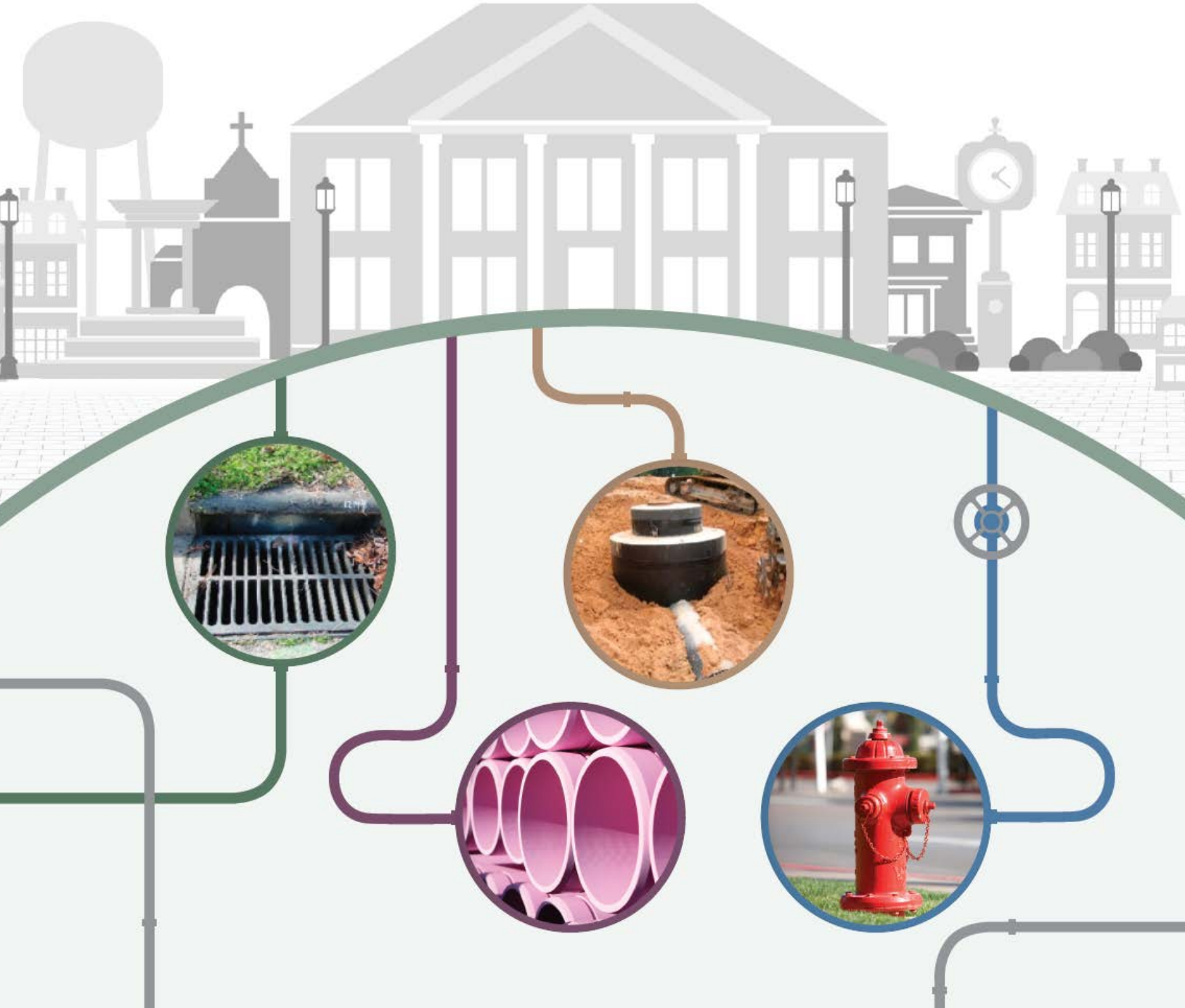
TOWN of CARY

ASSET MANAGEMENT ANNUAL REPORT

2019



VISION

The Town of Cary is pleased to present the 2019 annual asset management report. This report is a product of the Town's asset management program, a collaborative One Cary initiative built with the support of stakeholders from across Town departments. The asset management program, in coordination with GIS, organizes Town efforts to deliver on the commitment described in the Imagine Cary Community Plan to provide safe, reliable and cost-effective utility and stormwater services to our citizens and customers. This report provides a dashboard view of the current state of the Town's assets and helps verify program implementation is producing the expected results and level-of-service standards are being met.

