City of Caldwell

Stormwater Management Plan

2021-2025

Written description in accordance with IPDES Permit No. IDS-028118

Version 4.2 / September 2025

City of Caldwell
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Definitions

Appropriate	Reasonably in intensity, duration, and magnitude
Authorized Enforcement Agent	The Public Works Director or City Engineer and/or any individual designated by the Public Works Director or City Engineer as an authorized enforcement agent.
Best Management Practices (BMP)	Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States". BMPS also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. See 40 CFR 122.2 and 122.44(k).
Bioretention	Water quality and water quantity stormwater management practice using the chemical, biological, and physical properties of plants, microbes, and soils for the removal of pollution from stormwater runoff.
Bypass	The intentional diversion of waste streams from any portion of a treatment facility.
Caldwell Municipal Stormwater Management Manual	The most recently adopted version of the design standards manual prepared by the Caldwell public works department which provides design, performance, and review criteria for stormwater management practices at new development locations inside Caldwell city limits.
Code of Federal Regulations (CFR)	The official annual compilation of all regulations and rules promulgated during the previous year by the agencies of the United States government, combined with all the previously issued regulations and rules of those agencies that are still in effect.
Clean Water Act (CWA)	Federal water pollution control act enacted by public law 92-500 as amended by public laws 95-217, 95-576, 96-483, and 97-117; 33 USC 1251 et seq. [40 CFR §122.2].
Common Plan of Development	A contiguous construction project or projects where multiple separate and distinct construction activities may be taking place at different times on different schedules, but under one plan. The plan is broadly defined as any announcement or piece of documentation or physical demarcation indicating construction activities may occur on a specific plot; included in this definition are most subdivisions and industrial parks.
Comprehensive Drainage Plan	A stormwater management plan that covers all current and anticipated development of a site greater than 10 acres and sites planned for phased development.

Construction Activity	Includes, but is not limited to, clearing, grading, excavation, and other site preparation work related to the construction of residential buildings and non-residential buildings, and heavy construction (e.g. highways, streets, bridges, tunnels, pipelines, transmission lines, and industrial non-building structures).
Construction General Permit (CGP)	The current version of EPA's NPDES General Permit for Stormwater Discharges for Construction Activities EPA's CGP is posted on EPA's website at https://www.epa.gov/npdes/2022-construction-general-permit-cgp. A new CGP is proposed for 2026, this document is posted on EPA's website at https://www.epa.gov/npdes/stormwater-discharges-industrial-activities-epas-proposed-2026-msgp. When this permit is finalized, the link will be updated.
Idaho Construction General Permit (Idaho CGP)	The current version of Idaho DEQ's IPDES General Permit for Stormwater Discharges for Construction in Idaho.
Control Measure	Any action, activity, Best Management Practice, or other method used to control the discharge of pollutants in MS4 discharges.
Deleterious Materials	Any nontoxic substance which may cause the tainting of edible species of fish, taste and odors in drinking water supplies, or the reduction in usability of water without causing physical injury to water users or aquatic and terrestrial organisms. See IDAPA 58.01.02.010.21.
Discharge	Any addition or introduction of any pollutant, stormwater, or any other substance into the municipal storm sewer system (MS4), Waters of the State, or into Waters of the United States (WOTUS).
Discharge of a Pollutant	Any addition of any "pollutant" or combination of pollutants to "Waters of the United States" from any "point source," or any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This definition includes additions of pollutants into Waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any "indirect discharger" [40 CFR §122.2].
Erosion	The process of carrying away soil particles by the action of water.
Effluent Limitation	Any restriction imposed by EPA or IDEQ on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the United States. The terms and

	conditions of the City of Caldwell's MS4 Permit are a type of effluent limitation and refer to actions designated to reduce pollutant discharges. See also 40 CFR 122.34 and 81 FR 89337.
Existing Permanent Controls	Post-construction or permanent stormwater management controls designed to treat or control runoff on a permanent basis and that were installed prior to the effective date of the Caldwell MS4 Permit (December 1, 2020).
Facility	Any IPDES point source or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the IPDES program.
Grab Sample	A single water sample or measurement of water quality taken at a specific time.
Green Infrastructure	The range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater and reduce flows to storm sewer systems or to surface waters.
Hazardous Materials	A material or combination of materials which, when discharged in any quantity into state waters, presents a substantial present or potential hazard to human health, the public health, or the environment. Defined at IDAPA 58.01.02.010.47.
Illicit Connection	Any physical connection to a publicly maintained storm drain system composed of non-stormwater which has not been permitted by the public entity responsible for the operation and maintenance of the system. Includes, but is not limited to, pipes, drains, open channels, or other conveyances that have the potential to allow an illicit discharge to enter the MS4.
Illicit Discharge	Any discharge to a storm drain system that is not composed entirely of stormwater except discharges pursuant to an IPDES permit and discharges from firefighting activity. See 40 CFR 122.26(b)(2).
Impervious Surface	A surface which prevents or highly resists the infiltration of water into the ground, including, but not limited to, roofs, sidewalks, patios, driveways, parking lots, concrete and asphalt paving, gravel, compacted native surfaces and earthen materials, and oiled, asphalt, or other surfaces which similarly impede the natural infiltration of stormwater.
Impaired Waters	Any water body that does not meet applicable water quality standards for one or more beneficial uses by one or more pollutants. For the purposes of this Stormwater Management Program, impaired water includes any water body that IDEQ includes in its most current finalized Integrated Report, as a "Category 4a" water of the state for which a total maximum daily

	load had been completed and approved; as a "Category 4b" water of the state that have pollution control requirements in place other than a TMDL and are expected to meet standards; and/or as a "Category 5" water of the state where a TMDL is necessary.
Impairment Pollutant	Any pollutant identified by IDEQ as a cause of impairment of a water body in Idaho DEQ's most recent finalized Integrated Report.
Infiltration	The process by which stormwater penetrates into soil.
Interconnection	The point (excluding sheet flow over impervious surfaces) where an MS4 discharges to another MS4 or storm sewer system, through which the discharge is eventually conveyed to a Water of the United States. Interconnections to other MS4s shall be treated similarly to outfalls.
Low Impact Development (LID)	Stormwater management and land development techniques, controls and strategies applied at the parcel and subdivision scale that emphasize conservation and use of on-site natural features integrated with engineered, small scale hydrologic controls to more closely mimic pre-development hydrologic functions.
Major Modification	An alteration to an existing or planned stormwater drainage facility that does one or more of the following: changes the volume, surface area, depth, capacity, inflow rates, outflow rates or level of treatment by five percent (5%) or more; changes the treatment process; adds more than one thousand (1,000) square feet of impervious surface; or increases the tributary impervious drainage area to an individual drainage facility component by more than ten percent (10%).
Municipal NPDES Permit	An area-wide NPDES or IPDES permit that is issued to a government agency or agencies for the discharge of pollutants from any point source into the Waters of the United States.
Municipal Separate Storm Sewer	A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the CWA that discharges to Waters of the United States; (ii) Designed or used for collecting or conveying stormwater; (iii) Which is not a combined sewer; and

	(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR §122.2. Defined in 40 CFR §122.26(b)(8).
Municipal Separate Storm Sewer System (MS4)	"Small Municipal Separate Storm Sewer System" as defined in 40 CFR 122.26(b)(16) and (17): all separate storm sewers that are: (i) owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) not defined as "large" or "medium" municipal separate storm sewer systems pursuant to 40 CFR 122.26(b)(4) and (b)(7), or designated under paragraph 40 CFR 122.26(a)(1)(v); and (iii) includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.
National Pollutant Discharge Elimination System (NPDES) Permit	A permit issued by the U.S. EPA, region X, in compliance with the federal clean water act for the discharge of pollutants from any point source into the Waters of the United States.
Non-stormwater Discharge	Any discharge that is not entirely composed of stormwater.
Nuisance	Anything which is injurious to the public health or an obstruction to the free use, in the customary manner, of any waters of the State [IDAPA 58.01.02.010.67].
Outfall	A point source, where a municipal separate storm sewer discharges to Waters of the United States. It does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States. Defined at 40 CFR §122.26(b)(9).
Owner or Operator	The owner or operator of any facility or activity subject to regulation under the federal NPDES program including operational and day to day control over facility activities.
Permanent Stormwater Controls	Structural and non-structural controls that are designed to treat or control pollutants in stormwater runoff on a permanent basis.

Permit Area	The decennial census data from Year 2000 and Year 2010. An urbanized area is the densely settled core of census tracts and/or census blocks that have a population of at least 50,000, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core. It is a calculation used by the Bureau of the Census to determine the geographic boundaries of the most heavily developed and dense urban areas. Once a small MS4 is designated into the program based on the UA boundaries, it cannot be waived from the program if in a subsequent UA calculation the small MS4 is no longer within the UA boundaries.
Point Source	Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff. Defined at 40 CFR §122.2.
Pollutant	Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the atomic energy act of 1954, as amended [42 USC 2011 et seq.]), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water, and as otherwise defined in 40 CFR 122.2.
Pollutant of Concern	Any pollutant formally identified by IDEQ in their current Integrated Report as a cause of impairment of any water body that receives MS4 discharges authorized under the Caldwell MS4 Permit. See also “impaired water.”
Redevelopment	A project for which a building permit is required that proposes to add, replace and/or alter impervious surfaces affecting the existing drainage system, other than routine maintenance, resurfacing, or repair. A project which meets the criteria of a "major modification" as defined in this section shall be considered a redevelopment.
Source Control	Practices that control stormwater before pollutants have been introduced into stormwater.
Stormwater and Stormwater Runoff	Stormwater runoff, snow melt runoff, and surface runoff and drainage, and is defined at 40 CFR §122.26(b)(13). “Stormwater” means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, channels, or pipes into a defined surface water channel or a constructed infiltration facility.

Stormwater Management	The process of collection, conveyance, storage, treatment, and disposal of stormwater to ensure control of the magnitude and frequency of runoff and to minimize the hazards associated with flooding. Also includes implementing controls to reduce the discharge of pollutants including management practices, control techniques and systems, design and engineering methods.
Stormwater Management Plan	Details of the drainage system, structures, BMPs, concepts and techniques that will be used to control stormwater, including drawings, engineering calculations, computer analyses, maintenance and operations procedures, and all other supporting documentation.
Total Maximum Daily Load (TMDL)	The sum of the individual wasteload allocations for point sources, load allocations (LAs) for non-point sources, and natural background. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality [IDAPA 58.012.02.010.100].
Toxic Substance	Any substance, material or disease-causing agent, or a combination thereof, which after discharge to waters of the State and upon exposure, ingestion, inhalation or assimilation into any organism (including humans), either directly from the environment or indirectly by ingestion through food chains, will cause death, disease, behavioral abnormalities, malignancy, genetic mutation, physiological abnormalities (including malfunctions in reproduction) or physical deformations in affected organisms or their offspring. Toxic substances include, but are not limited to, the one hundred twenty-six (126) priority pollutants identified by EPA pursuant to Section 307(a) of the federal Clean Water Act. Defined at IDAPA 58.01.02.010.102.
Treatment	The reduction and removal of pollutants from stormwater.
Waters of the United States (WOTUS)	Waters as defined in 40 CFR 122.2.
Wetland	An area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Acronyms

ACM	Alternate Control Measure
BMP	Best Management Practice
CCED	City of Caldwell Engineering Department
CCPW	City of Caldwell Public Works
CCSD	City of Caldwell Street Department
CFR	Code of Federal Regulations
CGP	Construction General Permit
CSDC	Construction Site Discharge Control
CWA	Clean Water Act
EPA	Environmental Protection Agency
ERP	Enforcement Response Policy
ESC	Erosion and Sediment Control
FR	Federal Register
GIS	Geographic Information System
GSI	Green Stormwater Infrastructure
IDAPA	Idaho Administrative Procedures Act
IDDE	Illicit Discharge Detection Elimination
IDEQ	Idaho Department of Environmental Quality
LA	Load Allocation
LID	Low Impact Development
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
MEP	Maximum Extent Practicable
MSGP	Multi Sector General Permit
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
OVIP	Outfall Verification and Identification Program
PCSM	Post Construction Stormwater Management
PMEP	Program Monitoring and Evaluation Plan

PoC	Pollutant of Concern
POTW	Publically Owned Treatment Works
QAP	Quality Assurance Plan
QC	Quality Control
ROW	Right of Way
SOP	Standard Operating Procedure
SWMP	Stormwater Management Program
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
UA	Urbanized Area
USACOE	United States Army Corps of Engineers
USGS	United States Geological Survey
WLA	Waste Load Allocation
WOTUS	Waters of the United States

Record of Revisions

The City of Caldwell Stormwater Department may make minor edits or changes directly to this plan. The dates of any revision should be noted below.

Revision Date	**SWMP Year**	**Summary of Changes to SWPPP**
November 2021	2021	Finalized document for 2020 Permit compliance.
November 2022	2022	Revised document to reflect updates and developments within the last 12 months.
November 2023	2023	Revised document to reflect updates and developments within the last 12 months.
November 2024	2024	Revised document to reflect updates and developments within the last 12 months.
September 2025	2025	Revised document to reflect updates and developments within the last 12 months.

Implementation Schedule

Stormwater Management Program Document		
Post SWMP Document(s) on at least one publicly accessible website	**December 1, 2021**	*Completed 11/30/21; updated 09/2025*
Update the SWMP Document to describe the implementation of relevant requirements for discharges to impaired waters	**December 1, 2022**	*Completed 11/30/2023*
Stormwater Management Program Control Measures		
Begin Education and Outreach Activities	**October 1, 2021**	*Completed 4/24/21*
Implement eight educational messages or activities	**April 3, 2025**	*Completed: 3/20/2024, 6/18/2024, 8/20/2024, 11/01/2024 11/12/2024, 12/04/2024, 12/11/2024, 1/15/2025, 3/17/2025, 9/18/2025*
Implement all IDDE control measures	**April 3, 2025**	*Ongoing*
Implement all construction runoff control measures	**April 3, 2025**	*Ongoing*
Implement all post construction control measures	**April 3, 2025**	*Ongoing*
Implement all good housekeeping control measures	**April 3, 2025**	*Ongoing*
Monitoring/Assessment Plan		
Submit a Monitoring/Assessment Plan	**October 1, 2022**	*Submitted 9/29/2022*
Conduct Monitoring/Assessment Activity	**April 3, 2025**	*11/02/2023, 02/01/2024, 03/12/2024, 10/16/2024, 11/21/2024*
Pollutant Reduction Activities for Discharges to Impaired Waters		
Submit description of selected Pollutant Reduction Activities	**October 1, 2022**	*Completed 6/1/21*

Implement at least two pollutant reduction activities	**April 3, 2025**	*1st Completed 2024; 2nd Completed 2025*
Annual Report		
Per requirements in Part 6.4 of Permit	**December 1, annually**	*Completed Annually*
Twenty-Four Hour Notice of Noncompliance		
Report certain noncompliance by phone (see Part 7.9 of Permit)	Within 24 hours of City becoming aware	*Implemented 12/1/2020*
NPDES Permit Renewal Application		
Per requirements in Part 8.2 of Permit	**April 3, 2025**	*Completed 3/13/2025*

Section 1. Introduction

1.1 Purpose

The City of Caldwell, Idaho prides itself on being "The Treasure of the Valley." Over the last three decades, the City has grown and changed, experiencing a boom of economic development and unprecedented population growth. As the City expands, it is faced with the challenges and opportunities of meeting the needs of its current citizens and preparing for the future. The City of Caldwell is fortunate to contain portions of flowing water resources, including Indian Creek, Mason Creek, and the Boise River. With the understanding of the intrinsic value of such resources, the City has made a commitment to protect and preserve these resources, so that they can continue to benefit the community for generations to come.

Improving and preserving water quality in water resources is a complex, interconnected undertaking. Stormwater management is one of many disciplines to examine when addressing surface water quality improvement within a municipality. The development of the Stormwater Management Program (SWMP) serves as a critical step in organizing and executing municipal stormwater management in the City of Caldwell effectively and efficiently.

Environmental Protection Agency (EPA), Region 10 first issued a National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit (No. DS-028118) to the City of Caldwell, Idaho, effective October 15, 2009. The Permit was reissued by EPA in 2020, and became effective December 1, 2020. This Permit authorizes the City of Caldwell to discharge stormwater from the City's MS4 outfalls to Waters of the United States in accordance with the conditions and requirements of the Permit. This Permit is due to expire on September 30, 2025. A copy of the current Permit is included as Appendix A of this document.

This document is written representation of the City of Caldwell's Stormwater Management Program (SWMP). The NPDES MS4 Permit requires the City of Caldwell (the City) "to implement and enforce a stormwater management program designed to reduce the discharge of pollutants from their MS4 to the maximum extent practicable (MEP), and to protect the water quality of the receiving waters." This document was developed by the City to describe the activities and control measures implemented to meet the terms and conditions of NPDES Permit IDS-028118. This SWMP establishes the foundation on which the City will continue to build as best management practices are identified and implemented, and will be updated annually as required by the Permit. The City will annually assess and report the effectiveness of the program activities and implement changes as necessary to ensure continued permit compliance.

1.2 Scope and Document Organization

This SWMP inventories and describes the procedures and practices currently implemented by the City of Caldwell throughout planning, design, construction, operation, and maintenance of developments and facilities within the City.

The Stormwater Management Plan consists of the following components:

1. Introduction
2. Program Management
3. Description of City's MS4 System
4. General Requirements
5. Minimum Control Measures and Activities
6. Pollution Reduction Activities
7. Monitoring Program
8. Required Response to Excursions above Idaho Water Quality Standards
9. Recordkeeping and Reporting

Section 5 contains a discussion of each of the minimum control measures under the Permit, supported by multiple activities currently taking place or scheduled to be implemented during the Permit cycle. The measures addressed include:

- Public Education and Outreach
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Stormwater Management
- Good Housekeeping / Pollution Prevention

All SWMP activities are defined by the overall objective, specific required actions, timeframe for implementation, and the expected measurable goals. Some activities will be implemented for the purpose of addressing a single element of the Permit, while others will be set to target multiple permit elements.

Discussion of Permit elements and corresponding activities are organized to allow cohesive assessment and reporting of the overall SWMP and the plan's execution in the annual report to the EPA on the status of SWMP implementation.

1.3 Regulations and Regulatory History

1.3.1 Clean Water Act

The Clean Water Act was enacted in 1972, in response to increasing public concern for the environment and the condition of the nation's waters. Minimal regulation or enforcement of pollutant discharge over decades of booming industrial production left surface waters polluted, unsafe for recreation, and threatened to compromise an increasing number of drinking water supplies. The Cuyahoga River fire of 1969, the thirteenth time on record the river caught fire, served as a national catalyst, a rallying point around which citizens and legislators pushed for regulation of pollutant discharge and protection of surface waters.

The 1972 Clean Water Act set the objective "to restore and maintain the physical, chemical, and biological integrity of the Nation's waters." In meeting this objective, the Act:

- Established a system to regulate pollutant discharges into waters of the U.S.,
- Granted EPA the authority to implement pollution control programs,
- Retained existing requirements to set water quality standards for all contaminants in surface waters,
- Prohibited the discharge of pollutants from a point source into navigable waters unless the person obtained a permit under the law's provisions,
- Funded the construction of wastewater treatment plants, and
- Recognized the importance of planning when tacking critical issues caused by non-point source pollution.

The Clean Water Act prohibits the discharge of any pollutants from a point source into Waters of the United States without a National Pollutant Discharge Elimination System (NPDES) Permit. Subsequent amendments to the Act have provided additional regulation and clarification, adapting to meet evolving needs and technologies.

1.3.2 Beneficial Uses and Total Maximum Daily Loads

The Clean Water Act directs states to establish water quality standards and goals for individual Waters of the United States (WOTUS). Idaho Administrative Code (IDAPA 58.01.02.100) establishes the beneficial use categories and standards for Idaho's waters; Table 1 summarizes these beneficial uses.

Table 1. *Idaho beneficial uses of water for Clean Water Act purposes (from IDAPA 58.01.02.100 and IDEQ WBAG)*

Beneficial Use Category	Subcategory	Water Quality Standards Abbreviation
Aquatic Life	Cold Water Salmonid Spawning[1] Seasonal Cold Water Warm Water Modified	COLD SS SC WARM MOD
Recreation	Primary Contact Secondary Contact	PCR SCR
Water Supply	Domestic Agricultural[2] Industrial[2]	DWS AWS IWS
Wildlife Habitats[2]	---	---
Aesthetics[2]	---	---

[1] SS is considered a subcategory of COLD.
[2] These uses are designated for all Idaho water bodies.

To achieve the designated beneficial uses, the Clean Water Act requires the implementation of both technology-based and water quality-based approaches. Technology-based approaches are standardized across the relevant industries: publicly owned treatment works (POTWs) and non-POTWs (i.e. industrial dischargers). Technology-based effluent limits are the minimum level of effluent quality attainable using demonstrated technologies for reducing discharges of pollutants into WOTUS; they are developed independently of the existing quality of receiving WOTUS and potential impacts of discharge to water quality of the WOTUS.

As technology-based effluent limits are not always sufficient to restore or maintain beneficial use, states must also implement water quality-based approaches. The water quality-based approach addresses the reality that the degradation of waterbodies varies vastly across the country. To assess existing conditions and determine requirements of water quality-based approaches, IDEQ categorizes the status of Idaho's surface waters relative to their designated beneficial uses, placing all state waters into one of five categories based on the amount of information known about their water quality, whether or not beneficial uses are supported, and the types of impairments preventing beneficial use support. Figure 1 is IDEQ's category descriptions from *Idaho's 2020/2022 Integrated Report*.

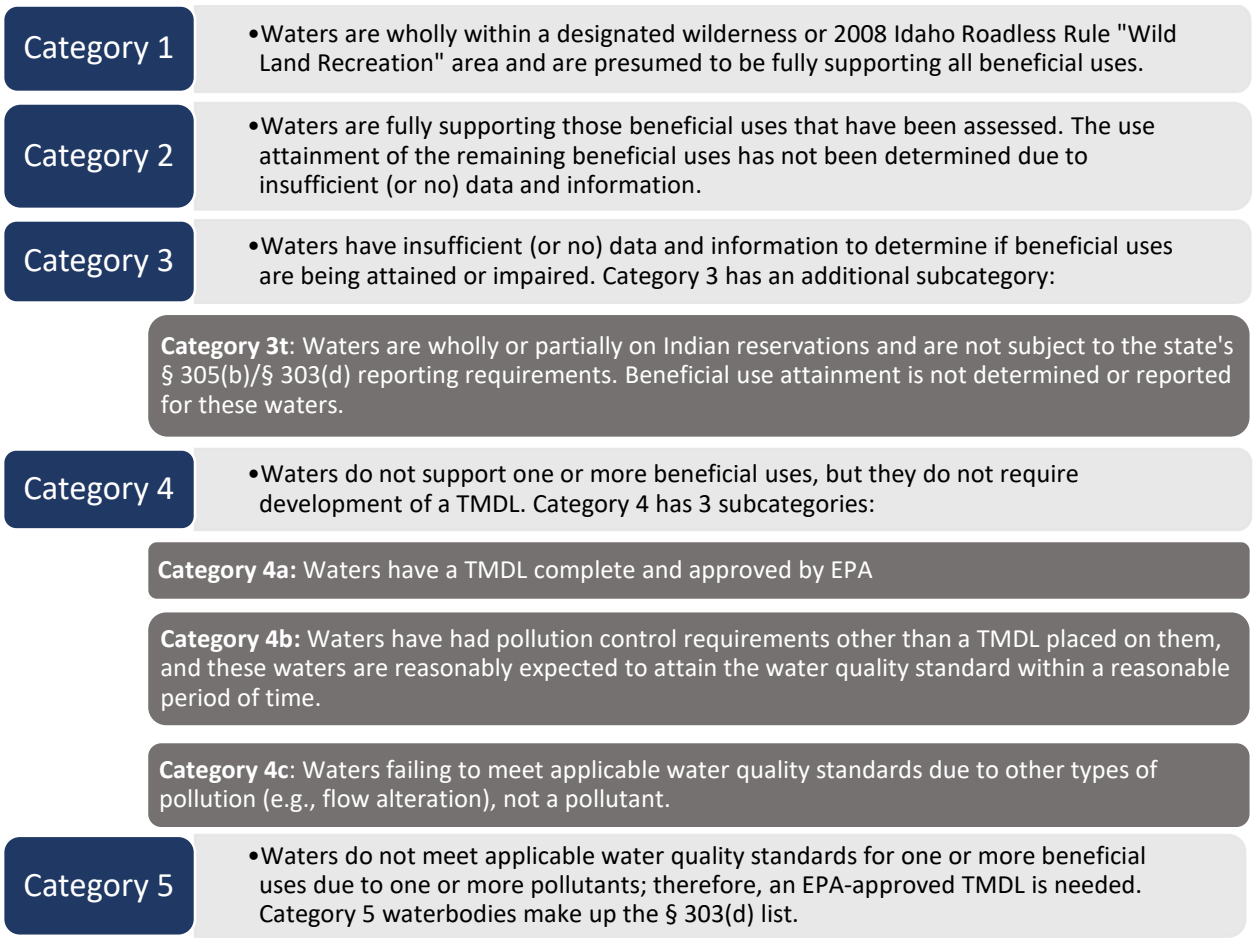


Figure 1. *IDEQ surface water category summary (from IDEQ Idaho's 2018/2020 Integrated Report)*

Section 303(d) of the Clean Waters Act requires all states to list and prioritize water bodies that are impaired. Surface waters listed by IDEQ as Category 4 or 5 – approximately 36% of total stream miles and 53% of total lake acres in the state – are not supporting their beneficial uses and are added to the 303(d) Impaired Waters list. Therefore, additional water quality-based standards and controls are necessary to restore and maintain the water quality, such that the waters can support their beneficial uses and ultimately be de-listed, removed from the 303(d) list.

Total Maximum Daily Loads (TMDLs) are the water quality improvement plans developed to establish water quality-based standards to meet the needs of an 303(d) list impaired water body. In Idaho, IDEQ is the entity required by Section 303(d) of the CWA to develop TMDLs for impaired waters of the state. IDEQ has chosen to develop TMDLs on a subbasin (or watershed) level; addressing all waterbodies and impairments, i.e. pollutants, within a designated USGS fourth-field, eight-digit hydrologic unit code (HUC-8). Following the approval of the TMDL by the EPA, IDEQ drafts implementation plans for the impaired

subbasins; the implementation plan serves as a roadmap to achieve load reductions established in the TMDL, best management practices (BMPs), reasonable timelines, and monitoring plans and deliverables.

The City of Caldwell is located within the Lower Boise River Subbasin, hydrologic unit code (HUC) 17050114. Idaho Department of Environmental Quality (IDEQ) established the Lower Boise River Subbasin to include 303(d) impaired waterbodies due to them not meeting water quality standards for assigned beneficial uses. The subbasin's original TMDL for sediment and bacteria was approved by EPA in 2000. IDEQ then completed subbasin assessments for the Lower Boise River and six tributaries (Blacks Creek, Indian Creek, Fivemile Creek, Tenmile Creek, Mason Creek, and Sand Hollow Creek) in 2001. An addendum to the Lower Boise River TMDL for sediment and bacteria, completed by IDEQ and approved by EPA in 2015, addressed impairments of 15 newly added assessment units. The City of Caldwell includes three of the newly added assessment units, which are Mason Creek--the entire watershed, Indian Creek--from Sugar Avenue to Boise River, and Boise River--from Middleton to Indian Creek. NPDES permit #IDS028118 focuses on these three listed assessment units and their impairment pollutants; refer to Table 2 below.

Table 2. *Receiving Water Impairments (from City of Caldwell MS4 Permit, NPDES Permit #IDS028118)*

Waterbody / Assessment Unit / Description	Impairment Pollutants
Boise River ID17050114SW005_06b *Boise River – Middleton to Indian Creek*	Temperature; Fecal Coliform; Sedimentation/Siltation; Total Phosphorus
Indian Creek ID17050114SW002_04 *Indian Creek – Sugar Ave. to Boise River*	Temperature; *E.coli*; Sedimentation/Siltation; Cause unknown, nutrients suspected
Mason Creek ID17050114SW006_02 *Mason Creek – entire watershed*	Temperature; *E. coli*; Sedimentation/Siltation; Cause unknown, nutrients suspected; Malathion Chlorpyrifos

1.3.3 NPDES Permit Program

The Clean Water Act prohibits the discharge of any pollutants through a "point source" unless the discharger has an NPDES permit. NPDES permits establish pollutant limitations for discharge, delineate monitoring and reporting requirements, and implements additional controls as necessary to prevent discharges that could harm people's health or the environment.

NPDES permits authorize a facility, municipality, or site to discharge a specified amount of a pollutant into receiving waters under certain conditions. Permits are issued as either individual or general permits. The permitting authority prepares individual permits specifically for a facility, developed based on information provided by the facility applying for coverage, including type of activity at the facility, nature of the discharge, and quality of the receiving water(s). A general permit covers a group of dischargers with similar qualities within a given geographical location.

The NPDES Permit Program can be administered by the EPA, or by the individual states. To administer and enforce the NPDES Program, states must apply to EPA, presenting a proposal for how the state's designated agency will implement the program and enforce compliance. Idaho applied for primacy in 2017, and on June 5, 2018, EPA approved Idaho's application to administer and enforce the Idaho Pollutant Discharge Elimination System (IPDES) Program. The transitioning permitting authority from EPA to IDEQ utilized a phased approach, as shown in Table 3. EPA retains the authority to issue NPDES permits for facilities located on tribal lands and/or discharging to tribal waters.

***Table 3**. Schedule of Transfer of Permitting Authority to Idaho (from EPA's Idaho NPDES Program Authorization)*

Phase	Transferred Permit Authority	Transfer Date
Phase I	Individual Municipal Permits and Pretreatment	July 1, 2018
Phase II	Individual Industrial Permits	July 1, 2019
Phase III	General Permits (Aquaculture, Pesticide, CAFP, Suction Dredge, Remediation)	July 1, 2020
Phase IV	Federal Facilities, General and Individual Stormwater Permits, and Biosolids	July 1, 2021

IDEQ took primacy of the City of Caldwell's stormwater permits beginning July 1, 2021.

1.3.4 NPDES Municipal Separate Storm Sewer System (MS4) Permits

The NPDES Municipal Separate Storm Sewer System (MS4) Permit is issued to a municipality or similar agency to allow stormwater discharges to WOTUS. Polluted stormwater runoff is a threat to water quality, because the runoff is commonly transported through municipal separate storm sewer systems (MS4s) and discharged directly into local surface waters, with minimal to no treatment. An MS4 is a system of conveyances that is owned by a state, city, town, or other public water that discharges to public WOTUS. They are designed or used to collect and convey stormwater (e.g. storm drains, pipes, ditches), not a combined sewer, and not part of a sewage treatment plant or publicly owned treatment works (POTW). The regulated entities must reduce pollutants in stormwater to the maximum extent practicable (MEP) to protect water quality.

The Municipal Source Stormwater Program was first implemented by the EPA in 1990, covering Phase I MS4s, i.e. medium and large cities with populations of 100,000 or more, and requiring the MS4 owner to obtain NPDES permit coverage for their stormwater discharges. In 1999, the program was expanded to incorporate small MS4s in US Census Bureau defined urbanized areas.

The City of Caldwell is located within the Nampa Urbanized Area and therefore is required to retain coverage under an NPDES program for municipal stormwater discharge. The City's first MS4 Authorization to Discharge Under the National Pollutant Discharge Elimination System became effective October 15, 2009. EPA issued the City an updated MS4 permit, effective December 1, 2021. This individual permit, and the City's authority to discharge, is scheduled to expire at midnight on September 30, 2025.

1.4 Stormwater Management Responsibilities

The City of Caldwell's Stormwater Management team is housed within the City's Stormwater Department, a department within the overarching Public Works department. The stormwater management team is responsible for the execution of the City's primary stormwater permits, including the Caldwell MS4 permit. The members of the stormwater management team are responsible for implementing and overseeing all compliance activities and other requirements of the City's permit. The most current stormwater management team is shown in Table 4, the primary members of the team are indicated with bold text. The primary members are most actively involved in compliance activities.

Table 4. *Stormwater Management Team*

Christina Beeson — **Stormwater Superintendent**

- Stormwater and Floodplain Compliance Program Supervisor; Provides technical and managerial oversight of the City's stormwater compliance program.

Jake Wells — **Environmental Scientist**

- Permit Documentation Lead; Provides technical oversight for sample processing. Provides QA oversight for sample handling, custody, and analytical methods.

Madison Kolda — **Environmental Stormwater Inspector**

- IDDE Lead; responsible for responding to complaints of stormwater violations such as illicit discharge.

Bryan Dallolio — **Construction Stormwater Inspector**

- Construction SWPPP Lead; responsible for inspections of construction sites to ensure compliance with approved sediment and stormwater plans and State Regulations.

Ashley Newbry — Deputy Public Works Director (Water)

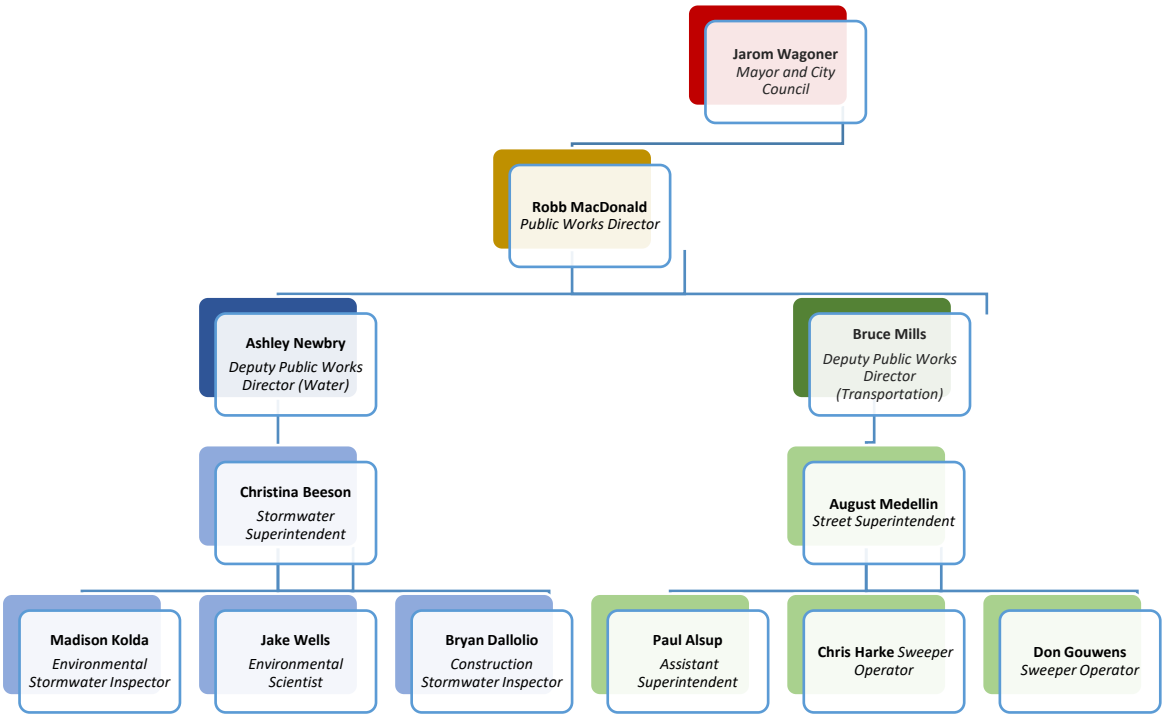
- Water Resources & Environmental Lead; provides technical and managerial oversight of City environmental programs and permits.

August Medellin — Street Superintendent

- Oversees the Street Department, responsible for MS4 maintenance activities including street sweeping, catch basin and storm drain cleaning. Street Department also handles maintenace and restoration of stormwater management infrastructure.

Robb MacDonald — Public Works Director

- Oversees Public Works departments. Provides support and institutional knowledge to primary stormwater team members. Directs other Public Works departments to support stormwater management activities.



As additional members are added to the stormwater management team, this document will be updated to reflect the change.

Figure 2: Hierarchy of MS4 staff at the City of Caldwell

1.5 Legal Authority

The City of Caldwell must maintain relevant ordinances and/or regulatory mechanisms to control discharges into and from its MS4 and to comply with the Permit. The City must have the legal authorities that address the six criteria listed in section 2.5.2 of the Permit, no later than April 3, 2025. The criteria to be addressed, and the City's corresponding legal authority are provided below:

Criteria: Prohibit and eliminate, through statute, ordinance, policy, permit, contract, court or administrative order, or other similar means, illicit discharge to the MS4.

