TSMO Stakeholder Engagement Plan

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List of Acronyms and Abbreviations

CAMPO	Carson Area Metropolitan Planning Organization
CMM	Capability Maturity Model
FAST	Freeway and Arterial System of Transportation
FHWA	Federal Highway Administration
FMS	Freeway Management System
INFRA	Infrastructure for Rebuilding America
IT	Information Technology
ITS	Intelligent Transportation Systems
MOU	Memorandum of Understandings
MPO	Metropolitan Planning Organization
NDOT	Nevada Department of Transportation
NDPS	Nevada Department of Public Safety
NN	Northern Nevada
NSP	Nevada State Police
RACI	Responsible, Accountable, Consulted, Informed
RFA	Request for Approach
RFP	Request for Proposals
RTC	Regional Transportation Commission
SLI	Signals, Lighting & ITS
SMART	Specific, Measurable, Achievable, Relevant, Time-bound
SN	Southern Nevada
TIM	Traffic Incident Management
TMC	Traffic Management Center
TSC	TSMO Steering Committee
TSMO	Transportation Systems Management and Operations
WASHTO	Western Association of State Highway and Transportation Officials

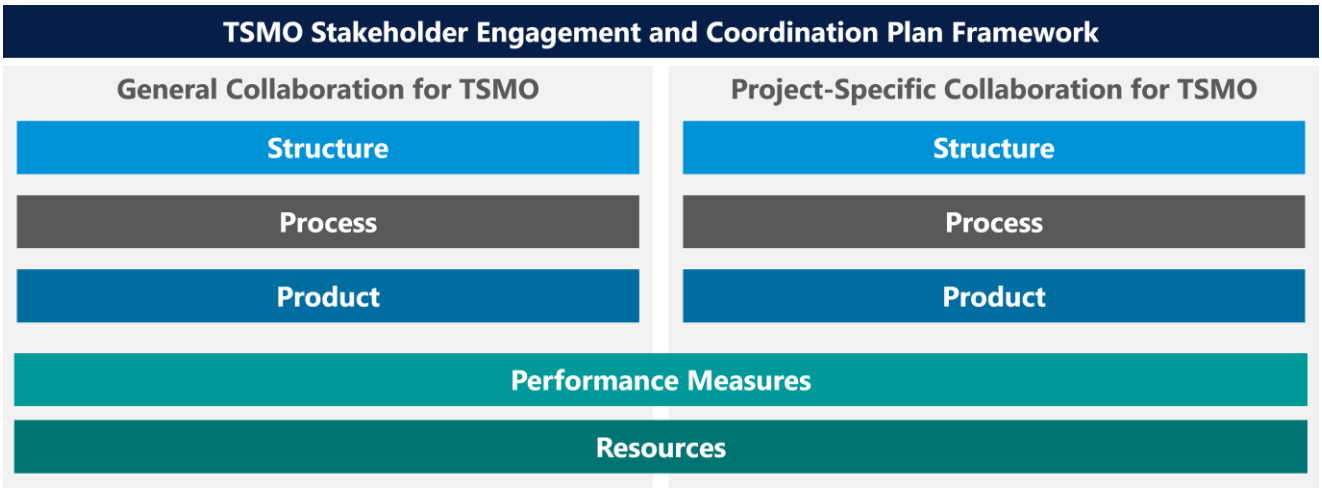
Executive Summary

Collaboration is a critical component which drives the success of Transportation Systems Management and Operations (TSMO) programs. Interagency and external stakeholder coordination must be formalized so that institutional processes can be passed down to junior team members who will, one day, serve as leaders. Formalization of these processes can benefit the Nevada Department of Transportation (NDOT) in the present by establishing a framework for when and why to engage partners. As part of NDOT TSMO Implementation Project, this Stakeholder Engagement plan serves to establish the coordination framework and ensure that appropriate stakeholders have a seat at the table.

The development of this plan is rooted by research processes which consider both local and national input. Statewide partners provided feedback on collaborative activities and how often they should occur; existing interagency agreements were evaluated to identify opportunities for optimization; and federal guidance from the Federal Highway Administration (FHWA) has been applied to recommend enhancements for the Department.

This stakeholder engagement plan establishes a framework for optimizing collaboration for general TSMO discussion and project-specific collaboration. As shown in Figure 1 the collaborative framework consists of five components: Structure, Process, Product, Performance Measures, Resources. These components will vary based on project demands and the processes detailed in this plan are flexible to accommodate project needs.

Figure 1. TSMO Stakeholder Engagement and Coordination Plan Framework



1. Introduction

The TSMO Stakeholder Engagement Plan builds on the decisions and implementation recommendations identified in NDOT's TSMO Program Plan (2020). Implementing the Stakeholder Engagement Plan supports the goal of the TSMO Program Plan to Enhance Collaboration which is defined as maximizing coordination and cooperation between NDOT divisions and partnering agencies to proactively manage and operate an integrated transportation system. The objectives identified in the TSMO Program Plan include:

- Collaboration across divisions and districts.
- Collaboration with external partner agencies.
- Coordination with neighboring states to proactively manage common transportation routes.

The framework set forth in this plan will provide NDOT and partner agencies with an approach to achieve the TSMO Program Plan goals and objectives through enhanced collaboration and includes research processes and findings used during plan development.

This plan also considers recommendations and action items included in the NDOT TSMO Implementation Performance Management Program, Staffing and Workforce Development Plan, and the Planning and Financial Processes Plan.

2. Research Processes

Developing and implementing the Stakeholder Engagement Plan supports the goal of the TSMO Program Plan to Enhance Collaboration, which is defined as maximizing coordination to proactively manage and operate an integrated transportation system. To evaluate the existing conditions and establish a better understanding of needs, NDOT performed the following steps in the research process:

- **Stakeholder Engagement:** solicit feedback from statewide stakeholders and identify ways to optimize collaboration.
- **Existing Interagency Agreements Review:** review existing agreements and terms and identify opportunities for TSMO integration, or development of new agreements.
- **Federal Guidance Documents Review:** research and adopt best practices for optimized collaboration.

The following subsections include a detailed description of the research process and findings.

