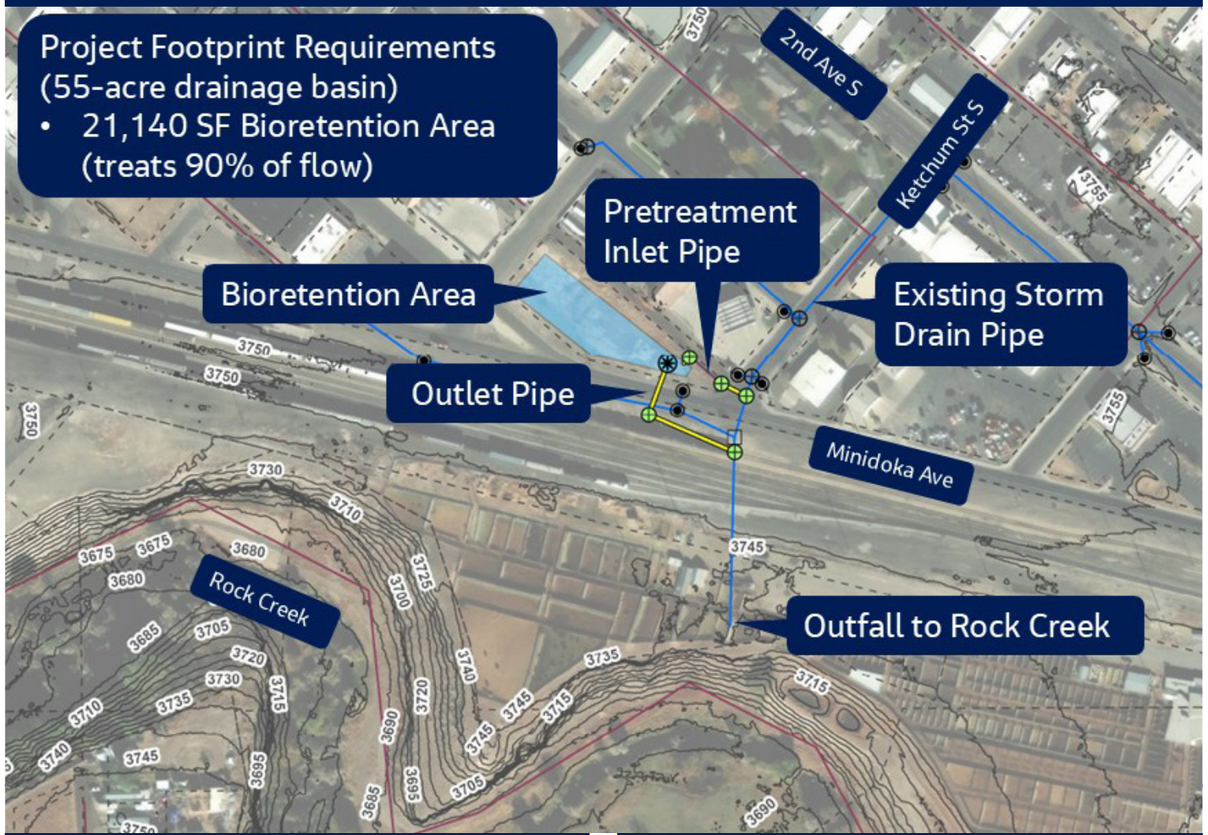
Project Type: Urban Stormwater Project | Project ID: US1 – At Minidoka Avenue & Ketchum Street South

Project Summary

This project is an urban stormwater project consisting of a bioretention facility near the intersection of Ketchum Street South and Minidoka Avenue.

Link to Project Location Map

Link to Detailed Project Concept Design Exhibit



Cost Estimate: $2,900,000

Note: Because the cost estimate is based on a conceptual design, final construction cost could be up to 50% lower or 100% higher than listed.

Projected Additional Non-City Funding

Likelihood of Additional Funding	●●●●○
Estimated Funding Amount	●●●●○

This project is located within the Urban Renewal Area RAA Old Towne-2.

Water Quality Improvement

Treatment (Impervious) Area	●●○○○

This project would treat about 90% of the flow from the 55-acre, 70% impervious drainage area. Treated flow would have significantly lower sediment and phosphorus in the outflow. The project on its own is not expected to significantly improve water quality in Rock Creek because the contributing watershed to the bioretention facility is a small fraction of the overall Rock Creek watershed.

Aids in Future Wastewater Compliance

Aids in Future Wastewater Permit Compliance	●●●●○

Total phosphorus removal from this project could be easily measured by collecting flow data and water quality samples the inlet and the outlet.

Successful Implementation

Willingness of the Landowner	●○○○○
Ease of Permit Acquisition	●●●●●
Complexity of Annual O&M	●●○○○
Complexity of Major Maintenance	●●○○○
Frequency of Major Maintenance	●●●○○
Ease of Access	●●●●●

The property is owned by a private entity. Property acquisition required. The project location can be accessed through a dirt road for maintenance.

Annual O&M: Clean out sediment in the pretreatment pipe 1-2 times/year. Conduct weeding, debris removal, and check for erosion/sediment accumulation in bioretention facility 1-2 times/year.

Major Maintenance: Replace bioretention soil mix every 15-20 years.

Additional Benefits

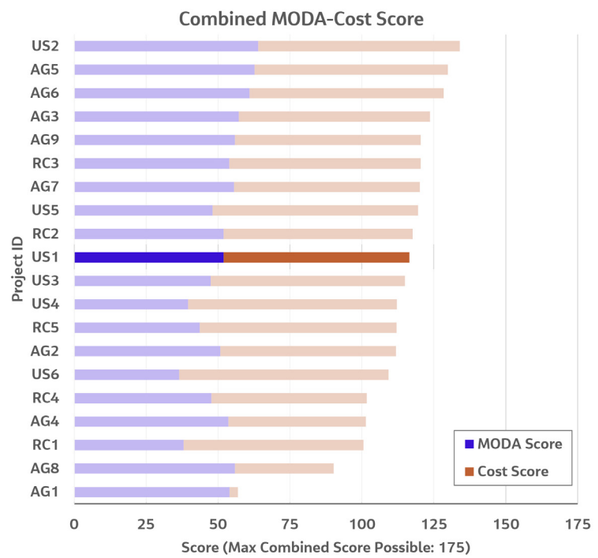
Flood Damage Mitigation	●○○○○
Habitat Value	●●○○○
Recreational Value	●○○○○
Opportunity for Collaboration	●●●○○
Opportunity to Build Momentum	●●○○○
Could Help Meet MS4 Requirements	●●●○○
Aesthetic Value	●●●●●

This project would improve streetscape along Minidoka Avenue. The project provides limited opportunity for collaboration and public outreach since it is in an industrial part of town.

Project Score / Rank

Combined MODA-Cost Score:	MODA (without cost) Rank:	Combined MODA-Cost Rank:
116.6 (max of 175)	**11 out of 20**	**10 out of 20**

Link to Detailed MODA Project Score Rationale



Appendix B. Appendix B. Master Plan Projects – Concept Designs and Cost Estimates

Project Notes:
Approx. Total Contributing Area: 55 acres
Approx. Effective Contributing Impervious Area: 38.5 acres

Limitations:
Geology, infiltration potential, and utilities' services, material and locations to be confirmed during design. Concept for planning purposes only. Specific layout and BMP selection should be confirmed during design.

3RD AVE W
4TH AVE W
JEROME ST S
KETCHUM ST S
LIBERTY ST S
2ND AVE S
MINIDOKA AVE

Manhole (84-inch diameter)

Pre-settling Pipe (5-foot diameter, 65 LF)

Bioretention Area 21,140 SF

See Figure 2-1 for the bioretention section.

Manhole (84-inch diameter)

18" Pipe (48 LF)

Overflow structure with beehive grate

18" Pipe (95 LF)

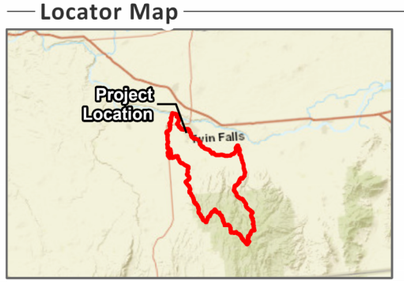
Flow Splitter (Diverts 90% of flow) Manhole (84-inch diameter)

Manhole (48-inch diameter)

Manhole (48-inch diameter)

18" Pipe (163 LF)

Locator Map



Legend

Existing Features

- Catch Basin
- Manhole
- SW Manhole Drain
- SW Siphon Drain
- SW Junction Box
- Stormwater Pipelines
- Sewer Gravity Mains
- Sewer Pressurized Mains
- Gravity Irrigation
- Weirs

Proposed Features

- Catch Basin
- Manhole
- Overflow Structure
- Conveyance Pipe
- Pre-settling Pipe
- Bioretention Cell
- Proprietary Treatment
- Swales
- Triangle Park

- 2018 USGS Contours (5 ft)
- Twin Falls County Parcels
- Alternative Location
- Potential Pipe

0 95 190 380 US Feet

N

STORMWATER PROJECT
US1 Near Livestock Yard - Bioretention Facility
Rock Creek Watershed Master Plan
Twin Falls, Idaho

Jacobs

Document Path: C:\Users\Kronz5\OneDrive - Jacobs Engineering Group Inc\Documents\X Rock Creek\Rock Creek_Concepts_Recover\Rock Creek_Concepts_GIS\RockCreek_ConceptualDesigns\RockCreek_ConceptualDesigns.aprx

Project Notes:
Approx. Total Contributing Area: 47 acres
Approx. Effective Contributing Impervious Area: 33 acres

Limitations:
Geology, infiltration potential, and additional utility information will be needed during design to confirm feasibility.
Concept for planning purposes only. Specific layout and BMP selection should be confirmed during design.
The proximity to the creek may present challenges such as potential high groundwater elevation and additional permitting complexity that will require additional evaluation during design.

Pre-settling Pipe
(5-foot diameter, 63 LF)

24" Pipe
(90 LF)

Stepped Bioretention Area
(20,500 SF)

See Figure 2-2 for the bioretention section.

3 Weirs distance varies

Manhole
(84-inch diameter)

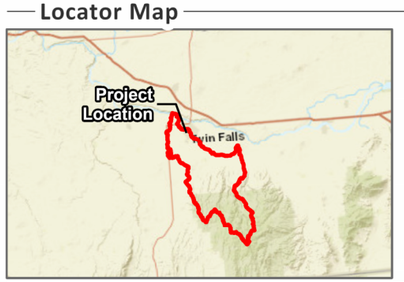
Manhole
(48-inch diameter)
placed at approximate outfall location

RAILROAD ST

SHOSHONE ST S

MAXWELL AVE

Locator Map



Legend

Existing Features

- Catch Basin
- Manhole
- SW Manhole Drain
- SW Siphon Drain
- SW Junction Box
- Stormwater Pipelines
- Sewer Gravity Mains
- Sewer Pressurized Mains
- Gravity Irrigation
- Weirs

Proposed Features

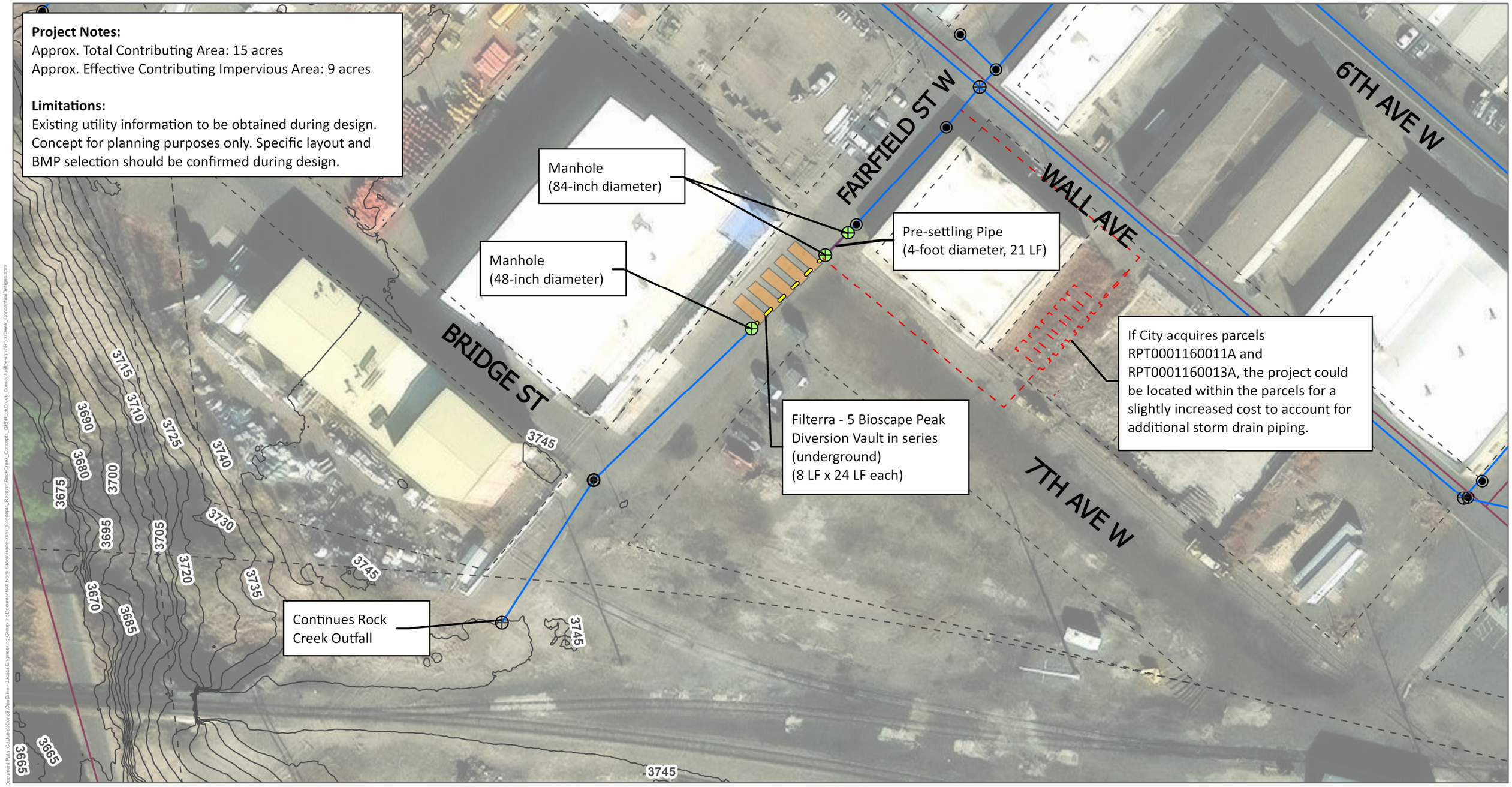
- Catch Basin
- Manhole
- Overflow Structure
- Conveyance Pipe
- Pre-settling Pipe
- Bioretention Cell
- Proprietary Treatment
- Swales
- Triangle Park
- 2018 USGS Contours (5 ft)
- Twin Falls County Parcels
- Alternative Location
- Potential Pipe

0 40 80 160 US Feet

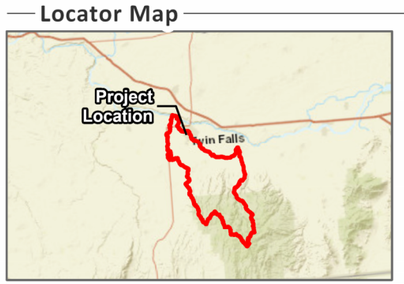
STORMWATER PROJECT
US2 Along Rock Creek - Stepped Bioretention Facility
Rock Creek Watershed Master Plan
Twin Falls, Idaho

Jacobs

Document Path: C:\Users\KronzS\OneDrive - Jacobs Engineering Group Inc\Documents\X Rock Creek\RockCreek_ Concepts_ Recover\RockCreek_ Concepts_ GIS\RockCreek_ ConceptualDesigns\RockCreek_ ConceptualDesigns.aprx



Locator Map



Legend

Existing Features

- Catch Basin
- Manhole
- SW Manhole Drain
- SW Siphon Drain
- SW Junction Box
- Stormwater Pipelines
- Sewer Gravity Mains
- Sewer Pressurized Mains
- Gravity Irrigation
- Weirs

Proposed Features

- Catch Basin
- Manhole
- Overflow Structure
- Conveyance Pipe
- Pre-settling Pipe
- Bioretention Cell
- Proprietary Treatment
- Swales
- Triangle Park
- 2018 USGS Contours (5 ft)
- Twin Falls County Parcels
- Alternative Location
- Potential Pipe

0 30 60 120 US Feet

N

STORMWATER PROJECT

US3 Fairfield St & 7th Ave - Underground Treatment Vaults

Rock Creek Watershed Master Plan

Twin Falls, Idaho

Jacobs

Project Notes:
Approx. Total Contributing Area: 10 acres
Approx. Effective Contributing Impervious Area: 6 acres

Limitations:
Geology, infiltration potential, and utility information to be obtained during design.
Concept for planning purposes only. Specific layout and BMP selection should be confirmed during design.
Concept assumes native soils can infiltrate the water quality storm event within 24 hrs. If underdrain is required, it may not be feasible to connect to existing storm system.