City's Legal Authority: City of Caldwell Ordinance 13-01-03: Discharge Regulations and Requirements, City of Caldwell Ordinance 13-01-07: Inspection and Enforcement

Criteria: Control, through statute, ordinance, policy, permit, contract, court or administrative order, or other similar means, the discharge to the MS4 of spills, dumping or disposal of materials other than stormwater, pursuant to Permit Part 3.2.3 (Illicit Discharge Detection and Elimination –ordinance)

City's Legal Authority: City of Caldwell Ordinance 13-01-03: Discharge Regulations and Requirements, City of Caldwell Ordinance 13-01-07: Inspection and Enforcement

Criteria: Control the discharge of stormwater and pollutants from land disturbance and development, both during the construction phase and after site stabilization has been achieved, consistent with Permit Parts 3.3 (Construction Site Runoff Control Program) and 3.4 (Stormwater Management for Areas of New Development and Redevelopment)

City's Legal Authority: City of Caldwell Ordinance 13-01-03: Discharge Regulations and Requirements, City of Caldwell Ordinance 13-01-05: Stormwater Management Plans and Comprehensive Drainage Plans, City of Caldwell Ordinance 13-01-07: Inspection and Enforcement

Criteria: Control through interagency agreements as necessary or appropriate, the contribution of pollutants from one MS4 to another interconnected MS4.

City's Legal Authority: This criteria is not applicable at this time, as the City of Caldwell's MS4 is not interconnected to any other MS4. Should this criteria become relevant and necessary, the City will draft the necessary license agreement within the required time frame.

Criteria: Require compliance with conditions in ordinances, permits, contracts, or orders.

City's Legal Authority: City of Caldwell Ordinance 13-01-03: Discharge Regulations and Requirements, City of Caldwell Ordinance 13-01-07: Inspection and Enforcement

Criteria: Carry out all inspection, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with these Permit conditions, including the prohibition of illicit discharges to the MS4.

City's Legal Authority: City of Caldwell Ordinance 13-01-07: Inspection and Enforcement

1.6 Staff and Fiscal Resources

The City of Caldwell will provide adequate finances, staff, equipment, and other support capabilities to implement the control measures and other requirements outlined in the Permit. Annually, the staff

involved in executing the City's stormwater management program will assess the adequacy of available resources, and address with supervisory staff. As the City continues to expand, additional stormwater team members continue to be added to effectively manage the compliance activities for the growing city.

An additional staff position was added to FY 2022, the Environmental Scientist position, which works on stormwater recordkeeping, maintenance, conducting inspections, and assisting the other members of the stormwater management team, as needed. Two additional inspector positions – one scientific and one construction – have been filled in FY 2023.

Table 5. *Caldwell annual MS4 budget throughout permit term.*

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Personnel Training	7,000	5,000	5,000	5,000	5,000
Partners for Clean Water and other Education	20,000	20,000	20,000	20,000	20,000
Professional Services	7,500	57,797	19,297	21,797	19,297
R & M Storm Drains	315,000	410,500	409,500	409,500	140,000
Minor Equipment	7,540	7,540	7,540	7,540	28,500
Construction in Progress	400,000	360,000	300,000	300,000	0
Total	**757,040**	**880,837**	**781,337**	**783,837**	**212,797**

As budget values are updated annually, Table 6 will be updated correspondingly to accurately reflect projected spending by the City on MS4 compliance activities.

Section 2. Description of the City's MS4

2.1 Description of Permit Area

The City of Caldwell's MS4 permit covers all areas within the Nampa Urbanized Area served by the municipal separate storm sewer system (MS4) owned and/or operated by the City of Caldwell.

2.1.1 Physical Setting and Climate

The City of Caldwell is located in southwest Idaho, twenty-five miles west of Idaho's capital City of Boise. The City covers an area of approximately twenty-three square miles located within the Boise River Valley and is part of the greater geographic region commonly known as the Treasure Valley. The community's prolific growth was due, in large part, to its proximity to the Boise River and the Oregon Short Line Railroad, the construction of which established the City in 1883. The City of Caldwell has served as the county seat of Canyon County since the county's establishment in 1892.

In modern times, the City has continued to develop along Interstate 84 and the Boise River. The City is neighbored by the City of Nampa to the southeast and the City of Middleton to the northeast, and bounded to the south by Lake Lowell. The heart of the City is bisected by Indian Creek, and a segment of Mason Creek flows through the eastern side of the City; both creeks are tributary to the Boise River. The topography is nearly level to gentle sloping with the city center at an elevation of 2,428 feet above sea level.

The City is within a transition area between steppe and desert, consequently the climate is semi-arid to arid. Summers are hot and dry and winters are relatively mild. Figures 3-5 show the comparison of monthly normals for the 30-year record periods, as compiled by the National Centers for Environmental Information (NCEI, formerly known as the National Climatic Data Center).

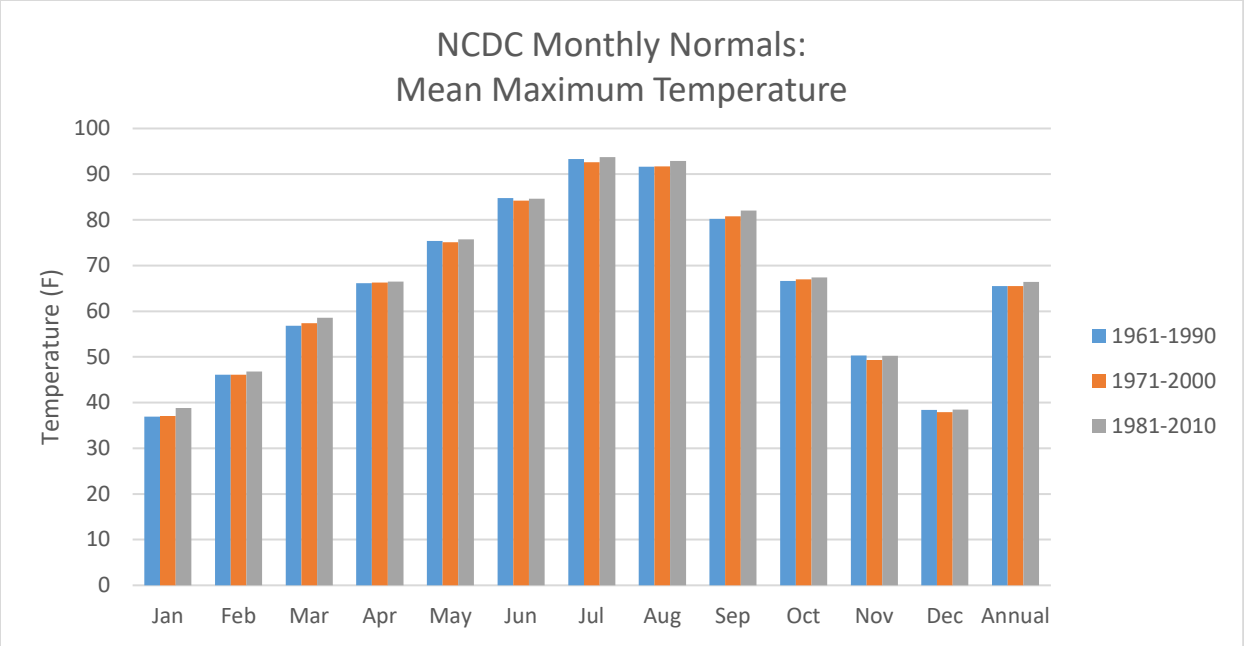


Figure 3. *NCDC Monthly Normals: Mean Maximum Temperature (Western Regional Climate Center, NCDC)*

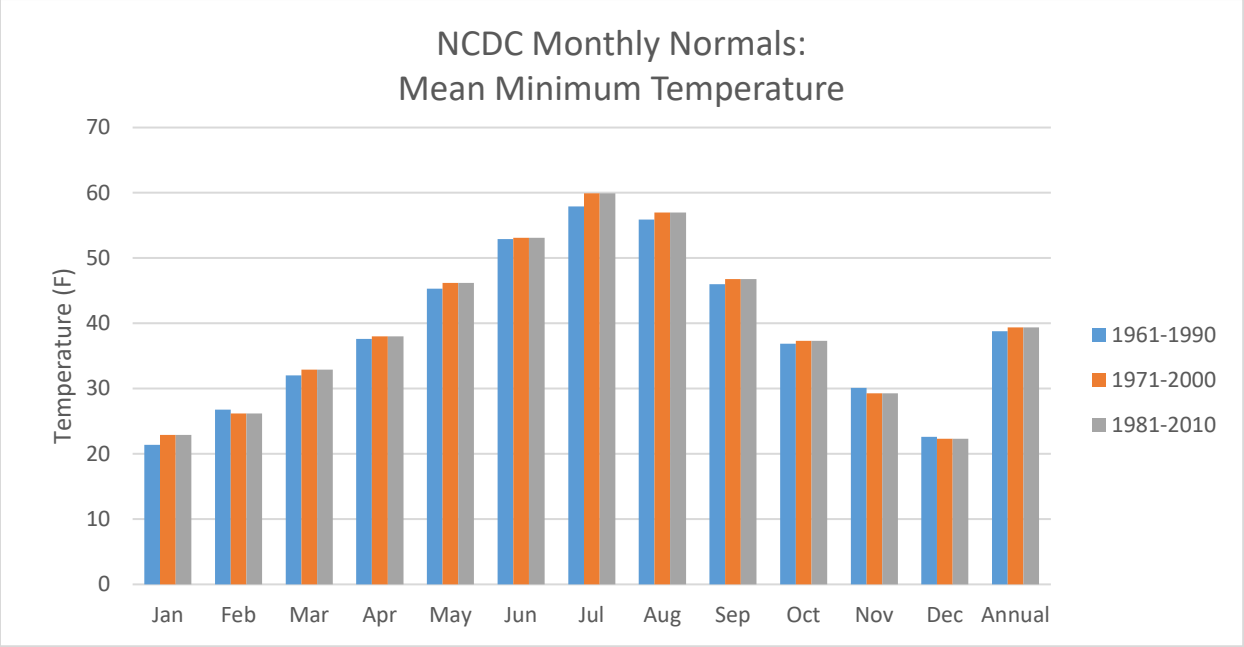


Figure 4. *NCDC Monthly Normals: Mean Minimum Temperature (Western Regional Climate Center, NCDC)*

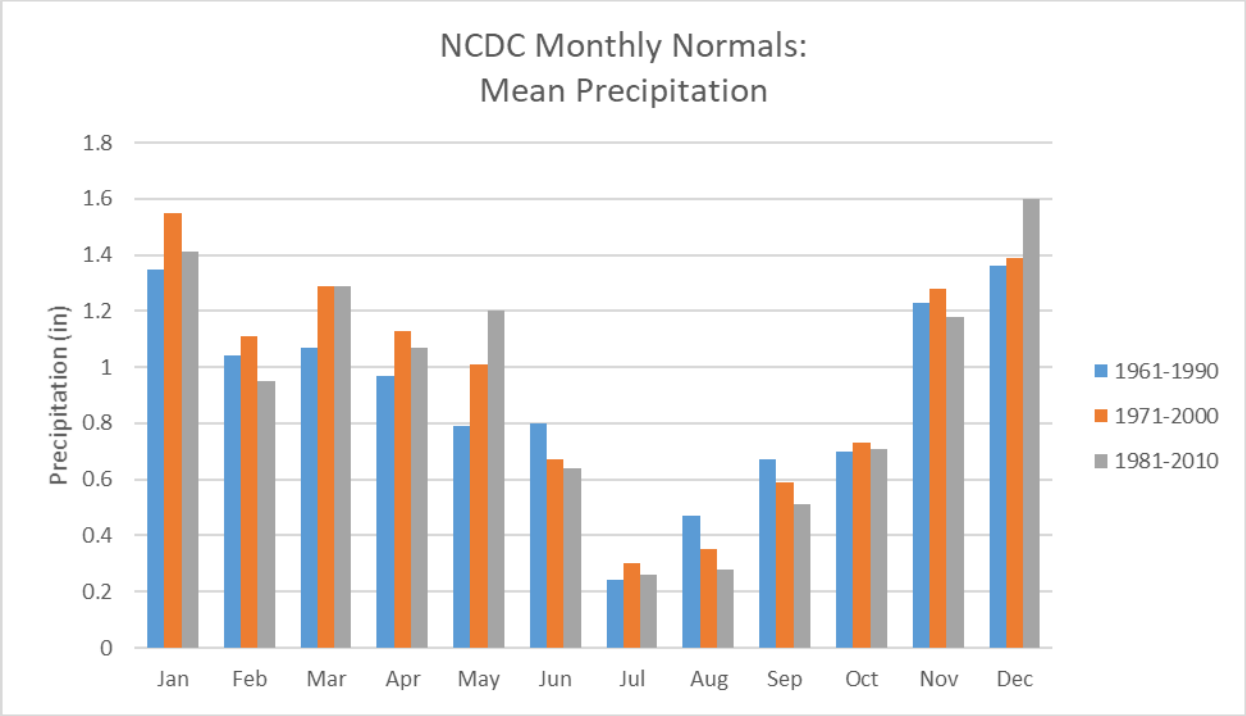


Figure 5. *NCDC Monthly Normals: Mean Precipitation (Western Regional Climate Center, NCDC)*

Table 7 summarizes the annual mean precipitation for the last three record period intervals, the annual summary of the data shown in Figure 5.

Table 6. *NCDC Monthly Normals, Annual Mean Precipitation comparison (Western Regional Climate Center, NCDC)*

Record Period	Annual Mean Precipitation (inches)
1961-1990	10.69
1971-2000	11.4
1981-2010	11.1

Climate data will be updated as more current data becomes available. Consideration will be given to the impacts of climate change on climate forecasts and the accuracy and relevancy of historical averages.

2.1.2 Description of Permit Area

The City of Caldwell is located within the Nampa Urbanized Area, a delineated urban area, as defined by the US Census Bureau, most recently updated in 2010. The City covers an area of approximately twenty-three square miles. The City impact area –the adjacent unincorporated areas of Canyon County the City reasonably expects to annex in the future constitutes an additional twenty-four square miles beyond the City boundary (a total area of 47 square miles, including the City).

Approximately 230 miles of streets are owned and maintained by the City, with the number consistently increasing as the City expands. Some streets remain without curb, gutter, or sidewalk, but as developments are constructed, they complete the necessary upgrades to the frontages.

There are four impaired surface waters within and around the City of Caldwell and its impact area: the Boise River flows westerly from the City of Boise, along the northern edge of Caldwell, and continues until it reaches its confluence with the Snake River at the Oregon state line. Indian Creek runs northwest from the New York Canal in Kuna until it reaches the Boise River in Caldwell. The Creek bisects downtown Caldwell; this section was covered in the 1960's but was day-lighted in 2008. Mason Creek also flows northwesterly along the east side of Caldwell, where it meets the Boise River. Lake Lowell is a man-made reservoir, approximately 14.5 acres in size, the reservoir is located south of the City and provides irrigation water used by a few residents of the City and many farmers outside of the City.

The area's soil predominantly consists of loam (including clay loam and silt loam) soil types overlaying bedrock-type confining layers. This soil stratification is due, in large part, to the prehistoric Lake Idaho that covered the Treasure Valley from 9 to 2 million years ago, depositing a layer of fine sediment and decomposing organic matter. The soil around Caldwell remains dense and support a vibrant agricultural community. Additional fine sediment could have been deposited during the flush of floodwaters from the Lake Bonneville flood, around 14,500 years ago.

Along with the soil, beneath Caldwell lies a system of groundwater aquifers of varying depths. Shallow aquifers often supply water to rural, domestic and some irrigation water users. Intermediate aquifers supply water for domestic, irrigation, and municipal users. Municipal, industrial, and some irrigation wells typically draw water from deeper aquifers. Shallow aquifers are often contained in the Pleistocene-age (2 million years ago) Snake River Group sediment with depths generally less than 75 meters below ground surface. Groundwater in shallow aquifers generally originates at ground surface, fed by infiltration of precipitation, irrigation, rivers, and canals. Approximately 50% of the Treasure Valley's land area is flood or sprinkler irrigated, which accounts for approximately 95% of recharge to shallow aquifers. Seasonal irrigation can have significant impacts on groundwater levels.

2.1.3 Jurisdiction of Drainage Systems

The City of Caldwell owns, operates, and maintains its MS4 system. Stormwater management facilities installed by developments to meet the stormwater management requirement established in the City's ordinance are under the sole ownership of the property owner or, in the case of a residential development where the facility is located within a shared common lot, the homeowner's association. Operation and maintenance of the stormwater management facility is the sole responsibility of the private owner of the property. This includes facilities that overflow or otherwise connect with the City's MS4.

Irrigation systems are managed by either the City's Caldwell Municipal Irrigation District or Pioneer Irrigation District. *Table 16. Receiving surface waters: canals, ditches, drains, laterals* includes ownership information of surface waters within the City's Impact Area, for reference.

2.1.4 Population

The City of Caldwell, like all of the Treasure Valley, has seen exceptional population growth over the last decades. The population boom provides extensive opportunities and challenges, as the City adjusts to serving a large population base.

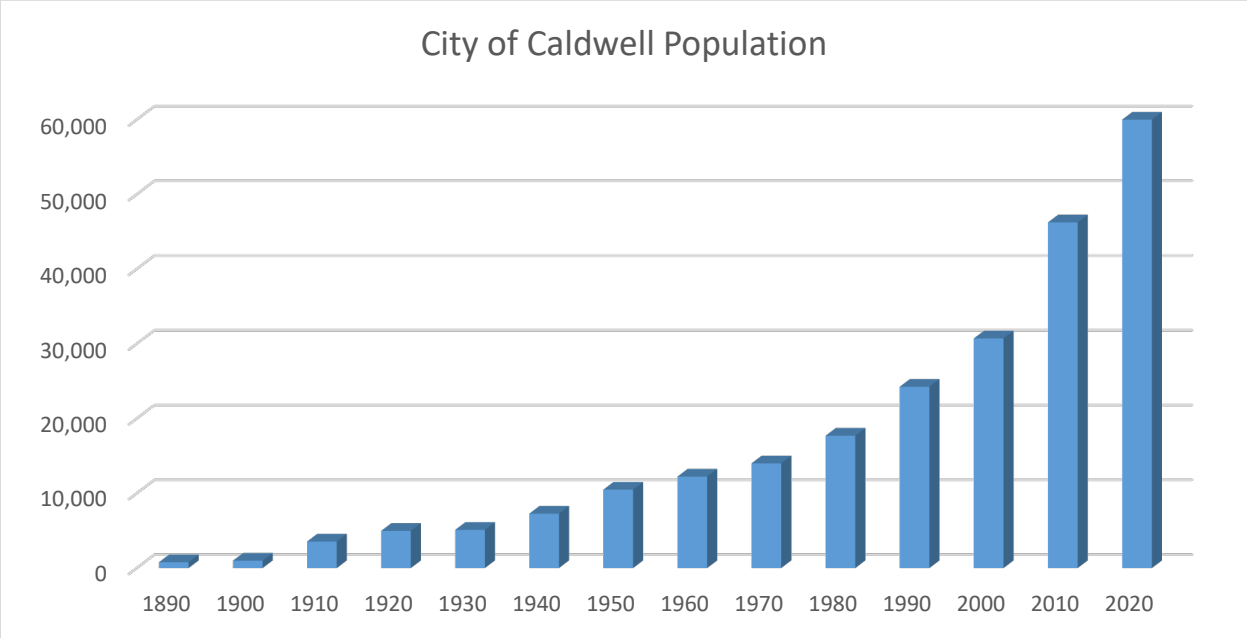


Figure 6. *Population growth from 1890-2020 (from US Census Bureau)*

As the population and area continue to expand, the City will continue to enforce its ordinance to ensure that the growth does not cause negative environmental impacts.

Table 7. *Population statistics (from City of Caldwell 2040 Comprehensive Plan)*

GENERAL POPULATION	
Population estimate (COMPASS 2020)	61,420
AGE & GENDER	
Persons under 5 years	9.8%
Persons under 18 years	31.6%
Persons 65 years & over	10.3%
Female persons	50.6%
RACE & HISPANIC ORIGIN	
White alone	78.3%

Black or African American alone	0.3%
American Indian & Alaskan Native alone	1.9%
Asian alone	0.8%
Native Hawaiian & other Pacific Islander alone	0.2%
Two or more races	4.4%
Hispanic or Latino	37.3%

2.1.5 Land Use

The exponential population boom has rapidly reshaped the landscape and land use of the City. Paving roadways, building homes, and pouring concrete has increased the percentage of impervious surface areas in the community, reducing area available for natural infiltration. Surface drains and piped storm drains in addition to the increased impervious areas significantly decrease stormwater's time of concentration and potential for aquifer recharge. These factors can result in increasing peak runoff flows and flash flooding, as well as reduced nutrient/pollutant attenuation from infiltration and vegetative uptake.

Still, considerable amounts of area are devoted to agriculture, which has the potential to increase nutrient and pollutant loading to surface waters, especially during the irrigation season when fertilizers and pesticides are actively being applied to growing crops.

As land uses change going forward, the City will enforce and carefully consider its ordinance to ensure that sufficient protection is in place to safeguard and preserve natural resources, human property, and safety.

See the City of Caldwell Comprehensive Plan 2040 for detailed land use maps.

2.1.6 Economic Base

The City of Caldwell's 2040 Comprehensive Plan provides detail on both the City's current economic base, and projections of future growth and development.

Table 8. *Economic statistics (City of Caldwell 2040 Comprehensive Plan)*

ECONOMY	
In civilian labor force, 16 yrs+, 2014-2018	64.4%
In civilian labor force, female, 16 yrs+, 2014-2018	57.4%
Unemployment rate 2020 (Gem State Prospector)	5.7%
Total accommodation & food service sales 2012 (thousands)	46,582
Total healthcare & social assistance 2012 (thousands)	187,182
Total manufacturing shipments 2012 (thousands)	579,093
Total merchant wholesale sales 2012 (thousands)	130,359
Total retail sales 2012 (thousands)	430,024

Total retail sales per capita 2012	$9,021
HOUSING	
Housing units 2020 (Esri)	19,323
Owner occupied housing unit rate, 2014-2018	63.8%
Median value of owner-occupied housing units, 2020 (Esri)	$173,520
Median gross rent, 2014-2018	$845
TRANSPORTATION	
Mean travel time to work, 2014-2018	23.5
BUSINESSES	
Total employer establishments 2014-2018	2,881
Men-owned firms, 2012	1,327
Women-owned firms, 2012	945
Minority-owned firms, 2012	626

2.1.7 Environmental Justice

Environmental Justice is a topic of growing concern to the EPA and local governments alike. EPA defines Environmental Justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies." This means that no group of people should have a disproportionate share of negative environmental consequences resulting from industrial, governmental, and commercial operations or policies.

The City of Caldwell cares deeply for its citizens and wants to ensure that as the City rapidly grows and develops, that consideration is made that no citizens disproportionately bear the burden of negative environmental impacts.

Executive Order 12898 directed federal agencies to develop environmental justice strategies to help federal agencies address disproportionately high and adverse human health or environmental effects of their programs on minority and low-income populations. In response, EPA has developed an Environmental Justice Screening and Mapping Tool, which provides EPA and the public a nationally consistent data set that combines environmental and demographic indicators in maps and reports.

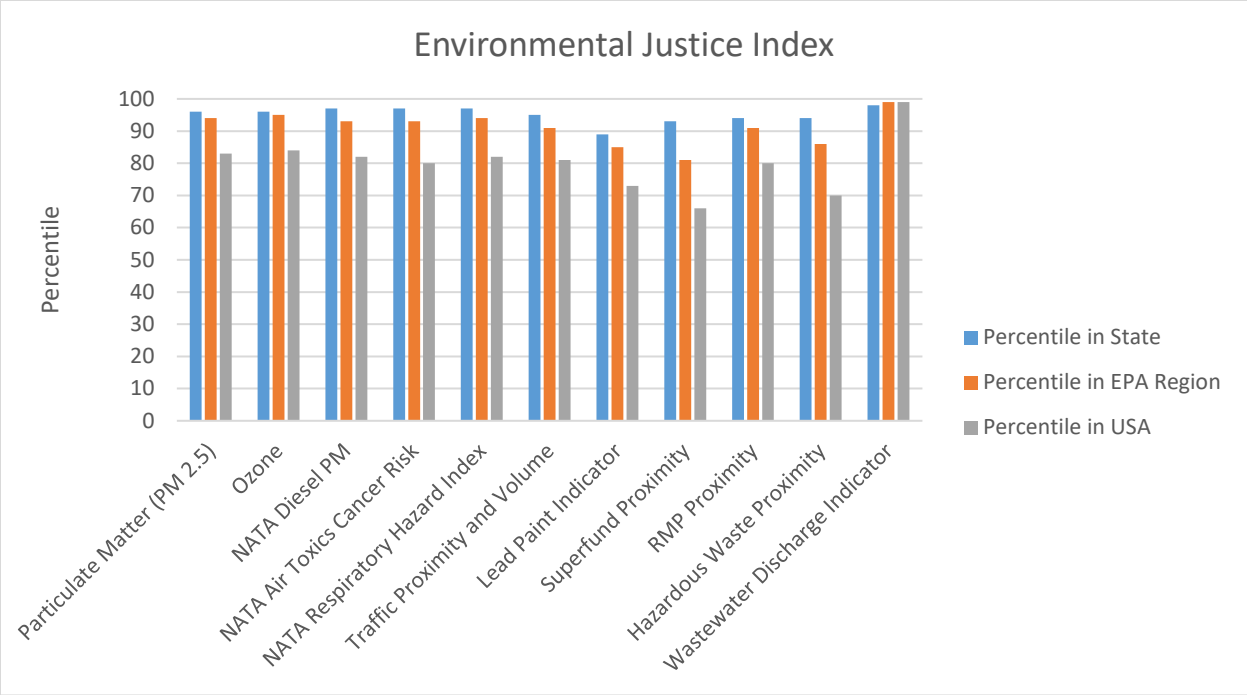


Figure 7. *Environmental Justice Indexes for the City of Caldwell compared to all people's block groups in the State/Region/US (EPA EJSCREEN Mapper)*

As shown in Figure 7 and Table 10, the City of Caldwell ranks in the upper percentile for all Environmental Justice Index factors.

Table 9. *Environmental Justice Indexes for the City of Caldwell compared to all people's block groups in the State/Region/US (EPA EJSCREEN Mapper)*

	Percentile in Idaho	Percentile in EPA Region 10	Percentile in USA
Particulate Matter (PM 2.5)	96	94	83
Ozone	96	95	84
NATA Diesel PM	97	93	82
NATA Air Toxics Cancer Risk	97	93	80
NATA Respiratory Hazard Index	97	94	82
Traffic Proximity and Volume	95	91	81
Lead Paint Indicator	89	85	73
Superfund Proximity	93	81	66
RMP Proximity	94	91	80
Hazardous Waste Proximity	94	86	70
Wastewater Discharge Indicator	98	99	99

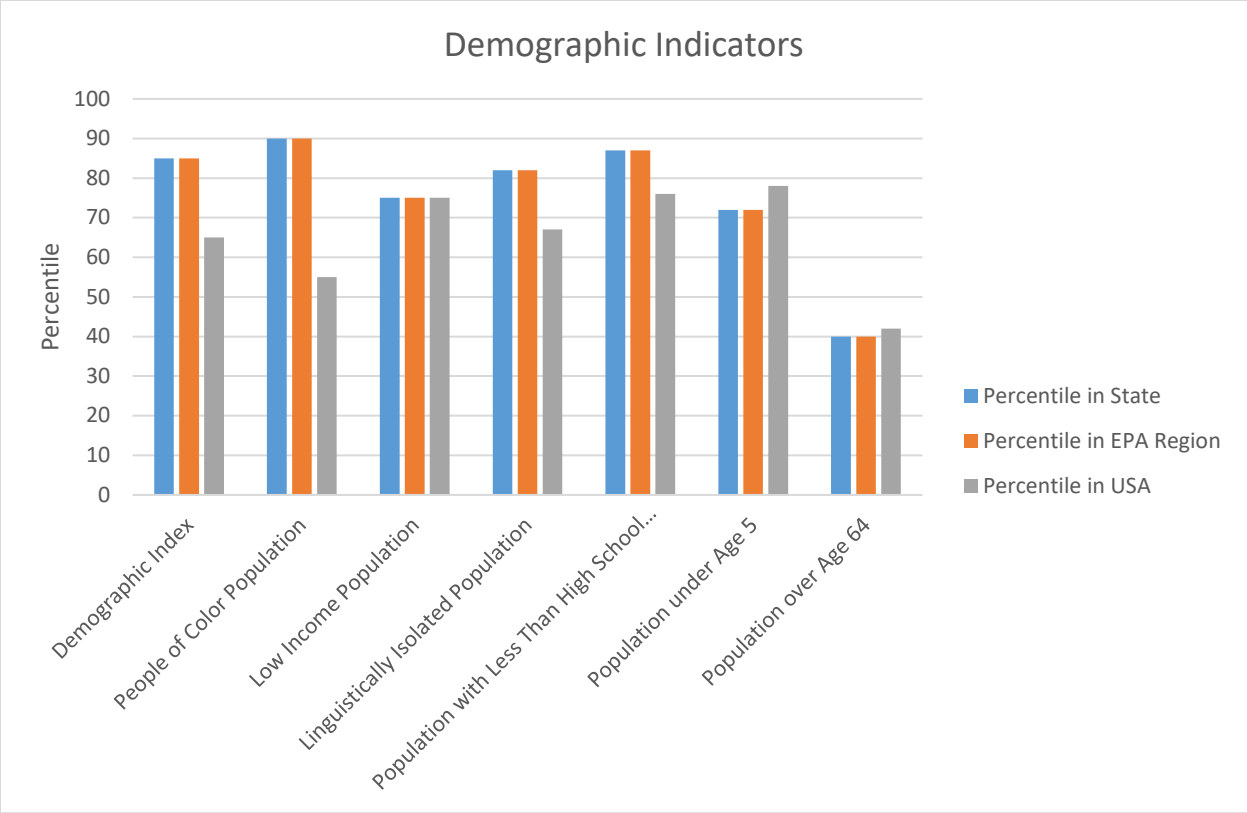


Figure 8. *Demographic Indicators for the City of Caldwell compared to all people's block groups in the State/Region/US (EPA EJSCREEN Mapper)*

Table 10. *Demographic Indicators for the City of Caldwell compared to all people's block groups in the State/Region/US (EPA EJSCREEN Mapper)*

	Percentile in Idaho	Percentile in EPA Region 10	Percentile in USA
Demographic Index	85	85	65
People of Color Population	90	90	55
Low Income Population	75	75	75
Linguistically Isolated Population	82	82	67
Population with Less Than High School Education	87	87	76
Population under Age 5	72	72	78
Population over Age 64	40	40	42
Demographic Index	85	85	65

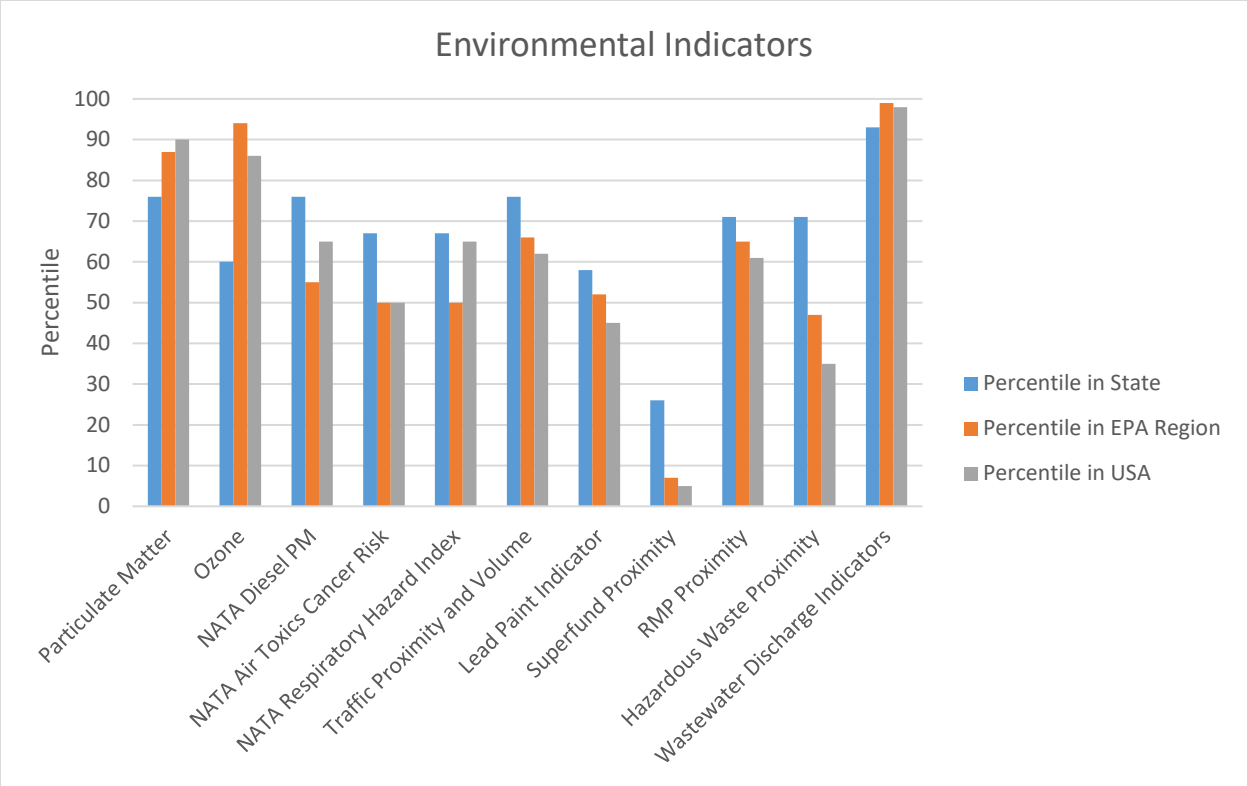


Figure 9. *Environmental Indicators for the City of Caldwell compared to all people's block groups in the State/Region/US (EPA EJSCREEN Mapper)*

Table 11. *Environmental Indicators for the City of Caldwell compared to all people's block groups in the State/Region/US (EPA EJSCREEN Mapper)*

	Percentile in Idaho	Percentile in EPA Region 10	Percentile in USA
Particulate Matter (PM 2.5 in ug/m3)	76	87	90
Ozone (ppb)	60	94	86
NATA Diesel PM (ug/m3)	76	50-60th	60-70th
NATA Air Toxics Cancer Risk (risk per MM)	67	<50th	<50th
NATA Respiratory Hazard Index	67	<50th	60-70th
Traffic Proximity and Volume (daily traffic count/distance to road)	76	66	62
Lead Paint Indicator (% pre-1960s housing)	58	52	45
Superfund Proximity (site count/km distance)	26	7	5
RMP Proximity (facility count/km distance)	71	65	61

Hazardous Waste Proximity (facility count/km distance)	71	47	35
Wastewater Discharge Indicators (toxicity-weighted concentration/m distance)	93	99	98

Because the City ranks in the upper percentiles of the Environmental Justice indices, additional consideration must be made when it comes to development, industry, and investment in natural resources, to ensure that at-risk communities are not disproportionately bearing the brunt of negative environmental impacts within the community.

2.2 Narrative Description of City's MS4 Contributing Area

The City is nestled within the Treasure Valley, and—with the exception of Canyon Hill—the topography is generally more level than other communities in the Valley, as the City is approximately 20 miles west from the Boise foothills, firmly in the valley plain. The majority of topographic relief comes from the elevation differences between the alluvial terraces of the Boise River, upon which the City has been built.

The soils present are predominantly loam soils, an ideal soil type for farming, consisting of a combination of porous sand, silt, and clay soil particles. The USGS Web Soil Survey (WSS) was used to obtain soil information and maps. Hydrologic soil groups (HSG), wind erodibility index (WEI), and depth to groundwater table were assessed for the range of soils within the City's impact area. These conditions produce significant potential to impact stormwater runoff and sediment pollution.

USGS provides the following definition for hydrologic soil group classifications: "Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms. The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

- Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

- Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

- Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

- Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

- If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes."