2.1. Stakeholder Engagement

The project team solicited feedback from multiple stakeholders to identify if internal and external coordination and engagement could be optimized to support NDOT's TSMO implementation. Stakeholders were divided into two groups who participated via virtual interviews or through an online questionnaire. This is detailed in Table 1.

Table 1. Stakeholder Engagement Methodology

Participating Stakeholder	Engagement Method
Federal Highway Administration (FHWA)	Virtual Interview
Western Association of State Highway and Transportation Officials (WASHTO) TSMO Committee	Virtual Interview
Nevada State Police	Virtual Interview
NDOT Districts	On-line Questionnaire
Metropolitan Planning Organizations (MPOs)	On-line Questionnaire
Urban Counties	On-line Questionnaire
Urban Cities	On-line Questionnaire

Virtual Interviews were framed around four core questions:

1. What are the existing means of collaboration with NDOT related to TSMO?
2. How can we work together and break down silos to practice TSMO at a state-wide level?
3. What do you think should be included in our coordination plan?
4. What has been your experience regarding interagency agreements in support of TSMO projects/programs?

Online questionnaires obtained feedback from participants on the following topics:

1. Funding
2. Collaboration
3. Interagency Agreements
4. TSMO Strategy Implementation
5. State-wide efforts to achieve TSMO goals

The complete questionnaires are provided in Appendix A.

2.2. Interagency Agreements

The project team reviewed a list of current interagency agreements. These agreements were reviewed to identify if modifications should be recommended to incorporate TSMO elements. Interagency agreements that were reviewed are detailed in Table 2.

Table 2. Reviewed Interagency Agreements

Partnering Agency	Agreement Title	Date	Meeting Frequency
Regional Transportation Commission (RTC) of Southern Nevada	Interlocal agreement: Freeway and Arterial System of Transportation (FAST), Traffic Management Center (TMC), Freeway Management System (FMS)	August 2019	Monthly
• **Clark County Fire Department** • **Ely Fire Department** • **Ewing Bros Towing** • **Winnemucca Police Department** • **RTC of Southern Nevada** • **Traffic Incident Management (TIM) Coalition** • **Nevada Department of Public Safety (NDPS)**	TIM Open Roads Agreements and Memorandum of Understandings (MOU)	September 2017	Quarterly
NDPS	Quick Clearance for Safety and Mobility	March 2017	

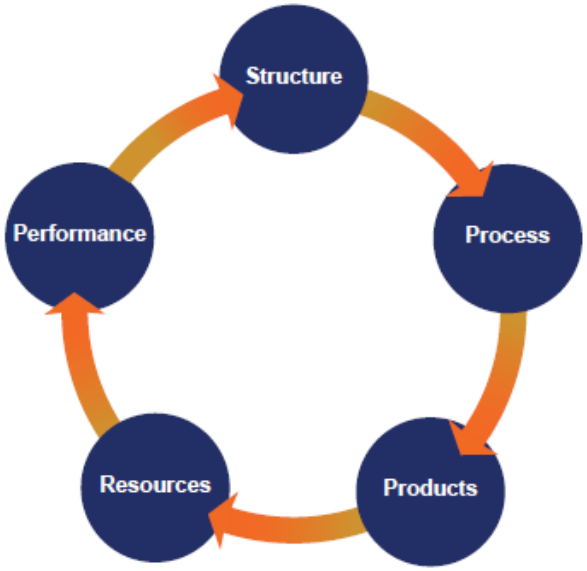
A complete list of existing interagency agreements including agreements that were not reviewed as part of this project is provided in Appendix B.

2.3. Federal Guidance Review

The project team researched and reviewed the Federal guidance documents that discuss or include best practices for TSMO collaboration. In "Planning for Transportation Systems Management and Operations within Subareas – A Desk Reference" the FHWA Office of Operations states that "Enhancing collaboration and coordination among agencies involved in TSMO within a subarea is vital to developing solutions for optimizing performance across the transportation network; this is particularly true in complex urban areas with many different operators and choices of modes and routes." Figure 2 provides the framework for collaboration and coordination in a subarea which can also be applied at a state-wide level.

Section 3 includes a detailed description and process of how this framework could be adapted by NDOT.

Figure 2. Diagram of the Framework for Collaboration

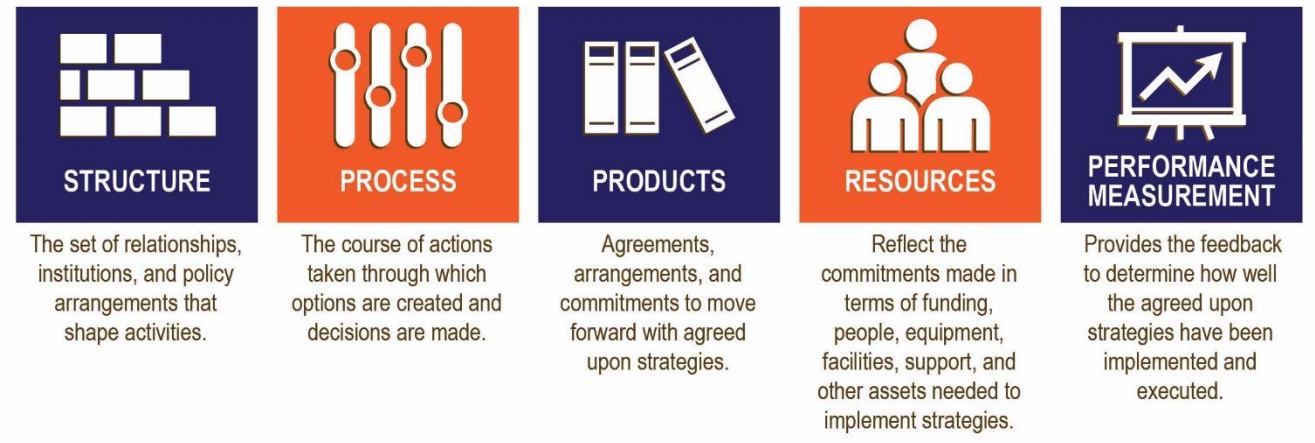


Source: FHWA. Regional Transportation Operations Collaboration and Coordination: A Primer for Working Together to Improve Transportation Safety, Reliability, and Security.

