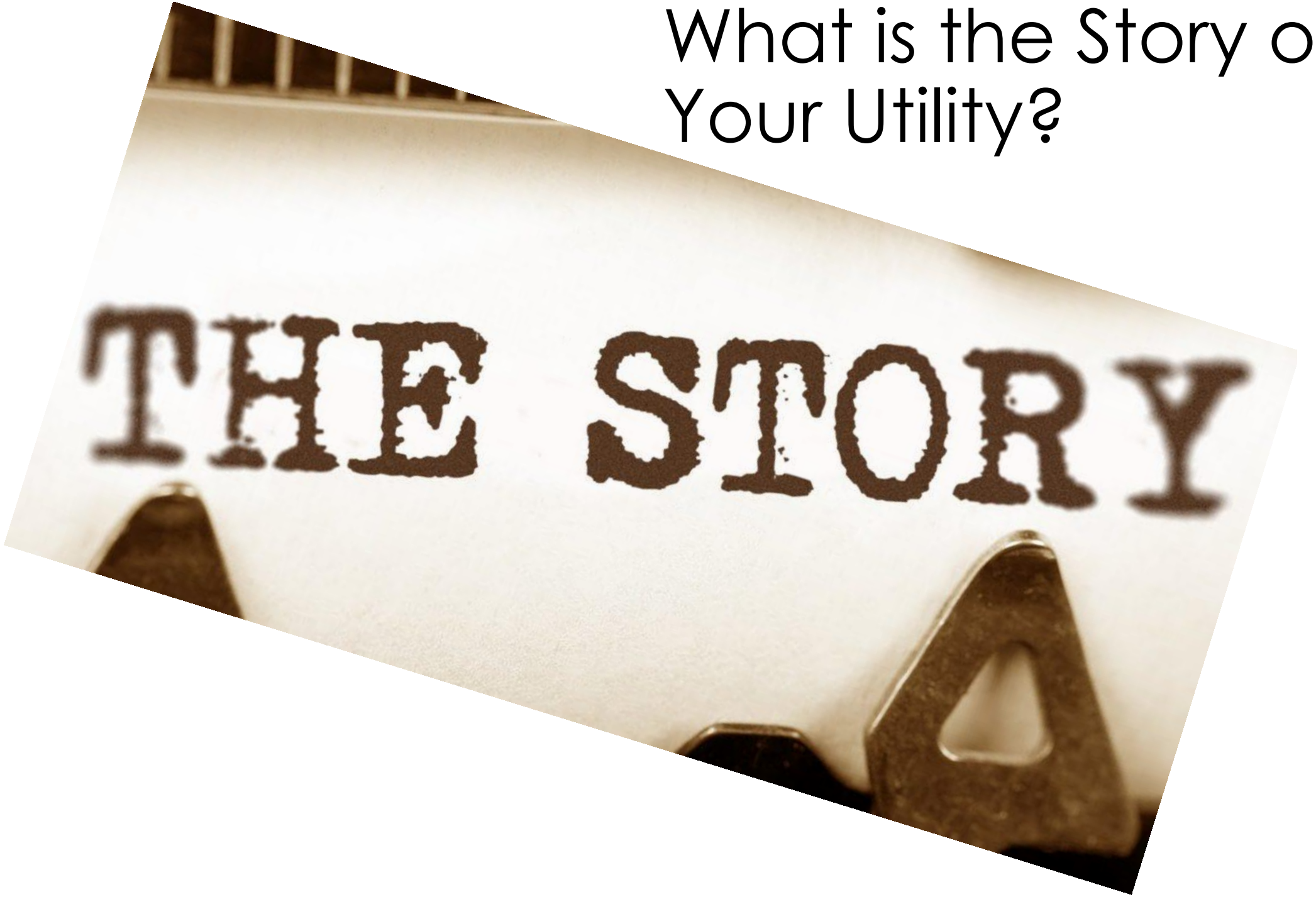
INTERMEDIATE

Simplifying Asset Management: It's About What's In It for You?

PRESENTED BY HEATHER HIMMELBERGER

What is the Story of Your Utility?



Assets

What Assets Do You Have?

What Would You Want to Know About Them?

How Would This Information Help You?

Customers

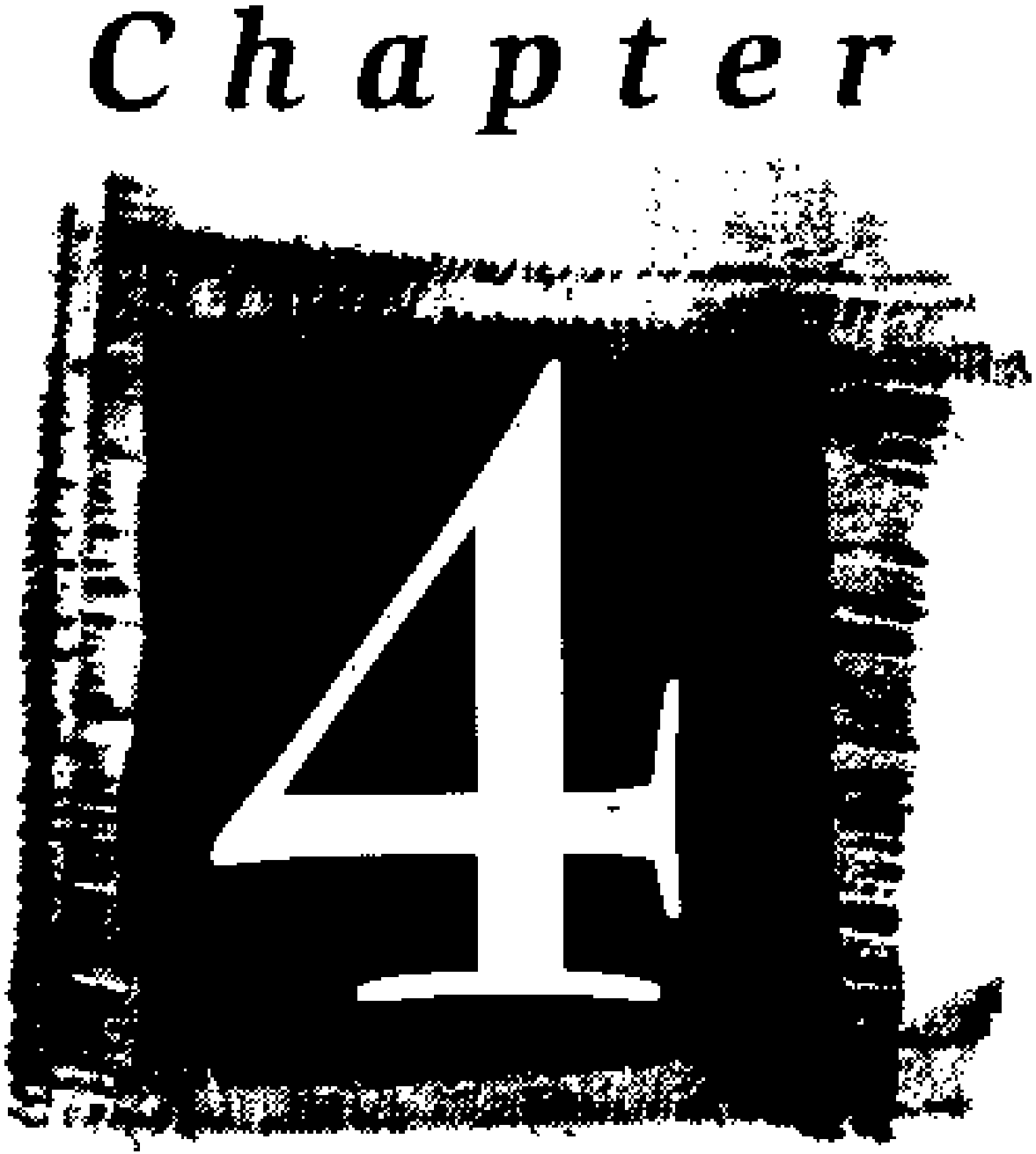
What Do You Want Your Assets to Do?

CHAPTER

Risk

When You Get an Emergency Phone Call, What Asset Are You Hoping They Don't Say? Please Tell Me It's Not _____.

Operations & Replacement



What do you do on a day to day basis to your assets to keep them in operation as long as possible?

How do you decide when and how to replace assets?

Money

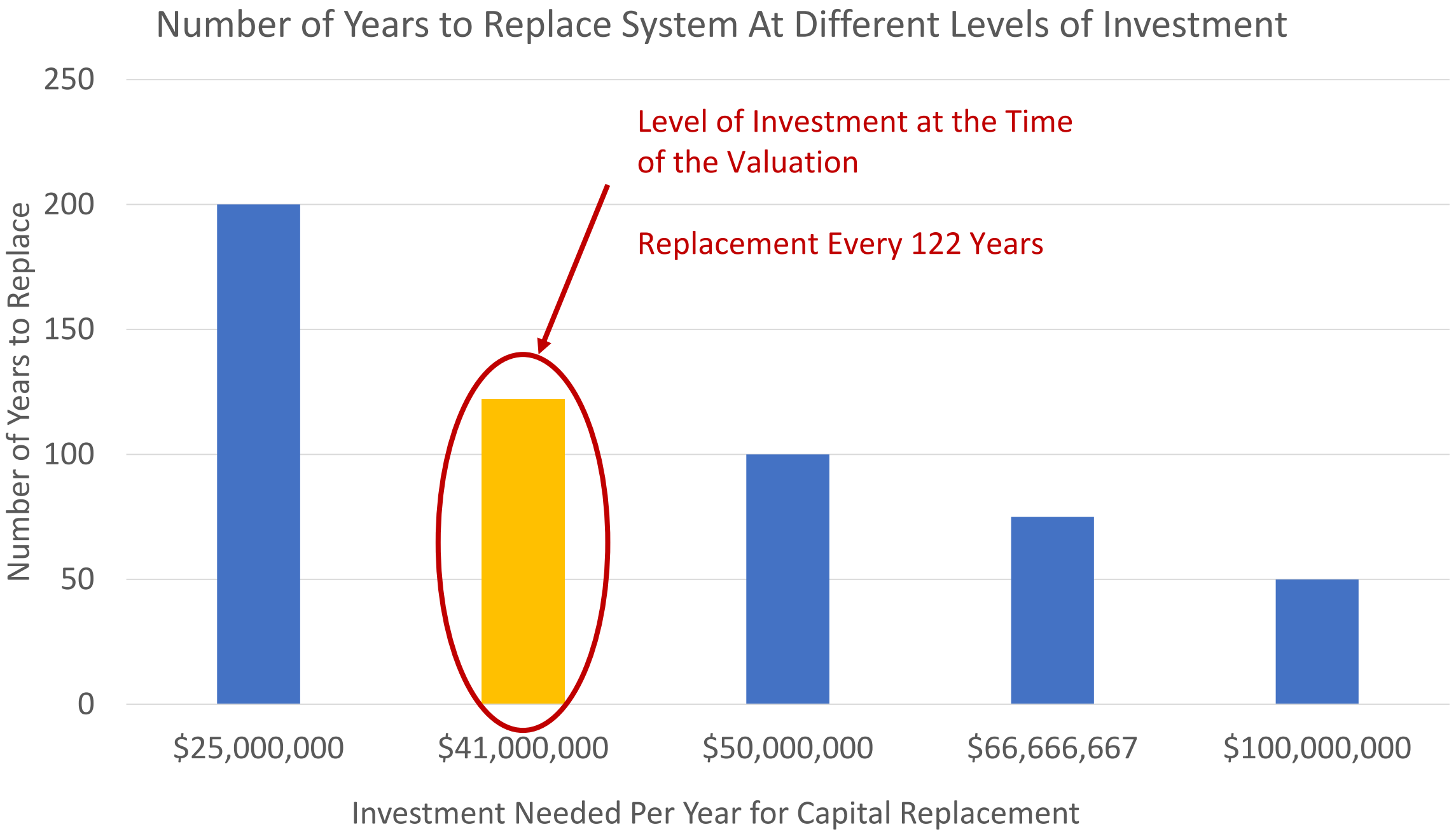
Do you have enough money to address all of your operation and maintenance needs?

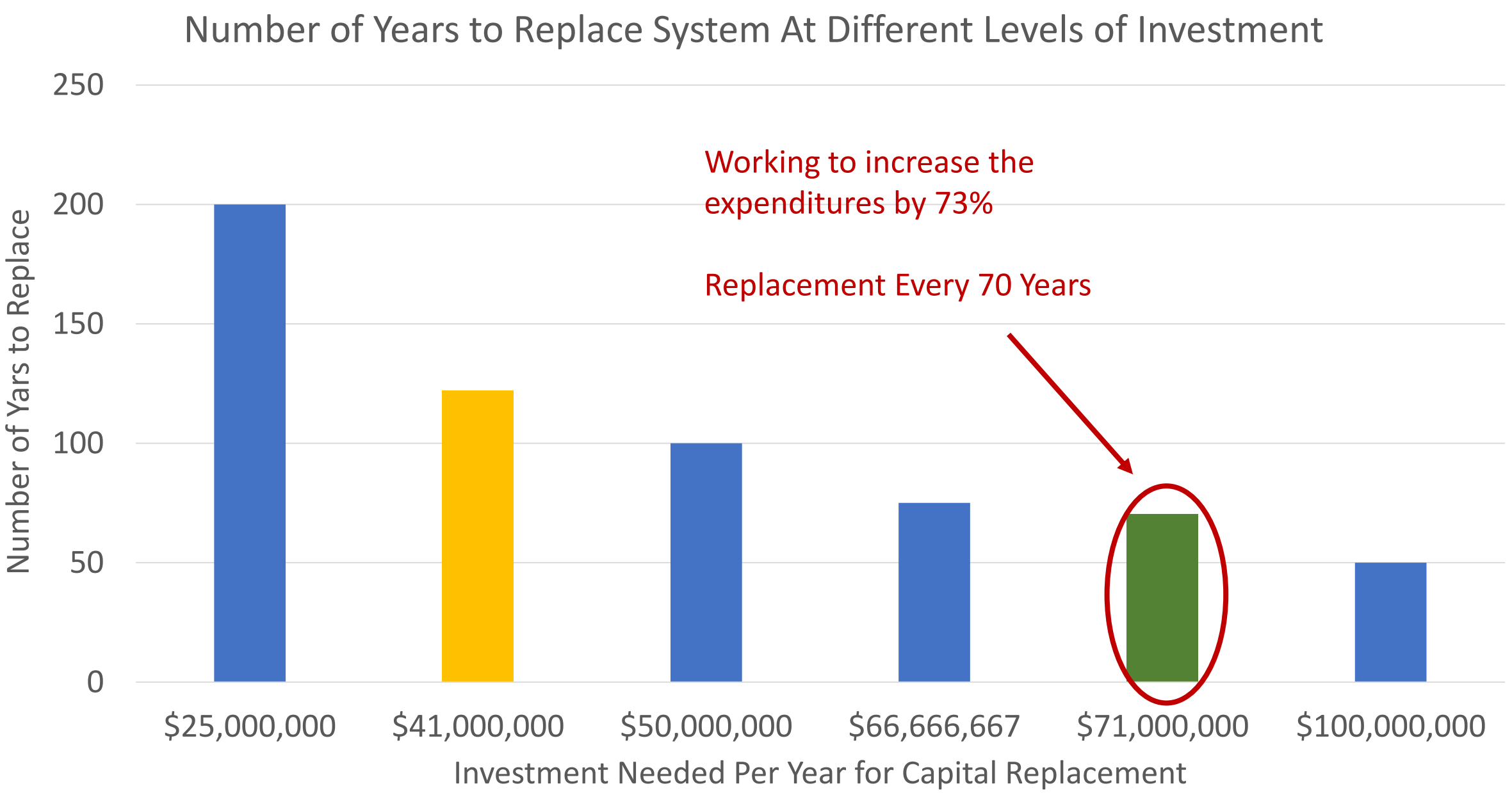
What is the replacement cycle for your utility? Is that reasonable?

What is your guess of the overall replacement value of Albuquerque's Water and Wastewater Treatment System?

A Few System Specifics:

2,500 Miles of Water Main
2,500 Miles of Wastewater Pipe
1 Surface Water Treatment Plant (supplies about 1/3 of water)
Over 90 wells
Over 20 pump stations
1 Wastewater Treatment Plant with tertiary treatment
Over 20 pump stations
Service population of approximately 350,000


Number of Years to Replace System At Different Levels of Investment
250
200
150
100
50
0
Number of Years to Replace
Level of Investment at the Time of the Valuation
Replacement Every 122 Years
$25,000,000
$41,000,000
$50,000,000
$66,666,667
$100,000,000
Investment Needed Per Year for Capital Replacement


Number of Years to Replace System At Different Levels of Investment
250
200
150
100
50
0
Number of Yars to Replace
Working to increase the expenditures by 73%
Replacement Every 70 Years
$25,000,000
$41,000,000
$50,000,000
$66,666,667
$71,000,000
$100,000,000
Investment Needed Per Year for Capital Replacement

Think of the Story of the Utility as a 5 Chapter Book

Chapter 1: Assets

Chapter 3: Risk

Chapter 5: Money

Chapter 2: Customers

Chapter 4: Operations and Replacement

Stated Another Way....

What assets do you have?

Which ones are most important to doing that?

Do you have the money to get it done?

What do you want them to do?

How do you ensure you can do what you want to do all the time?

The Title of The Story Is Asset Management....

What assets do you have?

Which ones are most important to doing that?

Do you have the money to get it done?

What do you want them to do?

How do you ensure you can do what you want to do all the time?

However, this story doesn't have a beginning or end

However, this story doesn't have a beginning or end

Your utility starts wherever it is. You aren't responsible for the past and can't change it

Use the past as a learning opportunity

However, this story doesn't have a beginning or end

Move forward from wherever you are.

Just do it.

Some Possible Starting Places

Location of all the fire hydrants

Why?

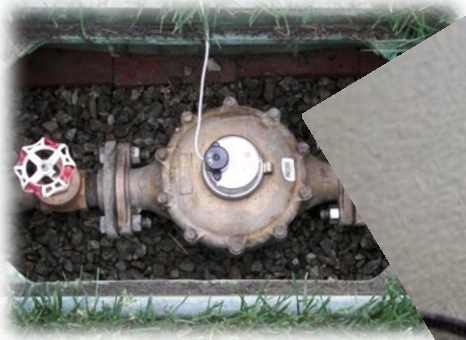
Inventory of All the Isolation Valves

Why?

When do you want to

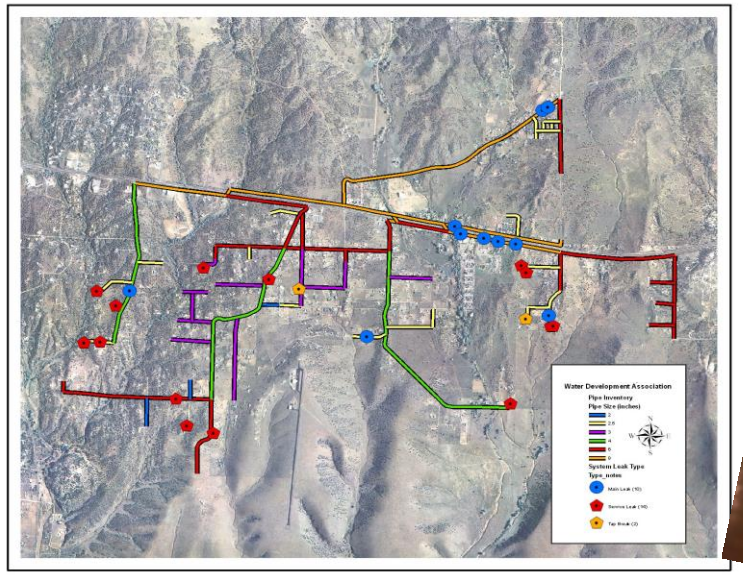
Let’s try it out…..

