Caltrans
TSM&O Capability Maturity Implementation Plan Workshop

June 4, 2014
1:00 PM – 3:00 PM (Eastern Time)
Weblink:
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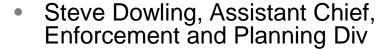
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Agenda

» Welcome and Introductions

» Review of Process to Date

- Steve Lockwood, Consulting Team

» Discussion of Priority Actions

- All: Discussion Led by Joan Sollenberger, Caltrans

» Next Steps

- Joe Gregory, Ralph Volpe – FHWA

- Joan Sollenberger - Caltrans

Caltrans Core Team

- Joan Sollenberger, Chief
  - Office of Strategic Development

- Monica Kress, Chief
  - Office of Technology

- James Anderson, Chief
  - Office of Traffic Management

- Nicholas Compin, Chief
  - HQ System Management Development Branch

- Vivien Hoang
  - FHWA – CA Division

- Frank Quon – Executive Officer
  - Highway Program MTA

- Melanie Crotty – Director Operations
  - MTC

- Steve Dowling, Assistant Chief, Enforcement and Planning Div
  - California Highway Patrol

- Joe Butler – Project Manager
  - CA Connected Corridors

- Mitchell Prevost - ATP Office of Strategic Development

- Bruce de Terra, Chief Office of System
  - Freight and Rail Planning

- Thomas Schriber, Chief
  - Office of Performance

- Tracey Frost, Chief
  - System Planning   Division of Transportation Planning

- Scott Sauer, Sr Transportation Planner
  - Office of System, Freight and Rail Planning

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Meeting Participants, continued

» FHWA
- Ralph Volpe, Management Team
- Joe Gregory, Management Team

» Consulting Team
- Steve Lockwood, Facilitator
- Gary Euler, Facilitator
- Erin Flanigan, Facilitator
- Reno Giordano, Recorder

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Guidance for Improvement of Transportation Systems Management and Operations

The Basis for Improvement

The "Program"

↑

Processes that support Program

↑

Supporting Institutional Framework

- Identified characteristics of an effective TSM&O program

- Recognized dependence on specific business & technical processes

- Identified required organization structure & relationships

Self-Evaluation Structure: Moving up Levels

ELEMENTS	LEVEL 1 PERFORMED	LEVEL 2 MANAGED	LEVEL 3 INTEGRATED	LEVEL 4 OPTIMIZING
Planning & Programming	X			
Systems & Technology			X	
Performance	X			
Culture		X		
Organization/ staffing		X		
Collaboration		X		

Lowest level is constraint – can not be skipped

For each dimension guidance provided to get to next level

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Example State DOT Workshop Output

Strengths	Weaknesses
• Individual agencies' strategic plans exist • Management System Integration protocol developed as a pilot exercise for identifying and prioritizing projects across strategies and needs • Local agencies identifying their own project needs • NYMTC region has embraced TSM&O as necessary program – highly motivated participants • DVRPC – transportation operations master plan (several years old) integrated into long-range plan, includes many partners • Funding for projects not generally a problem	• Lack of overall statewide strategic plan • Need stronger connection between locally identified projects and long-range transportation planning needs (TIP/STIP) • Need support for getting projects into TIPs • TSM&O funding adequate for "putting out fires"; insufficient for addressing new initiatives • Need better integration into overall statewide comprehensive strategy to improve mobility, evaluating trade-offs between TSM&O and other strategies and needs; same issue at the MPO level • Educating non-TSM&O partners, policymakers necessary

Level Criteria	LEVEL 1 — PERFORMED	LEVEL 2 — MANAGED	LEVEL 3 — INTEGRATED	LEVEL 4 — OPTIMIZING
	Each jurisdiction doing its own thing according to individual priorities and capabilities	Consensus regional approach developed regarding TSM&O goals, deficiencies, B/C, networks, strategies and common priorities	Regional program integrated into jurisdictions' overall multimodal transportation plans with related staged program	TSM&O integrated into jurisdictions' multi-sectoral plans and programs, based on a formal, continuing planning processes
Consensus	1.5			

