
WTD Asset Management Program: Overview of Recent Innovations and Changes

Presentation to the MWPAAC
Engineering & Planning Sub-Committee
May 7, 2008

21st Century Asset Management

- Since the 1980s, industries world-wide have been working to develop systems that cost effectively preserve asset functions
- EPA is encouraging utilities to employ these same concepts in order to:
 - Maintain level of service/reliability
 - Protect ratepayers from avoidable costs and wide rate fluctuations

Others undertaking strategic asset management (to name a few)

- City of Seattle
- City of Portland
- Sacramento County
- East Bay MUD
- Orange County
- San Diego
- Massachusetts Water Resource Authority (MWRA) – Boston

History of Asset Management in the Wastewater Treatment Division (WTD)

- Since the early Metro days, WTD has actively monitored assets and prepared condition assessments
 - Regularly scheduled maintenance
 - H₂S Inspection program: source control and lining program
 - Long-term contract to standardize equipment to simplify controls

In 1999, the Regional Wastewater Services Plan set Policy Direction

- “Establish an asset management program to reflect long-term useful life of facilities...”
- “Establish an asset management plan to ensure continued reliability of infrastructure; renew plan annually.”

Why do we need to update WTD's Asset Management Approach?

Relatively new system needing little refurbishment and repair



40-year-old system with potentially large cumulative repair/refurbishment needs

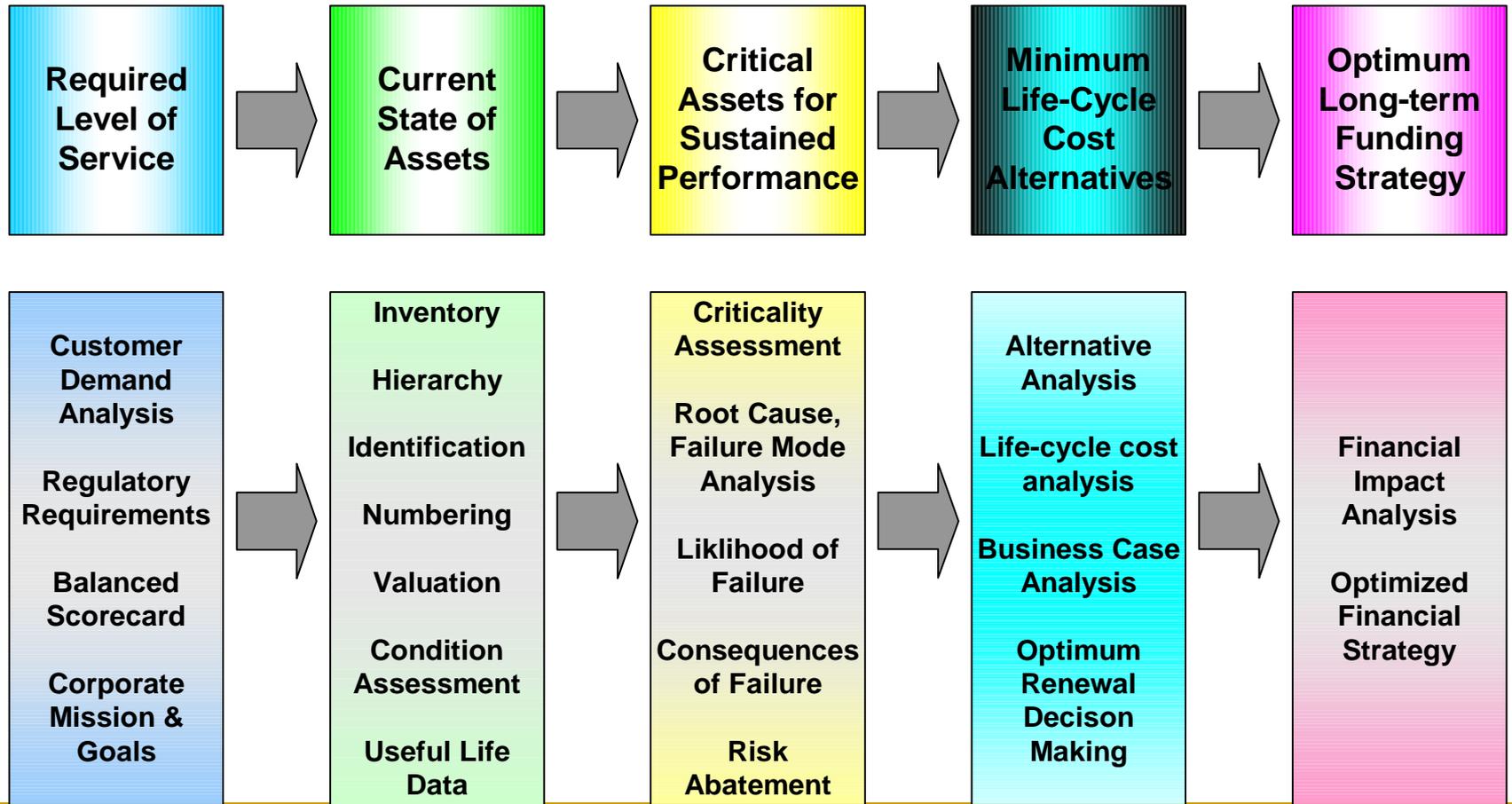
WTD's Asset Management Program Goals

- Maintain Level of Service (LOS)
- Save money

A Few Definitions

- **Reliability-Centered Maintenance (RCM)**, is a system to cost-effectively manage equipment and preserve important functions.
- **Maintenance Best Practices (MBPs)** are the activities needed to support RCM.
- **Life Cycle Cost Analysis (LCCA)** produces the total cost of ownership over the life of an asset.

