Physical Asset Management

Why It Matters to You

gWorks

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gWorks

a GovTech firm

GIS

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Financial Applications

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Billing & Licensing

Utility Billing

Cemetery Management

30+ Cloud and Desktop Applications

gWorks

a GovTech firm

Purpose

Empower public leaders to build smarter, more sustainable governments and stronger, more resilient communities with simple technologies and solutions.

Vision

Power thousands of small local governments with an easy-to-use and integrated software suite that connects data, people, and effective action into community strength and pride.

Mission

Cultivate the strongest and smartest team who delivers the simplest, most effective, & most pleasing technology solutions to small local governments and who backs it up with the best support in the industry.

TOP INFRASTRUCTURE CHALLENGES

Cities are responsible for the foundation and infrastructure upon which a community thrives...or withers.

Cities carry the most liability exposure with all of its buildings, assets, vehicles, and data that citizens interact with daily. Mishaps can be catastrophic...to people's lives and livelihoods; to city coffers; to officials' reputations; to city's resiliency.

D+ 2017 U.S. Infrastructure Report Card

50+ Majority of Water & Sewer Mains in U.S. are 50 years or older

240k Water Main breaks annually in U.S.

75k Sanitary Sewer Overflow Discharges annually in U.S. equally 3 - 10 billion gallons

5.5k Illnesses annually in U.S. from Sewer overflows

Example: Nebraska's Challenges

2,254 bridges are structurally deficient

$1.64 billion in drinking water infrastructure needs over 20 years

$2.6 billion in wastewater infrastructure needs over 20 years

9,500 miles of public roads in poor condition
$467 motorists spend annually for vehicle repairs due to poor roads

51.4 average age of government workforce
70.7% of workforce over the age of 45

20% of municipal property set at maximum insurance premium allowed because of insufficient or no property data

Sources: ASCE, BLS, EPA, proprietary

EXCESSIVE OPTIMISM

To believe you are at a lesser risk of experiencing a negative event compared to others.

MORAL HAZARDS

Don't Always Count on Someone to Bail You Out!

FEMA

More than 900 FEMA denials over the past 10 years

THE FIVE RISKS

Asset Management Reduces All of These!

Operational

Loss from breakdown in equipment, assets, or technology

Hazard

Loss from accidents, disasters, backups, and so on

Financial

Loss from mismanagement of funds, grants, operations, & planning

Reputation

Loss from garnering a bad reputation

Litigation

Loss from legal actions against or on behalf of the city

WHAT TO DO?

Same Ole, Same Ole. Right?

It's easy to do nothing and hope the challenge goes away.

But it won't. It'll grow in size, scope, and cost to address.

PEOPLE & ASSETS INTERTWINED

People interact with a city's capital assets every second, every day.

Such a high volume of interaction requires a reliable infrastructure to advance health, safety, economic development, and quality of life.

Water

A person uses 29,000 - 36,500 gallons of water per year

Roads

A person travels 15,000 miles per year on average

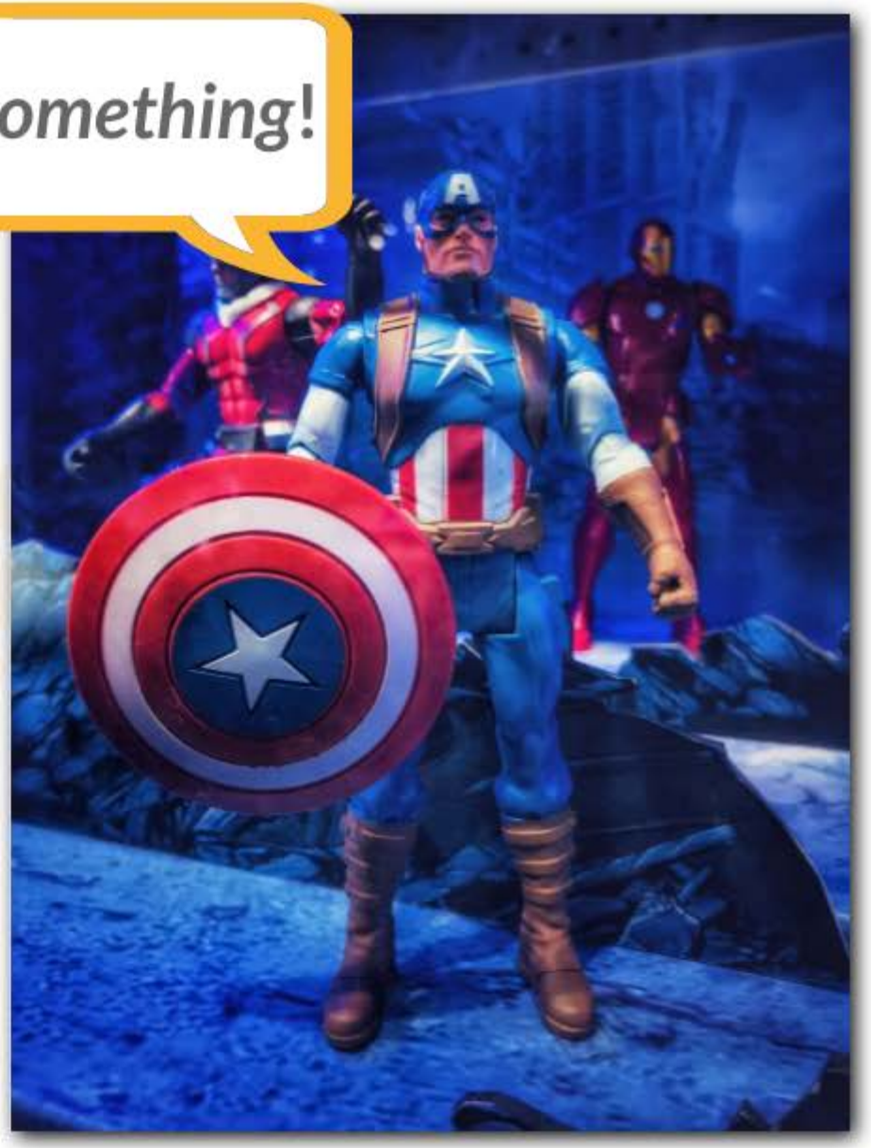
Wastewater

A person produces 18,000 -25,500 gallons of wastewater per year

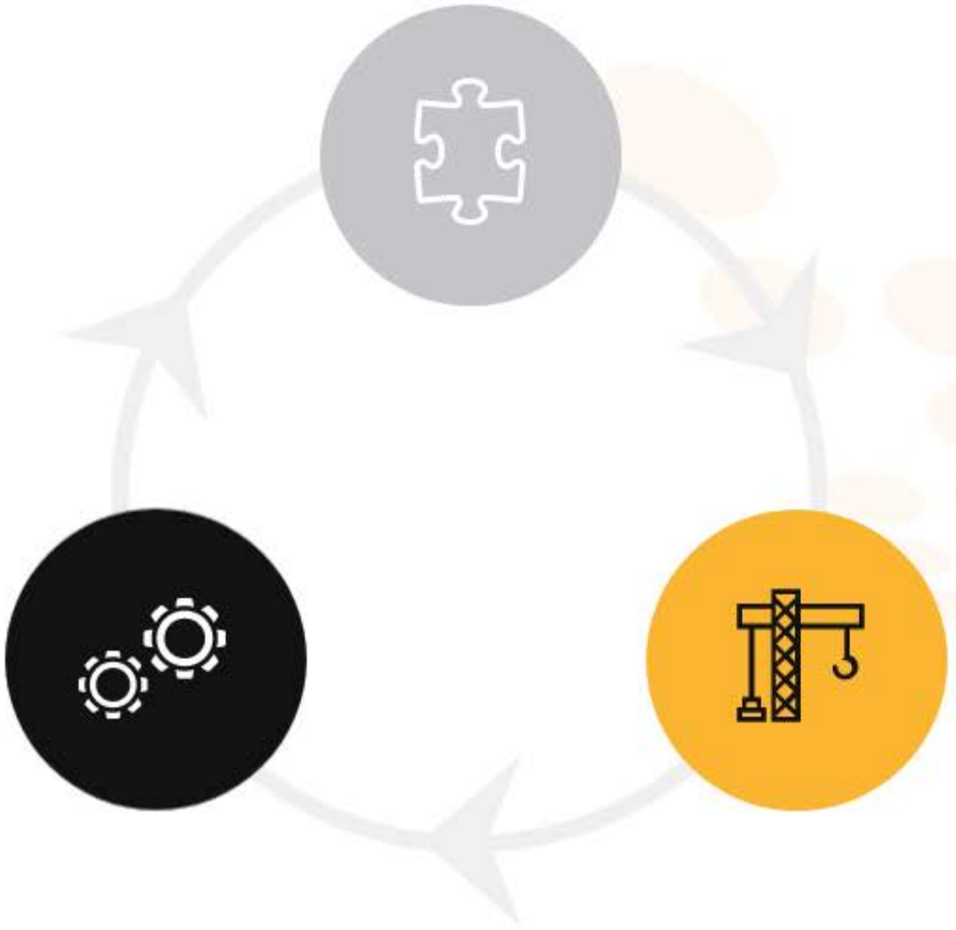
WHAT TO DO?

It feels harder to do something, but it's not.

Doing small things well can save you a lot of time, money, and effort later.



3-PLAN CYCLE



Comprehensive Plan

Provides the long-term vision for capital projects and investments.

Capital Improvement Plan

Provides the financial blueprint for prioritizing the needs of public improvements

Asset Management Plan

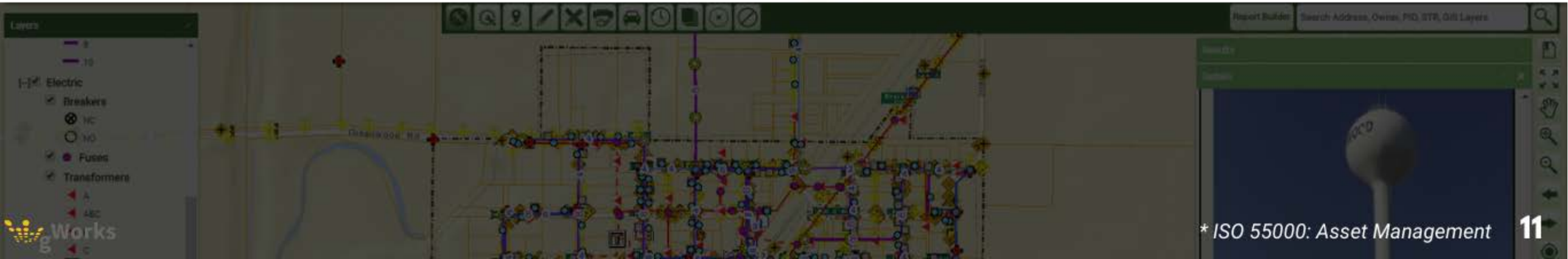
Supports and helps secure the realization of the CP and CIP

PHYSICAL ASSET MANAGEMENT

Effective control and governance of assets

Essential to realizing value through managing risk and opportunity

To achieve the desired balance of cost, risk, and performance.*



* ISO 55000: Asset Management

PHYSICAL ASSET MANAGEMENT

“TAKE CARE OF YOUR GEAR, AND YOUR GEAR WILL TAKE CARE OF YOU.”

- Naval Special Warfare Maxim

PHYSICAL ASSET MANAGEMENT

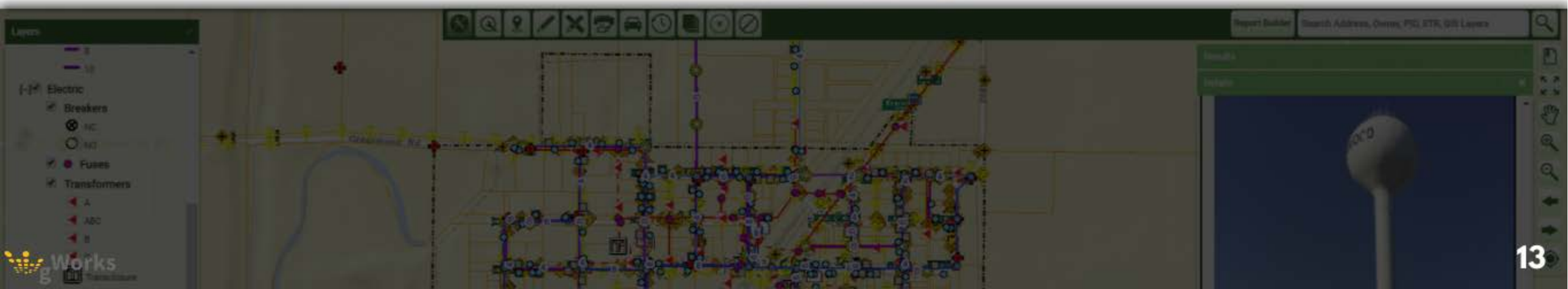
Take care of your gear, and your gear will take care of you.

Components

- Plan
- Inventory
- Condition & Criticality Assessment
- Planned, preventative maintenance
- Other Activity Management
- Job Costing
- Analytics for planning, budgeting, and reporting
- Software / GIS mapping

Benefits

- Improved services and output
- Informed asset investment decisions
- Improved financial performance
- Managed risk
- Improved efficiency and effectiveness
- Improved organizational stability
- Demonstrated compliance
- Enhanced reputation
- Demonstrated social responsibility

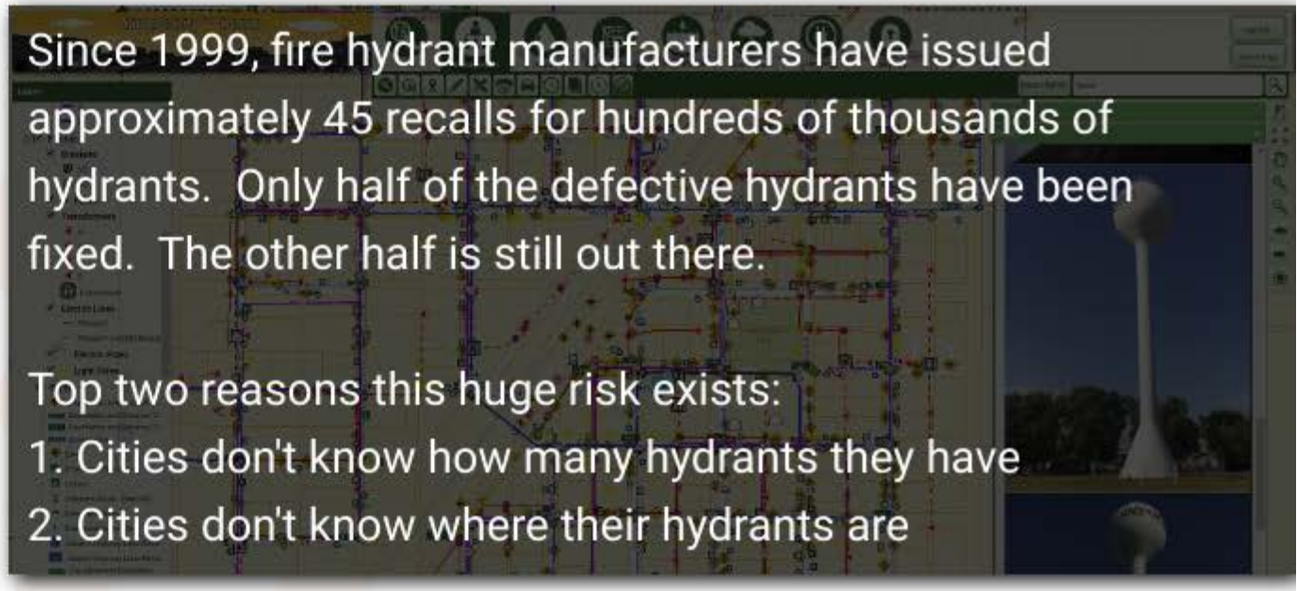


AWARENESS: INVENTORY

How can you take action if you don't know what you have?

Effective asset planning and management require a complete inventory of a municipality's infrastructure. It is the foundation for planning, budgeting, executing operations, and making decisions. Incomplete data (or lack thereof) can create catastrophic blindspots.

Make it policy; make it a part of job requirements & workflows.



An inventory should contain at least the following information:

- Asset Name
- Asset Location
  - GPS (latitude / longitude)
  - Nearest block
  - Street & Cross-street
- As-built document association
- Condition & Criticality Ratings
- Installment date/date of service
- Useful life
- Original value
- Replacement cost
  - Or net book value
- Maintenance history
- Photo (time-stamped)

AWARENESS: PRIORITIZATION

Highest Risk comes first; nice-to-haves, last

Once you've completed your inventory, prioritize your asset data for collecting condition rating information. Note: You can collect the condition rating when conducting your inventory.

How do you prioritize?

- First, consult your Comprehensive Plan. What are the long-term priorities of your city and how does that fit into your CIP?
- From that list, prioritize based on Highest Risk first and nice-to-haves last

What is Highest Risk?

- The Probability of Failure (%) & Consequence of Failure ($) are high
- If the asset's failure of loss affects two or more of "The Five Risks"

Typical Priority List

1. Water
2. Wastewater
3. Streets
4. Everything else

Still not sure how to prioritize? Do this:

1. Health & Safety
2. Asset Life Cycle
3. Infrastructure Expansion or Addition
4. Everything else

ASSESS: CONDITION RATING

Establish Condition Rating Standards to measure functional performance and risk

Condition Assessment is a key component of Asset Management. A Condition **Assessment & Rating measures an asset's functional performance (e.g., reliability) and its risk (e.g., the probability of failure).** An established Condition Assessment & Rating policy help the city determine the remaining useful life of its assets. With remaining useful life and issues frequency (i.e., the number of work orders per asset), a city can plan whether to repair, refurbish, or retire & replace an asset. As part of the City's policy, periodic assessments should occur.

The three common types of Condition Assessment are:

- Desktop review
- Visual inspection
- Testing, which a qualified individual using proper equipment usually performs

Condition Ratings are scored on a scale that can be based on:

- Known issues derived from maintenance history, visual inspections, and/or testing
- Remaining useful life (not preferred because these ratings drive the assessment of remaining life)
- State or federal statutes, insurance standards, or other professional standards

ASSESS: CONDITION RATING

Examples of Condition Rating

Rating	Condition	Description
1	Excellent	New or like new. Fully operable, well maintained, and within standards. No known condition issues.
2	Good	Acceptable function and showing normal signs of wear. Few known issues.
3	Fair	Known issues likely causing deterioration of asset and high maintenance.
4	Poor	Useful life exceeded, met, or nearly met. Maintenance costs exceed market value. Failure highly probable

The rating system can use numbers, letters, and have a short or long range (e.g., 1-10). **Whichever you choose, it should be understandable, consistent, and reliable. Keep it simple!** As you assign your condition ratings to each asset, be sure to note the method of assessment: desktop, visual, or testing.

ASSESS: CRITICALITY

Understand your level of business risk exposure

What is criticality? **It is the risk of high cost stemming from asset failure.** Ths cost is the **full economic cost** to local government, its customers, and its community/environment (recall the "Five Risks"). The higher the probability of failure (%) and the consequence ($) of that failure, the more critical the asset to monitor, assess, and maintain.

Probability of Failure				
	4	8	12	16
	3	6	9	12
	2	4	6	8
	1	2	3	4

Consequence of Failure

DETERMINE: PRIORITIZATION

Putting the Pieces Together

You have assessed your assets' **Condition Rating**, **Criticality**, and the **Benefit** of any potential project. You're ready to conduct your final prioritization of projects within your asset hierarchy (i.e., water, wastewater, streets, and so on).

Steps:

1. Within each asset system, sort by Criticality with highest at the top.
2. Review the Condition Rating and Benefit of the identified potential project.
3. Review likely sources of funding or financing.
4. With your Comprehensive Plan as a guide, determine your CIP prioritization.
   - Best Practice to have a policy on how you weigh your final determination
   - This step requires your judgment

DETERMINE: PRIORITIZATION

Putting the Condition, Criticality, and Benefit Pieces Together

Project	System	Criticality	Condition	Benefit
Water Main Replacement North Half	Water	16.0	4.0	1.4
Fire Hydrant Replacement 1200 Block Dwyer Ave	Water	4.0	4.0	1.0
Sewer Main Repair 300 Block Elm St	Wastewater	8.0	3.0	1.2
Sewer Manholes New Finnigan Subdivision	Wastewater	1.0	1.0	0.8
Street repavement 500 Block Johnson St	Street	6.0	4.0	1.0
Street Signs New Finnigan Subdivision	Street	2.0	1.0	1.0
Bush & Flower install Main St medians	Other	1.0	1.0	0.5

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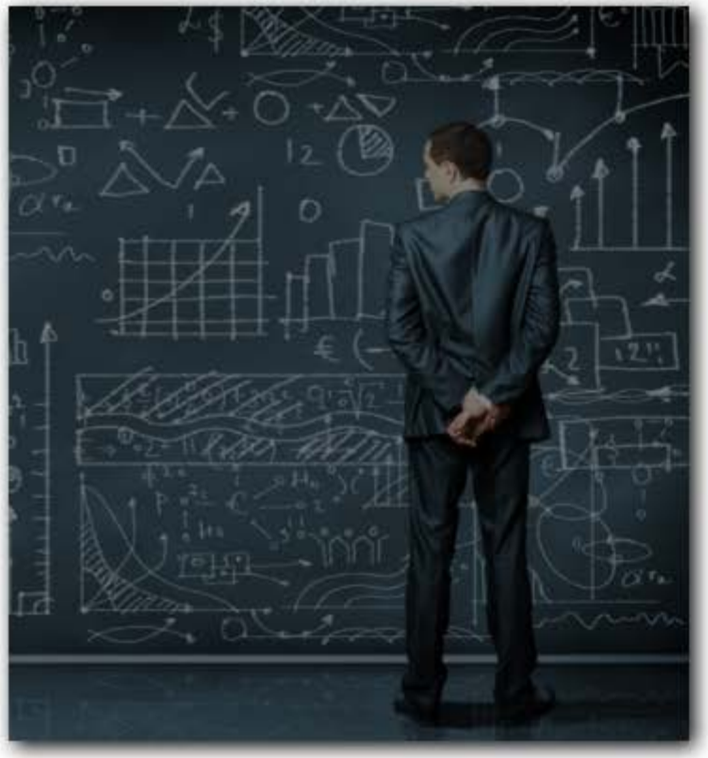
Bush & Flower install Main St medians	Other	1.0	1.0	0.5

ANALYZE: COST - BENEFIT



When you've analyzed your asset data's condition ratings and criticality scores for identifying projects, it is time to measure the benefit vs. the cost of each project.

Simple Approach

- Determine all cash outflows, including project cost, operations & maintenance costs, overhead, material, equipment, and so on of the life cycle of the asset
- Determine all cash inflows, such as fees, taxes, and so on that would be towards the life cycle of this asset
- Divide Inflows by Outflows. If the number is 1 or greater, the project is acceptable

"Finance" Approach

- Determine Net Present Value
- If NPV is positive = project is acceptable
- If NPV is negative = project is unacceptable. Review cost outflows, revenue inflows, and net cash assumptions.
- City needs an agreed upon Discount Rate

**Consult your Finance Officer.*

SOURCES OF FUNDING

Finding a solution is easier than *funding* one

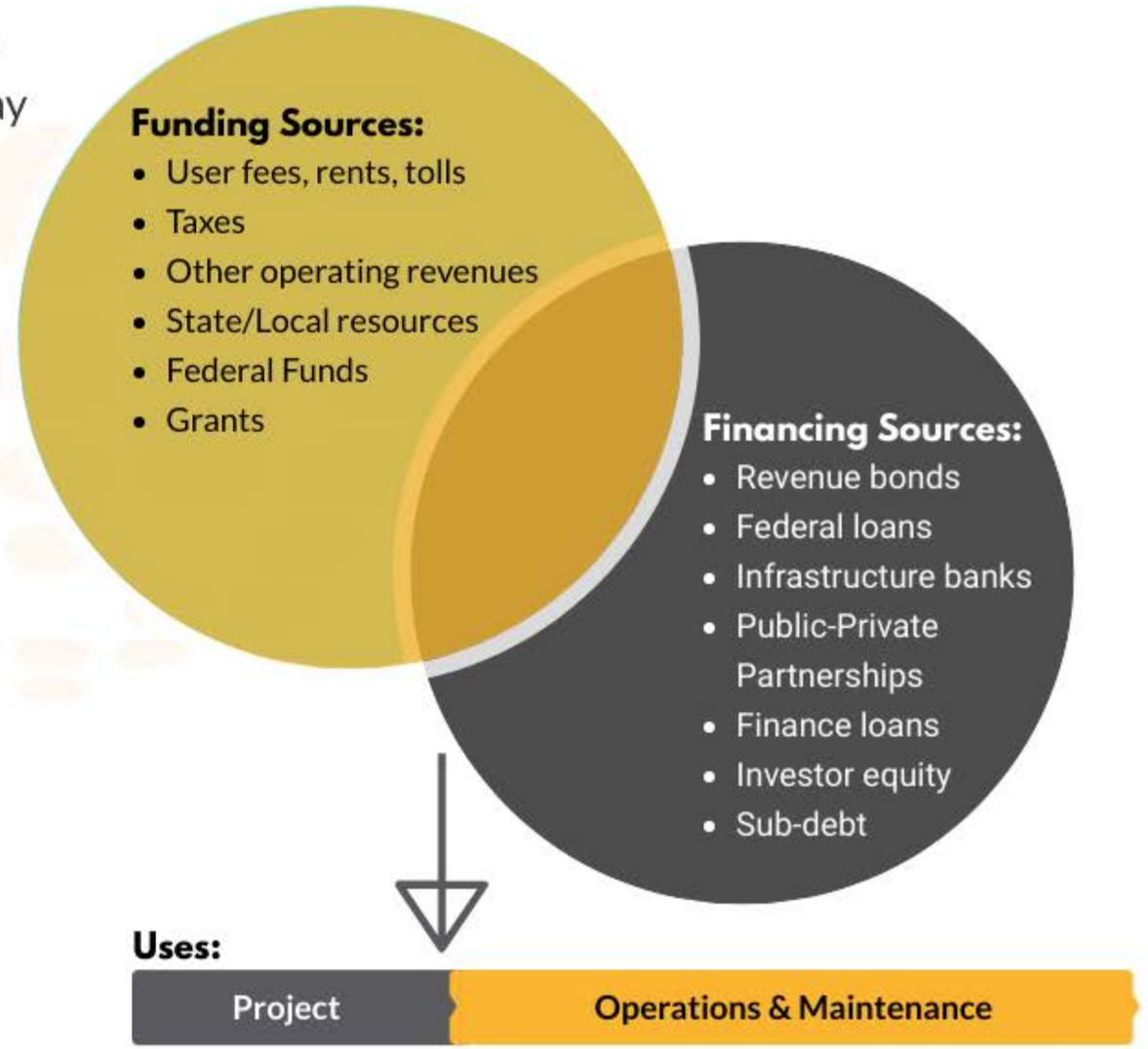
Considerable infrastructure needs and limited Funding Sources means City Leaders must be innovative in securing monies to pay for projects and operational costs--or get left behind. Financial literacy and Finance Officers will play a greater role in cities going forward.

Funding

Public spending that is for implementation and operational costs of assets.

Financing

Financial instruments used to pay for projects but not necessarily operational costs. Think of it as borrowing money with interest and paying it back with public funding.



ASSET MANAGEMENT

City of Mount Ayr IA

Story

- Population ~ 1,700
- Southwest Iowa
- Implemented Asset Management in Q1 2016
- $4M water system overhaul
- Component focus
  - Inventory
  - Activity management

Realized Benefits

- 1,000 overhead hours reduced annually for field staff
- 108 overhead hours reduced annually for office staff
- $20,000+ in consultant fees saved
- Growing confidence in awareness and control
- Positioning for High-Speed Fiber

Takeaways

Start small but start now

Small changes can have big impact

START SMALL

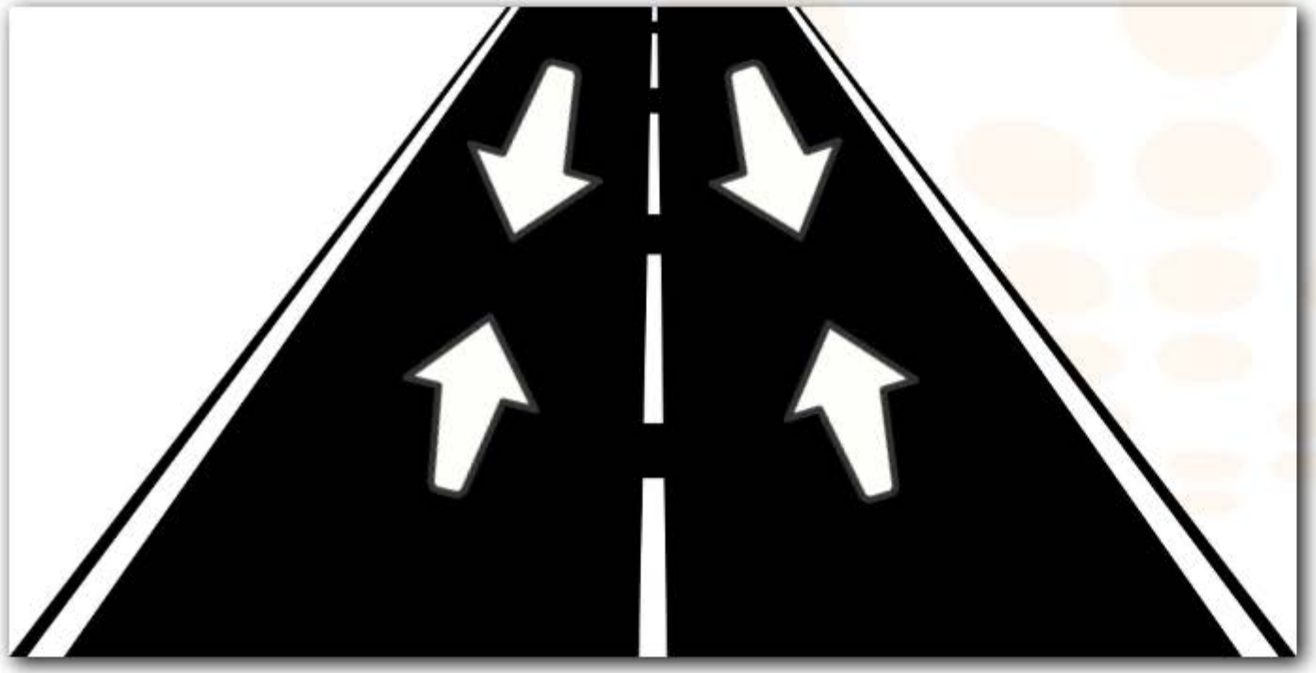
Tackling all Components will Overwhelm You

Phase		Outcomes
1	Software | Inventory | Activity Management	• Defensible • Build Organization Muscle-Memory
2	Job Costing | Condition Ratings | Reports	• Assess • Early Actions • Prep to Long-term Action
3	Criticality | Analytics | Data-Driven Decision-Making	• Lanes Cemented • Strength through data-driven analytics and decision-making

CREATING LANES

Does Inbound & Outbound Traffic in the Same Lane Make Sense to You?