Workshop Actions to Advance to the Next Level

- Develop statewide regional strategic plan that incorporates all regional entities' and multimodal stakeholders' plans
- Utilize existing performance data to project outcomes/benefits (make the business case) and use as an education platform for partners and stakeholders and development of overall strategic plan
- Tailor communication to public and policymakers in making the business case at a high level
- Apply the outcomes of the two actions immediately above to development of the STIP
- Also with these outcomes, use them to educate counties/municipalities and obtain buy-in on including operations projects on the STIP

SHRP 2 L06 Assistance

» California is a full assistance State

- CMM Workshop was held in March of 2013 without plan of follow up actions

- Implementation Plan was generated in December 2013 and forwarded to Caltrans

- When the workshop occurred, the levels of maturity were selected using the *words* rather than *numeric* ranking

    - Performed = 1

    - Managed = 2

    - Integrated = 3

    - Optimizing = 4

Results of March 2013 Workshop

Dimension	Level	Consultant Identified Priority Actions
Planning & Programming	1+ (Performed plus)	• Establish Caltrans role with Connected Corridors partners.. • Develop standardized Connected Corridors planning and programming process • Develop TSM&O Business Case for senior executives
Systems & Technology	1 (Performed)	• Review and update systems engineering state of practice in Caltrans for Connected Corridors • Develop cooperatively streamlined approval process for Connected Corridors IT working with State Technology Agency (IT)
Performance	2 (Managed)	• Develop statewide TSM&O Performance Measurement Plan
Culture	2 (Managed)	No priority actions. Core team may decide to add if this dimension is a focus for the state
Organization/ Staffing	2+ (Managed plus)	No priority actions. Core team may decide to add if this dimension is a focus for the state
Collaboration	2 (Managed – diff among districts)	No priority actions. Core team may decide to add if this dimension is a focus for the state

» **Discussion of Priority Actions**
- Discussion led by Joan Sollenberger

Priority Actions

Capability Dimension	Caltrans Identified Actions
Business Processes (Planning and Programming)	• Develop TSM&O Business Case documents to share with Senior Executives • Develop State Highway Operations and Protection Program (SHOPP) prioritized corridor performance based improvement projects
Systems and Technology	• Assess Regional and Statewide ITS Architectures for status, currency, and conformity with National ITS Architecture • Identify and prioritize needed updates to regional ITS architecture • Develop and implement ITS related training program and rotation program for electrical engineers to enhance systems engineering state of practice • Develop cooperatively streamlined approval process for working with Caltrans' IT and the California Technology Agency (Cal-Tech) • Develop systems and technology to collect and display real-time transportation data • Develop systems and technology to actively and coordinate traffic
Performance Measurement	• Incorporate elements of TSM&O in performance based planning documents and guidance

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Priority Actions (Continued)

Capability Dimension	Caltrans Identified Actions
Culture	• Develop TSM&O Director's policy to ensure a culture change that embraces total system management • Develop deputy directive to ensure the inclusion of Intelligent Transportation Systems (ITS) services in support of TSM&O • Establish TSM&O Executive Steering committee to set vision and strategic priorities for development of a four to five year TSM&O program • Establish Connected Corridors partnership building
Organization and Staffing	• Reorganize the Division of Traffic Operations HQ to place emphasis on optimizing transportation system performance. • Reorganize Caltrans' District 7 Traffic Operations to enable more efficient corridor management to increase accountability, performance and coordination for TSM&O • Develop electrical engineering successor planning program
Collaboration	• Conduct Regional Operations Forum (ROF) • Conduct Capability Maturity Model assessment with consultant lead federal assistance

Business Processes (Planning and Programming)