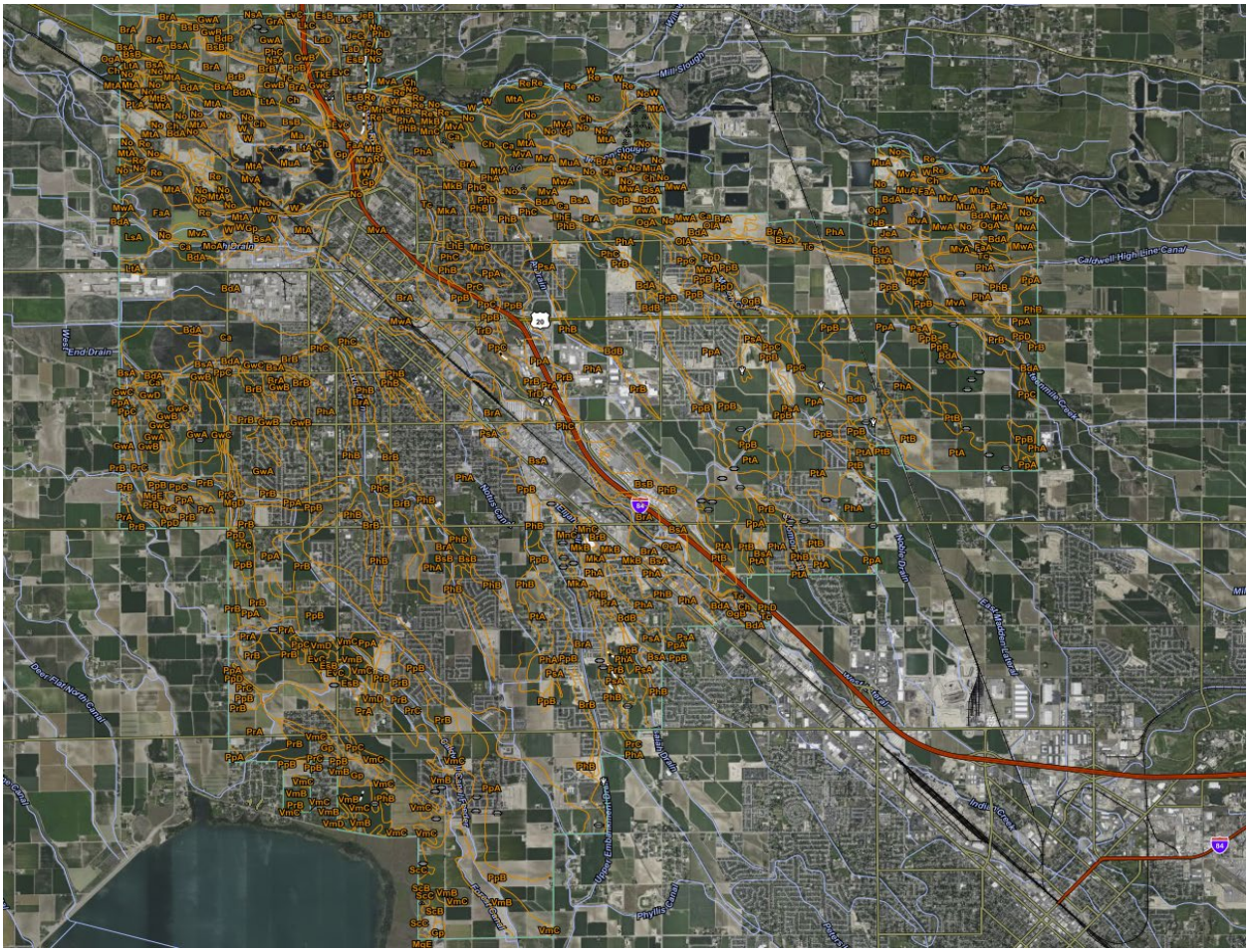


Figure 10. *Soil Map of City of Caldwell Impact Area (USGS Web Soil Survey)*

10 illustrates the distribution of soil types across the City of Caldwell impact area. Table 13 identifies the soil types within the City of Caldwell Impact Area shown in Figure 10, as well as the corresponding slopes, Hydrologic Soil Group, Wind Erodibility Index, Depth to Water Table, and the area and percent of total area of the soil type. Approximately 86 percent of the City of Caldwell impact area contains soils classified

as HSG C, these soils have a slower rate of infiltration when thoroughly wet, and a higher water runoff potential.

The wind erodibility index, per USGS, is: "a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion." As the climate of the City is relatively dry, particularly during the summer months, it is important to consider the erosive factor of wind on exposed soils. The wind-eroded particulates have the potential to become mobile by entering the air, or possibly nearby surface waters listed as impaired for water quality, which may have approved TMDL's for sediment.

The depth to water table refers to the depth at which the saturated zone in the soil is found during specified months. The City is situated at a location and elevation in the Treasure Valley, along the Boise River, in such a way that in many areas around the City, the groundwater elevation can be relatively close (less than 10 feet) from the ground surface. This is due to a combination of factors, predominately from perched groundwater tables contained by confining underlying soil layers (i.e. Pleistocene-era Snake River Group sediments) and close proximity to surface waters. The City also overlays intermediate and deep groundwater layers, which are used for domestic water supply.

Table 12. *Summary of soil information*

Soil Type	Slopes	Abbr.	HSG	Depth to Water Table[i]	Wind Erodibility Index[ii]	Area	Percent of City[iii]
Baldock loam	0-1%	BdA	C	76	86	1,223.7	4.1%
Baldock loam	1-3%	BdB	C	76	86	294.5	1.0%
Bram silt loam	0-1%	BrA	C	137	56	1494	5.0%
Bram silt loam	1-3%	BrB	C	137	56	254.5	0.8%
Bram silt loam, saline-alkali	0-1%	BsA	C	137	56	1,006.5	3.3%
Bram silt loam, saline-alkali	1-3%	BsB	C	137	56	284.9	0.9%
Catherine silt loam		Ca	C	84	48	557.5	1.8%
Chance fine sandy loam		Ch	A/D	15	86	379.1	1.3%
Elijah-Chilcott silt loams	1-3%	EsB	C	>200	56	83	0.3%
Elijah-Vickery silt loams	3-7%	EvC	C	>200	56	174.1	0.6%
Falk fine sandy loam	0-2%	FaA	A	122	86	238.4	0.8%
Gravel pit		Gp		>200		164.8	0.5%
Greenleaf silty clay loam	0-1%	GrA	C	>200	48	7.7	0.0%
Greenleaf-Owyhee silt loam	0-1%	GwA	C	>200	56	707.4	2.3%
Greenleaf-Owyhee silt loam	1-3%	GwB	C	>200	56	376.9	1.2%
Greenleaf-Owyhee silt loam	3-7%	GwC	C	>200	56	107.9	0.4%
Greenleaf-Owyhee silt loam	7-12%	GwD	C	>200	56	6.6	0.0%
Jenness loam	0-1%	JeA	B	>200	56	35.9	0.1%
Jenness loam	1-3%	JeB	B	>200	56	9.1	0.0%
Jenness loam	3-7%	JeC	B	>200	56	13.3	0.0%
Lankbush sandy loam	7-12%	LaD	C	>200	86	6.1	0.0%

Soil Type	Slopes	Abbr.	HSG	Depth to Water Table[i]	Wind Erodibility Index[ii]	Area	Percent of City[iii]
Lankbush-Power complex	12-30%	LhE	C	>200	86	39.9	0.1%
Lankbush-Elijah-Vickery silt loam	3-7%	LkC	C	>200	56	48.2	0.2%
Lankbush-Elijah-Vickery silt loam	7-12%	LkD	C	>200	56	0.5	0.0%
Letha fine sandy loam	0-1%	LsA	B	107	86	74.1	0.2%
Letha fine sandy loam	0-1%	LtA	B	107	86	79.9	0.3%
Marsh		Ma		46		29.5	0.1%
Marsing loam	7-12%	MgD	B	>200	56	19.8	0.1%
Marsing loam	12-20%	MgE	B	>200	56	12.9	0.0%
Minidoka silt loam	0-1%	MkA	C	>200	86	122.4	0.4%
Minidoka silt loam	1-3%	MkB	C	>200	86	209.6	0.7%
Minidoka-Scism silt loam	3-7%	MnC	C	>200	86	105.3	0.3%
Moulton loamy sand	0-1%	MoA	B	69	134	33	0.1%
Moulton fine sandy loam	0-1%	MtA	B	69	86	1,155.2	3.8%
Moulton fine sandy loam	1-3%	MtB	B	69	86	40.2	0.1%
Moulton fine sandy loam, saline	0-1%	MuA	B	69	86	241	0.8%
Moulton loam	0-1%	MvA	C	69	56	957.4	3.2%
Moulton loam, saline	0-1%	MwA	C	69	56	601.5	2.0%
Notus soils		No	A	122	86	745.5	2.5%
Nyssaton silt loam	0-1%	NsA	C	>200	86	6.2	0.0%
Oliaga loam	0-1%	OgA	B	107	86	150.8	0.5%
Oliaga loam	1-3%	OgB	B	107	86	87.4	0.3%
Oliaga loam, saline-alkali	0-1%	OlA	B	107	86	60.3	0.2%
Power silt loam	0-1%	PhA	C	>200	48	5,986.8	19.8%
Power silt loam	1-3%	PhB	C	>200	48	967.8	3.2%
Power silt loam	3-7%	PhC	C	>200	48	127.6	0.4%
Power silt loam	7-12%	PhD	C	>200	48	26	0.1%
Playas		PLA		0	86	1.7	0.0%
Power-Purdam silt loam	0-1%	PpA	C	>200	48	3,822.3	12.7%
Power-Purdam silt loam	1-3%	PpB	C	>200	48	1,579.5	5.2%
Power-Purdam silt loam	3-7%	PpC	C	>200	48	256.4	0.8%
Power-Purdam silt loam	7-12%	PpD	C	>200	48	36.4	0.1%
Purdam silt loam	0-1%	PrA	C	>200	48	312.3	1.0%
Purdam silt loam	1-3%	PrB	C	>200	48	1,075.5	3.6%
Purdam silt loam	3-7%	PrC	C	>200	48	343.6	1.1%
Purdam silt loam, water table	0-1%	PsA	C	114	48	174.2	0.6%
Purdam-Sebree silt loam	0-1%	PtA	C	>200	48	908.5	3.0%
Purdam-Sebree silt loam	1-3%	PtB	C	>200	48	221	0.7%

Soil Type	Slopes	Abbr.	HSG	Depth to Water Table[i]	Wind Erodibility Index[ii]	Area	Percent of City[iii]
Riverwash		Re		30	220	254.8	0.8%
Scism silt loam	1-3%	ScB	C	>200	86	4.2	0.0%
Scism silt loam	3-7%	ScC	C	>200	86	10.5	0.0%
Terrace escarpments		Tc		>200	86	260.9	0.9%
Trevino-Rock outcrop complex	0-20%	TkE	D	>200	56	46.8	0.2%
Trevino silt loam	3-12%	TrD	D	>200	56	38	0.1%
Vickery-Marsing silt loams	1-3%	VmB	C	>200	56	647.6	2.1%
Vickery-Marsing silt loams	3-7%	VmC	C	>200	56	582.4	1.9%
Vickery-Marsing silt loams	7-12%	VmD	C	>200	56	80	0.3%
Water		W				157.8	0.5%
Total						**30,169.1**	**100%**

i. Depth at which the saturated zone in the soil is found during specified months, measured in centimeters
ii. The susceptibility of soil to wind erosion, in tons per acre per year, that can be expected to be lost to wind erosion
iii. Percentage of total City of Caldwell Impact Area consisting of designated soil type

The City contains areas of FEMA-mapped Special Flood Hazard Areas (SFHAs) (floodway, AE and A zones), predominantly along the Boise River, as well as along Indian and Mason Creeks. Areas within the floodplain and floodway have additional development restrictions per City Ordinance 12-15-01 (Flood Damage Prevention). Figure 11 shows the floodplain as it was mapped by FEMA is 2010, Figure 12 shows updated mapping along the Boise River and the portion of Indian Creek that flows through downtown Caldwell, as mapped by FEMA in 2019.

Robust management of stormwater has the simultaneous benefit of alleviating strain on flood management systems. Maintaining or increasing time of concentration of stormwater moving across the developing landscape, promoting pervious over impervious surfaces, and requiring routing surface water to groundwater through infiltration facilities leaves less stormwater in the system to runoff and accumulate in the floodplain during storm events.

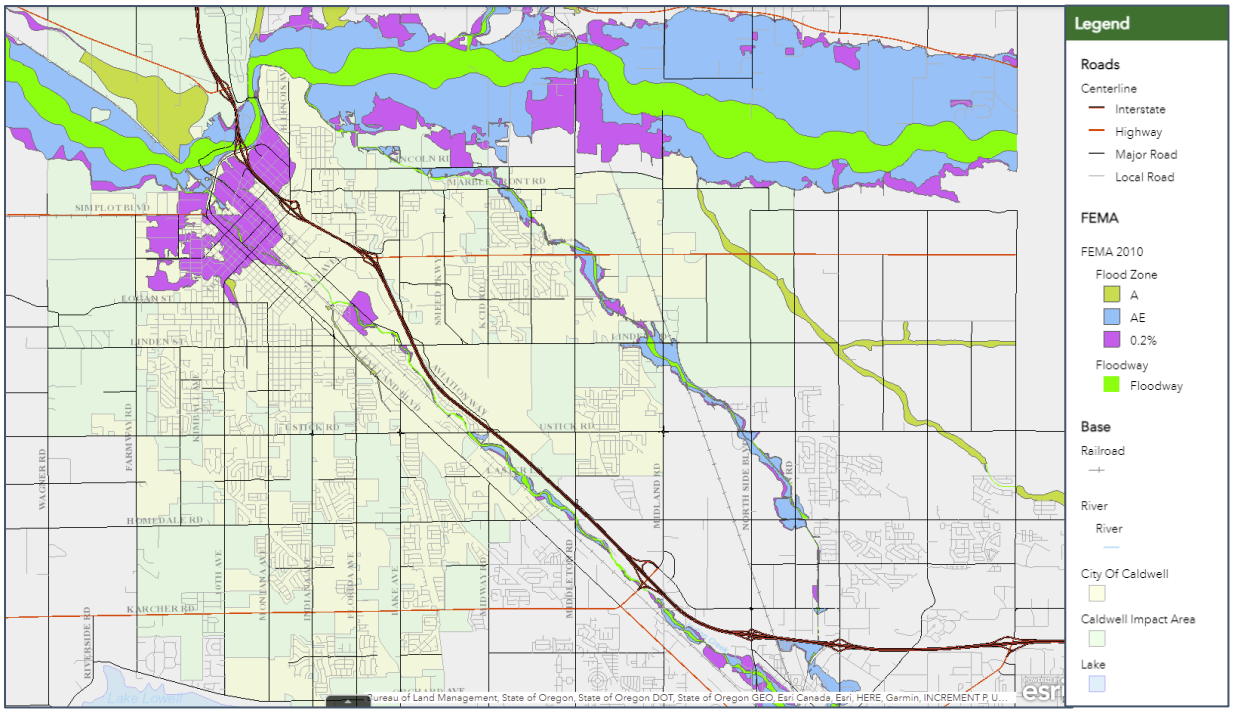


Figure 11. *FEMA Floodplain Map 2010*

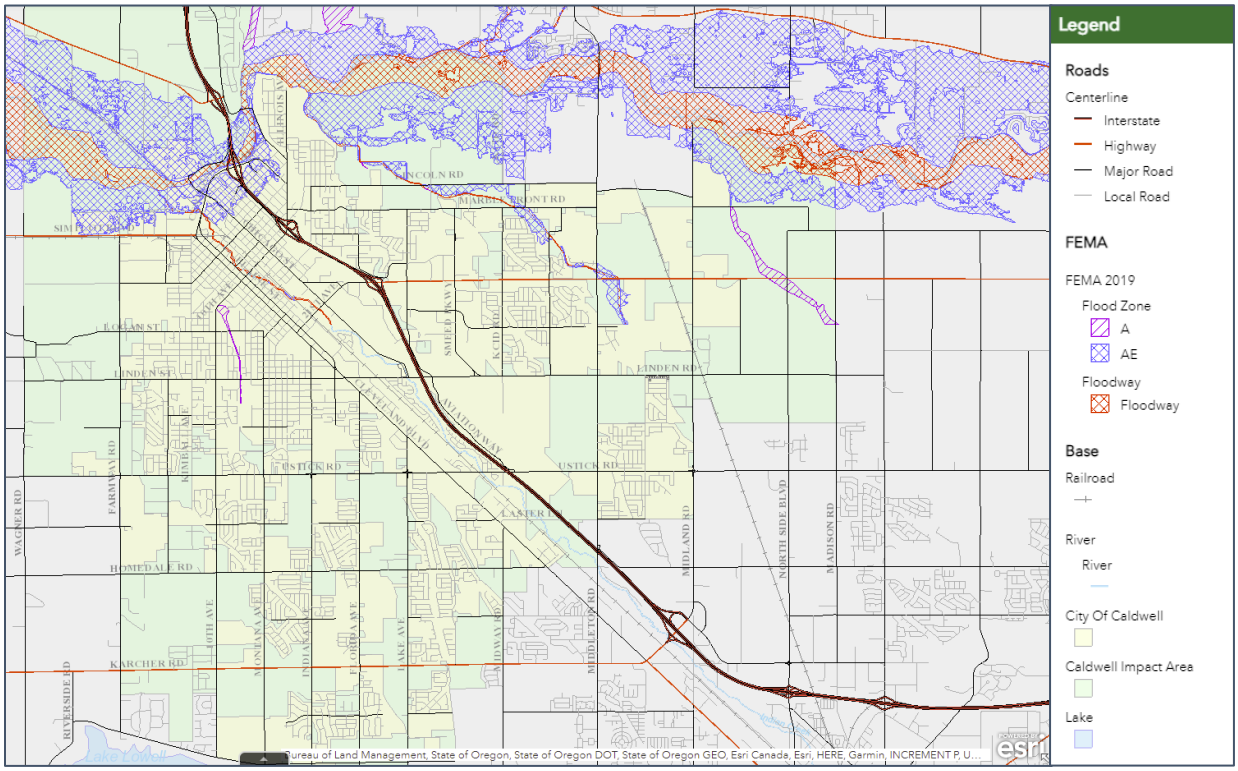


Figure 12. *Updated FEMA Floodplain Map 2019*

The City of Caldwell is located entirely within the Lower Boise watershed, HUC8 17050114. This 1,290 square mile area contains the lower Boise River, a 64-mile reach that flows from Lucky Peak Dam east of Boise to its confluence with the Snake River near Parma. Figure 13 reflects the City's proximity and location within the Lower Boise Watershed. The Lower Boise Watershed is divided into HUC12 subwatersheds, eight of which are partially located within the City's impact area. Figure 14 maps the subwatersheds within the Lower Boise Watershed; Table 14 lists names of affected subwatersheds, their corresponding HUC12 code, the impacted area of the subwatershed located within the City, and percentage of the total subwatershed as a whole.

Table 13. *Lower Boise Watersheds subwatersheds within the City's Impact Area*

Subwatershed	HUC 12	Area in Impact Area (acres)	Percent of Subwatershed
Fifteen Mile Creek	170501140205	2385.20	11%
Mason Creek	170501140407	6444.03	16%
Mill Slough-Boise River	170501140410	2592.43	6%
East Hartley Gulch	170501140410	97.01	1%
Lower Indian Creek	170501140507	7397.69	19%
Coulee Drain-Lake Lowell	170501140801	361.73	1%
Dixie Slough	170501140802	8223.08	32%
Outlet Boise River	170501150102	2668.51	7%

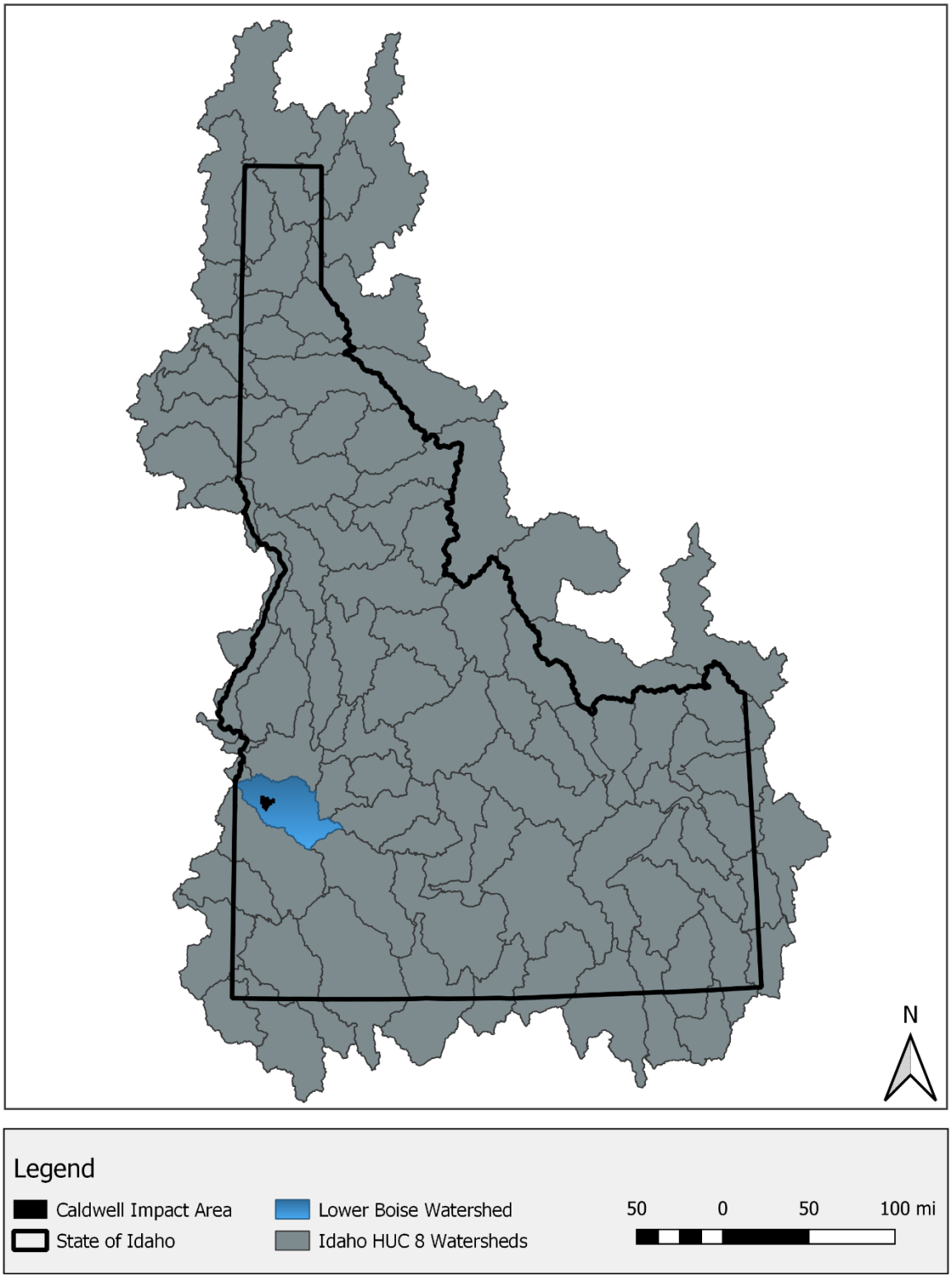


Figure 13. *Lower Boise Watershed*

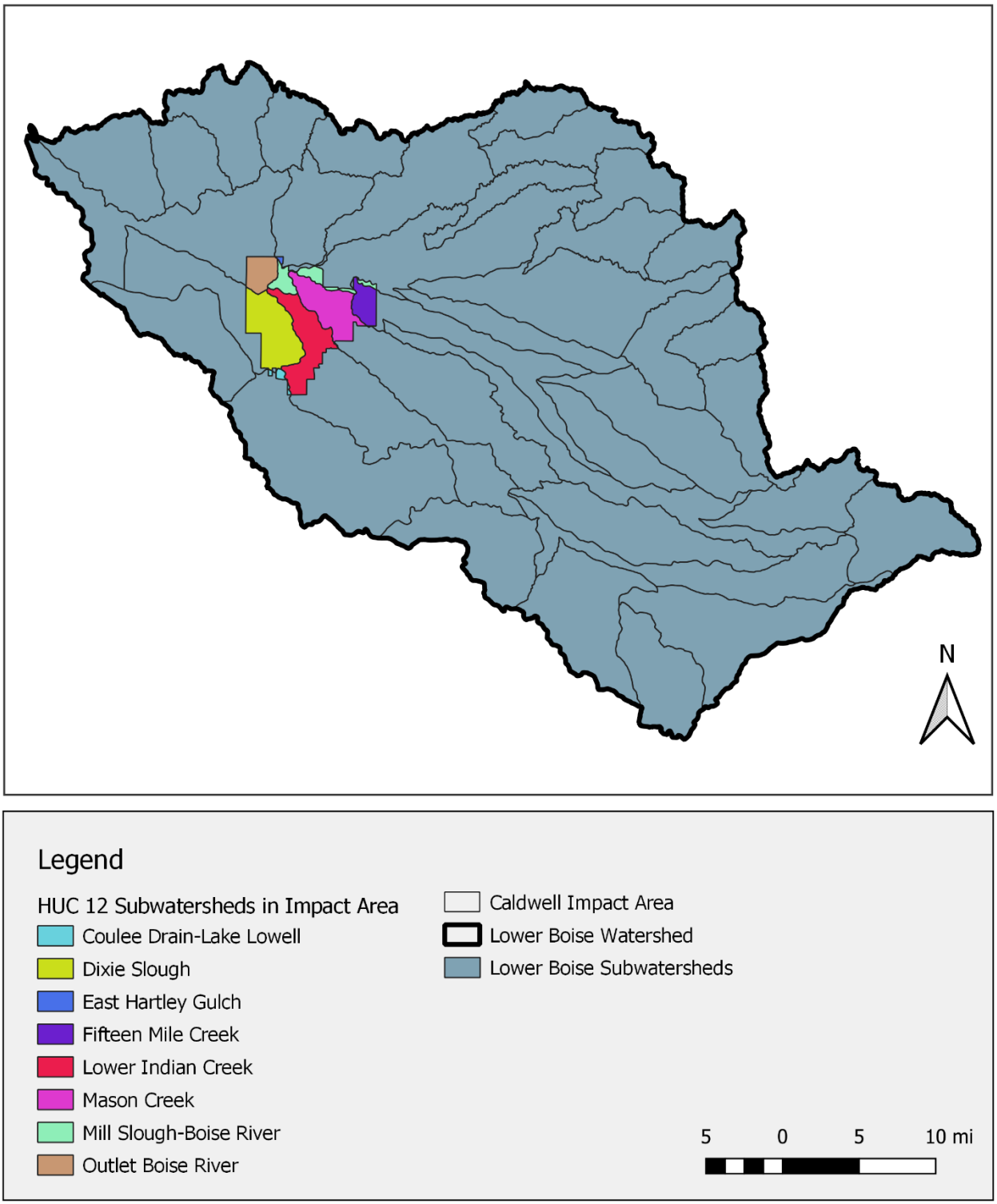


Figure 14. *HUC 12 Subwatersheds in the Lower Boise Watershed*

2.3 Receiving Waters

The City of Caldwell MS4 system has 305 outfalls that discharge to surface waters. These receiving surface waters range from major rivers to irrigation ditches. Figure 15shows the surface waters located within the City's Impact Area.

Three significant waterways in the Lower Boise Watershed flow, in part, through the City of Caldwell: Indian Creek flows northwesterly, bisecting the City and cutting directly through the heart of the downtown area. Mason Creek also flows northeasterly, moving across the northeast quadrant of the City. The lower Boise River itself flows west along the northern border of the City, dipping in and out of the boundary of the Impact Area before cutting across the northwest quadrant of the City. Table 15 is a list of the rivers and creeks that intersect with the City and the total number of miles of the surface water that are located within the City's Impact Area.

These surface waters have been assessed by IDEQ, and have been found to not support their designated beneficial uses of cold water aquatic life, salmonid spawning, domestic and agricultural water supply, and primary and secondary contact recreation. As a result, all entities that discharge to these receiving waters must adhere to the requirements established in the water's TMDL.

Table 14. *Receiving surface waters: rivers and creeks*

Name	Miles*
Boise River	5.30
Indian Creek	7.17
Mason Creek	7.44

*Miles of reach located within City Impact Area

As a community whose development was historically driven by agriculture, there is extensive water conveyance infrastructure in place across the City, installed with the intent of aiding irrigation of crops. Many of these channels and conveyances continue to be utilized for extensive irrigation, but also as conveyances of stormwater runoff. Table 16 is a complete list of receiving surface waters within the City's boundary that are classified as any conveyance type other than a natural river or creek.

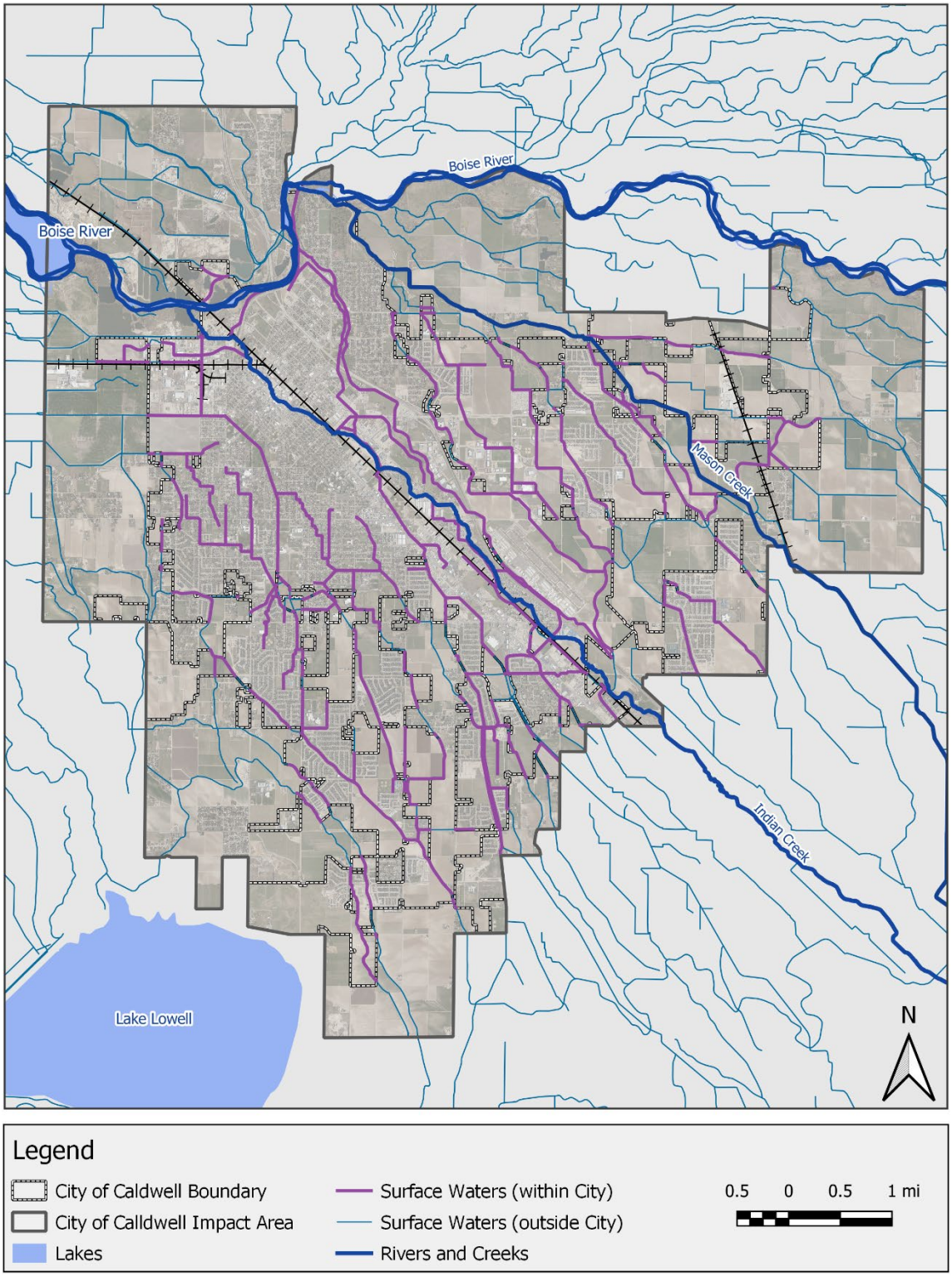


Figure 15. *City of Caldwell surface waters*

Table 15. *Receiving surface waters: canals, ditches, drains, laterals*

Name	GIS ID	Type	Ownership	Miles*
10th St Lateral	7061	Lateral	Pioneer Irr Dist	1.07
13.3 Center Lateral	7106	Lateral	Pioneer Irr Dist	3.34
15.0 North Branch	7083	Lateral	Pioneer Irr Dist	1.63
15.0 South Branch	7084	Lateral	Pioneer Irr Dist	2.06
200 Lateral	7028	Lateral	Pioneer Irr Dist	1.69
25.1 Lateral	7053	Lateral	Pioneer Irr Dist	3.59
A Drain	6986	Drain	Caldwell	1.35
A Drain	6987	Drain		0.01
A Drain	7008	Drain	Caldwell	1.50
A Drain	7160	Drain	Caldwell	1.35
A Drain	7162	Drain	Caldwell	0.00
A Drain (old)	7161	Drain	Caldwell	1.35
B Drain	7062	Drain	Caldwell	0.51
Bolton/300 Lateral	7142	Lateral	Pioneer Irr Dist	0.24
Bolton/300 Lateral	7143	Lateral	Pioneer Irr Dist	0.15
Bolton/300 Lateral	7029	Lateral	Pioneer Irr Dist	1.89
Caldwell Canal Feeder	3049	Feeder	Bureau of Reclamation	0.99
Caldwell Canal Feeder	7070	Feeder	Bureau of Reclamation	0.02
Caldwell Highline Canal	7137	Canal	Pioneer Irr Dist	1.18
Caldwell Highline Canal	7026	Canal	Pioneer Irr Dist	1.64
Caldwell Highline Canal	449	Canal	Pioneer Irr Dist	8.62
Caldwell Lowline Canal	7001	Canal	Pioneer Irr Dist	1.98
Caldwell Lowline Canal	7059	Canal	Pioneer Irr Dist	1.17
Caldwell Lowline Canal	3109	Canal	Pioneer Irr Dist	0.17
Caldwell Lowline Canal	3110	Canal	Pioneer Irr Dist	0.25
Caldwell Lowline Canal	2904	Canal	Pioneer Irr Dist	1.62
Canyon Hill/500 Lateral	2794	Lateral	Pioneer Irr Dist	3.98
Carnahan Pump Line	7065	Lateral	Pioneer Irr Dist	0.09
College Lateral	7066	Lateral	Pioneer Irr Dist	0.62
Deer Flat Caldwell Canal	7159			3.73
Dixie Drain	7075	Drain	Bureau of Reclamation	0.18
Dixie Drain	7157	Drain	Bureau of Reclamation	2.51
Dixie Drain	7158	Drain	Bureau of Reclamation	2.51
Dixie Drain	7076	Drain	Bureau of Reclamation	0.40
Dixie Drain	7077	Drain	Bureau of Reclamation	1.37
Dixie Drain	7078	Drain	Bureau of Reclamation	1.42
East Caldwell Drain	7067	Drain	Bureau of Reclamation	1.50
East Messler Lateral	7056	Lateral	Pioneer Irr Dist	0.50
Elijah Canal Feeder	3050	Feeder	Bureau of Reclamation	0.78
Elijah Drain	3736	Drain	Bureau of Reclamation	1.81

Name	GIS ID	Type	Ownership	Miles*
Elijah Drain	1944	Drain	Bureau of Reclamation	0.50
Elijah Drain	1951	Drain	Bureau of Reclamation	0.24
Fenton Lateral	7054	Lateral	Pioneer Irr Dist	0.54
Forest Canal	2756			1.83
Forest Canal	7068			1.81
Golden Gate Canal	3776	Lateral	Pioneer Irr Dist	0.47
Golden Gate Canal	3777	Lateral	Pioneer Irr Dist	0.14
Golden Gate Canal	3778	Lateral	Pioneer Irr Dist	0.07
Golden Gate Canal	1432	Lateral	Pioneer Irr Dist	0.16
Golden Gate Canal	1433	Lateral	Pioneer Irr Dist	0.11
Golden Gate Canal	1434	Lateral	Pioneer Irr Dist	0.29
Golden Gate Canal	1589	Lateral	Pioneer Irr Dist	0.08
Golden Gate Canal	1428	Lateral	Pioneer Irr Dist	0.21
Golden Gate Canal	1429	Lateral	Pioneer Irr Dist	0.07
Golden Gate Canal	1430	Lateral	Pioneer Irr Dist	0.07
Golden Gate Canal	1431	Lateral	Pioneer Irr Dist	0.09
Golden Gate Canal	1590	Lateral	Pioneer Irr Dist	0.06
Golden Gate Canal	1591	Lateral	Pioneer Irr Dist	0.21
Golden Gate Canal	1592	Lateral	Pioneer Irr Dist	0.16
Golden Gate Canal	2306	Lateral	Pioneer Irr Dist	0.57
Golden Gate Canal	2307	Lateral	Pioneer Irr Dist	0.01
Golden Gate Canal	2308	Lateral	Pioneer Irr Dist	0.13
Horton/400 Lateral	7140	Lateral	Pioneer Irr Dist	3.69
Hoshaw/C-Drain	1594	Drain	Caldwell	0.97
Isaiah Drain	1612	Drain	Bureau of Reclamation	1.74
Jester 3.5	7052	Lateral	Private	0.59
Jester Lateral	7049	Lateral	Pioneer Irr Dist	0.53
Kimball Lateral	7060	Lateral	Pioneer Irr Dist	0.37
King Lateral	7050	Lateral	Pioneer Irr Dist	0.55
King Lateral	7051	Lateral	Private	0.12
Lower Fivemile Drain	4233	Drain	Bureau of Reclamation	2.35
Maddens Spur Drain	2902	Drain	Bureau of Reclamation	1.39
Maddens Spur Drain	3048	Drain	Bureau of Reclamation	0.87
Mason Creek Drain	7010	Drain	Bureau of Reclamation	0.80
Mason Creek Drain	7011	Drain	Bureau of Reclamation	0.30
Mason Creek Drain	7003	Drain	Bureau of Reclamation	1.23
Mason Creek Drain	7004	Drain	Bureau of Reclamation	0.37
Mason Creek Drain	4248	Drain	Bureau of Reclamation	1.00
Midway Drain	3196	Drain	Bureau of Reclamation	0.93
Moses Drain	2903	Drain	Bureau of Reclamation	1.44

Name	GIS ID	Type	Ownership	Miles*
Noble Drain	7005	Drain	Bureau of Reclamation	5.16
Notus Canal	40	Canal		5.59
Notus Canal	44	Canal		2.62
Notus Canal	1822	Canal		0.62
Parker Drain	4411	Drain	Bureau of Reclamation	0.79
Peterson Lateral	7055	Lateral	Pioneer Irr Dist	0.65
Phyllis Canal	7099	Canal	Pioneer Irr Dist	3.85
Phyllis Canal	7096	Canal	Pioneer Irr Dist	0.48
Phyllis Canal	7097	Canal	Pioneer Irr Dist	0.67
Phyllis Canal	7098	Canal	Pioneer Irr Dist	1.86
Phyllis Canal	3184	Canal	Pioneer Irr Dist	0.69
Railroad Lateral	7027	Lateral	Pioneer Irr Dist	1.30
Riverside Canal	2439			1.13
Riverside Canal	2305			1.85
Roedel Ditch	2540			0.73
Roedel Ditch	2537			0.43
Roedel Ditch	2538			0.14
Roedel Ditch	2539			0.12
Siebenberg Canal	4634			1.41
Solomon Drain	7141	Drain	Bureau of Reclamation	0.91
Solomon Drain	4231	Drain	Bureau of Reclamation	2.54
Solomon Drain	4232	Drain	Bureau of Reclamation	1.46
Spoil Bank Drain	7009			0.24
Steelman Lateral	7064	Lateral	Pioneer Irr Dist	0.10
Steelman Well Pipe	7063	Lateral	Pioneer Irr Dist	0.62
Stockyard Lateral	7135	Lateral	Pioneer Irr Dist	1.27
Stone Lateral	593	Lateral	Pioneer Irr Dist	3.06
Unnamed Ditch	104			1.25
Unnamed94	3161			0.29
Upper Embankment Drain	1378			0.73
Ustick Drain	91			0.27
Villanue Lateral	7113	Lateral	Pioneer Irr Dist	1.09
Webber Lateral	7109	Lateral	Pioneer Irr Dist	0.24
West End Drain	7072	Drain	Bureau of Reclamation	1.84
West Messler Lateral	7057	Lateral	Pioneer Irr Dist	0.88
Weymouth/100 Lateral	7002	Lateral	Pioneer Irr Dist	2.13
Wilson Drain	7150	Drain	Bureau of Reclamation	0.80
Wilson Drain	7151	Drain	Bureau of Reclamation	0.57
Wilson Drain	7145	Drain	Bureau of Reclamation	0.18
Wilson Drain	7147	Drain	Bureau of Reclamation	0.59

Name	GIS ID	Type	Ownership	Miles*
Wilson Drain	7148	Drain	Bureau of Reclamation	0.39
Wilson Drain	7149	Drain	Bureau of Reclamation	1.50
Yonkee Drain	4255	Drain	Bureau of Reclamation	0.98

*Miles of reach located within City boundary

2.4 MS4 Map

The MS4 map is included as Appendix C. Because the City's MS4 continually expands as the City grows, this map will continue to be updated as the City's Street, Mapping, and Engineering departments collect and input additional data. A final electronic copy of the map and GIS data will be submitted to IDEQ and EPA no later than April 3, 2025.