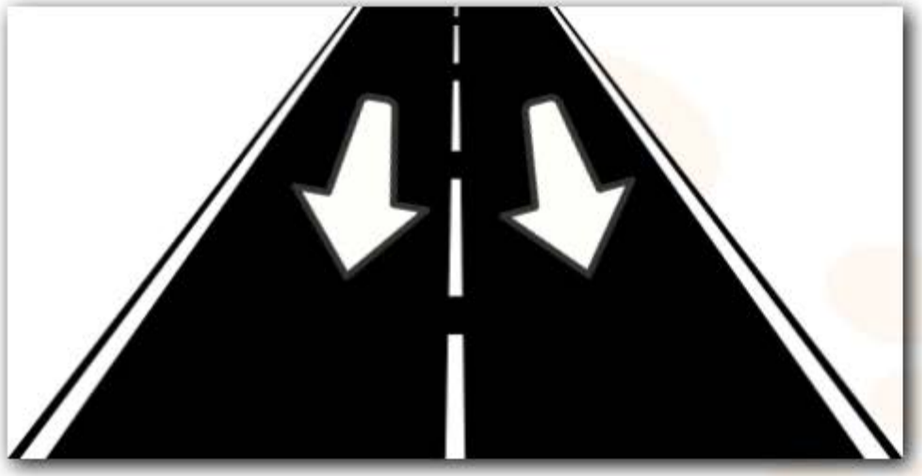
Then why run your organization this way?

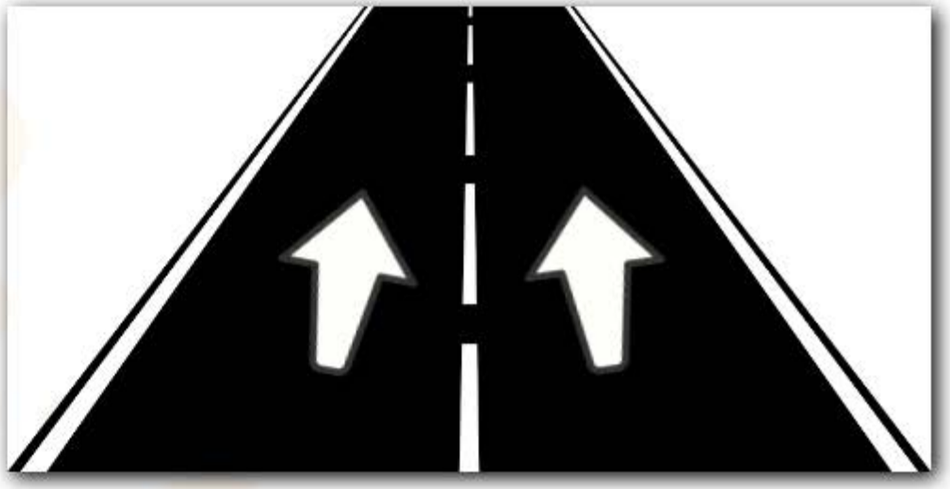


- Most cities organize their labor and/or their operations incorrectly
- Inbound work (reactive) and Outbound (proactive and preventative) are handled the same way, but they should be handled differently
- Either one way will win out--usually Inbound--or you're going to have a collision

CREATING LANES

Create a Lane for Inbound and One for Outbound





- Creating separate lanes focuses effort and improves long-term results
- Experimentation and continuous improvement are the best methods to determine your lanes
- Following asset management practices will reduce overhead hours; thereby, creating an opportunity for a new lane
- Two simple methods to start experimenting:
  - Dedicated time
  - Splitting personnel into teams

MAKING IT POSSIBLE

1

Start Small

Asset Management can be overwhelming due to its scope. Break them down into small, executable components. Focus on completing one element at a time.

2

Document

It's critically important to document your inventory, your work orders, your planning, and so on. It not only ensures consistency and integrity of action, but it also mitigates risk. It's preferable to store documents electronically in a cloud system.

3

Continuous Improvement

Foster a continuous improvement mindset in your city. This mindset wants to be better today than it was yesterday. Continuous improvement builds ownership and forces you to pursue goals in small executable tasks.

4

Leadership: Leaders Lead!

Leaders lead and take ownership of the mission and outcome. You are a leader in your city, so lead! Your commitment, discipline, and persistence will result in great things for your community.


gWorks
Interested in learning more about how
SimpleCity Physical Asset Management
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