RESOLUTION NO. 2025- - 33

A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, APPROVING THE FISCAL SUSTAINABILITY PLAN ("FSP"); AUTHORIZING THE UTILITY REPRESENTATIVE TO TAKE ALL ACTIONS NECESSARY TO EFFECTUATE THE INTENT OF THIS RESOLUTION; PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Florida Statutes provide for financial assistance to local government agencies to finance construction of the municipal utility system improvements and

WHEREAS, the Florida Department of Environmental Protection State Revolving Fund (SRF) has designated the St. Johns County Utility Department, listed under Project Number 550161 in accordance with the Clean Water State Revolving Fund Construction Loan Agreement WW550161, as eligible for available funding; and

WHEREAS, as a condition of obtaining funding from the SRF, the County is required to implement an FSP for the SR16 Water Reclamation Facility (WRF) Blower Improvements and Anastasia Island (AI) WRF Solids Handling Improvements; and

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS:

Section 1. The above recitals are incorporated into this resolution and are adopted as findings of fact.

Section 2. The Fiscal Sustainability Plan ("FSP"), attached hereto as Exhibit A, is hereby approved and incorporated herein by this reference.

Section 3. The St. Johns County Utility Department is authorized to take all actions necessary to effectuate the intent of this resolution and to implement the FSP in accordance with applicable Florida law and Board direction in order to obtain funding from the SRF.

Section 4. The St. Johns County Utility Department shall adjust rates annually as provided in Section 35.A of St. Johns County Ordinance 2022-37.

Section 5. To the extent that there are typographical and/or administrative errors and/or omissions that do not change the tone, tenor or context of this Resolution, then this Resolution may be revised without subsequent approval of the Board of County Commissioners of St. Johns County.

Section 6. This Resolution shall become effective immediately upon its adoption.

PASSED AND ADOPTED by the Board of County Commissioners of St. Johns County, Florida, this 4th day of February, 2025.

BOARD OF COUNTY COMMISSIONERS OF

Rendition Date FEB 5 2025

ST. JOHNS COUNTY, FLORIDA

Attest:

By:

Deputy Clerk

Chair

PASSED AND ADOPTED on this 4th day of February, 2025.

ST. JOHNS COUNTY FLORIDA

Loan WW550161

State Rd 16 (SR16) WWTF Blower Improvements Anastasia Island (AI) WWTF Solids Holding

Fiscal Sustainability Plan

December 2024

ARDURRA

401 Golfway West Dr,

Suite 201A,

Saint Augustine, FL 32095

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SECTION 1
FSP OVERVIEW

1.1 FSP Defined

A Fiscal Sustainability Plan (FSP) is a systematic way to operate and maintain assets while focusing on the energy conservation efforts of an operation. This is achieved through listing out all assets that are critical for the treatment facility, evaluating those assets, incorporating water and energy conservation efforts into the operation, and outlining a financial plan for maintenance or replacements.

1.2 Benefits of FSP

Implementing an FSP will have the following benefits for the St. Johns County Utility Department (Utility) and associated consumers:

- Can be used as a reference for asset criticality
- Can be used as a reference for budgeting
- To maintain an efficient and sustainable system
- To uphold level of service for consumers
- Help extend asset useful life
- Can be used as a reference for future funding sources
- Can be used as a reference for emergency responses to asset failure
- Aligns the Department's Capital Improvement Plan with the needs of their consumers

1.3 State Revolving Fund Requirement

An FSP is a requirement for involvement in the State Revolving Fund (SRF) Program to provide financing for the wastewater improvements projects. The program details under Section 603(d)1(E)(i) of the Federal Water Pollution Control Act are discussed in Section 2.

1.4 FSP Development Stakeholders

This FSP was developed by Ardurra Group Inc. and the Utility. It will help guide the Utility in their efforts to manage and maintain the State Rd 16 (SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding. The Utility should maintain these plans for continuous use and update them annually.

1.5 Fiscal Strategy and FSP Process Recommendations

The following are recommendations for the Utility on how to successfully implement an FSP and fund future expenditures:

1. Integrate the Utility's typical asset management practices in the asset management program at each facility and use the Cityworks® AMS system to help track and upkeep practices.

2. FSP

    a. Evaluate new assets as they are implemented into the SR16 WWTF Blower Improvements and AI WWTF Solids Holding.

    b. Implement roles within the facilities assigning responsibility of critical assets

    c. Continuously train staff on ways to successfully perform and implement the required asset management protocols

    d. Implement new cost saving practices

    e. Develop new operating and maintenance measures as needed

    f. Adopt new policies to develop funding

    g. Annually evaluate current assets

3. The following are financial resources the Utility may consider for future funding:

    a. FDEP-State Revolving Fund (SRF)

    b. Florida Department of Economic Opportunity Community Development Block Grant (CDBG)

    c. Florida Department of Emergency Management (FDEM)Utility Unrestricted Reserves

    d. Utility Renewal and Replacement (R&R) (5.0% of annual revenues)

    e. Utility Unit Connection Fees or System Development Charges (limited to expansionary projects)

    f. Commercial or Privately Funded Debt Issuance

SECTION 2
INTRODUCTION

2.1 Introduction

In accordance with the Clean Water State Revolving Fund Construction Loan Agreement WW550161 between the State of Florida Department of Environmental Protection and St. Johns County Utility Department (Utility), this document will act as the initial Fiscal Sustainability Plan (FSP) for State Rd 16(SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding. This plan is to encourage sustainable practices and act as a financial guide through maintaining, repairing, and replacing assets, including materials and equipment, at each facility.

Under Section 603(d)1(E)(i) of the Federal Water Pollution Control Act and the above-mentioned agreement, the fiscal sustainability plan must contain the following:

1. An inventory of critical assets that are a part of the SR16 WWTF Blower Improvements and AI WWTF Solids Holding.

2. An evaluation of the condition and performance of the assets in the SR16 WWTF Blower Improvements and AI WWTF Solids Holding.

3. A certification that the recipient has evaluated and will be implementing water and energy conservation efforts as part of the plan.

4. A plan for maintaining, repairing, and, as necessary, replacing the treatment works and a plan for funding such activities.

As the SR16 WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding are new systems added to existing facilities, this will act as a modification to the existing inventory list. Implementing the FSP will help the Utility plan for future funding while reducing the need for reactive maintenance. This preventative approach conserves resources and can extend a facility's useful life allowing for a better return on investment for the Utility.

The FSP is meant to develop with the facilities and act as a living, dynamic, and evolving document. The purpose is to reflect the current conditions and to help operate as is; therefore, the FSP should be updated based on an annual review of SR16 WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding to remain useful for the Utility.

SECTION 3
ASSET MANAGEMENT

3.1 Components of Asset Management

Asset management of a facility documents current assets, anticipated life expectancy, and the associated costs with maintaining the operation. An asset management plan then helps develop a financial management system for expenses and revenue of the facility. This system anticipates the projected financial needs of the facility based on useful life and lists out possible revenue sources for the St. Johns County Utility Department (Utility).

A successful asset management plan for a facility answers the following questions:

1. What is the current status and condition of the assets on site?
2. What is Level of Service (LOS) the Utility requires?
3. What assets are necessary to meet this LOS?
4. What is the Renewal and Reinvestment plan, Operations and Maintenance plan (O&M), and minimum cost strategy for the facility?
5. What is the projected financial plan for the facility?

3.2 Implementation

It is essential that the Utility has designated operators that are up to date on the standards for asset management and best management practices (BMPs) specific to the Utility. The Utility follows the St. Johns County Utility Department Asset Management Procedures Manual, July 2011 for the implementation of these standards. The complete document is included in **Appendix A**. A critical component of an asset management plan is having a scheduled way to track what is being performed and determine if it was performed correctly. The Utility uses the Cityworks® Asset Management System. Cityworks® is an asset management system built exclusively on Esri's ArcGIS®. The platform manages the utilities assets and their associated data, work activities, and business processes including the following:

1. Planning for maintaining, repairing, or replacing assets
2. Funding for maintaining, repairing, or replacing assets
3. Scheduling personnel responsible for overseeing asset condition
4. Designating personnel responsible for the maintenance on specific assets
5. Updating essential information of the facility

The Utility has updated the Cityworks® database with the SR16 WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding project assets, associated data, and work activities. A copy of the asset data for these projects is provided in **Appendix B**.

3.3 Level of Service (LOS)

The following is the St. Johns County Utility Department (Utility) mission statement:

To serve our customers by meeting their public health and fire protection needs through the provision of safe, reliable drinking water and environmentally responsible wastewater treatment and reclaimed water service. To deliver these services at affordable rates with emphasis on customer service and the protection and preservation of our natural water resources and environment.

The Utility's goals flow from the mission statement. The strategic goals for the Utility describe a road map and focus on the future of the utility. These goals set priorities for the most important tasks in order to allocate resources to programs and strategies of the highest value and they coordinate and align the Utility's actions across the organization. The goals were developed as follows:

- Operate, maintain, and protect the collection and treatment systems to ensure that all state and Federal requirements are met or exceeded.
- Continuously evaluate the Utility's environmental performance to identify, quantify and minimize the Utility's impacts to the environment in a cost-effective manner.
- Manage the Utility's finances through strong financial planning and controls such that user charges are minimized.
- Maintain a customer-focused attitude throughout the organization.
- Attract, develop, and retain highly qualified employees
- Improve and enhance internal and external communications to increase the understanding of "who we are" and "what we do"
- Ensure that the Utility's organization is aligned with and supports the Utility's strategic goals

The level of service goals for the asset management system provides the same kind of guidance and alignment for asset management implementation as the Utility's strategic goals provide for the Utility's organization. They serve to drive the initiative in the proper direction. However, for the asset management goals to be effective for the whole of the Utility, they must clearly support the Utility's strategic goals.

- To establish asset management practices that stabilizes rates by optimizing expenditures
- To have immediate access to detailed information about all of Utility's assets

- To improve customer relations, specifically the confidence of the customer in the Utility's ability to operate and maintain their assets.
- To use best asset management practices to minimize operational or financial problems
- To eliminate permit violations through consistent and reliable operations and maintenance
- To proactively anticipate capital and operational expenditures
- To safeguard the welfare of the workforce
- To facilitate the efficient use of resources including staff, software, equipment, and knowledge

The level of service asset management goals have been applied to the SR16 WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding projects.

SECTION 4
SYSTEM DESCRIPTION

4.1 State Rd 16 (SR16) WWTF Blower Improvements

The State Road 16 Water Reclamation Facility (SR 16 WRF) is a conventional activated sludge wastewater treatment plant that is owned and operated by St. Johns County Utilities Department (Utility)). This conventional activated sludge WRF includes three blowers (two in service and one standby) for providing air to the two activated sludge trains. The blowers are over twenty (20) years old and in need of replacement. This project includes installation of two (2) 75 HP blowers sized for 1766 CFM at 9 PSI in a new prefabricated blower building with an integral electrical room.

4.2 Anastasia Island (AI) WWTF Solids Holding

There are two (2) existing sludge holding tanks at the WWTF and both are equipped with course bubble air diffuser systems. Solids Handling Tank No. 1 (SHT 1) is a steel tank with a capacity of 0.417 million gallons (mg) and is in poor condition. Previously, the County has evaluated the condition of the steel tank and determined it is not cost-effective to repair the tank and that it requires replacement. The scope of this project includes demolishing the SHT 1 and installing a new 0.65 mg tank in its place, installing three (3) new 60 HP positive displacement blowers, and installing new 8-inch stainless steel air piping from the new blower system to the existing 8-inch stainless steel air piping.

SECTION 5
OPERATION AND MAINTENANCE (O&M)

The O&M of the facility consists of scheduled inspections and maintenance procedures outlined specifically in the operations and maintenance manuals for each facility, the operation and maintenance manuals supplied by the manufactures/vendors of the equipment on-site, and operational experience with the equipment. The O&M practices vary based on asset, current condition, past condition, and useful life. When facing uncertain areas with O&M practice, the operator should analyze risk, LOS, and unexpected outcomes when making decisions. It is important that operators are aware of the Utility's operating practices. The O&M program for the State Rd 16(SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding facilities have been entered into the Cityworks® database through collaboration between management, operations, engineering, and GIS teams.

5.1 Training

Training new and existing employees in utility maintenance and safety is very important for the operation of each facility. Better training leads to more efficient problem solving which helps save energy and financial resources. The St. Johns County Utility Department (Utility) should ensure that all staff goes through a comprehensive technical and safety training for the facility. It is important that staff not only know how to perform their responsibilities throughout the facility, but also how to prevent accidents and injuries while doing so. Safety guidelines associated with equipment within the facility are outlined in the operation and maintenance manuals from each manufacturer/vendor as well as the operation and maintenance manual for each facility. As part of the construction process, training was completed for the existing operations staff by the manufacturer on each major piece of equipment. All trainings were video-taped and are available for review and/or training of new staff members.

5.2 Preventative Maintenance

Preventative maintenance is the constant input that ensures all treatment processes are running properly. These activities range from general upkeep to repairs and replacements. Guidelines for preventative maintenance on each piece of equipment are outlined in the manufacturer/vendor operation and maintenance manuals and are supported through the BMP of the facility. It is essential that these guidelines are followed for a maximum return on investment, a longer useful life of the equipment, and energy efficient running of the facility. Cityworks® and the O&M manuals are used to execute the necessary work. An example work order from Cityworks® for the State Rd 16(SR16) WWTF Blower Improvements Anastasia Island system one-year preventative maintenance is provided in **Figure 1**. An example of the coordination O&M manual table for this same equipment has been excerpted from the SR16 WWTF Blower Operations and Maintenance Manual and provided below. The complete database of Cityworks® work orders for State Rd 16(SR16) WWTF Blower Improvements Anastasia Island (AI) WWTF Solids Holding is provided in **Appendix C**.

Figure 1: Example Cityworks® Work Order for Turbo Blower Building Preventative Maintenance

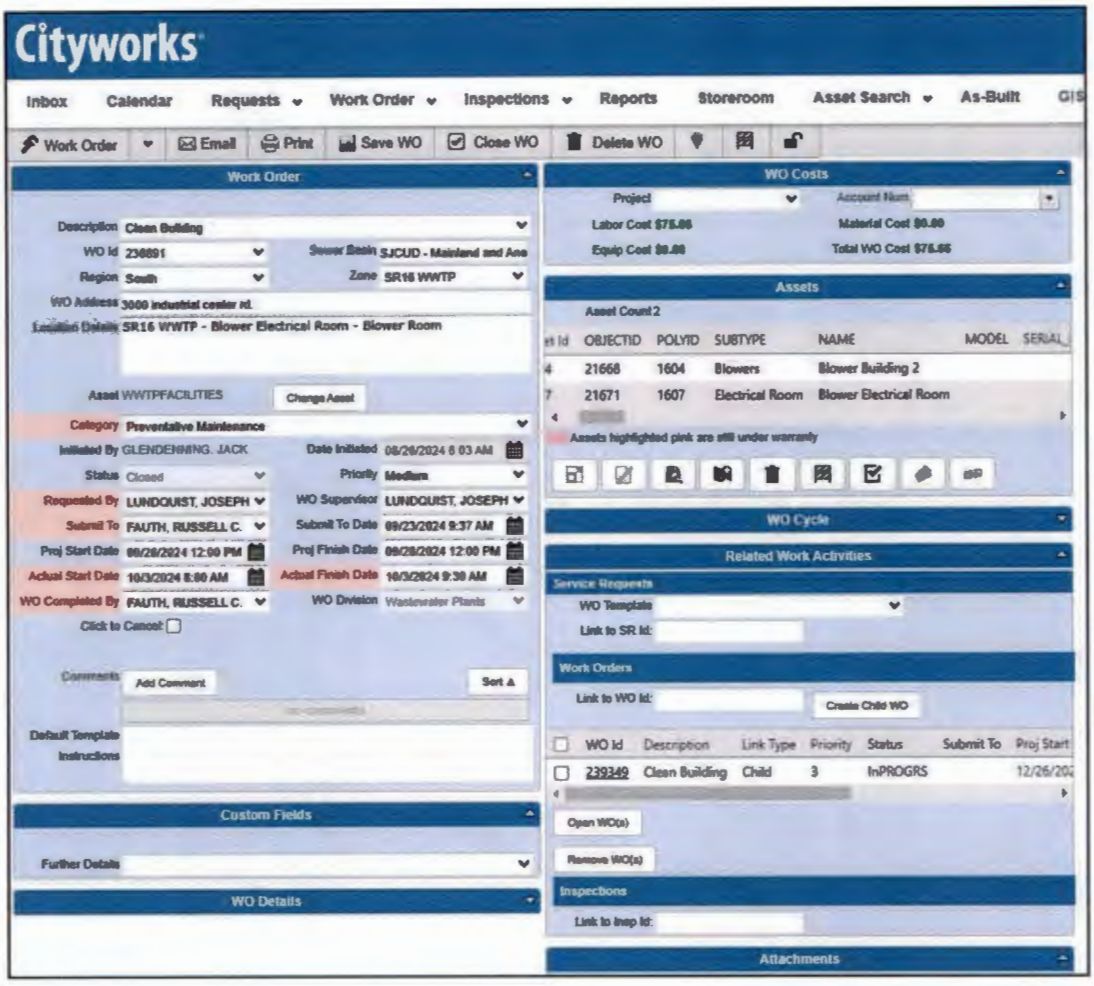


Figure 2 : Excerpt from SR16 Aerzen Turbo Blowers O&M Manual

Table 6-1 Maintenance recommendations

Interval	Maintenance		Authority
Monthly	Check filters for contamination	- Pre-filter - Medium filter	User
Annual	Visual inspection	- Piping system for any leakage - Cleaning the intake and exhaust air covers	User
		- Cleaning of main inverter or fan inverter (optional)	Authorized personnel
	Cleaning intake and exhaust	- Exhaust air opening blow off valve (BOV) - Cooling system's exhaust air outlet	User
	Checking emergency stop function		Authorized personnel

Proper funding must be supplied to support the preventative maintenance schedules and BMP designed for the facilities.

5.3 Proactive vs Reactive

Proactive maintenance consists of the preventative and predictive maintenance outlined in the facilities operation and maintenance manuals. This type of maintenance focuses on increasing the longevity of assets and preventing equipment failure through consistent scheduled maintenance tasks. Reactive maintenance is performed in response to asset failure or emergency conditions. In its nature reactive maintenance is more expensive than proactive maintenance and the Utility should implement standard operation and maintenance scheduling procedures in both facilities to reduce the occurrence of reactive maintenance. A complete maintenance schedule should be made accessible to operators to check on what has been completed and what needs to be completed. This type of scheduling will help prevent failures and increase the longevity of assets while encouraging operators to uphold standard procedures.

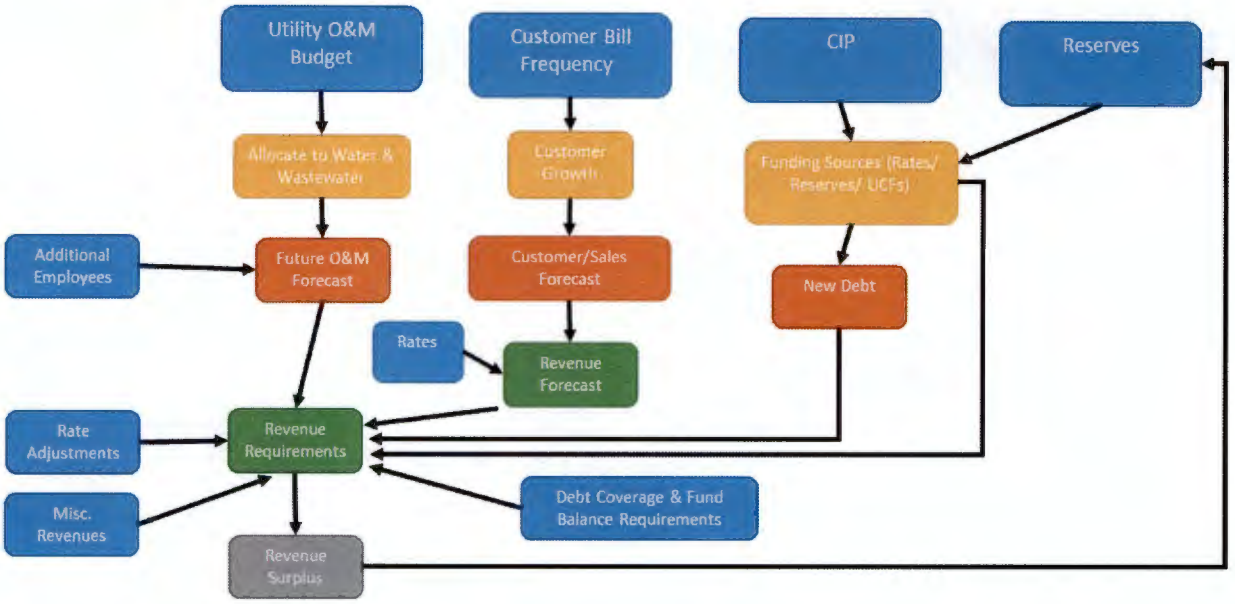
SECTION 6
RENEWEAL AND REINVESTMENT

The Utility is also addressing its aging infrastructure in its Capital Improvement Program. The Utility has an asset management program that addresses the long-term sustainability of its infrastructure and facilities. The program includes evaluating the condition and expected useful life of each asset.

SECTION 7
FINANCIAL

The St. Johns County Utility Department (Utility) financial planning and rate model is based on a 10-year outlook, projecting revenues, expenditures, debt service, capital improvements, renewal and replacement projects, and other capital outlay requirements. The Utility currently carries a highly ranked credit rating, AAA and Aa2 from S&P and Moody's ratings agencies. In order to maintain the Utility's financial viability, they review and update all financial projections on an annual basis to ensure revenue sufficiency and CIP program manageability. A flow chart providing a high-level overview of the Utility's rate model structure and feasibility is shown in **Figure 3**.

Figure 3: Rate Model Diagram



7.1 Capital Improvement Program

The framework for the Utility's Capital Improvement Program (CIP) is provided through short- and long-range planning efforts performed continually with Utility staff. The CIP prioritizes the improvements and creates the capital projects. Evolution of a capital project from inception and approval in the CIP through to construction completion generally includes the following steps:

Project Development: The Utility identifies project requirements and defines a project's work scope by conducting feasibility studies, data collection, preliminary design, permitting requirements, cost estimates and assessments of alternatives.

Land and Easement Acquisition: Alternative sites or the need for temporary or permanent easements are evaluated prior to acquisition of any land. Costs incurred include purchase, easements, and right-of-way costs. This can also include surveys, appraisals, environmental

audits, permitting, legal costs, maps, charts, aerial photography, and other costs. There were no additional land or easement acquisitions required for the State Rd 16(SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding projects.

Design Phases: Engineering Consulting, Conceptual Design and Design Development: Programmatic review and negotiations are conducted with the Utilities' consultants who are included on the Utilities Continuing Services Agreement for projects with construction costs below $4 million. If the estimated construction costs of the project exceed $4 million, securing professional engineering services must be advertised and procured according to County's purchasing policy and the "Consultants Competitive Negotiations Act" (F.S. 287.055). For the State Rd 16(SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding Upgrades project the Utility pursued the design work with Ardurra through their CSA. The design of the project is initiated in accordance with the scope of work set forth in the project development phase. These phases include technical calculations required to complete the scope of work, constructability review, operations review, data collection and evaluation, assessment of alternatives related to project design, contract documents preparation (plans and specifications), permitting, and bidding services. Also included in the design phase is any work related to the funding assistance, for this project SRF funding and loan assistance activities were part of the design efforts.

Construction Phases: This includes all construction related tasks required to place a project in service. This will typically include services from the design engineer related to shop drawing review, design clarifications, answering requests for information, attending project meetings, site visits, inspection and oversight costs and general management of the construction phase. Certification of the project to any regulatory requirements will also be required. Other tasks include construction of the work and startup of facilities including any required testing, permitting and utility coordination. At the conclusion of these phases, the project is complete and ready for operation. The State Rd 16(SR16) WWTF Blower Improvements project was constructed by Petticoat Schmitt Civil Contractors, Inc. and (AI) WWTF Solids Holding was constructed by Wharton Smith, Inc.

Table 1 includes a summary of the dates of these activities for the State Rd 16(SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding Upgrades.

Table 1: Summary of Project Capital Dates

Organization	State Rd 16 (SR 16) WWTF Blower Improvements	Anastasia Island (AI) WWTF Solids Holding
Project Development & Task Order Process	November 2020	February 2021
Land and Easement Acquisition	Not required	Not required
Design Phase	November 2020 to November 2021	February 2021 to October 2021
Construction Phase	July 2022 to Present	June 2022 to January 2024

The Utility's Capital Improvement Program consists of a ten-year outlook for capital projects for improvements, renewal, and replacement (R&R), and growth. The capital improvement program is driven by the Utility's Asset Management Program to coordinate improvements and major repairs of existing assets. **Figure 4** below provides the five-year CIP broken down by funding sources and year.

Figure 4: Five-Year CIP

Funding Category	2025	2026	2027	2028	2029	Grand Total
2029 Bonds					$ 203,175,392	$ 203,175,392
Reserves	$ 21,504,861	$ 31,300,654	$ 22,239,667	$ 35,961,289	$ 12,342,016	$ 123,348,487
Water UCF	$ 4,250,000	$ 4,290,000	$ 5,800,000	$ 7,505,610		$ 21,845,610
WW UCF	$ 14,930,000	$ 7,462,958	$ 16,546,364	$ 1,080,488	$ 11,000,000	$ 51,019,810
Grand Total	**$ 40,684,861**	**$ 43,053,612**	**$ 44,586,031**	**$ 44,547,387**	**$ 226,517,408**	**$ 399,389,299**

7.2 Funding Categories

The Utility's capital program has well defined and budgeted funding categories for most of its significant infrastructure. The five-year CIP reflects minor capital repairs for the State Rd 16(SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding facilities provided in **Figure 5**. As major equipment ages a replacement request is made to the five-year CIP. Below is the detailed funding program for both facilities.

Figure 5: Five-Year CIP Funding Program for State Rd 16(SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding

Funding Category	2025	2026	2027	2028	2029	Grand Total
Anastasia Island Wastewater Treatment Plant Improvements	$600,000	$500,000			$57,963,703	$59,063,703
Building/Office Expansion		$1,000,000				$1,000,000
CR 214 Plant Well Field			$2,000,000			$2,000,000
CR 214 Water Treatment Plant Improvement		$1,000,000	$16,000,000		$9,000,000	$26,000,000
Engineering studies	$2,975,000	$1,194,175	$400,000			$4,569,175
Forcemain System	$4,605,860	$185,609	$175,000	$2,080,488		$7,046,957
Hastings Utility Improvements	$500,000	$2,000,000			$28,981,852	$31,481,852
Infiltration/Inflow Program		$800,000	$906,090			$1,706,090
Innlet Beach Water Treatment Facility	$250,000	$1,000,000				$1,250,000
Lift station Improvements	$1,118,000	$7,182,700				$8,300,700
Marsh Landing Wastewater Treatment Facility		$1,400,000	$800,000			$2,200,000
Northwest Plant Well Field	$1,000,000	$2,000,000				$3,000,000
Northwest Wastewater Treatment Facility	$7,750,000	$5,000,000	$546,364		$102,000,000	$115,296,364
Northwest Water Treatment Plant Improvements	$3,100,000	$200,000		$22,510,176		$25,810,176
Plantation Water Treatment Facility	$1,236,000			$28,138		$1,264,138
Reuse Force Mains	$8,305,000	$3,100,000	$1,704,840	$2,519,985	$1,463,004	$17,092,829
Sawgrass WWTP					$2,251,018	$2,251,018
SR 16 Wastewater Treatment Plant Improvements	$2,224,000		$1,575,712			$3,799,712
SR 207 Wastewater Treatment Plant Improvements		$6,462,958	$500,000		$1,000,000	$7,962,958
Telemetry	$206,000	$212,180	$218,545			$636,725
Utility R&R Program	$4,650,000	$6,875,988	$6,715,880	$7,157,496	$7,627,994	$33,027,358
Water Booster Facilities		$240,000	$1,300,000	$2,251,018	$6,955,644	$10,746,662
Water Transmission Mains	$675,000	$500,002	$6,743,600	$8,000,086	$9,274,193	$25,192,881
Grand Total	**$39,194,860**	**$40,853,612**	**$39,586,031**	**$44,547,387**	**$226,517,408**	**$390,699,298**

7.3 Utility Operational Budget

The Utility's operating budget is in excess of $54,000,000 and consists of major items including, salaries and wages, contractual services, utilities, and other maintenance. The two major items utilized for maintaining existing equipment and making minor/moderate repairs are under contractual services and other maintenance accounting line items. The complete operating budget is analyzed for financial feasibility as proven the Utility pro forma financial statements and projections.

Figure 6: Fiscal Year 2025 Operating Budget

Account Title	FY 2025 Budget
SALARIES	$24,176,023
CONTRACTUAL SERVICES	$6,889,890
UTILITIES	$3,947,500
OTHER MAINTENANCE	$3,104,500
OPERATING SUPPLIES	$3,086,493
INDIRECT ADMIN COSTS	$2,330,749
INSURANCE	$1,193,696
PROFESSIONAL FEES	$1,185,414
SERVICE CHARGES	$1,079,000
BUILDING MAINTENANCE	$444,480
VEHICLE MAINTENANCE	$435,900
GAS, OIL, AND LUBRICANTS	$425,520
TRAINING	$418,900
COMMUNICATIONS	$247,145
SOFTWARE	$167,774
EQUIPMENT MAINTENANCE	$150,973
TOOLS & SMALL IMPLEMENTS	$76,900
DUES AND MEMBERSHIPS	$42,085
CONSOLIDATED	$439,200
CAPITAL EQUIPMENT	$4,471,777
TOTAL	**$54,313,919**

The operating budget is reviewed annually by management and operations down to the asset level at each facility in collaboration with the Cityworks® reporting to provide sufficient finding for asset maintaining, repairing, or replacing and is incorporated into the operation budget line items in **Figure 6**.

The individual accounts recognized above are funded each year through Utility's budget process. The budget process is completed in the early Spring and brings department managers and the administrative team together to identify and discuss operational fiscal requirements. The State Rd 16(SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding Upgrades are funded through unique department identification numbers 'Fund ID 4415'. Department 4415 includes itemized maintenance items that are either equally or individually allocated with the department's budget for each major facility. A summary of the Fiscal Year 2025

budget for the wastewater department including Anastasia Island WWTF, is shown for 53120 and 54603 in **Figure 7** and **Figure 8** below.

Each of the four facilities, share an equal amount of annual operational funding requirements, unless an individual budgeted item is uniquely identified or requested. For example, 'Routine Maintenance' has a dedicated annual funding allocation of $210,000. It is also important to note that there are two distinct request types, 'Operational' and 'Capital.' Operational expenditures are related to minor repairs and maintenance of a facility. Major repairs, generally over $5,000 are considered capital and are moved to the Utility's Capital Improvement Program budget.

Individually budgeted items are dedicated at 100% to the specific facility and requests are made each year to be identified.

Figure 7: Fiscal Year FY 2025 Budget – Department Account – Contractual Services 53120

Proposed FY 2025 - Line Item Detail	**Information**					
Department Number	**4415**					
Account Number	**53120**					
FY 25 Budget Amount	**$ 3,516,676.00**					
Account Line	**CONTRACTUAL SERVICES**					
Description/Purpose/Project/Vendor/Reason, etc.	**Transaction Type**	**Quantity**	**Frequency**	**Cost**	**One Time**	**Amount**
PROF - 60074 - WIMS ANNUAL MAINTENANCE - Annual support for the Wastewater Information Management System.		1	1	$13,000		$13,000
SLUDGE HAULING 207 to AI		75,000	12	$0		$50,400
PROF - 60081 - ALARM - Monitoring and required inspections of alarm systems		2	1	$2,000		$4,000
PROF - 60094 - NW POND MAINT - Monthly treatment of pond		1	12	$275		$3,300
PROF - 60095 - COSA - EAGLE CREEK - WW service for Eagle Creek (+3.0%)		1	12	$7,250		$87,000
PROF - 60096 - JEA - USAGE - bulk sewer - usage charge		32,000	12	$5		$1,962,240
PROF - 60098 - JEA - SERVICE AVAILABILITY - monthly availability fee		1	12	$9,518		$114,216
PROF - 60099 - JANITORIAL - weekly janitorial service for AI		1	12	$50		$600
PROF - 60128 - PEST CONTROL - pest control for all WWTP facilities		1	4	$500		$2,000
PROF - 60129 - SLUDGE - hauling and disposal of sludge		785	12	$70		$659,400
PC, NW & AI Band Screen Annual Maintenance (Hydrodyne) (4 screens)		1	1	$9,000		$9,000
Inflation/Price Increase for CS		1	1	$100,000		$100,000
Hastings Liquid (Internal) Sludge		50,000	12	$0		$33,600
Emergency Hauling		1	1	$10,000		$10,000
JEA Fruit Cove		1	12	$4,000		$48,000
HACH UVT Service Contract (NW, PC and AI) 2 x per year		3	1	$5,000		$15,000
Canal Owners		1	1	$3,000		$3,000
Sawgrass Drainage Assessment		1	1	$12,000		$12,000
Players Club Pond Maintenance		1	1	$1,000		$1,000
PV Courier		1	12	$2,000		$24,000
PV Sludge Cake - Wet Tons		225	12	$52		$140,400
Sludge Liquid - Marsh Landing to Players Club		160,000	12	$0		$107,520
Yellowstone Winter		1	4	$1,100		$4,400
Yellowstone Summer		1	16	$1,100		$17,600
Kelly Klean Winter		1	4	$1,025		$4,100
Kelly Klean Summer		1	16	$1,025		$16,400
McKinnon Landscape Winter		1	4	$3,725		$14,900
McKinnon Landscape Summer		1	16	$3,725		$59,600
Total for line number						**$3,516,676**

Figure 8: Fiscal Year FY 2025 Budget – Department Account – Other Maintenance 54603

Proposed FY 2025 - Line Item Detail	**Information**					
Department Number	**4415**					
Account Number	**54603**					
FY 25 Budget Amount	**$ 775,944.00**					
Account Line	**OTHER MAINTENANCE**					
Description/Purpose/Project/Vendor/Reason, etc.	**Transaction Type**	**Quantity**	**Frequency**	**Cost**	**One Time**	**Amount**
Electrical Panel Thermography (AI, 16, 207, NW and Hastings) (Even Years)		1.00	-	$6,000		$0
MISC - 60077 - GENERATOR REPAIRS - Generator repairs		5.00	1.00	$5,000		$25,000
General Maintenance		1.00	1.00	$250,000		$250,000
MISC - 60132 - BLOWER ANALYSIS - Vibration analysis of blower motors		2.00	1.00	$2,500		$5,000
MISC - 60136 - BLOWER REPAIR - blower repair		1.00	1.00	$25,000	$10,000	$35,000
NW WWTF (UV Bulb Replacement) (Suez - 100 per purchase x 2 Trains)		1.00	1.00	$70,000		$70,000
MISC - 60110 - ROUTINE MONTHLY - routine maintenance		1.00	12.00	$17,500		$210,000
MISC - 60111 - GENERATOR MAINT CONTRACT - generator testing per contract (includes gas tanks)		1.00	1.00	$29,000		$29,000
Other Motor Vibration Analysis		1.00	1.00	$12,000		$12,000
NW/AI/PC - Band Screen Maintenance - Contract		1.00	1.00	$10,000		$10,000
NW WRF - Neuros Blower Site Visit with PCWWTP - Check Over Blowers (2-3 years - Done in FY24)		1.00	-	$31,000		$0
NW WRF - Pump Out Grease Traps - Quarterly @ 1,100		1.00	1.00	$4,400		$4,400
207 Filter panels		1.00	1.00	$13,900		$13,900
AI Filter Skins		36.00	1.00	$379		$13,644
NW Belt Press Belts		1.00	1.00	$8,000		$8,000
SR16 Beltpress Booster Pump & Motor		1.00	1.00	$12,000		$12,000
SR 16 Aerator Spare Parts		1.00	1.00	$19,000		$19,000
AI Headworks Grating Replacement		1.00	1.00	$9,000		$9,000
SR16 Gate Automation and Card Reader		1.00	1.00	$50,000		$50,000
Total for line number						**$775,944**

7.4 Utility Revenue Sufficiency and Reserves

The Utility's pro forma statement shown in **Figure 9** generated for financial projections provides information related to sufficient revenues, the operational budget (including contractual services and other maintenance), existing and proposed debt, minor operating capital, and over financial health. In order to maintain the Utility's excellent credit rating, an 'All In' coverage target of 1.5 is maintained.

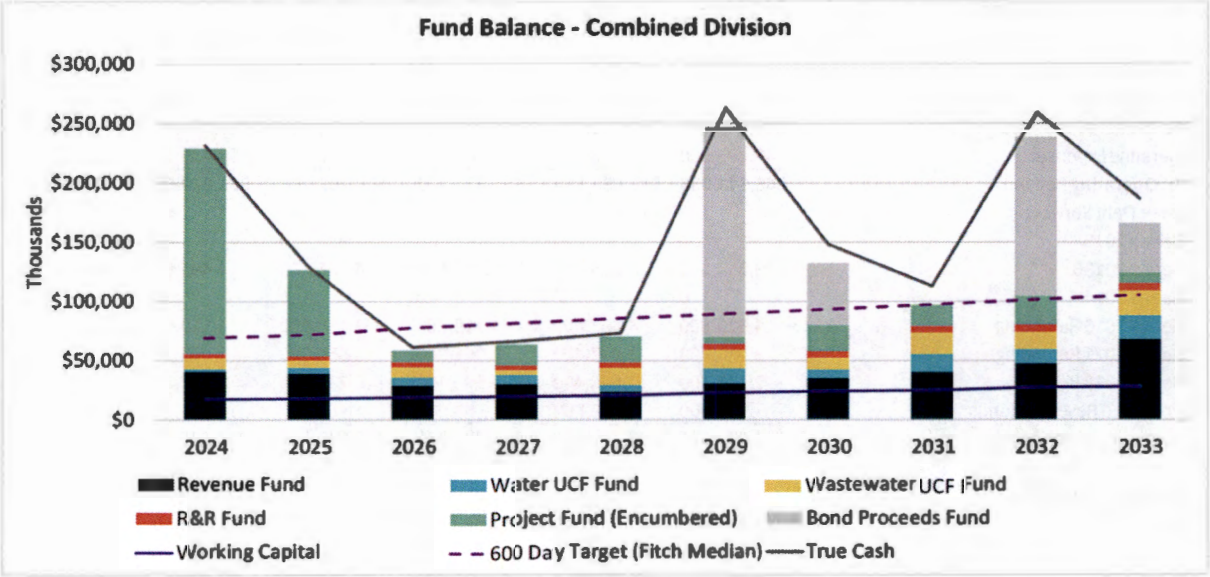
Figure 9: Recent Utility Proforma Statement

Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
System Revenues	$80,846,800	$88,852,700	$95,256,200	$101,969,200	$109,064,800	$116,473,500
Misc. Revenues	7,995,035	5,546,700	4,797,400	4,961,350	6,413,850	6,973,800
Total System Revenues	$88,841,835	$94,399,400	$100,053,600	$106,930,550	$115,478,650	$123,447,300
Operating Expenses:	43,698,800	47,308,600	49,683,400	52,178,300	54,439,100	56,788,500
Net Operating Revenue	**$45,143,035**	**$47,090,800**	**$50,370,200**	**$54,752,250**	**$61,039,550**	**$66,658,800**
Senior Debt Service:						
Series 2013A	$0	$0	$0	$0	$0	$0
Series 2013B	3,855,000	4,068,400	4,495,000	4,495,000	4,495,000	4,495,000
Series 2014	0	0	0	0	0	0
Series 2016 Refunding	4,632,800	4,467,400	4,118,100	4,116,000	4,120,900	4,118,800
Series 2021 Refunding	3,033,600	3,042,400	3,051,300	3,054,700	3,053,200	3,056,300
Series 2023 Bonds	7,106,700	7,548,400	7,965,100	8,231,800	8,231,300	8,229,600
Proposed Revenue Bonds	50,000	50,000	50,000	50,000	14,726,500	14,726,500
Total Senior Debt Service	$18,678,100	$19,176,600	$19,679,500	$19,947,500	$34,626,900	$34,626,200
Subordinate SRF Loans:						
Existing	$4,209,700	$4,393,000	$4,393,000	$4,393,000	$4,393,000	$4,393,000
Proposed	0	0	0	0	0	0
Total SRF	$4,209,700	$4,393,000	$4,393,000	$4,393,000	$4,393,000	$4,393,000
Total Debt Service	$22,887,800	$23,569,600	$24,072,500	$24,340,500	$39,019,900	$39,019,200
Net Revenues Less Debt Service	**$22,255,235**	**$23,521,200**	**$26,297,700**	**$30,411,750**	**$22,019,650**	**$27,639,600**
Other Expenses/Transfers:						
Minor Operating Capital	$2,499,400	$2,561,800	$2,625,900	$2,691,500	$2,758,700	$2,827,600
Transfer to R&R Fund	4,043,000	4,445,000	4,764,000	5,100,000	5,455,000	5,825,000
Transfer to Annual Rate Funded Capital	0	0	0	0	0	0
UCFs for Debt Service	0	0	0	0	0	0
Total Other Expenses	$6,542,400	$7,006,800	$7,389,900	$7,791,500	$8,213,700	$8,652,600
Net Surplus/Deficit	**$15,712,835**	**$16,514,400**	**$18,907,800**	**$22,620,250**	**$13,805,950**	**$18,987,000**
Senior Debt Service Coverage:						
Net Revenue	$45,143,035	$47,090,800	$50,370,200	$54,752,250	$61,039,550	$66,658,800
Current Account	2,745,500	2,732,500	2,697,800	2,700,000	15,908,400	15,910,300
Net Revenue and Current Account	$47,888,535	$49,823,300	$53,068,000	$57,452,250	$76,947,950	$82,569,100
All-in Coverage						
Projected	1.97	2.00	2.09	2.25	1.56	1.71
Target	1.50	1.50	1.50	1.50	1.50	1.50

7.5 Utility Reserves and Capital Improvement Program

The Utility does not maintain its capital funding financial viability directly through its current year revenues. The Utility utilizes a hybrid approach to balance current year revenues, existing reserves, and issuance of long-term debt to develop an optimal and fully funded capital program. The Utility's benchmark is to maintain or increase reserve balances over the projected CIP timeframe. The long-term reserve balances for the Utility are provided in Figure 10.

Figure 10: Utility Long Term Reserve Balances



SECTION 8
ENERGY MANAGEMENT

8.1 Energy Conservation and Cost Savings

Both the State Rd 16(SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding projects have been designed by considering energy conservation and cost savings practices.

The following energy management practices are implemented in the State Rd 16(SR16) WWTF Blower Improvements:

1. Turbo blowers are utilized in the SR16 WWTF. They are designed with a turndown ratio of 60%, which means they can adjust their output effectively across a wide range of operating conditions. This high turndown ratio allows turbo blowers to maintain optimal performance while consuming less energy, making them a highly efficient choice for various applications.

2. Turbo blowers are engineered to operate efficiently at very low rotational speeds. This design feature helps minimize the need for frequent start-ups and shutdowns, which are common in other blower types and can be energy intensive. By avoiding these frequent operational changes, turbo blowers contribute to significant energy savings. Additionally, the blowers are rated at 75 horsepower (hp) but has been upgraded with K1B that enhances its performance to the 100hp range. This upgrade allows it to operate more efficiently and handle higher demands without sacrificing performance.

3. One out of the two turbo blowers that are being utilized in the SR16 WWTF is refurbished. This blower was not being utilized at the AI WWTF. It was then evaluated and moved to the SR16 WWTF providing cost savings.

The following energy management practices are implemented in the Anastasia Island (AI) WWTF:

1. Positive Displacement (PD) blowers were utilized in the AI Wastewater Treatment Facility's solids holding tank because they are more efficient for coarse bubble aeration systems. These blowers offer a constant volume of air at a stable pressure, which is crucial for maintaining the consistent airflow needed in such systems. Coarse bubble aeration requires substantial airflow to create the desired bubbling effect, and PD blowers are particularly effective at providing this efficiently. The blowers are equipped with the Variable Frequency Drive (VFD) which allows the blowers to operate more efficiently.

As the facilities age, it is important to monitor how assets run and ensure that these initial practices are maintained. Energy consumption will be the main possible source of waste in each facility. Equipment and infrastructure are the main contributors to unnecessary energy consumption and should be monitored for leaks, improper connections, maintenance needs, and deterioration.

The following are energy management practices that may be considered for the future.

1. Thermal investigations will be conducted for sources of lost energy in electrical equipment connections.

2. Assets will be monitored for sources of energy waste due to excessive pumping or unnecessary air blowing.

3. The Utility will maintain, repair, or replace worn down assets as the facilities operate further into their lifecycles

The most efficient way to monitor and flag possible areas of excessive energy usage is to implement a reporting program amongst the employees of each facility. The Utility will train employees on possible signs for energy waste and encourage operators to use a cost benefit analysis before taking measures. As the facilities age it is recommended that the Utility conducts an energy assessment or audit to determine sources that may be a possible point of waste.

SECTION 9
CONCLUSIONS

It is important that the St. Johns County Utility Department (Utility) continuously monitors the State Rd 16(SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Holding facilities per the Fiscal Sustainability Plan (FSP). The Utility should pay extra attention to potential sources of energy waste and reasons for reductions in the expected efficiency or useful life of equipment at either facility.

9.1 Implementation

The following are suggestions to successfully implement this FSP:

1. Designate roles within the facility to ensure asset management is being performed.

2. Utilize Cityworks® system at both facilities.

3. Educate operators on the LOS the Utility has promised to their consumers and perform quality tests to ensure this is being met.

