Workshop #1004: Ballroom C

Preparing, Conducting, and Summarizing the Results – Assessing Traffic Management Systems

Sponsoring Committees and Organizations:

- ITS Committee (ACP15)
- TRB Freeway Operations Committee (ACP20)
- TRB Traffic Signal Systems Committee (ACP25)
- TRB Joint Subcommittee on Active Traffic Management (ACP 20-5)
- TRB Artificial Intelligence and Advanced Computing Applications Committee (AED50)
- TRB Regional Transportation Systems Operation (RTSMO) Committee ACP 10
- Traffic Management Center Pooled Fund Study
- American Association of Highway and Transportation Officials (AASHTO) Committee on Transportation System Operations ITS Work Group
- International Bridge, Tunnel and Turnpike Association (IBTTA)
- European Association of Operators of Toll Road Infrastructures (ASECAP)
- ERTICO Innovation Platform Traffic Management 2.0 Work Group

# Identifying Opportunities and Approaches for Improving TMSs

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Session 1 Presentations:

1 | Assessing TMSs

2 | Preparing for and Conducting a TMS Assessment

3 | Assessing TMSs Capabilities and Performance

4 | Identifying Opportunities and Approaches for Improving TMSs

Identifying Improvement Opportunities

TMS Assessments - Action Planning and Plans:
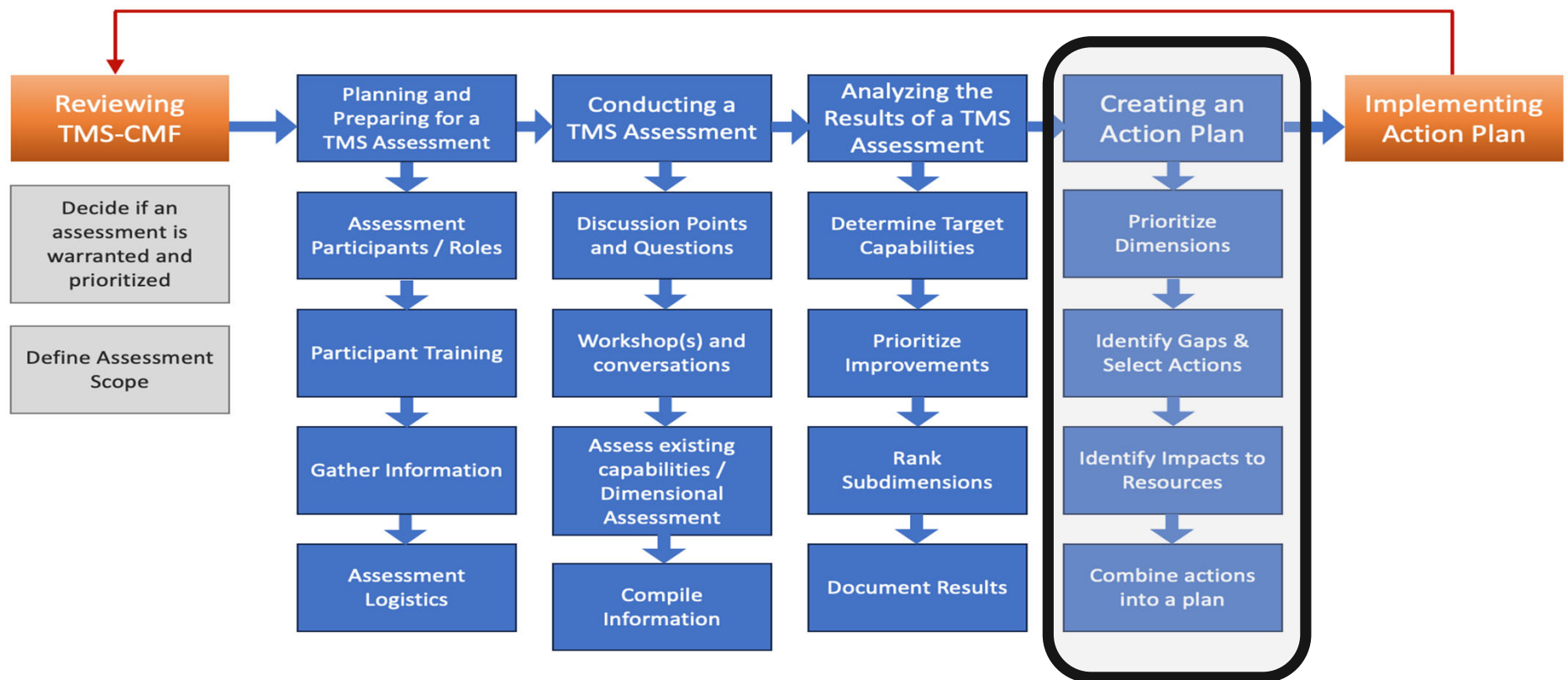
Identifying Improvement Opportunities

Action Planning and Plans:

- What are the outcomes you are trying to influence?

- What are the key aspects of the improvement process?
  - Get stakeholder buy-in
  - Establish awareness of current capabilities
  - Identify opportunities for improvement
  - Develop a sound basis to prioritize resources and actions
  - Identify projects to pursue for improvements

Time-based Categories:

Immediate changes could include: control plans used for different events, plans to add or improve the use of operational strategies and control plans, or change operational practices.

Near-term changes could include: changes in operations, changes in policies and procedures, or adjusting allocation of resources and practices for maintenance or repair of assets

Long-term changes could include: build long-term agency support for TMS; grow funding; develop multi-year plan for next-gen TMS; obtain resources to improve the capabilities and performance of TMS; and integrate TMS plans and needs into other agency plans and planning processes

Identifying Improvement Opportunities

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 improvements

Connect project outcomes to vision, goals, and long-range plans

Match proposed TMS funding needs to eligible funding sources
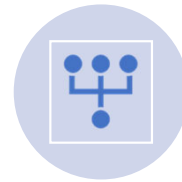
Identify resources needed to support managing, developing, implementing, testing, accepting, and initiating

Identifying Improvement Opportunities

Prioritizing improvement opportunities in TMS action plans:
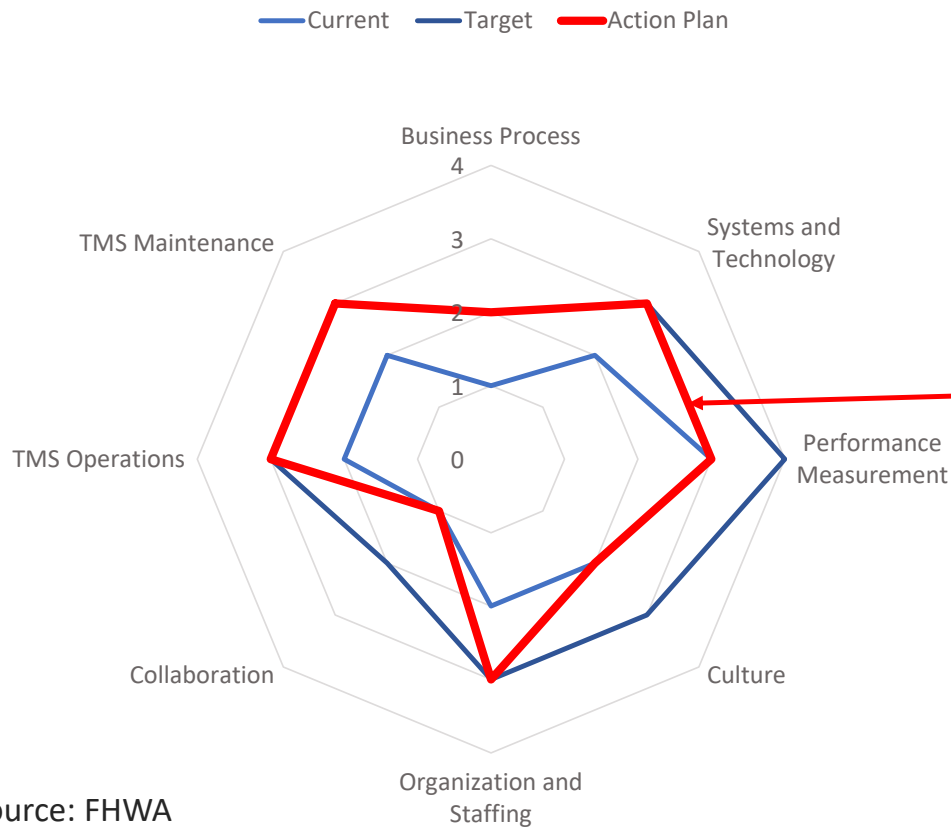
Identifying existing and desired future capability levels across these dimensions provide the basis to identify and prioritize opportunities for improvements

Source: FHWA

Identifying Improvement Opportunities

Prioritizing improvement opportunities in TMS action plans:

