Asset Management
Professional Services Contract

JANALEA HEMBREE, ASSISTANT TO THE CITY MANAGER

FREESE AND NICHOLS

APRIL 7, 2025

ASSET MANAGEMENT

THE CITY OF BURLESON TEXAS

DEFINITION

A strategy used to meet a required level of service, in the most cost-effective manner, by managing assets for present and future customers.

COUNCIL POLICY 43

City of Burleson Asset Management Policy, Adopted March 2024

Policy outlines the City's approach to maintaining, preserving, and enhancing its assets.

WORKING MODEL

Predictive modeling, risk management, and optimized decision-making techniques to establish asset lifecycle treatment options and related long-term cash flow predictions.

Stakeholder/Community Expectations

ORGANIZATIONAL STRATEGIC GOALS

CORPORATE RISK MATRIX AND AM POLICY

ASSET MANAGEMENT PLANS

WATER SYSTEM

WASTEWATER SYSTEM

STORMWATER SYSTEM

ROADWAY NETWORK

CITY FACILITIES

PARKS/REC

2025

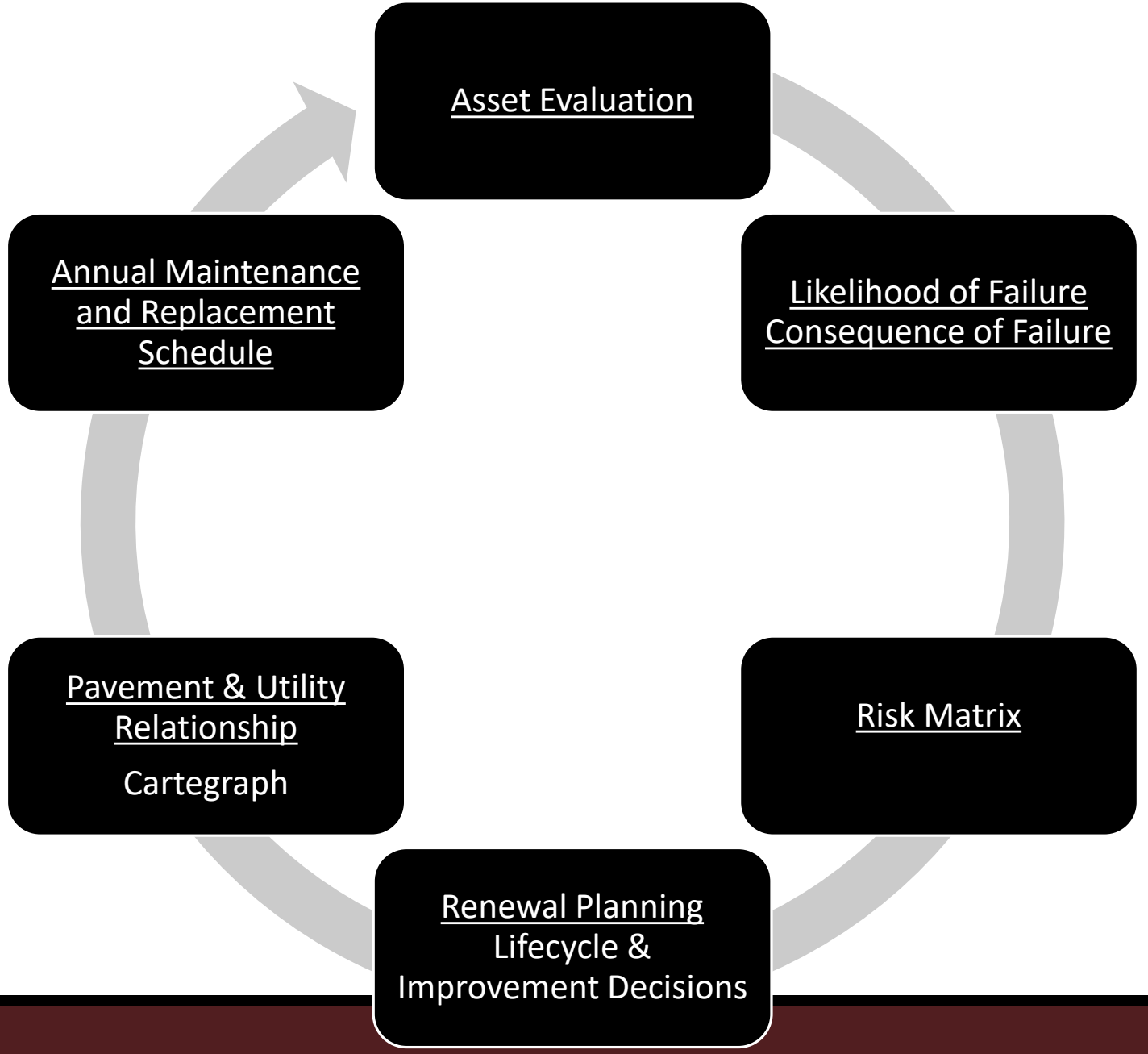
2024

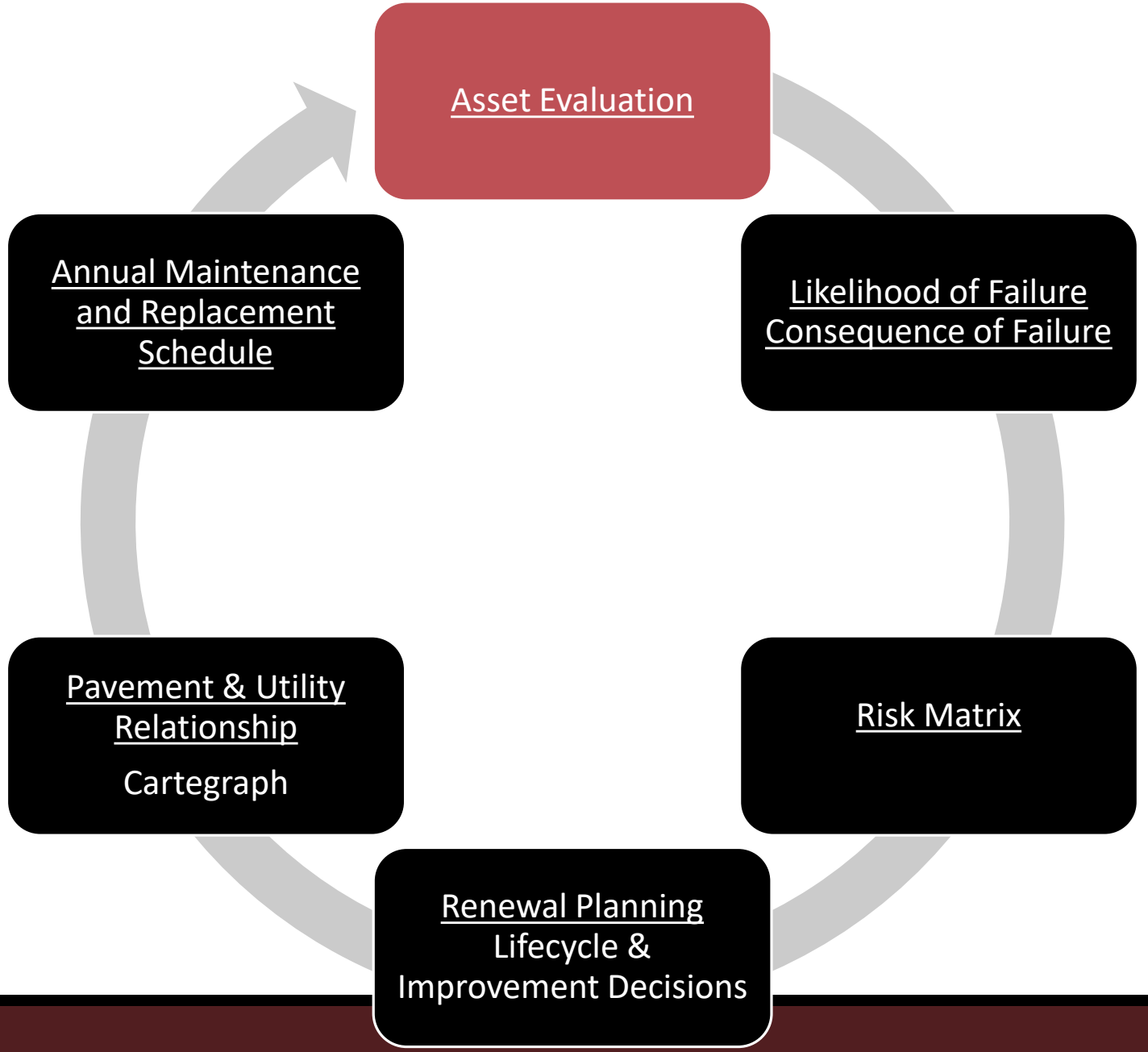
FUTURE

FINANCIAL PLAN

CONTRACT

- **Project Management & Coordination:** Conducting meetings, reporting, and collaboration with City staff.
- **Risk & Condition Assessments:** Evaluating infrastructure based on material, age, work history, and performance indicators.
- **Renewal Planning:** Establishing frameworks for short-term and long-term infrastructure improvements.
- **Integration with Cartegraph:** Enhancing data-driven planning using risk scoring, condition assessments, and renewal scenarios.
- **Coordinated Infrastructure Renewal Planning:** Drafting a coordinated infrastructure renewal decision tree for water, wastewater, and roadway infrastructure renewal needs.


Asset Evaluation
Likelihood of Failure
Consequence of Failure
Risk Matrix
Renewal Planning
Lifecycle &
Improvement Decisions
Pavement & Utility
Relationship
Cartegraph
Annual Maintenance
and Replacement
Schedule


Asset Evaluation
Likelihood of Failure
Consequence of Failure
Risk Matrix
Renewal Planning
Lifecycle &
Improvement Decisions
Pavement & Utility
Relationship
Cartegraph
Annual Maintenance
and Replacement
Schedule

ASSET ASSESSMENT

Conduct Site Visits

- Two Engineers from FNI along with City staff
- A visual condition assessment of water facilities

Condition Assessment

- Asset data
  - Material type, age, W/O history, satellite leak detection data, and PACP defects
- Apply condition assessment framework to determine condition scores for water and wastewater

