

Risk-Informed Transit Asset Management: Best Practices & Approach

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John Holak, VP & General Manager,
Rail & Transit
Urban Engineers, Inc.

What is Asset Management?

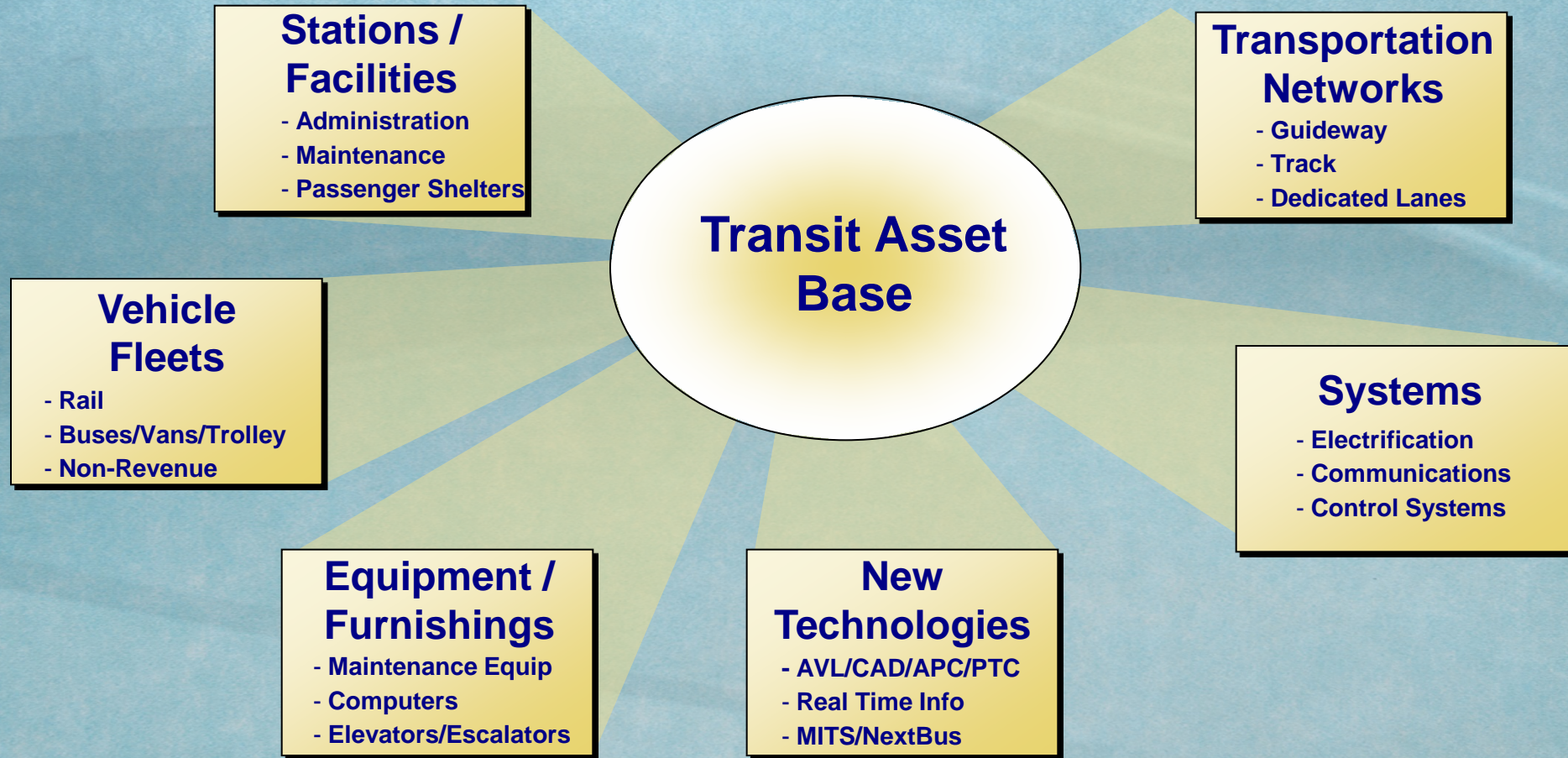
- Regimented practice of making rationalized decisions & optimizing processes for planned management and replacement of an organization's asset base
- More specifically, Asset Management involves the management of physical assets, including: design, procurement, selection, operation, inspection, maintenance, evaluation, prioritization, renewal, and replacement
- A common objective is to minimize life cycle cost and/or optimize performance of assets
- Asset Management is:
 - Strategic and not tactical (i.e., has a longer-term focus)
 - Seeks to balance the competing needs of operations, maintenance, reinvestment, and system expansion
 - Attempts to bring a more consistent approach across the entire asset (inventory) base
 - An organization-wide endeavor, integrating: planning, engineering, operating, and funding perspectives
 - Seeks to make informed and prioritized decisions regarding the use of limited resources based on reliable information

Why Have a Dedicated Asset Management Plan?

