



The purpose of the **Asset Management Plan (AMP)** is to help the Sacramento Area Sewer District (SASD) sustainably manage its assets while meeting its service levels. The AMP accomplishes this by projecting costs, examining performance, and identifying where to focus efforts. It also serves as a reference by including information on all assets owned and operated by SASD. The AMP is updated annually as part of SASD’s Business Planning cycle. Other documents, such as the Sewer System Management Plan, the System Capacity Plan, and the Long Term Financial Plan, may affect or be affected by the AMP. For example, the gaps identified in the Asset Management Plan can influence the development of the Strategic Action Plan business initiatives.

Ultimately, the Asset Management Plan provides information for management to make informed decisions and to identify opportunities for improvement.

## 2020 OFFICIAL COUNTS

278 SQUARE MILE  
SERVICE AREA

1,500 MILES OF  
LOWER LATERALS

106  
PUMP  
STATIONS\*

TOTAL EQUIVALENT  
SINGLE FAMILY DWELLINGS

67,000  
SASD  
MANHOLES

301  
SASD PERSONNEL

APPROXIMATE POPULATION SERVED  
1.2 MILLION  
PEOPLE

299,000  
SERVICE  
CONNECTIONS

3,100 MILES  
OF  
MAIN LINES

340,000  
TOTAL NUMBER OF  
CUSTOMER ACCOUNTS

\*As of January 1, 2020

### OUR MISSION

To **PROTECT** public health and the environment  
by **efficiently and effectively** collecting sewage  
for **OUR COMMUNITY**

### OUR VISION

Setting the bar for  
**ESSENTIAL** sewage collection services



The Levels of Service help quantify SASD’s performance in meeting its service commitments to its stakeholders. SASD’s service level performance is reported monthly and is used to identify the factors and the business practices affecting underperformance and overperformance. In 2020, SASD met all seven of the seven Board-approved service level targets.

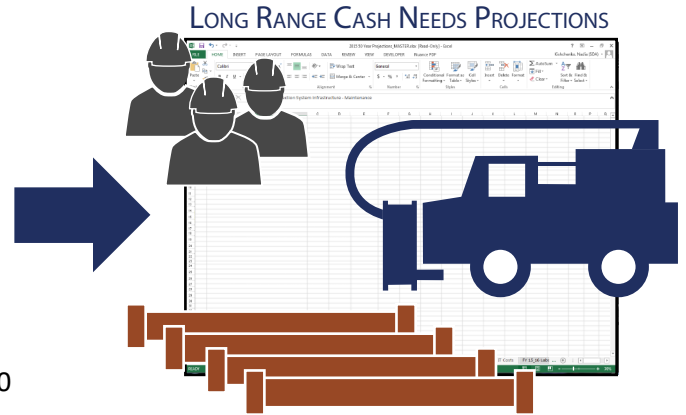
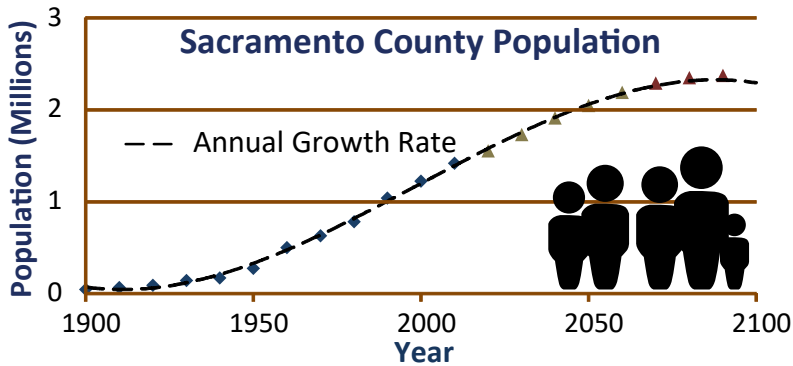
## 2020 RESULTS

