CITY OF RAPID CITY

STORMWATER MANAGEMENT PLAN

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CITY OF RAPID CITY BACKGROUND

Regulatory Program Information

Phase I of the United States Environmental Protection Agency's (USEPA) municipal stormwater program was promulgated in 1990 under the authority of the Clean Water Act (CWA). Phase I relied on the National Pollutant Discharge Elimination System (NPDES) permit coverage to address stormwater runoff from medium and large municipal separate storm sewer systems (MS4s), serving populations of 100,000 or greater.

The Stormwater Phase II Final Rule (promulgated December 8, 1999) was the next step in the USEPA's efforts to preserve, protect, and improve the nation's water resources from polluted stormwater runoff. The Phase II program requires additional operators (small MS4s in urbanized areas) to implement programs and practices to control polluted stormwater runoff, through the NPDES permit program. The State of South Dakota Department of Environment and Natural Resources (SD DENR) has primacy for the federal NPDES program and is charged with implementing the program. The program requires Phase II MS4s to develop a Stormwater Management Program/Plan (SWMP).

On March 7, 2003, the City of Rapid City ("City") submitted a Notice of Intent (NOI) as required by the Phase II Stormwater Regulations and was issued a General Permit from SD DENR on April 25, 2003. A copy of the NOI is included in Appendix A.

Location

Rapid City is the second-largest city in South Dakota and the county seat of Pennington County. Named after Rapid Creek, on which the city is established, it is set against the eastern slope of the Black Hills mountain range and covers approximately 55 square miles. The City has experienced a steady population growth over the past few decades, increasing from 46,492 people in 1980 to an estimated population of 74,420 people in 2017.

The Urbanized Area (UA) was determined by the 2010 Census and is depicted in Appendix B. The UA covers approximately 40 square miles of area. There are twenty-one major drainage basins located within the UA: the Arrowhead, Box Elder, County Heights, Deadwood Avenue, Downtown Area, East Hwy79/Landfill, Haines Avenue, Jackson Boulevard, Knollwood, Meade Hawthorne, Morningside, Old Lime Creek, Perrine, Race Track, Red Dale, Red Rock, South Canyon/Lime Creek, South Robbinsdale, South Truck Route, Unnamed Tributary and Wonderland Drive Drainage Basins. All the drainage Basins, with the exception of Box Elder are tributaries to Rapid Creek. Box Elder is a tributary to Box Elder Creek. The location of the basins is included in Appendix C.

There are in excess of 900 identifiable elements (channels and detention cells) located within the UA. Table 1 included in Appendix C shows a breakdown of the number of elements and outfalls in each drainage basin. The City Public Works Department is responsible for improvements and maintenance of these facilities.

In accordance with the Clean Water Act, the South Dakota Department of Environment and Natural Resources (SDDENR) lists beneficial uses of major streams and rivers in the state. Rapid Creek within the city of Rapid City has beneficial uses of domestic water supply, coldwater permanent fish life, fish/wildlife propagation, immersion recreation, limited-contact recreation and irrigation waters (SDDENR Resources, 2018). The satisfaction of these beneficial uses are determined using numeric water-quality criteria, such as total suspended solids (TSS), fecal coliform and Escherichia coli (E. coli) bacteria, nutrients, and chloride. As of 2018, water quality in Rapid Creek for reaches above Rapid City meets water quality standards for designated beneficial uses; however, Rapid Creek from Canyon Lake to the Cheyenne River displays poor water quality due to excessive E. coli bacteria levels (SDENR Resources, 2018). In 2010, a Total Maximum Daily Load (TMDL) for Fecal Coliform/E.coli was

approved by SDDENR on Rapid Creek from Canyon Lake to Rapid City Water Reclamation Facility (SDDENR Resources, 2018).

The SWMP will include information describing how the program will control the discharge of the listed pollutants. The City of Rapid City will ensure to the maximum extent practicable that discharges from the MS4 will not cause or contribute to exceedances of surface water quality standards.

Drainage Plans

Engineered Drainage Plans have been completed for the major drainage basins within the Rapid City area. The Drainage Basin Design Plans can be accessed on the City of Rapid City Website.

Table 1. Drainage Basin Design Plans for the City of Rapid City

DRAINAGE BASIN	COMPLETED BY	DATE COMPLETED	REVISION DATE
Arrowhead	FMG Engineering	1991	1998, 2001
Box Elder	Ferber Engineering	2016	
County Heights	Davis Atkins	1990	2012
Deadwood Avenue	FMG Engineering	1989	1994
Downtown Area	Davis Atkins	1989	
East Highway 79/Landfill	Ferber Engineering	2005	
Haines Avenue	FMG Engineering	1992	1998
Jackson Boulevard	FMG Engineering	2005	
Knollwood	FMG Engineering	1994	
Meade Hawthorne	FMG Engineering	1993	
Morningside	Ferber Engineering	1998	
Old Lime Creek	Ferber Engineering	2000	
Perrine	FMG Engineering	1999	
Race Track	Davis Atkins	1990	2001, 2002
Red Dale	Alliance Engineers	1992	2011
Red Rock	Ferber Engineering	1993	2005
South Canyon/Lime Creek	FMG Engineering	1990	
South Robbinsdale	FMG Engineering	1994	2003
South Truck Route	FMG Engineering	2003	
Unnamed Tributary	Davis Atkins	1991	
Wonderland Drive	Ferber Engineering	2003	

Organization

Rapid City is run by the Common Council. The Common Council consists of the mayor elected at large and two alderman elected by the voters from five wards of the municipality. The Common Council is governed by South Dakota Codified Law. South Dakota Codified Law has delegated responsibilities to the Common Council of each city to adopt and enforce regulations designed for the purpose of promoting health, safety, morals and the general welfare of the city.