- FTA Requirements
 - FAST Act Legislation
 - State of Good Repair Initiative
 - Future Competitive Grant Opportunities
- Good Business Practice
- Helps to integrate the separate functions of asset life
- Creates a more effective capital program
- Asset can be designed and procured on a more regimented and consistent basis across multi-modal platforms

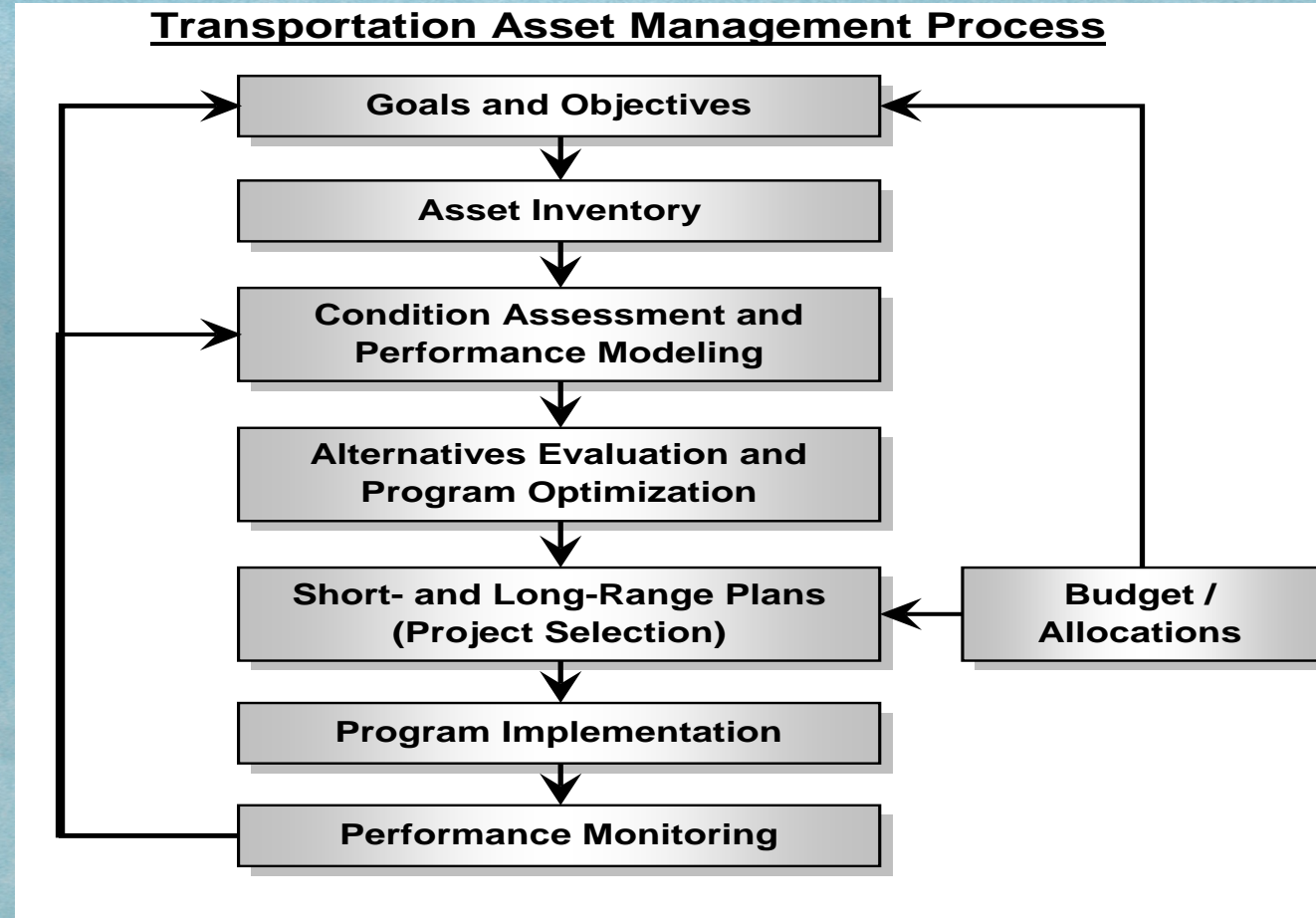


Capital Asset Inventory Is Inclusive of All Asset Types



Basis Steps of an Asset Management Plan

Assess
Risks
Throughout
the Entire
Process



Transportation Asset Management process as promoted by
AASHTO and FHWA

Risk Assessment – What?

- **Risk:** (n) The possibility of suffering harm or loss; danger. (v) To expose to the possibility of loss or damage
- **Assessment:** To assign values to issues having potential negative impact to the attainment of goals
- **Risk-Informed Asset Management:** Long-term management of physical assets requiring regimented practices and a rational budgeting process that contemplates risks throughout the ongoing process

Risk Assessment – Why?