WATER MAINS

8741 SEGMENTS - 230 MILES

WASTEWATER GRAVITY MAINS

4435 SEGMENTS - 232 MILES

WASTEWATER FORCE MAINS

5 SEGMENTS - 0.56 MILES

5359 Water Valves

1790 Fire Hydrants

23 Water Pumps

6 Sewer Pumps

14,770 Residential

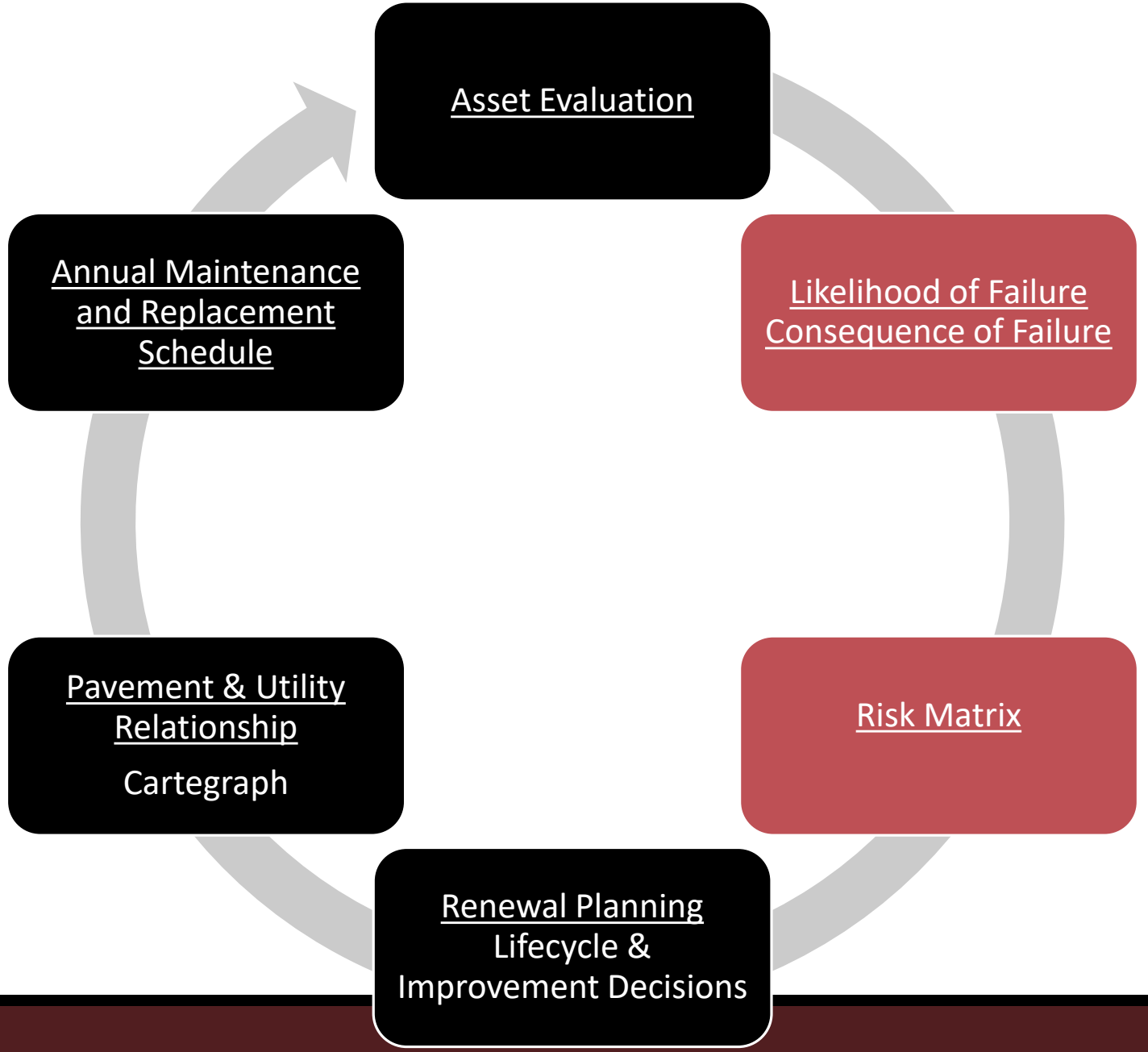
962 Commercial

3 Sewer Lift Stations

5 Water Pump Stations

4 Elevated Storage Tanks

5 Ground Storage Tanks


Asset Evaluation
Likelihood of Failure
Consequence of Failure
Risk Matrix
Renewal Planning
Lifecycle &
Improvement Decisions
Pavement & Utility
Relationship
Cartegraph
Annual Maintenance
and Replacement
Schedule

ASSET EVALUATION

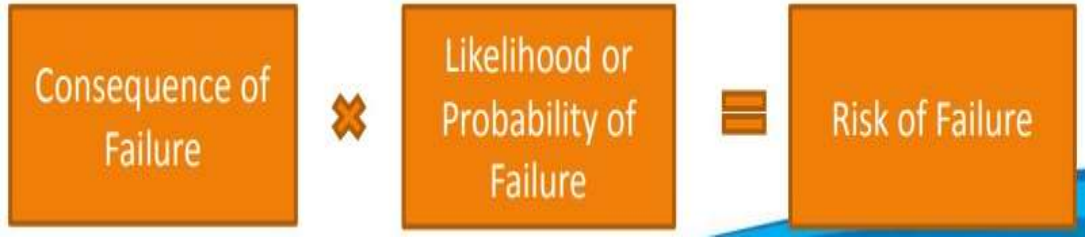
THE CITY OF BURLESON TEXAS

PROBABILITY OF FAILURE: Likelihood that an asset will fail at a given time and an important part of effective risk analyses.

CONSEQUENCE OF FAILURE: Consequences in safety, economy, and environment that is evaluated as the outcomes of a failure based on the assumptions that such a failure will occur.

RISK MATRIX: The Consequence of Failure (CoF), calculated together with the Probability of Failure (PoF), helps establish the risk level for a particular piece of equipment and set inspection intervals based on the calculated risk.

Likelihood \ Impact	Negligible	Minor	Moderate	Significant	Severe
Very Likely	Low Med	Medium	Med Hi	High	High
Likely	Low	Low Med	Medium	Med Hi	High
Possible	Low	Low Med	Medium	Med Hi	Med Hi
Unlikely	Low	Low Med	Low Med	Medium	Med Hi
Very Unlikely	Low	Low	Low Med	Medium	Medium



