Why Business Processes are Important

Technical and business processes are an essential capability for establishing a stable and replicable basis for continuous improvement by identifying incremental improvements, determining the needed resources (capital, staffing, etc.), and establishing a standardized approach to implementation.

Improvement Target

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<th>Multiyear statewide TSM&amp;O plan and program with deficiencies, evaluation, and strategies (L2)</th>
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<td>Programming, budgeting, and project development processes for TSM&amp;O standardized and documented (L3)</td>
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Key Sub-dimensions

- Planning Process
- Programming/Budgeting
- Project Development/Procurement
Planning Process Action Plan (L2 to L3)

**Strategy Summary**

Develop multiyear statewide TSM&O plan and program and integrate into statewide and metropolitan planning processes

**Key Actions**

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<th>Action</th>
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<td>A</td>
<td>Identify opportunities for TSM&amp;O infrastructure integration into planned/ongoing construction projects, both by state DOT and local governments</td>
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<td>B</td>
<td>Formalize state DOT consultation in plan development with other state DOT offices (statewide planning, emergency operations, state policy) as well as local government and regional planning entities (MPO/RTPA) and local public safety agencies</td>
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<td>C</td>
<td>Expand stakeholder basis to interests for whom systems reliability is important and seek their involvement in the planning process</td>
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<td>D</td>
<td>Review opportunities for special grants and other forms of federal support for key innovative projects and approaches</td>
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<td>E</td>
<td>Develop statewide TSM&amp;O plan</td>
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<td>Integrate statewide TSM&amp;O plan into statewide multimodal Long Range Plan</td>
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<td>G</td>
<td>Assess and develop formal multiagency approach to collaborative strategy applications and their continuous improvement</td>
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**ACTIONS**

**Action A:** Identify opportunities for TSM&O infrastructure integration into planned/ongoing construction projects, both by state DOT and local governments

**Rationale:** Both reconstruction and new construction offer opportunities to equip the network with the ITS infrastructure necessary to support future TSM&O at substantial reduced cost compared to retrofit.

**A.1** Utilize available statewide and regional concepts as per L1 to identify ITS needs by facility type, network, and region regarding communications and roadside device infrastructure.

**A.2** Establish a standard procedure in overall agency project development process to incorporate ITS components into new projects as appropriate at the point of project initiation, as well as a procedure for including components in projects already in development.
Responsibility and Relationships: Working group combining operations and project development (design and construction) staffs from both central office operations district/regions. Senior district/regional executive support may be essential to establish framework.

**Action B:** Formalize state DOT consultation in plan development with other state DOT offices (statewide planning, emergency operations, state policy) as well as local government and regional planning entities (MPO/RTPA) and local public safety agencies

**Rationale:** It is important to incorporate TSM&O strategies and investments as a core element in the MPO/RTPA planning and programming process and in statewide planning as a matter of policy to ensure it receives appropriate technical support and weight in the regional decision-making process.

**B.1** Work with planning partners to identify conditions that formalize TSM&O within the regional planning process focusing on deficiency analyses (including those related to non-recurring congestion), short and long range planning, and evaluation criteria, recognizing reliability and safety benefits. As appropriate this may be part of the congestion management process.

**B.2** Give explicit consideration to joint state-local projects on a corridor or network basis such as integrated corridor management and improved arterial signalization and coordination.

**B.3** Conduct a short-term regional travel performance-related deficiency analysis related to major recurring and non-recurring congestion problems (recurring congestion/non-recurring congestion, bottlenecks, peaking, incidents, weather, safety, construction, special events, etc.) and match problem to functional (work, recreation, freight), regional (urban and rural), corridor (through, interstate), and network (freeways, arterials, transit) seriousness and significance.

**B.4** Extend deficiency analysis into the long-term based on rules of thumb and other methods related to expected sources of recurring congestion and non-recurring congestion to identify strategies that may be implemented for response to future problems and appropriate staging.

**B.5** Analyze and evaluate responsive TSM&O strategy applications using performance measures and cost-effective tools, as available, related to mobility, safety, economic development, livability and sustainability, and identify staged TSM&O strategies approach consistent with potential resources.

