



Brunswick-Glynn County Joint Water and Sewer Commission
1703 Gloucester Street, Brunswick GA 31520
Wednesday, March 18, 2020 at 1:00 PM
Commission Meeting Room

FACILITIES COMMITTEE MEETING AGENDA

COMMITTEE MEMBERS: **Committee Chairman Ben Turnipseed**
 Commissioner Bob Duncan
 Commissioner Charles Cook
 Executive Director Andrew Burroughs

PUBLIC COMMENT PERIOD

Public Comments will be limited to 3 minutes per speaker. Comments are to be limited to relevant information regarding your position and should avoid being repetitious. Individuals should sign in stating your name, address and the subject matter on which you wish to speak. Your cooperation in this process will be greatly appreciated.

APPROVAL

- 1. Minutes from February 19, 2020 Facilities Committee Meeting (subject to any necessary changes)**
- 2. Water Meter RFP Award – A. Burroughs**

DISCUSSION

- 1. Annual Water Audit – J. Donaghy**
- 2. PS4021 Rehab Update – A. Burroughs**
- 3. SPLOST North Mainland Phase 3 Lift Stations Update – A. Burroughs**
- 4. WPCF Plant Flows Report – A. Burroughs**
- 5. Project Report – A. Burroughs**

MEETING ADJOURNED

*All citizens are invited to attend.
There is a possibility of a quorum of a quorum of City or County Commissioners being present.*



Brunswick-Glynn County Joint Water & Sewer Commission
1703 Gloucester Street, Brunswick, GA 31520
Commission Meeting Room
Wednesday, March 18, 2020 at 1:00 PM

FACILITIES COMMITTEE MINUTES

PRESENT: **Ben Turnipseed, Chairman**
 Bob Duncan, Commissioner
 Charles Cook, Commissioner
 Andrew Burroughs, Executive Director

ALSO PRESENT: **Donald Elliott, Commissioner**
 Todd Kline, Director of Engineering
 John Donaghy, Director of Finance
 Janice Meridith, Exec. Commission Administrator

MEDIA PRESENT: **None Present**

Chairman Turnipseed called the meeting to order at 1:00 PM.

Chairman Turnipseed provided the invocation.

PUBLIC COMMENT PERIOD

There being no citizens that wished to address the Committee, Chairman Turnipseed closed the Public Comment Period.

APPROVAL

1. Minutes from Facilities Committee Meeting February 19, 2020

Commissioner Duncan made a motion seconded by Chairman Turnipseed to approve the minutes from the Facilities Committee Meeting held on February 19, 2020. Motion carried 2-0-1. (Commissioner Cook abstained as he was not present for that meeting.)

2. Water Meter RFP Award – A. Burroughs

Mr. Burroughs advised that a team of staff members from JWSC Meter Services, Customer Service/Administration, Distribution, GIS, and Finance very thoroughly reviewed and scored the Water Meter Proposals that were received from 6 providers on January 28, 2020. He highlighted the technical requirements and various capabilities the proposals/services were scored on; and provided the Committee with a copy of the completed scoring matrix along with a very detailed memorandum explaining the processes the team of staff went through in preparing the RFP, reviewing the proposals, scoring the services and technical offerings, interviewing the different proposing firms, and considering all of the critical requirements for JWSC's metering services. Mr. Burroughs provided that staff recommended negotiation and finalizing contract award to Delta Municipal Supply Company for an initial pilot phase

with plans to move forward on a 5-year phased program implementation; and presented a spreadsheet with the 5-year project estimated cost including contingency. Delta Municipal Supply represents Neptune AMI Meters, and staff's consideration was based on many different points, some of which were noted as: the low cost provider; favorable management team; integration with JWSC's billing system (a key aspect); meter accuracy and mechanical register on the smaller meters for customer confidence in readings for billing; the meters have brass or at least metal threads; network as a service which is a radio network sending data back to JWSC; provider maintains the network; software as a service whereby the data is housed on their server which benefits JWSC by not having to purchase more servers to hold the enormous amount of data; the ability to read the data at the office on the computer which limits the trucks and staff needed on the road to read the meters; and a leak report is generated each morning giving the ability to report to customers on the same day which means less water loss for the system and less cost for the customer. Mr. Burroughs responded to and discussed the many questions the Committee had regarding the type of meters, registers, costs, warranty, battery life, backflow preventers, network, installation, contract details, budget, etc.

Commissioner Cook made a motion seconded by Commissioner Duncan to move that the Facilities Committee recommend that the full Commission review and approve authorization of the Executive Director to move forward in negotiations with Delta Municipal Supply Company for AMI and MDMS products and services for a five-year program integration to serve the meter reading needs of the JWSC. Motion carried 3-0-0.

DISCUSSION

1. Annual Water Audit – J. Donaghy

Mr. Donaghy provided a copy of the Annual Water Audit for the Calendar Year of 2019 to the Committee. He explained that the JWSC is required to submit an Annual Water Audit to the Georgia EPD by March 1st of each year. The report is in the national AWWA format and is presented by means of completing the Reporting Worksheet in the AWWA Water Audit Software. Copies of the Reporting Worksheet and Performance Indicators for each of the JWSC's reporting districts were included in the packet provided to the Committee. Mr. Donaghy explained the data and calculations within the worksheet, and provided responses and discussion for the questions the Committee asked.

2. Pump Station 4021 Rehab Update – A. Burroughs

Mr. Burroughs reported that bids had been received on the Pump Station 4021 Project and that the bids came back at higher than expected and outside of budget. Staff is currently working with the apparent low bidder to consider what can be removed from the scope of the project in order to get closer to the budgeted amount. Mr. Burroughs noted that when the project was originally scoped, staff had a plan in place to reuse the existing electrical panels and maintain the duplex set-up. As the project went forward it became a triplex station with new panels. Staff is looking at going back closer to the original scope and eliminating some of the overages in that project. It was not expected that some of Georgia Power's assets would need to be relocated, therefore this was not included in the original estimate and added to the cost.

3. SPLOST North Mainland Phase 3 Pump Stations Update – A. Burroughs

Mr. Burroughs stated that bids have been received on the SPLOST North Mainland Phase 3 Pump Station Project for PS4036 and 4035. These pump stations receive the flow from the Harry Driggers Blvd. area. PS4036 is located at the end of B&W Grade Road beside the canal, and PS4035 is located on Ross Road. Mr. Burroughs provided that the bids came in higher than estimated, but the scope will be reviewed for any deductions that can be made in order to be closer to budget. This is expected to be presented again at the next Facilities Committee Meeting. The force main portion of the Project is expected to be advertised in mid-April.

4. WPCF Plant Flows Report – A. Burroughs

Mr. Burroughs provided the discussion on plant flows report for all three wastewater treatment plants, Academy Creek, Dunbar and Southport during the month of February 2020. The numbers and percentages for various influent and effluent concentration levels reported for the three plants were all within permit limits. This indicates that all three plants are operating well within permit.

5. Project Report – A. Burroughs / T. Kline

Mr. Burroughs and Mr. Kline presented the current project report containing the financial data as of February 29, 2020 to the Committee. Commissioner Duncan requested an overview be presented when the St. Simons Island Roundabout Project is started. JWSC's water and sewer portion is at the front end of the Project and must be completed first.

There being no further Committee business, Chairman Turnipseed adjourned the meeting at 2:14 p.m.



G. Ben Turnipseed, Chairman

Attest:



Janice Meredith, Executive Commission Administrator



Brunswick-Glynn County

Joint Water and Sewer Commission

Memorandum

To: Facilities Committee
From: Andrew Burroughs, Executive Director
Date: March 18, 2020
Re: APPROVAL – Water Meter RFP Award

Background

The JWSC has been upgrading its current AMR “drive by” system, investing in cellular endpoint-based Advanced Metering Infrastructure (AMI) and Meter Data Management System (MDMS) for the past several years. The meters have been incrementally updated as new customers have been added to the system and/or meter failures and radio failures occur. This approach proved effective from a cost management perspective and suitable to cover replacement needs for many years. However, this change resulted in a mix of changes specifically to the endpoint reading technologies attached to brass-bodied nutating disk positive displacement meters. Additionally, the incidence of AMR failure due to batteries reaching the end of their useful began to see a significant uptick during the early part of FY2019.

In the spring of 2019, senior leadership realized that development of a long-term strategy was needed to address this essential element of the JWSC revenue base. After preliminary discussions with the JWSC departments demonstrated the need for more information to be acquired by staff for development of a competitive solicitation was determined. At that time, a decision was made to issue a Request For Information (RFI) to gather information for comparative purposes. Taking this preliminary step to gather information, allowed the staff to understand the different options available in the marketplace, consider their value and hone in on the essential needs and risks associated with different product and service options available to suit JWSC’s needs. The findings of this effort would assist in the development of proposal specifications that would meet the current need of replacing failing service meters/registers with reliable and accurate reading technology that also allowed the organization to support data collection and billing currently and in the future.

Request For Information No. 20-006 was issued on August 21, 2019 to obtain specific information from water meter manufacturers regarding the technical capabilities of their water meters and related mobile, drive-by, fixed network meter, Mesh Network AMI, Cellular AMI, Cellular Automatic Meter Reading (AMR) and mobile drive-by systems. Responses to the RFI were received on Tuesday, October 1, 2019. The following ten entities provided information to the JWSC for consideration:

- Consolidated Pipe and Supply Company
- Core & Main LP
- Delta Municipal Supply Company
- Ferguson Waterworks
- Georgia Power
- Metron
- Suez
- Sustainability Partners
- United Systems / I-Tron
- Utility Metering Solutions

Information was distributed to the JWSC team with a 30-day period given for review and clarification. The next step was for the team to come together and develop a formal Request For Proposal (RFP) to solicit formal competitive offers. The benefits available through AMI and MDMS technologies drove the priorities of this initiative.

Input from and collaboration between the JWSC Meter Services, Customer Service/Administration, Distribution, GIS and Finance staff members during this process was key to identifying and prioritizing the organization's essential needs along with any product or system enhancements that could be gained. Reviewing the requirements of other entities recently in the marketplace for similar needs was completed as well. A scoring matrix was developed to evaluate the proposals. Options were requested to include financing options if possible and longer warranties if available.

A primary goal was to find a solution for integrating an AMI and MDMS solution into JWSC's existing enterprise(s). Another critical requirement of this effort was to have a redundancy for Automatic Meter Reading (AMR) in the event of AMI service failure. Also, a focus on warranty, a simpler analog display (for meters less than 3"), survey grade mapping at installation and single point-of-contact for project and ongoing service delivery emerged as key needs. Limited impact and good coordination of communications with JWSC staff and customers during the installation process were key needs that were also set forth.

One key consideration was whether JWSC would own or lease infrastructure. At this point in the process, the approach was that JWSC would pay for the infrastructure but did not want to own or maintain the NaaS, just the meters. This would allow both control and flexibility for the long-term if changes to how we were to choose to collect data in the future.

As part of the project development, staff was tasked with determining how to fund and implement this project with minimal impact to its ratepayers. As a result, the intent was to partner with a firm to have an initial pilot phase to better understand challenges and refine internal, service provider and customer processes prior to a full launch. From there, the annually phase of a set number of meter replacements would occur. This would allow JWSC to maintain and improve the meter to cash process with our current Harris Computer Systems software at a manageable pace with no internal headcount changes and to reach full implementation and integration over a five-year time period.