Existing Gravity Irrigation

ADDISON AVE

12" Pipe
(10 LF)

Overflow structure with beehive grate

Bioretention Area
(4,382 SF)

See Figure 2-2 for the bioretention section.

Manhole
(48-inch diameter)

12" Pipe
(5 LF)

12" Pipe
(8 LF)

Manhole
(84-inch diameter)

Flow Splitter (Diverts 55% of flow)
Manhole (48-inch diameter)

Pre-settling Pipe
(4-foot diameter, 14 LF)

Manhole
(84-inch diameter)

6TH AVE N

5TH AVE N

DIERKES ST

3725

3725

3725

3725

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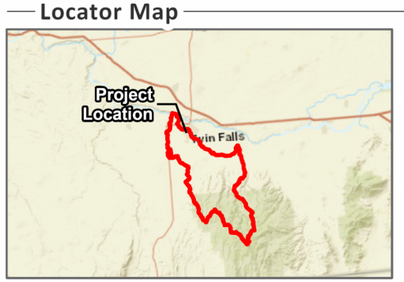
Locator Map



Legend

Existing Features

- Catch Basin
- Manhole
- SW Manhole Drain
- SW Siphon Drain
- SW Junction Box
- Stormwater Pipelines
- Sewer Gravity Mains
- Sewer Pressurized Mains
- Gravity Irrigation
- Weirs

Proposed Features

- Catch Basin
- Manhole
- Overflow Structure
- Conveyance Pipe
- Pre-settling Pipe
- Bioretention Cell
- Proprietary Treatment
- Swales
- Triangle Park

- 2018 USGS Contours (5 ft)
- Twin Falls County Parcels
- Alternative Location
- Potential Pipe

0 25 50 100 US Feet

N

STORMWATER PROJECT
US4 Addison & 6th Ave - Bioretention Facility
Rock Creek Watershed Master Plan
Twin Falls, Idaho

Jacobs

Project Notes:
Project Area: Monroe St between Addison and Orcholara Seepage Tunnel

This project can be constructed in phases, if replacing the stormwater pipe is too costly initially, constructed the bioretention facility in the parcel at the intersection of Addison Ave and Monroe St can provide some flood storage to reduce the frequency of flooding until the pipe can be replaced. Once the pipe is constructed and if the flooding is sufficiently addresses by the pipe replacement, then the flow splitter can be installed so the bioretention facility can treat stormwater upstream in the basin.

Limitations:
Additional hydraulic modeling is needed to confirm sizing of the stormwater pipe required to address the flooding on Addison Ave.
Geology, infiltration potential, and utility information to be obtained during design.
Concept for planning purposes only. Specific layout and BMP selection should be confirmed during design.

Replace pipe with 60-inch (2,910 LF)

Stormwater Bioretention Swales along east side of Monroe St

See Figure 2-3

Bioretention Area

See Figure 1-5b for details

WASHINGTON ST N

ADDISION AVE

3680 3685 3690 3695 3700 3705 3710 3715 3720 3725 3730 3735

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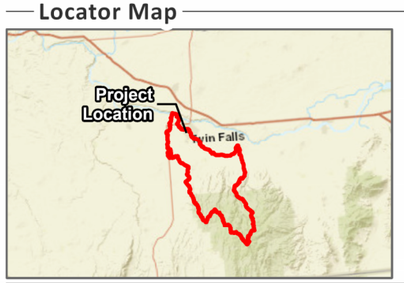
Locator Map



Legend

Existing Features

- Catch Basin
- Manhole
- SW Manhole Drain
- SW Siphon Drain
- SW Junction Box
- Stormwater Pipelines
- Sewer Gravity Mains
- Sewer Pressurized Mains
- Gravity Irrigation
- Weirs

Proposed Features

- Catch Basin
- Manhole
- Overflow Structure
- Conveyance Pipe
- Pre-settling Pipe
- Bioretention Cell
- Proprietary Treatment
- Swales
- Triangle Park

- 2018 USGS Contours (5 ft)
- Twin Falls County Parcels
- Alternative Location
- Potential Pipe

0 255 510 1,020 Feet

N

STORMWATER PROJECT
US5 Addison & Monroe - Bioretention Facility
Rock Creek Watershed Master Plan
Twin Falls, Idaho

Jacobs

Project Notes:
Project Area: Monroe St between Addison and Orcholara Seepage Tunnel

This project can be constructed in phases, if replacing the stormwater pipe is too costly initially, constructed the bioretention facility in the parcel at the intersection of Addison Ave and Monroe St can provide some flood storage to reduce the frequency of flooding until the pipe can be replaced. Once the pipe is constructed and if the flooding is sufficiently addresses by the pipe replacement, then the flow splitter can be installed so the bioretention facility can treat stormwater upstream in the basin.

Limitations:
Additional hydraulic modeling is needed to confirm sizing of the stormwater pipe required to address the flooding on Addison Ave.
Geology, infiltration potential, and utility information to be obtained during design.
Concept for planning purposes only. Specific layout and BMP selection should be confirmed during design.
Concept assumes native soils can infiltrate the water quality storm event within 24 hrs. If underdrain is required, it may not be feasible to connect to existing storm system.

18" Pipe (66 LF)

Overflow structure with beehive grate

Gravity irrigation utility to be re-routed

Bioretention Area (13,300 SQ FT)

See Figure 2-2 for typical bioretention section

18" Pipe (19 LF)

Manhole (84-inch diameter)

Flow Splitter to intercept flow in the stormwater main and direct it to the bioretention facility for treatment. (Diverts 45% of the flow)
Manhole (84-inch diameter)

If City were to partner with the school district, the project could be located across the street near Lincoln Elementary School for a slightly increased cost to account for additional storm drain piping.

Replace pipe with 60-in (2,910 LF)

Stormwater Bioretention Swales along east side of Monroe St from Addison Ave to Filer Ave
2,500 ft total length

See Figure 2-3 for the roadway typical section

Manhole (48-inch diameter)

Potential Catch Basins and pipes to reduce flooding in the intersection

Pre-settling pipe (5-ft diameter, 35 ft)

MONROE AVE

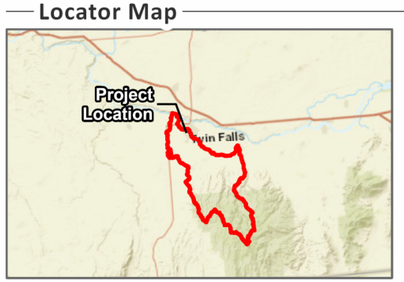
ADDISON AVE

2TH AVE N

4TH AVE N

3720 3725 3730

Locator Map



Legend

Existing Features

- Catch Basin
- Manhole
- SW Manhole Drain
- SW Siphon Drain
- SW Junction Box
- Stormwater Pipelines
- Sewer Gravity Mains
- Sewer Pressurized Mains
- Gravity Irrigation
- Weirs

Proposed Features

- Catch Basin
- Manhole
- Overflow Structure
- Conveyance Pipe
- Pre-settling Pipe
- Bioretention Cell
- Proprietary Treatment
- Swales
- Triangle Park
- 2018 USGS Contours (5 ft)
- Twin Falls County Parcels
- Alternative Location
- Potential Pipe

0 40 80 160 Feet

STORMWATER PROJECT
US5 Addison & Monroe - Bioretention Facility
Rock Creek Watershed Master Plan
Twin Falls, Idaho

Jacobs

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Project Notes:
Approx. Total Contributing Area: 3 acres
Approx. Effective Contributing Impervious Area: 0.8 acres

Limitations:
Geology, infiltration potential, and utility information to be obtained during design.
Concept for planning purposes only. Specific layout and BMP selection should be confirmed during design.
Concept assumes native soils can infiltrate the water quality storm event within 24 hrs. If underdrain is required, it may not be feasible to connect to existing storm system.

Overflow structure with beehive grate

Catch Basin

Manhole (48-inch diameter)

8 " Pipe (12 LF)

12" Pipe (48 LF)

Park space

Catch Basin

8" Pipe (30 LF)

Bioretention Area (46.5 LF x 25 LF)

See Figure 2-2 for the bioretention section.

FILER AVE

QUINCY ST

JACKSON ST

3695

3700

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Locator Map

Project Location

Twin Falls

Legend

Existing Features

- Catch Basin
- Manhole
- SW Manhole Drain
- SW Siphon Drain
- SW Junction Box
- Stormwater Pipelines
- Sewer Gravity Mains
- Sewer Pressurized Mains
- Gravity Irrigation
- Weirs

Proposed Features

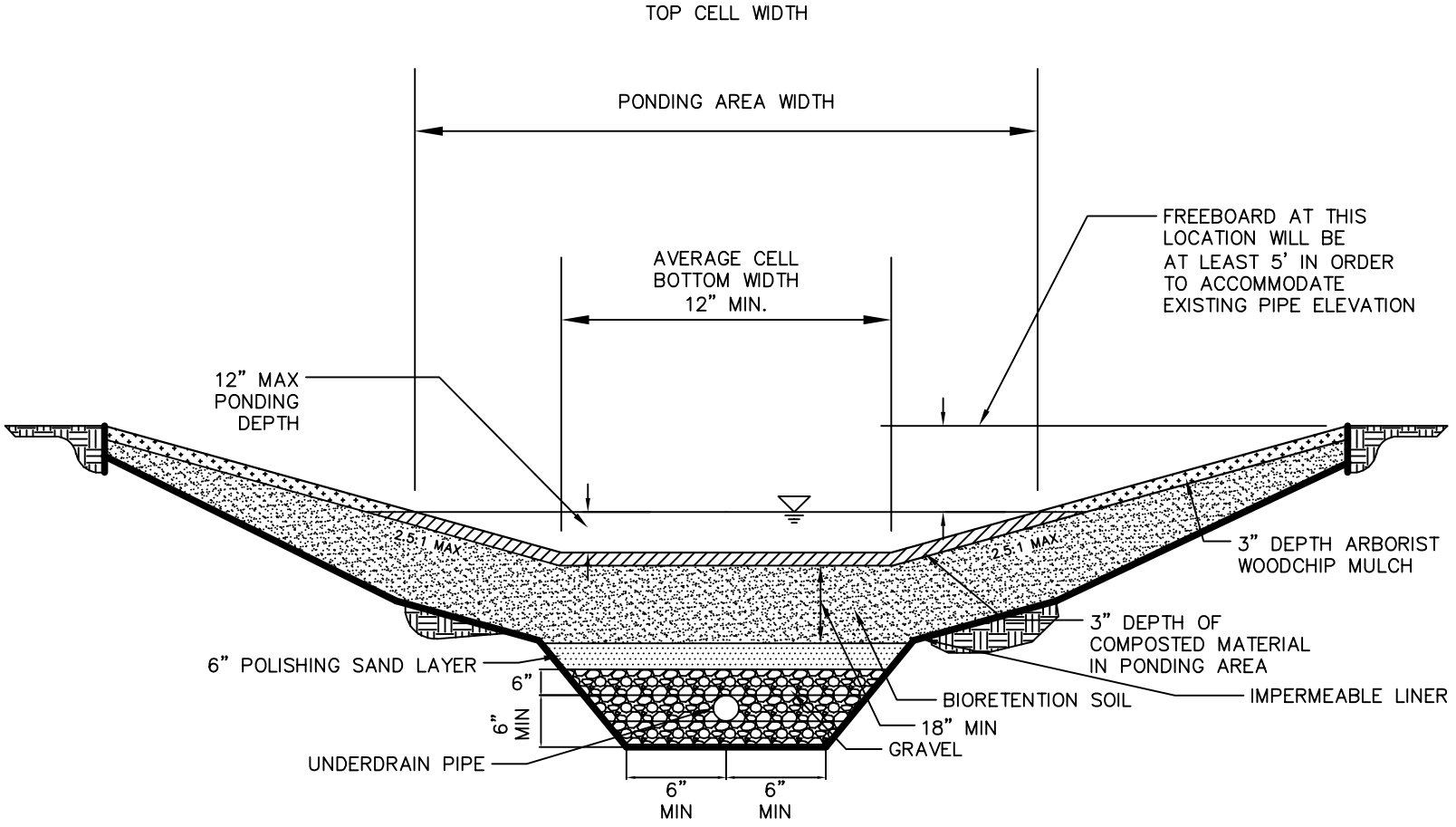
- Catch Basin
- Manhole
- Overflow Structure
- Conveyance Pipe
- Pre-settling Pipe
- Bioretention Cell
- Proprietary Treatment
- Swales
- Triangle Park
- 2018 USGS Contours (5 ft)
- Twin Falls County Parcels
- Alternative Location
- Potential Pipe

