Milwaukee Metropolitan Sewerage District's Asset Management Journey

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Greg Hottinger, Asset Management Program Manager, MMSD
Jeff Stillman, Asset Management Practice Leader, Black & Veatch
Paul Boersma, Project Director, Black & Veatch

MMSD | Planning Department

Photo credit: DearMKE@weaver

Greg Hottinger
Asset Management Program Manager
Milwaukee Metropolitan Sewerage District
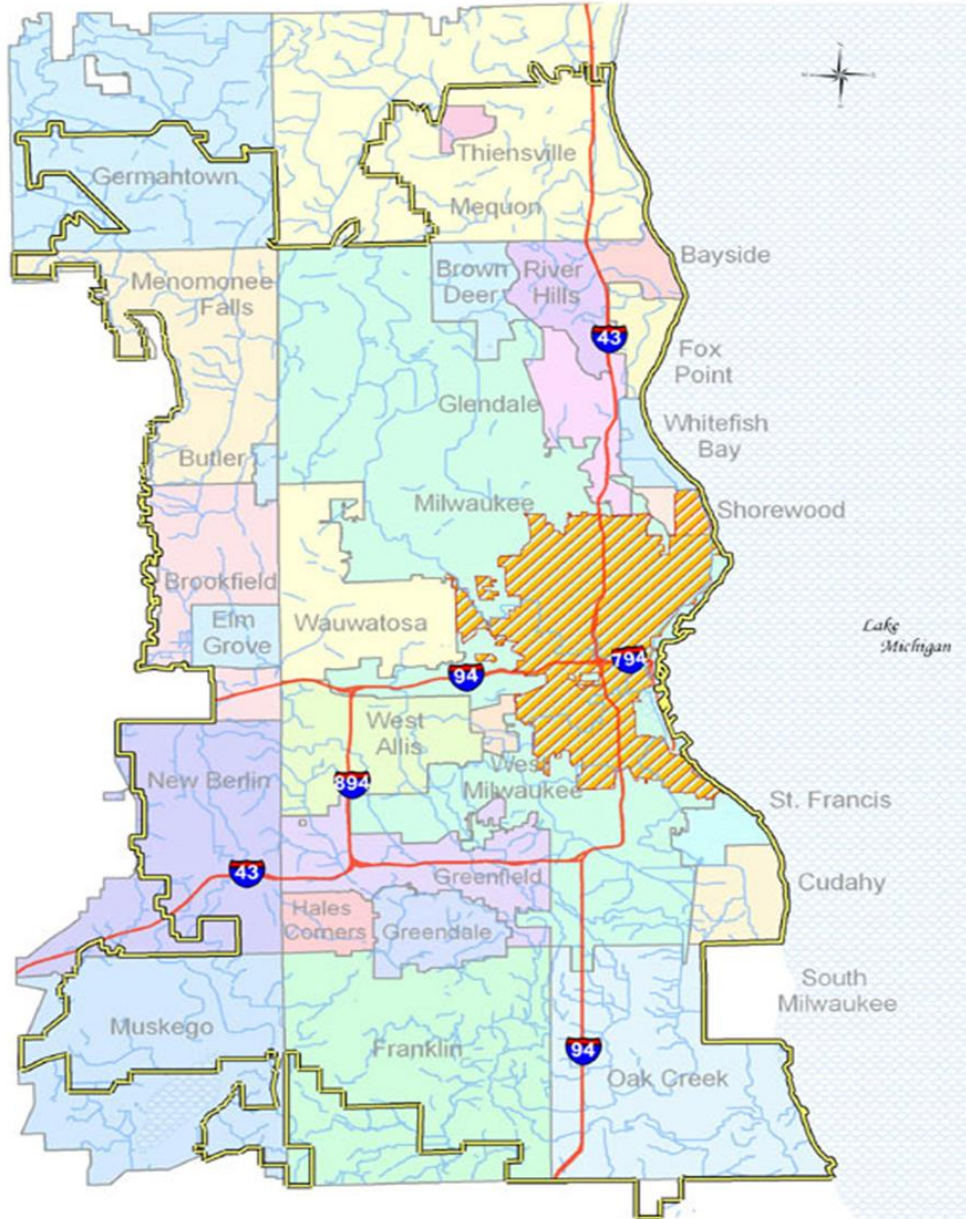414.225.2059
Ghottinger@mmsd.com