Staff Report

On Wednesday, November 27, 2019 staff issued Request For Proposal No. 20-028 for Advanced Metering Infrastructure (AMI) and Meter Data Management System (MDMS). A pre-proposal meeting was held on Wednesday, December 18, 2019 with (26) external attendees with (13) different firms represented including meter representatives, software providers and installation contractors. Proposals were received on Tuesday, January 28, 2020 from six firms.

A cross-functional team of (5) JWSC staff members performed the RFP evaluations. Interviews with viable proposers anticipated project teams were held during the week of February 10, 2020.

References for selected firms were contacted by JWSC during the weeks of February 17th and 24th to finalize the evaluation scores. The table below shows the score for each proposer.

Proposer	Overall Average Score
Delta Municipal Supply	84.50
Consolidated Pipe and Supply Company	73.13
Core & Main LP	72.96
Ferguson Waterworks	71.94
Utility Metering Solutions	61.21
Georgia Power	56.71

Throughout both the RFI and RFP processes, the complexity of the product and service offerings available was continually apparent. Through staff's thorough review, it was learned that many different options exist in the marketplace to read meters and capture associated data at varying capabilities and costs. Providers brought forth a variety of options in both the RFI and RFP processes that included meter technology, data collection services,

Software as a Service, (SaaS), Network as a Service (Naas), varying offerings for data management/MDMS and a third-party contractor to handle the initial meter replacement installation while others offered Naas only with compatibility requirements to certain transmitters/meters. Some offered complete turn-key packages that proved to cost prohibitive to pursue. Costs and ongoing fees for products, ongoing services and installations varied greatly among the firms that submitted. Risks associated with materials, warranty terms and limitations as well as the elimination of points of failure on the meter itself were discussed and analyzed to great length. Previous experience on this weighed heavily in the development of the RFP technical specifications.

Total project implementation and ongoing supports costs ranged from \$12M to \$18M. The staff's evaluation was challenged to compare and evaluate due to varying structures and offerings. Additionally, some variable costs revolve around installation elements such as those to be associated with the numbers of replacements needed for valve boxes, lid covers, etc. Estimates were applied here based on staff's understanding of current field conditions and a conservative and efficient approach to replacements. Also, some lower cost partial services carried some greater risks to the overall needs and some higher cost services seemed to be way out of a range that the team could match as a fit to our resources available and needs.

By taking advantage of an initial pilot period to fully vet impacts to internal reading and data processes, JWSC strives to minimize installation impacts to customers and manage communications in line with customer expectations and needs. Due diligence and much focus was placed on avoiding any disruption to the reading and billing process this aspect of the planned project. By utilizing a step-by-step approach and scaling the initial rollout down to a smaller number any changes needed to existing JWSC workflows will be more manageable by existing JWSC staff. Every references we spoke to with the exception of one recommended an initial pilot phase and focused on the need to manage this change with customers as seamlessly as possible. Initial training and ongoing support capabilities will also be tested during this time to make sure all support level claims are validated.

Recommended Action

The staff recommendation is made for negotiation and finalizing contract award to Delta Municipal Supply Company for an initial pilot phase with plans to move forward on a 5-year phased program implementation.

Staff notes the following points with regard to the Delta offering:

- Meter accuracy and warranty among the top tier of offers received
- Lowest overall cost projection (all-in; meters, installation, network and software) at approximately \$12-14M depending on variables in meter material installation needs.
- Have experience implementing our specific Innoprise and CIS software; no other had this.
- Strong references with other agencies comparable to JWSC in size and project scope.
- Support network for product (meter school onsite in SE) and technology platform (features of LoRaWAN reading technology allow for additional monitoring points; WaterSmart analytics widely adopted by comparable and higher tier agencies throughout the country) are very strong.
- Experienced project and installation teams with similar scope and size projects.
- One of the shorter lead times for ongoing meter order fulfillment among the field of offers received.
- Offered NaaS; some proposers could not fully adapt their model to JWSC's requirement. Have capability to recover from natural disasters; demonstrated reference (Key West) for this.

Recommended Motion

"I make a motion that the Facilities Committee recommend that the full Commission review and approve authorization of the Executive Director to move forward in negotiations with Delta Municipal Supply Company for AMI and MDMS products and services for a five-year program integration to serve the meter reading needs of the JWSC." ..."

Enclosures

Evaluation Matrix

TECHNICAL REQUIREMENTS WORKSHEET -- BGJWSC RFP NO. 20-028 ADVANCED METERING INFRASTRUCTURE & METER DATA MANAGEMENT SYSTEM

	Total Score	Technical Requirements Evaluation for: C. Pipe						Technical Requirements Evaluation for: Core & Main						Technical Requirements Evaluation for: Delta						Technical Requirements Evaluation for: Ferguson						Technical Requirements Evaluation for: GA Power						Technical Requirements Evaluation for: UMS					
		Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer 5	Overall Average	Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer 5	Overall Average	Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer 5	Overall Average	Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer 5	Overall Average	Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer 5	Overall Average	Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4	Reviewer 5	Overall Average
Overall (1-10 Points each item) (Max. score of 40 points)		7	10	7	8	6	8	7	10	10	10	7	9.25	7	10	10	10	7	9.25	5	10	10	10	7	8.75	7	10	10	10	0	9.25	6	10	10	10	0	9
§ System must be overall user-friendly and easy to learn to use relative to other offerings. Preference will be given to a system that includes a Meter Data Management System or due to its simplicity to BGJWSC, requires no third-party Meter Data Management System. This (as well as other aspects listed in other areas) will be fully evaluated by BGJWSC employees in an AMI/MDMS Pilot Project in addition to pre-selection due diligence.		7	5	10	10	6	8	7	5	10	10	7	8	8	10	10	10	7	9.5	6	5	10	10	7	7.75	7	0	10	10	0	6.75	6	5	10	10	5	7.75
§ Implementation of this system must be done on a "live" basis as the BGJWSC presently has two billing read periods per month.		8	10	10	10	6	9.5	8	10	10	10	7	9.5	7	10	10	10	7	9.25	7	10	10	10	7	9.25	6	0	0	0	0	1.5	7	10	10	10	5	9.25
§ Field collection devices should use a cellular based communication system backhaul with pricing for such a system to be included in the proposal (including third party costs for such services and hardware) but be able to accommodate potential ties to the BGJWSC's fiber network via TCP/IP or other networking protocols.		6	10	10	10	6	9	7	10	10	10	7	9.25	7	10	10	10	7	9.25	7	10	10	10	7	9.25	5	0	10	10	0	6.25	7	10	10	10	5	9.25
§ Bidder to state all third-party items necessary to implement, operate, and maintain this system and estimate costs for these on a one time and ongoing bases.		28	35	37	38	24	34.5	29	35	40	40	28	36	29	40	40	40	28	37.25	25	35	40	40	28	35	25	10	30	30	0	23.75	26	35	40	40	15	35.25
SUBTOTAL AVERAGE																																					
Technical Merit Subtotal (Maximum Score is 1440 with Final Weighting of 4)	60%	976	1120	1388	1424	876	1227	960	1316	1308	1308	928	1223	1076	1348	1400	1420	972	1311	912	1356	1364	1360	928	1248	964	1216	1080	1080	696	1085	888	1316	1268	1300	728	1193
B. Ability of Bidder to provide technical support (Maximum Score is 240)	10%	240	240	240	240	210	240	240	240	240	240	210	240	240	240	240	240	150	240	240	240	240	240	150	240	240	240	240	240	125	240	240	240	240	240	210	240
• Bidder shall list standard levels of technical support and those which require additional cost. • Give 30 points for every hour of support provided per year.																																					
C. Cost (Maximum Score is 360)	15%	288	288	288	288	300	288	216	144	216	216	180	198	360	360	360	360	300	360	144	216	90	144	120	148.5	72	0	72	0	0	36	0	72	0	72	60	36
• Lowest total gets 360 points, highest gets 0. Remainder evenly spread across total Bidder count.																																					
D. Warranty (Maximum Score is 180)	7.5%	0	0	0	0	0	0	90	90	90	90	90	90	117	117	117	117	117	117	90	90	90	90	90	90	0	0	0	0	0	0	0	0	0	0	0	0
• Bidder shall list standard levels of warranty and those which require additional cost. • Give 18 points for every year of full warranty past 10 years and 9 points for every prorated year.																																					
E. Training (Maximum Score is 180)	7.5%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
• Bidder shall list standard levels of training and those which require additional cost. • Give 18 points for every day of training beyond the initial 2 weeks.																																					
TOTAL (Maximum Score is 2400)		1504	1648	1916	1952	1386	1755	1506	1790	1854	1854	1408	1751	1793	2065	2117	2137	1539	2028	1386	1902	1784	1834	1288	1727	1276	1456	1392	1320	821	1361	1128	1628	1508	1612	998	1469
		62.7	68.7	79.8	81.3	57.8	73.13	62.8	74.6	77.3	77.3	58.7	72.96	74.7	86	88.2	89	64.1	84.5	57.8	79.3	74.3	76.4	53.7	71.94	53.2	60.7	58	55	34.2	56.71	47	67.8	62.8	67.2	41.6	61.21



Brunswick-Glynn County

Joint Water and Sewer Commission

Memorandum

To: Facilities Committee
From: John D. Donaghy, Director of Finance
Date: March 18, 2020
Re: Annual Water Audit

Staff Report

The JWSC is required to submit an annual water audit to the Georgia EPD by March 1 of each year. This report is presented by means of completing the Reporting Worksheet in the AWWA Water Audit Software. Copies of the Reporting Worksheet and Performance Indicators for each of our three reporting districts are attached.

The reporting model uses “Real Losses” rather than “Unaccounted For” water losses and does not determine a percentage. The attached summary includes the real losses as a percentage of water supplied. Those percentages are 12%, 8% and 5% for the Brunswick/North Mainland, St. Simons Island and South Mainland districts respectively.

The model attempts to isolate two types of losses and assign costs to each. One being estimates of loss due to inaccuracies in metering and other systematic errors with the balance being real losses. For the calendar year 2019, the calculated lost revenue due to inaccuracies in metering and other systematic errors is a total of \$590,000. The cost incurred for real losses (unaccounted for water) totals \$62,700.

The definition of the Infrastructure Leakage Index is “The ratio of the Current Annual Real Losses (Real Losses) to the Unavoidable Annual Real Losses (UARL). The ILI is a highly effective performance indicator for comparing (benchmarking) the performance of utilities in operational management of real losses.”

The average ILI for 243 reporting utilities in 2018 was 3.01. The average ratio of Real Losses to Water Supplied for the same period 15.6%.

