



# Overview

- State of Infrastructure Report
- Risk Assessments
  - Completed Initiative
  - Current Initiatives
  - Future Initiatives



# City of Sugar Land 2017 State of the Infrastructure Report

KPMG



**ASSET MANAGEMENT PROGRAM**

# Condition Rating Approach

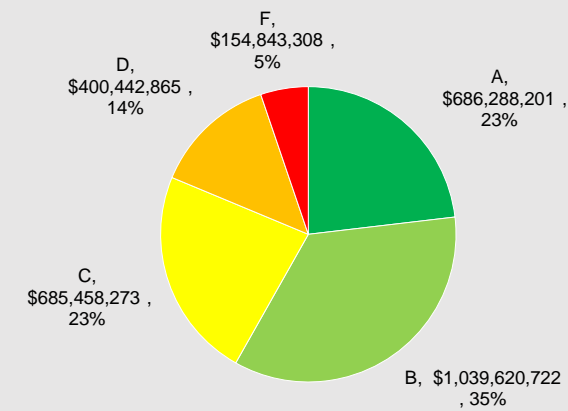
A	<b>Fit for the Future (Very Good)</b> The infrastructure in the system or network is generally in very good condition, typically new or recently rehabilitated. A few elements show general signs of deterioration that require attention.
B	<b>Adequate for Now (Good)</b> The infrastructure in the system or network is in good to very good condition; some elements show general signs of deterioration that require attention. A few elements exhibit deficiencies.
C	<b>Requires Attention (Fair)</b> The infrastructure in the system or network is in fair to good condition; it shows general signs of deterioration and requires attention. Some elements exhibit significant deficiencies.
D	<b>Increasing Potential of Affecting Service (Poor)</b> The infrastructure in the system or network is in poor condition and mostly below standard, with many elements approaching the end of their service life. A large portion of the system exhibits significant deterioration.
F	<b>Unfit for Sustained Service (Very Poor)</b> The infrastructure in the system or network is in unacceptable condition with widespread signs of advanced deterioration. Many components in the system exhibit signs of imminent failure, which is affecting service.

# State of the City's Physical Assets

- The City of Sugar Land is a complex service delivery organization with responsibility for managing almost \$3 billion in physical public assets. On average, this represents approximately \$34,000 per person (using 2017 asset replacement values). All of these assets exist for one purpose, to support either directly or indirectly, the delivery of services to the community. The following is a summary of the condition rating for the assets supporting the different City services.

- This first State of the Infrastructure Report focuses on the physical condition of the City's assets, as this is deemed to be the most critical element of sustainable and safe service provision.
- While the overall physical condition of the City's assets is in Good to Fair condition, it is important to recognize that continued reinvestment is essential to renew components that are in poor or very poor condition.
- This needs to rely on a risk management approach looking at likelihood and consequence of failure when assessing the condition of the City's infrastructure to direct investments to those that pose the highest risk to service. There is also a need to invest in the large amount of assets that are in fair condition as this ensures optimum extension of life at the best value for the community. These assets, if left unmanaged, will result in a situation that could become unsustainable.