Jeff Stillman
Asset Management Practice Leader
Black & Veatch
617.435.3307
Stillmanjb@bv.com

The Milwaukee Metropolitan Sewerage District

- Regional government agency

- Wastewater conveyance, water reclamation and flood management services

- 1.1 million people in 28 communities in the greater Milwaukee area

- 411 square miles in six watersheds

- Governed by 11 commissioners with taxing authority

- $4.7 Billion in assets (installed costs)

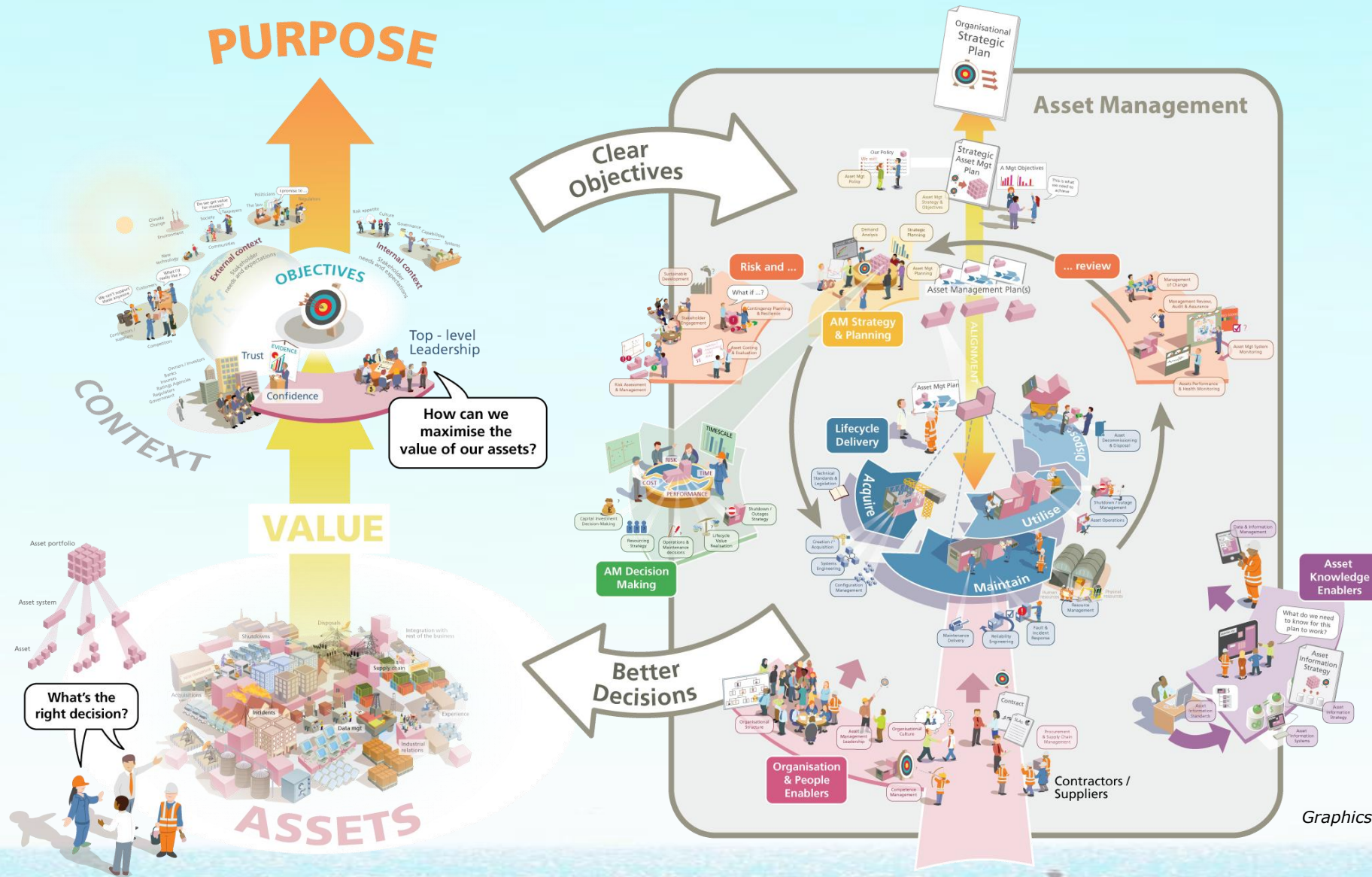# Typical Asset Management (AM) Journey

Institute of Asset Management