Brunswick-Glynn County Joint Water and Sewer Commission
Annual Water Audit Summary
For the Calendar Year 2019

	Brunswick & North Mainland	St. Simons	South Mainland
Water Produced	1782.298	1011.594	108.792
Billed Metered	1355.125	795.733	97.825
Unbilled Metered	54.297	42.583	3.833
Unbilled Unmetered*	22.279	12.645	1.36
Total Water Loss	<u>350.597</u>	<u>160.633</u>	<u>5.774</u>
<u>Being:</u>			
Apparent Losses:			
Unauthorized Consumption*	4.456	2.529	0.272
Metering Inaccuracies	122.558	72.898	0.091
System Errors*	3.388	1.989	0.245
Real Losses	<u>220.195</u>	<u>83.217</u>	<u>5.166</u>
	<u>350.597</u>	<u>160.633</u>	<u>5.774</u>
Real Losses as a % of Production (Unaccounted for Water)	<u>12%</u>	<u>8%</u>	<u>5%</u>
* Determined by AWWA default percentage			
Annual Cost of Apparent Losses (Apparent losses X customer price for 3,000 to 6,000 gal. of use)	\$376,862	\$212,123	\$1,666
Annual Cost of Real Losses (Real Losses X Variable Cost of Production)	\$44,746	\$16,911	\$1,050
Real Losses	220.195	83.217	5.166
Unavoidable Annual Real Loss (UARL)**	94.11	49.2	9.62
Infrastructure Leakage Index	2.34	1.69	0.54

****Unavoidable Annual Real Loss (UARL)**

$$\text{UARL (gallons)} = (5.41L_m + 0.15N_c + 7.5L_c) \times P,$$

or

$$\text{UARL (litres)} = (18.0L_m + 0.8N_c + 25.0L_c) \times P$$

where:

L_m = length of mains (miles or kilometres)

N_c = number of customer service connections

L_p = the average distance of customer service connection piping (feet or metres)

(see the Worksheet "Service Connection Diagram" for guidance on deterring the value of L_p)

L_c = total length of customer service connection piping (miles or km)

$L_c = N_c \times L_p$ (miles or kilometres)

P = Pressure (psi or metres)

The UARL is a theoretical reference value representing the technical low limit of leakage that could be achieved if all of today's best technology could be successfully applied. It is a key variable in the calculation of the Infrastructure Leakage Index (ILI). Striving to reduce system leakage to a level close to the UARL is usually not needed unless the water supply is unusually expensive, scarce or both.

NOTE: The UARL calculation has not yet been proven as fully valid for very small, or low pressure water distribution systems. If,

in gallons:

$$(L_m \times 32) + N_c < 3000 \text{ or}$$

$$P < 35 \text{psi}$$

in litres:

$$(L_m \times 20) + N_c < 3000 \text{ or}$$

$$P < 25 \text{m}$$

then the calculated UARL value may not be valid. The software does not display a value of UARL or ILI if either of these conditions is true.



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association
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[?](#) Click to access definition
[+](#) Click to add a comment

Water Audit Report for: **Brunswick Glynn Joint Water Sewer Commission (1270000)**
Reporting Year: **2019** **1/2019 - 12/2019**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: **MILLION GALLONS (US) PER YEAR**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ?	5	1,798.695	MG/Yr
Water imported:	+ ?	n/a	0.000	MG/Yr
Water exported:	+ ?	n/a	0.000	MG/Yr

Master Meter and Supply Error Adjustments

Pcnt:	Value:		
+ ?	3	0.92%	MG/Yr
+ ?			MG/Yr
+ ?			MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **1,782.298** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	5	1,355.125	MG/Yr
Billed unmetered:	+ ?	n/a	0.000	MG/Yr
Unbilled metered:	+ ?	10	54.297	MG/Yr
Unbilled unmetered:	+ ?		22.279	MG/Yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: **1,431.701** MG/Yr

Click here: [?](#)
for help using option buttons below

Pcnt:	Value:	
1.25%	<input type="text"/>	MG/Yr

Use buttons to select percentage of water supplied **OR** value

Pcnt:	Value:	
0.25%	<input type="text"/>	MG/Yr

Pcnt:	Value:	
8.00%	<input type="text"/>	MG/Yr
0.25%	<input type="text"/>	MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

350.597 MG/Yr

Apparent Losses

Unauthorized consumption: [+](#) [?](#) **4.456** MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ?	2	122.558	MG/Yr
Systematic data handling errors:	+ ?		3.388	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **130.402** MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: [?](#) **220.195** MG/Yr

WATER LOSSES: **350.597** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: [?](#) **427.173** MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	323.5	miles
Number of <u>active AND inactive</u> service connections:	+ ?	6	20,165	
Service connection density:	?		62	conn./mile main

Are customer meters typically located at the curbside or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: [+](#) [?](#) [?](#) **54.0** psi

COST DATA

Total annual cost of operating water system:	+ ?	10	\$2,896,785	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	10	\$2.89	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ?	7	\$203.21	\$/Million gallons <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 62 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Customer metering inaccuracies

3: Billed metered



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0

American Water Works Association.
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Water Audit Report for: **Brunswick Glynn Joint Water Sewer Commission (1270000)**
 Reporting Year: **2019** **1/2019 - 12/2019**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 62 out of 100 *****

System Attributes:

	Apparent Losses:	130.402	MG/Yr
	+ Real Losses:	220.195	MG/Yr
	= Water Losses:	350.597	MG/Yr

? Unavoidable Annual Real Losses (UARL): 94.11 MG/Yr

Annual cost of Apparent Losses: \$376,862

Annual cost of Real Losses: \$44,746

Valued at **Variable Production Cost**
Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial:	{	Non-revenue water as percent by volume of Water Supplied:	24.0%	
		Non-revenue water as percent by cost of operating system:	15.1%	Real Losses valued at Variable Production Cost

Operational Efficiency:	{	Apparent Losses per service connection per day:	17.72	gallons/connection/day
		Real Losses per service connection per day:	29.92	gallons/connection/day
		Real Losses per length of main per day*:	N/A	
		Real Losses per service connection per day per psi pressure:	0.55	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 220.20 million gallons/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 2.34

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association
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Water Audit Report for: **Brunswick Glynn Joint Water Sewer Commission (1270001)**
Reporting Year: **2019** **1/2019 - 12/2019**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+"/>	<input type="button" value="7"/>	987.720	MG/Yr
Water imported:	<input type="button" value="+"/>	<input type="button" value="n/a"/>	0.000	MG/Yr
Water exported:	<input type="button" value="+"/>	<input type="button" value="n/a"/>	0.000	MG/Yr

Master Meter and Supply Error Adjustments

Pcnt:	<input type="button" value="3"/>	-2.36%	<input type="button" value="0"/>	<input type="button" value="0"/>	MG/Yr
Value:	<input type="button" value="+"/>	<input type="button" value="0"/>	<input type="button" value="0"/>	<input type="button" value="0"/>	MG/Yr
	<input type="button" value="+"/>	<input type="button" value="0"/>	<input type="button" value="0"/>	<input type="button" value="0"/>	MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **1,011.594** MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+"/>	<input type="button" value="5"/>	795.733	MG/Yr
Billed unmetered:	<input type="button" value="+"/>	<input type="button" value="n/a"/>	0.000	MG/Yr
Unbilled metered:	<input type="button" value="+"/>	<input type="button" value="10"/>	42.583	MG/Yr
Unbilled unmetered:	<input type="button" value="+"/>	<input type="button" value="5"/>	12.645	MG/Yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: **850.961** MG/Yr

Click here: for help using option buttons below

Pcnt:	<input type="button" value="1.25%"/>	<input type="button" value="0"/>	<input type="button" value="0"/>	MG/Yr
-------	--------------------------------------	----------------------------------	----------------------------------	-------

Use buttons to select percentage of water supplied OR value

Pcnt:	<input type="button" value="0.25%"/>	<input type="button" value="0"/>	<input type="button" value="0"/>	MG/Yr
-------	--------------------------------------	----------------------------------	----------------------------------	-------

Pcnt:	<input type="button" value="8.00%"/>	<input type="button" value="0"/>	<input type="button" value="0"/>	MG/Yr
	<input type="button" value="0.25%"/>	<input type="button" value="0"/>	<input type="button" value="0"/>	MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

160.633 MG/Yr

Apparent Losses

Unauthorized consumption: | 2.529 | MG/Yr |

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies: | 72.897 | MG/Yr |

Systematic data handling errors: | 1.989 | MG/Yr |

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **77.415** MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: MG/Yr |

WATER LOSSES: **160.633** MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: MG/Yr |

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+"/>	<input type="button" value="4"/>	145.9	miles
Number of <u>active AND inactive</u> service connections:	<input type="button" value="+"/>	<input type="button" value="6"/>	11,695	
Service connection density:	<input type="button" value="80"/>		80	conn./mile main

Are customer meters typically located at the curbside or property line?

Average length of customer service line: | | (length of service line, beyond the property boundary, that is the responsibility of the utility) |

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: | 53.0 | psi |

COST DATA

Total annual cost of operating water system:	<input type="button" value="+"/>	<input type="button" value="10"/>	\$1,590,716	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+"/>	<input type="button" value="10"/>	\$2.74	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	<input type="button" value="+"/>	<input type="button" value="7"/>	\$203.21	\$/Million gallons

Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 68 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources

2: Customer metering inaccuracies

3: Billed metered



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0

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Water Audit Report for: **Brunswick Glynn Joint Water Sewer Commisson (1270001)**
 Reporting Year: **2019** **1/2019 - 12/2019**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 68 out of 100 *****

System Attributes:

Apparent Losses:	77.415	MG/Yr
+	Real Losses:	83.217
=	Water Losses:	160.633

? Unavoidable Annual Real Losses (UARL): 49.20 MG/Yr

Annual cost of Apparent Losses: \$212,118

Annual cost of Real Losses: \$16,911 Valued at **Variable Production Cost**

[Return to Reporting Worksheet to change this assumption](#)

Performance Indicators:

Financial:	{	Non-revenue water as percent by volume of Water Supplied:	21.3%	
		Non-revenue water as percent by cost of operating system:	15.1%	Real Losses valued at Variable Production Cost

Operational Efficiency:	{	Apparent Losses per service connection per day:	18.14	gallons/connection/day
		Real Losses per service connection per day:	19.49	gallons/connection/day
		Real Losses per length of main per day*:	N/A	
		Real Losses per service connection per day per psi pressure:	0.37	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 83.22 million gallons/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 1.69

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

American Water Works Association
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- ? Click to access definition
- + Click to add a comment

Water Audit Report for: **Brunswick Glynn Joint Water Sewer Commission (1270150)**
Reporting Year: **2019** **1/2019 - 12/2019**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: **MILLION GALLONS (US) PER YEAR**

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ? 9	105.876	MG/Yr
Water imported:	+ ? n/a	0.000	MG/Yr
Water exported:	+ ? n/a	0.000	MG/Yr

Master Meter and Supply Error Adjustments

Pcnt:	3	-2.68%	Value:		MG/Yr
	+ ?				MG/Yr
	+ ?				MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 108.792 MG/Yr

AUTHORIZED CONSUMPTION

Billed metered:	+ ? 5	97.825	MG/Yr
Billed unmetered:	+ ? n/a	0.000	MG/Yr
Unbilled metered:	+ ? 9	3.833	MG/Yr
Unbilled unmetered:	+ ?	1.360	MG/Yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: 103.018 MG/Yr

Click here: ?
for help using option buttons below

Pcnt:	1.25%	Value:		MG/Yr
-------	-------	--------	--	-------

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)

