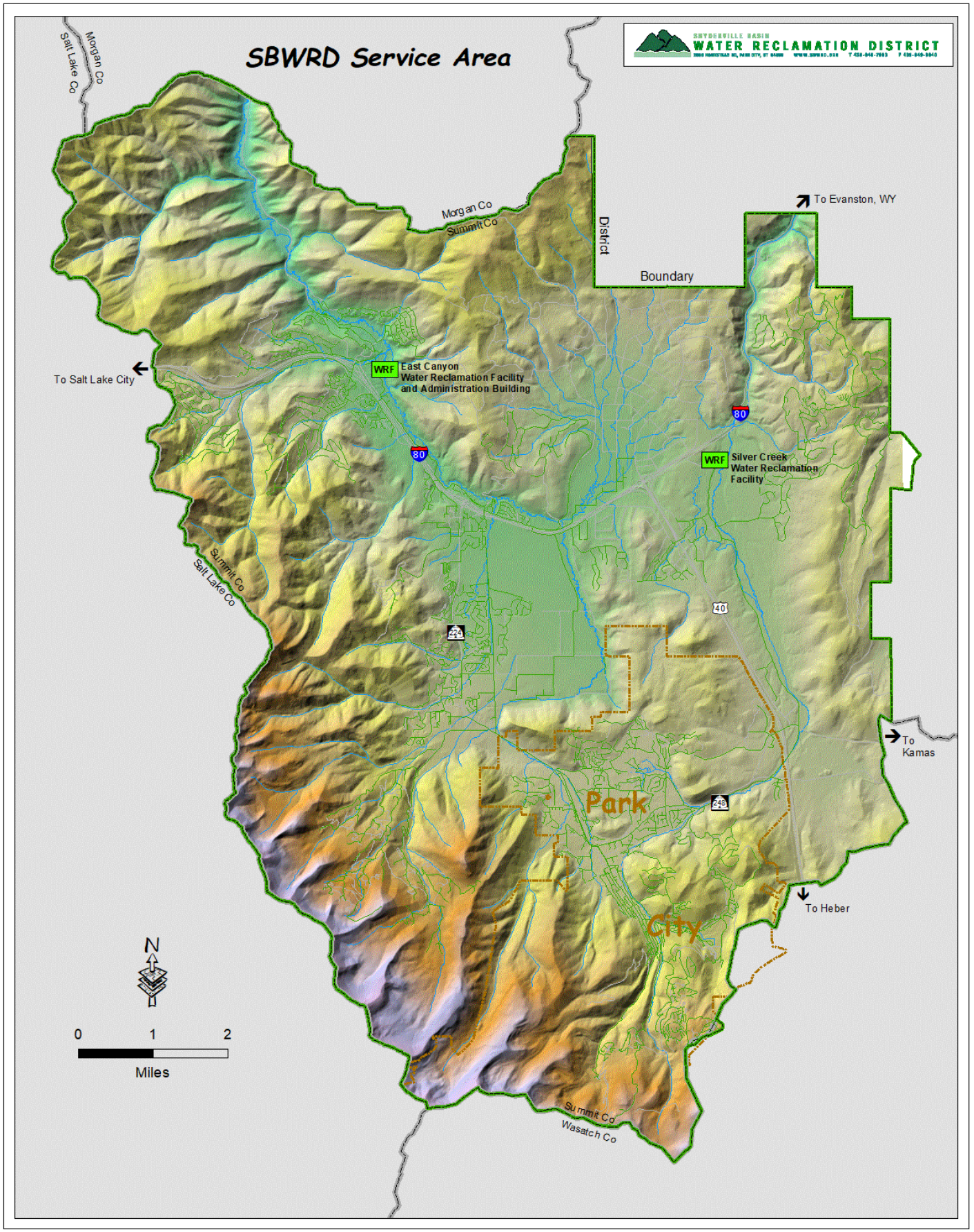
SNYDERVILLE BASIN
WATER
RECLAMATION
DISTRICT
PARK CITY, UTAH

INFRASTRUCTURE ASSET MANAGEMENT PLAN

Updated by District Staff, March,2022

THE QUALITY
OF OUR WATER
REFLECTS THE
QUALITY OF OUR
COMMUNITY



SBWRD Service Area. Green lines are wastewater collection pipes. WRF=Water Reclamation Facility.

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1.0 EXECUTIVE SUMMARY

Wastewater service is necessary for protecting human health and the environment. The infrastructure assets owned by the Snyderville Basin Water Reclamation District (SBWRD) represent a major investment by the community to provide effective and efficient wastewater service. This document, first approved by the Board of Trustees June 2003, describes the District's Asset Management Plan (AMP) for managing those, and future, infrastructure assets at an effective and efficient level of service set by the Board of Trustees. The specific purposes of this Plan are:

- Demonstrate responsible management of the District's assets
- Enable the District to achieve its mission and to implement the guiding principles established by the Board of Trustees
- Comply with the Government Accounting Standards Board (GASB) Statement 34
- Comply with EPA and State operation, maintenance, and management guidelines, including the State of Utah's, Water Quality Board Rule R317-801, Utah Sewer Management Program (USMP)
- Monitor changes in the service potential of assets and identify renewal and maintenance needs
- Determine and manage risk of asset failure
- Provide a focus for on-going development of good asset management practices
- Inform our customers how the District's infrastructure assets are being managed

This plan formalizes the District's strategic asset needs and is intended to be a dynamic document, with updates generated annually, or as needed. This document and all future revisions will be posted on the District's website following a public notice and approval by the Board of Trustees.

2.0 INTRODUCTION

During the last 80 years the community of Park City and the Snyderville Basin have invested millions of dollars in the wastewater system. The majority of this investment was necessary to accommodate the substantial growth that has occurred over the last 4 decades.

The EPA reports that much of the nation's infrastructure is deteriorating due to old age and the lack of maintenance. Because of the relatively young age of the District's assets, proper design requirements and advancements in specialized inspection and repair technologies, the District has a unique opportunity to prevent this same scenario. It has been demonstrated that the application of asset management pays off over the long term by reducing overall costs and yielding more efficient and effective wastewater services.

Effective asset management demonstrates that the District is systematically caring for the assets that have been paid for by its customers. The end result of an effective AMP is that the District's customers will pay lower rates, receive better service and the environment and public health will be better protected.

3.0 ASSET MANAGEMENT STRATEGY

3.1 Background

3.1.1 Purpose of Plan

The overall purpose of Asset Management planning is:

To provide high quality service in the most cost-effective manner for existing and future customers while protecting human health and the environment.

This Asset Management Plan (AMP) provides a formal record of the asset management systems, practices and management strategies adopted by the District. This Plan is based on existing levels of service, currently available information and the knowledge of staff.

Having well documented and implemented procedures demonstrates that the District is openly fulfilling its duty of care to the users of the District's assets. The design of this AMP is based on the District's desire to comply with and surpass the requirements of GASB 34 and EPA/State regulations. Australia and New Zealand have pioneered the current world best practices in asset management. The utilities of those countries have achieved many benefits through the implementation of those tested asset management practices. The District is following the general approach of the International Infrastructure Management Manual (IIMM), 5th Edition, which is one of several leading manuals in the world and, EPA's Asset Management Resources. Additionally, the District uses the Australian Infrastructure Financial Management Manual (AIFMM) 2nd Edition, as a resource to deliver sustainable infrastructure services.

The basic elements of this Asset Management Plan are:

- Asset Management Strategy
- Establishing a Level of Service
- Demand Forecast
- Asset Management System
- Life Cycle Analysis

3.1.2 Assets Addressed in this Asset Management Plan (AMP)

The total wastewater system is comprised of all the District's assets. The District acquires, maintains and operates only those assets that are necessary to effectively serve the wastewater collection and reclamation needs of the community while simultaneously satisfying regulatory requirements. The AMP addresses the infrastructure assets of the entire collection system and reclamation facilities.
Infrastructure assets are the necessary parts of the stationary systems that are critical to the collection and treatment of wastewater. Those assets are intended to persist indefinitely. The AMP provides that the District's infrastructure assets be maintained at a specified level of service through continual monitoring, staff training, replacement and renewal. The infrastructure assets and their components that are covered by the AMP are:

- Collection Pipes (gravity, force main, and low pressure)
- Manholes and other appurtenances
- Trunkline Support Facility (odor control)

- Pump Stations
- Reclamation Facilities

Non-infrastructure assets, which are not covered by the AMP, include (but are not limited to) vehicles, information technology equipment, tools, heavy equipment and non-infrastructure buildings. Those assets serve the community in other necessary and important roles such as, supporting the installation, operation and maintenance of infrastructure assets, regulatory monitoring and reporting, customer care operations and financial tracking, billing and reporting.