3. Plan Framework

The FHWA framework for collaboration and coordination has been adapted and applied at the state-wide level to ensure all NDOT stakeholders and partners are considered. This framework is shown in Figure 3.

Figure 3. Collaboration Framework for NDOT and Stakeholders



This framework has been applied to enhance collaboration with two approaches: 1) General TSMO Collaboration, and 2) Project-based Collaboration. The structure, process, and products are specific to each condition; however, both approaches share resources and performance measures.

The detailed components and recommendations for each approach are included in the following subsections.

3.1. General TSMO Collaboration Framework

The general TSMO collaboration framework has been developed to provide the stakeholders with opportunities to engage and participate in general TSMO discussions. The following sub-sections include the structure, process, and products, and the associated recommendations specific to these components.

3.1.1. STRUCTURE

The first component for enhancing regional or state-wide TSMO collaboration is to establish the *structure*. The structure of state-wide or regional collaboration includes the stakeholders and the relationship among stakeholders with regard to their roles and responsibilities within the structure. For example, the Nevada TIM Coalition has a defined structure which includes relevant stakeholders and their roles and responsibilities to support TIM based on the respective regions.

Before any initiative is established, the structure must be clearly defined. Examples of a structure can be a task force, committee, round table discussion, or identification of project team members.

The purpose of this plan is to enhance state-wide TSMO engagement and coordination and, as such, state-wide TSMO stakeholders and their respective contribution to TSMO are provided in Table 3.

Table 3. Nevada TSMO Stakeholders

Stakeholder	Type	Contribution to TSMO
FHWA	External	Guidance
NDOT Divisions	Internal	Implementation
NDOT Districts	Internal	Implementation
MPOs	External	Implementation
Cities	External	Implementation
Counties	External	Implementation
Nevada State Police (NSP) and NDPS	External	Enforcement
Public Information Office	Internal	Public Information and Outreach

There are several structures currently in place that support general TSMO discussions and implementation including the NDOT TSMO Steering Committee, the RTC of Southern Nevada TSMO Planning Steering Committee, and the Western Association of State Highway and Transportation Officials (WASHTO) TSMO Committee. These existing structures currently facilitate general TSMO discussions which include updates on TSMO implementation and regional or state-wide challenges and goals of TSMO, among other discussion items.

NDOT TSMO Steering Committee (TSC)

The NDOT TSC is currently comprised of various TSMO stakeholders within the state, including:

- NDOT Traffic Operations Division (lead)
- NDOT Divisions
- NDOT Districts
- RTC of Southern Nevada
- RTC of Washoe County
- Tahoe Transportation District
- Carson City
- FHWA

RTC of Southern Nevada TSMO Planning Steering Committee

The RTC of Southern Nevada TSMO Planning Steering Committee is currently comprised of various TSMO stakeholders within the Southern Nevada region, including:

- RTC of Southern Nevada (lead)
- NDOT Traffic Operations Division
- City of Las Vegas
- City of Henderson
- Clark County
- City of North Las Vegas

WASHTO TSMO Committee

The WASHTO TSMO Committee is currently working to formalize how frequently they meet and what topics should be discussed. NDOT has a very large presence in the committee as detailed in Table 4.

Table 4. NDOT Members of WASHTO TSMO Committee

NDOT Team Member	Position within NDOT
Rodney Schilling	Chief Traffic Operations Engineer
Seth Daniels	Asst. Chief Traffic Operations Engineer
Darin Tedford	Deputy Director, Project Delivery
Jenica Keller	Assistant Director, Operations
Jeff Lerud	Deputy Director, Operations & Maintenance

3.1.1.1. Structure Recommendations

The TSMO Performance Management Program Plan has established next steps derived from the 2020 TSMO Program Capability Maturity Model (CMM) with regard to Collaboration. These are listed in Table 5.

Table 5. 2020 CMM Actions to Progress in the Collaboration Dimension

Collaboration	Target
A. Regional committee: meet on a recurring basis	2024
B. Document established roles and responsibilities among partners and track performance	2024
C. Establish working group(s) responsible for mitigating challenges that may arise from private partnerships	2024

Similarly, the TSMO Planning and Financial Processes and Procedures also recommends meetings with stakeholders on a regular basis to discuss TSMO activities.

In accordance with these recommendations, action items, and stakeholders' feedback, it is recommended that NDOT build on the existing NDOT TSMO Steering Committee structure by including and expanding on the following state-wide partners in TSC discussions:

- NDOT Planning Division
- NDOT Design Division
- NDOT Traffic Safety Engineering Division
- NDOT Project Management Division
- Carson Area Metropolitan Planning Organization (CAMPO)
- Tahoe Regional Planning Agency
- Tahoe Transportation District
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- City of Reno
- City of Sparks
- Clark County
- Washoe County
- NDPS

Additionally, as NDOT continues to adopt the Staffing and Workforce Development Plan including five new dedicated TSMO positions, or as additional team members are included, there will be opportunities to engage more NDOT team members with the WASHTO TSMO Committee. NDOT could also encourage state-wide partners to become more engaged with the WASHTO TSMO Committee such that Nevada is represented by multiple stakeholders. This could be discussed during the TSMO Steering Committee meetings.

3.1.2. PROCESS

The next component for enhancing regional or state-wide TSMO collaboration is to establish the *process*. The process is the course of actions taken through which options are created and decisions are made.

The NDOT TSC currently meets quarterly to provide stakeholders with an update on their TSMO Implementation. These meetings, which are currently one hour in duration, could be expanded to allow all partners to provide TSMO updates and facilitate collaborative TSMO discussions.

Based on stakeholders' feedback, Table 6 details the meeting occurrence frequency desired by each interviewed partner.

Table 6. Desired Meeting Occurrence Frequency

Stakeholder	Desired Frequency
CAMPO	Quarterly
RTC of Southern Nevada	Biannual
RTC Washoe	Quarterly
Clark County	Biannual
City of Las Vegas	Quarterly
NDOT District 2	As-needed
NDOT District 3	Biannual
FHWA	Monthly

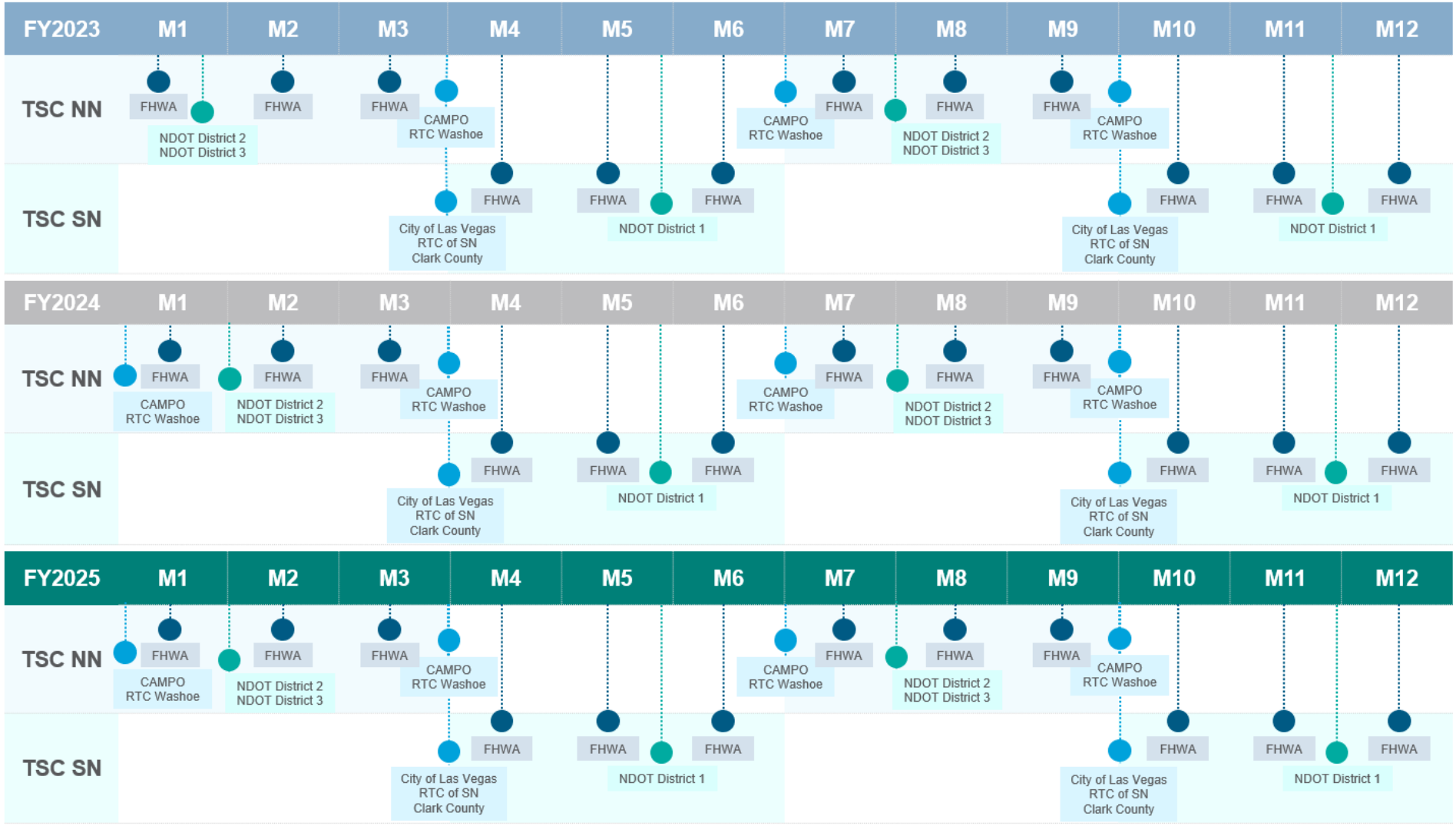
3.1.2.1. Process Recommendations

The following recommendations are based on stakeholder feedback and action items defined by both the TSMO Performance Management Program Plan and TSMO Planning and Financial Resources Processes and Procedures.

- Hold Quarterly TSC Meetings, alternating between Southern Nevada (SN) and Northern Nevada (NN) Regions.
- One month in advance of the TSC, the NDOT Traffic Operations Division's TSMO Coordinator should solicit agenda topics from appropriate TSC members.

Figure 4 shows an example of a 3-year meeting plan including region,frequency, and participating stakeholders. Internally, regular division head meetings and project development meetings should incorporate TSMO topics in accordance with the Planning and Financial Resources Processes and Procedures plan.

Figure 4. Example Meeting Plan



3.1.3. PRODUCTS

The next component in the framework is to identify *products* that will support TSMO implementation. These products are discussed collaboratively among relevant TSMO stakeholders. Products can include consensus of projects or strategies to implement, interagency agreements, resource challenges, funding, and more.

3.1.3.1. Products Recommendations

Based on stakeholder feedback and action items listed in the TSMO Staffing and Workforce Development Plan, TSMO Financial Resources Processes and Procedures, and the TSMO Performance Management Program Plan, a list of potential discussion topics for NDOT TSMO steering committee meetings may include:

- TSMO tactical elements (strategies) that are best for specific regions
- Interagency agreements
- Intelligent Transportation System (ITS) Architecture updates
- Pooling funds to avoid duplicate investments
- Targeted grants and approach to pursue
- Establish opportunities for joint training activities
- Approach to provide TSMO education for external stakeholder's Senior Leadership
- Resource sharing (i.e., taking advantage of special expertise or experience that may reside in some, but not all agencies)
- Project implementation resource needs
- Developing state-wide standards for technology
- Acquisition and maintenance of hardware and software systems
- Measuring performance with collaboratively agreed metrics
- Project selection and prioritization
- Project planning processes and procedures
- Project financial processes and procedures
- Private partnerships

A few of these topics were researched during stakeholder engagement and the findings are provided below.

3.1.3.2. NDOT TSMO Tactical Elements

Participating stakeholders were asked to identify which tactical elements identified in NDOT's TSMO Program Plan their agency is most likely to support. Their responses are shown in Figure 5 and Table 7.

Figure 5. External Agency Support of NDOT TSMO Tactical Elements

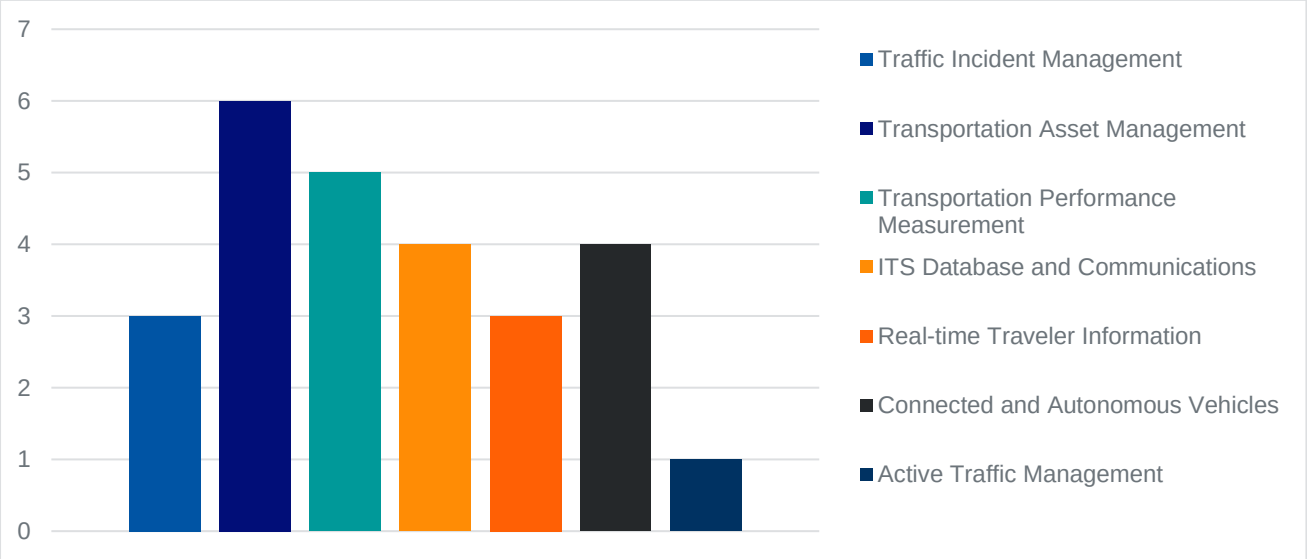


Table 7. External Agency Support of NCDOT TSMO Tactical Elements

	Traffic Incident Management	Transportation Asset Management	Transportation Performance Management	ITS Database and Communications	Real-time Traveler Information	Connected and Autonomous Vehicles	Active Traffic Management
Clark County	X	X	X	X		X	
Carson Area Metropolitan Planning Organization		X	X		X		
RTC of Southern Nevada	X	X	X	X	X	X	X
City of Las Vegas	X	X	X	X		X	
RTC Washoe			X	X	X	X	X
NDOT District 2	X	X	X	X	X	X	X
NDOT District 3	X	X	X	X	X	X	X

3.1.3.3. Interagency Agreements

The consultant team reviewed existing Interagency Agreements to identify if opportunities exist to amend existing agreements to consider TSMO elements. Additionally, stakeholders who participated during engagement activities provided feedback on where existing agreements should be modified or new agreements developed.

Modification of Existing Agreements

- Infrastructure agreements such as fiber sharing lay out important details such as maintenance responsibilities, but do not address standardized interagency operations to allow for measurement of performance between jurisdictions.
- NDOT-FAST agreement could be modified to include more performance-based measures.
- Interagency agreements for the entire state should consider cost sharing of user data (i.e., INRIX).
- CAMPO, RTC of Southern Nevada, and RTC Washoe suggested that existing agreements could be modified in support of NDOT TSMO Tactical Elements.
- All existing agreements could be modified to use consistent contract language.

New Agreements

- Standardization of information shared between agencies (i.e., real time traveler information, performance measurement).
- Documentation and agreement of state-wide technology standards.
- Agreement with municipalities to expedite the permitting process.
- Additional agreements for infrastructure sharing (i.e., fiber sharing).
- Documentation and agreement of state-wide TSMO performance measures.
- Agreements to facilitate implementation of NDOT TSMO Tactical Elements (i.e., ITS Database and Communications Agreements).

3.1.3.4. Joint Training

All external partners that participated in questionnaires and interviews are interested in joint TSMO training opportunities. As NDOT continues to roll out the TSMO Training Program and the Performance Management Program, the TSC should discuss ways to engage all partners.

3.2. Project-Based Framework

The project-based collaboration framework has been developed to provide the stakeholders with opportunities to engage and participate in project-specific TSMO discussions. The following sub-sections include the structure, process, products, and associated recommendations specific to these components.

3.2.1. STRUCTURE

A project-based *structure* is comprised of the project team and includes roles and responsibilities for each team member. Team members for projects vary and, as such, a defined structure will not be presented in this plan. However, it is critical that specific NDOT team members are included in the project team structure. These team members include:

- Agency Project Manager(s)
- Stakeholders' Project Team (as appropriate)
- NDOT Planning Division
- NDOT Traffic Operations Division
    - TSMO Project Manager
    - TSMO Modelling Specialist
    - TSMO Data Analyst
    - TSMO Performance Manager
    - TSMO Coordinator

The Staffing and Workforce Development Plan includes five new dedicated TSMO positions. Each of these positions with their responsibilities specific to internal and external collaboration is shown in Table 8.