5.774 MG/Yr

Apparent Losses

Unauthorized consumption: 0.272 MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ? 3	0.092	MG/Yr
Systematic data handling errors:	+ ?	0.245	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 0.608 MG/Yr

Pcnt:	0.25%	Value:		MG/Yr
-------	-------	--------	--	-------

	0.09%			MG/Yr
	0.25%			MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 5.166 MG/Yr

WATER LOSSES: 5.774 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 10.967 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ? 9	46.8	miles
Number of <u>active AND inactive</u> service connections:	+ ? 6	1,567	
Service connection density:	?	33	conn./mile main

Are customer meters typically located at the curbside or property line? Yes (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: 54.0 psi

COST DATA

Total annual cost of operating water system:	+ ? 10	\$170,513	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ? 10	\$2.74	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	+ ? 7	\$203.21	\$/Million gallons <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 75 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Customer metering inaccuracies

2: Billed metered

3: Volume from own sources



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WVAS v5.0

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Water Audit Report for: **Brunswick Glynn Joint Water Sewer Commission (1270150)**
 Reporting Year: **2019** **1/2019 - 12/2019**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 75 out of 100 *****

System Attributes:

	Apparent Losses:	0.608	MG/Yr
+	Real Losses:	5.166	MG/Yr
=	Water Losses:	5.774	MG/Yr

? Unavoidable Annual Real Losses (UARL): 9.62 MG/Yr

Annual cost of Apparent Losses: \$1,666

Annual cost of Real Losses: \$1,050

Valued at **Variable Production Cost**
 Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: { Non-revenue water as percent by volume of Water Supplied: 10.1%
 Non-revenue water as percent by cost of operating system: 2.2% Real Losses valued at Variable Production Cost

Operational Efficiency: { Apparent Losses per service connection per day: 1.06 gallons/connection/day
 Real Losses per service connection per day: 9.03 gallons/connection/day
 Real Losses per length of main per day*: N/A
 Real Losses per service connection per day per psi pressure: 0.17 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 5.17 million gallons/year

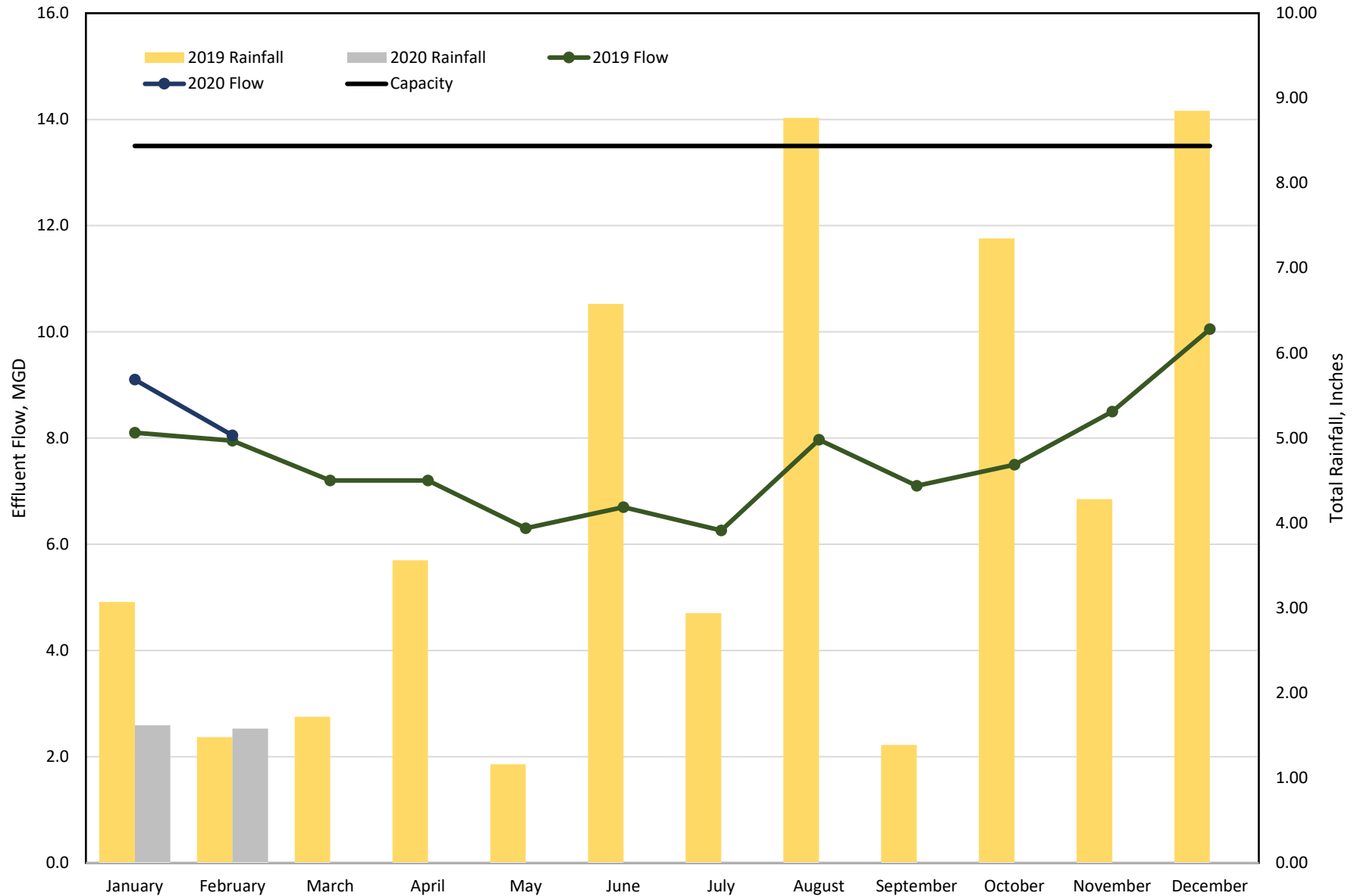
? Infrastructure Leakage Index (ILI) [CARL/UARL]: 0.54

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline

ACADEMY CREEK WWTP	FLOW (MGD)				Influent Concentrations					Effluent Concentrations							Removal Efficiency		Rainfall		Water Meter Monthly MGal	Sludge Tons to Landfill	
	INF	PINOVA	EFF	% Cap.	pH s.u.	BOD mg/L	TSS mg/L	NH3 mg/L	Phos mg/L	pH s.u.	D.O. mg/L	BOD mg/L	TSS mg/L	NH3 mg/L	TRC mg/L	Fecal #/100 mL	Phos. mg/L	BOD %	TSS %	Maximum Inches			Total Inches
January 2019	7.4	0.7	8.1	60%	7.6	169	193	13.1	8.4	6.8	6.5	11	13	11.6	0.03	24	2.9	93.49%	93.26%	0.90	3.07	0.589	114.16
February 2019	6.8	0.7	8.0	59%	7.6	190	213	18.4	15.2	6.7	6.8	9	12	10.8	0.06	16	8.4	95.26%	94.37%	1.00	1.48	0.653	85.01
March 2019	6.2	0.7	7.2	53%	7.4	258	272	22.0	13.2	6.7	6.2	10	12	8.5	0.04	24	8.8	96.12%	95.59%	0.60	1.72	0.926	68.53
April 2019	6.3	0.7	7.2	53%	7.5	219	231	24.1	15.8	6.9	6.3	9	15	11.2	0.01	23	6.8	95.89%	93.51%	1.83	3.56	0.890	93.13
May 2019	5.7	0.6	6.3	47%	7.5	246	251	31.0	15.0	6.5	5.3	11	9	11.7	0.04	55	10.8	95.53%	96.41%	0.66	1.16	0.900	86.50
June 2019	5.7	0.8	6.7	50%	7.4	251	230	27.2	9.4	6.6	6.0	10	11	10.7	0.10	23	3.7	96.02%	95.22%	1.68	6.58	0.800	100.71
July 2019	5.3	0.8	6.3	46%	7.4	216	237	32.3	12.2	6.6	6.0	7	10	14.9	0.05	29	7.8	96.76%	95.78%	0.88	2.94	0.500	26.74
August 2019	6.7	0.9	8.0	59%	7.3	195	215	37.5	7.8	6.9	5.8	8	11	21.3	0.01	19	6.4	95.90%	94.88%	2.15	8.77	0.951	75.13
September 2019	6.3	0.6	7.1	53%	7.5	175	210	31.9	1.9	6.6	6.0	6	9	17.3	0.10	26	1.2	96.57%	95.71%	0.94	1.39	0.445	81.77
October 2019	6.3	1.0	7.5	56%	7.5	180	177	21.4	5.8	6.5	6.0	9	14	11.6	0.02	66	3.6	95.00%	92.09%	2.80	7.35	0.571	61.88
November 2019	7.6	0.8	8.5	63%	7.4	191	223	17.1	12.2	6.6	5.1	10	16	9.5	0.12	104	5.3	94.76%	92.83%	2.45	4.28	0.610	55.00
December 2019	8.9	0.8	10.1	74%	7.5	182	204	13.6	20.0	6.6	6.6	10	16	7.3	0.04	153	9.6	94.51%	92.16%	4.39	8.85	0.520	44.88
January 2020	8.1	0.7	9.1	67%	7.6	186	195	14.0	7.2	6.6	6.2	10	13	8.6	0.07	11	1.3	94.62%	93.33%	0.75	1.62	0.725	61.04
February 2020	7.1	0.8	8.1	60%	7.6	207	248	19.3	21.6	6.6	6.5	9	11	11.5	0.10	3	6.0	95.65%	95.56%	0.42	1.58	0.666	126.20
March 2020																							
April 2020																							
May 2020																							
June 2020																							
July 2020																							
August 2020																							
September 2020																							
October 2020																							
November 2020																							
December 2020																							
Average	6.7	0.8	7.7	57%	7.5	204.6	221	23.1	11.84	6.7	6.1	9.2	12.3	11.9	0.06	41	5.9	95.43%	94.34%	1.53	3.88	0.696	77.19
Max	8.9	1.0	10.1	74%	7.6	258.0	272	37.5	21.6	6.9	6.8	11.0	16.0	21.3	0.12	153	10.8	96.76%	96.41%	4.39	8.85	0.951	126.20
Min	5.3	0.6	6.3	46%	7.3	169.0	177	13.1	1.90	6.5	5.1	6.0	9.0	7.3	0.01	3	1.2	93.49%	92.09%	0.42	1.16	0.445	26.74
Permit Limits	N/A	N/A	13.5	N/A	N/A	N/A	N/A	N/A	N/A	6.0-9.0	2.0	20.0	30.0	17.4	0.14	200	Report	85.00%	85.00%				

BOD - Biochemical Oxygen Demand
TSS - Total Suspended Solids
NH3 - Ammonia
Phos - Phosphorus
D.O. - Dissolved Oxygen
TRC - Total Residual Chlorine
Fecal - Fecal Coliform Bacteria

