

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

Sunday
January 7, 2024
9:00am – noon

Framing the Discussion: Assessing TMSs

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D2 Traffic Technologies

Session I 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

Framing the Discussion

An **Assessment** is a formal, structured process for identifying current levels of capabilities and performance.



Use an established process or framework for conducting assessments



Involve key stakeholders in process

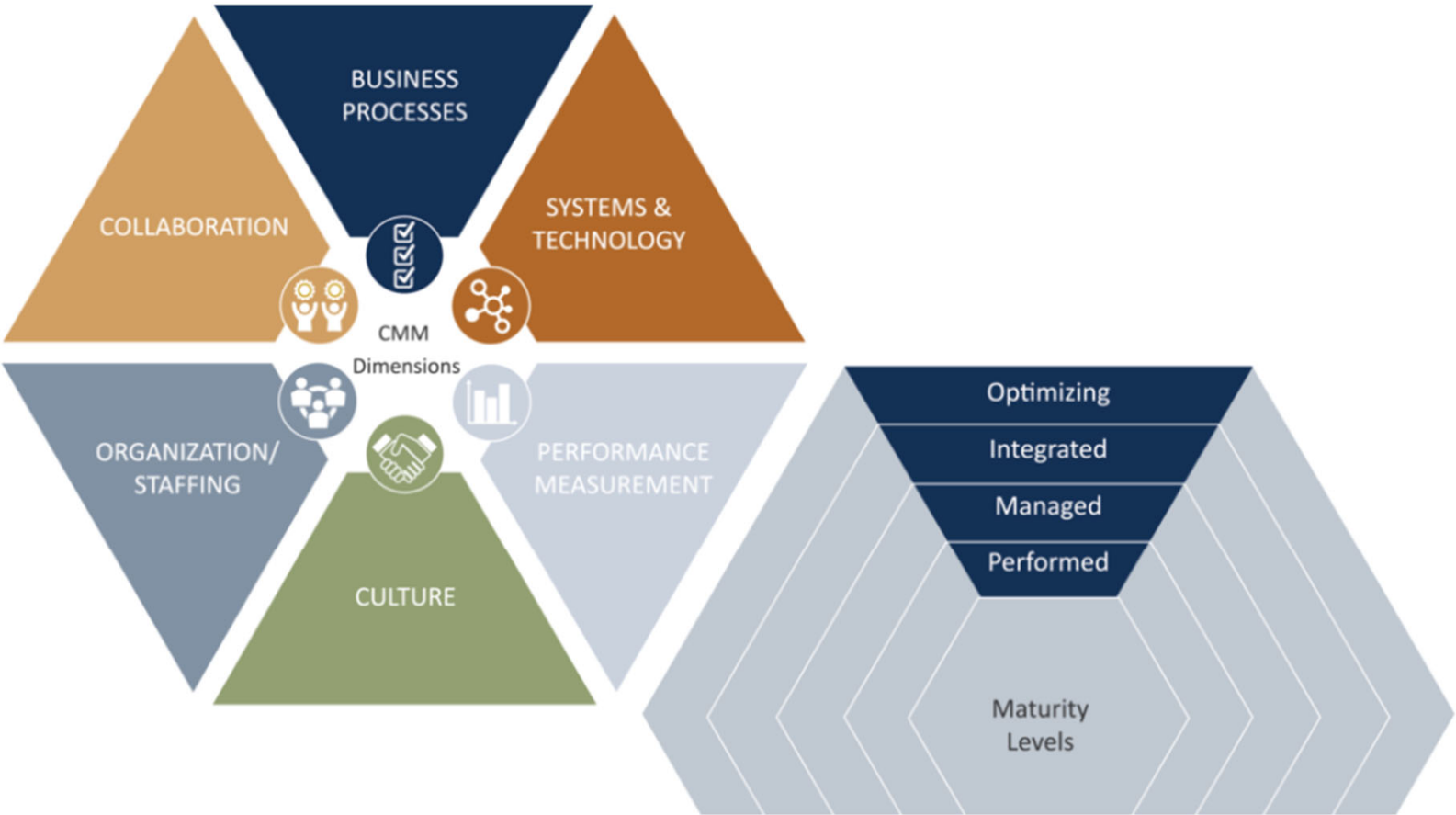


Outputs of assessments can be used to:

- Identify enhancements to improve performance
- Develop consensus around needed improvements
- Identify immediate priorities for action or changes
- Identify opportunities for future improvements

Framing the Discussion

AASHTO-FHWA Capability Maturity Model (CMM) framework:



Source: FHWA

Framing the Discussion

What other dimensions might agencies consider when assessing TMSs?