Section 3. General Requirements

3.1 SMWP Document

The City will maintain this written SWMP document, which describes in detail how the City will comply with the required stormwater management control measures of the City's MS4 Permit IDS-002118. As necessary, the City will update the SWMP document and describe the City's interim schedule for the implantation of any SWMP control measure components to be developed during the term of the Permit.

The City will maintain a method of gathering, tracking, and using SWMP information to set priorities and assess Permit compliance. The City will track activities and document program outcomes to illustrate progress on the respective SWMP control measure (e.g., the number of inspections, official enforcement actions, and/or types of public education actions, etc.), and cite relevant information and statistics, reflecting the specific reporting period, in each Annual Report.

The City will submit an updated SWMP Document to EPA and IDEQ with the Permit Renewal Application, by April 3, 2025.

3.2 Shared Implementation with Outside Entities

Throughout the permit term, the City retains sole responsibility for the implementation of all the stormwater management control measures required by the Permit. The City may, as it chooses, share or delegate implementation of one or more of the stormwater management control measures to another entity if:

- The other entity implements the stormwater management control measure, or component thereof;
- The particular stormwater management control measure, or component thereof, is at least as stringent as the corresponding Permit requirement; and
- The other entity agrees to implement the stormwater management control measure, or component thereof, on the City's behalf.

For instances of shared implementation, the City and the outside entity must maintain a written and binding agreement between the parties, describing each organization's respective roles and responsibilities related to the Permit, and identify all aspects of stormwater management where the entities will share or delegate implementation responsibility. Any agreements signed before the issuance of the Permit may be updated, as necessary to comply with this requirement.

The City of Caldwell has annually entered into an agreement with the Partners for Clean Water, the stormwater management coalition of the cities of Boise and Garden City, Boise State University, Ada County Highway District (ACHD), Drainage District #3, and Idaho Transportation Department (ITD) #3, to implement a portion of the required Minimum Control Measure of Public Education, Outreach, and Involvement. The signed agreement is updated annually, and is available as a public record, upon request. Under this agreement, the City of Caldwell contributes funds to the Partners for Clean Water, to be used to run informational campaigns about water quality to citizens in the Treasure Valley, more information can be found in Section 6.1.2.

Ultimate responsibility for implementing the stormwater management required under the City of Caldwell MS4 Permit lies with the City.

2023 Comment: The City of Nampa has a new partnership with the City of Caldwell. The partnership between Nampa and Caldwell started in November 2022 and continued through 2023. The partnership between Caldwell and Nampa focuses on applying for water quality grants for a countywide outreach campaign.

2024 Comment: The City of Nampa has made contact with the City's Stormwater Division on starting up a website that includes activities coming up and public awareness of stormwater management. A final date is still in the works.

2025 Comment: The City of Nampa has not made contact since the last comment. No further plans have been suggested for a website collaboration. City of Caldwell has updated their Stormwater website and added subpages for IDDE, Construction Controls (SWPPP), Flood FAQs, Community Outreach & Education, Household Hazardous Waste Disposal, and a report form was created.
https://www.cityofcaldwell.org/Departments/Stormwater

3.3 Transfer of SWMP Implementation Authority

The City will implement the required SWMP control measures from the Permit in all new areas added or transferred to the City's MS4 (or for which the City becomes responsible for implementation of SWMP control measures) as expeditiously as practicable, but not later than one year from addition of new areas. The City will present in each Annual Report any additions or changes, and schedules for implementation in new areas, and will update this SWMP document accordingly.

Section 4. Minimum Control Measures and Activities

4.1 Public Education, Outreach, and Involvement Program

4.1.1 Regulatory Requirements

City of Caldwell MS4 Permit No. IDS-028118 Section 3.1 reads "The Permittee must continue to conduct, or contract with other entities to conduct, an ongoing public education, outreach, and involvement program based on stormwater issues of significance in the Permittee's jurisdictions. When applicable, the Permittee must comply with State and local public notice requirements when conducting public involvement activities."

The City was required by the Permit to begin implementation of Public Education and Outreach activities before October 1, 2021. The City of Caldwell has participated in the following outreach events thus far, this permit term:

- City of Caldwell Community Pride Day, April 24 ,2021 - included trash pickup around surface waters throughout the City.
- Caldwell Clean-Up Day and Week, April 18 to 23, 2022 – Plant flowers, pick up trash, Canyon Co landfill waiver, additional waste pickups by Republic Services.
- Downtown Caldwell Beautification Day, July 23, 2022 – Pulling weeds and picking up trash along Indian Creek, including Musical Art Park, Densho Japanese Garden, and Indian Creek Plaza.
- Caldwell Stormwater Team participated in Boise River Watershed Watch as trainers at Marten's Landing and Whittenberger Park on September 22, 2022.
- Partners for Clean Water began their annual stormwater education campaign throughout the Treasure Valley in 2021.
- City of Caldwell hosted an operation and maintenance training of permanent stormwater controls for local HOA organizations in March 2023.
- In March 2023, Ashley Newbry and Jeanette Ayala presented the MS4 discipline to Environmental Studies students at College of Idaho.
- City of Caldwell mailed informational pamphlets to residents detailing how to properly drain residential pools in August 2023.

- City of Caldwell Stormwater Department participated in Boise River Watershed Watch as trainers at Marten's Landing on September 21, 2023.

- On June 18, 2024, City of Caldwell posted on FaceBook and Instagram a reminder about litter, pool water, and pet waste. It went into detail about what else should not be dumped into storm drains. See post below for "Keep Our Waterways Clean".

- In August of 2024, towards the end of summer, flyers and letters were mailed out to the community that have pools and spas on their property.

- The Caldwell Stormwater Team participated in the Boise River Watershed Watch as trainers at Red Train Bridge in Caldwell on September 18, 2024.

- The Caldwell Stormwater Team participated in Syringa Middle School's Career Fair Week, attending and presenting to 7th and 8th graders on 10/30/24 and advanced engineering students on 11/1/24. New swag was ordered for the occasion and will be used for future outreach activities.

- In November of 2024, a BMP brochure for HOAs and a BMP brochure for construction sites were drafted and finalized to be mailed out.

- In December 2024, a formal training for Erosion and Sediment Control Responsible Persons, led by the Caldwell Stormwater Division and Engineering with a Mission, LLC., for the education of the construction community within jurisdiction.

- In January 2025, an introductory workshop on stormwater and the City of Caldwell's MS4 was held for City employees, which the Streets and Planning and Zoning Departments both attended.

- On March 17th, 2025, Christina Beeson spoke to an Environmental Science course at the College of Idaho in Caldwell during their Water Week on stormwater and water quality.

- The Caldwell Stormwater Team participated in the Boise River Watershed Watch as trainers at Red Train Bridge in Caldwell on September 18th, 2025, hosted by the Boise Watershed and City of Boise.

- On September 29th, 2025, Christina Beeson provided water quality sampling expertise and technical assistance to Caldwell high school students that the University of Idaho Water Center Citizen Science group brought to Indian Creek in Caldwell for some hands-on field experiences.

By the end of the Permit term and/or the notice of intent on April 3, 2025, the City must distribute and/or offer at least eight educational messages or activities to selected audiences.

4.1.2 Public Education, Outreach, and Involvement Activities

The City is a member of the Partners for Clean Water organization, which runs education campaigns throughout the Treasure Valley, including in the City of Caldwell. The City donates 15,000 dollars annually to the education and outreach program, which goes to fund billboards, bus wraps, and radio ads for both public and internet radio stations. The City also collaborates with the Partners for Clean Water to develop new messages and campaigns, selecting topics most relevant to concerns and challenges within the MS4, as well as suggesting media methods to maximize efficacy and extent of the outreach (e.g., expanding the program to include social media advertisements). Since the City of Caldwell is the only Canyon County participant, we always request that each campaign span both Ada and Canyon Counties.

Since 2010, the City has partnered with the Boise Watershed and the City of Boise's annual Watershed Watch team to collect data on water quality in the Boise River. This event engages young citizen scientists in the community, allowing volunteers, including staff members from the City of Caldwell, to teach the citizen scientists about data collection, the interconnection of water, and the importance of stormwater management. The City will continue to participate in this annual event, through the duration of the permit term.

The City of Caldwell also hosts community events, engaging with the general public to clean up the community, including activities such as picking up trash along the Boise River, Indian Creek, and Rotary Pond.

Stormwater management team staff, after completing the annual report, will have an internal meeting to discuss the areas of concern with the community's involvement and understanding of stormwater management and protecting water resources. This meeting will inform the educational message(s) produced during the following year, to ensure that the targeted messages are effectively addressing the most pressing concerns within the community.

As youth are often some of the most environmentally conscious, and socially engaged members of the community, they are a critical target audience for conveying educational stormwater messages. The City intends to continue to collaborate with local schools to provide information to the students about the interconnectedness of stormwater and water resources, why picking up trash can help protect water, the

importance of environmental stewardship (and how they can be environmental stewards at any age). To further engage the general public, the stormwater team can have educational booths at community events, and post newsletters on the City website with seasonal reminders of good stewardship practices (e.g., raking leaves and properly disposing of them, cleaning up pet waste, not blowing grass clippings into the gutter, benefits of rain gardens and simple ways to design them, benefits of low-water lawns, don't over-irrigate, only clean (potable/drinking or irrigation overflow) water and stormwater runoff can go into the storm drain, reminder of how the storm drains don't get treated – they often drain directly to nearby surface waters).

The City makes best management practices for construction sites booklets available to the public and for construction site inspections. Site work inspection staff keep copies of the booklets in their City vehicle, to provide to construction site personnel that need additional support and information to keep their site in acceptable condition.

The City is also considering preparing media that can be distributed to targeted groups within the community to address industry-specific concerns. See the following list for primary target groups and their primary messages:

Table 16. *Applicable educational messages and target groups.*

Target Group	Message Topic	Importance to Caldwell MS4
Homeowner's Associations	HOA's responsibility to maintain private stormwater facilities	HOA's are often unaware of their responsibilities to maintain their stormwater facilities. These facilities often connect to the City's MS4.
Homeowner's Associations	Water conservation and reducing over-irrigation	Frequent over-irrigation observed in new developments, reduces stormwater system capacity and can flush pollutants into the MS4.
Businesses	Appropriate maintenance of landscaping features and proper disposal of landscaping materials (e.g. grass clippings, leaves, etc.)	Businesses and landscaping companies often flow clipped grass and leaves into the City's streets and gutters, instead of bagging the materials. Not only can these materials potentially block the storm drain infrastructure and lead to flooding, they can pollute the receiving waters.
Developers and Engineers	The benefits of implementing Low Impact Development/green infrastructure techniques	The City is growing rapidly, implementing LID and green infrastructure techniques can reduce the strain the development places on the environment.

In addition to disseminating the media, the messages will also be posted on the City's website for easy access.

Media Created in 2022 via Partners for Clean Water:

(Was distributed in August 2023 and 2024)

Flyer team created for water supply conservation during summer 2025

Social Media Post, “Keep Our Waterways Clean” posted 6/18/2024

City of Caldwell
Published by Char Busmann Jackson · 2m ·

Hello from your City of Caldwell Stormwater Division!
💧💧💧💧💧
We just want to remind you to respect our shared waterways while you're out having fun this summer. We love the Boise River and Indian Creek as much as you do.
Remember to:
🚬Throw your litter and cigarette butts into the trash, not on the ground!
🏊Don't drain your chlorinated pool into the storm drain! All that chlorine is deadly to fish!
🐕Pick up your dog waste! Don't leave it lying in the park or on the sidewalk! It is not a fertilizer, and it's not healthy for anyone!
🤮Never, ever dispose of used oil, chemicals, or pet waste into a storm drain! It flows directly into the nearest waterway! (It does not go to a treatment plant!)
Thanks for helping us preserve the places we all share and love! Stay safe out there!
#keepourwaterwaysclean

4.1.3 Reporting and Quantifying Education and Outreach Efforts

Not only is it important to conduct Education and Outreach activities, but it is equally important to record and assess the impact of these activities, to the maximum extent practicable, to determine which activities are most beneficial. This allows the City to continually hone and refine the program, optimizing the efficiency with which the messages are delivered.

For wide-spread media campaigns: report the number of media messages produced (radio/internet ads, bus wraps, etc.).

For in-person educational events: the total number of attendees is reported. For more formal events (i.e. classroom visits, lectures, and conferences) a pre- and post-lesson self-assessment could be given, assessing participants' general knowledge on the topic and if/to what extent it changed from the lesson.

For informational newsletters: record the number of informational newsletters and mailers sent out and/or posted to the City's website. Set up the webpage to record the number of people viewing the newsletters.

All data collected throughout the year will be compiled, analyzed, and reported on in the Annual Report or revised SWMP. The Annual Report will summarize how many of the eight educational messages have been delivered, the target audience of the completed message, and the applicable topic(s).

4.2 Illicit Discharge Detection and Elimination

4.2.1 Regulatory Requirements

City of Caldwell MS4 Permit No. IDS-028118 Section 3.2 reads "The Permittee must implement and enforce a program to detect and eliminate illicit discharges into the MS4, to the extent allowable pursuant to authority granted the individual Permittee under Idaho state law. An illicit discharge is any discharge to an MS4 that is not composed entirely of stormwater. Any exceptions are conditional as identified in Permit Part 2.4 (Non-stormwater Discharges)"

No later than April 3, 2025, the City must revise and update the illicit discharge management program as necessary to meet the required components of the Permit (Parts 3.2.2 through 3.2.9).

2022 Comment: The City has actively operated an IDDE response program since 2011. In 2018, we began utilizing the MS4 Concern Response Report form to track each response inspection. We have not yet catalogued these reports into a spreadsheet or database. We currently use Windows Explorer to navigate the inspection records.

2023 Comment: The City added a spreadsheet to catalogue all of the IDDE Concern Response Reports. The spreadsheet tracks the Date of when the City is notified of an illicit discharge, location of the

discharge, Responsible party type, pollutant type, and a summary of the actions taken to remediate the spill.

2025 Comment: The City is still utilizing this spreadsheet to maintain housekeeping records. The Stormwater Team updated their website with the help of the City's IT department, in August and September of 2025. Now there is a reporting form that the public can use on the website that will send the team an email (Madison Kolda, Bryan Dallolio, Jake Wells, Christina Beeson), on a reported issue. In March 2025, the City Code was also amended to enhance the enforcement process, along with the rest of the stormwater regulations.

4.2.2 MS4 Map and Outfall Inventory

To accurately assess and protect the MS4, the City must maintain comprehensive records of the system, including a comprehensive MS4 map and inventory of MS4 outfalls. The purpose of the inventory is to identify each outfall discharging from the City's MS4, record its location (by latitude and longitude), and overall physical condition. This provides a framework for the City to track outfall inspections, dry weather discharge screenings, maintenance, and other activities required under the Permit.

The City's Mapping Department maintains and updates the City's infrastructure inventory, including MS4 facilities (i.e. storm drain lines, catch basins, inlets, outfalls, retention basins, etc.). In September 2021, the Mapping Department and stormwater management team began to implement an effort to update and revise the City's MS4 map. This effort will include ongoing work by the mapping department to capture data on new stormwater management infrastructure being installed, collecting additional data on existing structures, and incorporating data from previous outfall inspections.

No later than April 3, 2025, the City will submit an electronic GIS version of the MS4 Map and accompanying Outfall Inventory to the EPA and IDEQ. Prior to this date, EPA and/or IDEQ may request all available GIS layers. The final MS4 Map and Outfall Inventory will contain the following information:

- Location of all inlets, catch basins, and outfalls owned/operated by the City, including a unique identifier for each outfall, spatial location (latitude and longitude, with a minimum accuracy of +/- 30 feet), and general information regarding dimensions, shape, material (concrete, polyvinyl chloride, etc.);
    - As a part of this permit's 401 Certification in 2019, the City provided a list of known outfalls (unique ID, latitude, longitude, etc.) to DEQ staff in December 2019. City staff will continue to update our MS4 data set as the City develops and/or our GIS data set is revised.
- Location of all MS4 collection system pipes, open channel conveyances, (laterals, mains, etc.) owned/operated by the City, including locations where the MS4 is physically interconnected to the MS4 of another operator;

- Location of structural flood control devices, if different from the characteristics listed above;

    - The City does not own or maintain any flood control devices as a part of the MS4. We are a participating member of FEMA's National Flood Insurance Program (NFIP).

- Waterbody Assessment Unit names and locations of waters of the U.S. that receive discharges from the inventoried MS4 outfalls, including an indication of all use impairments as identified by IDEQ in the most recent Integrated Report;

- Location of all existing permanent stormwater controls which are part of the public MS4 owned and/or operated by the City, including structural or treatment controls (e.g., detention and retention basins, infiltration systems, bioretention areas, swales, oil/water separators and/or other proprietary systems);

- Location and characteristics of any MS4 outfalls with ongoing dry weather flows identified by the City as being caused by irrigation return flows and/or groundwater seepage; and

    - City staff began tracking outfalls with dry weather flows during dry weather inspections in 2020. Not all outfalls were inspected in 2020, but inspectors will continue to observe and document those outfalls with dry weather flows through the permit term.

    - The City's GIS/mapping team has also historically commingled locations of the storm drain/irrigation system. Beginning in November 2021, Engineering staff are reviewing and revising our drainage "outlets" and our stormwater "outfalls" layers. (At present, pipe material is only tracked on the drainage "outlets" layer, but we're working to revise this.) We anticipate this "sorting" effort to be completed by the end of 2021, but it may take GIS staff longer to execute the actual revision of the database.

2022 Comment: The "sorting" between "outlets" and "outfalls," to ensure accurate "outfall" accounting, was completed in March 2022. GIS staff are working through the combined list of about 1400 data points to ensure each one follows the correct nomenclature.

2023 Comment: The City has transitioned to Beehive Asset Management software for asset management. The outfalls have been separated and are inspected, while the agricultural outlets are not inspected by stormwater staff.

2025 Comment: A new asset management software is being purchased but is not yet available for use. Expected transition will start in 2026. City of Caldwell will continue to use Beehive for asset management until further notice.

- Location of City-owned vehicle maintenance facilities, material storage facilities, heavy equipment storage areas, maintenance yards, and snow disposal sites; City-owned or operated parking lots and roads in areas served by the MS4.
    - Street Department & Shop: 1311 N 3rd Ave & 304 E Madison St
    - Street Department Gravel Pit: 21109 Chicago Street
    - Street Department Wash Rack: 308 W Chicago Street
    - Street Department Crown St & Aviation Way (Chip Stockpile):

      No address (43.653640, -116.652432)
    - Parks Department & Shop: 618 Irving Street & 816/822 Grant Street
    - Snow Disposal Sites: None
    - City-Owned Parking Lots: 602 Cleveland Blvd; 611 Blaine St (TVCC & City Hall); 120 N Kimball Ave; 0 S 10th Ave & Railroad frontage; 0 Main Street

4.2.3 Ordinance and/or other Regulatory Mechanisms

The City of Caldwell prohibits non-stormwater discharges into the MS4 (except those conditionally allowed by Permit Part 2.4) through enforcement of City of Caldwell Ordinance to the extent allowable under Idaho state law. In this document, the City establishes the necessary enforcement procedures and actions, including a written policy of enforcement escalation procedures for recalcitrant or repeat offenders, to ensure compliance.

Table 18 delineates the required contents that must be contained within the City's ordinance or regulatory mechanisms, as well as the corresponding section of the City's ordinance that addresses the requirement.

Table 17. *IDDE Ordinance Requirements under Permit*

Permit Requirement	City Ordinance	Ordinance Language
Ordinance must authorize the Permittee to control and respond to the discharge of spills into the MS4 to the extent allowable pursuant to authority granted the individual Permittee under Idaho state law	13-01-07	Whenever necessary to make an inspection to enforce any of the provisions of this article, or whenever an authorized enforcement inspector has reasonable cause to believe that there exists upon any premises any condition which may constitute a violation of the provisions of this article, the inspector may enter such premises at all reasonable times to

Permit Requirement	City Ordinance	Ordinance Language
		inspect the same or perform any duty imposed upon the inspector by this article; provided that: 1) If such premises is occupied, he or she first shall present proper credentials and request entry; and 2) if such building or premises is unoccupied, he or she first shall make a reasonable effort to locate the owner or other persons having charge or control of the building or premises and request entry. *(13-01-07-1.E)* Acts Resulting In Violation Of Federal Clean Water Act: Any person who violates any provision of this article, any provision of any permit issued pursuant to this article, or who discharges pollutants, waste or wastewater so as to cause an illicit discharge into the MS4, or who violates any cease and desist order, prohibition, or effluent limitation, also may be in violation of the federal Clean Water Act and may be subject to the sanctions of that act including civil and criminal penalties in addition to hereinbefore provided enforcements. *(13-01-07-7)*
Ordinance must authorize the Permittee to prohibit illicit connections, and the dumping or disposal of materials other than stormwater, into the MS4	13-01-03	Any illicit discharge to any storm drain, including both the MS4 and private storm drains, is a violation of this article unless exempted by provisions of subsections (6) and/or (7) of this section.
Ordinance must authorize the Permittee to prohibit, and eliminate, at a minimum, the following discharges to the MS4 to the extent allowable pursuant to authority granted the individual Permittee under Idaho state law: • Sewage; • Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or	13-01-03-1	General Requirements and Prohibitions: A. Any person engaged in activities which will or may result in pollutants entering a storm drain shall undertake reasonable measures to reduce such pollutants. Examples of such activities include, but are not limited to improper application, overuse, and disposal of herbicides, pesticides, and fertilizers; activities related to automobile businesses including service stations, automobile dealerships, car washes, and body shops;

Permit Requirement	City Ordinance	Ordinance Language
other types of automotive services facilities; • Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility, including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.; • Discharges of wash water from mobile operations, such as mobile automobile or truck washing, steam cleaning, power washing, and carpet cleaning, etc.; • Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas - including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc., where detergents are used and spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed); • Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials; • Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water; • Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and • Discharges of food-related wastes (grease, fish processing, and		and light industrial facilities which may be a source of pollutants. B. No person shall throw, discard, deposit, abandon, or permit to be thrown, deposited, placed, abandoned, any refuse, rubbish, garbage, litter, or other discarded or abandoned objects, articles, and accumulations, in or upon any street, alley, sidewalk, storm drain inlet, catch basin, conduit or other drainage structures, parking area, within or in proximity to any public or private plot of land so that the abandoned might be or become a pollutant. C. No person shall cause or permit any dumpster, solid waste bin, or similar container to leak such that any pollutant is discharged into any street, alley, sidewalk, storm drain, inlet, catch basin, conduit or other drainage structures, business place, or upon any public or private plot of land in the city. D. The occupant or tenant, the owner, lessee, or proprietor of any real property in the city where there is located a paved sidewalk or parking area shall maintain said paved surface free of dirt or litter to the extent reasonable and practicable and provide an adequate means for the disposal of refuse, rubbish, garbage, or other articles so as to prevent such matter from entering a storm drain. Sweepings from said sidewalk shall not be swept or otherwise made or allowed to go into the gutter or roadway but shall be disposed of in receptacles maintained on said real property. E. No person shall throw or deposit any pollutant in any fountain, pond, lake, stream, or any other body of water in a park or elsewhere within the city, except as otherwise permitted under local, state, or federal law.

Permit Requirement	City Ordinance	Ordinance Language
restaurant kitchen mat and trash bin wash water, etc.).		

4.2.4 Illicit Discharge Complaint Report and Response Program

In order to receive complaints or reports from the public, the City commits one staff member to serve as the point of contact for the public to report illicit discharges into the MS4. This staff member's telephone number and email address is made publicly available, including posted on the City's webpage, with the directions to contact the staff member with any illicit discharge concerns or reports. This staff member is trained and qualified to field the calls and emails, record the complaint, and inspect and follow up as necessary to address the concern. During non-business hours, all calls go through to the Public Works Department's main voicemail; the department's administrative assistant sends any after-hours messages to the staff member in charge of handling illicit discharge calls. In the event that the designated staff member is unavailable, the Public Works Department's administrative assistant forwards all calls to other members of the stormwater management team that are available. Contact information for the staff member, and a reminder to contact the City if an illicit discharge is observed will be given at appropriate public education and outreach media.

The City will continue to respond to all complaints or reports as soon as possible, within a maximum of two (2) working days. All responses will include an investigative inspection, to observe the reported discharge or concern, and appropriately document. This inspection will include an inspection of all nearby catch basins, other stormwater infrastructure, and surface water channels as applicable, to determine the extent of the impact. Depending on the results of the inspection, the response and enforcement protocol will be initiated to address and remediate any confirmed illicit discharge. The response protocol is summarized in Figure 16 below.

Regardless of the results of the inspection and the extent of the response and enforcement protocol, all complaints and reports will be recorded in the City's records. The record will include the date of the complaint, location, photographs provided with the complaint or taken during the inspection, a narrative of the inspection, and any supporting documentation or escalation documents. Discharges and spills which make their way to WOTUS are reported to DEQ as a non-compliance. This information will be summarized and included in the Annual Report.

Spill Response Procedure for City Staff

The person who discovers a spill fills an important role to determine immediate actions to ensure the safety of others and the environment. If the surroundings are unsafe, the individual who discovers the spill should restrict access by others and should call for hazmat help as soon as possible. If conditions allow, he or she may also attempt to contain the spill, to prevent/minimize release to the environment.

If conditions are sufficiently safe, responders must make an earnest effort to contain spills at the source rather than resort to separation of the material from the environment or downstream waters. This can be accomplished by isolating sumps, drains, and building berms around potential environmental receptors using granular absorbents or absorbent booms. It is imperative that Street Department response vehicles retain spill kits onsite and readily available.

When reporting, the individual calling in the request for response should provide as much information about the release as possible. Where possible, the person making the call for hazmat response should attempt to provide the following:

- Spill location.
- Date and time discovered.
- Name of material spilled.
- Quantity spilled and source of spill.
- Associated hazards.
- Location and description of potential and actual environmental receptors.
- Actions being used to stop, remove, and/or mitigate the effects of the spill; and
- Description of any damages or injuries.

The City Stormwater Compliance Responders will evaluate the situation to determine immediate actions required and the need for a spill response contractor to clean-up the spill, if necessary. If it is determined that that spill/release can be safely addressed by on-site resources, the Public Works Director, City Engineer, Street Department Superintendent, Stormwater Compliance Responder or appropriate designee may direct personnel to initiate appropriate clean up actions. For spills/releases which cannot be readily managed by on-site personnel, City Staff may be required to contact an appropriately qualified spill cleanup contractor to provide assistance.

The City of Caldwell retains the right to invoice or prosecute the owner of the improperly stored pollutant or otherwise guilty party for all legal, administrative, and directly remedial costs incurred, even in their absence.

***Figure 16**. Spill response procedure.*

See also Section 5.2.7 for spill response contacts.

4.2.5 Dry Weather Outfall Screening Program

The stormwater management team conducts an annual dry weather analytical and field screening monitoring program to identify non-stormwater flows from MS4 outfalls during dry weather. In southwest Idaho, this is typically the months of July and August each year. This program emphasizes screening activities to detect and identify illicit discharges and illegal connections and allows the City to reinvestigate potentially problematic MS4 outfalls throughout the City.

Because the total number of MS4 outfalls in the City's MS4 area is greater than 50 (see Outfall Inventory for most accurate tabulation of outfalls), each year the City screens at least 50 outfalls. The outfalls will continue to be inspected on rotation, so that every outfall is inspected at least once during each permit term. At the start of each permit term, and in the event that during the permit term all outfalls have been screened and the inspections restart, and at the start of each annual round of screenings priority will be given to outfalls with the following considerations:

- The outfall discharges directly to an impaired surface water (i.e., Boise River, Indian Creek, Mason Creek).
- The outfall was identified as having unresolved or unidentified discharges during its last inspection.
- Illicit discharge records indicate more than one confirmed illicit discharge in the contributing drainage area to the outfall.

When conducting the dry weather screening inspections, if the outfall is discharging water, the inspector will document and record the discharge and attempt to identify the source. Due to the age of the City's MS4 system, in some areas of the City, groundwater and irrigation water is co-mingled with stormwater, utilizing the same infrastructure. In the new development areas, some residents exhibit a pattern of frequent over-irrigation of residential lots, as new homeowners seek to establish sod on their property but fail to reduce irrigation frequency and duration once the sod has established, leading to irrigation runoff. If the flow observed from the outfall is determined conclusively to be irrigation water, the inspector will document and move on. However, if the source of the discharge is unclear, and the characteristics of the water (clarity, color, odor, floatable, etc.) indicate that the discharge does not merely contain irrigation water, a sample will be collected and the discharge will be tested for temperature, pH, turbidity, phenols, residual chlorine, *E.coli*, and detergents. If any parameter exceeds the follow-up trigger threshold shown in Table 19, a follow-up inspection will be conducted of the outfall and the surrounding area, using the information from the lab results to identify the source of the illicit discharge. All results and photos will be recorded in the dry weather outfall screening inspection report.

Table 18. *Dry weather outfall screening discharge parameter follow-up threshold triggers.*

Tested Parameter	Follow-up Threshold Trigger
Temperature	33°C
pH	pH<6 ; pH>8
Turbidity	200 ftu
Phenols	6 mg/L
Residual Chlorine	0.5 mg/L
E.coli	126 cfu/100mL
Detergents	0.5 mg/L

Where an illicit discharge is identified by the dry weather outfall screening program, the City will utilize City Ordinance 13-01-03 and 13-01-07 to pursue the responsible party to the extent allowable by state law.

The City will continue to maintain detailed records of its dry weather screening program activities conducted throughout the permit term. At present, the City uses an online, GIS-based platform to track dry weather screening inspections. City staff intend to continue to use a web-based program for organization of electronic geo-referenced inspection reports. The online mapping platform can be seen in Figure 17, below.

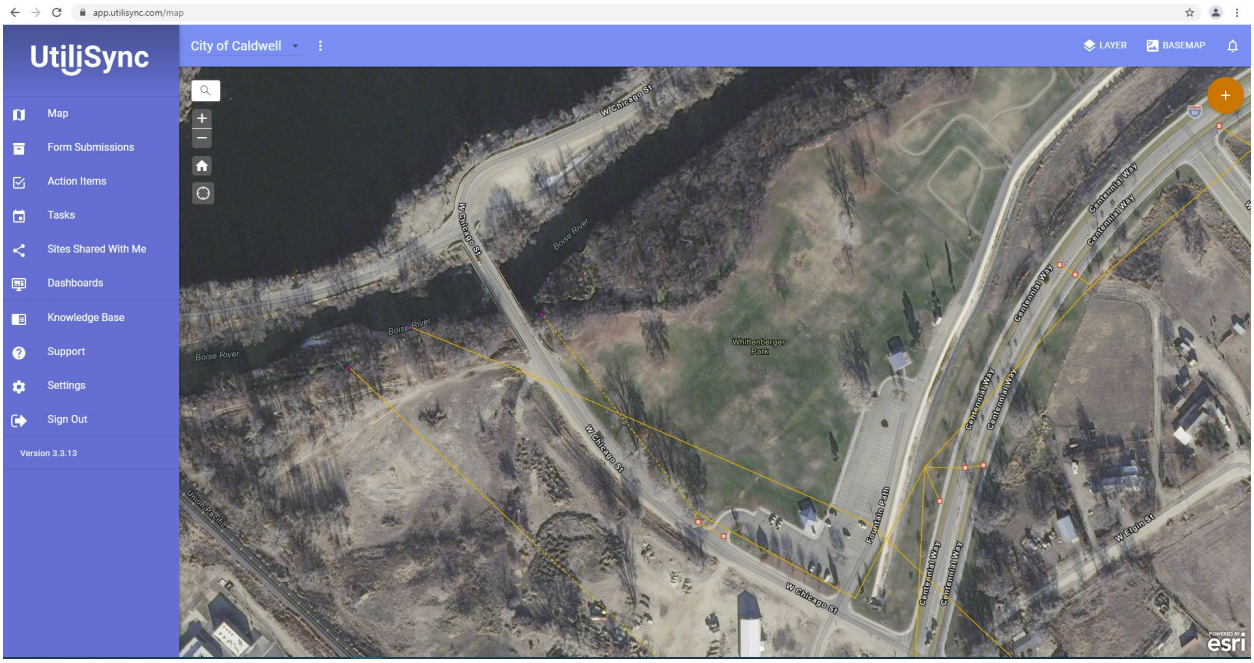


Figure 17. *GIS-based inspection tool for tracking dry-weather outfall inspections.*

2024 Comment: The City has migrated to software Beehive, which is where all outfall screening, wet and dry is being recorded. All inspections are also recorded and queries can be run on each outfall and/or location. The above system, UtiliSync, is no longer being utilized for stormwater documentation and record keeping.

2025 Comment: No changes from the above comment until next year. A new asset management software system was purchased during FY'26 but migration will not start until calendar year 2026.

For each screened outfall, the following information is recorded:

- Time since last rain event; estimated quantity of last rain event;
- Site description (e.g., conveyance type, adjacent land uses); flow estimation (e.g., width of water surface, approximate depth of water, approximate flow velocity, flow rate);
- Visual observations (e.g., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology);
- Results and documentation of any in-field sampling; recommendations for follow-up actions to address identified problems to the extent allowable pursuant to authority granted the City of Caldwell under Idaho state law; and/or completed follow-up actions taken by the City.

In the Annual Report, the City will include a summary of the results of the dry weather screening program activities conducted throughout the reporting period.

4.2.6 Follow-Up

Within thirty (30) days of its detection, the City will investigate recurring illicit discharges as identified as a result of complaints or as a result of the dry weather screening investigations and sampling, to determine the source of the discharge.