ASSET EVALUATION

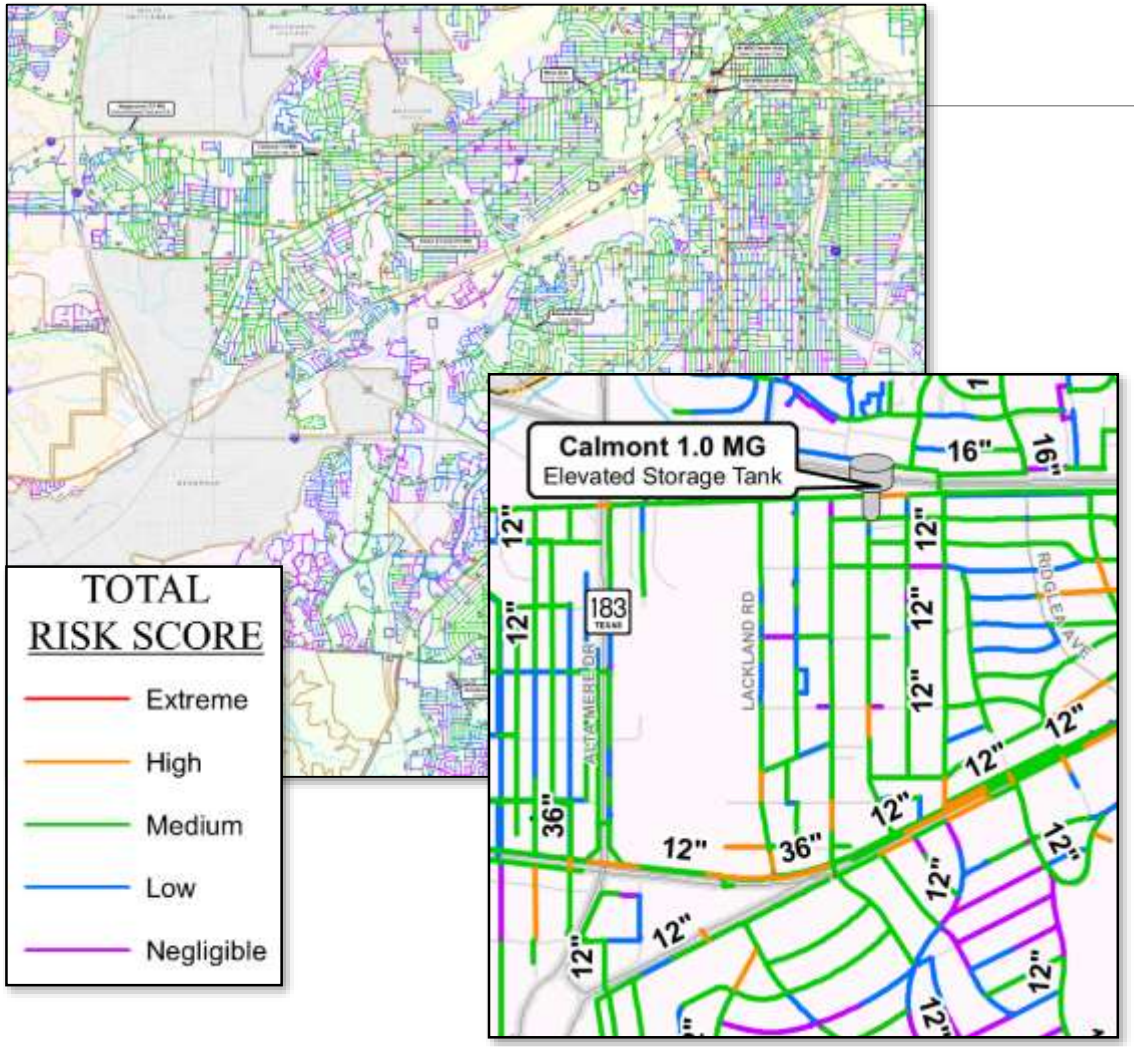
LOF

Weighting	Parameter	Criteria	Score
30%	Material	A.C.	10
		C.I. / Unknown	8
		D.I.	6
		H.D.P.E.	5
		Concrete	4
		Copper / Steel	3
		PVC	1
10%	Age	Older than 50 years	10
		41 – 50 years / Unknown	8
		31 – 40 years	6
		21 – 30 years	4
		0 – 20 years	2
50%	Pipe Work Order History (Last 5 years)	4 and Greater Repairs	10
		3 Repairs	8
		2 Repairs	5
		1 Repair	3
		No Repairs	1
10%	Modeled Pressure Difference	Greater than 20 PSI	10
		10 – 20 PSI	7
		5 – 10 PSI	4
		Less than 5 PSI	1

