WATER FIRST
WATERCON 2025

The Benefits of Integrated Infrastructure Master Planning

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EEI

American Water Works Association
Illinois Section

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THE BENEFITS OF INTEGRATED INFRASTRUCTURE MASTER PLANNING

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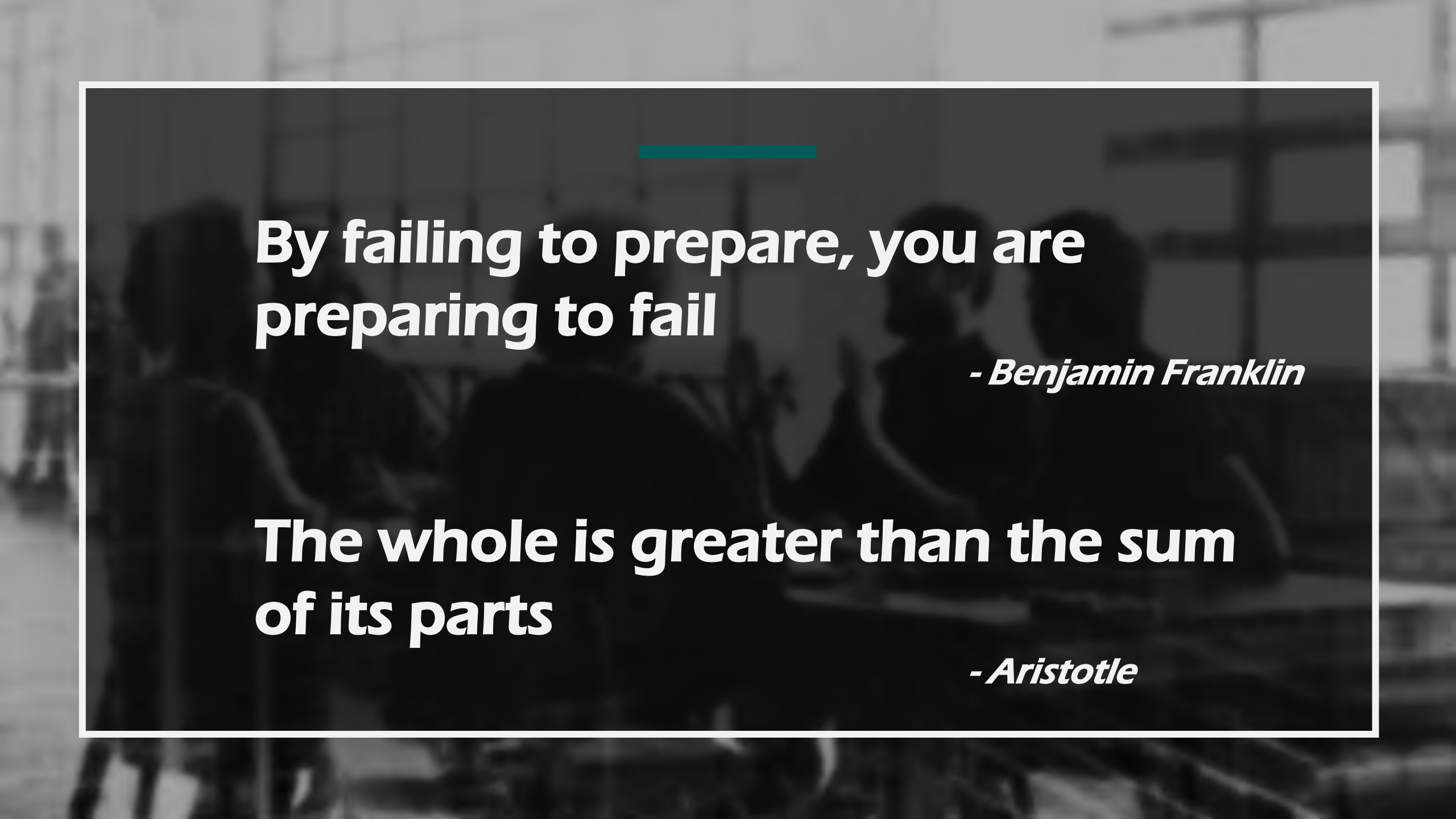
Chief Executive Officer

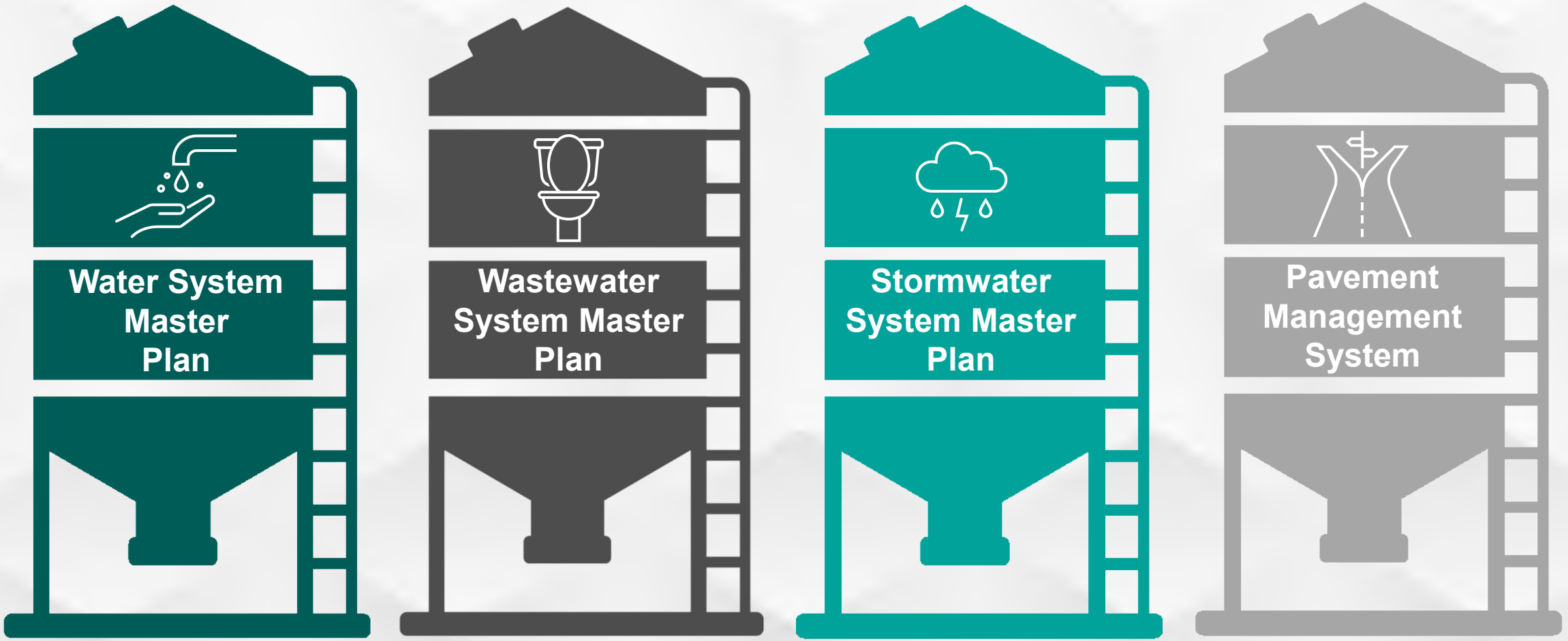

By failing to prepare, you are preparing to fail
- Benjamin Franklin
The whole is greater than the sum of its parts
- Aristotle

Agenda

1. Planning Evolution
2. What is Integrated Infrastructure Master Planning?
3. Phasing & Implementation Development
4. CIP Development
5. The Integrated Infrastructure StoryMaps
6. Q&A

PLANNING EVOLUTION

INFRASTRUCTURE MASTER PLANNING IS OFTEN DONE IN SILOS….