The Mayor appoints, subject to the approval of the Common Council, a ten (10) member commission known as the Planning Commission for the city, and for land within three (3) miles of the city's corporate limits and not located within any other municipality. The Planning Commission reviews subdivision plans and makes recommendation to the Common Council on planning and zoning related items. The City of Rapid City's regulations pertaining to subdivision of property is located in Title 16 of the Code of Ordinances.

According to SDCL §9-29-1, The City of Rapid City has the power to exercise jurisdiction for all authorized purposes over all territory within one mile of the corporate limits for the purpose of promoting health, safety, morals, and general welfare of the community, and of enforcing its ordinances and resolutions. The City of Rapid City is responsible for the enforcement of Title 13 pertaining to the operation and maintenance of on-site wastewater treatment systems within one mile of their corporate limits.

Ordinances

The City of Rapid City Code of Ordinances that may be affected by the SWMP includes:

Title 8, Health and Safety - Chapter 8.08 Garbage and Refuse
Title 8, Health and Safety - Chapter 8.12 Litter
Title 8, Health and Safety - Chapter 8.34 Fugitive Emissions and the Abatement of Smoke
Title 8, Health and Safety - Chapter 8.46 Construction Site Stormwater Runoff Control
Title 8, Health and Safety - Chapter 8.48 Post-Construction Site Stormwater Runoff Control
Title 8, Health and Safety - Chapter 8.50 Stormwater Runoff from Lands Modified by Human Activities
Title 12, Streets, Sidewalks and Public Places
Title 13, Public Utilities and Services - Chapter 13.08, 13.12, 13.16 Water and Sewer Service Systems
Title 13, Public Utilities and Services - Chapter 13.20 Onsite Wastewater Disposal and Treatment
Title 13, Public Utilities and Services – Chapter 13.26 Stormwater Drainage Systems
Title 15, Buildings and Construction - Chapter 15.32 Flood Area Construction Regulations
Title 16, Subdivisions - Chapter 16.16 Standards for Improvements
Title 17, Zoning - Chapter 17.50 Supplementary Regulations Applicable to Some or All Districts

The City of Rapid City Code of Ordinances can be viewed at the City website http://www.rcgov.org.

Management and Responsibility

The City of Rapid City will manage the SWMP through various departments and divisions within the city. The Public Works Department: Engineering Services Division is responsible for the administration of the SWMP, regulation of onsite wastewater disposal systems, review/ approval of subdivision and infrastructure construction plans and construction site observation; Streets Division is responsible for the maintenance of streets including street sweeping; Water Reclamation Division is responsible for drainage facility maintenance including storm drain cleaning and removal of debris in channels; and the Solid Waste Division is responsible for collection of hazardous waste. The Community Development Department: Code Enforcement Division is responsible for enforcing the Code of Ordinances; Building Permits Division is responsible for issuing development and building permits and Air Quality Division is responsible to maintain compliance with USEPA Air Quality Standards.

Construction and Development

The Common Council and Planning Commission regulate subdivision of property, development, and construction of projects within the City of Rapid City's MS4 boundaries.

Inspection and Enforcement

Inspections are performed by personnel from the City of Rapid City Public Works Department or the Community Development Department. Inspections are performed on a periodic basis depending on the complexity of the project or on a complaint basis. The City has the authority to request all inspection information from the contractor and/or landowner and may implement a Stop Work Order. An Erosion

and Sediment Control Permit obtained through the City requires the contractor and/or property owner to inspect their BMPs at least weekly and have documentation of such inspections available upon request.

Stormwater Quality Manual

The Stormwater Quality Manual was developed in 2007 and updated in 2009. The manual provides criteria and guidance for erosion and sediment control within the City's MS4. A copy of the manual can be viewed at the City website http://www.rcgov.org.

Air Quality

In August of 2000, the City of Rapid City and Pennington County entered into an Intergovernmental Agreement to establish and administer programs for air pollution control. City of Rapid City Municipal Code Chapter 8.34 address general standards for all construction projects to limit dust and sediment. This includes erosion and sediment control measures and reclamation of disturbed areas.

Program Funding

The SWMP is funded by the City of Rapid City Public Works Department. In addition, the City collects a Stormwater Drainage Utility fee from all property owners. The fees collected are used to support the operation, maintenance, replacement and expansion of the City's stormwater drainage infrastructure. Property owners and contractors are responsible for the implementation of Best Management Practices (BMPs) and the operation and maintenance of those BMPs during construction and in some instances post construction.

Outreach and Training

The City of Rapid City provides public outreach and education to citizens through the City Website, direct mailings to property owners and businesses, Rapid City Public Library and the Adopt-a-Creek Program.

City personal attend various trainings pertaining to stormwater and erosion control at least bi-annually. All city inspectors have received Certified Erosion and Sediment Control Training. City staff includes several Professional Engineers and two staff members that are Certified Floodplain Managers.