Existing Dimensions or Process Improvement Areas	
<i>Dimensions or Process Areas</i>	<i>What is it? What does it do?</i>
Business Process	Plans, Programs, Budget
Systems & Technologies	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



Missing Process Improvement Areas	
<i>Dimensions or Process Areas</i>	<i>What is it? What does it do?</i>
Management & Operation	Managing and Operating Daily
Maintenance & Repair	Conducting Daily Maintenance and Repairs
Sharing and Using Data	Policies, procedures, agreements, and activities to enable the sharing and use of data with sources external to TMS

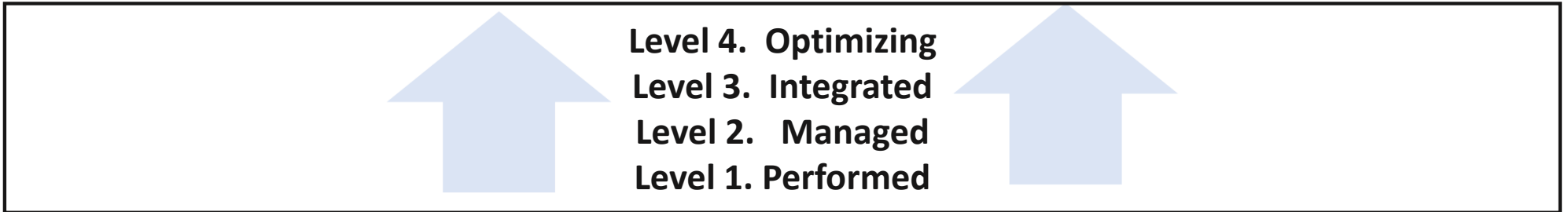


Possible Process Improvement Areas to Assess TMSs	
<i>Dimensions or Process Areas</i>	<i>What is it? What does it do?</i>
1. Business Process	Plans, Programs, Budget
2. Systems & Technologies	Approach to Building Systems
3. Performance Measurement	Use of Performance Measures
4. Workforce	Improving Capability of Workforce
5. Culture	Changing Culture and Building Champions
6. Collaboration	Improving Working Relationships
7. Management & Operation	Managing and Operating Daily
8. Maintenance & Repair	Conducting Daily Maintenance and Repairs
9. Sharing and Using Data	Activities to enable sharing and use of data with sources external to TMS

Source: FHWA

Framing the Discussion

What dimensions and subdimensions to consider when assessing TMSs?



Planning and Operational Focused Dimensions

Technical Focused Dimensions

Business Processes	Culture	Collaboration	Workforce	Systems and Technology	Sharing and Using Data	Performance	Management and Operations	Maintenance & Repairs
<ul style="list-style-type: none"> •TMS Program and Plan •TMS & Plan Integrated into Agency Plans & Programs •Programming & Budget •Operating Policies & Procedures 	<ul style="list-style-type: none"> •Visibility TMS Program w/in Agency Strategic Plans •TMS Program Integrated into TSMO & Agency Program Plans & Funding 	<ul style="list-style-type: none"> •Agency Collaboration •Third party relationships 	<ul style="list-style-type: none"> •Organizational structure & governance •Staff Development •Staff recruitment •Staff development & retention plans 	<ul style="list-style-type: none"> •Subsystem, components, and devices •System multi-year plan •System design •Inventory assets & resources 	<ul style="list-style-type: none"> •Data Sharing •Data Exchange Procedures, Agreements, APIs, & Data Formats •Using Data From Other Sources •Interoperability 	<ul style="list-style-type: none"> •Data collection •Performance Measures •TMS Monitoring •TMS Asset Monitoring 	<ul style="list-style-type: none"> •Service Level & Resiliency •TMS Oper. Capabilities •TMS Asset Impact •High avail. / remote ops 	<ul style="list-style-type: none"> •Asset Documentation •Configuration Management •Maintenance request management •TMS feature roadmap

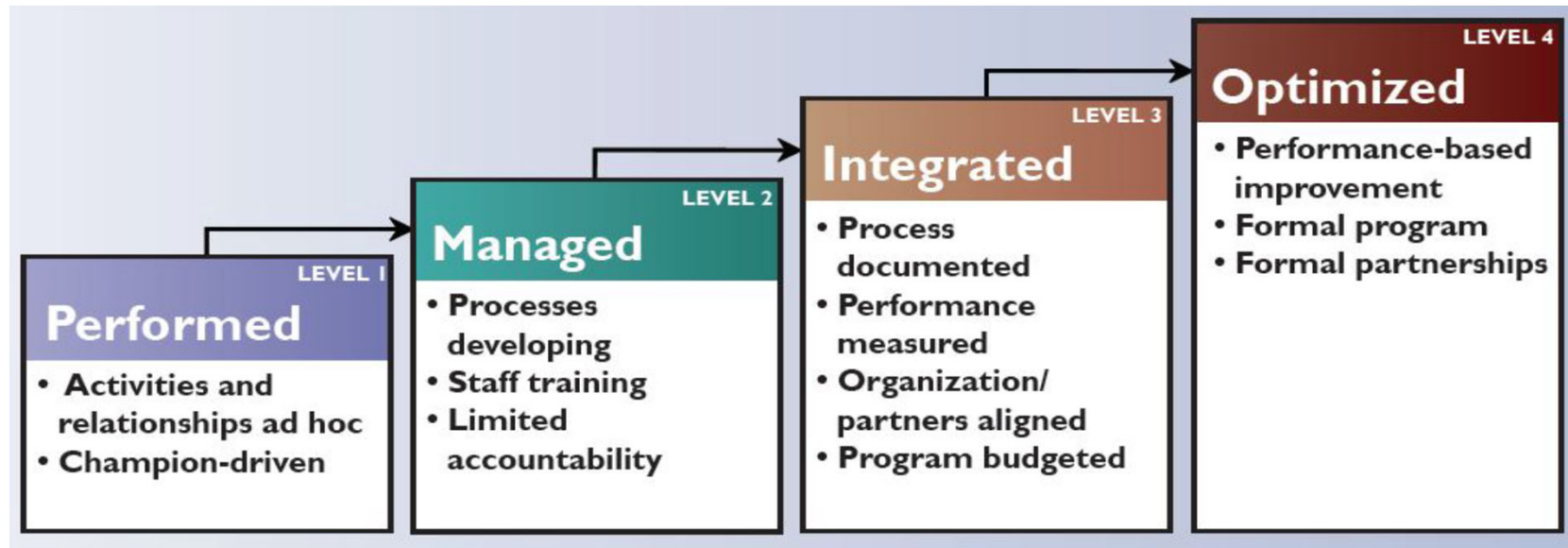
Source: FHWA

Framing the Discussion

What issues to consider in support of assessing the capabilities of dimensions?

Once you know your Capability Maturity Levels, consider:

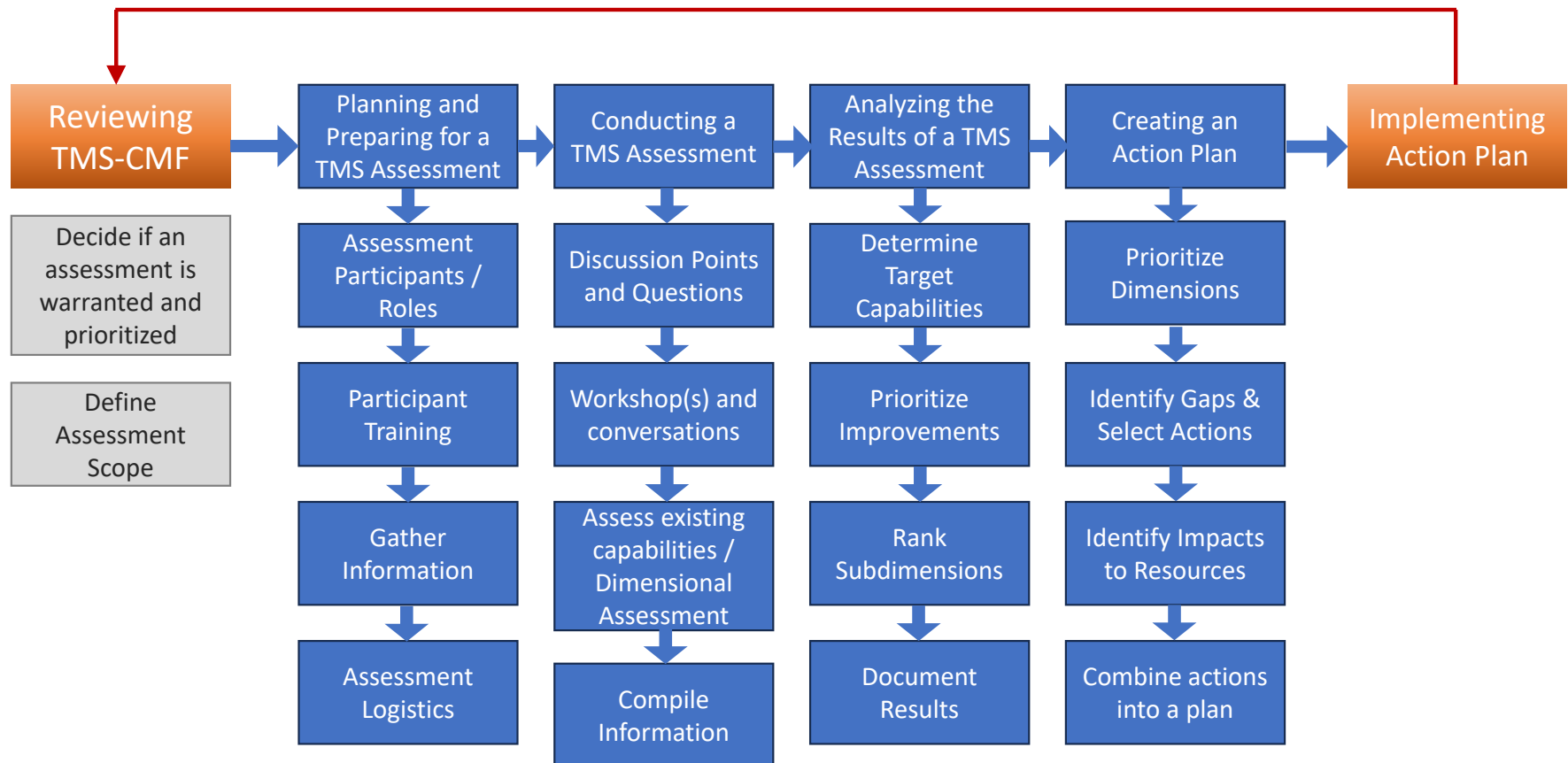
- *Where are the highest priorities for improvement?*
- *Are there areas for early action (“low-hanging fruit”)?*
- *What projects are important but may take more time and resources?*



Source: FHWA

Framing the Discussion

What process might agencies follow when preparing for or assessing TMSs?



Framing the Discussion

What to consider when identifying opportunities for TMS improvements?



Assessing TMSs provides information to support efforts to identify the needs of the next generation agency TMS system



Planning and plans identifying strategic directions and future capabilities



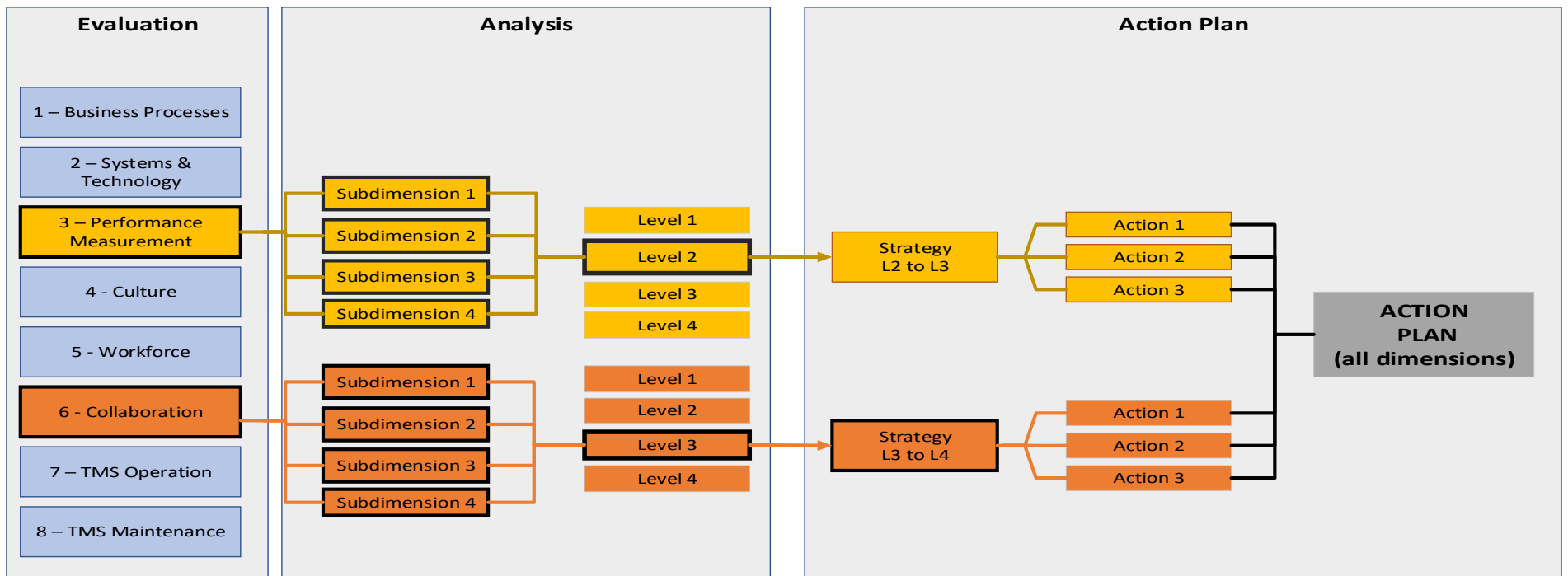
Modular and expandable subsystems (e.g., software, data) to adjust to or meet evolving future



Resources to support TMS (e.g., plan, design, manage, operate, maintain, repair)

Framing the Discussion

EXAMPLE: identifying, evaluating, and prioritizing possible TMS improvements



Source: FHWA

Framing the Discussion

Examples of resources to support conducting TMS assessments:

1. FHWA's capability maturity framework (CMF) <https://ops.fhwa.dot.gov/tsmoframeworktool/index.htm>
2. FHWA self-assessment resources for specific TSMO Program Areas or strategies
- 3. FHWA developing new resources for TMS assessments – finishing in 2024-2025**
4. Using Capability Maturity Frameworks for TSMO Program Advancement: Case Studies and Lessons Learned, FHWA. <https://ops.fhwa.dot.gov/publications/fhwahop19011/index.htm>
5. Traffic Management Capability Maturity Framework Tool, FHWA. https://ops.fhwa.dot.gov/tsmoframeworktool/tool/traffic_mgmt/index.htm
6. Resources to Support Traffic Management Capability Maturity Framework Users. https://ops.fhwa.dot.gov/tsmoframeworktool/available_frameworks/traffic.htm
7. Business Process Frameworks for Transportation Operations, FHWA. <https://ops.fhwa.dot.gov/tsmoframeworktool/index.htm>
8. Traffic Management Capability Maturity Framework – Fact Sheet, FHWA. <https://ops.fhwa.dot.gov/publications/fhwahop16026/index.htm>

Assessing TMSs – Framing the Discussion:

Thank you!