.....BUT IT CAN EVOLVE, TOO

POTENTIAL PITFALLS OF INDEPENDENT INFRASTRUCTURE PLANNING

INEFFICIENT USE OF RESOURCES

INCREASED INTERRUPTIONS TO THE PUBLIC DURING IMPLEMENTATION

UNHAPPY ELECTED OFFICIALS

WHAT IS AN INTEGRATED INFRASTRUCTURE MASTER PLANNING?

What is Integrated Infrastructure Master Planning?

Comprehensive approach to planning and developing infrastructure systems

ensuring that various elements work together efficiently and effectively.

INTEGRATED INFRASTRUCTURE MASTER PLANNING (IIMP)

It encompasses strategic coordination of multiple infrastructure components,

to support sustainable development and enhance community resilience.

KEY ASPECTS OF Integrated Infrastructure Master Planning

COMPREHENSIVE VISION

Vision aligns infrastructure development with broader community goals, including economic growth, environmental sustainability, and social equity.

STAKEHOLDER ENGAGEMENT

Involves various stakeholders in the planning process to gather diverse perspectives and ensure that plans meet community needs.

CROSS-DISCIPLINARY COLLABORATION

Integrates insights from various fields to create a cohesive plan that addresses interdependencies and shared resources.

SUSTAINABLE

Prioritizes sustainable practices in developing infrastructure improvements.

DATA-DRIVEN DECISION MAKING

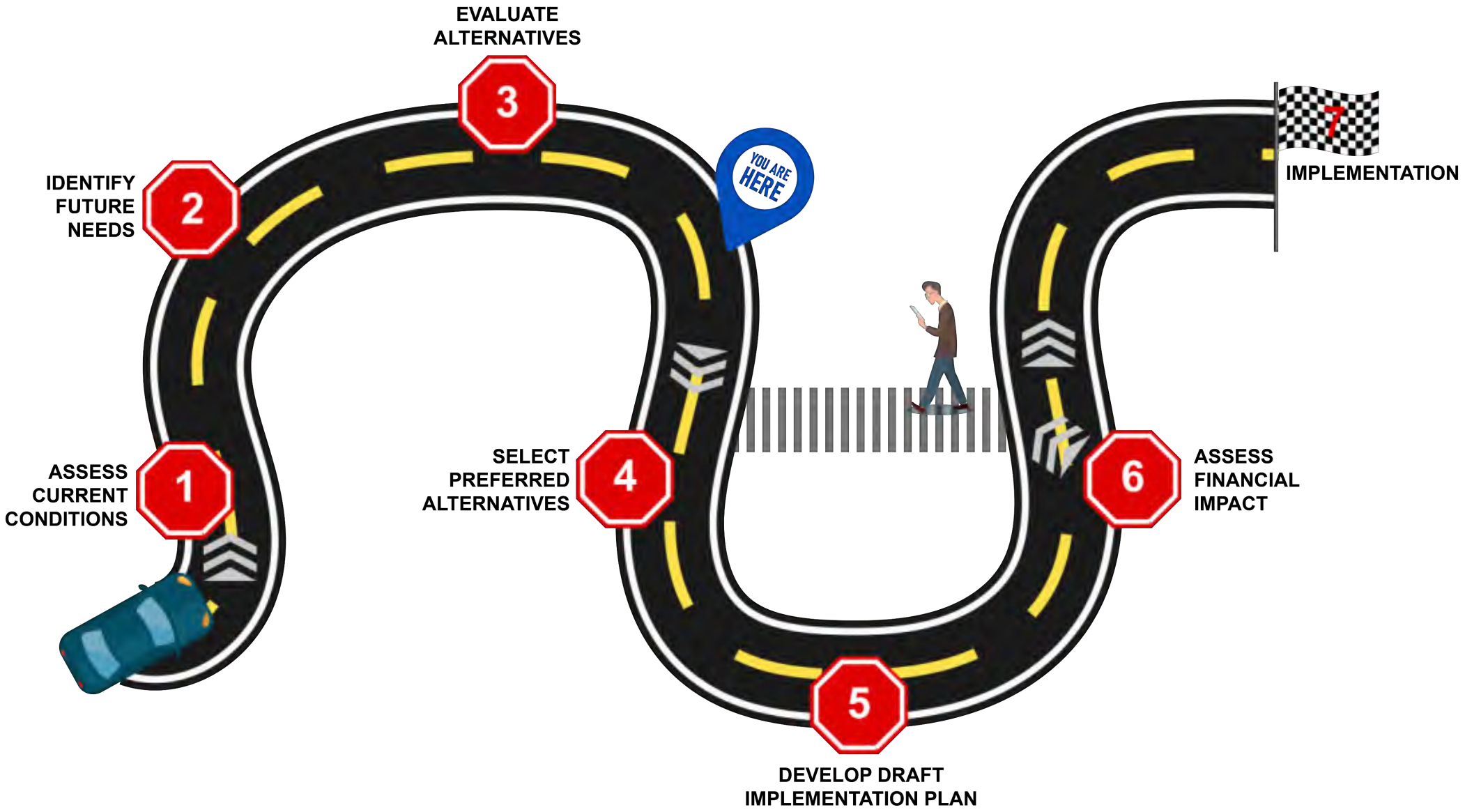
Uses data analytics and modeling to inform planning decisions, assess current infrastructure conditions and forecast future needs.

RESILIENT

Enhances the resilience of infrastructure so it is adaptable to future challenges.