Contact Information

The implementation of the SWMP will be coordinated through the City of Rapid City Public Works Department. The contact information is:

Dale Tech, PE
Dale.tech@rcgov.org
Public Works Director
(605) 394-4154

Mary Bosworth, PE, CFM
mary.bosworth@rcgov.org
Project Engineer
(605)431-9404

Pollutants of Concern

Pollutants of concern and Their Sources in Stormwater

"Uncontrolled or treated runoff from the urban environment and from construction activities can run off the landscape into surface waters. This runoff can include such pollutants as sediments, pathogens, fertilizers/nutrients, hydrocarbons, and metals. Pavement and compacted areas, roofs, and reduced tree canopy and open space increase runoff volumes that rapidly flow into our waters. This increase in volume and velocity of runoff often causes stream bank erosion, channel incision and sediment deposition in stream channels. In addition, runoff from these developed areas can increase stream temperatures that along with the increase in flow rate and pollutant loads negatively affect water quality and aquatic life." (USEPA, 2005) Pollutants of concern in Rapid City's MS4 include pathogens, sediment, nutrients, oil and grease, toxics, thermal stress, and floatables.

- Pathogens
  - Escherichia *coli* – leaking and poorly maintained septic systems, leaking sewer lines, pet waste, livestock, and wildlife.
  - Fecal Coliform - leaking and poorly maintained septic systems, leaking sewer lines, pet waste, livestock, and wildlife.
- Sediment – impervious areas, construction sites, streambank erosion, overgrazed pastures, and improperly managed forested areas.
- Nutrients
  - Phosphorous – excess fertilizers, leaking and poorly maintained septic systems, leaking sewer lines, pet waste, livestock, wildlife, construction sites, impervious areas.
  - Nitrogen – excess fertilizers, leaking and poorly maintained septic systems, leaking sewer lines, pet waste, livestock, wildlife, construction sites, impervious areas.
- Oil and Grease – automotive leaks, restaurant waste, improper disposal of automotive products.
- Toxics – vehicle fluids, paints, pesticides, solvents, batteries, and solvents.
- Thermal Stress – direct sunlight from lack of streambank vegetation and heat generated from imperious areas near waterbodies.
- Floatables – litter and debris from improper disposal of solid waste

Sources of Contamination:

- Impervious areas (pavement/roads): increased storm water runoff, decreased water infiltration, toxics, pathogens and sediment.
- Motorized vehicles: antifreeze, oil, gas, and metals (auto parts, motor oil, tires).
- Litter: cigarette butts, plastic bottles, plastic bags, wrappers, and household trash.
- Lawns: grass clippings, herbicides, pesticides, pet waste, and fertilizers.
- Construction sites: toxics, litter, and sediment.
- Sewer lines: pathogens and nutrients.
- Onsite Wastewater Treatment (Septic) Systems: pathogens and nutrients.
- Agricultural runoff: pathogens, nutrients, pesticides, herbicides, fertilizers, and sediment.

Table 2. Pollutants of Concern

Waterbody	Watershed	Urban Area	Cause / Pollutant	Source of Pollutant	Section 303(d) List (y/n)	Located in MS4 (y/n)
Box Elder Creek	Upper Cheyenne River Basin	Designated MS4 Area	Fecal Coliform	Urban Runoff Onsite Wastewater Treatment Systems Runoff from Impervious Surfaces Wildlife	n	y
			Escherichia coli	Urban Runoff Onsite Wastewater Treatment Systems Runoff from Impervious Surfaces Wildlife	n	y
			Sediment	Urban Runoff Streambank Erosion Construction/Mining Operations Runoff from Impervious Areas	n	y
			Nutrients (Nitrogen and Phosphorous)	Urban Runoff Onsite Wastewater Treatment Systems Construction/Mining Operations Runoff from Impervious Surfaces Wildlife	n	y
Cheyenne River	Upper Cheyenne River Basin	Designated MS4 Area	Fecal Coliform	Urban Runoff/Storm Sewers Onsite Wastewater Treatment Systems Runoff from Impervious Surfaces Livestock (Grazing or Feeding) Wildlife	y	n
			Escherichia coli	Urban Runoff/Storm Sewers Onsite Wastewater Treatment Systems Runoff from Impervious Surfaces Livestock (Grazing or Feeding) Wildlife	n	n
			Sediment	Urban Runoff/Storm Sewers Construction/Mining Operations Streambank Erosion Runoff from Impervious Areas Livestock (Grazing or Feeding)	n	n
			Nutrients (Nitrogen and Phosphorous)	Urban Runoff/Storm Sewers Onsite Wastewater Treatment Systems Construction Activity Runoff from Impervious Surfaces Livestock (Grazing or Feeding) Wildlife	n	n
Rapid Creek	Upper Cheyenne River Basin	Designated MS4 Area	Fecal Coliform	Urban Runoff/Storm Sewers Onsite Wastewater Treatment Systems Runoff from Impervious Surfaces Livestock (Grazing or Feeding) Wildlife	n	n
			Escherichia coli	Urban Runoff/Storm Sewers Onsite Wastewater Treatment Systems Runoff from Impervious Surfaces Livestock (Grazing or Feeding) Wildlife	n	n
			Sediment	Urban Runoff/Storm Sewers Construction Activity Streambank Erosion Runoff from Impervious Surfaces Livestock (Grazing or Feeding)	n	n
			Nutrients (Nitrogen and Phosphorous)	Urban Runoff/Storm Sewers Onsite Wastewater Treatment Systems Construction Activity Runoff from Impervious Surfaces Livestock (Grazing or Feeding) Wildlife	n	n

MINIMUM CONTROL MEASURES

This plan outlines the six minimum control measures as required by the Phase II Regulations –

- Public Education and Outreach
- Public Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Controls
- Post Construction Stormwater Management for New Development / Redevelopment
- Pollution Prevention/Good Housekeeping of City Operation Facilities

The SWMP is intended to reduce pollutant levels to "maximum extent possible" to protect water quality and comply with the Clean Water Act. The SWMP includes best management practices for the six minimum control measures. Each of the six minimum control measures have measurable goals that are expected to result in reductions in pollutants discharged within the Urbanized Areas of Rapid City.