Table 8. NDOT TSMO Position Collaboration Responsibilities

TSMO Position	Collaboration Responsibilities	Collaborative Partner
TSMO Project Manager	Assisting in the development of Signals, Lighting, and ITS aspects of TSMO business and related plans to guide resource allocation and achieve unit performance targets.	TSMO Performance Manager NDOT Signals, Lighting & ITS (SLI) Group
	Assisting in development and management of ITS-related strategies that support TSMO functions and/or relate to performance targets. This includes, but is not limited to, ITS maintenance agreements (interlocal agreements with agencies), and contractor support services for asset management and maintenance).	TSMO Performance Manager NDOT Maintenance External Stakeholders NDOT Administrative Services
	Attending planning, project, and interagency meetings as a representative of the Traffic Operations Division and as expert on TSMO infrastructure, devices, and implementation. Ensuring appropriate information is given in meetings and proper data is collected during field reviews. Questions and problems shall be resolved to the satisfaction of all involved parties and stakeholders.	Internal and External Stakeholders
	Developing and managing SLI TSMO programs, scopes, schedules, and budget for projects and agreements. Ensure projects and tasks are assigned utilizing available resources and the appropriate actions are taken to maintain project schedules and budgets.	Internal Stakeholders
	Collaborating with NDOT team members and other partnering agencies to ensure projects are aligned with established TSMO goals and objectives. Coordinate with all internal and external stakeholders to assist in mitigating any project issues or conflicts that may arise.	Internal and External Stakeholders
	Effectively managing and administering SLI TSMO agreements to ensure accurate and timely completion of projects and programs. This includes developing Requests for Proposal (RFPs) and Requests for Approach (RFAs) for consultant services and ITS maintenance services.	NDOT SLI Group External Stakeholders NDOT Administrative Services
	Keeping the department informed on upcoming SLI technology that supports TSMO strategies.	Internal Stakeholders
TSMO Modeling Specialist	Advocate for the appropriate TSMO countermeasures during the planning, design, and construction of highway projects as appropriate.	Internal and External Stakeholders
	Utilize big data to analyze benefits of ITS of TSMO strategies and implement if feasible.	Internal and External Stakeholders
	Responsible for performing the operational analysis, review, and comment on traffic studies, representing the department in meetings with federal, state, and local units of government.	Internal and External Stakeholders

TSMO Position	Collaboration Responsibilities	Collaborative Partner
TSMO Modeling Specialist (continued)	Perform operations analysis based on federal and state policies and providing geometric recommendations for roadway design projects to designers based on operational analysis results.	Internal and External Stakeholders
	Review and comment on traffic studies associated with proposed developments, freeway interchanges, and freeway corridors, and provide the recommendations in a timely manner to promote effective design.	Internal and External Stakeholders
	Review and develop/code traffic simulation and analysis models (e.g., VISSIM, Aimsun-Next, Sidra Solutions, and Synchro) to create information for transportation planning, scoping, and operational projects.	Internal and External Stakeholders
	Represent the department in meetings and hearings with federal, state, and local units of government. Effectively participating on committees, working groups, and technical panels to provide technical assistance in operational analysis of projects.	Internal and External Stakeholders
TSMO Coordinator	Provide supervision and leadership of selected team members in the ITS Programs and Operations section. This includes evaluating employee work, providing guidance, scheduling, training, and disciplinary action, as needed and in conjunction with state human resources procedures.	ITS Programs and Operations Section
	Develop, implement, and maintain policies, guidelines, standards, manuals, and procedures related to TSMO and ensure the associated daily operations meet the needs and requirements of the division and the department. This includes ensuring TSMO business processes are current and up to date and evaluate/report on their effectiveness.	Internal Stakeholders
	Develop and monitor performance measures of deployed TSMO strategies, program benefit/cost analyses, and performance reports as required.	TSMO Performance Manager NDOT Divisions
	Provide information and education regarding the principles of the TSMO program, ensure they are effectively incorporated throughout the department, and prepare activity and progress reports containing milestones.	Internal Stakeholders
	Collaborate with partnering agencies to identify opportunities for TSMO strategies and project implementation at a statewide level.	External Stakeholders
	Lead the TSMO Steering Committee meetings, develop meeting materials, agenda, and notes, and ensure TSMO Program elements, performance measures, and functions are being implemented.	TSC Members
	Assist division managers and supervise team members in TSMO responsibilities and activities and provide training for technical staff pertaining to TSMO duties.	NDOT Divisions

TSMO Position	Collaboration Responsibilities	Collaborative Partner
TSMO Coordinator (continued)	Identify opportunities to integrate TSMO strategies during scoping, planning, design, construction, operations, and maintenance of projects as applicable.	TSMO Project Manager NDOT Divisions
	Provide clear leadership for team members in researching, developing, and implementing clear concise policies and guidelines with statewide consistency while recognizing the needs of the individual districts and other affected agencies and entities.	Internal Stakeholders
	Effectively collaborate with internal and external stakeholders to ensure the documents conform to the mission and goals of the department and any applicable policies or regulations.	Internal and External Stakeholders
	Oversee project-oriented benefit/cost analyses and the development of performance measure reports in a format that is easily conveyed to the targeted audience.	TSMO Data Analyst TSMO Project Manager TSMO Performance Manager
	Assist and support the Principal ITS Programs Engineer with personnel, budget, programs, and operational aspects of the ITS Programs and Operations Section and the Traffic Operations Division.	ITS Programs Engineer Internal Stakeholders
TSMO Data Analyst	Utilize big data to support and secure funding for TSMO applications, functions, and infrastructure, as well as develop strategies to ensure funding and resources are utilized in the most cost effective and beneficial manner.	Internal and External Stakeholders
	Support the development and implementation of data management, data sharing, and data use policies and protocols.	Internal and External Stakeholders
	Extract, organize, analyze, integrate, and communicate information from the variety of available resources within the department in order to develop data-driven recommendations to ensure resources and funding are utilized in the most cost-effective manner.	Internal and External Stakeholders
	Develop and manage data acquisition/utilization and analysis performed by consultants and vendors, as well as internal and external agreements that support TSMO applications and functions related to performance targets.	Internal and External Stakeholders
	Develop a data utilization and applicability work plan for the division in alignment with TSMO performance measures, to accurately measure the performance and viability of programs and projects and be used to support informed decisions in coordination with agency transportation planning staff.	TSMO Performance Manager TSMO Project Manager NDOT Planning Division