COF

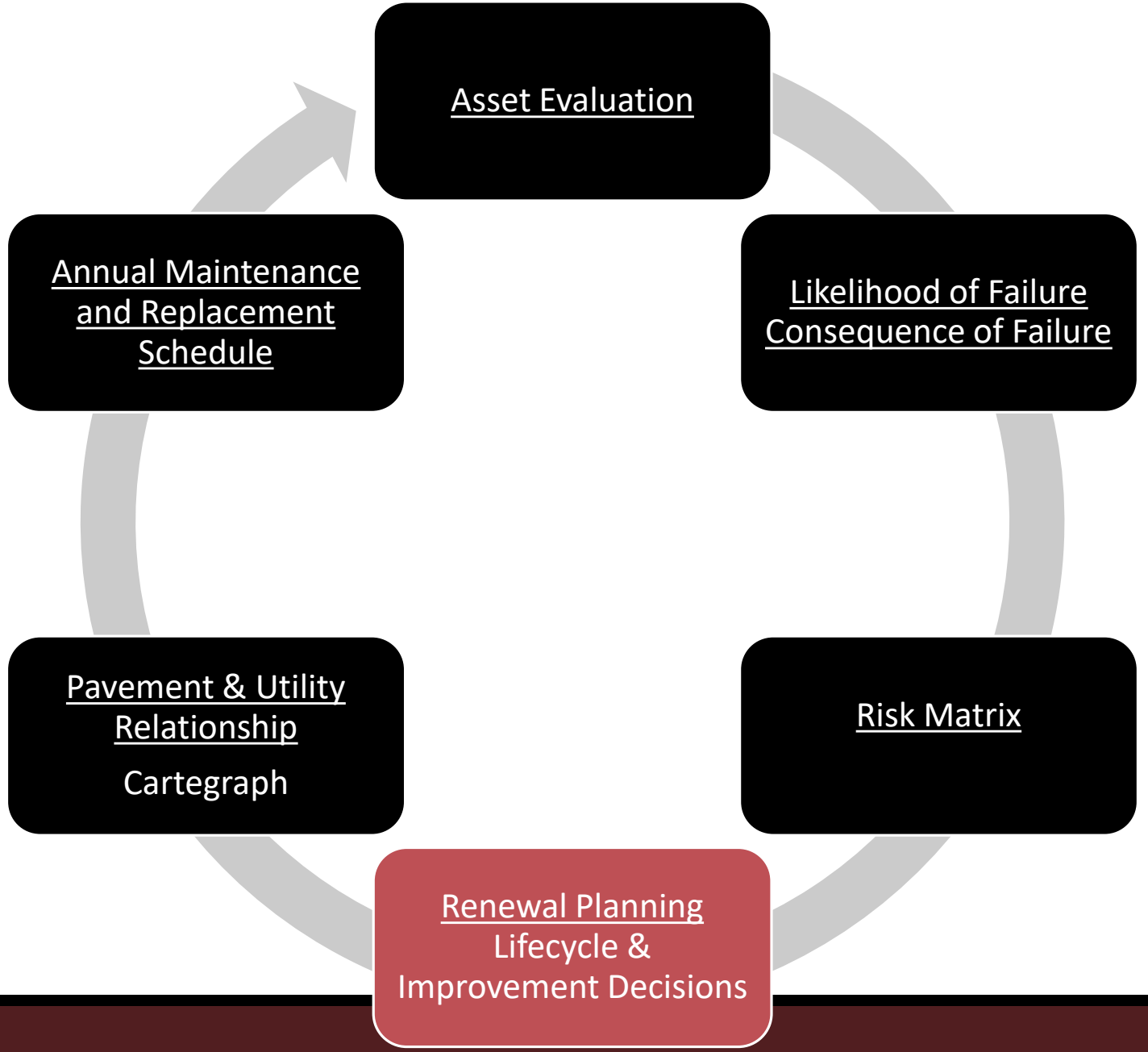
Weighting	Parameter	Criteria	Points
15%	Access Issues	River / Stream / Railroad	10
		Alleyway	9
		Interstate / State Highway	7
		Major Collector / Arterial Road	4
		No Crossing	1
30%	Proximity to Critical Customers	More than 5 customers within ¼ mile	10
		More than 5 customers within ½ mile or 3 to 4 customers within ¼ miles	7
		More than 5 customers within 3/4 mile or 3 to 4 customers within 1/2 miles or 1 to 2 customers within ¼ miles	4
		Remaining Water Lines	1
30%	Customers Served	Greater than 24-inches	10
		20-inches – 24-inches	8
		14-inches – 18-inches	5
		8-inches – 12-inches	3
		Less than 8-inches	1
25%	Resiliency	Non-Redundant Pipe	7
		Redundant Pipe	3

ASSET EVALUATION



Risk Grade		Condition				
		Very Low 0.0 to 2.0	Low 2.1 to 3.5	Medium 3.6 to 5.0	High 5.1 to 5.5	Very High 5.6 to 10.0
Criticality	Very Low 0.0 to 2.0	Negligible 20.9 miles	Negligible 51.3 miles	Low 62.7 miles	Medium 8.1 miles	Medium 56.4 miles
	Low 2.1 to 3.5	Negligible 819.3 miles	Low 871.2 miles	Medium 473.9 miles	Medium 49.2 miles	Medium 318.8 miles
	Medium 3.6 to 5.0	Low 143.2 miles	Medium 319.1 miles	Medium 125.2 miles	Medium 9.9 miles	High 51.4 miles
	High 5.1 to 5.5	Medium 16.8 miles	Medium 44.3 miles	Medium 17.8 miles	High 2.7 miles	Extreme 3.6 miles
	Very High 5.6 to 10.0	Medium 6.9 miles	Medium 26.8 miles	High 12.4 miles	Extreme 1.3 miles	Extreme 1.8 miles

PRIORITIZE CONDITION ASSESSMENT & RENEWAL IMPROVEMENTS BASED ON RISK


Asset Evaluation
Likelihood of Failure
Consequence of Failure
Risk Matrix
Renewal Planning
Lifecycle &
Improvement Decisions
Pavement & Utility
Relationship
Cartegraph
Annual Maintenance
and Replacement
Schedule

LIFECYCLE EXAMPLE

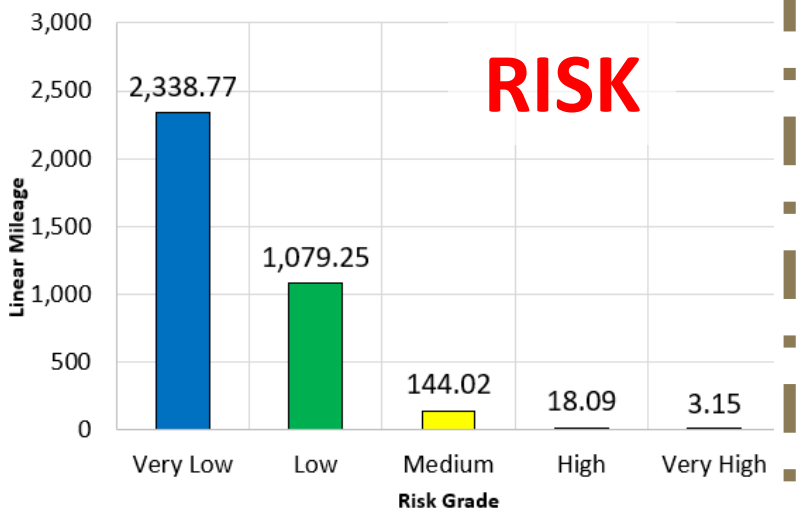
THE CITY OF BURLESON TEXAS

LOF

Weighting	Parameter	Criteria	Score
30%	Material	A.C.	10
		C.I. / Unknown	8
		D.I.	6
		H.D.P.E.	5
		Concrete	4
		Copper / Steel	3
		PVC	1
10%	Age	Older than 50 years	10
		41 – 50 years / Unknown	8
		31 – 40 years	6
		21 – 30 years	4
		0 – 20 years	2
50%	Pipe Work Order History (Last 5 years)	4 and Greater Repairs	10
		3 Repairs	8
		2 Repairs	5
		1 Repair	3
		No Repairs	1
10%	Modeled Pressure Difference	Greater than 20 PSI	10
		10 – 20 PSI	7
		5 – 10 PSI	4
		Less than 5 PSI	1

