

Visualizing Asset Management in New Mexico

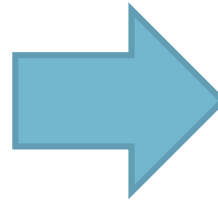
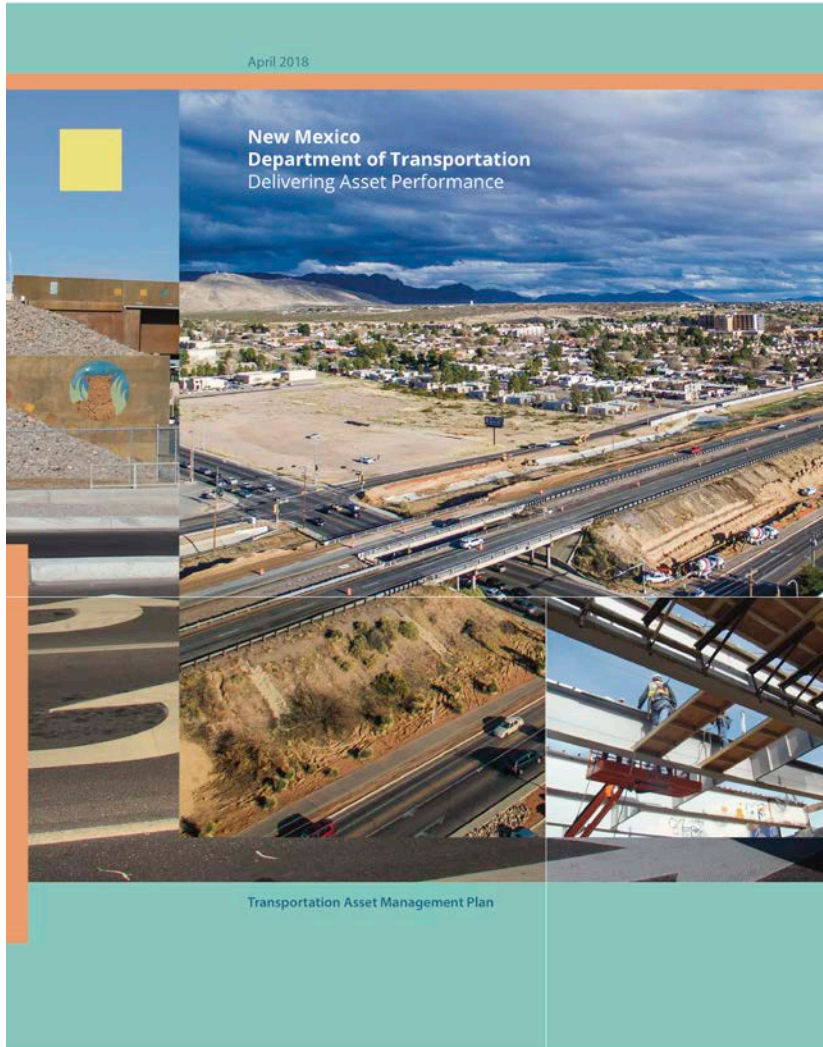


TRB Asset Management Conference
San Diego, California

Tamara Haas, New Mexico DOT, Hyun-A Park, Spy Pond Partners, LLC

July 16, 2018

NMDOT TAMP Communications



New Mexico Department of Transportation Online Transportation Asset Management Plan



Part I: Where Are We Now?

Part II: Where Are We Headed?

Part III: How Do We Get There?

Bridge Performance Measures

NMDOT follows FHWA NBI standards for inspecting all bridges on public routes in New Mexico except for federally owned bridges. Inspectors record overall ratings for a bridge's deck, superstructure, and substructure on a scale from 0 (failed) to 9 (excellent condition). Structures classified as culverts are included in the inventory if they are longer than 20 feet. For these structures, a single culvert rating is recorded using the same 0-9 scale.

Bridge condition ratings are used to classify the bridge as being in good, fair or poor condition. The lowest of the three ratings for deck, superstructure and substructure determines the rating. If this value is 7 or greater the bridge is classified as being in good condition. If it is 5 or 6 the bridge is classified as being in fair condition, and if it is 4 or less the bridge is classified as being in poor condition. A bridge in poor condition is considered Structurally Deficient (SD). While a bridge may be classified as SD, this does not mean that the bridge is unsafe, rather that deficiencies have been identified that require maintenance, rehabilitation or replacement.