	<p><b>SERVICE CALL RESPONSE TIME</b></p> <p><b>Target Goal:</b> SASD staff will arrive onsite within 2 hours of a customer service request call for 95% of all service calls occurring within any calendar month.</p>	<p>Target: 95%</p> <p>2020 Average: 98%</p> <p><b>Target Met</b></p>	
	<p><b>SERVICE RESTORATION TIME</b></p> <p><b>Target Goal:</b> SASD staff will restore service within four hours of receipt of the customer call for 90% of all service interruptions occurring within any calendar month. The on-time window is extended to six hours when excavation of the lower lateral is needed.</p>	<p>Target: 90%</p> <p>2020 Average: 94%</p> <p><b>Target Met</b></p>	
	<p><b>DEVELOPMENT SUBMITTAL REVIEW TIME</b></p> <p><b>Target Goal:</b> SASD staff will return comments within the review time standards for 90% of all complete developer submittals within any calendar month.</p>	<p>Target: 90%</p> <p>2020 Average: 97%</p> <p><b>Target Met</b></p>	
	<p><b>CUSTOMER SATISFACTION</b></p> <p><b>Target Goal:</b> 90% of customers responding to the survey will rate the service they received as good or excellent.</p>	<p>Target: 90%</p> <p>2020 Average: 95%</p> <p><b>Target Met</b></p>	
	<p><b>MAIN LINE OVERFLOW RATE</b></p> <p><b>Target Goal:</b> A target of 0.45 sewer overflows per 100 miles of sewer lines.</p>	<p>Target: 0.45</p> <p>2020 Average: 0.23</p> <p><b>Target Met</b></p>	
	<p><b>LOWER LATERAL OVERFLOW RATE</b></p> <p><b>Target Goal:</b> A target of 7.3 sewer overflows per 100 miles of sewer lower lateral lines.</p>	<p>Target: 7.3</p> <p>2020 Average: 3.5</p> <p><b>Target Met</b></p>	
	<p><b>BACKUPS INTO STRUCTURES RATE</b></p> <p><b>Target Goal:</b> A target of 0.64 events per 10,000 connections to SASD’s system.</p>	<p>Target: 0.64</p> <p>2020 Average: 0.49</p> <p><b>Target Met</b></p>	



As the population changes, SASD adapts its management and utilization of assets accordingly. Some of these demands are identified and projected in the Long Range Cash Needs Projections and the Long Term Financial Plan. These documents identify the factors that influence demand and the effects on services.

## DEMAND DRIVERS



SASD's data indicates there is a correlation between population growth and the installation of new main line pipes and laterals. As new lines are added, SASD forecasts an increase in maintenance activities. The Long Range Cash Needs Projections (LRCNP) help identify the future costs of meeting the needs of an ever-growing population. The Long Term Financial Plan identifies exterior influences that may affect SASD, such as the financial environment, regulatory requirements, third party lawsuits, and customer demands.

## SOME SOLUTIONS TO INCREASING DEMAND

NON-ASSET BASED SOLUTIONS

**FATS, OILS, AND GREASE (FOG) PROGRAM:** The Program educates the public about FOG control to reduce SSOs. These efforts include public outreach through television, radio, a website, decals on vehicles, pamphlets in billing statements, and booths at local schools and events.



**UNDER CAPACITY FAILURE MODE STRATEGY (UCFMS) INFILTRATION/ INFLOW (I/I) REDUCTION:** SASD identified I/I targets that are used to trigger a system investigation. This allows SASD to proactively investigate the reduction of I/I in an effort to reduce capacity-related overflows.



**TRAINING:** A competency based program that identifies all aspects of a job, simplifies it into a training checklist, and provides a combination of classroom training and field training. The program ensures training is uniform, comprehensive, and traceable.





**CANVASSING:** Prework is done to increase efficiency. Door hangers are used to inform customers about upcoming work in their yard.





The Main Line portion of the Life Cycle Management section consists of Background Data, the Maintenance Plan, the Functional Renewal Plan, the Creation/Acquisition/Augmentation Plan, and the Disposal Plan.

## Main Line Background Data

<p><b>93.6%</b> MADE OF VITRIFIED CLAY PIPE</p> 	<p><b>56%</b> WITH 6" DIAMETER</p>	<p><b>43% OF MAIN LINES HAVE A REMAINING LIFE OF 61-100 YEARS</b></p>
<p><b>69%</b> INSPECTED BY CLOSED CIRCUIT TELEVISION</p> 	<p><b>85%</b> LOCATED IN THE STREET</p>	<p><b>59% ARE 5-10 FEET IN DEPTH</b></p>

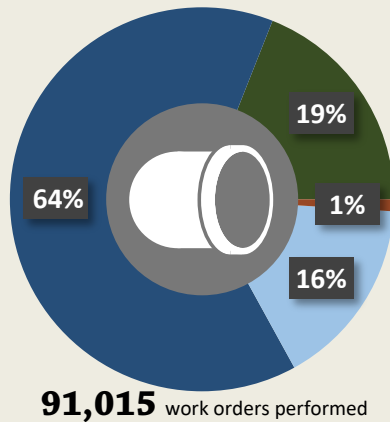
## Maintenance Plan

This section outlines the maintenance strategies that are necessary to keep main lines operating, the statistics of work orders, and the trends of problems.

Work Order Statistics

The graph to the right shows the ratio of the different types of work performed on Main Lines in FY 19-20.