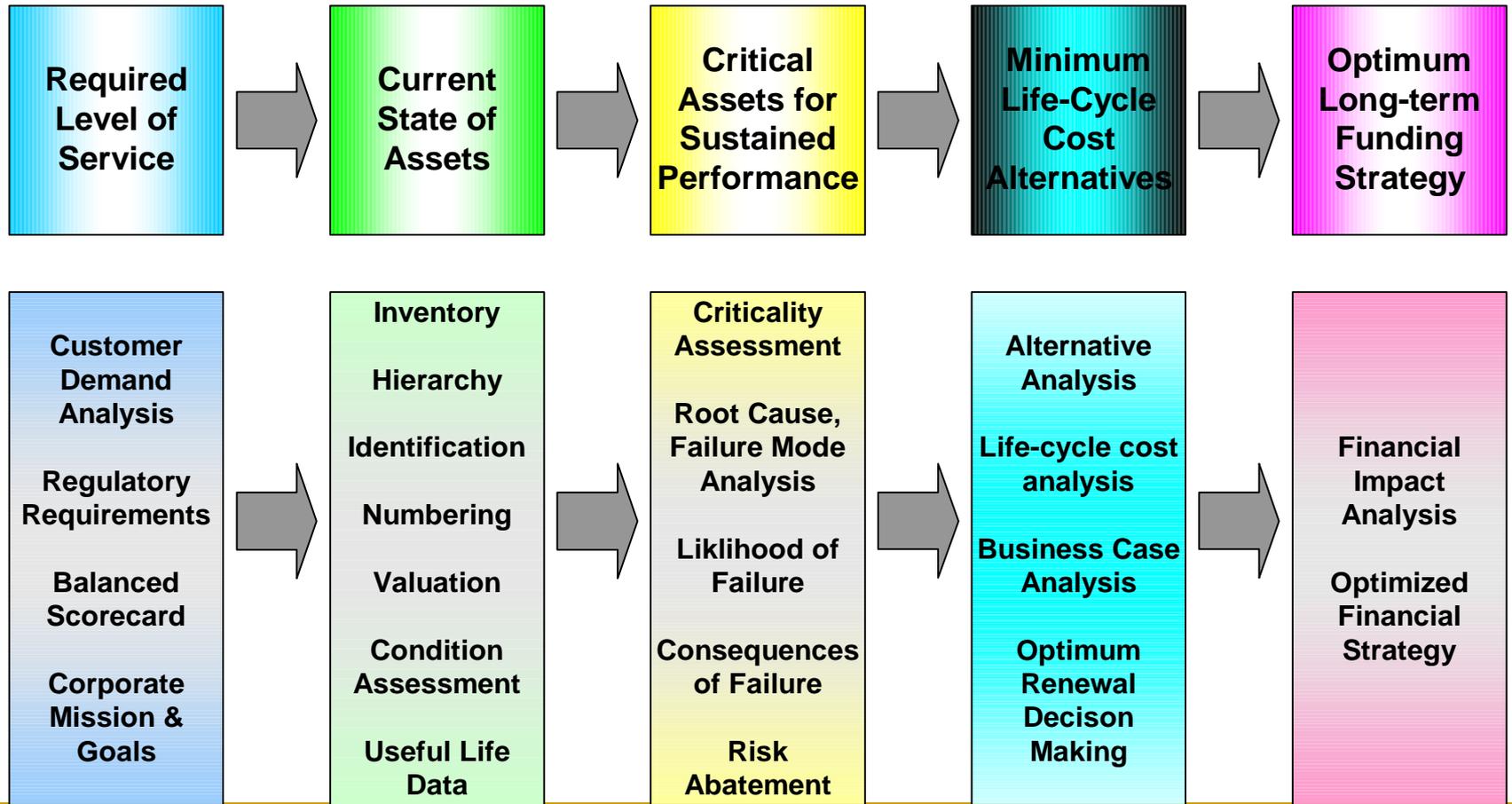
Core Asset Management Steps



Status of Strategic Asset Management program

- LCCA now conducted for all capital projects; major refurbishments targeted next.
- Genesis Solutions, Asset Management consultant, hired in 2007 to assess WTD program and guide improvements.
- Gaps in current program identified. Consultant team and staff now partnering to “fill the gaps”.
- Steering committee established to implement maintenance best practices across WTD.
- 25,000 assets to be standardized in MainSaver by August 2008.

