Developing a Strategic Asset Management Plan

City of Laredo

January 31, 2018

UCT
Underground Construction Technology
International Conference & Exhibition

Agenda

- → About Laredo Utility System
- → Introduction
- → The Process
- → Improvement Planning
- → Asset Management Strategic Plan
- → AM Phasing Plan
- → Questions?

Laredo Utility System

Mission Statement

It is the mission of the City of Laredo Utilities Department to provide the community with safe drinking water, on demand and in sufficient quantity, and to remove and dispose of wastewater and its by-products in an environmentally sound manner. As of December 2017

Water

Water Plants	2
Water Accounts	71,934
Water Lines	1034 miles

Sewer

Wastewater Plants	6
Sewer Accounts	66,849
Sewer Lines	745 miles

Utilities Department FTE's for FY 2017-2018

Water - 224 Sewer - 120 Total = 344

Laredo Utility System

- → Population is expected to grow 650,00 in 2060
- → Water production needs will be 126 MGD
- → Current production capacity 85 MGD
- → City owns about 62,000 Ac-ft water-rights and used about 48000 ac-ft
- → Water storage 42 MGD
- → 300 miles of old pipes(>45 year) over 5280 City block
- → 2017-2022 CIP $240 mil for water sewer
- → Operational revenue is about $80 mil
- → Current debt service is $ 27mil

Introduction

Key Elements of an Asset Management System

- Identifying assets and their value
- Defining levels of service
- Establishing performance goals
- Condition assessment
- Capacity assessment and assurance
- Planning for failure and risk management
- Rehabilitation and replacement planning
- Maintenance analysis and planning
- Financial management
- Continuous process of improvement

Introduction

Asset Management System Benefits

- Better operational decisions
- Improved emergency response
- Greater ability to plan and pay for future repairs and replacements
- More efficient operation
- Better communication with customers
- More Meaningful Financial Reporting – GASB34
- Improved Regulatory Compliance
- Eligibility for State and Federal Funding

Section 9. RATING CRITERIA FOR ALL PROJECTS—EFFECTIVE MANAGEMENT

				Yes	No
A.	**Asset Management**				
	1.	a.	In the past 5 years, has an asset management plan been adopted by the entity's governing body that incorporates an inventory of all assets, an assessment of the criticality and condition of the assets, a prioritization of capital projects needed, and a budget? If **"Yes,"** attach 1) the cover page and table of contents of the entity's adopted or approved asset management plan and 2) the highlighted pages from the plan that clearly identify each of the above-referenced elements. **Note**: A Capital Improvement Plan (CIP) alone does not constitute an asset management plan.	☑	x
		b.	If **"No"** to Question A.1.a., is the entity planning to prepare an asset management plan as part of the proposed project? If so, include language in the Project Description (Section 4) that states this.	☐	x
	Assistance with establishing an asset management plan is offered through TCEQ's Financial, Managerial, and Technical (FMT) contract. Contact TCEQ, at 512-239-4691 or fmt@tceq.texas.gov to schedule a meeting.				
	2.		Has asset management training been administered to the entity's governing body and employees?	☑	x

The Process

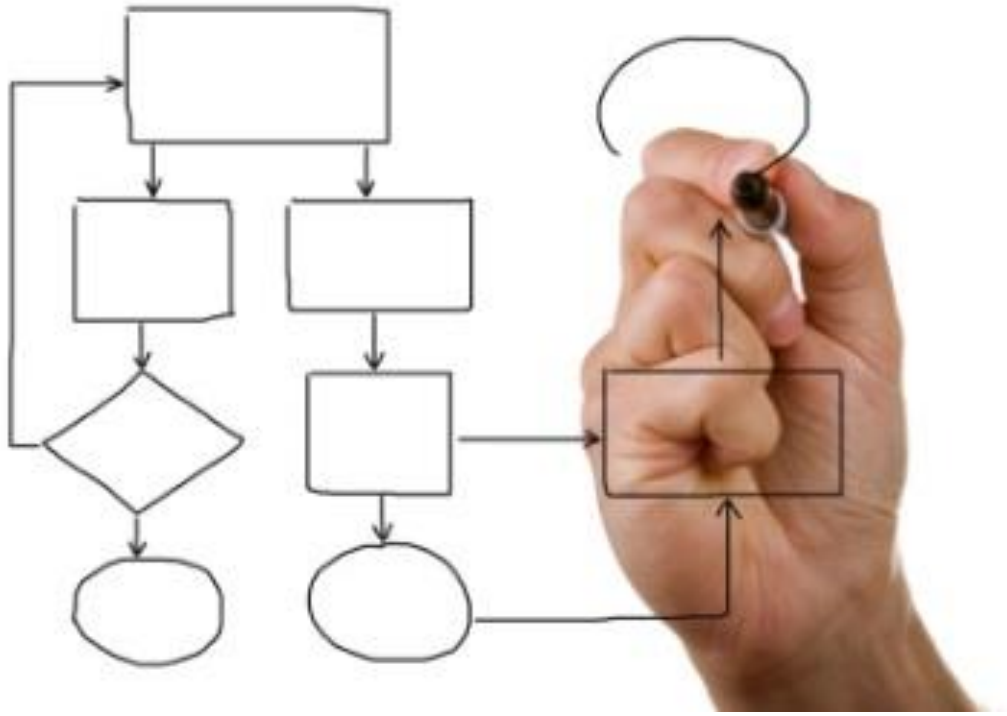
- Discovery
- Improvement Planning
- AM Plan Development
- Implementation