3.2 Snyderville Basin Water Reclamation District (SBWRD) Assets

The Snyderville Basin Water Reclamation District provides wastewater collection and treatment service for the resort community of Park City and the majority of the Snyderville Basin (western Summit County). The District accomplishes this through a system of pipelines and pump stations located throughout the Park City and Snyderville Basin which connect to two water reclamation facilities operated by the District with a current combined monthly maximum capacity of 9.0 million gallons per day. Future expansions will most likely increase the monthly maximum capacity to 11.0 million gallons per day.

The mountainous terrain within the District poses engineering and operation challenges that require collection system solutions that can cost more to design, construct, operate and maintain than those in a landscape that is less mountainous.

Scope and replacement value of infrastructure assets covered by this plan:

Asset Type	**Quantity** **(as of 12/31/2021)**	**Replacement Value**
Collection System Pipes	302 miles	$318.9 Million
Collection System Structures	7317 structures	$71.1 Million
Pump Stations	10 stations	$6 Million
Trunkline Support Facility	1 facility	$1.2 Million
Reclamation Facilities	2 facilities	$166.6 Million
TOTAL		$563.8Million

3.3 Utah Sewer Management Program (USMP)

The State of Utah, Water Quality Board issued Rule R317-801 that requires the District to develop a sewer system management program. Since the District had a pre-existing sewer management plan in the form of an Asset Management Plan, the requirement of the USMP have been referenced and incorporated into this AMP.

3.3.1 Notice of Intent Requirement

The District is required to operate under the State of Utah's General Permit for sewer collection systems. The District has submitted a Notice of Intent to the Division of Water Quality by the required date.

3.3.2 State of Utah's General Permit for Sewer Collection System Provisions

The District is prohibited from allowing any Sanitary Sewer Overflow (SSO) from entering waters of the State of Utah or create a health hazard, nuisance, or is a threat to the environment. This AMP has been designed to minimize the probability of SSO from occurring.

3.3.3 District Information

Snyderville Basin Water Reclamation District
2800 Homestead Road
Park City, UT 84098
435-649-7993
After Hours: 435-645-2562
inquires@sbwrd.org

3.3.3.1 Important Contact Information

General Manager: Michael Luers
435-649-7993x223
Responsible for the overall operation of the District

Operation Manager: Chad Burrell
435-640-7993x229
Responsible for the operation of the reclamation facilities
Operation Manager is responsible to report sanitary overflows (SSO) within the reclamation facilities to the General Manager. Jointly, they will follow the SSO Standard Operating Procedure and report the SSO to the DWQ, Health Department, Water and Stormwater purveyors and other entities as may be required.

Collections System Manager: Dan Olson
435-649-7993x227
Responsible for the operation of the collection system
Collections Manager is responsible to report sanitary overflows (SSO) that occur from the collection system to the General Manager. Jointly, they will follow the SSO Standard Operating Procedure and report the SSO to the DWQ, Health Department, Water and Stormwater purveyors and other entities as may be required.

District Engineer: Kevin Berkley
435-649-7993x236
Responsible for the Engineering Department

Finance Manager: Bryan Steele
435-649-7993x226
Responsible for the Finance Department

3.3.4 District Legal and Regulatory Authority

Section 3.3.4.1 and 3.3.4.2 reference documents that establish regulatory authority for the District.

3.3.4.1 District Development Procedures, Design Standards and Construction Specifications for Wastewater Facilities" dated April 20, 2020

These requirements exceed the requirements of State of Utah Water Quality Board R-317-3.

3.3.4.2 Resolution #120 dated October 2013

Approving and enacting regulations for an industrial pretreatment program, including rules, regulations and penalties for violations of pretreatment rules, regulations and requirements.

3.3.5 SSO Internal Audit

3.3.5.1 The District will conduct an internal audit of all SSO's every three years

Every three years SBWRD will review all SSO events as well as review the effectiveness of its Sewer System Management Plan (SSMP), deficiencies in the AMP and any actions required to correct deficiencies in the AMP. As part of the three-year review of SSO events, SBWRD will monitor SSO trends for frequency, location, and volume. Updates to the AMP will be made as necessary based on the SSO evaluation.

3.3.6 Certification, Submission and Implementation Requirements

The District has certified to the DWQ that a SSMP, aka asset management plan, has been developed and implemented as required.

4.0 LEVELS OF SERVICE

The AMP plan defines key levels of service for wastewater services and identifies procedures for costing future operations, maintenance, and renewal and capital requirements to provide those levels of service. The following key target levels of service have been determined by the Board of Trustees as the minimum level of service that the District will provide:

Key Service Criteria	Performance Indicators	Target Levels of Service
Condition	Condition assessment of infrastructure assets	Total Asset Rating (TAR) of 1, 2, or 3. (see Section 4.1 below)
Capacity	Overflows within system	No overflows due to insufficient capacity
Delivery	Number blockages/year	<1/year/100 miles of pipe
Quality	District's design standards	100% compliance of new line extensions, renewals and replacements
Regulatory Compliance	Compliance with state discharge permits	>99.5%
Responsiveness	Time to correct, repair or restore service (barring construction)	<4 hours
Demand	Capacity to meet current and future demand	Capacity available at reclamation facilities when needed
Customer Satisfaction	Percentage of customers rating overall service as satisfactory or better	>85%

4.1 Level of Service

The condition of all District infrastructure assets will be rated, on an annual basis, according to the assessment scales given in Tables 1, 2, 3, and 4. Level of Service is derived directly from the Total Asset Rating (TAR) as given in the tables below. TAR is a mathematical and logical combination of an asset's condition and its criticality (criticality is discussed in section 4.2). The Board of Trustees has set a minimum target Level of Service of 3 (Good) for all infrastructure assets. Assets with a Level of Service that do not satisfy the target Level of Service are sorted by Level of Service and criticality to prioritize assets for renewal or replacement.

4.2 Risk Management

The District has developed a risk management methodology to account for risk factors that are not directly related to the condition of the asset. A criticality score, that ranges from 1-5, is calculated for each asset. The criticality score is a mathematical and logical combination of certain metrics that: 1) serve as proxies for the known risk factors and, 2) aggregate the known risk factors into a single risk (criticality) score. Because of significant differences between the assets of the wastewater collection and reclamation systems, the known risk factors for those two systems are measured according to two different sets of criticality metrics. The risk factors for the wastewater collection system are: Public/Employee Health and Safety, Environmental, Financial, Customer Service, and Difficulty of Repair. The risk factors for the reclamation facilities are: Human Health, Environmental and Regulatory, and Environmental Management System Processes.

Table 1. Pipe Segment Condition Grading Scale.

Observed Defect	Grade	Condition	Description	Weight
Cracks/fracture	1	None	None	13%
(longitudinal &/or circular)	2	Slight	Integrity Fine	
	3	Minor	Minor, Single, Integrity OK	
	4	Major	Major or Multiple, Integrity Questionable	
	5	Extensive	Failed, Numerous	
Broken, Holes, Pieces Missing	1	None	None	13%
Puncture,	2	Slight	Slight, Single Noticeable	
	3	Minor	Minor, Singe Hole or Puncture, Small Void	
	4	Major	Major, Punctures or Pieces Missing, Large Void	
	5	Extensive	Failed, Multiple, Major Holes, Pieces Missing, Exposed Earth	
Corrosion/Deterioration	1	None	None	12%
	2	Slight	Superficial (Normal Wear & Tear)	
	3	Minor	Deteriorated Surface, Exposed Aggregate	
	4	Major	Exposed and corroded Rebar, No Voids	
	5	Extensive	Failed, Exposed Rebar & Earth, Large Voids	
Grease	1	None	None	10%
	2	Slight	Some Accumulation along Flowline of Pipe Wall	
	3	Minor	Significant Accumulation at Flowline of Pipe Wall	
	4	Major	Large Accumulation, Flow Restricted	
	5	Extensive	Failed, Fully Blocked	
Displaced/Offset Joints	1	None	None	8%
	2	Slight	Noticeable	
	3	Minor	1/2 Wall Thickness Visible, No Obvious Infiltration	
	4	Major	Full Width of Wall Thickness, and/or Infiltration	
	5	Extensive	Failed, 1.5 Times Wall Thickness, Exposed Earth	
Defective Joint	1	None	None	8%
	2	Slight	Noticeable, Pipe not "Seated"	
	3	Minor	Noticeable, Pipes Still Together and Sealed	
	4	Major	Wide, No Exposed Earth, Gasket Visible and/or Infiltration	
	5	Extensive	Failed, Exposed Earth	
Roots	1	None	None	8%
	2	None	None	
	3	None	None	
	4	Minor	Some, Impact on Performance if Ignored Over Time	
	5	Major	Significant Accumulation, Flow Restricted	
Debris	1	None	None	7%
	2	Slight	Slight Will be Removed with Normal Cleaning	
	3	Minor	Minor, Can be Removed, Issue Work Order	
	4	Major	Major, Can Not be Removed with Normal Cleaning	
	5	Extensive	Significant, Flow in Pipe Restricted	
Scale/encrustation	1	None	None	6%
	2	Slight	Present, Light at Joints, at Cracks	
	3	Minor	Present, Medium at Joints, at Cracks	
	4	Major	Present, Heavy 1-inch Thick, Steady Stream Infiltration	
	5	Extensive	Failed, Hard, Extensive, Flow Restricted	
Belly	1	None	None	5%
	2	Slight	Slight Ponding of Water, Flat Grade	
	3	Minor	Noticeable, 2 inches in Depth	
	4	Major	Wide Ponding, 3 inches or Greater in Depth	
	5	Extensive	Failed, Camera Underwater	
Defective Lateral Connection	1	None	None	5%
	2	Slight	Poor Connection, Rough Irregular	
	3	Minor	Protruding Less Than 1 inch, Still Providing Service	
	4	Major	Protruding More Than 2-inch, Poor Connection, Rough, Irregular	
	5	Extensive	Failed, Not Connected, Exposed Earth, Protruding 50% into Pipe	
Deformed Pipe / Dimples	1	None	None	3%
(Horizontal/vertical)	2	Slight	Noticeable Slight Oval Shape or Dimple	
	3	Minor	Minor, About 30 % Shape Loss, Oval Shape, Squashing or Dimple	
	4	Major	Major, About 40 % Shape Loss, Oval Shape, Squashing or Dimple	
	5	Extensive	Failed, 50% or Greater of Shape Loss	
Infiltration	1	None	None	2%
	2	Slight	Drip	
	3	Minor	Trickle	
	4	Major	Stream	
	5	Extensive	Failed, Severe, Gusher	