YEAR IN REVIEW

In 2019 the Town continued to build on the success of the previous year, which was our first with a formal asset management program. We maintained our focus on GIS improvements and buried linear infrastructure, while also beginning work on risk-based capital planning. A selection of highlights and key accomplishments the Town achieved over this past year are presented below.

PROJECT RISK PRIORITIZATION

For the first time, asset management and risk prioritization were integrated into the long-term capital planning process for utilities projects as part of the FY21 budget cycle. A variety of stakeholders populated a full list of capital projects for the 20-year CIP window, assigned risk scores, and then adjusted project timings accordingly.

Key outcomes from the risk prioritization exercise included:

- 10 years of balanced utility project funding and a complete snapshot of a full 20 years of utility funding needs. This is especially important because the Town's utility rate model is based on the 10-year forecast of utility expenditures.
- Identification of recurring funding needs for existing projects.
- Increased funding consistency between projects of a similar nature.
- Identification of 'blind spot' projects that needed to be added to the CIP.

IDT RECORD DRAWING INTAKE

In January, the Town transitioned the record drawing intake process from a system of paper copies and traditional mail delivery to electronic submittals via idtPlans software. Record drawings for both capital and development projects now use the same portal, which allows for a unified intake queue whether the project originates from within the Town, or from an external developer.

Electronic intake of record drawings allows for concurrent review by all Town stakeholders and eliminates the need for traditional mail services. The electronic record drawing submittal package includes the record drawings, engineer's certifications, survey point files, recorded easement plats, and any other documents necessary for project close-out. Using a single intake point ensures that all stakeholders have the required documents prior to final approval, that information is not lost in inter-office mail, and that staff receives the information necessary to update GIS and archive in Laserfiche.

PLAN TRACKING DASHBOARD

In June, the Town initiated a new GIS-based tracking dashboard for buried infrastructure construction documentation (https://arcg.is/009nHe). This system tracks key dates over a project's documentation 'lifecycle', from construction plan to record drawing. The dashboard improves transparency, encourages data management and stewardship, and most

importantly raises a red flag if a record drawing is 'missing'.

Document management is vital to asset management, GIS, and PWUT operations. Without the proper documentation there is no GIS data creation, updates or validation of the data after institutional knowledge retires. Look for new enhancements in the coming year, including integrations with Salesforce.

STORM/WATER/RECLAIMED WATER/ WASTEWATER GIS IMPROVEMENTS

Work was recently completed on a stormwater GIS improvements project to review existing stormwater data sources, import and reconcile this information into an improved GIS stormwater schema, correct the geometric network, and update owner/install information to ensure the best available stormwater data is available in GIS.

As the stormwater project draws to a close, work has commenced on the next phase of GIS improvements for wastewater, water and reclaimed water. In the fall of 2019 Spatial Focus was selected as the consultant to help guide this effort. The project involves reviewing all the existing utility data sources, reconciling the information into improved datasets and schemas, identifying and correcting inconsistencies in the geometric networks, and updating attribute information to ensure the best available data is available in GIS. Project completion is expected by the end of 2020.

UPCOMING PROJECTS

Moving into 2020 there will be continued efforts to improve GIS, implementation of consolidated risk prioritization software for all utility types, and upgrades to the way we conduct and store our video inspections for stormwater and sewer. Anticipated project highlights for the coming year include the following.

INFOASSET PLANNER

A primary goal for the asset management program is to have risk-based prioritization frameworks in place for each utility type to assist with decision making on where and when to renew and replace assets. Towards this end, we are currently in the process of acquiring and implementing InfoAsset Planner, a risk-based decision support add-on for GIS. The software is capable of consuming data from various sources (GIS, ITpipes, Innovyze water and sewer modeling software, and Salesforce), creating and executing decision trees based on this data, summarizing output data, and preparing macro-level long-term (20+ year) capital renewal and replacement plans. This project will kick off in early 2020 and is expected to be complete by the end of the year.