Public Education and Outreach

USEPA Program Requirement

Distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality.

Current Programs

The City of Rapid City currently provides public education through the Public Works Department, the Community Planning and Development Services Department and the Rapid City Public Library. In addition, the City maintains a website for information on City services, which includes stormwater education for citizens.

Best Management Practice (BMPs) for Public Education and Outreach

Label Storm Drain Inlets

All storm drain inlets located within the City of Rapid City's MS4 boundaries shall be clearly labeled with the message: "NO DUMPING, DRAINS TO CREEK". An example of the label is illustrated in Appendix D.

Explore Partnership Opportunities

The City of Rapid City will explore opportunities to partner with other governmental, public or private entities to pursue cost-effective implementation mechanisms to fulfill minimum control measure requirements. Existing programs will be evaluated to maximize the potential for integration. Partners may include Rapid City Common Council, The local Sierra Club, Local Chapter Audubon Society, Black Hills Homebuilders Association, Construction Industry Center, Rapid City Public Schools, Rapid City Realtors Association, South Dakota School of Mines and Technology, Black Hills Fly Fisherman, Downtown Association, West River Water Development Association, Pennington County, Ellsworth Air Force Base, South Dakota Department of Transportation, South Dakota Department of Environment and Natural Resources, Soil Conservation Service, Meade County/Black Hawk, Neighborhood Watch Groups and United States Geological Society.

Educational Information

Informational brochures, through direct mailings or public locations (Library, City Hall, etc.), will be provided to property owners within the MS4 boundaries. In addition, businesses that are located within the MS4 will receive additional information. These brochures will focus on the impact of stormwater discharges on receiving water bodies and steps that can be taken to reduce pollutants in stormwater runoff. Different combinations of information will be addressed depending upon the audience (residential property owners, business owners or contractors). An example of past brochures that have been mailed is included in Appendix E.

In addition to the direct mailings, an insert will be included with approved building permits. The information on the insert will focus on correct installation of construction site BMPs. These will be included in all building permits within Rapid City. An example of the insert is shown in Appendix F.

Informational brochures will be provided at the City of Rapid City Public Library.

An educational presentation regarding stormwater pollution and prevention for fourth grade classes will be developed. The City will contact several elementary schools in the MS4 area to inquire about interest in the educational presentation/program. Solicitation letters will explain the significance of our local water resources and importance of early education in future protection. The letter will offer the packets and require response prior to school starting in the fall.

Rapid City Cleanup Week

Rapid City Cleanup Week activities will include a household hazardous waste collection component. Public access channels and public service announcements will publicize the information. Flyers will be prepared for this event stressing proper disposal and impacts of improper disposal.

Adopt-a-Creek Program

There are several Adopt-a-Creek programs throughout the UA located in the City. Any ½ mile of the creek can be adopted into the program with the approval of the City. The program recruits volunteers to pick up debris and garbage from both sides of the creek a minimum of twice a year. In addition, volunteers notify the City if there is debris in the creek itself. This program has been in place since 2001 and has been successful in maintaining volunteers.

Website

A webpage specifically addressing stormwater issues is accessible through the City Website http://www.rcgov.org. The webpage provides educational information regarding the storm drain system, pollution sources, pollution prevention, illicit discharges, and construction BMPs.

Implementation Schedule for Public Education and Outreach

Table 3. Public Education and Outreach Implementation Schedule

Program	**BMP**	**Measureable Goal**	**Completion / *Frequency***	**Responsible Party / *Assistance***
Public Education and Outreach	Storm Drain Inlets	Label all storm drain inlets within the MS4	May 2008	Engineering Services Division; *Stormwater Utility Department*
	Storm Drain Inlets	GPS storm drain inlets within the MS4	May 2008	Engineering Services Division; *GIS*
	Storm Drain Inlets	Inspect storm drain inlets for relabeling	*Annually*	Engineering Services Division; *Stormwater Utility Department*
	Storm Drain Inlets	Replace missing storm drain labels / add new labels	*Annually*	Engineering Services Division; *Stormwater Utility Department*
	Storm Drain Inlets	GPS new or missing storm drain inlets locations	*Annually*	Engineering Services Division; *GIS*
Public Education and Outreach	Partnership Opportunities	Compile a list of governmental, public and private agencies for potential partnership opportunities	March 2003	Engineering Services Division
	Partnership Opportunities	Prepare/obtain updates of partner activities that impact stormwater in MS4	*Annually*	Engineering Services Division
Public Education and Outreach	Education Information	Develop informational brochure (s) for residents and business owners regarding stormwater pollution and prevention	2003 *Every three years*	Engineering Services Division
	Education Information	Direct mailings to residents and businesses regarding stormwater pollution impacts	2003 *Every three years*	Engineering Services Division