INTEGRATED INFRASTRUCTURE MASTER PLAN

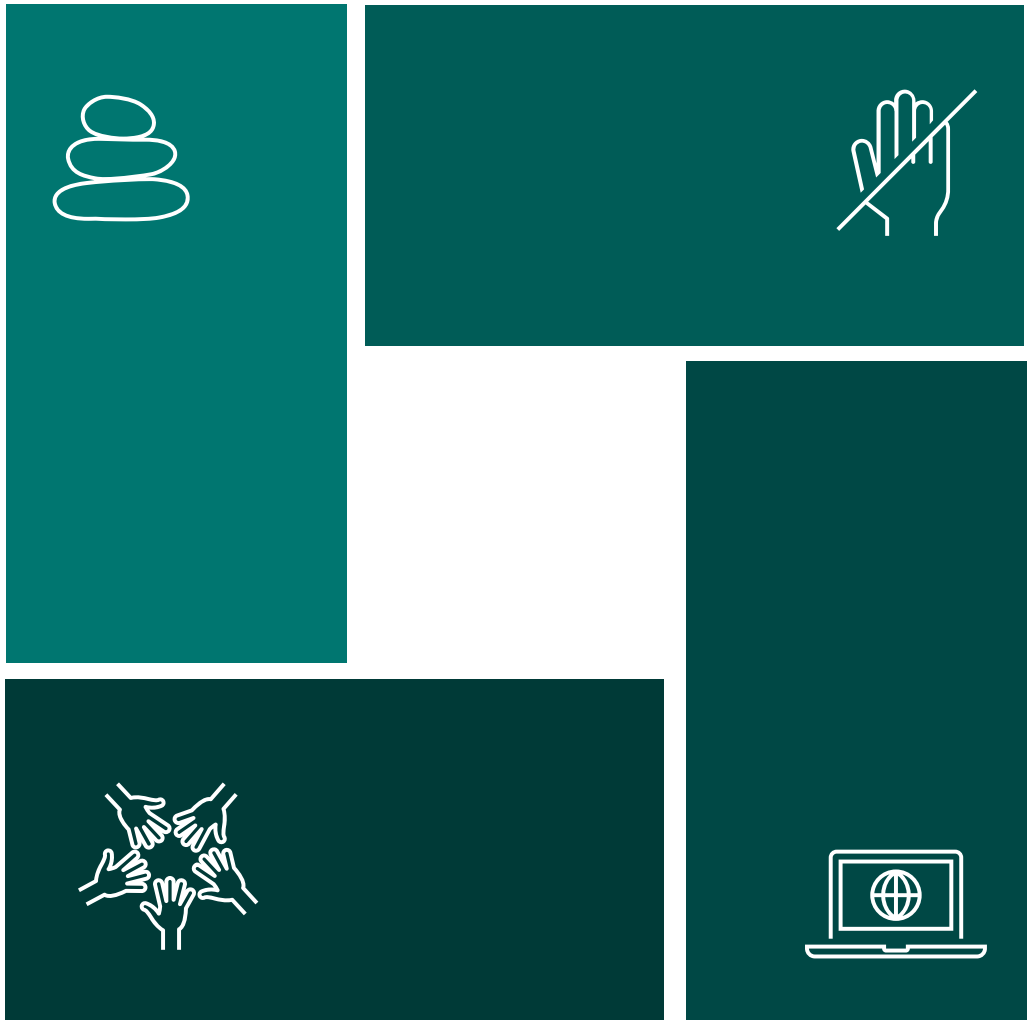
Road Map of Planning Process



INTEGRATED INFRASTRUCTURE MASTER PLANNING DEVELOPS COMPLEMENTARY PLANS

BENEFITS OF INTEGRATED INFRASTRUCTURE MASTER PLANNING

Proper Project Phasing Optimizes Financial Investment

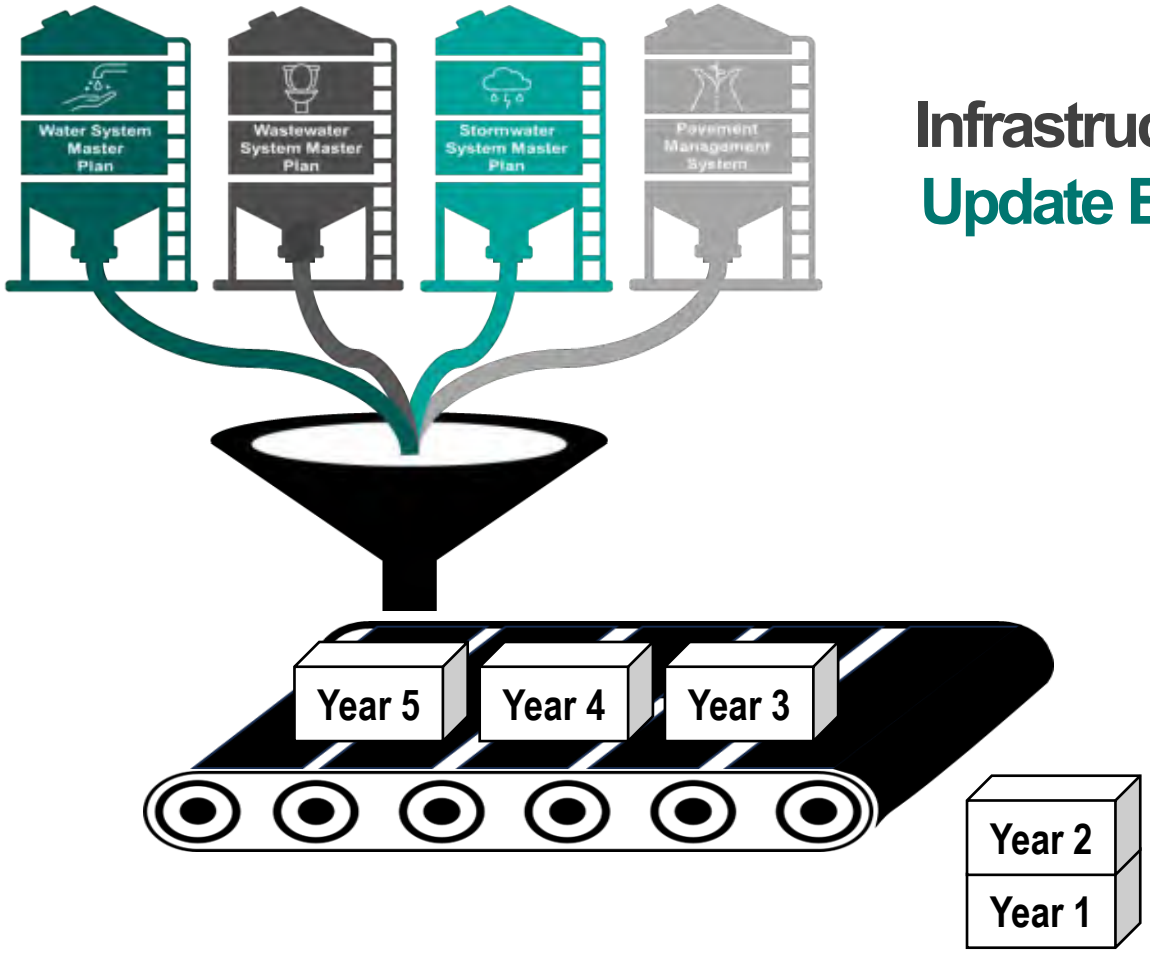


No Rework

Integrated Plan That Can Be Shared With the Public

Happy Public & Happy Elected Officials

INTEGRATED INFRASTRUCTURE AND CAPITAL IMPROVEMENT PLAN UPDATES



Infrastructure Master Plan

Update Every 8 - 10 Years

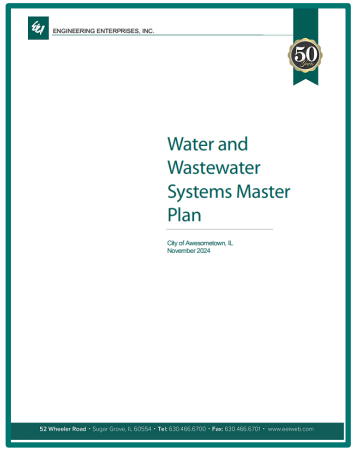
Capital Improvement Plan

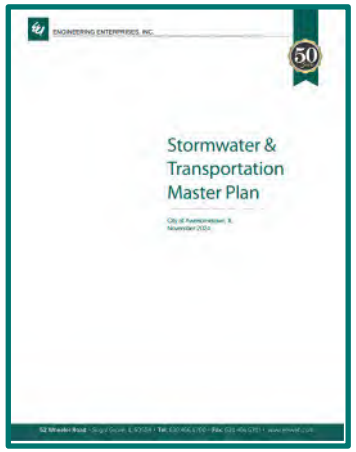
Update Annually

SOMETIMES PHASED PLANNING IS NECESSARY

Integrated Infrastructure Planning in **One** Year

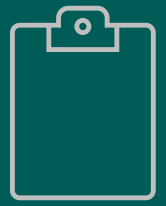
Integrated Infrastructure Planning in **Two** Years