4. Operators should follow the operations and maintenance manuals written for each facility and operations and maintenance manuals provided for each equipment to practice preventative maintenance rather than reactive maintenance.

5. Ensure that each operation has adequate funds to perform operation and maintenance procedures as they are intended.

6. Look for additional funding options. Some sources of funding are presented in **Table 2** below, but the Utility should look for additional ways to financially support each operation.

7. Revise the FSP annually to reflect the current conditions of the operation. Changes in the operation that should be reflected in the FSP include, but are not limited to, asset inventory, asset condition, operation and maintenance procedures, asset management team, and long-term financial plan.

9.2 Funding Sources for Wastewater Systems

Table 2 contains possible sources of funding for the Utility.

Table 2: Sources of Funding

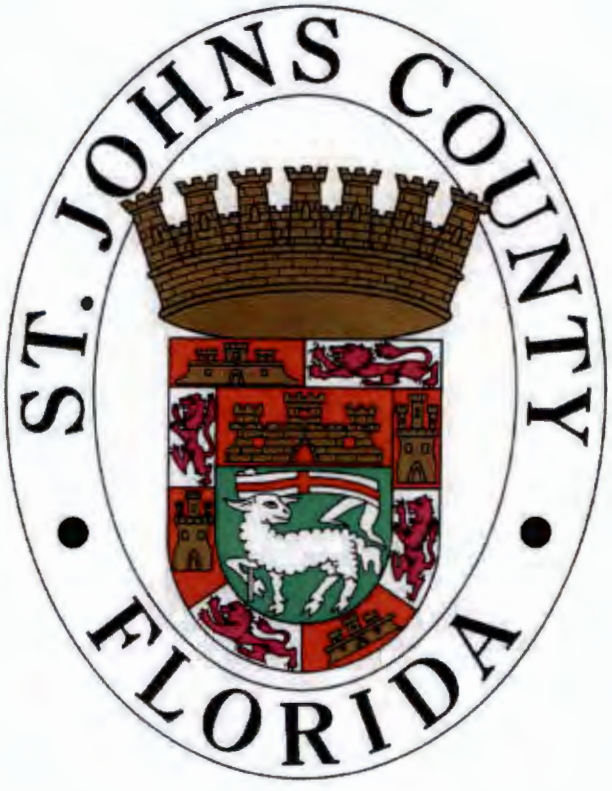
Organization	Website
FDEP Clean Water State Revolving Fund Loan Program (CWSRF)	https://floridadep.gov/wra/srf/content/cwsrf-program
Florida Department of Economic Opportunity Community Development Block Grant (CDBG)	http://www.floridajobs.org/community-planning-and-development/assistance-for-governments-and-organizations/florida-small-cities-community-development-block-grant-program
Florida Department of Emergency Management (FDEM)	https://www.floridadisaster.org/dem/
SJC Office of Management and Budget	http://www.sjcfl.us/OMB/index.aspx

*See financial resources list in beginning of document.

APPENDIX A:
St. Johns County Asset Management Procedures Manual

FINAL
MANUAL

St. Johns County Utility Department
Asset Management Procedures Manual



St. Johns County

July 2011

CDM

Contents

Section 6 – Maintenance Management Procedures

Section 7 – Asset Management Budget Planning Process

Section 1
Introduction to Asset Management Procedures Manual

This section of the Asset Management Procedures Manual describes the manual's purpose and structure as well as the process to be used to update or modify the manual as the Asset management Program grows and changes.

1.1 Manual Purpose and Structure

This Asset management manual has been developed to support the implementation and sustainability of an effective Asset Management Program for the St. Johns County Utility Department (SJCUD). The SJCUD is implementing an asset management program to aid it in efficiently serving its customers and ensure that it meets its environmental, economic, and regulatory goals. This manual is an important element of a comprehensive asset management program and documents the fundamental practices, methods and procedures necessary for successful asset management at the SJCUD.

The manual is meant for the use of the SJCUD workforce, SJCUD management, and County policy makers. This manual will be used to communicate asset management concepts and to provide a basis for asset management learning for SJCUD staff. The manual will also provide information on the SJCUD asset management procedures and business practices to County managers. The manual is intended to be a flexible document that will serve both as a reference manual and as a foundation for the future introduction of more sophisticated asset management practices. The manual's content will change as the SJCUD grows in its experience with asset management. As the SJCUD's familiarity and command of asset management improves, new procedures and practices will be added while existing procedures and practices are modified. New technology and tools will be introduced and the practices associated with their use will be documented in this manual. In general, the manual will become a repository for all the critical practices and skills associated with the asset management program at SJCUD. This manual, then, should be considered as version one. Subsequent versions will incorporate updates.

The manual will begin by introducing basic asset management concepts which will be the basis for many of the policies developed later in the manual. This introduction is not intended to be a comprehensive review of asset management, but rather an overview to provide the reader with a general understanding of the terminology and program elements associated with an asset management program. Next, the manual will detail the criteria used to define and classify assets as well as the procedures to be used to inventory and record assets in the various information systems used by the SJCUD. This includes topics related to the level of detail used to define an asset, the information needed to categorize and support maintenance decisions related to that asset, and the process for reconciling the SJCUD assets with the County Financial

Department's list of capital assets. Finally, the manual will outline the procedures and processes related to maintenance and capital asset planning. The manual will outline the business processes to perform maintenance activities, track the resources used for that maintenance, and strategically plan for asset renewal. The manual is organized as follows:

- Section 1: Introduction to Asset Management Procedures Manual
- Section 2: Asset Management Overview and Objectives
- Section 3: Asset Management Definitions and Roles
- Section 4: Asset Definition and Classification Procedures
- Section 5: Asset Recording Procedures
- Section 6: Maintenance Management Procedures
- Section 7: Asset Management Planning Process
- Section 8: Ongoing System Improvement Procedures

Manual users will use the manual as a reference tool and will access those sections applicable to their specific circumstances. Learners, however, will find that asset management concepts are best understood by following the sequence of sections as presented.

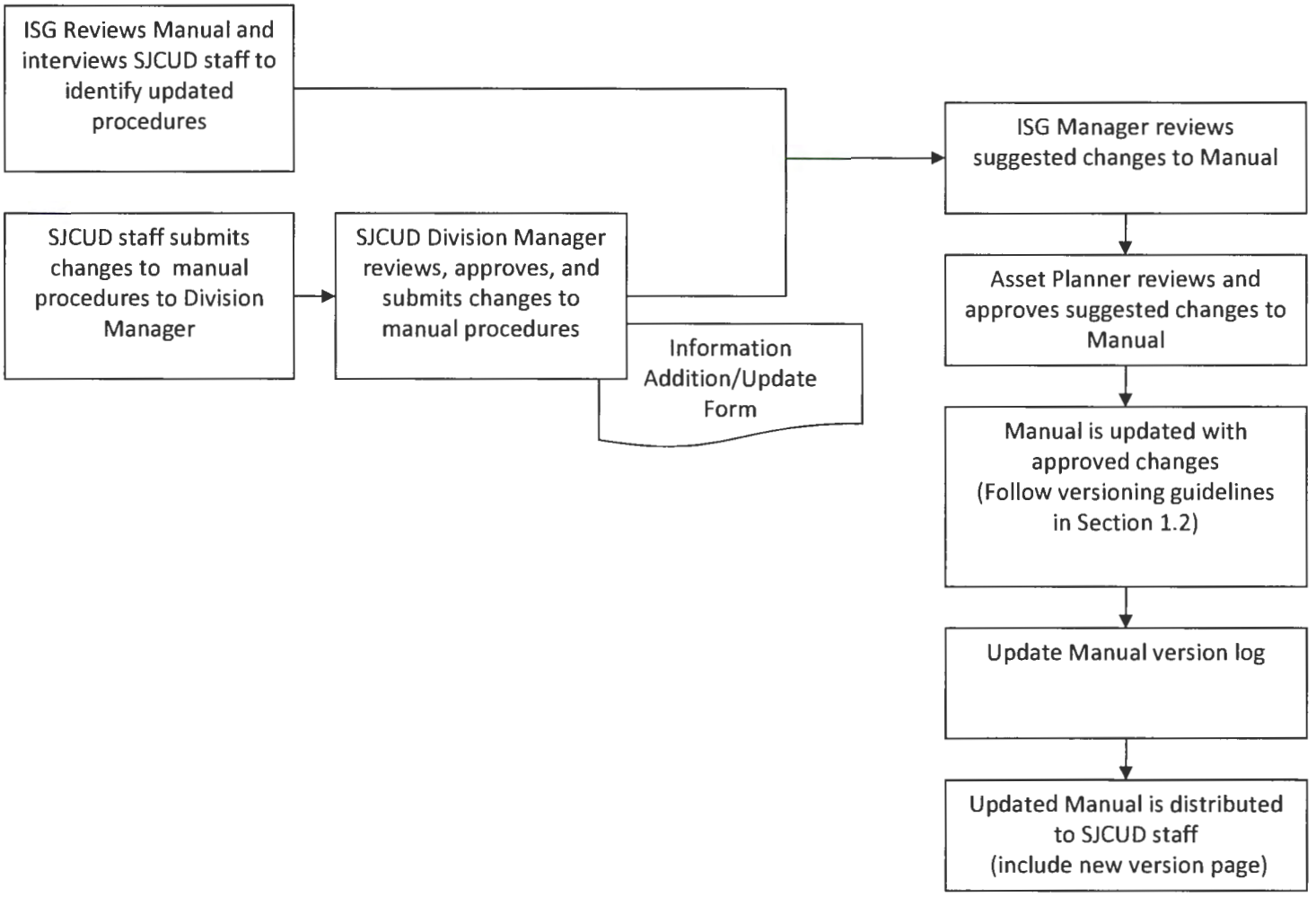
1.2 Manual Modification Process

The Asset Management Manual is a working document updated through the process depicted on **Figure 1-1**. The sections of this manual are expected to reflect the growth of the SJCUD's Asset Management Program; however ultimate responsibility for maintaining the procedures outlined in this manual resides with the SJCUD Information Systems Group (ISG). The SJCUD ISG will meet annually to review the asset management procedures and make updates as appropriate. Figure 1-1 reflects the approval process for implementing new asset management procedures and adding them to this manual.

On an annual basis, the SJCUD ISG department will review the content of the manual and conduct interviews with SJCUD staff to determine data gaps or modification in existing work practices that should be reflected in the manual.

For modifications initiated by SJCUD staff outside the ISG department, the following form should be used to submit new or modified procedures. The new procedures should be described in detail on the form such that the procedures to be replaced can be easily identified and replaced.

Figure 1-1 Asset Management Procedures Manual Update



Proposed revisions to the manual can be executed on an individual basis (minor revisions) or collected over a period of time and all changes made at once (major revision). Minor revisions are defined as those that depict process or policy changes with local impacts to a few divisions within the SJCUD. Major revisions are defined as those that depict a large process change that affect multiple divisions and will require group consensus for approval. Revisions that do not affect policy, such as grammatical changes or typographical corrections, do not require a revision; a change in the manual date will reflect that a change of this nature has been made.

Each modification to the Asset Management Procedures Manual will result in a new version of the manual. It is important to maintain a consistent versioning procedure to document changes made to the manual. The initial version of the manual is Version 1.0 (X.Y format). Each minor revision to the manual will result in a sequential increase in Y. Each major revision to the manual will result in a sequential increase in X. **Table 1-1** below illustrates an example versioning. Upon each revision, the changes made to the manual should be briefly recorded in the manual revision log located in **Appendix A** of the manual.

Table 1-1. Example Versioning Scheme

Version	Type of Modification
1.0	Original Version
1.1	Minor Revision
1.2	Minor Revision
2.0	Major Revision
3.0	Major Revision
3.1	Minor Revision
3.2	Minor Revision

1.3 Manual Distribution

At a minimum, the following parties shall hold a copy of the Asset Management Procedures Manual.

- Utility Maintenance Coordinator III (Lift Station Superintendent)
- Underground Superintendent
- WW Operations Superintendent
- Water Operations Superintendent
- Utility Maintenance Coordinator II
- Underground Utility Coordinator II
- WWTP Lead Operators I and II

- WTP Lead Operators III
- Utility Engineering Manager
- Chief Engineer - New Development
- Chief Engineer Capital Improvement
- Info System Coordinator
- Asset Planner

Section 2
Asset Management Overview and Objectives

This section of the Asset Management Procedures Manual provides an overview of the broader goals and objectives that govern the SJCUD. These overarching goals and objectives guide the asset management program and provide a basis for the development of asset management related goals for the SJCUD.

2.1 Overview

The staff and management of the SJCUD take pride in their mission:

To serve our customers by meeting their public health and fire protection needs through the provision of safe, reliable drinking water and environmentally responsible wastewater treatment and reclaimed water service. To deliver these services at affordable rates with emphasis on customer service and the protection and preservation of our natural water resources and environment.

We strive to maintain the highest quality service to our customer's at the most competitive rates. In support of that mission, the SJCUD owns and operates an extensive utility infrastructure system consisting of 10 wastewater treatment facilities, 9 water treatment facilities, more than 650 miles of potable water distribution system, more than 550 miles of sewer collection system, and more than 300 assorted pumping stations valued at more than $369 million. The need to sustain and upgrade these physical assets poses an ever increasing challenge as the infrastructure ages and budgets tighten.

Like many utilities, the SJCUD experienced rapid growth in the mid 1990s and 2000s The SJCUD has implemented good planning procedures for accommodating this growth within our service areas. In addition to growth management procedures, the SJCUD has developed planning processes for maintaining and replacing aging infrastructure. The focus of asset management is to develop these planning processes and maintenance strategies to result in the lowest life cycle costs for the utility's infrastructure assets.

An asset management program is a systematic process of maintaining, upgrading and operating physical assets cost effectively. It combines engineering principles with sound business practices and economic theory, and provides tools to facilitate a more organized, logical approach to decision-making. Thus asset management provides a framework for handling both short and long range infrastructure planning acquisition, operation, maintenance, and replacement. Asset management is a comprehensive approach that incorporates information management, maintenance and planning procedures, materials, and equipment, and reporting on assets to drive informed decision making for the maintenance and growth of the utility as a whole.

2.2 Asset Management Purpose

Specific business objectives of the SJCUD that will be furthered by a comprehensive asset management program include ensuring effective reliable treatment, providing environmental compliance, keeping SJCUD assets from avoidable maintenance risk and avoiding inefficient financial expenditures. An effective asset management program will ultimately help the SJCUD achieve some very important advantages:

- Improved overall system reliability
- Reduced cost of ownership and maintenance
- Networked information system that supports effective decisions regarding maintenance, repair, and replacement
- Complete, maintainable inventory of SJCUD assets
- Flexible program that includes both information and tools to support planning and financing well into the future
- Allow SJCUD staff to more easily use the Computerized Maintenance Management System (CMMS) to make maintenance decisions

2.3 St. Johns County Utility Department Strategic Goals

The SJCUD goals flow from our mission statement. The strategic goals for the SJCUD describe a road map and focus for the future of the utility. These goals set priorities for the most important tasks in order to allocate resources to programs and strategies of the highest value and they coordinate and align the SJCUD's actions across the organization. The goals were developed as follows:

- Operate, maintain and protect our collection and treatment systems to ensure that all state and Federal requirements are met or exceeded.
- Continuously evaluate SJCUD environmental performance to identify, quantify and minimize SJCUD impacts to the environment in a cost effective manner.
- Manage SJCUD's finances through strong financial planning and controls such that user charges are minimized.
- Maintain a customer-focused attitude throughout the organization.
- Attract, develop, and retain highly qualified employees
- Improve and enhance internal and external communications to increase the understanding of "who we are" and "what we do"

- Ensure that the SJCUD organization is aligned with and supports our strategic goals

2.4 St. Johns County Utility Asset Management Goals

The goals for the asset management system provide the same kind of guidance and alignment for asset management implementation as SJCUD's strategic goals provide for the SJCUD organization. They serve to drive the initiative in the proper direction. However, for the asset management goals to be effective for the whole of SJCUD, they must clearly support SJCUD's strategic goals.

- To establish asset management practices that stabilizes rates by optimizing expenditures
- To have immediate access to detailed information about all of SJCUD's assets
- To improve customer relations, specifically the confidence of the customer in our ability to operate and maintain our assets.
- To use best asset management practices to minimize operational or financial problems
- To eliminate permit violations through consistent and reliable operations and maintenance
- To proactively anticipate capital and operational expenditures
- To safeguard the welfare of the workforce
- To facilitate the efficient use of resources including staff, software, equipment, and knowledge

2.5 The Relationship of Asset Management Goals to Strategic Goals

The relationship of SJCUD's strategic goals to asset management goals is illustrated in **Table 2-1** below. The table includes several additional asset management goals beyond the ten identified above. At least two of SJCUD's strategic goals, for example, relate to meeting regulatory requirements or minimizing environmental impacts. Asset management through its intense focus on risk assessment will work to significantly minimize potential permit violations as well as operations or process "upsets."

In terms of costs, several asset management goals again relate to the SJCUD strategic goals of minimizing user charges and maintaining cost effective operations and maintenance. Asset management systems focus on maintenance practice, operations practice and capital planning, relating them directly to their impact user rates and

costs. As illustrated on **Figure 2-1**, the goal of asset management is to balance maintenance and capital expenditures to achieve the lowest lifecycle cost for an asset. Beyond these relationships, the rationalization provided by asset management risk projection and documentation serve to support SJCUD's strategic goals for its customers and communications practices. Comprehensive asset management systems require the development of procedures and practices that enable the public and other stakeholders to clearly understand the basis for projected capital and operating. The specific connections between the SJCUD's strategic goals in these areas and the relevant asset management goals are further noted in Table 2-1.

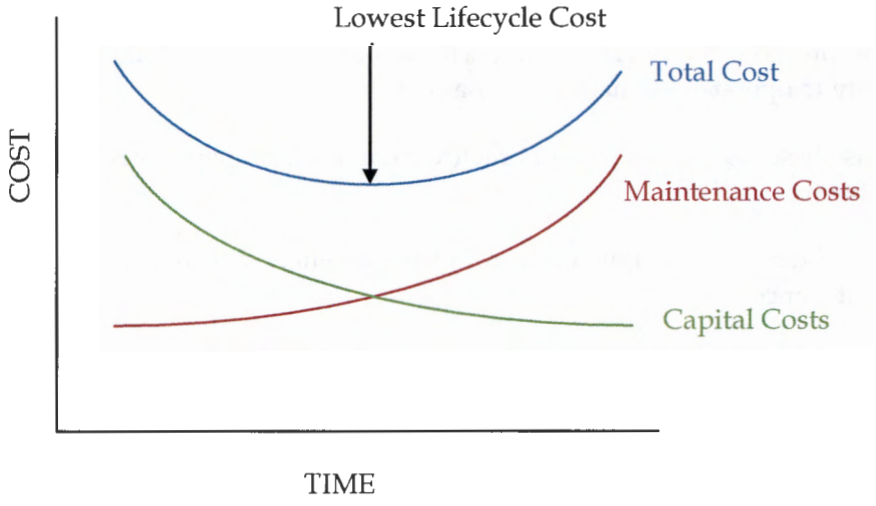


Figure 2-1 Balance of Maintenance Costs and Capital Costs to Achieve Asset Lowest Lifecycle Cost

Table 2-1. Relationship between SJCUD Goals and Asset Management Goals.

		Meet or exceed regulatory requirements	Minimize environmental impacts	Minimize user charges with strong financial planning	Maintain customer focus	Attract and retain qualified employees	Improve external and internal communications
1	To provide high quality service	X			X		
2	To stabilize rates by optimizing expenditures		X	X			
3	To have access to detailed information about SJCUD assets	X	X				
4	To improve public relations				X		X
5	To minimize operational or financial problems	X	X				
6	To eliminate permit violations through consistent and reliable operations and maintenance	X	X				
7	To proactively anticipate expenditures			X			X
8	To safeguard the welfare of the workforce					X	
9	To eliminate emergencies and corrective (reactive) maintenance		X				
10	To improve morale, job satisfaction, and provide a clear understanding of job roles and expectations		X			X	
11	To manage rates through the correlation of the condition of the assets and their dollar value			X	X		
12	To anticipate and justify rate increases		X	X	X		
13	To protect and improve the conditions in the Lower St Johns River and Upper Floridan Aquifer	X	X				

2.6 CMOM

In January 2003, the U.S. Environmental Protection Agency (USEPA) published its new Capacity, Management, Operations and Maintenance (CMOM) regulations for enforcing the Clean Water Act's provisions for eliminating sanitary sewer overflows (SSOs). It requires publicly-owned utilities to have an asset management system functional for tracking maintenance and replacement activities related to the utility's

assets. Though they do not specify the type of asset management system required, the USEPA does specify the information it expects the utilities to be able to report.

The Asset Management Program presented in this manual exceeds the requirements of EPA's CMOM program. The SJCUD is in the process of developing its CMOM procedures. For additional information on the SJCUD's developing CMOM Program, contact SJCUD management.

2.7 Asset Management Program Concepts

This section provides a brief overview of Asset Management concepts that will be discussed in more detail throughout the manual.

Asset Management is a process for providing the public with a cost-effective level of service through the creation, acquisition, maintenance, operation, rehabilitation and disposal of assets for existing and future customers. Good asset management starts by understanding the lifecycle of individual assets, from planning for the asset all the way through to disposal of the asset. Figure 2-1 depicts a typical asset lifecycle and the important phases in the life of the asset. The development of asset management strategies for all of the utility's assets follows from the basic understanding of individual asset lifecycles. The goal of a strategic asset management plan seeks to maximize the cost-effective use of municipal capital assets over the life of the asset. Asset Management is guided by performance goals and level of service (LOS); covers an extended span of time; incorporates economics, decision sciences, engineering, and computer technology; and addresses organizational issues that affect the deployment of the plan. Because asset management focuses on physical assets as well as their maintenance and use, LOS determinations are applied to both. Levels of service can be defined as "measurable key attributes of an asset or service that characterize or quantify the nature or frequency of the asset or service". In effect the LOS defines the level of performance for the asset or service. The "target LOS" is the intended level to be delivered. Levels of service should be assigned to maintenance (e.g. sanitary sewer mains shall be cleaned no less than once every three years), and to the operations (e.g. design peak flow shall be no less than three times the average daily flow). Level of service statements become design targets for new assets and become maintenance benchmarks for operating assets. These LOS statements become the basis for establishing work processes (step by step descriptions of how operations and maintenance tasks should be executed), which are used to set staffing and equipment levels and determine budget needs.

Asset management methods should be able to integrate information related to asset inventory, condition, levels of service, useful life, design life, maintenance schedules, and repair frequencies. Department managers use this information in developing strategies for when and how much to invest in maintenance, rehabilitation and replacement of assets. The ultimate goal is to maintain the appropriate level of service, accounting for reliability, with the lowest investment or cost. Consistent application of

good strategic decisions will result in user rates that are the lowest they can be for an expected level of customer service.

An Asset Management System includes all information technology systems needed to track the information the Department managers want for their planning activities. Recent advances in computer hardware and software technology provide cost effective tools for properly tracking asset information. Not only are these systems used for strategic planning but also for daily tracking of work orders and normal maintenance activities. An Asset Management System needs to track the following basic categories of information.

Asset Inventory - A complete inventory of assets including fields designed to categorize assets in useful groupings (service area, water utility, facility, etc.). Inventory of parts and tools is also important and should be tracked but these are normally tracked in a different way than assets. (See Section 4.0)

Asset Condition - The installed date, estimated useful life, current condition assessment, and numerous other attributes that properly define the condition of an asset must be tracked. Also, information related to condition assessment frequencies should be tracked by asset groupings. (See Section 7.5)

Asset Costs - The valuation component of an asset management system assigns and maintains financial value to inventoried assets consistent with generally accepted accounting principles. These costing techniques may be different for different groupings of assets.

Computerized Maintenance Management System (CMMS) - The heart of the asset management system, this component tracks and records data about work performed, posts and tracks preventive and predictive maintenance schedules, and generates work assignments

Analysis and Evaluation Tools - In this component, evaluation techniques are used to prioritize work effort, analyze cost-effectiveness, optimize the performance of the asset, and analyze the risk-versus-cost tradeoffs. (See Section 7.0)

The primary function of the asset management system will be to enable the SJCUD to manage their infrastructure and plant assets based on an asset management plan. This requires an accurate understanding of what assets the SJCUD has, the asset condition, and its replacement value. It also requires an understanding of what business practices associated with asset management can be continuously improved, what the priorities and risks are, what improvements need to be made to optimize the use and extend the life of these assets, and how to most effectively fund maintenance, refurbishment, and replacement of these assets.

An asset management process will include periodic audits performed by the SJCUD Asset Management Review Team. This team will include the SJCUD ISG as well as

SJCUD Division Managers. On a periodic basis (possibly once every five years) the management team will review the existing asset management procedures, maintenance planning processes, budget performance, and all elements of the asset management process to verify the following four objectives:

- Asset-related costs are being reduced as anticipated.
- Required service levels are being met.
- Asset-related procedures are being conducted as planned.
- Asset plans are being properly updated and improved.

On findings from the audits, the asset management procedures should be updated. Strategic asset management plans will be defined by time period (typically by fiscal year) and should provide information needed to develop comprehensive strategic financial plans for all asset-related activities of the SJCUD as described in Section 7.0 of this manual.

2.7.1 Operations & Maintenance Strategies

Operations & Maintenance (O&M) strategies relate to the planning for day-to-day running and normal maintenance, developing decision-making criteria, and documenting asset use and performance. O&M strategies are particularly important for dynamic assets with short lifecycles. The O&M component of the asset management plan establishes the operational criticality of assets and addresses development and implementation of preventative maintenance programs. The plan should have a goal of reducing the usage of spare parts as a result of less reactive maintenance, improved instrument monitoring, and better diagnosis of faults. The plan should establish O&M criticality for the following activities:

- Maintaining work order priorities
- Prioritizing need for repair parts
- Establishing procurement priorities
- Establishing standard operating procedures
- Providing operations training on use of equipment
- Planning maintenance strategies
- Planning and implementing normal maintenance
- Monitoring asset condition

A properly maintained Asset Management System will provide information in a useful format to allow the manager to develop O&M strategic plans.

2.7.2 Rehabilitation & Replacement Strategies

The asset management plan will contain a strategic component related to the renewal and replacement (R&R) of assets. The asset management plan should balance the needs for renewal and replacement with potential cost savings related to increasing maintenance activities on an asset. Evaluation and analysis can be performed on an asset-by-asset basis or by groupings of assets. Also, information should be maintained and available to the SJCUD managers far to allow for incorporation of large R&R projects in the SJCUD's capital improvement program. Funding strategies are critical for this aspect of the asset management plan since there are several different project types that will be initiated by these planning activities.

Establishing clear criteria for distinguishing O&M activities from R&R projects is helpful in creating asset management plans. However, SJCUD managers should have the flexibility to make decisions on an as-needed basis throughout the course of a given year. Please see Section 7.0 of this manual for additional details on the SJCUD R&R Planning Process.

2.7.3 Asset Condition Monitoring

Asset condition monitoring is an ongoing process of observing or measuring asset use and condition. This is not just to determine if the asset should be replaced or repaired but helps to predict the cost of maintaining installed assets. Managers can determine and evaluate the frequencies and activities involved in normal maintenance. Condition monitoring determines the optimal types and frequencies of preventive maintenance, and provides early warning of asset deterioration and prediction of equipment failure. Condition monitoring is the key to optimizing the physical activities involved in asset management and is used to update the entire asset plan. . Please see Section 7.5 of this manual for additional details on the SJCUD Condition Assessment Procedures. The key objectives of the asset condition-monitoring program include:

- Identify assets that are not performing to standards
- Predict when asset failure will occur
- Determine the cause of asset failure
- Determine what corrective action will prevent recurring failures
- Record failure data for later use

The benefits of knowing the current condition and performance level of assets are:

- Ability to plan for and manage delivery of the required level of service
- Avoidance of premature asset failure
- Risk management associated with asset failure
- Accurate prediction of future expenditure requirements
- Refinement of maintenance and rehabilitation and replacement strategies
- Reduce capital costs by optimizing asset lives
- Reduce maintenance costs by improving allocation of maintenance resources

A successful asset management program must support and sustain the key business objectives of the utility. This section summarizes the goals of the asset management program and their relationship to SJCUD's strategic goals as well as stakeholder interests. SJCUD staff, working on the asset management implementation, has identified how asset management would support and sustain the SJCUD's strategic goals. The results are summarized below. The key outcome was to ascertain and confirm that the implementation of a comprehensive asset management system would:

- Support and sustain the strategic goals and objectives established for the SJCUD
- Meet the needs of the various stakeholders served by the SJCUD

Section 3
Asset Management Definitions and Roles

This section of the Asset Management Procedures Manual outlines some common definitions used in asset management and defines the functional roles established in the SJCUD Asset Management Program.

3.1 Asset Management Definitions

Asset For the purposes of this manual, all assets refer to fixed assets. Anything owned that has a commercial or exchange value and will provide the owner with some form of future benefit. Asset management programs for water and wastewater utilities generally focus on capital or infrastructure assets.

Asset hierarchy Groups or categories of assets in a logical organization to support effective cost roll-up and condition analysis across groups of assets. The asset hierarchy is determined by maintenance organization needs or cost accounting structures.

Asset inventory A list of assets that includes details on the type, size, materials of construction, installation cost, acquisition date, estimated life, and other attributes of each asset, or the process of developing a list of assets with this information.

Capital asset A long-term asset that provides value or benefit for more than a year and whose initial cost is greater than capitalization thresholds or minimum reporting requirements contained in the County's Administrative Code. A capital asset has a value that can appreciate or depreciate and that is used to conduct the utility's business; typically includes fixed assets such as land, buildings, machinery, equipment, and fixtures.

Capital improvement Generally refers to all capital expenditures that are included in a utility's capital improvement plan (CIP).

Capital renewal A term encompassing rehabilitating, refurbishing, or replacing capital assets to restore an asset, facility, or system to its original condition and function.

CIP (Capital Improvement Plan) A plan for prioritized improvement expenditures taking into consideration the fundamental strategic goals for a utility system, including growth, expansion, renewal and replacement, upgrade, regulatory compliance, and stakeholder service needs. Typically, CIP documents show the projected annual expenditures by project and category for at least five years. Increasingly, utilities are extending their CIP documents to 10- or 20-year timeframes and including projected sources of revenue where available. Traditionally, CIPs have been updated on a regular cycle, such as once per year or every other year. Some agencies have begun the practice of updating their CIP documents on a continuous basis and posting the current CIP on either Intranet or Internet sites.

CMMS (Computer Maintenance Management System) Software that aids in managing the maintenance of assets. The basic functions of a computerized maintenance management system include asset inventory, preventive maintenance scheduling, work order documentation, spare parts inventory control, and inspection documentation.

Synonyms:
- Computerized Maintenance Management System (CMMS)
- Enterprise Asset Management System (EAMS)
- Work Order Management System (WOMS)
- Service Request/Work Order Management System (SR/WOMS)

CMOM (Capacity, Management Operation, and Maintenance) A program to be required by the EPA to eliminate sanitary sewer overflows (SSOs) and backups. CMOM process is designed around managing the wastewater infrastructure assets at a determined level of service.

Condition assessment Periodic assessments, either judgmental or definitive, to evaluate the physical state of an asset and the current and projected levels of performance. The product of a condition assessment should be a replicable determination of the objective status of an asset or group of assets.

Condition-based maintenance Activities that test or monitor the operating condition of an asset to determine when maintenance is required. Examples include vibration analysis and performance monitoring.

Corrective or Reactive maintenance Activities that are performed on an as-needed basis to address or correct deteriorating performance, failure, or shutdown.

Enterprise fund A fund established to account for operations that provide services that are financed primarily by user charges or revenue bonds or activities where periodic measurement of net income is appropriate for capital maintenance, public policy, management control, or other purposes. Many municipal water utilities and sewer utilities are established for accounting purposes as enterprise funds.

General capital assets The subset of capital assets associated with governmental, rather than enterprise, activities.

General infrastructure Capital assets that normally are stationary in nature and normally can be preserved for a significantly greater number of years than most capital assets. General infrastructure assets of municipal government agencies typically are supported primarily through property taxes and other general fund revenues.

Infrastructure asset Long-lived assets that are normally stationary in nature and provide the services of the organization, including pipelines, treatment facilities, and their equipment and appurtenances.

Inventory An accounting of assets at a facility or site. An inventory includes information such as size and/or capacity, materials of construction, location, installation date, original cost, replacement cost, condition assessment, performance assessment, original service life, etc. Also refers to the actions taken to account for assets at a facility or site. This includes the initial actions to account for assets, as well as ongoing actions to update or improve the asset inventory.

Life cycle cost The total cost of owning an asset over the estimated period of time during which an asset is expected to be able to be used or the benefits represented by the asset are expected to be derived. Costs include both capital costs and those of a recurring nature. Examples include design, construction, maintenance, insurance, rehabilitation, operating, and disposal costs.

Operating reserve fund Funds dedicated to support the operation and maintenance activities of an agency. In some cases, utilities agree to set aside a reserve of some specified amount or portion of their operating budgets as part of their bonding covenants in order to ensure that there is an adequate cash flow to fund the ongoing operation of the system. The availability of dedicated funds enhances the creditworthiness of the utility, as investors know that utilities will have a reasonable funding basis to support the proper maintenance of the facilities.

Predictive maintenance Activities that test or monitor the operating condition of an asset to determine when maintenance is required. Examples include vibration analysis and performance monitoring. Also known as condition based maintenance.

Preventive maintenance Activities that are performed prior to failure of an asset and before the asset reaches a point of unacceptable performance that will prevent, minimize, or delay failure and/or shutdowns. Examples include adjustments, cleaning, and replacement of minor components.

Property retired As applied to utility plant, property which has been removed, sold, abandoned, destroyed, or which for any cause has been permanently withdrawn from service.

Purchase Order Buyer-generated document that authorizes a purchase transaction. It sets forth the descriptions, quantities, prices, discounts, payment terms, date of performance or shipment, other associated terms and conditions, and identifies a specific seller. When accepted by the seller, it becomes a contract binding on both parties.

R&R (Renewal and Replacement) Activities that rehabilitate, or replace assets within a utility's infrastructure system. Renewal of an asset can be performed in-kind (i.e. to

provide the same level of service as originally designed) or upgraded to address different design conditions than originally designed.

R&R Strategy A formal set of policies and procedures establishing a utility's asset management performance measurements, policies, decision-making rules, and management activities that will be used to achieve the utility's asset management objectives. The procedures and protocols that are used by an agency to determine which expenditures are considered "capital" expenditures that enter the fixed asset register of the system, and which expenditures are considered operating expenses. Criteria that are used to determine which expenditures are capitalized may include: 1) value of the expenditure; 2) useful life of the asset; and 3) purpose of the expenditure (e.g., whether renewal expenditures extend the life of an asset or maintain it within an existing life span).

Remaining useful life Estimated life remaining of an asset from current date to anticipated date of retirement, assuming that a reasonable and normal level of preventive maintenance is performed. The remaining useful life is initially based on the design life determined by the engineer of record and is adjusted based on periodic condition updates or knowledge of asset class performance.

Renewal Restoring an asset's condition to the expected level of service, an "as-new" condition, using identical materials and parts..

Replacing or replacement When not otherwise indicated in the context, the construction or installation of an asset in place of a retired asset, together with the removal of the property retired.

Routine Maintenance Activities performed at the recommendation of the equipment manufacturer to enable the equipment to function as intended. Also known as normal maintenance.

Service request A document that requests work to be performed. This document is routed for approval to create a Work Order.

Work order A document providing authorization for a task to be performed.

3.2 Asset Management Roles

The SJCUD has recognized the need to ensure the sustainability of the asset management program by defining the roles in each major functional group associated with asset management. For any organization to function effectively, the individuals within the various groups must know and understand their individual roles and how they contribute to the maintenance of an accurate asset record. This means that clear lines of responsibility need to be established and procedures and policies implemented to support effective execution of assignments. Asset management tasks and responsibilities will become a part of the normal routine work tasks of many

managers and employees; however, it is important to define the specific asset management roles and who will be responsible for executing them. The nature and number of these roles are described below.

Identifier: The identifier is the person responsible for identifying and reporting equipment problems, concerns, or failures to appropriate personnel.

Planner: Person responsible for defining, planning, and maintaining preventative maintenance standard operating procedures for assets

Logger: Person responsible for creating a Service Request in the CMMS

Assigner/Approver: Person responsible for assigning Service Requests as Work Orders

Performer: Person who performs the Work Order on the asset

Documenter: Person who documents the amount of labor and equipment used for the WO and verifies parts used

Final Approver: Person who approves work performed, documents Work Order and approves its closure

Viewer: Person who views asset/maintenance data for informational, status, reporting or analysis purposes

Table 3-1 outlines these roles and assigns specific responsibilities for these roles within each operational group at the SJCUD. The specific procedures to analyze information for reporting, analysis and maintenance planning procedures are discussed further in Section 7 of this manual.

Role	Description	Customer Service	CIP	ISG	Lift Stations	WWTPs	Hydrants	WTPs	Lines and Taps
CSR Customer Service Rep CWM City Works Manager ENG Engineer UMC Utility Maintenance Coordinator	LMT Lead Maintenance Technician LO Lead Operator OS Operations Superintendent UUC Underground Utility Coordinator								
IDENTIFIER	Person responsible for indentifying and reporting equipment problems, concerns, or failures to appropriate personnel	CSR	ENG		All	All	All	All	All
PLANNER	Person responsible for defining, planning, and maintaining preventative maintenance SOPs for assets								
LOGGER	Person responsible for logging Service Requests into CMMS (hard copy or electronic)	CSR			All	LO, OS		LO, OS	UUC, OS
ASSIGNER/ APPROVER	Person responsible for assigning Service Requests as WOs				UMC, OS	LO, OS		LO, OS	UUC
PERFORMER	Person who performs the WO on the asset				LMT	All		All	All
DOCUMENTER	Person who documents the amount of labor and equipment used for the WO and verifies parts used				LMT	LO		LO	UUC
FINAL APPROVER	Person who approves work performed, documents WO and approves its closure				UMC, OS	LO, OS		LO, OS	UUC, OS
VIEWER	Person who views asset/maintenance data for informational, status, reporting or analysis purposes		Chief ENG	CWM	OS	OS		OS	OS

Section 4
Asset Definition and Hierarchy Guidelines

This section of the Asset Management Procedures Manual explains the differences between the definition of an asset by the County financial Department and the County Utility Department as well as the level of detail required by each entity to define an asset. Additionally, this section provides the overall asset categorization hierarchy for the SJCUD's Asset Management Program.

4.1 Asset Definition Procedure

It is important for the SJCUD Asset Management Program to distinguish between an asset and a part. There are just too many individual pieces of equipment or parts for the SJCUD to be able to create and maintain a record of each of these parts. The determination of "what is an asset?" focuses on establishing assets where the Department is interested in capturing cost or maintenance history about a particular piece of equipment or type of equipment (e.g., pump or valve). Work orders are generated against these assets through a CMMS. Assets also often have associated components that will not be carried in the CMMS as individual assets and these are typically referred to as parts. In addition, the detail of assets has been established to create a manageable level to locate, identify and maintain history for a piece of equipment.

The SJCUD has determined that two definitions of assets will be used based on the two reporting systems currently used for financial accounting and capital-maintenance planning respectively.

4.1.1 Financial Accounting

The County's financial department has established procedures to record and track the value of capital assets. Within the County's Asset Management Policy, a capital asset is defined as:

"Capital assets are major tangible or intangible assets that benefit a department more than a single fiscal year… Infrastructure assets are long-lived capital assets that normally are stationary in nature and normally can be preserved for a significantly greater number of years than most capital assets. Examples of infrastructure assets include roads, bridges, tunnels, water and sewer systems, and lighting systems."

Utility assets such as process structures, process equipment, pipelines and appurtenances are classified as capital assets if its cost is greater than $5,000. Using the procedures established by the St. Johns County Clerk of Courts to define and classify capital assets, utility infrastructure assets are typically defined at a system level, e.g., electrical process equipment, mechanical process equipment, process piping. This level of detail for definition of an asset is acceptable for the financial reporting associated with the St. Johns County Clerk of Courts, but does not have the

required detail to be used as the basis for maintenance, renewal, and replacement decisions within the SJCUD.

The full copy of the St. Johns County Capital Asset Policy, adopted in 2006, is included in Appendix A of this manual for reference purposes.

The Utility Department Asset Recording ad Numbering Handbook should be used for defining new capital assets for the Clerks records and assigning the official Asset ID. This procedure is discussed in more detail in Section 5 of this manual.

4.1.2 SJCUD Capital and Maintenance Planning

As previously discussed, the level of detail used by the St. Johns County Clerk of Courts to define a capital asset (i.e., system-level groupings by asset type), is not sufficient to inform SJCUD management decisions related to asset management. Within the SJCUD, an asset is defined at the level of detail necessary to inform management for maintenance and replacement planning decisions. In general the level of detail used by the SJCUD to define and track maintenance and replacement costs for an asset will be more detailed than that used by the St. Johns County Clerk of Courts. For example, while the Clerk of Courts may group all mechanical equipment together for accounting purposes, the SJCUD staff would be interested in tracking maintenance costs on specific pumps and motors to schedule replacement or renewal of the equipment in a given fiscal year. The assets tracked in both GIS and the CMMS system will become the basis for informing the maintenance, capital, and R&R decisions discussed in more detail in Section 7 of this manual.

4.2 Asset Classification and Hierarchy

An asset hierarchy is the logical organization of assets that supports effective cost roll-up and condition analyses across groupings of assets. Most asset hierarchies follow the process flow diagram representing the overall operation of the utility and related plants, systems/sub-systems, and are built upon a series of 'parent/child' relationships. Most asset hierarchies are set up to support both high-level 'asset management' decision-making and more immediate or local 'maintenance management' decision-making.

The SJCUD asset hierarchy is based on the asset classification system previously established in conjunction with the St. Johns County Clerk of Courts to identify and categorize assets and is consistent with the SJCUD's CMMS and GIS parent-child relationships. The categories for the SJCUD Asset Hierarchy include:

- Asset Group
- Operational Area
- Project (Plant or Facility)

- Asset Type
- Asset

This asset hierarchy allows management to use reports summarizing asset related expenditures as they relate to assets as recorded in the financial records, but yet be able to track each asset's performance as it relates to other factors, such as location, asset type, project, or utility service. The following is a generalized description of the asset hierarchy logic.

Asset Group
Level 1 is the highest level and represents the asset group which the asset serves: Water, Wastewater, Reclaimed Water, or Administrative.

Operational Area
Level 2 in the asset hierarchy represents the service area associated with the project where the assets are located: Anastasia Island, Mainland, World Golf Village, Sate Road 16, SR207 WWTP Area, etc.

Facility
Level 3 in the hierarchy represents the facility where the asset is located. There is a different meaning depending on if the asset is in a:

1) Treatment plant, wellfield, or pipeline

2) Pumping station

Within the treatment plant, wellfield, or pipeline this level is representative of the facility or project ID number to which the asset is associated based on the St. Johns County Clerk of Courts Asset ID. The Project or Facility ID is assigned based on the Utility Asset Numbering System contained in the Utility Department Asset Recording and Numbering Handbook. The full copy of the Handbook is included in **Appendix B** of this manual for reference purposes.

Within a pump station this level represents the specific pump station ID to which the asset is associated.

Utility Group
Level 4 in the asset hierarchy represents the asset utility group as expressed in the Utility Asset Numbering System. This designation is most applicable in the plant setting. For example, a typical WTP membrane process may be broken down into the utility groups: pretreatment, treatment process, post treatment, and pumps. For lift stations, the utility group is the individual lift station number.

Asset Type
Level 5 in the asset hierarchy represents the asset type and is based primarily on asset function. These asset types are defined in the Clerk's Asset ID Procedure and include:

- Water Pipelines and Appurtenances
- Wastewater Pipelines and Appurtenances
- Reclaimed Water Pipelines and Appurtenances
- Process Structures
- Process Electrical Equipment
- Process Building
- Process Mechanical Equipment
- Process Piping
- Other Improvements
- Land Easement

Asset
Level 6 represents the equipment or specific assets for each asset type. These assets represent the equipment on which service requests will be written in CMMS. Example assets are listed on **Figure 4-6**. Additional levels may be used to associate specific child assets to their parent asset.

4.3 Asset Definition Guidelines

The SJCUD held a series of workshops to set criteria for defining an asset. Through the workshops, staff considered maintenance activities, replacement costs, frequency of replacement, and equipment functionality in defining an asset. The end products of these workshops were asset templates for each operating unit in the SJCUD (Water, Wastewater, Lift Stations, and Lines & Taps). These asset templates are contained in **Appendix C**. General guidance on asset classification is outlined below.

WTP

- All piping and appurtenances less than 12 inches in diameter are grouped by Utility Group, material, and size (i.e., all 12-inch ductile iron pipe and fittings for finished water are a single asset, all 6-inch ductile iron pipe and fittings for finished water are another asset)
- Pumps and motors are listed as separate assets for the Pumps Utility Group
- Pumps and motors are a single asset for the Post Treatment Utility Group (i.e., for chemical metering pumps, the pump and motor are combined as a single asset).
- Meters and instruments critical for plant operation are considered separate assets. All other meters are grouped by Utility Group.