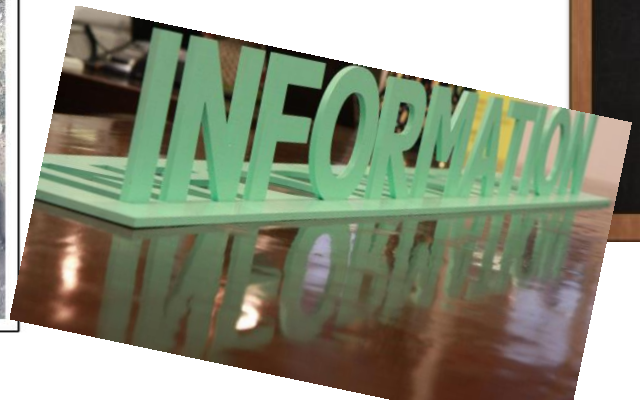
What’s one thing
that would make
your job at your utility
or service to your
customers better?

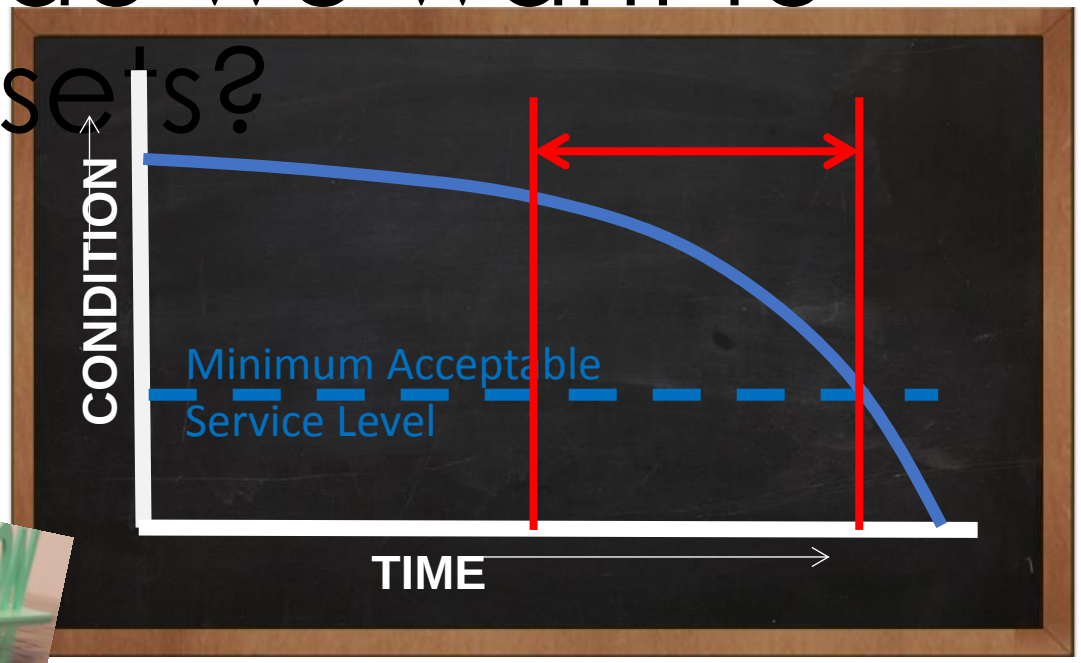


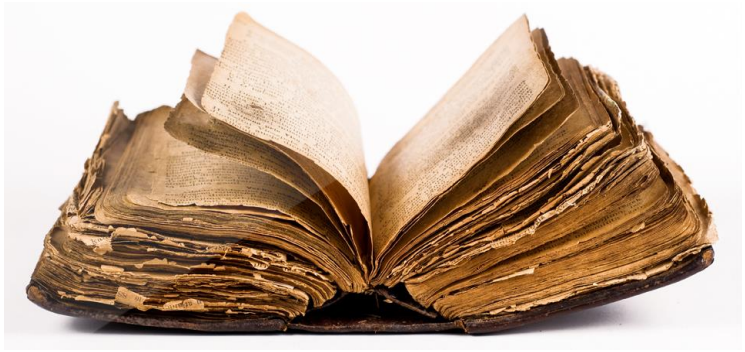
What assets relate to your choice of what would make things better?

What, at a minimum do we want to know about those assets?