- Preventive Maintenance
- Predictive Maintenance
- Corrective Maintenance
- Response



Conveyance Statistics

SASD CONVEYED **29,700,000,000** GALLONS OF WASTEWATER IN 2020.

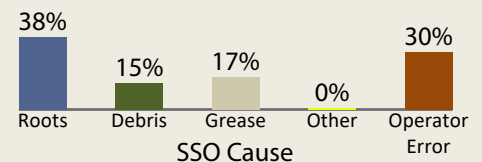
THE MAIN LINE SPILL VOLUME THAT WAS NOT RECOVERED: **17,649** GALLONS, OR 0.00006%.

Trends

The work performed on SASD assets can directly affect SASD's ability to prevent Sanitary Sewer Overflows (SSOs). The graph below shows the Main Line SSOs that SASD reported to the California Integrated Water Quality System (CIWQS). The definitions for the categories are as follows:  
 CATEGORY 1 - SSO that reaches surface water and/or drainage channel, or a separate storm sewer system and is not recovered.  
 CATEGORY 2 - SSO of 1000 gallons or greater that does NOT reach surface water, drainage channel, or a separate storm sewer system unless the entire SSO is fully recovered.  
 CATEGORY 3 - SSO of less than 1000 gallons that does NOT reach surface water or a drainage channel.

- CATEGORY 1:** 10 Overflows, 23,390 gal, 26% Recovered
- CATEGORY 2:** 1 Overflow, 5,788 gal, 98% Recovered
- CATEGORY 3:** 76 Overflows, 7,969 gal, 98% Recovered

### 2020 Main Line Caused SSO Data



## Functional Renewal Plan

SASD has a condition-based functional renewal plan. Proactive condition assessments are performed through TV inspections. Generally, the TV inspection initiates maintenance decision-making policies to determine if functional renewal is necessary.



The Lower Laterals portion of the Life Cycle Management section consists of Background Data, the Maintenance Plan, the Functional Renewal Plan, the Creation/Acquisition/Augmentation Plan, and the Disposal Plan.

## Lower Lateral Background Data

<b>98% WITH</b>  <b>DIAMETER</b>	<b>72%</b> ARE LESS THAN 50 YEARS OLD	<b>30%</b> UNKNOWN MATERIAL	<b>INSPECTED BY CLOSED-CIRCUIT TELEVISION (CCTV)</b> 
	<b>AVERAGE REPLACEMENT VALUE:</b> <b>STREET: \$7,700</b> <b>EASEMENT: \$4,400</b>		

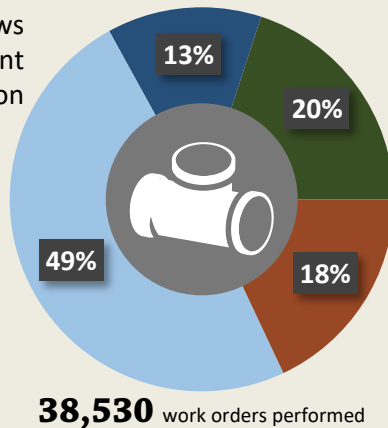
## Maintenance Plan

This section outlines the maintenance strategies that are necessary to keep lower laterals operating, the statistics of work orders, and the trends of problems.

Work Order Statistics

The graph to the right shows the ratio of the different types of work performed on Lower Laterals in FY 19-20.

- Preventive Maintenance
- Predictive Maintenance
- Corrective Maintenance
- Response



Conveyance Statistics

SASD CONVEYED **29,700,000,000** GALLONS OF WASTEWATER IN 2020.

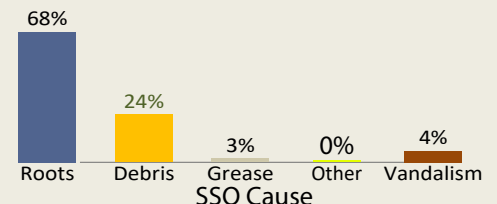
THE LOWER LATERAL SPILL VOLUME THAT WAS NOT RECOVERED: **23,708** GALLONS, OR 0.00008%.

Trends

The work performed on SASD assets can directly affect SASD's ability to prevent Sanitary Sewer Overflows (SSOs). The graph below shows the Lower Lateral SSOs that SASD reported to the California Integrated Water Quality System (CIWQS).