0 25 50 100 Feet

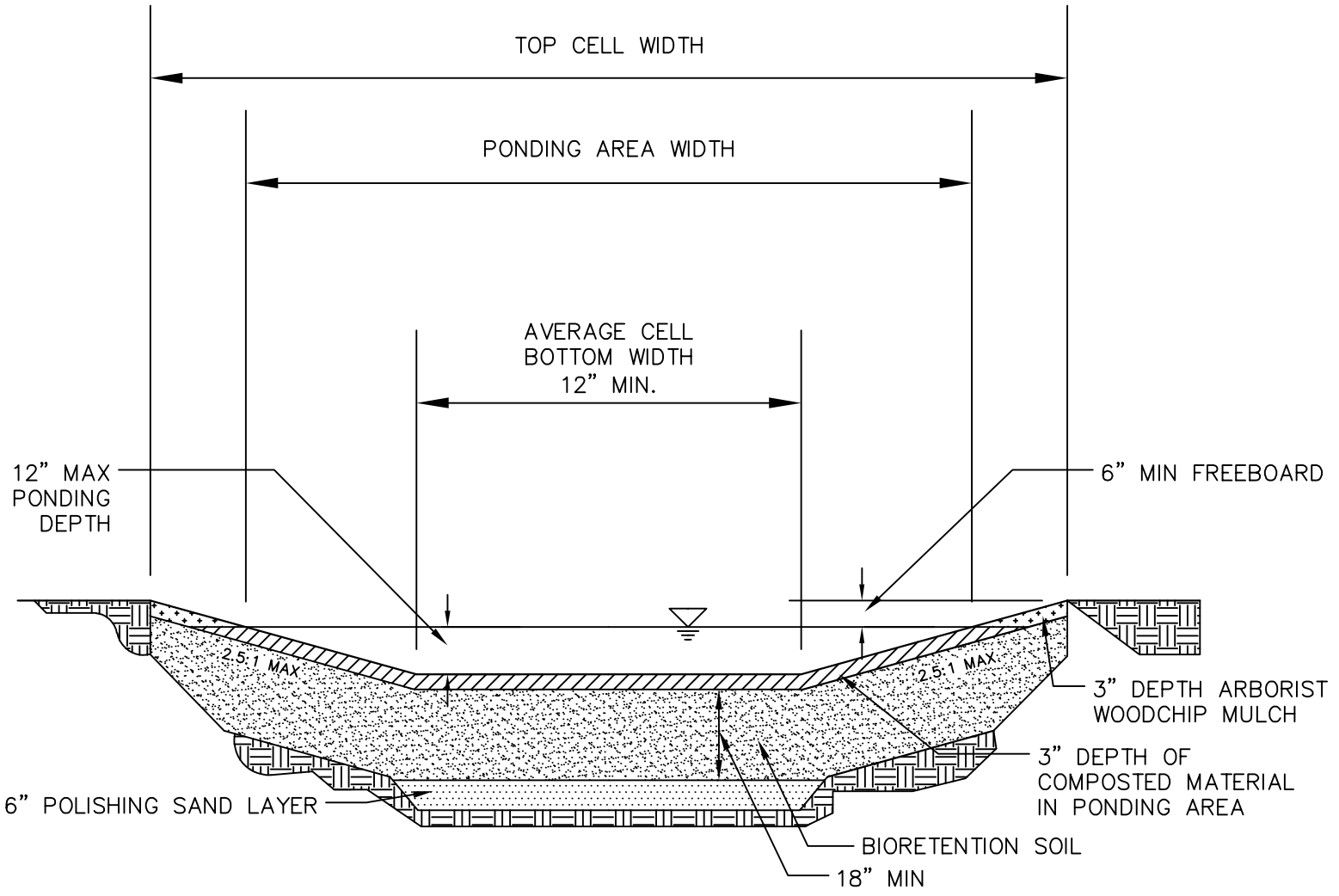
N

STORMWATER PROJECT
US6 Filer & Quincy - Park with Bioretention Facility
Rock Creek Watershed Master Plan
Twin Falls, Idaho

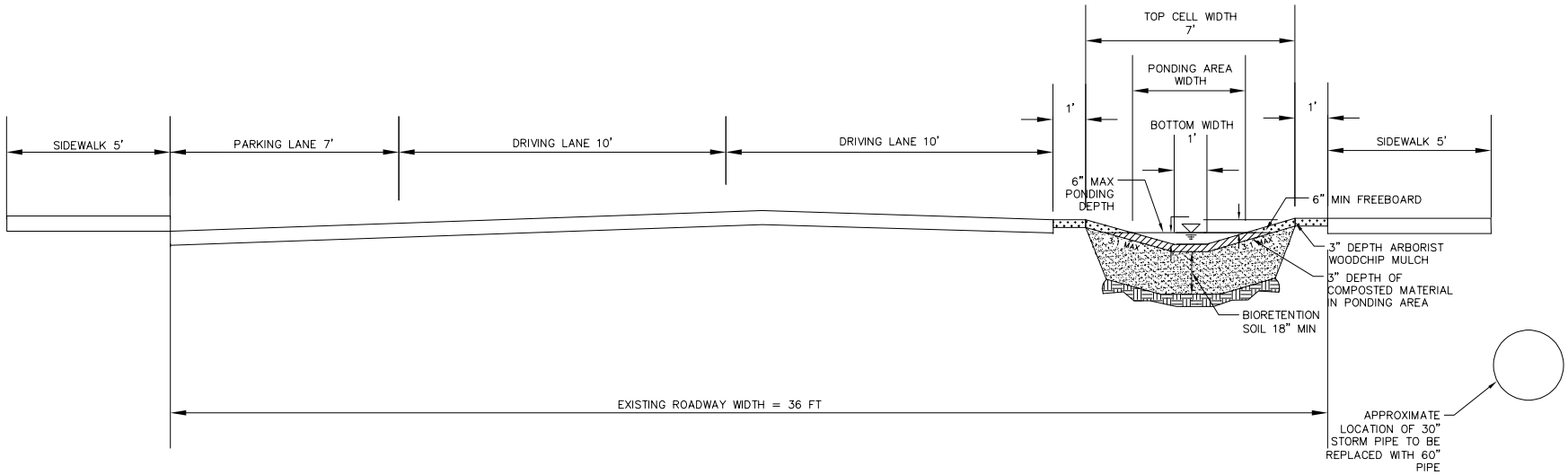
Jacobs



TYPICAL SECTION FOR PROJECT 1



TYPICAL SECTION FOR PROJECT 2, 4, 5 & 6



TYPICAL SECTION FOR PROJECT 5
MONROE ST (LOOKING NORTH)

NOTE: THIS PROPOSED STREET SECTION REMOVES PARKING ON ONE SIDE OF THE STREET. COMMUNITY OUTREACH AND A PARKING STUDY ARE REQUIRED TO CONFIRM FEASIBILITY OF PARKING REDUCTION.

Project Notes:
Project is focused on treating spring runoff.
Watershed size: 4,477 ac

Project Footprint Requirements:
9.3 ac sediment pond
9.3 ac surface wetland
3.1 ac wetland polishing cell

Note: Concept only. Final location to be determined at a future date.

9.3 ac surface wetland

3.1 ac wetland polishing cell

9.3 ac sediment pond

ROCK CREEK

N 3800 E

HIGH LINE CANAL

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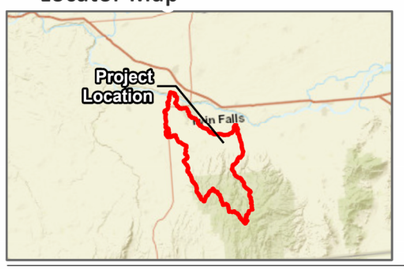
Locator Map



Legend

- Twin Falls County Parcels
- Agricultural Project Location
- 2018 USGS Contours (5 ft)

AGRICULTURAL PROJECT PROPOSAL
Project 1 - Near Rock Creek & High Line Canal
Rock Creek Watershed Master Plan
Twin Falls, Idaho

0 240 480 960 US Feet

N

Jacobs

Project Notes:
Project is focused on spring runoff.
Watershed size: 746 ac

Project Footprint Requirements:
1.6 ac sediment pond
1.6 ac surface wetland
0.5 ac wetland polishing cell

LOW LINE CANAL

ROCK CREEK

E 3275 N

0.5 ac wetland polishing cell

1.6 ac surface wetland

1.6 ac sediment pond

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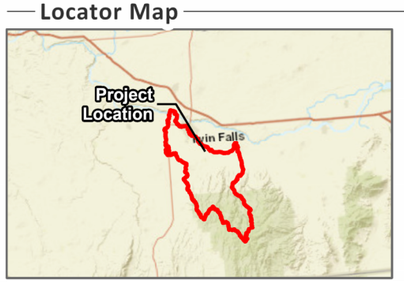
Locator Map



Legend

- Twin Falls County Parcels
- Agricultural Project Location
- 2018 USGS Contours (5 ft)

AGRICULTURAL PROJECT PROPOSAL
Project 2 - Near Rock Creek & Low Line Canal
Rock Creek Watershed Master Plan
Twin Falls, Idaho

0 150 300 600 US Feet

N

Jacobs

Project Notes:
Project is focused on treating irrigation return flow.
Irrigation Flow: 4 cfs

Project Footprint Requirements:
0.65 ac sediment pond
0.65 ac surface wetland
0.4 ac wetland polishing cell

0.4 ac wetland polishing cell

0.65 ac sediment pond

0.65 ac surface wetland

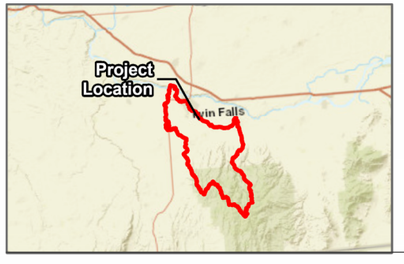
ROCK CREEK

N 3200 E

E 3500 N

Document Path: C:\Users\Kionz\Documents\ArcGIS\Projects\Rock Creek_Ag\Rock Creek Ag.aprx

Locator Map



Legend

- Twin Falls County Parcels
- Agricultural Project Location
- 2018 USGS Contours (5 ft)

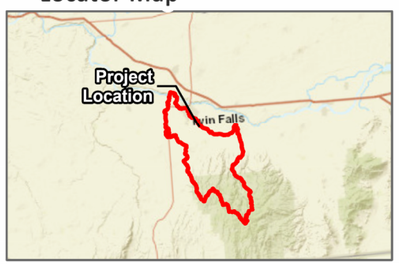
AGRICULTURAL PROJECT PROPOSAL
Project 3 - Near Rock Creek & E 3500 N
Rock Creek Watershed Master Plan
Twin Falls, Idaho

0 62.5 125 250 US Feet

Jacobs



Locator Map



Legend

Twin Falls County Parcels

Agricultural Project Location

2018 USGS Contours (5 ft)

AGRICULTURAL PROJECT PROPOSAL
Project 4 - Near E 3600 N & N 3100 E
Rock Creek Watershed Master Plan
Twin Falls, Idaho

0 150 300 600 US Feet

N

Jacobs

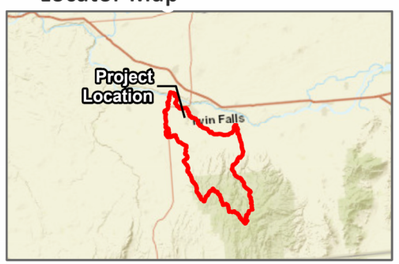
Project Notes:
Project is focused on treating irrigation return flow.
Irrigation Return Flow: 3 cfs

Project Footprint Requirements:
0.5 ac sediment pond
0.5 ac surface wetland
0.3 ac wetland polishing cell



Document Path: C:\Users\KronzS\Documents\ArcGIS\Projects\Rock Creek_Ag\Rock Creek Ag.aprx

Locator Map



Legend

- Twin Falls County Parcels
- Agricultural Project Location
- 2018 USGS Contours (5 ft)

AGRICULTURAL PROJECT PROPOSAL
Project 5 - Near Railroad & S Park Ave W
Rock Creek Watershed Master Plan
Twin Falls, Idaho

0 62.5 125 250 US Feet

N

Jacobs

Project Notes:
This project is focused on treating irrigation return flow.
Irrigation Return Flow: 3 cfs

Project Footprint Requirements:
0.5 ac sediment pond
0.5 ac surface wetland
0.3 ac wetland polishing cell

3755
3760
3765
3760
RAILROAD
3765
3770
3765
N 2800 E
3775
0.5 ac surface wetland
0.5 ac sediment pond
0.3 ac wetland polishing cell
3780
3785
3790
3790
3800
3800
3795
3805
3800

Document Path: C:\Users\Kronz5\Documents\ArcGIS\Projects\Rock Creek_Ag\Rock Creek Ag.aprx

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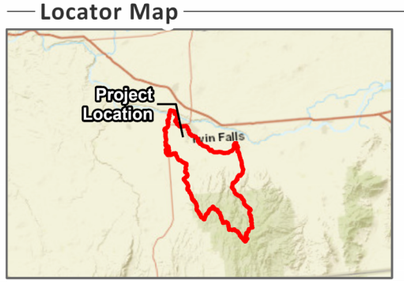


Legend

- Twin Falls County Parcels
- Agricultural Project Location
- 2018 USGS Contours (5 ft)

AGRICULTURAL PROJECT PROPOSAL
Project 6 - Near Railroad & S Park Ave W
Rock Creek Watershed Master Plan
Twin Falls, Idaho

0 95 190 380 US Feet

N

Jacobs

Project Notes:
Project is focused on treating irrigation return flow.
Irrigation Return Flow: 5 cfs

Project Footprint Requirements:
0.8 ac sediment pond
0.8 ac surface wetland
0.5 ac wetland polishing cell

DEADMAN GULCH

0.5 ac wetland polishing cell

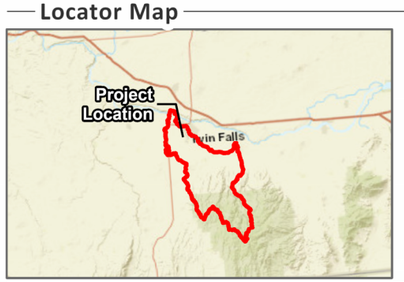
0.8 ac surface wetland

0.8 ac sediment pond

3765 3770 3775 3780 3785 3790 3795 3800 3805

Document Path: C:\Users\KronzS\Documents\ArcGIS\Projects\Rock Creek_Ag\Rock Creek Ag.aprx

Locator Map



Legend

- Twin Falls County Parcels
- Agricultural Project Location
- 2018 USGS Contours (5 ft)

AGRICULTURAL PROJECT PROPOSAL
Project 7 - Deadman Gulch Tributary Upstream of S Park Ave W
Rock Creek Watershed Master Plan
Twin Falls, Idaho

0 110 220 440 US Feet

N

Jacobs

Project Notes:
Focused on treating spring runoff.
Watershed Size: 2,375 ac

Project Footprint Requirements:
4.9 ac sediment pond
4.9 ac surface wetland
1.6 ac wetland polishing cell

S PARK AVE W

N 2700 E

DEADMAN GULCH

4.9 ac surface wetland

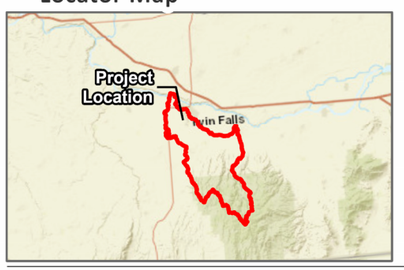
4.9 ac sediment pond

1.6 ac wetland polishing cell

3740 3745 3750 3755 3760 3765 3770 3775 3780 3785 3790 3795 3800 3805 3810 3815

Document Path: C:\Users\Kronz5\Documents\ArcGIS\Projects\Rock Creek_Ag\Rock Creek Ag.aprx