www.theiam.org

Graphics: Institute of Asset Management

The Elements of Asset Management

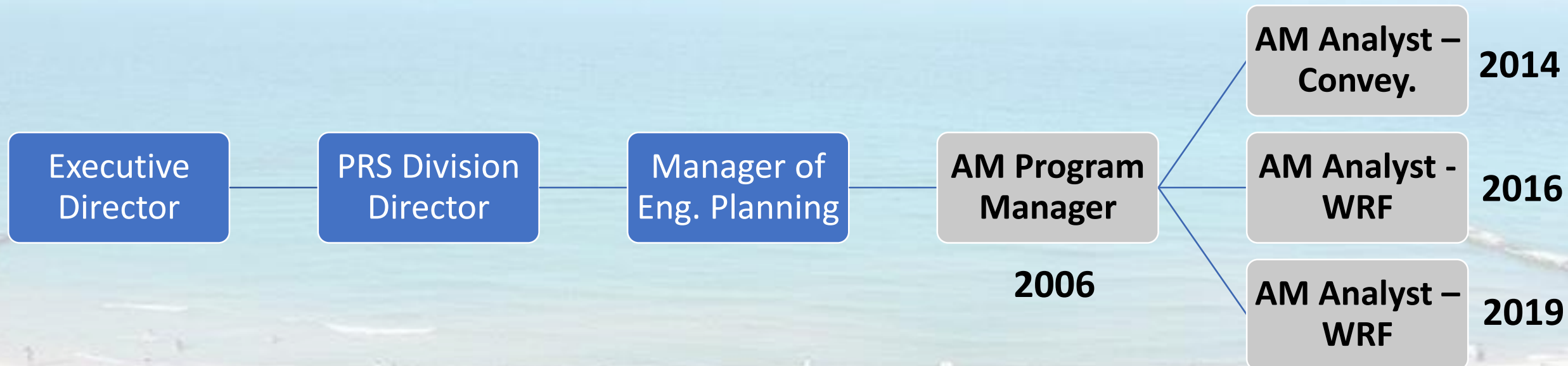
Graphics: Institute of Asset Management

Agenda

- Organizational AM Structure

- Asset Information and Processes

- Next Steps

Organizational Asset Management Structure

AM Department Hierarchy & Staff

AM Program Structure

Strategic		Exec. Steering Comm.	**2013**	
Tactical		Improvement Team	**2019**	
Operational (AM Teams)	Reclamation	Conveyance	Watercourse	Facilities	Green Infra.
	2017	**2016**	**Future**	**Future**	**Future**

