

# A COLLABORATIVE EFFORT TO DEVELOP THE NDOT COMPREHENSIVE TSMO BUSINESS CASE

By: Nevada Department of Transportation (NDOT)

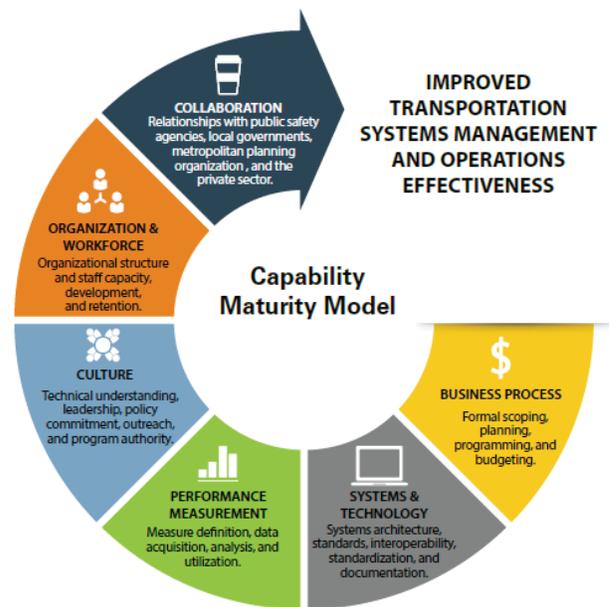
## IN THIS CASE STUDY YOU WILL LEARN:

1. How Nevada's initial capability maturity model (CMM) workshop indicated there was a need for a much stronger understanding of TSMO within the agency, which led to the development of a Comprehensive TSMO Business Case.
2. The first step in developing the TSMO Business Case was to narrow down the transportation challenges Nevada had already developed in the Statewide Transportation Plan.
3. The TSMO Business Case improved Nevada's CMM score.

## BACKGROUND

The Nevada Department of Transportation (NDOT) in collaboration with Atkins North America Inc. is developing a Transportation Systems Management and Operations (TSMO) Implementation Plan with the goal of integrating TSMO throughout NDOT and all partnering agencies across the state. The first step for NDOT on its journey toward TSMO was the 2014 Capability Maturity Model (CMM) self-assessment workshop. Under the supervision of the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO), and through research conducted by the second Strategic Highway Research Program (SHRP2), NDOT was one of the first DOTs selected to undertake a self-assessment workshop to evaluate the effectiveness of Nevada's transportation systems management and operations. The assessment used the CMM as a tool and evaluated the extent and effectiveness of TSMO activities under six key dimensions: Collaboration, Organization & Workforce, Culture, Performance Measurement, Systems and Technology, and Business Processes.

Based on the results of the December 2014 CMM for both the Culture and Collaboration dimensions—two of the six CMM dimensions, NDOT scored itself at a Level 1 of four possible levels. These results indicated that there was very little understanding of TSMO across the agency, and that very little collaboration was going on internally and between divisions. The Traffic Operations Division took the development of the Comprehensive TSMO Business Case as an opportunity to help



grow within the Culture and Collaboration dimensions and develop a Comprehensive TSMO Business Case that could be supported by all NDOT divisions.

## COLLABORATION

As part of the implementation plan and the development of the TSMO Program, NDOT established two guiding committees: the Senior Nevada Leadership (SNL) committee and the TSMO Champions Team (TCT).

The SNL committee includes NDOT's Director, deputy directors, and assistant directors to ensure top-down strategic support for the implementation of TSMO. This group was engaged in the initial stages of the development process and educated on the benefits of TSMO and how their support of the TSMO initiative would help the successful implementation of the statewide TSMO Program. With the support of the SNL, the Traffic Operations Division focused on the establishment and subsequent engagement of the TCT. The TCT includes members from all the major NDOT divisions as well as the district traffic engineers. This group has been engaged on a regular basis to develop an understanding of TSMO, educated on the benefits and need for TSMO, and is helping to shape TSMO within NDOT.

## CASE STUDY: A COLLABORATIVE EFFORT TO DEVELOP THE NDOT COMPREHENSIVE TSMO BUSINESS CASE

The TCT has provided overall guidance on the transportation challenges that Nevada faces, as well as meaningful feedback on how TSMO can help to overcome those challenges.

Multiple work sessions were held with the TCT, which helped to better educate other divisions on TSMO. In developing the building blocks for a TSMO culture across NDOT, the sessions have helped to improve collaborative efforts and communication across divisions.

### COMMUNICATIONS PLANNING AND EXECUTION

After the TCT was organized, the first order of business was to educate the members and establish a basic working knowledge of TSMO. Separate meetings were held over the course of several months to educate the TCT members and obtain comments and consensus on work products. Examples of these meetings included: Introduction to TSMO (TSMO 101), FHWA TSMO Program Planning, A Work Session with the Iowa DOT and Operations Manager Scott Marler regarding practical TSMO planning and implementation.

The development of the Comprehensive TSMO Business Case was the culmination of the initial efforts of the TCT. The initial steps in developing the Comprehensive TSMO Business Case were to narrow down the transportation challenges Nevada had already developed in the Statewide Transportation Plan (STP), which were further elaborated in other literature such as The Road Information Program Report (TRIP). While many challenges were identified, it was important to understand that not all of these challenges were being addressed currently by TSMO strategies. Instead, by applying TSMO strategies, TSMO could contribute significantly toward overcoming these challenges. Based on research and discussions with the TCT, the following challenge areas were identified to be included in the Comprehensive TSMO Business Case:

- Population growth
- Tourism-based economy
- Congestion
- Increase in Vehicle Miles Traveled (VMT)
- Deficient roads and bridges
- Safety
- Freight movement
- Asset and performance management

Each challenge area was then evaluated to determine the specific problems, the need to solve the specific issues associated with that challenge, and the benefit of addressing that challenge through TSMO strategies and solutions. For each challenge, practical examples were included of how TSMO solutions had been successfully implemented either in Nevada or across the country.

### OUTCOMES

The creation of the SNL and TCT groups was an important collaborative effort in the development of the TSMO Implementation Plan. The SNL provided the sufficient level of urgency at the strategic levels to create

an inclusive and functioning TCT. When the TCT developed a basic understanding of TSMO strategies and principles, they had the proper perspective to provide meaningful comments on the Comprehensive TSMO Business Case. Lastly, the TCT helped to improve NDOT's CMM maturity in both the Collaboration and Culture dimensions. The creation of the TCT alone was a strong step in the right direction; when multiple members of the TCT showed their understanding of basic TSMO principles, it helped move the needle in the correct direction for improvement.

The final product of the Comprehensive TSMO Business Case is unique in many ways. TSMO may address congestion directly, but when mainstreamed, it will indirectly address multiple transportation challenges. Providing real examples of TSMO strategies/solutions and TSMO success stories, both within Nevada and nationwide, was proof of TSMO's undeniable contribution in solving transportation challenges at all levels.

Another significant outcome was that the NDOT Traffic Operations Division developed a stronger working relationship with the Transportation Planning Division. Both divisions better understood there are multiple opportunities to share pertinent data and develop more realistic and functional performance measures that will benefit NDOT and the traveling public.

### BENEFITS

NDOT is currently implementing an Advanced Traffic Management System on I-15 as part of Project Neon. This system will inform drivers of incidents on the corridor, helping them make informed decisions to choose a safer and shorter route to their destination and thereby reduce the chance of secondary crashes. Similar systems have seen a reduction in secondary accidents of up to 20%.

In 2018, NDOT will be restriping the I-515/I-215 interchange for the southbound to westbound movement. This solution will improve roadway efficiency, delay the need for major rehabilitation and reconstruction, increase safety, and improve mobility at the cost of approximately \$800,000, which is substantially lower than the cost to rebuild the entire interchange.

Nevada DOT implemented this effective TSMO strategy to more efficiently detect, respond to, and resolve traffic incidents to restore traffic capacity as safely and quickly as possible through planned and coordinated processes between various public agencies and private sectors.

NDOT's Traffic Operations group developed a comprehensive database of ITS and communication devices. This database provides real time information on the conditions and performance of ITS assets that helps to efficiently operate NDOT roadways.

### FURTHER INFORMATION

NOCoE Knowledge Center: <https://transportationops.org/knowledge-center>