Locator Map



Legend

- Twin Falls County Parcels
- Agricultural Project Location
- 2018 USGS Contours (5 ft)

AGRICULTURAL PROJECT PROPOSAL
Project 8 - Deadman Gulch Upstream of S Park Ave W
Rock Creek Watershed Master Plan
Twin Falls, Idaho

0 240 480 960 US Feet

N

Jacobs

Project Notes:
Project focused on treating irrigation return flow and stormwater runoff.
Irrigation Return Flow: 5 cfs

Project Footprint Requirements
0.8 ac sediment pond
0.8 ac surface wetland
0.5 ac wetland polishing cell

STONE RIDGE DR

ROCK CREEK

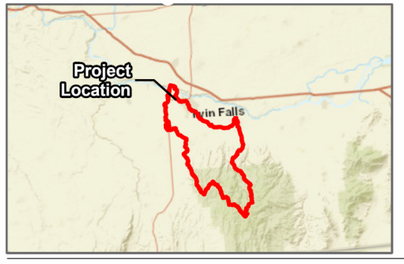
0.5 ac wetland polishing cell

0.8 ac surface wetland

0.8 ac sediment pond

Document Path: C:\Users\Kcross\Documents\ArcGIS\Projects\Rock Creek_Ag\Rock Creek Ag.aprx

Locator Map



Legend

- Twin Falls County Parcels
- Agricultural Project Location
- 2018 USGS Contours (5 ft)

AGRICULTURAL PROJECT PROPOSAL
Project 9 - Between Rock Creek & Sunway Dr
Rock Creek Watershed Master Plan
Twin Falls, Idaho

0 95 190 380 US Feet

N

Jacobs

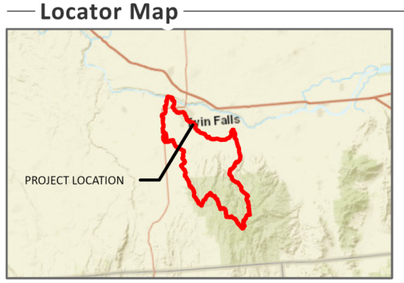
Project Notes:
Land Ownership: Private (individual) and Private (entity)
Location: Rock Creek, Geomorphic Reach G
Limitations: Geology, and property boundary.
Concept for planning and preliminary cost estimates.
Channel alignment, slope, dimensions, construction material, and access to be developed during future design phases.

Floodplain Reconnection
Approx. 2.2 acres

Bank Stabilization
Alternating left and right banks (outside meander)
Approx. 1100 LF

Channel Remeandering
Approx. 980 LF

Locator Map



Legend

Existing Features

- Rock Creek
- 2018 USGS Contours (5 ft)

Proposed Features

- Channel Remeandering
- Bank Stabilization
- Floodplain Reconnection
- Access Road
- 2018 USGS Contours (5 ft)

Vantor, Esri, HERE, Garmin, NGA, USGS, NPS

0 50 100 200 US Feet

N

RIVER CORRIDOR PROJECT PROPOSAL
Project 1 - Upstream of Amalgamated Sugar
Rock Creek Watershed Master Plan
Twin Falls, Idaho

Jacobs

Project Notes:
Land Ownership: City of Twin Falls
Location: Rock Creek, Geomorphic Reach I
Limitations: Geology, former fish hatchery.
Concept for planning and preliminary cost estimates.
Channel alignment, slope, dimensions, construction material, and access to be developed during future design phases.

Bank Stabilization
Right Bank
Approx. 310 LF

Floodplain Reconnection
Approx. to 2.2 acres

Consider additional water quality improvement feature (e.g., constructed wetland and/or public amenities)

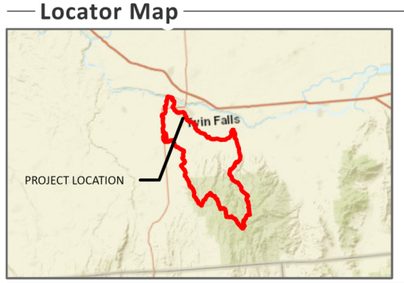
Bank Stabilization
Left Bank
Approx. 300 LF

Floodplain Reconnection
Approx. to 2.4 acres

E 2400 N

CANYON ST

Locator Map



Legend

Existing Features
- Rock Creek
- 2018 USGS Contours (5 ft)

Proposed Features
- Other Features
- Channel Remeandering
- Bank Stabilization
- Floodplain Reconnection
- Access Road
- 2018 USGS Contours (5 ft)

Microsoft, Vantor, Esri, HERE, Garmin, NGA, USGS, NPS

0 100 200 400 US Feet

RIVER CORRIDOR PROJECT PROPOSAL
Project 2 - Old Fish Hatchery
Rock Creek Watershed Master Plan
Twin Falls, Idaho

Jacobs

Project Notes:
Land Ownership: City of Twin Falls
Location: Rock Creek, Geomorphic Reach I
Limitations: Geology, existing trails, Rose St. Bridge crossing. Concept for planning and preliminary cost estimates. Channel alignment, slope, dimensions, construction material, and access to be developed during future design phases.

Bank Stabilization
Right Bank
Approx. 350 LF

Bank Stabilization
Left Bank
Approx. to 800 LF

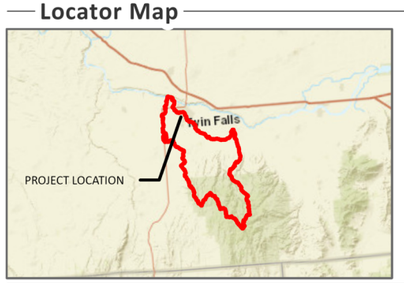
Floodplain Reconnection
Approx. to 1.5 acres

Floodplain Reconnection
Approx. to 0.5 acres

ROSE ST

WASHINGTON ST

Locator Map



Legend

Existing Features
- Rock Creek
- 2018 USGS Contours (5 ft)

Proposed Features
- Channel Remeandering
- Bank Stabilization
- Floodplain Reconnection
- Access Road
- 2018 USGS Contours (5 ft)

Microsoft, Vantor, Esri, HERE, Garmin, NGA, USGS, NPS

0 100 200 400 US Feet

N

RIVER CORRIDOR PROJECT PROPOSAL
Project 3 - Victory Ave
Rock Creek Watershed Master Plan
Twin Falls, Idaho

Jacobs

Project Notes:
Land Ownership: Amalgamated Sugar Company
Location: Rock Creek, Geomorphic Reach H
Limitations: Geology, private land issues.
Concept for planning and preliminary cost estimates.
Channel alignment, slope, dimensions, construction material, and access to be developed during future design phases.

Floodplain Reconnection
Approx. to 6.3 acres

Bank Stabilization
Alternating left and right banks
Approx. 1800 LF

Channel Remeandering
Approx. 1310 LF

N 3100 E

Locator Map



Legend

Existing Features

- Rock Creek
- 2018 USGS Contours (5 ft)

Proposed Features

- Channel Remeandering
- Bank Stabilization
- Floodplain Reconnection
- Access Road
- 2018 USGS Contours (5 ft)

Vantor, Esri, HERE, Garmin, NGA, USGS, NPS

0 100 200 400 US Feet

RIVER CORRIDOR PROJECT PROPOSAL
Project 4 - Amalgamated Sugar
Rock Creek Watershed Master Plan
Twin Falls, Idaho

Jacobs

Project Notes:
Land Ownership: Billington, LLC
Location: Rock Creek, Geomorphic Reach I
Limitations: Geology, private land uses.
Concept for planning and preliminary cost estimates. Channel alignment, slope, dimensions, construction material, and access to be developed during future design phases.

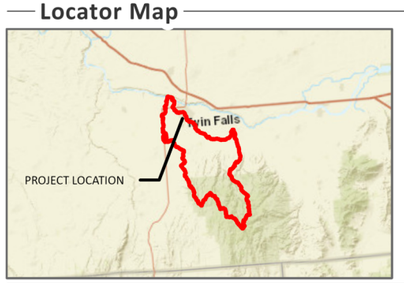
COMMERCIAL AVE

HARRISON ST

Bank Stabilization
Left Bank
Approx. 225 LF

Floodplain Reconnection
Approx. to 2.8 acres

Locator Map



Legend

Existing Features
- Rock Creek
- 2018 USGS Contours (5 ft)

Proposed Features
- Channel Remeandering
- Bank Stabilization
- Floodplain Reconnection
- Access Road
- 2018 USGS Contours (5 ft)

Microsoft, Vantor, Esri, HERE, Garmin, NGA, USGS, NPS

0 75 150 300 US Feet

N

RIVER CORRIDOR PROJECT PROPOSAL
Project 5 - Livestock Yard
Rock Creek Watershed Master Plan
Twin Falls, Idaho

Jacobs

Rock Creek Water Quality Projects Summary

Class 5 Cost Estimate

Project Number	Category		
US-1	Urban Stormwater	$	**2,900,000.00**
US-2	Urban Stormwater	$	**1,400,000.00**
US-3	Urban Stormwater	$	**2,090,000.00**
US-4	Urban Stormwater	$	**670,000.00**
US-5	Urban Stormwater	$	**9,700,000.00**
US-5 Alt	Urban Stormwater	$	**1,000,000.00**
US-6	Urban Stormwater	$	**630,000.00**
Ag-1	Agricultural	$	**20,230,000.00**
Ag-2	Agricultural	$	**3,870,000.00**
Ag-3	Agricultural	$	**2,420,000.00**
Ag-4	Agricultural	$	**7,620,000.00**
Ag-5	Agricultural	$	**2,230,000.00**
Ag-6	Agricultural	$	**2,110,000.00**
Ag-7	Agricultural	$	**2,940,000.00**
Ag-8	Agricultural	$	**9,280,000.00**
Ag-9	Agricultural	$	**2,940,000.00**
RC-1	River Corridor	$	**3,520,000.00**
RC-2	River Corridor	$	**2,590,000.00**
RC-3	River Corridor	$	**2,380,000.00**
RC-4	River Corridor	$	**5,860,000.00**
RC-5	River Corridor	$	**1,860,000.00**

Urban Stormwater Project 1
Near Livestock Yard
Bioretention see Figure 1-1 and Figure 2-1

ITEM	QTY	UNIT	UNIT RATE	ITEM COST			NOTES
6-IN PERFORATED HDPE UNDERDRAIN PIPE	300	LF	$ 30.00	$ 9,000.00	No TBC		Length of bioretention
18-IN RCP STORM DRAIN PIPES	310	LF	$ 270.00	$ 83,700.00			
60-IN RCP PRE-SETTLING PIPES	65	LF	$ 1,000.00	$ 65,000.00			
48-IN MANHOLES	2	EACH	$ 12,200.00	$ 24,400.00			
84-IN MANHOLES	2	EACH	$ 23,600.00	$ 47,200.00			
48-IN MANHOLE W/ FLOW SPLITTER	1	EACH	$ 13,700.00	$ 13,700.00			
OVERFLOW STRUCTURE W/ BEEHIVE GRATE	1	EACH	$ 13,700.00	$ 13,700.00			
EXISTING PIPE CONNECTIONS	1	LUMP SUM	$ 5,000.00	$ 5,000.00			
							5 ft + 1.5 ft over average of bioretention (~21k sf) area and edge of grading (~35k sf) = ~28k sf, plus 3.75 ft over bioretention (21k),
EXCAVATION AND HAUL OFF	11,100	CU YARD	$ 36.00	$ 399,600.00			plus additional 2 ft over flat bioretention (19.3k)
PROVIDE AND PLACE IMPERMEABLE LINER	35,000	SQ FT	$ 6.50	$ 227,500.00			footprint of grading
IMPORT AND PLACE CLEAR STONE GRAVEL	1,100	CU YARD	$ 80.00	$ 88,000.00			18 inches over 19.3k sf flat bioretention
IMPORT AND PLACE POLISHING SAND	400	CU YARD	$ 65.00	$ 26,000.00			6 inches over 19.3k sf flat bioretention
							18 inches over average bioretention (~21k) and edge grading
IMPORT AND PLACE BIORETENTION SOIL	1,600	CU YARD	$ 175.00	$ 280,000.00			(~35k) =~28k
IMPORT AND PLACE COMPOST MATERIAL	190	CU YARD	$ 80.00	$ 15,200.00			3 inches over bioretention 21k
IMPORT AND PLACE WOODCHIP MULCH	130	CU YARD	$ 80.00	$ 10,400.00			3 inches over 35k minus 21k (~14k)
PAVEMENT RESTORATION	800	SQ FT	$ 14.00	$ 11,200.00			Replace HMA asphalt (6 in depth) and base
General Construction Allowances							
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 66,000.00	$ 66,000.00		5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00		2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 14,000.00	$ 14,000.00		1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 27,000.00	$ 27,000.00		2.0%	Min 10k
UTILITY CONFLICT ALLOWANCE	1	LUMP SUM	$ 66,000.00	$ 66,000.00		5.0%	Min 30k
DIRECT CONSTRUCTION COSTS TOTAL				**$ 1,550,000.00**	Rounded Up to Nearest $10,000		
							50% of construction costs, includes allowances for bonding and
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 775,000.00			contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 2,330,000.00**	Rounded Up to Nearest $10,000		
ENGINEERING AND PERMITTING ALLOWANCE				$ 465,000.00			30% of construction costs
PROPERTY ACQUISITION	1.038	ACRE	$ 100,000.00	$ 103,800.00			Parcel size in Twin Falls, ID
PROJECT COST ESTIMATE				**$ 2,900,000.00**	Rounded Up to Nearest $10,000		
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,450,000.00		$ 5,800,000.00		Class 5 estimating accuracy

Urban Stormwater Project 2
Along Rock Creek Stepped Bioretention
Stepped Bioretention see Figure 1-2 and Figure 2-2