Integrated Infrastructure Planning in **Three** Years

DETERMINE THE LEVEL OF COMMUNITY OUTREACH & METHODS OF OUTREACH



Paper Surveys

Online Surveys

Meetings

- Drainage Issues
- Water Quality Concerns
- Sewer Backups
- Traffic Congestion
- Speeding Areas
- Sidewalk Issues

BEST PRACTICES – STAKEHOLDER ENGAGEMENT

Early

- Identify Key Stakeholders
- Establish Communication Channels
- Set Clear Objectives & Expectations

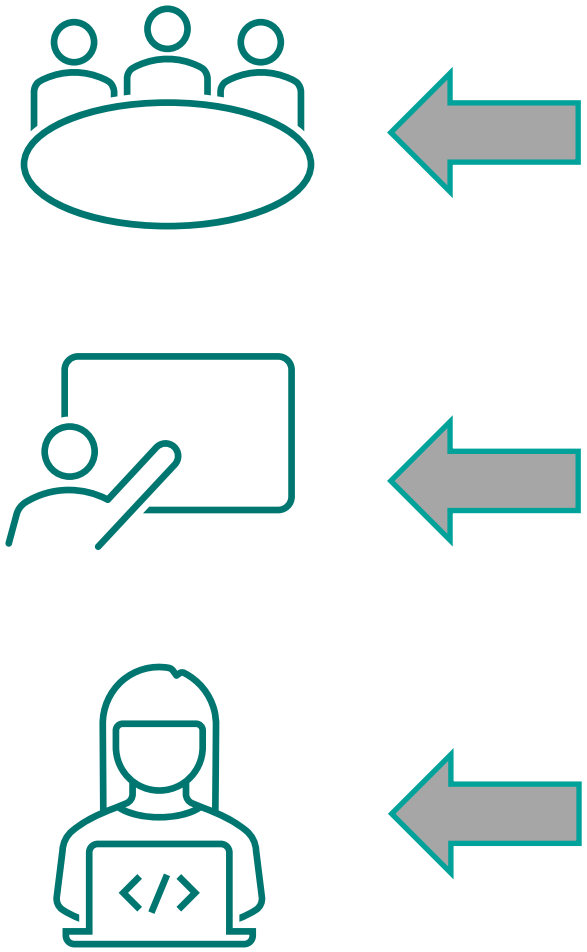
During

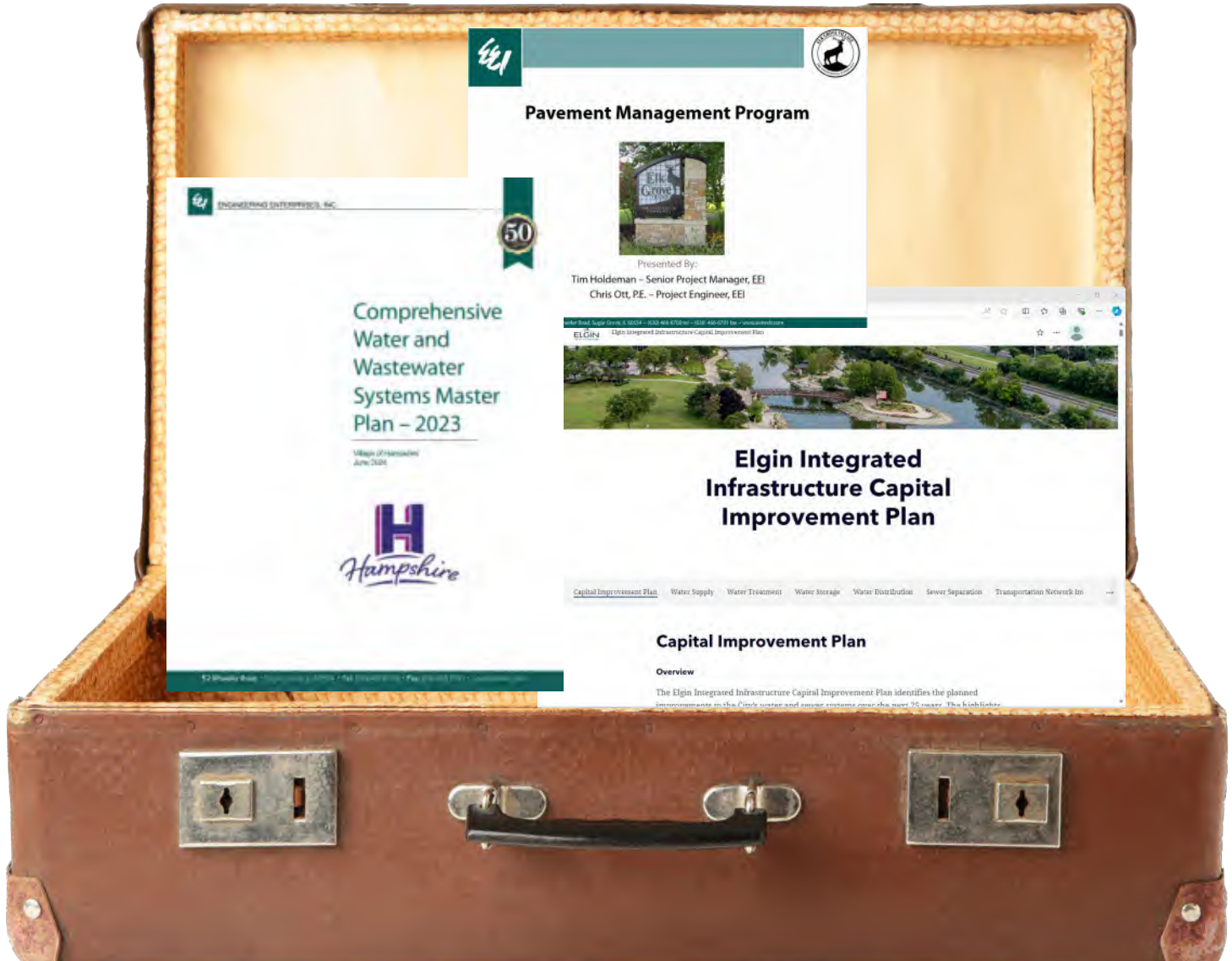
- Engage With Transparency
- Listen Actively / Foster Collaboration
- Monitor Stakeholder Sentiment

Also

- Evaluate Effectiveness
- Adapt to Change
- Leverage Technology and Tools

Before You Get Started…. Consider Your Audience, Deliverable Formats & Level of Editing Needed