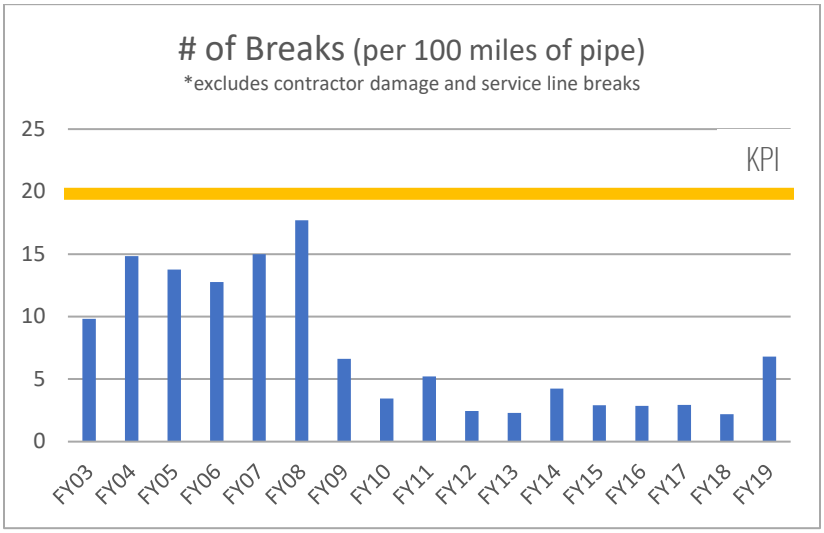
ITPIPES WEB SOFTWARE

ITpipes is the software currently used by Public Works to video inspect wastewater and stormwater pipes within the Town system. This software will be upgraded to ITpipes Web, a cloud-based version with web access and single sign-on (SSO) capability. ITpipes Web will allow Town staff to access video inspections from a web browser as well as auto-populate the inspection reports with key GIS attributes that would otherwise have to be hand-entered.

KEY PERFORMANCE INDICATORS

On the following pages are the Town's key performance indicators (KPIs) for buried infrastructure. KPIs are performance targets chosen to provide a 'dashboard view' of the state of our assets. KPIs are reported annually and are compared to historical performance to help visualize the long-term effectiveness of the asset management program. Although KPIs are defined quantitatively, they are not a guarantee of system performance but rather organizational objectives that help achieve the Town's established level of service. This is the first year KPI data was sourced entirely from Salesforce, rather than HiperPM.