TSMO Position	Collaboration Responsibilities	Collaborative Partner
TSMO Data Analyst (continued)	Monitor, track, and analyze data in alignment with TSMO strategies and performance measures, identify opportunities to integrate data and performance measures into the wider Department performance management activities.	TSMO Performance Manager
	Conduct project-oriented benefit/cost analyses and the development of performance measure reports in a format that is easily conveyed to the targeted audience.	TSMO Performance Manager TSMO Project Manager NDOT Divisions
	Provide clear leadership for team members in researching, developing, and implementing clear concise policies and guidelines with statewide consistency while recognizing the needs of the individual districts and other affected agencies and entities.	Internal and External Stakeholders
	Effectively collaborate with internal and external stakeholders to ensure the documents conform to the mission and goals of the department and any applicable policies or regulations.	External Stakeholders
	Collaborate with department team members and other partnering agencies to ensure scopes are aligned with established goals and objectives. Coordinate with all internal and external stakeholders to assist in mitigating any project issues or conflicts that may arise.	Internal and External Stakeholders
	Effectively manage and administer agreements to ensure accurate and timely completion of projects and programs.	TSMO Project Manager TSMO Coordinator Internal and External Stakeholders
TSMO Performance Manager	Provide supervision and leadership of selected team members in the Intelligent Transportation Systems (ITS) Programs and Operations section. This includes evaluating employee work, providing guidance, scheduling, training, and disciplinary action, as needed and in conjunction with state HR procedures.	Internal and External Stakeholders
	Utilize data to support and secure funding for TSMO applications, functions, and infrastructure, as well as develop strategies to ensure funding and resources are utilized in the most cost effective and beneficial manner.	Internal and External Stakeholders
	Develop and implement data acquisition/use aspects of TSMO business and related plans to guide resource allocation and achieve unit performance targets.	TSMO Data Analyst NDOT Divisions
	Perform duties as a technical advisor on the use of traffic and ITS data, standards, policies, and best practices.	Internal and External Stakeholders
	Identify emerging technologies that enable performance-driven decision-making processes and determine opportunities to integrate them into the division's performance management practices and processes.	Internal Stakeholders

TSMO Position	Collaboration Responsibilities	Collaborative Partner
TSMO Performance Manager (continued)	Develop a data utilization and applicability work plan for the division, in alignment with TSMO performance measures, to accurately measure the performance and viability of programs and projects and be used to support informed decisions in coordination with agency transportation planning staff.	TSMO Project Manager NDOT Divisions
	Provide clear leadership for team members in researching, developing, and implementing clear concise policies and guidelines with statewide consistency while recognizing the needs of the individual districts and other affected agencies and entities.	Internal Stakeholders
	Collaborate with internal and external stakeholders to ensure the documents conform to the mission and goals of the department and any applicable policies or regulations.	Internal and External Stakeholders
	Oversee project-oriented benefit/cost analyses and the development of performance measure reports in a format that is easily conveyed to the targeted audience.	TSMO Performance Manager NDOT Divisions
	Work with the department and internal and external stakeholders to integrate performance measurement and management into decision-making business processes.	Internal and External Stakeholders

3.2.2. PRODUCTS

The next component in the framework is to identify *products* that will support TSMO implementation.
These products are discussed collaboratively among relevant TSMO stakeholders during project meetings. The products of a project-based engagement may include:

- Regional consensus on project goals, objectives, and performance criteria
- Project implementation resource needs
- Project selection and prioritization
- Project planning processes and procedures
- Project financial processes and procedures
- Resource sharing (i.e., taking advantage of special expertise or experience that may reside in some, but not all agencies)
- Construction Plans

3.2.3. PROCESS

TSMO projects and associated components should be discussed during planning, scoping, procurement, and deployment stages of the project development process. The project-based *process* for collaboration is provided in Table 9.

Table 9. Project-based Process for Collaboration

Action	Responsible Party	Example Applicable TSMO Tools / Methods of Engagement
Develop Project Scope	NDOT Project Manager, TSMO Modeling Specialist, TSMO Data Analyst, TSMO Coordinator, NDOT Planning Division	ONE Nevada TSMO Evaluation Tool
Identify Project Team	NDOT Project Manager, TSMO Project Manager	Responsible, Accountable, Consulted, Informed (RACI) Matrix TSC Meetings
Establish Reoccurring Project Meetings	NDOT Project Manager, TSMO Project Manager	TSC Meetings (as well as other applicable meetings)
Establish Roles and Responsibilities	TSMO Project Manager, TSMO Project Manager	RACI Matrix
Establish Project/Asset Performance Metrics	TSMO Project Manager, NDOT Project Manager, TSMO Data Analyst, TSMO Performance Manager	Reliability-Centered Maintenance Tool
Establish Operations and Maintenance Agreements	NDOT Project Manager, TSMO Project Manager, TSMO Program Coordinator	TSC Meetings

An example RACI matrix is shown in Table 10.

Table 10. Example RACI Matrix

Stakeholder	Responsible	Accountable	Consulted	Informed	Update Frequency
FHWA			**X**	**X**	As-Needed/ Project-Based
NSP		**X**	**X**	**X**	
MPOs	**X**	**X**	**X**	**X**	
Cities			**X**	**X**	
Counties				**X**	
NDOT Divisions	**X**	**X**	**X**	**X**	
NDOT Districts	**X**	**X**	**X**	**X**	

3.3. Resources

Resources are the commitments made in terms of funding, people, equipment, facilities, support, and other assets needed to implement strategies. These should be identified during NDOT TSC meetings or Project-based meetings and managed throughout the project lifecycle. Review of resources should also be considered as a discussion topic during the project-specific meetings.

3.4. Performance Measurement

Performance measurement provides the feedback to determine how well the agreed upon strategies have been implemented and executed. Table 11 provides the Performance Measures for enhancing collaboration as identified in the TSMO Program Plan.

As agenda items from TSC meetings are put in motion, the TSC members should identify and discuss the appropriate or additional performance criteria for project implementation. All relevant activities and decisions must be in alignment with the performance management and measurement process developed within the TSMO Performance Management Program Plan.