NMDOT also performs element-level inspections that provide additional detail on individual components of a bridge. Element-level information is not factored into designation of SD or good-fair-poor condition ratings.

Bridge Condition

The table on the right summarizes the condition of the NMDOT-owned NHS and non-NHS bridge inventory and the locally owned NHS bridge inventory. The conditions are summarized by the percent of bridges in good, fair and poor condition, weighted by deck area. 95.5% of NMDOT's bridges (weighted by deck area) are in good or fair condition and 4.5% are in poor condition.

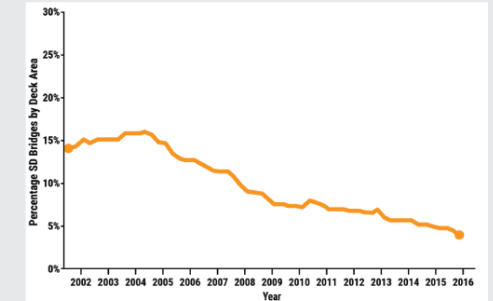
As shown in the graph on the right, New Mexico bridge condition has been steadily improving since 2004. The percentage of NMDOT bridges (weighted by deck area) classified as poor or SD has decreased from a high of over 16% in 2004 to less than 5% today. During this time, NMDOT has made a considerable investment in bridge preservation by funding rehabilitation projects to address bridges in poor condition and preventive maintenance projects to extend the service life of bridges in fair or good condition.

New Mexico Bridge Conditions

Owner	NHS Designation	Percent of Deck Area		
		Good	Fair	Poor
NMDOT	NHS	39.2%	57.5%	3.3%
	Non-NHS	37.4%	55.6%	7.0%
	Total	38.6%	56.9%	4.5%
Locally Owned	NHS	8.8%	89.8%	1.4%
NMDOT + Locally Owned	NHS	37.0%	59.9%	3.1%