KEY PERFORMANCE INDICATORS, WATER

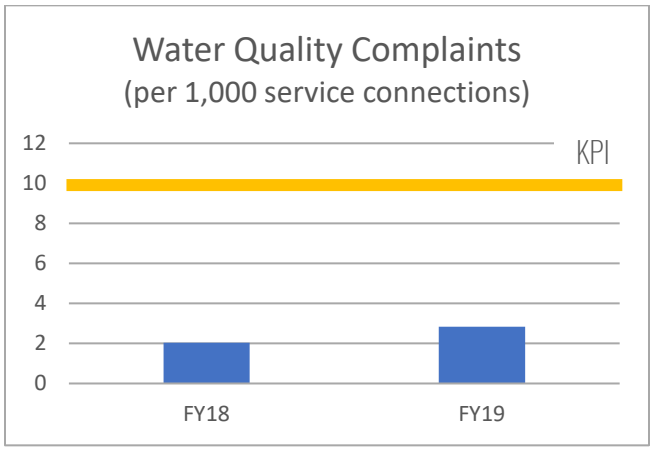


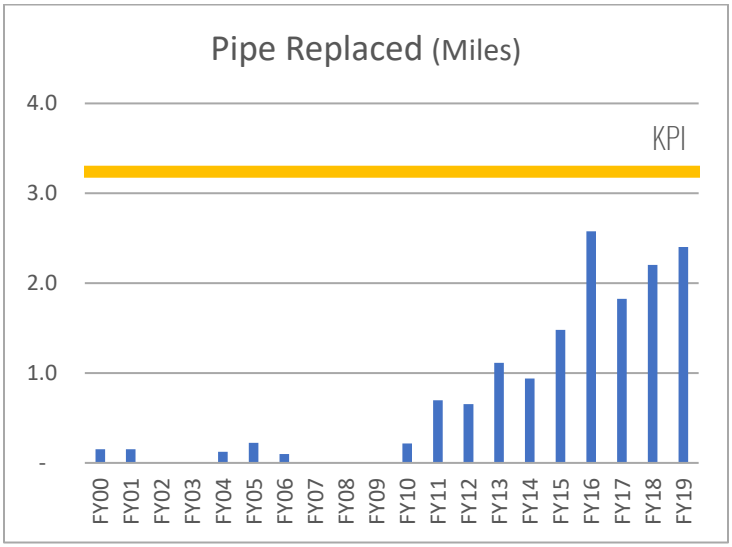
KPI Achieved

On average, water utilities experience 25 breaks per 100 miles of system pipe. For the last 10 years the Town has maintained an average break rate under five per 100 miles of pipe, well below the national average. This is in part due to the increase in pipe replacement that started in FY 2010.

KPI Achieved

The Town's dedicated team of water system operators conduct over 50,000 water quality tests each year as well as closely monitor source water conditions to provide high-quality drinking water that consistently achieves high standards for water quality excellence. As a result, our water quality complaints are well below our established KPI.

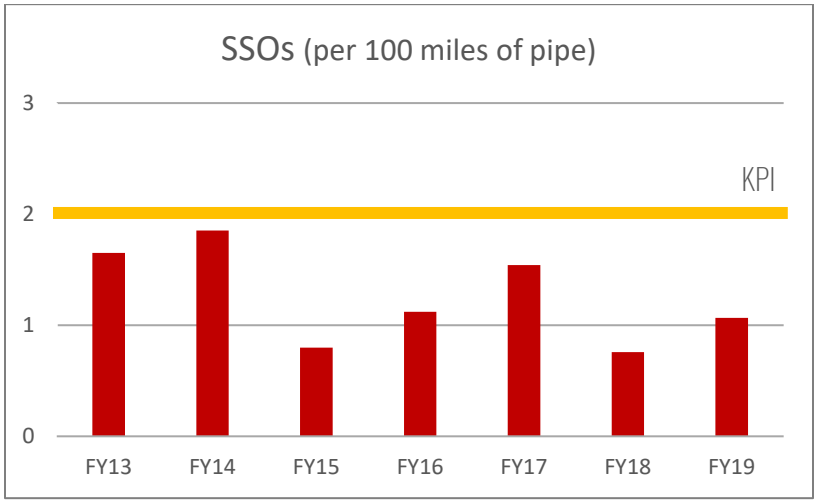




KPI Missed

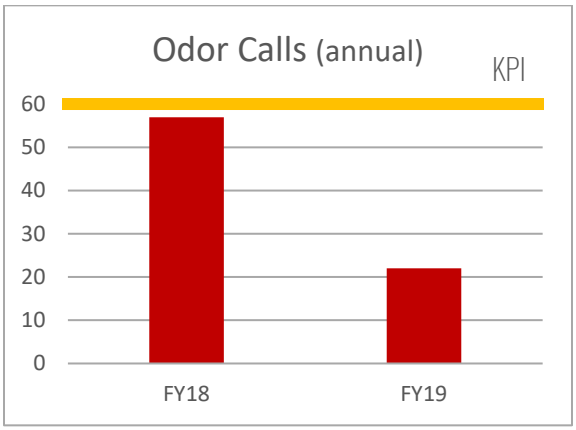
At the current rate of pipe replacement, it will take approximately 400 years to address the entire water system. Pipe service life is expected to be between 100 - 125 years, well below the 400-year mark. In coming years, we will need to introduce renewal technologies that extend the service life of our pipes and allow more pipe to be addressed each year.