The Process

- **Discovery**
  - Needs Assessment
    - Department Questionnaires
    - In-house Interviews
    - Data Collection
    - Wants/Needs

The Process

- **Discovery**
  - System and Process Review
    - Hardware and Software
    - Workflows
    - Document Management



The Process

Discovery

- Best Practice Review
  - General and Utility Specific
  - Peer Cities
    - SAWS
    - Sugar Land
  - Software Review

Software Review

- Approximately 14 different asset management packages
- LAN evaluated four (4) software packages
- Functionality included:
  - Asset mgmt/inventory
  - Work orders
  - GIS capabilities
  - Other services (Training, Implementation, Support)

Functional Categories	Software Package Rank (1-5)			
Company Services	**Accela**	**Cartegraph**	**Cityworks**	**Infor/Hansen**
Services/Implementation	4	5	5	4
Support/Training	4	5	5	5
Specialization	4	5	5	4
Asset Management				
Condition Assessment	5	4	5	5
Risk Management	5	4	5	5
Asset Inventory	5	4	5	4
Work Orders				
Work Orders and Work Flow	5	4	5	4
Inventory	5	5	5	5
Licensing and Permits	5	4	5	4
GIS				
Mapping	5	5	5	5
ESRI Integration	4	4	5	4
311 Systems	5	5	4	5
Mobile Devices	5	3	4	5
ESRI ROI	3	3	5	3

Improvement Planning

- Gap Analysis
- Improvement Recommendations
- Improvement Plan

Improvement Planning

- Improvement Plan
- Water/Wastewater Priorities
  - Initial Phase:
    - Distribution system
    - Collection system
  - Future:
    - Billing
    - Other w/ww divisions
    - Environmental
    - City-wide

Division	Improvement
Administration Division	Establish workgroups Establish peer city relationships Create notification system for work disruptions Implement an automated work order system
Asset Management Division	Create SOP for inventory workflows Define LOS goals
Customer Service Division	Create SOP for division workflows Define LOS goals
Engineering Division	Create SOP for division workflows Define LOS goals
GIS	Create SOP for division workflows Define LOS goals Define the asset inventory Integrate GIS with all AM activities
Water Distribution Division	Create SOP for division workflows Define LOS goals Create a Performance Management Plan Define the division's asset inventory Populate the Condition Assessment Field
Water Pollution Control Division	Create SOP for division workflows Define LOS goals
Water Treatment Division	Create SOP for division workflows Define LOS goals Create a Performance Management Plan Define the division's asset inventory
Wastewater Collection Division	Create SOP for division workflows Define LOS goals Create a Performance Management Plan Define the division's asset inventory Populate the Condition Assessment Field
Wastewater Treatment Division	Create SOP for division workflows Define LOS goals Create a Performance Management Plan Define the division's asset inventory

Asset Management Strategic Plan

Answers these basic questions:

- What assets do we have?
- What are they worth?
- What is the condition of the asset?
- What do we need to do to maintain or replace the asset?
- When do we have to do that?
- How much will it cost?