The City will take appropriate action to address and eliminate the source of an ongoing illicit discharge within sixty (60) days of its detection, to the extent allowable under City Ordinance and Idaho state law. For outfalls where the ongoing dry weather discharge is identified to be irrigation return flows or groundwater seepage, the City will document in the DWF Inspection Report the outfall location and the facts supporting the determination that the source is from either irrigation return flows or groundwater seepage. The City will create a list of all outfalls with ongoing dry weather flows associated with irrigation return flows or groundwater seepage, to be submitted as part of the Permit Renewal Application.

2022 Comment: The City will continue its longstanding practice of utilizing its GIS layers (drainage) for tracking storm drain pipes with irrigation and groundwater flow.

2023 Comment: No change from previous comment.

2024 Comment: No change from previous comment.

2025 Comment: No change from previous comment.

4.2.7 Prevention and Response to Spills to the MS4

All spills of hazardous material, deleterious material, or petroleum products which may impact waters (ground or surface) of the State will be reported immediately by telephone to the local fire department and State Communications at 1-800-632-8000 or (208) 846-7610. If the spilled contaminant reaches WOTUS, the DEQ permit non-compliance hotline will be called (833) 473-3724. Table 20 contains the complete spill response emergency contact list.

City Ordinance authorizes City staff to access sites and take the necessary steps to contain and remediate a spill. If notified before emergency services and/or federal agencies, City stormwater management team staff will immediately go to the site of the spill, if the individual reporting the spill indicates that the spill is likely not hazardous, staff will wait until they arrive onsite to assess and determine immediate actions required and the need for a spill response contractor to clean-up the spill, if necessary. If the spill appears to be hazardous, City staff will immediately contact the Caldwell Fire Department and request hazmat assistance.

Table 19. *Spill Response Emergency Contact List*

SPILL RESPONSE EMERGENCY CONTACT LIST	
Caldwell Stormwater Management Team Contacts	
Primary Environmental Compliance Responder Christina Beeson, Stormwater Superintendent	Office: (208) 455-4598 24-hr: (208) 484-7243
Alternate Environmental Compliance Responder Jake Wells, Environmental Scientist	Office: (208) 455-4753 24-hr: (208) 504-9701
Alternate Environmental Compliance Responder Madison Kolda, Environmental Stormwater Inspector	Office: (208) 455-4620 24-hr: (208) 504-8478
Town/State Agencies	
Caldwell Fire Department	911 or (208) 455-3032 (office)
Caldwell Police Department	911 or Emergency: (208) 454-7531
Caldwell Street Department	Office: (208) 455-3072 24-hr: (208) 454-7531
Caldwell Wastewater Treatment Facility	(208) 455-3027 24-hr: (208) 949-1278
Canyon County Emergency Management	Office: (208) 454-7271 Cell: (208) 989-2132
State of Idaho Office of Emergency Management	(208) 258-6524
State of Idaho Communications	1-800-632-8000 (208) 846-7610

DEQ Permit Non-compliance Hotline	(833) 473-3724
Federal Agencies	
National Response Center	(800) 424-8802
EPA Region 10 (Emergency Response)	1-800-424-4372 1-206-553-4973
Spill Response Contractors (Two nearby 24-hr contractors listed below)	
Olympus Technical Services, Inc.; Boise, ID	(406) 443-3087 (24 hr. line)
Master Environmental	(208) 490-8889 (24 hr. line)
L + R Group; Meridian, ID	(208) 996-0146 (24 hr. line)
CleanHarbors, Boise, ID	(800) 645-8265 (24 hr. line) (208) 343-7867 (office)

When reporting, the individual calling in the request for response should provide as much information about the release as possible. Where possible, the person making the call for hazmat response should attempt to provide the following:

- Spill location;
- Date and time discovered;
- Name of material spilled;
- Quantity spilled and source of spill;
- Associated hazards;
- Location and description of potential and actual environmental receptors;
- Actions being used to stop, remove, and/or mitigate the effects of the spill; and
- Description of any damages or injuries.

If the surroundings are unsafe, the individual who discovers the spill should restrict access by others and should call for hazmat help as soon as possible. If conditions allow, they may begin to work to contain the spill, to prevent or minimize release to the environment.

If conditions are sufficiently safe, responders must make an earnest effort to contain spills at the source rather than resort to separation of the material from the environment or downstream waters. This can be accomplished by isolating sumps, drains, and building berms around potential environmental receptors using granular absorbents or absorbent booms.

For spills that cannot be readily managed and cleaned by on-site personnel, City staff may contact an appropriately qualified spill cleanup contractor to provide assistance. The City retains the right to invoice or prosecute the party responsibly for the spill for all legal, administrative, and directly remedial costs incurred, even in their absence. (City Ordinance 13-01-07 (4) to (8))

4.2.8 Proper Disposal of Used Oil and Toxic Materials

The City will educate road maintenance staff and will place community information about the proper management, disposal, or recycling of used oil, vehicle fluids, toxic materials, and other household wastes upon its stormwater management webpage during the permit term. This will be achieved through postings on the City's publicly available webpage and educating staff.

- City Stormwater Compliance Staff have created a Household Hazardous Waste reference page on the City's website at: https://www.cityofcaldwell.org/Departments/Stormwater/Household-Hazardous-Waste-Disposal

4.2.9 Illicit Discharge Detection and Elimination Training for Staff

All persons responsible for investigating, identifying, and eliminating illicit discharges and illicit connections into the MS4 are appropriately trained to conduct such activities and receive additional training annually. The City's construction inspectors, maintenance field staff, and code compliance officers are trained to identify and report illicit discharges and spills into the MS4 to stormwater management staff.

Stormwater management team members receive additional training on conducting dry weather screening activities and responding to reports of illicit discharges to the MS4. All new staff working on illicit discharge detection and elimination will be provided orientation and training within six months of employment.

Training of all personnel is recorded and reported in the revised SWMP.

- On November 11, 2021, City Stormwater Compliance staff held a spill clean-up and waste disposal workshop with Caldwell Street department staff. The discussion included reminders of which methods/equipment to use when cleaning up an oil slick or small automotive-fluid spill.

- All City field staff participated in ComplianceGO electronic stormwater training between February and April 2022. The following staff refused to participate: Britain Mulcahy (Golf); Kevin Mielbeck (Building); Bridget Kernan (Police); Cody Trosky (Fire); Greg Wanous (Police); Jeff Cordell (Police); Oscar Martinez (Police); Robert Heaton (Police); Toby Robinson (Fire); Andrew Thomas (Police); James L Davis (Police); Jeffrey M Jensen (Police); Scott Crupper (Police).

- In 2022, Land Development Inspector Darren Winters obtained his Responsible Person certification through City of Boise. Land Development Inspector Paul Braeger obtained his Responsible Person certification through City of Boise.

- In 2022, Environmental Scientist Jake Wells renewed his Responsible Person certification through City of Boise and obtained the following certifications: NPDES Certified Stormwater Inspector through the National Stormwater Center, and the Construction General Permit Site Inspector through the EPA.

- In 2023, Stormwater inspectors Madison Kolda and Bryan Dallolio obtained the following certifications: NPDES Certified Stormwater Inspector through the National Stormwater Center, Responsible Person certification through City of Boise, and the Construction General Permit Site Inspector through the EPA.

- In 2024, Stormwater Superintendent Christina Beeson joined team in September, bringing first aide/CPR certification, HAZWOPER certification, Federal and State Water Quality and TMDL background, and a Master of Science degree with a focus on water resources and environmental science. She will attend Responsible Person course on December 11th, 2024, and attend Certified Stormwater Inspector Training on December 16-17, 2024.

- In 2024, Christina Beeson and Jake Wells held an IDDE Staff training for Engineering Inspectors on 12.04.2024. On 12.11.2024 the Stormwater team hosted ESC Responsible Person Training at the Airport Conference Room.

- In 2025, a Workshop on Introduction to Stormwater and the City's MS4 was held for all City Streets and Parks & Recs employees on 01.15.2025.

4.3 Construction Site Stormwater Runoff Control

4.3.1 Regulatory Requirements

City of Caldwell MS4 Permit No. IDS-028118 Section 3.3.2 reads "Through ordinance or other regulatory mechanism to the extent allowable under Idaho state law, the Permittee must require erosion controls, sediment controls, and waste materials management controls to be used and maintained at construction projects from initial clearing though final stabilization.

"To be considered adequate, the Permittee's regulatory mechanisms must require construction site operators to maintain effective controls to reduce pollutants in stormwater discharges to the MS4 from sites in the Permittee's jurisdiction, as described in Part 3.3.3. The Permittee must require construction site operators to submit construction site plans for projects disturbing one or more acres for Permittee review, as described in Part 3.3.4. The Permittee must use inspections and enforcement actions (for

example, written warnings, stop work orders and/or fines) to ensure compliance, as described in Part 3.3.5 below, and must maintain a written enforcement policy, as described in Part 3.3.6.

"For construction project in the Permittee's jurisdiction that disturb one or more acres (including projects that disturb less than one acre but are part of a common plan of development or sale that disturb one or more acres), the Permittee must refer project site operators to obtain NPDES permit coverage under the current version of the Idaho CGP."

2022 Comment: In January 2020, the City of Caldwell began to require all subdivision and commercial plan review applicants to submit a copy of their comprehensive construction SWPPP document, for development sites larger than 1 acre. For development additions of 1000 square feet of new impermeable surface, all applicants are required to install BMP's which contain a minimum of a 25-year storm event on site. Stormwater control mechanisms must be sized appropriately for the size and runoff coefficient of the site, as well as compliant with the City's 2009 Stormwater Management Manual. See also SS 5.3.3.

2023 Comment: No change from previous comment.

2024 Comment: No change from previous comment.

2025 Comment: No change from previous comment.

4.3.2 City Ordinance and Regulatory Mechanisms

The City of Caldwell's construction site runoff control program is established in accordance with the requirements of City of Caldwell Municipal Code 13-01 (Stormwater Management and Discharge Control). The ordinance requires applicable construction sites to obtain NPDES coverage and prohibits polluted or non-stormwater discharge from sites. Additional specific standards to which proposed and active development must adhere are detailed in the City of Caldwell Municipal Stormwater Management Manual, the Manual being formally recognized in Municipal Code as containing said standards and guidelines for stormwater management within the City.

To support effective implementation of the Construction Site Runoff Control requirements, the following resources are also utilized by City staff implementing the program:

- Catalog of Stormwater Best Management Practices for Idaho Cities and Counties
- Idaho Construction Site Erosion and Sediment Control Field Guide

The City's Ordinance establishes the authority of the City's staff to review proposed stormwater management/erosion and sediment control plans for developments, inspect active and completed construction sites and stormwater management facilities, and to bring enforcement action against parties found to be in violation of the City's Ordinance or the terms of any City-issued permit.

2024 Comment: The BMP Catalog can be found on IDEQ's website here: Guidanhttps://www.cityofcaldwell.org/Departments/Stormwater/Household-Hazardous-Waste-Disposalce | Idaho Department of Environmental Quality. The Field Guide is a small booklet that the City's Public Works vehicle fleet each has a copy. Extras are in the Stormwater Superintendent's office.

4.3.3 Site Plan Review

All site work development within the City of Caldwell that requires a permit from the Engineering Department is reviewed by the stormwater management team and must be approved before a permit is issued. The stormwater management team staff determines whether the site exceeds the one acre threshold. Commercial sites less than one acre in size must submit an erosion and sediment control plan, showing how stormwater runoff and erosion will be minimized or eliminated during construction. Sites greater than one acre in size must submit their complete Stormwater Pollution Prevention Plan (SWPPP) for the site. The SWPPP will be checked for accuracy and applicability to the site, and a copy will be retained for reference during inspections.

Applications that fail to submit the necessary documents are denied until the information is supplied. Applicants that are approved, and have sites greater than one acre in size, are reminded to obtain NPDES CGP coverage before commencing ground-disturbing activities onsite. Plan reviewers and inspection staff utilize the web-based ProjectDox program to receive and review submittals.

4.3.4 Site Inspection and Enforcement of Control Measures

4.3.4.1 Inspection Schedule and Prioritization

Inspection prioritization assesses multiple parameters that can influence the potential environmental impact of an active construction site. Table 21 is the inspection prioritization rubric used by stormwater management team inspection staff.

***Table 20**. Inspection prioritization rubric*

Score:	1	2	3	4	5
Date of Last Inspection	Less than 2 weeks	Less than 1 month	More than 1 month	More than 2 months	More than3 months
Size of Project	1 acre	5 acres	10 acres	20 acres	>20 acres
Proximity to Surface Water	More than 1 mile	Within 1500 feet	Within 500 feet	Within 150 feet	Within 50 feet
Prior Non-Compliance	No prior non-compliance	1 prior non-compliance	2 non-compliance	3 non-compliance	3+ NC or Citizen Complaint

Score:	1	2	3	4	5
Speed of Addressing Concerns	Within 1 day of notification	Within 3 days of notification	Within 1 week of notification	Within 2 weeks of notification	More than 2 weeks/ not addressed
Status of Project	No exposed soils	Minor exposed soils/stabilization evident	Phased soil exposure/ partial stabilization evident	Majority of soils exposed/ not stabilized	Peak earthwork, all/most soils exposed
Site Condition	Site is pristine, no ESC concerns, BMPs correctly installed	BMPs installed correctly, minor CA's needed	Corrective actions/ maintenance needed	Site poses a risk to MS4/ resources, CAs required immediately	#4 and No BMPs/ all incorrectly installed, blatant violation of ESC standards

The score created by the prioritization assessment is then used to calculate the deadline date of the next inspection, based on the date of the most recent site inspection. This process is used to create a schedule of inspections for all the sites, where each site should be inspected before its deadline. This prioritization process is automated using an Excel spreadsheet containing active development sites in Caldwell, and the site inspection deadlines automatically updated when inspection date or any of the assessment parameters are updated.

2022 Comment: Due to shifts in staffing the City's stormwater compliance team, we were not able to correlate the above prioritization into our existing CGP inspection tracking spreadsheet. This item is still not yet implemented.

2023 Comment: The existing CGP inspection tracking sheet was updated to have a priority system that complies with the above prioritization. The updated spreadsheet includes development project name, SWPPP contact, project location, and current status to track and record projects. The priority system uses Discharges to surface water, development area acres, time since last inspection, and magnitude of past violations to determine if a development is high, medium, or low inspection priority. Currently, the City of Caldwell is inspecting each development every month.

2024 Comment: No change from above comment.

2025 Comment: No change from above comment.

4.3.4.2 Inspection Procedure

When the City stormwater inspector arrives onsite, they will review the SWPPP to locate the required BMPs. After reviewing the SWPPP, the inspector will inspect the site, looking for correct installation of BMPs, damaged or disrepaired BMPs, exposed soils, sediment tracking, proper concrete and paint washout containment, dust generation, proper trash disposal, and storage of potential stormwater contaminants inside, under cover, or with secondary containment.

The Inspector utilizes the Beehive Asset Management as an inspection application to take photographs throughout the inspection, especially of areas or items of concern, and of anything requiring a corrective action. The inspector also documents all findings and recommendations in the electronic inspection report. After the inspection has been concluded, the inspector reviews the inspection report, assigns corrective actions to the site contact, as applicable, attaches photos taken during the inspection, and sends the inspection report to the site contact for remedial measures.

4.3.4.3 Inspection Documentation

All photographs, inspection reports, and inspection logs will be saved by the City. These records will be summarized in the Annual Report. Construction site inspection reports are available by request to Idaho DEQ, or by public records request to members of the public.

4.3.4.4 Escalation of Enforcement

The City must develop, implement, and maintain a written escalating enforcement response policy (ERP). The ERP for construction site runoff control will be submitted to EPA and IDEQ with the Permit Renewal Application, no later than April 3, 2025.

The ERP must address enforcement of construction site runoff controls for all construction projects in their jurisdiction, to the extent allowable under Idaho state law.

The ERP must describe the City's potential response to violations with appropriate educational or enforcement responses. The ERP must address repeat violations through progressively stricter responses, as needed, to achieve compliance. The ERP must describe how the City will use its available techniques to ensure compliance, such as: verbal warnings; written notices; escalated enforcement measures such as stop work orders, monetary penalties; and/or other escalating measures to the extent allowable under Idaho state law.

2021 Comment: We believe that our current Ordinance 04-19-15, which addresses enforcement, may leave room for improvement in the area of escalation. We intend to better clarify the escalation approach during the permit term.

2022, 2023 Comment: No change to previous.

2024 Comment: City ordinances are being reviewed for updates.

2025 Comment: City ordinances were updated this year, and an enforcement section was expanded. City Council approved them in March 2025.

4.3.5 Information from Public

In order to receive complaints or reports from the public, the City commits one staff member to serve as the lead point of contact for the public. This staff member's telephone number and email address will continue to be made publicly available, including posts on the City's webpage, with the directions to contact the staff member or Stormwater Division with concerns related to construction activity. This staff member will be trained and qualified to field the calls and emails, record the complaint, and inspect and follow up as necessary to address the concern. During non-business hours, all calls go through to the Stormwater Division's main voicemail; the department's administrative assistant will send any after-hours messages to the staff member in charge of handling construction runoff calls. In the event that the designated staff member is unavailable, the Public Works Department's administrative assistant will forward all calls to other members of the stormwater management team that are available.

The City will continue to respond to all complaints or reports as soon as possible, within two (2) working days. All responses will include an investigative inspection, to observe the reported concern, and appropriately document.

4.3.6 Construction Runoff Control Training for Staff

All persons responsible for preconstruction site plan review, site inspections, and enforcement of the MS4 requirements are appropriately trained or otherwise qualified to conduct such activities and receive additional training as needed. All new staff working on construction runoff control will be provided orientation and training within six months of employment. Training of all personnel is recorded and reported in the Annual Report.

Much like calendar year 2020, during the December 1, 2020, to December 1, 2021, portion of the permit term, stormwater compliance staff struggled to execute in-person training exercises. This struggle was largely caused by fluctuations in City office closures from the COVID-19 pandemic. Despite the pandemic, we have made a special effort to have all site work/utility (Engineering Dept.) inspectors and plan-reviewers trained and certified as Responsible Persons within the first 6 months of employment. This certification remained available via remote training options.

During 2021, we recognized the need to transition to an electronic training platform for all City field staff. At that time, costs were budgeted for implementing the program – approximately $25,000 – in fiscal year 2022. Since we've entered fiscal year 2022, stormwater compliance staff are working through roll-out of the ComplianceGo stormwater training platform.

2022 Comment: ComplianceGO training completed February to April 2022. See also SS 5.2.9 comment.

2024 Comment: With four stormwater team members, in-person trainings have been able to commence when possible.

2025 Comment: Stormwater team hosted ESC Responsible Person training in December for construction community workers and City Staff.

4.4 Post Construction Stormwater Management for New Development and Redevelopment

4.4.1 Regulatory Requirements

City of Caldwell MS4 Permit No. IDS-028118 Section 3.4 reads "Through an ordinance and/or regulatory mechanism, to the extent allowable under Idaho state law, the Permittee must require the installation and long-term maintenance of permanent stormwater controls at new development and redevelopment project sites in its jurisdiction that result in land disturbance of greater than or equal to one (1) acre (including construction project sites less than one acre that are part of a larger common plan of development or sale that would disturb one acre or more) and that discharge into the MS4.

2022 Comment: This requirement has been met since 2011. City of Caldwell Municipal Stormwater Management Manual (for Design) requires development properties adding 1000 or more square feet of impermeable surface to design controls to contain a minimum of a 25-year event onsite, before discharging to surface water. Authority to enforce this manual is expressed at City Code 13-01-05 "Stormwater Management Plans and Comprehensive Drainage Plans."

"Required permanent stormwater controls must be sufficient to retain onsite the runoff volume produced from a 24-hour, 95th percentile storm event; or sufficient to provide the level of pollutant removal greater than pollutant removal expected by using onsite retention of runoff volume produced from a 24-hour, 95th percentile storm event.

2022 Comment: This requirement is being met for some facilities, but not others. In the current Stormwater Management Manual (for Design), developer's engineers may design a facility with capacity for a 25-year event or a 100-year event. Capacity sufficient to contain a 100-year event if overflow to a nearby drain is not available. Properties located in downtown Caldwell are exempt from this policy.

We have researched the 30 year period of record in Caldwell, ID to determine that a 95th percentile storm event is commensurate to of 0.61" in 24 hours in our region. Currently, the 25-year facilities may not meet this standard. We intend to make significant changes to the Stormwater Management Manual in 2023, and this requirement would be incorporated.

2023 Comment: No change to previous. Revised Stormwater Management Manual (for Design) remains in draft form and is not yet adopted.

2024 Comment: The Caldwell Municipal Stormwater Infrastructure Design Manual was finalized and adopted in March 2024 and can be found on the City's website.

"The Permittee must specify permanent stormwater controls for project sites in their jurisdiction to install for sites that result in land disturbance of greater than or equal to one (1) acre (including construction project sites less than one acre that are part of a larger common plan of development or sale that would disturb one acre or more) and that discharge into the MS4. The Permittee may define appropriate controls for different types and/or sizes of site development activity occurring in their jurisdiction.

"The Permittee must develop, or update as necessary, any written specifications to address proper design, installation, and maintenance of required permanent stormwater controls. A Permittee may adopt specifications created by another entity that complies with this Part.

"At a minimum, the Permittee must review and approve preconstruction plans for permanent stormwater controls at new development and redevelopment sites that result in land disturbance of greater than or equal to one (1) acre (including construction project sites less than one acre that are part of a larger common plan of development or sale that would disturb one acre or more) and that discharge into the MS4. The Permittee must review plans for consistency with the ordinance/regulatory mechanism and specifications required by this Part. The Permittee must not approve or recommend for approval any plans for permanent controls that do not meet minimum requirements specified in their written specifications.

2022 Comment: This requirement has been met since 2009. City of Caldwell Stormwater Management Manual (for Design) requires development properties adding 1000 or more square feet of impermeable surface to design controls to contain a minimum of a 25-year event onsite, before discharging to surface water.

2023 Comment: No change from previous comment.

2024 Comment: The document is called Caldwell Municipal Stormwater Infrastructure Design Manual from March 2024 forward.

2025 Comment: No change from previous comment.

"The Permittee must inspect high priority permanent stormwater controls at new development and redevelopment sites that result in land disturbance of greater than or equal to one (1) acre (including construction project sites less than one acre that are part of a larger common plan of development or sale that would disturb one acre or more) and that discharge into the MS4. The purpose of such inspections is to ensure proper installation, and long-term operation and maintenance, of such controls.

"The Permittee must establish an inspection prioritization system to identify sites for inspections of permanent control installation and operation. Factors to consider when establishing priority regarding where, and when, inspections occur must include, but are not limited to: size of new development or

redevelopment drainage area; potential to discharge to portions of the MS4 discharging to impaired waters; sensitivity, and/or impairment status of receiving water(s); and history of non-compliance at the site during the construction phase.

"The Permittee must maintain a database inventory to track and manage the operational condition of permanent stormwater controls in its jurisdiction. All available data on existing permanent controls known to the Permittee must be included in the database inventory. At a minimum, the Permittee must begin tracking at the time the Permittee takes ownership, using a database that incorporates geographic information system (GIS) information and/or developed in conjunction with the MS4 Map required in Part 3.2.2 (MS4 Map and Outfall Inventory). The tracking system must also include reference to the type and number of permanent stormwater controls; O&M requirements; activity and schedule; responsible party; and any applicable self-inspection schedule."

2022 Comment: This item is incomplete. We do not yet inspect and track permanent stormwater controls during the years following construction.

2023 Comment: This requirement was started in the summer of 2023. A spreadsheet was created that tracks the type of Permanent stormwater control, location of control, inspection frequency, and responsible party of the Permanent stormwater control. The tracking spreadsheet has a condition score that is used for inspection and enforcement purposes. City of Caldwell Stormwater Division continuously maintains and updates the tracking sheet to include new developments. Stormwater controls are added according to the prioritization listed in Section 5.4.5 comment. No later than April 3, 2025, the City must update the existing controls to impose the required SWMP control measure components in the Permit (Parts 3.4.2 through 3.4.7).

2024 Comment: Refer to 2023 comment above. Record keeping is still in place for tracking Permanent Stormwater controls. Refer to Appendix D for a view of the spread sheet.

2025 Comment: No change from previous comment.

4.4.2 City Ordinance and Regulatory Mechanisms

City of Caldwell Municipal Code 13-01-05 (Stormwater Management Plans and Comprehensive Drainage Plans) requires stormwater management plans or comprehensive drainage plans for industrial, commercial, and institutional developments which require a building permit and multi-family residential developments that are not part of a larger subdivision project, as well as subdivision projects that have private access, which also require a building permit. The City of Caldwell Municipal Stormwater Management Manual requires a Drainage Report be submitted to the City Engineering Department for any of the following development scenarios:

- New or modified development that includes the establishment of a storm drainage system that connects to an existing downstream system;

- Any development or redevelopment discharging to an existing storm drainage system where more than 1,000 square feet of impervious surface is added;
- Modification of the existing drainage system;
- Addition of impervious areas that tends to increase quantity or decrease quality of discharge.

The City of Caldwell Municipal Stormwater Management Manual also establishes design and performance standards for all permanent stormwater controls.

4.4.3 Permanent Stormwater Controls Specifications

Permanent stormwater controls specifications have been compiled in the City's Caldwell Municipal Stormwater Management Manual. This document is made publicly available on the City's website. Revisions to the Manual must be approved by Caldwell's City Council. The most recent substantial revision of the Manual was completed in July of 2009. A major revision of the Manual, to ensure compliance with the 2020 MS4 Permit (and site containment of the 24-hour, 95th percentile storm event) is scheduled to be completed in 2023.

4.4.4 Permanent Stormwater Controls Plan Review and Approval

Stormwater management plans and comprehensive drainage plans must be submitted to the City's Engineering Department at the time building plans are submitted, as part of the building permit application package. Qualified staff members then review the plans for compliance with the Caldwell Municipal Stormwater Management Manual, City Ordinance, and other applicable rules and standards.

Plans will only be approved if they demonstrate that the project will not increase the peak levels (rate and volume) of stormwater runoff from impervious areas, unless the plan identified measures to control and limit runoff to peak levels no greater than would occur if the site was left in its natural, undeveloped condition. Without an approved plan, no development or use of land which requires a stormwater management plan or comprehensive drainage plan per the Caldwell Municipal Stormwater Management Manual is permitted; nor will a building permit be issued.

4.4.5 Permanent Stormwater Control Inspection and Enforcement

When constructing the permanent stormwater controls, the owner or responsible person must inform the City prior to the commencement of the development. The City's inspection staff will then inspect the construction of the permanent stormwater controls throughout the development, to ensure the construction is being completed to standards. Once completed, the owner or responsible person must provide engineering certification that the development is in conformity with the previously approved drainage plans.

The City must develop a permanent stormwater control inspection and enforcement program, to ensure that all controls have been properly maintained, and that the controls continue to perform as designed. Similar to the construction site stormwater program, the City will develop an inspection prioritization rubric to identify and prioritize the inspection of "High Priority Locations." The prioritization will include factors such as: size of new development or redevelopment area; potential to discharge to portions of the MS4 discharging to impaired waters; sensitivity, and/or impairment status of receiving water(s); and history of non-compliance of the site during the construction phase.

2022 Comment: City staff have not yet set up permanent stormwater control inspections, but have given some forethought to making the process as simple as possible. We summarize our preliminary prioritization below:

2023 Comment: With the creation of the Permanent Stormwater Control tracking spreadsheet referenced in section 5.4.1, the City has started inspecting these stormwater controls. The inspector uses an inspection checklist to check the integrity of the control and sends the report to the owner/ responsible party of the property. Currently, the City uses the site prioritization below as a way to inspect high priority sites.

2025 Comment: The City still utilizes the tracking spreadsheet and inspects all known stormwater controls on a rotation in jurisdictions. Reports problems to owner/responsible party of the property for repairs.

Site prioritization:

1. Highest Priority: Sites which discharge to surface water with minimal BMP's, such as a single sand-and-grease trap or other sediment-control mechanism.

2. Medium Priority: Sites which discharge to surface water with sediment control and a swale or infiltration facility (typically of 25-year capacity). These sites may be equipped with an overflow, and they discharge during wet season or a large event.

3. Low Priority: Sites equipped with a swale or infiltration facilities which are equipped with a large swale or infiltration facility (typically of 100-year capacity). These sites are not plumbed with an overflow, bypass, or outlet. They do not discharge to surface water.

Once high priority locations have been determined, the City will schedule inspections of the permanent stormwater controls at these new development or redevelopment (that result from land disturbance of one or more acres) sites, at least once annually. The inspections will determine whether permanent stormwater management or treatment practices have been properly install (i.e., an "as built" verification); evaluate the ongoing operation and maintenance of the stormwater controls; identify deficiencies in the installation, operation, and/or maintenance; and identify potential solutions to reduce negative water quality impacts to receiving waters.

The City will utilize inspection checklists and will maintain records of the inspections and actions taken in response to the inspections of permanent stormwater controls at high priority new development and redevelopment sites.

4.4.6 Operation and Maintenance of Permanent Stormwater Controls

Stormwater facilities must be maintained by the owner or other responsible party. The City owns, operates, and maintains permanent public stormwater controls, but the operation and maintenance of all private facilities is the sole responsibility of the owner or their duly authorized representative. In addition to establishing owner maintenance responsibility, City Ordinance 13-01-05(3) specifies that the owner must repair and/or replace stormwater controls and facilities when they are no longer functioning as designed.

The owner of the permanent stormwater control must retain all records of installation, maintenance, and repair for the facility for a period of five years. These records must be made available to the City of Caldwell's Public Works Department upon request. Any failure to maintain facilities or correct problems with facilities after receiving due notice from the city may result in criminal or civil penalties and the City may perform corrective or maintenance work which shall be at the owner's expense. (Ord. 2884, 12-5-2011)

The City will create and maintain a database inventory to track and manage the operational condition of permanent stormwater controls within the City's jurisdiction. All available data on existing permanent stormwater controls known to the City will be included in the database inventory as well. The tracking system will also include reference to the type and number of stormwater controls; operations and maintenance requirements; activity and schedule; responsible party; and any applicable self-inspection schedule.

On a related note, the City presently makes a concerted effort to track new public and private stormwater infrastructure on our GIS layer(s). Many facilities are a combination of public and private because new developments are required to accommodate the water along their frontage, even though it is in the public right-of-way. When the development is complete, all portions of the stormwater collection system inside the public right-of-way are transferred to the ownership of the City (public MS4). Infrastructure outside of the right-of-way must be privately owned and maintained by the property owner or HOA. City policy requires such infrastructure to be in an easement or common lot for accessibility, inspection, and maintenance purposes.

Where parties other than the City are responsible for the operation and maintenance of permanent stormwater controls, the City requires a legally enforceable and transferable operation and maintenance agreement with the responsible party, or other mechanism, that assigns permanent responsibility for maintenance of such permanent stormwater control practices.

At present, the City has a few mechanisms staged to facilitate maintenance of privately-owned stormwater infrastructure.

- City Ordinance (See City Ordinance 13-01-03(8); 13-01-05(1)(B); 13-01-05(3))
- Stormwater Management Manual (Policy)
- Order of Decision (Development Agreement with Developer)
- Final Plat of a Development (Plat Notes include requirement for HOA to maintain all common lots that they own.)

4.4.7 Permanent Stormwater Training for Staff

All persons responsible for reviewing site plans for permanent stormwater controls and inspecting the installation and operation of stormwater controls are appropriately trained to conduct such activities and receive additional training annually. All new staff working on permanent stormwater control will be provided orientation and training in the first six months of employment. Training of all personnel is recorded and reported in the Annual Report or the Annual SWMP revision.

4.5 Pollution Prevention / Good Housekeeping

4.5.1 Regulatory Requirements

City of Caldwell MS4 Permit No. IDS-028118 Section 3.5 reads "The Permittee must properly operate and maintain the MS4 and its facilities, using prudent pollution prevention and good housekeeping as required by this Part, to reduce the discharge of pollutants through the MS4."

No later than April 3, 2025, the City will ensure that the stormwater infrastructure and management program includes the required SWMP control measure components described in the Permit (Parts 3.5.2 through 3.5.10).

4.5.2 Inspection and Cleaning of Catch Basins and Inlets

The City will inspect all City-owned and operated catch basins and inlets in the MS4 at least once every five years and take all appropriate maintenance or cleaning actions based on the inspections to ensure the catch basins and inlets continue to function as designed.

Material removed from catch basins will be taken to the City Wash and Drying Rack, where the materials will be placed on a drying pad, where liquids will be allowed to drain off into the City's sewer system or evaporate until the material is completely dry. The material will then be relocated to the City's fill storage area, from where it will be reused in municipal road projects.

The City utilizes the Beehive Asset Management software to update and maintain records on catch basin status and maintenance. Records reflecting catch basin and inlet inspection, and material removal and cleaning will continue to be updated and maintained by the City. Actions taken during the latest reporting period will be summarized in the Annual Report or Annual SWMP revision.

4.5.3 Operation and Maintenance Procedures for Streets, Roads, Highways, and Parking Lots

Where the City is responsible for the Operation and Maintenance (O&M) of streets, roads, highways, and/or parking lots, the City will ensure those procedures are conducted in a manner to protect water quality and reduce the discharge of pollutants through the MS4.

At a minimum, O&M procedures will include:

- Practices to reduce road and parking lot debris/pollutants from entering the MS4;
- Practices related to road deicing, anti-icing, and snow removal;
- Operation of snow disposal areas;
- Storage areas for street/road traction material (e.g. salt, sand, or other chemicals); and
- The long-term O&M of permanent stormwater control measures associated with the City's streets, roads, highways, and parking lots.

For reach type of maintenance activity, practice, or facility, the City will establish specific schedules for inspection and maintenance, and appropriate pollution prevention/good housekeeping actions.

When site conditions allow, the City will consider and utilize water conservation measures for all landscaped areas as part of these updated O&M procedures to prevent landscape irrigation water from discharging through the MS4.

2022 Comment: City stormwater staff have not yet developed SOP's for these tasks.

2023 Comment: In October of 2022, the City had a SWPPP created for the Streets Department. The SWPPP includes procedures for minimizing pollutants entering into the storm drain such as properly removing and discarding snow away from storm drains and how to respond to spills and leaks.

2024 Comment: The Stormwater Division has developed and updated the Street Division SWPPP and a Parks and Rec SWPPP in 2023 and 2024, respectfully. A new SWPPP for Fairview Golf Couse was started but not finalized in 2024. A street sweeping summary was completed and can be seen in Appendix E.

2025 Comment: The Fairview Golf Course SWPPP was completed late 2024 to early 2025. The Wash Rack expansion construction was not completed until May 2025, so a street sweeping summary and updated sampling data were collected and analyzed and added to the Appendences at the end of this document.

4.5.4 Inventory and Management of Street/Road Maintenance Materials

Where the City is responsible for the O&M of streets, roads, highways, and/or parking lots, the City will utilize control mechanisms to minimize pollutants in discharges to the MS4 and waters of the U.S. from street/road maintenance material storage stockpiles (such as sand, salt, and/or sand with salt stockpiles).

The City will maintain an inventory of road maintenance materials stored at locations within the Permit Area that drain to the MS4. The City will assess the adequacy of each Material Storage Location to prevent potential adverse surface water quality impacts and make structural or nonstructural improvements as necessary to eliminate any discovered impacts.

The City owns and operates a few key stockpiles of potentially erosive materials, utilized for a variety of municipal functions:

1. Sand stockpile at Street Department Gravel Pit
    a. Sand is located beneath sand shed cover, located at 43.682664, -116.701444.
    b. Site Control: Stockpile is covered and contained with economy blocks to prevent erosion.
    c. Utilization Purpose: Roadway traction control during wintry conditions.
    d. Quantity: Approx 2350 cu.yd.
2. Rock chip stockpile at Street Department Gravel Pit
    a. Stockpile is not covered, and is in proximity to City-owned gravel pit pond at 43.679842, -116.702107.
    b. Site Control: Chips are clean and commercially purchased; they are composed of pea gravel only. This stockpile does not contain fines, sand, or sediment.
    c. Utilization Purpose: Chip sealing roadways during June-July annually.
    d. Quantity: up to 4000 cu.yd.
3. Broken concrete stockpile at Street Department Gravel Pit
    a. Location: The site is located here 43.681895, -116.700520.
    b. Utilization Purpose: Broken concrete can be reused as rip-rap (bank stabilization) in manmade channels, such as canals or drains. The City draws upon these resources as needed for municipal projects.
    c. Site Control: This stockpile is kept 50 feet from irrigation surface water.
    d. Quantity: Approx 300 cu.yd.
4. Basalt stockpile at Street Department Gravel Pit

a. Location: Basalt rock stored here 43.680019, -116.702738.
b. Utilization Purpose: Basalt stones can be repurposed as rip-rap (bank stabilization) in natural channels, such as rivers or creeks. The City draws upon these resources as needed for municipal projects. The rock was given to the City as a donation from a business associate. The rock is sourced outside of Kuna, ID and is of natural origin.
c. Site Control: This stockpile is in proximity to the City-owned gravel pit pond. This stockpile does not contain fines, sand, or sediment.
d. Quantity: Approx 585 cu.yd.