Asset Information and Processes

Information – Data Hierarchy

Approx. 120   **Projects**

712   **Risks**

24,505   **Assets**
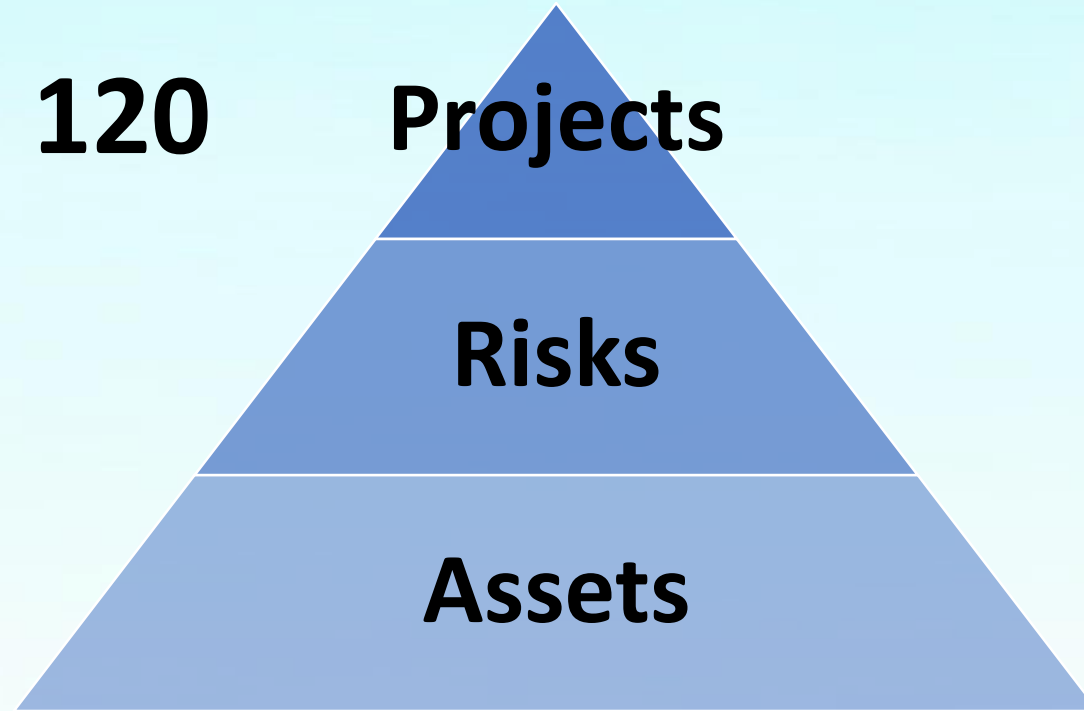
Information – Enterprise AM System

Connected Data

- Assets
- Risks
- Projects

Information – AM Data Strategy
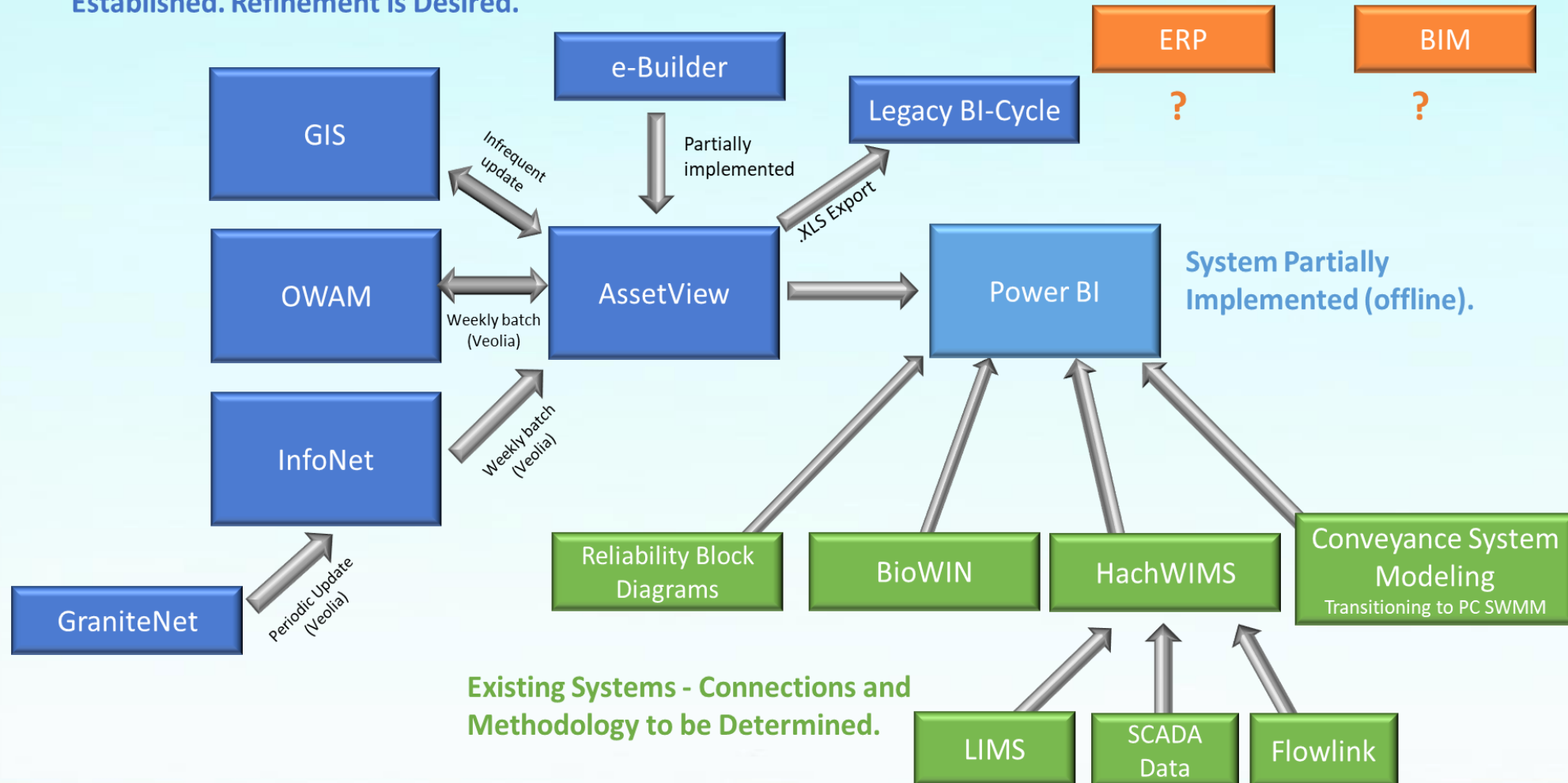
Process – AM Standards Developed