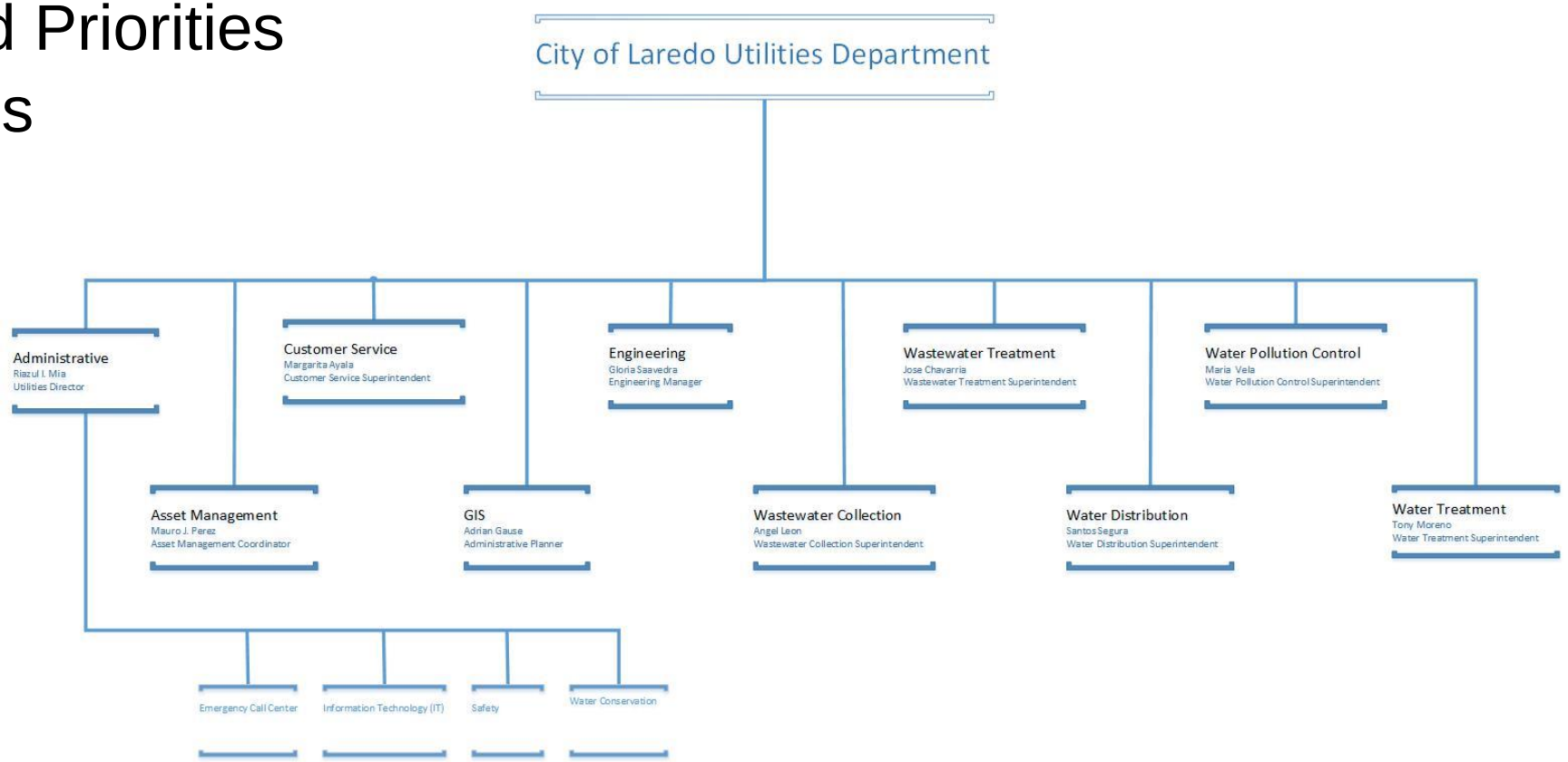
Asset Management Strategic Plan

- Overview

  - Organization and Priorities
  - Computerized Maintenance Management System Software
  - Level of Service Goals
  - Best Practices
  - Performance Baselines