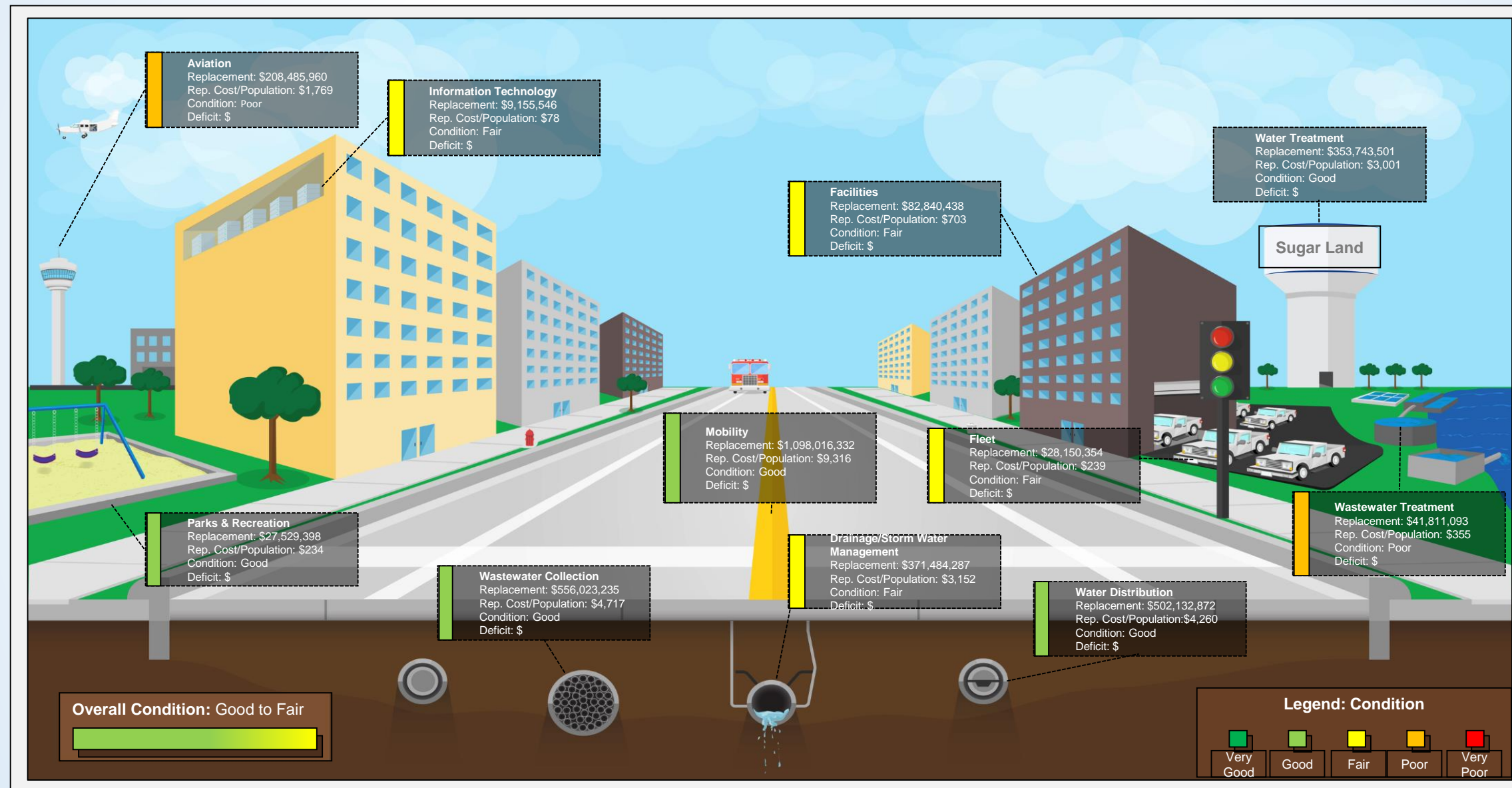
## Overall Condition Rating of City Assets