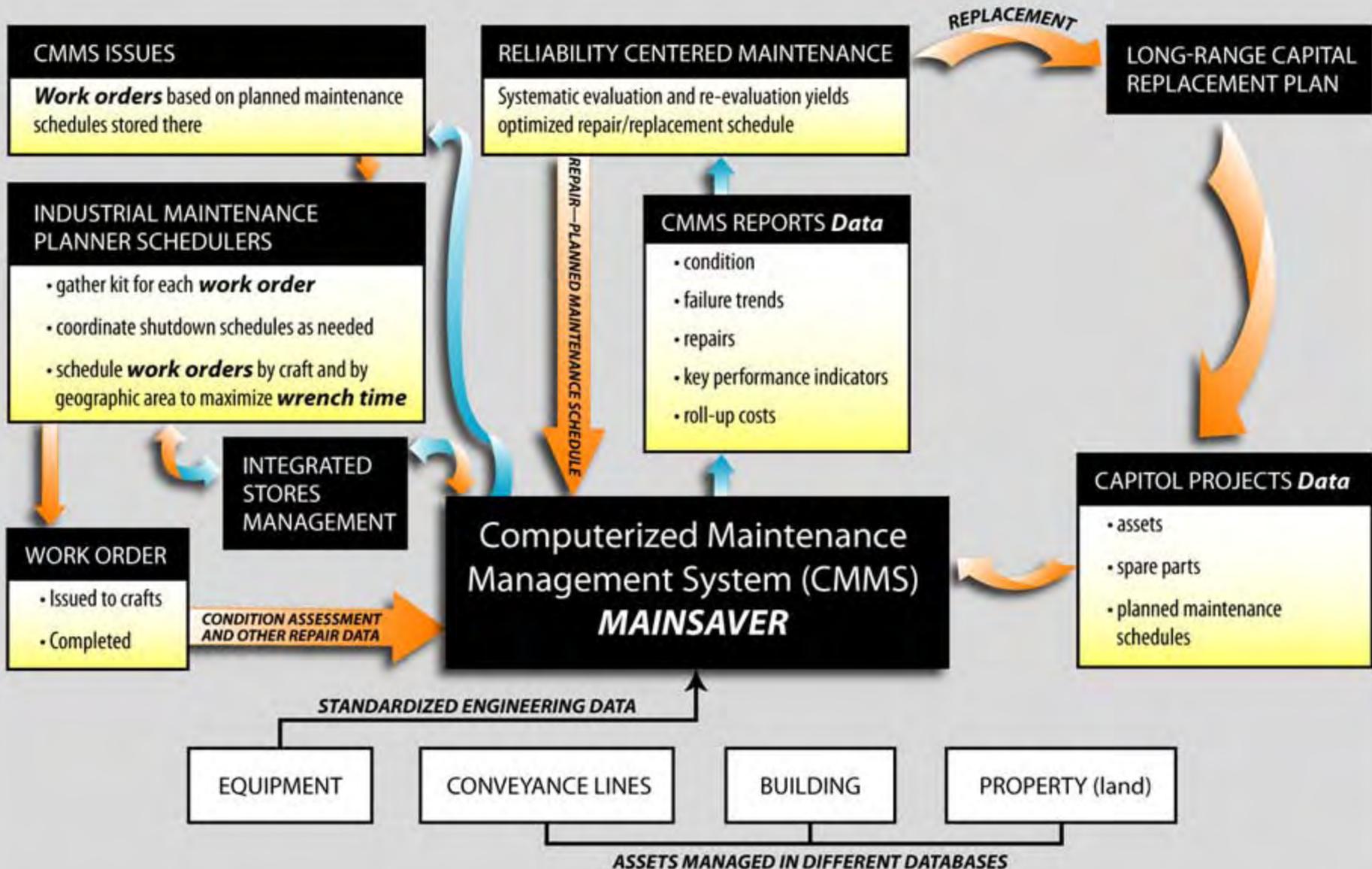
Core Asset Management Steps



Tools for Reliability Centered Maintenance (RCM)

- Industrial Maintenance Planner/Schedulers (IMPS)
- Standardized engineering data
- Computerized Maintenance Management System (CMMS) – MainSaver
- Optimized maintenance strategies
- Life-Cycle Cost Assessment (LCCA)

MAINTENANCE BEST PRACTICES PROGRAM



Tools for Reliability Centered Maintenance (RCM)

1) Industrial Maintenance Planner/Schedulers

- Kits
- Operations coordination
- Geographic scheduling
- Coordinated parts inventory
- Optimized wrench time

Tools for Reliability Centered Maintenance (RCM)

2) Standardized engineering data

- “Criticality”
 - Identify critical facilities
- Standardize inventory (25,000 pieces of equipment)
 - Add new assets at completion of capital projects (e.g. Brightwater)

Tools for Reliability Centered Maintenance (RCM)

- 3) CMMS – MainSaver
 - Upgrading capabilities

Tools for Reliability Centered Maintenance (RCM)