### 2020 Lower Lateral Caused SSO Data

- CATEGORY 1:** 34 Overflows, 33,158 gal, 35% Recovered
- CATEGORY 2:** 2 Overflows, 7,508 gal, 100% Recovered
- CATEGORY 3:** 602 Overflows, 25,549 gal, 92% Recovered



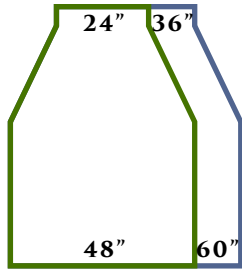
## Functional Renewal Plan

SASD has a condition-based functional renewal plan. Proactive condition assessments are performed through TV inspections. Generally, the TV inspection initiates maintenance decision-making policies to determine if functional renewal is necessary.

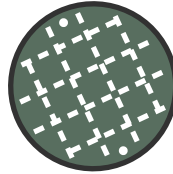
The Manhole portion of the Life Cycle Management section consists of Background Data, the Maintenance Plan, the Functional Renewal Plan, the Creation/Acquisition/Augmentation Plan, and the Disposal Plan.

## Manhole Background Data

**62%**  
ARE LESS  
THAN  
**51 YEARS**  
OLD



**MANHOLE ENTRANCES:**  
**24" OR 36"**  
**DIAMETER**  
**MANHOLE**  
**BARRELS:**  
**48" OR 60"**  
**DIAMETER**



**66%** OF MANHOLES  
HAVE A DEPTH  
OF 10' OR LESS

**2020 AVERAGE**  
**REPLACEMENT VALUE:**  
48" & <16' DEEP: \$10,000  
48" & >16' DEEP: \$17,000



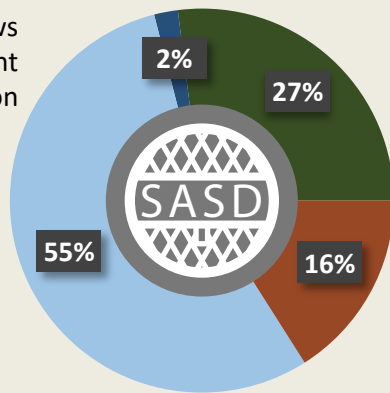
## Maintenance Plan

This section outlines the maintenance strategies that are necessary to keep manholes operating, it displays the statistics of work orders, and the trends of SSO-related problems.

Strategies

The graph to the right shows the ratio of the different types of work performed on Manholes in FY 19-20.

- Preventive Maintenance
- Predictive Maintenance
- Corrective Maintenance
- Response



**6,517** work orders performed

Conveyance Statistics

SASD CONVEYED  
**29,700,000,000** GALLONS  
OF WASTEWATER IN 2020.

THE MANHOLE SPILL VOLUME  
THAT WAS NOT RECOVERED:  
**7** GALLONS, OR 0.000000024%.

Trends

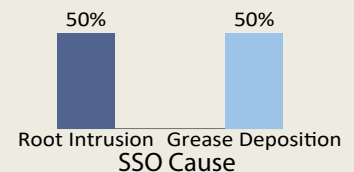
The work performed on SASD assets can directly affect SASD's ability to prevent Sanitary Sewer Overflows (SSOs). The graph below shows the Manhole SSOs that SASD reported to the California Integrated Water Quality System (CIWQS).

### 2020 Manhole Caused SSO Data

**CATEGORY 1:** No Overflow

**CATEGORY 2:** No Overflow

**CATEGORY 3:** 2 Overflows, 40 gal, 83% Recovered



## Functional Renewal Plan

SASD has a condition-based functional renewal plan. Proactive condition assessments are performed through TV inspections. Generally, the TV inspection initiates maintenance decision-making policies to determine if functional renewal is necessary.



The Facilities Life Cycle Management section consists of Background Data, the Maintenance Plan, the Functional Renewal Plan, the Creation/Acquisition/Augmentation Plan, and the Disposal Plan.

## Facilities Background Data

<b>105</b> OPERATING PUMP STATIONS	<b>80</b> MILES FORCE MAIN PIPELINES	SUBMERSIBLE PUMP STATIONS: <b>81</b>	<b>PUMP STATION</b> AVERAGE REPLACEMENT VALUE: <b>\$1,113,426</b>
<b>FORCE MAIN: MOSTLY 8", 10", OR 12" DIAMETER</b>		<b>PUMP STATIONS LESS THAN 51 YEARS OLD: 84%</b>	

## Maintenance Plan

This section outlines the maintenance strategies that are necessary to keep assets operating, the statistics of work orders, as well as trends of problems.

**Work Order Statistics**

The graph to the right shows the ratio of the different types of work performed on Pump Stations in FY 19-20.

- Preventive Maintenance
- Predictive Maintenance
- Corrective Maintenance
- Response

**7,889** work orders performed

**Conveyance Statistics**

SASD CONVEYED  
**29,700,000,000** GALLONS  
OF WASTEWATER IN 2020.