2026 — Add Geographic Coverage to System

2024 — Add Third Party Data Feeds

Integrate with Neighbor DOT system

Q1 2023 — System Procurement

Update Subsystems

2028 — Replace Server Hardware

2033

Q2 2023 — Full Implementation and Usage

Staff Training Complete

2029 — Add Automated Incident Response

2025 — Add Automated Incident Detection
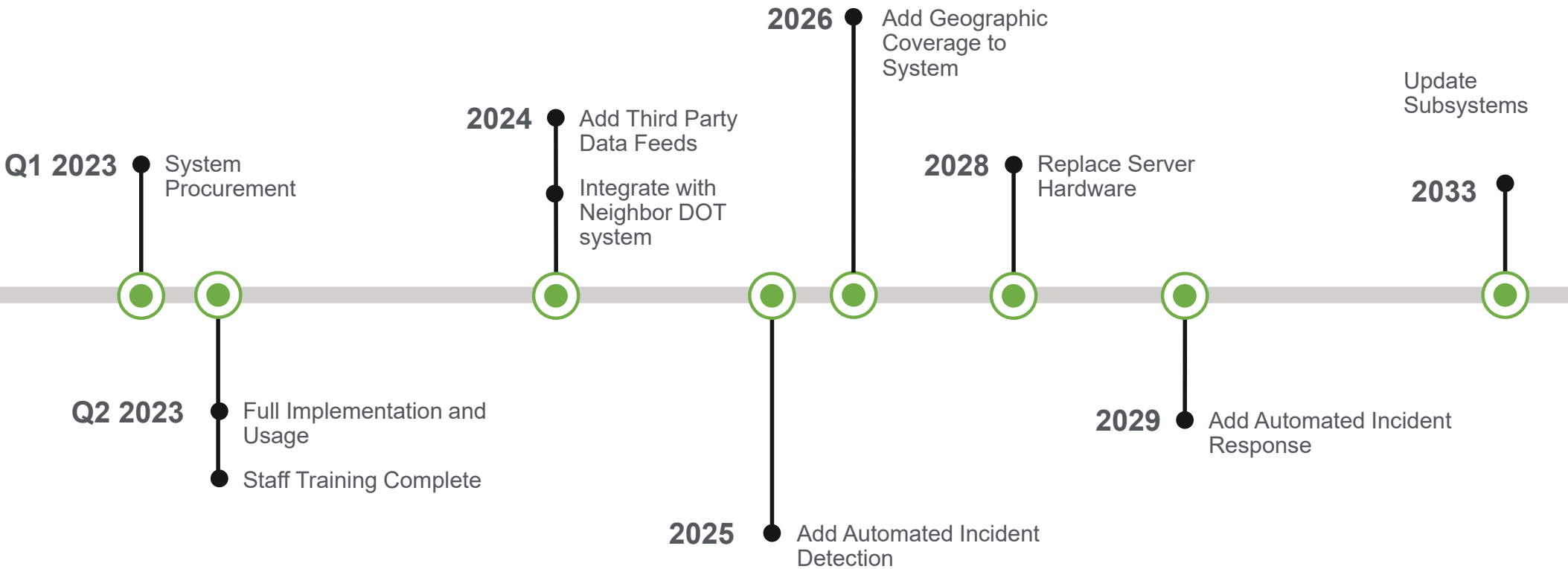
Source: FHWA

Identifying Improvement Opportunities

Improvement opportunities identified in TMS assessments:

Prepare procedures, control plans, and actions for specific events or scenarios

Identify and obtain staff or contract support with the knowledge, ability and support resources to support TMSs

Plan and obtain resources needed for improvements

Plan and develop plans for the next generation of the agency's TMS

Develop staffing plan and obtain resources to improve scheduling of staff and support resources to meet the TMS's operational needs

Identifying Improvement Opportunities

Scoping proposed improvement projects:

- Identify physical changes needed
- Decide other enhancements to support proposed changes
- Consider what items to include
- Plan for needed funding:
    - Capital expenditures for improvement projects
    - Operating expenditures and resources to support improvement project and operation of TMS

Identifying Improvement Opportunities

Adjustments to agency or TMS operating policies and procedures

Changes to TMS operations procedures, operator tasks, or support services

Updates to TMS inventory, documentation, and information to include in configuration management process

Changes to asset management, maintenance, or repair actions

Implementation coordination, resources, and support

Framing the Discussion

Examples of Opportunities to Integrate TMS Assessment Results into Agency Processes and Plans:

Agency Processes & Plans:

Capability Maturity Framework for TSMO (Traffic Management)

Conducting Daily Maintenance and Repairs

Facilities Performance Monitoring and Reporting, TMS Asset Monitoring and Reporting, TMS Asset Performance Evaluation, TMS Program and Plan

Design, Development and Procurement of Projects (e.g., systems engineering), TMS Program and Plan, Agency or Regional ITS Architecture

Agency Processes & Plans:

Agency Strategic Plan, TSMO Program and Plan, TMS Program and Plan, MPO TSMO or ITS Plan, Agency or Regional ITS Architecture

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

TSMO Project Selection & Prioritization, TMS Improvement Projects, Allocating Resources for Maintenance and Operations, TMS Program and Plan, Agency or Regional ITS Architecture

Circular diagram:
- Center: TMS Management & Operations
- TMS Self-Assessment (orange)
- Maintenance & Repairs
- Planning & Developing Strategic TMS Plans (e.g., 5-10 year plans)
- TMS Monitoring, Evaluating & Reporting (e.g., real-time asset condition & system monitoring)
- TMS Planning and Feasibility Studies
- TMS Procurement, Project Development & Implementation
- TMS Programming, Administration, and Resource Allocation

Source: FHWA

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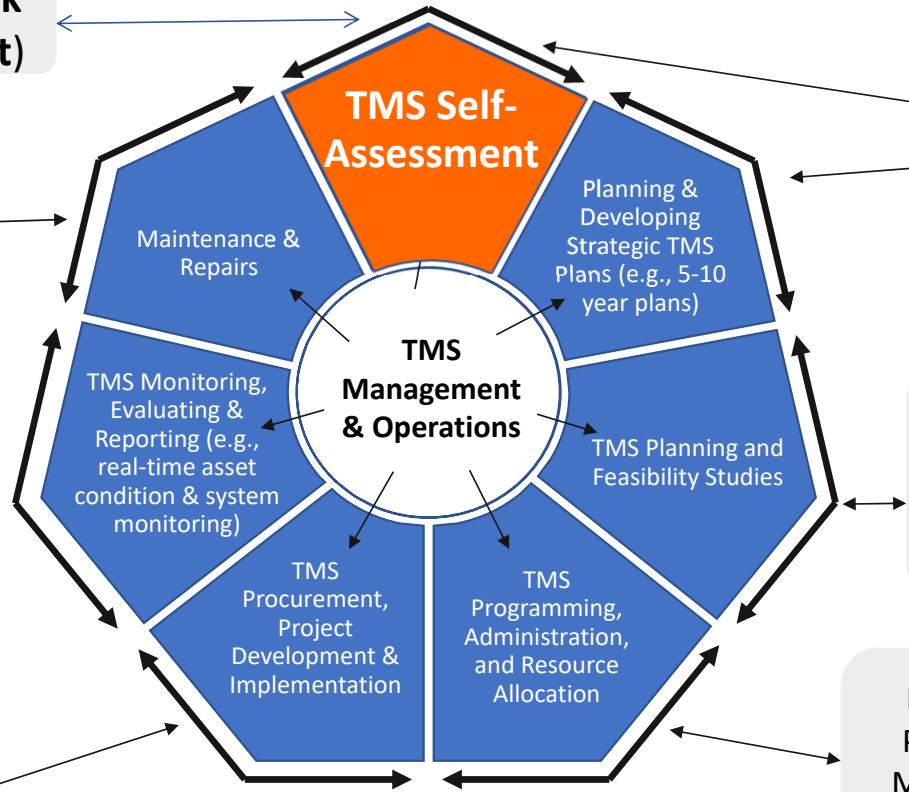
Identifying Improvement Opportunities

EXAMPLE: Incorporate needed TMS improvements into agency processes and plans

Red text = opportunities to incorporate TMSs into agency planning processes and plans