5. Milled asphalt stockpile at Street Department Gravel Pit
    a. Location: Stockpile is located here 43.682987, -116.699642.
    b. Utilization Purpose: Asphalt is a bituminous material used for roadways. It can be readily re-crushed and used for road base, shoulder repair, or even re-combined into an asphalt mix.
    c. Site Control: This location is not in proximity to surface water.
    d. Quantity: Approx 7300 cu.yd.
6. Sand stockpile at Street Department Shop
    a. Location: Stockpile is located here 43.678525, -116.680170.
    b. Utilization Purpose: Small sand stockpile is utilized for loading into sand trucks during winter maintenance.
    c. Site Control: It is located inside the shop (covered). This location is not in proximity to surface water.
    d. Quantity: Approx 30 cu.yd.
7. Rock chip stockpile at Crown St at Aviation Way
    a. Location: At this site 43.652985, -116.652167 commercially-purchased rock chips can be stored, screened, and sorted.
    b. Utilization Purpose: Chip sealing roadways during June-July annually.
    c. Site Control: This site borders the Canyon Hill Lateral, which is closely managed and monitored by Pioneer Irrigation District. The Lateral top-of-bank sits above the elevation of the Crown Street site. The irrigation access road acts as a berm between the City and Pioneer's facilities.
    d. Quantity: Approx 5600 cu.yd.
8. Street sweepings material to be screened
    a. Location: This site is located at 43.681602, -116.702971.
    b. Utilization Purpose: The street sweepings are mostly composed of sand (spring), rock chips (late summer), and leaves (autumn). Screened material is reused in municipal projects such as berms and/or roadway shoulder repair.

c. Site Control: A screening plant to remove undesirables such as litter, is located at 43.681454, -116.703024.
d. Quantity: Approx 4000 cu.yd.

No later than April 3, 2025, the City will include in this SWMP Document a complete description of all Material Storage Locations in the Permit Area that drain to the MS4. The description of each Material Storage Location must, at a minimum, include a narrative of the individual location, an estimated average annual quantity of materials stored at the location; a short description of how/where the City typically uses the material(s) in its jurisdiction; and a summary description of any structural or non-structural controls used by the City to prevent pollutants at material storage locations from discharging to the MS4 and to waters of the U.S.

2022 Comment: This section revised in 2022.

2024 Comment: No change to above comment.

2025 Comment: No change from above comment.

4.5.5 Street, Road, Highway, and Parking Lot Sweepings

Where the City is responsible for the O&M of streets, roads, highways, and/or parking lots, the City will sweep those areas that discharge to the MS4 at least once annually.

In general, two sweepers are assigned to one zone at a time, and a total of 4 sweepers are typically on-the-go. Snowy winter months are typically down-time used for performing annual maintenance on the street sweepers. In early spring (March-April), sweepers pick up the sand deposited on the roadways over the winter. Spring cleaning is performed to prep for seal coat in May. (Roadways are chip sealed June 1-15, depending on weather.) For the rest of June and July the sweepers will focus on picking up the excess chips. Again, from August to October, sweepers return to regular coverage of assigned zones. Sweepers perform coverage of City co-sponsored events such as fairgrounds and rodeo. Every Thursday morning sweepers cover half of downtown and arterial roadways. Catch basin and SG traps cleaning has recently been performed as needed, using the same zone maps. More recently, a full-time employee was hired to tend to vactoring the drainage facilities. As weather permits, the entire sweep-able area of the City is covered every three months.

A road maintenance map book is utilized by the Street Department to track sweeping and catch basin cleaning activity progress. It is the City's intent to re-prioritize the map book, in order to sweep new development areas less frequently than older developments, which are more likely to discharge directly to surface waters with minimal control/treatment mechanisms.

The City has implemented an online-based system to track the miles of roadways swept. The program the City has selected is LiGO, which is developed and hosted by PreCise MRM, LLC. The City is working

with PreCise to install monitoring sensors on all sweeper and vacuum trucks to record when the vehicle is actively sweeping (or vacuuming) and maintain a record of where the sweeping occurred. The program also allows for monthly and annual reports to be generated, simplifying the documentation and tracking of roadway maintenance. As of late 2021, the City is coordinating with PreCise to finalize the last round of installation of sensors on the vehicles. The online tracking platform can be seen in Figure 18 below.

2022 Comment: All of the tracking devices are installed on sweepers and vactors at the Caldwell Street Department. The LiGO web interface is accessible by the stormwater team. We are working on setting up automated reports to grab specific data required to meet the language of the MS4 permit.

2023 Comment: LiGO sends sweeper and vactor reports to select Stormwater Department members on the first day of each month.

2024 Comment: A Street Sweeping Summary for the past permit year has been completed. It can be found in Appendix E at the end of this document.

2025 Comment: Same comment as above but for this year.

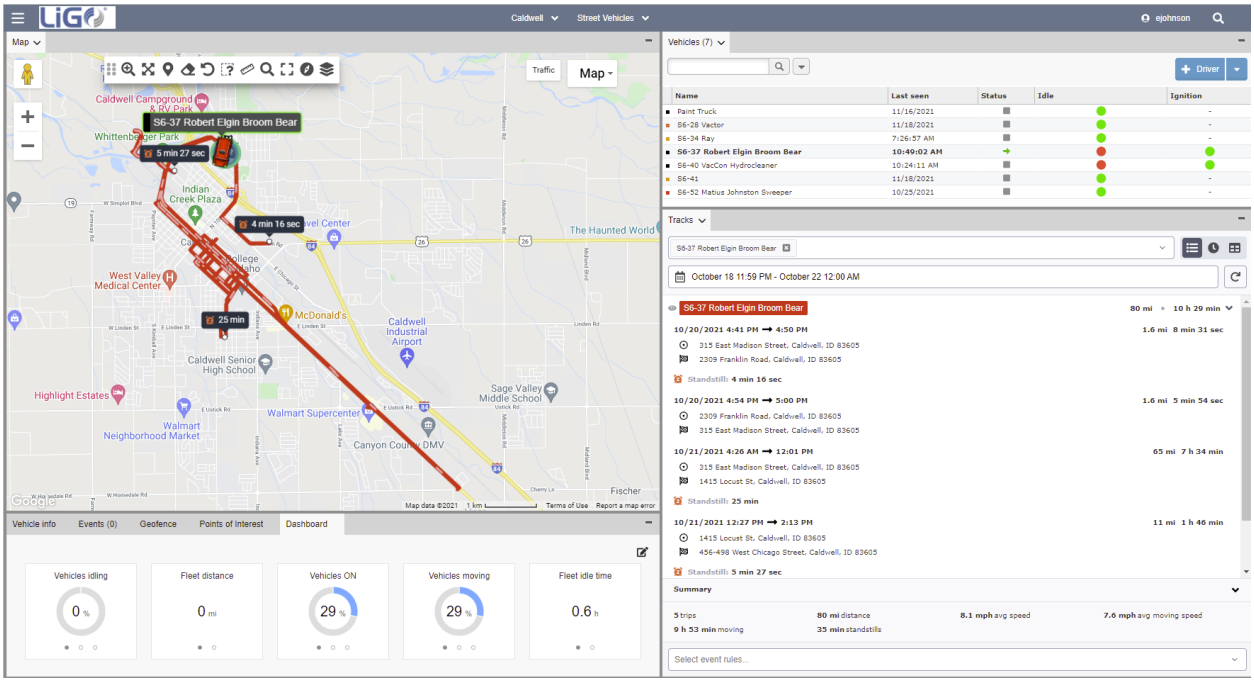


Figure 18. *LiGO tracking and recordkeeping platform.*

No later than **April 3, 2025**, the City will include in this SWMP Document a written description of its sweeping management plan. The sweeping management plan must include:

- An inventory and/or map of all streets, roads, highways and public parking lots owned, operated, or maintained by the City in the Permit Area that discharge to the MS4 or directly to waters of the U.S., and identify their selected sweeping frequency;

- A discussion of any areas where sweeping is technically infeasible; for such areas, the City must document the reasons why sweeping in the particular area of the jurisdiction served by the MS4 is infeasible, and describe any alternative means the City uses to minimize pollutant discharges from these areas into the MS4 and into any adjacent waters of the U.S.;

- An overall description of the street sweeping activities to minimize pollutant discharges into the MS4 and receiving water; including the types of sweepers used, number of swept curb and/or lane miles; general schedule or dates of sweeping by location and frequency category; volume or weight of materials removed; and any public outreach efforts or other means to address areas that are infeasible to sweep.

2024 Comment: A spreadsheet was completed that includes an inventory of unfeasible streets for street sweeping. It lists the name of the street, a nearby address, and a reason for why the City Stormwater Division has concluded in the manner and added that street to the unfeasible list. It can be found in Appendix E.

2025 Comment: No change from previous comment.

4.5.6 Operation and Maintenance Procedures for Other Municipal Areas and Activities

The City will conduct its municipal O&M activities in a manner that minimizes the discharge of pollutants through the MS4 to protect water quality. The City will review, and update as necessary, existing procedures for inspection and maintenance schedules to ensure pollution prevention and good housekeeping practices are conducted for the following activities:

- grounds/park and open space maintenance;

- fleet maintenance and vehicle washing operations;

- building maintenance;

- snow management and snow disposal site O&M;

- solid waste transfer activities;

- municipal golf course maintenance;

- materials storage;

- heavy equipment storage areas;
- hazardous materials storage;
- used oil recycling; and
- spill control and prevention measures for municipal refueling facilities.

4.5.7 Requirements for Pesticide, Herbicide, and Fertilizer Applications

The City will implement practices to reduce the discharge of pollutants to the MS4 associated with the City's application and storage of pesticides, herbicides and fertilizers in the Permit Area. At a minimum, such areas include the City's public rights-of-way, parks, recreational facilities, golf courses, and/or landscaped areas. All employees or contractors of the City applying pesticides will follow all label requirements, including those regarding application methods, rates, number of applications allowed, and disposal of the pesticide/herbicide/fertilizer and reinstate. Additionally, all employees applying pesticides will be properly trained and certified in proper pesticide application.

At present, the City houses two positions which require an Idaho Pesticide Applicators License. One position is located in the Caldwell Street Department and one is located in the Caldwell Parks Department. Staff in these departments are not authorized to utilize pesticide without holding their own license(s) or working under the immediate supervision of a supervisor who holds a license. Please see the Idaho Department of Agriculture's website for further information on Pesticide Applicators Licensing: License and Payments | Idaho State Department of Agriculture

4.5.8 Stormwater Pollution Prevention Plans (SWPPPs) for City Facilities

The City will develop and implement site-specific SWPPPs to manage stormwater discharges from City-owned material storage facilities, heavy equipment storage areas, and maintenance yards:

- Streets Department (updated yearly)
- Parks and Recreation Department (02/21/2024) The gravel pit (updated yearly)

Fairview Golf Course (in process)Other City-owned facilities discharging stormwater are covered under other NPDES/IPDES permits. These facilities include the Caldwell Airport (MSGP) IDR050007 and the Wastewater Treatment Plant IDS028118. Any City-owned projects that include stormwater discharges associated with construction activity will be properly permitted under the CGP, and will have site-specific SWPPPs prepared before commencing any land-disturbing activities.

2023 Comment: The City is currently under contract with HDR Engineering Inc. to have a Parks & Rec. SWPPP developed between October 2023 and October 2024.

2024 Comment: The Parks and Rec SWPPP was finalized in February 2024 and the Fairview Golf Course has it's first draft complete. It should be finalized by the end of year.

2025 Comment: The Fairview Golf Course SWPPP was finalized in Winter 2024 to Spring 2025.

4.5.9 Litter Control

Throughout the Permit term, the City will implement methods to reduce litter in its jurisdiction. The City will work cooperatively with others to control litter on a regular basis, and after major public events, in order to reduce the discharge of pollutants to the MS4.

4.5.10 Stormwater Pollution Prevention / Good Housekeeping Training for Staff

All persons responsible for stormwater infrastructure management and O&M activities are appropriately trained or otherwise qualified to conduct such activities. All new staff working on infrastructure management and O&M activities will be provided orientation and training within six months of employment. All staff members responsible for pesticide application will be trained and certified for such activities. Training of all personnel is recorded and reported in the Annual Report.

Section 5. Pollutant Reduction Activities

5.1 Regulatory Requirement

Indian Creek, Mason Creek, and the lower Boise River have been classified as impaired because they do not meet the water quality standards associated with their beneficial use. In order to meet the loading requirements established in the TMDL for the Lower Boise River, additional activities must be implemented by point source dischargers, such as the City, as required by the City of Caldwell MS4 permit. The City must conduct quantitative pollutant reduction activities designed to assess and minimize impairment pollutants in MS4 discharges to Indian Creek, Mason Creek, and the Boise River.

City of Caldwell MS4 Permit No. IDS-028118 Section 4.3 reads "In carrying out the requirements of this Part, the Permittee must implement the two (2) activities referenced in Part 4.1 to reduce impairment pollutants from the MS4 to Indian Creek, Mason Creek, and the Boise River.

"In the final report required by Part 4.1.3 above, the Permittee must quantify the estimated pollutant reduction accomplished resulting from such activities."

5.2 Pollutant Reduction Activities

In April of 2021, the City of Caldwell submitted a document entitled *City of Caldwell Stormwater Management Program Pollutant Reduction Activities* to EPA. This document contained proposals for two activities designed to target pollutants of concern identified in the Lower Boise River TMDL. The activities are as follows:

- Activity 1. Expand Wash Rack to Improve Sediment Removal Program Efficiency
- Activity 2. Microbial Source Tracking Study Phase 2: Identify and Remove Intermittent Human Source *E. coli* Bacteria. Phase 3 complete and summary written. Can be found in Appendix B, at the end of this document.

EPA, with support from IDEQ, approved the pollutant reduction activities (PRAs) and formally modified the City's MS4 Permit to reflect the adoption of the PRAs on June 1, 2021.

5.3 Reporting Requirements

Beginning with the first Annual Report of the Permit term (December 1, 2021), the City will document in each Annual Report the progress on conducting the aforementioned pollutant reduction activities. The extent of the reporting is provided in detail in the *City of Caldwell Stormwater Management Program Pollutant Reduction Activities*, included as Appendix B of this document.

No later than April 3, 2025, the City will submit a final report summarizing the pollutant reduction activities conducted to date.

2022 Comments:

Activity 1 – Wash Rack status: City of Caldwell is under contract with HDR Inc. to design the addition of at least 1 wash bay and 1 sediment drying area on the existing parcel. Geotechnical borings (for high groundwater) and survey are complete at the time of this draft.

Activity 2 – MST Study status: City of Caldwell received the final laboratory results of the Phase 2 MST study in August 2021. Since that time, we have been able to review the results, but not analyze them.

- Pre August 2021- October 2021: We spent much of the available time working on development of tenant SWPPP documents at Caldwell Industrial Airport. We also collaborated closely with EPA staff to reach closure of an enforcement action at the Airport.
- October-November 2021: We utilized the available time to develop the 2021 MS4 SWMP document.
- November 2021 - August 2022: At the beginning of this time, the stormwater program became 50% staffed and the remaining staff continued to respond to MS4 CGP and IDDE complaints and compliance activities required at the Airport under its MSGP. During this time, remaining staff worked to develop an MS4 monitoring plan and QAPP which would coincide with this (MST) pollutant reduction activity.
- October 2022: Since late August 2022, we have been able to add one and fill one open position in the City's environmental/stormwater team. Two additional inspection/field staff are budgeted for FY2023, but are temporarily held up by priority staffing of higher positions within the City.

2023 Comments:

Activity 1:

- HDR has completed the construction drawings of 2 wash bays and 1 sediment drying area.
- The City has budgeted this project for construction in FY 2024.
- The City has completed drafting of the bid documents and is presently working on a contract with HDR to create the bid tabulation/abstract and the construction specifications.

Activity 2:

- March 2023: The City's Stormwater Department hired two field staff in 2023. The Environmental Stormwater Inspector is reviewing data and strategizing methods to target potential *E.coli* sources to the IND-0545D outfall, related to the scope of the the MST study.

2024 Comments:

Activity 1:

- No recent updates on wash rack due to waiting for contractor to come out and start work-in limbo.
- SWPPPs completed and implemented for Fairview Golf Course and Parks and Recreation. Assisting with any equipment and/or safe storage features might needed.

Activity 2:

- MST study was completed last year but data not analyzed. A final report was completed and data analyzed by a Caldwell Stormwater team member, and can be found in Appendix B at the end of this document.

2025 Comments: Both Pollutant Reduction Activities are complete by 9/30/2025. Different final and status reports have been submitted to DEQ via E-Permitting, between 4/1/2025 9/30/2025.

Section 6. Monitoring Program

6.1 Regulatory Requirements

Indian Creek, Mason Creek, and the lower Boise River have been classified as impaired due to bacteria, nutrients, and temperature, as they fail to meet their beneficial use standards. In order to comply with its MS4 permit, which is supportive of the TMDL, the City must conduct quantitative monitoring and assessment activities designed to assess and control impairment pollutants in the MS4 discharges to Indian Creek, Mason Creek, and the Boise River.

No later than October 1, 2022, the City will submit a Monitoring/Assessment Plan. EPA and IDEQ will review the materials submitted, and as necessary, propose to modify the City's MS4 permit to incorporate by reference the specific monitoring/assessment plan. No later than 30 days following EPA's written notice that the Permit has been revised to incorporate the monitoring/assessment activities, the City will begin implementation of the activities.

2022 Comment: City staff submitted their Monitoring plan and QAPP on September 29, 2022 via DEQ's E-Permitting web portal.

2023 Comment: Stormwater staff began monitoring and executed 2 monitoring events between January 2023 and October 2023. They also executed a monitoring event on November 2, 2023.

2024 Comment: The Stormwater staff executed wet sample collection three times this reporting cycle: February 1, 2024, March 12, 2024 and October 16, 2024. There was no rainfall during Q3. Inspections occur during dry weather to ensure full functionality of system.

6.2 Monitoring/Assessment Activities

The City submitted a Monitoring/Assessment Plan that is designed to quantify, at a minimum, pollutant loadings for the impairment pollutants from the portions of the MS4 discharging into the receiving waters listed in Table 22. Minimum Monitoring/Assessment Expectations (from City of Caldwell MS4 Permit, NPDES Permit #IDS-028118) The City will measure temperature, total suspended sediment (TSS), total phosphorus (TP), and *E.coli* in stormwater discharge samples from the MS4 into Indian Creek, Mason Creek, and the Boise River to quantify stormwater impact to these waterbodies.

Table 21. *Minimum Monitoring/Assessment Expectations (from City of Caldwell MS4 Permit, NPDES Permit #IDS028118)*

Location	Pollutant Parameter
City of Caldwell MS4 Discharges into Indian Creek, Mason Creek, and the Boise River	Temperature *E. coli* Sedimentation/Siltation Total Phosphorus

Samples, measurements and/or assessments conducted in compliance with the Permit will be representative of the nature of the monitored discharge or activity. If the City quantitatively monitors and/or assesses pollutants in their MS4 discharges more frequently, or in more locations, than specified in the Monitoring/Assessment Plan named in the Permit, the results of any additional monitoring will be included with other data submitted to IDEQ.

6.3 Wet Weather Discharge Monitoring

Monitoring associated with wet weather discharges from MS4 outfalls will include the following characteristics of each sample and/or sampling location.

- **Location -** the locations of such monitoring must be identified in the Monitoring/Assessment Plan
- **Sample Type**. The sample collection must be identified in the Monitoring/Assessment Plan.
- **Parameters**. The pollutants to be sampled must be identified in the Monitoring/Assessment Plan.
- **Frequency**. The samples must be collected at a frequency identified in the Monitoring/Assessment Plan. At least one sample each calendar year must be collected in the September - October period.
- **QA Requirements.** The City must develop a Quality Assurance Project Plan (QAPP), or revise an existing QAPP, to clearly identify all methods and protocols to be used in the wet weather sampling effort.
- **Reporting.** The City must submit all data collected to EPA.

At the time of preparation of the 2021 SWMP Document, the City prefers to continue its wet weather discharge monitoring in a manner similar to the 2009 MS4 Permit. We anticipate some refinements to the previous monitoring program, including QAPP procedures, sampling site selection, and sampling window, for the safety of our present staff.

6.4 Quality Assurance Requirements

The City developed a Quality Assurance Project Plan (QAPP) for any monitoring or quantitative assessment activities conducted in compliance with the Permit.

6.4.1 QAPP Content

The QAPP will assist the City in planning for the collection and analysis of stormwater discharge, receiving water quality, catch basin sediments, and/or other types of information collected in compliance with this Permit, and in explaining data anomalies when they occur.

At a minimum, the QAPP will reflect the content specified in EPA's *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5) and *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5)., including:

- Details on the number of samples, identified sampling locations, type of sample containers, preservation of samples, holding times, analytical detection and quantitation limits for each target compound, analytical methods, type and number of quality assurance field samples, precision and accuracy requirements, sample preparation requirements, sample shipping methods, and laboratory data delivery requirements;
- A map with GPS coordinates indicating the location of each monitoring point;
- Qualifications of all personnel involved with water quality and discharge sampling;
- Specifications for the collection and analysis of quality assurance samples for each sampling event, including matrix spiked and duplicate samples and analysis of field transfer blanks (sample blanks); and,
- Name(s), address(es), and telephone number(s) of the laboratories used by, or proposed to be used by, the City.

QAPP Procedures: Throughout all sample collection and analysis activities, the City will use EPA-approved and chain-of-custody procedures described in *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5) and *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5). Copies of these documents can be found at Document Display | NEPIS | US EPA

6.4.2 QAPP Updates and Availability

Following initial approval of the QAPP document, the City may update the QAPP as needed, when there is a modification in sample collection methodology, sample analysis, or other procedure addressed by the QAPP.

Copies of the QAPPP will be maintained by the City as part of the Monitoring/Assessment Plan, updated as necessary, and made available to EPA and/or IDEQ upon request.

6.5 Analytical Methods

Sample collection, preservation, and analysis will be conducted according to sufficiently sensitive methods/test procedures approved under 40 CFR §136, unless another method is required under 40 CFR subchapters N or O. Where an approved 40 CFR § 136 method does not exist, and other test procedures have not been specified, an alternative available method will be used. The City will use sufficiently sensitive analytical methods as follows:

- A method that detects and quantifies the level of the pollutant, or
- A method that can achieve a maximum Minimum Level (ML) less than or equal to those specified in **Table 23**;
- The City may request different MLs. The request must be in writing and must be approved by EPA.

Table 22. *Minimum Levels (from City of Caldwell MS4 Permit, NPDES Permit #IDS028118)*

Pollutant & CAS No. (if available)	Minimum Level in µg/L, unless specified
Total Ammonia (as N)	50
Cadmium, Total (7440-43-9)	0.1
Copper, Total (7440-50-8)	2.0
Dissolved oxygen	0.2 mg/L
Total Hardness	200 as CaCO3
Lead, Total (7439-92-1)	0.16
Nitrate + Nitrite Nitrogen (as N)	100
Oil and Grease (HEM) (Hexane Extractable Material)	5,000
Soluble Reactive Phosphorus (as P)	10
Phosphorus, Total (as P)	10
Temperature	0.2°C
Total Suspended Solids	5 mg/L
Zinc, Total (7440-66-6)	2.5

Section 7. Required Response to Excursions above Idaho Water Quality Standards

Under the City's MS4 Permit, the City will be presumed to be in compliance with applicable Idaho Water Quality Standards if the City is in compliance with the terms and conditions of the Permit. If the City, EPA, and/or IDEQ determines that the discharge from the MS4 causes or contributes to an excursion above the Idaho Water Quality Standards, then the City remains in compliance with this Permit as long as the City implements all applicable SWMP control measures required by the Permit and undertakes the following actions:

7.1 Notification

The City must notify IDEQ within 30 days of becoming aware that, based on credible site-specific information, an unauthorized discharge from the City's MS4 is causing or contributing to a known or likely excursion about the Idaho Water Quality Standards.

Required Non-compliance notification methods to IDEQ:

- 24-Hour Hotline 1 (833) 473-3724 or 1 (833) IPDES24, **AND**
- e-Permitting at https://www2.deq.idaho.gov/water/ipdes

Written notification must identify the source of the site specific information (name of person, organization); describe the location, nature, and extent of the known or likely water quality standard excursion in the receiving water; and explain the reasons why the MS4 discharge is believed to be causing or contributing to the problem. For on-going or continuing excursions, a single written notification provided IDEQ will fulfill the requirement.

Based on the notification provided, IDEQ may notify the City, in writing, that an adaptive management response is required if IDEQ determines that a discharge from the City's MS4 is causing or contributing to an excursion about the Idaho Water Quality Standards in a receiving water. IDEQ may elect not to require an adaptive management response from the City if IDEQ determines that the excursion of Idaho Water Quality Standards is already being addressed by a TMDL implementation plan or other enforceable water quality cleanup plan; or if IDEQ concludes the City's contribution to the excursion will be eliminated through implementation of other permit requirements, regulatory requirements, or City actions.

7.2 Adaptive Management Report

Within 60 days of receiving a response from IDEQ, the City must review its Stormwater Management Program and submit a report to IDEQ. The Adaptive Management Report shall include:

- **Existing BMPs:** A description of the operational and/or structural BMPs that are currently being implemented at the location to prevent or reduce any pollutants that are causing or contributing to the excursion above Idaho water quality standards, including a qualitative assessment of the effectiveness of each BMP.

- **Potential BMPs:** A description of potential additional operational and/or structural BMPs that will or may be implemented in order to prevent or reduce any pollutants that are causing or contributing to the excursion above Idaho water quality standards.

- **Monitoring/Assessment:** A description of the potential monitoring or other assessment and evaluation efforts that will or may be implemented to monitor, assess, or evaluate the effectiveness of the additional BMPs.

- **Schedule:** A schedule for implementing the additional BMPs including, as appropriate: funding, training, purchasing, construction, monitoring, and other assessment and evaluation components of implementation.

Under the terms of the City's MS4 permit, IDEQ is required to, in writing, acknowledge receipt of the Adaptive Management Response Report within a reasonable time and will notify the City when it expects to complete its review of the report. IDEQ will either approve the additional BMPs and implementation schedule, or require the City to modify the report as needed. If modifications to the Adaptive Management Report are required, IDEQ will specify a time frame in which the City must submit the revised Report for IDEQ review.

7.3 Implementation

The City must begin implementation of any additional BMPs pursuant to the schedule approved by IDEQ expeditiously upon receipt of the written notification of approval.

The City must include with each subsequent Annual Report a summary of the status of implementation and the results of any monitoring, assessment, or evaluation efforts conducted during the reporting period to assess progress towards addressing the original water quality excursion. A final summary of such adaptive management efforts must be included with the Permit Renewal Application.

Section 8. Recordkeeping and Reporting Requirements

8.1 Recordkeeping

8.1.1 Retention of Records

The City will retain records and information documenting implementation of all control measures required by the Permit (including a copy of the Permit and all Annual Reports) for a period of at least five years from the date of the report, sample, or measurement, or for the term of this Permit, whichever is longer.

Information and records includes, but is not limited to, records of all data or information used to develop and implement the SWMP control measures and/or used to complete the application for this permit; such materials may include inspection and maintenance records; all monitoring, calibration, and monitoring equipment maintenance records; all original strip chart recordings for any continuous monitoring instrumentation; copies of reports required by the Permit; etc.

8.1.2 Availability of Records

All records associated with this Permit will be stored in a location and format that are accessible to EPA and IDEQ, or are readily available upon request. All records will be made available to the public if requested in writing; the public will be able to view the records during normal business hours. The City will submit the records referred to in Section 9.1.1 above to EPA and IDEQ when such information is requested.

8.2 Reporting Requirements

The City will submit reports and/or documents required by the Permit to IDEQ in an electronic portable document format (PDF) through NetDMR and/or IDEQ's e-Permitting platform.

8.2.1 Annual Report

No later than December 1 of each year, beginning in 2021, the City will submit an Annual Report to IDEQ, the complete reporting schedule for the Permit term is shown in Table 24.

Table 23. *Annual report deadlines (from City of Caldwell MS4 Permit, NPDES Permit #IDS028118)*

Annual Report	Reporting Period	Due Date
Year 1 Annual Report	December 1, 2020 – September 30, 2021	December 1, 2021
Year 2 Annual Report	October 1, 2021 – September 30, 2022	December 1, 2022
Year 3 Annual Report	October 1, 2022 – September 30, 2023	December 1, 2023
Year 4 Annual Report	October 1, 2023 – September 30, 2024	December 1, 2024

Year 5 Annual Report	October 1, 2024 – September 30, 2025	September 30, 2025

The Annual Report will reflect the status of the City of Caldwell's implementation of the Permit requirements during the relevant reporting period, and will include:

- Any summaries, descriptions, and/or other information the City uses to demonstrate compliance with the Permit during the relevant reporting period.
- A current website address where the City's SWMP Document is available as an electronic portable data format (PDF) document;
- If applicable, notification to IDEQ that the City is relying on another Permittee or outside entity to satisfy any obligations under this Permit;
- Notification of any annexations, incorporations, or jurisdictional boundary changes resulting in an increase or decrease in the City's area of responsibility during the reporting period; and
- Point(s) of contact responsible SWMP implementation for the City, and for authorization, certification, and signature pursuant to Part 8.5 (Signatory Requirements).

A copy of each Annual Report, including any required attachments, will be made available to the public on the City's website.

8.2.2 Monitoring/Assessment Report

The City will submit a final report summarizing all monitoring/assessment data collected during the permit term as an attachment to the Permit Renewal Application, no later than April 3, 2025. The Final Monitoring/Assessment Report will summarize and evaluate the information collected and include reference to:

- The date, exact place, and time of sampling or measurements;
- The name(s) of the individual(s) who performed the sampling or measurements;
- The date(s) analyses were performed;
- The names of the individual(s) who performed the analyses; the analytical techniques or methods used; and
- The results of such analyses, including both visual and narrative summary interpretation of the data collected, a discussion of any quality assurance issues, and a narrative discussion

comparing data collected to any previously collected or historical information, as appropriate. Raw monitoring data must be submitted in a spreadsheet or text-format electronic file.

8.2.3 Pollutant Reduction Activity Report

The City will submit a final Pollutant Reduction Activity Report summarizing actions conducted during the Permit term to reduce pollutant loadings from the City's MS4. The Pollutant Reduction Activity Report will be submitted as an attachment to the Permit Renewal Application, no later than April 3, 2025. The final Pollutant Reduction Activity Report will summarize the actions taken, as delineated in the *City of Caldwell Stormwater Management Program Pollutant Reduction Activities* and in Section 7.2 above.

8.3 Duty to Reapply

In order for the City to continue discharging from the City's MS4 after the Permit expiration date, the City must apply for and obtain a new permit. In accordance with 40 CFR §122.21(d), the city will submit an application at least 180 days before the Permit expiration date, or no later than April 3, 2025.

The Permit Renewal Application must contain the information required by 40 CFR 122.21(f), which includes: name and mailing address of the City, the names and titles of the primary administrative and technical contacts for the City. In addition, the City will identify the identification number of the existing NPDES MS4 Permit (IDS-028118); and any previously unidentified water bodies that receive discharges from the MS4. The following attachments will be submitted as part of the complete Permit Renewal Application:

- Updated SWMP Document;
- MS4 Map, and the accompanying Outfall Inventory;
- List of MS4 outfall locations with dry weather flows identified by the City as being associated with irrigation return flows and/or groundwater seepage, including latitude/longitude and physical description/characteristics;
- Enforcement Response Policy for Construction Site Runoff Control;
- Enforcement Response Policy for Permanent Stormwater Management Controls;
- If applicable, a written summary of the City's adaptive management actions to date;
- A Final Report summarizing any required Monitoring/Assessment activities; and
- A Final Report summarizing implementation and effectiveness of Pollutant Reduction Activities to date.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

X Robb MacDonald

Digitally signed by Robb MacDonald
DN: C=US, E=rmacdonald@cityofcaldwell.org, CN=Robb MacDonald
Date: 2025.10.06 13:29:18-06'00'

Robb MacDonald
City of Caldwell Public Works Director

Appendix A. City of Caldwell MS4 Permit

The Permit IDS-028118 can be found at the following IP address:

www2.deq.idaho.gov/admin/LEIA/index.html?view=folder&id=3028

Appendix B. Pollutant Reduction Activities

CITY OF
Caldwell, Idaho

JARON WAGONER
Mayor
208.455.3011
(f) 208.455.3003

City Hall
205 South 6th Ave.
Caldwell, Idaho 83605

Post Office Box
203 Caldwell, Idaho 83606

For a list of the City Council members, visit:
www.cityofcaldwell.org

April 3, 2025

Idaho Department of Environmental Quality
1410 N. Hilton Street
Boise, ID 83706

To Whom it May Concern,

The City of Caldwell's National Pollutant Discharge Elimination System (NPDES) permit No. IDS-028138 requires the completion of two pollutant reduction activities. One of these activities, the wash rack expansion project designed to reduce pollutants nitrocreating waters by increasing the efficiency of the Street Division in removing sediment from City of Caldwell streets. Due to unforeseen circumstances throughout planning and construction, the wash rack expansion project will not be completed by the original proposed timeline stated in permit #IDS-028138.

The following progress report is intended to provide additional information into the history and current status of the wash rack project. This progress report is not the final report for the wash rack expansion project.

The wash rack expansion project has experienced a number of delays. The project manager assigned to the wash rack was out of office for an extended period with no replacement. In addition, City funds allocated for the project were reallocated and the project was paused until additional funding could be secured in the 2025 fiscal year. After project construction began in 2005, unfavorable weather conditions and excavation issues also contributed to delays.

The City remains committed to the completion of the wash rack expansion project. Construction is currently underway and is set to be completed in summer of 2025. After completion of the expansion project, the City Stormwater Division will complete a final sample event to ensure the expanded capacity provides expected water quality benefits to the City of Caldwell and its receiving water bodies. After the completion of construction and resampling, a final report will be submitted in a timely manner, preferably prior to September 30th, 2025. The City of Caldwell will continue to strive to improve water quality through pollutant reduction activities, monitoring events, and recordkeeping.

Robb MacDonald, PE, Public Works Director — Date: 3/12/25

Ashley Newbry, PE, Deputy Public Works Director [Water] — Date: 03/12/2025

Christina Beeson, MFS, Stormwater Superintendent

"The Treasure of the Valley"

CALDWELL
IDAHO

City of Caldwell

Pollutant Reduction Activities

Assessments for Permitting Term 2020-2025

(1) Wash Rack Expansion Status Report: 2020-2025

(2) Microbial Source Tracking (MST): 2017-2024

March 2025 | Version 1.0

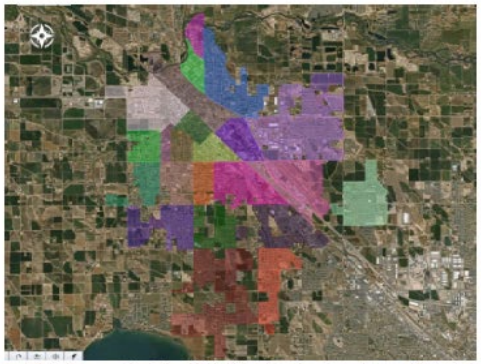


Figure 1: Highlighted zones within the City of Caldwell's jurisdiction that are swept. Zones are fully swept before moving to the next and have a set rotation.

Wash Rack Expansion Status Report

NPDES Permit No. IDS-028118

Term from December 1, 2020 to September 30, 2025

Prepared by:
Stormwater Division
City of Caldwell
Public Works Department
208-455-4598
www.cityofcaldwell.org

Background

To meet the Pollutant Reduction Activity requirements of the City of Caldwell NPDES MS4 Permit, the Stormwater Division, in collaboration with the Streets Division, proposed an expansion on the existing vehicle washing facility, known as the wash rack. Maintaining a clean road system, including paved roadways and gutters, lessens the probability that a storm drain will become non-functional due to clogged inlet grate that can cause a flood during heavy rains. Our efforts to keep the storm drains clear of sediment and debris also help protect our waterways, as many pollutants can be washed from the street into the storm drainage system. At the time the vactors dump the water and sediment at the wash rack location, the amount of sediment has been quantified below for study.

Street Sweeping Activities

The City of Caldwell has divided its jurisdiction into zones. From March to May, the City schedules the zones to be swept entirely before moving on to the next zone. From June to September, or the warm months, the Street Division will prioritize chip sealed roadways for

sweeping. The Street Division stormwater employees will continue to sweep depending on zone rotations October through February.

The material street sweepers generally pick up are composed of five source substances from the City's streets: leaves, sand, rock chips, catch basin sump fines (from storm drains only), incidental garbage, and other contaminates such as trace amounts of roadway activity contaminates, such as oils. (*Proposal for Analysis of Storm Drain Sediment and Street Swept Material to Explore Disposal & Recycling Options, City of Caldwell, Oct. 2022*).