THE PUMP STATION SPILL VOLUME  
THAT WAS NOT RECOVERED:  
**5** GALLONS, OR 0.000000017%.

**Trends**

The work performed on SASD assets can directly affect SASD's ability to prevent Sanitary Sewer Overflows (SSOs). The graph below shows the Pump Station SSOs that SASD reported to the California Integrated Water Quality System (CIWQS).

**CATEGORY 1:** 1 Overflow, 263 gal, 98% Recovered

**CATEGORY 2:** No Overflow

**CATEGORY 3:** 1 Overflow, 8 gal, 100% Recovered

**2020 Facility Caused SSO Data**

SSO Cause


## Functional Renewal Plan

SASD has a condition-based functional renewal plan. Proactive condition assessments are performed to determine if functional renewal is necessary.



The Vehicles and Equipment portion of the Life Cycle Management section consists of Background Data, the Maintenance Plan, the Functional Renewal Plan, the Creation/Acquisition/Augmentation Plan, and the Disposal Plan.

## Vehicles and Equipment Background Data

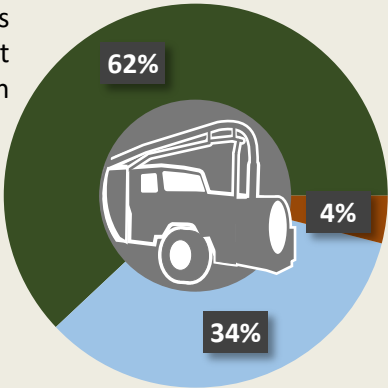
<div style="display: flex; justify-content: space-around; font-size: 2em; font-weight: bold;">2   0   1</div> <p style="font-size: 1.5em; font-weight: bold;">VEHICLES</p> <p style="font-weight: bold;">BUILT BETWEEN 1997 AND 2020</p>	<ul style="list-style-type: none"> <li>• CARS, VANS, AND TRUCKS</li> <li>• MAINTENANCE TRUCKS</li> </ul> 	<div style="display: flex; justify-content: space-around; font-size: 2em; font-weight: bold;">7   3</div> <p style="font-size: 1.5em; font-weight: bold;">PIECES OF EQUIPMENT</p> <p style="font-weight: bold;">BUILT BETWEEN 1962 AND 2019</p>	<ul style="list-style-type: none"> <li>• FORKLIFTS</li> <li>• CONSTRUCTION EQUIPMENT</li> <li>• JETTER CARTS</li> <li>• TRAILERS</li> <li>• GENERATORS</li> <li>• PORTABLE PUMPS</li> <li>• BUCKET MACHINES</li> </ul>
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## Maintenance Plan

This section outlines the maintenance strategies that are necessary to keep vehicles and equipment operating and the future costs.

Strategies

The graph to the right shows the ratio of the different types of work performed on vehicles and equipment in FY 19-20.



Strategy	Percentage
Preventive Maintenance	62%
Corrective Maintenance	34%
Response	4%

3,677 work orders

Fleet maintenance vendors maintain and repair SASD-owned vehicles and equipment.

To maintain its vehicle and equipment assets SASD has proactive strategies to prevent failures, such as Fleet Scheduled Maintenance.

## Functional Renewal Strategy

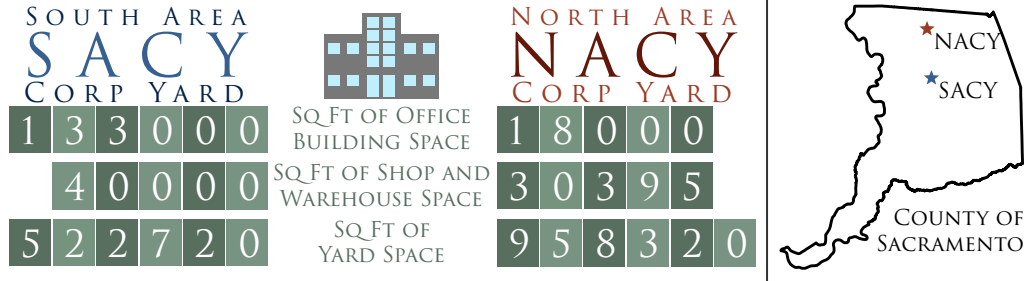
SASD has a condition-based functional renewal strategy. SASD does not functionally renew vehicle and equipment assets based solely on the asset's age and useful life. Proactive condition assessments are done by SASD's Fleet staff. Generally, results from the latest condition assessment could initiate a BCE to be performed to determine whether functional renewal is necessary. A BCE on a vehicle and equipment asset typically considers maintenance history and cost, downtime, upcoming repairs, current defects, deteriorating components, trade-in value, mileage, age, and useful life.