WWTP

- Headworks:
    - All piping greater than 12 inches in diameter are grouped by material and size.
    - All valves greater than 12 inches are listed as separate assets
    - All piping and appurtenances less than 12 inches in diameter are grouped.
    - All instruments are listed as separate assets.
- Aeration:
    - Blowers, motors, and control panels are listed as separate assets.
    - Aeration basin diffusers, valves, and piping are grouped as a single asset.
    - All process piping valves are listed as separate assets.
    - All process piping and fittings are grouped by size and material.
- Clarification:
    - All process piping and fittings are grouped by size and material.
    - All Return Activated Sludge (RAS) valves are listed separately.
    - All Waste Activated Sludge (WAS) piping and appurtenances are grouped.
    - All instruments are listed as separate assets.
    - Pumps, motors, soft starts, VFDs, and/or Control Panels are listed as separate assets.
- Primary Disinfection:
    - All Process Piping and fittings are grouped by size and material.
    - All instruments are listed as separate assets.
    - Effluent pumps and motors are listed as separate assets.
    - Chemical metering pumps and motors are a listed as a single asset

Lift Stations

- Master Lift Stations:

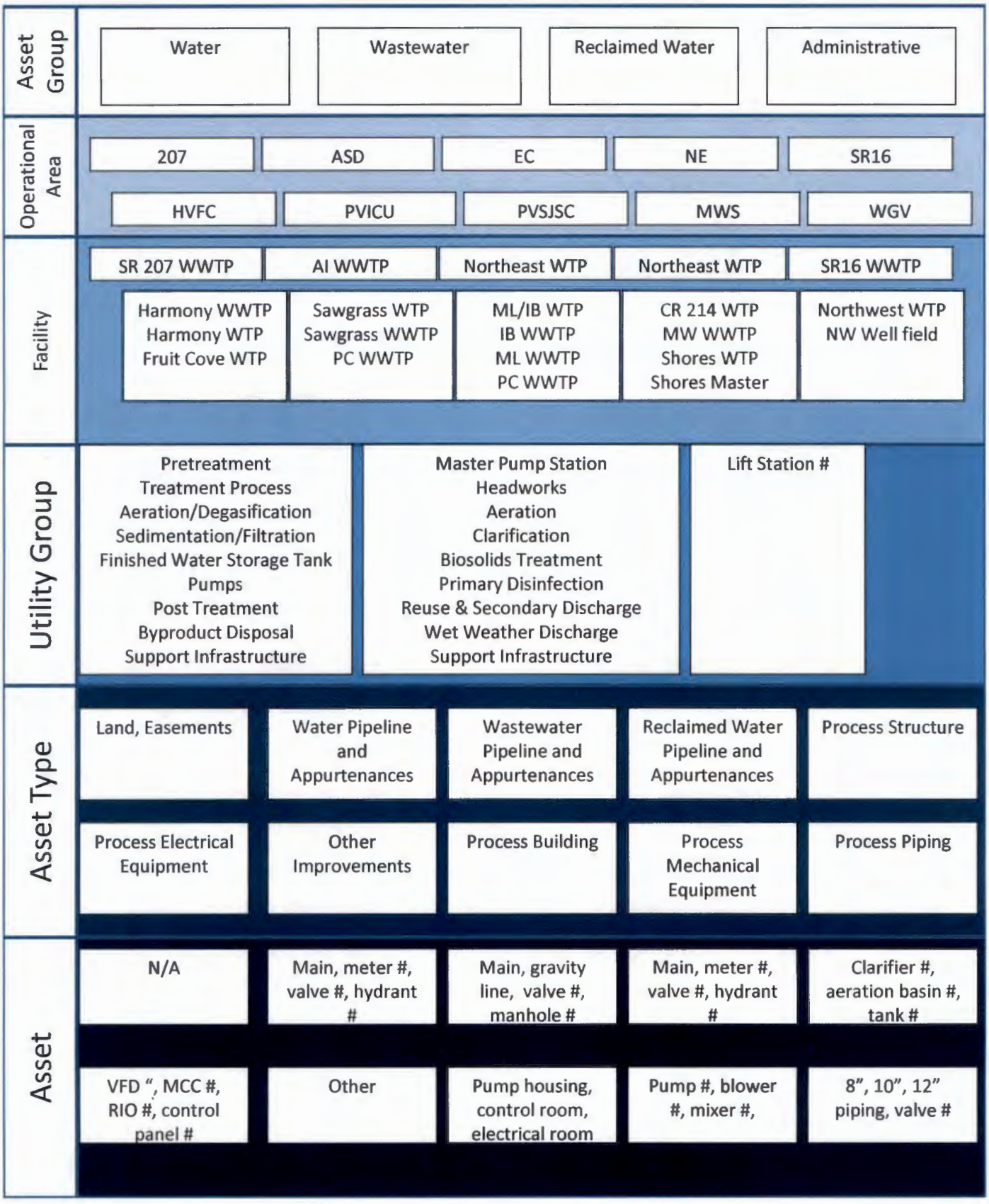
- All process piping and fittings less than 12 inches in diameter are grouped by size and material.
- Isolation valves and check valves are listed as separate assets.
- Pumps, motors, soft starts, VFDs, and/or Control Panels are listed as separate assets.
- All instrumentation is grouped as a single asset.

- Water Booster Stations:
  - All process piping and fittings are grouped by size and material
  - All valves are listed separately.
  - Pumps, motors, soft starts, VFDs, and/or Control Panels are listed as separate assets.

Lines and Taps

- All Process Piping, fittings , and valves are grouped by project number/asset ID (i.e., subdivision name)

Figure 4-6 St. John County Utility Department Asset Hierarchy



Section 5
Asset Recording Procedures

This section of the Asset Management Procedures Manual establishes the procedures to collect specific information on an asset and record that asset in the SJCUD Asset Management Database as well as the County Clerk of Courts Asset Record. Assets will be submitted to the St. Johns County Clerk of Courts at the end of the fiscal year.

5.1 Asset Information Requirements

Related to knowing what assets the SJCUD owns and is responsible for, the asset information stored in GIS and CMMS must include basic asset/equipment attributes in order to make effective maintenance management and capital expenditure decisions.

The following information is required at a minimum:

- Project Name
- Project ID
- Facility ID
- Year
- Owning Unit
- Functional Asset Description
- Utility Group (if Applicable)
- Asset Type
- Facility Name
- Clerks Asset ID
- Equipment Information (Make, Model, Size, etc.)
- Installation Year
- Installation Cost
- Useful life per Asset Type Table
- Useful life threshold
- Cost assumed by Developer (for pipeline assets)
- Renewable asset designation
- As-built/record drawings
- O&M Manual
- Preventative Maintenance Procedures
- As-builts/Record Drawings

Standard forms for documenting new equipment information are available. The following forms shall be used to collect asset information for new assets:

CAP Form – The Capital Asset Recording Form is a form intended to standardize all transactions both adding and removing capital assets from the Clerk's Record. This form includes line items for each asset added or removed through implementation of a capital project. The portion of the CAP form that details assets to be added to the Clerk's Record will aid the SJCUD Asset Management Program in collecting and standardizing the information associated with each new asset. The portion of the CAP form that details assets to be removed from the record will calculate the partial depreciation associated with that asset based on original installation cost, installation date, and asset type. Partial depreciations of assets will also be calculated in this manner. The CAP form is included in Appendix C.

The CAP form will be used to document assets in three categories. First, all assets added or removed during a capital project will be documented using the CAP form. Second, new pipes installed through the Lines and Taps group will be summarized and documented using the CAP form. Third, capitalized maintenance projects conducted by SJCUD staff will summarize assets added and removed as part of the project. The appropriate information to be included on the CAP form for each of these applications is included in subsequent sections of this manual.

Development Forms – The SJCUD has a Development Package including forms for Release of Lien, Warranty, Bill of Sale, Schedule of Values, Pump Station Start-up Report, and other technical specifications as relevant. The development package is submitted for assets donated in conjunction with new development. The following information is identified by the schedule of values form in the Development Package. Additional equipment information such as pump model, capacity, etc. are noted by SJCUD inspectors and input to CMMS based on equipment information forms described below. All development forms are included in Appendix C.

- Installation Cost
- Water Pipeline and Appurtenances Size, Type, and Pipe Class (as applicable)
- Wastewater pipeline and Appurtenances Size, Type, and Pipe Class (as applicable)
- Lift Station Mechanical Equipment (Lump Sum)
- Lift Station Process Piping (Lump Sum)
- Lift Station Process Electrical Equipment (Lump Sum)
- Process Structure (Lump Sum)
- Reuse Pipeline and Appurtenances Size, Type, and Pipe Class (as Applicable)

Equipment Information Forms - The SJCUD has developed equipment information forms for common equipment types (e.g. pumps, motors, valves, etc.). These forms are part of the substantial completion documentation required by the project contractor and are required before substantial completion is issued for a facility or project. The information contained in the equipment information forms will be used to populate asset attributes such as manufacturer, model, size, capacity, material, etc. All Equipment Information Forms are included in Appendix C. (Forms to be developed)

For existing assets, much of the information outlined above is already compiled and stored within the SJCUD's GIS; however, certain information—such as replacement cost, condition and estimated service life-remains to be developed or collected and entered into the CMMS.

5.2 Asset Recording Procedure

As previously discussed, the SJCUD will maintain two systems to track assets. The first system requires the SJCUD to report new and retired assets to the County Clerk's Office on an annual basis. The second system consists of the SJCUD's GIS, CMMS system, and other associated databases to track asset location, value, and condition. The GIS-based system includes GIS, equipment related tables, and CMMS related tables and is the basis for maintenance decisions and capital improvement planning. The procedures for recording an asset with both the County Clerk and the SJCUD GIS systems is depicted in Figure 5-1 and described in detail in the following section.

There are four different scenarios in which the SJCUD acquires new assets and/or equipment components. They are:

- New capital construction projects
- Acquisition of an asset/component through donation by a development project
- Acquisition of a pre-existing asset/component through purchase or system abandonment
- Asset/component replacement by SJCUD maintenance staff and/or outside contractor

5.2.1 New Capital Construction Asset Recording

For each substantial capital improvement project, during project planning, the SJCUD Asset Planner and Capital Group Engineer of Record (EOR) will establish a draft asset hierarchy based on the asset templates presented in Section 4.3 and Appendix C. The Draft hierarchy will outline the asset groupings which will be used to assign asset ID numbers at the conclusion of the project and will facilitate the recording of asset information as the project progresses. An example is shown in **Table 5-1**.

Figure 5-1 Asset Recording Procedure

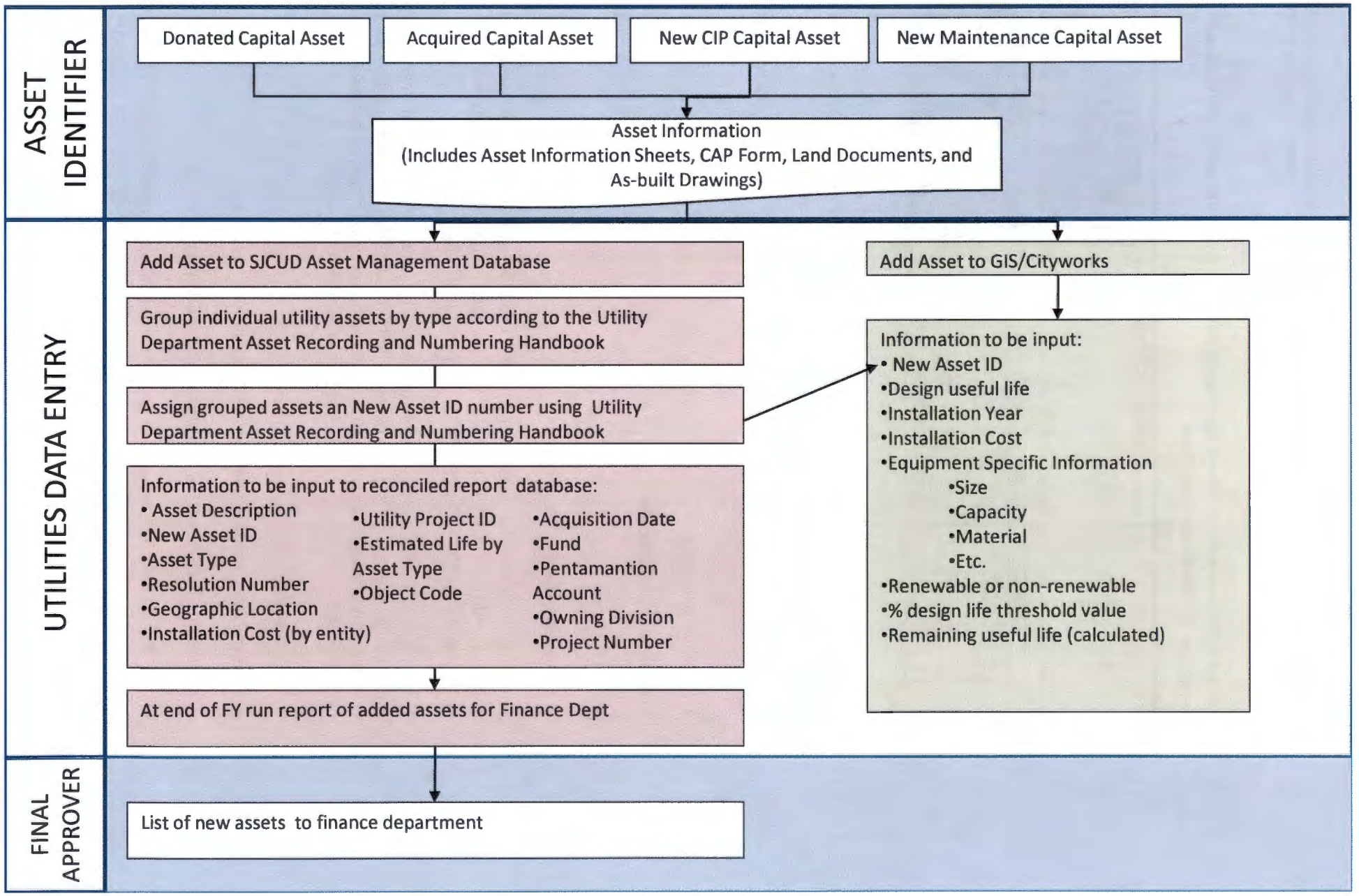


Table 5-1. Example Asset Hierarchy Established During Project Planning to Establish Asset Groupings and Identification Numbers

Item		Physical Asset Information		
No.	Clerk Asset ID	Functional Asset Description	Utility Group	Asset Type
a	c	d	e	f
1	2010255828	Slide gate 1	Headworks	Process Mechanical Equipment
2	2010255828	Slide gate 2	Headworks	Process Mechanical Equipment
3	2010255828	Slide gate 3	Headworks	Process Mechanical Equipment
4	2010255828	Grit Pump 1	Headworks	Process Mechanical Equipment
5	2010255828	Grit Pump 1 - Motor	Headworks	Process Mechanical Equipment
6	2010255822	18" SS piping and fittings	Headworks	Wastewater Pipeline and Appurtenances
7	2010255824	Headworks Structure	Headworks	Process Structure

The SJCUD EOR will be responsible for acquiring asset information from the contractor for capital improvement projects and delivering it to the Asset Planner for transfer into the CMMS.

The package of material provided to the Asset Planner will consist of one or more of the following information:

- Capital Asset Form (CAP Form)
- Equipment Information Forms
- As-built drawings
- Land/Easement Documentation

The CAP Form shall be compiled by the SJCUD EOR summarizing the assets added and replaced by the subject project. The CAP form will be structured based on the draft asset hierarchy developed during project planning,

The SJCUD EOR will be responsible for providing information related to asset design life, whether the asset is renewable, and the point at which the asset should first be reviewed for condition assessment and maintenance cost. These topics are discussed in more detail in Section 5.3 of the manual and are listed below:

- Design useful life
- Renewable or non-renewable asset designation
- Useful Life R&R Threshold Designation for CMMS reporting

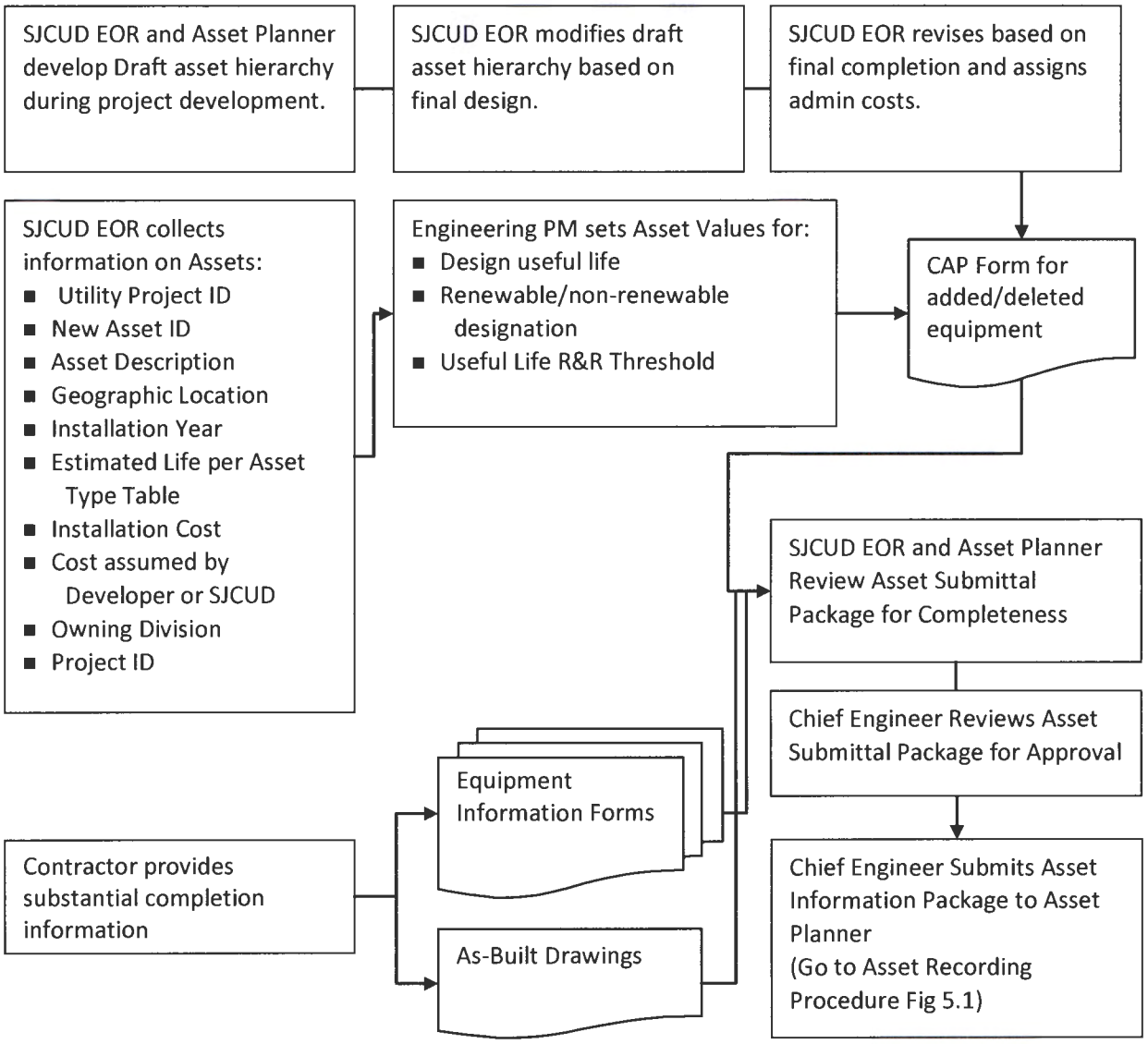
Detailed asset information such as manufacturer, size, material, etc. shall be provided by the Contractor using the provided standardized forms contained in Appendix C of

the manual. These forms should be included in the contract documents as required for shop drawing review, provided in the O&M manuals, or provided as part of the project record documents. This information along with the As-built drawings will be provided to SJCUD by the contractor as a condition for substantial completion.

The SJCUD EOR shall review the information package for completeness. **Figure 5-2** below graphically depicts this process.

If an asset is being retired or replaced as part of the capital improvement project, it must also be recorded using the CAP Form. Each asset being retired should be documented and original installation cost estimated. If the asset being replaced exists in CMMS and has installation cost information, this cost should be used. If the original installation cost is not available, a replacement cost based on a recent cost estimate can be used to estimate the original installation cost of the asset. Detailed instructions are included in the CAP Form (Appendix C).

Figure 5-2 Workflow for Capital Construction Asset Recording



For pipeline projects, the SJCUD Lines and Taps group will be responsible for completing a CAP Form summarizing newly installed or removed pipeline assets. For the addition of pipeline assets, a summary of all pipeline installation costs grouped by asset ID (i.e., subdivision or project code) will be used. An example CAP Form for pipeline assets is shown in **Table 5-2**. The necessary level of detail to enter asset information into GIS/CMMS will be provided by as-built drawings accompanying the CAP Form.

Table 5-2. CAP Form example for adding pipeline assets

No.	Owning Unit	Clerks Asset ID	Functional Asset Description	Asset Type	Material	Length (ft.)	Installation Date	Installation Cost (Schedule of Values)	Unit Cost (Schedule of Values)	Is this a Developer Contributed Asset?	Design Useful Life
a	b	g	g	h	j	k	l	m	n	o	p
1	4413-	2010255802	Wastewater Collection Lines for Sandpiper Development	Wastewater Pipeline and Appurtenances	HDPE	1000	2010	$75,000	$75	Yes	50
2	4413-	2010255801	Water Distribution Lines for Sandpiper Development	Water Pipeline and Appurtenances	HDPE	900	2010	$45,000	$50	Yes	50
3	4413-	2010255803	Reclaimed Water Lines for Sandpiper Development	Reclaimed Water Pipeline and Appurtenances	HDPE	750	2010	$48,750	$65	Yes	50

For the removal of pipeline assets, the CAP Form will be used to estimate the original installation cost of the asset based on estimated installation year, size, and material. If the installation date is not known, estimate the approximate decade in which the pipe was most likely installed and use the midpoint year. **Table 5-3** illustrates an example of pipeline assets being replaced using the CAP Form.

Table 5-3. CAP Form example for deleting pipeline assets

Item					Pipe Characteristics				Estimated			Adjusted			
No.	Owning Unit	Clerks Asset ID (If Known)	Functional Asset Description	Asset Type	Size (Inches)	Material	Length (ft.)	Design Useful Life	Installation Year	Unit Cost	Total Cost Today's Dollars	ENR CCI	Estimated Original Cost	Years in Service	Accumulated Depreciation
a	b	c	d	e	g	h	i	j	k	l	m	n	o	p	q
1	4413-		100 ft of 16" force main to tie in new WW line	Wastewater Pipeline and Appurtenances	16	DIP	100	50	1995	$76.29	$7,629	4195	$3,691	25	$ (1,846)
2	4413-		50 ft of 12" gravity sewer	Wastewater Pipeline and Appurtenances	12	DIP	50	50	1995	$48.10	$2,405	4195	$1,164	25	$ (582)
3	4413-		24 ft of 10" gravity sewer	Wastewater Pipeline and Appurtenances	10	DIP	24	50	1995	$43.51	$2,176	4195	$1,053	25	$ (526)

As with other capital improvement projects, the Asset Information Package will be submitted to the Asset Planner and reviewed by the Chief Engineer.

5.2.2 Acquisition of Assets through Development Projects Asset Recording

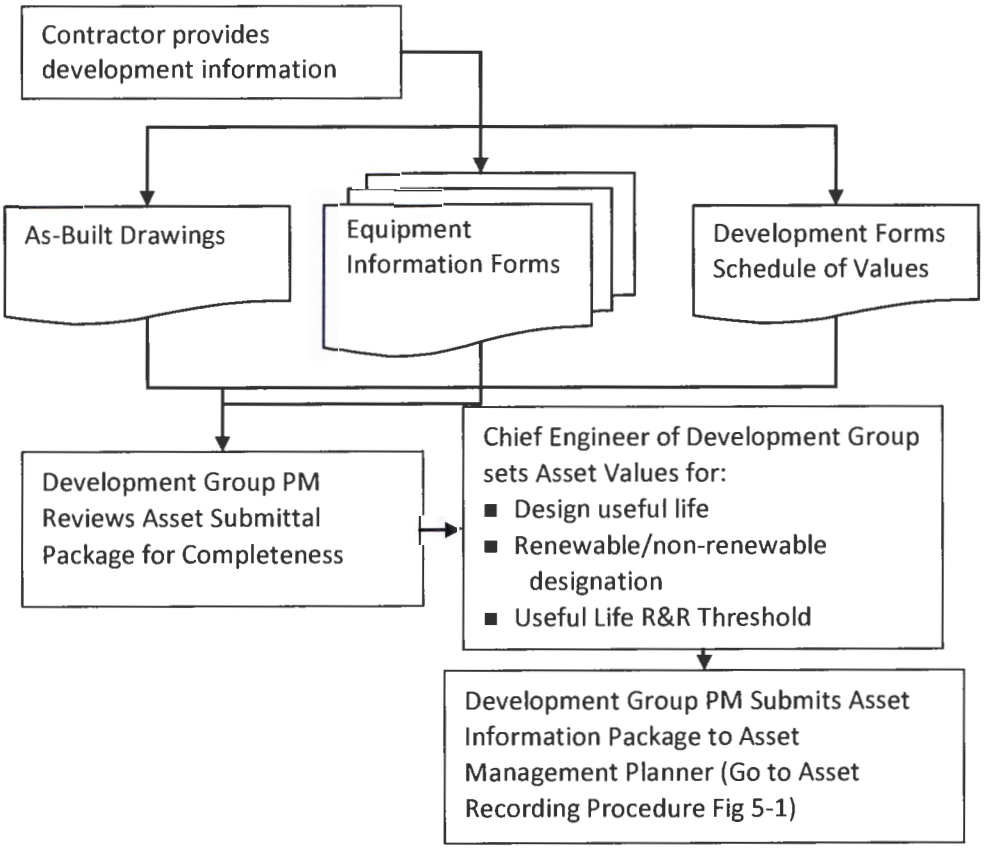
The SJCUD Development Group staff will be responsible for acquiring asset information from the contractor for donated assets associated with new development projects and delivering it to the Asset Management Coordinator for transfer into the GIS/Asset Management System.

A summary of added asset information shall be provided to the Asset Planner using the Development Form – Schedule of Values, As-Built Drawings, and Equipment

Information Forms. The Development Forms will be used to create the asset record for the Clerk's Records.

Detailed asset information such as manufacturer, size, material, etc. shall be provided by the Contractor using the provided standardized forms contained in Appendix C of the manual. These forms along with the As-built drawings will be provided to SJCUD by the contractor when the final bill of sale is submitted to SJCUD. The SJCUD Development Group shall review the information package for completeness. The Chief Engineer of the development group will provide additional information related to design useful life (if different from default values), renewable/non-renewable designation for the asset, and useful life R&R threshold (%). The completed asset information package will be provided to the Asset Management Planner for input into the Clerk's Record and CMMS. **Figure 5-3** graphically depicts this process.

Figure 5-3 Workflow for Recording New Development Project Assets



5.2.3 Acquisition of Assets through Purchase Asset Recording

For assets acquired through purchase, the SJCUD will contract with a third party to inspect the acquired assets, asses their condition, and provide the required asset information using the provided standardized forms found in Appendix C. The third party contractor will provide the required information to the Asset Planner for transfer into the CMMS using the same process depicted on Figure 5-2. In this scenario the third party contractor assumes the role of Contractor.

5.2.4 Replacement/Maintenance Asset Recording

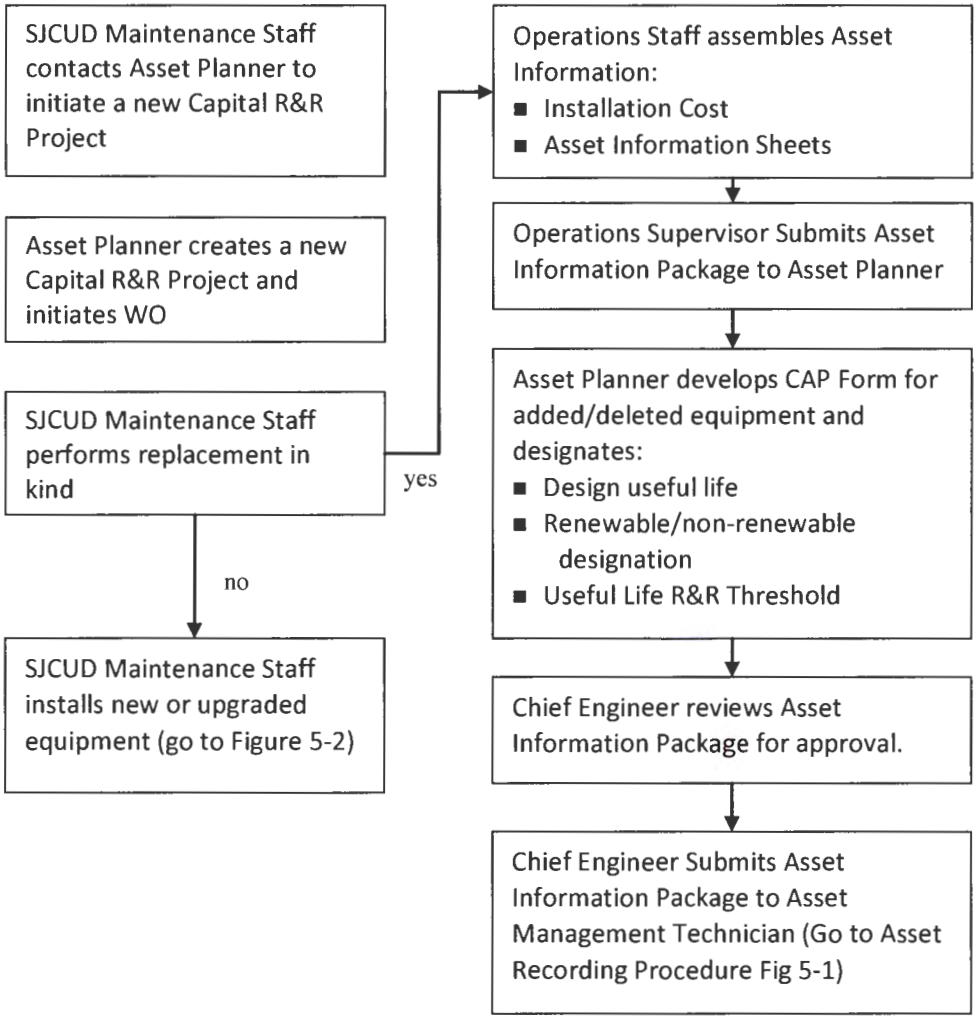
The SJCUD Operations staff will be responsible for acquiring and/or providing asset information for assets replaced as part of maintenance activities. The SJCUD Operations staff will provide the necessary asset information to the Asset Management Coordinator for transfer into the CMMS.

For asset/component replacement where the asset specifications change and/or where the replacement is made by outside contractors the changes and/or additions are the same as those for new construction.

For asset/component replacement where the replacements are done by SJCUD maintenance staff and the asset details do not change (i.e., replacement-in-kind), the maintenance staff shall submit the following documents to the Asset Planner. This process is depicted on **Figure 5-4**.

- A summary of added and replaced asset information shall be provided using the CAP form.
- Detailed asset information shall be provided using the provided standardized forms contained in Section 5.1 of the manual.
- The SJCUD Engineering Dept will review the asset information and designate the Design useful life, and Renewable/non-renewable designation.

Figure 5-4 Workflow for Recording Maintenance Project Assets



5.2.5 Clerk's Asset Recording

Based on the asset information provided in the CAP form, the SJCUD Asset Planner shall assign each new group of assets a unique Asset ID number using the Utility Department Asset Recording and Numbering Handbook (Appendix B) and the draft asset hierarchy when applicable. The Asset Planner or Asset Management Technician will enter the asset information into the central asset database. The Asset management Technician will report new and retired assets to the Clerk on an annual basis.

5.2.6 GIS/CMMS Asset Recording

The SJCUD Asset Management Technician will use the information submitted on the CAP form, as-built drawings, and equipment information sheets to update GIS, populate the appropriate attribute fields which will automatically create an asset in CMMS and assign the appropriate asset details. The asset will then be available in CMMS to begin collecting information on asset maintenance, performance, and condition.

5.3 Asset Information Specified by the Engineer of Record

Some asset information cannot be provided by the contractor or maintenance staff installing or repairing the asset. The following sections outline the procedures for developing asset information related to criticality, design useful life, and designations to determine when the asset will be assessed during the R&R Planning Process.

5.3.1 Design Useful Life

There are two completely different life expectancies associated with an asset; they are Design Useful Life and Remaining Useful Life. Design life is established by the EOR based on manufacturer's recommendations, the type of equipment, the environment, and the application of the equipment. The following list is the design life as determined based on County standards for each asset type:

- Water Pipelines and Appurtenances 50 years
- Wastewater Pipelines and Appurtenances 50 years
- Reclaimed Water Pipelines and Appurtenances 50 years
- Process Structures 30 years
- Process Electrical 10 years
- Other Improvements 15 years
- Process Buildings 25 years
- Process Mechanical Equipment 20 years
- Process Piping 50 years

These design useful life values were initially established based on industry standard and will be automatically populated in the CAP Form. The default values can be changed in the CAP Form based on the Engineer's judgment.

The term "expected service life" is used in place of design life after the equipment has been installed. Equipment that has been properly installed, is housed in a clean, environmentally controlled building, and is correctly sized for the application, can easily reach its design life; however, when the same equipment is installed incorrectly, or is in a location that that leaves equipment open to the weather and other undesirable conditions, or the equipment application is inadequate, the design life can deteriorate by as much as 30 percent. Thus periodic assessments of an asset's remaining useful life is necessary to determine if that asset is able to perform throughout its estimated design life. The procedures for estimating remaining Useful Life are contained in Section 7 of this manual.

5.3.2 Renewable Asset Designation

There are two general categories of assets at the SJCUD renewable assets and non-renewable assets. Renewable assets are those that will be evaluated for rehabilitation, rebuild, or other involved maintenance activities. Non-renewable assets are those that will be used to the end of their life and replaced upon failure. Typically, non-renewable assets are not candidates for renewal due to low cost of replacement or technology that is not easily repaired or rebuilt. The EOR, in consultation with SJCUD Operations staff, will provide each new asset with a "Renewable" or "Non-renewable" asset designation. How this designation will be used in the Asset Planning Process is described in more detail in Section 7 of this manual.

5.3.3 Useful Life R&R Threshold Designation

Within the Asset Management Planning Process, an asset's performance is evaluated on a periodic basis. How often an asset is evaluated is a function of its design life, criticality, and asset type. For example, a critical pump may be evaluated when it reaches 50% of its design life while a stand-by or spare pump may be evaluated when it reaches 75% of its design life.

The determination of when to perform an evaluation of pump performance is expressed as a percentage of the asst's design life, and is termed the Useful Life R&R Threshold. When a new asset is recorded, the EOR designates the Useful Life R&R Threshold, which will prompt the CMMS system to include the asset in an annual report once it reaches the threshold value.

The designation of the Useful Life R&R Threshold is asset specific. The following guidelines can be used as a basis for designating Useful Life R&R Threshold for assets or groups of assets:

Guidance on Useful Life Thresholds will be developed by SJCUD staff during the planning process. Until enough data has been collected on specific equipment performance to allow this analysis, default industry standard values have been noted.

Section 6
Maintenance Management Procedures

This section of the Asset Management Procedures Manual outlines the procedures for performing corrective, routine, and condition based maintenance to capture the data necessary to manage asset performance and make educated decisions regarding the maintenance or replacement of assets or groups of assets. The timing and amount of maintenance performed for an asset is a key decision support tool in determining what actions are necessary to achieve the lowest life cycle cost for the asset.

6.1 Maintenance Purpose, Objective

In developing this maintenance strategy document, the overarching goals of the organization are connected to the execution of day-to-day maintenance activities.

6.1.1 Maintenance Purpose Statement

The purpose of SJCUD maintenance is to maintain, repair, and replace all SJCUD assets, in a cost-effective and efficient manner by continuing the development of highly skilled maintenance professionals.

6.1.2 Maintenance Objectives

Aligned with the SJCUD's Strategic Goals and the Maintenance Purpose Statement are the corresponding maintenance objectives. These objectives are related to specific strategic goals and are intended to provide a focus for the achievement of related goals, both short- and long-term, in order to direct the efforts of the maintenance staff, and form the basis on which performance measures can be set. The maintenance objectives are:

- Core Business --Optimize utility quality by maintaining capacity, performance, and reliability of critical assets.
- Environmental Performance --Achieve environmental compliance support in developing rapid maintenance response for critical monitoring equipment.
- Financial Management --Apply best maintenance management practices including asset management to achieve cost effective results.
- Customer Focus --Prompt and appropriate actions in response to customer (internal or external) requests.
- Staffing --Continue developing high quality staff through hiring, training, redeployment and retention.
- Communication --Whether an employee or customer, we want to communicate the importance and benefit of the SJCUD asset management program.

- Organizational Performance--Sustaining the strategic objectives through implementing asset management and other maintenance related best practices.

6.2 Computerized Maintenance Management (CMMS) Overview

The CMMS system is the single largest tool that the SJCUD has at its disposal to track and compile information on asset performance, remaining useful life, and asset condition. The SJCUD has selected Cityworks© as its CMMS. The SJCUD has addressed numerous system design issues, through the implementation of Cityworks and will continue to do so as modules are developed for each of the departments within the utility. The SJCUD is currently implementing the following Cityworks CMMS functionalities:

- Inventory Management - Establishing the SJCUD catalog, storerooms, part numbering and component tracking procedures.
- Corrective Work Processes – How the Cityworks CMMS can support the corrective maintenance business processes that currently exists within the plants and lift station maintenance.
- Service Request Basics – How operations groups can use the Cityworks CMMS to manage customer complaints through the use of service requests and work orders.
- Asset Hierarchy – Establishing the organization of the SJCUD assets to support effective cost roll-ups and condition analysis of process groupings of assets.
- Maintenance Procedures – Establishing the standard procedures for maintenance activities related to routine, preventive, predictive, and corrective maintenance. Standard materials and labor quantities can also be estimated for these tasks to be compared with actual time and materials.

The following Cityworks functionalities should be investigated for addition to Cityworks CMMS. There are a number of alternative design approaches to tracking these metrics including user defined fields within Cityworks:

- Condition Assessment
- Asset Criticality
- Asset Remaining Useful Life and Design Life
- Failure Mode

6.3 Maintenance Performance Measures

The purpose of maintenance performance measurement is to provide a basis for overall maintenance improvement. Maintenance measures are not intended to show employee accountability. Properly used, performance indicators can highlight opportunities for improvement within the SJCUD maintenance function. Without the tools to measure maintenance activities there can be no assurance whether performance has actually improved.

With this in mind the following key maintenance-related measures were selected to be tracked, focused on and communicated to all employees in order to begin the process of continuous improvement within the maintenance function:

- Preventive/Predictive Maintenance versus Corrective Maintenance
- Critical equipment out of service due to failure (Emergency repairs of critical assets)
- Work order overdue because of awaiting parts
- Planned versus unplanned maintenance

However, it is important to note that these key maintenance measure do not prohibit other appropriate maintenance and inventory management measures to be used as necessary.

6.4 Maintenance Management Procedures

In order for the SJCUD maintenance function to support the goals and objectives of the department, it is necessary to begin to put in place those maintenance practices and procedures that will be supportive. As a result, various key maintenance-related practices that support asset management outcomes were identified. The following are the key practices and procedures to be followed.

The following figures graphically depict the work processes related to receiving, scheduling, performing, and recording work orders to perform maintenance on SJCUD assets. Separate work processes have been developed for corrective and preventative maintenance activities. Additional detail on these procedures is contained in this section of the manual.