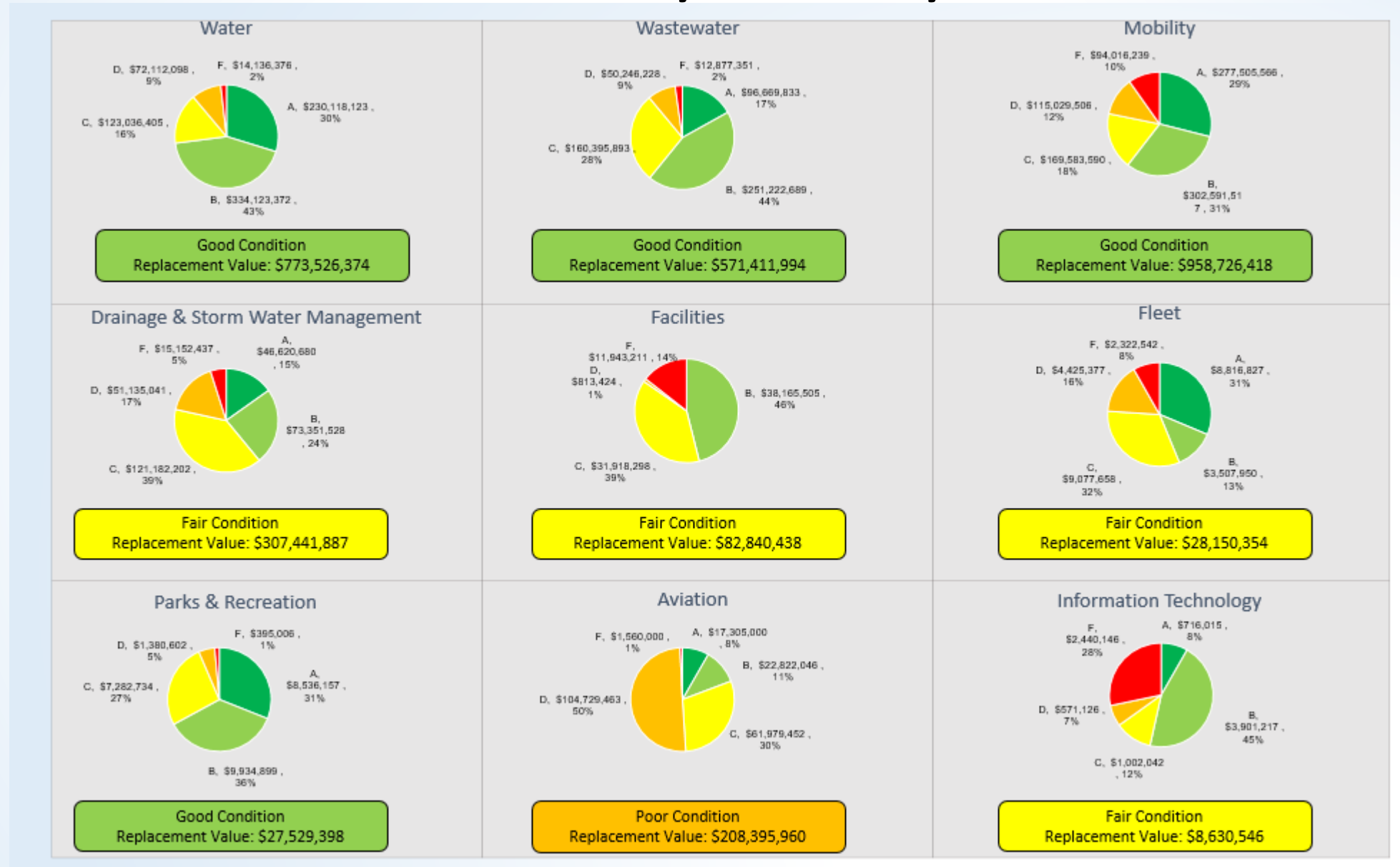
Good to Fair Condition  
Replacement Value:  
\$2,966,653,369