Table 2. Manhole Condition Grading Scale.

Asset Observed	Grade	Condition	Description	Weight
Accessibility	1	Excellent	Accessible	8.6%
	3	Good	Vegetation, Other Material Interference Still Serviceable	
	5	Very Poor	Buried and Not Found or Lid Cannot Be Removed	
Collar	1	Excellent	Excellent, New Condition	7.6%
Asphalt/Concrete	2	Very Good	Asphalt: Settling, Minor Cracks, Concrete: Spalding, Minor Cracks	
	3	Good	Asphalt: Mod. Settling Multiple Mod. Cracks, Concrete: Multi Mod. Crack & Spaulding	
	4	Poor	Asphalt Failing, Major Cracks, Con: Major Multiple Cracks or Spaulding	
	5	Very Poor	Need Immediate Replacement	
Surface Grade	1	Excellent	Excellent, New Condition	9.5%
	2	Very Good	Slightly Below Grade, Superficial Scrapes or Spaulding	
	3	Good	Level with Existing Grade, Superficial Scrapes or Spaulding No Damage	
	4	Poor	Frame Exposed Above Grade, Below Grade 2+ Inches	
	5	Very Poor	M.H. Buried, Exposed but Well Below or Above Grade in Roadway, Needs Immediate Adjustment	
Metal Risers	1	Excellent	Excellent, New Condition	2.9%
	2	Very Good	Light Corrosion	
	3	Good	Moderate Corrosion	
	4	Poor	Significant Corrosion, Cracked	
	5	Very Poor	Significant Corrosion, Cracked, Broken, Pieces Missing, Needs Replaced	
Brick	1	Excellent	Excellent, New Condition	7.6%
	2	Very Good	Slight Cracking (Bricks & Grout)	
	3	Good	Broken, Small Pieces Missing (Brick & Grout)	
	4	Poor	Moderate Corrosion, Bokken, Missing Pieces, Exposed Earth	
	5	Very Poor	Significant Corrosion, Broken, Missing Pieces, Exposed Earth, Needs Replaced	
Grade Rings	1	Excellent	Excellent, New Condition	7.6%
Concrete, Cretex	2	Very Good	Slight Cracks, Light Corrosion	
	3	Good	Multiple Cracks, Light to Moderate Corrosion	
	4	Poor	Cracked, Broken Concrete, Missing Pieces, Exposed Rebar	
	5	Very Poor	Failing, Needs Replaced	
WhirlyGIG	1	Excellent	Excellent, New Condition	7.6%
	3	Good	Slight Cracks	
	5	Very Poor	Needs Replaced	
Cover	1	Excellent	Excellent, New Condition	9.5%
	2	Very Good	Light Corrosion, Minimal Wear	
	3	Good	Light Wear Superficial Damage	
	4	Poor	Loose, Not Seated, Moderate to Significant Corrosion	
	5	Very Poor	Cracked, Broken, Significant Corrosion, Needs Replaced	
Frame	1	Excellent	Excellent, New Condition	9.5%
	2	Very Good	Light Corrosion, Superficial Wear	
	3	Good	Light Wearing, Superficial Damage, Light to Moderate Corrosion	
	4	Poor	Cracked, Broken, Signs of Plow Damage, Moderate to Significant Corrosion	
	5	Very Poor	Bent, Broken, Pieces Missing, Significant Corrosion, Need Replaced	
Cone	1	Excellent	Excellent, New Condition	6.7%
	2	Very Good	Previous Minor Repairs, Minor Chips, Slight Cracks, Light Corrosion	
	3	Good	Small Cracks, Minor Missing Pieces, Light to Moderate Corrosion	
	4	Poor	Major Cracks, Pieces Missing, Exposed Rebar, Moderate to Significant Corrosion	
	5	Very Poor	Major Damage, Exposed Earth, Questionable Integrity, Need Replaced	
Sections	1	Excellent	Excellent, New Condition	4.8%
	2	Very Good	Previous Minor Repairs, Minor Chips, Slight Cracks, Light Corrosion	
	3	Good	Small Cracks, Minor Missing Pieces, Light to Moderate Corrosion	
	4	Poor	Major Cracks, Pieces Missing, Exposed Rebar, Moderate to Significant Corrosion	
	5	Very Poor	Major Damage, Exposed Earth, Questionable Integrity, Need Replaced	
Base	1	Excellent	Excellent, New Condition	4.8%
	2	Very Good	Previous Minor Repairs, Minor Chips, Slight Cracks, Light Corrosion	
	3	Good	Small Cracks, Minor Missing Pieces, Light to Moderate Corrosion	
	4	Poor	Major Cracks, Pieces Missing, Exposed Rebar, Moderate to Significant Corrosion	
	5	Very Poor	Major Damage, Exposed Earth, Questionable Integrity, Need Replaced	
Steps	1	Excellent	Excellent, New Condition, All in Place	1.9%
Plastic	2	Very Good	Surface Rust, All in Place	
Plastic Coated	3	Good	Moderate Corrosion, Misaligned but All in Place	
Cast Iron	4	Poor	Significant Corrosion, Loose	
	5	Very Poor	Missing, Needs Replaced	
Aprons	1	Excellent	Excellent, New Condition	4.8%
	2	Very Good	Previous Minor Repairs, Minor Chips, Slight Cracks, Light Corrosion	
	3	Good	Small Cracks, Minor Missing Pieces, Light to Moderate Corrosion	
	4	Poor	Major Cracks, Pieces Missing, Exposed Rebar, Moderate to Significant Corrosion	
	5	Very Poor	Major Damage, Exposed Earth, Questionable Integrity, Need Replaced	
Inverts	1	Excellent	Excellent, New Condition	6.7%
	2	Very Good	Previous Minor Repairs, Minor Chips, Slight Cracks, Light Corrosion	
	3	Good	Small Cracks, Minor Missing Pieces, Light to Moderate Corrosion	
	4	Poor	Major Cracks, Pieces Missing, Exposed Rebar, Moderate to Significant Corrosion	
	5	Very Poor	Major Damage, Exposed Earth, Questionable Integrity, Need Replaced	

Table 3. Treatment Buildings & Structures, Pump Stations, Trunkline Support Facility Condition Check List.