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
24-IN RCP STORM DRAIN PIPES	90	LF	$ 340.00	$ 30,600.00		
60-IN RCP PRE-SETTLING PIPES	70	LF	$ 1,000.00	$ 70,000.00		
48-IN MANHOLES	1	EACH	$ 12,200.00	$ 12,200.00		
84-IN MANHOLES	2	EACH	$ 23,600.00	$ 47,200.00		
BIORETENTION WEIRS	3	EACH	$ -	$ -		
EXISTING PIPE CONNECTIONS	1	LUMP SUM	$ 5,000.00	$ 5,000.00		
EXCAVATION AND HAUL OFF	5,000	CU YARD	$ 36.00	$ 180,000.00		0.5 ft + 1.5 ft to get down to finished grade over average of bioretention (~20.5 sf) area and edge of grading (~21.3 sf) = ~20.9 sf, Plus 2.75 ft over bioretention (20.5k sf), Plus additional 0.5 ft over flat bioretention (18.9k)
IMPORT AND PLACE POLISHING SAND	400	CU YARD	$ 65.00	$ 26,000.00		6 inches over 18.9k sf flat bioretention
IMPORT AND PLACE BIORETENTION SOIL	1,200	CU YARD	$ 175.00	$ 210,000.00		18 inches over average grading (~21.3k) and bioretention (20.5k) =~20.9k
IMPORT AND PLACE COMPOST MATERIAL	190	CU YARD	$ 80.00	$ 15,200.00		3 inches over bioretention (20.5k)
IMPORT AND PLACE WOODCHIP MULCH	10	CU YARD	$ 80.00	$ 800.00		3 inches over grading 21.3k minus bioretention 20.5k (~0.8k)
PAVEMENT RESTORATION	1,050	SQ FT	$ 14.00	$ 14,700.00		Pavement restoration along pretreatment pipe. Replace HMA asphalt (6 in depth) and base
General Construction Allowances						
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 50,000.00	$ 50,000.00	5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 10,000.00	$ 10,000.00	1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 13,000.00	$ 13,000.00	2.0%	Min 10k
UTILITY CONFLICT ALLOWANCE	1	LUMP SUM	$ 31,000.00	$ 31,000.00	5.0%	Min 30k
DIRECT CONSTRUCTION COSTS TOTAL				**$ 770,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 385,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 1,160,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 231,000.00		30% of construction costs
PROPERTY ACQUISITION	0	ACRE	$ 100,000.00	$ -		Owned by City of Twin Falls. No acquisition required.
PROJECT COST ESTIMATE				**$ 1,400,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 700,000.00		$ 2,800,000.00	Class 5 estimating accuracy

Urban Stormwater Project 3
Fairfield St W & 7th Ave
Filterra System see Figure 1-3

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
48-IN RCP PRE-SETTLING PIPES	30	LF	$ 750.00	$ 22,500.00		
84-IN MANHOLES	2	EACH	$ 23,600.00	$ 47,200.00		
FILTERRA SYSTEM (5 BIOSCAPE PEAK DIVERSION VAULTS IN SERIES)	1	LUMP SUM	$ 700,000.00	$ 700,000.00		Material and delivery only
INSTALLATION OF FILTERRA SYSTEM	1	LUMP SUM	$ 145,000.00	$ 145,000.00		
EXISTING PIPE CONNECTIONS	1	LUMP SUM	$ 5,000.00	$ 5,000.00		
EXCAVATION AND HAUL OFF	230	CU YARD	$ 36.00	$ 8,280.00		5 units, each unit 5 ft depth x 8 ft width (plus 2 ft for spacing ~10ft), 24 ft long
PAVEMENT RESTORATION	3,500	SQ FT	$ 14.00	$ 49,000.00		Replace HMA asphalt (6 in depth) and base
General Construction Allowances						
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 50,000.00	$ 50,000.00	5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 10,000.00	$ 10,000.00	1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 20,000.00	$ 20,000.00	2.0%	Min 10k
UTILITY CONFLICT ALLOWANCE	1	LUMP SUM	$ 49,000.00	$ 49,000.00	5.0%	Min 30k
DIRECT CONSTRUCTION COSTS TOTAL				**$ 1,160,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 580,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 1,740,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 348,000.00		30% of construction costs
PROPERTY ACQUISITION	0	ACRE	$ 100,000.00	$ -		Under roadway. No acquisition required.
PROJECT COST ESTIMATE				**$ 2,090,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,050,000.00		$ 4,180,000.00	Class 5 estimating accuracy

Urban Stormwater Project 4
Addison & 6th Ave
Bioretention see Figure 1-4 and Figure 2-2

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
12-IN RCP STORM DRAIN PIPES	30	LF	$ 225.00	$ 6,750.00		
48-IN RCP PRE-SETTLING PIPES	20	LF	$ 750.00	$ 15,000.00		
48-IN MANHOLES	1	EACH	$ 12,200.00	$ 12,200.00		
84-IN MANHOLES	2	EACH	$ 23,600.00	$ 47,200.00		
48-IN MANHOLE W/ FLOW SPLITTER	1	EACH	$ 13,700.00	$ 13,700.00		
OVERFLOW STRUCTURE W/ BEEHIVE GRATE	1	EACH	$ 13,700.00	$ 13,700.00		
EXISTING PIPE CONNECTIONS	1	LUMP SUM	$ 5,000.00	$ 5,000.00		
EXCAVATION AND HAUL OFF	900	CU YARD	$ 36.00	$ 32,400.00		0.5 ft + 1.5 ft to get down to finished grade over average of bioretention (~4.4k sf) area and edge of grading (~4.8k sf) = ~4.6 sf, Plus 2.75 ft over bioretention (4.4K sf), Plus additional 0.5 ft over flat bioretention (3.7k)
IMPORT AND PLACE POLISHING SAND	70	CU YARD	$ 65.00	$ 4,550.00		6 inches over 3.7k sf flat bioretention
IMPORT AND PLACE BIORETENTION SOIL	260	CU YARD	$ 175.00	$ 45,500.00		18 inches over average grading (~4.8k) and bioretention (4.4k) =~4.6k
IMPORT AND PLACE COMPOST MATERIAL	50	CU YARD	$ 80.00	$ 4,000.00		3 inches over bioretention (4.4k)
IMPORT AND PLACE WOODCHIP MULCH	10	CU YARD	$ 80.00	$ 800.00		3 inches over grading 4.8k minus bioretention 4.4k (~0.4k)
General Construction Allowances						
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 50,000.00	$ 50,000.00	5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 10,000.00	$ 10,000.00	1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 10,000.00	$ 10,000.00	2.0%	Min 10k
UTILITY CONFLICT ALLOWANCE	1	LUMP SUM	$ 30,000.00	$ 30,000.00	5.0%	Min 30k
DIRECT CONSTRUCTION COSTS TOTAL				**$ 360,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 180,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 540,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 108,000.00		30% of construction costs
PROPERTY ACQUISITION	0.145	ACRE	$ 100,000.00	$ 14,500.00		Parcel size in Twin Falls, ID
PROJECT COST ESTIMATE				**$ 670,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 340,000.00		$ 1,340,000.00	Class 5 estimating accuracy

Urban Stormwater Project 5
Addison & Monroe
Biroetention & Pipe Upsize see Figure 1-5a, Figure 1-5b and Figure 2-2

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
12-IN RCP STORM DRAIN PIPES	70	LF	$ 225.00	$ 15,750.00		
18-IN RCP STORM DRAIN PIPES	20	LF	$ 270.00	$ 5,400.00		
60-IN RCP STORM DRAIN PIPES	3,000	LF	$ 1,000.00	$ 3,000,000.00		Replace storm drain pipe on Monroe Ave from Addision Ave to Filer Ave
REMOVAL AND DISPOSAL OF EXISTING STORM TRUNK LINE	3,000	LF	$ 100.00	$ 300,000.00		
48-IN MANHOLES	1	EACH	$ 12,200.00	$ 12,200.00		
84-IN MANHOLES	7	EACH	$ 23,600.00	$ 165,200.00		2 for bioretention tie-ins. 5 for trunk line.
OVERFLOW STRUCTURE W/ BEEHIVE GRATE	1	EACH	$ 13,700.00	$ 13,700.00		
CONSTRUCT STORMWATER SWALES	17,500	SQ FT	$ 10.00	$ 175,000.00		7-wide stormwater swales along both side of Monroe Ave from Addision Ave to Filer Ave (length = 2,500 ft)
EXISTING PIPE CONNECTIONS	1	LUMP SUM	$ 5,000.00	$ 5,000.00		
EXCAVATION AND HAUL OFF	2,900	CU YARD	$ 36.00	$ 104,400.00		bioretention (~13.3k sf) area and edge of grading (~13.9k sf) =
IMPORT AND PLACE POLISHING SAND	230	CU YARD	$ 65.00	$ 14,950.00		6 inches over 12.2k sf flat bioretention
IMPORT AND PLACE BIORETENTION SOIL	760	CU YARD	$ 175.00	$ 133,000.00		18 inches over average grading (~13.9k) and bioretention (13.3k) =~13.6k
IMPORT AND PLACE COMPOST MATERIAL	130	CU YARD	$ 80.00	$ 10,400.00		3 inches over bioretention (13.3k)
IMPORT AND PLACE WOODCHIP MULCH	10	CU YARD	$ 80.00	$ 800.00		3 inches over grading 13.9k minus bioretention 13.3k (~0.7k)
PAVEMENT RESTORATION	44,200	SQ FT	$ 14.00	$ 618,800.00		Pipeline replacement + manhole/overflow restoration
General Construction Allowances						
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 229,000.00	$ 229,000.00	5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 92,000.00	$ 92,000.00	2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 46,000.00	$ 46,000.00	1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 92,000.00	$ 92,000.00	2.0%	Min 10k
UTILITY CONFLICT ALLOWANCE	1	LUMP SUM	$ 229,000.00	$ 229,000.00	5.0%	Min 30k
DIRECT CONSTRUCTION COSTS TOTAL				**$ 5,270,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)	1	LUMP SUM	$ 132,000.00	$ 132,000.00	2.5%	Min 25k
CONSTRUCTION CONTINGENCY				$ 2,701,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 8,110,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 1,581,000.00		30% of construction costs
PROPERTY ACQUISITION	0	ACRE	$ 100,000.00	$ -		Owned by City of Twin Falls. No acquisition required.
PROJECT COST ESTIMATE				**$ 9,700,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 4,850,000.00		$ 19,400,000.00	Class 5 estimating accuracy

Urban Stormwater Project 5
Addison & Monroe
Biroetention see Figure 1-5a, Figure 1-5b and Figure 2-2

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
12-IN RCP STORM DRAIN PIPES	70	LF	$ 225.00	$ 15,750.00		
18-IN RCP STORM DRAIN PIPES	20	LF	$ 270.00	$ 5,400.00		
						Replace storm drain pipe on Monroe Ave from Addision Ave to Filer
60-IN RCP STORM DRAIN PIPES	0	LF	$ 1,000.00	$ -		Ave
REMOVAL AND DISPOSAL OF EXISTING STORM TRUNK LINE	0	LF	$ 100.00	$ -		
48-IN MANHOLES	1	EACH	$ 12,200.00	$ 12,200.00		
84-IN MANHOLES	2	EACH	$ 23,600.00	$ 47,200.00		2 for bioretention tie-ins.
OVERFLOW STRUCTURE W/ BEEHIVE GRATE	1	EACH	$ 13,700.00	$ 13,700.00		
						7-wide stormwater swales along both side of Monroe Ave from
CONSTRUCT STORMWATER SWALES	0	SQ FT	$ 10.00	$ -		Addision Ave to Filer Ave (length = 2,500 ft)
EXISTING PIPE CONNECTIONS	1	LUMP SUM	$ 5,000.00	$ 5,000.00		
						bioretention (~13.3k sf) area and edge of grading (~13.9k sf) =
EXCAVATION AND HAUL OFF	2,900	CU YARD	$ 36.00	$ 104,400.00		~13.6 sf, Plus 2.75 ft over bioretention (13.3K sf), Plus additional
IMPORT AND PLACE POLISHING SAND	230	CU YARD	$ 65.00	$ 14,950.00		6 inches over 12.2k sf flat bioretention
						18 inches over average grading (~13.9k) and bioretention (13.3k)
IMPORT AND PLACE BIORETENTION SOIL	760	CU YARD	$ 175.00	$ 133,000.00		=~13.6k
IMPORT AND PLACE COMPOST MATERIAL	130	CU YARD	$ 80.00	$ 10,400.00		3 inches over bioretention (13.3k)
IMPORT AND PLACE WOODCHIP MULCH	10	CU YARD	$ 80.00	$ 800.00		3 inches over grading 13.9k minus bioretention 13.3k (~0.7k)
PAVEMENT RESTORATION	600	SQ FT	$ 14.00	$ 8,400.00		Pipeline replacement + manhole/overflow restoration
General Construction Allowances						
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 50,000.00	$ 50,000.00	5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 10,000.00	$ 10,000.00	1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 10,000.00	$ 10,000.00	2.0%	Min 10k
UTILITY CONFLICT ALLOWANCE	1	LUMP SUM	$ 30,000.00	$ 30,000.00	5.0%	Min 30k
DIRECT CONSTRUCTION COSTS TOTAL				**$ 530,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)	1	LUMP SUM	$ 25,000.00	$ 25,000.00	2.5%	Min 25k
						50% of construction costs, includes allowances for bonding and
CONSTRUCTION CONTINGENCY				$ 277,500.00		contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 840,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 159,000.00		30% of construction costs
PROPERTY ACQUISITION	0	ACRE	$ 100,000.00	$ -		Owned by City of Twin Falls. No acquisition required.
PROJECT COST ESTIMATE				**$ 1,000,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 500,000.00		$ 2,000,000.00	Class 5 estimating accuracy

Urban Stormwater Project 6
Filer & Quincy
Triangle Park with Biroetention see Figure 1-6 and Figure 2-2

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
8-IN PVC STORM DRAIN PIPES	50	LF	$ 100.00	$ 5,000.00		
12-IN RCP STORM DRAIN PIPES	50	LF	$ 225.00	$ 11,250.00		
48-IN RCP PRE-SETTLING PIPES	30	LF	$ 750.00	$ 22,500.00		
84-IN MANHOLES	2	EACH	$ 23,600.00	$ 47,200.00		
CATCH BASIN	2	EACH	$ 9,000.00	$ 18,000.00		Standard roadway gutter catch basin
EXISTING PIPE CONNECTIONS	1	LUMP SUM	$ 5,000.00	$ 5,000.00		
EXCAVATION AND HAUL OFF	220	CU YARD	$ 36.00	$ 7,920.00		0.5 ft + 1.5 ft to get down to finished grade over average of bioretention (~1.1sf) area and edge of grading (~1.3sf) = ~1.2 sf, Plus 2.75 ft over bioretention (1.1K sf), Plus additional 0.5 ft over flat bioretention (0.8k)
IMPORT AND PLACE POLISHING SAND	20	CU YARD	$ 65.00	$ 1,300.00		6 inches over 0.8k sf flat bioretention
IMPORT AND PLACE BIORETENTION SOIL	70	CU YARD	$ 175.00	$ 12,250.00		18 inches over average grading (~1.3k) and bioretention (1.1k) =~1.2k
IMPORT AND PLACE COMPOST MATERIAL	20	CU YARD	$ 80.00	$ 1,600.00		3 inches over bioretention (1.1k)
IMPORT AND PLACE WOODCHIP MULCH	2	CU YARD	$ 80.00	$ 160.00		3 inches over grading 1.3k minus bioretention 1.1k (~0.2k)
PARK LANDSCAPING & FURNITURE	5,000	SQ FT	$ 10.00	$ 50,000.00		See photo on right
PAVEMENT RESTORATION	250	SQ FT	$ 14.00	$ 3,500.00		Replace HMA asphalt (6 in depth) and base
General Construction Allowances						
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 50,000.00	$ 50,000.00	5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 10,000.00	$ 10,000.00	1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 10,000.00	$ 10,000.00	2.0%	Min 10k
UTILITY CONFLICT ALLOWANCE	1	LUMP SUM	$ 30,000.00	$ 30,000.00	5.0%	Min 30k
DIRECT CONSTRUCTION COSTS TOTAL				**$ 340,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 170,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 510,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 102,000.00		30% of construction costs
PROPERTY ACQUISITION	0.143	ACRE	$ 100,000.00	$ 14,300.00		Parcel size in Twin Falls, ID
PROJECT COST ESTIMATE				**$ 630,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 320,000.00		$ 1,260,000.00	Class 5 estimating accuracy