COF

Weighting	Parameter	Criteria	Points
15%	Access Issues	River / Stream / Railroad	10
		Alleyway	9
		Interstate / State Highway	7
		Major Collector / Arterial Road	4
		No Crossing	1
30%	Proximity to Critical Customers	More than 5 customers within ¼ mile	10
		More than 5 customers within ½ mile or 3 to 4 customers within ¼ miles	7
		More than 5 customers within 3/4 mile or 3 to 4 customers within 1/2 miles or 1 to 2 customers within ¼ miles	4
		Remaining Water Lines	1
30%	Customers Served	Greater than 24-inches	10
		20-inches – 24-inches	8
		14-inches – 18-inches	5
		8-inches – 12-inches	3
		Less than 8-inches	1
25%	Resiliency	Non-Redundant Pipe	7
		Redundant Pipe	3



Data Feed

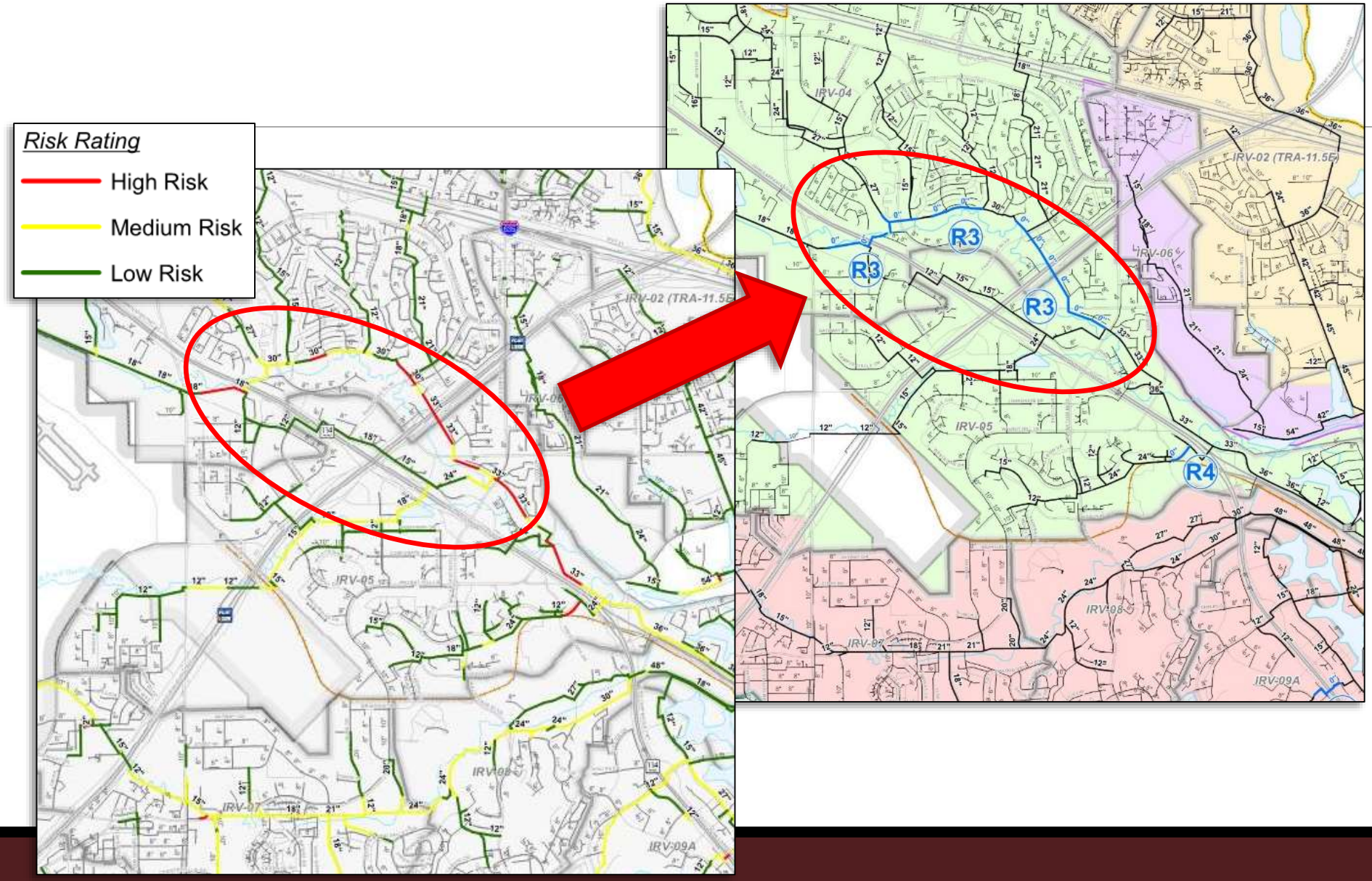
IMPROVEMENT DECISION TREE

Maps

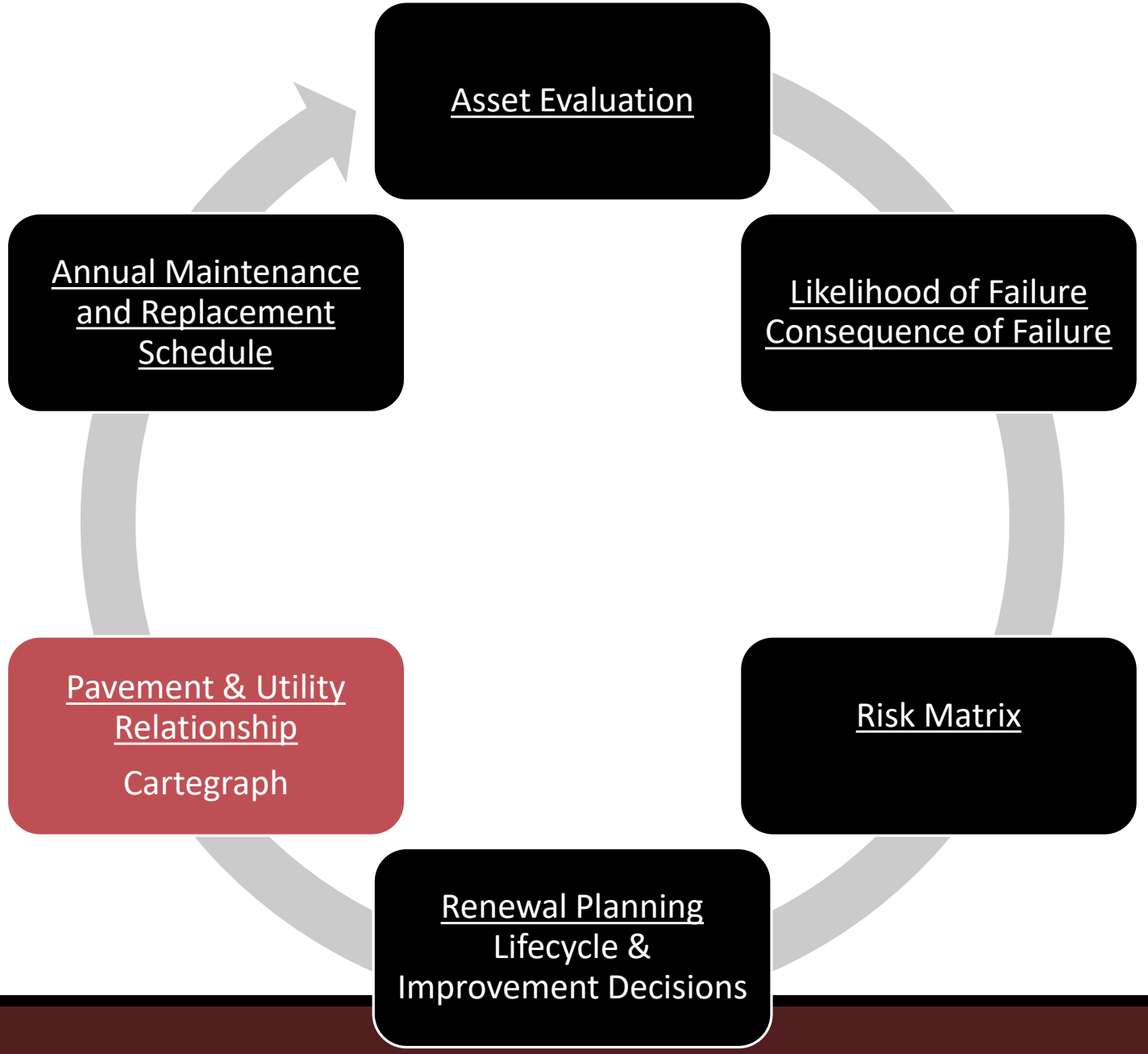
Tables

ENGINEERING JUDGEMENT

LIFECYCLE EXAMPLE



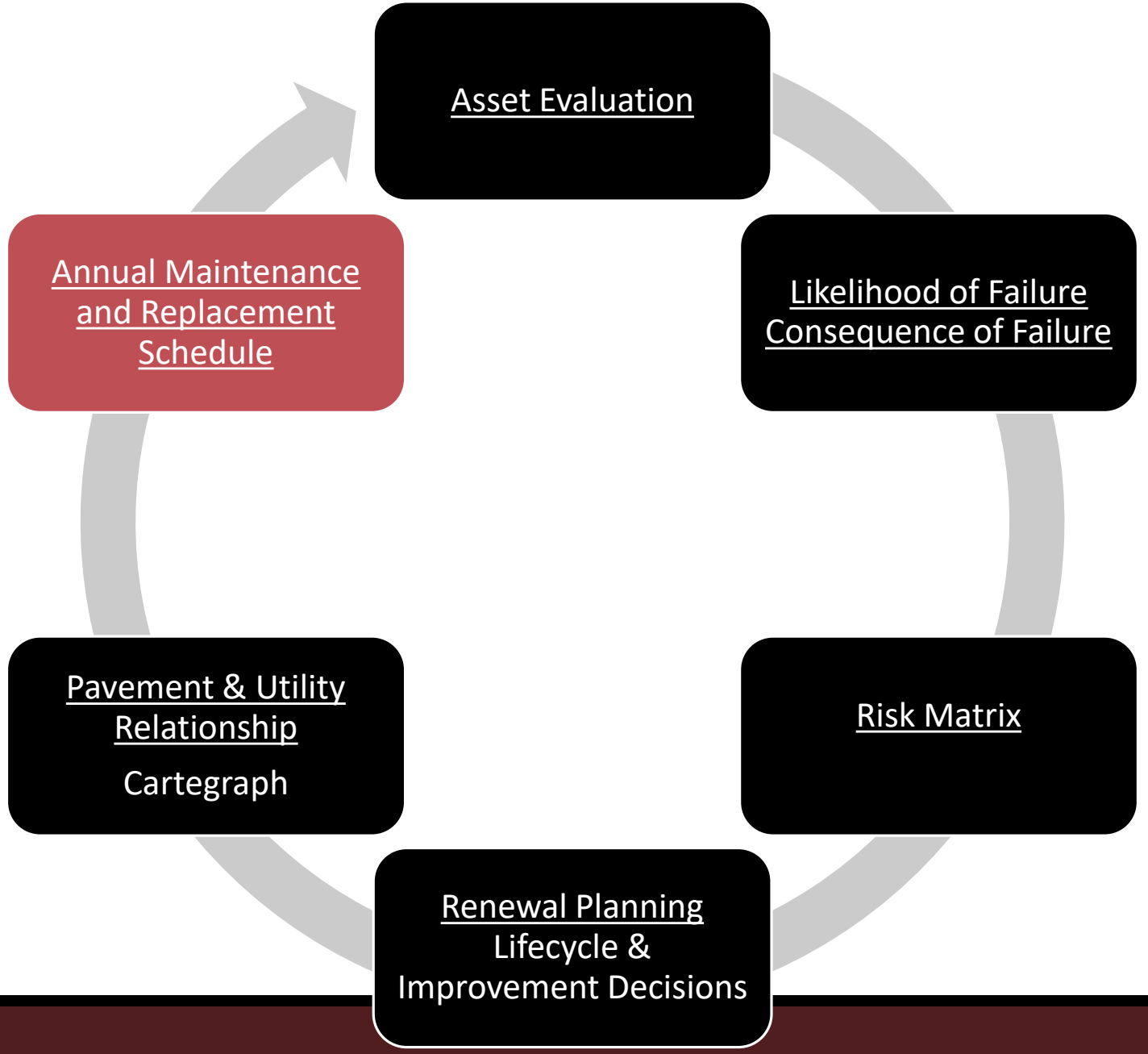