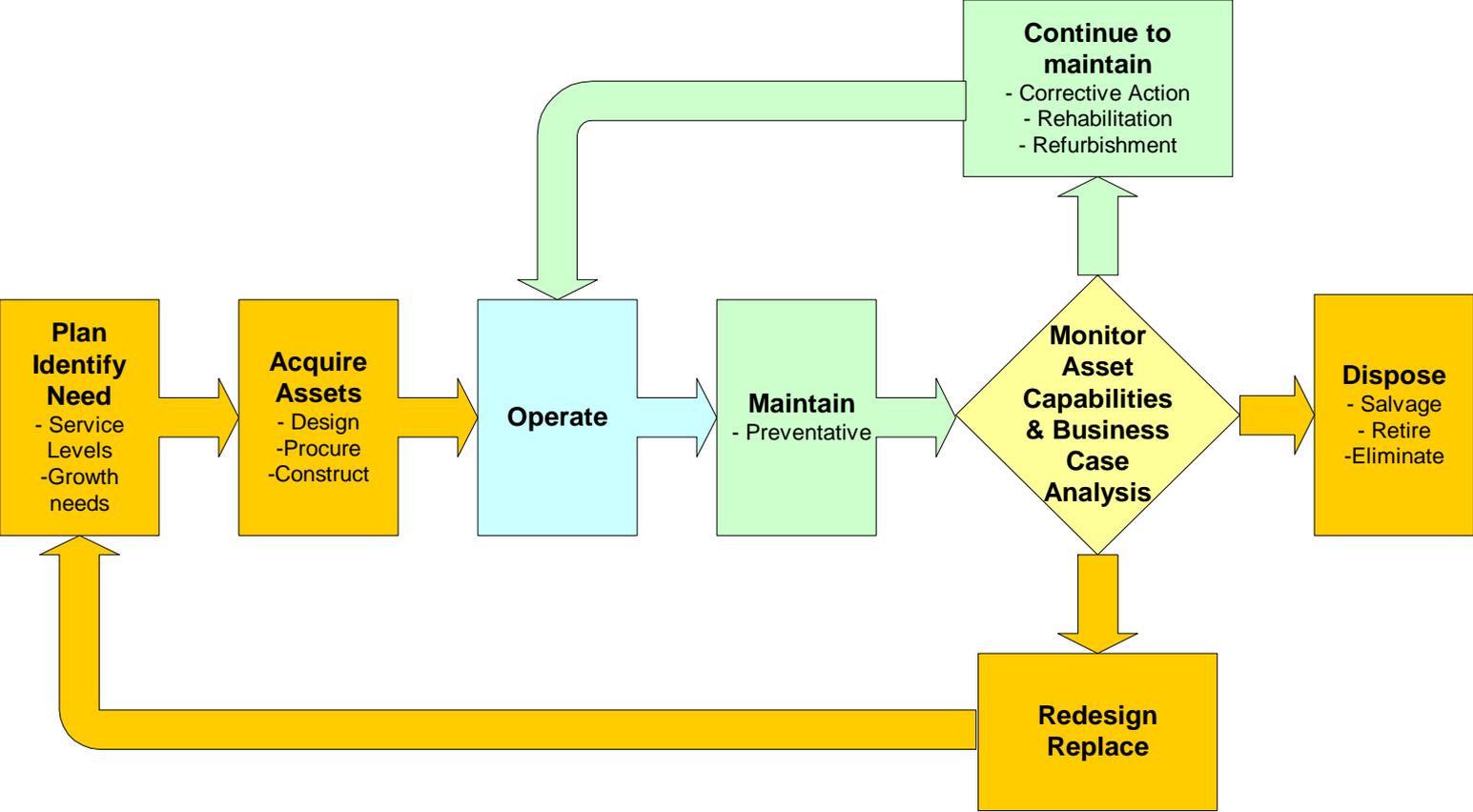
4) Optimized maintenance strategies

- ❑ “Failure mode analysis”
 - What things cause critical facilities to fail?
- ❑ Prioritize
 - Focus on what makes critical facilities fail
- ❑ Use RCM to develop long-range capital improvement plan