# Street Scape

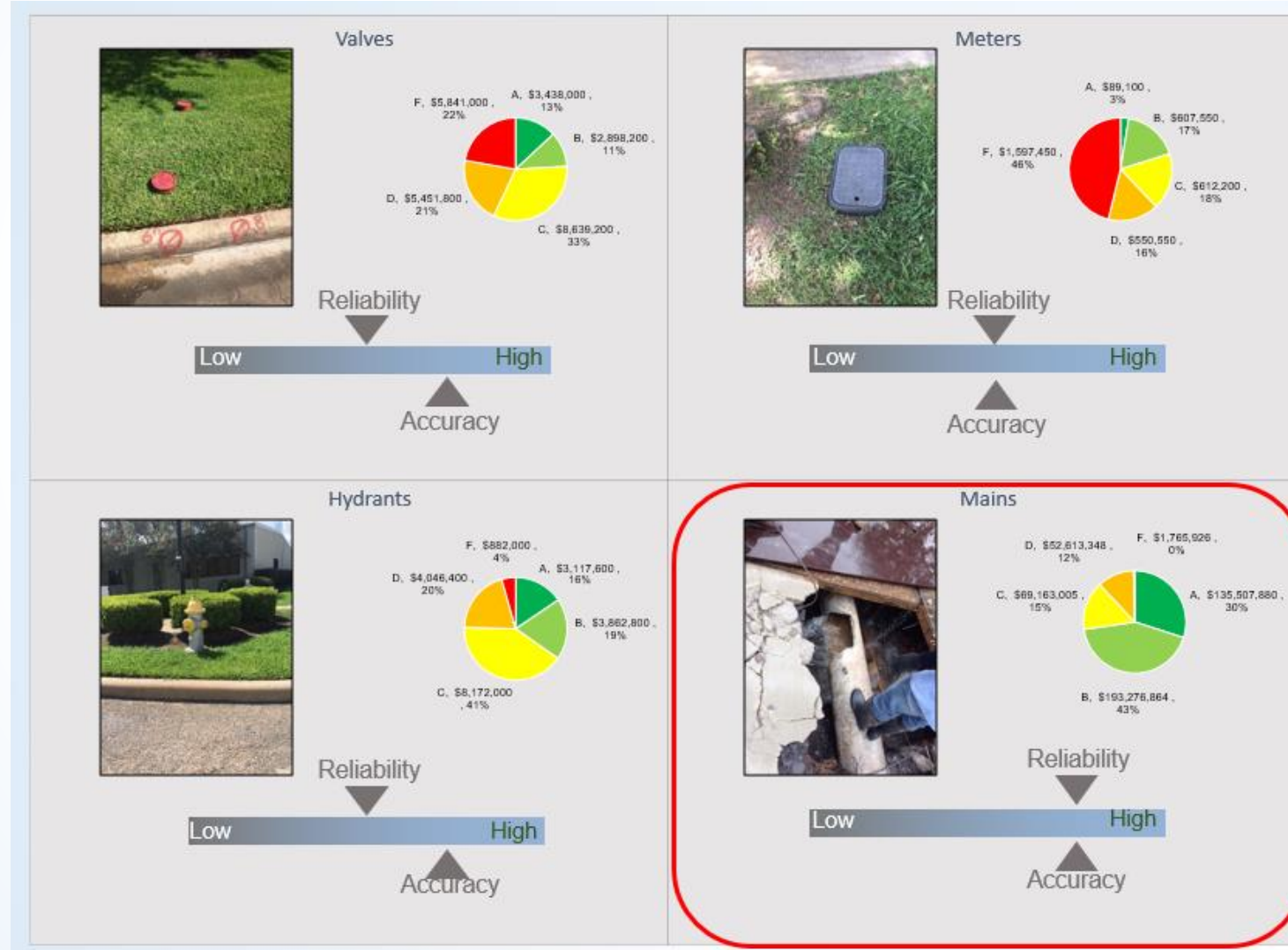


# State of the City's Physical Assets



# Completed Initiative

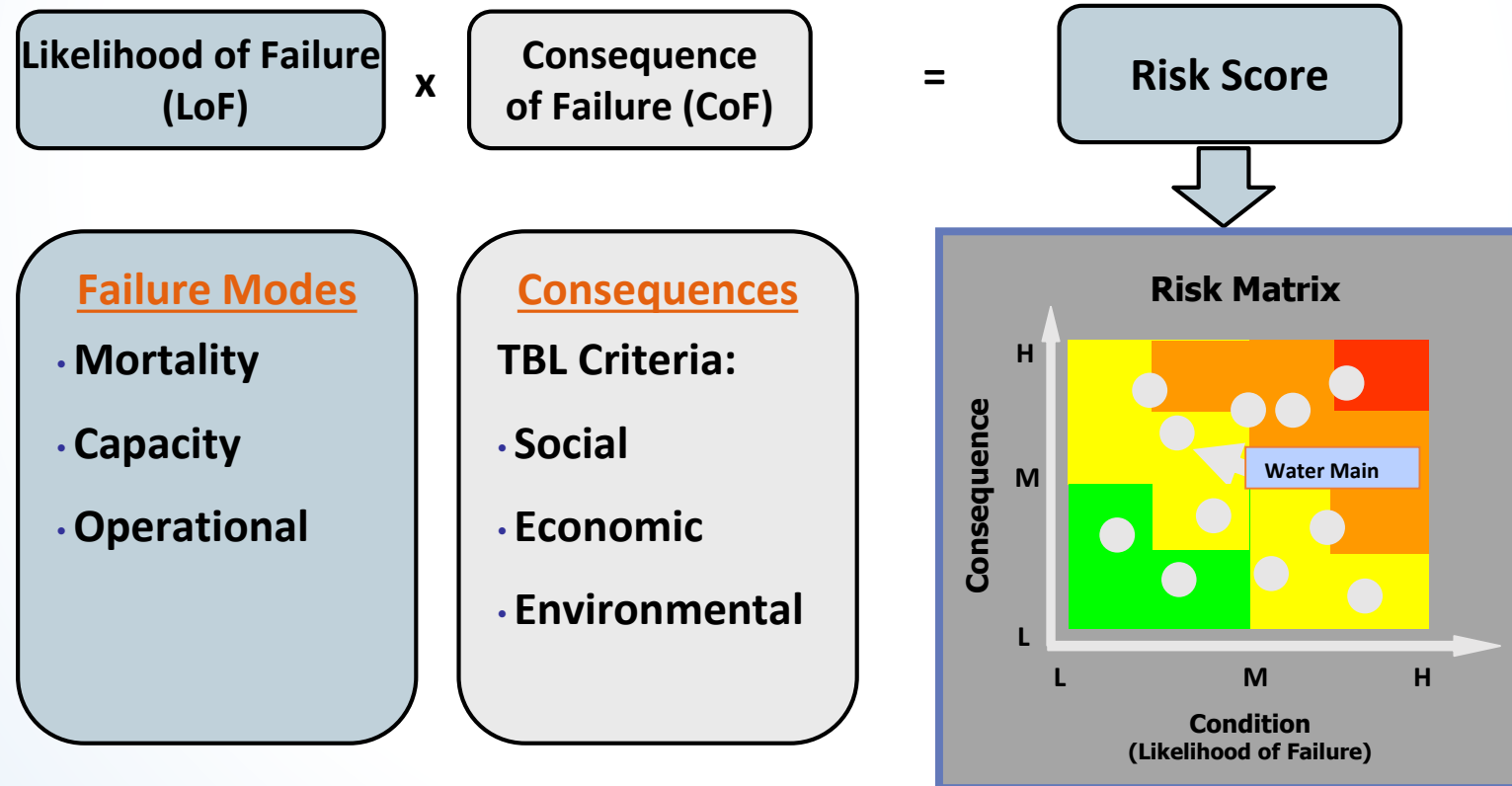
## Water Distribution – Water Mains





# Risk Management Planning

- Risk- based model/replacement program
- Use GIS to select projects aligned with City goals, acceptable level of risks, and affordability
- Risk Formula



# Pipe Condition Factors Likelihood of Failure (LoF)

Category	Factor	Comment
<b>Mortality (Physical)</b>	Material and other cohorts	Initial EUL estimate from Sugar Land failure history & service levels or industry published values
	Previous Failures	Maintenance data specific to pipes
<b>Mortality (Environmental)</b>	Soils	Previous soil studies, institutional knowledge or USGS maps
<b>Operational</b>	Pressure	Low pressure areas (caused by piping size)
	Water Quality	Areas with complaints (caused by piping materials)
	Capacity	Areas failed for current and future capacity needs (master plan)

# City of Sugar Land - Corporate Framework

## Consequence Matrix

Consequence Categories	
<b>Compliance</b>	Non compliance with Regulated requirements
<b>Organizational Objectives</b>	Failure to achieve stated mission and/or key organizational objectives
<b>Service</b>	Failure to deliver non-regulated service requirements
<b>Health &amp; Safety</b>	Safety of staff and general public
<b>3rd Party Damage</b>	Damage to property or assets
<b>Financial</b>	Unintended costs
<b>Operational Impacts</b>	Staff working conditions
<b>Systems, Information and Data</b>	Loss of critical business information