Vactor, Storm Drain Cleaning Activities

The Caldwell Streets Division uses vactors, or vacuum trucks, to jet and suck the sediment out of catch basin sumps and storm drainpipes. The following table shows the collected sediments dumped at the wash rack each year, from 2021 to 2024 in cubic yards. This data table is from *Street Sweeping Description (SWMP)*, a data assessment report completed for the 2024 revision of the *Storm Water Management Plan* (SWMP) and the annual reporting for the City's MS4 discharge permit. Street sweepings samples have been collected and analyzed since 2021 for the sweeping report listed above as part of an investigation for compliance to the MS4 discharge permit. Once the samples were collected and analyzed, the pollutants could be identified, as discussed above. Currently, there are three bays on the wash rack facility, and with the expansion, two more will be added along with an extra drying location. This will allow more pollutants to be removed from the City streets before stormwater can flush them into the MS4.

Table 1: Amount of sediment dumped at the wash rack on a yearly basis in cubic yards.

	2021	2022	2023	2024
January	75.14	14.88	21.16	13.81
February	45.91	31.38	58.10	51.47
March	41.07	74.60	86.26	65.45
April	67.25	40.53	11.66	82.31
May	57.38	34.97	28.15	36.58
June	30.84	29.23	45.73	27.62
July	19.37	58.10	38.02	45.91
August	22.77	27.80	38.56	73.88
September	17.22	16.50	5.74	49.67
October	20.08	12.19	24.39	
November	49.49	12.55	31.92	
December	32.82	26.18	69.22	
Annual	**479.34**	**378.91**	**458.91**	**446.70**
Average	**440.97**			

Because Streets is not the only Division to use the wash rack for vehicles, the Fire Department has used it to wash off mud and debris from their fire engines, also the Police Department and building inspectors use it to wash off mud from their trucks after inspecting construction or building sites. With the City growing rapidly, more roadways are being developed, and therefore, this need also has risen.

The Need Proposed

To meet one of the Pollutant Reduction Activity requirements of the City of Caldwell's MS4 Permit IDS-028118, the Stormwater Division, in collaboration with the Streets Division and Engineering Division, proposed expansion on the existing vehicle washing facility, or the wash rack. The expansion would include the construction of at least one additional wash bay and a new sediment drying area, as well as pre- and post-construction monitoring to assess the sediment load reduction, that is removed from the MS4. After the contents go through the drying process, the sediment will be measured to determine the amount of material that will not enter impaired waters via the MS4. Plans to recycle this dry material are still being investigated.

Figure 2: Overhead view of the wash rack property at 308 W Chicago Ave.

The wash rack property is located at 308 W Chicago Ave, Caldwell, which is owned by the City of Caldwell. The following map indicates the outline of the property. The site is used by multiple City Departments, but managed by Caldwell Streets Division (Public Works).

Notice the existing stormwater retention pond on site. This will catch any water and retain it before it naturally filters to the subsurface. All street sweeping material is currently dried onsite before relocated to the City gravel pit for storage. Other use possibilities for recycling the sweepings post drying are being discussed, like reuse of pea gravel for chip sealing.

The Progress

Due to a variety of circumstances, this project will not be completed according to the original timeline. The reasons for these delays, as well as an updated timeline, are outlined below.

On June 1, 2021, EPA Region 10 accepted the City's Pollutant Reduction Activity proposal, which modified the City's MS4 permit, and authorized the activities contained therein. For the remainder of 2021, the City's limited Stormwater staff (1.5 FTE's) continued work on the Monitoring and Assessment Plan as well as the Quality Assurance Project Plan, as required by the MS4 permit. Over the course of the following year, the stormwater staff worked with EPA staff on resolution of an active enforcement action at Caldwell Industrial Airport, worked through staffing shortages, and worked through constraints and limited operations associated with the Covid-19 pandemic. The lead Environmental Engineer in the Stormwater Division left the City in late 2021, leaving 0.5 FTE in the City's Stormwater Division.

As time became more available to return focus to the MS4 permit, the remaining stormwater staff solicited engineering services from a water engineering consultant on the City's adopted professional services roster. Collaboratively, the City staff and HDR Inc. drafted a professional services agreement for design of the City's desired Wash Rack Expansion project. The design services agreement was authorized by Caldwell City Council on August 18, 2022. In August 2022, the City of Caldwell Stormwater Division added two new team members – a Stormwater Superintendent and an Environmental Scientist. The two new team members were able to regain momentum on MS4 permit activities.

On September 2, 2022, GeoEngineers was subcontracted by HDR to provide a geotechnical report of the site. By October 2022, HDR Engineering Inc. presented the City with a conceptual design of the wash rack expansion. On December 6, 2022, GeoEngineers provided the City and HDR a final geotechnical engineering report.

In November of 2022, HDR completed the preliminary design for the project and was sent to the City for review. Once HDR received approval for the preliminary design from the City they started working on the design plan set. By January of 2023, HDR had completed 50% of the design and in February of 2023, 100% of the design was completed, but not bid or construction ready. In March of 2023 the stormwater team added two new team members, this brought the team to 4 full time employees. By April 2023 the stormwater team lost the Superintendent, the three remaining team members were new and not ready to lead a project.

The design plan set was completed in early May 2023. Shortly thereafter, in July 2023, the City executed an addendum to HDR's contract to draft project specifications.

While HDR was in the design stages, the City reserved MS4 for funding for construction of the project in the FY2024 budget (meaning that construction was budgeted and planned between October 2023 and September 2024).

In October of 2023, the Stormwater Division hired a new supervisor but the new employee did not start until early November of 2023. Due to the fluctuating staffing of the stormwater team a project engineer of the City of Caldwell Engineering Department was designated as project manager in October of 2023. Because the Stormwater Division was a subset of the Engineering Department, the then City Engineer authorized the transfer of the project from Stormwater staff an engineering project manager.

Once the engineering project manager took over the project the first steps were to talk to the design engineer and see how the project specifications were coming along. After hearing from HDR that the design plans and specifications were at 90% complete, the project manager started in March of 2024 to get the bid documents ready to start the process of hiring a contractor for the work.

During the spring of 2024, the City of Caldwell Stormwater division took TSS samples to determine the amount of sediment being removed from the City's MS4. This was in preparation for construction to start later that year. Madison Kolda (Environmental Stormwater Inspector) completed the initial TSS samples that were taken in the spring of 2024. This report was created to quantify the average amount of sediment that is currently being taken to the wash rack.

In April of 2024, the "Approved for Construction" design for the rack expansion project was completed and issued to the City to put the project out to bid. In May of 2024, the project manager took personal leave for a family event, and was out of the office for six weeks. In his absence, no other City employee was assigned to the project as a replacement. Prior to him leaving, funding was secured, and the project was ready to put the project out to bid.

In July of 2024, the project manager returned to the office. Due to no activity since his departure, senior management conflictingly reallocated funding for this project to another storm drain improvement project at Caldwell Executive Airport. Due to lack of funding in FY2024, the project was placed on hold from July to September 2024. At the start of the 2025 fiscal year (October 2024 onward), funding for the wash rack expansion project was once again secured.

In October 2024, the project manager started to push the project forward by finalizing the bid documents and on November 1, 2024, the City had accepted bids and started the process of awarding the project. On November 19, 2024, the City officially awarded Lurre Construction the project.

The contractor sent the City a production schedule of their construction timeline. The schedule outlined January 8th 2025 as the start date. The contractor had some weather-related delays and did not start on this date. The City project manager and the contractor had been in contact and were working on getting the contractor access and a new start date. It was determined that Monday January 13th, 2025, would be the new start date.

January 13th, 2025, groundbreaking and construction officially began on the wash rack expansion project, three years after its original proposal. On January 14th, 2025, during excavation of the new wash bay, domestic garbage was uncovered. Construction was halted until a plan for remediation and structural support could be issued. The City's project manager

managing the project reached out to GeoEngineers, the original Geotech to provide recommendations on the unsuitable soil conditions that were found.

January 15, 2025, at the City's request, a representative from GeoEngineers visited the site and met with the City staff member managing the project. The observed fill included soils with high organic content; construction debris including concrete rubble, wood debris, and pipe; and household trash, including mattress springs and plastic bags. The representative from GeoEngineers recommended that the trash fill be completely removed from beneath the proposed wash bays. An recommendation of remedial action letter from GeoEngineers was sent to the City on January 22, 2025.

Since January 2025, the City's project manager meets monthly on site with the construction team to discuss project developments. On January 23rd, 2025, a project meeting was held to determine the amount of fill required for the project and if the use of a geogrid would be needed under the new wash bay area to provide structural support. Discussions were held with geotechnical engineering consultant to determine the best path forward.

January 30, 2025, GeoEngineers sent a second letter to the City detailing further insight on the depth of the waste pile extending deeper than previously thought in the southeast portion of the proposed wash bay, and how The City would like to consider options for leaving the deeper areas with trash in place within this area due to budget and time constraints. This letter is intended to provide recommendations to the City and contractor for partial replacement of the fill soil using a zone of reinforced backfill within the area of deeper trash.

January 23rd, 2025, the construction team held a project meeting on site. The discussion centered around how much fill is being brought on to the site, and whether there would be a need to use geogrid beneath the new wash bay area to provide structural support. The City project manager reported that he would need to discuss with the design engineer.

As of February 4th, 2025, construction on site has stalled and no work is currently being completed. Trash discovered onsite during excavation stalls the project as remediation and removal efforts are underway. In addition to delays caused by remediation, current weather conditions including freezing temperatures and continued rain and snow create icy and muddy

conditions that negatively impact the stability and safety of the work environment. As a result, construction is stalled until conditions improve.

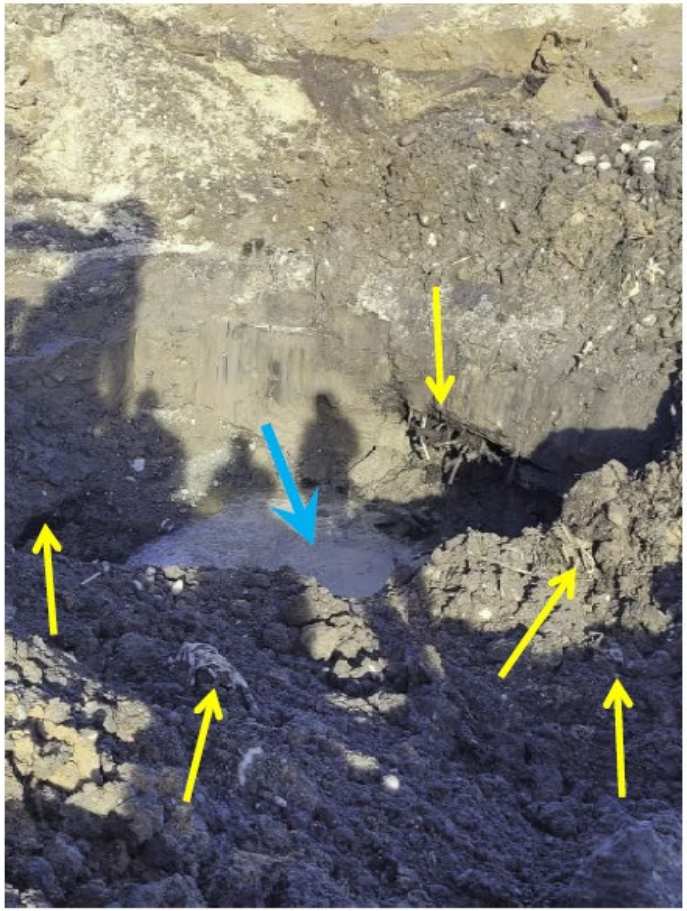
On February 25, 2025, the contractor reached out to the City and asked for a time extension due to the weather conditions and the extra work from removing the trash. The contractor asked for 21 extra days be added to the project timeline, citing 10 days of extra work and 11 in weather delays. The City reviewed this request and determined that there was 20 days of overage between extra work and weather. The City granted a 20-day extension to the original contract final completion date. The original contract end date was April 30th, 2025, due to the extra 20 days that the city granted the new contract project end date is May 28th 2025.
On March 21st, the project manager for the wash rack expansion will be leaving the City of Caldwell.

Conclusion

This project has experienced complications from the very beginning. From funding misfortunes to problems post-earth movement, this wash rack expansion project will not be completed in time to meet the requirements of the current IPDES MS4 Permit No. IDS-028118 Pollutant Reduction Activity's section 4.3. However, because the City of Caldwell has dedicated and committed staff for pollutant reductions in our stormwater MS4, we will continue to work through the unforeseen circumstances to complete the project. Monitoring efforts will continue post construction for determination of the reduction quantifying of pollutant reduction success. It is our intent to complete construction and re-sample the wash rack capacity before the end of the permit term, and report on these outcomes at the end of the permit term in September 2025.

Attachments: Photos of first excavation in January 2025.

Trash was located during excavation.
YELLOW=trash locations BLUE=water seepage



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Microbial Source Tracking (MST) Study

Summary Report Phases 1-3

Stormwater Division

NPDES Permit No. IDS-028118

March 2017 to November 2024

Microbial Source Tracking Phase 3 (Pollutant Reduction Activity)

The Microbial Source Tracking Part 3 is an investigation to support the City's Municipal Separate Storm Sewer (MS4) Permit IDS028118 issued by Region 10 Environmental Protection Agency in 2019.

City of Caldwell Engineering Division staff worked with EPA Region 10 staff in the Port Orchard, WA laboratory to perform stormwater sampling and have the samples processed within a timely manner, to examine *E.coli* bacteria concentration in comparison with Bacteroides concentrations. Microbial Source Tracking performed by the EPA Port Orchard laboratory allowed for samples to be examined by distinguishing Bacteroides species.

In MST Phase 1, City staff sampled from two of their MS4 permit sampling sites. These two sites were selected by a previous employee, determined to be indicative of the City's discharge to the Boise River and the City's discharge to Indian Creek. Here is a description of the two sites:

1. Storm drain manhole located at (43.669902, -116.678379), inside the island of the 10th Ave onramp to Interstate 84, which is tributary to BOI-0007 outfall on the Boise River. One problem with this sampling site is that the flow is substantially influenced by runoff from Interstate 84.

2. Storm drain pipe outfall at (43.663077, -116.683245), where stormwater from a portion of Caldwell's residential historic district which is tributary to IND-0545D outfall on Indian Creek. This site is not known to have recurring, substantive influences from other flow sources, except for irrigation water overspray.

Each of these outfalls were tested locally (Analytical Labs in Boise, Idaho) for *E.coli* and by EPA for traces of human and cow Bacteroides, indicators of human and/or cow fecal contamination. In addition, EPA processed a sample of raw influent from the City of Caldwell wastewater treatment facility, allowing data reviewers to compare the returned lab results with raw sewage concentration of human Bacteroides.

Here are the results of the MST Phase 1:

Here are some phenomena that we observed:

1. We noticed that *E.coli* and Bacteroides seemed to increase during irrigation season and be generally lower in concentration during the late fall, winter, and early spring.

2. We infer that irrigation overflow and overspray influences stormwater quality.

3. Some lab results are blocked. We inquired with the lab staff what this means. They stated that it indicates that there was some constituent in the water sample that

prevented the test from being performed in a manner that would result in a count of Bacteroides copies.

During some events, Bacteroides copies are high, but *E.coli* concentration is very low. Given that Bacteroides copies are equally indicative of fecal bacteria, but on a speciated quantity, we are not sure how this is possible. We have spoken with other agencies at water quality conferences and have learned that this phenomenon is not unique to our study, compared to other MST studies in the Pacific Northwest.

In MST Phase 2, City staff sampled from only one of their MS4 permit sampling sites. The site selected was outfall IND-0545D because it was determined to be a better indication of stormwater discharges from old town Caldwell, where the City streets direct discharge to Indian Creek with very little to no water quality improvement infrastructure (BMP's). In addition to the Indian Creek outfall, City staff sampled from each of four upstream catch basins, keeping in mind that each of these catch basins are tributary to each other and tributary to outfall IND-0545D.

In tributary order:

1. Outfall IND-0545D
2. Catch Basin CB-182 at the intersection of Arthur and 12th Ave
3. Catch Basin CB-183 at the intersection of Blaine and 12th Ave
4. Catch Basin CB-187 at the intersection of Cleveland and 12th Ave

Each of these outfalls were tested locally (Analytical Labs in Boise, Idaho) for *E.coli* and by EPA for traces of human Bacteroides, indicators of human fecal contamination. In addition, EPA processed a sample of raw influent from the City of Caldwell wastewater treatment facility, allowing data reviewers to compare the returned lab results with raw sewage concentration of human Bacteroides.

Here are the results of the MST Phase 2:

Here are some phenomena that we observed:

1. We noticed that *E.coli* and Bacteroides seemed to increase during irrigation season, and be generally lower in concentration during the late fall, winter, and early spring.

2. We observed that none of the samples contained constituents that blocked the lab from completing processing to obtain the sample Bacteroides copies.

3. During some events, Bacteroides copies are high, but *E.coli* concentration is very low. Given that Bacteroides copies are equally indicative of fecal bacteria, but on a speciated quantity, we are not sure how this is possible.

In our MS4 permit issued in 2019, the City committed to execute MS4 Phase 3 to perform even more efforts to learn the source of human fecal bacteria at Indian Creek outfall IND-0545D.

We began this effort with a review of sewer service accounts in the study area, to learn whether there are any active septic systems and/or seepage pits remaining in use. We polled the City's utility billing division in the Finance Department for a list of City sewer accounts in the service area. We found that all the addresses in the study area are connected to City sewer. There should not be any remaining active septic systems and/or seepage pits in use in the service area.

Map of Study Area – City of Caldwell

Over the course of two months, two rounds of walking inspections were performed by City of Caldwell Stormwater Division staff for phase 3 of the Microbial Source Tracking (MST) Study. The intent of the walking inspections was to search for the cause of elevated *E.coli* bacteria collected from IND-0545D (stormwater outfall at 12th Avenue Bridge over Indian Creek). The study area extends from Main Street - Dearborn Street and 12th Avenue - 17th Avenue.

Inspections consisted of searching the study area for any suspicious activity that could indicate a pollutant source. The team inspected storm drain siphons, gutters, streets, and private yards visible from the public right-of-way. Before performing the walking inspections, a stormwater inspector reviewed utility billing records to confirm that each home in the study area was connected into the City sewer collection system. The City's

Utility Billing manager, Michelle Davis, confirmed that each house in the study area is billed for their connection to City sewer.

The first round of inspections, occurring from January 24, 2024 to February 6, 2024, revealed very common potential sources of pollution: leaves, trash, and dog feces. The inspector also found evidence of potential homeless activity on Blaine Street (1103 Blaine Street), but the belongings were removed shortly after inspection. No further pollutant-causing activity was observed. The inspector also found a Porta Potty, or portable restroom, located on Main Street in an unusual location, but it appeared to be entirely unused during the duration of the inspection period. Overall, the streets were clean, and no illicit connections to the storm drain system were found.

The Stormwater Division staff completed a second round of inspections, occurring from March 11, 2024 to March 21, 2024, which resulted in little change to the observations made during the first round of inspections. The Main Street appeared to present the most potential for pollutant runoff because the inspector found personal wipes, baby wipes, and toilet paper on the ground in the alley behind a daycare facility. Even so, the Main Street provided, no direct evidence of an illicit sewer connection or obvious *E.coli* bacteria source. Another potential source of *E.coli* bacteria could come from recreational vehicles (RVs) or mobile homes illicitly dumping sewage on an intermittent frequency. A handful of RVs were observed parked in the inspection area, but none of them appeared to be actively utilized as permanent dwelling spaces. During the second round of inspections, the

inspector observed more dog feces in front yards and sidewalks than the previous inspection.

Any locations with suspicious material, with the potential to be a pollutant source, observed in the first inspection were re-inspected. The baby wipes, personal wipes, and toilet paper was not consistent at each previously inspected location containing these materials. Although some paper products were still observed in re-inspected areas, there were no signs that these materials were becoming more apparent. Thus far, City Stormwater Division staff have been unable to confidently identify the source of the *E.coli*; there has been insufficient evidence to draw any conclusions on which to base future actions.

MST Research

We researched for weeks from reliable online scientific sources. As we went through the process of researching, we tried to find MST case studies that were like ours as well as slightly different. *E.coli* and Bacteroides can be effected by temperature, location, type of water, other bacteria, and so much more. It was important for us to take all sampling conditions into consideration when researching this topic, as we wanted to gain a broad understanding before determining how to apply the published research to our case study. Listed below are a few studies that we chose to highlight while we determine how to interpret the results of our study.

Case Study 1:

"Along southern California beaches, the concentrations of fecal indicator bacteria (FIB) used to quantify the potential presence of fecal contamination in coastal recreational waters have been previously documented to be higher during wet weather conditions (typically winter or spring) than those observed during summer dry weather conditions. Stormwater discharges had higher FIB concentrations as compared to proximal beaches, often by ten-fold or more during wet weather." (Steele 2018)

Our review team found that this research conducted on California beaches was not likely to be relevant to our study because coastal areas are often equipped with combined sewer systems. We presume that California beaches saw increased fecal indicator bacteria during wet weather conditions due to combined sewers upstream of the outfall. Our system is a municipal separate storm sewer system, so in our study, we had higher concentrations of *E.coli* during the hot summer season, which is irrigation season in our region.

Case Study 2:

"Wet weather bacterial indicator densities were statistically significantly higher than dry weather levels, and downstream densities were statistically significantly higher than upstream densities." (Gannon 1989)

We also did not find this research equally comparable to ours because our outfall sees no flow during our dry season. Seasonally, the City of Caldwell experiences higher concentrations of *E.coli* during the irrigation season versus the wet season. We found that that as the water travels downstream through the catch basins, tributary to IND-0545D, the concentrations became more diluted. Regardless of the difference in our study, we would presume that higher FIB would be present during wet weather than dry weather. In this case study, they found that the fecal coliforms were low within the storm drains and were more suggestive of animal sources rather than human sources. Studies that showed higher concentrations of human sources were more desirable for comparison to our study.

Case Study 3:

"The human-specific HF183 Bacteriodes 16S rRNA genetic marker can be used to detect human fecal pollution in water environments. However, there is currently no method to quantify the prevalence of this marker in environmental samples." (Seurinck 2004)

When we performed the study, we also collected samples to be tested for *E.coli*, in addition to HF183 Bacteroides. This report includes some analysis of our results below, but we also struggled to determine a statistical correlation between HF183 copies and e-coli concentrations. In this study, a real-time polymerase chain reaction was used to be more specific with their results. The detection efficiency varied a lot, meaning that they were unable to determine the true concentration of their sample. This case study was helpful to our study as it shows how difficult it is to gauge the amount of FIB the result in a true concentration of *E.coli* or HF183 Bacteroides.

Case Study 4:

"In recreational waters, microbial contamination due to gulls is also common. To account for this, we consider the case where human contamination from sewage co-occurs with contamination from gull feces. The resultant proposed RBTs for HF183 range from 1 to 525 copies/100 ml and are a function of the amount of gull fecal contamination that is present in the water." (Boehm 2020)

We wanted to include this research because it appeared to be potentially relatable to our study. We have observed birds dwelling in, around, and near the City of Caldwell wastewater treatment plant. The idea of the study is that seagulls could consume human waste, and then defecate at a different location within a community. Although this potential conclusion is a bit more farfetched than most, we discovered through this case study that HF183 Bacteroides do not become fully digested in birds. If gulls were to be the cause of the high levels of *E.coli* in our water, both HF183 Bacteroides and animal sourced *E.coli* would be provided in our sample results.

Case Study 5:

"Approximately two-thirds of the outfalls had high (>5000 copy number, i.e. CN, per 100 ml) or moderate levels (1000–5000 CN per 100 ml) of the human Bacteroides genetic marker. Escherichia coli (*E. coli*) and enterococci levels did not correlate to human Bacteroides." (Sauer 2011)

Our highest levels of HF 183 were 23,642 Cop/100mL and 36,170 Cop/mL. These are above moderate and are more severe levels in the water. Despite this, we were not able to find a

statistically obvious correlation between HF183 copies *and E.coli* concentrations. We recognize that *E.coli* sources could include any mammals. The oddity in our results was that we had some sampling events with high levels of HF 183 copies, but very low *E.Coli* concentration.

Case Study 6:

"EPA has validated numerous quantitative polymerase chain reaction (qPCR) methods to identify fecal indicator bacteria. However, EPA did not have a validated method for microbial source tracking (MST) to characterize fecal pollution in recreational waters originating from a specific animal group, such as humans. Because EPA did not have a validated, approved method for MST, stakeholders could not use such a method in their National Pollutant Discharge Elimination System permits or for other instances where an approved method is required." (EPA 2019)

As we have researched many different studies, we have become aware that it is difficult to come to a strong conclusion, given our sample results. A few studies have progressed to the next step and used the polymerase chain reaction method to identify fecal indicator bacteria, but overall, they have been unsuccessful. Specifics are limited when it comes to fecal matter being present in the storm system, but it has been stated that this method would not be a great benefit to our study.

Research & Findings

MST Phase 1,2,3 Summary of Results (2017-2024)

The end goal of our sampling and monitoring efforts in this microbial source tracking study was to determine the source of unexpectedly high *E.coli* levels found in our stormwater following a routine wet weather sampling event at 12th Avenue in 2017. The discovery of high *E.coli* levels led the City staff to begin tracking the source of the bacteria over multiple years, split up into multiple phases. In Phase 1 (2017-2020) the City's sample sites included a total of two outfalls, 12th Avenue outfall pipe (IND-0545D) and a manhole outfall at 10th Avenue (BOI-0007B). The City deemed 10th Avenue Outfall as an impractical source due to the heavy influence from nearby interstate runoff, so in Phase 2 (2020- 2022) the sample sites included 12th Avenue (IND-0545D) and three catch basins tributary to 12th Avenue. Phase 3 (2023–Present) consisted of walking inspections within the study area that were intended to assess variables that could potentially be contributing to the human fecal bacteria in the storm system. As previously stated in the summary of the Microbial Source Tracking Phase 1 results, we noticed that the trends of E.coli and Bacteroides in our water samples resulted in higher counts during irrigation season and lower counts in the late fall, winter, and early spring.

MST Phase 1:

Each sample was processed at a lab and analyzed for *E.coli* levels and any traces of human associated fecal markers (HF183). *E.coli* levels account for all animal feces and would be far too broad of a measurement on its own to make any strong conclusions. It is beneficial to be able to compare the levels of overall *E.coli* bacteria directly to human associated pollution Bacteroides. Bacteroides and *E.coli* bacteria do not directly correlate with one another, so it is reasonable to conclude that if a sample of water has high levels of *E.coli*, then it does not necessarily mean that the sample of water also has high levels of HF183.

Tables 1 & 2
Water sample results showing E.coli, HF183, and CowM3 in 12th Avenue and 10th Avenue outfall

Stormwater sample results at IND-0545D			
Date	HF183 (Cop/100mL)	Ecoli (MPN/100mL)	CowM3 (Cop/100mL)
9/20/2017	0	24000	0
9/20/2017	0	24000	0
1/9/2018	0	28	0
1/9/2018	947	28	0
5/9/2018	975	23000	0
6/18/2018	23642	6500	0
6/18/2018	36170	6500	0
10/9/2018	9665	24000	0

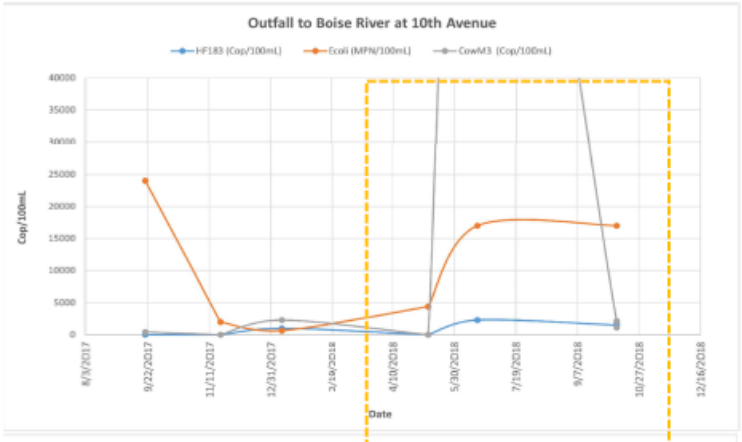
Stormwater sample results BOI-0007B			
Date	HF183 (Cop/100mL)	Ecoli (MPN/100mL)	CowM3 (Cop/100mL)
9/20/2017	0	24000	440
11/20/2017	0	2000	0
11/20/2017	0	2000	0
1/9/2018	1000	670	2289
5/9/2018	0	4400	0
5/9/2018	0	4400	0
6/18/2018	2299	17000	120899
10/9/2018	1508	17000	2135
10/9/2018	1683	17000	1151

The sampling event from 9/20/2017 shows 24,000 MPN/100mL of *E.coli*, but zero copies/100mL of HF183. We are led to believe that animal feces, likely from nearby irrigation runoff and overflow, are a contributing factor to the fecal contamination in the City of Caldwell stormwater system. We can infer that irrigation overflow and overspray influences stormwater quality.

When analyzing both graphs, you will notice that *E.coli* and HF183 levels appear higher during the summer months and tend to decrease in the fall, winter, and spring. We examined the correlation between rainfall amounts, time between rain events, and amount of Bacteroides and *E.coli* and observed a slight relationship between variables. The 6/18/2018 sampling event counted 23,000 MPN/100mL with there being 31 days between rain events and a total of 0.22 inches of rain. Alternatively, the rain event that took place on 1/9/2018 resulted in 28 MPN/100mL of *E.coli* with there being 15 days between rain events and a total of 0.24 inches of rain. The relationship is not consistent, therefore is not a strong contributor to our study.

Table 3

Sample results over the course of the year at 12th Avenue and 10th Avenue



Although *E.coli* and HF183 levels do not directly correlate due to different units, placing the trendlines on the same axis efficiently shows the trends in both counts during the summer months. In a similar study to this one, researchers found a median of about 40 copies of HF183 per 1 colony of *E. coli* in wastewater influent. Usually, if high levels of *E. coli* have a strong correlation to high levels of HF183, it indicates that most of the *E. coli* is coming from a human source.

According to the Journal of Applied Microbiology, *E. coli* can survive outside the body for long periods of time, but the bacteria populations are greatly affected by their surroundings. This indicates that *E. coli* can either be integrated into microbial communities in the environment or can be depleted by varying microbial communities in the environment. Temperature, nutrient availability, pH, and the exposure to other micro-organisms can either increase or decrease populations of *E. coli*. In this case we can associate these factors with the water in a catch basin as that is where our water contained elevated bacteria.

Studies have shown that HF183 decays at different rates depending on the temperature. For instance, one study found that HF183 decayed by 99% in 2.7 days in river water at an ambient temperature of 15°C (Calderon 2022). These findings suggest that higher temperatures can accelerate the decay of HF183, potentially reducing its detectability over time. This conclusion is consistent with a study performed on how temperature and sunlight affect the biomarker, HF183, differently. Fani states that, according to their results, the effect of temperature was greater than the effect of sunlight on HF183 biomarker decay (Fani 2024). Temperature significantly impacts the persistence of the HF183 marker. It can last up to 24 days at 4°C but only eight days at 28°C in river water, as measured by qPCR.

Additionally, several studies have found that Bacteroides markers decay faster in the dark compared to sunlight (Hughs 2016). Overall, that solar radiation is the most effective abiotic factor causing death of FIB in environmental waters (Jang 2017). With that statement, we interpret that the HF183 and *E. coli* found in the catch basins are not as affected by this factor as compared to surface water that has a more direct exposure to the sun.

The graph shows higher levels of *E. coli* but given that bacteria have the potential to reproduce in a storm drain environment, it is not sufficient as a fecal indicator bacterium (FIB) compared to HF183. Many factors can influence the growth and survival of *E. coli* such as temperature, pH, and nutrients in the water. *E. coli* can also be of animal-origin, so tracking colony-forming units of *E. coli* and comparing that to HF183, makes it easier to internalize the distinction of human-origin fecal bacteria.

E. coli is commonly discharged into the environment through feces and wastewater influent, so focusing on both proved to be beneficial for our study. To provide a basis for HF183 comparison, we took a direct sample from headworks at the City of Caldwell

Wastewater Treatment Plant. Our influent sample showed 33,902,571 Cop/100mL. To better comprehend the quantities of fecal bacteria that were present in our water samples, we divided each sample result of HF183 by our base line influent measurement or 33,902,571 Cop/100mL. Our goal was to take a known sample that contained high amounts of human fecal bacteria and try to gauge the quantity of human feces, potentially on the street or through an illicit connection that could have provided these results within the sample. If presented with a very low Cop/mL in a sample, it would be less likely to be contributed through an illicit connection as the Cop/mL would be very high. The water quality table below shows the copies of HF183 in comparison to primary influent from the wastewater treatment plant.

Table 4
Copies of HF183 in comparison to wastewater treatment plant primary influent

Date	Source	HF 183 (cop/100 mL)	Compare conc. to Primary Influent (copies/100 mL)
1/9/2018	IND-0545D	947	0.00%
5/9/2018	IND-0545D	975	0.00%
6/18/2018	IND-0545D	23642	0.07%
6/18/2018	IND-0545D	36170	0.11%
10/9/2018	IND-0545D	9665	0.03%
1/28/2020	IND-0545D	12400	0.04%
1/28/2020	IND-0545D Dup	9247	0.03%
6/29/2020	IND-0545D	14212	0.04%
1/4/2021	IND-0545D	11833	0.03%
1/4/2021	IND-0545D Dup	9528	0.03%
3/22/2021	IND-0545D	2825	0.01%
5/25/2021	IND-0545D	28139	0.08%

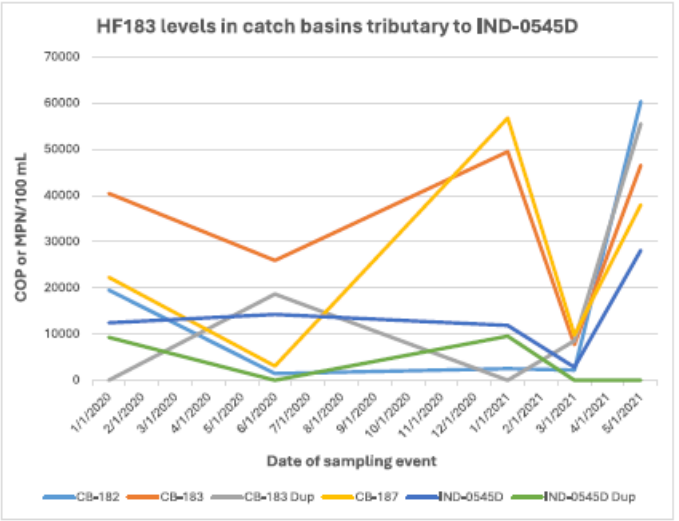
The highest percentage of concentrations of HF183 in a sample divided into the influent sample shown above reads 0.11%. This percentage is extremely low. We would expect to see a higher ratio of HF183 to primary influent if our water samples were influenced by any amount of sewage. Some possible explanations could be from homeless encampments in the relative vicinity of the outfall. Toilet paper that was contaminated with fecal matter could have been washed down the gutters and ended up in our storm drain system. A very unlikely, yet possible, explanation could be from bird species that feed on fecal matter. Some birds feed on fecal matter such as from the wastewater treatment plant lagoons or animal feces in yards. They may have defecated fecal matter into the gutters that contained human fecal matter as well.

Along with 12th Avenue outfall being sampled for *E. coli* and HF183 during Phase 1, we chose to sample a manhole outfall that is tributary to BOI-0007 outfall on the Boise River. Although we showed evidence of *E. coli* and HF183 at this site, the numbers were relatively low and are heavily influenced by the runoff from Interstate 84. We were able to conclude that this site would not be beneficial in our MST study as it would not provide us with an accurate representation in City of Caldwell stormwater runoff apart from Interstate 84.

MST Phase 2:

Phase 2 of the MST study focuses on the outfall at 12th Avenue (IND-0545D) and the three catch basins tributary to it. Focusing on the catch basins was thought to provide some insight into the relative distance the source of the *E. coli* contamination could present itself in our study area.

Table 5
Levels of HF183 Bacteroides found at 12th Avenue and tributary catch basins in different sampling events



After collecting samples and results regarding HF183 found in the catch basins, we assessed the results using line graphs pictured above. Analyzing the concentrations in each catch basin helped to determine which had a significant change in concentration of fecal matter. CB-183 appears to have higher concentrations of HF183 than the rest of the catch basins in two out of the five graphs, with CB-183 being second highest. These numbers read 40,463 COP/100mL and 25,912 COP/100mL. The highest HF183 measurement we received, following a sampling event at 12th Avenue (IND-0545D), was 36,170 COP/100mL. This means that the water that found in the catch basins tributary to the outfall showed higher concentrations.

These results are very beneficial to our study as they determined that our intermittent source could be located somewhere before the three catch basins in our study. The concentrations became lower in each sample heading downstream. Overall, these results do appear to have a strong correlation. We were able to follow out the next phase of our study given our conclusions made from Phase 2. Because we found a correlation between the concentrations and the downstream catch basins, we decided to focus more on street inspections and catch basin inspections to further explore what could possibly have caused these levels of *E.coli* and HF183 in our water.

MST Phase 3:

Bacteroides are found in the guts of nearly all mammals. HF183 is very specific to human fecal matter, but it has been found at low levels in deer and occasionally in dogs as it sometimes has cross-reactivity in samples. One hypothesis for the positive results of these human/sewage marker assays in animal sources is that the qPCR assay amplifies a sequence that is very similar, but not identical, to the marker gene (Feng 2020).