13 AM SOP's developed

- Asset definition
- Asset hierarchy definition
  - Categories, classes, types
- Condition assessment
- Risk methodology
- Asset register maintenance
- etc.

MMSD PARTNERS FOR A CLEANER ENVIRONMENT	Risk Identification Process	SOP #	AM - 010
		Revision #	
		Implementation Date	
Page #	Page 1 of 6	Last Reviewed/Update Date	
SOP Owner	AM Department	Approval	

1. Purpose

This procedure describes MMSD's approach to risk identification. It describes roles and responsibilities, process and methodology for identifying risk consistently across the organization.

The Risk Identification process is step two of the Overall Risk and Investment Planning process, shown in Figure 1. This process describes the procedure for identifying, managing, and mitigating risks and ultimately developing the annual Asset Investment Forecast. This SOP should be used in combination with the Risk Identification Process Workflow Diagram that is included as Attachment A. This SOP document provides additional details to describe activities shown on the workflow diagram.

Risks typically falls into three categories related to asset management at MMSD:

- **Asset level risks**: risks that generally apply to a single asset or small group of related assets. These risks are addressed in SOP AM-009 (Asset Level Data Evaluation), where some risks may be identified for possible addition to the risk register.
- **Risk register risks**: risks that pertain to assets, but may occur more broadly to multiple assets or asset systems. Generally speaking, these are risks that can be assigned in the asset hierarchy but are best applied at a level of the hierarchy above the asset.
- **Enterprise/organization risks**: risks that are not necessarily directly applicable to assets or asset systems but pose a potential threat to the MMSD at an organizational level. The MMSD does not currently have a separate system to track such risks, so Enterprise level risks are tracked on the risk register until MMSD identifies an alternate methodology to handle such risks.

Process – Desktop Condition Assessments

- In-person meetings with O&M staff

- Identify assets condition and useful life

- Proactive rehab and replacement

- Engages staff in AM

6,400+ assets since 2018

Process – Risk Methodology

- Definitions for Likelihood and Consequence of Failure
- Risk Scoring Levels defined

Likelihood of Failure

Ranking	Score	Definition
Very High	75	Event will occur within a year.
High	25	Event will occur at least once every 1-5 years.
Medium	5	Event will occur at least once every 6-10 years.
Low	2	Event will occur at least once every 11-20 years.
Very Low	1	Event will occur at least once every 21+ years.
NA	0	NA

Consequence of Failure

Ranking	Score
Very High	1,000
High	220
Medium	25
Low	6
Very Low	1
NA	0

Likelihood of Failure (1-75) x Consequence of Failure (1-1,000)