SUMMARY

COMPREHENSIVE PLANNING SAVES MONEY

A Comprehensive Integrated Infrastructure Master Plan Will Save Money in the Long Run

DEVELOP A SENSE OF PRIORITIES UPFRONT

Determine What Will Drive Plan Implementation Upfront

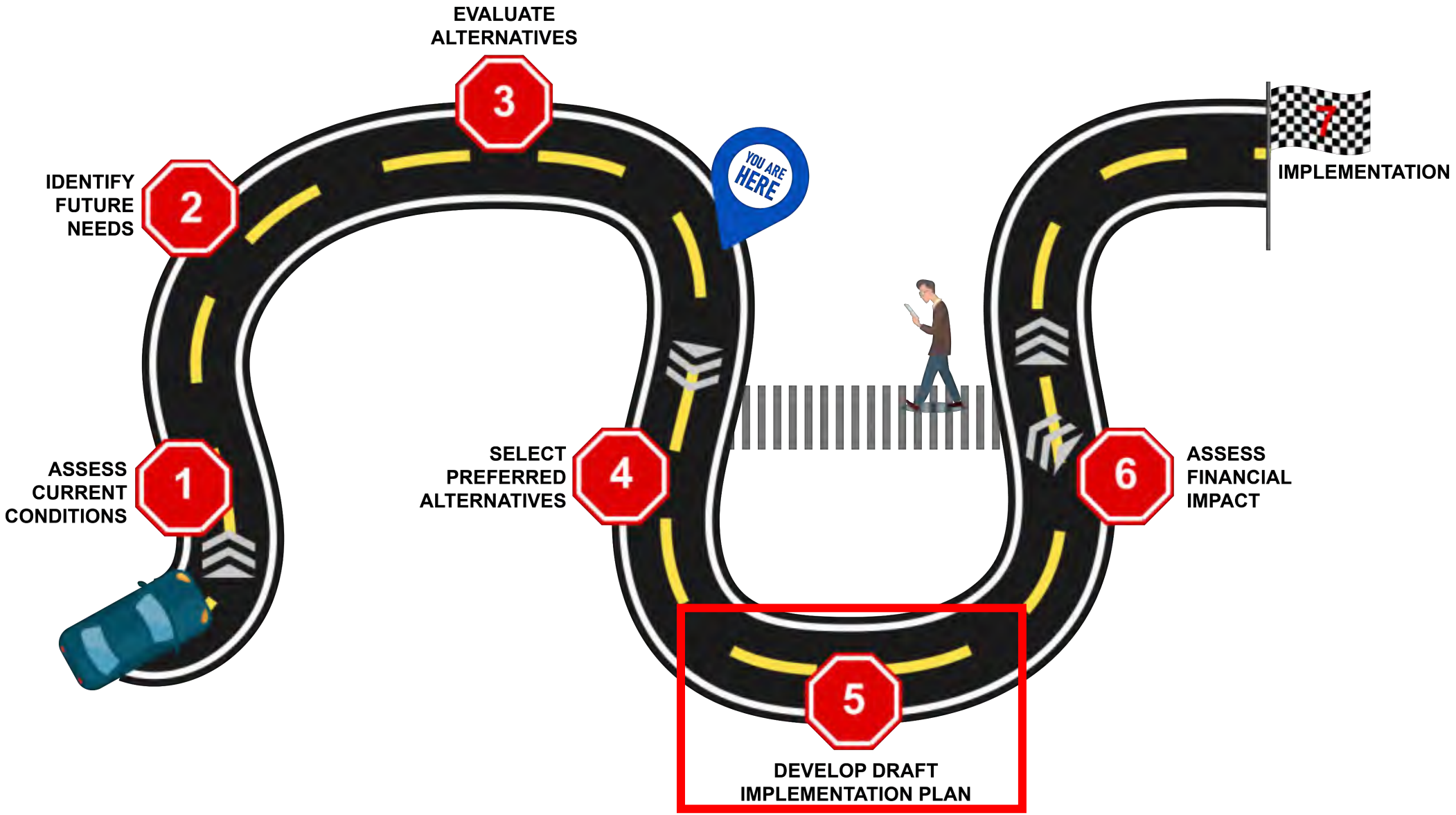
IIMP DEVELOPS EFFICIENT CIP

Integrated Infrastructure Master Planning Develops an Efficient Capital Improvement Plan

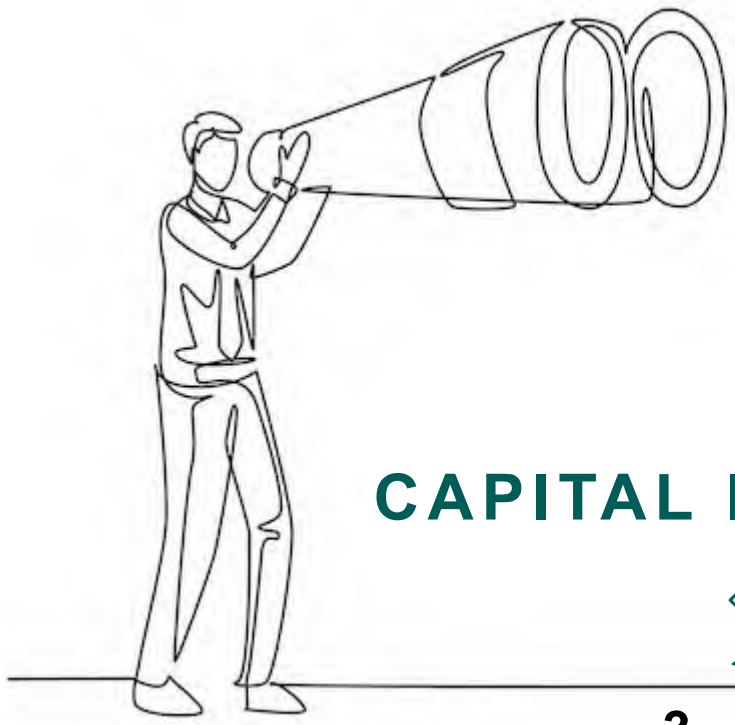
PHASING & IMPLEMENTATION PLAN DEVELOPMENT

INTEGRATED INFRASTRUCTURE MASTER PLAN

PLANNING PROCESS



PLANNING HORIZON & UPDATES
MASTER PLAN AND CIP



MASTER PLAN

20 to 30+ Years, Updated Every 10 Years

Near Future
6 – 15 Years

Long-Term
15+ Years

Immediate
1 – 5 Years

CAPITAL IMPROVEMENT PLAN

3 – 5 Years, Updated Annually

INTEGRATED INFRASTRUCTURE MASTER PLAN

PHASING AND IMPLEMENTATION PLAN

Infrastructure Component	Immediate 1 - 5 Years		Near Future 6 - 15 Years		Long Term 15+ Years		Total
	Project	Cost	Project	Cost	Project	Cost	
Water							
Subtotal							
Sewer							
Subtotal							
Transportation							
Subtotal							
TOTAL							

FOR EACH PROJECT:

- Project Description
- Rationale
- Interdependencies
- Strategic Alliances
- Phasing and Timeline
- Cost Estimate