Public Education and Outreach	Education Information	Develop building permit construction BMP insert	2003 *Annually*	Engineering Services Division
	Education Information	Distribute BMP insert in approved building permits	2003 *Annually*	Engineering Services Division
	Education Information	Contact elementary schools in MS4 area regarding educational stormwater presentation/workshop	March 2004	Engineering Services Division
	Education Information	Presentation (s) on stormwater to fourth grade students	Fall 2005 *Annually*	Engineering Services Division
Public Education and Outreach	Rapid City Cleanup Week	Develop information regarding household hazardous waste disposal	March 2003 *Annually*	Engineering Services Division; *Solid Waste Division*
	Rapid City Cleanup Week	Distribute household hazardous waste disposal information	March 2003 *Annually*	Engineering Services Division; *Solid Waste Division*
Public Education and Outreach	Adopt-a-Creek	Contact organizations that participate in the MS4 area	March 2004	Engineering Services Division
	Adopt-a-Creek	Develop an informational brochure for volunteers regarding stormwater pollution and prevention.	March 2004	Engineering Services Division; *RC Weed & Seed Project*
	Adopt-a-Creek	Provide stormwater brochures to volunteers.	March 2004	Engineering Services Division; *RC Weed & Seed Project*
	Adopt-a-Creek	Contact volunteers to see how many “clean ups” were performed.	*Annually*	Engineering Services Division; *RC Weed & Seed Project*
Public Education and Outreach	Website	Develop website with information regarding stormwater pollution, prevention and BMPs.	March 2003	Engineering Services Division

Public Education and Outreach	Website	Provide information and documentation regarding stormwater requirements and permits.	*Every other year in May*	Engineering Services Division
	Website	Review and update website on a regular basis.	*Annually in December*	Engineering Services Division

Public Involvement

USEPA Program Requirement

Providing opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings where public comment can be taken.

Current Programs

The SWMP is available on the website and can be accessed at any time. Public comments can be taken at City Council, Public Works Committee, Legal & Finance Committee, or Planning Commission meetings. In addition, the public can make comments directly to the Public Works Department staff. Formal requests and comments can be made to the City Council regarding the SWMP during a public hearing in February or March of each year when the annual MS4 update is presented for approval. In addition, comments or requested changes can be made at any time through City Council approval.

Volunteer opportunities are available through the City's Adopt-a-Creek and Rapid City Cleanup Week programs.

Best Management Practice (BMPs) for Public Education and Outreach

State and Local Public Notice Requirements

Notice of meetings of all public bodies in South Dakota are required to provide public notice, with the proposed agenda, that is visible, readable, and accessible for at least an entire 24 hours before any meeting, by posting a copy of the notice, visible to the public, at the principal office of the public body holding the meeting per SDCL §1-25-11.

Public Meetings

The City Council convenes the first and third Monday of each month to address agenda issues. The agenda is posted on the City website at http://www.rcgov.org.

Complaint Hotline

Citizens can call the Public Works Department regarding ordinance and compliance issues within the City of Rapid City. There is a full time Stormwater Specialist and compliance officers that handles issues related to violations of current City ordinances. Ordinance violation issues are handled in a timely matter and involve

coordination with the City and property owner to resolve any issue or violations. In addition, there is a direct phone line specifically for reporting nuisance and ordinance violations.

Volunteer Opportunities

Volunteer opportunities are available through the City's Adopt-a-Creek and Rapid City Cleanup Week programs.

Implementation Schedule for Public Involvement

Table 4. Public Involvement Implementation Schedule

Program	**BMP**	**Measureable Goal**	**Completion / *Frequency***	**Responsible Party / *Assistance***
Public Involvement	State and Local Public Notice Requirement	Hold Public Meetings	Prior to 2003 *Annually*	Engineering Services Division
Public Involvement	Public Meetings	Hold at least one public meeting that addresses stormwater issues (SWMP) per year	2003 *Annually*	Engineering Services Division
Public Involvement	Complaint Hotline	Provide a number that citizens can call to report stormwater issues/pollution.	March 2004	Engineering Services Division
Public Involvement	Volunteer Opportunities	Contact Adopt-a-Creek volunteers	March 2004 *Annually*	Engineering Services Division; *RC Weed & Seed Project*
	Volunteer Opportunities	Develop an informational brochure for Adopt-a-Creek volunteers regarding stormwater pollution and prevention.	2004	Engineering Services Division; *RC Weed & Seed Project*
	Volunteer Opportunities	Provide stormwater brochures to Adopt-a-Creek volunteers.	2004	Engineering Services Division; *RC Weed & Seed Project*
	Volunteer Opportunities	Contact Adopt-a-Creek volunteers to see how many "clean ups" were performed.	*Annually*	Engineering Services Division; *RC Weed & Seed Project*

Illicit Discharge Detection and Elimination

USEPA Program Requirement

Developing and implementing a plan to detect and eliminate illicit discharge to the storm sewer system (includes developing a system map and informing the community about hazards associated with illegal discharges and improper disposal of waste).

Current Programs

The City of Rapid City Illicit Discharge Detection and Elimination (IDDE) Program was completed in January 2008. The IDDE program will be administered by the Public Works Engineering Services Division. The stormwater runoff ordinance will be the legal authority to regulate illicit discharges. The Engineering Services Division will designate various departments and divisions (Streets, Water Reclamation, Parks, etc) with the responsibility of searching for illicit discharge problems in the field, tracking these illicit discharges and reporting back to the Engineering Services with this information.