Riparian Project 1
Upstream of Amalgamated Sugar

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
						Cost estimate assumes that removal, remediation, and property acquisition for the existing pond would be completed as part of a separate project
Construction						
Bank Stabilization						
FABRIC ENCAPSULATED SOIL LIFTS (FESL)	1,100	LF	$ 200.00	$ 220,000.00		Total length of bank proposed to have FESL installed. Assumed to be only on outside of bends, one side of channel. Assumes 4 lifts.
UNCLASSIFIED EXCAVATION	2,700	CY	$ 20.00	$ 54,000.00		Excavation req. to install FESL and rock toe. Assumed average bank height of 8ft based on REM
CLASS 1 RIPRAP	1,500	TON	$ 100.00	$ 150,000.00		Rock Toe with dimension = 3' x 8' x LF of bank. Assumed SW = 165 lbs/ft3. Assumed void ratio = 0.65
Floodplain Restoration						
CLEARING AND GRUBBING	2.2	ACRE	$ 5,000.00	$ 11,000.00		
TOP SOIL STRIPPING, STOCKPILE, REPLACE, AND FINE GRADING	1,800	CY	$ 15.00	$ 27,000.00		Assumed top 6 inches
EXCAVATION AND HAUL	10,700	CY	$ 20.00	$ 214,000.00		Assumed average of 3 ft excavation of floodplain
NATIVE SEEDING AND MULCHING	2.2	ACRE	$ 50,000.00	$ 110,000.00		Includes seeding, live cutting, and container plants
LOG SALVAGE	1	LUMP SUM	$ 25,000.00	$ 25,000.00		
Channel Realignment						
EXCAVATION AND HAUL	9,600	CY	$ 20.00	$ 192,000.00		980 LF of new channel. Assumed existing channel volume per unit length, multipled by prop channel length, then doubled to account for floodplain bench
IMPORTED STREAMBED MATERIAL	3,200	TON	$ 100.00	$ 320,000.00		Assumed average channel width = 30 ft, streambed material = 24" deep, SW = 165 lbs/ft3, void ratio = 0.65
General Construction Allowances						
ACCESS DEVELOPMENT	1	LUMP SUM	$ 250,000.00	$ 250,000.00		Access road is 4154 ft long. Site cut clearing and gravel for 600ft ramp 45ft down into valley. One temp stream crossing. Road will remain post-construction
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 79,000.00	$ 79,000.00	5.0%	
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00		
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	10.0%	10% or max of $50,000
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 100,000.00	$ 100,000.00		Allowance - Assume excavation of meanders in the dry with channel isolation using supersacks and sand bags and pumping of groundwater only within area of excavation
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 32,000.00	$ 32,000.00	2.0%	
DIRECT CONSTRUCTION COSTS TOTAL				**$ 1,890,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 945,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 2,840,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 567,000.00		30% of construction costs
PROPERTY ACQUISITION	1.038	ACRE	$ 100,000.00	$ 103,800.00		Parcel size in Twin Falls, ID
PROJECT COST ESTIMATE				**$ 3,520,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,760,000.00		$ 7,040,000.00	Class 5 estimating accuracy

Riparian Project 2
Old Fish Hatchery

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
Construction						
Bank Stabilization						
FABRIC ENCAPSULATED SOIL LIFTS (FESL)	700	LF	$ 200.00	$ 140,000.00		Total length of bank proposed to have FESL installed. Assumes 4 lifts.
UNCLASSIFIED EXCAVATION	2,700	CY	$ 20.00	$ 54,000.00		Excavation req. to install FESL and rock toe. Assumed average bank height of 8ft based on REM
CLASS 1 RIPRAP	1,000	TON	$ 100.00	$ 100,000.00		Rock Toe with dimension = 3' x 8' x LF of bank. Assumed SW = 165 lbs/ft3. Assumed void ratio = 0.65
						Portions of the floodplain restoration could also include urban stormwater management or agricultural runoff treatment capabilities by re-routing the drainage along Marjorie street to the facility. Costs for this re-route are not itemized in the cost estimate, but a cost allowance for stormwater management features is included in the cost estimate
Floodplain Restoration						
CLEARING AND GRUBBING	4.6	ACRE	$ 5,000.00	$ 23,000.00		
TOP SOIL STRIPPING, STOCKPILE, REPLACE, AND FINE GRADING	3,800	CY	$ 15.00	$ 57,000.00		Assumed top 6 inches
EXCAVATION AND HAUL	22,300	CY	$ 20.00	$ 446,000.00		Assumed average of 3 ft excavation of floodplain
NATIVE SEEDING AND MULCHING	4.6	ACRE	$ 50,000.00	$ 230,000.00		Includes seeding, live cutting, and container plants
LOG SALVAGE	1	LUMP SUM	$ 25,000.00	$ 25,000.00		
General Construction Allowances						
ACCESS DEVELOPMENT	1	LUMP SUM	$ 20,000.00	$ 20,000.00		Access road is 576 ft long. Owned by the city, easily accessible and already established. Cost for misc access improvements
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 55,000.00	$ 55,000.00	5.0%	
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00		
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	10.0%	10% or max of $50,000
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 100,000.00	$ 100,000.00		Allowance - Assume excavation of meanders in the dry with channel isolation using supersacks and sand bags and pumping of groundwater only within area of excavation
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 22,000.00	$ 22,000.00	2.0%	
DIRECT CONSTRUCTION COSTS TOTAL				**$ 1,380,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 690,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 2,070,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 414,000.00		30% of construction costs
PROPERTY ACQUISITION	1.038	ACRE	$ 100,000.00	$ 103,800.00		Parcel size in Twin Falls, ID
PROJECT COST ESTIMATE				**$ 2,590,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,300,000.00		$ 5,180,000.00	Class 5 estimating accuracy

Riparian Project 3
Victory Ave

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
Construction						
Bank Stabilization						
FABRIC ENCAPSULATED SOIL LIFTS (FESL)	1,200	LF	$ 200.00	$ 240,000.00		Total length of bank proposed to have FESL installed. Assumes 4 lifts.
UNCLASSIFIED EXCAVATION	3,800	CY	$ 20.00	$ 76,000.00		Excavation req. to install FESL and rock toe. Assumed average bank height of 6ft based on REM
CLASS 1 RIPRAP	1,600	TON	$ 100.00	$ 160,000.00		Rock Toe with dimension = 3' x 8' x LF of bank. Assumed SW = 165 lbs/ft3. Assumed void ratio = 0.65
Floodplain Restoration						
CLEARING AND GRUBBING	2.0	ACRE	$ 5,000.00	$ 10,000.00		
TOP SOIL STRIPPING, STOCKPILE, REPLACE, AND FINE GRADING	1,700	CY	$ 15.00	$ 25,500.00		Assumed top 6 inches
EXCAVATION AND HAUL	9,700	CY	$ 20.00	$ 194,000.00		Assumed average of 3 ft excavation of floodplain
NATIVE SEEDING AND MULCHING	2.0	ACRE	$ 50,000.00	$ 100,000.00		Includes seeding, live cutting, and container plants
LOG SALVAGE	1	LUMP SUM	$ 25,000.00	$ 25,000.00		
General Construction Allowances						
ACCESS DEVELOPMENT	1	LUMP SUM	$ 150,000.00	$ 150,000.00		Access road is 1881 ft long. Two or three separate clear span bridges. Accessible via public walking paths. Clearance under the Rose St bridge may be a concern for heavy machinery
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 50,000.00	$ 50,000.00	5.0%	
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00		
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	10.0%	10% or max of $50,000
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 100,000.00	$ 100,000.00		Allowance - Assume excavation of meanders in the dry with channel isolation using supersacks and sand bags and pumping of groundwater only within area of excavation
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 20,000.00	$ 20,000.00	2.0%	
DIRECT CONSTRUCTION COSTS TOTAL				**$ 1,260,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 630,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 1,890,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 378,000.00		30% of construction costs
PROPERTY ACQUISITION	1.038	ACRE	$ 100,000.00	$ 103,800.00		Parcel size in Twin Falls, ID
PROJECT COST ESTIMATE				**$ 2,380,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,190,000.00		$ 4,760,000.00	Class 5 estimating accuracy

Riparian Project 4
Amalgamated Sugar

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
						Cost estimate assumes that removal, remediation, and property acquisition for the existing pond would be completed as part of a separate project
Construction						
Bank Stabilization						
FABRIC ENCAPSULATED SOIL LIFTS (FESL)	1,800	LF	$ 200.00	$ 360,000.00		Total length of bank proposed to have FESL installed. Assumed to be only on outside of bends, one side of channel. Assumes 4 lifts.
UNCLASSIFIED EXCAVATION	7,000	CY	$ 20.00	$ 140,000.00		Excavation req. to install FESL and rock toe. Assumed average bank height of 8ft based on REM
CLASS 1 RIPRAP	2,400	TON	$ 100.00	$ 240,000.00		Rock Toe with dimension = 3' x 8' x LF of bank. Assumed SW = 165 lbs/ft3. Assumed void ratio = 0.65
Floodplain Restoration						
CLEARING AND GRUBBING	6.3	ACRE	$ 5,000.00	$ 31,500.00		
TOP SOIL STRIPPING, STOCKPILE, REPLACE, AND FINE GRADING	5,100	CY	$ 15.00	$ 76,500.00		Assumed top 6 inches
EXCAVATION AND HAUL	30,500	CY	$ 20.00	$ 610,000.00		Assumed average of 3 ft excavation of floodplain
NATIVE SEEDING AND MULCHING	6.3	ACRE	$ 50,000.00	$ 315,000.00		Includes seeding, live cutting, and container plants
LOG SALVAGE	0	LUMP SUM	$ 25,000.00	$ -		No trees expected at this site
Channel Realignment						
EXCAVATION AND HAUL	30,500	CY	$ 20.00	$ 610,000.00		1310 LF of new channel. Assumed existing channel volume per unit length, multipled by prop channel length, then doubled
IMPORTED STREAMBED MATERIAL	3,600	TON	$ 100.00	$ 360,000.00		Assumed average channel width = 25 ft, streambed material = 24" deep, SW = 165 lbs/ft3, void ratio = 0.65
General Construction Allowances						
ACCESS DEVELOPMENT	1	LUMP SUM	$ 50,000.00	$ 50,000.00		Access road is 2195 ft long. Accessible only through Amalgamated Sugar's property. One temp crossing required over the creek
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 140,000.00	$ 140,000.00	5.0%	
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00		
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	10.0%	10% or max of $50,000
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 100,000.00	$ 100,000.00		Allowance - Assume excavation of meanders in the dry with channel isolation using supersacks and sand bags and pumping of groundwater only within area of excavation
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 56,000.00	$ 56,000.00	2.0%	
DIRECT CONSTRUCTION COSTS TOTAL				**$ 3,190,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 1,595,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 4,790,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 957,000.00		30% of construction costs
PROPERTY ACQUISITION	1.038	ACRE	$ 100,000.00	$ 103,800.00		Parcel size in Twin Falls, ID
PROJECT COST ESTIMATE				**$ 5,860,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 2,930,000.00		$ 11,720,000.00	Class 5 estimating accuracy

Riparian Project 5
Livestock Yard

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
						Cost estimate assumes that removal, remediation, and property acquisition for the existing pond would be completed as part of a separate project
Construction						
Bank Stabilization						
FABRIC ENCAPSULATED SOIL LIFTS (FESL)	300	LF	$ 200.00	$ 60,000.00		Total length of bank proposed to have FESL installed. Assumed to be only on outside of bends, one side of channel. Assumes 4 lifts.
UNCLASSIFIED EXCAVATION	1,200	CY	$ 20.00	$ 24,000.00		Excavation req. to install FESL and rock toe. Assumed average bank height of 8ft based on REM
CLASS 1 RIPRAP	400	TON	$ 100.00	$ 40,000.00		Rock Toe with dimension = 3' x 8' x LF of bank. Assumed SW = 165 lbs/ft3. Assumed void ratio = 0.65
Floodplain Restoration						
CLEARING AND GRUBBING	2.8	ACRE	$ 5,000.00	$ 14,000.00		
TOP SOIL STRIPPING, STOCKPILE, REPLACE, AND FINE GRADING	2,300	CY	$ 15.00	$ 34,500.00		Assumed top 6 inches
EXCAVATION AND HAUL	13,600	CY	$ 20.00	$ 272,000.00		Assumed average of 3 ft excavation of floodplain
NATIVE SEEDING AND MULCHING	2.8	ACRE	$ 50,000.00	$ 140,000.00		Includes seeding, live cutting, and container plants
LOG SALVAGE	1	LUMP SUM	$ 25,000.00	$ 25,000.00		
General Construction Allowances						
ACCESS DEVELOPMENT	1	LUMP SUM	$ 100,000.00	$ 100,000.00		Access road is 3429 ft long. Accessible from public walking path. One clear-span crossing and extending public access road
MOBILIZATION / DEMOBILIZATION	1	LUMP SUM	$ 36,000.00	$ 36,000.00	5.0%	
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00		
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	10.0%	10% or max of $50,000
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 100,000.00	$ 100,000.00		Allowance - Assume excavation of meanders in the dry with channel isolation using supersacks and sand bags and pumping of groundwater only within area of excavation
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 15,000.00	$ 15,000.00	2.0%	
DIRECT CONSTRUCTION COSTS TOTAL				**$ 970,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 485,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 1,460,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING AND PERMITTING ALLOWANCE				$ 291,000.00		30% of construction costs
PROPERTY ACQUISITION	1.038	ACRE	$ 100,000.00	$ 103,800.00		Parcel size in Twin Falls, ID
PROJECT COST ESTIMATE				**$ 1,860,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 930,000.00		$ 3,720,000.00	Class 5 estimating accuracy

Ag Project 1
Sediment Forebay + Surface Wetland + Polishing

9.3 acre sediment forebay + 9.3 acre surface wetland + 3.1 acre polishing cell

General Notes
Polishing Cell: Assume 500 CY material per 1 cfs flow.

Subsurface Wetland: Assume 1,000 CY material per 1.5 cfs flow.

Assume sediment pond footprint = surface wetland footprint

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
TOPSOIL STRIPPING STOCKPILING AND REPLACEMENT	19,400	CU YARD	$ 10.00	$ 194,000.00		6 inch depth over 10 ac for sediment forebay, 10 ac for wetland, and 4 ac for polishing cell. These areas include 10 ft buffer outside sediment forebay, wetland, and polishing cell.
EXCAVATION AND HAUL OFF	135,000	CU YARD	$ 36.00	$ 4,860,000.00		Volume of forebay and grading + volume of wetland and grading + polishing cell and grading. Assume 5 ft excavation depth for sediment forebay (10 ac). Assume 3 ft excavation for wetland (10 ac). Assume 5 ft excavation depth of polishing cell (4 ac). Embankments for sediment pond will be at least 10 feet tall. Design inside embankment side slopes at a ratio of 2:1 or flatter, and outside embankment side slopes 3:1 or flatter. Parameter of sediment pond = 2850 ft.
CONSTRUCT EMBANKMENTS - EXCAVATION, REPLACE, & COMPACT	26,400	CU YARD	$ 15.00	$ 396,000.00		
INLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00		
OUTLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00		
IMPORT AND PLACE ZEOLITE	15,500	CU YARD	$ 130.00	$ 2,015,000.00		**Overall Unit Cost (Import and Place) = $130/CY**
WETLAND PLANTING	337,600	SQ FT	$ 5.00	$ 1,688,000.00		Assume plants in 50% of surface wetland and 100% of polishing cell. In wetland basin (1 plant per sq ft)
WETLAND SEEDING	17,500	SQ YARD	$ 2.00	$ 35,000.00		Assume seeding around surface wetland and polishing cell. Seeding/planting will be required for 30 feet around the perimeter of each wetland.
LANDSCAPING/RESTORATION	20,900	SQ YARD	$ 1.00	$ 20,900.00		Assume general seeding and mulch. Assume landscaping, restoration around sediment forebay (10 ft), subsurface wetland (30 ft), and polishing cell (30 ft)
DIRECT CONSTRUCTION COSTS TOTAL				**$ 9,510,000.00**	Rounded Up to Nearest $10,000	
MOBILIZATION	1	LUMP SUM	$ 476,000.00	$ 476,000.00	5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 191,000.00	$ 191,000.00	2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 96,000.00	$ 96,000.00	1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 191,000.00	$ 191,000.00	2.0%	Min 10k
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 476,000.00	$ 476,000.00	5.0%	Min 30k
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 5,470,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 16,410,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING ALLOWANCE				$ 2,853,000.00		30% of construction costs
PROPERTY ACQUISITION	24	ACRE	$ 40,000.00	$ 960,000.00		Assumes land value is less than City. 10 ac for sed basin, 10 ac for surf wetland, 4 ac for polishing cell
PROJECT COST ESTIMATE				**$ 20,230,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 10,120,000.00		$ 40,460,000.00	Class 5 estimating accuracy

Ag Project 2
Sediment Forebay + Surface Wetland + Polishing

1.6 acre sediment forebay + 1.6 acre surface wetland + 0.5 acre polishing cell

General Notes
Polishing Cell: Assume 500 CY material per 1 cfs flow.

Subsurface Wetland: Assume 1,000 CY material per 1.5 cfs flow.

Assume sediment pond footprint = surface wetland footprint

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
TOPSOIL STRIPPING STOCKPILING AND REPLACEMENT	3,800	CU YARD	$ 10.00	$ 38,000.00		6 inch depth over 2 ac for sediment forebay, 2 ac for wetland, and 0.65 ac for polishing cell. These areas include 10 ft buffer outside sediment forebay, wetland, and polishing cell.
EXCAVATION AND HAUL OFF	17,400	CU YARD	$ 36.00	$ 626,400.00		Volume of forebay and grading + volume of wetland and grading + polishing cell and grading. Assume 5 ft excavation depth for sediment forebay (2 ac). Assume 3 ft excavation for wetland (2 ac). Assume 5 ft excavation depth of polishing cell (0.65 ac).
CONSTRUCT EMBANKMENTS - EXCAVATION, REPLACE, & COMPACT	13,800	CU YARD	$ 15.00	$ 207,000.00		Embankments for sediment pond will be at least 10 feet tall. Design inside embankment side slopes at a ratio of 2:1 or flatter, and outside embankment side slopes 3:1 or flatter. Parameter of sediment pond = 1480 ft.
INLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00		
OUTLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00		
IMPORT AND PLACE ZEOLITE	2,500	CU YARD	$ 130.00	$ 325,000.00		**Overall Unit Cost (Import and Place) = $130/CY**
WETLAND PLANTING	56,700	SQ FT	$ 5.00	$ 283,500.00		Assume plants in 50% of surface wetland and 100% of polishing cell. In wetland basin (1 plant per sq ft)
WETLAND SEEDING	5,900	SQ YARD	$ 2.00	$ 11,800.00		Assume seeding around surface wetland and polishing cell. Seeding/planting will be required for 30 feet around the perimeter of each wetland.
LANDSCAPING/RESTORATION	7,800	SQ YARD	$ 1.00	$ 7,800.00		Assume general seeding and mulch. Assume landscaping, restoration around sediment forebay (10 ft), subsurface wetland (30 ft), and polishing cell (30 ft)
DIRECT CONSTRUCTION COSTS TOTAL				**$ 1,800,000.00**	Rounded Up to Nearest $10,000	
MOBILIZATION	1	LUMP SUM	$ 90,000.00	$ 90,000.00	5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 18,000.00	$ 18,000.00	1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 36,000.00	$ 36,000.00	2.0%	Min 10k
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 90,000.00	$ 90,000.00	5.0%	Min 30k
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 1,042,000.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 3,130,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING ALLOWANCE				$ 540,000.00		30% of construction costs
PROPERTY ACQUISITION	5	ACRE	$ 40,000.00	$ 200,000.00		Assumes land value is less than City. 2 ac for sed basin, 2 ac for surf wetland, 1 ac for polishing cell
PROJECT COST ESTIMATE				**$ 3,870,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,940,000.00		$ 7,740,000.00	Class 5 estimating accuracy

Ag Project 3
Sediment Forebay + Surface Wetland + Polishing

0.65 acre sediment forebay + 0.65 acre surface wetland + 0.4 acre polishing cell

ITEM	QTY	UNIT	UNIT RATE	ITEM COST			NOTES
TOPSOIL STRIPPING STOCKPILING AND REPLACEMENT	1,700	CU YARD	$ 10.00	$ 17,000.00			6 inch depth over 0.75 ac for sediment forebay, 0.75 ac for wetland, and 0.5 ac for polishing cell. These areas include 10 ft buffer outside sediment forebay, wetland, and polishing cell.
EXCAVATION AND HAUL OFF	7,800	CU YARD	$ 36.00	$ 280,800.00			Volume of forebay and grading + volume of wetland and grading + polishing cell and grading. Assume 5 ft excavation depth for sediment forebay (0.75 ac). Assume 3 ft excavation for wetland (0.75 ac). Assume 5 ft excavation depth of polishing cell (0.6 ac). Embankments for sediment pond will be at least 10 feet tall. Design inside embankment side slopes at a ratio of 2:1 or flatter, and outside embankment side slopes 3:1 or flatter. Parameter of sediment pond = 640 ft.
CONSTRUCT EMBANKMENTS - EXCAVATION, REPLACE, & COMPACT	6,000	CU YARD	$ 15.00	$ 90,000.00			
INLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
OUTLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
IMPORT AND PLACE ZEOLITE	2,000	CU YARD	$ 130.00	$ 260,000.00			**Overall Unit Cost (Import and Place) = $130/CY**
WETLAND PLANTING	31,600	SQ FT	$ 5.00	$ 158,000.00			Assume plants in 50% of surface wetland and 100% of polishing cell. In wetland basin (1 plant per sq ft)
WETLAND SEEDING	4,000	SQ YARD	$ 2.00	$ 8,000.00			Assume seeding around surface wetland and polishing cell. Seeding/planting will be required for 30 feet around the perimeter of each wetland.
LANDSCAPING/RESTORATION	4,500	SQ YARD	$ 1.00	$ 4,500.00			Assume general seeding and mulch. Assume landscaping, restoration around sediment forebay (10 ft), subsurface wetland (30 ft), and polishing cell (30 ft)
DIRECT CONSTRUCTION COSTS TOTAL				**$ 1,120,000.00**	Rounded Up to Nearest $10,000		
MOBILIZATION	1	LUMP SUM	$ 56,000.00	$ 56,000.00		5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00		2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 12,000.00	$ 12,000.00		1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 23,000.00	$ 23,000.00		2.0%	Min 10k
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 56,000.00	$ 56,000.00		5.0%	Min 30k
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 658,500.00			50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 1,980,000.00**	Rounded Up to Nearest $10,000		
ENGINEERING ALLOWANCE				$ 336,000.00			30% of construction costs
PROPERTY ACQUISITION	2.5	ACRE	$ 40,000.00	$ 100,000.00			Assumes land value is less than City. 1 ac for sed basin, 1 ac for surf wetland, 0.5 ac for polishing cell
PROJECT COST ESTIMATE				**$ 2,420,000.00**	Rounded Up to Nearest $10,000		
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,210,000.00		$ 4,840,000.00		Class 5 estimating accuracy

General Notes
Polishing Cell: Assume 500 CY material per 1 cfs flow.

Subsurface Wetland: Assume 1,000 CY material per 1.5 cfs flow.

Assume sediment pond footprint = surface wetland footprint

Ag Project 4
Sediment Forebay + Surface Wetland + Polishing

3.2 acre sediment forebay + 3.2 acre surface wetland + 1.1 acre polishing cell

General Notes
Polishing Cell: Assume 500 CY material per 1 cfs flow.

Subsurface Wetland: Assume 1,000 CY material per 1.5 cfs flow.

Assume sediment pond footprint = surface wetland footprint

ITEM	QTY	UNIT	UNIT RATE	ITEM COST			NOTES
TOPSOIL STRIPPING STOCKPILING AND REPLACEMENT	7,400	CU YARD	$ 10.00	$ 74,000.00			6 inch depth over 3.8 ac for sediment forebay, 3.8 ac for wetland, and 1.5 ac for polishing cell. These areas include 10 ft buffer outside sediment forebay, wetland, and polishing cell.
EXCAVATION AND HAUL OFF	44,100	CU YARD	$ 36.00	$ 1,587,600.00			Volume of forebay and grading + volume of wetland and grading + polishing cell and grading. Assume 5 ft excavation depth for sediment forebay (0.75 ac). Assume 3 ft excavation for wetland (0.75 ac). Assume 5 ft excavation depth of polishing cell (0.6 ac). Embankments for sediment pond will be at least 10 feet tall. Design inside embankment side slopes at a ratio of 2:1 or flatter, and outside embankment side slopes 3:1 or flatter. Parameter of sediment pond = 1850 ft.
CONSTRUCT EMBANKMENTS - EXCAVATION, REPLACE, & COMPACT	17,200	CU YARD	$ 15.00	$ 258,000.00			
INLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
OUTLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
IMPORT AND PLACE ZEOLITE	5,500	CU YARD	$ 130.00	$ 715,000.00			**Overall Unit Cost (Import and Place) = $130/CY**
WETLAND PLANTING	117,700	SQ FT	$ 5.00	$ 588,500.00			Assume plants in 50% of surface wetland and 100% of polishing cell. In wetland basin (1 plant per sq ft)
WETLAND SEEDING	10,700	SQ YARD	$ 2.00	$ 21,400.00			Assume seeding around surface wetland and polishing cell. Seeding/planting will be required for 30 feet around the perimeter of each wetland.
LANDSCAPING/RESTORATION	13,600	SQ YARD	$ 1.00	$ 13,600.00			Assume general seeding and mulch. Assume landscaping, restoration around sediment forebay (10 ft), subsurface wetland (30 ft), and polishing cell (30 ft)
DIRECT CONSTRUCTION COSTS TOTAL				**$ 3,560,000.00**	Rounded Up to Nearest $10,000		
MOBILIZATION	1	LUMP SUM	$ 178,000.00	$ 178,000.00		5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 72,000.00	$ 72,000.00		2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 36,000.00	$ 36,000.00		1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 72,000.00	$ 72,000.00		2.0%	Min 10k
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 178,000.00	$ 178,000.00		5.0%	Min 30k
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 2,048,000.00			50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 6,150,000.00**	Rounded Up to Nearest $10,000		
ENGINEERING ALLOWANCE				$ 1,068,000.00			30% of construction costs
PROPERTY ACQUISITION	10	ACRE	$ 40,000.00	$ 400,000.00			Assumes land value is less than City. 4 ac for sed basin, 4 ac for surf wetland, 2 ac for polishing cell
PROJECT COST ESTIMATE				**$ 7,620,000.00**	Rounded Up to Nearest $10,000		
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 3,810,000.00		$ 15,240,000.00		Class 5 estimating accuracy

Ag Project 5
Sediment Forebay + Surface Wetland + Polishing

0.5 acre sediment forebay + 0.5 acre surface wetland + 0.3 acre polishing cell

General Notes
Polishing Cell: Assume 500 CY material per 1 cfs flow.

Subsurface Wetland: Assume 1,000 CY material per 1.5 cfs flow.

Assume sediment pond footprint = surface wetland footprint

ITEM	QTY	UNIT	UNIT RATE	ITEM COST		NOTES
TOPSOIL STRIPPING STOCKPILING AND REPLACEMENT	1,500	CU YARD	$ 10.00	$ 15,000.00		6 inch depth over 0.65 ac for sediment forebay, 0.65 ac for wetland, and 0.45 ac for polishing cell. These areas include 10 ft buffer outside sediment forebay, wetland, and polishing cell.
EXCAVATION AND HAUL OFF	6,600	CU YARD	$ 36.00	$ 237,600.00		Volume of forebay and grading + volume of wetland and grading + polishing cell and grading. Assume 5 ft excavation depth for sediment forebay (0.65 ac). Assume 3 ft excavation for wetland (0.65 ac). Assume 5 ft excavation depth of polishing cell (0.5 ac). Embankments for sediment pond will be at least 10 feet tall. Design inside embankment side slopes at a ratio of 2:1 or flatter, and outside embankment side slopes 3:1 or flatter. Parameter of sediment pond = 590 ft.
CONSTRUCT EMBANKMENTS - EXCAVATION, REPLACE, & COMPACT	5,500	CU YARD	$ 15.00	$ 82,500.00		
INLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00		
OUTLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00		
IMPORT AND PLACE ZEOLITE	1,500	CU YARD	$ 130.00	$ 195,000.00		**Overall Unit Cost (Import and Place) = $130/CY**
WETLAND PLANTING	24,000	SQ FT	$ 5.00	$ 120,000.00		Assume plants in 50% of surface wetland and 100% of polishing cell. In wetland basin (1 plant per sq ft)
WETLAND SEEDING	4,600	SQ YARD	$ 2.00	$ 9,200.00		Assume seeding around surface wetland and polishing cell. Seeding/planting will be required for 30 feet around the perimeter of each wetland.
LANDSCAPING/RESTORATION	5,400	SQ YARD	$ 1.00	$ 5,400.00		Assume general seeding and mulch. Assume landscaping, restoration around sediment forebay (10 ft), subsurface wetland (30 ft), and polishing cell (30 ft)
DIRECT CONSTRUCTION COSTS TOTAL				**$ 970,000.00**	Rounded Up to Nearest $10,000	
MOBILIZATION	1	LUMP SUM	$ 50,000.00	$ 50,000.00	5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00	2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 10,000.00	$ 10,000.00	1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 20,000.00	$ 20,000.00	2.0%	Min 10k
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 49,000.00	$ 49,000.00	5.0%	Min 30k
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 574,500.00		50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 1,730,000.00**	Rounded Up to Nearest $10,000	
ENGINEERING ALLOWANCE				$ 291,000.00		30% of construction costs
PROPERTY ACQUISITION	2	ACRE	$ 100,000.00	$ 200,000.00		Assumes City land value cost since site is right next to City. 0.75 ac for sed basin, 0.75 ac for surf wetland, 0.5 ac for polishing cell
PROJECT COST ESTIMATE				**$ 2,230,000.00**	Rounded Up to Nearest $10,000	
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,120,000.00		$ 4,460,000.00	Class 5 estimating accuracy

Ag Project 6
Sediment Forebay + Surface Wetland + Polishing

0.5 acre sediment forebay + 0.5 acre surface wetland + 0.3 acre polishing cell

General Notes
Polishing Cell: Assume 500 CY material per 1 cfs flow.