IMPLEMENTATION PLAN
DELIVERABLE EXAMPLES

Table No. 7-1: Water Works System Phasing and Implementation Plan – CT

Village of Huntley, IL

Water Works System Component	Immediate: 0 - 5,000 Population Equivalents Addition, 0 - 5 Years		Near Future: 5,001 - 16,000 Population Equivalents Addition, 6 - 15 Years		Long Term: 16,001 - 29,553 Population Equivalents Addition, 16 - 26 Years		Total
	Description	Cost[1]	Description	Cost[1]	Description	Cost[1]	
Supply & Treatment	Well No. 13 & Well No. 13 WTP	$ 8,523,000	Well No. 14 & Well No. 14 WTP	$ 9,192,000	Well No. 16 & Well No. 16 WTP	$ 8,523,000	
			Well No. 15 & Well No. 15 WTP	$ 9,206,000	Well No. 17 & Well No. 17 WTP	$ 9,192,000	
					Well No. 18 & Well No. 15 & 18 WTP Expansion	$ 7,883,000	
Supply & Treatment Subtotal:		**$ 8,523,000**		**$ 18,398,000**		**$ 25,598,000**	**$ 52,519,000**
Distribution in Southern Service Area	18,000 LF 16" Water Main Loop from 12" Stub	**$ 6,327,000**			3,100 LF 16" Water Main Extension from Sandwald Rd. (which includes tollway crossing)	$ 1,536,000	
Distribution Subtotal:		**$ 6,327,000**		**$ -**		**$ 1,536,000**	**$ 7,863,000**
Storage	EWST No. 6 (1.5 MG)	$ 8,973,000	EWST No. 7 (1.0 MG)	$ 7,355,000	EWST No. 8 (1.0 MG)	$ 7,355,000	
Storage Subtotal:		**$ 8,973,000**		**$ 7,355,000**		**$ 7,355,000**	**$ 23,683,000**
TOTAL:		**$ 23,823,000**		**$ 25,753,000**		**$ 34,489,000**	**$ 84,065,000**

Notes

[1] Based on 2022 dollars and 2022 construction costs, includes engineering and contingency costs

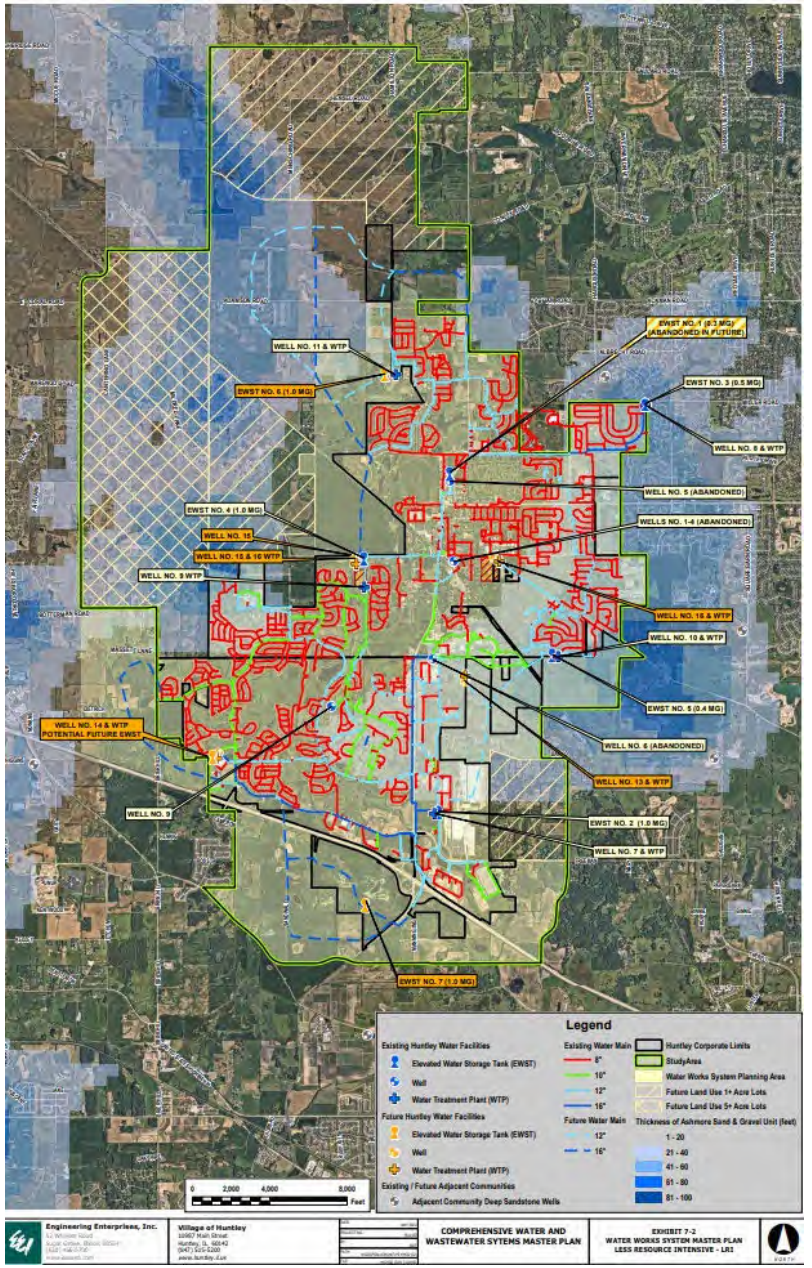
Table No. 7-2: Water Works System Phasing and Implementation Plan – LRI