Asset Management Strategic Plan

- Organization and Priorities
  - Ten Divisions
  - Priorities

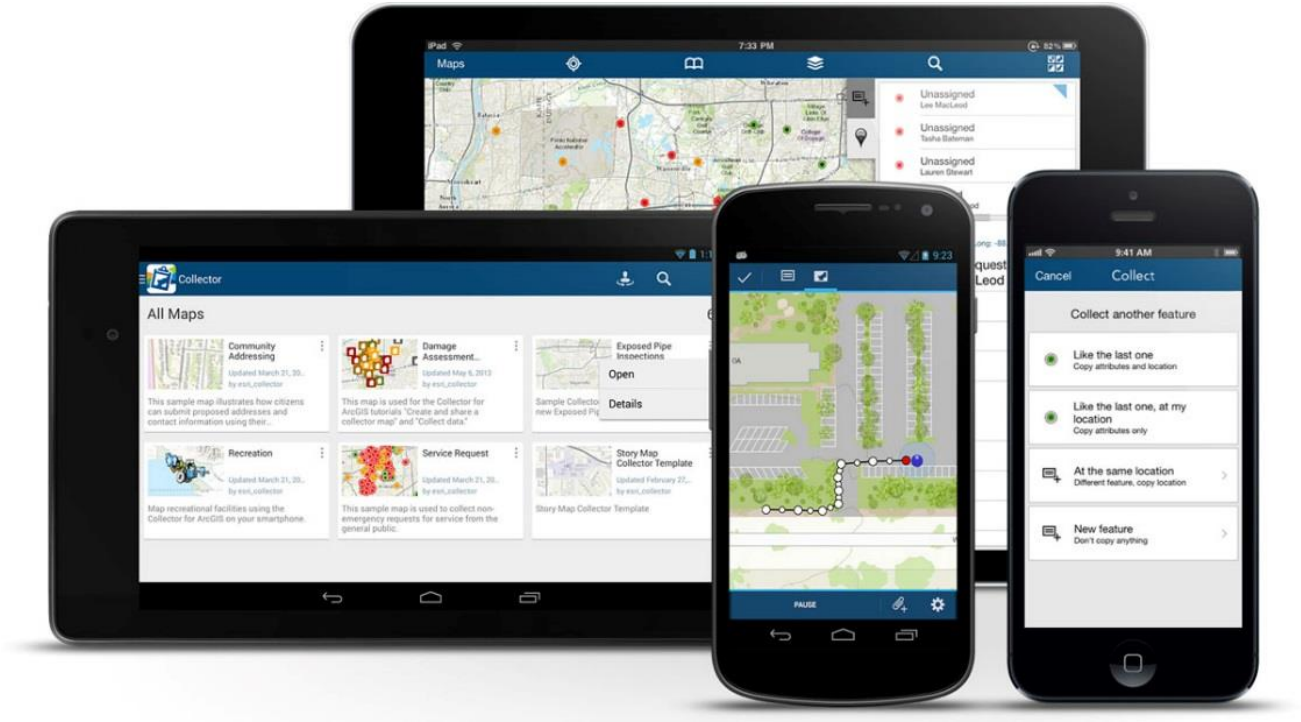


Water Distribution

Wastewater Collection

Asset Management Strategic Plan

- GIS: Collecting data in the field.



Asset Management Strategic Plan

Best Practices

- Prepare an asset inventory and system map.
- Develop a condition assessment and rating system.
- Determine asset values and replacement costs.
- Understand current and anticipated regulatory requirements.
- Communicating to the public and stakeholders the LOS and system's performance targets.
- Determine the probability of failure and listing assets by failure type.
- Analyze failure risk and consequences.
- Move from reactive maintenance to predictive maintenance.
- Review lifecycle costs, especially for critical assets.
- Analyze the causes of asset failure to develop specific response plans.

Asset Management Strategic Plan

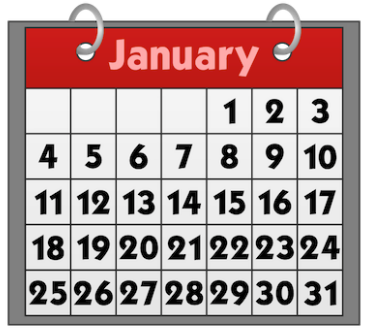
Example Tactical Plan for the Water Distribution Division:

- Level of Service Commitments:
  - Breaks will be repaired within a specified span of time
  - Increase communication and cooperation with other divisions during service disruptions
  - Commit to the highest available customer satisfaction
  - Provide adequate water pressure
  - Provide Notification of Planned Shutdown
  - Limit Duration of disruption
  - Provide adequate Storage Capacity
  - Reduce Number of Complaints

- Adherence to Best Practices:
  - Analyze current and anticipated customer demand and satisfaction with the system
  - Educate crews about the value of improving data collection during pipe breaks
  - Locate, exercise and replace, if necessary, critical valves on high risk pipes
  - Move from reactive maintenance to predictive maintenance

AM Phasing Plan - First Year Schedule

- Months 1 to 6
  - Procure the Cityworks software and development APIs
  - Define Water and Wastewater work orders and service requests
  - Document Water and Wastewater workflows
  - Begin System Inventory for Water and Wastewater
  - Develop a plan for tracking inventory in Cityworks Storeroom
  - Establish labor rates for Utility employees and outside contractors
  - Verify all equipment in value >$5000 has a unique ID
  - Intergrade Stormwater data into the GIS
  - Design and configure the Cityworks database



AM Phasing Plan - First Year Schedule

- Months 7 to 12
  - Load Water and Wastewater data into Cityworks
  - Perform a workflow assessment
  - Develop work orders, service requests and reports
  - Develop custom applications for warehouse inventory tracking
  - Develop custom application for Granite XP integration (CCTV)
  - Cityworks on-site training and soft go-live
  - Production release
  - Correct any configuration issues and finalize work orders and service requests
  - On-site support and follow-up training

Questions?

Travis Michel, P.E.
Infrastructure Manager
Lockwood, Andrews & Newnam, Inc.
tmmichel@lan-inc.com
(512) 694-1888

Riazul (Ria) Mia, P.E.
Utilities Director
City of Laredo
rmia@ci.Laredo.tx.us
(956) 721-2000