Local watershed groups such as the Black Hills Fly Fishers and Rapid Creek Adopt-a-Creek will be approached to help with outfall inspections. Engineering Services will take all citizen complaints and direct the appropriate department or division to follow-up. Engineering Services will document the inspection, local management response and enforcement efforts.

Best Management Practices (BMPs) for Illicit Discharge Detection and Elimination

Complete Storm Sewer Map

The City has developed a Geographic Information Systems (GIS) storm sewer system map showing the location of all stormwater inlets, drainage structures, outfalls and the names and locations of all Waters of the State that receive discharges from those outfalls. The complete maps of the entire system are available digitally on the City Staff Version of RapidMap and all departments have a printed set of plans at a scale of 1"=500'. An example of the printed sheets is located in Appendix G.

Illicit Discharge Detection Plan

The City developed a plan to detect and address non-stormwater discharges, including illegal dumping into the storm sewer system. The plan will involve annual dry weather field screening for non-stormwater flows. The screening will include field evaluation based upon color, odor, or visually observed characteristics as indicators of illicit sources. A copy of the IDDE Program is included in Appendix H.

Direct Mailings on Illicit Discharges and Improper Disposal of Wastes

The City will develop a public education effort to inform employees, business and property owners of hazards associated with illegal discharges and improper disposal of waste.

Operating procedures to respond to hazardous and non-hazardous spills

Develop standard operating procedure for all City departments to respond to hazardous and non-hazardous spills within the City. This will include notification, tracking, calling tree and responsibility procedures

On-site Wastewater Treatment Systems Pump and Observation Requirement

In 2006, the City of Rapid City enacted an ordinance requiring the pumping and inspection of on-site wastewater treatment systems (OSWTS) every three years within city limits and one-mile outside city limits. As part of this requirement, any system found to be failing had to be repaired. In 2010, the City changed their pumping and inspection requirement from every three years to every six years. To date, several improvements have been completed on OSWTS found to be failing. As properties are sold and/or transferred; pumping, inspection and repairs on OSWTS will continue to be completed.

Implementation Schedule for Illicit Discharge Detection and Elimination

Table 5. Illicit Discharge Detection and Elimination Implementation Schedule

Program	**BMP**	**Measureable Goal**	**Completion / *Frequency***	**Responsible Party / *Assistance***
Illicit Discharge Detection and Elimination	Complete Storm Sewer Map	Map all storm sewer inlets, drainage structures, outfalls and identify waters of the state	December 2007 *GIS Annually- Hardcopy biannually*	Engineering Services Division; *GIS*
Illicit Discharge Detection and Elimination	Illicit Discharge Detection Plan	Develop a plan	2004 *January 2008*	Engineering Services Division
Illicit Discharge Detection and Elimination	Illicit Discharge Detection Plan	Perform dry weather screenings	2004 *Annually in November or December*	Engineering Services Division; *Stormwater Utility Department*
	Direct Mailings – Public Education	Develop/acquire education materials	2004 *Annually*	Engineering Services Division
Illicit Discharge Detection and Elimination	Direct Mailings – Public Education	Distribute materials to employees.	2004 *Annually*	Engineering Services Division
	Direct Mailings – Public Education	Distribute materials to businesses.	2004 *Annually*	Engineering Services Division

Illicit Discharge Detection and Elimination	Direct Mailings – Public Education	Distribute materials to property owners.	2004 *Annually*	Engineering Services Division
Illicit Discharge Detection and Elimination	Operating procedures to respond to spills	Develop a plan	2004 *February 2015*	Engineering Services Division
	Operating procedures to respond to spills	Implement plan	2004 *February 2015*	Engineering Services Division
Illicit Discharge Detection and Elimination	On-site Wastewater Treatment Systems	Develop requirements for pumping and inspection of existing OSWTS.	2006 *2009*	Engineering Services Division
	On-site Wastewater Treatment Systems	Pump and observe OSWTS.	2006 *Annually*	Engineering Services Division

Construction Site Stormwater Controls

USEPA Program Requirement

Developing, implementing, and enforcing an erosion and sediment control program for construction activities that disturb one or more acres of land (controls could include silt fences and temporary stormwater detention ponds).

Current Programs

Title 8 Chapter 8.46 of the City of Rapid City's Code of Ordinances requires any person performing earth disturbing activities greater than 300 cubic yards submit an Erosion and Sediment Control Permit Application. The permit application must include a plan and report per the requirements of the City's Stormwater Quality Manual Section 1.13 Erosion and Sediment Control Plan. The Erosion and Sediment Control permit and plan are also required for subdivisions and City utility installations. The permit application is reviewed and approved by the Public Works Department. A copy of the permit application is located in Appendix I.

Erosion and Sediment BMP's are described in the City's Stormwater Quality Manual, Chapter 1 (2009). The Stormwater Quality Manual can be accessed on the City of Rapid City Website.

Best Management Practices (BMPs) for Construction Site Stormwater Control

Plan Review

As part of the Erosion and Sediment Control review process, construction plans will be evaluated to determine the adequacy of the proposed BMPS on the site and how they will prevent stormwater pollution and water quality impacts. A review checklist will be utilized for each Erosion and Sediment Control permit application submitted. A copy of the checklist is available in Appendix J. The checklist will address the project description, site map, stormwater controls, inspections, and water quality impacts to impaired waters of the state. Comments will be made on the checklist sheet of any concerns that the City may have. A copy of the complete Erosion and Sediment Control permit will be routed to any affected departments and/or agencies for comments. Conditions may be placed on the permit in order to prevent potential water quality impacts.