 - Delay major expenditures when it makes sense
 - Replace capital facilities when it makes sense

Tools for Reliability Centered Maintenance (RCM)

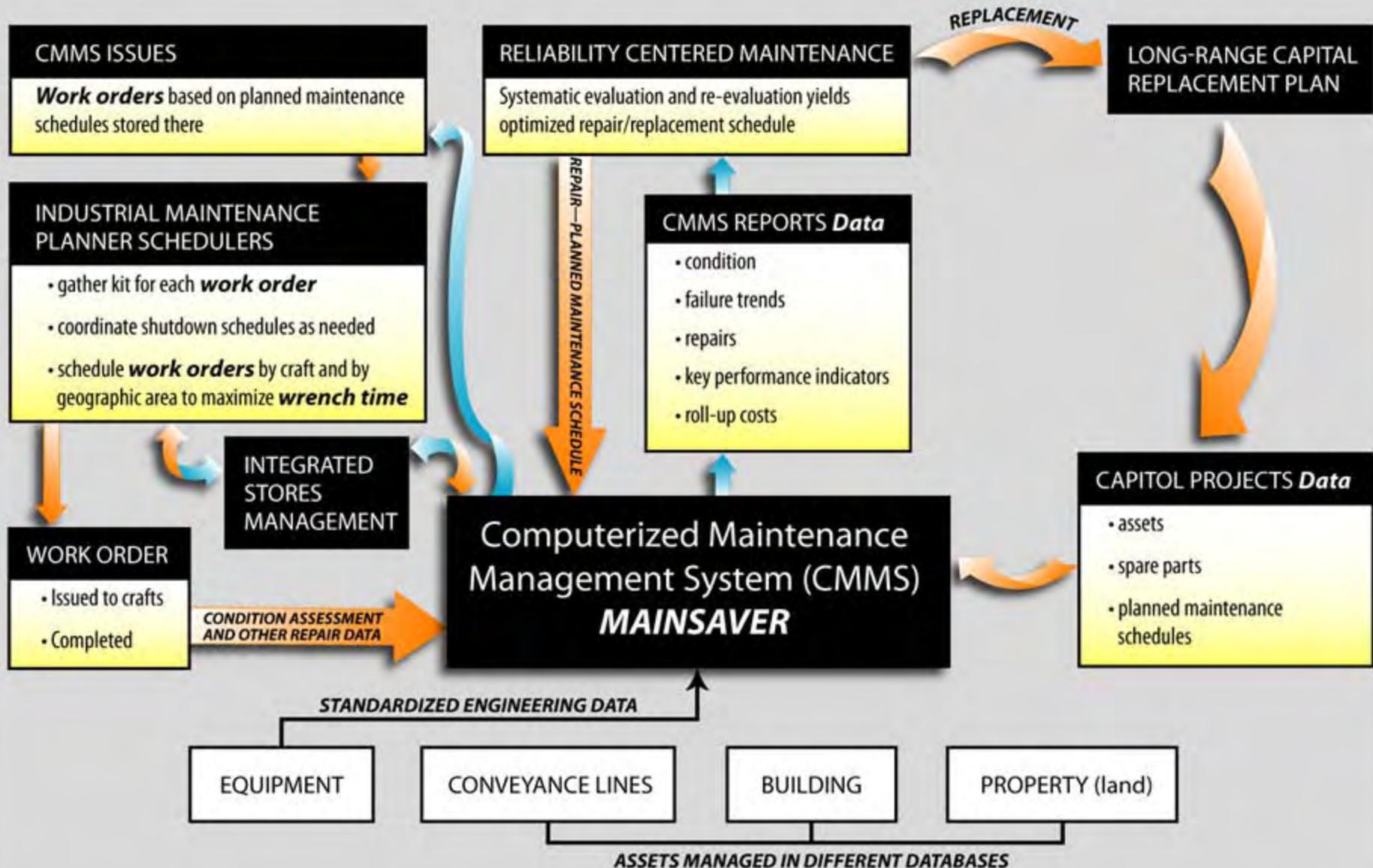
5) Life-Cycle Cost Analysis (LCCA)

Asset Life-Cycle



- Asset Management Function
- Engineering Design & Construction Function
- Maintenance Function
- Operations Function

MAINTENANCE BEST PRACTICES PROGRAM

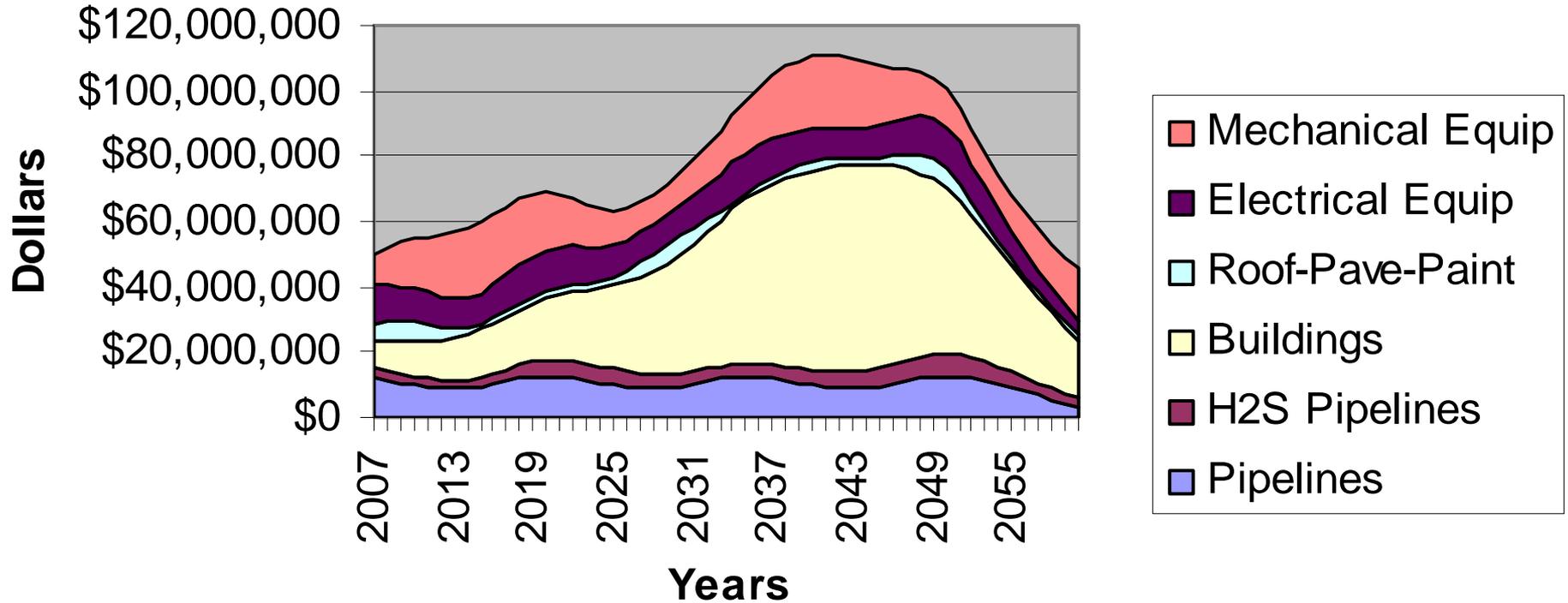


Projected savings using Strategic Asset Management approach

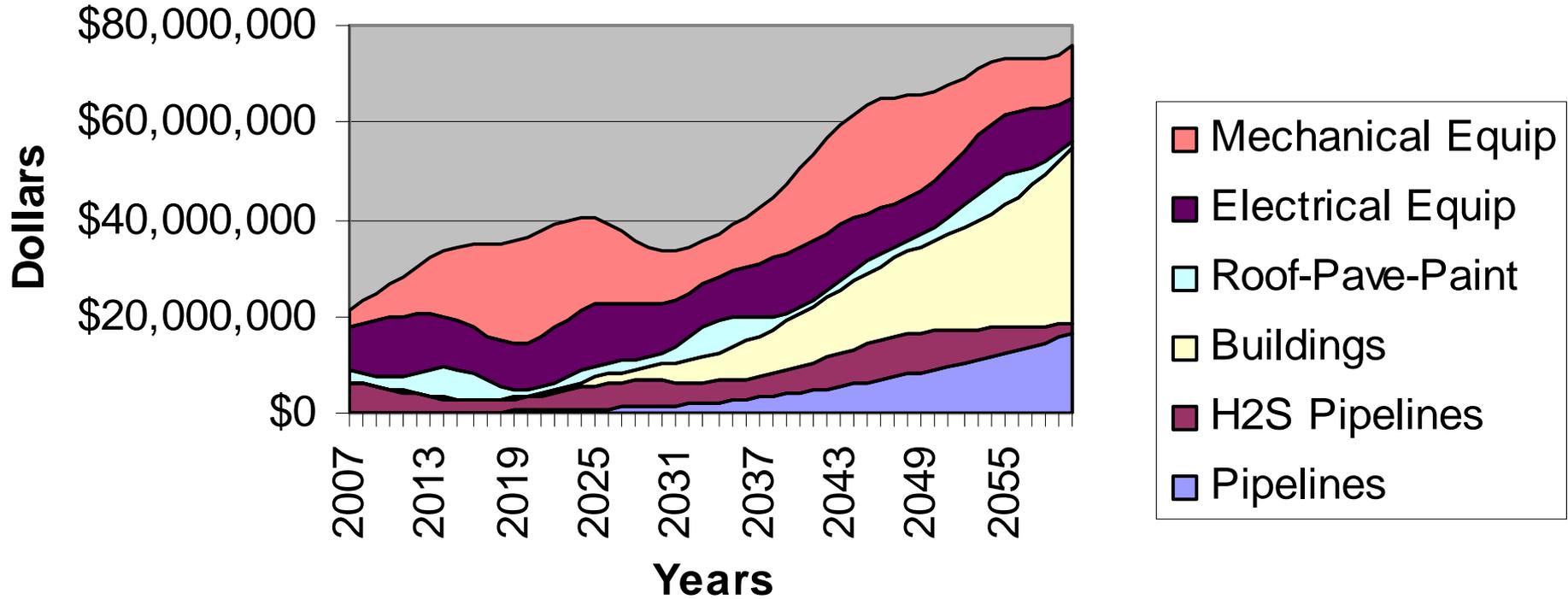
Projected Year 2040 Asset Management capital costs:

- ❑ \$115M using industry median values for asset replacement
- ❑ \$ 55M using “high end useful life” values for asset replacement

Asset Replacement with Industry Median Values



Asset Replacement with High End Useful Life Values



Questions or Comments?

- Does WTD's approach to Asset Management seem adequate to meet our objectives?
- Are key elements missing? What else should we be thinking about?