Component Observed	Grade	Condition	Description
Building or Site Exterior	1	Excellent	New Condition
Walls, Roof, Site Paving, Concrete Surfaces, Grounds, Doors, Windows, Gutters, Lighting, Fuel Storage Tank, Access Hatches, Drainage, Control Panel Pedestal, Bollards	2	Very Good	Normal Wear Noted
	3	Good	Condition Maintained W/ Maintenance
	4	Poor	Repair or Replacement Needed Within 12 Months
	5	Very Poor	Failing or Failed
Building Interior	1	Excellent	New Condition
Wall, Floor, Ceiling, Electrical, Plumbing, HVAC, Lighting, Doors	2	Very Good	Normal Wear Noted
	3	Good	Condition Maintained W/ Maintenance
	4	Poor	Repair or Replacement Needed Within 12 Months
	5	Very Poor	Failing or Failed
Wet/Dry Well - Valve Vault(S)	1	Excellent	New Condition
Structure, Walls, Piping, Mounting Rails, Hatches, Covers, Drainage	2	Very Good	Normal Wear Noted
	3	Good	Condition Maintained W/ Maintenance
	4	Poor	Repair or Replacement Needed Within 12 Months
	5	Very Poor	Failing or Failed
Electrical/Controls	1	Excellent	New Condition
Supply, Main Panel, Sub Panel Amperage, Phase, Voltage, Transfer Switch, Breaker Panels, Transformers, Control Panel, Wiring Diagrams, Labels, Status Lights, Bulbs	2	Very Good	Normal Wear Noted
	3	Good	Condition Maintained W/ Maintenance
	4	Poor	Repair or Replacement Needed Within 12 Months
	5	Very Poor	Failing or Failed
Pumps	1	Excellent	New Condition
Flow Measurement/Capacity, Noise, Vibration, Rotation, Seal Leakage)	2	Very Good	Normal Wear Noted
	3	Good	Condition Maintained W/ Maintenance
	4	Poor	Repair or Replacement Needed Within 12 Months
	5	Very Poor	Failing or Failed
Valves	1	Excellent	New Condition
Operation, Leakage, Rust/Corrosion)	2	Very Good	Normal Wear Noted
	3	Good	Condition Maintained W/ Maintenance
	4	Poor	Repair or Replacement Needed Within 12 Months
	5	Very Poor	Failing or Failed
Emergency Generator	1	Excellent	New Condition
Operation, Fuel Supply, Annual Service)	2	Very Good	Normal Wear Noted
	3	Good	Condition Maintained W/ Maintenance
	4	Poor	Repair or Replacement Needed Within 12 Months
	5	Very Poor	Failing or Failed
Telemetry/ Alarm System	1	Excellent	New Condition
Emergency Operation, Phone Numbers	2	Very Good	Normal Wear Noted
	3	Good	Condition Maintained W/ Maintenance
	4	Poor	Repair or Replacement Needed Within 12 Months
	5	Very Poor	Failing or Failed
Security	1	Excellent	New Condition
(Building, Wet Well Access, Valve Vault(S) Access, Lighting, Control Panel (Locks))	2	Very Good	Normal Wear Noted
	3	Good	Condition Maintained W/ Maintenance
	4	Poor	Repair or Replacement Needed Within 12 Months
	5	Very Poor	Failing or Failed

4.2.1 Wastewater Collection System Criticality Metrics

Criticality measures for the Wastewater Collection System are given in the following table. Each pipe and manhole are scored and then multiplied by the weight to generate a weighted score for each metric. The weighted scores are then summed to obtain the final criticality for the asset.

Wastewater Collection System Criticality Metrics

Metric	Scale	Weight
Cumulative Flow of Sold Residential Equivalents	1 <= 250 REs 2 <= 500 REs 3 <= 1000 REs 4 <= 2000 REs 5 > 2000 REs	41.67%
Proximity to Surface Water	1 > 3000 ft 2 <= 3000 ft 3 <= 1500 ft 4 <= 700 ft 5 <= 100 ft	31.25%
Located In Source Protection Zone	1 = No 5 = Yes	8.33%
Local Input of Residential Equivalents	1 <= 2 REs 2 <= 5 REs 3 <= 13 REs 4 <= 16 REs 5 > 16 Res	6.25%
Asset Depth	1 <= 5 ft 2 <= 7 ft 3 <= 13 ft 4 <= 16 ft 5 > 16 ft	6.25%
Location	1 = Off Road 3 = Minor Road 5 = Major Road	6.25%

4.2.2 Wastewater Reclamation Facility Criticality Metrics

Each of the assets at the two wastewater reclamation facilities are assigned a criticality weight that identifies the relative impact, in the event of asset failure, for each of the criticality metrics mentioned in section 4.2. In addition, if there is not an on-line spare for the asset, then the criticality score is increased in proportion to the criticalness of the asset. Each asset criticality is then multiplied by its respective weight and summed to obtain the final criticality for the asset.

There are currently 746 assets for the East Canyon and Silver Creek Water Reclamation Facilities that are assessed through regular maintenance and monitoring and, as part of the annual building condition checklist. Any asset in need of repair or replacement are scored as either 4 or 5. All other assets are known to meet the minimum target Level of Service according to Table 4.

Table 4. Treatment Plant Assets

Assessment Score	Cityworks	Condition	Description
1	20	Excellent	Asset is like new, fully operable, well maintained, and performs consistently at or above required service level. Little wear shown. All maintenance is planned preventive in nature. No further action required.
2	40	Very Good	Asset Is sound, fully operable and well maintained but shows signs of minor wear. Performs consistently at or above required service level. Most maintenance Is planned preventive. At worst, only minor repair may be needed in the near term.
3*	60*	Good*	Asset is functionally sound, showing normal signs of wear relative to use and age. Performs at or above required service level with modest increases of maintenance and/or operations costs. Minor failures or diminished efficiency and some performance deterioration. Minor to moderate refurbishment may be required in the near term.
4	80	Poor	Asset usually functions at required service level with sustained high level of maintenance. Shows substantial wear that is likely to cause significant performance deterioration in the near term. Near term scheduled rehabilitation or replacement is needed. Short periods of performance below required service level.
5	100	Very Poor Failing Failed	Effective life exceeded, and / or excessive maintenance required. Does not consistently perform at required service level. Unplanned corrective maintenance is common. A high risk of breakdown or imminent failure with serious impact to performance. immediate replacement or major rehabilitation is needed in the near term.

* Minimal level of service

4.3 Customer Research and Expectations

The SBWRD will closely monitor the quality of service delivery to the community and seek its guidance on the priorities for improvement. The District's customer base within Park City and the Basin are surveyed on an annual basis, to assess the status of community opinion, and to identify the trends in attitudes about the District's performance.

5.0 DEMAND FORECASTS

This section of the Plan provides details of the demand forecasts that affect the management and utilization of wastewater assets. Demand management techniques are used to anticipate any changes in asset use over a certain time period. Demand relates to both quantity of service needed, and effluent quality required to protect the receiving streams. Residential Equivalent growth projections are derived from the District's financial model which calculates growth trends and estimates revenues and expenses.

5.1 Population and Visitation (Residential Equivalent)

Population and visitor growth are the two major reasons for the increasing demand for wastewater collection and water reclamation services.

5.1.1 Modeling Assumptions and Methodology used to Predict Future Demand for Service

5.1.1.1 Assumptions

1. The District assumes that it will need to accommodate substantial predicted future regional population and visitation growth by expanding and upgrading the District's wastewater reclamation facilities and collection system.
2. The Park City area is a dynamic destination mountain resort community supporting a varying visitor and seasonal worker population and a base population of people who are either part of the significant bedroom community for Salt Lake City, are full-time retired or, who live and work in the area. Approximately 62% of the homes within the District are second homes. Development growth within the District is generally correlated with both regional population and area visitation growth. Although development growth, measured by RE's (Residential Equivalents), will, at times, correlate with the regional population growth of the Wasatch Front and Back, RE growth within the District's service area will generally be less than regional population growth because (a) development and visitation growth will be slowed by unpredictable economic downturns, such as occurred during the great recession (December 2007 – June 2009), while regional population growth will continue, (b) water conservation will reduce per capita consumption and (c) development growth will be constrained over the long run by the potential for development (availability and desirability of land).
3. The potential for development is based on current master planning (primarily from Snyderville Basin Planning Commission and Developer information) and land use zoning densities designated by Summit County and Park City.
4. The District assumes that RE growth will take the form of a forward sloping S-shaped curve (S-shaped logistic growth model). Growth was somewhat slow as the economy recovered from The Great Recession, is now entering a middle phase of more rapid growth, and then will enter a final slow growth phase as most of the more desirable properties in planned developments are built out, and the remaining less desirable properties will be absorbed at a slower rate. Although the growth curve depicts smooth growth, actual growth is expected to be in discrete pulses of varying duration with intervals of decline and stagnation.

5.1.1.2 Methodology

The S-shaped logistic growth model has been applied extensively to population growth modeling and other socio-technical systems (Meyer, 1994) and, has been specifically used to project community growth for water demand modeling (e.g., Capece, 2007). The S-shaped logistic growth model conforms to the District's assumptions and understanding of past and future growth as summarized in Assumptions bullet 4 above. The logistic growth curve serves as the basis for the District's long-term planning. Although the logistic curve is a beneficial planning tool, District personnel do not depend on, or expect, the logistic curve to unerringly predict the future. The District expects change to occur. The District's planning process allows for flexibility and adjustment as necessary.

It is important to note that the validity of the logistic model is dependent on a static growth paradigm. Any annexation(s) to the District or fundamental change in zoning will require modifications to the growth model. Other significant events, such as economic down turns, changes in water availability or change in Park City area appeal, perhaps due to competition from another nearby resort/bedroom community or change in perception due to some unanticipated event, could also alter the static growth paradigm and would require model modifications.

The District follows the two-pulse model (Bi-logistic) of Meyer (1994). The two-pulse curve allows the District to account for the "shock" to the system caused by the recent economic downturn of The Great Recession, then resume growth according to longer-term population and visitation growth assumptions, and then finally slow as the remaining less desirable properties are absorbed more slowly.

5.2 System Modeling

Total capacity, remaining capacity and percent utilization of the District’s wastewater collection system are reviewed and updated on a semi-annual basis to ensure adequate remaining capacity exists to meet anticipated demands.

Five flow models are analyzed that represent growing levels of development beginning from current demand through four more cumulatively increasing levels of potential growth. The increasing levels of potential growth allow the District to understand the system's capacity status under current and future potential growth conditions. The cumulative levels of potential growth are:

1. Active
    - Currently connected to the system with an active District billing account and contributing wastewater to the system.
2. Active + Inactive
    - Inactive have paid impact fees but are not yet contributing flow to the system
3. Active + Inactive + Committed
    - Committed are property parcels that are adjacent to an existing wastewater line but are not yet built on.
4. Active + Inactive + Committed + Master Planned
    - Master Planned are undeveloped property parcels for which project information from a reliable source has been provided to the District, these include future subdivisions.
5. Active + Inactive + Committed + Master Planned + Unplanned
    - Unplanned are the remaining developable property parcels whose development plans are unknown. REs are estimated from parcel zoning.

The District uses InfoSewer® (Innovyze Corp.) sanitary sewer modeling and design software to model flow through the collection system. This software utilizes system geometry, manning's equation for open channel flow, and steady state simulation to analyze the collection system under theoretical peak flow conditions. System geometry is based on actual GPS surveyed manhole locations and elevations. The theoretical peak flow conditions for each segment of the collection system are determined by accumulating all of the RE's (residential equivalents) associated with the connections contributing flow to that segment and applying an average daily flow rate per RE and a peaking factor.

The analysis uses an average daily flow rate of 320 gal/RE/day. This is a theoretical value that has historically been used by the District for flow modeling purposes and assumes a daily per capita wastewater flow of 100 gallons and an average household size of 3.2 persons. The actual District wide average daily flow rate per RE varies from year to year. The wastewater flow during the maximum 30-day flow period for the period from 2001 to 2014 averaged 274.52 gal/RE/day. The maximum 30-day flow during that fourteen-year period occurred in March/April of 2006 at 379 gal/RE/day. The maximum 30-day period typically occurs during periods of high I/I (infiltration and inflow) associated with snowmelt runoff.

The peaking factor applied in the analysis is based on the size of pipe analyzed. A peaking factor of 4.0 is used for wastewater lines 8" thru 15" diameter and a peaking factor of 2.5 is used for wastewater lines larger than 15" diameter. Actual peaking factors measured as part of the District's flow monitoring program ranged from 1.2 to 2.0 on those wastewater lines with flow meters in sizes 8" thru 15" and from 1.1 to 1.7 on those wastewater lines with flow meters in sizes larger than 15". The higher theoretical peaking factors result in a higher safety factor in the capacity of the system.

5.3 Effluent Quality and Environmental Protection

Sections 5.1 and 5.2 addressed the demand (quantity) for wastewater collection and reclamation services. This section addresses current and future levels of effluent quality and environmental protection measures taken by the District to protect the streams that receive the District's reclaimed wastewater.

5.3.1 Current Effluent Quality

The District's current discharge requirements for the East Canyon and Silver Creek Water Reclamation Facilities are being driven, in part, by several total maximum daily load (TMDL) studies. Those studies establish the maximum amount of pollutants the District can discharge, with phosphorus generally being the critical constituent. The District continues to work with the State Division of Water Quality to update and improve the TMDL studies. Future efforts to expand both reclamation facilities will include upgrading the facilities to comply with new discharge requirements. Low stream flows continue to have an impact on current and future discharge requirements.

5.3.2 Future Effluent Quality

In addition to complying with current discharge requirements, the District is proactively identifying possible environmental issues and future regulatory requirements. One area of concern is endocrine disrupting compounds (EDCs). EDCs are compounds that exist in low concentrations in the District's reclaimed wastewater. They originate from human waste and personal care products. EDCs have been shown to cause feminization of male fish. The District has monitored EDC levels in the effluent from the reclamation facilities and sampled the fish populations to determine if feminization is occurring. Because of the potential impact to the local environment, the District plans to continue its EDC research.

6.0 ASSET MANAGEMENT SYSTEM

Critical components of the District's AMP are data organization, storage, retrieval, quality, backup and security. The District stores data in secure databases that are integrated with one another. The databases allow for efficient data storage, organization and retrieval for analysis and reporting. Database integration avoids unnecessary duplication of data because the integrated databases serve as a single data reference source. Quality control during data entry is achieved through data validation that is either customizable in the input form or directly programmed by SBWRD.

All District data reside on two disk arrays that are part of a storage area network (SAN). The two disk arrays mirror one another and are configured in a RAID 10 array. The mirror provides a layer of redundancy against the failure of one of the disk arrays. The RAID 10 provides both improved performance and redundancy against individual disk failure. In addition, a bare metal backup of all data is performed nightly and is stored on a direct attached storage array of disks separate from the SAN. A bare metal backup allows recovery of data plus software. Every weekend another bare metal backup of all data is performed and is stored at another location for geographic redundancy. Finally, a nightly file-based backup is performed and stored at a cloud storage service. The file based is a last resort that allows recovery of data only.

The District utilizes a computerized maintenance management system (CMMS) from Cityworks, Inc., to store, analyze and evaluate data from the integration of the following functions: inventory of assets, preventive/predictive maintenance scheduling, work order documentation, condition assessment results, and asset criticality.

The CMMS makes it possible to integrate the condition assessment data with the Geographic Information System (GIS) from ESRI, Inc. and the closed-circuit TV (cctv) GranitNet system from Cues, Inc. The coupled systems provide tabular, video and pictorial display (maps) products that are easy to generate and understand. All asset information is stored centrally for all relevant staff to access. All department personnel have up-to-date information.

Sustainable management of the District's infrastructure assets requires that the following key elements be met:

- Inventory of Assets
- Condition and Performance Assessment
- Asset Maintenance and Operation
- Asset Renewal and Replacement
- Financial Planning
- Financial Reporting

6.1 Inventory of Assets

Utilizing the District's GIS system, a complete inventory of all collection system and reclamation facility attributes is maintained. Updating efforts are ongoing as assets are added, removed and replaced. Having a complete up-to-date inventory of all District assets is a requirement of the AMP.

6.2 Condition and Performance Assessment

Condition and performance assessments of infrastructure assets are necessary because all management decisions regarding maintenance, rehabilitation and replacement depend on those two tasks. Not knowing the current condition or performance level of a District asset may lead to the premature failure of the asset which could force the District to replace the asset. Asset replacement is often the most expensive and least desirable option. Condition assessments are performed on a regular basis. All assets are inspected in accordance with Section 4.1. This information is also used for future life cycle profiles and risk management.

Tables 1, 2, 3 and 4 illustrate the condition assessment rating scales that are being used to assign a condition score to each District asset as identified in Section 3.1.2. Currently there are over 7317 line segments and 7318 structures (most structures are manholes) in the collection system network. Conducting a condition assessment of the entire collection system requires a remote television camera to inspect the inside of all pipes and sending personnel to each structure for a visual inspection.

The District's reclamation facilities are comprised of numerous structures, machinery and electronic equipment. There is a total of 746 assets for the East Canyon and Silver Creek Water Reclamation Facilities. Conducting a condition assessment for each component is laborious and involves a wide variety of techniques. To ensure that the condition of all equipment is current and minimize duplication of effort, the District has made condition assessments part of the regular maintenance and inspection visits. The District has found that separate formal condition assessments do not provide any additional useful information over that already discovered during the regular maintenance and inspection visits. Almost all assets are kept in excellent condition as a result of the regular maintenance and inspection visits. Exceptions occur when a repair or replace is needed. In those cases, a supervisor performs a formal condition assessment according to the condition grading scale shown in Table 4. The resulting condition score then becomes the rating for that asset. Assets that do not require a repair or replace are maintained in excellent condition and thus, are given an excellent rating. If the condition of any asset is found to be less than excellent during a regular maintenance and inspection visit, the supervisor will perform a formal condition inspection using the grading scale in Table 4 to determine the appropriate rating.