- Most plans, projects, budgets, and schedules are expressed as single targets (“deterministic”)
- Staying as close as possible to those deterministic targets builds confidence and allows for better budgeting and future end-user planning
- The existence of risk and uncertainty threatens confidence and planning – risks can impact goals
- A fundamental assumption is that an agency can decrease the level of uncertainty by studying the problem, exposing the risks, and taking actions to mitigate known risks

Uncertainty



Asset Management Goals vs. Risks

GOALS	RISKS
<ul style="list-style-type: none">• Compile full Inventory of all Assets & Condition status	<ul style="list-style-type: none">• Incomplete and de-centralized records• Inaccurate or incomplete maintenance records
<ul style="list-style-type: none">• Prioritization of Existing SOGR	<ul style="list-style-type: none">• Diverse Assets• Conflicting Needs/Views of Mgmt
<ul style="list-style-type: none">• Minimize Premature Failure/Obsolescence	<ul style="list-style-type: none">• What metrics will be used• Inherent differences in Asset Classes
<ul style="list-style-type: none">• Risk-Informed Evaluation Process	<ul style="list-style-type: none">• Gaining understanding/support of Risk-Informed tools and approach
<ul style="list-style-type: none">• Regimented Budgeting Approach	<ul style="list-style-type: none">• Constrained funds• New vs. Old argument• Inherent organizational conflicts

Other Common Risks Affecting Asset Management

- Common Risks that have Historically been Addressed in a Reactive Manner:
 - Mean System Failure (Vehicles, Systems, Facilities, etc.)
 - Safety issues
 - Security issues
 - Public/Community concerns
- The Goal: Become More Proactive through Risk-Informed Processes and Mitigation Plans

Risk Assessment – When?

- Today – earlier is better!
- If risk evaluation occurs while compiling inventory database and condition-assessments, statistical or empirical factoring can be implemented to address inconsistencies, inaccuracies, incomplete records
- Risk evaluation when meeting with diverse user groups can ease inherent conflicts and introduce collaborative mitigation concepts and decision-making
- Developing an agency-specific Risk Register of common risks that have been encountered (e.g. mean system failure, safety, security, public concerns) will proactively bring these critical concerns to the forefront of the Asset Management Plan
- All the time! Once risk-informed Asset Management planning is implemented, it needs to become part of the organization culture in periodic meetings to address success/failures, lessons learned

Risk Assessment – the Basics

- The risk management process should consist of four important parts:
 1. **Identifying** risks that could impact the Asset Management Plan
 2. **Assessing** the likelihood and magnitude of such variance
 3. **Responding** by developing plans for minimizing hazard and maximizing gain
 4. **Managing** the execution of those plans

Risk Assessment – Challenges

- Many agencies have skeptical staff, thinking that Risk Assessment is practiced by “doomsday” thinkers and breeds pessimism
- Inherent optimistic bias is prevalent with most owners
- Internal conflicts are often encountered
- Risk assessments, planning, and management require a dedicated effort and take time
- Predicting “unforeseen” events and likely outcomes of these unknowns is challenging
- An ever-changing political climate and unpredictable funding resources can interfere with the best laid plans

Risk Assessment – Lessons Learned

- All identified risks should be noted, but a means to prioritize among them is helpful
- As the Risk Register (a database of risks) is developed, it is helpful, while risks are discussed, to capture potential mitigation activities
- Employ a combination of Mitigation and Contingency Strategies following Risk Assessment
 - Qualitative information is used to develop mitigation action plans for the Agency to undertake, through the use of “**Primary Mitigation**”
 - Quantitative information is used to establish **Risk Protection** against the inherent risk (e.g. Safety/Security) through the use of “**Contingencies**”
- An independent Risk Facilitator helps remove bias and resolve inherent differences of opinion

Risk Assessment – Best Practices

- Make the risk-informed Asset Management process a collaborative effort, involving user departments, support services, peer reviewers or facilitators, and having the support of executive management
- The earlier that a risk-informed Asset Management process can be employed, the better – more opportunity to implement affective mitigations or management strategy
- Periodically “refresh” or revisit the Risk Register and risk process as part of the annual capital budgeting process
- Don’t forget the importance of a risk-informed Management Plan to be able to monitor the effectiveness of mitigation and contingency plans

Conclusion

- Proactive risk-informed Asset Management processes can minimize reactive emergencies and crises
- The risk-informed Asset Management process is useful at any point of the Asset Management cycle, particularly when employed at the earliest stages of discovery
- Risk Assessments help to identify internal and external risks through objective evaluation
- Risk Assessments, augmented by contingency and mitigation plans, provide a robust set of tools for management to better attain the goals of a regimented, consistent, and well-informed Asset Management plan

Questions?

John Holak

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Rail & Transit

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