Project Inspection Procedures

The Erosion and Sediment Control permit application shall include a schedule of regular inspections during construction. The permittee shall assure that qualified personnel inspect the site at least once every seven calendar days and within 24 hours of the end of a storm that is one-half (0.5) inch or greater to confirm plan compliance. Based on the results of the inspection, the plan shall be revised and implemented, in no case later than seven calendar days following the inspection.

The inspection shall look for evidence of or the potential for pollutants entering the drainage system or leaving the site and shall include disturbed areas of the construction site that have not been finally stabilize, areas used for storage of materials, structural and nonstructural control measures, and locations where vehicles enter or exit the site.

A report summarizing the areas inspected, name(s) and title(s) of personnel making the inspection, the date(s) of the inspection, major observations, and corrective actions taken shall be made and retained as part of the plan for a least three years. Such reports shall identify any incidents of noncompliance. Where an inspection does not identify any incidents of noncompliance, the report shall contain a certification that the site is in compliance with the plan and permit.

Compliance documentation is the responsibility of the Contractor/Developer. The inspection report shall be made available to the City inspector upon request. The City will utilize the inspection forms located in Appendix K.

Building Permit Insert

A building permit information insert has been developed and will be made available with all new building permits in the City. This insert will address proper installation of erosion control measures during construction and the importance of erosion and sediment control for prevention of stormwater pollution. A copy of the Building Permit insert is located in Appendix F.

Implementation Schedule for Construction Site Stormwater Controls

Table 6. Implementation Schedule for Construction Site Stormwater Controls

Program	**BMP**	**Measureable Goal**	**Completion / *Frequency***	**Responsible Party / *Assistance***
Construction Site Stormwater Controls	Plan Review	Develop a checklist for Site Plan/SWPPP Review	March 2015	Engineering Services Division
	Plan Review	Utilize the checklist for each ESC Permit submitted.	*As permits submitted*	Engineering Services Division
Construction Site Stormwater Controls	Project Inspection Procedures	Develop ESC Permit Inspection Form.	2007 *Update as necessary*	Engineering Services Division
	Project Inspection Procedures	Inspection of sites which have a disturbance of 300 cy or greater.	*Inspect all site issued permits*	Engineering Services Division; *Stormwater Specialist*
	Project Inspection Procedures	Require contractors/ responsible person to maintain weekly inspection forms	2007, *ongoing*	Engineering Services Division *Stormwater Specialist*
Construction Site Stormwater Controls	Building Permit Inserts	Develop building permit construction BMP insert.	March 2015	Engineering Services Division
	Building Permit Inserts	Distribute BMP insert in approved building permits.	*As permits submitted*	Engineering Services Division;*Community Development Department*
Construction Site Stormwater Controls	Air Quality Permits	Issue Air Quality Permits for land disturbances	2000, *ongoing*	Community Development Department, Air Quality Division

Post Construction Stormwater Management for New Development/Redevelopment

USEPA Program Requirement

Developing, implementing, and enforcing a program to address discharges of post-construction stormwater runoff from new development and redevelopment areas. Applicable controls could include preventative actions such as protecting sensitive areas or the use of structural BMPs.

Current Programs

The City of Rapid City has programs in place to manage growth within the MS4. The City's Community Development Department regulates development and redevelopment within Rapid City and throughout the three-mile platting jurisdiction, including zoning and the issuance of Building Permits and Floodplain Development Permits. The City's Engineering Services Division is responsible for review of developer designs and inspection of subdivision infrastructure construction.

Title 8 Chapter 8.48, of the City of Rapid City's Code of Ordinances regulates post construction site stormwater runoff. Post construction stormwater quality BMP's are described in the City's Stormwater Quality Manual, Chapter 2 (2009). The Stormwater Quality Manual can be accessed on the City of Rapid City Website.

Title 16 Subdivisions, of the City of Rapid City's Code of Ordinances provides criteria for required improvements during the development of property. These improvements are inspected frequently by the City and upon final completion and acceptance. Covenant Agreements are required for long-term BMP operation and maintenance prior to Final Plat approval. If a Covenant Agreement is not in place, the responsibility for the maintenance will fall upon the property owner where the BMP is located.

Title 17 Zoning, of the City of Rapid City's Code of Ordinances provides standards and regulations to encourage the use of lands and natural resources within the MS4 area in accordance their suitability for particular purposes and to conserve resources.

Best Management Practices for Post Construction Stormwater Management for New Development/Redevelopment

Ordinance and Stormwater Quality Manual

The City will evaluate the current zoning ordinances and the Stormwater Quality Manual for opportunities to expand post-construction stormwater management on all construction sites which require development permits.

Inspection Programs for Post-Construction BMPs

The City of Rapid City will inspect the construction of all post-construction BMPs and final accept the completed BMP within the MS4. All existing BMPs installed for post-construction stormwater quality and control will be inspected annually and if discrepancies are found, notification will be given to the responsible party (City or Private) to take corrective measures.

List of Permanent Structural and Non-structural BMPs

The City will identify and evaluate existing permanent structural and non-structural BMPs located in the MS4. In addition, a list of existing BMPs with a map will be developed and updated as new BMPs are implemented and constructed.