**B.6** Develop approach to commitment of needed service delivery partners (state, local, public safety agency) to staffing and cooperative protocols essential for effective TSM&O strategy implementation.

**B.7** Incorporate TSM&O investments and related commitments into the regional transportation improvement program and long-range plan.
Responsibility and Relationships: Central office and district planning and operations staff taking initiative with MPO/RTPA staff through appropriate regional planning task force. Senior district/regional executive support may be essential to establish framework. Special technical expertise will be needed.

**Action C:** Expand stakeholder basis to interests for whom systems reliability is important and seek their involvement in the planning process

**Rationale:** TSM&O strategies address new service issues that may be of interest to a range of interest groups with stakes in system reliability who have not been involved in the participatory aspects of the planning process.

**C.1** Identify groups with potential interest in TSM&O improvements (such as commercial vehicle operators) and specific TSM&O functionality (such as the construction industry and work zone traffic control).

**C.2** Establish forum for interaction as part of the planning process when considering objectives, measures and specific improvements.

Responsibility and Relationships: Central office and district planning and operations staff taking initiative with MPO/RTPA staff through appropriate regional planning task force.

**Action D:** Review opportunities for special grants and other forms of federal support for key innovative projects and approaches

**Rationale:** Federal financial and technical support may be available for innovative projects.

**D.1** Track federal aid program in ITS, TSM&O and Connected Vehicle areas via regular contact at FHWA Division and headquarters program offices to identify emerging areas where federal programs may be seeking “test bed”, pilot program or other developmental opportunities at the state and local level.

**D.2** Consider match of federal and state/local interest and capacity to conduct project, as well as advantages and disadvantages of special supplementary federal aid.

**D.3** Pursue grant opportunities through appropriate liaison and applications processes.

Responsibility and Relationships: Central office and district planning and operations staff taking initiative with MPO/RTPA staff through appropriate regional planning task force.
Action E: Develop statewide TSM&O plan

Rationale: In order to follow a cost-effective path to making TSM&O investments, strategy applications should be developed and deployed in relationship to a consistent statewide policy on priority customer needs.

E.1 Establish appropriate objectives and policy framework for the statewide TSM&O plan and program in terms of relationship to state policy, performance, and resource commitments and limitations, including highlighting the potential of TSM&O to meet agency goals in resource-constrained contexts (see Performance Measurement Dimension).

E.2 Conduct a statewide data-based deficiency analysis related to major recurring and non-recurring congestion problems (recurring congestion/non-recurring congestion, bottlenecks, peaking, incidents, weather, safety, construction, special events, etc.) and match problem to functional (work, recreation, freight), regional (urban and rural), corridor (through, interstate), and network (freeways, arterials, transit) seriousness and significance.

E.3 Analyze and evaluate responsive TSM&O strategy applications using performance measures and cost-effective tools, as available, related to mobility, safety, emergency operations, economic development, livability and sustainability, and identify staged TSM&O strategies approach consistent with potential resources for infrastructure and staffing.

E.4 Establish and document a standardized statewide policy regarding achieving objectives, priority problems, priority contexts (regions, facilities, corridors), network level (freeway, arterials), and priority strategy deployment, as well as an approach to strategies staging and extent – including both infrastructure and operations concepts evolution.

E.5 Establish statewide standard approach to TSM&O strategy applications including operational concepts, systems architecture, partner roles and relationships, technology, and procedures.

E.6 Develop a statewide TSM&O plan at the level of detail appropriate to identify operations objectives, priorities and their context and to serve as the basis for staging and budgeting. Include persuasive analysis focused on the unique role of TSM&O regarding implementation timeframes and cost effectiveness.

Responsibility and Relationships: Working group combining central office statewide and district/regional operations staff.
Action F: Integrate statewide TSM&O plan into statewide multimodal Long Range Plan

Rationale: The statewide Long Range Plan represents the official policy/program document that sets the framework for the STIP and the planning and programming that supports STIP projects.