Stakeholder and Community Involvement

TIER 1 — State/Regional Level Long Range Planning (20 years)
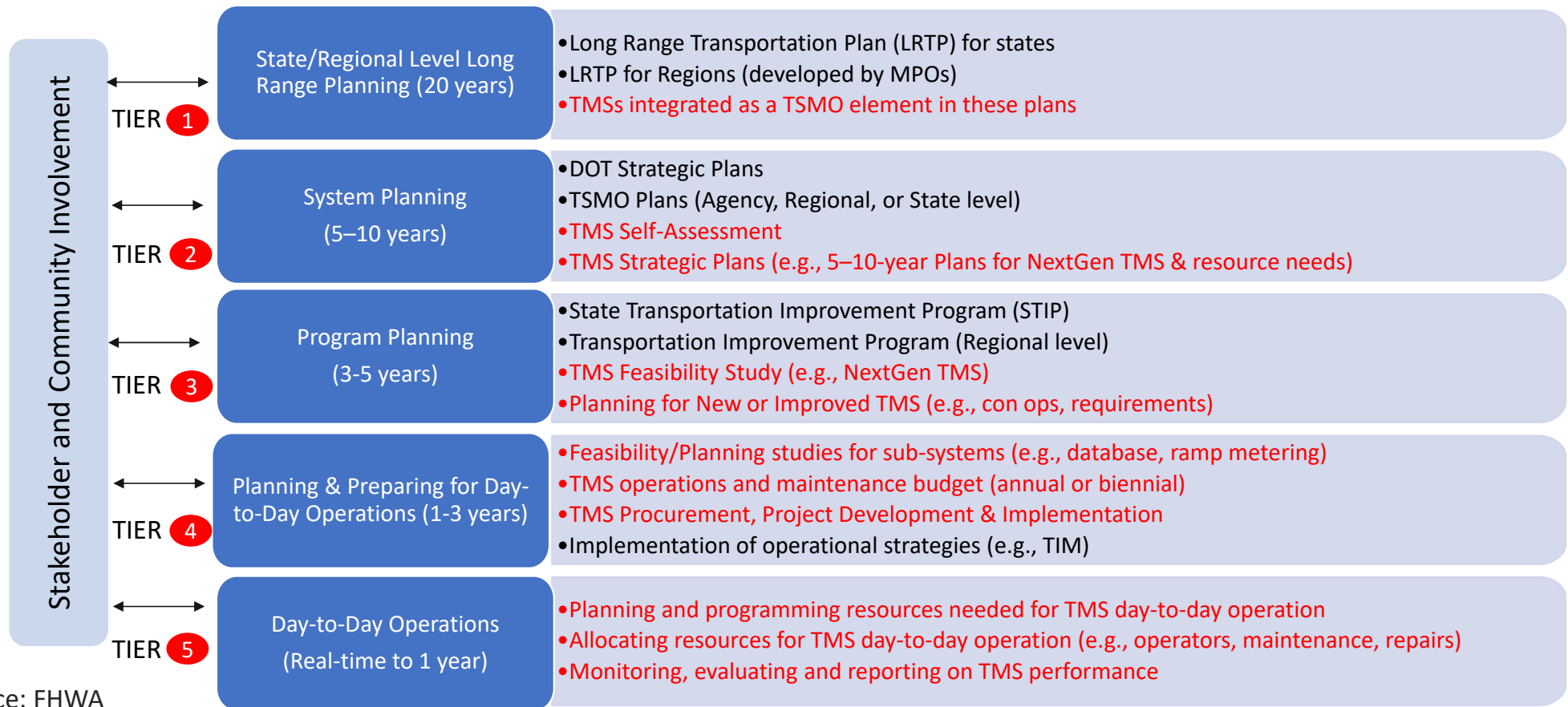- Long Range Transportation Plan (LRTP) for states
- LRTP for Regions (developed by MPOs)
- TMSs integrated as a TSMO element in these plans

TIER 2 — System Planning (5–10 years)
- DOT Strategic Plans
- TSMO Plans (Agency, Regional, or State level)
- TMS Self-Assessment
- TMS Strategic Plans (e.g., 5–10-year Plans for NextGen TMS & resource needs)

TIER 3 — Program Planning (3-5 years)
- State Transportation Improvement Program (STIP)
- Transportation Improvement Program (Regional level)
- TMS Feasibility Study (e.g., NextGen TMS)
- Planning for New or Improved TMS (e.g., con ops, requirements)

TIER 4 — Planning & Preparing for Day-to-Day Operations (1-3 years)
- Feasibility/Planning studies for sub-systems (e.g., database, ramp metering)
- TMS operations and maintenance budget (annual or biennial)
- TMS Procurement, Project Development & Implementation
- Implementation of operational strategies (e.g., TIM)

TIER 5 — Day-to-Day Operations (Real-time to 1 year)
- Planning and programming resources needed for TMS day-to-day operation
- Allocating resources for TMS day-to-day operation (e.g., operators, maintenance, repairs)
- Monitoring, evaluating and reporting on TMS performance

Source: FHWA

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Identifying Opportunities and Approaches for Improving TMSs

Questions?

Thank you!