Lift Station Maintenance

Figure 6-1 Routine and Condition-based Maintenance Work Process
Figure 6-2 Corrective Maintenance Work Process

Water Treatment Plant Maintenance

Figure 6-3 Routine and Condition-based Maintenance Work Process
Figure 6-4 Corrective Maintenance Work Process

Figure 6-1: Lift Stations Routine and Condition-based Maintenance Work Process

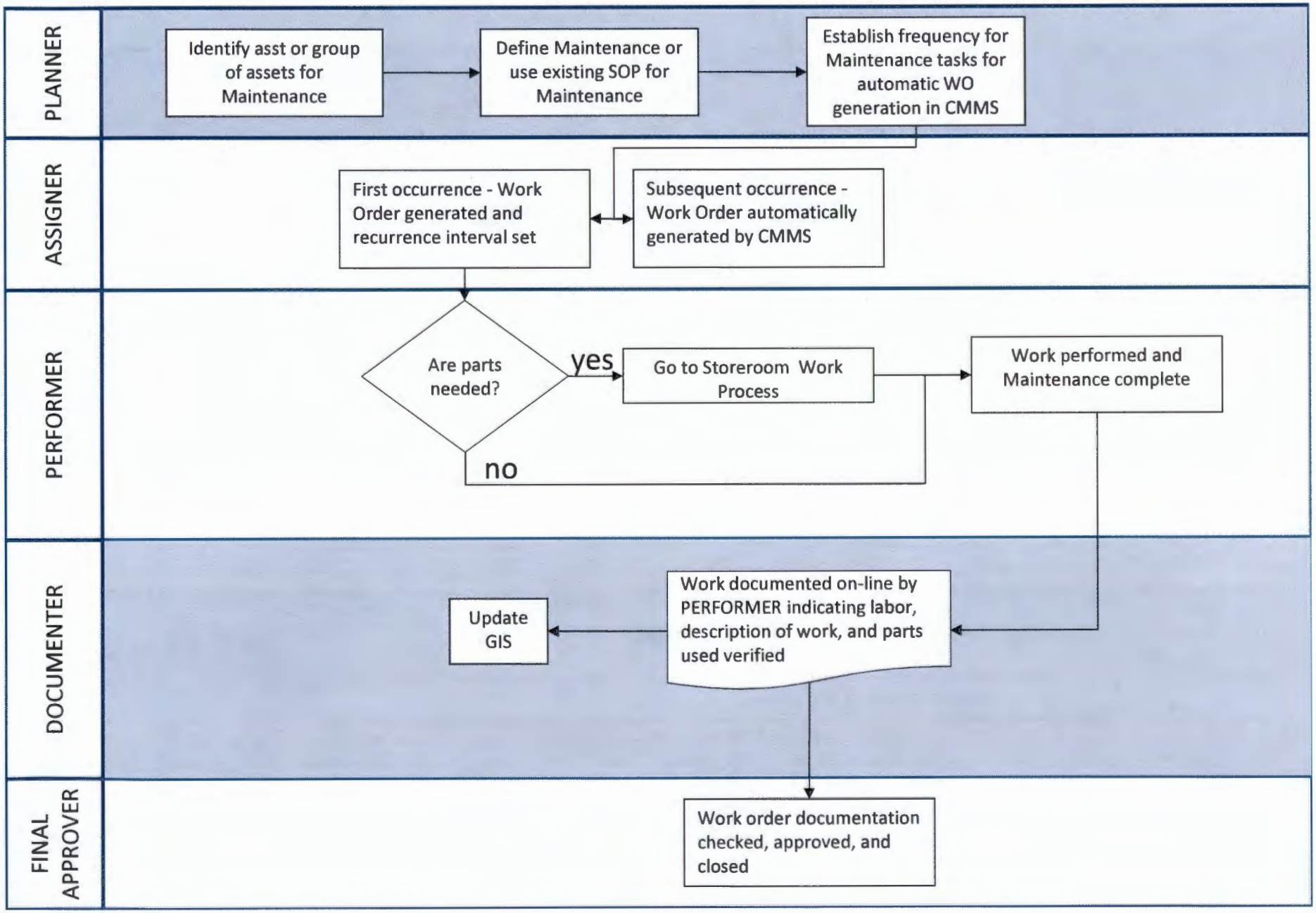


Figure 6-2: Lift Stations Corrective Maintenance Work Process

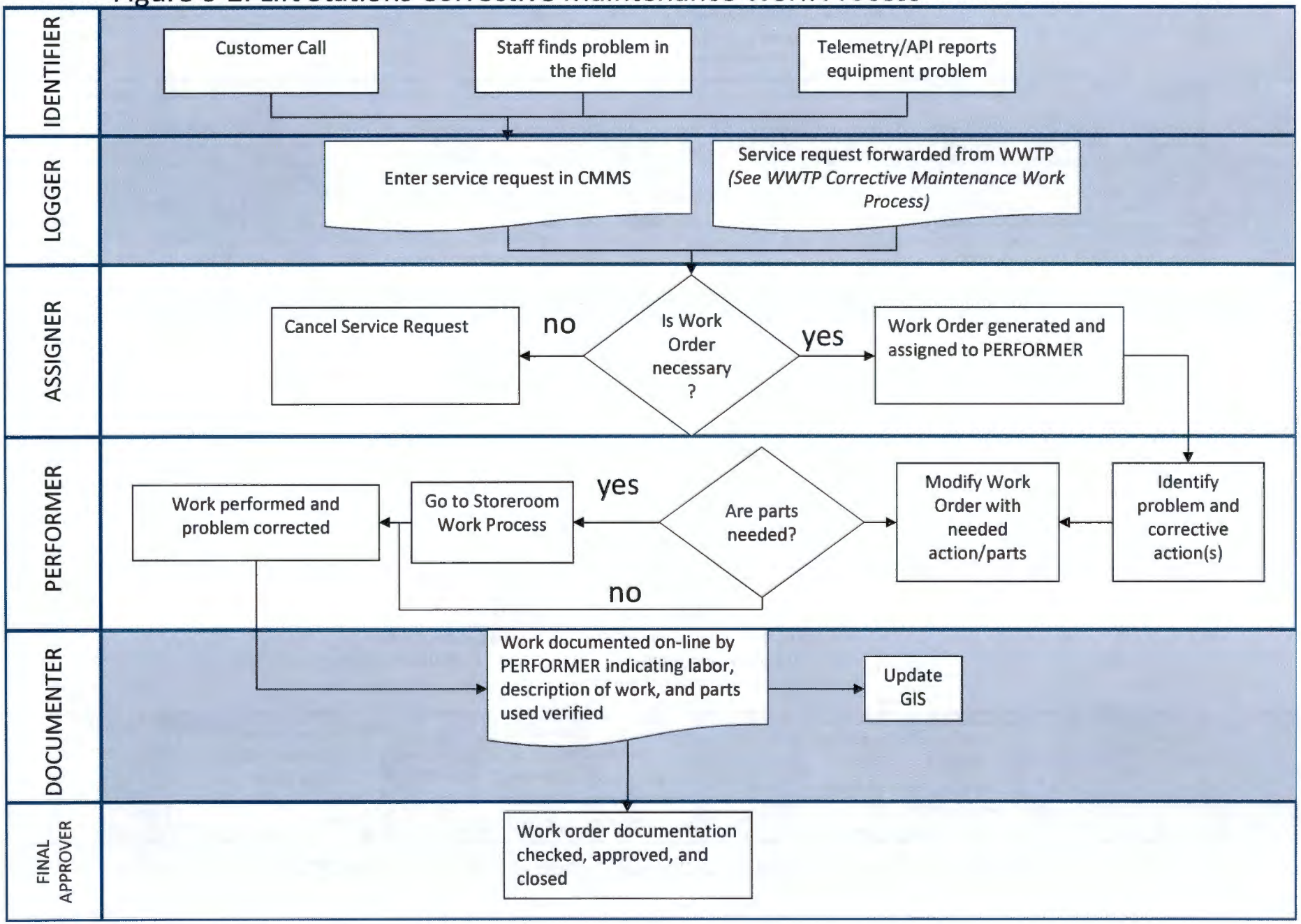


Figure 6-3: WTP Routine and Condition-based Maintenance Work Process

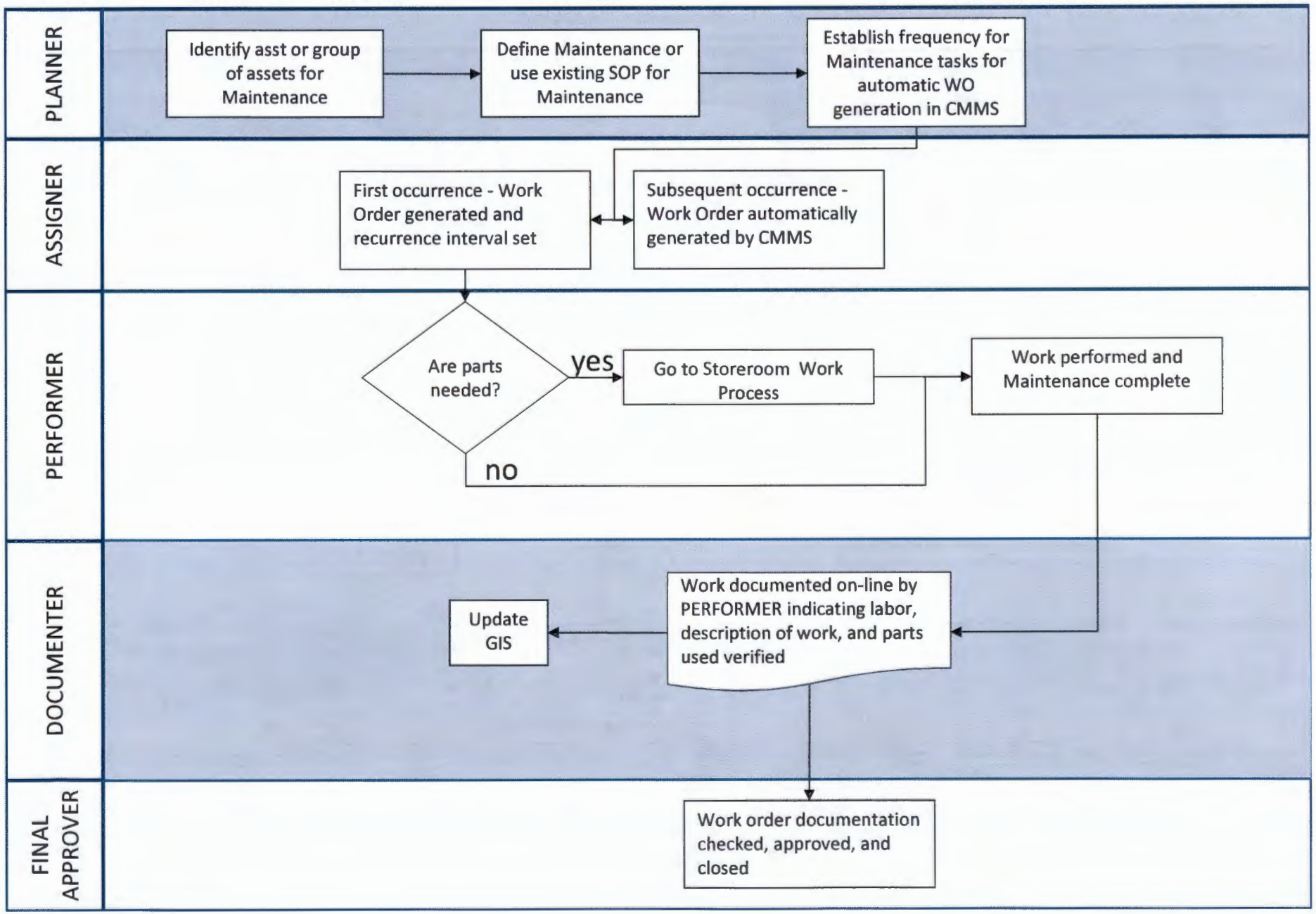


Figure 6-4: WTP Corrective Maintenance Work Process

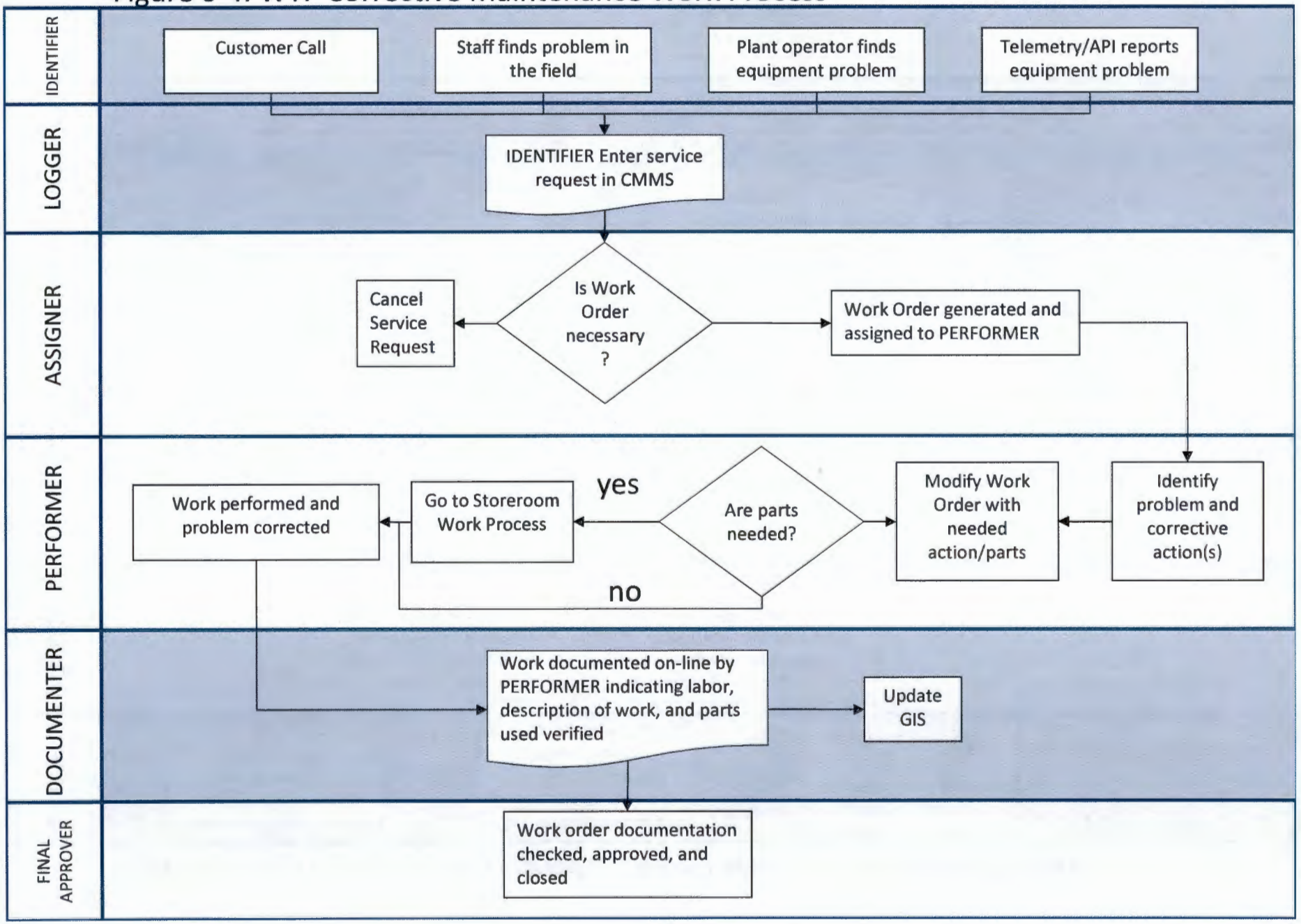


Figure 6-5: WWTP Routine and Condition-based Maintenance Work Process

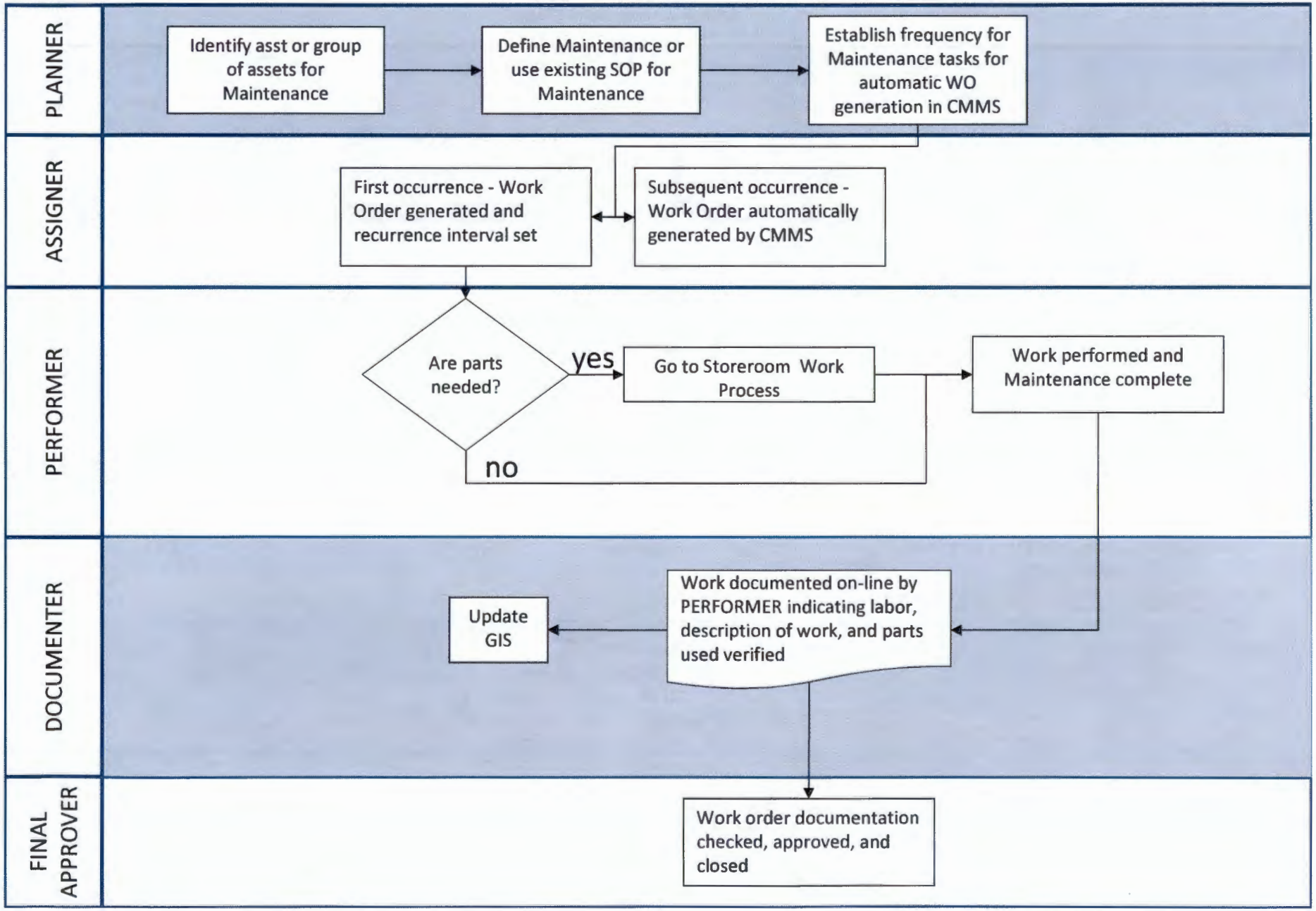


Figure 6-6: WWTP Corrective Maintenance Work Process

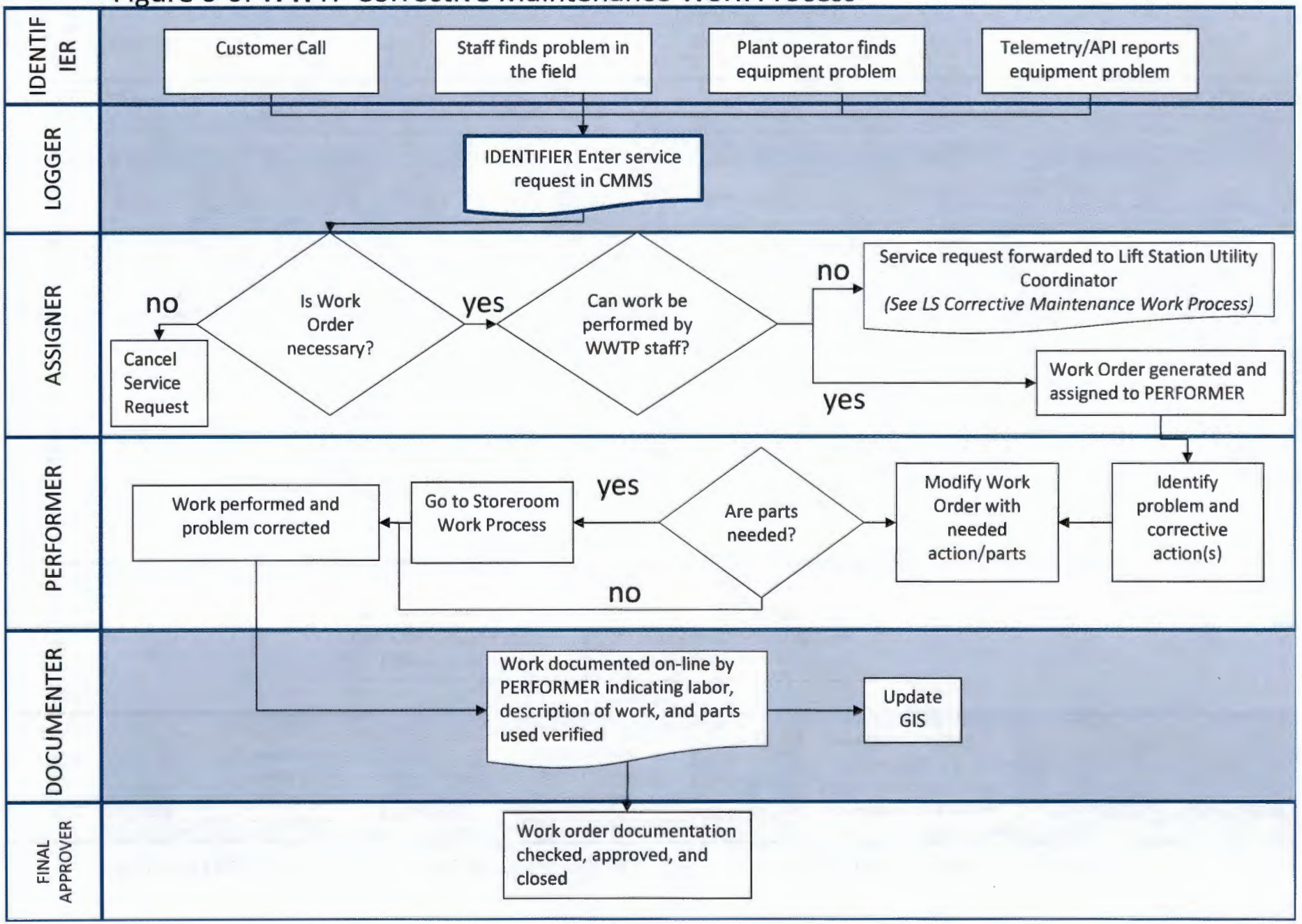


Figure 6-7: Lines and Taps Routine and Condition-based Maintenance Work Process

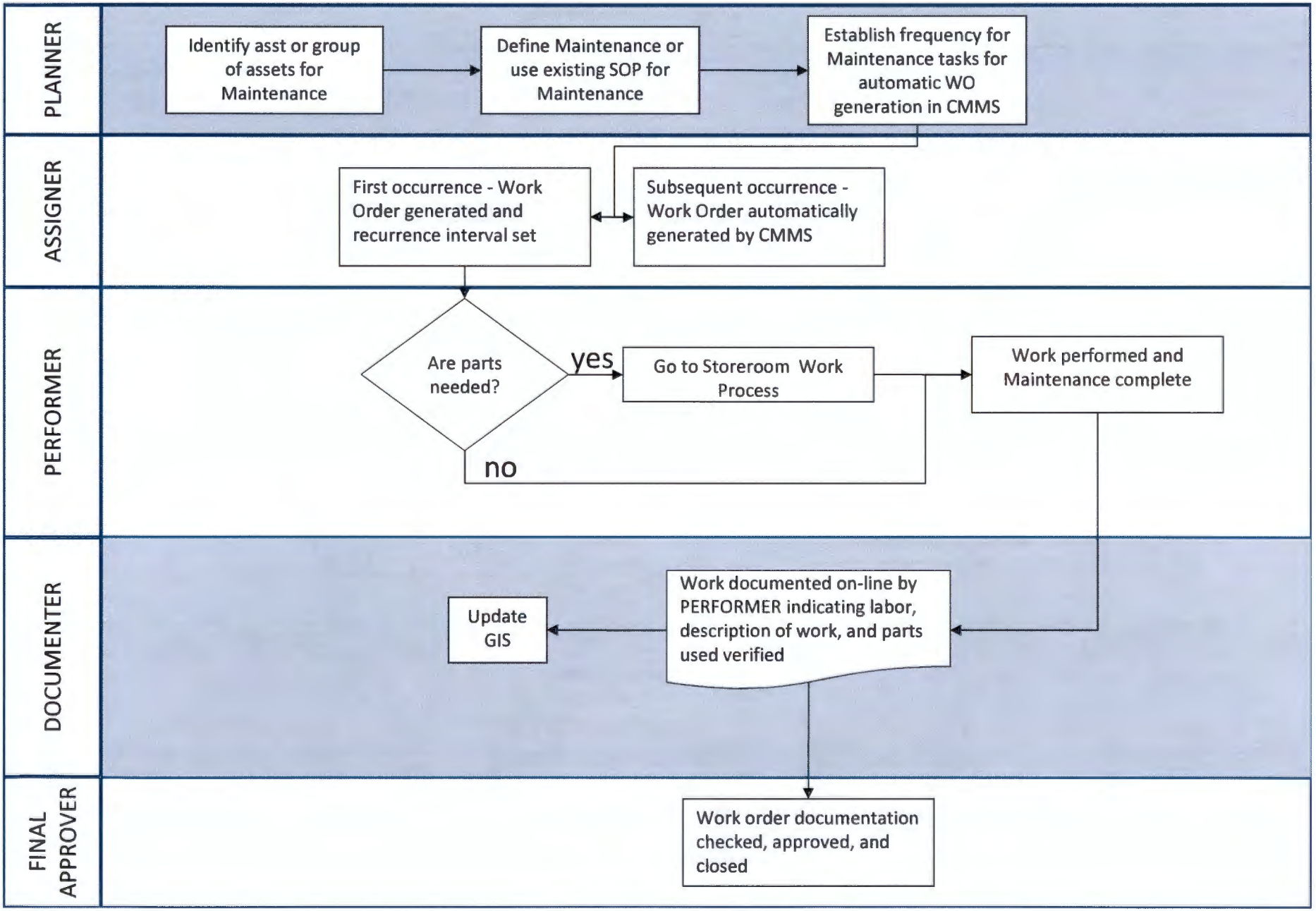
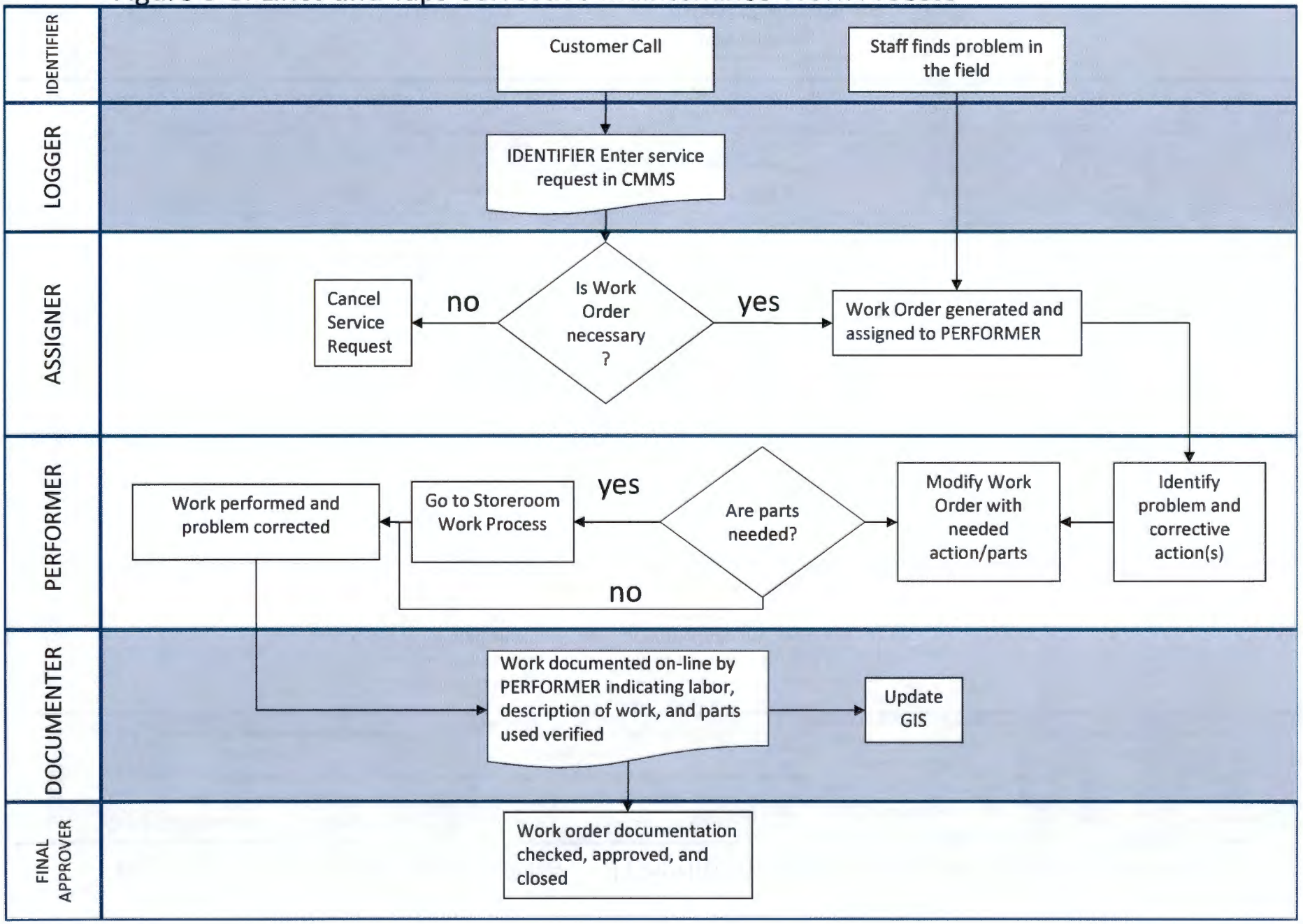


Figure 6-8: Lines and Taps Corrective Maintenance Work Process



6.4.1 Planning/Scheduling and Resource Allocation

Pre-planning and scheduling, and its ability to support effective maintenance resource allocation, has probably the greatest impact on the timely and effective accomplishment of maintenance activities. Sound planning and scheduling is a prerequisite for effective maintenance performance. Without proper planning and scheduling, maintenance execution can be disorganized and plagued by starts and stops of work. Typical maintenance productivity losses that are the result of poor work planning and scheduling are:

- Craftspersons waiting for instructions
- The job delayed waiting for spare parts
- Time spent checking out the work assignment that should have been done earlier
- Multiple trips between worksite and the storeroom for parts and materials
- Not having proper tools/information
- Work site not ready because of poor staff coordination

The objective of planning and scheduling is to allow maintenance staff to prepare for, perform and complete each job in a safe time-efficient manner to the satisfaction of the requestor(s). It is generally expected that 3-5 hours of execution time can be saved for every hour of advance preparation. The elements of well-planned and scheduled job are:

- Need is shown and work is scoped
- Analysis – job is broken out to component tasks
- Required skills are identified and time estimates made
- Materials are identified, ordered and on hand
- Special tools are gathered
- Required specs and drawings are on hand
- Related activities are listed and scheduled
- Disciplined priorities are used to determine the order of work
- Communication and coordination with operations completed

While the importance of work planning and scheduling is seldom disputed, there are numerous reasons as to why it doesn't happen effectively in many utilities, and these generally relate to:

- The span of supervisory control, i.e., supervisor (or planner) to worker ratio
- The complexity of the operating context
- Whether adequate administrative, purchasing and storeroom support exists

At the SJCUD, the main challenges to establishing more effective planning and scheduling result from the planner/scheduler to worker ratio. The operations Supervisor or Lead Operator/Lead Utility Coordinator is responsible for scheduling the initial work order and setting its recurrence interval in CMMS to automatically generate the work order according to the asset PM schedule. Initially, it will require at a great deal of coordination to schedule the work orders to provide the most efficient use of maintenance staff resources. Generally, after a planning and scheduling program is up and running, the amount of needed coordination lessens. As such, the risk is that the various components of the typical scheduler/planner is divided between supervisors and even maintenance staff. This may cause planning and scheduling to not be performed as well as if there was a fulltime planner and scheduler.

Given this challenge, the SJCUD maintenance function is moving toward a more sophisticated approach to planning and scheduling by:

- Focusing on establishing pre-planned work plans and schedules for preventive, predictive and other routine maintenance jobs that will be incorporated in CMMS.
- Advance planning and scheduling for larger, project type jobs and also for those maintenance activities that are ongoing or periodic.
- Working to include the common elements of a well planned job as noted earlier, especially for the larger complex jobs.
- Ensuring that adequate inventory management practices are in place to support effective maintenance execution (see Section 6.5 Warehouse Storeroom Management Procedures).

6.4.2 Routine and Condition-based Maintenance

Asset reliability and lowest lifecycle costs are two key asset management outcomes. Condition-based maintenance is planned maintenance activities over and above the manufacturer recommended routine maintenance. Condition-based maintenance activities are designed to improve asset reliability, extend asset life and avoid the more costly repair activities where possible. In condition-based maintenance an assets performance is monitored or performance based testing is performed to assess the

assets condition. Maintenance activities are then assigned based on the asset condition. For example, a vibration analysis would be performed on a pump to determine the condition of the pump bearings. Based on the vibration analysis, routine maintenance or replacement of the pumps bearings may be suggested.

6.4.2.1 Existing Maintenance Procedures

The procedures for routine and condition-based maintenance activities are stored within the CMMS system.

6.4.2.2 Updating Maintenance Procedures

In order to develop or modify new Condition-based Maintenance (CBM) tasks/schedules when new equipment is installed, the following steps should be followed:

- All new mechanical CBM to be created and documented by Lead Operator or Utility Coordinator through review of O&M manuals.
- All new electrical CBM to be created and documented by the Lead Operator or Utility Coordinator through review of O&M manuals.
- Instrumentation and Control CBM will be handled through the use of service contracts.
- All internally performed CBM will be set up in the CMMS by the Asset Management Coordinator and added to the SJCUD Maintenance Procedures Manual.
- The Lead Operator or Utility Coordinator will determine which staff will perform CBM assignments.

On an annual basis (at a minimum) the Operations Superintendent will examine the manhour magnitude of the anticipated CBM program for the upcoming budget cycle and determine whether the current staffing levels/assignments and/or service contracts can provide the necessary level of service moving forward. Additionally, the Operations Superintendent will determine what predictive or monitoring techniques will be used routinely and by whom (SJCUD maintenance staff or outside contractors).

6.4.3 Corrective Maintenance

As stated earlier, asset reliability and lowest lifecycle costs are two key asset management outcomes. However, equipment failures will occur no matter how diligent a preventive maintenance program exists. When such failures do occur, SJCUD maintenance staff need to complete the repair safely, effectively and at the lowest overall cost. However, important information must be collected to inform future maintenance needs including, but not necessarily limited to work plans, labor and material costs, and failure modes and consequences. Collecting this information

is critical for SJCUD maintenance staff to determine the appropriate failure management strategy. Thus, maintenance staff will be required to spend greater effort on recording more details surrounding their repair activities.

When corrective maintenance is needed, a determination will need to be made regarding whether the required maintenance will be capitalized or will follow the standard work order process outlined on Figures 6-2, 6-4, 6-6, and 6-8. The Asset Planner should be consulted regarding capitalization of corrective maintenance activities. In general, the following guidelines will be taken into consideration:

- Is the repair cost greater than $1,000?
- Will the repair significantly extend the remaining useful life of the equipment?
- Will the repair change the physical characteristics of the equipment to increase capacity of the system?

If a corrective maintenance action is determined to be capitalized, the work order process outlined on Figure 5-4 should be followed to record the asset.

6.4.4 Work Order Prioritization

A key element of the SJCUD's asset management program is ranking assets based on criticality taking into account the probability of failure and the consequences of failure This evaluation considers health and safety, economic loss and statutory obligations and is intended to guide both day-to-day operations and maintenance decision, and long-term capital expenditures in order to focus the organization's efforts on the SJCUD's most critical assets.

Recognizing that competition for resources is a challenging maintenance reality, it is intended that these asset criticality rankings will help set disciplined and defensible priorities to guide the order of work execution. For example, while preventive maintenance backlog may exist, maintenance managers will work to ensure that the preventive maintenance schedule on critical assets is kept current and the work on these assets does not fall behind schedule.

6.4.5 Maintenance Information Capture

Effective asset management is built upon a systematic and thorough examination of an asset's operating context, desired level of performance and events that prevent it from performing as intended. Only by this type of thoughtful analysis, can SJCUD maintenance managers develop the asset/maintenance strategies that will keep the assets functioning and thereby achieving the maintenance objectives described earlier. Fundamental to this is the capture of critical information when an event occurs and organizing this data so that it can be utilized.

6.4.5.1 Failure Modes, Effects and Repair Activities

As part of their repair activities, SJCUD maintenance staff will record to a certain level of detail on the work order what caused the asset or its component to fail. Failure modes generally fall within the following five categories:

- Asset deterioration
- Lubrication failures
- Dirt
- Disassembly
- Human errors

While it is not expected that maintenance staff to go into great detail describing the failure mode, there should be enough detail so that an appropriate failure management strategy can be developed and patterns can be tracked and identified. Pattern recognition will inform the maintenance program and help identify the modifications in maintenance strategies that are necessary.

Similarly, the effects of failure events also need to be recorded. This information will help maintenance managers evaluate the consequences of the different types of failures. For example:

- How did the failure impact safety and/or operations?
- What physical damage was caused by the failure?

Finally, maintenance staff will be asked to briefly describe and record what repair activities were taken to return the asset back into service. Operations Supervisors, Lead Operators, or Lead Utility Coordinators will enter the above information on the CMMS electronic work order and task record. In addition, they will assign the appropriate failure and repair codes to the electronic work order for reporting purposes. With this information properly recorded in CMMS, it will be possible to generate robust reports showing the frequency of various failures by type of asset, age, process, and maintenance strategy.

6.4.5.2 Condition Assessment and Remaining Useful Life Revaluation

As discussed in Section 7.4, assets are evaluated on a periodic basis to determine their condition and remaining useful life. This information is entered into the CMMS electronic work order and task record for reporting purposes. With this information properly recorded in CMMS, it is possible to generate robust reports showing the condition and remaining useful life of various assets by type, age, process, and maintenance strategy.

6.5 Warehouse Storeroom Management Procedures

The inventory and purchasing functions have a greater impact on maintenance productivity than any other support group. To fulfill its mission effectively, the SJCUD maintenance group is dependent upon reliable and prompt logistical support from inventory and purchasing. Effective planning and scheduling of maintenance work relies on having parts and materials available when needed. The SJCUD recognizes the contribution effective inventory management makes to the maintenance effort and as such, has set the following inventory system requirements.

6.5.1 Parts and Materials Management

There are many decentralized inventory areas such as onsite spare parts at WWTP and WTP Plants, lift station trucks, the lift station storeroom, and the primary storeroom within the SJCUD. While these various inventory areas and differing methods for procurement exist, there is a consistent manner of inventory management across the entire department. A consistent, system-wide approach to inventory management and one master catalog for the SJCUD accomplishes the following results:

- Track parts/materials costs against work orders/assets
- Track balances for all stock issues, transfers, reserves & returns
- Maintain parts listing for equipment (Bill of Materials)
- Track re-buildable components, and their repair cost and history
- Track requisitions, purchase orders, checkouts, and credit card purchases
- Automate stock reorder points
- Report inventory to the SJCUD Clerk of Courts on an annual basis

In general, the inventory management responsibilities include:

- Creating unique stock codes for existing stocked items, and for any new stocked items moving forward (Note: It is important to have this activity adequately controlled as not to allow for the creation of multiple stock records for the same item.)
- Receive stock into stores
- Check stock out (to work orders primarily) and/or transfer stock between stores
- Ensure adequate on-hand stock for maintenance (set and update min/max reorder points, process procurement of non-stock items, and perform regular physical inventories)

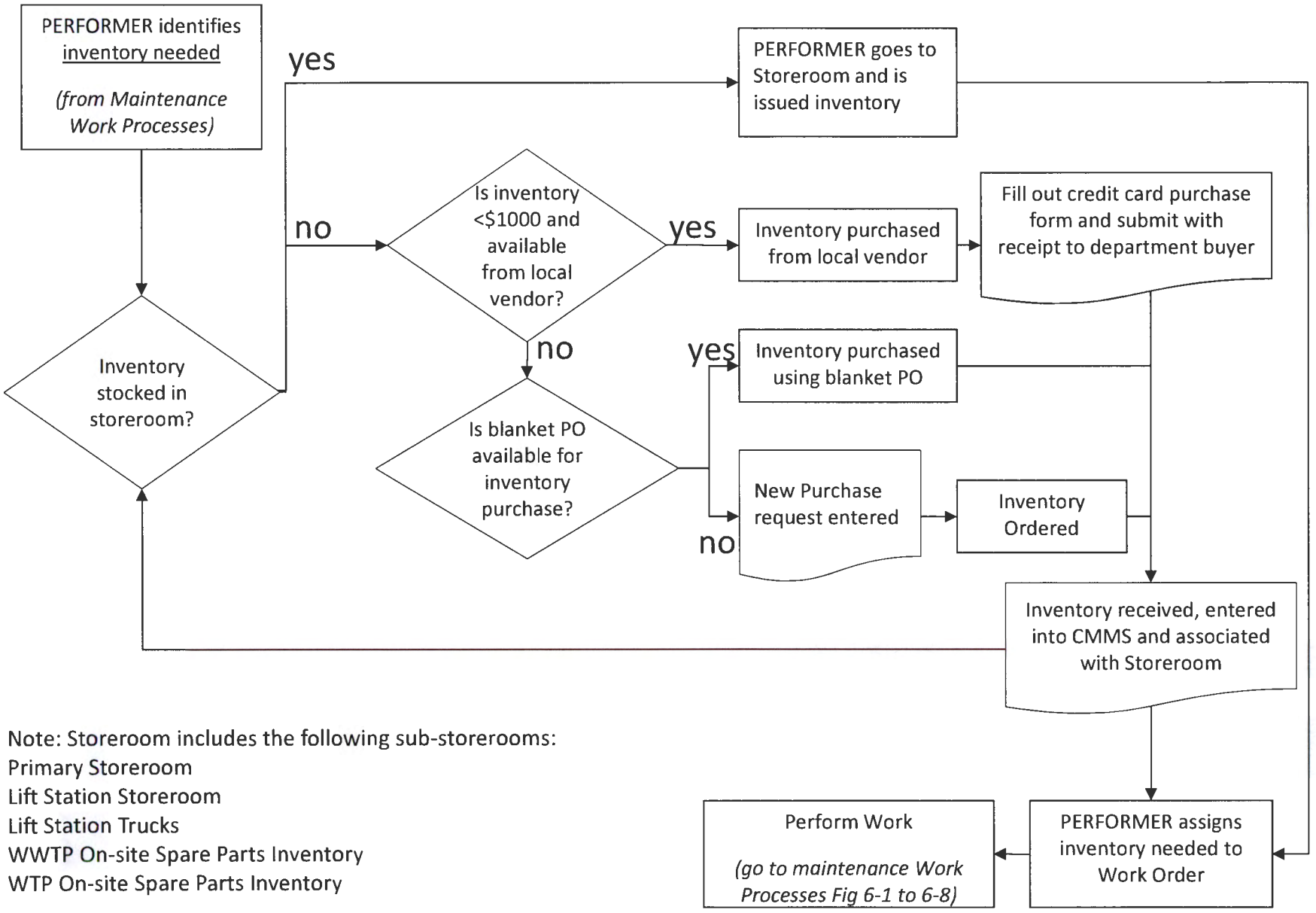
- Rededicate equipment purchased with SJCUD credit cards

- Review credit card purchased equipment and materials to determine if it should be carried as regular stock in the SJCUD storeroom. All purchases that do not require a PO (i.e. purchases <$1,000 using the SJCUD credit card) will require a Credit Card Purchase Form (Appendix C) to be submitted to the department buyer along with the equipment receipt. These forms will be reviewed on a periodic basis to determine if storeroom inventories should include the purchased equipment/materials.

6.5.2 Stores Location

At the SJCUD, the effectiveness of the maintenance department is served better by a mix of area or decentralized storeroom locations for each plant and lift station truck along with one central storeroom used for resupply. Each store location establishes its own inventory of stocked items including bin stock (controlled and uncontrolled), critical spares, rebuildable components, tools and equipment, and spare parts. Each location manages its own inventory and may set up other store or bin locations separate from their main storeroom. **Figure 6-9** depicts the typical Storeroom Inventory Process.

Figure 6-9: Warehouse Storeroom Inventory Work Process



Note: Storeroom includes the following sub-storerooms:
Primary Storeroom
Lift Station Storeroom
Lift Station Trucks
WWTP On-site Spare Parts Inventory
WTP On-site Spare Parts Inventory

Section 7
Asset Management Budget Planning Process

This portion of the Asset Management Procedures Manual outlines the County budget planning schedule, management reporting and analysis, specific maintenance planning process and capital and R&R planning process. These sections detail planning for capital projects including expansion projects and Renewal & Replacement (R&R) projects as well as the development of maintenance plans for existing assets. In addition this section of the manual outlines procedures to be used to define condition assessment, assess the asset criticality, and revise an assets remaining useful life throughout the planning process.

The Asset Management Budget Planning Process provides the link between decisions on level of maintenance performed with R&R planning to achieve the goal of lowest life cycle cost for an asset. This planning process allows for the coordination between the capital and maintenance departments of the utility to help set criteria for management decisions used by both groups in preparing the utility budget for the County's larger budget process.

7.1 Budget Planning Schedule

The asset management planning cycle is inherent within the SJCUD fiscal planning cycle. During establishment of the county's budget for the next fiscal year, planning activities are initiated to develop capital projects as well as operations and maintenance budgets up to nine months before the budget is adopted by the Board of County Commissioners (BOCC). To be an effective tool in establishing capital and maintenance budgets, the asset management planning occurs up to a year before the final budget is adopted. **Figure 7-1** depicts the typical budget planning cycle and **Table 7-1** details the budget schedule for fiscal year 2010.

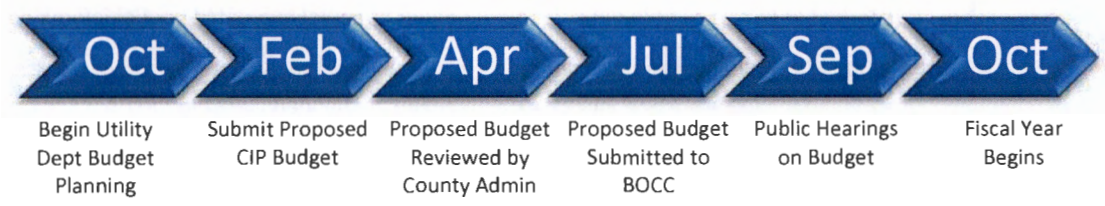


Figure 7-1 Typical Budget Planning Timeline

Table 7-1. Fiscal Year 2010 Budget Schedule

Date	Participants	Item/Activities
Oct 2008	SJCUD – Utility Ops Superintendants	Run Cityworks reports and determine capital versus maintenance needs for equipment R&R.
Nov 2008	SJCUD – Utility Ops Superintendant, Chief Engineer CIPs	CIP and R&R Budget planning meetings with Utility Eng Manager and Utility Ops Manager.
Dec 2008	SJCUD – Utility Ops Man, Engineering Man,	CIP and R&R Budget planning meetings with Utility Director
Jan 12, 2009	County Admin/OMB, All Departments	Distribution of FY 2010 - 2014 CIP Forms and instructions to departments (via email).
Feb 9, 2009	County Admin/OMB, All Departments	Deadline for submission of CIP Requests by departments to OMB.
Mar 6, 2009	County Admin/OMB, All Departments	Budget kickoff. Distribution of Budget Instructions / Guidelines via email.
Mar 31, 2009	All Departments/ Human Resources	Deadline for requested budgets and new positions to be entered into the budget software. Deadline for all FY 2010 Department Narrative Page updates. Deadline for all FY 2010 Department Fee Schedule updates.
Apr 21, 2009	County Commissioners (BCC)	Ranked FY 2010 – 2014 CIP requests submitted to BCC.
Apr 28 to May 1, 2009	County Admin/OMB, All Departments	Administrator's budget hearings with departments and agencies.
Jun 12, 2009	OMB	Complete compilation, correction, and verification of all departmental requested budget information.
Jul 14, 2009	County Commissioners County Administrator	Submission of "Recommended Budget" and "Recommended CIP's" to the Board of County Commissioners (F.S. 129.03[3]).
Sep 15-22, 2009	County Commissioners County Admin/OMB	Public hearings to adopt proposed millage and FY2010 budget (F.S. 200.065 [2][c]).
Oct 1, 2009		Beginning of FY2010

7.2 Management Reporting and Analysis

The Asset Management Budget Planning Process begins with the collection and analysis of data for existing assets. Only through understanding the condition, level of performance, and remaining useful life associated with an asset can meaningful decisions be made regarding the continued use, repair, or replacement of the asset. The CMMS system is able to provide standardized reports available for Asset Management Planning. The required asset reports for each planning process are listed below and described in additional detail in the following sections.

7.3 Maintenance Planning and Budget Processes

The goal of the Maintenance Planning Process is to determine the maintenance strategy for given assets to result in the lowest lifecycle cost for that asset. For this reason, maintenance planning must be closely linked to R&R (capital) planning. The balance between maintenance of an asset and replacement or rehabilitation of that same asset is the desired outcome for which all the other asset management data gathering has been undertaken. This section outlines how the SJCUD maintenance planning process integrates with capital project planning to achieve that balance.

All assets have a design useful life, a related life cycle cost and a rate of decline. Asset management seeks to develop effective strategies for maintenance of an asset (or group of assets) and whether that asset will be rehabilitated and/or replaced and when. The basic methodology for determining maintenance and whether to repair, rehabilitate, or replace is as follows. This process is graphically represented in Figure 7.2 Maintenance Planning Process.

Of course, once the maintenance strategies are established, the maintenance budget has to be prepared. Section 7.3.2 depicts the maintenance budget process.

7.3.1 Maintenance Strategies Review Process

On an annual basis, a review of maintenance strategies will be performed to identify budget anomalies for groupings of assets and evaluate the adequacy of overall maintenance strategies. This exercise will allow the O&M and Engineering Departments to comprehensively review whether existing maintenance strategies (e.g. frequency of maintenance, manhours assigned to maintenance tasks, etc.) are in synch with planned maintenance budgets and asset performance. This review will also highlight areas where maintenance may need to be more frequent or where a global change in maintenance strategies is needed.