Maintenance Plan for Non-structural BMPs

The City will develop maintenance activities, schedules, and long-term inspection procedures for controls to reduce contaminants. The City will prepare a checklist for annual inspection and cleaning of permanent stormwater controls and conveyances. This checklist will include the number of basins cleaned; number of miles swept, and anticipated frequency of maintenance activities.

Educational Program concerning Minimization of Water Quality Impacts

The City will incorporate a program for developers and the public about BMP designs that minimize water quality impacts. The City will utilize the website and training materials to provide information about minimization of water quality impacts.

Implementation Schedule for Post Construction Stormwater Management

Table 7. Implementation Schedule for Post Construction Stormwater Management

Program	**BMP**	**Measureable Goal**	**Completion / *Frequency***	**Responsible Party / *Assistance***
Post Construction Stormwater Management	Ordinance and Stormwater Quality Manual	Evaluate existing requirements and identify needed updates.	2007, 2009 *Annually*	Engineering Services Division
	Ordinance and Stormwater Quality Manual	Update and make changes to existing ordinance as needed.	*Annually*	Engineering Services Division
Post Construction Stormwater Management	Inspection Program	Develop a post construction inspection program.	2007	Engineering Services Division
	Inspection Program	Inspection of post construction BMPs.	*Annually*	Engineering Services Division; *Stormwater Specialist*
Post Construction Stormwater Management	List of BMPs	Develop a list of permanent structural and non-structural BMPs.	2007, 2009 *Annually*	Engineering Services Division
	List of BMPs	Develop a maintenance plan for non-structural BMPs.	2007 *Annually*	Engineering Services Division
Post Construction Stormwater Management	Water Quality Impacts	Develop an educational program regarding water quality impacts.	2004	Engineering Services Division
	Water Quality Impacts	Distribute educational materials regarding water quality impacts.	*Annually*	Engineering Services Division

Pollution Prevention/Good Housekeeping of City Operation Facilities

USEPA Program Requirement

Developing and implementing a program with the goal of preventing or reducing pollutant runoff from municipal operations. The program must include staff training on pollution prevention measures and techniques.

Current Programs

The City of Rapid City has prepared (HDR, March 2008) and implemented a Stormwater Pollution Prevention Plan (SWPPP) for City Operation Facilities including: Engineering Administration Building, City Golf Course Properties, Parks Department, Street Department, Transit Division, Water/Sewer Maintenance Department, Water Plant, and Water Reclamation Facility. A copy of the SWPPP's are located in Appendix L. The plans include:

- Site drainage maps,
- Inventory of significant materials that are potentially exposed to stormwater,
- Selections of BMPs that eliminate or minimize pollution of stormwater at the subject site,
- Evaluation of all discharge conveyances from the subject site,
- Development of a preventive maintenance program and Spill Prevention Control and Countermeasure Plan,
- Development of an employee training program,
- Identification of personnel responsible for managing and implementing the SWPPP

The City of Rapid City has prepared Spill Prevention and Response Plans for City Operation Facilities. A copy is included in Appendix M.

On an annually basis City staff pursue further education to maintain pollution prevention/good housekeeping of city operational facilities. City staff will attend training sessions and remain certified in Stormwater Regulation and Erosion and Sediment Control.

Best Management Practices (BMPs) for City Operation Facilities

Source Controls

The City will evaluate the current BMPs for existing City Operation Facilities and target areas of improvement. A list of all currently implemented source control measures will be developed. Maintenance activities, schedules and long-term inspection procedures for structural and nonstructural stormwater controls to reduce pollutants discharge from the facilities will be evaluated. Current methods and control for reducing discharges from the facilities will be evaluated.

Good Housekeeping Training Component

City staff will attend training sessions and remain certified in Stormwater Regulation and Erosion and Sediment Control. This training will promote awareness of pollution reduction methods, new technologies, proper SWPPP review and writing procedures and water quality improvement methods.

Implementation Schedule for Pollution Prevention/Good Housekeeping

Table 8. Implementation Schedule for Pollution Prevention/Good Housekeeping

Program	**BMP**	**Measureable Goal**	**Completion / *Frequency***	**Responsible Party / *Assistance***
Pollution Prevention/Good Housekeeping	Current Source Controls	Evaluate Current Source Controls	2008	Engineering Services Division; *All City Departments*
	Current Source Controls	Review SWPPP for each facility	*Annually*	Engineering Services Division; *All City Departments*
Pollution Prevention/Good Housekeeping	Training	Attend training seminars and/or webinars.	*Annually*	Engineering Services Division; *All City Departments*
	Training	Maintain certifications	*Annually*	Engineering Services Division; *All City Departments*

Reporting and Program/Plan Maintenance

The City of Rapid City will submit an annual report to the South Dakota Department of Environment and Natural Resources for each plan year. As part of the Annual Report submission, the SWMP will be evaluated and updated, if needed. Updates to the SWMP or Stormwater Quality Manual will be included in the Annual Report.

REFERENCES

South Dakota Department of Environmental and Natural Resources, Administrative Rules for Surface Water Quality Standards, *http://denr.sd.gov/des/sw/swqstandards.aspx*

South Dakota Department of Environmental and Natural Resources, 2018 South Dakota Integrated Report for Surface Water Quality Assessment, at *http://denr.sd.gov/documents/18irfinal.pdf*

United States Department of Commerce. *Census Bureau*

United States Environmental Protection Agency. *National Pollutant Discharge Elimination System (NPDES)* https://www.epa.gov/npdes