Village of Huntley, IL

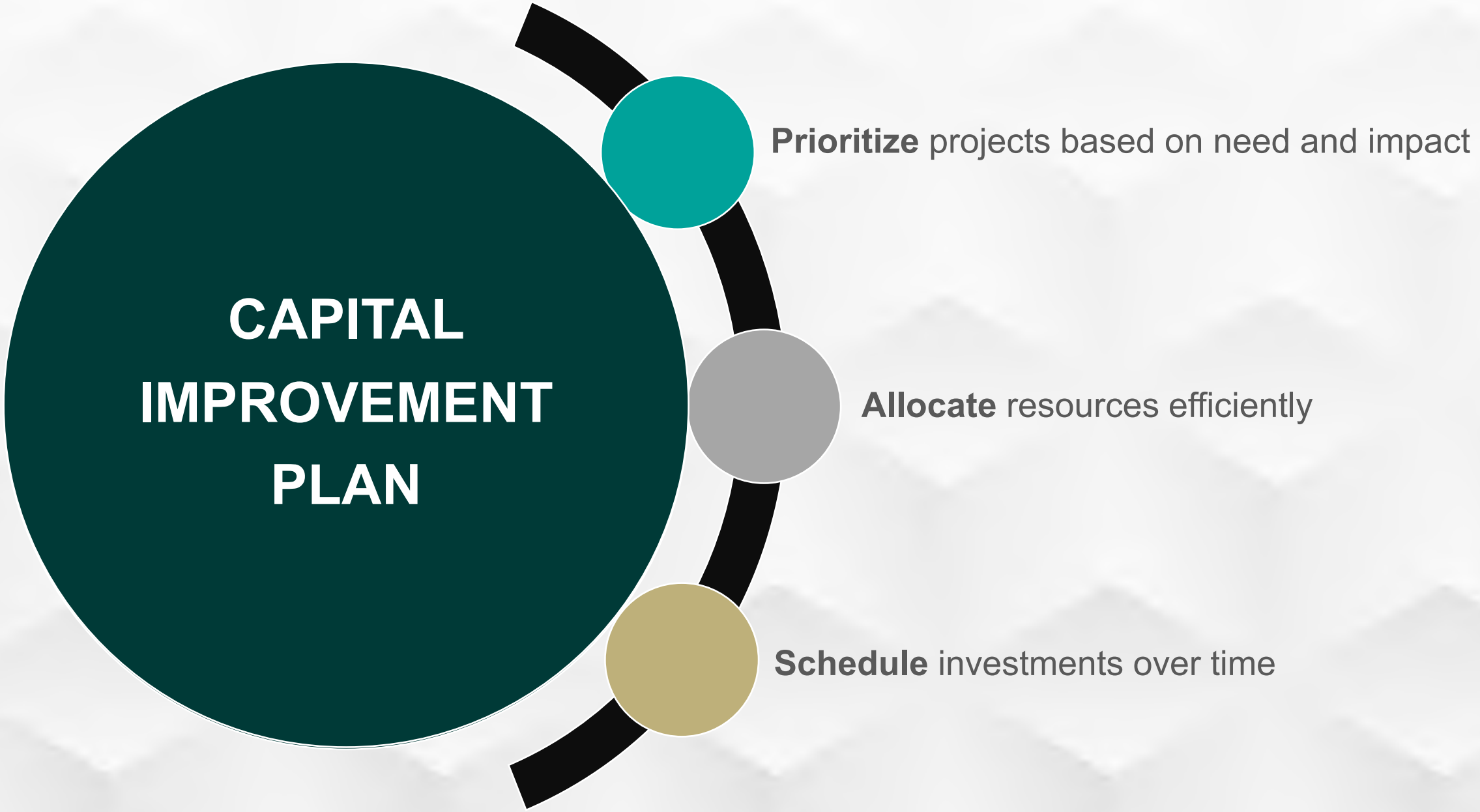
Water Works System Component	Immediate: 0 - 5,000 Population Equivalents Addition, 0 - 5 Years		Near Future: 5,001 - 16,000 Population Equivalents Addition, 6 - 15 Years		Long Term: 16,001 - 29,553 Population Equivalents Addition, 16 - 26 Years		Total
	Description	Cost[1]	Description	Cost[1]	Description	Cost[1]	
Supply & Treatment	Well No. 13 & Well No. 13 WTP	$ 8,523,000	Well No. 14 & Well No. 14 WTP	$ 9,192,000	Well No. 16 & Well No. 16 WTP	$ 8,523,000	
			Well No. 15 & Well No. 15 WTP	$ 9,206,000			
Supply & Treatment Subtotal:		**$ 8,523,000**		**$ 18,398,000**		**$ 8,523,000**	**$ 35,444,000**
Distribution in Southern Service Area	18,000 LF 16" Water Main Loop from 12" Stub	**$ 6,327,000**			3,100 LF 16" Water Main Extension from Sandwald Rd. (which includes tollway crossing)	$ 1,536,000	
Distribution Subtotal:		**$ 6,327,000**		**$ -**		**$ 1,536,000**	**$ 7,863,000**
Storage	EWST No. 6 (1.5 MG)	$ 8,973,000			EWST No. 7 (1.0 MG)	$ 7,355,000	
Storage Subtotal:		**$ 8,973,000**		**$ -**		**$ 7,355,000**	**$ 16,328,000**
TOTAL:		**$ 23,823,000**		**$ 18,398,000**		**$ 17,414,000**	**$ 59,635,000**

Notes

[1] Based on 2022 dollars and 2022 construction costs, includes engineering and contingency costs



CIP DEVELOPMENT


CAPITAL IMPROVEMENT PLAN
Prioritize projects based on need and impact
Allocate resources efficiently
Schedule investments over time

What Will Drive the CIP?
And What Will Follow?

COMMUNITY GROWTH

Increased Demand
Geographic Expansion

WATER MAIN REPLACEMENT

Main Breaks / Service Interruptions
End of Life Cycle

LSL REPLACEMENT

Regulatory Requirements
Funding Availability

ROAD REHABILITATION

Pavement Condition
Community Development

SEWER IMPROVEMENTS

Sanitary Sewer Overflows
Service Area Expansion
Pump Station Improvements

STORM WATER IMPROVEMENTS

Combined Sewer Overflow
Increased Flooding
Improve Water Quality

FROM PLANS TO PROJECTS

Capital Improvement Plans support the implementation of the Integrated Infrastructure Master Plan by translating strategic goals into actionable projects.

INTEGRATED INFRASTRUCTURE MASTER PLAN
Project Description
Rationale
Estimated Cost

ANNUAL BUDGET CYCLE

REVENUE
Sales (Rates)
Bonds
Loans/Grants
Taxes

EXPENSES
Capital Improvement
Debt Service

CAPITAL IMPROVEMENT PLAN
Project Description
Justification
Duration/Phasing
Cost Estimate
Funding

PROJECT IMPLEMENTATION
Design
Bid
Construction
Start-Up

CAPITAL IMPROVEMENT PLAN
EXAMPLE

PUBLIC WORKS AND EN
WATER CAPITAL IMPRO

Major Capital Projects FY24:
Water Main Replacement Progra
Lead Service Line Replacement
Pull and Service Well Pumps
Brine Tank Media and Valve Vau
MXU and Water Meter Replacem
Fire Hydrant Repainting Program
SCADA System Maintenance Pr
Piping, Valve and Meter Replace

Water Main Replacement Program
$300,000

Funding Source:

Water Capital Fund: 515-00-00-8004

Project Description & Justification:

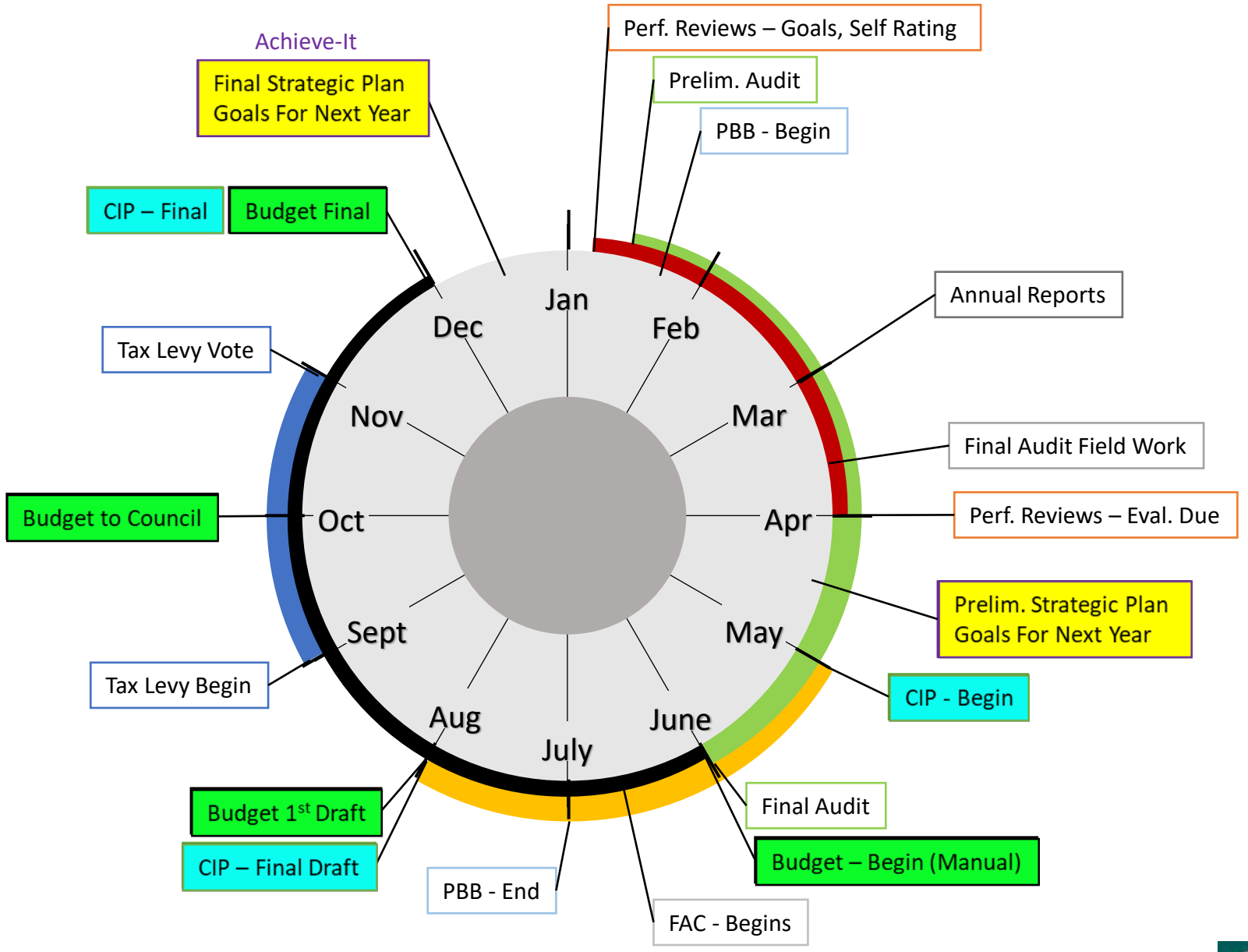
Aging water main with a history of breaks is programmed for replacement 1-3 years ahead of the road program. Water main breaks consume staff resources, result in water loss, are costly to repair, are disruptive to water users, and are likely to continue unless the pipe is replaced with new pipe meeting current material and construction standards.

FY24: Allison Ct
FY29: Janice Dr
FY30: Bonnie Brae and Sunset
FY31: Bakley's (north)
FY32: Bakley's (south)

Budget Impact:

Positive - Replacing problematic water main will reduce the potential for water main breaks and thereby reduce staff resources to repair them and reduce revenue loss from unbilled water.

ANNUAL PLANNING CYCLE(S)



SUMMARY

INTERDEPENDENCIES

Coordinated Planning Approach Reduces Overall Cost and Minimizes Disruptions

GENERAL TO DETAIL

Master Plan ⇨Rationale

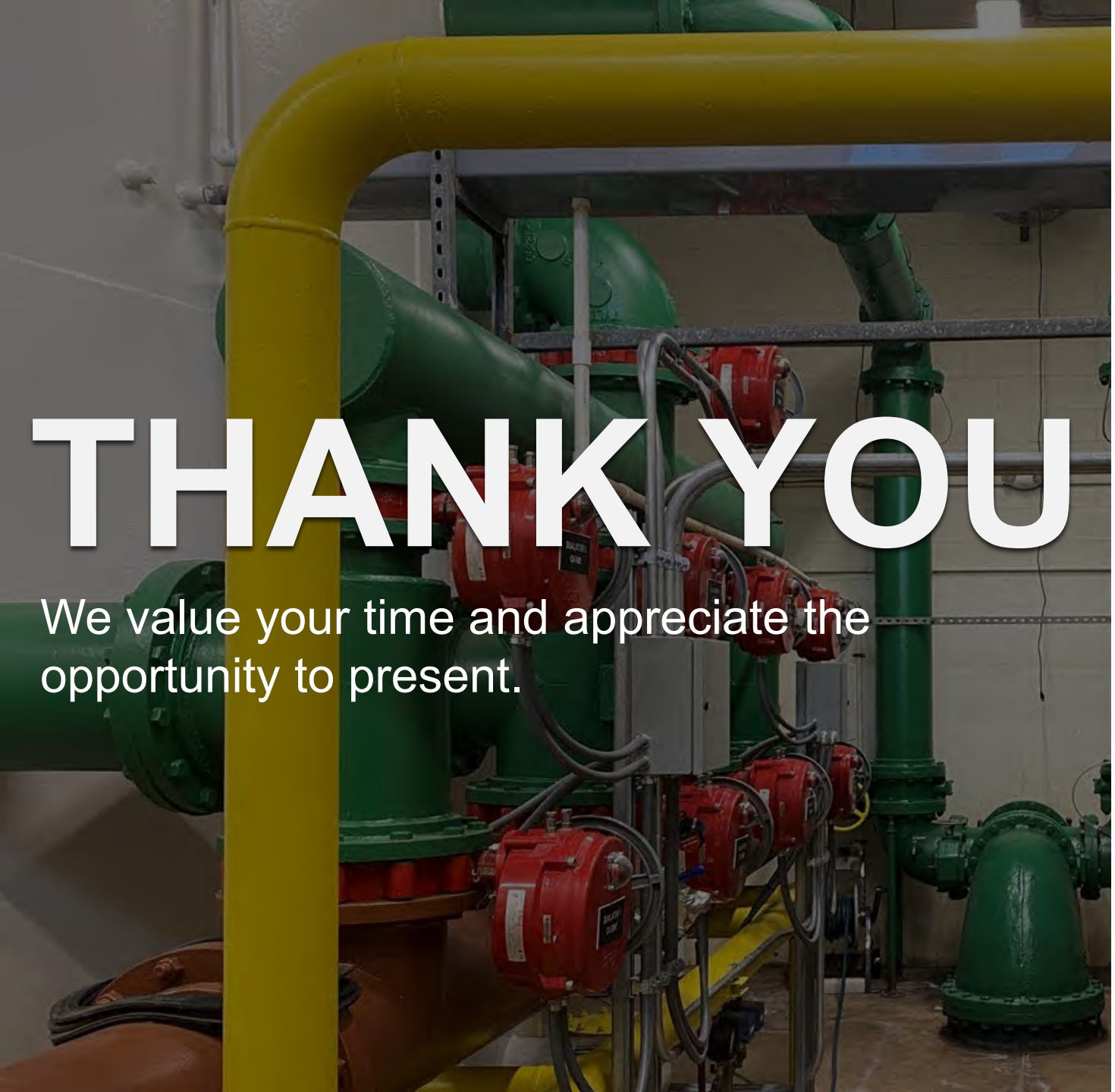
CIP ⇨ Detail

IMPLEMENTATION

Adapt Plans to Meet Current Needs

QUESTIONS OR COMMENTS?

We’re here to help any way we can!



THANK YOU

We value your time and appreciate the opportunity to present.

Engineering Enterprises, Inc.

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