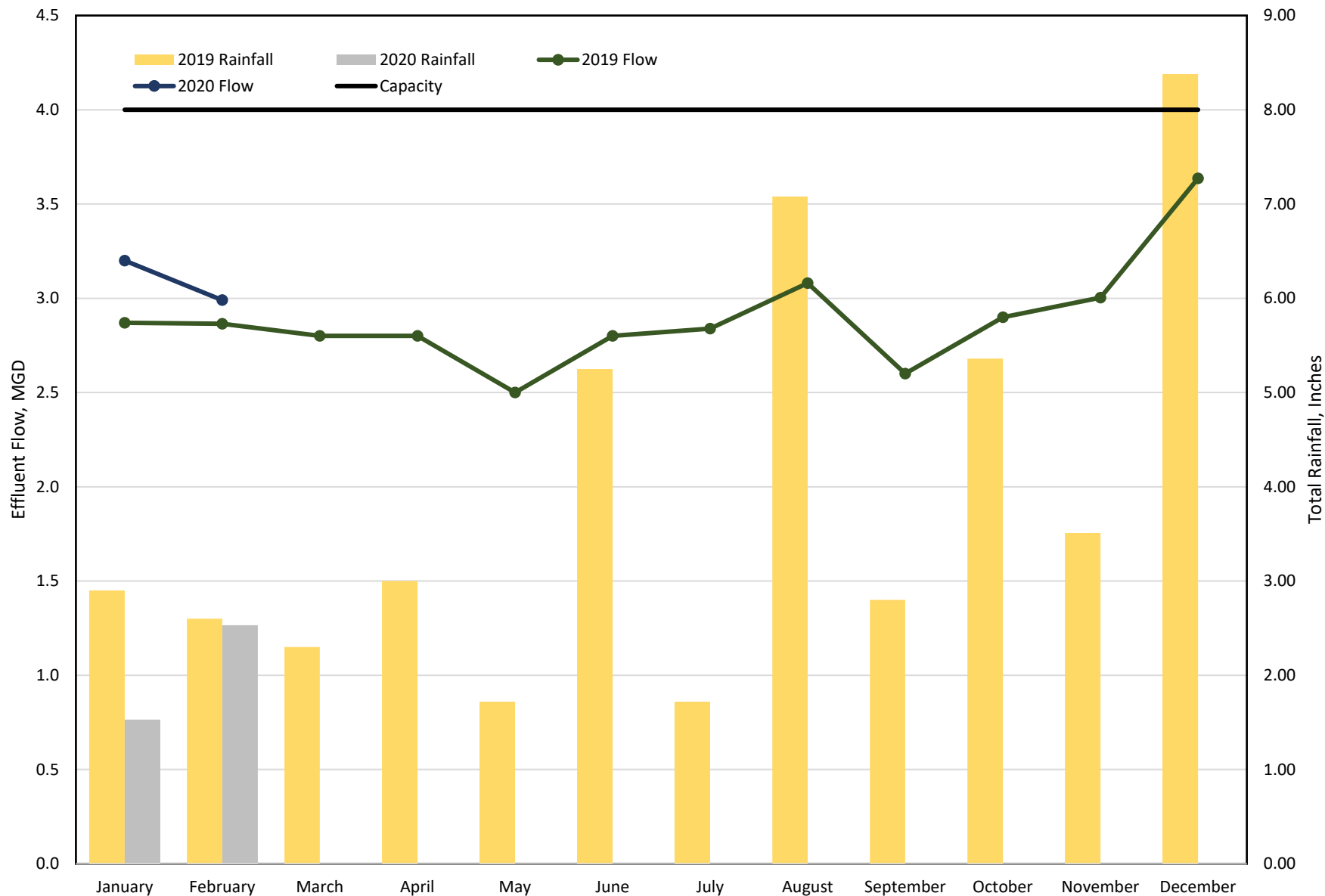
Academy Creek Effluent Flow



DUNBAR CREEK WWTP	FLOW (MGD)			Influent Concentrations					Effluent Concentrations						Removal Efficiency		Rainfall		Water Meter Monthly M/Gal	Sludge Tons to Landfill		
	Month	INF	EFF	% Cap.	pH s.u.	BOD mg/L	TSS mg/L	NH3 mg/L	Phos mg/L	pH s.u.	D.O. mg/L	BOD mg/L	TSS mg/L	NH3 mg/L	Entero. #/100 mL	Phos. mg/L	BOD %	TSS %			Maximum Inches	Total Inches
January 2019	3.8	2.9	72%	7.3	132	142	16.3	2.85	7.6	8.9	2.0	2.0	0.7	22	2.2	98.48%	98.59%	1.50	2.90	0.044	19.62	
February 2019	3.5	2.9	72%	7.5	148	161	20.9	2.65	7.5	8.7	2.0	1.8	0.5	11	2.0	98.65%	98.86%	1.00	2.60	0.015	7.41	
March 2019	3.2	2.8	70%	7.3	192	195	23.5	3.40	7.5	8.4	1.0	1.8	0.5	5	2.3	99.48%	99.08%	0.60	2.30	0.035	18.11	
April 2019	3.5	2.8	70%	7.2	205	230	23.3	3.90	7.5	7.6	2.0	2.3	0.9	5	2.4	99.02%	99.00%	0.90	3.00	0.037	26.76	
May 2019	3.4	2.5	63%	7.2	206	237	35.3	5.30	7.5	7.2	2.0	3.1	0.5	3	3.0	99.03%	98.69%	0.98	1.72	0.035	21.03	
June 2019	3.7	2.8	70%	7.3	189	267	22.0	4.80	7.5	7.4	2.0	2.5	0.5	5	3.3	98.94%	99.06%	1.62	5.25	0.043	4.52	
July 2019	3.6	2.8	71%	7.3	219	274	21.4	4.25	7.3	7.3	3.0	1.6	0.7	5	3.8	98.63%	99.40%	1.04	1.72	0.045	21.36	
August 2019	3.9	3.1	77%	6.9	168	193	34.1	4.20	7.3	8.0	3.0	2.3	0.7	26	3.3	98.21%	98.83%	1.91	7.08	0.065	41.48	
September 2019	3.2	2.6	65%	6.9	159	245	24.3	2.15	7.1	8.1	3.0	4.0	0.9	33	2.4	98.11%	98.37%	0.90	2.80	0.015	7.16	
October 2019	2.7	2.9	73%	6.9	165	188	31.8	3.50	6.9	8.1	2.0	2.2	0.4	20	2.7	98.79%	98.83%	1.93	5.36	0.036	21.06	
November 2019	2.9	3.0	75%	6.8	149	155	23.9	3.35	7.0	8.6	2.0	3.0	0.3	3	2.5	98.66%	98.06%	2.32	3.51	0.016	11.19	
December 2019	3.4	3.6	91%	7.0	140	164	18.3	3.20	7.3	8.8	2.0	2.5	0.2	11	2.2	98.57%	98.48%	4.01	8.38	0.038	19.03	
January 2020	3.0	3.2	80%	7.0	141	150	19.0	2.95	7.2	9.0	2.0	1.7	0.1	3	2.1	98.58%	98.87%	0.62	1.53	0.049	17.92	
February 2020	2.8	3.0	75%	7.1	159	202	19.4	3.15	7.3	9.1	2.0	2.0	0.6	3	2.3	98.74%	99.01%	0.98	2.53	0.034	20.70	
March 2020																						
April 2020																						
May 2020																						
June 2020																						
July 2020																						
August 2020																						
September 2020																						
October 2020																						
November 2020																						
December 2020																						
Average	3.3	2.9	73%	7.1	169.4	200.2	23.8	3.55	7.3	8.2	2.1	2.3	0.5	11	2.6	98.71%	98.80%	1.5	3.6	0.036	18.38	
Max	3.9	3.6	91%	7.5	219.0	274.0	35.3	5.30	7.6	9.1	3.0	4.0	0.9	33	3.8	99.48%	99.40%	4.0	8.4	0.065	41.48	
Min	2.7	2.5	63%	6.8	132.0	142.0	16.3	2.15	6.9	7.2	1.0	1.6	0.1	3	2.0	98.11%	98.06%	0.6	1.5	0.015	4.52	
Permit Limits	N/A	4.0	N/A	N/A	N/A	N/A	N/A	N/A	6.0-9.0	6.0	5.0	20.0	2.0	35	Report	85.00%	85.00%					

BOD - Biochemical Oxygen Demand
TSS - Total Suspended Solids
NH3 - Ammonia
Phos - Phosphorus
D.O. - Dissolved Oxygen
TRC - Total Residual Chlorine
Entero. - Enterococci Bacteria