6.3 Asset Maintenance and Operation

Maintenance can be grouped in to two categories: planned (preventive) and unplanned (corrective). It is impossible to eliminate the unplanned. However, unplanned maintenance can be minimized by proper management and full utilization of the District's CMMS. With the recording of failures and time between failures, the District can identify problem areas, which can then be targeted for special attention. This results in a better knowledge base which will be available when planning scheduled maintenance and also directs budgeting where it will be more effective. The useful life of an asset and the cost of "ownership" depend on how effectively the asset is maintained.

The criteria built in to the District's CMMS helps to effectively identify when maintenance is needed and therefore, avoids the total collapse or failure of a system or component. Neglecting or deferring maintenance of an asset to the point of collapsing, failure, or where it needs major renewal work will cost more in the long run than carrying out routine maintenance. Maintaining

the District's assets is a very important stage in an asset's life cycle. Maintenance carried out in the correct time and manner can extend an asset's life.

6.4 Asset Renewal and Replacement

Asset preservation, renewal, and replacement scheduling is a critical and integrated part of the District's AMP. Asset renewal and replacement refers to planning and carrying out work that restores or replaces an existing asset with one that is similar to its original size, condition, or capacity.

The objective of the District's asset management system is to determine the best mix of rehabilitation and replacement decisions to minimize costs over the life of an asset. When an asset reaches a condition level where its performance is impaired, as determined either by a condition assessment or a prediction within a renewal schedule, a decision to replace or renew must be made. A critical component of the asset management system is the use of life cycle analysis (addressed in the next section). A dynamic renewal and replacement schedule is derived, along with a decision making process, from the asset management system and life cycle analysis. Anticipated renewal and replacement costs are identified in the District's financial model.

6.5 Financial Planning

An important component of the District's financial planning is assuring that revenues are adequate to cover expenses. These expenses include operation and maintenance costs, renewal costs, replacement costs, capital costs, and debt service payments. The District has developed a comprehensive long term financial model that combines all anticipated revenues and expenses, including capital and impact fee projects as well as non-impact fee expenses. Results from the asset management plan are key inputs to the District's financial model.

6.6 Financial Reporting

While GASB 34 guidelines and current EPA/State regulations have many other reporting requirements, this AMP addresses only the asset reporting process for infrastructure assets. Capital assets have traditionally been depreciated over their estimated useful lives. GASB 34 now allows infrastructure assets to be reported according to the Modified Approach rather than traditional depreciation methods if the following two requirements have been met:

1. The District manages its infrastructure assets using an asset management system.
2. The District documents that the infrastructure assets are being preserved at or above the condition level that the Board of Trustees established.

In order for the District to adequately document that the above two requirements have been met, the following GASB 34 required actions must occur:

1. A complete assessment of infrastructure assets must be performed in accordance with GASB 34.

2. The results of the three most recent condition assessments provide reasonable assurance that the assets are being preserved at or above the condition level established.

Since the Board of Trustees for the District has adopted the Modified Approach, it is the District's objective to complete an assessment (as defined by GASB 34) annually of all infrastructure assets listed in Section 3.1.2. "Condition assessments may be performed using statistical samples that are representative of infrastructure assets" (GASB 34 footnote 19).

Advantages for the District to use the Modified Approach include:

- Provides the best service and lowest long-term rates to customers
- Provides information on asset condition
- Prevents the deferral of repair, replacement and maintenance of assets
- Documents real value of asset
- Funding future needs are easily translated into rates
- Ensures assets are maintained at a prescribed condition
- Satisfies asset management expectations of EPA/State regulators
- Probably will be required under any new federal financing program

7.0 LIFE CYCLE ANALYSIS

As previously discussed, the District has decided to take a proactive approach in addressing the long term needs of its customers. This asset management plan is a major part of that approach. By developing replacement strategies for assets based on life expectancies (derived from condition assessments), the lowest life cycle costs will be passed on to the District's customers.

The life cycle of an asset is defined as the time interval between recognition of a need and an asset's final disposal date.

- Initial need
- Development of design and specifications
- Construction or purchase of asset (acquisition)
- Early stages of usage (defect period)
- Prime period of usage including renewal processes
- Disposal of asset

There are usually a series of upgrades and renewals required during the life of an asset that become necessary as components of the asset reach the end of their useful life. Many assets reach the end of their useful life before they become unserviceable. By using a life cycle costs approach, the lowest total costs of an asset will be realized by the District.

7.1 Estimating Life Cycle Costs (LCC)

The life cycle cost of an asset can be expressed by the simple formula:

> **Life Cycle Costs = capital cost + life-time operating costs + life-time maintenance costs + disposal cost – salvage value**

In addition, the compilation of operation, maintenance and other asset costs allows asset alternatives to be compared during acquisition. Life cycle costing for the District is directly connected to financial accounting and is a method of ensuring that costs at each stage of the asset's life are taken into account. This effectively gives the real cost of the asset and knowing this may present opportunities for cost reduction and comparisons with alternative products.

Life cycle information allows the District to take a more strategic approach to budgeting and capital expenditures. As with other basic elements of the AMP, implementing a life cycle methodology is a fundamental change to the way the District manages its assets.

> **When historical life cycle costs are established and maintained for a sufficient number of years, then, and only then, can the District produce a preferred life cycle products and materials list.**

The assets on the list would be the "best choice" when considering new purchases. When life cycle costs are known, the actual cost of each asset per customer can be calculated. This can be an effective way of showing the public where the rates are being spent.

7.2 Benefits Available from Life Cycle Costs

The information generated by a life cycle cost analysis can assist the District at various stages in the life of an asset:

- Planning and analysis of alternative solutions
- Selection of preferred options
- Securing funding
- Review of predicted and actual outcomes

7.2.1 Planning and Analysis

The best opportunities to achieve significant cost savings will occur during the needs and design phase of any project. At that time, significant changes can be made to achieve the least cost. At later stages of the project many costs have become *locked in*. To achieve the maximum benefit available during this stage of the project it is important to explore the following criteria:

- Range of alternatives
- Cost drivers for each alternative
- Time period for which the asset will be required
- Level and frequency of usage
- Maintenance and operating costs

The concept of the life cycle of an asset provides a framework to document and compare alternatives.

7.2.2 Selection of Preferred Option

When a life cycle cost analysis has been prepared for each option under consideration, it is possible to:

- Calculate the net present value (NPV) of each option
- Consider budget constraints
- Identify issues related to the ultimate disposal of the asset

This information can be used by the District as part of the selection process and can then be presented to the Board of Trustees during the budget process.

7.2.3 Discounting Future Costs (Net Present Value)

When the District has a choice of incurring a cost now or in the future, it should consider the benefits of competing uses for the available funds and the cost of the needed funds. Future costs are regarded as less significant because they have the potential to be funded by effective use of existing funds over the intervening period.

For example, if a $100 purchase is made today, it is necessary to have $100 available now. However, if the purchase can occur in three years' time for $100, it would be possible to generate the required $100 by investing $75.10 at an interest rate of 10% (net of inflation) for

the three years. If the funds can be used in some other way by the organization, it may be able to generate more than 10% per year, which would make the future cost even more attractive.

In contrast the value of a payment to be received at a future time is regarded as less than the value of receiving it now.
In order to quantify the time impact on future receipts and costs, cash flows are converted to an equivalent present value. This conversion is based on an estimated discount rate (r) and uses the following formula:

Present Value = FV/(1+r)^n

Where FV the amount to be spent or received at a point in the future
n the number of intervals between the present and the future transaction (years)
r the discount rate applicable to the chosen intervals; and
^ raised to the power nominated

For example, an expense of $100 in three years' time with a discount rate of 10% (net of inflation) would have a present value (PV) of:

PV = 100/(1+0.10)^3
= 100/1.331
= $75.10

The net present value (NPV) is simply the difference between the present value of future revenue and the present value of future costs for an activity over a given period.

The critical parameter is choosing an appropriate discount rate. One option for the District is to use the Public Treasurer's Investment Fund (PTIF) interest rate at the Utah State Treasurer's Office. The District currently invests the majority of its funds in the PTIF.

7.2.4 Securing Funding

The use of the NPV technique for comparing options that have different cash flow patterns over time is important, but there may also be District cash flow issues that will need to be considered. Management of cash flow is simplified by the District's financial model. The life cycle analysis provides a sound basis for projecting cash requirements and providing evidence to the Board of Trustees of when to approve a particular project.

