

Planning and Plans to Support TMS Improvements

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Session I Presentations:

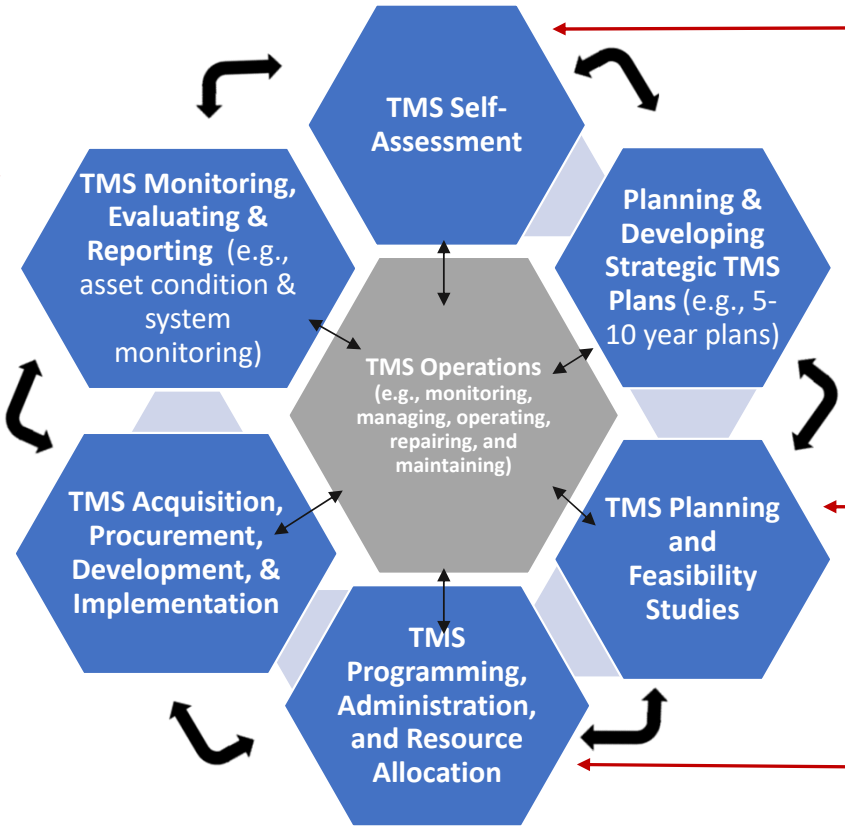
- 1 | Opportunities to Plan for Next Generation TMSs
- 2 | Setting a Strategic Direction for TMSs
- 3 | Planning and Plans to Support TMS Improvements**
- 4 | Identifying Needed TMS Improvements and Resources

TMS Life Cycle – Continually Pursuing Improvements and Resources

Agency Processes & Plans:

- Facilities Performance Monitoring and Reporting
- TMS Asset Monitoring and Condition Reporting
- TMS Performance Evaluation and Reporting

Design, Development and Procurement of Projects (e.g., systems engineering)



Agency Processes & Plans:

Capability Maturity Framework for TSMO (TSMO, Traffic Management, Active Traffic Management)

- TSMO Program Plan**
- Strategic Elements
 - Programmatic Elements
 - Tactical Elements

Planning & Design of TSMO Initiatives, Operational Strategies, or Projects (feasibility study, planning study)

TSMO Project Selection and Prioritization, TMS Improvement Projects, Allocating Resources for Maintenance and Operations

Source: FHWA

Planning and Plans to Support TMS Improvements

Motivation for planning for TMS improvements:

- Assess feasibility of options for TMS to meet future agency and region:
 - Needs and challenges
 - TSMO priorities and possible improvements
 - Functions, services, and information needed by other systems or stakeholders
- Provides basis for action plans and improvement projects specific to TMS:
 - Evaluate options to improve TMS capabilities
 - Explore implications of changes
 - Capture purpose, need, goals, priorities, implications, funding, and resources

Planning and Plans to Support TMS Improvements

Current TMS capabilities and performance provides a basis for improvements:

- Identify opportunities to improve TMS capabilities and performance
- Capture resources available
 - What is needed for possible improvements?
- Agencies typically **do not have** multi-year plans or studies specific to TMS:
 - Needed functions or services
 - Priorities for system improvement (e.g., sub-systems, components)
 - Evolutionary path from legacy to the next generation of TMS (e.g., 5 years, 10 years)
 - Future operating or service needs (e.g., expand service coverage)
 - Resources to support current or future day-to-day management & operation (e.g., maintenance, repairs)

Planning and Plans to Support TMS Improvements

What to consider when assessing TMS capabilities and performance:

- Build on existing capability maturity framework with modifications unique to TMSs
- Focus on all aspects of the TMS and all phases of its life-cycle
- Maintain consistency with existing capability maturity framework and resources
- Facilitate identifying and addressing information and issues unique to TMSs
- Include key partners and stakeholders in assessment
- Use and share outcomes from the assessment with other TSMO programs:
 - Traffic management
 - Planned special events
 - Traffic incident management
 - Traffic signal systems