KEY PERFORMANCE INDICATORS, WASTEWATER



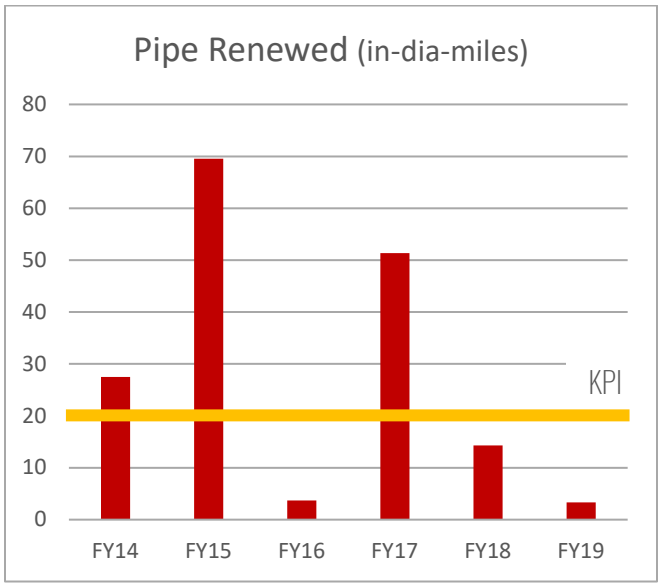
KPI Achieved

A sanitary sewer overflow (SSO) occurs when sewage is unintentionally released from the sewer system before it reaches the treatment plant. Although difficult to eliminate, the Town goal is to minimize these occurrences.



KPI Achieved

Last year there were several odor calls directly associated with the operation/restart of the Bellewood and Woodlands biofilters that contributed to an elevated number of total calls. Now that the fine-tuning of the biofilters is complete, this year's numbers are much lower.



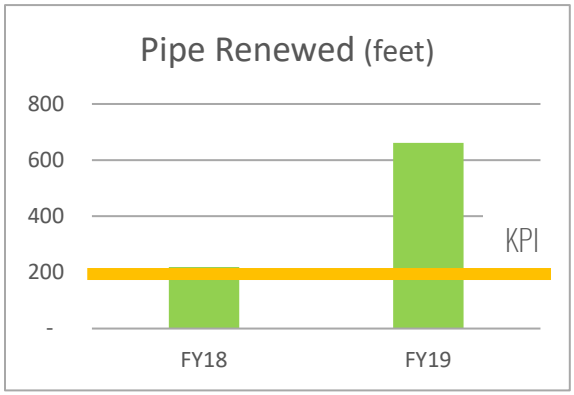
KPI Missed

Although pipe renewal for FY 2019 was below our established KPI, the average renewal rate over the past 6 years is 28 inch-diameter-miles which exceeds this target. Wastewater pipe diameters vary from 6-inch up to 60-inch. Because renewal efforts are significantly higher for the large diameter pipe, this KPI is reported in 'inch-diameter-miles' to account for this variability. Large diameter interceptors are typically more critical, and our rehabilitation efforts have focused on these pipes.

KEY PERFORMANCE INDICATORS, STORMWATER

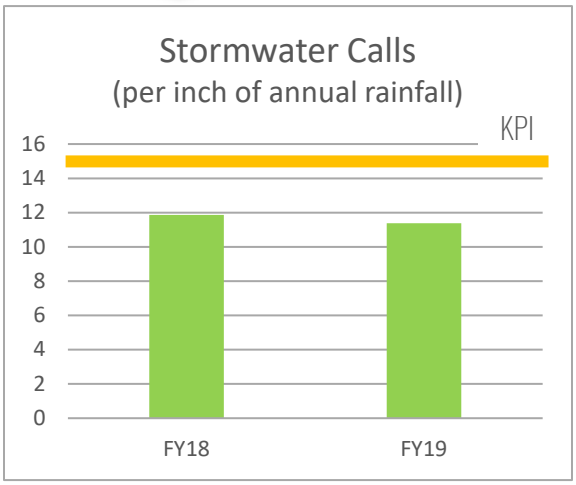
KPI Achieved

This renewal target is less than for water and wastewater because the average stormwater pipe is typically installed in much shorter runs. Moving forward we will want to pursue technologies that allow more renewal per year.



KPI Achieved

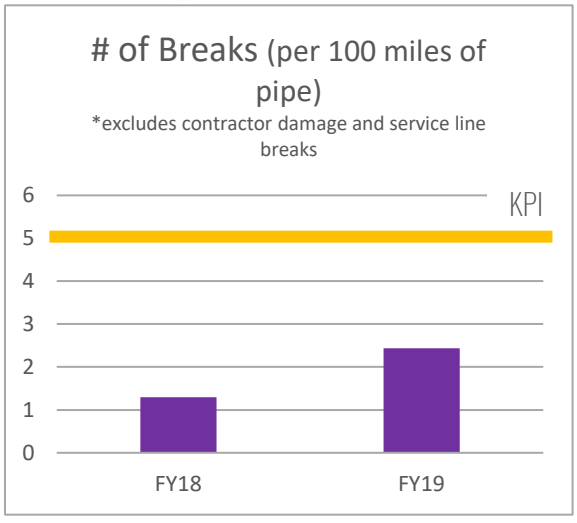
Since the number of stormwater calls rise with increased rainfall, this KPI is indexed relative to the annual rainfall.