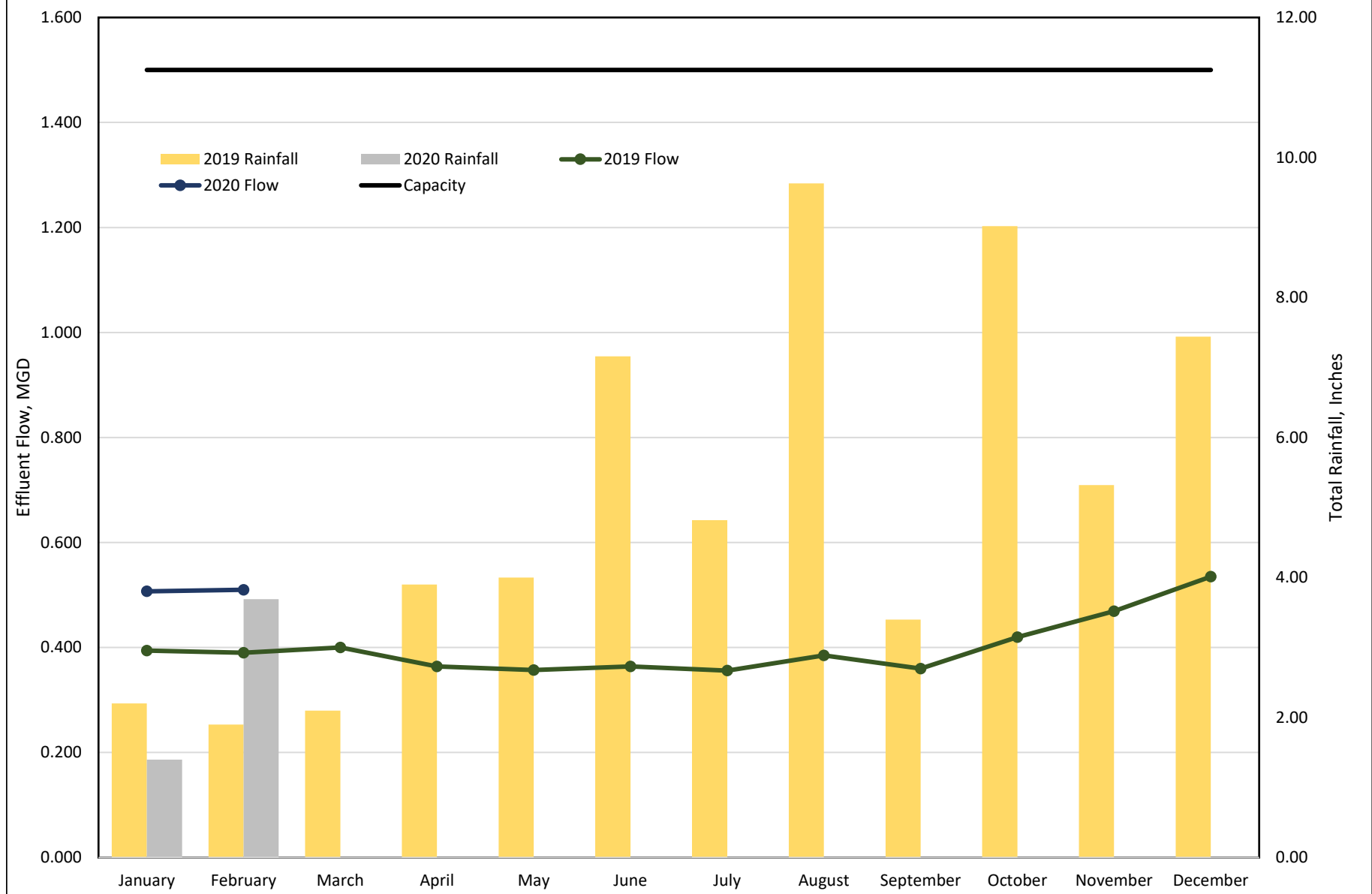
Dunbar Creek Effluent Flow



SOUTHPORT WWTP	FLOW (MGD)			Influent Concentrations					Effluent Concentrations						Removal Efficiency		Rainfall		Water Meter Monthly M/Gal	Sludge Tons to Landfill	
	Month	INF	EFF	% Cap.	pH s.u.	BOD mg/L	TSS mg/L	NH3 mg/L	Phos mg/L	pH s.u.	D.O. mg/L	BOD mg/L	TSS mg/L	NH3 mg/L	Fecal #/100 mL	Phos. mg/L	BOD %	TSS %			Maximum Inches
January 2019	0.376	0.394	26%	6.9	128	376	23.3	3.70	7.3	9.0	3.0	3.0	0.6	6	0.1	97.65%	99.20%	1.00	2.20	0.006	3.37
February 2019	0.377	0.390	26%	7.5	111	93	29.8	1.20	7.5	8.9	3.0	4.0	0.5	8	0.5	97.31%	95.70%	0.06	1.90	0.007	6.79
March 2019	0.358	0.400	27%	6.9	111	109	31.7	3.90	7.2	8.9	4.0	4.0	0.5	6	0.1	96.40%	96.33%	0.50	2.10	0.008	6.5
April 2019	0.359	0.364	24%	6.8	113	78	30.8	3.95	7.7	8.3	6.0	2.0	0.8	4	1.0	94.69%	97.44%	0.13	3.90	0.008	5.35
May 2019	0.350	0.357	24%	6.9	121	92	40.2	4.40	7.3	8.0	5.8	4.7	0.6	5	0.7	95.21%	94.89%	1.68	4.00	0.007	3.56
June 2019	0.358	0.364	24%	6.8	98	124	27.9	3.80	7.2	6.6	4.0	5.0	0.3	4	0.7	95.92%	95.97%	1.26	7.16	0.006	5.25
July 2019	0.361	0.356	24%	6.8	110	93	27.0	4.00	7.3	7.9	8.0	5.0	0.6	12	1.1	92.73%	94.62%	1.45	4.82	0.009	4.19
August 2019	0.369	0.385	26%	6.7	117	127	45.0	4.45	7.2	8.4	5.7	7.1	0.7	23	0.8	95.13%	94.41%	2.42	9.63	0.012	1.90
September 2019	0.362	0.360	24%	6.9	96	75	36.3	2.80	7.4	7.8	5.0	3.0	0.6	23	1.4	94.79%	96.00%	1.20	3.40	0.022	3.87
October 2019	0.363	0.420	28%	6.8	103	109	31.8	3.45	7.3	7.6	4.0	2.0	0.4	49	1.4	96.12%	98.17%	2.52	9.02	0.045	3.54
November 2019	0.397	0.469	31%	6.7	108	99	33.2	4.00	6.8	8.1	4.5	4.6	0.4	6	1.0	95.87%	95.35%	4.46	5.32	0.035	9.83
December 2019	0.456	0.535	36%	6.7	94	116	19.1	2.90	6.9	8.3	3.0	7.0	0.7	7	0.4	96.81%	93.97%	3.83	7.44	0.025	5.65
January 2020	0.439	0.507	34%	6.8	120	106	28.5	4.00	6.8	8.1	3.0	9.0	0.2	12	0.3	97.50%	91.51%	0.72	1.40	0.027	6.60
February 2020	0.413	0.510	34%	6.8	112	130	24.0	2.95	7.0	8.0	3.0	8.0	1.7	21	0.2	97.32%	93.85%	1.16	3.69	0.012	3.73
March 2020																					
April 2020																					
May 2020																					
June 2020																					
July 2020																					
August 2020																					
September 2020																					
October 2020																					
November 2020																					
December 2020																					
Average	0.381	0.415	28%	6.9	110.1	123.3	30.6	3.54	7.2	8.1	4.4	4.9	0.6	13	0.7	95.96%	95.53%	1.6	4.7	0.016	5.01
Max	0.456	0.535	36%	7.5	127.6	375.7	45.0	4.45	7.7	9.0	8.0	9.0	1.7	49	1.4	97.65%	99.20%	4.5	9.6	0.045	9.83
Min	0.350	0.356	24%	6.7	94.0	75.0	19.1	1.20	6.8	6.6	3.0	2.0	0.2	4	0.1	92.73%	91.51%	0.1	1.4	0.006	1.90
Permit Limits	N/A	1.500	N/A	N/A	N/A	N/A	N/A	N/A	6.0-9.0	5.0	30.0	30.0	13.0	200	Report	85.00%	85.00%				

BOD - Biochemical Oxygen Demand
TSS - Total Suspended Solids
NH3 - Ammonia
Phos - Phosphorus
D.O. - Dissolved Oxygen
TRC - Total Residual Chlorine
Fecal - Fecal Coliform Bacteria

Southport Effluent Flow



**Capital Proj Status for Fac and BOC
Financial Data as of 02-29-2020**

Proj #	Project Name	Original Project Estimate	Project Manager	Concept Design	Detail Design	Construction	BOC APPROVED FUNDING & SOURCE				COMMITTED				BUDGET VS. EXPENDITURES				Status	
							R&R Reserve	CIF Reserve	SPLOST	Total Approved Funds	Purchase Orders Issued	BOC Approved Change Orders	Total PO+CO	Expended to PO's	Encum	Misc Expenses	Total Expenditures	Uncommitted \$\$\$ (App Fund - Exp)		% Approved Budget Available
232	SR-99 Water Main Extension	\$2,200,000	Kline/Patel/Vo	EMC Engineering Services	Richardson, Garreston & Associates / EMC Eng	Seaboard Construction LLC	\$0	\$2,200,000	\$0	\$2,200,000	\$1,263,167	\$673,667	\$1,936,834	\$1,761,543	\$388,874	\$0	\$2,150,417	\$49,583	2%	Seaboard Construction LLC remobilized onsite 01/20/2020. The watermain installation is on-going and approximately 2,800LF has been installed.
417	Ridgewood Water Production Facility	\$1,000,000	Kline/Vo	JWSC	Richardson, Garreston & Associates / EMC Eng	Southern Civil, LLC	\$1,650,000	\$0	\$0	\$1,650,000	\$1,505,898	\$0	\$1,505,898	\$37,791	\$1,468,107	\$65,943	\$1,571,841	\$78,159	5%	Contractor mobilized to site and construction activities are on-going 02/18/2020. Construction Progress meeting scheduled 03/24/2020.
702	North Mainland Sewer Improvements	\$14,900,000	Kline/Vo	JWSC	Thomas & Hutton	(multiple)	\$0	\$3,200,000	\$11,700,000	\$14,900,000	\$7,179,398	\$293,414	\$7,472,812	\$5,713,296	\$1,654,460	\$35,895	\$7,403,651	\$7,496,349	50%	
	North Mainland Sewer Improvements - PHII Gravity Sewer Rehab CIPP		Kline/Vo	JWSC	Thomas & Hutton	IPR Southeast			\$2,550,519											Construction progress meeting held 03/10/2020. The remaining work has been discussed with the Contractor and he is making every effort to meet the schedule. LD notification letter sent to Contractor 02/28/2020.
	North Mainland Sewer Improvements - PHII P54035 & 4036 Upgrade		Kline/Vo	JWSC	Thomas & Hutton/Four Waters Eng	TBD														Project Advertised 01/30/2020, Prebid held 02/21/2020, and anticipated Bid Open 03/17/2020.
	North Mainland Sewer Improvements - PHIII F. Main Reroute		Kline/Vo	JWSC	Thomas & Hutton/Four Waters Eng	TBD														Project Advertised 02/06/2020, Prebid held 02/21/2020, and anticipated Bid Open 04/21/2020. Reassessing potential open cut installation sections.
703	PS 4003 Decommission and Gravity Sewer	\$3,300,000	Kline/Patel/Vo	JWSC	Hussey Gay Bell	TBD	\$0	\$0	\$3,300,000	\$3,300,000	\$301,099	\$0	\$301,099	\$155,991	\$145,108	\$3,589	\$304,688	\$2,995,312	91%	95% Design submittal received and under JWSC review 03/06/2020. JWSC in the process of obtaining construction easement along adjacent property.
704	Canal Road to Glynco 12-inch Watermain Loop	\$1,200,000	Kline/Patel/Vo	JWSC	JWSC	TBD	\$0	\$1,200,000	\$0	\$1,200,000	\$48,000	\$0	\$48,000	\$48,000	\$0	\$0	\$48,000	\$1,152,000	96%	Conceptual design exhibit complete. Survey RFQ advertised 02/28/2020. Quotations due 03/17/2020.
801	FEMA Hazard Mitigation-Academy Creek	\$3,188,000	Burroughs	Haggerty	TBD	TBD	\$3,188,000	\$0	\$0	\$3,188,000	\$37,233	\$0	\$37,233	\$31,408	\$0	\$145,089	\$176,497	\$3,011,503	94%	Bid package being prepared for transfer switch installation and portable generator purchase.
804	Magnolia Water Improvements (City of Brunswick)	\$1,150,000	Kline/Vo	JWSC	City of BWK / EMC Eng	TBD	\$1,150,000	\$0	\$0	\$1,150,000	\$117,050	\$0	\$117,050	\$56,079	\$60,971	\$0	\$117,050	\$1,032,950	90%	City Project/Contract. Apparent low bidder is Georgia Asphalt Producers for the amount of \$6,434,919.60 (JWSC \$1,915,315.50). City has requested low bidder to provide price reduction options.
805	L Street Water Improvements (City of Brunswick)	\$650,000	Kline/Vo	JWSC	City of BWK / EMC Eng	TBD	\$787,334	\$0	\$0	\$787,334	\$755,884	\$6,226	\$762,110	\$411,007	\$351,104	\$0	\$762,111	\$25,223	3%	City Project/Contract. Phase I JWSC water completed and in service 02/07/2020. Construction Progress meeting held 03/10/2020. Ph-1 estimated completion date 03/21/2020 and Ph-2&3 schedule to be provided towards the end of Ph-1.
806	Academy Creek Oxygen System Rehab	\$1,040,000	Burroughs	Hussey Gay Bell	Hussey Gay Bell	A&G / Matheson	\$1,040,000	\$0	\$0	\$1,040,000	\$1,039,533	\$0	\$1,039,533	\$1,007,717	\$31,816	\$0	\$1,039,533	\$467	0%	Actuated valve failure being replaced on warranty prior to final payment being made.
903	SR 27 Resurfacing Yellow Bluff Creek to US 25 (GDOT)	\$77,000	Kline/Vo	JWSC/GDOT	GDOT	Seaboard Construction LLC	\$102,000	\$0	\$0	\$102,000	\$101,929	\$0	\$101,929	\$0	\$0	\$101,929	\$101,929	\$71	0%	Closing Conference held at GDOT 02/25/2020. Contractor submitted request for time extension for GDOT's review. The mainline milling & resurfacing activities is on-going and expected to be completed by end of March 2020.
904	Pumpstation 4021 Rehabilitation & Upgrade	\$275,000	Kline/Patel	JWSC	JWSC	TBD	\$0	\$275,000	\$0	\$275,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$275,000	100%	Project Advertised 01/14/2020, Prebid held 01/29/2020, and Bid Open held 03/10/2020. Three bids received and the apparent low bidder is Southern Civil LLC for the amount of \$886,437.00. Bids are under Procurement's review.
906	Water Pollution Rehab-Academy & Dunbar	\$15,000,000	Burroughs	JWSC	GMC	TBD	\$0	\$0	\$1,480,647	\$16,641,306	\$1,181,150	\$0	\$1,181,150	\$396,253	\$793,897	\$50,083	\$1,240,233	\$15,401,073	93%	100% Design Received 03/11/2020, currently under review. GEFA loan agreement on hold pending approval of Environmental Services Agreement by City of Brunswick.
2001	PS4105 Basin Expansion/Forcemain reroute & CIPP*	\$1,485,000	Kline/Vo	JWSC	Roberts Civil Engineering	TBD	\$1,000,000	\$485,000	\$0	\$1,485,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,485,000	100%	Design report comments returned to EOR.
2002	Altama Avenue CIPP	\$625,000	Kline/Vo	JWSC	JWSC	IPR Southeast	\$625,000	\$0	\$0	\$625,000	\$349,440	\$0	\$349,440	\$0	\$349,440	\$0	\$349,440	\$275,560	44%	Contractor is working submittals, securing permits, and will mobilized to the Altama site after the work is completed in Sea Palms CIPP.
2003	Sea Palms CIPP	\$561,795	Kline/Vo	JWSC	JWSC	IPR Southeast	\$0	\$0	\$561,795	\$561,795	\$250,497	\$0	\$250,497	\$0	\$250,497	\$488	\$250,985	\$310,810	55%	Preconstruction Meeting held 01/17/2020. HOA requested presentation held 03/02/2020. NTP held 03/09/2020. Contractor is working submittals, securing permits, and preparing to mobilized 03/23/2020.
2005	Coastal Club Apts. Offsite PS & FM Improvements*	\$228,000	Kline/Vo	JWSC	Roberts Civil Engineering	TBD	\$0	\$0	\$0	\$228,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$228,000	100%	45% design submittal received and under JWSC review 02/13/2020. Pump station review meeting held with EOR 02/24/2020.
2006	Academy Creek Roof Repair	\$300,000	Young/Vo	JWSC	JWSC	Roofing Professionals, Inc.	\$300,000	\$0	\$0	\$300,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$300,000	100%	NTP and Preconstruction meeting held 02/13/2020. Contractor schedule to mobilized 03/16/2020.
2007	Bergen Woods Offsite Forcemain Improvements*	\$220,000	Kline/Patel/Vo	JWSC	Roberts Civil Engineering	TBD	\$0	\$220,000	\$0	\$220,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$220,000	100%	GDOT review completed. Secondary EPD approval received. Anticipates project advertisement by end of April 2020.
2008	Demere East Beach Round-a-Bout W&S Improvements (Glynn County)	\$100,000	Kline/Patel/Vo	JWSC	Glynn County/EMC Eng	Riverstone Construction, LLC	\$118,020	\$0	\$0	\$118,020	\$118,020	\$0	\$118,020	\$0	\$118,020	\$0	\$118,020	\$0	0%	Glynn Co. Project/Contract. Contractor is Riverstone Construction, LLC. for the amount of \$1,713,513.96 (JWSC \$118,000.00). Preconstruction meeting & NTP dates pending Island Townhouse Condo HOA agreement.
2009	Sea Palms East Water Line Rehab	\$178,595	Kline/Vo	JWSC	JWSC	IPR Southeast	\$178,595	\$0	\$0	\$178,595	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$178,595	100%	Second Sea Palms HOA meeting held. Contractor to begin line cleaning March 16th.
2010	Oak Grove Forcemain and PS4132 Improvements*	TBD	Kline/Patel/Vo	Roberts Civil Engineering	Roberts Civil Engineering	TBD														Preliminary forcemain route submitted by EOR. JWSC review and comments in progress.
TOTALS		\$47,678,390					\$10,138,949	\$7,580,000	\$19,592,961	\$50,150,050	\$14,248,298	\$973,307	\$15,221,605	\$9,619,085	\$5,612,294	\$403,016	\$15,634,395	\$34,515,655	69%	