	Business Processes (Planning and Programming) Priority Actions
Action Description	• Develop TSM&O Business Case documents to share with Senior Executives • Develop State Highway Operations and Protection Program (SHOPP) prioritized corridor performance based improvement projects
Products and Desired Outcomes	• Documented TSM&O business case marketing materials to share with Caltrans Senior Executives, California Highway Patrol, and FHWA's SHRP2 team. • Executive approval of TSM&O Implementation Plan • Establish Corridor-wide approaches to planning and programming for TSM&O .e.g. Project Initiation Documents (PIDS) • Secure stable funding for TSM&O strategies and projects (life cycle replacement and upgrade and new needed)
Task(s) / Subtask(s)	1. Introduce performance, accountability and TSM&O for discussion and consideration for the TSM&O Executive Steering Committee and Caltrans Executive Board to support requirements based on MAP-21 2. Review peer experience with TSM&O business case development including FHWA/AASHTO/SHRP2. 3. Highlight best practices of Connected Corridors business case and planning/programming products related to reorganization in D7 for corridor management 4. Develop communication materials based on TSM&O and Connected Corridor Business Cases for a variety of audiences, including senior staff, partner agencies, legislature, and websites. 5. Establish cross-disciplinary working group to develop TSM&O through Regional Operations Forum (ROF) and Capability Maturity Model (CMM) assessment to increase awareness and benefits of TSM&O to corridor based projects

Business Processes (Planning and Programming) Priority Action, continued

Lead	Traffic Operations, Office of Strategic Development (OSD), Division of Transportation Planning (DOTP) and CA TSM&O Local Core Technical Assistance Team in advisory capacity.
Support Staff	Staff from Caltrans HQ, District Offices and Regional Partners
Staff Level of Effort (person-days)	50
Senior Leadership Support Actions	Provide guidance on high level strategic implementation actions Keep Statewide/Department wide perspective with regard to strategic actions Act as a trustee of the TSM&O program, not a representative of one area
Collaboration Actions and Requirements	The TSM&O Steering Committee mainly focuses on strategic decisions (what and why) and possibly tactical decisions (when and who). Decisions will be made by a consensus of the Committee. Consensus is defined as reaching a decision that everyone can live with and will support after a complete discussion of differing viewpoints.
Technical Issues	Inability to have timely meetings due to multiple scheduling conflicts

Business Processes (Planning and Programming) Priority Action, continued	
Key Risks	Inability to have timely meetings due to lack of coordination
Resource Requirements	Resources from Caltrans HQ, District Offices and Regional Partners
FHWA Support Resources and Contact	Knowledge sharing of best practices Peer reviews, technical assistance
Start Date	TBD
End Date	
Success / Completion Indicator	

Systems and Technology

	Systems and Technology Priority Actions
Action Description	• Assess Regional and Statewide ITS Architectures for status, currency, and conformity with National ITS Architecture • Identify and prioritize needed updates to regional ITS architecture • Develop and implement ITS related training program and rotation program for electrical engineers to enhance systems engineering state of practice • Develop cooperatively streamlined approval process for working with Caltrans' IT and the California Technology Agency (Cal-Tech) • Develop systems and technology to collect and display real-time transportation data • Develop systems and technology to actively and coordinate traffic
Products and Desired Outcomes	• Documented assessment of Regional and Statewide ITS architectures • Comprehensive ITS Architecture database for future reference • Develop concept of operations template, consistent with ITS architectures and standards focused on National ITS architecture • Documented streamlined process for IT approvals and joint MOU to advance TSM&O capability maturity from level one, "Performed" to level two, "Managed" • QuickMaps is a newly developed website displaying various types of transportation data • The Caltrans' Performance Measurement System (PeMS) displays both archived and real-time transportation data • Dynamic Corridor Congestion Management (DCCM) – corridor adaptive ramp metering pilot in D-7

Systems and Technology Priority Actions, continued

Task(s) / Subtask(s)	
	1. Prepare Request for Offer (RFO) to have consultant assess Regional and Statewide ITS architectures, and provide recommendations for improved compliance with federal requirements and state business needs
	2. Update state of the practice regarding systems engineering at each stage in the project development process including: ConOps; architecture; functional requirements; systems design and integration; deployment; and operations and maintenance.
	3. Identify critical issues impacting efficiency of process and effectiveness of outcomes.
	4. Incorporate FHWA Division Office review and peer state experience with architecture updates where relevant (e.g. Florida).
	5. Develop template for concept of operations to document Connected Corridors-specific architectures, standards for critical issues, and migration plans as appropriate for Connected Corridors.
	6. Develop joint working group with Caltrans IT and Caltrans to review key IT issues impacting Caltrans procurement and project development efficiency.
	7. Define terms to clarify all parties' key concerns by type of project.
	8. Prepare document and conduct dialogue to clarify Caltrans perspective regarding benefit of projects and concerns regarding challenges in upgrading technology and achieving consistency
	9. Identify interagency strategies for better communication and process to streamline project approval with the IT group.
	10. Develop and establish specific approval process that can be implemented at staff level
	11. Secure approval by top management for the new streamlined IT approval process
	12. Develop memorandum of agreement with CA IT regarding streamlined IT approval process.

Systems and Technology Priority Actions, continued	
Lead	Caltrans Traffic Operations' Office of Performance(OP), Office of Strategic Development (OSD), and Division of Transportation Planning, Office of Freight, System and Rail Planning and CA TSM&O Local Core Technical Assistance Team in an advisory capacity
Support Staff	Staff from Caltrans HQ, District Offices and Regional Partners
Staff Level of Effort	50
Senior Leadership Support Actions	Provide guidance on high level strategic implementation actions Keep Statewide/Department wide perspective with regard to strategic actions Act as a trustee of the TSM&O program, not a representative of one area
Collaboration Actions and Requirements	The TSM&O Executive Steering Committee mainly focuses on strategic decisions (what and why) and possibly tactical decisions (when and who). Decisions will be made by a consensus of the Committee. Consensus is defined as reaching a decision that everyone can live with and will support after a complete discussion of differing viewpoints.
Technical Issues	Inability to have timely meetings due to multiple scheduling conflicts
Key Risks	Inability to have timely meetings due to lack of coordination
Resource Requirements	Resources from Caltrans HQ, District Offices and Regional Partners
FHWA Support Resources and Contact	Knowledge sharing of best practices Peer reviews, technical assistance
Start Date	TBD
End Date	
Success / Completion Indicator	

Performance Measurement - *Actions*

Performance Measurement Priority Actions
Action Description   • Incorporate elements of TSM&O in performance based planning documents and guidance
Products and Desired Outcomes   • Develop Caltrans Strategic Management Plan with TSM&O emphasis   • The Mile Marker Report is a multimedia accounting of how the Department of Transportation is performing   • The Mobility Performance Report (MPR) provides quarterly and annual reporting of transportation system performance   • System Planning Guidance documentation
Task(s) / Subtask(s)   1. Review implementation of MAP-21 requirements being implemented at the State/MPO level, including targets and timeframes, and ensure common terminology and objectives between TSM&O and other agency activities   2. Review experience and activities of peer agencies (e.g. WSDOT, FDOT, MDSHA) especially regarding relationship between key performance measures and goals; strategy applications and data availability (short and medium-term); and related analytical requirements.   3. Standardize TSM&O goals and objective and related performance measures for TSM&O focused on outputs related to both recurring and non-recurring congestion on both freeways and arterials. Outputs may include delay, reliability, throughput, safety, environment and economic development.   4. Identify and coordinate with internal users and customers of performance data and ensure commitment to utilization, including establishing a reporting system.   5. Develop a TSM&O pilot program in a selected region (District 7 Connected Corridors new organization) including: appropriate working group, identification of measures, staged approach to performance measurement analysis, reporting, specific responsibilities for collection, analysis, and reporting/communicating.   6. Test applications related to TSM&O performance measures using the Connected Corridors pilot project (including measures, data collection, analysis, utilization and reporting).   7. Develop technical memo documenting lessons learned from the pilot project.   8. Create strategy for staged statewide implementation and present to senior management.

Performance Measurement	
Priority Actions - continued	
Lead	Caltrans Traffic Operations' Office of Performance(OP), Office of Strategic Development (OSD) , and Division of Transportation Planning, Office of Freight, System and Rail Planning and CA TSM&O Local Core Technical Assistance Team in an advisory capacity.
Support Staff	Staff support from Caltrans HQ, District Offices and Regional Partners
Staff Level of Effort	50
Senior Leadership Support Actions	Provide guidance on high level strategic implementation actions Keep Statewide/Department wide perspective with regard to strategic actions Act as a trustee of the TSM&O program, not a representative of one area
Collaboration Actions and Requirements	The TSM&O Steering Committee mainly focuses on strategic decisions (what and why) and possibly tactical decisions (when and who). Decisions will be made by a consensus of the Committee. Consensus is defined as reaching a decision that everyone can live with and will support after a complete discussion of differing viewpoints.
Technical Issues	Inability to have timely meetings due to multiple scheduling conflicts
Key Risks	Inability to have timely meetings due to lack of coordination
Resource Requirements	Resources from Caltrans HQ, District Offices and Regional Partners
FHWA Support Resources and Contact	Knowledge sharing of best practices Peer reviews, technical assistance
Start Date	TBD
End Date	
Success / Completion Indicator	

Culture - *Actions*

	Culture Priority Actions
Action Description	• Develop TSM&O Director's policy to ensure a culture change that embraces total system management • Develop deputy directive to ensure the inclusion of Intelligent Transportation Systems (ITS) services in support of TSM&O • Establish TSM&O Executive Steering committee to set vision and strategic priorities for development of a four to five year TSM&O program • Establish Connected Corridors partnership building
Products and Desired Outcomes	• Director's TSM&O policy • Deputy Directive that supports the integration of ITS services in TSM&O • Signed TSM&O Steering Committee charter • Connected Corridors pilot project
Task(s) / Subtask(s)	• Create draft policy on TSM&O for peer review and final approval by the Director • Create draft ITS deputy directive for peer review and approval • Conduct Connected Corridors Pilot
Lead	Caltrans Traffic Operations' Office of Performance(OP), Office of Strategic Development (OSD) , and Division of Transportation Planning, Office of Freight, System and Rail Planning and CA TSM&O Local Core Technical Assistance Team in an advisory capacity.
Support Staff	Staff support from Caltrans HQ, District Offices and Regional Partners
Staff Level of Effort (person-days)	50

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Culture Priority Actions - continued	
Senior Leadership Support Actions	Provide guidance on high level strategic implementation actions Keep Statewide/Department wide perspective with regard to strategic actions Act as a trustee of the TSM&O program, not a representative of one area
Collaboration Actions & Requirements	The TSM&O Steering Committee mainly focuses on strategic decisions (what and why) and possibly tactical decisions (when and who). Decisions will be made by a consensus of the Committee. Consensus is defined as reaching a decision that everyone can live with and will support after a complete discussion of differing viewpoints.
Technical Issues	Inability to have timely meetings due to multiple scheduling conflicts
Key Risks	Inability to have timely meetings due to lack of coordination
Resource Requirements	Resources from Caltrans HQ, District Offices and Regional Partners
FHWA Support Resources and Contact	Knowledge sharing of best practices Peer reviews, and technical assistance
Start Date	TBD
End Date	
Success / Completion Indicator	

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Organization and Staffing
Actions

Organization and Staffing	
Action Description	• Reorganize the Division of Traffic Operations HQ to place emphasis on optimizing transportation system performance. • Reorganize Caltrans' District 7 Traffic Operations to enable more efficient corridor management to increase accountability, performance and coordination for TSM&O • Develop electrical engineering successor planning program
Products and Desired Outcomes	• Reorganized Traffic Operations (HQ) to focus on optimized transportation system performance • Reorganized District 7 Traffic Operations to focus on corridor management and coordination. • Functional electrical engineering successor planning program
Task(s) / Subtask(s)	• Develop a business case that evaluates the reorganization of Traffic Operations to enable a more integrated organization resulting in improved partnerships, products and services. • Assess the reorganization of District 7 Traffic Operations and its relationship to the connected Corridors pilot project. • Create Electrical Engineering Workforce Development Committee to guide the development of an electrical engineering training program.
Lead	Caltrans Traffic Operations' Office of Performance(OP), Office of Strategic Development (OSD) , and Division of Transportation Planning, Office of Freight, System and Rail Planning and CA TSM&O Local Core Technical Assistance Team in an advisory capacity.
Support Staff	Staff from Caltrans HQ, District Offices and Regional Partners
Staff Level of Effort	50
Senior Leadership Support Actions	Provide guidance on high level strategic implementation actions Keep Statewide/Department wide perspective with regard to strategic actions Act as a trustee of the TSM&O program, not a representative of one area

Organization and Staffing
Priority Actions, continued

Collaboration Actions and Requirements	The TSM&O Steering Committee mainly focuses on strategic decisions (what and why) and possibly tactical decisions (when and who). Decisions will be made by a consensus of the Committee. Consensus is defined as reaching a decision that everyone can live with and will support after a complete discussion of differing viewpoints.
Technical Issues	Inability to have timely meetings due to multiple scheduling conflicts
Key Risks	Inability to have timely meetings due to lack of involvement
Resource Requirements	Federal Implementation Assistance Program
FHWA Support Resources and Contact	Knowledge sharing of best practices Peer reviews, and technical assistance
Start Date	TBD
End Date	
Success / Completion Indicator	

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Collaboration
Action 1

Collaboration Priority Action 1	
Action Description	• Conduct Regional Operations Forum (ROF) • Conduct Capability Maturity Model assessment with consultant lead federal assistance
Products and Desired Outcomes	• Stakeholder partnership building and increased awareness of TSM&O benefits • Assessment of current state of play • Identified action Items to achieve next level capability maturity

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Collaboration Priority Actions

Proposal to use Lead Adopter Federal Implementation Assistance Resources to accomplish appropriate priority ROF/CMM efforts
 	
Task(s) / Subtask(s)
	1. Coordinate resources with FHWA, Caltrans, Local and Regional Agencies to conduct ROF's with a consultant lead CMM assessment. Possible ROF/CMM Schedule (unconstrained);
	
	    • **Caltrans District 12, Local and Regional Entities**
	    • **Caltrans District 4, and Local and Regional Entities**
	    • Caltrans District 11, 8 and Local and Regional Entities *
	    • Caltrans Districts 5, 7 (Ventura), and Local and Regional Entities
	    • Caltrans District 6, 10 and Local and Regional Entities
	    • Caltrans District 3 and Local and Regional Entities *
	    • Caltrans District 1,2,9 and Local and Regional Entities *
	(*) Regions that have multistate corridors may have neighboring states participate
	
	2. Review existing guidelines and planning documents related to planning, system management and operations (including existing Caltrans and MPO material and peer state examples) within the context of the CMM dimensions
	
	3. Identify and document planning, programming, and operational procedures and protocol within the context of the CMM dimensions. Consider constraints such as capital, operating and maintenance costs.
	
	4. Develop guidelines for long range TSM&O implementation. Including strategy identification; architecture; concept of operations; technology standardization; timeframes; and participants. Guidelines should include investment analysis and resource availability.
	
	5. Develop approach to continuing cooperative programming including capital, staffing and maintenance resource-sharing among jurisdictions.
	
	6. Develop a template for multiagency plan development process and typical milestones for stakeholder interaction. This template should include the roles and relationships for planning, programming, procedure and protocol development, training, and continuing operations and management.

Collaboration - Priority Actions , continued

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Next Steps

» FHWA Assistance

- Joe Gregory and Ralph Volpe, FHWA

» Caltrans Management Review and Approval

» Joan Sollenberger, Caltrans

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