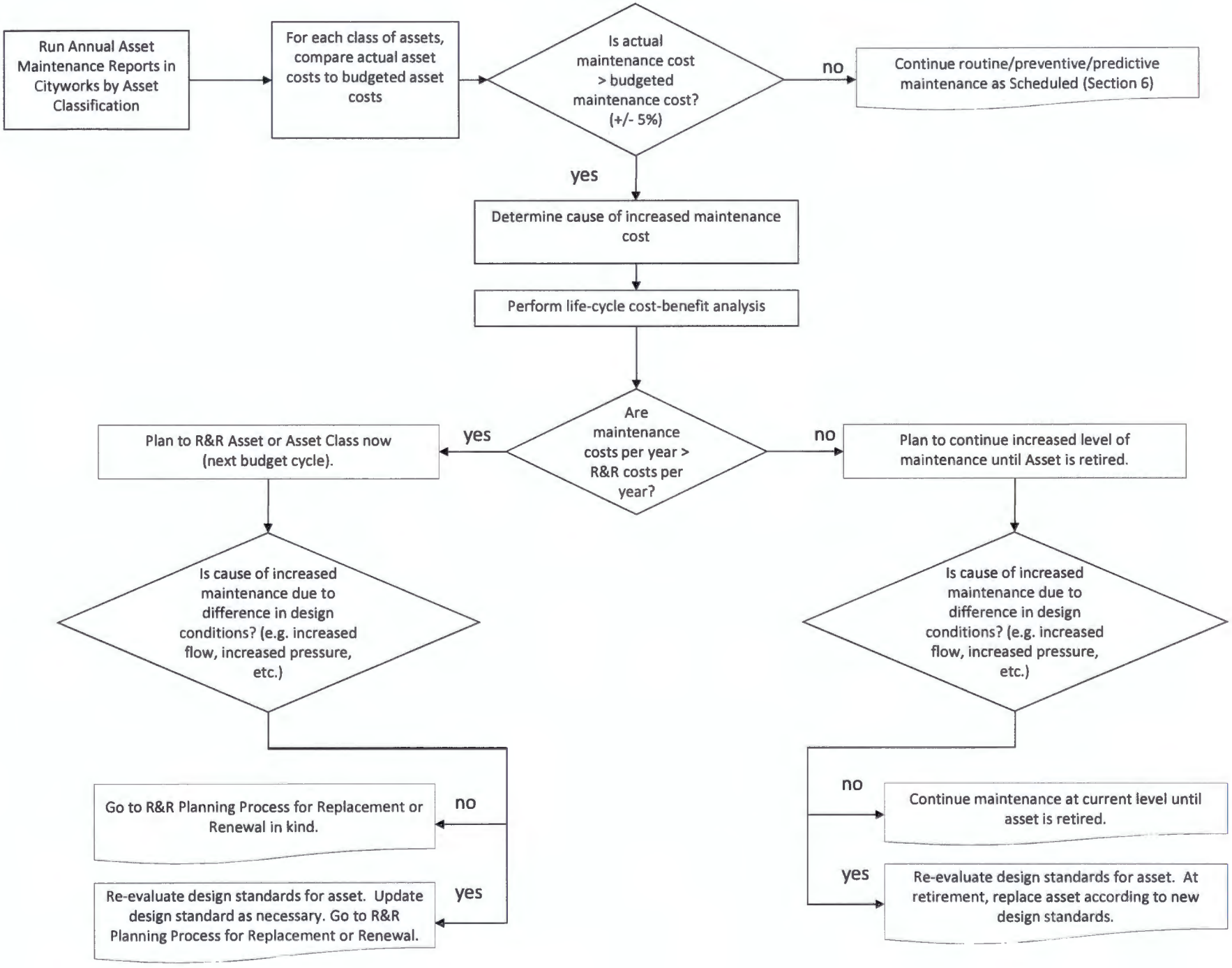
The maintenance strategies described above will be reviewed once a year, but it is anticipated that strategies for groupings of assets will only be changed as necessary and some strategies may not necessarily be changed for many years at a time. Again, the purpose of the maintenance strategies review process is to have the O&M and Engineering departments review the cost of maintenance and compare that to the cost

of rehabilitation and/or replacement, balancing these costs to get the lowest life-cycle cost.

The following bullets describe the maintenance strategy review process depicted on **Figure 7-2.**

- Assemble asset information reports including actual annual maintenance costs for each group of assets (e.g., ARVs, split case centrifugal pumps, submersible pumps, etc.). Specifically, the asset reports from CMMS shall include:
    - ***Pipeline Asset Annual Report*** – This report summarizes all pipeline assets, grouped by subdivision and installation date, that have reached their useful life threshold.
    - ***Equipment Asset Annual Report*** – This report summarizes lift station assets that meet any of the following conditions. Asset annual maintenance cost is also reported.
        - Asset exceeds useful life threshold
        - Aggregate maintenance costs exceed 50% of original asset installation cost
        - Equipment has been flagged by operations or maintenance staff for evaluation
- Compare budgeted annual maintenance costs to actual annual maintenance costs for each asset group. Some deviation in budgeted versus actual costs can be expected. A large deviation may indicate a change in operating conditions, a need to renew the asset group, or other large scale maintenance activity, reevaluation of technical standards, or other engineering evaluation.
- Determine the cause of increased maintenance and identify whether the increased maintenance will be required for the remaining life of the asset. The cause of increased maintenance will be determined through the failure codes associated with work orders on the assets, interviewing maintenance staff, and/or assessing the condition of the asset.
- Perform life-cycle cost-benefit analysis. Coordinate with Engineering Department to compare the cost in dollars per year for maintenance of the asset versus R&R of the asset. Include estimates for corrective, routine, and condition-based maintenance activities for the remaining life of the asset as well as replacement or rehabilitation activities (labor and materials). Please note that the remaining useful life of the asset will be different for continued maintenance and R&R options.

Figure 7-2 Maintenance Strategies Review Process



- If the cost per year to maintain the asset is *less* than R&R of the asset, implement the increased maintenance as necessary until the end of the asset's life. If the cause of increased maintenance indicates a needed change to the asset design criteria, at the end of the asset's life, replace the asset according to the new design standards, otherwise replace-in-kind.

- If the cost per year to maintain the asset is *greater* than R&R of the asset, plan to rehabilitate or replace the asset (See Section 7.3 for R&R Planning Process). If the cause of increased maintenance indicates a needed change to the asset design criteria, R&R the asset according to the new design standards, otherwise R&R-in-kind

- Modify maintenance procedures for asset groupings as needed to accommodate changes in routine maintenance or CBM as determined by the analysis above, e.g. frequency of maintenance, materials and manpower associated with maintenance tasks, etc. Changes to maintenance procedures should be recorded in CMMS and documented in the SJCUD's Maintenance Procedures Manual (See Section 6).

7.3.2 Maintenance Budget Planning

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7.4 Capital Planning and Budget Process (Expansion and R&R)

Traditionally, planning and budgeting for Capital Improvement Projects has focused on the expansion of services through new facilities, updated processes, or the expansion of existing facilities. It is the goal of the SJCUD Asset Management Program to include an R&R component in the Capital Program to focus on achieving lowest life cycle costs for assets by methodically planning their repair and replacement. This section will detail the planning process for both expansion and R&R projects and highlight some planning considerations for each.

7.4.1 Capital Improvement Plan (CIP) Projects

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7.4.2 Expansion Projects

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7.4.3 Renewal & Replacement Projects

Traditionally, R&R projects have fallen under maintenance planning activities (corrective maintenance) because there was inadequate information to plan for or anticipate an asset's replacement in time to be incorporated into a capital project and ultimately into a capital budget. With the implementation of CMMS and the ability to track maintenance costs and identify increasing maintenance trends, the R&R

planning process becomes a capital planning exercise to balance maintenance costs with capital R&R costs. The objectives of the R&R planning process is as follows:

- To identify assets needing capital renewal or replacement in time to be incorporated into a capital project and budget process. This, typically, is from 2 to 5 years before the asset needs to be renewed or replaced.

- Evaluate R&R strategies and design criteria.

- Group assets needing R&R into capital projects. This may involve including these assets into proposed expansion projects.

- Prioritize R&R projects and insert into Capital Budget Process. An R&R project should enter the capital project planning process to complete conceptual design and budget estimates.

This planning process for R&R includes an evaluation of an assets lifecycle costs, including operation and maintenance costs, and key decision points to inform management when it is most cost effective to renew or replace a given asset or group of assets. This R&R Planning Process should occur in conjunction with the Maintenance Planning Process defined earlier in this section. **Figure 7-3** graphically depicts the R&R Planning process and is described in more detail below.

The intent of this R&R planning process is to evaluate specific assets. This is in contrast to the Maintenance Planning Process which may look at specific assets but is intended to look at groupings of assets and their maintenance procedures.

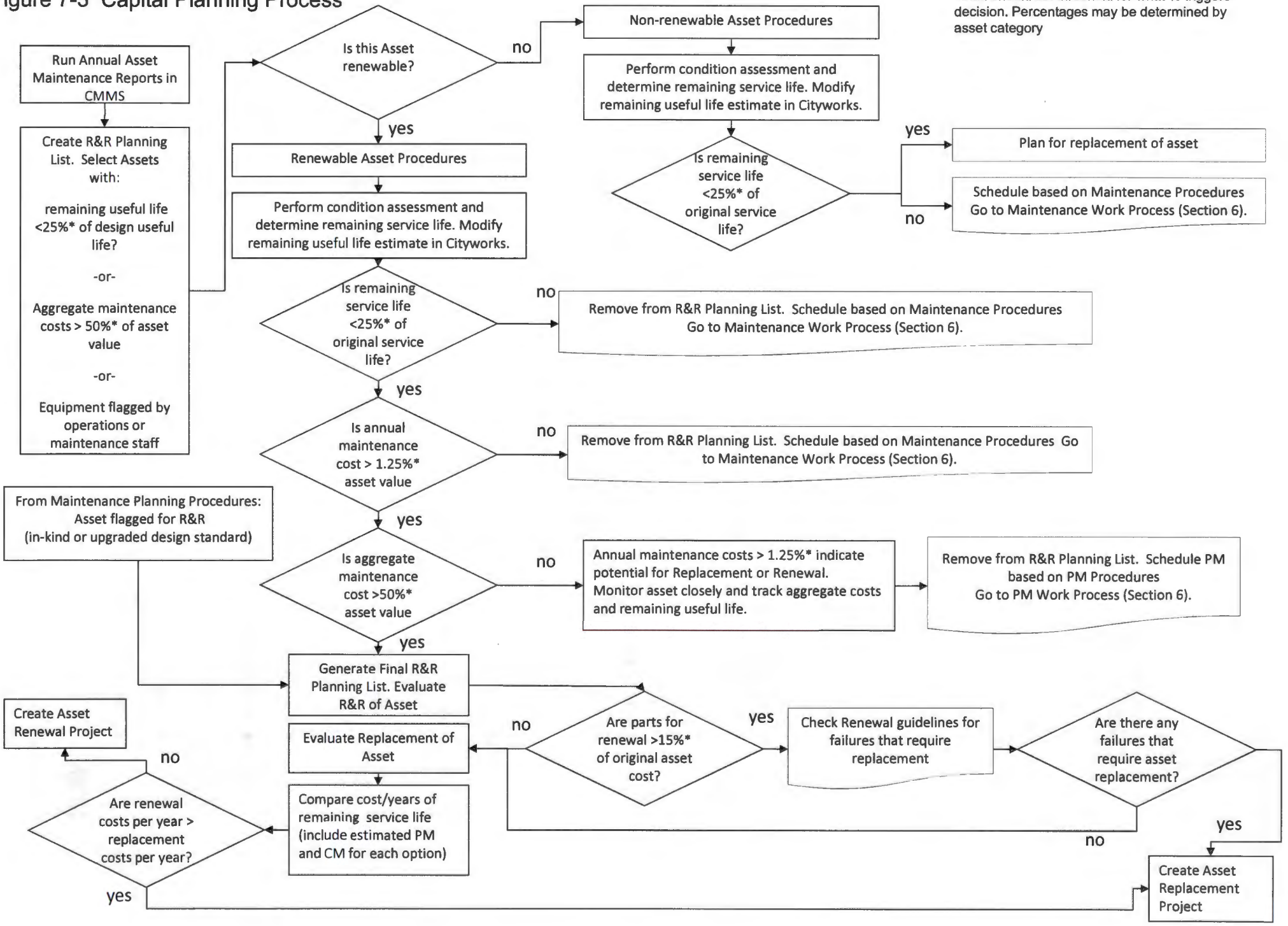
7.4.3.1 Create Preliminary Asset R&R List

The annual R&R planning process begins with the creation of a Preliminary Asset R&R List which is generated from a CMMS report. The R&R planning process (defined below and in the process flow diagram Figure 7-3) then filters this down to a Final Asset R&R List which is used by staff to create specific R&R capital projects or be included in proposed expansion capital projects.

To determine whether further maintenance is warranted, or if an asset should be replaced or rehabilitated, several factors must be evaluated. The preliminary asset R&R list generated from CMMS shall include the following asset information:

- Remaining Useful Life
- Replacement Cost New
- Annual maintenance costs
- Aggregate maintenance costs
- Renewable/Non-renewable designation

Figure 7-3 Capital Planning Process



- Maintenance Design Useful Life Threshold
- Criticality Score
- Operations flag

CMMS reports should be run to select assets that meet the following criteria. Separate asset reports should be run for renewable assets and non-renewable assets:

- Remaining useful life within Useful Life R&R Threshold (See Section 5)
- Aggregate maintenance costs greater than 50 percent of asset value
- Asset flagged by operations or maintenance staff for evaluation

7.4.3.2 Non-renewable Asset Evaluation

Non renewable assets are those that have been identified at the time of installation as an asset that will be run until it is retired (See Section 5.3.3). These assets are not eligible for repair or rehabilitation based on the engineer's determination that lowest lifecycle cost and best performance is achieved through replacement rather than repair or rehabilitation. The following procedure outlines the planning process for non-renewable assets.

Condition Assessment
The list of non-renewable assets produced by CMMS will include assets believed to be nearing the end of their useful life based on age, condition, maintenance costs, and/or operational observation. It is important to verify the condition of the asset to determine whether the asset is actually at the end of its useful life or whether the asset's remaining useful life can be extended. Section 7.5 contains detailed guidance on condition assessments.

The intent is not to perform a condition assessment on every asset identified by CMMS. In many cases, the number of assets that are due for condition assessments outnumbers the resources available to perform the condition assessments. In these instances, groups of assets can be evaluated based on a few condition assessments extrapolated to the larger group as long as they are in similar service and similar environmental conditions.

Remaining Useful Life
An asset's design useful life may be updated in CMMS only after a condition assessment has been performed. If the asset's condition assessment confirms that the asset is nearing the end of its useful life, the design useful life in CMMS is not extended and replacement of the asset should be added to the Final Asset R&R list. Otherwise, the asset's design useful life is extended and regularly scheduled CBM should be continued. By extending the asset's design useful life in CMMS, the asset will be removed from the Preliminary Asset R&R List for this year's analysis.

7.4.3.3 Renewable Asset Evaluation

Renewable assets are those that have been identified at the time of installation as an asset that will be eligible for R&R activities based on the engineer's determination that lowest lifecycle cost and best performance is achieved through renewal or replacement of the asset. The following procedure outlines the planning process for renewable assets.

Condition assessment
As with non-renewable assets, the list of renewable assets produced by CMMS may include more assets than the SJCUD can perform condition assessments. Again, assets may be evaluated as a group if they are in similar service or similar environmental conditions. Section 7.5 contains detailed guidance on condition assessments.

Once condition assessments have been performed, the asset's design useful life may be updated in CMMS. If the asset's condition assessment confirms that the asset is within the Useful Life R&R Threshold, the design useful life in CMMS is not extended and the next step is evaluation of annual and aggregate maintenance costs. Otherwise, the asset's design useful life is extended and regularly scheduled CBM should be continued. By extending the asset's useful life in CMMS, the asset is removed from the Preliminary R&R Asset List for this year's analysis.

Evaluation of Annual and Aggregate Maintenance Costs
Key factors used to determine if an asset is a candidate for renewal or replacement is the amount of maintenance performed on an asset annually and maintenance performed over the entire useful life of the asset.

The SJCUD Engineering Department has established guidelines for annual maintenance costs based on asset type. The annual maintenance costs, including manhours and materials, of any one system are generally 1 to 1.25 percent of the installation cost. A value of 1.25 percent can be used as a default value. A component or system that remains within the 1.25 percent guideline should continue to receive CBM based on established Maintenance Procedures and Schedules and should be removed from the Preliminary R&R Asset List.

The SJCUD Engineering Department has established guidelines for aggregate maintenance costs based on asset type. Systems or components should be replaced when the aggregate maintenance costs are approximately 50 percent of the original cost. A value of 50percent can be used as a default value. A component or system that exceeds 1.25 percent annual maintenance costs but whose aggregate maintenance costs are within 50 percent of its original cost indicates an increased potential for R&R. Although the asset should be removed from the Preliminary R&R Asset List for the current evaluation, the asset's criticality score should be adjusted in CMMS to increase the assets priority for the next round of condition assessments.

As the information collected in the SJCUD Asset Management System improves with time, the maintenance values for each asset group will be refined based on actual

maintenance data collected through the CMMS. Until that time, industry accepted default values will be used.

Evaluate Renewal versus Replacement
Based on the condition assessment, remaining useful life, and evaluation of annual and aggregate maintenance costs, an asset is determined to be a candidate for replacement or renewal. To determine whether to replace the asset or renew it, an evaluation of the type of renewal (rehabilitation or repair) and a cost comparison between renewal and replacement must be performed.

Asset rehabilitation cost is a subsidiary consideration to the system remaining useful life. Parts for rehabilitating an asset or component of that asset should never exceed 10 to 15 percent of the original cost. Rehabilitating assets and components only reclaims 50 percent of the original design life of the asset or the component. If rehabilitation the asset or a component is going to require replacement of a major part such as a housing, shaft or active element, replacement should be considered before deciding on rehabilitation. As such, the equipment rehabilitation guidelines in Appendix D are intended to assist SJCUD maintenance managers in determining when to perform rehabilitation versus replacement. As the SJCUD builds its history and understanding of assets, these percentages and guidelines may be adjusted to reflect actual experience.

The decision whether to renew or replace systems or components should be based on the knowledge of the life cycle cost and remaining useful life of the system or component. Each of these factors plays a role in determining whether is more economically feasible to replace or rebuild the asset. The SJCUD Engineering Department will perform a comparison in dollars per year for renewal of the asset versus replacement of the asset. This comparison will include estimates for corrective, routine, and condition-based maintenance activities for the remaining life of the asset (manhours and materials). Please note that the remaining useful life of the asset will be different for renewal and replacement options.

If the cost per year to renew the asset is *less* than replacement of the asset, include rebuilding of the asset in the upcoming fiscal year budget request. Once renewal of the asset is complete, adjust the asset's design useful life accordingly.

If the cost per year to rebuild the asset is *greater* than replacement of the asset, plan to replace the asset in the upcoming fiscal year budget request.

7.4.3.4 Convert Final Asset R&R List to Capital Projects

Once the assets on the Preliminary Asset R&R List for the particular planning year have been evaluated with the processes defined above, a Final Asset R&R List will remain. The information gathered on the asset during the condition assessment performed earlier in the R&R Planning Process will provide information to prioritize the R&R list into projects for implementation as described in Section 7.5. The prioritized list of assets needing some form of R&R should be grouped into specific

R&R capital projects or be included in proposed expansion capital projects. Both the R&R projects and the proposed expansion projects would then go through the standard CIP planning process for project development, alternatives analysis, and estimated budget and schedule procedures. This will result in the projects being added to the SJCUD's CIP program for presentation to the BOCC for approval and inclusion in the County's CIP budget.

7.5 Asset Condition Assessment Procedures

Condition Assessment Analyses can provide useful information in determining the priority for proposed R&R projects. Condition assessments will be conducted as part of the annual R&R planning process, and will provide an opportunity to assess the remaining useful life of the asset as described in Section 7.4.

This section of the manual provides the protocol for condition assessments and criticality ranking to ensure consistency over time and across the various staff that will be completing these assessments.

For most assets, visual inspection and historical record assessments along with basic performance testing are sufficient. In addition to these techniques some larger or more complex assets will benefit from condition assessment techniques such as vibration and oil analysis, infrared thermography, and ultrasonic technologies. While these techniques have become less expensive, the actual application of the various assessment techniques in cost effective and meaningful fashion will still require both creativity and common sense. For example, it is neither wise nor cost effective to assess all of the utility's assets in the same fashion. It is advisable to expend the greatest amount of attention to only those assets that are most critical to the success of the organization. Consequently, the condition assessment strategy is directly linked to an asset's size, complexity, cost, and consequence of failure. As an example, one strategy may be to have 65 to 75 percent of equipment undergo basic visual and/or performance testing, 25 to 30 percent of equipment monitored using walk-around technologies (vibration, oil, thermography analysis), and 2 to 4 percent of equipment may warrant SCADA performance monitoring or scanning type imbedded devices.

Listed below are the main points of the condition assessment program:

- Visual condition and historical record assessments, and electrical performance testing done by maintenance staff will be scheduled as part of annual condition assessments performed in conjunction with the R&R planning process.
- Visual condition and historical record assessment protocols will be used to help ensure consistency in the rating process.
- Each year's condition assessments will be completed by September 30 so the results can be reflected in the upcoming fiscal year budget.

7.5.1 Historical Maintenance Assessment

Reviewing an asset's recorded historical data is an effective supplemental approach to determining condition and is the starting point for most assessments. Generally, the maintenance reviewer will examine such things as an asset's:

- PM records
- Repair history
- Rebuild records
- Efficiency testing and comparison
- Condition assessment history

Access to this type of information is limited and is not the type of analysis performed in the field. This analysis will be performed by Operations Supervisors and/or staff with planning and scheduling responsibilities.

Listed below are a set of questions which should be answered for each asset assessed:

Table 7-2. Asset Condition Historical Document Assessment Questions

Is the asset age greater than 75% of its design useful life?	Y N
Did the asset experience problems during infancy?	Y N
Preventative maintenance has been performed as recommended by the manufacturer?	Y N
Is the asset abandoned or out of service?	Y N
Is the asset inoperable or non-functional?	Y N

7.5.2 Visual Assessment Inspection

As stated earlier, visual inspection assessments along with historical maintenance record review and basic performance testing are sufficiently effective for tracking the condition of most assets. SJCUD engineering staff with the assistance of and maintenance staff will perform visual condition assessments. Listed below are the visual inspection assessment questions to guide SJCUD staff in their assessment activities:

Rotating Equipment and Electric Motors

Table 7-3. Asset Condition Visual Assessment Questions for Rotating Equipment and Electric Motors

Is asset mounting secure? May show some signs of wear but exhibits no cracking.	Y N
Are asset housings clean, showing no signs of overheating, wear, cracking, or deterioration?	Y N
Does the asset run smoothly with very little vibration or unexpected noise levels?	Y N
Do shafts show signs of wear, heating, or deterioration?	Y N
Does asset exhibit leaking around bearings, oil and/or mechanical seals or seal housings?	Y N
Does motor stop and then restart after a short period, but overload heaters in starter do not trip?	Y N
Are air ducts, screens and channels clean and flowing unrestricted; are fins bent or damaged or; evidence of moisture damage?	Y N
Do welds show pitting, cracking or signs of stress?	Y N
Is asset inoperable or abandoned in place?	Y N

Pipe and Appurtenances (> 16 inches)

Table 7-4. Asset Condition Visual Assessment Questions for Pipe and Appurtenances

Is asset above ground?	Y N
If yes, is the surface coating in need of renewal?	Y N
Is pipe material galvanized, VCP, or other than DIP/PVC/HDPE?	Y N
Does pipe regularly experience clogging with debris, build-up, or root material?	Y N
Are there any observed cracks, corrosion pits, misalignment, leaks, or broken lining?	Y N
Have taps been performed on the pipe?	Y N
Do pipe coupons show pipe thickness within specifications?	Y N
Does pipe have a history of breaks, ruptures, or multiple service calls?	Y N
Are pipe velocities greater than 6 ft/sec?	Y N

Valves (> 16 inches or key control valves)

Table 7-5. Asset Condition Visual Assessment Questions for Valves

Valve type: BFV, GV, PV, PSV, PRV	
Is asset above ground?	Y N
If yes, is the surface coating in need of renewal?	Y N
Has valve been rehabilitated?	Y N
Is valve regularly exercised?	Y N
Does valve exhibit leaking around the seal or packing?	Y N
Is valve inoperable or non-functional?	Y N

Electrical Equipment (Control Panels, MCC, SCADA, Generator)

Table 7-6. Asset Condition Visual Assessment Questions for Valves

Is insulation on conductors and/or splices burned, charred, discolored or exhibit other damage?	Y N
Does equipment experience frequent overheating, extreme ambient temperature, or poor air circulation?	Y N
Have poor or deteriorated seals allowed rainwater to penetrate the equipment? i.e. does insulation system exhibit high moisture content?	Y N
Does equipment exhibit frequent start/stops or breaker operations?	Y N
Are fuses, connectors, or contactors missing, loose, broken, craked, chipped?	Y N
Are bushings dirty, oily, greasy, or exhibiting an oil leak?	Y N
Is enclosure broken, bent, corroded, misaligned?	Y N
Is disconnect switch broken, bent, misaligned, or other physical deformity?	Y N
Is equipment inoperable or non-functional?	Y N

Structures, Tanks, and Basins

Table 7-7. Asset Condition Visual Assessment Questions for Structures, Tanks, and Basins

Material: Steel, concrete, other	
Is asset above ground?	Y N
If yes, is the surface coating in need of renewal?	Y N
Does asset exhibit exposed rebar, cracks or corrosion (more than surface rust)?	Y N
Is corrosion protection or lining in need of renewal (e.g. paint or cathodic over 10 years old)?	Y N
Has interior of the tank/basin been cleaned and/or inspected and found in good condition, including coatings? Is paint blistering, cracking, etc.?	Y N
Has asset been evaluated by a structural engineer within the last 10 years?	Y N

7.5.3 Performance Assessment

Performance assessments are used to determine how the asset performance compares to design conditions and/or performance of assets in similar service. SJCUD engineering staff with the assistance of and maintenance staff will complete an assessment of the asset's performance. The following list of questions should be used to complete an assessment of the asset's current performance:

Table 7-8. Asset Condition Performance Assessment Questions

Is asset able to achieve design conditions (adjusted for age of asset)?	Y N
Is there a noticeable difference in the operation? (ex.: Does it take longer to do the same job? Has discharge flow visibly decreased?)	Y N
Have there been changes to design conditions since initial installation?	Y N
Has similar asset shown history of performance issues?	Y N
Is asset in operation more than 6 hours/day?	Y N
Has asset been in service more than 50% of design useful life?	Y N
Is asset adequately sized for current operations and forseeable future? (e.g. no planned change in capacity within 5-yr CIP?)	Y N

7.5.4 Predictive Testing

Predictive testing is used to provide a clearer picture of the health of a system or components of a system and should be conducted by a team of properly trained technicians representing Mechanical, Electrical and Instrumentation fields. Appropriate predictive tests will be conducted annually on critical assets and every three years on non-critical assets unless previous testing indicates that an asset is experiencing difficulty.

Predictive testing like Amp-Draw and Pump Flow Testing should be conducted simultaneously to provide a clear picture of the real health of the complete system (wire to water efficiency). Predictive testing like Hi-pot, Megger or Hydrostatic testing can be performed separately as these tests provide absolute singular performance indications of the individual system or component.

The following list of questions should be used in conjunction with field testing to complete a predictive assessment of the asset:

Table 7-9. Asset Condition Predictive Assessment Questions

Is the asset currently working successfully (as proven by continued diagnostic testing including: vibration analysis, ultrasound, thermography, oil analysis, and efficiency testing)?	Y N
Were performance tests outside of acceptable limits/ranges?	Y N

7.5.4 Condition Assessment Rating

Once all condition assessment data has been compiled, a Condition Assessment Rating will be assigned based on the supporting data. The overall condition assessment rating for an asset is a combination of observed condition, asset work order history, and performance testing. . The condition assessment rating determinations are weighted based on the type of assessments being performed. For example, in a situation where every type of assessment technique is being used, the assessment weighting is 10% for History, 15% for Visual, 50% for Performance, and 25% for Predictive. Appendix C contains the Condition Assessment Worksheets with appropriate weighting criteria.

In general, four categories of condition assessment rating are possible as outlined below:

<u>Poor</u> – Asset condition is poor and requires immediate renewal or replacement. Reduce remaining useful life to 0-1 year.

Moderate – Asset condition is within the expected values based on asset age and use; however, asset should plan to be replaced or renewed more quickly than remaining useful life would indicate. Reduce remaining useful life accordingly.

Good – Asset condition is as expected based on asset age and use. Maintain current estimate of remaining useful life.

Excellent – Asset condition is better than anticipated. Extend remaining useful life accordingly.

Once the Condition Assessment rating has been assigned, the asset's individual asset record within the CMMS must be updated. If appropriate, similar groups of assets may also be updated. The asset's design useful life should be extended/reduced in CMMS and the remaining useful life will be re-calculated accordingly. The condition assessment rating and estimated design useful life will be tracked over time.

7.6 Asset Criticality Ranking Procedures

Each asset plays a role in achieving the SJCUD's overall business objectives; however, the resources are not available to implement every R&R project. It is necessary for the SJCUD to recognizing that all assets are not of equal importance and a procedure must be implemented to determine how an assets relative importance will impact R&R planning activities.

An asset's criticality ranking will be assessed during the condition assessments performed as part of the annual R&R planning process. The EOR will use the "consequence of failure" (CoF) as well as the "probability of failure" (PoF) to determine the asset's criticality rating. Consequence of failure generally follows assessment criteria based on health and safety, economic loss and statutory obligations that looks at the resultant effects if a particular asset fails. Probability of failure is done by analyzing historical frequency and types of failures to determine the likelihood of the asset failing in the future.

The first step of the asset criticality rating process is to define the criteria that will be used to rate the impact of any asset failure on SJCUD achieving its business goals and objectives regardless of how often the failure occurs. Listed below are the criteria that the EOR uses to determine an asset's CoF. Note that certain assets may impact all or only some CoF criteria areas. Generally, in situations where more than one area is impacted, the CoF rating is a combination of the criteria. However, certain CoF impacts may override any other ratings. For example, where loss of life may have a real potential to occur, that criteria rating may dominate. The questions in **Table 7.10** provide a guideline for determining an asset's CoF. The CoF evaluation worksheet is available in Appendix C.

Table 7-10. Asset Criticality – Consequence of Failure Rating

Community Impact - Health	
Could human health or the environment be harmed?	Y N
Is this a high profile asset with public/political consequences?	Y N
Will failure of asset impact public health (e.g., would boil notices be issued)?	Y N
Loss of Service	
Would there be permanence and persistence of the potential adverse affect?	Y N
Would asset be out of service for longer than 72 hours?	Y N
Would failure require manual operation or added overtime?	Y N
Statutory Obligations	
If asset fails, could an environmental violation occur?	Y N
Would a permit be required to replace asset?	Y N
Damage to Property	
Could damage be done to other structures or property if failure occurs (i.e., rupture of major transmission line)?	Y N
Could total failure overload another asset?	Y N
Is asset on property owned by others?	Y N
Financial Impact	
Is asset classified as run to failure? I.e. is scheduled replacement included in maintenance planning?	Y N
Is replacement cost greater than $50,000 (labor and materials)	Y N
Would replacement or rehabilitation be completed in house?	Y N

The next step assigning criticality rankings is to determine the likelihood of SJCUD's assets failing (PoF). When determining the probability of failure, consideration is generally given to such things as:

- Asset or asset group failure history
- Asset age and condition
- Equipment redundancy
- Operating context
- Generic reliability standards

As a starting point, PoF determinations are based on staff knowledge and recollection of maintenance histories for groups of assets. As the CMMS is fully implemented and information capture improves, SJCUD will have more thorough information to base its determination on in the future. The questions in Table 7.11 provide a guideline for determining an asset's PoF. The PoF evaluation worksheet is available in Appendix C.

Table 7-11. Asset Criticality - Asset Probability of Failure Rating

Asset or asset group failure history	
Does asset group maintenance information indicate systematic failure or operating problems?	Y N
Asset age and condition	
Is remaining useful life less than 5 years?	Y N
Is remaining useful life less than 2 years?	Y N
Is there an annual maintenance contract associated with the asset?	Y N
Is asset in good condition based on latest asset condition assessment?	Y N
Equipment redundancy	
Is there on-site redundancy/stand-by?	Y N
Is there ability to temporarily locate or rent a spare on-site?	Y N
Is asset still being produced and readily available, i.e. not obsolete?	Y N
Operating context	
Is asset monitored through SCADA?	Y N
Are current operating conditions consistent with asset design conditions?	Y N

Finally, an asset's criticality ranking is determined by multiplying the CoF numeric rating by the PoF numeric rating. Assets that have higher criticality rankings will generally receive greater prioritization in the SJCUD's capital budgeting program.

Recognizing that the factors (CoF/PoF) that go into determining the criticality rankings for the SJCUD's asset will change over time, the SJCUD will conduct annual asset criticality reviews in conjunction with their CIP development and budget preparations. Related to this reevaluation, asset condition assessments that are used in determining an asset's PoF will be completed by October 1 of every year and will be performed by the Asset Planner in conjunction with operations staff.

7.7 Remaining Useful Life Adjustment Procedures

Remaining useful life is an estimate based on the system or components design life, history, visual assessment, predictive evaluation, and performance testing. The main consideration determining the Estimated Remaining Useful Life should be:

Design Useful Life - Years in Service = Remaining Useful Life.

There are three primary ways in which remaining useful life can be changed:

- The remaining useful life of an asset naturally decreases through the normal passage of time.
- The remaining useful life of an asset is adjusted based on condition assessments to factor in CBM and the normal wear and tear on an asset.
- The remaining useful life of an asset can be extended through repair, rebuild, or rehabilitation maintenance activities.

7.7.1 Condition Assessment Adjustment

Remaining useful life should be adjusted according to the Condition Assessment Rating as outlined in Section 7.5.4. Again, the asset's design useful life should be extended in CMMS and the remaining useful life will be calculated and tracked over time to provide information on which to base maintenance planning decisions.

7.7.2 Rehabilitation, Repair, and Rebuild Adjustment

Asset rehabilitation or repair is intended to add residual useful life back to an asset. The expected remaining useful life of assets or groups of assets will impact capital expenditure decisions. However, it is difficult to determine useful life of assets because factors such as operating context and maintenance performed often differ.

Component renewal generally only yields half of the original design life, which again is affected by the type of equipment, the environment, and the application of the equipment affecting the expected service life. If the expected useful life of a

component is significantly reduced, by a factor of 30 percent or more, it may be more economically feasible to replace that component.

Appendix A
St Johns County Administrative Code
Budget Section - Capital Asset Policy

St. Johns County
Administrative Code

Section: Budget Policy and Procedure	**Date Issued:** March 2003 **Revised:** January 2006
Title: Capital Asset Policy	**Reference:** F.S. 274 SJC 2003-186

202.1 Purpose
To promote the control, capitalization and safeguarding of tangible personal property including infrastructure assets, and to prescribe accounting guidance for reporting local government – owned capital assets and related depreciation as required by Statement No. 34 of the Governmental Accounting Standards Board (GASB), Basic Financial Statements – and Management's Discussion and Analysis – for State and Local Governments.

202.2 Scope
This procedure will apply to all County departments under the Administrative control of the County Administrator.

202.3 Policy
For fiscal year ending September 30, 2002, St. Johns County will be required to implement Statement No. 34 of the Governmental Accounting Standards Board (GASB), Basic Financial Statements - and Management's Discussion and Analysis – for State and Local Governments. Statement No. 34 establishes new financial reporting requirements for state and local governments throughout the United States. When implemented, it will create new information and will restructure much of the information that governments have presented in their annual reports in the past. The intent of these new requirements is to make annual reports more comprehensive and easier to understand and use.

Two key implementation challenges the new reporting model presents are infrastructure reporting and depreciation accounting. Statement No. 34 requires the County to prospectively report all general infrastructure assets acquired after the implementation date of the statement, September 30, 2001. In addition, Statement No. 34 requires the state to retroactively report all major general infrastructure assets acquired in fiscal years ending after June 30, 1980. With respect to depreciation, Statement No. 34 requires all applicable general fixed assets to be depreciated over their estimated useful lives. In addition, the County is required to establish a policy for capitalizing assets and for estimating the useful lives of those assets.

In response to the requirements established by Statement No. 34, the Board of County Commissioners (the "Board") has established this policy to provide guidance to County Departments on implementing the new reporting requirements in regards to capital assets for financial statement purposes only. The purpose of this policy is to achieve consistency regarding the accounting of County-owned capital assets and related depreciation for the preparation of the financial statements required by Statement No. 34.

Capital asset reporting thresholds as established in this policy may be higher than the existing thresholds for property control due to different objectives. The primary objectives of financial reporting generally pertain to valuation, allocation, presentation, and disclosure, whereas the primary objectives of property control generally pertain to efficiency, effectiveness, and safeguarding of assets. For example, controls designed to prevent or promptly detect a loss of a small value asset, while important operationally, and are not necessarily relevant for financial reporting purposes. Because of the objective differences, this policy should not be used for property control purposes. County agencies and departments are encouraged to refer to Chapter 10.400, Local Government-Owned Tangible Personal Property, Rules of the Auditor General, and appropriate sections of Chapter 274, Florida Statutes, for guidance on property control.

202.4 Capital Assets and Definitions

Capital assets - are major tangible or intangible assets that benefit a department more than a single fiscal year. If assets meet the definition of capital assets, but are held primarily for resale, they are not considered capital assets. Departments should budget capital assets, including infrastructure, in the applicable general ledger account based on the nature of the asset. Examples of capital assets include land, land improvements, easements, buildings, vehicles, infrastructure, and works of art and historical treasures.

Infrastructure assets - are long-lived capital assets that normally are stationary in nature and normally can be preserved for a significantly greater number of years than most capital assets. Examples of infrastructure assets include roads, bridges, tunnels, water and sewer systems, and lighting systems. Buildings should not be considered infrastructure assets, except buildings that are an ancillary part of a network of infrastructure assets, such as a maintenance shop or out-building associated with a water treatment system.

The County has invested in a broad range of capital assets that are used in the County's operations, which include:

- Land
- Buildings and other improvements
- Infrastructure
    - Arterial roads
    - Major collector roads
    - Minor collector roads
    - Local roads
    - Bridges
- Utility Assets
    - Process Structures
    - Process Equipment
    - Pipelines and Appurtenances
- Equipment
    - Furniture and equipment
    - Vehicles, boats and aircraft
- Library Collection
    - Works of art and historical treasures
    - Computer Software
    - Leasehold improvements
    - Construction in progress

202.4.1 Capital Asset Classification

Assets purchased, constructed or donated that meet or exceed the BCC's established capitalization thresholds or minimum reporting requirements must be uniformly classified. A list of current class code structures for personal and real property is in Appendix A.

Each class code contains a default value for both salvage value and estimated useful life (expressed in years). The default value is $1.00 or is based upon contractual repurchase agreements. However, departments are allowed to substitute information for salvage value and/or estimated life based on individual experience for each class of asset. Any substitutions must be substantiated and auditable.

202.4.1.1 Capitalization Thresholds

Standard capitalization thresholds for capitalizing assets have been established for each major class of assets. All departments are required to use these thresholds.

Class of Asset	Threshold
Land	Capitalize All
Buildings and other improvements	$25,000
Infrastructure	$100,000
Utility Assets	$5,000
Equipment	$ 750
Library books/materials (collections)	Capitalize All
Works of art/historical treasures	Capitalize All
Software developed for internal use	$25,000
Leasehold improvements	$25,000

202.4.1.2 Capital Asset Acquisition Cost

Capital assets should be reported at historical cost. The cost of a capital asset should include ancillary charges necessary to place the asset into its intended location and condition for use. Ancillary charges include costs that are directly attributable to asset acquisition – such as freight and transportation charges, site preparation costs, and professional fees. Donated capital assets should be reported at their estimated fair value at the time of acquisition plus ancillary charges, if any.

When the historical cost of a capital asset is not practicably determinable, the estimated historical cost of the asset should be determined by appropriate methods and recorded. Estimated historical costs should be so identified in the record and the basis of determination established in the public records. The basis of valuation for capital assets constructed by agency personnel should be the costs of material, direct labor, and overhead costs identifiable to the project.

The departments are responsible for correctly reporting these assets at the date of acquisition. Any improvements made to a capital asset that extends the useful life of the asset beyond one year should be capitalized.

202.4.1.2.1 The costs of capital assets for governmental activities do not include capitalized interest. However, interest is capitalized on:

- Assets that are constructed or otherwise produced for an enterprise fund's own use (including assets constructed or produced for the enterprise by others for which deposits or progress payments have been made).

- Assets intended for sale or lease that are constructed or otherwise produced as discrete projects (for example, ships or real estate developments)

202.4.1.2.2 Assets that do not qualify for capitalization of interest include:

- Assets acquired for governmental activities (interest will be reported in the statement of activities as a separate line item)

- Assets that are in use or ready for the intended use in the earning activities of the enterprise.

- Assets that are not being used in the earning activities of the enterprise and that are not undergoing the activities necessary to get them ready.

- Assets acquired with gifts and grants that are restricted by the donor or grantor to acquisition of those assets to the extent that funds are available from such gifts and grants

202.4.1.2.3 For object expenditure codes, see Appendix A. Historical costs also include ancillary charges, site preparation costs and professional fees.

202.4.1.3 Capital Asset Donations
GASB Statement No.33, Accounting and Financial Reporting for Non-Exchange Transactions, defines a donation as a voluntary non-exchange transaction entered into willingly by two or more parties. Both parties may be governments or one party may be a nongovernmental entity, including an individual. A voluntary contribution of resources between departments is not a donation.

All developer contributed and private donated capital and infrastructure assets must provide and include the associated costs in accordance with the guidelines outlined in this policy prior to acceptance by the BCC through regulations adopted within the County's current land development and utility ordinances, and implementing procedures. The values will be reviewed by the appropriate County staff and should include all costs, including easements and rights-of-way, and ancillary charges relating to the asset.

For governmental funds, GASB 33 is effective beginning in fiscal 2002 or September 1, 2001. For departments with proprietary or fiduciary funds, GASB 33 is effective in fiscal 2001 or September 1, 2000. The timing of recognition of the asset and related revenue is outlined as follows:

	Governmental Activities (Effective fiscal 2002)	Business Type Activities (Effective fiscal 2001)
Donations	If the asset has been received but the eligibility requirements have not been met, then capital assets are debited and deferred revenue is credited in the government-wide financial statements. If the asset has been received and the eligibility requirements have been met, then capital assets are debited and revenue is credited in the government-wide financial statements. If the asset has not been received but the eligibility requirement have been met, then a receivable is debited and revenue is credited in the government-wide financial statements.	If the asset has been received but the eligibility requirements have not been met, then capital assets are debited and deferred revenue is credited in the fund financial statements. If the asset has been received and the eligibility requirements have been met, then capital assets are debited and revenue is credited in the fund financial statements. If the asset has not been received but the eligibility requirements have been met, then a receivable is debited and revenue is credited in the fund financial statements.
Promises Of capital Asset Donations	Promises should be recognized as receivables and revenues (net of estimated un-collectable amounts) on the government-wide financial statements when all applicable eligibility requirements are met, provided that the promise is verifiable and the resources are measurable* and probable** of collection.	Promises should be recognized as receivables and revenues (net of estimated un-collectable amounts) on the fund financial statements when all applicable eligibility requirements are met, provided that the promise is verifiable and the resources are measurable* and probable** of collection.

*Measurable – Reasonable estimable
**Probable – The future event of events are likely to occur

202.4.1.3.1 Dedicated and Donated Infrastructure

The methodology for determining the value of dedicated and donated infrastructure shall be as follows: County staff shall obtain the assessed value of the dedicated or donated property from the County Property Appraiser for the year the County obtained the property and shall add the developer's horizontal improvement and soft costs for construction on the dedicated or donated property to the assessed value. This amount will be determined on a square foot basis and applied to the square footage of the roads or easements. The easement values will then be adjusted based on the appropriate and consistent percentage of the fee values. The date the County received the dedicated or donated land shall be the date that the plat dedicating such land to the County is signed

by the Clerk of Courts or the date such other instrument of title that dedicates or donates such land to the County is formally accepted by the County.

202.4.1.4 Sale of a Capital Asset Donation
Governmental fund statements per GASB 34 are to be used to report spendable assets and not capital assets.

However, there may be instances when a government receives a gift of a capital asset that it intends to sell. In such cases, the donation will be reported as revenue on the governmental fund statements if the asset is either:

- Sold prior to the end of the fiscal period, and the proceeds of the sale are considered available***, or
- The asset is sold (or the government has entered into a contract to sell the asset) prior to the issuance of the financial statements, and the proceeds of the sale are considered available.
- If the proceeds of the sale are not considered available, then the related receivable should be offset by a liability for deferred revenue on the fund financial statements.

***Available – Collected within the current period or expected to be collected soon enough thereafter to be used to pay liabilities of the current period.

202.4.1.5 Leased Equipment
Equipment should be capitalized if the lease agreement meets any one of the following criteria:

- The lease transfers ownership of the property to the lessee by the end of the lease term.
- The lease contains a bargain purchase option.
- The lease term is equal to 75 percent or more of the estimated economic life of the leased property.
- The present value of the minimum lease payments at the inception of the lease, excluding executory costs, equals at least 90 percent of the fair value of the leased property.
- Leases that do not meet any of the above requirements should be recorded as an operating lease and reported in the notes of the financial statements.

202.5 Depreciating Capital Assets

202.5.1 Capital assets should be depreciated over their estimated useful lives unless they are:

- Inexhaustible (i.e., land and certain works of art and historical treasures),

- Infrastructure assets reported using the modified approach as discussed in Statement No. 34 (see section on Infrastructure and Infrastructure Improvements of this policy), or

- Construction in Progress

202.5.2 Departments will use the straight-line depreciation method (historical cost less salvage value, divided by useful life). Depreciation data will be calculated and stored by the Finance Department for each

eligible asset. Accumulated depreciation will be summarized and posted to the accounting general ledger for all proprietary funds.

202.5.3 Proceeds from sale of assets must be netted against salvage value in computing net gain or loss from sale.

202.6 Sale of Capital Assets
When an asset is sold, a gain or loss must be recognized in the annual report when:

- Cash is exchanged and the amount paid does not equal the net book value of the asset
- Cash is not exchanged and the asset is not fully depreciated or has a salvage value

A gain or loss **is not** reported when:

- Cash exchanged equals the net book value and the asset does not have a salvage value
- Cash is not exchanged and the asset is fully depreciated and has no salvage value

202.6.1 Computation of Gain and Loss from Sale of Assets
To compute a gain or loss on assets, which have not been fully depreciated, proceeds received must be subtracted from the assets net book value.

Example:

Asset's Historical Cost	$10,000
Less accumulated Depreciation	7,000
Net book value	$3,000
Subtract Proceeds Received	2,000
Loss from Sale of Asset	$1,000

If the asset has been fully depreciated and has a salvage value, then the proceeds must be subtracted from the salvage value to compute the gain or loss.

Example:

Asset's Historical Cost	$10,000
Less Accumulated Depreciation	9,000
Net book value	$1,000
Subtract Proceeds Received	2,000
Gain from Sale of Asset	$1,000

Note: When the sale (transfer) is between governmental departments, the historical cost of the asset and the accumulated depreciation will transfer to the department receiving the asset.

When the sale (transfer) is between governmental and enterprise fund departments, the fair market value of the asset must be determined, and the sale (transfer) must be an "arms-length" transaction between the departments.

Net Book Value = asset's historical cost less then accumulated depreciation.

202.6.2 Assets Acquired by the Exchange of Other Assets

202.6.2.1 Similar assets - When recording an exchange of similar assets, departments must use a book value basis for the assets surrendered or required.

- When assets are exchanged and no monetary consideration is paid or received, the cost of the asset acquired is recorded at the book value of the asset surrendered.
- Where monetary consideration is given, the new asset must be recorded at the sum of the cash paid plus the book value of the asset surrendered.

202.6.2.2 Dissimilar assets – When recording an exchange of dissimilar assets, agencies must:

- Record the value of the asset being traded and the resulting transaction for acquiring the new asset, using the fair value of the asset being traded.

- If cash is used to purchase the asset, agencies must record the transaction for the new asset as cash paid plus the fair value of the asset surrendered.

202.6.2.3 Assets Held in Trust

Capital assets held by a department on behalf of a non-County entity (such as art collections owned by families, estates and others) and that are under the temporary control of the department should be inventoried by the Finance Department. Currently, the accounting treatment is being researched. This includes assets owned by the federal, state, and local government that have been loaned to a County department. Asset held in trust must be reported to the Finance Department using the appropriate acquisition and disposal method for such assets.

202.7 Capital Asset Categories

202.7.1 Land

202.7.1.1 Land Definition - Land is the surface or crust of the earth, which can be used to support structures, and may be used to grow crops, grass, shrubs, and trees. Land is characterized as having an unlimited life (indefinite). Easements and rights-of-way related to infrastructure assets are also included as land.

Additionally, ancillary charges, site preparation and site improvements (other than buildings) that ready the land for its intended use are included. These costs associated with the land are added to the cost of the land.

202.7.1.2 Depreciation Methodology - Land is inexhaustible asset and does not depreciate over time.

202.7.1.3 Capitalization Threshold - All acquisitions of land will be capitalized.

Examples of Expenditures to be Capitalized As Land

- Purchase price or fair market value at time of gift
- Commissions
- Professional fees related to the acquisition of land (title searches, architect, legal, engineering, appraisal, surveying, environmental assessments, etc.)
- Land excavation, fill, grading, drainage
- Demolition of existing buildings and improvements (less salvage)
- Removal, relocation, or reconstruction of property of others (railroad, telephone, and power lines)
- Interest on mortgages accrued at date of purchase
- Accrued and unpaid taxes at date of purchase
- Other costs incurred in acquiring the land
- Water wells including initial cost for drilling, the pump and its casing. (Excluding utility capital improvements).
- Right-of-way

202.7.2 Building and Other Improvements

202.7.2.1 Building Definition - A building is a structure that is permanently attached to the land, has a roof, is partially or completely enclosed by walls, and is not intended to be transportable or moveable. Buildings that are an ancillary part of the County's utility system or infrastructure network, such as toll buildings will be reported as infrastructures rather than as buildings.

202.7.2.2 Building Improvements Definition - Building improvements are capital events that materially extend the useful life of a building or increase the value of a building, or both, beyond the current depreciable life. A building improvement should be capitalized as a betterment, if the expenditure for the improvements is at the capitalization threshold, or the expenditure increases the life or value of the building by 25 percent of the original life period or cost. The betterment will be recorded as an addition of value to the existing building.

202.7.2.3 Other Improvements Definition - Other improvements are capital events that materially improve the usefulness of County property. Assets (other than general use buildings) built, installed, or established to enhance the quality of facilitate the use of land for a particular purpose. These improvements include park and recreation resources (i.e., ball fields, restrooms, golf greens, etc.), operating resources (i.e., parking and landscaping improvements, poll barns, stables, sheds, etc.) and other improvements that are not included within the other definitions. Additionally, ancillary charges, which are associated with the purchase or construction of these items, are added to the cost.

202.7.2.4 Depreciation Methodology -The straight-line depreciation method (historical cost – salvage value/useful life) will be used for buildings, building and other improvements, and their components. Subsequent improvements that change the use or function of the building shall be depreciated.

202.7.2.5 Capitalization Threshold - The capitalization threshold for buildings and other improvements is $25,000.

Examples of Expenditures to be capitalized as Buildings

Purchased buildings

- Original purchase price
- Expenses for remodeling, reconditioning or altering a purchased building to make it ready to use for the purpose for which it was acquired.
- Environmental compliance (i.e., asbestos abatement)
- Professional fees related to the purchase of buildings (legal, architect, inspections, title searches, etc.)
- Payment of unpaid or accrued taxes on the building to date of purchase
- Cancellation or buyout of existing leases
- Other costs required to place or render the asset into operation including in-house departmental costs provided by various County departments

Constructed Buildings

- Completed project costs
- Interest accrued during construction
- Cost of excavation or grading or filling of land for a specific building
- Expenses incurred for the preparation of plans, specifications, blueprints, etc.
- Cost of building permits
- Professional fees related to the design and construction of buildings (architect, engineer, management fees for design and supervision, legal)
- Costs of temporary buildings used during construction
- Unanticipated costs such as rock blasting, piling or relocation of the channel of an underground stream
- Permanently attached fixtures or machinery that cannot be removed without impairing the use of the building
- Additions to buildings (expansions, extensions, or enlargements)

Examples of Expenditures to be capitalized as Improvements to Buildings

A. Note: For a replacement to be capitalized, it must be a part of a major repair or rehabilitation project, which increases the value, and/or useful life of the building, such as renovation of a recreation center. A replacement may also be capitalized if the new item/part is of significantly improved quality and higher value compared to the old item/part such as replacement of an old shingle roof with a new fireproof tin roof.

Replacement or restoration to original utility level would not be capitalized. Determinations must be made on a case-by-case basis.

- Conversion of attics, basements, etc., to usable office, clinic, research or classroom space
- Structures attached to the building such as covered patios, sunrooms, garages, carports, enclosed stairwells, etc.
- Installation or upgrade of heating and cooling systems, including ceiling fans and attic vents
- Original installation/upgrade of wall or ceiling covering such as carpeting, tiles, paneling, or parquet
- Structural changes such as reinforcement of floors or walls, installation or replacement of beams, rafters, joists, steel grids, or other interior framing
- Installation or upgrade of window or door frame, upgrading of windows or doors, built-n closet and cabinets
- Interior renovation associated with casings, baseboards, and light fixtures, ceiling trim. Etc.
- Exterior renovation such as installation or replacement of siding, roofing, masonry, Etc.
- Installation or upgrade of plumbing and electrical wiring
- Installation or upgrade of phone or closed wire circuit television systems, networks, fiber optic cable, wiring required in the installation of equipment (that will remain in the building)
- Other costs required to place or render the asset into operation including in-house departmental costs provided by various County departments

202.7.3 Building Maintenance Expense

- The following are examples of expenditures not to capitalize as improvements to buildings. Instead, these items should be recorded as maintenance expense.
- Adding, removing and/or moving of walls relating to renovation projects that are not considered major rehabilitation projects and do not increase the value of the building
- Improvement projects of minimal value to the building and/or that do not add to the life expectancy of the building
- Plumbing or electrical repairs
- Cleaning, pest extermination, or other periodic maintenance
- Interior decoration, such as draperies, blinds, curtain rods, wallpaper
- Exterior decoration, such as detachable awnings, uncovered porches, decorative fences, etc.
- Maintenance-type interior renovation, such as repainting, touch-up plastering, replacement of carpet, tile, or panel sections; sink and fixture refinishing, etc.
- Maintenance-type exterior renovation such as repainting, replacement of deteriorated siding, roof, or masonry sections
- Replacement of a part or component of a building with a new part of the same type and performance capabilities, such as replacement of an old boiler with a hew one of the same type and performance capabilities
- Any other maintenance-related expenditure which does not increase the value of the building

Examples of Expenditures to be Capitalized as Other Improvements

- Fencing and gates
- Landscaping
- Parking lots/driveways/parking barriers
- Outside sprinkler systems
- Recreation areas and athletic fields (including bleachers)
- Golf courses
- Paths an trails
- Septic systems
- Stadiums
- Swimming pools, tennis courts, basketball courts
- Fountains
- Plazas and pavilions
- Retaining walls

202.7.4 Infrastructure

202.7.4.1 Infrastructure Definition - Assets that are long-lived capital assets and that normally are stationary in nature and can be preserved for a significantly greater number of years than most capital assets. Infrastructure assets are often linear and continuous in nature.

Note: Prospective reporting of general infrastructure assets is required beginning in fiscal 2002. Also required is the retroactive reporting of infrastructure asset purchased, constructed, or donated in fiscal years ending after June 30, 1980 or that received major renovation, restorations, or improvements during that period. The County is encouraged to report their entire infrastructure, if possible.

202.7.4.2 Infrastructure Improvements Definition - Infrastructure improvements are capital events that materially extend the useful life or increase the value of the infrastructure, or both beyond the current depreciable life. Infrastructure improvements should be capitalized as betterment and recorded as an addition of value to the infrastructure if the improvement or addition of value is at the capitalization threshold or increases the life or value of the asset by 25 percent of the original cost or life period.

202.7.4.3 Jointly Funded Infrastructure - Infrastructure paid for jointly by the state and other governmental entities should be capitalized by the entity responsible for future maintenance. Additionally, ancillary charges, which are associated with the purchase or construction of these items, are added to the cost.

202.7.4.4 Modified Approach vs. Depreciation
The modified approach is an alternative to reporting depreciation for infrastructure assets that meet the following criteria:

- The assets are managed using a qualifying asset management system.
- It is documented that the assets are being preserved at or above a condition level established by the government.

Depreciation is not reported for infrastructure assets that use the modified approach. Only infrastructure assets that comprise a network or subsystem of a network can be reported using the modified approach.

A department may choose to use either method or a combination of methods to account for its assets. The asset accounting strategy chosen by the department will need to be approved by the Clerk of the Court.

202.7.4.5 Maintenance Costs
Maintenance costs allow an asset to be used during its originally established useful life (design life). Maintenance costs are expensed in the period incurred.

202.7.4.6 Preservation (or Renewal) Costs
Preservation costs are generally considered those outlays that extend the useful life of an asset beyond its original estimated useful life, but do not increase the capacity or efficiency of the asset. Preservation costs should be expensed under the modified approach and capitalized under the depreciation approach.

202.7.5 Additions and Improvements
Additions and improvements are those capital outlays that increase the capacity, efficiency, or extend the useful life of the asset by 25 percent or more. A change in capacity increases the level of service provided by an asset. For example, additional lanes can be added to a highway or the weight capacity of a bridge could be increased. A change in efficiency maintains the same service level, but at a reduced cost. For example, a heating and cooling plant could be reengineered so that it produces the same temperature changes at reduced cost. The cost of additions and improvements should be capitalized under both the modified and depreciation approaches to reporting infrastructure. Departments must maintain appropriate documentation to support what constitutes an enhancement or useful life extension.

202.7.6 Depreciation Methodology
The straight-line depreciation method (historical cost less salvage value, divided by useful life) will be used for infrastructure assets.

202.7.7 Capitalization Threshold
The capitalization threshold for infrastructure is $100,000. Infrastructure already capitalized will remain capitalized.

Examples of Expenditures to be Capitalized as Infrastructure

- Roads, streets, curbs, gutters, sidewalks, fire hydrants
- Bridges, railroads, trestles
- Canals, waterways, wharf, docks, sea walls, bulkheads, boardwalks
- Dams, Drainage facility
- Radio or television transmitting tower
- Electric, water and gas (main lines and distribution lines, tunnels)
- Fiber optic and telephone distribution systems (between buildings)
- Light system (traffic, outdoor, street, etc.)

- Airport runway/strip/taxi way/apron

202.8 Utility Assets

202.8.1 Utility Assets Definition

Fixed or movable tangible assets to be used to provide potable water, wastewater and reclaimed wastewater service to the St. Johns County Utility Department customers, the benefits of which extend beyond one year from the date of acquisition.

202.8.2 Utility Assets Improvements Definition

Utility asset improvements are capital events that materially extend the useful life, increase the value, or upgrade to meet regulatory requirements of the Utility system or asset.

202.8.3 Depreciation Methodology

The straight-line depreciation method ((historical cost – salvage cost)/useful life) will be used for utility assets. Subsequent improvements that change the use or function of the assets shall be depreciated.

202.8.4 Capitalization Threshold

A utility asset should be capitalized if the expenditure meets the definition of improvement defined above and meets the capitalization threshold of $5,000 or more.

Examples of Expenditures to be Capitalized as Utility Assets

- Professional fees related to planning, the preliminary design, design, construction and acquisition of a utility asset (architect, engineer, geologist, surveyor, legal fees, inspections, etc.)
- Completed project costs.
- Interest accrued during construction.
- All permitting costs.
- Costs for all process structures, equipment, piping, pumps, and appurtenances.
- Ancillary costs associated with and required to be completed to put the utility asset into service.
- [LIST OF SPECIFIC UTILITY ASSETS, Lift Stations, Water mains, sewer force mains, high service pump building, above ground water tank, wastewater treatment plant clarifier, blower building, etc.]

Examples of Expenditures to be Capitalized as Utility Asset Improvements

Note: For a renewal or replacement to be capitalized, it must be a part of a major repair or rehabilitation project, which increases the value, and/or useful life of the utility asset, such as replacement of clarifier equipment. Replacement or restoration to original utility level would not be capitalized. Determinations must be made on a case-by-case basis.

- Professional fees related to the design, construction, and inspections of an improvement to a utility asset.

- Liner installations in existing manholes lift stations, tanks and other process structures. This does not include normal painting or coating activities, but those lining activities that will extend the life of the asset beyond its original useful life.
- Rehabilitation and replacement of any process equipment including bar screens, aerators, clarifying equipment, major pumps and motors, filters, disinfections equipment, motor control centers, computerized control systems, and appurtenances.
- Other improvements similar to the improvements listed under Building improvements.

202.9 Equipment

202.9.1 Equipment Definition - Fixed or movable tangible assets to be used for operations, the benefits of which extend beyond one year from date of acquisition and rendered into service. Improvements or additions to existing personal property that constitute a capital outlay or increase the value or life of the asset by 25 percent of the original cost or life should be capitalized as a betterment and recorded as an addition of value to the existing asset.

Note: Costs of extended warranties and/or maintenance agreements, which can be separately identified from the cost of the equipment, should not be capitalized.

202.9.2 Jointly Funded Equipment - Equipment paid for jointly by the County and other governmental and private entities should be capitalized by the entity responsible for future maintenance.

202.9.3 Depreciation Methodology - The straight-line depreciation method (historical cost less salvage value, divided by useful life) will be used for equipment.

202.9.4 Capitalization Threshold - The capitalization threshold for Equipment is $1000.

Examples of Expenditures to be Capitalized as Equipment

- Original contract or invoice price
- Freight charges
- Import duties
- Handling and storage charges
- In-transit insurance charges
- Sales, use, and other taxes imposed on the acquisition
- Installation charges
- Charges for testing and preparation for use
- Costs of reconditioning used items when purchased
- Parts and labor associated with the construction of equipment

202.10 Library Collection

202.10.1 Library Collection Definition – The collection consists of library books, which is generally a literary composition bound into a separate volume and identified as a separate copyrighted unit, and library materials, which are information sources other than books that include journals, periodicals, microforms, audio/visual media, computer-based information, manuscripts, maps, documents, and similar items which provide information essential to the learning process or which enhance the quality of libraries. Changes in value for the County libraries will be reported on an aggregated net basis.

202.10.2 Library Characteristics
A County library normally has one or more of the following characteristics:

- Internal controls are in place in lieu of central property management.
- Information is housed in a centralized location.
- Physical security measures are in place to protect the assets.
- Checkout procedures and policies exist and are used.
- Individual item costs and supplemental information is generally contained in a supplemental database.
- Volumes assigned to libraries are typically available to employees, students, and other individuals for checkout or use.
- Existence of the library helps the entity fulfill its mission.
- The value is material to the organization.
- Equipment assigned to libraries typically remains under central security of on-premises use.

A library may be reported on a composite basis by making net adjustments to total value to reflect increase or decrease in total value. Net adjustments must be made at least once annually by the close of he fiscal year.

202.10.3 Depreciation Methodology - Professional, academic and research library books and materials are not considered exhaustible, and will not be depreciated. These library books and materials have an economic benefit or service potential that is used up slowly, and their estimated useful lives are extraordinarily long. Some books have a cultural, aesthetic, or historical value, and efforts are usually applied to protect and preserve these assets in a manner greater than that for similar assets without such cultural, aesthetic, or historical value.

The straight-line depreciation method will be used for the collections purchased and used in a library if the capitalization threshold is met.

202.10.4 Capitalization Threshold - All purchases of books and materials for a library should be capitalized, as there is no minimum dollar amount. Library acquisitions are valued at a reasonable cost or other basis; deletions are valued at annually adjusted average cost. The library maintains records of all books and other library items, which suffice as detailed inventory records.

Books, periodicals and other materials purchased but not used in a library should be expensed unless they constitute a capital event.

Examples of Expenditures to be Capitalized As Library Books and Materials

- Invoice price
- Freight charges
- Handling
- In-transit insurance charges
- Binding
- Electronic access charges

- Reproduction and life costs required to place assets in service, with the exception of library salaries

202.11 Works of Art and Historical Treasures

202.11.1 Works of Art and Historical Treasures Definition - Collections or individual items of significances that are owned by the County which are not held for financial gain, but rather for public exhibition, education or research in furtherance of public service. Collections or individual items that are protected and cared for or preserved and subject to an organizational policy that requires the proceeds from sales of collection items to be used to acquire other items for collections.

202.11.1.1 Exhaustible collections or items are items whose useful lives are diminished by display or educational or research applications.

202.11.1.2 Inexhaustible collection or items are items where the economic benefit or service potential is used up so slowly that the estimated useful lives are extraordinarily long. Because of their cultural, aesthetic, or historical value, the holder of the asset applies efforts to protect and preserve the asset in a manner greater than that for similar assets without such cultural, aesthetic, or historical value.

202.11.2 Depreciation Methodology - The straight-line depreciation method (historical cost less salvage value, divided by useful life) will be used for exhaustible collections. Inexhaustible items should not be depreciated.

202.11.3 Capitalization Threshold - All works of art and historical treasures acquired or donated will be capitalized based on the appraised value, unless held for financial gain.

If a collection is held for financial gain and not capitalized, disclosures must be made in the notes that provide a description of the collection and the reasons these assets are not capitalized. When donated collection items are added to non-capitalized collections, program expense equal to the amount of revenues should be recognized.

Examples of Expenditures to be Capitalized As Works of Art and Historical Treasures

- Collection of rare books, manuscripts
- Maps, documents and recordings
- Works of art such as paintings, sculptures, and designs
- Artifacts, memorabilia, exhibits
- Unique or significant structures

202.12 Computer Software

202.12.1 Computer Software Definition – Departments will record the payment for the purchase of computer software whose unit value cost is $25,000 or greater and has an estimated useful life of more than one year. Capitalization of computer software includes software license fees if the total dollar amount of the fee divided by the number of units served (terminals) meets the criteria to capitalize the purchase.

202.12.2 For software to be considered for internal use, the department must meet the following tests:

- The software must be acquired, internally developed or modified solely to meet the department's internal needs, and

- During the software's development or modification, the department must not have a substantive plan to market the software externally to other organizations.

202.12.3 Software development generally involves three phases. These phases and their characteristics are as follows:

- Preliminary project phase – when conceptual formulation of alternatives, the evaluation of alternatives, determination of existence of needed technologies and final selection of alternatives in made.

- Application development phase – Design of chosen path including software configuration and software interfaces, coding, installation of computer hardware and testing including parallel processing phase.

- Post-implementation/operation phase – training and application maintenance activities.

202.12.4 Computer Software Capitalization Phases – Costs associated with the preliminary project and the post-implementation/operating phases should be expensed as incurred. Internal and external costs associated with the application develop or obtain software that allows for assess of conversions of old data by new information systems should also be capitalized. General and administrative costs and overhead expenditures associated with software development should not be capitalized as cost of internal use software.

Capitalization of costs should begin when the preliminary project phase is complete and management has implicitly or explicitly authorized or commits to funding the software project with the intent it will be completed and used to perform its planned functions. Capitalization should cease no later than the time at which substantial testing is complete and the software is ready for its intended purpose or rendered in service.

Examples of Expenditures during the Application Development Phase to be Capitalized

- External direct costs of materials and services (third party fees for services)
- Costs to obtain software from third parties
- Travel costs incurred by employees in their duties directly associated with development
- Payroll and payroll-related costs of employees directly associated with of devoting time in coding, installing or testing
- Interest costs incurred during the application development

202.12.5 Depreciation Methodology - The straight-line depreciation method (historical cost less salvage value, divided by useful life) will be used for software developed or obtained for internal use.

202.12.6 Capitalization Threshold - The capitalization threshold for internally developed software is $25,000.

202.12.7 Marketing of Software Developed or Obtained for Internal Use - If a department decides to market the software, proceeds received from the license of the software, net of direct incremental costs (i.e., marketing, commissions, software reproduction costs, warranty and service obligations, and installation costs) should be applied against the carrying amount of the software.

Profits should not be recognized until aggregate net proceeds from licenses and amortization have reduced the carrying amount of the software to zero. Subsequent proceeds should be recognized in revenues as earned. If, during the development of internal use software, the County decides to market the software to other organizations, the County is required to follow the requirements of Financial Accounting Standards Board Statement No. 86 – Accounting for the Costs of Computer Software to Be Sold, Leased, or Otherwise Marketed.

202.13 Leasehold Improvements

202.13.1 Leasehold Improvements Definition - Construction of new buildings or improvements made to existing structures by the lessee, who has the right to use these leasehold improvements over the term of the lease. These improvements will revert to the leasor at the expiration of the lease. Moveable equipment of office furniture that is not attached to the leased property is not considered a leasehold improvement. Leasehold improvements do not have a salvage value.

202.13.2 Depreciation Methodology

Leasehold improvements are capitalized by the lessee and are amortized over the shorter of (1) the remaining lease term, or (2) the useful life of the improvement. Improvements made in lieu of rent should be expensed in the period incurred. If the lease contains an option to renew and the likelihood of renewal is uncertain, the leasehold improvement should be written off over the life of the initial lease tem or useful life of the improvement, whichever is shorter.

202.13.3 Capitalization Threshold - The capitalization threshold for leasehold improvements is $25,000.

202.14 Construction in Progress

202.14.1 Construction in Progress Definition - Construction in Progress reflects the economic construction activity status of buildings and other structures, infrastructure (highways, energy distribution systems, pipelines, etc.), additions, alterations, reconstruction, and installation that are substantially incomplete.

202.14.2 Depreciation Methodology - Depreciation is not applicable while assets are accounted for as Construction in Progress. See appropriate capital asset category when asset is capitalized.

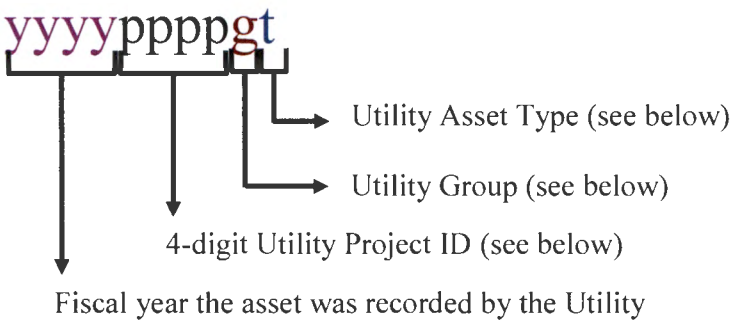
202.14.3 Capitalization Threshold - Construction is progress assets should be capitalized to their appropriate capital asset categories upon the earlier occurrence of execution of substantial completion contract documents, occupancy, of when the asset is placed into service.

Appendix B
Utility Department Asset Recording and Numbering Handbook

Utility Department Asset Recording and Numbering Handbook

Last Revision Date: 09-23-13

(1) Utility Asset Numbering System



(1a) Utility Project ID Numbering Scheme

0001-0999	Utility Department Capital Improvement Projects
1000-4999	Platted Development Projects (4-digit County subdivision ID)
7000-7999	Non-platted, non-subdivision and Multifamily Developer Projects
8000-8999	Developer Corridor Projects and Commercial Infill Projects
9000-9999	Capital assets not tied to a specific project

(2) Utility Groups

The Utility Group designation will be use in three ways:

(2a) Method 1 – Land, Lift Stations, Wells & Booster Stations
In cases where there are multiple instances of the same asset type within the same Utility Project for the same year, each additional asset of the same type will get the next available UG number.

Example 1 – multiple Land/Easement assets:
Land Asset #1: yyyypppp00
Land Asset #2: yyyypppp10
Example 2 – multiple liftstation Process Structures:
LS - P.S. Asset #1: yyyypppp04
LS - P.S. Asset #2: yyyypppp14

(2b) Method 2 – Administrative Buildings

(2c) Method 3 – Plants
For major process facilities such as treatment plants and booster stations, UGs will be used to sub-categorize assets into process areas within the facility.

Example – WWTP Process Electrical Equipment:
Clarification Process: yyyypppp45
Chlorination Process: yyyypppp65

(2c) Method 3 – Plants (cont.)

Code	WWTP Group	Includes
0	Land	Ponds, landscaping, fencing, roads, other improvements
1	Master Pump Station	Odor control
2	Headworks	Screening, grit removal, flow splitters, chemical adjustments, flow meters, odor control
3	Aeration	Anoxic, aerobic, out of structure aeration piping from blowers, post-aeration basin & chemical adjustment, blowers and controls
4	Clarification	Chemical adjustment system, scum pump station, RAS/WAS pumps
5	Biosolids Treatment	Dewatering, thickening, digester, polymer system, drain pump station, post-conditioning
6	Primary Disinfection	Disinfection structure, chemical storage structure and systems, effluent meter
7	Reuse & Secondary Discharge	Storage structure, chemical storage structure and pumping systems, HSP building and control, off-spec structure and return pumping system, reuse meter
8	Wet Weather Discharge	Pumping system, flow meter
9	Support Infrastructure	Below grade piping (water, sewer, reuse), electrical/instrumentation wiring below grade, generator, fuel tank, storm piping

(2c) Method 3 – Plants (cont.)

Code	WTP Group	Includes
0	Land	Ponds, landscaping, fencing, roads, other improvements
1	Pretreatment	Chemical skids, mixers, flow meters, cartridge filters, carbonation, pH adjustment, chemical buildings, chemical tanks and related appurtenances
2	Treatment Process	Membranes, softening, feed pumps, membrane skids and related equipment, valves, meters, cleaning and flushing equipment, related tanks, piping, controls, buildings.
3	Aeration/Degasification	Blowers, media, above ground related piping, pumps, controls, clearwell, and related appurtenances
4	Sedimentation/Filtration	Filter Systems, controls, above ground piping and appurtenances, back wash pumps, back wash tanks, mixers
5	Finished Water Storage Tanks	Ground Storage Tanks, hydro-tanks, related meters, valves and appurtenances
6	Pumps	High service pumps, transfer pumps, valves, meters, controls, drives, controls building, high service pump building
7	Post Treatment	Chlorine, ammonia, sodium hydroxide, caustic, orthophosphate, etc. feed pumps, skids, controls, tanks, related piping and appurtenances
8	Byproduct Disposal	Belt press, lime disposal building, concentrate building, related pumps, piping, valves, controls, meters, storage tanks, odor control systems and related controls
9	Support Infrastructure	Below grade piping (water, sewer, reuse), electrical/instrumentation wiring below grade, generator, fuel tank, storm piping, lift station and related equipment, security system

(3) Asset Type Numbering

Code	Description	Object Code	Asset Life (yrs)
0	Land, Easements	56100	0
1	Water Pipeline and Appurtenances	56306	50
2	Wastewater Pipeline and Appurtenances	56306	50
3	Reclaimed Water Pipeline and Appurtenances	56306	50
4	Process Structure	56304	30
5	Process Electrical Equipment	56305	10
6	Other Improvements	56301	15
7	Process Building	56307	25
8	Process Mechanical Equipment	56308	20
9	Process Piping *(follows treatment process)*	56309	50

(4) Notes

- All non-capital account codes or soft costs (ie: 53180, 56170) shall be proportionally distributed by weighted percentage across each AG/AT combination used (10/16/08 ms)

- When performing asset management at either the beginning of the project (preferred method) vs at the end of the project, the Pentamation Account Code is irrelevant. You should assign the UG/AT code properly, irrespective of where the payment was made from in Pentamation (10/30/08)

- Use type 0 (Land, Easements) only for the cost of the land plus ancillary survey, geotech, closing costs, etc related to the purchase of the property. Do NOT add in improvements to the land such as ponds, berms, earthwork, clearing, etc. Those should go to category 6 – other improvements. (9/17/09)

- When recording easements, assign the division location according to what the easement contains. For example - If the easement only contains water items such as meters, mains, hydrant, etc, use 4413. If it's only sewer (like a lift station), use 4415 or the appropriate PV codes. If the easement contains both water and sewer assets or does not specify, use 4409 for the main system or 4470 for PV Administration.

- ~~Pentamation Expense total does not need to equal the total value of the recorded asset. The asset values can and should stand independently of the Pentamation expense. (1/28/09 ns)~~

- Most telemetry, unless stated otherwise, falls into process electrical equipment. Most telemetry items are given a standard 10 year life, even if they fall into another category (such as other improvements).

- The fund and PAC fields should be left blank if the asset is 100% funded by a developer.

- If a project has $SJCUD and does not have a capital project#, it should be designated as "O&M" in the project# column.

- A standard 15% engineering charge shall be added to the total construction cost for all developer projects.

- Wells get handled like lift stations.

- All assets paid prior to July 31 need to be recorded

- All assets to finance no later than Sept 30

- Lift stations should have schedules of values provided by the contractor. For historical lift stations, the following standard value breakdown has been used:
    - 30% - Process Structure
    - 15% - Process Electrical Equipment
    - 10% - Other Improvements
    - 30% - Process Mechanical Equipment
    - 15% - Process Piping

- When recording easements/land, for division location, use:
    - Easements that are water only: 4413
    - Easements that are sewer only: 4416
    - Easements that are both water/sewer: 4409
    - Easements that do not specify: 4409

(5) Asset Database Metadata

Column Name	Description
*RecordID	System generated record ID
*UtilityProjectID	Utility project number (see page 1 for numbering scheme)
*Source	Where the information came from (Schedule of Values, Invoice, Clerk, Purchase Order, Estimated, etc)
*NewAssetID	Asset ID recorded with clerk
*Asset Description	Description of the assets being recorded
Asset Type	The last digit of the NewAssetID (found on table 3a)
*Resolution	Resolution Number for any land/easement documents
*GeoLoc	Geographic Location of the asset (see map)
*AcqDate	Acquisition Date – the day development or CIP group signs off on/accepts the asset
*EstLife	Estimated Life per the Asset Type table
*InstallCost	Total cost of the asset
*$Developer	Dollar amount that was dedicated by a developer
*$SJCUD	Dollar amount that was paid for by SJCUD
*ObjectCode	5-digit code that is recorded with the clerk (taken from the Asset Type table and the county's Capital Asset Policy)
*Fund	4-digit code (provided by finance department) that paid for the project
*PAC	5-digit General Ledger (GL) code that paid for the project *(PAC stands for **P**entamation **A**ccount **C**ode)*
*DivLoc	Which division (functionally) owns/maintains the asset
*Proj#	The project number from Pentamation (assigned by finance department)
Emp	Employee that recorded the data (initial's only)
Tab	Designates which tab the data will go on for the spreadsheet sent to finance.
Remove	Check mark indicates that an item was (or will be) removed from the clerk's records
Not sent to finance	Check mark indicates that an item needs to be recorded with the clerk
*Comment	Used for general comments, to explain why an asset is being removed, or why an asset is being recorded outside of the normal FY
Link to Data	Hyperlink to the scanned documents for the asset

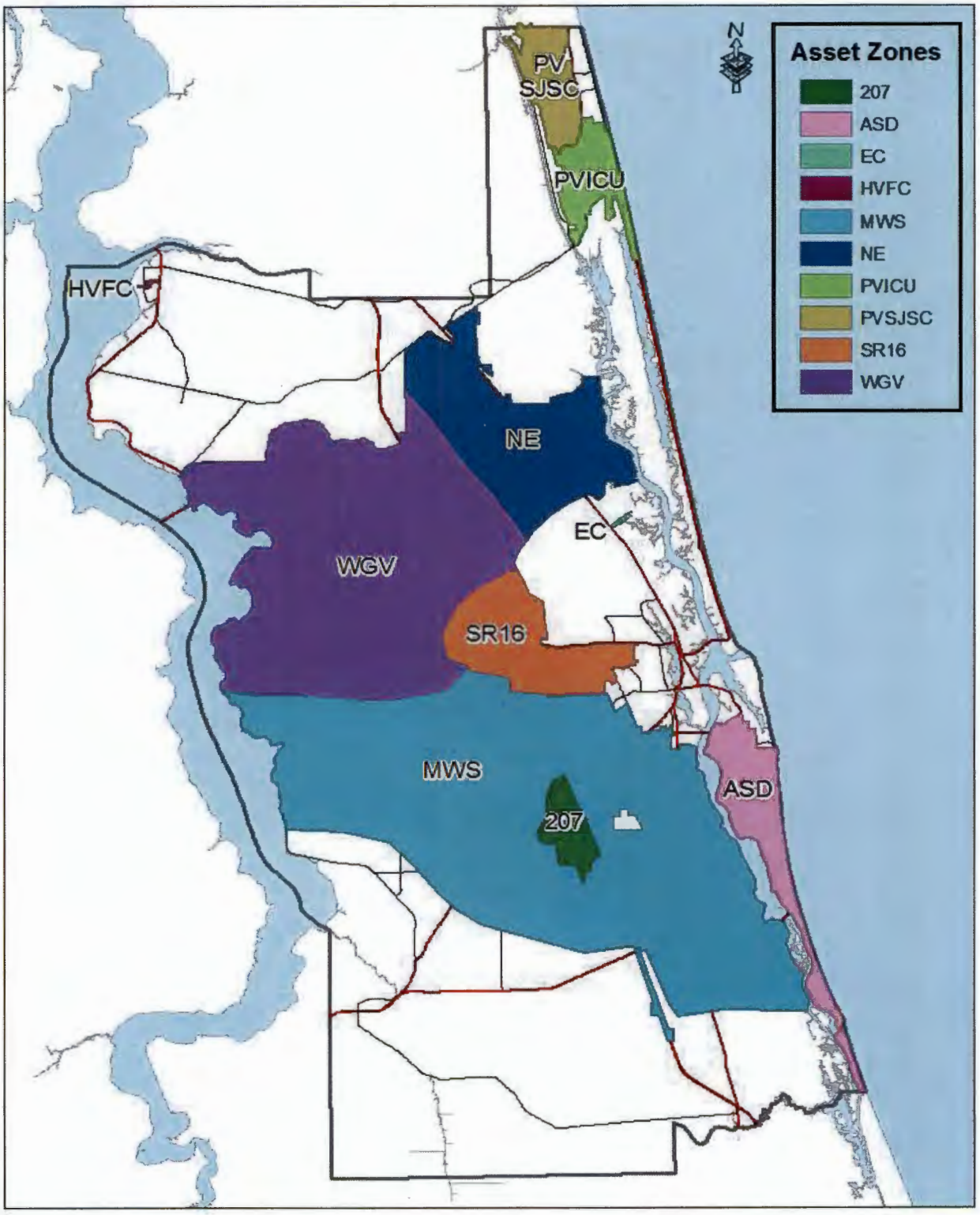
* Items to be submitted to finance every fiscal year

(6) Approved Database Values:

**Some of the old data contains values not found on this list. These are acceptable values from 2007- present.*

Column	Approved Values	Description
Source	SV	Schedule of Values
	INV	Invoice
	GIS	GIS Inventory (done by CDM)
	CAP	Paperwork submitted by CIP Group
	WO	Cityworks Work Order
GeoLoc	207	SR207 WWTP area
	ASD	Anastasia Island
	BARTOAK	Bartram Oaks
	EC	Eagle Creek
	HVFC	Harmony Village/Fruit Cove
	MWS	Mainland
	NE	Northeast (US1 North)
	PVICU	Ponte Vedra – Former Intracoastal Utility
	PVSJSC	Ponte Vedra – Former St. Johns Service Co.
	SR16	SR16 Area
	WGV	World Golf Village/Northwest
Fund	4409	Office Administration
	4410	Water and Sewer Revenue and Refunding Bonds, Series 2006
	4411	Water Treatment
	4413	Transmission & Distribution
	4415	Sewer Treatment & Disposal
	4416	Lift Stations & Lines
	4417	Water and Sewer Revenue Bonds, Series 2004 (Capital)
	4442	Bartram Oaks
	4455	Ponte Vedra Utility System Revenue Bonds, Series 2006
	4456	Ponte Vedra Utility System Revenue Bonds, Series 2007
	4457	Ponte Vedra R&R Projects
	4459	Ponte Vedra Unrestriced Revenue Projects
	4470	(PV) Utilities Administration
	4471	(PV) Utilities Water Treatment
	4472	(PV) Water/Sewer Transmission & Disposal
	4473	(PV) Sewer Treatment & Disposal
	4474	(PV) Sewer Lift Stations
	4482	Grant Projects
	4483	R&R Projects
	4484	Unit Connection Fee Projects
	4487	2011 SRL Grant
	4488	Unrestricted Projects
	4490	Utility Scada
PAC *(this list is for reference only – some of these may never appear in the data)*	53120	Contractual Services
	53140	Legal Fees
	53150	Consulting Services
	53180	Engineering Services
	54603	Other Maintenance
	55102	Software
	56100	Land
	56170	Permits/Licenses
	56102	Demolition
	56200	Buildings
	56301	Other Improvements (to land)
	56302	System Improvements
	56304	Process Structures
	56305	Process Equipment
	56306	Pipelines & Appurtenances
	56308	Process Mechanical
	56405	Telemetry System
	56440	Proprietary Computer Software
	59923	Contingency Reserve

(6a) Asset Geographic Location Zones



(7) QC Checklist:

Before assets are recorded at the end of the fiscal year, the following items should be verified:

- Estimated life matches the asset type in table 3 (exception for telemetry items)
- Project year/acquired date should be verified and commented if not in current FY
- Object code matches the allowed code for the asset type in table 3.
- Project numbers are assigned for all CIP projects
- GeoLoc code is properly assigned and is only a value from approved list (section 6)
- Source code is from approved list (section 6)
- DivLoc information is correct (section 6)
- All lift stations have the LS# in the description (if space allows). If the station has been previously recorded – follow the same naming convention.
- Check that the "Tab" field is appropriate for the "Div Loc" field. (Ex: if it says Lift Station the div should be 4416.)
- All Land & Easement items state in the description "Land' or "Easement" as space allows
- There are no duplicate items from the year before
- If there are items being removed from the books, there needs to be a detailed explanation as to why they are being removed (engineering should provide)
- No assets less than <$1000 should be recorded (the value can be <$1000 if the item is part of a project or lift station or is land, but not of it is the only item)
- Summary sheet should be broken out by Ponte Vedra and the Main System
- Include a separate tab for older assets that were not previously recorded. Make sure all of those assets have a comment on why they are now being recorded.
- Summary sheet should differentiate donated and SJCUD paid for assets
- On each tab (and summary sheet), the Install Cost should be equal to the $Developer + $SJCUD.
- If there are dollars spent by SJCUD, there must either be a capital project # or a Fund-PAC number submitted to finance. If there is no capital project#, type O&M in the proj# field.
- Check with Nanette in real estate to make sure that all land/easements recorded by the board in the FY have been recorded.
- If you are waiting on a subdivision ID, check with Mike Campbell in GIS to see if he can give you a place holder subdivision ID.

- All assets that have a Ponte Vedra location (PVICU Or PVSJSC) should have their tab set to "Ponte Vedra xxxx" (ex: Ponte Vedra Water Plant)

(8) Removing an Asset:

- When removing an asset, either in full or partially, fill in the following information in the Reconcile Reports database.
  - Record the NewAssetID number as the same code as the original asset with a .9 at the end to indicate removal.
  - Enter the dollar amount you're removing from the books in the $Removal column.
  - Check the "Not Sent to Finance" and "Remove" check boxes.
  - Link the documents up in the Hyperlink field
  - Comment as to why the asset is being removed and what it's being replaced with (if anything).
- If the asset is not being fully removed, you must tell finance what partial value is to be removed. You have two choices:
  - Use the CAP form to estimate the removal value.
  - Use an actual cost from a schedule of values.
- If using the CAP Form
  - Q:\GIS\Asset Information\Forms\CapForm_SJCUD_20110720.xls
  - Ignore the cover sheet, find the tab you need (Water plant, sewer plant, lines, etc).
  - Click the "Remove Asset" button and fill in as much information in the pop up box that you can. There are instructions on the install cost. For example, if you only know that in 2013, the new pump cost $5000, you would put install year the pump being removed was installed – so say 1997, the installation cost of $5000 and the year of the cost estimate is 2013. Then it will back calculate the initial install cost.
  - The value that gets placed in column O "Estimated Original Cost" is the removal value that will get sent to the clerk.

Appendix C
Asset Management Forms

Asset Manual Information/Update Form
CAP Form
Development Forms
- Schedule of Values
- Release of Lien
- Warranty
- Bill of Sale
- Wastewater Pump Station Startup Report

Equipment Information Forms
- Additional Forms TBD
- Asset Information Form

Asset Designation Templates
- Lift Stations
- Master Lift Stations
- Step Tanks
- Water Booster Station
- Aeration Water Treatment Plant
- Water Supply Well
- Wastewater Treatment Plant

Condition Assessment Worksheet
Asset Criticality Score Form
Credit Card Purchase Form (TBD)

ST JOHNS COUNTY UTILITY DEPARTMENT

ASSET MANAGEMENT PROCEDURES MANUAL

INFORMATION ADDITION/UPDATE

Date: _____

Initiator: _____

Briefly describe requested action. Attach additional pages as necessary: _____

_____

_____

_____

_____

_____

Section of the manual for which update is requested:

- ☐ Section One: Introduction to Asset Management Procedures Manual
- ☐ Section Two: Asset Management Overview and Objectives
- ☐ Section Three: Asset Management Definitions and Roles
- ☐ Section Four: Asset Definition and Classification Procedures
- ☐ Section Five Asset Recording Procedures
- ☐ Section Six: Maintenance Management Procedures
- ☐ Section Seven: Asset Management Planning Process
- ☐ Section Eight: Ongoing System Improvement Procedures

FOR ADMINISTRATIVE USE ONLY Tracking No. _____

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

Updated by: _____ Date: _____

Action Taken: _____

_____

Current Version: _____ New Version: _____

CAP Form

Capitalization Form

St Johns County Utility Department
Transmittal Sheet

Project Name:	
Project Number:	8565
Project Year:	2010
Facility ID:	2558

Prepared By:
Project Manager
Capital/Development

Print Name **Date**

Signature

Approved By:
Asset Planner

Tim Harley, P.E.
Print Name **Date**

Signature

Received By:
Asset Management Technician

Print Name **Date**

Signature

Capitalization Form

St Johns County Utility Department
Instruction Sheet

This form is to be completed by the Project Manager for the project adding new assets and/or replacing assets. Approval needs to be obtained from the Chief of Engineering before this form is submitted to the Asset Management Technician.

Manual input by the project manager is required where cells are shaded

The cover sheet and the appropriate Summary Form will be provided to the Asset Management Technician for input into Cityworks and the Clerks Database

Transmittal is an input form that has input fields for project name, project number, and date. It also serves to keep track of who prepared and approved the CAPForm.

1 Input project name, project number, and project date
2 Input Preparer's Name, date and provide signature
3 Input Approver's Name, date and provide signature

Summary Form is an input form to be completed for new assets and assets that will be replaced as part of a project. There is a specific summary form for each operational area: WWTP, WTP, Lift Stations, Lines & Taps. The Summary Form is broken into two parts: Assets to be Added, and Assets to be Replaced.

Table 1. Assets to be Added to GIS/Cityworks

Table 1 should be used to record information on new capital assets that will be entered into GIS/Cityworks and the Clerks Records.

1 Input the Owning Unit for the New Asset using the drop down menu
2 Input the asset functional description
3 Input the utility group and asset type using the drop down menus. The Clerk's Asset ID will be automatically generated based on these selections.
4 Input details on the asset's physical charachteristics e.g. make, model, size, etc.
5 Enter the year the new asset was installed
6 Enter the estimated cost of the new asset
7 Input the renewable designation for the asset
8 Input the useful life threshold as a percent of the useful life
9 Input the asset criticality designation for the asset

Table 2 Assets to be Replaced

Table 2 Should be used to indicate which assets will be replaced as part of the capital improvement project. In the case of older assets, they may not be entered in Cityworks or have installation cost information. Table 2 will provide the option of estimating the replaced assets value and depreciation based on the Engineering News Record (ENR) Construction Cost Index (CCI).

1 Input the owning unit of the asset being replaced using the dropdown menu
2 If known, input the Clerk's Asset ID for the asset being replaced
3 Input a description of the asset being replaced
4 Input the Cityworks Asset ID of the asset being replaced if it is available
5 If the asset being replaced exists in Cityworks and has installation cost information, no further action is necessary. If no initial cost information is available, proceed to Step 6.
6 Enter the installation date of the asset to be replaced. If the installation date is not known, approximate the decade in which the pipe was .most likely installed and use the midpoint year.
7 For non-pipe assets, enter the original installation cost or the replacement cost of the asset. Input the date of the cost estimate in the spreadsheet. I.e. if a 2010 cost estimate is used to estimate the price for a pump installed in 1990, input 2010 as the cost estimate date. If the original 1990 installation cost is used, input 1990 as the cost estimate date.
8 For pipelines, input physical information about the asset being replaced. This information will be used to estimate the original cost of the pipe assets. Pipeline unit costs are based on 2002 cost estimates.

Project Name	0
Facility ID	2558
Year	2010

Add an Asset

TABLE 1. Assets to Be Added to the Record

Item No.	Owning Unit	Clerk Asset ID	Physical Asset Information: Functional Asset Description	Utility Group	Asset Type	Facility	Description	Make	Model	Serial Number	Size - quantity	Size - Unit	Installation Date	Installation Cost Today's Dollars	Design Useful Life	Useful Life Threshold (%)	Renewable Designation	As-Builts Received	O&M Manual Received	PM Procedures Received
a	b	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y

Notes:

Remove Asset

TABLE 2. Assets to Be Replaced or Removed

Item No.	Owning Unit	Clerk Asset ID (If Known)	Functional Asset Description	Asset Type	GIS/Cityworks Asset ID # (If Applicable)	Estimated: InstallationDate	Estimated: Installation Cost	Estimated: Date of Cost Estimate	Adjusted: ENR CCI	Adjusted: Estimated Original Cost	Design Useful Life	Years in Service	Accumulated Depreciation
a	b	g	h	i	j	k	l	m	n	o	p	q	r
Total													

Notes:
1. The original cost of the asset is the value that will be deducted from the Clerk's record by this form.

SJCUD Asset Recording Form
Capital Asset Recording Form for WTP Assets

Project Name	B
Facility ID	2888
Year	2010

Add an Asset

TABLE 1. Assets to Be Added to the Record

Item No.	Owning Unit	Clerk Asset ID	Physical Asset Information: Functional Asset Description	Utility Group	Asset Type	Facility	Description	Make	Model	Serial Number	Size - quantity	Size - Unit	Installation Date	Installation Cost Today's Dollars	Design Useful Life	Useful Life Threshold (%)	Renewable Designation	As-Builts Received	O&M Manual Received
a	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x

Notes:

Remove Asset

TABLE 2. Assets to Be Replaced or Removed

Item No.	Owning Unit	Clerk Asset ID (If Known)				Estimated: Installation Date	Estimated: Installation Cost	Estimated: Date of Cost Estimate	Adjusted: ENR CCI	Adjusted: Estimated Original Cost			
			Functional Asset Description	Asset Type	GIS/Cityworks Asset ID # (If Applicable)						Design Useful Life	Years in Service	Accumulated Depreciation
a	f	g	h	i	j	k	l	m	n	o	p	q	r
Total													

Notes:
1. The original cost of the asset is the value that will be deducted from the Clerk's record by this form.

SJCUD Asset Recording Form
Capital Asset Recording Form for LS Assets

Project Name	0
Facility ID	2586
Year	2010

Add an Asset

TABLE 1. Assets to Be Added to the Record

Item No.	Owning Unit	Clerks Asset ID	Physical Asset Information: Functional Asset Description	Utility Group	Asset Type	Facility	Description	Make	Model	Serial Number	Size - quantity	Size - Unit	In Service Date	Original Installation Cost	Design Useful Life	Useful Life Threshold (%)	Renewable Designation	As-Built Received	O&M Manual Received	PM Procedures Received	Developer Contributed Asset
a	b	g	h	i	j	k	l	m	n	o	p	q	r	e	t	u	v	w	x	y	
	TOTAL Assets																				
	TOTAL Developer Contributed Assets																				

	Developer Contributed Subtotal	$ -
	15% Administration	$ -
	Total	$ -

Notes:

Remove Asset

TABLE 2. Assets to Be Replaced or Removed

Item No.	Owning Unit	Clerk Asset ID (If Known)	Functional Asset Description	Asset Type	GIS/Cityworks Asset ID # (If Applicable)	Estimated: InstallationDate	Estimated: Installation Cost	Estimated: Date of Cost Estimate	Adjusted: ENR CCI	Adjusted: Estimated Original Cost	Design Useful Life	Years in Service	Accumulated Depreciation
a	b	g	h	i	j	k	l	m	n	o	p	q	r
Total													

Notes:
1. The original cost of the asset is the value that will be deducted from the Clerk's record by this form.

SJCUD Asset Recording Form

Capital Asset Recording Form for Pipeline Assets

Project Name	0
Facility ID	2666
Year	2010

Add an Asset

TABLE 1. Assets to Be Added to the Record

Item No.	Owning Unit	Clerks Asset ID	Physical Asset Information: Functional Asset Description	Asset Type	Description	Size (Inches)	Material	Length (ft.)	Installation Date	Installation Cost (Schedule of Values)	Unit Cost (Schedule of Values)	Design Useful Life	Useful Life Threshold (%)	Renewable Designation	As-Builts Received	Developer Contributed Asset
a	b	g	h	i	l	m	n	o	r	s		t	u	v	w	x
TOTAL Assets																
TOTAL Developer Contributed Assets									Developer Contributed Subtotal							
									15% Administration							
									Total							

Notes:

Remove Asset

TABLE 2. Assets to Be Replaced or Removed

Item No.	Owning Unit	Clerk Asset ID (If Known)	Functional Asset Description	Asset Type	GIS/Cityworks Asset ID # (If Applicable)	Pipe Characteristics: Size (Inches)	Material	Length (ft.)	Estimated: InstallationDate	Unit Cost	Date of Cost Estimate	Adjusted: ENR CCI	Estimated Original Cost	Design Useful Life	Years in Service	Accumulated Depreciation
a	b	g	h	i	l	q	n	o	r	s	m	p	o	p	q	r
Total																

Notes:

1. The original cost of the asset is the value that will be deducted from the Clerk's record by this form.

Development Forms

Schedule of Values

Release of Lien

Warranty

Bill of Sale

Wastewater Pump Station Startup Report

St. Johns County Utility Department

Asset Management

Schedule of Values

Project Name: _____

Contractor: _____

Developer: _____

	UNIT	QUANTITY	UNIT COST	TOTAL COST
Water Mains (Size, Type & Pipe Class)				
	LF			$ -
	LF			$ -
	LF		$ -	$ -
	LF		$ -	$ -
	LF		$ -	$ -
Water Valves (Size and Type)				
	Ea			$ -
	Ea			$ -
	Ea			$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
Hydrants Assembly (Size and Type)				
	Ea		$ -	$ -
			$ -	$ -
			$ -	$ -
Services (Size and Type)				
	Ea		$ -	$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
			$ -	$ -
		Total Water System Cost		$ -

St. Johns County Utility Department

Asset Management

Schedule of Values

Project Name: _____

Contractor: _____

Developer: _____

	UNIT	QUANTITY	UNIT COST	TOTAL COST
Force Mains (Size, Type & Pipe Class)				
	LF		$ -	$ -
	LF		$ -	$ -
	LF		$ -	$ -
	LF		$ -	$ -
	LF		$ -	$ -
Sewer Valves (Size and Type)				
	Ea		$ -	$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
Gravity Mains (Size, Type & Pipe Class)				
	LF		$ -	$ -
	LF		$ -	$ -
	LF		$ -	$ -
	LF		$ -	$ -
Laterals (Size and Type)				
	EA		$ -	$ -
	EA		$ -	$ -
	EA		$ -	$ -
	EA		$ -	$ -
Manholes (Size and Type)				
4-6 foot deep	EA		$ -	$ -
6-8 foot deep	EA		$ -	$ -
8-10 foot deep	EA		$ -	$ -
10-12 foot deep	EA		$ -	$ -
> 12 foot deep	EA		$ -	$ -
			$ -	$ -
			$ -	$ -
			$ -	$ -
			$ -	$ -
			$ -	$ -
Lift Station			$ -	$ -
Mechanical Equipment	Lump Sum		$ -	$ -
Process Piping	Lump Sum		$ -	$ -
Process Structure	Lump Sum		$ -	$ -
Process Electrical Equipment	Lump Sum		$ -	$ -
Other Improvements	Lump Sum		$ -	$ -
		Total Sewer System Cost		$ -

St. Johns County Utility Department

Asset Management

Schedule of Values

Project Name: _____

Contractor: _____

Developer: _____

	UNIT	QUANTITY	UNIT COST	TOTAL COST
Reuse Mains (Size, Type & Pipe Class)				
	LF		$ -	$ -
	LF		$ -	$ -
	LF		$ -	$ -
	LF		$ -	$ -
	LF		$ -	$ -
Reuse Valves (Size and Type)				
	Ea		$ -	$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
Hydrants (Size and Type)				
	Ea		$ -	$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
Services (Size and Type)				
	Ea		$ -	$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
	Ea		$ -	$ -
		Total Reuse System Cost		$ -

FINAL RELEASE OF LIEN

UTILITY IMPROVEMENTS

The undersigned lienor, in consideration of the sum (Enter Dollar Amount, *Note: the value entered should match the total value listed in the schedule of values)* hereby waives and releases its lien and right to claim a lien for Water and Sewer labor, services or materials furnished through (Date) to (Developer's/Owner's Name). to the following described property:

(Insert description of property to be dedicated to the County. *Note: The description listed should match the description listed on the "Bill of Sale")*

The waiver and release does not cover any retention or labor, services, or materials furnished after the date specified.

IN WITNESS WHEREOF, the Lienor has caused this instrument to be duly executed and delivered by its duly authorized office on this___ of ____, ____.

WITNESS:

_____
Witness Signature

_____
Print Witness Name

OWNER:

_____
Lienor's Signature

_____
Print Lienor's Name

State of _____
County of _____

The foregoing instrument was acknowledged before me this _____day of _____, 2008, by _____ who is personally known to me or has produced _____as identification.

_____
Notary Public

EASEMENT FOR UTILITIES

THIS EASEMENT executed and given this _____day of _____, 20__ by _____, with an address of _____, hereinafter called "Grantor" to **ST. JOHNS COUNTY, FLORIDA,** a political subdivision of the State of Florida, whose address is 4020 Lewis Speedway, St. Augustine FL 32084, hereinafter called "Grantee".

WITNESSETH:

That for and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Grantor agrees as follows:

1. Grantor does hereby grant, bargain, sell, alien, remise, release, convey and confirm unto Grantee a non-exclusive permanent easement and right-of-way to install, construct, operate, maintain, repair, replace and remove pipes and mains constituting the underground (*The following list should only include the items of the system which pertain to the specific project. Please delete the items that do not apply).*, water distribution system, gravity sewer collection system, lift stations & sewer force mains and all other equipment and appurtenances as may be necessary or convenient for the operation of the underground water and sewer utility services (hereinafter referred to as "Utility Lines and Associated Equipment") over and upon the real property described on Exhibit A attached hereto (the "Easement Area"); together with rights of ingress and egress to access the Easement Area as necessary for the use and enjoyment of the easement herein granted. The location of the ingress and egress area to the Easement area has been mutually agreed upon by the Grantor and Grantee.**As a result, the ingress and egress area is noted on the attached, and incorporated Exhibit B (Ingress/Egress Area).** This easement is for water and/or sewer utility services only and does not convey any right to install other utilities such as cable television service lines.

.

TO HAVE AND TO HOLD, unto Grantee, his successors and assigns for the purposes aforesaid. Said Grantor is lawfully seized of said land in fee simple and thereby has the authority to grant said easement.

The easement herein granted is subject to covenants, restrictions, easements, liens and encumbrances of record.

(a) Grantor reserves the right and privilege to use and occupy and to grant to others the right to use and occupy (i) the surface and air space over the Easement Area for any purpose which is consistent with the rights herein granted to Grantee; and (ii) subsurface of the Easement Area for other utility services or other purposes which do

not interfere with the rights herein granted to Grantee, including, without limitation, the right to install, construct, operate, maintain, repair, replace and remove telecommunications, telephone, telegraph, electric, gas and drainage facilities and foundations, footing and/or anchors for surface improvements.

(b) All Utility Lines and Associated Equipment will be installed, operated and maintained at all times beneath the surface of the Easement Area provided that the same may be temporarily exposed or removed to the surface when necessary or desirable for the purpose of repairing and/or replacing the same. Provided, however, that Associated Equipment that is customarily installed above ground may be installed above ground subject to the right of Grantor, consistent with good engineering practices to approve the location of such above ground installation in its reasonable discretion.

(c) The easement granted by this instrument may be relocated to a location acceptable to the Grantee at any time upon Grantor's request provided that Grantor bears the cost of relocating the underground water and sewer utility lines and facilities located within the Easement area. At Grantor's request, and upon relocation of such lines at Grantor's expense, Grantee and Grantor shall execute an instrument in recordable form relocating the easement hereby granted to the new Easement Area designated by and in the title of the Grantor.

(d) Grantee shall exercise the easement rights conveyed herein in a manner which will not unreasonably interfere with use and occupancy of residential or commercial improvements constructed upon the adjacent property owned by Grantor.

(Item 2. directly below, should only include the parts which pertain to the specific project. Please delete the sections (a), (b), (c) or (d) that do not apply.)

2. (a) WATER SYSTEM - The Grantee shall maintain all water mains and other elements of the water distribution system up to and including the water meter or meters. Grantor or Grantor's successors and assigns shall be responsible for maintaining any water lines between the water meter and the improvements served by the utility system.

(b) PUMP STATION & SEWER FORCE MAINS - Grantee, by acceptance of this Easement, hereby agrees to maintain the sewer force mains located within the Easement Area.

(c) GRAVITY SEWER SYSTEM - Grantee, by acceptance of this Easement, hereby agrees to maintain sewer force mains and gravity sewer lines located within the Easement Area. The Grantee's maintenance of gravity sewer lines shall extend "manhole to manhole", but shall not include a responsibility for maintenance of sewer service laterals; The Grantor or Grantor's successors and assigns shall be responsible for the maintenance of such sewer service laterals. Grantor hereby specifically indemnifies and holds Grantee harmless from and against costs and expenses associated with installation, maintenance, repair or replacement of sewer service laterals.

(d) REUSE SYSTEM - The Grantee shall maintain all reuse mains and other elements of the reuse distribution system up to and including the reuse meter or meters. Grantor or Grantor's successors and assigns shall be responsible for maintaining any reuse lines between the reuse meter and the improvements served by the utility system.

3. After any installation, construction, repair, replacement or removal of any utility lines or equipment as to which easement rights are granted, Grantee shall refill any holes or trenches in a proper and workmanlike manner to the condition existing prior to such installation, construction, repair, replacement or removal, but Grantee shall not be responsible for restoration of sod, landscaping, planting, pavement or other surface improvements which are required to be removed in connection with installation, construction, repair, replacement or removal of utility lines or equipment. To the extent permitted by law, however, Grantee shall be responsible for damage to improvements that are caused by Grantee's negligence.

4. This Grant of Easement shall inure to the benefit of and be binding of and be binding upon Grantee and its successors and assigns.

5. For the purposes of the terms and conditions of this Grant of Easement, "Grantor" means the owner from time to time of the Easement Area or any part thereof.

IN WITNESS WHEREOF, Grantor has caused this instrument to be executed by its duly authorized officer and its corporate seals to be hereunto affixed as of the day and year first above written.

Signed, sealed and delivered
In the presence of:

_____ By:_____
Witness Its:_____

_____
Print Name

_____
Witness

_____
Print Name

State of _____
County of _____

The foregoing instrument was acknowledged before me this _____day of _____, 20__, by _____ who is personally known to me or has produced _____as identification.

_____
Notary Public

EXHIBIT “B”

INGRESS/EGRESS AREA

WARRANTY
UTILITY IMPROVEMENTS

Date: (Insert Date)

Project Title: (Insert Project Title)
St. Johns County, Florida

FROM: (Name of Contractor)
(Street Address)
(City, State Zip)

TO: St. Johns County Utility Department
Post Office Box 3006
St. Augustine, Florida 32085

The undersigned warrants all its work performed in connection with the above project to be free from all defects in material and workmanship for a period of (1) year from the date of acceptance of the project by St. Johns County and agrees to remedy all defects arising with that period at its expense.

The term defects shall not be construed as embracing damage arising from misuse, negligence, Acts of God, normal wear and tear or failure to follow operating instructions.

Contractor:

_____
Contractor's Signature

_____
Print Contractor's Name

State of _____
County of _____

The foregoing instrument was acknowledged before me this _____day of _____, 2008, by _____ who is personally known to me or has produced _____as identification.

_____
Notary Public

BILL OF SALE
UTILITY IMPROVEMENTS
for

(NAME OF PROJECT)

(Owners Name and Address), (the "Seller") for and in consideration of the sum of Ten and No/100 Dollars ($10) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, hereby grants, bargains, sells, transfers and delivers to **ST. JOHNS. COUNTY, FLORIDA,** a political subdivision of the State of Florida, the following personal property:

(Insert description of property to be dedicated to the County. *Note: The description listed should match the description listed on the "Release of Lien")*

The Seller does, for itself and its successors and assigns, covenant to and with St. Johns County and its successors and assigns, that it is lawful owner of said personal property; that the personal property is free of all encumbrances; that it has good rights to sell the same; and that it will warrant and defend the sale of the personal property against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, the Seller has caused this instrument to be duly executed and delivered by its duly authorized office on this__ of ____, ____.

WITNESS:

_____
Witness Signature

_____
Print Witness Name

OWNER:

_____
Owner's Signature

_____
Print Owner's Name

State of _____
County of _____

The foregoing instrument was acknowledged before me this _____day of _____, 2008, by _____ who is personally known to me or has produced _____as identification.

_____
Notary Public

St. Johns County Utility Department

Wastewater Pump Station Startup Report

GENERAL INFORMATION

STARTUP DATE _____ P.S. # _____ ASBUILT# _____ ZONE# _____

DEVELOPMENT NAME _____

ADDRESS _____

ENGINEER _____ CONTRACTOR _____

GENERAL SITE REQUIREMENTS

- ☐ MIN. 1" WATER SERVICE
- ☐ HOSE BIB WITH BACKFLOW PREVENTER
- ☐ POSITIVE DRAINAGE
- ☐ STATIC WATER LINE
- ☐ FENCE
- ☐ PRIVACY SLATS
- ☐ SITE LIGHTING
- ☐ DRIVEWAY& PAD

ELECTRICAL & CONTROLS

ELECTER METER CAN # _____

VOLTAGE _____ SINGLE PHASE ☐ THREE PHASE ☐

GEN.RECEPT.MANUF. _____ MODEL# _____

CIRCUIT BREAKERS

	MANUFACTURE	AMPS
MAIN		
EMERENCY		
PUMP		

PUMP STARTER

MANUF _____ MODEL # _____ NEMA SIZE _____

CONTROL CABINET

- ☐ STAINLESS
- ☐ GROUND ROD
- ☐ 3 POINT LATCH
- ☐ ALARM LIGHT
- ☐ ALARM HORN
- ☐ SILENCE BUTTON
- ☐ RIGID SERVICE CONDUIT
- ☐ STATION GROUNDED
- ☐ SS NEMA 4X ENCLOSURE
- ☐ MAIN / EMERG. MECH. INTERLOCK
- ☐ WIRING DIAG.
- ☐ DRIP SHIELD

WATER LEVEL CONTROLS

Wet Well Pressure Transducer ☐YES ☐No

Transducer levels

Pump off Elev. _____ ☐Act. ☐Design Lag Pump On Elev. _____ ☐Act. ☐Design

Lead Pump On Elev. _____ ☐Act. ☐Design High Level Alarm _____ ☐Act. ☐Design

Backup Float levels

Pump on Elev. _____ ☐Act. ☐Design Pump off Elev. _____ ☐Act. ☐Design

PUMP AND MOTOR DATA

MANUF _____ MODEL # _____ HP _____

IMPELLER # _____ DESIGN FLOW _____ gpm

PUMP DISCHARGE SIZE _____ DESIGN TDH _____ ft.

Note: Manufacturer's Pump Startup sheet should be attached to this form to complete the required startup report.

WET WELL

DIAMETER _____ DEPTH _____ TOP ELEVATION _____

INVERT. #1 _____ VENT SCREENED ☐YES EMER. SUCTION (Male Quick Connect w/ Cap ☐ YES

LINER TYPE _____

VALVES

DISCHARGE VALVE MANUF _____ TYPE _____ SIZE _____

CHECK VALVE MANUF _____ TYPE _____ SIZE _____

OYNX VAVLE ☐ OYNX VALVE CALIBRATION REPORT ☐ DRAIN TO WET WELL ☐

COMMENTS

Equipment Information Forms

Additional Forms TBD

Asset Information Form

Submit form to:
- *Tim Harley*
- *Amy Miller*
- *David Parker*
- *Karri Thomas*

Asset Information Form

Facility Name: _____

Date Placed in Service: _____

Capital Project #: _____

- or -

O&M Charge Code: _____

Project Cost: _____

Where on the plant is it?

Master Pump Station ◯ Headworks ◯ Aeration ◯ Clarification ◯

Biosolids Treatment ◯ Primary Disinfection ◯ Reuse & Secondary Disinfection ◯

Wet Weather Discharge ◯ Support Infrastructure ◯ Land ◯

Detailed description of work that was done: (include details of exactly which pump, blower, etc was modified or removed)

_____

_____

_____

_____

_____

_____

Make _____

Model _____

Serial# _____

Size _____

HP _____

Duty Rating/Service Factor _____

Phase/Voltage _____

Any other information _____

Asset Designation Templates

Lift Stations

Master Lift Stations

Step Tanks

Water Booster Station

Aeration Water Treatment Plant

Water Supply Well

Wastewater Treatment Plant

LS Asset Classification Template - Submersible Lift Station

Asset Type	Functional Asset
Process Electrical	control panel
Process Electrical	Pump #1 VFD
Process Electrical	Pump #2 VFD
Process Electrical	SCADA
Process Electrical	level transducer/controller/probes
Process Mechanical Equipment	Pump #1 (w/ motor)
Process Mechanical Equipment	Pump #2 (w/ motor)
Process Mechanical Equipment	SS guide rails
Process Piping	check valve - pump #1 discharge
Process Piping	check valve - pump #2 discharge
Process Piping	Isolation Valve
Process Piping	Isolation Valve
Process Piping	Isolation Valve
Process Structure	Wetwell
Process Structure	Wetwell top/hatch
Process Piping	SS Piping and Fittings <8"
Process Piping	DI Piping and Fittings <8"
Process Piping	PVC Piping and Fittings <8"
Process Building	Building
Other Improvements	Other site improvements (fencing, landscaping, driveways, site lighting, etc.)

LS Asset Classification Template - Above Ground Lift Station

Asset Type	Functional Asset
Process Electrical	control panel
Process Electrical	Pump #1 VFD
Process Electrical	Pump #2 VFD
Process Electrical	level transducer/controller/probes
Process Electrical	SCADA
Process Mechanical Equipment	Pump #1
Process Mechanical Equipment	Pump #1 motor
Process Mechanical Equipment	Pump #2
Process Mechanical Equipment	Pump #2 motor
Process Piping	check valve - pump #1 discharge
Process Piping	check valve - pump #2 discharge
Process Piping	Isolation Valve
Process Piping	Isolation Valve
Process Piping	Isolation Valve
Process Structure	Wetwell
Process Structure	Wetwell top/hatch
Process Piping	SS Piping and Fittings <8"
Process Piping	DI Piping and Fittings <8"
Process Piping	PVC Piping and Fittings <8"
Process Building	Building
Other Improvements	Other site improvements (fencing, landscaping, driveways, site lighting, etc.)

LS Asset Classification Template - Submersible Master Lift Station

Asset Type	Functional Asset
Process Mechanical Equipment	Air Conditioner
Process Mechanical Equipment	Bypass Pump
Process Structure	Electrical Building
Process Electrical	Generator
Process Electrical	Generator Fuel Tank
Process Electrical	Generator Transfer Switch
Process Electrical	level transducer/controller/probes
Process Piping	***List all isolation valves***
Process Piping	***Lump all process piping and fittings <12" by size/material***
Process Electrical	MCC
Process Mechanical Equipment	Odor Control - Biofilter
Process Mechanical Equipment	Odor Control - Blower
Process Mechanical Equipment	Odor Control - Blower Motor
Process Mechanical Equipment	Odor Control - Electrical & Meters
Process Mechanical Equipment	Odor Control - Piping
Other Improvements	Other site improvements (fencing, etc.)
Process Mechanical Equipment	Pump #X
Process Electrical	Pump #X - Soft Start
Process Electrical	Pump #X - VFD
Process Piping	Pump #X discharge check valve
Process Electrical	Pump control panel
Process Electrical	SCADA
Process Mechanical Equipment	SS guide rails
Process Structure	Wetwell
Process Structure	Wetwell top/hatch

LS Asset Classification Template - Above Ground Master Lift Station

Asset Type	Functional Asset
Process Mechanical Equipment	Air Conditioner
Process Mechanical Equipment	Bypass Pump
Process Structure	Electrical Building
Process Electrical	Generator
Process Electrical	Generator Fuel Tank
Process Electrical	Generator Transfer Switch
Process Electrical	level transducer/controller/probes
Process Piping	***List all isolation valves***
Process Piping	***Lump all process piping and fittings <12" by size/material***
Process Electrical	MCC
Process Mechanical Equipment	Odor Control - Biofilter
Process Mechanical Equipment	Odor Control - Blower
Process Mechanical Equipment	Odor Control - Blower Motor
Process Mechanical Equipment	Odor Control - Electrical & Meters
Process Mechanical Equipment	Odor Control - Piping
Other Improvements	Other site improvements (fencing, etc.)
Process Mechanical Equipment	Pump #X
Process Mechanical Equipment	Pump #X - motor
Process Electrical	Pump #X - Soft Start
Process Electrical	Pump #X - VFD
Process Piping	Pump #X discharge check valve
Process Structure	Pump Building
Process Electrical	Pump control panel
Process Electrical	SCADA
Process Structure	Surge Tank
Process Structure	Wetwell
Process Structure	Wetwell top/hatch

LS Asset Classification Template - Step Tank

Asset Type	Functional Asset
Process Mechanical Equipment	Pump
Process Electrical	Control Panel
Process Structure	Tank
Process Piping	Piping

LS Asset Classification Template - Water Booster Station

Asset Type	Functional Asset
Process Structure	Building
Other Improvements	Fencing, driveways, etc.
Process Mechanical Equipment	HSP #X
Process Mechanical Equipment	HSP #X - motor
Process Electrical	HSP #X - VFD
Process Piping	***List all valves separately***
Process Piping	***Lump all process piping and fittings***
Process Electrical	MCC
Process Electrical	SCADA
Process Structure	Storage Tank

WTP Asset Classification Template - Aeration WTP

Utility Group	Asset Category	Functional Asset
Supply	Add wells from well template as necessary	
Supply	Process Piping	***Lump all Piping and Appurtenances <12" by material/size***
Supply	Process Piping	***List all Piping and Appurtenances >12" Separately***
Supply	Process Piping	***List all fittings >12" individually***
Supply	Process Piping	***List all valves >12" individually***
Pretreatment	Process Mechanical Equipment	Corrosion Inhibitor Pump
Pretreatment	Process Mechanical Equipment	Corrosion Inhibitor Scale
Aeration/Degasification	Process Mechanical Equipment	Tray Aerator
Storage Tank	Process Structural	Storage Tank
Finished Water	Process Mechanical Equipment	Flowmeter to hydropneumatic tank
Finished Water	Process Piping	***Lump all Piping and Appurtenances <12" by material/size***
Finished Water	Process Piping	***List all Piping and Appurtenances >12" Separately***
Finished Water	Process Piping	***List all fittings >12" individually***
Finished Water	Process Piping	***List all valves >12" individually***
Post Treatment	Process Mechanical Equipment	Chlorine Pump #X
Post Treatment	Process Structural	Hypochlorite Bulk Storage
Pumps	Process Mechanical Equipment	HSP #X - Motor
Pumps	Process Mechanical Equipment	HSP #X - Pump
Pumps	Process Building	Pump House Building
Support Infrastructure	Other Improvements	Site Appurtenances (Fencing, etc.)
Support Infrastructure	Process Electrical	MCC
Support Infrastructure	Process Structural	Hydropneumatic Tank
Support Infrastructure	Process Building	Admin Building
Support Infrastructure	Process Electrical	Generator
Support Infrastructure	Process Electrical	Generator Fuel tank

WTP Asset Classification Template - Well

Utility Group	Asset Category	Functional Asset
Supply	Process Mechanical Equipment	Well #X Motor
Supply	Process Mechanical Equipment	Well #X Pump
Supply	Process Electrical	Well #X Control Panel/SCADA
Supply	Process Piping	Well #X Valving and Piping
Supply	Process Piping	Well #X Flow Meter
Supply	Process Structure	Well #X Casing and Pad
Supply	Process Building	Well #X Building
Supply	Process Electrical	Well #X VFD
Supply	Process Electrical	Well #X Generator
Supply	Process Electrical	Well #X Generator Fuel tank
Supply	Other Improvements	Fencing, concrete pad, etc.

WWTP Asset Classification Template - Influent Pumps

Utility Group	Asset Type	Functional Asset
Use Master Pump Station Template		

WWTP Asset Classification Template - Headworks

Utility Group	Asset Type	Functional Asset
Headworks	Process Mechanical Equipment	Automatic Bar Screen - Hopper
Headworks	Process Mechanical Equipment	Automatic Bar Screen - Motor
Headworks	Process Mechanical Equipment	Automatic Bar Screen - Screening Mechanism
Headworks	Process Electrical	Automatic Bar Screen Control Panel (BSCP)
Headworks	Process Mechanical Equipment	Caustic Pump
Headworks	Process Structure	Caustic Storage Tank
Headworks	Process Mechanical Equipment	Composite Sampler #X Influent Sampling
Headworks	Process Electrical	Grit Classification Control Panel (GCCP)
Headworks	Process Mechanical Equipment	Grit Classifier
Headworks	Process Mechanical Equipment	Grit Classifier - Motor
Headworks	Process Mechanical Equipment	Grit Pump #X
Headworks	Process Mechanical Equipment	Grit Pump #X - Motor
Headworks	Process Electrical	Grit Removal Control Panel (GRCP)
Headworks	Process Structure	Headworks Structure
Headworks	Process Mechanical Equipment	Influent Flow Meter
Headworks	Process Mechanical Equipment	Slide Gate #X
Headworks	Process Piping	***List all valves separately***
Headworks	Process Mechanical Equipment	***List instruments separately***
Headworks	Process Piping	***Lump all process piping and fittings > 12" by size/material***
Headworks	Process Piping	***Lump all process piping and valves <12"***

WWTP Asset Classification Template - Aeration

Utility Group	Asset Type	Functional Asset
Aeration	Process Mechanical Equipment	Aeration Basin #X Diffusers, Valves, Piping
Aeration	Process Mechanical Equipment	Aeration Basin Slide Gate #X
Aeration	Process Mechanical Equipment	Aeration Blower #X
Aeration	Process Electrical	Aeration Blower #X - Control Panel
Aeration	Process Mechanical Equipment	Aeration Blower #X - Motor
Aeration	Process Electrical	Alum Control Panel
Aeration	Process Mechanical Equipment	Alum Pump #X
Aeration	Process Structure	Alum Tank
Aeration	Process Structure	Blower Canopy
Aeration	Process Structure	Concrete pad for Aeration Basin
Aeration	Process Structure	Concrete pad for Aeration Blower
Aeration	Process Structure	Concrete pad for Alum Storage
Aeration	Process Piping	***List all process piping and fittings, valves separately***
		Bardenpho Related Assets:
Aeration	Process Mechanical Equipment	Internal Recycle Pump
Aeration	Process Mechanical Equipment	Internal Recycle Pump - Motor
Aeration	Process Mechanical Equipment	Pre Anoxic Mixer
Aeration	Process Mechanical Equipment	Pre Anoxic Mixer - Motor
Aeration	Process Mechanical Equipment	Post Anoxic Mixer
Aeration	Process Mechanical Equipment	Post Anoxic Mixer - Motor

WWTP Asset Classification Template - Clarification

Utility Group	Asset Type	Functional Asset
Clarification	Process Structure	Clarifier #X
Clarification	Process Structure	Clarifier #X - Catwalk
Clarification	Process Mechanical Equipment	Clarifier #X - Mechanism, Drive, Motor
Clarification	Process Electrical	Clarifier #X - Control Panel
Clarification	Process Electrical	Filter Control Panel
Clarification	Process Mechanical Equipment	Flowmeter - RAS
Clarification	Process Mechanical Equipment	Flowmeter - WAS
Clarification	Process Mechanical Equipment	***List all instruments separately***
Clarification	Process Piping	***List all RAS valves separately***
Clarification	Process Piping	***Lump all process piping by size/material***
Clarification	Process Piping	***Lump all WAS valves, pipes and fittings***
Clarification	Process Mechanical Equipment	RAS Pump #X
Clarification	Process Electrical	RAS Pump #X - Control Panel (Constant Speed)
Clarification	Process Mechanical Equipment	RAS Pump #X - Motor
Clarification	Process Electrical	RAS Pump #X - Soft Start
Clarification	Process Electrical	RAS Pump #X - VFD
Clarification	Process Mechanical Equipment	Scum Pump
Clarification	Process Mechanical Equipment	Scum Pump - Motor
Clarification	Process Electrical	Scum Pump Control Panel
Clarification	Process Electrical	Secondary Clarifier Local Control Panel
Clarification	Process Structure	Sodium Hypochlorite Building

WWTP Asset Classification Template - Filtration

Utility Group	Asset Type	Functional Asset
Filtration	Process Electrical	Dynasand Filter #X - Control Panel
Filtration	Process Mechanical Equipment	Air Compressor #X
Filtration	Process Mechanical Equipment	Air Compressor #X - Motor
Filtration	Process Mechanical Equipment	Air Compressor Tank
Filtration	Process Structure	Dynasand Filter Concrete Structure
Filtration	Process Mechanical Equipment	Turbidity Meter

WWTP Asset Classification Template - Primary Disinfection

Utility Group	Asset Type	Functional Asset
Primary Disinfection	Process Mechanical Equipment	Air Conditioner in Sodium Hypochlorite room
Primary Disinfection	Process Mechanical Equipment	Chlorine Contact Basin #X - Flowmeter
Primary Disinfection	Process Structure	Chlorine Contact Basin #X - Structure
Primary Disinfection	Process Mechanical Equipment	Chlorine Contact Basin #X - Slide Gate
Primary Disinfection	Process Structure	Chlorine Storage Building
Primary Disinfection	Process Mechanical Equipment	Composite Effluent Sampler #X
Primary Disinfection	Process Structure	Effluent Clearwell Structure (if separate)
Primary Disinfection	Process Mechanical Equipment	Effluent Pump #X
Primary Disinfection	Process Mechanical Equipment	Effluent Pump #X - Motor
Primary Disinfection	Process Mechanical Equipment	***List instruments separately***
Primary Disinfection	Process Piping	***Lump all process piping, valves, fittings***
Primary Disinfection	Process Mechanical Equipment	Residual Analyzer
Primary Disinfection	Process Mechanical Equipment	Sodium Hypochlorite Pump #X
Primary Disinfection	Process Structure	Sodium Hypochlorite Storage Tank
Primary Disinfection	Process Electrical	Sodium Hypochlorite Stystem Control Panel

WWTP Asset Classification Template - Biosolids

Utility Group	Asset Type	Functional Asset
Biosolids Treatment	Process Mechanical Equipment	Digestor Blower #X
Biosolids Treatment	Process Mechanical Equipment	Digestor Blower #X - Motor
Biosolids Treatment	Process Structure	Digester/Reject Tank

WWTP Asset Classification Template - Reuse

Utility Group	Asset Type	Functional Asset
Reuse & Secondary Discharge	Process Mechanical Equipment	In Plant Reuse Pump #1
Reuse & Secondary Discharge	Process Mechanical Equipment	In Plant Reuse Pump #1 - Motor

WWTP Asset Classification Template - Odor Control

Utility Group	Asset Type	Functional Asset
Odor Control	Process Mechanical Equipment	Caustic Pump #X
Odor Control	Process Electrical	Caustic Pump #X - Control Panel
Odor Control	Process Structure	Caustic Tank
Odor Control	Process Mechanical Equipment	Hypochlorite Pump #X
Odor Control	Process Electrical	Hypochlorite Pump #X - Control Panel
Odor Control	Process Structure	Hypochlorite Tank
Odor Control	Process Mechanical Equipment	***List instruments separately***
Odor Control	Process Piping	***Lump all process piping, valves, fittings***
Odor Control	Process Mechanical Equipment	Odor Control Scrubber

WWTP Asset Classification Template - Support Infrastructure

Utility Group	Asset Type	Functional Asset
Support Infrastructure	Other Improvements	Chain Link Fence
Support Infrastructure	Process Building	Electrical Building
Support Infrastructure	Process Electrical	Generator
Support Infrastructure	Process Structure	Hydro-Pneumatic Tank
Support Infrastructure	Process Electrical	In Plant Lift Station #X - Control Panel
Support Infrastructure	Process Mechanical Equipment	In Plant Lift Station #X - Piping
Support Infrastructure	Process Mechanical Equipment	In Plant Lift Station #X - Submerged Pump #1
Support Infrastructure	Process Mechanical Equipment	In Plant Lift Station #X- Submerged Pump #2
Support Infrastructure	Process Building	Operators Building/Admin Building
Support Infrastructure	Process Structure	Reject Pond Liner
Support Infrastructure	Process Electrical	SCADA
Support Infrastructure	Process Electrical	Transfer Switch

Condition Assessment Form
St Johns County Utility Department
Transmittal Sheet

Submit Form to:
- *Tim Harley*
- *Amy Miller*
- *David Parker*
- *Karri Thomas*

Facility Name:
Date of Inspection:
Assessment Team Members: 1)
2)
3)

Asset Name:
GIS Object Code:
GIS Asset Code:
Design Useful Life:
Install Date:

Nameplate Information
Make:
Model:
Serial#:
Size:
HP:
Duty Rating/Service Factor:
Phase/Voltage:
Other Information:

Picture: Y/N **GIS Location: Y/N**

Instructions: Complete the questions on the following worksheet related to the asset's current condition. These questions may be answered by a review of historical documents (e.g. maintenance records since the last condition assessment, previous performance testing results), a visual assessment of the equipment, and predictive testing (e.g. vibration analysis, ultrasound, thermography). Each question should be answered "y" (yes) or "n" (no). The worksheet will automatically total the condition assessment score and determine a condition assessment rating based on that score. This score may be used to adjust the assets useful life as described in Section 7.0 of the SJCUD Asset Managment Procedures Manual.

St Johns County Utility Department
Condition Assessment Form

Historical Document Questions	
Is the asset age greater than 75% of its design useful life?	
Did the asset experience problems during infancy?	
Preventative maintenance has been performed as recommended by the manufacturer?	
Is the asset abandoned or out of service?	
Is the asset inoperable or non-functional?	
Visual Inspection Questions	
Rotating Equipment and Electric Motors	
Is asset mounting secure? May show some signs of wear but exhibits no cracking.	
Are asset housings clean, showing no signs of overheating, wear, cracking, or deterioration?	
Does the asset run smoothly with very little vibration or unexpected noise levels?	
Do shafts show signs of wear, heating, or deterioration?	
Does asset exhibit leaking around bearings, oil and/or mechanical seals or seal housings?	
Does motor stop and then restart after a short period, but overload heaters in starter do not trip?	
Are air ducts, screens and channels clean and flowing unrestricted; are fins bent or damaged or; evidence of moisture damage?	
Do welds show pitting, cracking or signs of stress?	
Is asset inoperable or abandoned in place?	
Pipes and Appurtenances >16"	
Is asset above ground?	
If yes, is the surface coating in need of renewal?	
Is pipe material galvanized, VCP, or other than DIP/PVC/HDPE?	
Does pipe regularly experience clogging with debris, build-up, or root material?	
Are there any observed cracks, corrosion pits, misalignment, leaks, or broken lining?	
Have taps been performed on the pipe?	
Do pipe coupons show pipe thickness within specifications?	
Does pipe have a history of breaks, ruptures, or multiple service calls?	
Are pipe velocities greater than 6 ft/sec?	
Valves > 16" or Key Control Valves	
Valve type: BFV, GV, PV, PSV, PRV	
Is asset above ground?	
If yes, is the surface coating in need of renewal?	
Has valve been rehabilitated?	
Is valve regularly exercised?	
Does valve exhibit leaking around the seal or packing?	
Is valve inoperable or non-functional?	

Electrical Equipment (Generators, transformers,	
Is insulation on conductors and/or splices burned, charred, discolored or exhibit other damage?	
Does equipment experience frequent overheating, extreme ambient temperature, or poor air circulation?	
Have poor or deteriorated seals allowed rainwater to penetrate the equipment? i.e. does insulation system exhibit high moisture content?	
Does equipment exhibit frequent start/stops or breaker operations?	
Are fuses, connectors, or contactors missing, loose, broken, craked, chipped?	
Are bushings dirty, oily, greasy, or exhibiting an oil leak?	
Is enclosure broken, bent, corroded, misaligned?	
Is disconnect switch broken, bent, misaligned, or other physical deformity?	
Is equipment inoperable or non-functional?	
Structures Tanks and Basins	
Material: Steel, concrete, other	
Is asset above ground?	
If yes, is the surface coating in need of renewal?	
Does asset exhibit exposed rebar, cracks or corrosion (more than surface rust)?	
Is corrosion protection or lining in need of renewal (e.g. paint or cathodic over 10 years old)?	
Has interior of the tank/basin been cleaned and/or inspected and found in good condition, including coatings? Is paint blistering, cracking, etc.?	
Has asset been evaluated by a structural engineer within the last 10 years?	
Performance Assessment Questions	
Is asset able to achieve design conditions (adjusted for age of asset)?	
Is there a noticeable difference in the operation? (ex.: Does it take longer to do the same job? Has discharge flow visibly decreased?)	
Have there been changes to design conditions since initial installation?	
Has similar asset shown history of performance issues?	
Is asset in operation more than 6 hours/day?	
Has asset been in service more than 50% of design useful life?	
Is asset adequately sized for current operations and forseeable future? (e.g. no planned change in capacity within 5-yr CIP?)	
Predictive Assessment Questions	
Is the asset currently working successfully (as proven by continued diagnostic testing including: vibration analysis, ultrasound, thermography, oil analysis, and efficiency	
Were performance tests outside of acceptable limits/ranges?	

Historical Document Assessment Score	0
Visual Inspection Score	0
Performance Assessment Score	0
Predictive Assessment Score	0
Condition Assessment Score	0
Condition Assessment Rating	Excellent

Pipe Velocities

MGD	GPM	4	6	8	10	12	14	16	18	20	24
0.34	235	6.00	2.67	1.50	0.96	0.67	0.49	0.38	0.30	0.24	0.17
0.76	529	13.51	6.00	3.38	2.16	1.50	1.10	0.84	0.67	0.54	0.38
1.35	940	24.00	10.67	6.00	3.84	2.67	1.96	1.50	1.19	0.96	0.67
2.11	1468	37.48	16.66	9.37	6.00	4.16	3.06	2.34	1.85	1.50	1.04
3.05	2115	54.00	24.00	13.50	8.64	6.00	4.41	3.38	2.67	2.16	1.50
4.15	2880	73.53	32.68	18.38	11.77	8.17	6.00	4.60	3.63	2.94	2.04
5.41	3760	96.00	42.67	24.00	15.36	10.67	7.84	6.00	4.74	3.84	2.67
6.85	4760	121.54	54.02	30.38	19.45	13.50	9.92	7.60	6.00	4.86	3.38
8.46	5875	150.01	66.67	37.50	24.00	16.67	12.25	9.38	7.41	6.00	4.17
12.18	8460	216.01	96.00	54.00	34.56	24.00	17.63	13.50	10.67	8.64	6.00

Asset Criticality Score Form

Criticality Score Form
St Johns County Utility Department
Transmittal Sheet

Submit Form to:
- Tim Harley
- Amy Miller
- David Parker
- Karri Thomas

Facility Name:
Date of Inspection:
Assessment Team Members: 1)
2)
3)

Asset Name:
GIS Object Code:
GIS Asset Code:
Design Useful Life:
Install Date:

Nameplate Information
Make:
Model:
Serial#:
Size:
HP:
Duty Rating/Service Factor:
Phase/Voltage:
Other Information:

Picture: Y/N **GIS Location: Y/N**

Instructions: Complete the questions on the following worksheet related to the asset's criticality. These questions may be answered based on the assessment team's knowledge of the sytem in which the asset operates and the most recent condition assessment available for the asset. Each question should be answered "y" (yes) or "n" (no). The worksheet will automatically total the Consequence of Failure (CoF) and Probability of Failure (PoF) scores and calculate an overall Criticality Score for the asset. This score may be used to prioritize maintenance or project activites as described in Section 7.0 of the SJCUD Asset Managment Procedures Manual.