UNSELECTED PROPOSALS*	DESCRIPTION	Concept	Application	Preliminary Engineering	Comprehensive Agreement	STATUS
Sinclair S/D residential development (SSI)	121 Lot S/D; proposed improvements to PS2056 and force main.	Complete	Complete	Complete	Complete May 2018	Pending developer action.
Frederica Township	Downstream upgrades to accommodate 200 additional lots; cooperative w/ Sinclair U.P.	Complete	Complete	Complete	Complete August 2018	Pending developer action.
Saddlebrook Subdivision / Wade Journey Homes	Improve PS4105 sewer capacity for the addition of 41 new homes	Complete	Complete	Complete	Complete May 2019	PS4105/4107 upgrade PER under review.
Coastal Club Apartments (link to Proj 904)	Improve PS4056 & 4059 for proposed 240 unit apt. complex 3061 Old Cypress Mill Rd.	Complete	Complete	Complete	Complete September 2019	45% design plans under review.
Ambling Glynn One Apts.	PS4044 relocation & upgrade	Complete	Complete	In progress		Engineering in progress. JWSC working on parcel acquisition.
BULL PEN (Proposed)						
Glynn County Village Storm Improvements- Phase II	Opportunity project with Glynn County to replace/upgrade sections of W&S in common with areas of storm improvements; Glynn Co. proposed SPLOST 2020.					
JWSC 2020 SPLOST projects	Proposed list submitted to Glynn County grouped by funding levels.					

ID	Task Name	Duration	Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	Earned Value Method	Qtr 4, 2018				Qtr 1, 2019			Qtr 2, 2019	
								Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
1	Engineering	561 days	Thu 11/15/18	Thu 5/28/20	Thu 11/15/18		NA	% Complete	Engineering							
4	PS 4021 Improvements	60 days	Thu 11/15/18	Mon 1/13/20	Thu 11/15/18	Mon 1/13/20		% Complete								
2	Canal Rd to Glynco 12" Water Main Loop	176 days	Fri 11/15/19	Fri 5/8/20	Fri 11/15/19		NA	% Complete								
7	PS 4003 Rehab	435 days	Thu 2/7/19	Thu 4/16/20	Thu 2/7/19		NA	% Complete								
8	North Mainland Sewer Phase II-PS4035-4036	77 days	Fri 11/15/19	Thu 1/30/20	Fri 11/15/19	Thu 1/30/20		% Complete								
9	North Mainland Sewer Phase III-Forcemain	84 days	Fri 11/15/19	Thu 2/6/20	Fri 11/15/19	Thu 2/6/20		% Complete								
5	PS 4105 Basin Expansion	196 days	Fri 11/15/19	Thu 5/28/20	Fri 11/15/19		NA	% Complete								
6	Coastal Club Offsite Improvements	225 days	Thu 9/19/19	Thu 4/30/20	Thu 9/19/19		NA	% Complete								
3	Bergen Woods Offsite Forcemain Improvements	84 days	Fri 8/2/19	Thu 10/24/19	Fri 8/2/19		NA	% Complete								
10	Academy Creek WPCF Rehab	316 days	Thu 6/27/19	Thu 5/7/20	Thu 6/27/19		NA	% Complete								
11	Advertisement	257 days	Fri 10/25/19	Tue 7/7/20	Fri 10/25/19		NA	% Complete								
17	Ridgewood Water Production Facility	47 days	Fri 10/25/19	Tue 12/10/19	Fri 10/25/19	Tue 12/10/19		% Complete								
12	Academy Creek Roof Repair	47 days	Fri 11/29/19	Tue 1/14/20	Fri 11/29/19	Tue 1/14/20		% Complete								
19	Magnolia Water Improvements	49 days	Wed 12/4/19	Tue 1/21/20	Wed 12/4/19	Tue 1/21/20		% Complete								
14	PS 4021 Improvements	57 days	Tue 1/14/20	Tue 3/10/20	Tue 1/14/20	Tue 3/10/20		% Complete								
16	Coastal Club Offsite Improvements	26 days	Fri 5/1/20	Tue 5/26/20	NA	NA		% Complete								
18	PS 4003 Rehab	40 days	Fri 4/17/20	Tue 5/26/20	NA	NA		% Complete								
20	North Mainland Sewer Phase II-PS4035-4036	44 days	Mon 3/30/20	Tue 5/12/20	Mon 3/30/20		NA	% Complete								
21	North Mainland Sewer Phase III-Forcemain	75 days	Thu 2/6/20	Tue 4/21/20	Thu 2/6/20		NA	% Complete								
15	PS 4105 Basin Expansion	40 days	Fri 5/29/20	Tue 7/7/20	NA	NA		% Complete								
13	Bergen Woods Offsite Forcemain Improvements	33 days	Fri 3/27/20	Tue 4/28/20	NA	NA		% Complete								
22	Academy Creek WPCF Rehab	61 days	Fri 5/8/20	Tue 7/7/20	NA	NA		% Complete								
23	Contract Administration	290 days	Wed 11/6/19	Fri 8/21/20	Wed 11/6/19		NA	% Complete								
25	Altama Avenue/Sea Palms CIPP	73 days	Wed 11/6/19	Fri 1/17/20	Wed 11/6/19	Fri 1/17/20		% Complete								
30	Ridgewood Water Production Facility	45 days	Wed 12/11/19	Fri 1/24/20	Wed 12/11/19	Fri 1/24/20		% Complete								
24	Academy Creek Roof Repair	30 days	Wed 1/15/20	Thu 2/13/20	Wed 1/15/20	Thu 2/13/20		% Complete								
32	Magnolia Water Improvements	73 days	Wed 1/22/20	Fri 4/3/20	Wed 1/22/20		NA	% Complete								
27	PS 4021 Improvements	45 days	Wed 3/11/20	Fri 4/24/20	NA	NA		% Complete								
29	Coastal Club Offsite Improvements	45 days	Wed 5/27/20	Fri 7/10/20	NA	NA		% Complete								
31	PS 4003 Rehab	45 days	Wed 5/27/20	Fri 7/10/20	NA	NA		% Complete								
34	North Mainland Sewer Phase II-4035-4036	45 days	Wed 5/13/20	Fri 6/26/20	NA	NA		% Complete								
28	PS 4105 Basin Expansion	45 days	Wed 7/8/20	Fri 8/21/20	NA	NA		% Complete								
33	North Mainland Sewer Phase III-Forcemain	45 days	Wed 4/22/20	Fri 6/5/20	NA	NA		% Complete								
26	Bergen Woods Offsite Forcemain Improvements	45 days	Wed 4/29/20	Fri 6/12/20	NA	NA		% Complete								
35	Academy Creek WPCF Rehab	45 days	Wed 7/8/20	Fri 8/21/20	NA	NA		% Complete								
36	Construction	1132 days	Thu 1/10/19	Mon 2/14/22	Thu 1/10/19		NA	% Complete	Construction							
37	Academy Creek Oxygen System Rehab	317 days	Thu 1/10/19	Fri 11/22/19	Thu 1/10/19		NA	% Complete								