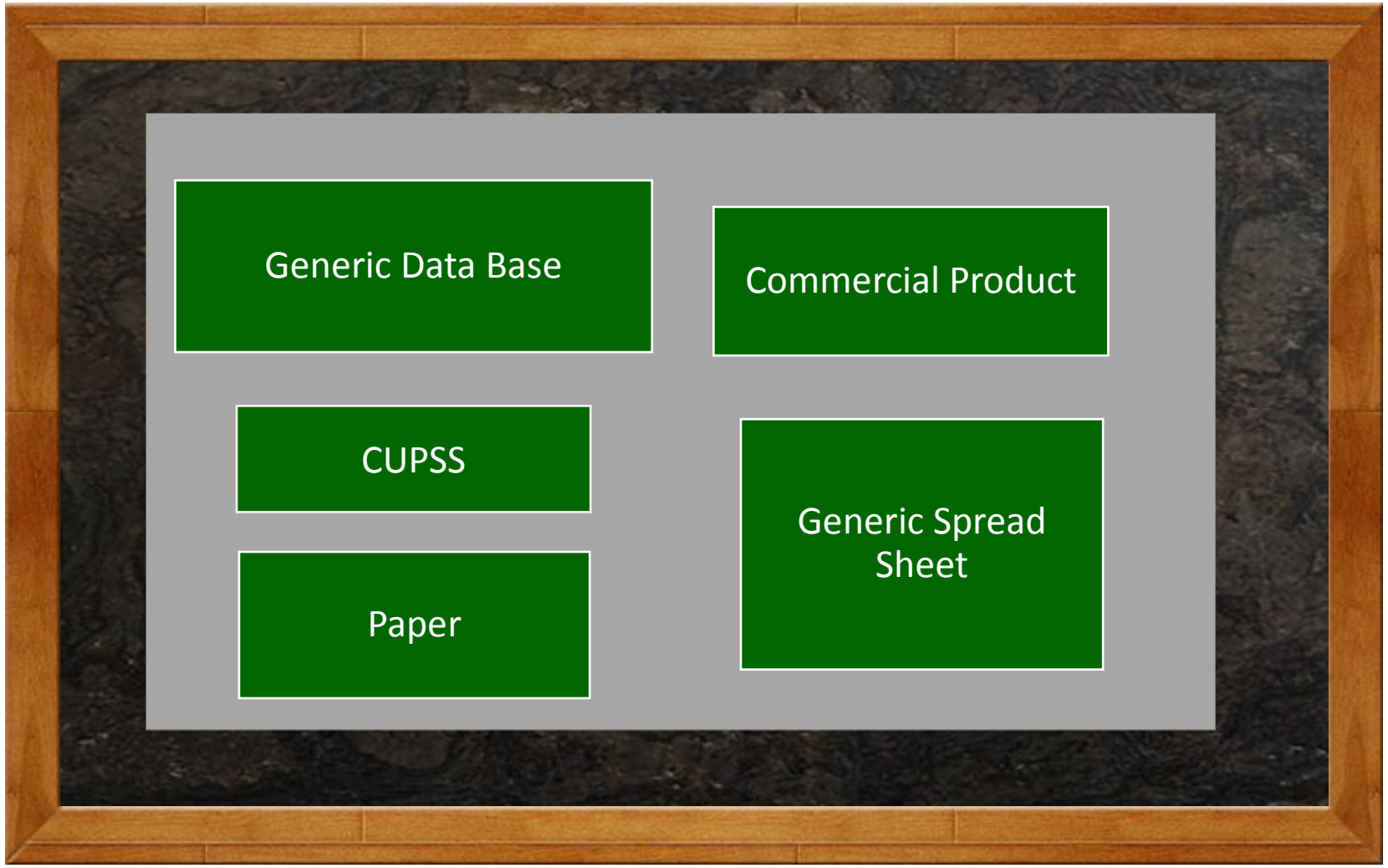
Condition Rating

Condition Rating	Criteria	Comments
Excellent	Performs like new No identifiable problems No visible wear	
Good	Is an efficient asset Could have a minor defect, but not one effecting performance Limited Wear (generally less than 15%)	Judgement may be used regarding the wear percentage. It may be a little higher or lower for certain types of assets.
Average	Minor defects, some that affect performance Shows some wear and tear (16 - 25% wear)	Judgement may be used regarding the wear percentage. It may be a little higher or lower for certain types of assets.
Fair	Major and minor defects, some or most affecting performance Shows wear and tear (26% - 50%) Getting close to end of useful life	Judgement may be used regarding the wear percentage. It may be a little higher or lower for certain types of assets.
Poor	Major defects, most or all affecting performance Shows major wear and tear (greater than 50%) At or near the end of its useful life Should be replaced May require constant maintenance or operational interventions	

What else would be helpful to know?

How can we get the information?

Where would you keep the information ?



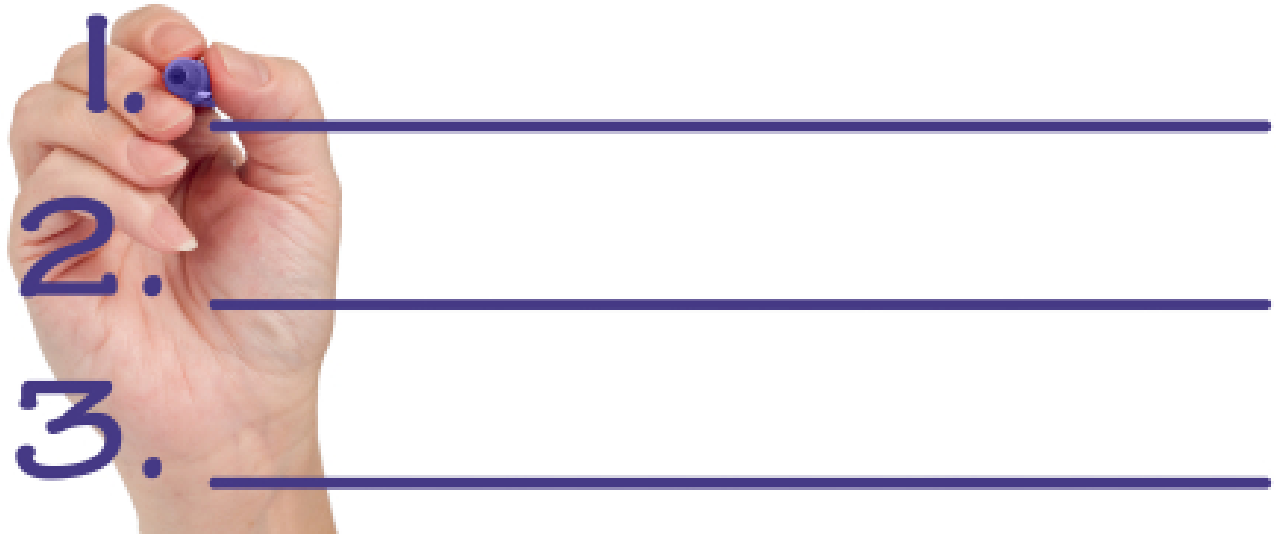
Think about accessing the information later and who and how you would use it

What do you want this asset to do for you? What's its purpose in the overall system?

chapter 2

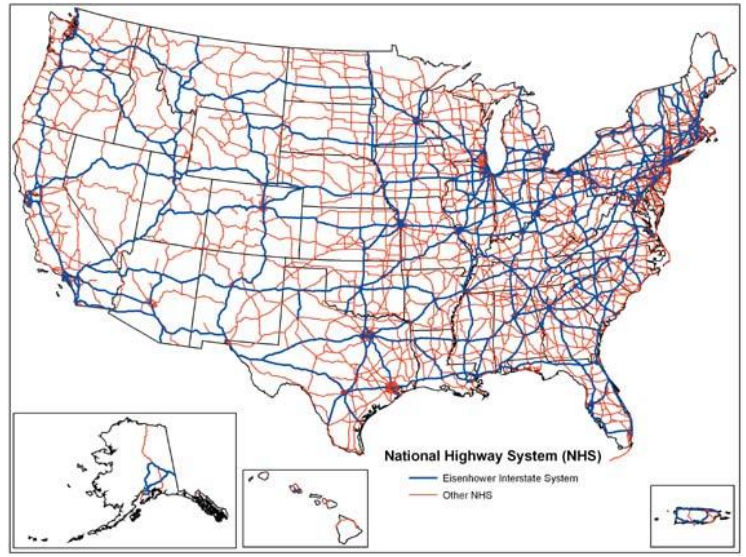
How does that asset improve customer service?

Goals


1.
2.
3.


GOAL SETTING
S
SPECIFIC
M
MEASURABLE
A
ATTAINABLE
R
RELEVANT
T
TIME-BOUND

Service and cost are related



Service levels are the “road map” for the utility

higher levels of service = higher costs
lower levels of service = lower costs

CHAPTER

3

What is the likelihood that each individual asset will fail?