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Key issues to consider when assessing TMSs:

- Management, operation, maintenance, and repairs
- Planning, developing, procuring, and implementing improvements
- Staffing and resources
- Monitoring, managing, and assessing TMS assets
- Program and support resources (e.g., policies, procedures)
- Stakeholders to participate in planning
- Connect problem or need to TSMO program and strategic plans

Dimensions or Process Areas	What is it
Business Process	Plans, Programs, Budget
Systems & Tech	Approach to Building Systems
Performance Measurement	Use of Performance Measures
Workforce	Improving Capability of Workforce
Culture	Changing Culture and Building Champions
Collaboration	Improving Working Relationships
Day-to-Day Management & Operation	Managing and Operating daily
Day-to-Day Maintenance & Repair	Conducting Daily Maintenance and Repairs

Source: FHWA

Planning and Plans to Support TMS Improvements

Preparing to conduct a feasibility or planning study - issues to consider:

- Secure management and *stakeholder involvement*, buy-in and necessary approvals
- Is the planning process defined? Needed information identified? Analysis selected? Milestones identified?
- Is the schedule to conduct the planning reasonable?
- Do you have the needed resources?
- Is there an agreement on what to include in the plan and how to capture and report the results?
- Include key stakeholders in planning process
- Obtain resources to facilitate process, conduct planning, and develop plan
- Gather information (e.g., capabilities (e.g., subsystems, components, devices))
- Identify issues to consider and needs (e.g., policies, procedures, staffing, maintenance)

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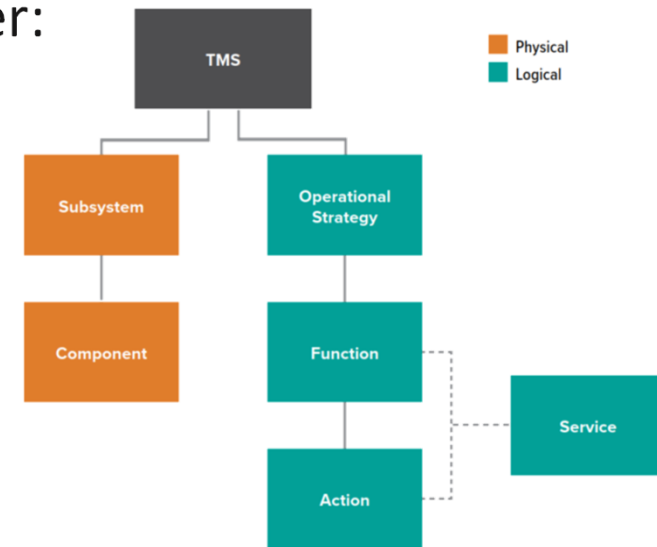
Conducting a feasibility or planning study - issues to consider:

- Establish purpose, need, goals, and performance measures
- Verify project feasibility
 - Identify preliminary risks and cost-effective solutions
 - Document alternative concepts and rationale for selection
- Identify and assess options to meet project needs
- Perform analysis of candidate solutions (e.g., benefits, feasibility, costs, and risks)
- Define improvement project (e.g., scope, cost, design, procurement, testing, schedule)
- Identify needed resources to develop, implement, test, initiate, manage, and operate

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Possible *TMS improvements* – opportunities to consider:

- Identify functions, services, and capabilities:
 - Agency TSMO or Strategic Plans
 - Regional TSMO, congestion management, or ITS plans
- Identify functions, services, and capabilities from assessment:
 - Real-time decision making and proactive management
 - Automated operation (e.g., functions, services, tasks)
 - Sharing and using information from other systems, third parties, or travelers
 - Remote or virtual operation
 - Modular, expandable subsystems
 - Other enhancements (e.g., operator tasks, system analyses)
- Enhancements to meet needs from TMS assessment



TMS Physical and Logical Structure

Source, FHWA.

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Identifying, prioritizing and selecting improvements - issues to consider:

- Identify purpose, needs, gaps, and scope of proposed projects
- Consider prioritizing both present and future needs
- Compare TMS goals and performance measures to outcomes of proposed projects
- Connect project outcomes to vision, goals, and long range plans
- Match proposed TMS funding needs to eligible funding sources
- Identify resources needed to support managing, developing, implementing, testing, accepting, and initiating the start up of project

Planning and Plans to Support TMS Improvements

Available Resources:

- Systems Engineering for ITS:

https://ops.fhwa.dot.gov/plan4ops/sys_engineering.htm

- Guide to Contracting ITS Projects (NCHRP Report 560)
- Contracting Guidance to Support Modular Development (Office of Federal Procurement Policy)
- IT Acquisition and Contracts Management (CIO Council)
- Feasibility Studies and Alternative Evaluation Reports, Ohio DOT
- Feasibility and Cost Assessment, Albuquerque MPA Joint TMC
- Transportation Implementation Plan, Mid-Year Update, Davis, CA

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Thank you!