Table 11. Performance Measures for Enhancing Collaboration

Strategic Goal	Program Objective	Performance Measures	Data Source
Enhance Collaboration	• Collaborate across divisions and districts. • Collaborate with external partner agencies. • Coordinate with neighboring states to proactively manage common transportation routes.	• Additional scheduled TSC meetings annually • Increased participation with TSMO • Additional relevant agreements with partners and neighboring states • Use of collaboration tools • Results from surveys and questionnaires • Participation in TIM coalition meetings	• Success of collaborative policies with internal and external stakeholders (this may include shared agreements, MOUs, etc.) • CMM assessments • Success of participation in interagency meetings • Feedback from internal and external stakeholders (may include surveys or questionnaires) • Number of integrated strategies with internal and external stakeholders

Appendix A. Stakeholder Engagement Questionnaire

MPOs, Urban Cities, Urban Counties Questionnaire

1. If your agency has existing Interagency Agreements with NDOT, are there any components that could be added to better support TSMO projects/programs?
    a. Open answer
2. Are there any new interagency agreements that could be developed to enhance TSMO collaboration between NDOT and your agency?
    a. Open answer
3. Which tactical elements identified in NDOT's TSMO Program Plan is your agency most likely to support? (Select all that apply)
    a. Traffic Incident Management
    b. Transportation Asset Management
    c. Transportation Performance Management
    d. ITS Database and Communications
    e. Real-time Traveler Information
    f. Connected and Automate Vehicles
    g. Active Traffic Management
4. What modifications to interagency agreements are required for your agency to support your selections from question 3?
    a. New interagency agreements
    b. Modification of existing interagency agreements
        i. Which ones?
5. Would it be beneficial to your agency to document region/statewide TSMO performance measures through interagency agreements?
    a. Yes
    b. No
    c. Additional Comments
6. Is there a formal process for pooling funds with NDOT for TSMO projects/programs?
    a. Yes
    b. No, but my agency is interested
    c. No and my agency is not interested
    d. Additional Comments
7. Are there specific challenges to pooling funds with NDOT?
    a. Open Answer
8. How can NDOT support your agency in obtaining buy-in from your senior leadership to support the state's TSMO Program?
    a. Open answer
9. Do you have any comments or thoughts on how multi-agency TSMO collaboration can be optimized or improved?
    a. Open answer
10. How often *would you like* to collaborate with NDOT for TSMO implementation activities?
    a. Project-based only
    b. Bi-monthly
    c. Quarterly
    d. Twice a year
    e. Additional Comments

11. Are there notable challenges to collaborating with NDOT for TSMO?
    a. Open answer
12. Is your agency interested in working with NDOT to develop standard processes and procedures for TSMO Implementation?
    a. Yes
    b. No
    c. Additional Comments
13. Are there any specific topics that should be discussed during TSMO implementation activities?
    a. Open answer
14. Does your agency assist with Regional ITS Architecture Updates?
    a. Yes
    b. No
    c. Additional Comments:
15. Are there existing interagency agreements that could be modified, or new interagency agreements developed, to enhance interagency data sharing?
    a. Open Answer
16. Are there existing interagency agreements that could be modified, or new interagency agreements developed, for technology standards?
    a. Open Answer
17. Is your agency interested in participating in the NDOT TSMO trainings?
    a. Yes
    b. No
    c. Maybe

NDOT District Questionnaire

1. Are there any components that could be added to existing interagency agreements to better support TSMO operations and maintenance?
    a. Yes
    b. No
    c. Additional Comments
2. Are there any new interagency agreements that should be developed to support regional TSMO operations and maintenance?
    a. Yes
    b. No
    c. Additional Comments
3. How can the NDOT Traffic Operations Division support your District in optimizing your existing maintenance contracts?
    a. Open Answer
4. Which of the below tactical elements identified in NDOT's TSMO Program Plan could be beneficial to your district/region? (Select all that apply)
    a. Traffic Incident Management
    b. Transportation Asset Management
    c. Transportation Performance Management
    d. ITS Database and Communications
    e. Real-time Traveler Information
    f. Connected and Automate Vehicles
    g. Active Traffic Management

5. Are modifications to interagency agreements required to obtain support from regional stakeholders for the tactical elements from question 3?
    a. New interagency agreements
    b. Modification of existing interagency agreements
        1. Which ones?
6. How can internal collaboration with NDOT Traffic Operations Division be enhanced to support your district with TSMO implementation activities (i.e., projects, programs)?
    a. Open Answer
7. How often would you like to collaborate internally with NDOT Traffic Operations Division regarding TSMO implementation activities (such as projects, programs, etc.)?
    b. Project-based only
    c. Bi-monthly
    d. Quarterly
    e. Twice a year
    f. Additional Comments
8. Please provide any comments on external collaboration with stakeholders. Comments can include specific challenges, needs, best practices, or opportunities to enhance external collaboration in your district.
    a. Open Answer

Appendix B. List of Existing Interagency Agreements

Partnering Agency	Agreement Title	Date	Meeting Frequency
Regional Transportation Commission of Southern Nevada	Interlocal agreement: FAST, TMC, FMS	August 2019	Monthly
Regional Transportation Commission of Southern Nevada	NDOT-RTC FAST-Waycare Agreement (interlocal)		Monthly
Various	I-15 Alliance/MCOM (Multi State Corridor Operations and Management)		Quarterly
-California **-Utah** **-Nebraska** **-Wyoming**	I-80 MCOM Interagency Agreements		Quarterly
-Clark County Fire Department **-Ely Fire Department** **-Ewing Bros Towing** **-Winnemucca Police Department** **-Regional Transportation Commission of Southern Nevada** **-TIM Coalition** **-Nevada Department of Public Safety**	TIM Open Roads Agreements (MOUs)	Septembe r 2017	Quarterly
Various	ATCMTD Grant (interlocal)		TBD
Various	Tropicana INFRA Grant (interlocal)		TBD
Various	TMC Pooled Fund Study		Quarterly and Annual
Various	Signal maintenance agreements		As needed
Various	Western States Rural Transportation Consortium (Rural ITS pooled fund study)		Annual
- Nevada System of Higher Education (NSHE) **- Enterprise IT Services (EITS)**	EITS-NSHE-NDOT Communication Agreement		As needed and project driven
Various	NSRS (Nevada Shared Radio System) Agreement		Monthly
Nevada Department of Public Safety	Quick Clearance for Safety and Mobility	March 2017	