F.1 Relate statewide TSM&O planning to ongoing statewide long range multimodal planning by integrating criteria related to recurring congestion and non-recurring congestion management and improved reliability into plan framework objectives, priorities, and strategies as well as related performance measures.

F.2 Provide examples and cost-effectiveness measures within the plan as appropriate.

Responsibility and Relationships: Working group combining central office statewide and district/regional operations staff with statewide planning staff.

Action G: Assess and develop formal multiagency approach to collaborative strategy applications and their continuous improvement

Rationale: The real-time procedures for strategy applications—based on operational concepts and systems architecture—require formal attention on a cooperative basis, involving all partners who participate in delivering the service.

G.1 Convene working group of key participants in each strategy application and review mutual roles and objectives and related procedures and protocols, such as incident command, evacuation plans, diversion plans, ramp operation, work zone traffic management, and equipment and material prepositioning.

G.2 Identify the roles and responsibilities associated with the operational concepts for each strategy and the roles in development of infrastructure and in field procedures for each service delivery partner (state DOT, public safety agencies, local government, MPO, private service suppliers).

G.3 Establish a continuing cooperative approach (such as working group) for monitoring, evaluating, and improving procedures (see Collaboration Dimension).

Responsibility and Relationships: Working group of key participants. Senior executive sponsorship by transportation agency and partners may be necessary.
Examples/References:

  Primer designed to raise awareness of the benefits and opportunities for coordinating planning and operations.

  Resource designed to enable transportation planners and their planning partners to build a systematic transportation plan.


- Maricopa County Association of Governments ITS Strategic Plan: [http://www.azmag.gov/Projects/Project.asp?CMSID=1050&CMSID2=4231](http://www.azmag.gov/Projects/Project.asp?CMSID=1050&CMSID2=4231)


Programming/Budgeting Action Plan (L2 to L3)

Strategy Summary

Develop plan-based multiyear statewide TSM&O program and budget

Key Actions

A  Develop a staged multiyear program and budget for statewide TSM&O, including consideration of commitments by service delivery partners

B  Consider consolidation of TSM&O-related costs as a separate line item category in state DOT annual and multiyear budget on a multi-year lifecycle basis

C  Determine administrative or legal adjustments necessary regarding eligible use of funds and appropriate budget categories for TSM&O program components on a sustainable basis

D  Develop modifications to existing statewide and district/regional-level programming and budgeting process that integrates TSM&O

E  Develop methodology to consider TSM&O with other investments through a rational process of performance-based trade-offs and resource allocation

ACTIONS

Action A: Develop a staged multiyear program and budget for statewide TSM&O including consideration of commitments by service delivery partners

Rationale: A key step in formalizing TSM&O as a program and integrating it as a statewide consolidated resource allocation is the establishment of a multiyear, costed program.

A.1 Building on statewide plan, develop a staged statewide implementation program recognizing priorities as well as the capital, staffing, maintenance, and ITS technology upgrade needs, with identification of costs and benefits on a life-cycle basis, as well as relationships for incorporation into other proposed capacity and preservation-related improvements.

A.2 Develop a collaborative approach to identify and incorporate into respective service delivery partners’ (local government, public safety agencies) planning and budgeting processes, commitments of the needed staffing and cooperative protocols essential for effective TSM&O strategy implementation.

Responsibility and Relationships: Working group combining central office and statewide budgeting and programming staff sponsored by senior program managers.
**Action B:** Consider consolidation of TSM&O-related costs as a separate line item category in state DOT annual and multiyear budget on a multi-year lifecycle basis

**Rationale:** For rational and transparent policy-related resource allocation, it is important to formalize TSM&O as a core program of the state DOT as an explicit consolidated line item in the statewide budget (including a time stream of resource commitments) consistent with the other core programs.

**B.1** Secure agreement from top management and develop consolidated short and long-term TSM&O program capital and operating budgets (see Culture Dimension).

**B.2** Modify current agency budgeting process at district/regional and statewide levels to incorporate systematic consideration of TSM&O project and program needs.

