



Prioritizing Transportation Systems Management & Operations (TSMO) Projects: An ITE Tech Brief Preview

2025 Mid-Colonial District ITE Annual Meeting
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Overview



Introduction



What's in the Tech Brief?



Sample Prioritization Template



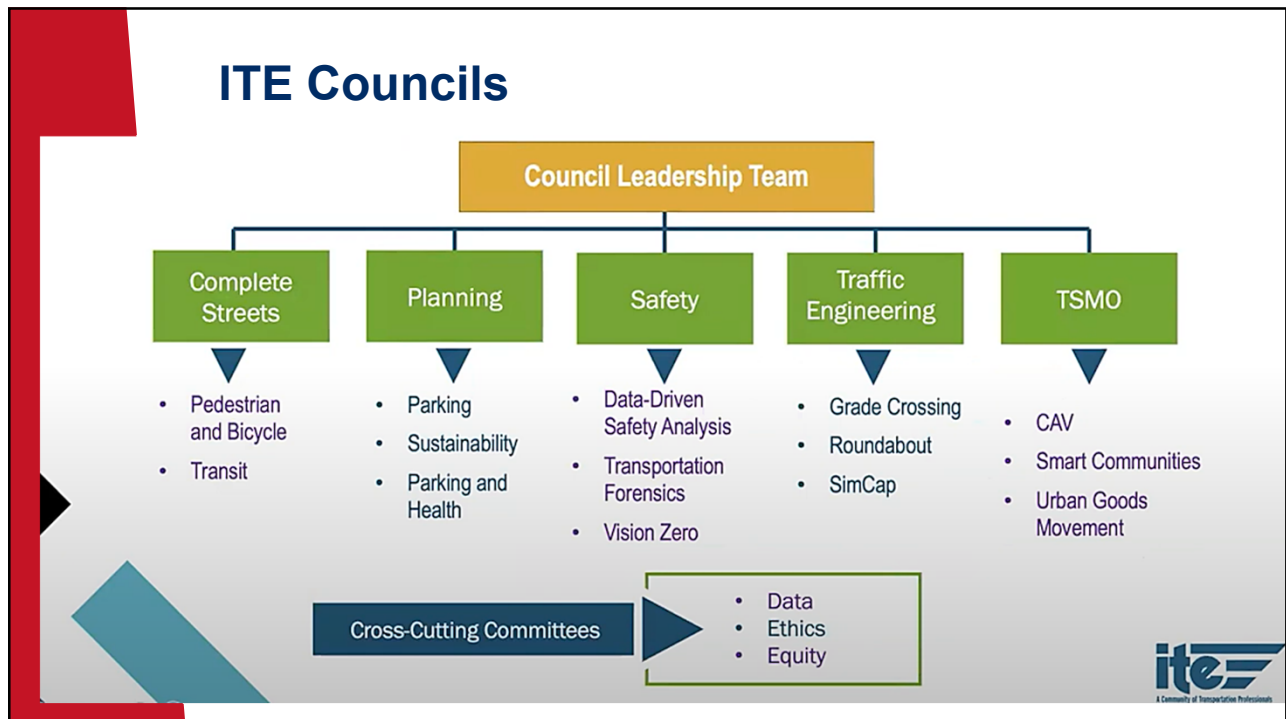
Q&A



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TSMO Council & Committees

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From Gridlock to Goals: Why Prioritize?

COMPETING DEMANDS VS. LIMITED AND DISPERSED FUNDING

PROJECT PRIORITIZATION: STRATEGIC PROCESS OF RANKING PROJECTS TO MAXIMIZE POSITIVE OUTCOMES.

TECH BRIEF EXAMINES RANGE OF FRAMEWORKS, PROCESSES, & TOOLS THAT CAPTURE CURRENT PRACTICES ACROSS AGENCIES.



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How? Common Criteria for Prioritization




Safety: Evaluates a project's ability to reduce collisions .



System Security and Resilience: Assesses the project's contribution to network redundancy and enhanced mobility in relation to security-critical assets.



Operational Efficiency: Evaluates the facilities based on the Level of Service (LOS), Delays (for intersections) and Densities (for highways) and other network Measures of Effectiveness such as Vehicle Miles Travelled(VMT), Vehicle Hours Traveled(VHT)




Asset Management: Focuses on the project's impact on asset condition, such as the age of the asset, and whether it improves the condition of the asset.



Mobility and Reliability : Assesses the project's impact on travel time delay and reliability.



Economic Development: Evaluates the project's connection to economic goals, job creation, employment accessibility, and its impact on disadvantaged communities.



Sustainability and Environment: Examines the project's impact on environmental resources, noise level, emissions, and its ability to mitigate the effects of climate change, such as sea level rise and extreme weather events.



Connectivity: Focuses on the project's multimodal perspective, including its interactions with the transit system and its impact on accessibility.



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What Makes a TSMO Project a Top Priority?


Impact: How much will it boost safety, cut delays, or enhance resilience?

Value: Does it offer a strong Benefit-Cost Ratio (BCR)? Is it a cost-effective win?

Feasibility: Can agency implement it effectively (time, cost, risk, technology)?

Alignment: Does it clearly support agency's and region's strategic goals?


Economic Development & Equity: Improve access & mobility for underserved communities?



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Organization

- Introduction
- Background
- What is Project Prioritization?
 - Steps Involved in Project Prioritization
 - Incorporating TSMO strategies into planned Capital Improvement Projects
- Questions to Consider
 - What are the key factors that TSMO practitioners should consider when prioritizing TSMO projects?
 - What tools and techniques are available to assist practitioners in prioritizing TSMO projects?
 - How can practitioners measure the success of their prioritization process for TSMO projects, and make adjustments as needed?
- Prioritization Matrix Templates
 - Examples of Applying TSMO Project Prioritization Matrices
 - Future Considerations in Project Prioritization



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Sample Template

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Matrix 1: Simplified Matrix Focusing on Key Risks

Criterion	Metric	Scoring (1-5)	Weight	Risk Level
Project Impact	Alignment with TSMO Strategic Goals and Objectives	1 (Low) - 5 (High)	30%	
Cost-Effectiveness	Benefit/Cost Ratio	1 (Low) - 5 (High)	25%	
Implementation Timeframe	Estimated Duration of Project	1 (Short) - 5 (Long)	15%	
Cost Risk	Lifecycle Cost Risk Score (considering capital, operating, maintenance, and end-of-life costs)	1 (Low) - 5 (High)	15%	Low (1-2), Moderate (3), High (4-5)
Complexity Risk	Systems Integration Complexity Rating (considering interoperability, data compatibility, and legacy systems)	1 (Low) - 5 (High)	15%	Low (1-2), Moderate (3), High (4-5)



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Applying the Simplified Matrix

• **Scenario:** A Department of Transportation (DOT) is considering two TSMO projects for implementation:

- **Project A:** Implementing ramp metering on a congested freeway corridor to improve traffic flow and reduce travel times.
- **Project B:** Deploying a network of dynamic message signs (DMS) to provide real-time traffic information to drivers.

Criterion	Metric	Project A Score (1-5)	Project B Score (1-5)
Project Impact	Alignment with TSMO Strategic Goals and Objectives	5 (High)	4 (Medium-High)
Cost-Effectiveness	Benefit/Cost Ratio	4 (Medium-High)	3 (Medium)
Implementation Timeframe	Estimated Duration of Project	3 (Medium)	2 (Short)
Cost Risk	Lifecycle Cost Risk Score	2 (Low)	3 (Moderate)
Complexity Risk	Systems Integration Complexity Rating	3 (Moderate)	2 (Low)



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Applying the Simplified Matrix

Calculating Weighted Scores:

- **Project A:** $(5 * 0.3) + (4 * 0.25) + (3 * 0.15) + (2 * 0.15) + (3 * 0.15) = 3.9$
- **Project B:** $(4 * 0.3) + (3 * 0.25) + (2 * 0.15) + (3 * 0.15) + (2 * 0.15) = 3.15$

Risk Level:

- **Project A:** Low (Cost Risk: 2, Complexity Risk: 3)
- **Project B:** Moderate (Cost Risk: 3, Complexity Risk: 2)

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Considerations for Application



Tailor to Agency Needs: Adapt the matrices to your agency's specific goals, priorities, and available data.



Define Scoring Systems: Establish clear and consistent scoring systems for each criterion, ensuring objectivity and comparability.



Weight Criteria: Assign weights to the criteria based on their relative importance in the decision-making process.



Document Assumptions: Clearly document all assumptions made during the evaluation process to enhance transparency.



Iterative Process: Use the matrices as part of an iterative process, refining criteria, metrics, and weights based on experience and feedback.

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