What is the consequence if the asset does fail?

Rank POF from 1 to 5

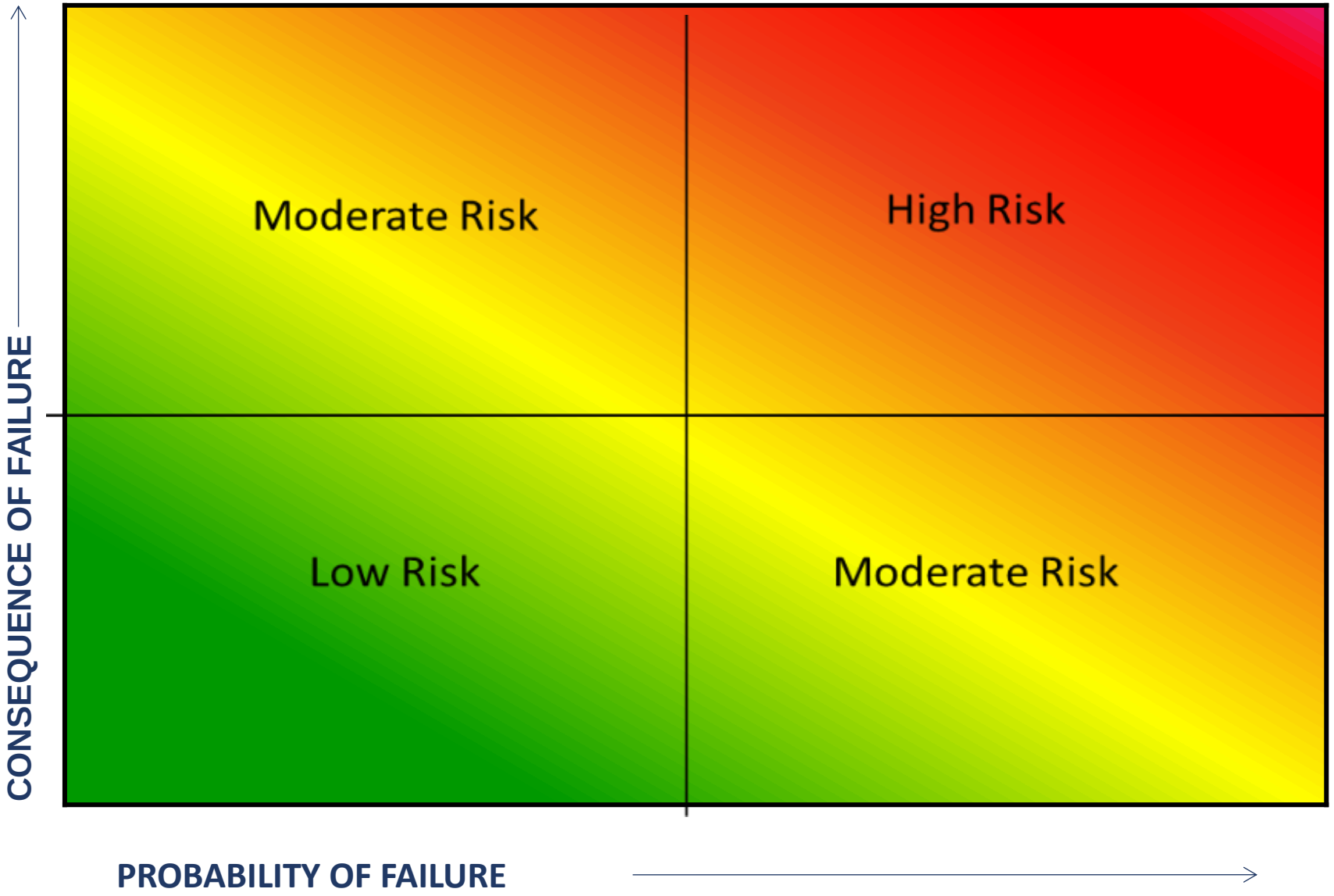
1	• EXTREMELY LOW PROBABILITY OF FAILURE
2	• REASONABLY LOW PROBABILITY OF FAILURE
3	• AVERAGE PROBABILITY THAT ASSET WILL FAIL
4	• HIGH LIKELIHOOD THAT THE ASSET WILL FAIL
5	• EXTREMELY HIGH LIKELIHOOD THAT THE ASSET WILL FAIL

Rank COF from 1 to 5

1	• EXTREMELY LOW CONSEQUENCES IF ASSET FAILS
2	• REASONABLY LOW CONSEQUENCES IF ASSET FAILS
3	• AVERAGE CONSEQUENCES IF ASSET FAILS
4	• HIGH CONSEQUENCES IF THE ASSET FAILS
5	• EXTREMELY HIGH CONSEQUENCES IF ASSET FAILS


POF
COF
Risk

ASSET RISK


Moderate Risk
High Risk
Low Risk
Moderate Risk
CONSEQUENCE OF FAILURE
PROBABILITY OF FAILURE

Chapter

4

What do you have to do on a day to day basis to keep the assets in operation

What preventative maintenance is done to keep the assets in operation as long as possible?

Goal: Keep the assets in operation as long as possible without failure or other problems

When the asset does fail, what actions do you take (repair, rehabilitate, or replace?)

Do you look at the whole life cycle of the asset?

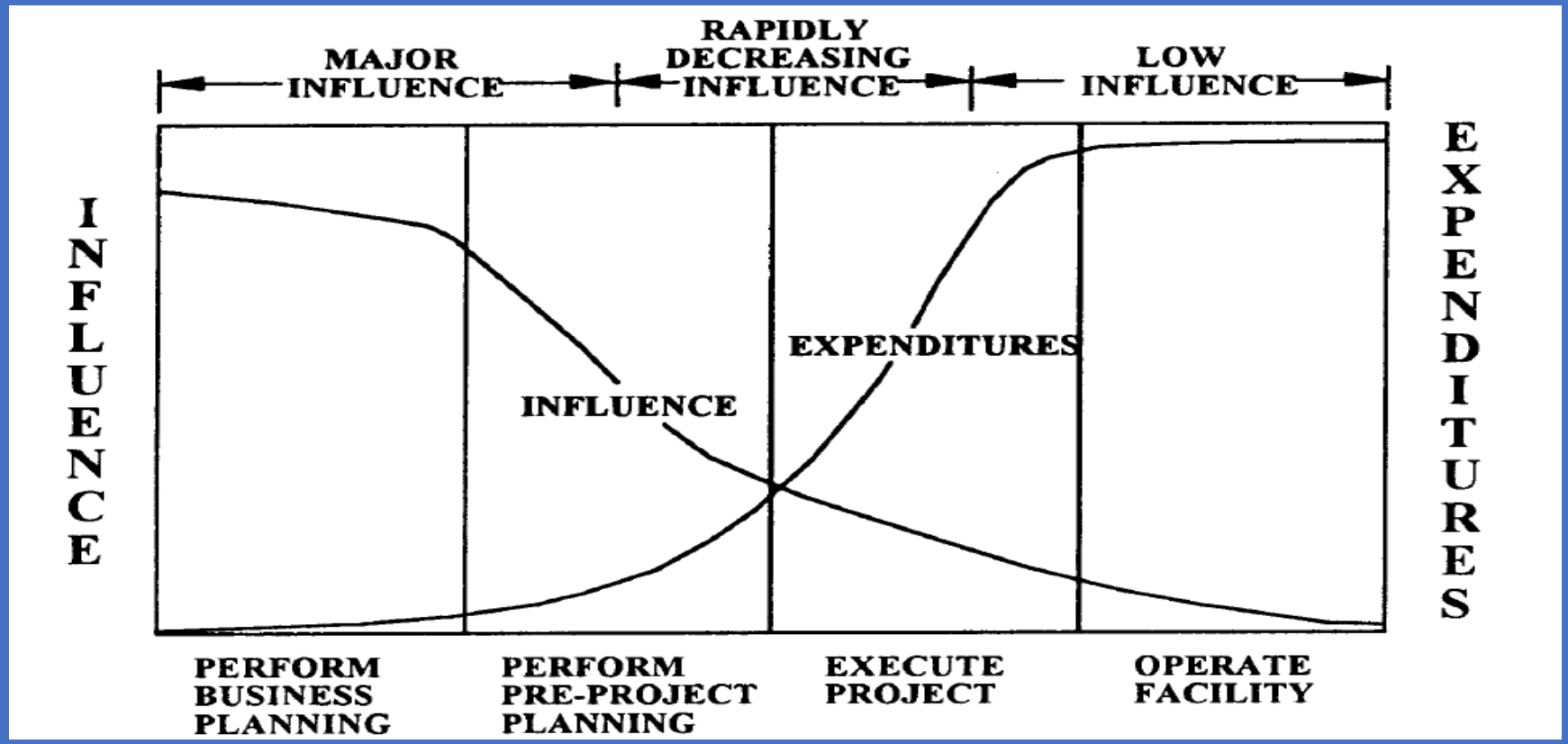
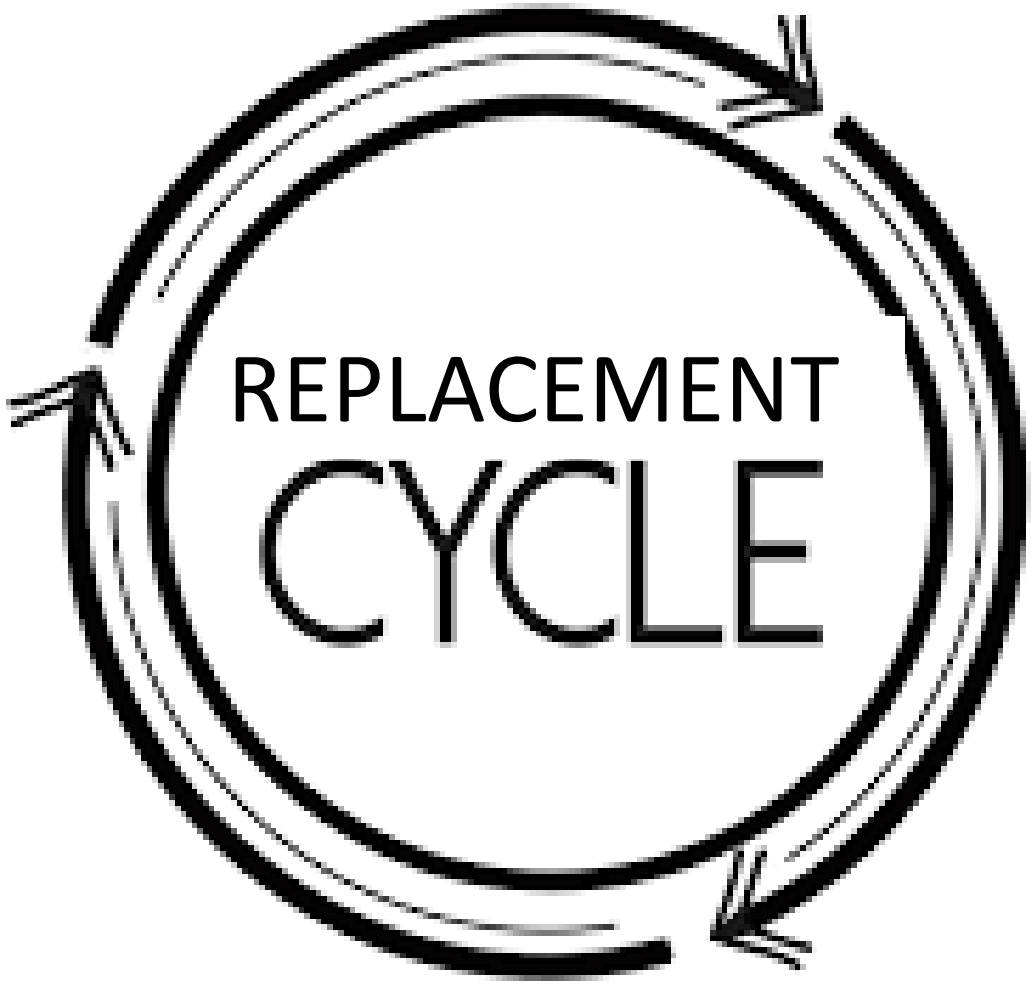


Figure 2. Relationship between influence and expenditures over project lifetime[2]

What money do you need to operate on a day to day basis?

What money do you need to replace assets?

What is your replacement cycle?



REAL WORLD EXAMPLES FROM SMALL UTILITIES

Utility had valves that turned both directions

Anyone see a problem with this situation?

What did they do?

- Visited each valve
- Obtained GPS location of each valve
- Figured out which valves turned which way
- Collected other data as much as possible: Number of turns, size, manufacturer, supplier, condition rating, estimate of useful life remaining, normally open or closed, operational (yes or no)
- Color coded valve can lids
- Cleaned valve cans as they did the work
- Replaced broken valves as able
- Developed budget for future replacement of valves that wouldn't last much longer

Utility had a 1906 Storage Tank

Replacement cost approx. $250,000, life remaining 50 to 75 years for new tank

Re-lining tank cost approximately $25,000 with approx. 15 years of life

Initially didn't have the money to do a replacement so did a relining. Now, it's getting to decision time again

Looked again at cost and benefits of the two decisions: relining and replacement

With another $25,000, could gain another 15 years of life within the tank

Cost of replacement = 3,000 to 5,000/year
Cost of relining = $1,666/year

Big issue: The piping leading to and from the tank

The piping is original (1906) and showing signs of decay. If it fails, the tank won't be usable.