Subsurface Wetland: Assume 1,000 CY material per 1.5 cfs flow.

Assume sediment pond footprint = surface wetland footprint

ITEM	QTY	UNIT	UNIT RATE	ITEM COST			NOTES
TOPSOIL STRIPPING STOCKPILING AND REPLACEMENT	1,500	CU YARD	$ 10.00	$ 15,000.00			6 inch depth over 0.65 ac for sediment forebay, 0.65 ac for wetland, and 0.45 ac for polishing cell. These areas include 10 ft buffer outside sediment forebay, wetland, and polishing cell.
EXCAVATION AND HAUL OFF	6,600	CU YARD	$ 36.00	$ 237,600.00			Volume of forebay and grading + volume of wetland and grading + polishing cell and grading. Assume 5 ft excavation depth for sediment forebay (0.65 ac). Assume 3 ft excavation for wetland (0.65 ac). Assume 5 ft excavation depth of polishing cell (0.5 ac). Embankments for sediment pond will be at least 10 feet tall. Design inside embankment side slopes at a ratio of 2:1 or flatter, and outside embankment side slopes 3:1 or flatter. Parameter of sediment pond = 590 ft.
CONSTRUCT EMBANKMENTS - EXCAVATION, REPLACE, & COMPACT	5,500	CU YARD	$ 15.00	$ 82,500.00			
INLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
OUTLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
IMPORT AND PLACE ZEOLITE	1,500	CU YARD	$ 130.00	$ 195,000.00			**Overall Unit Cost (Import and Place) = $130/CY**
WETLAND PLANTING	24,000	SQ FT	$ 5.00	$ 120,000.00			Assume plants in 50% of surface wetland and 100% of polishing cell. In wetland basin (1 plant per sq ft)
WETLAND SEEDING	4,600	SQ YARD	$ 2.00	$ 9,200.00			Assume seeding around surface wetland and polishing cell. Seeding/planting will be required for 30 feet around the perimeter of each wetland.
LANDSCAPING/RESTORATION	5,400	SQ YARD	$ 1.00	$ 5,400.00			Assume general seeding and mulch. Assume landscaping, restoration around sediment forebay (10 ft), subsurface wetland (30 ft), and polishing cell (30 ft)
DIRECT CONSTRUCTION COSTS TOTAL				**$ 970,000.00**	Rounded Up to Nearest $10,000		
MOBILIZATION	1	LUMP SUM	$ 50,000.00	$ 50,000.00		5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00		2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 10,000.00	$ 10,000.00		1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 20,000.00	$ 20,000.00		2.0%	Min 10k
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 49,000.00	$ 49,000.00		5.0%	Min 30k
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 574,500.00			50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 1,730,000.00**	Rounded Up to Nearest $10,000		
ENGINEERING ALLOWANCE				$ 291,000.00			30% of construction costs
PROPERTY ACQUISITION	2	ACRE	$ 40,000.00	$ 80,000.00			Assumes land value is less than City. 0.75 ac for sed basin, 0.75 ac for surf wetland, 0.5 ac for polishing cell
PROJECT COST ESTIMATE				**$ 2,110,000.00**	Rounded Up to Nearest $10,000		
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,060,000.00		$ 4,220,000.00		Class 5 estimating accuracy

Ag Project 7
Sediment Forebay + Surface Wetland + Polishing

0.8 acre sediment forebay + 0.8 acre surface wetland + 0.5 acre polishing cell

General Notes
Polishing Cell: Assume 500 CY material per 1 cfs flow.

Subsurface Wetland: Assume 1,000 CY material per 1.5 cfs flow.

Assume sediment pond footprint = surface wetland footprint

ITEM	QTY	UNIT	UNIT RATE	ITEM COST			NOTES
TOPSOIL STRIPPING STOCKPILING AND REPLACEMENT	2,200	CU YARD	$ 10.00	$ 22,000.00			6 inch depth over 1.0 ac for sediment forebay, 1.0 ac for wetland, and 0.65 ac for polishing cell. These areas include 10 ft buffer outside sediment forebay, wetland, and polishing cell.
EXCAVATION AND HAUL OFF	11,300	CU YARD	$ 36.00	$ 406,800.00			Volume of forebay and grading + volume of wetland and grading + polishing cell and grading. Assume 5 ft excavation depth for sediment forebay (0.95 ac). Assume 3 ft excavation for wetland (0.95 ac). Assume 5 ft excavation depth of polishing cell (0.65 ac). Embankments for sediment pond will be at least 10 feet tall. Design inside embankment side slopes at a ratio of 2:1 or flatter, and outside embankment side slopes 3:1 or flatter. Parameter of sediment pond = 740 ft.
CONSTRUCT EMBANKMENTS - EXCAVATION, REPLACE, & COMPACT	6,900	CU YARD	$ 15.00	$ 103,500.00			
INLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
OUTLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
IMPORT AND PLACE ZEOLITE	2,500	CU YARD	$ 130.00	$ 325,000.00			**Overall Unit Cost (Import and Place) = $130/CY**
WETLAND PLANTING	39,300	SQ FT	$ 5.00	$ 196,500.00			Assume plants in 50% of surface wetland and 100% of polishing cell. In wetland basin (1 plant per sq ft)
WETLAND SEEDING	5,100	SQ YARD	$ 2.00	$ 10,200.00			Assume seeding around surface wetland and polishing cell. Seeding/planting will be required for 30 feet around the perimeter of each wetland.
LANDSCAPING/RESTORATION	5,900	SQ YARD	$ 1.00	$ 5,900.00			Assume general seeding and mulch. Assume landscaping, restoration around sediment forebay (10 ft), subsurface wetland (30 ft), and polishing cell (30 ft)
DIRECT CONSTRUCTION COSTS TOTAL				**$ 1,370,000.00**	Rounded Up to Nearest $10,000		
MOBILIZATION	1	LUMP SUM	$ 69,000.00	$ 69,000.00		5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00		2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 14,000.00	$ 14,000.00		1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 28,000.00	$ 28,000.00		2.0%	Min 10k
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 69,000.00	$ 69,000.00		5.0%	Min 30k
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 800,000.00			50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 2,400,000.00**	Rounded Up to Nearest $10,000		
ENGINEERING ALLOWANCE				$ 411,000.00			30% of construction costs
PROPERTY ACQUISITION	3	ACRE	$ 40,000.00	$ 120,000.00			Assumes land value is less than City. 1.1 ac for sed basin, 1.1 ac for surf wetland, 0.8 ac for polishing cell
PROJECT COST ESTIMATE				**$ 2,940,000.00**	Rounded Up to Nearest $10,000		
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,470,000.00		$ 5,880,000.00		Class 5 estimating accuracy

Ag Project 8
Sediment Forebay + Surface Wetland + Polishing

4.9 acre sediment forebay + 4.9 acre surface wetland + 1.6 acre polishing cell

General Notes
Polishing Cell: Assume 500 CY material per 1 cfs flow.

Subsurface Wetland: Assume 1,000 CY material per 1.5 cfs flow.

Assume sediment pond footprint = surface wetland footprint

ITEM	QTY	UNIT	UNIT RATE	ITEM COST			NOTES
TOPSOIL STRIPPING STOCKPILING AND REPLACEMENT	10,500	CU YARD	$ 10.00	$ 105,000.00			6 inch depth over 5.4 ac for sediment forebay, 5.4 ac for wetland, and 2.1 ac for polishing cell. These areas include 10 ft buffer outside sediment forebay, wetland, and polishing cell.
EXCAVATION AND HAUL OFF	69,400	CU YARD	$ 36.00	$ 2,498,400.00			Volume of forebay and grading + volume of wetland and grading + polishing cell and grading. Assume 5 ft excavation depth for sediment forebay (5.4 ac). Assume 3 ft excavation for wetland (5.4 ac). Assume 5 ft excavation depth of polishing cell (2.1 ac). Embankments for sediment pond will be at least 10 feet tall. Design inside embankment side slopes at a ratio of 2:1 or flatter, and outside embankment side slopes 3:1 or flatter. Parameter of sediment pond = 1870 ft.
CONSTRUCT EMBANKMENTS - EXCAVATION, REPLACE, & COMPACT	17,400	CU YARD	$ 15.00	$ 261,000.00			
INLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
OUTLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
IMPORT AND PLACE ZEOLITE	10,000	CU YARD	$ 130.00	$ 1,300,000.00			**Overall Unit Cost (Import and Place) = $130/CY**
WETLAND PLANTING	176,500	SQ FT	$ 5.00	$ 882,500.00			Assume plants in 50% of surface wetland and 100% of polishing cell. In wetland basin (1 plant per sq ft)
WETLAND SEEDING	12,100	SQ YARD	$ 2.00	$ 24,200.00			Assume seeding around surface wetland and polishing cell. Seeding/planting will be required for 30 feet around the perimeter of each wetland.
LANDSCAPING/RESTORATION	12,600	SQ YARD	$ 1.00	$ 12,600.00			Assume general seeding and mulch. Assume landscaping, restoration around sediment forebay (10 ft), subsurface wetland (30 ft), and polishing cell (30 ft)
DIRECT CONSTRUCTION COSTS TOTAL				**$ 5,390,000.00**	Rounded Up to Nearest $10,000		
MOBILIZATION	1	LUMP SUM	$ 270,000.00	$ 270,000.00		5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 108,000.00	$ 108,000.00		2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 54,000.00	$ 54,000.00		1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 108,000.00	$ 108,000.00		2.0%	Min 10k
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 270,000.00	$ 270,000.00		5.0%	Min 30k
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 3,100,000.00			50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 9,300,000.00**	Rounded Up to Nearest $10,000		
ENGINEERING ALLOWANCE				$ 1,617,000.00			30% of construction costs
PROPERTY ACQUISITION	13	ACRE	$ 40,000.00	$ 520,000.00			Assumes land value is less than City. 5.5 ac for sed basin, 5.5 ac for surf wetland, 2 ac for polishing cell
PROJECT COST ESTIMATE				**$ 11,440,000.00**	Rounded Up to Nearest $10,000		
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%			$ 5,720,000.00		$ 22,880,000.00		Class 5 estimating accuracy

Ag Project 9
Sediment Forebay + Surface Wetland + Polishing

0.8 acre sediment forebay + 0.8 acre surface wetland + 0.5 acre polishing cell

General Notes
Polishing Cell: Assume 500 CY material per 1 cfs flow.

Subsurface Wetland: Assume 1,000 CY material per 1.5 cfs flow.

Assume sediment pond footprint = surface wetland footprint

ITEM	QTY	UNIT	UNIT RATE	ITEM COST			NOTES
TOPSOIL STRIPPING STOCKPILING AND REPLACEMENT	2,200	CU YARD	$ 10.00	$ 22,000.00			6 inch depth over 1.0 ac for sediment forebay, 1.0 ac for wetland, and 0.65 ac for polishing cell. These areas include 10 ft buffer outside sediment forebay, wetland, and polishing cell.
EXCAVATION AND HAUL OFF	11,300	CU YARD	$ 36.00	$ 406,800.00			Volume of forebay and grading + volume of wetland and grading + polishing cell and grading. Assume 5 ft excavation depth for sediment forebay (0.95 ac). Assume 3 ft excavation for wetland (0.95 ac). Assume 5 ft excavation depth of polishing cell (0.65 ac). Embankments for sediment pond will be at least 10 feet tall. Design inside embankment side slopes at a ratio of 2:1 or flatter, and outside embankment side slopes 3:1 or flatter. Parameter of sediment pond = 740 ft.
CONSTRUCT EMBANKMENTS - EXCAVATION, REPLACE, & COMPACT	6,900	CU YARD	$ 15.00	$ 103,500.00			
INLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
OUTLET STRUCTURE	3	EA	$ 50,000.00	$ 150,000.00			
IMPORT AND PLACE ZEOLITE	2,500	CU YARD	$ 130.00	$ 325,000.00			**Overall Unit Cost (Import and Place) = $130/CY**
WETLAND PLANTING	39,300	SQ FT	$ 5.00	$ 196,500.00			Assume plants in 50% of surface wetland and 100% of polishing cell. In wetland basin (1 plant per sq ft)
WETLAND SEEDING	5,100	SQ YARD	$ 2.00	$ 10,200.00			Assume seeding around surface wetland and polishing cell. Seeding/planting will be required for 30 feet around the perimeter of each wetland.
LANDSCAPING/RESTORATION	5,900	SQ YARD	$ 1.00	$ 5,900.00			Assume general seeding and mulch. Assume landscaping, restoration around sediment forebay (10 ft), subsurface wetland (30 ft), and polishing cell (30 ft)
DIRECT CONSTRUCTION COSTS TOTAL				**$ 1,370,000.00**	Rounded Up to Nearest $10,000		
MOBILIZATION	1	LUMP SUM	$ 69,000.00	$ 69,000.00		5.0%	Min 50k
DEMOLITION AND REMOVAL ALLOWANCE	1	LUMP SUM	$ 50,000.00	$ 50,000.00		2.0%	Min 50k
TEMPORARY EROSION AND SEDIMENT CONTROL ALLOWANCE	1	LUMP SUM	$ 14,000.00	$ 14,000.00		1.0%	Min 10k
TRAFFIC CONTROL ALLOWANCE	1	LUMP SUM	$ 28,000.00	$ 28,000.00		2.0%	Min 10k
TEMPORARY WATER MANAGEMENT ALLOWANCE	1	LUMP SUM	$ 69,000.00	$ 69,000.00		5.0%	Min 30k
ESTIMATING CONTINGENCY AND CONTRACTOR OVERHEAD ALLOWANCES (50%)				$ 800,000.00			50% of construction costs, includes allowances for bonding and contractor overhead.
CONSTRUCTION COST ESTIMATE				**$ 2,400,000.00**	Rounded Up to Nearest $10,000		
ENGINEERING ALLOWANCE				$ 411,000.00			30% of construction costs
PROPERTY ACQUISITION	3	ACRE	$ 40,000.00	$ 120,000.00			Assumes land value is less than City. 1.1 ac for sed basin, 1.1 ac for surf wetland, 0.8 ac for polishing cell
PROJECT COST ESTIMATE				**$ 2,940,000.00**	Rounded Up to Nearest $10,000		
ESTIMATING CLASS 5 ACCURACY RANGE- LOW END (-50%) - HIGH END (+100%)			$ 1,470,000.00		$ 5,880,000.00		Class 5 estimating accuracy