The Office Buildings and Corporation Yards portion of the Life Cycle Management section consists of Background Data, the Maintenance Plan, the Functional Renewal Plan, the Creation/Acquisition/Augmentation Plan, and the Disposal Plan.

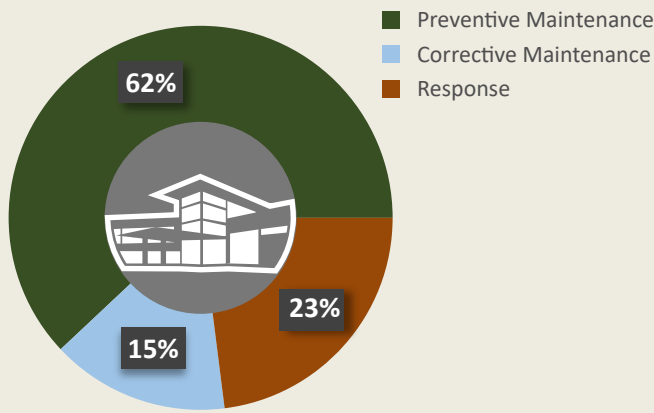
### Office Buildings and Corporation Yards Background Data



### Maintenance Plan

This section outlines the maintenance strategies that are necessary to keep office buildings and corporation yards operating, it displays the statistics of work orders, and the functional renewal plan.

Work Order Statistics



The graph above shows the percentage of Work Orders performed on SASD Office Buildings in FY 19-20.

# 1,592

work orders performed

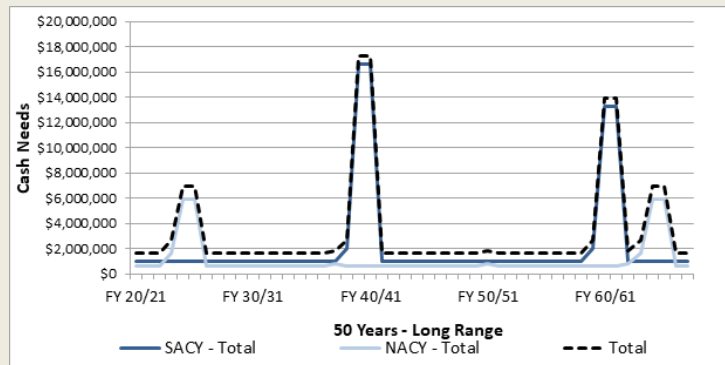


Future Costs

This graph shows the total cost for maintenance and replacement for SACY and NACY.

Maintenance for NACY and SACY includes upkeep or repairs such as electrical maintenance, plumbing maintenance, office maintenance, custodial services, etc. M&O Staff perform a significant amount of maintenance work on the office buildings and corporation yards.

### Total Office Buildings and Corporation Yards Replacement Projections





A comprehensive look at SASD’s financial makeup is important to accurately guide and fund for the future. SASD generates different financial documents throughout the course of the fiscal year. These include the Comprehensive Annual Financial Report, the Long Term Financial Plan, and the Final Budget. The illustration shows the information and financial issues that feed into and influence each other when funding SASD’s Mission and Vision.

## FINANCIAL STATEMENTS

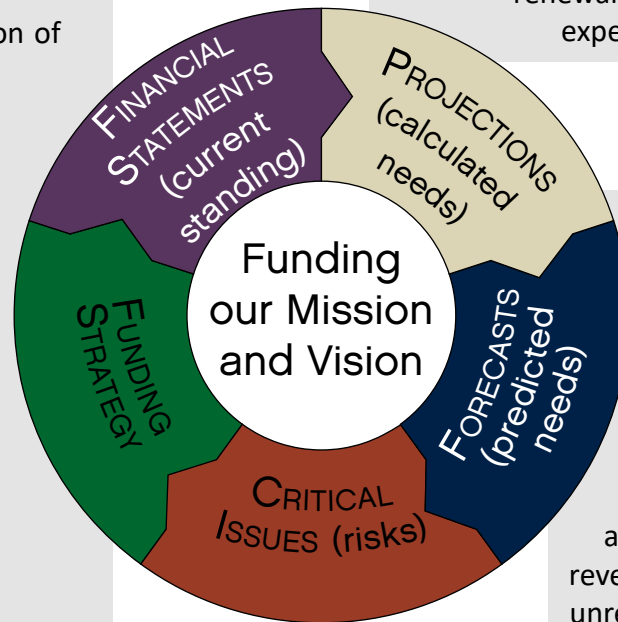
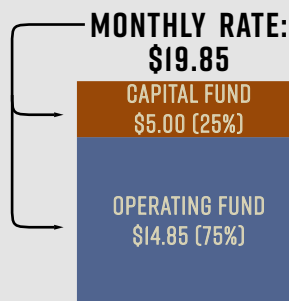
Financial indicators, such as bond ratings and Statements of Net Position, are used to analyze trends, measure the performance and financial stability of SASD, and to compare SASD’s financial performance measures to those of other similar organizations. These are detailed in SASD’s audited Comprehensive Annual Financial Reports (CAFR) and SASD’s annual budget documents.