St Johns County Utility Department Criticality Score Form

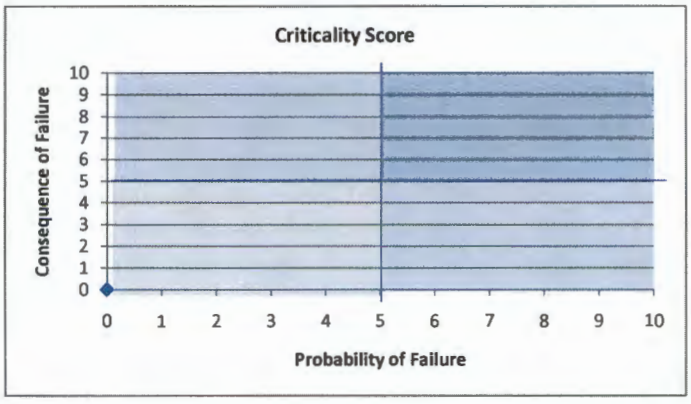
Consequence of Failure

Community Impact - Health	
Could human health or the environment be harmed?	
Is this a high profile asset with public/political consequences?	
Will failure of asset impact public health (e.g. would boil notices be issued)?	
Loss of Service	
Would there be permanence and persistence of the potential adverse affect?	
Would asset be out of service for longer than 72 hours?	
Would failure require manual operation or added overtime?	
Statutory Obligations	
If asset fails, could an environmental violation occur?	
Would a permit be required to replace asset?	
Damage to Property	
Could damage be done to other structures or property if failure occurs (i.e. rupture of major transmission line)?	
Could total failure overload another asset?	
Is asset on property owned by others?	
Financial Impact	
Is asset classified as run to failure? I.e. is scheduled replacement included in maintenance planning?	
Is replacement cost greater than $50,000 (labor and materials)	
Would replacement or rehabilitation be completed in house?	

Probablity of Failure

Asset or asset group failure history	
Does asset group maintenance information indicate systematic failure or operating problems?	
Asset age and condition	
Is remaining useful life less than 5 years?	
Is remaining useful life less than 2 years?	
Is maintenance on the asset performed as recommended by the manufacturer?	
Is asset in "good" or "excellent" condition based on latest asset condition assessment?	
Equipment redundancy	
Is there on-site redundancy/stand-by?	
Is there ability to temporarily locate or rent a spare on-site?	
Is asset still being produced and readily available, i.e. not obsolete?	
Operating context	
Is asset monitored through SCADA?	
Are current operating conditions consistent with asset design conditions?	

Consequence of Failure Score	0.0
Probability of Failure Score	0.0
Overall Criticality Score	0



Appendix D
Equipment Rebuild Guidelines

What is a Rebuild?

A rebuild or overhaul is intended to restore a system or its components to virtually original serviceability. This means that the system is tagged and locked out, removed from service, and dismantled completely. Then all components are disassembled following manufacturer's recommendations. Then all disposable or sacrificial parts such as sleeves, bearings, gaskets, stressed fasteners, spacers, seals, etc are disposed of properly. All major parts are inspected and tested using micrometers, dial gages, and other measuring devices, to assure that the superstructure, shaft, and all other major non-disposable parts are within manufacturer's specifications. The components are then reassembled using manufacturer's step-by-step recommendations, and using any required measuring devices to assure that all parts are correctly aligned, and all critical clearances are correctly set. The components are assembled using proper measuring devices to assure that all components are aligned and critical clearances are met. The system is then tested and commissioned according to manufacturer's Recommendations. Only then can the system be placed back into service. Critical components of a system are understood to include all major switch gear, wiring, control devices, major piping, and service piping. The following sections outline some instances in which a rebuild is not appropriate and full replacement of the equipment is required.

Housing, Case or Frame

Housings are the main rigid structures that make up the machine. Housings may include the base, an oil sump, a frame, and a superstructure. This is often referred to as the pump base, or the gear housing. This superstructure often has to overcome extreme stresses and heat due to machine operation. Often the sump is intended to help dissipate heat like those of hydraulic units and air compressors. Grease or oil seals are often installed in the housings between the housing and a shaft and often are the base for an outer bearing race.

If a housing, case, or frame has been damaged due to overheating, stresses, abrasion, or chemical attack, whether internal or external, it has been weakened and may no longer be suitable for the intended job. **This is the first sign that the system or component must be replaced rather than rebuilt**. The housing, case, or frame is often the most important and most costly part of the system or component. The base is commonly overlooked when inspecting the housing, case, or frame.

Often bases are affected by corrosion or chemical attack. Corrosion often builds up between the base and the attachment of the case such as that of a pump volute. Corrosion buildup between the base and the attachment offsets the very delicate alignment between the pump and the motor or prime mover. A very small amount of corrosion between the attachment and the base computes into very large discrepancies in alignment. If there is a problem with corrosion on top of the base

there is probably a corrosion problem under the base. Water or other chemicals can enter under the base through capillary action of the mounting hardware. The base may be weaker than what could be visibly detected. If a base is corroded the base should be completely removed and checked to verify that the strength of the base has not been affected, and that corrosion has not affected the alignment of the components installed on it.

Shafts

Shafts are precision ground and hardened to accommodate connection to a coupling or driver device, bearings, the driven implement (impeller, gears, sheaves, etc.) and in some cases a pushrod or other devices. Drive shafts experience torsion stress, bending stress, axial stress, vibration stress and critical speed. Torsion stresses are exerted as the result of twisting. Bending stress is resultant of radial loading in the shaft center or at either end. Axial stresses result from compression or stretching of the shaft. All shafts vibrate at a frequency specific to the shaft based on its construction, makeup, dimensions, and size. When a contact or strike occurs against the shaft the magnitude of a shaft's vibration will be consistent with the magnitude of the contact or strike; although, the frequency will remain the same no mater how hard the strike is. This frequency is known as the natural or resonant frequency. As a shaft rotates the shaft begins to vibrate at its resonant frequency. As the speed begins to match the shaft frequency the shaft will begin to vibrate out of control, this is called the critical speed of the shaft. The frequency of a shaft can be changed by changing the structure of the shaft such as heating a shaft, changing its dimensions, or changing its hardness in some way, which will change the frequency of that shaft to an unknown variable, and in turn will make the shaft unusable for the intended purpose.

Never reuse a shaft that has been overheated or if the inner bearing race has turned on the shaft. This shaft should be measured and checked for out-of-round using a micrometer and dial indicator. A shaft that requires buildup and reworking should be discarded and a new shaft purchased.

Active Elements

Active elements include items such as impellers, propellers, gears, and any other element that can transfer energy from one source to another, or change the direction energy is transferred.

Never reuse an impeller that has been cavitated. A cavitated impeller has lost the balance that the factory has carefully created. This imbalance will create vibration problems with this and other components.

Before reusing a gear each tooth should be closely measured to be sure that the gear is still within the gear manufacturers required tolerances. Never reuse gears that have been damaged. Gears are factory balanced and are considered a sacrificial element. It

is better to sacrifice the gear than to create vibration in the equipment it is connected or coupled to.

Sheaves should be measured often to assure that they are making contact correctly with the belts they drive. Also check all drive belts for correct tension especially after belt or sheave replacement.

Check all propellers for proper balance before reusing them. If the proper balance cannot be achieved do not use them.

Motors

Motors are the most often utilized prime mover in the water and wastewater industry today. Motors and the technology used to manufacturer them today is becoming more and more efficient every day. Surface tolerances become closer allowing clearances to become even closer.

Motors are most often made of a stator and a rotor. The stator and rotor are made of stacked iron plates with a laminate between each iron plate. Most often the stator has windings that are insulated between each wrap to keep the electrical flow in the correct direction or along the correct lines of conduction.

Motors have housings like those discussed above in which bearings are mounted and the outer bearing race is intended to stay in place in the end of the housing. If it is noted during motor disassembly, that a bearing has turned inside of the motor housing, it is almost impossible to completely refurbish the housing so that the shaft is aligned directly in the center of the windings like it was when it was first manufactured. Replace any motor that is showing this type of damage.

During operation motors often develop hotspots. A hot spot is a place in the motor where the insulation in the windings or between the stacks has broken down. The heat is actually energy flowing against the required current flow. If a motor has developed hot spots in the stacks it is not worth rebuilding. This motor should be replaced.

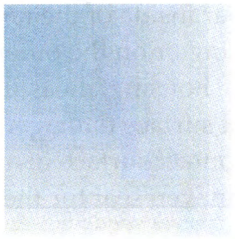
Bearings

Generally rotating equipment includes the use of one or more bearings with the intent of providing frictionless or as close to frictionless operation as possible. There are two kinds of bearings found in service today. Plain journal bearings use a closely machined and hardened part of the shaft or a hardened shaft sleeve which turns inside of a soft material like brass or a soft material coated with a harder material. We often blame the bearing for problems when it is actually the fault of misalignment, looseness, or machine imbalance. Problems like these are most often caused by defects in the rotating driver components or miss-alignment of the superstructure (Base and pedestal). Shafts can be out of balance, warped, or unfit in some way to be returned to service. Housings can be expanded, overheated, or warped slightly in a way that

would cause a rebuild to fail early. Superstructures can be warped, or excessively corroded affecting alignment of other components or causing soft-foot and excessive vibration.

Plain journal bearings have no moving parts and antifriction bearings include rolling elements. It is possible for bearings to fail as a primary failure and create secondary failures in other component and sub-components. It is possible for an antifriction bearing to turn inside of the bearing housing. If the bearing is under a radial load the damage could be slight eccentric wear inside of the housing. This damage is only evident in the markings on the housing or on the outer bearing race. To completely understand how this has affected the housing, measurements must be taken using a micrometer or other device to record surface damage. It is insufficient to try to punch, rough, or dimple the housing race contact surface in an effort to trap the bearing race. This would only serve to create an uneven seat for the race and most likely misshape the outer bearing race.

Often in our efforts to replace bearings we overlook damage in other parts of the system or component that can be causing the failure of our bearings. If we are not diligent in our rebuilding efforts and understanding of the costs involved we could be simply throwing our already scarce and carefully controlled funds away. Be sure that a rebuild program is not simply another bearing replacement program.



CDM

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APPENDIX B-1:
Asset Data for Anastasia Island (AI) WWTF Solids

Al Solids
WWTP Facilities

SUBTYPE	NAME	LIFECYCLE STATUS	STATUSDATE	CONDITION	CONDITION_DATE	INSTALL_DATE	HEIGHT (ft)	LOCATION	LOCATIONDESCRIPTION	StructMat
Canopy	Canopy								Solids holding tank no. 1	
Manhole	Manhole						96"	Truck unloading	Truck unloading; Existing maintenance storage building	

A. Solids
Liquid Storage

SUBTYPE	NAME	NICKNAME	MAKE	MODEL	SERIAL_NUMBER	LIFECYCLE STATUS	STATUSDATE	CONDITION	CONDITION_DATE	INSTALL_DATE	VOLUME (gal)	CHEMICAL_CONTENT	POND_TYPE	POND_COVER	POND_LINER	LocationDescription	LOCATION
Precon Prestressed concerete tank	Solids holding tank no. 1	Prestressed concrete tank	Precon Corporation								7-10,000	Yes	NA	NA	NA		Solids holding tank

AI Solids
Blower

Subtype	Name	Make	Model	SerialNumber	Condition	ConditionDate	Status	StatusDate	InstallDate	WarrantyDate	Contractor	CFM	PlantType	Location	AirFilterSize	AirFilterMfg	AirFilterModel	FilterReuseable	TempGauge	VibSensors
Blower	Blower No.1	Gardner Denver	HeliFlow - 514				Active					878	Wastewater	Solids Holding Tank no. 1	6" Flg, 19/5/15	Solberg	LQB-274P-600F		Yes	
Blower	Blower No.2	Gardner Denver	HeliFlow - 514				Active					878	Wastewater	Solids Holding Tank no. 1	6" Flg, 19/5/15	Solberg	LQB-274P-600F		Yes	
Blower	Blower No.3	Gardner Denver	HeliFlow - 514				Active					878	Wastewater	Solids Holding Tank no. 1	6" Flg, 19/5/15	Solberg	LQB-274P-600F		Yes	

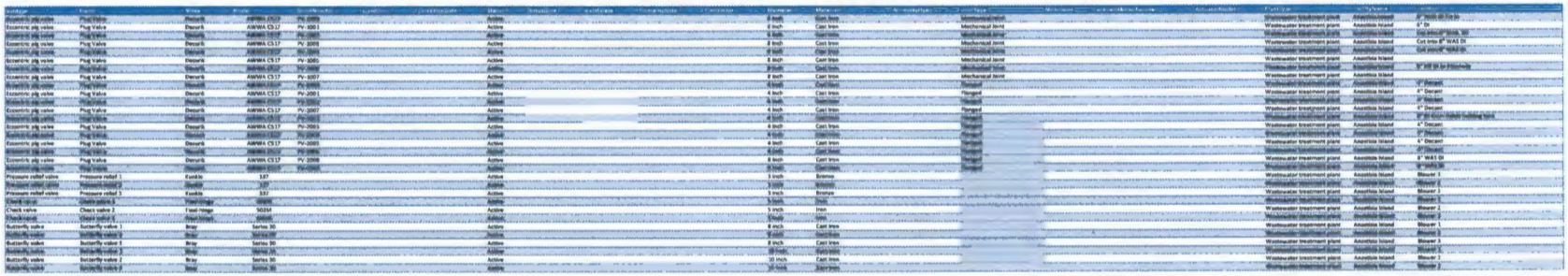
AI Solids
Diffuser

Subtype	Name	Condition	ConditionDate	Lifecycle Status	StatusDate	InstallDate	WarrantyDate	Contractor	Material	TempRating	PlantType	FacilityName	Location
Coarse Bubble	SS Coarse Bubble Diffusers			Active				Wharton-Smith, Inc.	304 STAINLESS STEEL		Wastewater	Anastasia Island WWTF	Solids holding tank 1

All Assets
Motor

Subtype	Name	Make	Model	SerialNumber	Condition	ConditionDate	Lifecycle Status	StatusDate	InstallDate	WarranlyDate	Contractor	Voltage	Dual_Voltage	Phases	RatedAmperage	RatedPowcr	RPM	PlantType	FacilityName	Location
Motor	Solids blower motor 1	US Motors	GD03										480		3		60	1800 Wastewater	Anastasia Island	Solids holding tank 1
Motor	Solids blower motor 2	US Motors	GD03										480		3		60	1800 Wastewater	Anastasia Island	Solids holding tank 2
Motor	Solids blower motor 3	US Motors	GD03										480		3		60	1800 Wastewater	Anastasia Island	Solids holding tank 3

Air Solids
Valve



AI Solids
Analyzer

Subtype	Name	Make	Model	SerialNumber	Condition	ConditionDate	Lifecycle Status	StatusDate	InstallDate	WarrantyDate	Contractor	PlantType	UnitProcess	FacilityName	Location
Gauge 1	Differential gauge	Winters Instruments	PFD40024									Waste water treatment		Anastasia Island	Blower 1
Gauge 2	Differential gauge	Winters Instruments	PFD40024									Waste water treatment		Anastasia Island	Blower 2
Gauge 3	Differential gauge	Winters Instruments	PFD40024									Waste water treatment		Anastasia Island	Blower 3
Gauge 1	Stainless steel gauge	Winters Instruments	PFQ901ZR									Waste water treatment		Anastasia Island	Blower 1
Gauge 2	Stainless steel gauge	Winters Instruments	PFQ901ZR									Waste water treatment		Anastasia Island	Blower 2
Gauge 3	Stainless steel gauge	Winters Instruments	PFQ901ZR									Waste water treatment		Anastasia Island	Blower 3
Thermometer	Thermometer with switch	Dwyer	PFQ901ZR									Waste water treatment		Anastasia Island	Blower 1
Thermometer	Thermometer with switch	Dwyer	PFQ901ZR									Waste water treatment		Anastasia Island	Blower 2
Thermometer	Thermometer with switch	Dwyer	PFQ901ZR									Waste water treatment		Anastasia Island	Blower 3
Switch	Pressure switch	UE	J6-222									Waste water treatment		Anastasia Island	Blower 1
Switch	Pressure switch	UE	J6-222									Waste water treatment		Anastasia Island	Blower 2
Switch	Pressure switch	UE	J6-222									Waste water treatment		Anastasia Island	Blower 3
Level Indicator	Level Indicator	Flygt	ENM-10									Waste water treatment		Anastasia Island	Solids holding tank 1

AI Solids
Electrical

Subtype	Name	Make	Model	SerialNumber	Condition	ConditionDate	Lifecycle Status	StatusDate	InstallDate	WarrantyDate	Contractor	MainBreakerAmps	MainBreakerManufacturer	MainBreakerPhase	MainBreakerVoltage	MotorBreakerAmps	MotorBreakerManufacturer	HasDisconnect	TimeDelay	Elt Mon Mfg	AssetCategory	PlantType	UnitProcess	FacilityName	Location
	Float cable terminal box																							Anastasia Island WWTF	Level indicators; Solids holding tank 1
	Motor space heater	US Motors	GD03												460									Anastasia Island WWTF	Solids blower
Pull box	Underground pull box	Strongwell	PG Style																					Anastasia Island WWTF	
	Blower starter																							Anastasia Island WWTF	Solids blower
RTU	Remote Terminal Unit	Motorola	ACE3600																					Anastasia Island WWTF	
	Main control panel																							Anastasia Island WWTF	
	Lighting panel																							Anastasia Island WWTF	

APPENDIX B-2:
Asset Data for SR16 Blowers

SR16 Blowers
WWTP Facilities

FacilityName	PlantType	SUBTYPE	NAME	SERIAL_NUMBER	MODEL	Manufacturer	Status	INSTALL_DATE	Rehab_Date	Lifespan	Risk	Replacement_Cost	COMMENTS
PC WRF Main Electrical and Blower Building	Sewer	Electrical Room											
PC WRF Reaeration Blowers	Sewer	Blowers											

SR16 Blowers
Analyzer

FacilityName	PlantType	Subtype	Name	Model	SerialNumber	Status	InstallDate	Rehab_Date	Manufacturer	Comment
SR 16 WWTF Blower	Sewer	Undefined	Pressure Sensor	1210A-001D-3L	041-030013				Measurement Specilities	fdp(Filter Differential) Differential type
SR 16 WWTF Blower	Sewer	Undefined	Pressure Sensor	1210A-002D-3L	041-030014				Measurement Specilities	Dp3 (Differential Pressure)
SR 16 WWTF Blower	Sewer	Undefined	Pressure Sensor	1210A-030-3L	041-030015				Measurement Specilities	Op2 (Discharge Pressure) Guage
SR 16 WWTF Blower	Sewer	Temperature	Temperature Sensor	Thermo-couple K-type (CA)	041-030039				Hankook Electric Heater	
SR 16 WWTF Blower	Sewer	Temperature	Temperature Sensor	Thermo-couple K-type (CA)	041-030066				Hankook Electric Heater	
SR 16 WWTF Blower	Sewer	DO	IQ Sensornet	DIQ/S 284-CR6	472 130Y				YSI-Xylem	
SR 16 WWTF Blower	Sewer	Undefined	Pressure Sensor	1210A-001D-3L	041-030013				Measurement Specilities	fdp(Filter Differential) Differential type
SR 16 WWTF Blower	Sewer	Undefined	Pressure Sensor	1210A-002D-3L	041-030014				Measurement Specilities	Dp3 (Differential Pressure)
SR 16 WWTF Blower	Sewer	Undefined	Pressure Sensor	1210A-030-3L	041-030015				Measurement Specilities	Op2 (Discharge Pressure) Guage
SR 16 WWTF Blower	Sewer	Temperature	Temperature Sensor	Thermo-couple K-type (CA)	041-030039				Hankook Electric Heater	
SR 16 WWTF Blower	Sewer	Temperature	Temperature Sensor	Thermo-couple K-type (CA)	041-030066				Hankook Electric Heater	
SR 16 WWTF Blower	Sewer	DO	IQ Sensornet	DIQ/S 284-CR6	472 130Y				YSI-Xylem	

SR16 Blowers
Electrical

FacilityName	PlantType	Subtype	Name	SerialNumber	Model	Manufacturer	Status	InstallDate	Rehab_Date	Comments
SR 16 WWTF Blowers	Sewer	MCC	MCC-2 Breaker			Eaton	Active			
SR 16 WWTF Blowers	Sewer	MCC	MCC-3 Breaker			Eaton	Active			
SR 16 WWTF Blowers	Sewer	MCC	MCC-4	LJV0030304-003-78	Freedom	Eaton	Active			
SR 16 WWTF Blowers	Sewer	MCC	MCC-5	LJV0030304-004-79	Freedom	Eaton	Active			
SR 16 WWTF Blowers	Sewer	MCC	MCC-6	LJV0030304-005-80	Freedom	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Undefined	Surge protective device		DS40 Series	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Undefined	Surge protective device		DS40 Series	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Undefined	Surge protective device		DS40 Series	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Undefined	Power Meter-2280	PMX2250MA65105	Series 2000-2289	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Undefined	Power Meter-2280	PMX2250MA65105	Series 2000-2289	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Undefined	Power Meter-2280	PMX2250MA65105	Series 2000-2289	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Transformer	Transformer		Type DT-3		Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Circuit breakers-HLD		Series C-L Frame	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Motor Starter		Freedom line- NEMA Size 1	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Circuit breakers-CHLD		Series C, L frame	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Circuit breakers-HKD		Series C, K frame	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Circuit beakers - HJD		Series C, J frame	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Molded Case Circuit breakers	HMCP007C0C	Series C, F frame	Eaton	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Safety switches-Single Throw - Heavy duty	DH361UW316	Non Fusible, 3 Pole, 600 VAC, 30 A, NEMA 4X	Eaton	Active			
SR 16 WWTF Blowers	Sewer		UL Molded Case Circuit Breakers		UTS150.H.FTU.125.3		Active			
SR 16 WWTF Blowers	Sewer	Control Panel	System Control Board		ATM_CPU_V061	Aerzen	Active			
SR 16 WWTF Blowers	Sewer	Control Panel	System Control Board		ATM_IO_V024	Aerzen	Active			
SR 16 WWTF Blowers	Sewer	Control Panel	System Control Board		EZL-50M	Aerzen	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Disconnect switch		NEMA-4X	Greenheck	Active	7/27/2022		
SR 16 WWTF Blowers	Sewer	Switch Gear	Extra heavy duty industrial switch	HBL1221GY (Catalog No)		Hubbell	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Light Switch Assembly	SCF-LSA (Part No)		Saginaw Control Engineering	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	LED light with outlet	SCF-LF18NO (Part No)			Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Bulletin 1492 DIN Rail Receptacle		1492-REC15	Rockwell Automation	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Terminal Block		1492-JD4		Active			
SR 16 WWTF Blowers	Sewer		1489-M Circuit Breakers				Active			
SR 16 WWTF Blowers	Sewer	Control Panel	APC DIN Rail-Control Panel UPS	SUA500PDR-S(SKU)		APC by Schneider Electric	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Rotary Switch		M220	Salzer	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Human Machine Interface		Ixp50-TTA/DC	LS Industrial System Co	Active			
SR 16 WWTF Blowers	Sewer	Switch Gear	Human Machine Interface		Ixp50-TTA/DC	LS Industrial System Co	Active			

SR16 Blowers
Valve

FacilityName	PlantType	Subtype	Name	Model	SerialNumber	Manufacturer	Status	InstallDate	Retrab. Date	Diameter	Material	ActuatorManufacturer	ActuatorModel	Comments
SR16 WWTF Blowers	Sewer	Butterfly	Bray Controls Butterfly Valve	Series 30- Wafer Style	301600-11010734	Bray Controls		3/31/2022		16	Cast Iron		Gear Operator 2"-48"	
SR16 WWTF Blowers	Sewer	Butterfly	Bray Controls Butterfly Valve	Series 30- Wafer Style	301000-11010734	Bray Controls		3/31/2022		10	Cast Iron		Gear Operator 2"-48"	
SR16 WWTF Blowers	Sewer	Check	Wafer Style Dual Disc Check Valve			Aerzen USA Corporation				11	Cast Carbon Iron			
SR16 WWTF Blowers	Sewer	Solenoid	3 Way Solenoid Valve	HPA 150A		Aerzen USA Corporation				150 mm				
SR16 WWTF Blowers	Sewer	Butterfly	Bray Controls Butterfly Valve	Series 30- Wafer Style	301600-11010734	Bray Controls		3/31/2022		16	Cast Iron			
SR16 WWTF Blowers	Sewer	Butterfly	Bray Controls Butterfly Valve	Series 30- Wafer Style	301000-11010734	Bray Controls		3/31/2022		10	Cast Iron			
SR16 WWTF Blowers	Sewer	Check	Wafer Style Dual Disc Check Valve			Aerzen USA Corporation				11	Cast Carbon Iron			
SR16 WWTF Blowers	Sewer	Solenoid	3 Way Solenoid Valve	HPA 150A		Aerzen USA Corporation				150 mm				
SR16 WWTF Blowers	Sewer	Undefined	Blow Off Valve	HPA 125-3P		Aerzen USA Corporation								
SR16 WWTF Blowers	Sewer	Undefined	Blow Off Valve	HPA 125-3P		Aerzen USA Corporation								

SR16 Blowers
Motor

FacilityName	PlantType	Subtype	Name	SerialNumber	Model	Manufactur	Status	InstallDate	Rehab_Date	Voltage	HP	VariableSpeed	Lifespan	Runtime_Lifespan	Replacement_Cost	Risk	Comments
SR 16 WWTP	Sewer	Blower	Aerzen Turbo MG3-Permanent magnet synchronous motor		AT75-0.6S MG3	Aerzen											
SR 16 WWTP	Sewer	Blower	Aerzen Turbo MG3-Permanent magnet synchronous motor		AT75-0.6S MG3	Aerzen											

SR16 Blowers
Equipment

Subtype	Make	Model	SerialNumber	Condition	ConditionDate	Status	StatusDate	InstallDate	PlantType	FacilityName	Location
Heat Pump	Carrier- outdoor model	38MAAR09--3								SR 16 WWTF	
Heat Pump	Carrier- indoor model	40MAQB18B--3								SR 16 WWTF	
Wired Remote Controller		KSACN0701AAA								SR 16 WWTF	
Direct Drive Upblast Centrifugal Wall Exhaust	GREENHECK	CUE-160-A					9/27/2022 (Printed date)		Sewer	SR 16 WWTF	
Direct Drive Upblast Centrifugal Wall Exhaust	GREENHECK	CUE-180-B					9/27/2022 (Printed date)		Sewer	SR 16 WWTF	
Vertical Mount Exhaust Damper	GREENHECK	WD-330					9/27/2022 (Printed date)			SR 16 WWTF	
Intake Louver	GREENHECK	EVH-501D-74X56									
Harmonic Filter	TCI	HGP0075AW1C0000 (SKU)									
Expansion coupling											
Air conditioning unit	Carrier	38MAQB12R--3									
Harmonic Filter	TCI	HGP5AW005TC									
Harmonic Filter	TCI	HGP0075AW1C0000 (SKU)									
Pipe hanger	Empire Industries	T-316 Stainless									
Pipe hanger	Empire Industries	T-316 Stainless									

SR16 Blowers
Blower

Subtype	Name	Make	Model	SerialNumber	Condition	ConditionDate	Status	StatusDate	InstallDate	WarrantyDate	Contractor	CFM	PlantType	Location	AirFilterSize	AirFilterMfg	AirFilterModel	FilterReuseable	TempGauge	VibSensors
Turbo	Turbo Blower #1	Aerzen USA Corp.	TB 075-0.65					3/5/2018	3/5/2018											
Turbo	Turbo Blower #2	Aerzen USA Corp.	TB 075-0.65					3/5/2018	3/5/2018											

APPENDIX C:
Cityworks® Preventative Maintenance Work Orders

WorkorderID	DESCRIPTION	Location	WorkOrderAddress	ProjectedStartDate	AssetID	AssetName
236945	Inspect diffusers	AI WWTP - Digestor 1 - Course Bubble Diffusers	860 W 16th St	8/1/2029	2262	Digester 1
237066	Scada - Battery Replacement 2Y	AI WWTP	860 W 16th St	8/28/2026	2262	Digester 1
237067	Scada - Battery Replacement 2Y	AI WWTP	860 W 16th St	8/28/2028	2262	Digester 1
237137	Exercise Plant Valve	AI WWTP - Digester 2 - Supernate valves (See attached picture)	860 W 16th St	8/28/2025	2262	Digester 1
237137	Exercise Plant Valve	AI WWTP - Digester 2 - Supernate valves (See attached picture)	860 W 16th St	8/28/2025	300256	Digester 1 - Decant Valve 1
237137	Exercise Plant Valve	AI WWTP - Digester 2 - Supernate valves (See attached picture)	860 W 16th St	8/28/2025	300257	Digester 1 - Decant Valve 2
237137	Exercise Plant Valve	AI WWTP - Digester 2 - Supernate valves (See attached picture)	860 W 16th St	8/28/2025	300258	Digester 1 - Decant Valve 3
237137	Exercise Plant Valve	AI WWTP - Digester 2 - Supernate valves (See attached picture)	860 W 16th St	8/28/2025	300259	Digester 1 - Decant Valve 4
237137	Exercise Plant Valve	AI WWTP - Digester 2 - Supernate valves (See attached picture)	860 W 16th St	8/28/2025	300260	Digester 1 - Decant Valve 5
237137	Exercise Plant Valve	AI WWTP - Digester 2 - Supernate valves (See attached picture)	860 W 16th St	8/28/2025	300261	Digester 1 - Decant Valve 6
237137	Exercise Plant Valve	AI WWTP - Digester 2 - Supernate valves (See attached picture)	860 W 16th St	8/28/2025	300262	Digester 1 - Decant Valve 7
237137	Exercise Plant Valve	AI WWTP - Digester 2 - Supernate valves (See attached picture)	860 W 16th St	8/28/2025	300263	Digester 1 - Decant Valve 8
237066	Scada - Battery Replacement 2Y	AI WWTP	860 W 16th St	8/28/2026	160386	Digester 1 - Remote Terminal Unit
237067	Scada - Battery Replacement 2Y	AI WWTP	860 W 16th St	8/28/2028	160386	Digester 1 - Remote Terminal Unit
236945	Inspect diffusers	AI WWTP - Digestor 1 - Course Bubble Diffusers	860 W 16th St	8/1/2029	150037	Digester 1 - SS Coarse Bubble Diffusers
230381	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	6/17/2024	1602	Digester Blower Pad
233366	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	7/25/2024	1602	Digester Blower Pad
235250	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	8/30/2024	1602	Digester Blower Pad
237408	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	10/4/2024	1602	Digester Blower Pad
237064	Exercise Plant Valve	AI WWTP - Valves leading to Digester 2	860 W 16th St	8/28/2025	303012	NULL
237052	Exercise Plant Valve	AI WWTP - 6" and 8" valves East side of digester 1 next to manhole	860 W 16th St	8/28/2025	303013	NULL
237054	Exercise Plant Valve	860 W 16th St	860 W 16th St	8/28/2025	303340	NULL
237063	Exercise Plant Valve	AI WWTP	860 W 16th St	8/28/2025	303011	NULL
237063	Exercise Plant Valve	AI WWTP	860 W 16th St	8/28/2025	303010	NULL
237050	Exercise Plant Valve	AI WWTP - Tanker Truck Receiving Station Valve	860 W 16th St	8/28/2025	303015	NULL
237052	Exercise Plant Valve	AI WWTP - 6" and 8" valves East side of digester 1 next to manhole	860 W 16th St	8/28/2025	303014	NULL
237064	Exercise Plant Valve	AI WWTP - Valves leading to Digester 2	860 W 16th St	8/28/2025	303341	NULL
237054	Exercise Plant Valve	860 W 16th St	860 W 16th St	8/28/2025	303339	NULL
230381	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	6/17/2024	120091	Digester Blower Pad
233366	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	7/25/2024	120091	Digester Blower Pad
235250	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	8/30/2024	120091	Digester Blower Pad
237408	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	10/4/2024	120091	Digester Blower Pad
230381	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	6/17/2024	120089	Digester Blower Pad
233366	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	7/25/2024	120089	Digester Blower Pad
235250	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	8/30/2024	120089	Digester Blower Pad
237408	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	10/4/2024	120089	Digester Blower Pad
230381	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	6/17/2024	120090	Digester Blower Pad
233366	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	7/25/2024	120090	Digester Blower Pad
235250	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	8/30/2024	120090	Digester Blower Pad
237408	Blower Filter - Monthly	AI WWTP - DIGESTOR BLOWER UNIVERSAL PACS (see recommended lubricants/re	860 W 16th St	10/4/2024	120090	Digester Blower Pad
224609	Blower Oil Change - Yearly	AI WWTP - Digester Blower Pacs 1-3 Recommended oil type: Gardner-Denver Aeon-	860 W 16th St	9/9/2024	120090	Digester Blower Pad
224610	Blower Oil Change - Yearly	AI WWTP - Digester Blower Pacs 1-3 Recommended oil type: Gardner-Denver Aeon-	861 W 16th St	9/9/2025	120091	Digester Blower Pad

WorkorderID	DESCRIPTION	Location	WorkOrderAddress	ProjectedStartDate	AssetID	AssetName
236891	Clean Building	SR16 WWTP - Blower Electrical Room - Blower Room	3000 industrial center rd.	9/26/2024	1604	Blower Building 2
236896	Thermal Imaging	SR16 WWTP - Blower Room 2	3000 industrial center rd.	11/23/2025	1604	Blower Building 2
236901	Blower Filter - Monthly	SR16 WWTP - Turbo Blowers - Interior and Exterior Filters	3000 industrial center rd.	9/10/2024	1604	Blower Building 2
236903	Blower Clean 3M PM	SR16 WWTP - Turbo Blowers	3000 industrial center rd.	10/15/2024	1604	Blower Building 2
236904	Blower Clean 3M PM	SR16 WWTP - Turbo Blowers	3000 industrial center rd.	1/15/2025	1604	Blower Building 2
236923	Exercise Plant Valve	SR16 WWTP - Turbo Blower Outlet valves & Air header valves outside of building	3000 industrial center rd	8/1/2025	1604	Blower Building 2
236923	Exercise Plant Valve	SR16 WWTP - Turbo Blower Outlet valves & Air header valves outside of building	3000 industrial center rd	8/1/2025	300252	Blower Building 2 - Butterfly Valve 1
236923	Exercise Plant Valve	SR16 WWTP - Turbo Blower Outlet valves & Air header valves outside of building	3000 industrial center rd	8/1/2025	300253	Blower Building 2 - Butterfly Valve 2
236923	Exercise Plant Valve	SR16 WWTP - Turbo Blower Outlet valves & Air header valves outside of building	3000 industrial center rd	8/1/2025	300254	Blower Building 2 - Butterfly Valve 3
236923	Exercise Plant Valve	SR16 WWTP - Turbo Blower Outlet valves & Air header valves outside of building	3000 industrial center rd	8/1/2025	300255	Blower Building 2 - Butterfly Valve 4
236896	Thermal Imaging	SR16 WWTP - Blower Room 2	3000 industrial center rd.	11/23/2025	170165	Blower Building 2 - Harmonic Filter 1
236896	Thermal Imaging	SR16 WWTP - Blower Room 2	3000 industrial center rd.	11/23/2025	170166	Blower Building 2 - Harmonic Filter 2
236896	Thermal Imaging	SR16 WWTP - Blower Room 2	3000 industrial center rd.	11/23/2025	170167	Blower Building 2 - Harmonic Filter 3
236901	Blower Filter - Monthly	SR16 WWTP - Turbo Blowers - Interior and Exterior Filters	3000 industrial center rd.	9/10/2024	120092	Blower Building 2 - Turbo Blower 1
236903	Blower Clean 3M PM	SR16 WWTP - Turbo Blowers	3000 industrial center rd.	10/15/2024	120092	Blower Building 2 - Turbo Blower 1
236904	Blower Clean 3M PM	SR16 WWTP - Turbo Blowers	3000 industrial center rd.	1/15/2025	120092	Blower Building 2 - Turbo Blower 1
236901	Blower Filter - Monthly	SR16 WWTP - Turbo Blowers - Interior and Exterior Filters	3000 industrial center rd.	9/10/2024	332278	Blower Building 2 - Turbo Blower 1 Motor
236903	Blower Clean 3M PM	SR16 WWTP - Turbo Blowers	3000 industrial center rd.	10/15/2024	332278	Blower Building 2 - Turbo Blower 1 Motor
236904	Blower Clean 3M PM	SR16 WWTP - Turbo Blowers	3000 industrial center rd.	1/15/2025	332278	Blower Building 2 - Turbo Blower 1 Motor
236901	Blower Filter - Monthly	SR16 WWTP - Turbo Blowers - Interior and Exterior Filters	3000 industrial center rd.	9/10/2024	120093	Blower Building 2 - Turbo Blower 2
236903	Blower Clean 3M PM	SR16 WWTP - Turbo Blowers	3000 industrial center rd.	10/15/2024	120093	Blower Building 2 - Turbo Blower 2
236904	Blower Clean 3M PM	SR16 WWTP - Turbo Blowers	3000 industrial center rd.	1/15/2025	120093	Blower Building 2 - Turbo Blower 2
236901	Blower Filter - Monthly	SR16 WWTP - Turbo Blowers - Interior and Exterior Filters	3000 industrial center rd.	9/10/2024	332279	Blower Building 2 - Turbo Blower 2 Motor
236903	Blower Clean 3M PM	SR16 WWTP - Turbo Blowers	3000 industrial center rd.	10/15/2024	332279	Blower Building 2 - Turbo Blower 2 Motor
236904	Blower Clean 3M PM	SR16 WWTP - Turbo Blowers	3000 industrial center rd.	1/15/2025	332279	Blower Building 2 - Turbo Blower 2 Motor
236887	Panel Inspection/Maintenance	SR16 WWTP - Blower Electrical Room - MCC 4, MCC 5, MCC 6	3000 industrial center rd	7/26/2026	1607	Blower Electrical Room
236888	Scada - Battery Replacement 2Y	SR16 WWTP - Blower Electrical Room - ICP 400	3000 industrial center rd.	7/26/2026	1607	Blower Electrical Room
236889	Scada - Battery Replacement 2Y	SR16 WWTP - Blower Electrical Room - ICP 400	3000 industrial center rd.	7/26/2028	1607	Blower Electrical Room
236891	Clean Building	SR16 WWTP - Blower Electrical Room - Blower Room	3000 industrial center rd.	9/26/2024	1607	Blower Electrical Room
23688B	Scada - Battery Replacement 2Y	SR16 WWTP - Blower Electrical Room - ICP 400	3000 industrial center rd.	7/26/2026	160393	Blower Electrical Room - ICP-400
236889	Scada - Battery Replacement 2Y	SR16 WWTP - Blower Electrical Room - ICP 400	3000 industrial center rd.	7/26/2028	160393	Blower Electrical Room - ICP-400
236887	Panel Inspection/Maintenance	SR16 WWTP - Blower Electrical Room - MCC 4, MCC 5, MCC 6	3000 industrial center rd	7/26/2026	160389	Blower Electrical Room - MCC 4
236887	Panel Inspection/Maintenance	SR16 WWTP - Blower Electrical Room - MCC 4, MCC 5, MCC 6	3000 industrial center rd	7/26/2026	160390	Blower Electrical Room - MCC 5
236887	Panel Inspection/Maintenance	SR16 WWTP - Blower Electrical Room - MCC 4, MCC 5, MCC 6	3000 industrial center rd	7/26/2026	160391	Blower Electrical Room - MCC 6
236888	Scada - Battery Replacement 2Y	SR16 WWTP - Blower Electrical Room - ICP 400	3000 industrial center rd.	7/26/2026	160392	Blower Electrical Room - UPS Control Panel
236889	Scada - Battery Replacement 2Y	SR16 WWTP - Blower Electrical Room - ICP 400	3000 industrial center rd.	7/26/2028	160392	Blower Electrical Room - UPS Control Panel

APPENDIX D:
Example Resolution

EXAMPLE RESOLUTION NO. 2023-_____

A RESOLUTION OF THE ST. JOHNS COUNTY UTILITY DEPARTMENT, APPROVING THE FISCAL SUSTAINABILITY PLAN ("FSP"); AUTHORIZING THE UTILITY REPRESENTATIVE TO TAKE ALL ACTIONS NECESSARY TO EFFECTUATE THE INTENT OF THIS RESOLUTION; PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Florida Statutes provide for financial assistance to local government agencies to finance construction of the municipal utility system improvements and

WHEREAS, the Florida Department of Environmental Protection State Revolving Fund (SRF) has designated the St. Johns County Utility Department, listed under Project Number 5501 in accordance with the Clean Water State Revolving Fund Construction Loan Agreement WW550161, as eligible for available funding; and

WHEREAS, as a condition of obtaining funding from the SRF, the City is required to implement an FSP for the State Rd 16 (SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Handling; and

NOW, THEREFORE, THE St. Johns County Utility Department HEREBY RESOLVES:

Section 1. That the Fiscal Sustainability Plan ("FSP"), attached hereto as Exhibit A, is hereby approved, and incorporated herein by this reference.

Section 2. That the St. Johns County Utility Department is authorized to take all actions necessary to effectuate the intent of this resolution and to implement the FSP in accordance with applicable Florida law and Council direction in order to obtain funding from the SRF.

Section 3. That the St. Johns County Utility Department will implement an automatic annual rate increase equal to the Consumer Price Index as recorded by the Bureau of Labor Statistics of the U.S. Department of Labor.

Section 4. That this resolution shall become effective immediately upon its adoption.

PASSED AND ADOPTED on this_____ day of_____, 2024.

St. Johns County Utility Department

_____

REVIEWED AND APPROVED:

_____

ATTEST:

_____

APPENDIX E:
Fiscal Sustainability Plan Certification Form

STATE OF FLORIDA STATE REVOLVING FUND (SRF)

PROJECT SPONSOR'S FISCAL SUSTAINABILITY PLAN CERTIFICATION

Project Sponsor:	*St Johns County Utility Department*
Project Name:	*State Rd 16 (SR16) WWTF Blower Improvements and Anastasia Island (AI) WWTF Solids Handling*
Project Number:	*WW550161*

On June 10, 2014, the Water Resources Reform and Development Act of 2014 (WRRDA) was signed into law. Among its provisions are amendments to Titles I, II, V, and VI of the Federal Water Pollution Control Act (FWPCA). Section 603(d)(1)(E) of the FWPCA requires a loan recipient to certify regarding the development and implementation of a fiscal sustainability plan.

> *(E) for a treatment works proposed for repair, replacement, or expansion, and eligible for assistance under subsection (c)(1), the recipient of a loan shall –*
>
> > *(i) develop and implement a fiscal sustainability plan that includes –*
> >
> > > *(I) an inventory of critical assets that are a part of the treatment works;*
> > >
> > > *(II) an evaluation of the condition and performance of inventoried assets or asset groupings;*
> > >
> > > *(III) a certification that the recipient has evaluated and will be implementing water and energy conservation efforts as part of the plan; and*
> > >
> > > *(IV) a plan for maintaining, repairing, and, as necessary, replacing the treatment works and a plan for funding such activities; or*
> >
> > *(ii) certify that the recipient has developed and implemented a plan that meets the requirements under clause (i);*

I understand that a fiscal sustainability plan must be developed and implemented for the above referenced project, and certify that the developed plan meets the requirements set forth with Section 603(d)(1)(E) of the FWPCA.

I also certify that this fiscal sustainability plan will be implemented prior to the final loan disbursement.

I understand that falsifying information on this certification may be grounds for termination of the SRF loan agreement.

Neal Shinkre, Utilities Director

Typed Name and Title of the Sponsor's Authorized Representative

Signature of the Sponsor's Authorized Representative

Date

STATE OF FLORIDA STATE REVOLVING FUND (SRF)
PROJECT SPONSOR'S FISCAL SUSTAINABILITY PLAN CERTIFICATION

Project Sponsor: St. Johns County Utility Department
Project Name: Anastasia Island Water Reclamation Facility (WRF) Solids Handling Improvements and SR16 WRF Blower Improvements
Project Number: WW550161

On June 10, 2014, the Water Resources Reform and Development Act of 2014 (WRRDA) was signed into law. Among its provisions are amendments to Titles I, II, V, and VI of the Federal Water Pollution Control Act (FWPCA). Section 603(d)(1)(E) of the FWPCA requires a loan recipient to certify regarding the development and implementation of a fiscal sustainability plan.

> *(E) for a treatment works proposed for repair, replacement, or expansion, and eligible for assistance under subsection (c)(1), the recipient of a loan shall—*
>
> *(i) develop and implement a fiscal sustainability plan that includes—*
>
> *(I) an inventory of critical assets that are a part of the treatment works;*
>
> *(II) an evaluation of the condition and performance of inventoried assets or asset groupings;*
>
> *(III) a certification that the recipient has evaluated and will be implementing water and energy conservation efforts as part of the plan; and*
>
> *(IV) a plan for maintaining, repairing, and, as necessary, replacing the treatment works and a plan for funding such activities; or*
>
> *(ii) certify that the recipient has developed and implemented a plan that meets the requirements under clause (i);*

I understand that a fiscal sustainability plan must be developed and implemented for the above referenced project, and certify that the developed plan meets the requirements set forth with Section 603(d)(1)(E) of the FWPCA.

I also certify that this fiscal sustainability plan will be implemented prior to the final loan disbursement.

I understand that falsifying information on this certification may be grounds for termination of the SRF loan agreement.

Krista Joseph, Chair - St. Johns County Board of County Commissioners

Typed Name and Title of the Sponsor's Authorized Representative

Signature of the Sponsor's Authorized Representative

Date