A study that was done in Virginia Beach, Virginia used a lab technique called polymerase chain reaction to get the molecular breakdown of the DNA strands in various water samples. The study showed that these data included sequences from cow (n=40), chicken (65), dog (74), goose (110), gull (324), horse (19) and pig (13) hosts (Layton et al. 2013). Although this data does not represent our water samples, it allowed us to begin Phase 3 of our study with a new approach. We focused on 12th Avenue and a few connecting side streets in the area to search for any suspicious activity that could allow us to fine tune our search for the source of *E. coli* and HF183. We suspected that maybe animal activity could be our problem.

As previously stated, we contacted the City of Caldwell Utility Billing manager to verify that each home within the study area was connected to the City sewer system. Ideally, this verification would remove the possibility of an illicit connection from a home or RV in the vicinity. Walking inspections were performed on each street twice, occurring in two rounds. Dog feces were found and identified more frequently, but other animals were observed in the area as well. 1601 Blaine Street was found to have a lot of dog feces in the grassy area

located between the gutter and the sidewalk. None of this material was found directly in the gutter, but given the proximity to the gutter, it is possible that it washed into the gutter and storm drain system. It is also important to note that this home is located about 6 blocks away from the stormwater sampling locations for *E. coli* at 12th Avenue. The likelihood of dog feces presenting the levels of HF183 that were found in the water samples is low, given that the amount of HF183 that would be found in dogs is a more diluted number of bacteria than directly found in the human gut. A large amount of dog feces containing HF Bacteroides that are still alive would need to be directly washed down the gutter to result in the higher amounts of HF183 we have found. Animal waste may have contributed to the smaller readings of HF183 such as 975 Cop/mL or 1,508 Cop/mL.

Although all the homes in the study area are historically connected to the City sewer system, the walking inspections also assisted us in verifying this information as best as possible. Anything that was visually, olfactory, or audibly suspicious in relation to stormwater pollution was documented and re-inspected.

Conclusion:

Through various methods, the City of Caldwell Stormwater Department studied the environmental and anthropogenic factors that may have been the cause of high amounts of *E.coli* found in stormwater samples from the 12th Avenue Outfall. Over the course of this study, Stormwater Division staff collected water samples, evaluated applicable MST research documents, and visually inspected the selected sample area. As *E.coli* can be a common pollutant in stormwater systems, it is difficult to trace the source. Although we can make assumptions given our results, we are unable to determine the precise source of the *E.coli* that was present in our 12th Avenue outfall and tributary catch basins.

E.coli can present itself from many factors including warm-blooded mammals, broken sewer pipes, and irrigation runoff. Hypothetically, if the source was found to be from human fecal matter in the gutter, working in reverse to assess the quantity that was initially present on the street is not quite feasible. Given the many dilution and degradation processes that are present in stormwater, it is challenging to know whether the quantity of starting fecal matter was large or infinitesimally small.

As previously stated, *E.coli* is too broad of a variable when in terms of fecal matter and how it presents itself in stormwater. Through research, we have concluded that focusing on the measurement HF183 in the water will result in a stronger conclusion. Sewage exfiltration is a possibility as it involves broken or damaged pipes that make up the sewer system. A small fracture in a sewer pipe could have caused the levels of *E.coli* found in our water samples. Although, sewer exfiltration is not common from unpressurized sewer mains. At the beginning of the study, the storm drain pipe connected directly to 12th Avenue Outfall was inspected with a pipe inspection camera that provided us with no alarming breaks or illicit taps in the storm drain line. Our highest level of HF183 measured in 12th Avenue (IND-0545) outfall was 36,170 Cop/100mL. After collecting samples from the tributary catch

basins, the highest level of HF183 was 60,345 Cop/100mL. Generally, anything over 100,000 Cop/100mL is very high when found in stormwater and can usually be attributed to some sort of cross-connection or a sanitary line leak (Layton et al. 2013). Scientific methods to determine the source of *E.Coli* and other bacteria are constantly changing as technology improves over the years. We can reasonably conclude that the possibility of a cross-connection is less probable given our resources and information the City was able to collect through this study.

Further into our research, we discovered similar studies that investigated HF183 levels in storm drains and how they can be affected by sewage exfiltration, the environment, and water quality in the surrounding area. The main takeaway from this study, was that HF183 levels, which are generically a large indicator of human fecal matter, can similarly be found in other mammals such as deer and dogs. Throughout the visual inspections performed during our study, we discovered dog feces in many accounts. Most incidents of this were found either directly in the gutter, or in the grass on the curb. Considering that the highest number of HF183 that we found in our water samples was 60,345 Cop/100mL, it is possible that dog feces could be causing these levels to fluctuate, depending on the quantity that is being washed into the storm drains at any given time.

As of current, we are continuing to analyze our collected information, use our resources, and understand the varying effects of the environment that could be causing these infrequent spikes in *E.coli* levels to our stormwater system. The City of Caldwell Stormwater Division will continue to monitor and sample 12th Avenue in hopes that we can observe a constant decrease in our *E.coli* levels.

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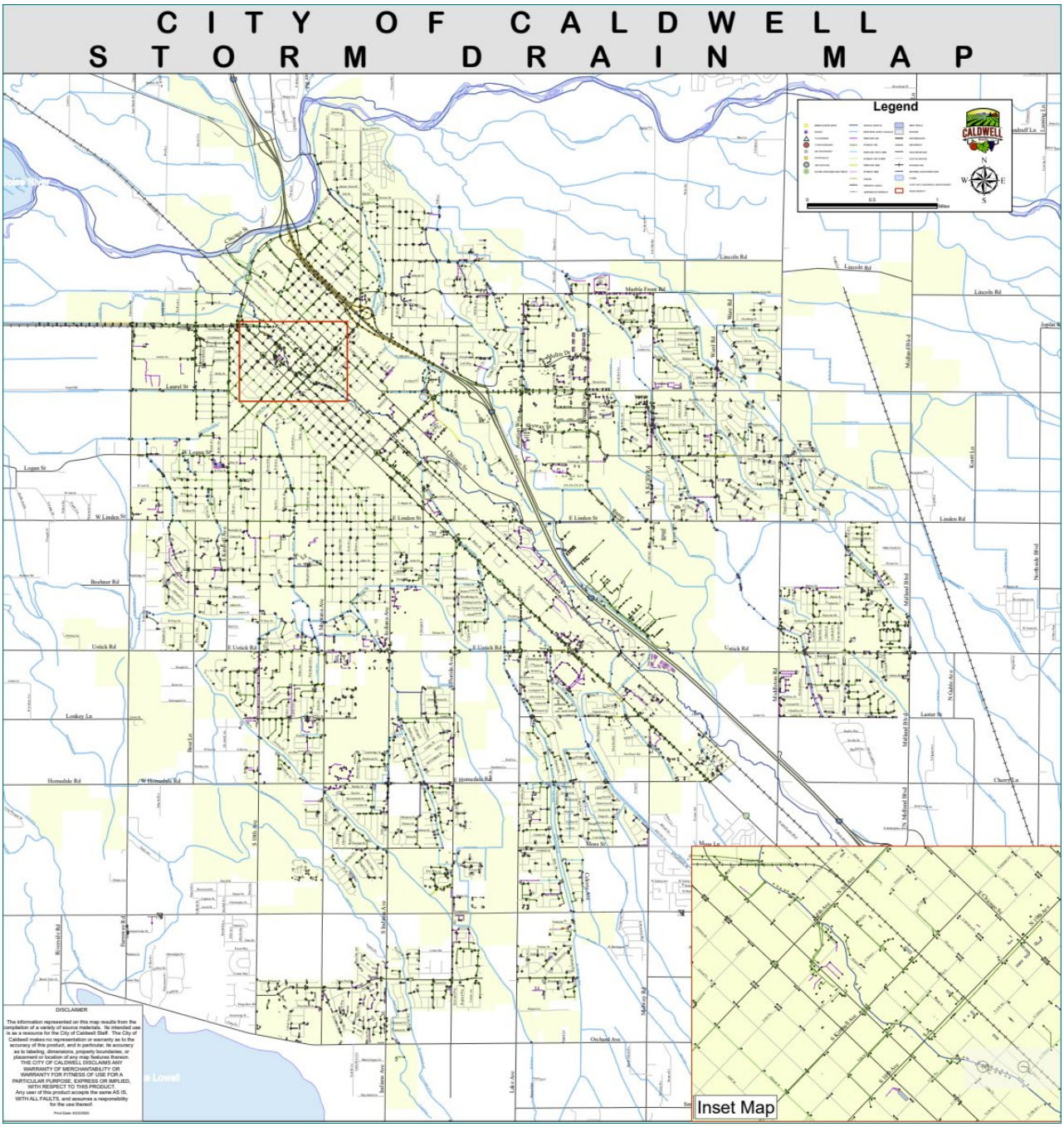
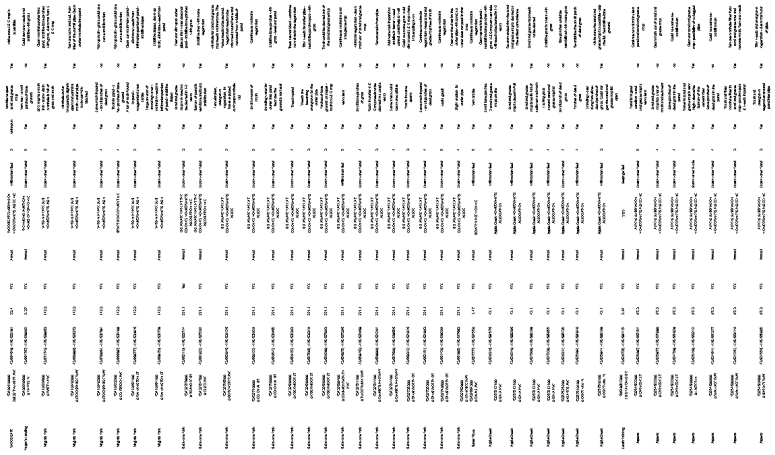
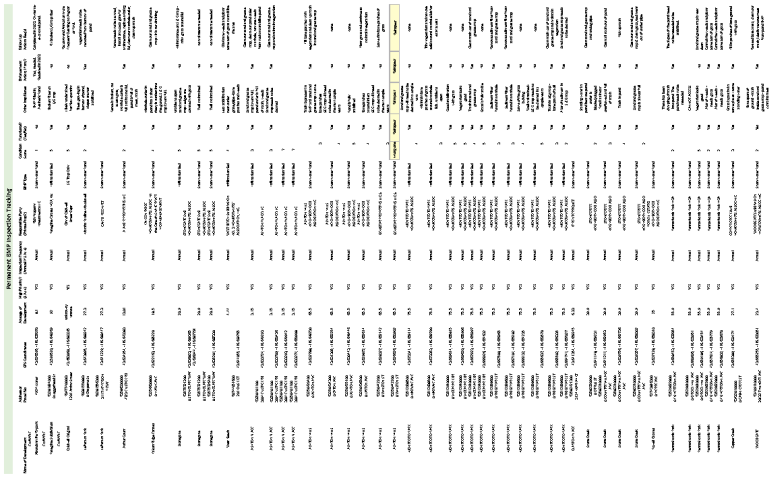
Appendix C. City of Caldwell MS4 Map



Appendix D: Permanent BMP Control Inspection Tracking





Permanent BMP Inspection Tracking

Name of Development	Address or Parcel No	GPS Coordinates	Acreage of Development	High Priority? (1 Ac+)	Inspection Frequency (Annual if 1 Ac+)	Responsible Party (Private Prop?)	BMP Type	Condition Score	Functional? (Yes/No)	Other Insp Notes	Enforcement Action, if any?	Follow Up Actions Req'd
College Marketplace	R5537310300 410 N 21ST AVE	43.659454, -116.669841	1.61	YES	Annual	SAB Medical Center LLC	Infiltration Pond	4	Yes	Overall Good condition, some erosion found but still grassed in	No	None
College Marketplace	R5537310300 512 N 21ST AVE	43.660036, -116.667931	1.14	Yes	Annual	FA LLC	SG Trap Only	5	Yes	Good access to manholes	No	None
College Marketplace	R5537301200 518 N 21ST AVE	43.660224, -116.667176	3.96	YES	Annual	CHURCH AT CALDWELL LLC	SG Trap Only	5	Yes	Vehicle was blocking access to some of the manholes, not all manholes were inspected	No	None
Abundant Life/Boise RV	R3246700000 4924 EAST FR ST	43.623378, -116.636386	8.1	Yes	Annual	RICH PROPERTY INVESTMENTS LLC	Stormwater Pond	4	Yes	Playground/dog run in pond, few trees. Playground is temporary - pond is still fully functional	No	None
Prestige Assisted Living at Ave...	R0744030000 200 W BEECH ST	43.642702, -116.692848	3.71	YES	Annual	NHI REIT OF IDAHO LP	Stormwater Pond	2	Yes	Trees are in/around ponds - some bare patches	Yes	Remove trees in pond and stabilize bare patches with grass
The Gables Assisted Living	R3375701100 917 E LOGAN RD	43.633957, -116.686712	2.73	YES	Annual	GABLES HOLDINGS LLC	Stormwater Pond	Not on archive				
FAITH LANDING	R0152311000 117 ABRAHAM WAY	43.621469, -116.621899	30.7	YES	Annual	NEIGHBORHOODS BY CIHI LLC	Infiltration Bed	Not on archive				
FAITH LANDING	R0152318000 7107 ENOCH DR	43.620752, -116.622669	30.7	YES	Annual	NEIGHBORHOODS BY CIHI LLC	Infiltration Bed	Not on archive				
FAITH LANDING	R0152310500 508 ISAIAH WAY	43.620457, -116.623370	30.7	YES	Annual	NEIGHBORHOODS BY CIHI LLC	Infiltration Bed	Not on archive				
FAITH LANDING	R0152318400 0 ABRAHAM WAY	43.622278, -116.623187	30.7	YES	Annual	NEIGHBORHOODS BY CIHI LLC	Infiltration Bed	Not on archive				
FAITH LANDING	R0152317000 207 ABRAHAM WAY	43.622044, -116.624130	30.7	YES	Annual	NEIGHBORHOODS BY CIHI LLC	Infiltration Bed	Not on archive				
FAITH LANDING	R0152310200 307 ABRAHAM WAY	43.621487, -116.624874	30.7	YES	Annual	NEIGHBORHOODS BY CIHI LLC	Infiltration Bed	Not on archive				
FAITH LANDING	R0152315500 212 ABRAHAM WAY	43.621826, -116.624776	30.7	YES	Annual	NEIGHBORHOODS BY CIHI LLC	Infiltration Bed	Not on archive				
FAITH LANDING	R0152310100 6810 ENOCH DR	43.621462, -116.625603	30.7	YES	Annual	NEIGHBORHOODS BY CIHI LLC	Infiltration Bed	Not on archive				
FAITH LANDING	R0152310100 6810 ENOCH DR	43.621285, -116.625842	30.7	YES	Annual	NEIGHBORHOODS BY CIHI LLC	Infiltration Bed	Not on archive				
FAITH LANDING	R0152310100 6810 ENOCH DR	43.621936, -116.625395	30.7	YES	Annual	NEIGHBORHOODS BY CIHI LLC	Infiltration Bed	Not on archive				
All Pets Doctors	R5581100000 3607 CLEVELAND BLVD	43.645777, -116.659524	6.86	YES	Annual	GREGORY SIRKOWSKA	Infiltration Bed	Not on archive				
First National Pawn	R5529401100 4406 CLEVELAND BLVD	43.637619, -116.651304	1.17	YES	Annual	FIRST NATIONAL PROPERTIES LLC	Infiltration Bed	Not on archive				
Wal-Mart	R3249701000 5108 CLEVELAND BLVD	43.630407, -116.646958	25.32	YES	Annual	WAL-MART REAL ESTATE BUS TRUST	Stormwater Pond	Done				
Wal-Mart	R3249701000 5108 CLEVELAND BLVD	43.633542, -116.645487	25.32	YES	Annual	WAL-MART REAL ESTATE BUS TRUST	Stormwater Pond					
CLEARWATER PLAZA	R3250010400 0 CLEVELAND BLVD	43.629585, -116.646087	4.26	YES	Annual	CLEARWATER CALDWELL LLC	Stormwater Pond					
Save More Storage	R3246300000 3116 EAST FR ST	43.626499, -116.636757	3.73	YES	Annual	DOHERTY FAMILY REVOCABLE INTERVIVOS SURVIVORS TRUST	Stormwater Pond	Not on archive				
Team Mazda	R3051600000 6218 CLEVELAND BLVD	43.623511, -116.637577	3.6	YES	Annual	JKC HAMPER LLC	Stormwater Pond					
[illegible]	R3244700000 3411 CLEVELAND BLVD	43.650139, -116.659092	16.22	YES	Annual	TVM DEVELOPMENT LLC	Sand & Grease Trap	Not on archive				
CENTENNIAL BAPTIST CHURCH	R3251001000 3610 E USTICK RD	43.633599, -116.634548	8.58	YES	Annual	CENTENNIAL BAPTIST CH INC	Stormwater Pond	4	Yes	Some erosion, but most vegetation looks good.	No	Continue to maintain vegetation - especially on the side slope
CENTENNIAL BAPTIST CHURCH	R3251001000 3610 E USTICK RD	43.633659, -116.633836	8.58	YES	Annual	CENTENNIAL BAPTIST CH INC	Infiltration Bed	Not on archive				
CENTENNIAL BAPTIST CHURCH	R3251001000 3610 E USTICK RD	43.633731, -116.634779	8.58	YES	Annual	CENTENNIAL BAPTIST CH INC	Stormwater Pond	5	Yes	The pond on the map is outlined on top of the basketball court. Stormwater pond was most likely mislabeled and it should be an infiltration bed.	No	Algae was visible and looked clean and well maintained.
CENTENNIAL BAPTIST CHURCH	R3251001000 3610 E USTICK RD	43.632650, -116.633290	8.58	YES	Annual	CENTENNIAL BAPTIST CH INC	Infiltration Pond	5	Yes	A few cobbles are shaded in some areas	No	Continue to make sure the cobbles are evenly spread and stay in place
Mallard Cove	R3572900000 518 S 34TH AVE	43.646764, -116.667674	3.12	Yes	Annual	MALLARD COVE LLC	Sand & Grease Trap	Not on archive				
CALVARY TEMPLE	R0465700000 200 S 6TH AVE	43.667069, -116.690859	0.73	No	Annual	CALVARY TEMPLE INC	Sand & Grease Trap	Not on archive				
Cliff's Country Market	R0644900000 725 BLAINE ST	43.662831, -116.694551	0.45	No	Annual	KOCH INC	Sand & Grease Trap	Not on archive				
1908 E. Chicago St. UNIVERSITY OF IDAHO	R3536301200 1908 E CHICAGO ST	43.659712, -116.672871	3.36	YES	Annual	UNIVERSITY OF IDAHO REGENTS	Sand & Grease Trap	Not on archive				
ROMAN CATHOLIC DIOCESE OF BOISE	R2456401000 1102 W LINDEN ST	43.648485, -116.712746	13.99	YES	Annual	ROMAN CATHOLIC DIOCESE OF BOISE	Stormwater Pond	Done				

CANYON VIEW ESTATES	[illegible]	[illegible]	24.4	YES	Annual	[illegible]	Infiltration Bed		not on archive
CANYON VIEW ESTATES	[illegible]	[illegible]	24.4	YES	Annual	[illegible]	Infiltration Bed		not on archive
CANYON VIEW ESTATES	[illegible]	[illegible]	24.4	YES	Annual	[illegible]	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		[illegible]
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		[illegible]
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Bed		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Storm Pond		[illegible] Sandra Street
WINDSOR CREEK	[illegible] [redacted]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Storm Pond		[illegible] Sandra Street
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Infiltration Pond		[illegible]
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Storm Pond		[illegible] Street
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Storm Pond		[illegible] Street
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Storm Pond		[illegible]
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Storm Pond		not on archive
WINDSOR CREEK	[illegible]	[illegible]	137	YES	Annual	WINDSOR CREEK HOMEOWNERS ASSOC	Storm Pond		not on archive
BRITTANY HEIGHTS	[illegible]	[illegible]	71.1	YES	Annual	BRITTANY HEIGHTS HOMEOWNERS ASSOCIATION INC	Storm Pond		not on archive
BRITTANY HEIGHTS	[illegible]	[illegible]	71.1	YES	Annual	BRITTANY HEIGHTS HOMEOWNERS ASSOCIATION INC	Storm Pond		not on archive
BRITTANY HEIGHTS	[illegible]	[illegible]	71.1	YES	Annual	BRITTANY HEIGHTS HOMEOWNERS ASSOCIATION INC	Storm Pond		not on archive
BRITTANY HEIGHTS	[illegible]	[illegible]	71.1	YES	Annual	BRITTANY HEIGHTS HOMEOWNERS ASSOCIATION INC	Storm Pond		not on archive
BRITTANY HEIGHTS	[illegible]	[illegible]	71.1	YES	Annual	BRITTANY HEIGHTS HOMEOWNERS ASSOCIATION INC	Storm Pond		not on archive
BRITTANY HEIGHTS	[illegible]	[illegible]	71.1	YES	Annual	BRITTANY HEIGHTS HOMEOWNERS ASSOCIATION INC	Storm Pond		not on archive
BRITTANY HEIGHTS	[illegible]	[illegible]	71.1	YES	Annual	BRITTANY HEIGHTS HOMEOWNERS ASSOCIATION INC	Storm Pond		not on archive
LONDON PARK	[illegible]	[illegible]	71.1	YES	Annual	LONDON PARK SUBDIVISION HOA	Storm Pond		
LONDON PARK	[illegible]	[illegible]	71.1	YES	Annual	LONDON PARK SUBDIVISION HOA	Storm Pond		
LONDON PARK	[illegible]	[illegible]	71.1	YES	Annual	LONDON PARK SUBDIVISION HOA	Infiltration Bed		
LONDON PARK	[illegible]	[illegible]	71.1	YES	Annual	LONDON PARK SUBDIVISION HOA	Infiltration Bed		
LONDON PARK	[illegible]	[illegible]	71.1	YES	Annual	LONDON PARK SUBDIVISION HOA	Infiltration Bed		

ROMAN CATHOLIC DIOCESE OF BOISE	R2436401000 1102 W LINDEN ST	43.650220, -116.711100	15.99	YES	Annual	ROMAN CATHOLIC DIOCESE OF BOISE	Stormwater Pond	Done
FIRST SOUTHERN BAPTIST CHURCH OF CALDWELL INC	R2436500000 912 W LINDEN ST	43.649592, -116.708708	8.89	YES	Annual	FIRST SOUTHERN BAPTIST CHURCH OF CALDWELL INC	Stormwater Pond	
FIRST SOUTHERN BAPTIST CHURCH OF CALDWELL INC	R2436500000 912 W LINDEN ST	43.648839, -116.708743	8.89	YES	Annual	FIRST SOUTHERN BAPTIST CHURCH OF CALDWELL INC	Stormwater Pond	Not an Inactive
FIRST SOUTHERN BAPTIST CHURCH OF CALDWELL INC	R2436500000 912 W LINDEN ST	43.648064, -116.709088	8.89	YES	Annual	FIRST SOUTHERN BAPTIST CHURCH OF CALDWELL INC	Sand & Grease Trap	Not an Inactive
FIRST SOUTHERN BAPTIST CHURCH OF CALDWELL INC	R2436500000 912 W LINDEN ST	43.648064, -116.710475	8.89	YES	Annual	FIRST SOUTHERN BAPTIST CHURCH OF CALDWELL INC	Sand & Grease Trap	Not an Inactive
Lewis & Clark Elementary	R3257510000 1102 EAST ST	43.676085, -116.685594	15.25	YES	Annual	CALDWELL SCHOOL DIST NO 132	Infiltration Pond	
Lewis & Clark Elementary	R3257510000 1102 EAST ST	43.675789, -116.684733	15.25	YES	Annual	CALDWELL SCHOOL DIST NO 133	Infiltration Pond	
Lewis & Clark Elementary	R3257510000 1102 EAST ST	43.675845, -116.686446	15.25	YES	Annual	CALDWELL SCHOOL DIST NO 134	Infiltration Bed	Not an Inactive
Washington Elementary	R3573100000 2918 WASHINGTON AVE	43.643304, -116.686307	7.58	YES	Annual	CALDWELL SCHOOL DIST NO 132	Infiltration Bed	Not an Inactive
Washington Elementary	R3573100000 2918 WASHINGTON AVE	43.643144, -116.685775	7.58	YES	Annual	CALDWELL SCHOOL DIST NO 132	Infiltration Bed	Not an Inactive
Washington Elementary	R3573100000 2918 WASHINGTON AVE	43.643848, -116.686604	7.58	YES	Annual	CALDWELL SCHOOL DIST NO 132	Infiltration Bed	Not an Inactive
Washington Elementary	R3573100000 2918 WASHINGTON AVE	43.643889, -116.687587	7.58	YES	Annual	CALDWELL SCHOOL DIST NO 132	Infiltration Bed	Not an Inactive
Vallivue High School	R3256500000 1407 HOMEDALE RD	43.671935, -116.678529	40.05	YES	Annual	VALLIVUE SCHOOL DIST NO 139	Stormwater Pond	
Heritage Charter School	R3572301200 1803 E USTICK RD	43.633745, -116.677636	10	YES	Annual	HERITAGE COMMUNITY CHARTER SCHOOL INC	Infiltration Bed	Not an Inactive
Heritage Charter School	R3572301200 1803 E USTICK RD	43.634842, -116.677041	10	YES	Annual	HERITAGE COMMUNITY CHARTER SCHOOL INC	Infiltration Bed	Not an Inactive
Caldwell YMCA	R3572310000 3720 S INDIANA AVE	43.637008, -116.675171	15.64	YES	Annual	YOUNG MENS CHRISTIAN ASSOC OF BOISE INC	Stormwater Pond	
Caldwell YMCA	R3572310100 3820 S INDIANA AVE	43.635471, -116.674948	15.64	YES	Annual	YOUNG MENS CHRISTIAN ASSOC OF BOISE INC	Stormwater Pond	
Lakevue Elementary	R3281301100 12843 CIRRUS DR	43.597022, -116.648860	14.75	YES	Annual	VALLIVUE SCHOOL DIST NO 139	Stormwater Pond	
Lakevue Elementary	R3281301100 12843 CIRRUS DR	43.596860, -116.648637	14.75	YES	Annual	VALLIVUE SCHOOL DIST NO 140	Infiltration Bed	Not an Inactive
Lakevue Elementary	R3281301100 12843 CIRRUS DR	43.595479, -116.648707	14.75	YES	Annual	VALLIVUE SCHOOL DIST NO 141	Infiltration Bed	Not an Inactive
Lakevue Elementary	R3281301100 12843 CIRRUS DR	43.597142, -116.651017	14.75	YES	Annual	VALLIVUE SCHOOL DIST NO 142	Infiltration Bed	Not an Inactive

Pollutant Reduction Activity 2: Wash Rack Expansion Report

NPDES Permit No. IDS-028118

Term from December 10, 2020 to September 30, 2025

Prepared by:
Stormwater Division
City of Caldwell
Public Works Department
208-455-4598
www.cityofcaldwell.org

As a part of executing its pollutant reduction activities associated with the City of Caldwell Municipal Separate Storm Sewer System (MS4) Permit IDS028118, the Stormwater Division presents the following data, in an effort to demonstrate the value of sufficient funding, staffing, and resources to maintain the City's storm drain network. The City of Caldwell proposed to expand the existing vehicle washing and clean-out facility, informally known as the "wash rack" by adding *at least* one additional wash bay and a contained drying area. These additional features would increase the efficiency of the existing sand-and-grease trap and catch basin sump clean out structures, reducing sediment loading from the City's MS4.

By increasing the capacity of the wash rack by at least fifty percent and providing a designated location for drying sediment removed from municipal sumps, the existing bottleneck on the facility will be eased, allowing for greater efficiency for the City's heavy equipment and vacuum truck fleet. Reduced waiting times at the wash rack will increase the amount of time operators can spend actively removing sediment from catch basins and sumps. It is important to assess the amount of sediment that enters our storm drain system because the City is required to not exceed the TMDL (Total Maximum Daily Load) for our waterway. Shown below are two pictures showing the old and new wash bays at the wash rack.

Figure 1 & 2
Before and After Wash Rack Expansion

Pre-wash rack expansion – 2 wash bays total

Post-wash rack expansion – 4 wash bays total

To assess the efficiency of the wash rack expansion, the Stormwater Division has put their efforts into quantifying the average amount of sediment that is being dumped into the wash rack before and after the development. To do so, City Stormwater Division staff collected samples from a routinely used Street Division vacuum truck to be tested for TSS (Total Suspended Solids).

To achieve a defensible estimation of citywide sediment loads, staff took samples to estimate the sediment concentration in water collected from catch basins that drain into the Boise River, Mason Creek, and Indian Creek. In collaboration with the Street Division, the Stormwater Division instructed vacuum truck operators to work on each of the three sections one by one. Catch basins and connecting lines were cleaned until a full vacuum truck load was collected. One sample was taken per one full load of sediment, water, and debris. In total, six samples were taken from these cleanings with two coming

from each of the three cleaning zones. A map of the City of Caldwell highlighting the three zones that were targeted for sampling is provided below:

Figure 3
Vacuum truck cleaning zones

Zone #1: Drains to Mason Creek
Zone #2: Drains to Indian Creek
Zone #3: Drains to the Boise River

To assess the Total Suspended Solids (TSS) load entering the wash rack, water samples were collected using a structured procedure. The vacuum truck operator conducted routine cleaning of catch basins, siphons, and sand-and-grease traps in each zone individually, ensuring the truck was filled with water and sediment before heading to the wash rack. A bucket was attached to the truck to collect water, from which two samples were drawn per zone. After completing this process across all zones, the samples were delivered to the Caldwell Wastewater Treatment Plant for TSS analysis. The results below reflect data collected before the wash rack expansion and after the wash rack expansion.

Table 1
Total suspended solids in each zone – pre-expansion

TSS (Total Suspended Solids) in each zone			
Zone	Sample No 1 (mg/L) TSS	Sample No 2 (mg/L TSS)	Waterway
1	387,000	385,000	Mason Creek
2	9,390	20,690	Indian Creek
3	504,000	326,000	Boise River

After receiving TSS results from the lab for each sample, zone #1 averaged 386,000 mg/L, Zone #2 averaged less with 15,040 mg/L, and Zone #3 averaged 415,000 mg/L, which is more comparable to zone #1.

The Idaho Department of Environmental Quality established a total maximum daily load (TMDL) in 1998 on total suspended sediment (TSS) for the Lower Boise River watershed. It was amended in 2015 to include TMDLs on its tributaries, which included waterways of concern in this paper: Indian Creek and Mason Creek. The 1998 TMDL was 50 mg/L, whereas the sediment TMDL in 2015 for the tributaries to the Lower Boise River are 20 mg/L for direct discharges. The numbers below are the total numbers of TSS not making it into the waterways, as the sediment is temporarily stored in the drying area after being dredged from the wash bays.

The Street Division aims to clean around 800 catch basins per year which inevitably results in a large amount of sediment that is being rinsed and collected at the wash rack. This goal is directly associated with the MS4 permit language which requires each catch basin to be cleaned at least once every five years, or a prioritization system shall be established. If not cleaned routinely the excess sediment in the storm system has the potential to enter our outfalls and discharge sediment in excess of healthy quantities.

Table 2
Total suspended solids in each zone – post-expansion

TSS (Total Suspended Solids) in each zone			
Zone	Sample No 1 (mg/L) TSS Date of Collection: 04/18/2024	Sample No 2 (mg/L TSS) Date of Collection: 08/13/2025	Waterway
1	16,120	10,760	Mason Creek
2	67,240	76,440	Indian Creek
3	100,640	82,000	Boise River

The water samples post-construction shown above are substantially lower than the previous sampling. Zone 1 averaged 13,440 mg/L, zone #2 averaged 71,840 mg/L, and zone #3 averaged 91,320 mg/L. One might infer that the increased capacity of the wash rack has enabled vacuum trucks to optimize their daily routine schedules, allowing for a higher frequency of service stops. Enhanced functionality within the wash bays facilitates accelerated water drainage and sediment settling, therefore reducing the duration of each cycle cleaning. Catch basins, sumps, and sand-and-grease traps exhibit lower residual sediment accumulation per cleaning, resulting in a decrease in sediment per cleaning.

Recording these results helped City staff to better understand how heavily the wash rack is used, even from just a small portion of its overall operations. Not only do our vacuum trucks release sediment-laden water into the wash rack, but multiple departments utilize the wash bays to rinse off mud and debris from their vehicles. The wash rack's original capacity was becoming a growing hurdle to MS4 maintenance efficiency. City staff performed a few calculations to assess the amount of sediment that was being released.

On average, it takes about 2 minutes or longer for a vacuum truck to enter the wash rack, be emptied of all its contents, and exit the wash rack. When calculating yearly sediment vacuumed from the catch basins and connecting lines, we assumed that if the vacuum truck was in the wash rack for two minutes or greater, that they would have released a full truck load of collected sediment. Along with this, we assumed that each vacuum truck had reached its carrying capacity before it dropped the collected

sediment and water at the wash rack. Staff members analyzed the data and estimated the amount of debris being dumped in the wash rack each month in cubic yards. The table below shows the capacity of each vehicle tank that is used for the City's street and catch basin cleaning efforts.

Table 3
Carrying capacity of City Vehicles

Street Cleaning Equipment (Vacuum truck/street sweeper)	Tank Volume (cubic yards)
S6-61: Ravo Sweeper	5.5
S6-37: Elgin Sweeper	5.4
S6-52: 2017 Johnston Sweeper	8.5
S6-30: Elgin Sweeper	4.5
S6-41: Elgin Sweeper	8
S6-34: Johnston Sweeper	105

A program called LiGO gathers information such as start date, start time, duration, vehicle, start address and end address. To estimate the total amount of sediment released into the wash rack each month, the data was first filtered by vehicle type. If a vehicle remained in the wash rack for two minutes or longer it was assumed to have emptied a full load at its carrying capacity, while visits under two minutes were considered to be non-dumping events. The carrying capacity of each truck, expressed in cubic yards, was applied in Excel using a formula that allowed the data to be filtered so that the truck would be counted for its full capacity or counted as zero depending on the length of time it was there. The data was organized chronologically and then summed. We estimated that within each cubic yard of sediment and water that there is 0.0896 cubic yards of sediment. This number was then multiplied to the sum of each month to give us our estimated sediment load into the wash rack per month.

A full breakdown of the sediment loads each month are shown below:

Table 4
Collected sediment dumped at the wash each year shown in sediment/ yd^3 load.

Amount of sediment dumped at the wash rack yearly					
	2021	**2022**	**2023**	**2024**	**2025**
January	75.14	14.88	21.16	13.81	61.51
February	45.91	31.38	58.10	51.47	46.80
March	41.07	74.60	86.26	65.45	34.97
April	67.25	40.53	11.66	82.31	29.77
May	57.38	34.97	28.15	36.58	41.25
June	30.84	29.23	45.73	27.62	26.18
July	19.37	58.10	38.02	45.91	20.26
August	22.77	27.80	38.56	73.88	19.37
September	17.22	16.50	5.74	49.67	
October	20.08	12.19	24.39	44.11	
November	49.49	12.55	31.92	26.18	
December	32.82	26.18	69.22	27.62	
Annual	**479.34**	**378.91**	**458.91**	**544.61**	**280.11**
Average (2021-2024)	**465.44**				

In the past three years, the wash rack averaged 465.44 yd^3 sediment/ yd^3 load. The overall goal of the project was to demonstrate that the City will be able to remove more sediment from our MS4 system with a larger wash rack than we are currently doing with the existing wash rack. We want to show that expanding the wash rack is a net benefit to water quality within the City.

The City's municipal sump storage has historically been dried at the wash rack and then combined with street sweepings into a stockpile for later use. With recent upgrades, the City has not only increased the wash rack's capacity to handle more sediment but also enhanced its sediment recycling process. Previously, the wash rack lacked a designated area to contain and dry dredged solids. However, the expansion project introduced a dedicated drying zone equipped with a drain to the city sewer. Sediment discharged to the wash bays is transported to a City owned site known as the Gravel Pit where it is stockpiled alongside roadway materials and gravel. Given the additional space from the wash bays and the sediment drying area, the City estimates an additional 400 cubic feet of sediment will be removed annually. We estimate this to be possible because Caldwell Streets Division is finally able to budget a second vacuum truck in FY2026, which was recently approved by City Council in August 2025.

The wash rack expansion work has overall improved the efficiency of stormwater management in the City of Caldwell. The upgraded wash rack ensures that sediment collected from catch basins and sumps will not overwhelm the system. Together, these measures have reduced sediment loads discharged to local waterways, improved operational efficiency, and increased the effectiveness of stormwater infrastructure. Through the combined efforts of street sweeping and improved sediment management, the City has made clear progress toward meeting water quality standards and protecting the waterways that flow in and around the City of Caldwell.