PRIORITIZE CONDITION ASSESSMENT & RENEWAL IMPROVEMENTS BASED ON RISK


Asset Evaluation
Likelihood of Failure
Consequence of Failure
Risk Matrix
Renewal Planning
Lifecycle &
Improvement Decisions
Pavement & Utility
Relationship
Cartegraph
Annual Maintenance
and Replacement
Schedule

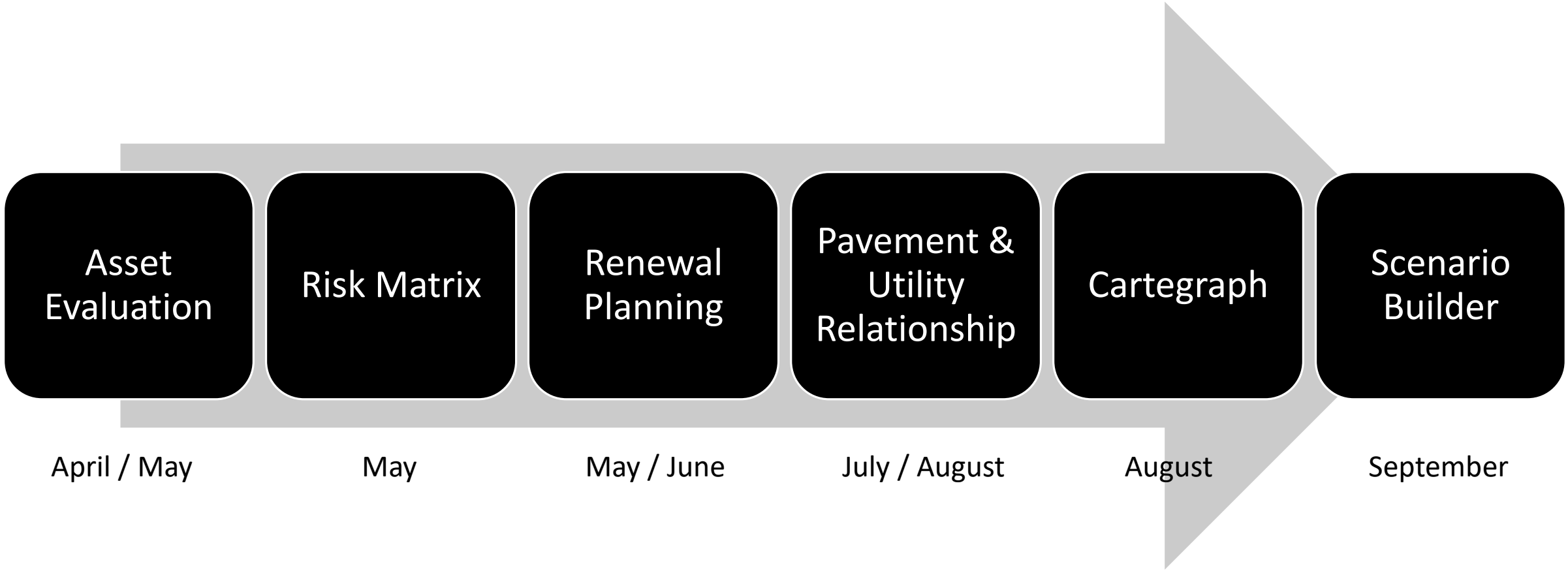
ASSET RELATIONSHIP

- Streets Year 1
- Streets Year 2
- Water Year 1
- Sewer Year 1

ASSET RELATIONSHIP


Asset Evaluation
Likelihood of Failure
Consequence of Failure
Risk Matrix
Renewal Planning
Lifecycle &
Improvement Decisions
Pavement & Utility
Relationship
Cartegraph
Annual Maintenance
and Replacement
Schedule

TIMELINE


Asset Evaluation
Risk Matrix
Renewal Planning
Pavement & Utility Relationship
Cartegraph
Scenario Builder
April / May
May
May / June
July / August
August
September

CONTRACT FUNDING

- Project: WA2501
- Fund: Capital
- Funds: UAWS Non-Bonds

NEXT STEPS

- Based on direction, staff will work with Freese and Nichols to start on assessment of Water and Wastewater infrastructure.
- Integrate Water and Wastewater Risk model into Cartegraph.
- Work with Capital on funding strategies for renewal plans.
- Present Water and Wastewater Asset Management to City Council, along with coordinated infrastructure renewal decision tree for water, wastewater, and roadway infrastructure renewal needs.
- Work with Capital Engineering and Public Works operations to coordinate renewal efforts.
- Implement decision-making framework for asset renewals.

RECOMMENDATION

- Approve a services contract with Freese and Nichols, Inc to perform risk assessments on water/wastewater facilities and infrastructure and create an asset management plan report in the amount of $320,000.

Questions / Comments

Janalea Hembree
Assistant to the City Manager
jhembree@burlesontx.com
817.426.9299