## PROJECTIONS

SASD projects its cash needs for the next 10 years and for the next 50 years. These projections evaluate the cash needs of all service groups, SASD’s expenditures, Capital, Revenue Bonds Debt Service, and SASD’s Reserve Accumulation. They also include information on routine maintenance, renewal, and new works expenditures.

## FUNDING STRATEGIES

SASD is funded through a combination of user rates, development impact fees, miscellaneous revenue, and bonds. The monthly rate was last increased in FY 2010/11. These revenues are allocated into SASD’s Operating Fund and Capital Fund, as shown below.



## FORECASTS

SASD’s forecasts focus on two areas: the assumptions and depreciation.

The assumptions are used to generate SASD’s Long Term Financial Plan and include categories such as revenue, debt service, reserves, unreserved cash, capital costs, and operating expenses. Depreciation is a method of recovering the cost of a tangible asset over its useful life. SASD uses the straight-line method and analyzes depreciation for operating expenses, capital assets, structures and improvements, equipment, and software.

## CRITICAL ISSUES

SASD continues to hold a financially stable position where revenue, costs from customer growth, and operational costs grow moderately over the next few years. Even though there has not been a rate increase for the past ten years, SASD was able to pay down \$72 million of its outstanding debt in 2015. Unless critical issues or events occur over the next five years that significantly change current cost projections, customer rates are projected to remain at the current \$19.85 per month per ESD for several years of the forecast period.



The Asset Management Practices Summary Section details how SASD manages its assets. This includes the decision-making process and the management of finances and asset data.

### Managing Finances

SASD complies with accounting standards and guidelines. Expenses and revenues are separated by Operating and Capital Funds.

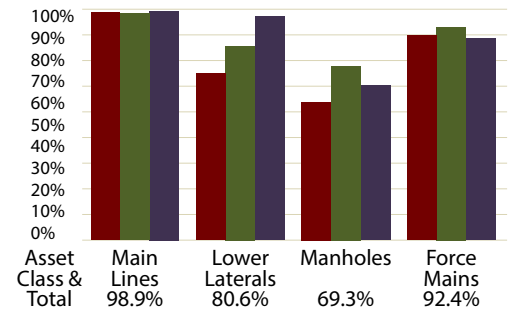
SASD Operating Fund	SASD Capital Fund
<b>Expenses</b> Salaries & Benefits Services & Supplies Depreciation & Amortization Other Charges	<b>Expenses</b> Services & Supplies Depreciation & Amortization Other Charges Debt Service (Principal and Interest)
<b>Revenues</b> Monthly Service Charges Capital Labor Other Revenue Interest Income	<b>Revenues</b> Monthly Service Charges Impact fees - Relief Impact fees - Expansion Other Revenue Interest Income

### Managing Asset Data

SASD uses a Geographic Information System (GIS) as the primary source of asset data for all mapped assets (main lines, laterals, manholes, and force mains). This data is then pushed to all other applications that use mapped asset data. Data collection is prioritized by assigning a rank to asset attributes.