KEY PERFORMANCE INDICATORS, RECLAIMED WATER

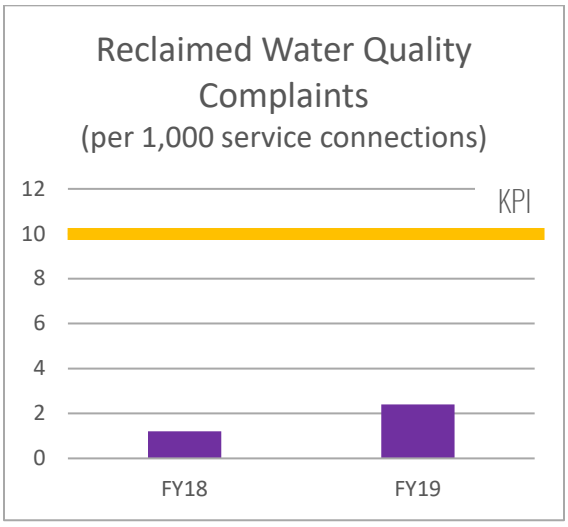
KPI Achieved

As with last year, our reclaimed water main breaks are well under five per 100 miles of pipe.



KPI Achieved

Reclaimed water quality complaints are well below our KPI threshold, and half of the already low potable water complaints for the year.



BURIED ASSET INVENTORY *(June 30, 2019)*

WATER INFRASTRUCTURE *(Includes 'Proposed' Infrastructure in GIS)*

	FY 2017	FY 2018	FY 2019	Annual Increase	
 Water Main *(miles)*	1,059	1,088	**1,103**	*+15*	*1%*
 Fire Hydrants	10,112	10,506	**10,720**	*+214*	*2%*
 Valves	27,206	28,387	**29,025**	*+638*	*2%*
 Air Release Valves	854	903	**929**	*+26*	*3%*
 Blow-offs	2,680	2,764	**2,776**	*+12*	*0%*

WASTEWATER INFRASTRUCTURE *(Includes 'Proposed' Infrastructure in GIS)*

	FY 2017	FY 2018	FY 2019	Annual Increase	
 Sewer Main *(miles)*	875	893	**902**	*+9*	*1%*
 Force Main *(miles)*	85	87	**87**	*-*	*0%*
 Manholes	26,390	27,111	**27,465**	*+354*	*1%*
 Valves	165	177	**175**	*-2*	*-1%*
 Air Release Valves	173	176	**176**	*-*	*0%*

BURIED ASSET INVENTORY *(June 30, 2019)*

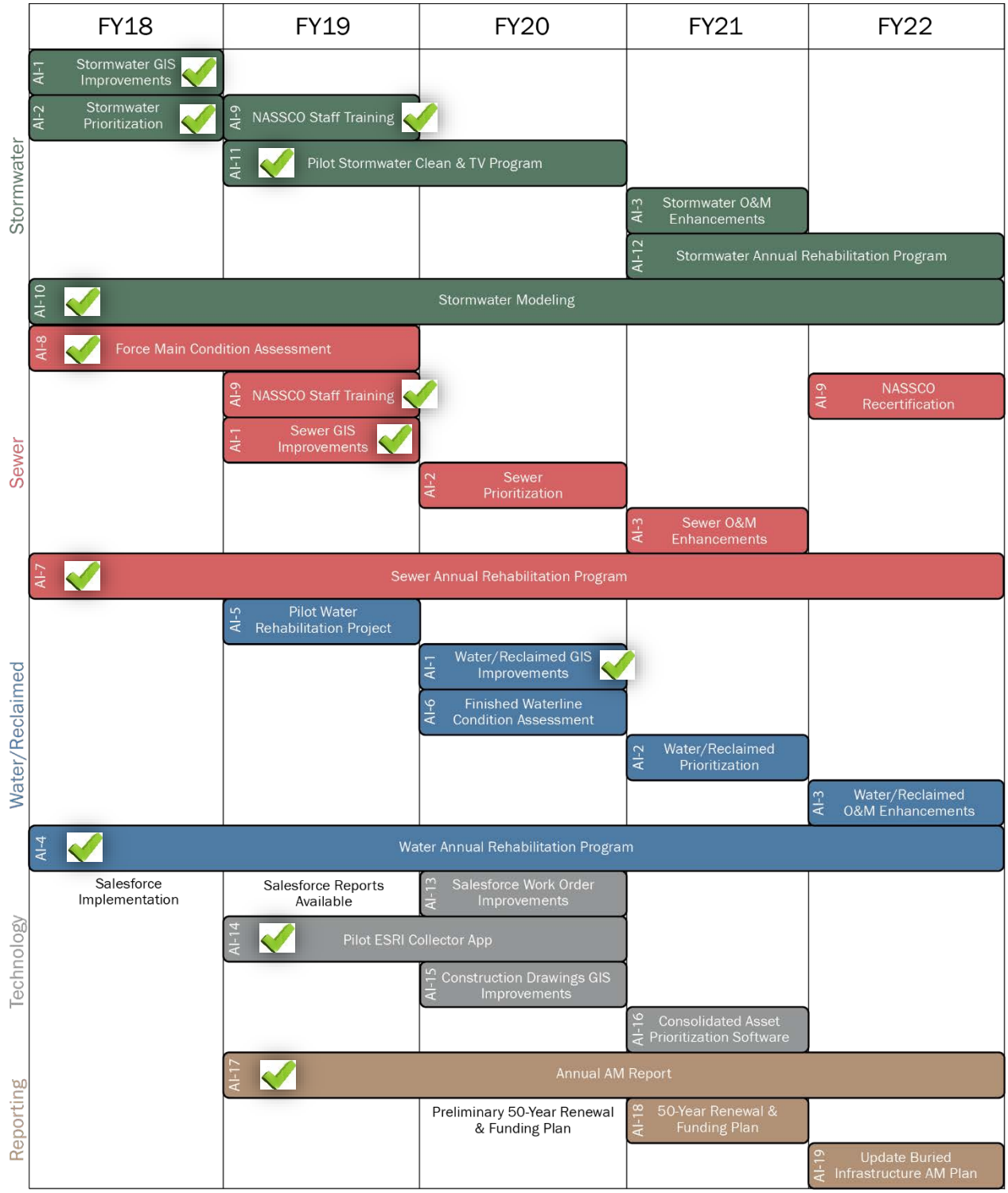
STORMWATER INFRASTRUCTURE *(Town-Owned Infrastructure Only – No Private or NCDOT Infrastructure)*

	FY 2017	FY 2018	FY 2019	Annual Increase	
 Storm Pipe *(miles)*	268	271	**273**	*+2*	*1%*
 Culverts *(miles)*	3	4	**4**	*-*	*0%*
 Inlets	33,803	34,067	**34,067**	*-*	*0%*
 Manholes	1,304	1,304	**1,304**	*-*	*0%*

RECLAIMED WATER INFRASTRUCTURE *(Includes 'Proposed' Infrastructure in GIS)*

	FY 2017	FY 2018	FY 2019	Annual Increase	
 Reclaimed Water Main *(miles)*	67	77	**82**	*+5*	*7%*
 Valves	1,016	1,196	**1,282**	*+86*	*7%*
 Air Release Valves	73	85	**101**	*+16*	*19%*
 Blow-offs	222	260	**272**	*+12*	*5%*

BURIED INFRASTRUCTURE, 5-YEAR CHECK LIST




SERVICE
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PROCESS
PROPERTY
FINANCIAL
COST
PROVIDING
DISPOSING
ASSET
INTELLECTUAL
ENTITY
MONITORING
MANAGEMENT
LIFE CYCLE
FIXED
UPGRADING
MAINTAINING
FACILITIES
GOODWILL
OBJECTIVE
SYSTEM
INFRASTRUCTURE
OPERATING
EQUIPMENT
PHYSICAL
GROUP
EFFECTIVELY
DIGITAL
ENTERPRISE

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