Risk Level	Governing Risk Score
High Risk	> 10,001
Moderate Risk	1,001 – 10,000
Low Risk	101 – 1,000
Minimal Risk	0 – 100

Process – Risk Management Processes
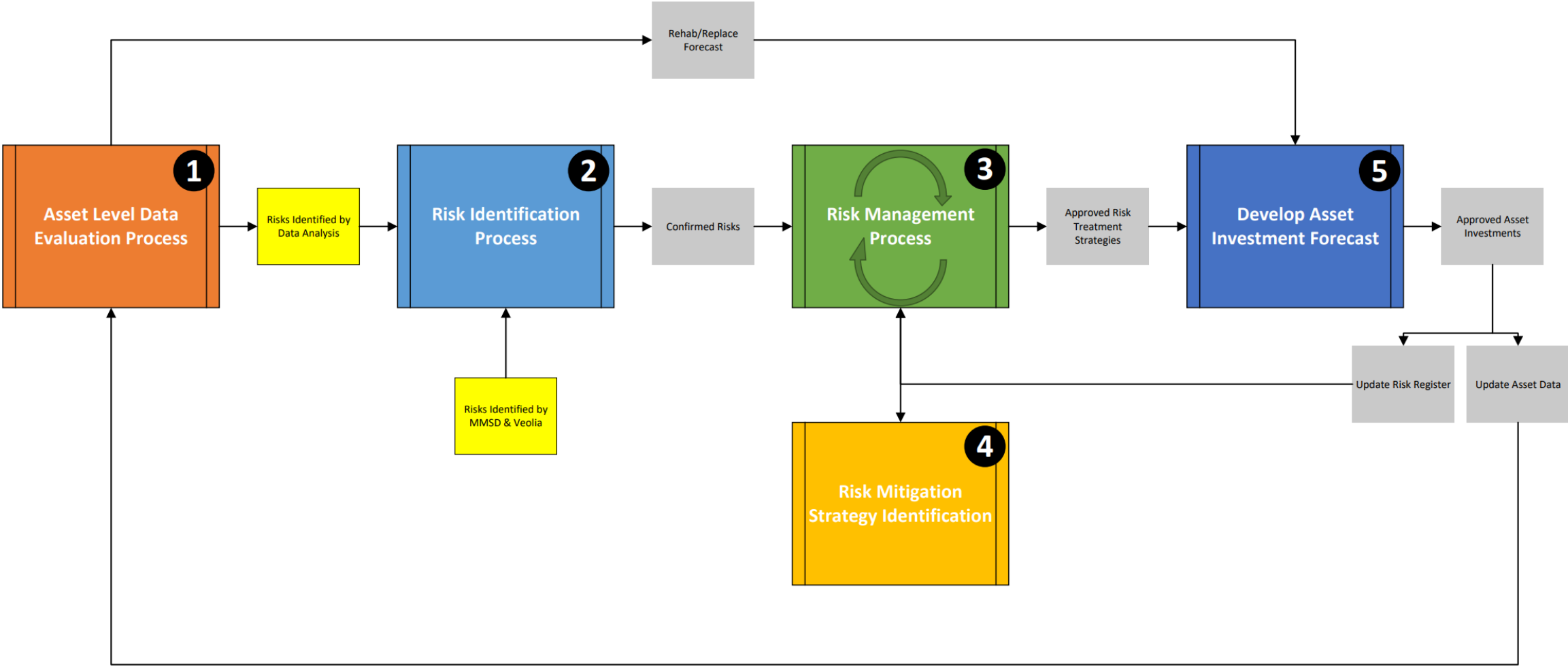
Information – Analysis Tools

- Dashboards developed to analyze and view information
- Power BI is common platform at MMSD
- Connection to multiple data systems
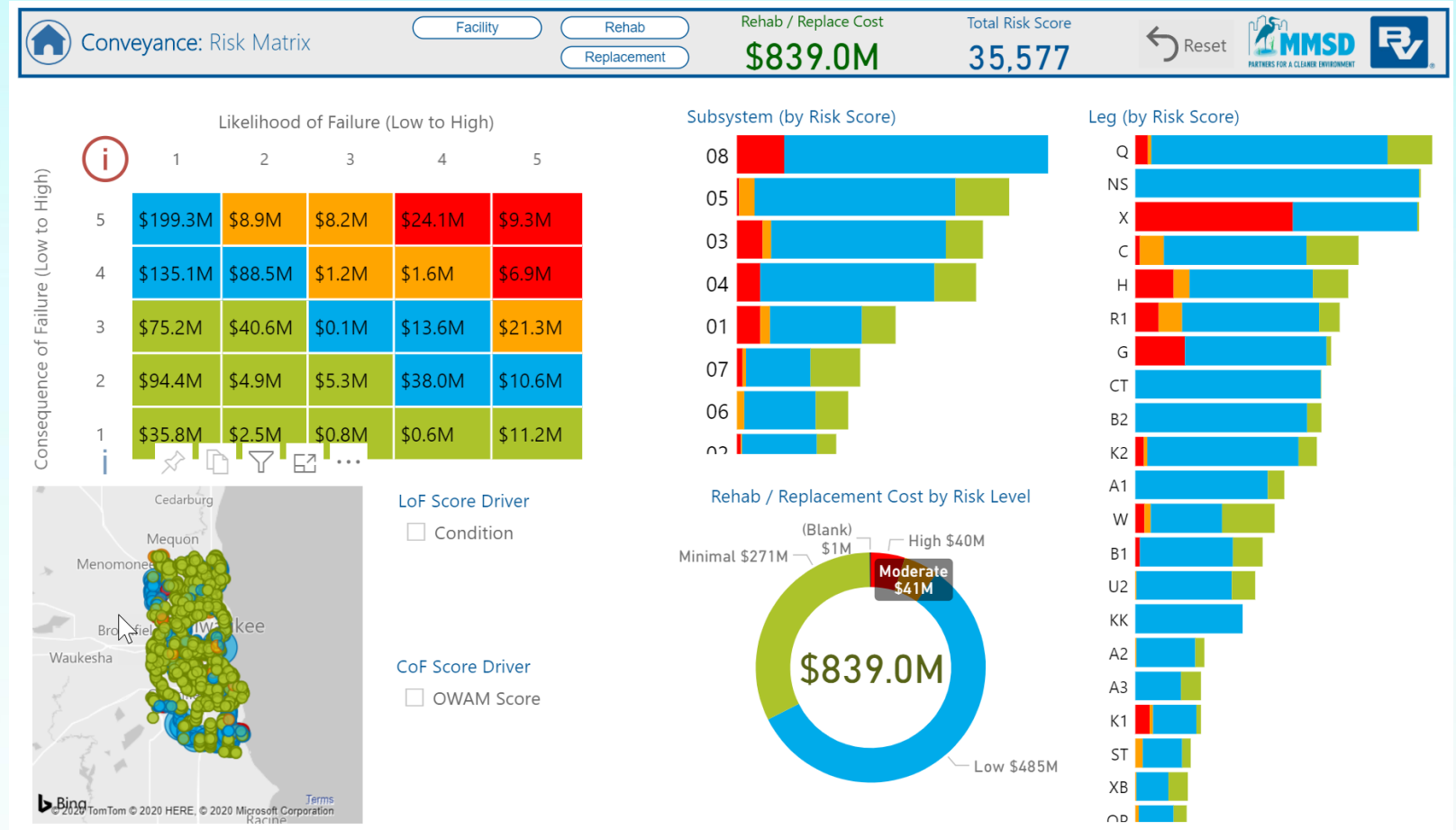
Process – Project Asset Tables

- Proactively identify assets prior to project bid
- Coordination between Stakeholders:
  - Asset Management
  - Project Management
  - Designer
  - Contractor
  - Veolia (operator)

Next Steps

Photo credit: archigrant

AM Program Gap Assessment – Approach

Document Review

1:1 Interviews

Gap Analysis Against ISO 55001 Requirements

Improvement Team Review

Confirm Gaps, Identify Priorities

Improvements Workshops

AM Improvement Plan

Steering Committee Review

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ISO 55001 Assessment Results
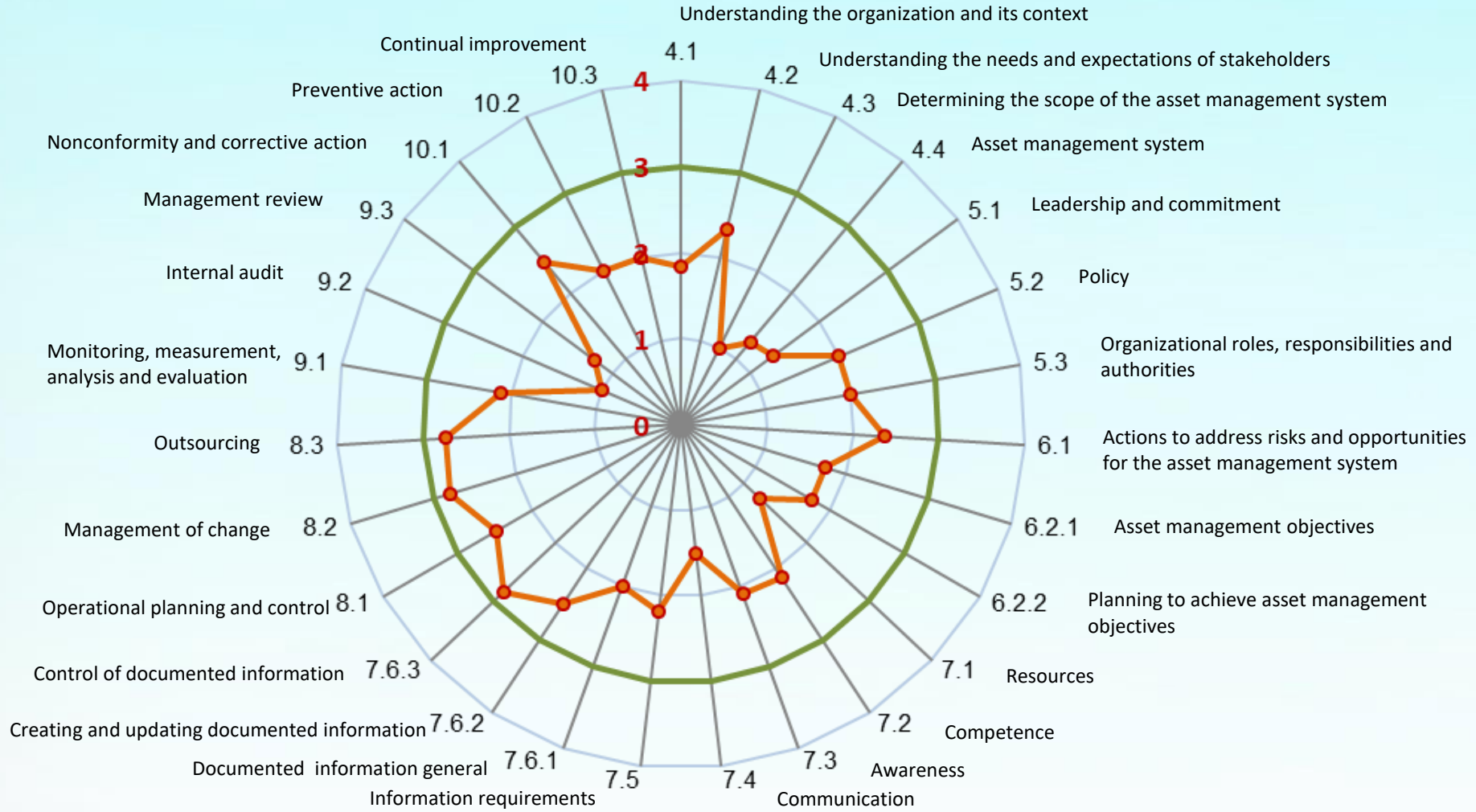
MMSD average score of 2.0

Components of Improvement Plan

- Summary of all actions (32 actions)
- Schedule
- Resource requirements
- Detailed action summaries

Discussion/Questions

MMSD | Planning Department

Photo credit: archigrant