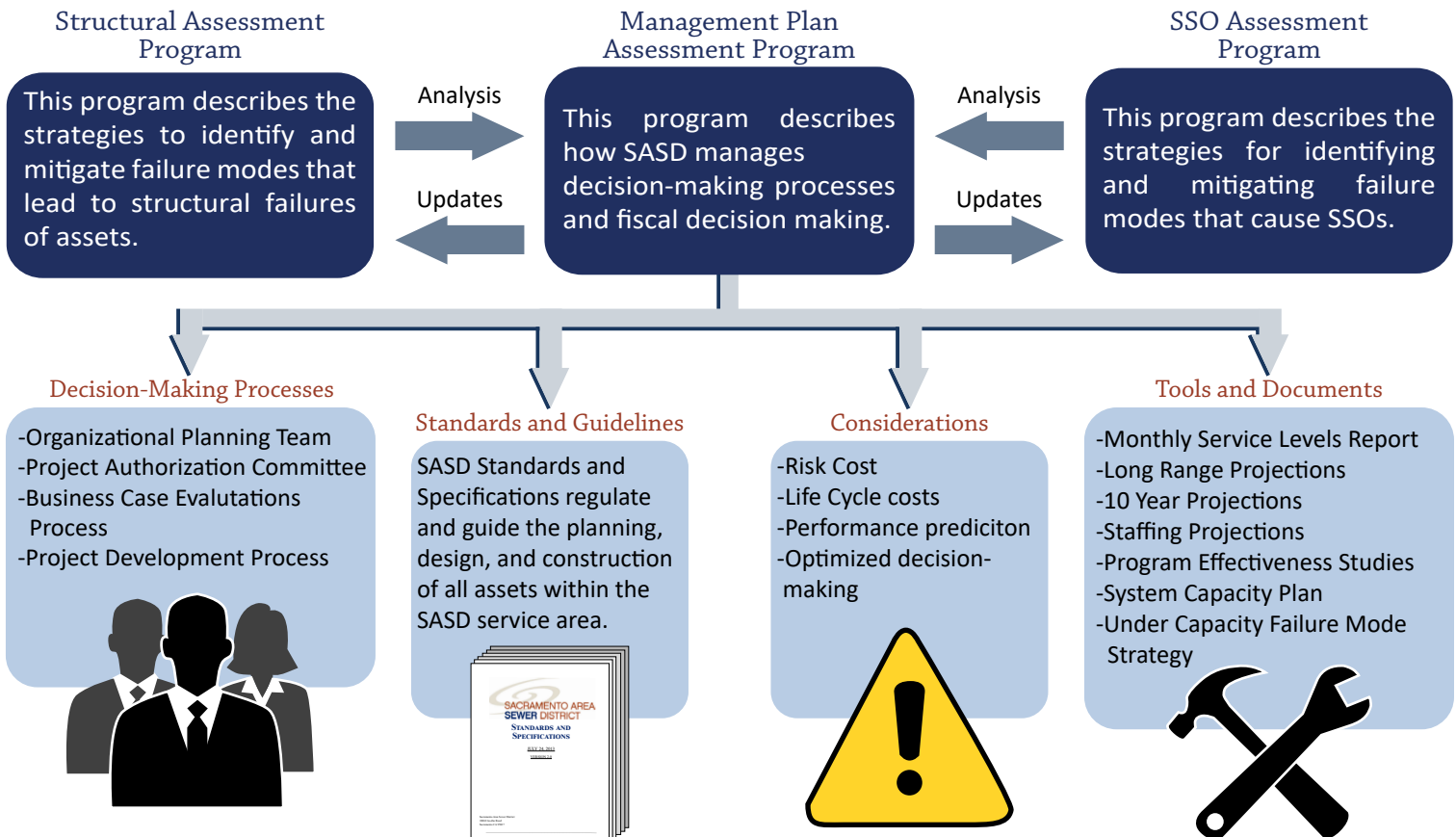
#### Data Completeness Scores

Importance Ranking	Rating Basis
1	Data is used in SSO or regulatory reporting.
2	Data is used to trigger program or strategy or maintenance.
3	Data is used for some other business need.



### Decision Making

Most decisions are categorized into one of three main assessment programs. These programs include sections that explain why (strategies), when (policies), and how (procedures) business decisions are made.





The Continuous Improvement Program enhances the asset management processes and systems and data. It also supports the effective delivery of asset management outcomes.

**1 WHERE ARE WE AND WHERE DO WE WANT TO BE?**

In order to identify the appropriate levels, the following factors are considered: cost and benefits, legal requirements, customer expectations, the nature of assets, and risk. With these factors, SASD can determine the desired levels and whether the costs to advance the asset management practice outweighs the benefits.

**2 WHAT NEEDS IMPROVEMENT?**

In 2015, gaps were identified for consideration as a result of Business Initiative EFF-068. Since then, most gaps have been identified as Business Initiatives or as work to be performed on a day-to-day basis.

**3 PRIORITIZE AND DEVELOP PROGRAM**

In 2017, SASD completed a Five-Year Strategic Plan that will help frame business decisions and priorities through 2022. The Strategic Plan was developed by gathering input from a broad range of staff and stakeholders. Several clear themes emerged that helped identify SASD's strengths, areas for improvement, opportunities, challenges, and goals.

**4 DELIVER PROGRAM**

In the past, SASD's Business Plan was combined with a status update on business initiatives. SASD's Strategic Action Plan will replace the Business Plan. Much of the information is similar with some key differences: alignment with SASD's Five-Year Strategic Plan, exclusion of most background information, inclusion of a summary of SASD's progress towards goals, and inclusion of descriptions of completed activities and planned activities.

**5 MONITOR OUTCOMES**

Performance indicators and reports, like the Strategic Action Plan, detail the results of Business Initiatives, strategic plans, programs, and decisions.