<b>Environmental</b>	Unintended damage to environment
<b>Reputational</b>	Damage to organization's image and relationships





# Triple Bottom Line Criteria Consequence of Failure (CoF)

Criteria	Measure	Very Low	Low	Moderate	High	Very High
Economic	Diameter	<=8" 68%	10-16" 24%	18-24" 7%	30" 0.3%	36" 1%
	WTP Service	NA	NA	NA	WTP Finished After Split	WTP Finished
	Depth	NA	NA	NA	>=10'	NA
	Accessibility	NA	NA	NA	Aerial Crossing	NA
Social	Critical/Vulnerable Customers	NA	Schools, Tourism & Large Volume Users	Dialysis & Nursing Homes	Hospitals	NA
	Adjacency to rail	NA	NA	Within 50'	Intersect	NA
	Roadways	NA	Minor Intersect Major Road Within 50'	Major Road Intersect	Highway within 50'	NA
Environment	Discharge to Water Body	NA	NA	Within 50'	Crossing	NA
	Levee Breach	NA	NA	NA	Within 50'	Crossing

# Current - FY18 Risk Assessments Initiatives

- On going risk assessments include:
  - Lift Stations
  - Wastewater Treatment Plants
  - Wastewater Reuse Treatment Plant
  - Groundwater Storage Tanks

# Future - FY19 Risk Assessments Initiatives

- Staff anticipates going to City Council for contracts approval in early 2019 for the following asset systems:
  - Facilities
  - Wastewater Collection System
  - Groundwater Treatment Plants
  - Elevated Storage Tanks



# Future – FY20+ Risk Assessments Initiatives

- Staff will put together a risk assessment schedule for the following asset systems:
  - SWTP
  - Streets
  - Drainage & Stormwater Management
  - Fleet
  - Traffic
  - IT
  - ROW
  - Parks
  - Airport

Questions?