7.2.5 Review

The credibility of future life cycle plans can be enhanced by systematic collection of historical data related to previous projects. A comparison of projected life cycle costs with those that actually occur can provide:

- Confirmation of the reliability of the life cycle model
- Information to improve future similar life cycle models

A well-documented life cycle costs process justifying a higher initial cost offset by lower long-term costs provides clear evidence for consideration during the District's budget process.

8.0 MANAGING AND REPORTING SSO'S

8.1 Sanitary Overflow Response Plan

The SBWRD Sewer Overflow Response Plan (SORP) is designed to ensure that every report of a possible SSO is immediately received, documented and responded to so that the effects of an actual overflow can be minimized with respect to impacts to public health and adverse effects on water quality, the environment and customer service. Pump stations are monitored and maintained by the maintenance staff and treatment facilities by the treatment staff. Failures of these facilities are communicated to the operations staff (both the Collections and Treatment) via SCADA systems that are operational 24 hours a day.

8.2 Receipt and Documentation of initial SSO report

The SBWRD will most likely be alerted to a possible collection system SSO by a citizen (customer or non-customer), police or fire agency personnel, or other government agency via a telephone call to our administrative office personnel. However, the notice (whether the collection system or treatment facility) could be made by other means such as direct communication with field personnel, direct office visit, or by way of the after-hours answering service or facility monitoring systems. Regardless of how or to whom the notification is made, the SBWRD takes every call seriously and each notification is documented and responded to immediately. To document the initial notice, the SBWRD utilizes a computerized maintenance management system (CMMS) for tracking and possible work order generation of all notifications of SSO's and other customer requests. All relevant information available regarding the problem is recorded in the CMMS.

8.3 Dispatch of personnel to the SSO site

Office and/or operations personnel receiving an initial report of a possible SSO are instructed to process the notification and immediately contact specific key personnel (usually the Collection System Manager or his/her designee for the collection system or the Operations Manager for the treatment facilities). Management staff are notified of all possible SSO calls, customer problem notices or other urgent service requests to ensure a response is executed. For collection system problems, field personnel are contacted by the Collections System Manager or his/her designee via cell phone and immediately dispatched to the customer address or SSO site. Initial information regarding the problem is communicated to the responder(s) by the Collections System Manager or his/her designee. Staff is instructed to follow the requirements and directions found in the SBWRD standard operating procedure "SOP-4214" (Appendix A) and document the event in the SSO Report (Appendix B).

The SBWRD has a minimum of five "on-call" collections system and treatment operators available at all times. A 24-hour seven day a week after-hours emergency contact (answering service) is provided to the public (SBWRD phone system, posted on Administration office front door, and on SBWRD web page) for after-hours notices. The after-hours contact (AnserFone) collects relevant information about the SSO so a response can be addressed by SBWRD staff and communicates the information to staff via telephone and voice messaging. The after-hours answering service is provided with the SBWRD emergency contact numbers. Staff responding to the incident will promptly investigate the nature and scope of the problem and as necessary, take measures to immediately stop any SSO. Additional SBWRD personnel are contacted to

assist in response activities, as needed.

8.4 Corrective, Containment and Cleanup of SSO

Staff responding will conduct a hazard assessment and make efforts to protect themselves, the public and the environment. Staff will enact measures to protect storm drain inlets and entrances to waterways from further overflow material entering by diverting or containing the overflow. Applicable practices and procedures will be implemented to safely isolate the SSO site, mitigate the impacts of the SSO, and take immediate steps to stop the SSO. Bypass pumping may be necessary to effectively control the SSO until the cause can be eliminated or repaired. Response staff in all cases shall promptly communicate their initial findings, including discharge to the ground, storm drain system, or waters of the state and any damage to private and/or public property to the Collections System Manager or the Operations Manager via telephone. Once the SSO is stopped, the overflowing/overflowed material will be collected with the combination jet/vacuum truck and/or other means. The impacted area will be washed down, and the wash water will be collected and disposed of back into the sewer. All debris and overflow material within the impacted area will be collected and properly disposed of. TV inspection of the collections system may be conducted to help determine the cause of a collection system SSO. Interaction with other responding agencies and first responders should be anticipated. In most cases SBWRD will handle all response actions with its own personnel. Based on the nature and extent of repair work required, private contractor(s) help may also be solicited for response support.

8.5 SSO Information and Documentation

Responding personnel will document time of arrival on site, confirm the location, and note any special circumstances (i.e. safety issues, traffic accident, construction activity, etc.) associated with the problem on the SBWRD SSO Report. Responders will estimate the quantity of overflowing wastewater. An estimation of the duration of the SSO will be documented, if known. The SSO location with street address will be recorded/verified as well as the affected SBWRD manhole(s) or treatment component will be noted. Actions taken to contain and/or divert the SSO will be documented. The suspected cause of the SSO will be documented. Persons contacted and/or property affected will be recorded as well as any conversations responding staff have had with the public or on-site officials. Cleanup activities will be documented and the final disposition of collected material will be recorded. All SSO events shall be reported to the SBWRD General Manager by the Collections System Manager or Operations Manager as soon as possible. The Collections System Manager or Operations Manager will notify the General Manager when the SSO is eliminated.

8.6 Procedures for Immediate Notification of the Health Department, Public, DWQ

For collection system SSO's, the Collections System Manager or responding staff confirming the SSO will follow-up in person or by telephone with the initial caller(s) reporting the SSO as courtesy to these callers. The cause of the SSO and its resolution will be disclosed.

When a SSO occurs and the extent of the overflow is significant and damage is extensive the public may be notified through proper communication channels. This could include press releases to the local news agencies, publication in the area newspaper, social media, or radio PSA. Door hangers may also be delivered to homes in the area of the SSO. Notification should be sufficient to ensure that the public health is protected.
The State of Utah Division of Water Quality, the Summit County Health Department, affected property owner(s) and relevant water purveyors shall be notified of a SSO event in accordance with Section 8.3. Information to be communicated to this group shall include:

- Callers name and contact telephone number of reporting individual
- Time and type of incident
- Location of incident
- Name and quantity of material released (i.e. domestic wastewater)
- Injuries, if any
- Property damage, if any
- Immediate health hazards, if known
- Indication that SSO wastewater has reached surface waters and that cleanup is currently underway.

8.7 Reporting Requirements for UPDES Permits and USMP Annual Report

SSO's are classified into two classes

1. Notice of a Class "1" SSO will be given orally within 24 hours of the event to the State of Utah Division of Water Quality (DWQ). A written report will be submitted to the DWQ within five calendar days.
    A. Class "1" SSO's are defined as significant discharges that are not caused by a private lateral problem but:
        i. Affect more than five private structures or
        ii. Affects one or more public, commercial or industrial structures or
        iii. Involves a spill or discharge volume that exceeds 5,000 gallons or
        iv. Discharge that enters waters of the State of Utah, such as local stream creeks and ditches

2. Notice of a Class "2" SSO will be reported on an annual basis in the SBWRD's annual asset management report which will include the reporting requirements of the Utah Sewer Management Program report.
    A. Class "2" SSO's are non-significant discharges that are not caused by private lateral problems and do not meet the Class "1" SSO criteria.

The District will follow its SSO Standard Operating Procedure (SOP) (Appendix A) when reporting SSO's

The District will submit to the DWQ a copy of the District's asset management report by April 15th of each year.

Original Approval Date: June 2003
Last Amended and Approved by Board of Trustees: March 27, 2022

_____ _____

Jan Wilking, Chair, Board of Trustees Date
Snyderville Basin Water Reclamation District

Appendix A

Standard Operating Procedure

SOP-4214

Sewer Overflow Response Procedures

Snyderville Basin Water Reclamation District
2800 Homestead Road Park City, Utah

Procedure	Revision
SOP-4214	FINAL
Date	Page
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Subject **SANITARIY SEWER OVERFLOW RESPONSE PROCEDURES**

1. SCOPE

SBWRD sewer overflow response procedures are designed to ensure that every report of a possible sanitary sewer overflow (SSO) or wastewater treatment plant bypass is immediately received, documented and responded to so that the effects of an actual overflow or bypass can be minimized with respect to impacts to public health and adverse effects on water quality, the environment and customer service. The SBWRD will have a minimum of four "on-call" operators available at all times. A 24-hour seven day a week after-hours emergency contact number (answering service) is provided to the public (via SBWRD phone system, postings on Administration office front door, and on SBWRD web page) for after-hours notices. The after-hours contact (AnserFone personnel) collects relevant information about the SSO so a response can be addressed by SBWRD staff. AnserFone staff will communicate the information to SBWRD staff via telephone and voice messaging. The after-hours answering service is provided with the SBWRD emergency contact numbers. Pump stations are monitored and maintained by the maintenance staff and treatment facilities by the treatment staff. Failures of these facilities are communicated to the operations staff (both the Collections and Treatment) via SCADA systems that are operational 24 hours a day.

2. SAFETY

2.1 PERSONAL PROTECTIVE EQUIPMENT (PPE)
2.2 TRAFIC CONTROL
2.3 JOB HAZARD ANALYSIS (JHA)

3. DEFINITIONS

SSO - Sanitary Sewer Overflow
CMMS - Computerized Maintenance Management System
SCADA - Supervisor Control and Data Acquisition
PSA - Public Service Announcement
UPDES – Utah Pollutant Discharge Elimination System
DWQ – Department of Water Quality

4. REFERENCE DOCUMENTS

Utah Sewer Management Program R317-801 (USMP)
SBWRD Asset Management Plan

5. PROCEDURE

5.1 Receipt and Documentation of initial SSO report

The SBWRD will most likely be alerted to a possible collection system SSO by a citizen (customer or non-customer), police or fire agency personnel, or other government agency via a telephone call to our administrative office personnel. Treatment plant problems will most likely be observed by plant operators. However, the notice (whether the collection system or treatment facility) could be made by other means such as direct communication with field personnel, direct office visit, or by way of the after-hours answering service or facility monitoring systems. Regardless of how or to whom the notification is made, the SBWRD takes every call seriously and each notification shall be documented and responded to immediately. To document the initial notice, the SBWRD will utilize a computerized maintenance management system (CMMS) for tracking and possible work order generation of all notifications of SSO's and other customer requests. All relevant information available regarding the problem will be recorded in the CMMS.

5.2 Dispatch of personnel to the SSO site

Personnel receiving an initial report of a possible SSO are instructed to process the notification and immediately contact specific key personnel (usually the Collection System Manager for the collection system or the Operations Manager for the treatment facilities). Management staff is automatically notified of all possible SSO calls, customer problem notices or other urgent service requests to ensure a response is executed. For collection system problems, field personnel are contacted by the Collection System Manager and immediately dispatched to the customer address or SSO site. Staff responding to the incident will promptly investigate the nature and scope of the problem and as necessary, take measures to immediately stop any SSO. Additional SBWRD personnel shall be contacted to assist in response activities, as needed. Initial information regarding the problem is communicated to the responder(s) by the Collection System Manager. Staff is instructed to follow the documentation requirements and directions found in the SBWRD SSO Report.

5.3 Corrective Action, Containment and Cleanup of SSO

Staff responding will conduct a hazard assessment and make efforts to protect themselves, the public and the environment. Staff will enact measures to protect storm drain inlets and entrances to waterways from further overflow material entering by diverting or containing the overflow. Applicable practices and procedures will be implemented to safely isolate the SSO site, mitigate the impacts of the SSO, and take immediate steps to stop the SSO. Bypass pumping may be necessary to effectively control the SSO until the cause can be eliminated or repaired. Response staff in all cases shall promptly communicate their initial findings, including discharge to the ground, storm drain system, or waters of the state and any damage to private and/or public property to the Collections System Manager or the Operations Manager via telephone. Once the SSO is stopped, the overflowing/overflowed material will be collected with the combination jet/vacuum truck and/or other means. The impacted area will be washed down, sanitized, and the wash water will be collected and disposed of back into the sewer. All debris and overflow material within the impacted area will be collected and properly disposed of. TV inspection of the wastewater system may be conducted to help determine the cause of a collection system SSO. Interaction with other responding agencies and first responders should be anticipated. In most cases SBWRD will handle all response actions with its own personnel. Based on the nature and extent of repair work required, private contractor(s) help may also be solicited for response support.

5.4 SSO Information and Documentation

Responding personnel will document time of arrival on site, confirm the location, and note any special circumstances (i.e. safety issues, traffic accident, construction activity, etc.) associated with the problem on the SBWRD SSO Report. Responders will estimate the quantity of overflowing wastewater. An estimation of the duration of the SSO will be documented, if known. The SSO location with street address will be recorded/verified as well as the affected SBWRD manhole(s) or treatment component will be noted. Actions taken to contain and/or divert the SSO will be documented. The cause of the SSO will be documented. Persons contacted and/or property affected will be recorded as well as any conversations responding staff has had with the public or on-site officials. Cleanup activities will be documented with photos and the final disposition of picked up material will be recorded. All SSO events shall be reported to the SBWRD General Manager by the Collections System Manager or Operations Manager as soon as possible. The Collections System Manager or Operations Manager will notify the General Manager when the SSO is eliminated.

6. NOTICES

6.1 Immediate Notification to the Health Department, Water Purveyors, Storm Water, Public, DWQ

For collection system SSO's, the Collections System Manager or responding staff confirming the SSO will follow-up in person or by telephone with the initial caller(s) reporting the SSO as courtesy to these callers. The cause of the SSO and its resolution will be disclosed. When an SSO occurs and the extent of the overflow is significant, and damage is extensive the public may be notified through proper communication channels. This could include press releases to the local news agencies, publication in the area newspaper, social media, or radio PSA. Door hangers may also be delivered to homes in the area of the SSO. Notification should be sufficient to ensure that the public health is protected. The State of Utah Division of Water Quality, the Summit County Health Department, affected property owner(s) and relevant water purveyors shall be notified of a SSO event in accordance with Section 8.3. Information to be communicated to this group shall include:

- Caller's name and contact telephone number of reporting individual
- Time and type of incident
- Location of incident
- Name and quantity of material released (i.e. domestic wastewater)
- Injuries, if any
- Property damage if any
- Immediate health hazards, if known
- Indication if SSO wastewater has reached surface waters and that cleanup is currently underway.

6.2 Reporting Requirements for UPDES Permits and USMP Annual Report

Notice of a Class "1" SSO will be given orally within 24 hours of the event to the State of Utah Division of Water Quality (DWQ). A written report will be submitted to the DWQ within five calendar days.

Notice of a Class "2" SSO will be reported on an annual basis in the SBWRD's annual asset management report which will include the reporting requirements of the USMP report.

The SBWRD will submit to DWQ an asset management report covering information for the previous calendar year by April 15th the following year.

Appendix B

SBWRD SSO Report

SBWRD --- SSO REPORT

Sec A - Notification of SBWRD

Date Report Received_____
Time Report Received _____
Call Received by _____
Name of Caller: _____
Caller's Phone #: _____
Approx. Address:

Operator Contacted: _____
Date Dispatched: _____
Time Dispatched: _____
Time Responded: _____
Date Resolved: _____
Time Resolved: _____

Sec B - Location of the Problem

Manhole #: _____

MH in which the problem is located or the upstream MH for the section of pipe in which the problem is located

☐ Main Line
☐ Manhole
☐ Lift Station
☐ Other:

Sec C - Cause of the Problem

☐ Belly
☐ Broken/Separated
☐ Joint
☐ Construction
☐ Contractor
☐ Debris (other)
☐ Grease
☐ Structural Damage
☐ Roots
☐ Vandalism
☐ OTHER:

Describe the casue of the problem in detail.

Sec D - Overflow Details

Total Number of Units Affected:_____
Number of Commercial Units Affected: _____
Approximate volume:_____

Were Waters of the State Impacted? ☐ yes ☐ no
Is there a General Public Health Risk? ☐ yes ☐ no
SSO is Determined to be?

Describe how the Class determination was made. Be as descriptive as possible.

☐ Class 1
☐ Class 2

Sec E - Required Notifications

Mike Luers: (435) 901-8891 and/or by Email at mluers@sbwrd.org
Date: _____Time: _____

If associated with a project: Project Manager:
Date: _____Time: _____

Utah Division of Water Quality :

Date: _____Time: _____

Person Contacted: _____

385-501-9585 (DAY: JEN ROBINSON)
801-536-4300 (DAY: MAIN LINE)
801-536-4123 (24 - HOUR SPILL LINE)

Summit County Health Department :

Date: _____Time:_____

Person Contacted: _____

435-333-1585 (Day: Nathan Brooks, Env. Health Dir)
435-333-1500 (Day: Health Dept Main Phone)
888-374-8824 (On-call Communicable Disease)
435-615-3600 (Night: Summit County Dispatch)

Sec F - Jurisdictional Notifications

	Contacted
Park City Water (435-615-5335)	☐
Park City Stormwater (435-615-5364)	☐
County Stormwater (435-336-3250)	☐
Summit Water Dist. (435-649-7324)	☐
Mountain Regional Water (435-940-1916)	☐
Gorgoza Water (435-649-7948)	☐
UDOT roads (801-887-3700	☐

Public Notice Given: ☐

Date: _____Time: _____

Method: _____

Jurisdictional/Public Notice comments:

Sec G - Action Taken DETAILED DESCRIPTION OF ACTION TAKEN:

Be as descriptive as possible. Also include photos with this document.

Signed by _____Date _____