**B.3** Consider reformatting agency annual budget and STIP as appropriate with consolidated categories reflecting TSM&O to include capital, maintenance and operating costs as distinct visible line items and incorporating short and long term commitments on a life-cycle basis. Account for short-term issues regarding budget restructuring.

**B.4** Develop approach for briefing and buy-in from key legislative and/or commission/board stakeholders as appropriate to secure authorization to provide a separate budget for TSM&O.

**Responsibility and Relationships:** Authorized by top management and implemented by central office budgeting staff.

**Action C:** Determine administrative or legal adjustments necessary regarding eligible use of funds and appropriate budget categories for TSM&O program components on a sustainable basis

**Rationale:** The agency’s existing sources of program resources (federal and state) may or may not have restrictions and subcategories (capital, maintenance, regions, use horizon) that need to be accommodated or adjusted to support TSM&O related budget items.

**C.1** Identify current and past sources of state and federal funds used to fund TSM&O- and emergency operations-related capital, operating and maintenance costs.

**C.2** Review state constitutional or statutory constraints regarding use of state capital and/or maintenance funds for TSM&O improvements (if any) both for infrastructure and maintenance.
C.3 Identify most logical sources of funds to program and budget for TSM&O capital, operating and maintenance costs.

Responsibility and Relationships: Central office operations program and budgeting/finance leadership in consultation with DOT legal counsel and legislative committee staff as appropriate

Action D: Develop modifications to existing statewide and district/regional-level programming and budgeting process that integrates TSM&O

Rationale: The existing set of activities that constitutes the budgeting and programming processes must be adjusted if it is to incorporate TSM&O on a transparent and rational basis.

D.1 Obtain policy support to adjust formal budgeting and programming process to integrate TSM&O on an appropriate level of consideration with other major investment categories.

D.2 Establish TSM&O-specific components of the agency budgeting and programming process to integrate TSM&O including specific activities, processes, formats, data, etc.

Responsibility and Relationships: Authorized by top management and implemented by central office budgeting staff.

Examples/References:

Project Development/Procurement Action Plan (L2 to L3)

Strategy Summary

Develop and document standardized project development/procurement procedures for TSM&O projects

Key Actions

A  Modify and document existing agency standard project development process (as needed) to suit TSM&O, in coordination with systems and technology development

B  Identify and adapt available (legal) procurement procedures as suitable for various TSM&O strategy deployments

ACTIONS

Action A: Modify and document existing agency standard project development process (as needed) to suit TSM&O, in coordination with systems and technology development

Rationale: It is important to standardize the project development process for ITS/TSM&O projects to reduce the “soft costs” and timeframes for project development.

A.1  Review experience with ITS/TSM&O management of project development for both expansion and enhancement of existing systems, as well as new systems, and determine if optimal process is being followed; evaluate experience.

A.2  Consider range of ITS and TSM&O-related infrastructure requirements and identify those that benefit from integration into other highway improvements and the implication for formalizing the appropriate project development process.

A.3  Document the project development process appropriate to ITS/TSM&O and integrate into agency project development manuals.

A.4  Consider the need for additional training and senior management support where guidelines are not being followed.

Responsibility and Relationships: Central office statewide operations staff working with project development and procurement staff.
Action B: Identify and adapt available (legal) procurement procedures as suitable for various TSM&O strategy deployments

Rationale: It is important to standardize the project development process for ITS/TSM&O projects around agency or statewide Information Technology (IT) procedures to reduce the "soft costs" and timeframes for project development.

B.1 Working with agency and/or statewide IT staff, convene working group for the development of appropriate procurement strategies.

B.2 Develop/adapt current state/agency procurement strategies for both expansion and enhancement of existing ITS and TSM&O systems, as well and new systems, and consider modifications if appropriate for compatibility with ITS and TSM&O best practice.

B.3 Publish guidelines as an agency procurement regulation for use with all future high-tech procurements, and provide training and other suitable outreach to ensure that future procurements follow these regulations.

B.4 Consider the need for additional training and senior management support where guidelines are not being followed.

Responsibility and Relationships: Central office statewide operations staff working with project development and procurement staff – and legal counsel as necessary.

Examples/References: