

Review of Citywide Asset Management Practices and Use of the Enterprise Asset Management (EAM) System

Active Transportation & Infrastructure Committee

Item 7

March 22, 2023



Office of the Independent Budget Analyst



Overview

- The City's large and complex network of infrastructure assets represents a significant and vital investment.
 - Years of tight financial constraints and limited dedicated funding sources for many competing priorities has led to underinvestment in infrastructure and a \$5.2 billion deferred capital backlog.
 - Continued deferral of projects has resulted in deterioration of existing assets, increased costs and liability, and the inefficient allocation of resources, as can be seen in City streets, sidewalks, and buildings.
 - To address this growing backlog of unfunded needs, the City needs both a viable plan to execute projects, and a large-scale and holistic financing strategy.
 - Asset Management that ensures the City's investments in critical infrastructure is both cost effective and optimized, is vital, especially when there are limited resources and the potential for an economic recession.
- Given the importance of using Asset Management, our Office provided a [review of Citywide Asset Management practices and the use of the City's primary Asset Management System \(EAM\) \(IBA-23-05\)](#).

Background

- Asset Management is a best business practice for managing infrastructure assets to achieve desired service level standards (SLS) in the most cost-effective manner.
- Infrastructure assets have preventative and predictive maintenance needs that allow for strategies that support effective lifecycle management from acquisition to disposition.
- Asset Management incorporates two important concepts for effective management of infrastructure assets, including business practices, and a supporting software system for optimizing maintenance, repair, rehabilitation, and replacement of assets.



Background

The Enterprise Asset Management (EAM) System

- EAM went live for six departments/divisions (Phase 1 EAM departments) in 2017/2018.
- Key components of EAM include Work Management, Mobile Work Manager, Master Data Governance (MDG), and Capital and Project Planning.

The Citywide Strategic Asset Management Plan (SAMP)

- The SAMP was finalized in June 2018 and established Citywide Asset Management objectives and strategies.
 - Also included 27 recommendations to ensure investments the City made in EAM were fully realized.
- ***To address the first recommendation (establish a committee to provide leadership and drive implementation of remaining action items), the EAM Steering Committee was created in November 2022.***

SAMP Objectives

Objective 1: Establish a Holistic Inventory

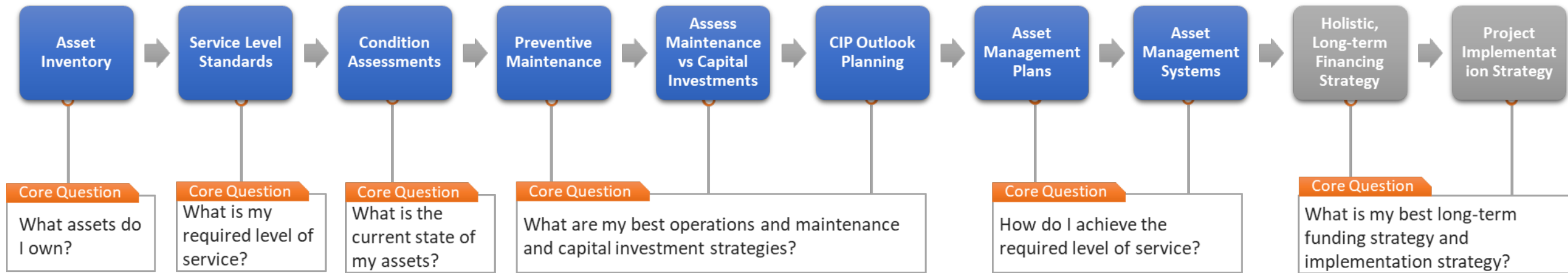
Objective 2: Provide Resilient Service

Objective 3: Provide Transparent + Translatable Prioritization

Objective 4: Ensure Supported Investment

Key Asset Management Practices

Key components of Asset Management practices progressively build upon one another.



Review of Current Citywide Asset Management Practices

No Citywide requirements for consistent Asset Management across all AMDs.

Asset Inventory

- First step in strategic Asset Management
- All AMDs have some asset inventory data – the level of completeness, accuracy, and consistency varies by department
- Managing Data as an Asset – Master Data Governance

Service Level Standards (SLS)

- Help to identify asset needs, compare options, and optimize investment decisions
- ***Assessing the appropriateness of current service levels and establishing SLS for remaining assets (SAMP Recommendation 8) should be a mid-term priority***

Condition Assessments

- Facilitate data-supported decisions on the maintenance and capital projects needed to achieve established SLS
- Several departments have outdated condition assessments
- ***It will be important to consider departments' budget request to update condition assessments***
- ***Developing condition assessment standards (SAMP Recommendation 6) is a priority that should be accomplished in the near term***

Review of Current Citywide Asset Management Practices

Preventive Maintenance

- Help to achieve a full asset lifecycle and reduce expensive emergency repairs and minimize service interruptions
- All AMDs perform some level of preventive maintenance – the ratio of preventive maintenance to reactive maintenance varies, largely depending on available funding and staff
- ***We recommend departments establish plans with interim goals to achieve higher preventive maintenance goals over several years***

Assess Maintenance vs Capital Investments

- Optimize capital and O&M expenditures
- The process to make decisions between capital and maintenance spending on assets is decentralized and depends on the type of assets and resources available to the departments.
- ***Optimizing Asset Management decision-making requires a data-driven and evidence-based approach where asset inventory, condition assessment, SLS, maintenance plan, and Asset Management Plan are integrated into an Asset Management System to drive decision-making.***

Review of Current Citywide Asset Management Practices

CIP Outlook

- Demands for new infrastructure vs needs of aging infrastructure
- Enterprise-fund departments have more systematic processes as they must comply with various regulation requirements or safety standards and generally have more resources available
- General Fund departments do not have the staff or budget to fully utilize EAM to identify capital needs for the CIP Outlook
- ***We recommend the development of consistent Asset Management practices Citywide, including how departments should identify capital needs for the CIP Outlook to support consistent, effective Asset Investment planning***

Asset Management Plans

- Provides the roadmap for achieving value from physical assets by optimizing cost, risk, and performance across the asset lifecycle in a sustainable way.
- SAMP Recommendation 23: the EAM Steering Committee drive the planning effort and establish a timeline for completion of departmental Asset Management plans, ***we believe this is a priority to be accomplished in the near term***

Review of Current Citywide Asset Management Practices

Asset Management Systems Utilized by Departments

Departments	Asset Management Systems
Department of IT/Wireless Communications	EAM, ServiceNow for IT Hardware Assets
E&CP	EAM
Fire-Rescue	PSTrax for equipment, apparatus, and facilities
GSD/Facilities Services	EAM
GSD/Fleet	Fleet Focus
Police	SAP for assets valued at or above \$5,000, Quartermaster for equipment issued to personnel
PUD	EAM
Stormwater	EAM, ESRI-based inspection platforms for certain asset types such as channels and levees
Transportation	EAM, Cartegraph, Davey Tree Keeper, WCA Arbor Access, ArcGIS

Use of the EAM System

	Department of IT/Wireless Communications	E&CP	GSD/Facilities Services	PUD	Stormwater	Transportation
Work Management	√		√	√	√	√
Mobile Work Manager			√	√	√	√
Master Data Governance (MDG)	√		√	√	√	√
Fiori	√		√			
Capital and Project Planning		√	√	√	√	√
<i>Fully Utilizing</i>	√	√				
<i>Improved Management of Assets</i>	√	√	√		√	

Use of the EAM System – Findings and Recommendations

- Lack of internal staff with needed technical skills to enable them to fully utilize EAM.
 - SAMP Recommendation 27 – Review job classifications to identify additional and/or revise classifications.
 - ***We recommend that these Asset Management and EAM-related budget requests be fully considered given the benefits of reducing lifecycle costs over the long term.***
- Lack of complete or accurate data and MDG limits on inputting new data or changing existing data resulted in the continued need to access legacy systems to obtain needed data. MDG Committees recommended in the SAMP have not been established.
 - ***We recommend that the EAM Steering Committee prioritize the creation of these groups to address and resolve issues that have been raised by departments, including assessing the need for additional training and expansion of MDG-related roles.***
- Need for support from the Department of IT/Enterprise Resource Planning (ERP), which currently has a backlog of requests for service, and results in requests not addressed in a timely manner.
 - ***We recommend the Department of IT work with the EAM Steering Committee to reassess support-related responsibilities and the level of ERP staffing .***

Use of the EAM System – Findings and Recommendations

- Work Management and Mobile Work Manager user interface (UI) is not user friendly, making it difficult for staff to navigate. The replacement of Mobile Work Manager with BlueWorx is anticipated to increase usability and improve user experience.
 - ***We recommend the Department of IT/ERP assess this issue to provide a more intuitive interface and improve user experience for Work Management.***
- Need for additional EAM training as several departments reported staff are not fully trained due to significant turnover and also training in general is also needed when enhancements are implemented.
 - ***We recommend that the EAM Steering Committee include training as an item to be further assessed.***
- Need for additional Maintenance Plans and/or Capital Asset Strategies as departments generally have not reassessed the need for these.
 - The EAM Steering Committee has included as a priority to assess and refine Maintenance Plans and Capital Planning Strategies (SAMP Recommendation 9) .

Key Ongoing Asset Management Initiatives

System Enhancements/Updates Are Expected to Improve Utilization for Departments

- Ongoing rollout of BlueWorx to replace Mobile Work Manager to increase usability and improve user experience is going well and expected to be complete in in FY 2023.
- Stormwater Department is enhancing and expanding its use of EAM:
 - BlueWorx is being rolled out to each Stormwater operational crew in FY 2023.
 - The EAM capital planning tool is being reconfigured to include all Stormwater asset classes.

EAM Steering Committee Is Taking the Lead to Implement SAMP Recommendations

- Primary objectives:
 - Developing complete and consistent asset inventory data in SAP and GIS.
 - Deploying new, easier-to-use mobile devices for field crews (BlueWorx).
 - Reviewing the EAM capital planning tool.
- ***We recommend the Committee (1) assess the need to expand EAM to additional departments and (2) provide an update on overall progress Committee progress at a future ATI meeting.***

Conclusion

- Over the past decade, the City has taken positive steps by implementing Asset Management practices and the EAM System, as well as developing the SAMP in 2018.
- While the pandemic may have impacted further progress, we believe the establishment in November 2022 of the EAM Steering Committee will provide leadership critical to the success of the City's Asset Management program.
- Significant challenges remain, especially for General Fund departments, as the resources needed to support both Asset Management practices and the EAM system have thus far not been invested. Providing the needed resources to support effective asset management now can ultimately help to reduce asset lifecycle costs and yield a positive return on investment.
- Asset Management that ensures the City's investments in critical infrastructure is both cost effective and optimized, is vital, especially when there are limited resources and the potential for an economic recession.
- Sound Asset Management practices build upon one another to support wise infrastructure investments that can begin to address the backlog of unfunded needs and support a large-scale and holistic financing strategy and a viable plan to execute projects.

Overall Findings and Recommendations

- There are no City-wide requirements for consistent Asset Management across all departments. As a result, the extent, sophistication, and quality of Asset Management practices vary by department.
 - ***We recommend the EAM Steering Committee develop Citywide guidance or requirements for consistent Asset Management practices and revising Council Policy 800-16: Asset Management Guidelines and Plan Steps to reflect that guidance, as was recommended in the SAMP (action items 2 and 24).***
- Eight out of 27 recommendations in the 2018 SAMP have been implemented, and it has been 5 years since the SAMP was adopted and EAM System went live.
 - ***We recommend the EAM Steering Committee proactively address the near-term action items and develop a plan and timeline for those remaining. Also, the committee should assess the need for additional resources to support this body of work.***
- Particularly for General Fund departments, there is a lack of needed resources to support full utilization of Asset Management practices and the EAM System.
 - ***We recommend that these Asset Management and EAM-related budget requests be fully considered given the benefits of reducing lifecycle costs over the long term, including reducing the need for emergency repairs, and more efficient spending of City resources.***