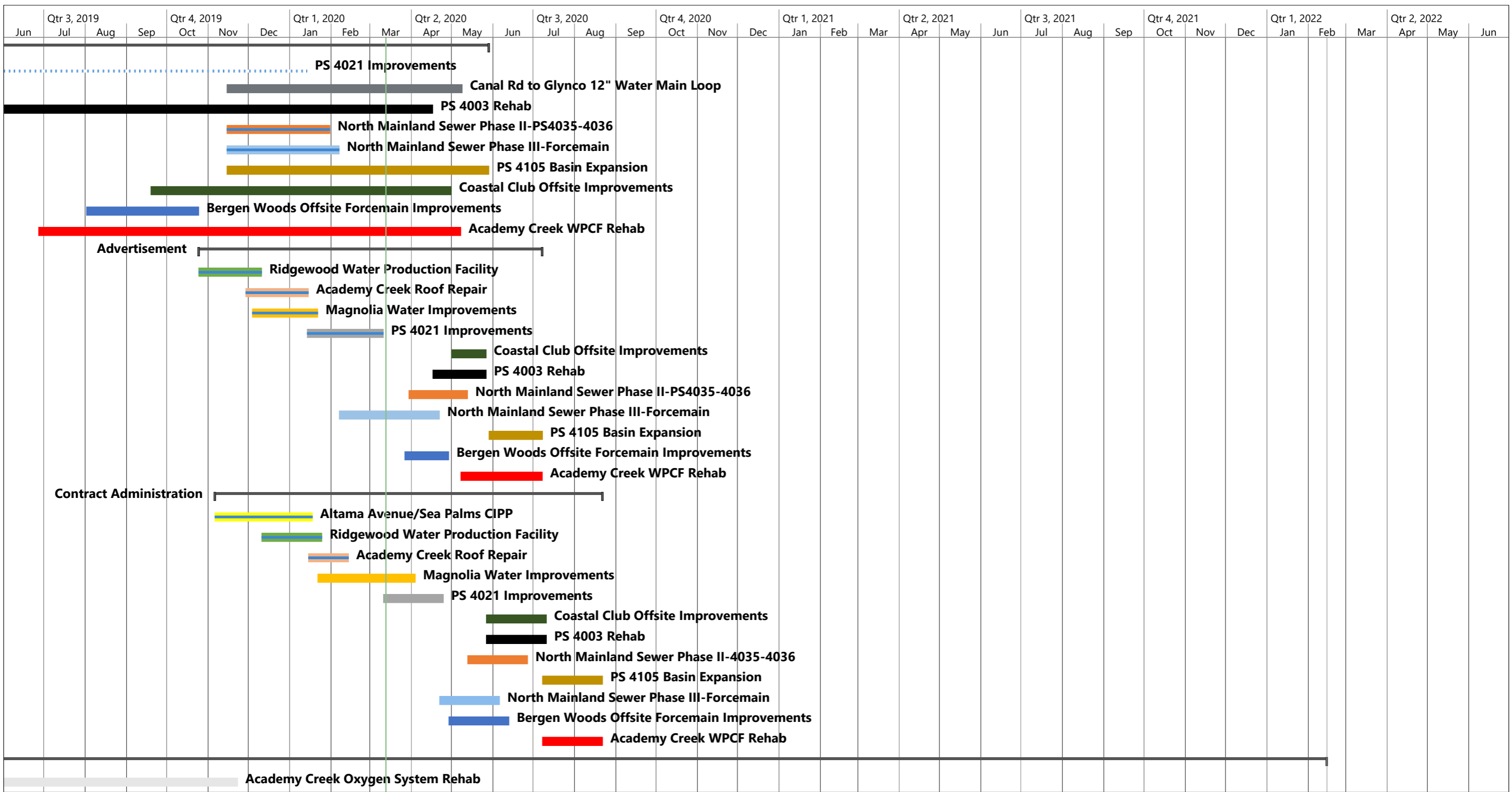
Project: Capital Projects Gantt C
Date: Fri 3/13/20

Task		Inactive Task		Manual Summary Rollup		External Milestone		Progress	
Split		Inactive Milestone		Manual Summary		Deadline		Manual Progress	
Milestone		Inactive Summary		Start-only		Baseline			
Summary		Manual Task		Finish-only		Baseline Milestone			
Project Summary		Duration-only		External Tasks		Baseline Summary			

ID	Task Name	Duration	Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	Earned Value Method	Qtr 4, 2018				Qtr 1, 2019			Qtr 2, 2019	
								Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
38	SR 27 Resurfacing	191 days	Thu 9/19/19	Fri 3/27/20	Thu 9/19/19	NA	% Complete									
52	North Mainland Sewer Phase II-CIPP	135 days	Tue 7/23/19	Wed 12/4/19	Tue 7/23/19	NA	% Complete									
42	Mainland Smoke Testing	98 days	Fri 10/4/19	Fri 4/10/20	Fri 10/4/19	Fri 4/10/20	% Complete									
43	L Street Water Improvements	225 days	Mon 4/1/19	Mon 11/11/19	Mon 4/1/19	NA	% Complete									
39	Academy Creek Roof Repair	46 days	Mon 3/16/20	Thu 4/30/20	NA	NA	% Complete									
40	SR 99 Water Main Extension	162 days	Fri 11/15/19	Fri 4/24/20	Fri 11/15/19	NA	% Complete									
41	Canal Rd to Glynco 12" Water Main Loop	60 days	Mon 5/11/20	Thu 7/9/20	NA	NA	% Complete									
44	Altama Avenue/Sea Palms CIPP	150 days	Mon 3/9/20	Wed 8/5/20	Mon 3/9/20	NA	% Complete									
45	Bergen Woods Offsite Forcemain Improvements	90 days	Mon 7/13/20	Sat 10/10/20	NA	NA	% Complete									
46	PS 4021 Improvements	180 days	Mon 6/22/20	Fri 12/18/20	NA	NA	% Complete									
47	PS 4105 Basin Expansion	150 days	Mon 8/24/20	Wed 1/20/21	NA	NA	% Complete									
48	Coastal Club Offsite Improvements	180 days	Mon 7/13/20	Fri 1/8/21	NA	NA	% Complete									
49	Ridgewood Water Production Facility	300 days	Tue 2/18/20	Sun 12/13/20	Tue 2/18/20	NA	% Complete									
50	PS 4003 Rehab	180 days	Mon 7/13/20	Fri 1/8/21	NA	NA	% Complete									
53	North Mainland Sewer Phase II-PS4035-4036	290 days	Mon 6/29/20	Wed 4/14/21	NA	NA	% Complete									
54	North Mainland Sewer Phase III-Forcemain	330 days	Mon 6/8/20	Mon 5/3/21	NA	NA	% Complete									
51	Magnolia Water Improvements	540 days	Mon 4/6/20	Mon 9/27/21	NA	NA	% Complete									
55	Academy Creek WPCF Rehab	540 days	Mon 8/24/20	Mon 2/14/22	NA	NA	% Complete									

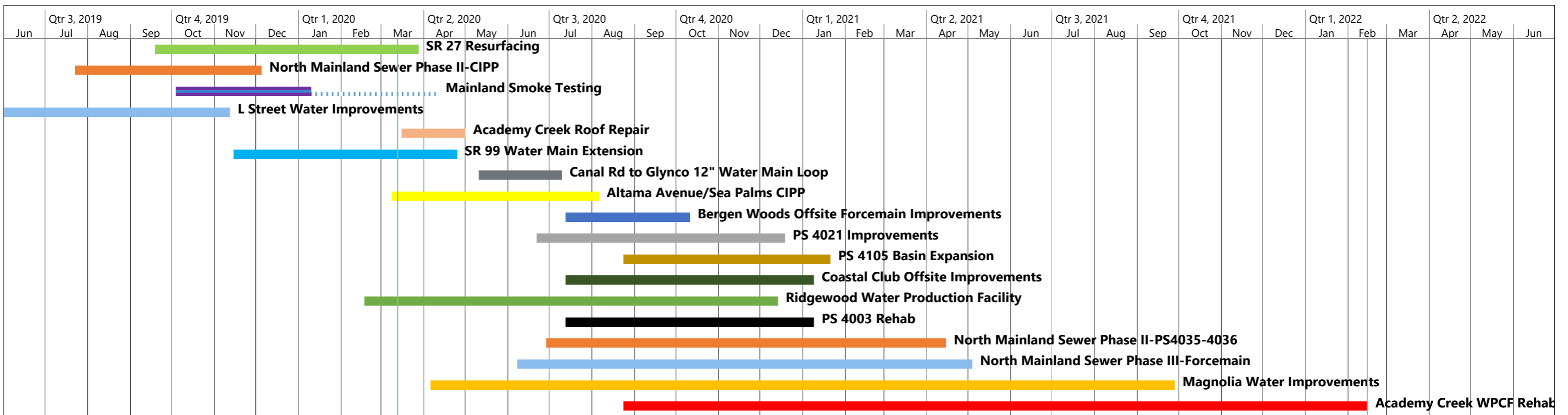
Project: Capital Projects Gantt C
Date: Fri 3/13/20

Task		Inactive Task		Manual Summary Rollup		External Milestone		Progress	
Split		Inactive Milestone		Manual Summary		Deadline		Manual Progress	
Milestone		Inactive Summary		Start-only		Baseline			
Summary		Manual Task		Finish-only		Baseline Milestone			
Project Summary		Duration-only		External Tasks		Baseline Summary			



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Task		Inactive Task		Manual Summary Rollup		External Milestone		Progress	
Split		Inactive Milestone		Manual Summary		Deadline		Manual Progress	
Milestone		Inactive Summary		Start-only		Baseline			
Summary		Manual Task		Finish-only		Baseline Milestone			
Project Summary		Duration-only		External Tasks		Baseline Summary			



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Task		Inactive Task		Manual Summary Rollup		External Milestone		Progress	
Split		Inactive Milestone		Manual Summary		Deadline		Manual Progress	
Milestone		Inactive Summary		Start-only		Baseline			
Summary		Manual Task		Finish-only		Baseline Milestone			
Project Summary		Duration-only		External Tasks		Baseline Summary			