Need to consider pipe replacement in the near future or the tank may not be useable due to pipe failure.

Utility wasn't sure where all of its meters were, whether every customer was metered, whether they all worked

What did they do?

Went to every customer in the system to look for meters
Obtained location of the meters to put on a map
Checked condition of the meters and noted condition in an inventory
Gathered information on manufacturer, size, type of meter
Noted whether meters were working or not

What did they find?

Found illegal connections
Found cases with two houses having only one meter and fixed them
Found customers without meters
Located meters that had been unknown
Replaced stopped meters
Replaced meters with serious signs of wear
Plan on doing some meter accuracy testing

Future work:

Replace stopped meters
Replaced meters with serious signs of wear
Conduct meter accuracy testing and use it to determine "useful life" and replace meters based on results

1. Utility wanted to assess its fire hydrants
2. Wanted to know where they all were, what condition they were in and
3. Whether the manufacturer had any impact on condition or useful life

What did they do?

1.

2.

3.

Found hydrants that were hidden from view (several that were inside bushes or large trees purposely planted by the customer)

Gathered locations of hydrants, and other data, such as condition, manufacturer, date of installation

What did they find?

1. _____

2. _____

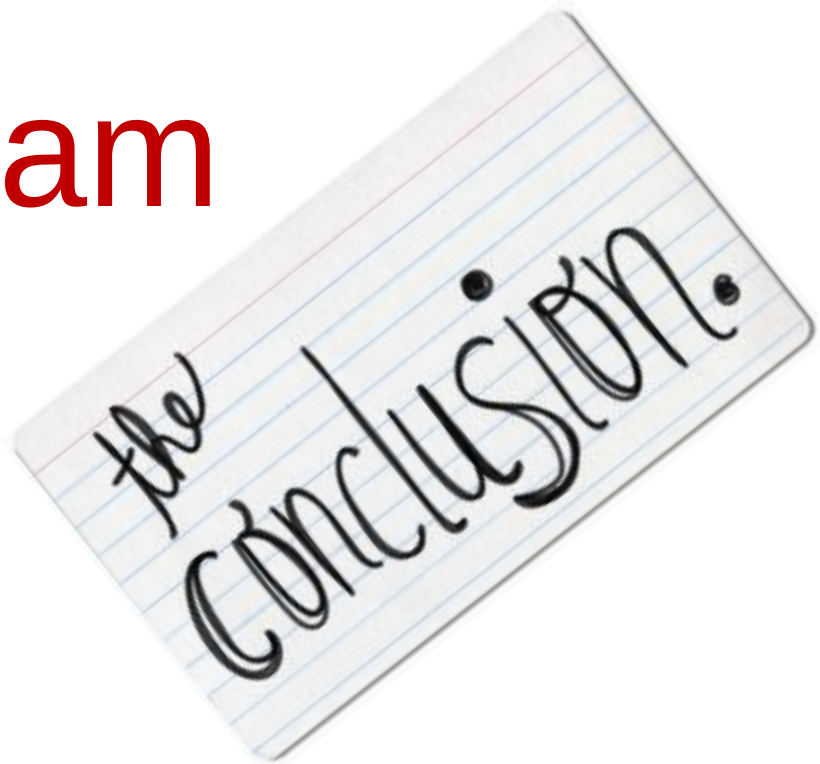
3. _____

Determined a particular age and type of hydrant that was performing poorly

Focused a replacement program on the poorly performing hydrants

Asset Management is a Journey not a Destination

Asset Management is a Thought Process not a Computer Program



Asset Management does not have to start as a comprehensive whole.

That can feel overwhelming.

Can build the program over time, one type of asset at a time or one problem at a time

This work can be done by the people who own, operate, and manage the system. (You know the system best.)

It’s better to walk on the right road than run on the wrong one

DON’T LET WHAT YOU CAN’T DO STOP YOU FROM DOING WHAT YOU CAN DO

Assess Your Baseline or Starting Point

There are resources to help We have some, there are lots of others

AM IQ

https://southwestefc.unm.edu/AssetManagementIQ

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Asset Management IQ

The Asset Management IQ tool will help you establish a baseline for your current asset management practice and over time will help you measure progress. You can use the Interactive Asset Management IQ test online by clicking here.

Kansas Department of Health and Environment

Appendix F

ASSET MANAGEMENT IQ

An Asset Management IQ Test is presented here in order to help you review the concepts of the various core components of Asset Management. Both the test and a scoring table are also available as a printable pdf, which may be copied for use by multiple personnel within your utility.

In the web version of the test, clicking on a choice will automatically enter the number of points for that option and keep track of the score for each section of the Asset Management IQ as well as the total cumulative score. If a new answer is selected, the new choice and the new points will appear and the old points will be removed.

If the user completes the entire Asset Management IQ tool (all 30 questions) before starting Asset Management, it will provide a baseline evaluation at the beginning of Asset Management. Comparing the scores of each of the six sections will show which areas have the biggest gaps in terms of Asset Management activities. These scores may provide information about where efforts should be focused. You may wish to start with areas that are the weakest, offering a large improvement with a little effort, or with areas that are strong, which would offer a chance to get started in a familiar area.

As the utility progresses, the Asset Management IQ can be repeated and the scores compared to previous scores. At a minimum, you may wish to repeat the Asset Management IQ every year.

It should be noted that a total score of 150 would represent best practice in all areas of Asset Management. Not all utilities will be interested in achieving this goal. The utility should set its own target levels. The tool is meant to help utilities gauge their progress over time.

PREV 1 2 3 4 5 6 7 8 NEXT

Asset Management IQ Section I

A. Is Asset Management terminology understood throughout the organization?
(Click on the answer that most accurately describes your situation.)

0	No one within the organization understands terminology nor has any knowledge of Asset Management concepts. (0 points)
	One person within organization understands Asset Management concepts and terminology. (1 point)
	Less than 50% of the organization's personnel (a few key people within the organization) understand Asset Management concepts and terminology. (2 points)
	More than 50% of the organization's personnel understand Asset Management concepts and terminology. (3 points)
	All[1] of the organization's personnel understand Asset Management concepts and terminology. (4 points)
	Throughout the entire organization personnel would be able to state what AssetManagement is and understand Asset Management concepts and terminology. (5 points)

[1]All refers to greater than 90% of the organization's personnel.

A.M. KAN WORK!

An Asset Management and Energy Efficiency Manual

Helping Water and Wastewater Utilities Achieve Sustainability
Through Sound Management Practices

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Time to write your own story