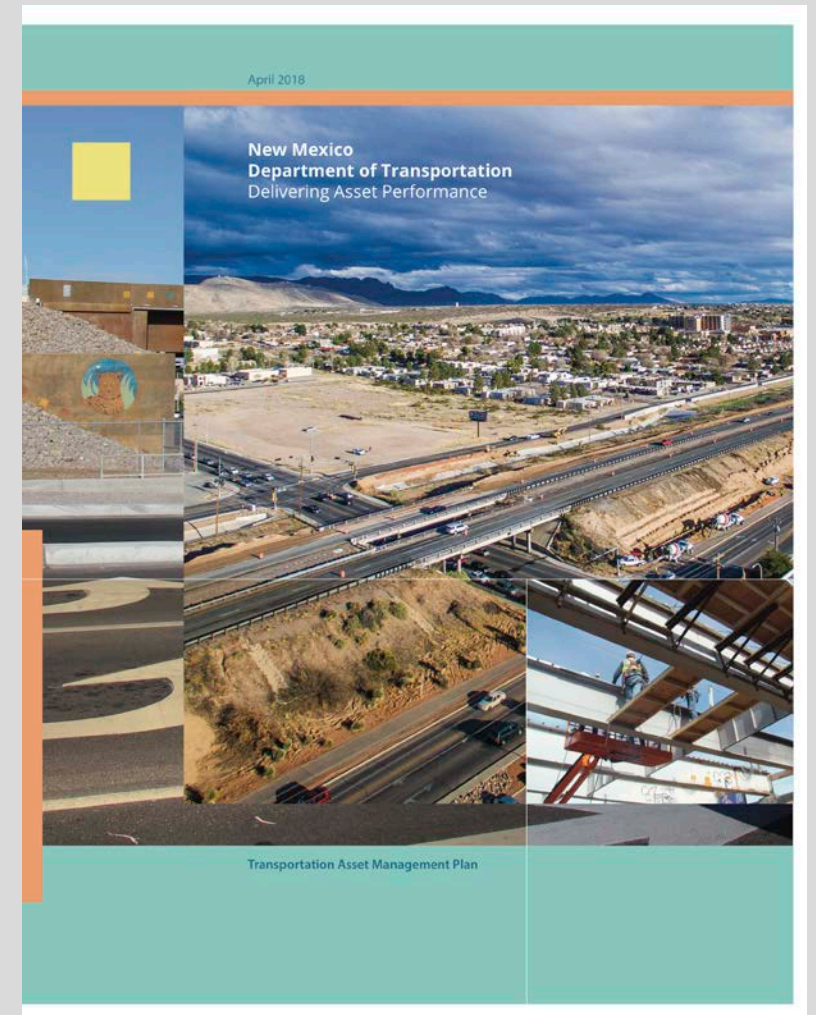
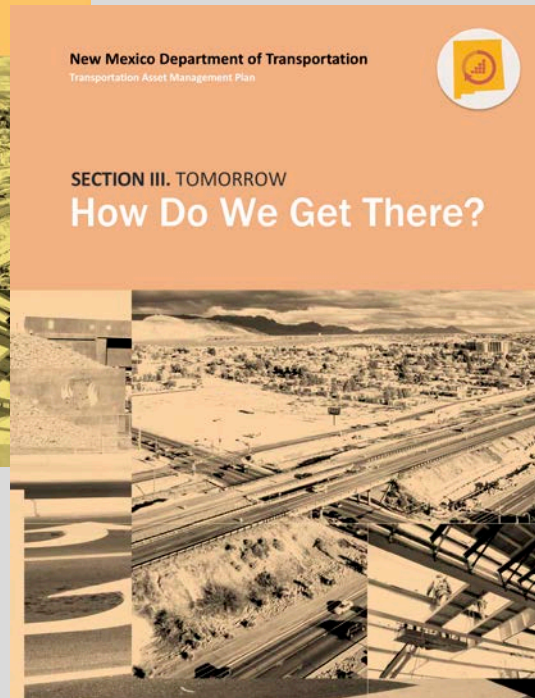
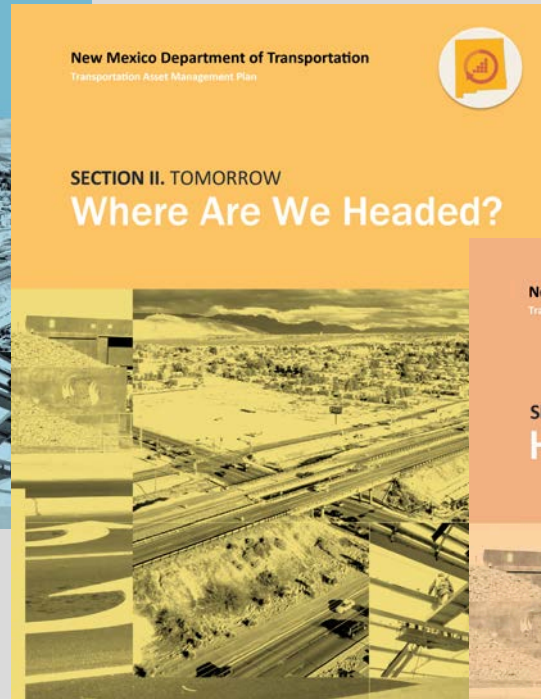
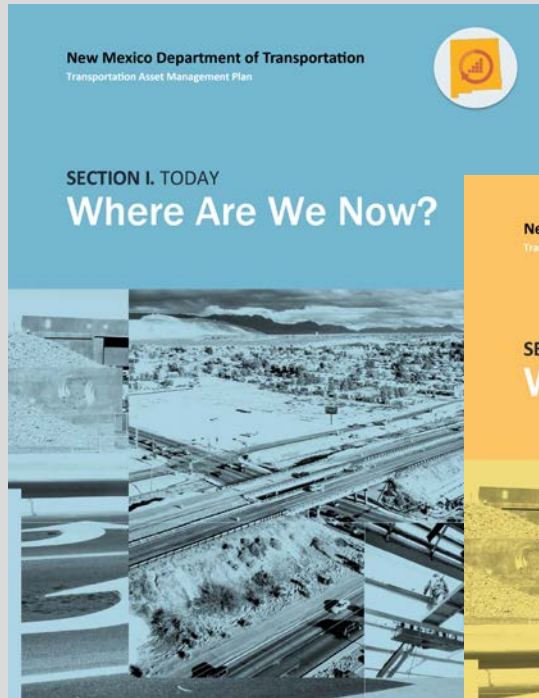
Source: 2016 inventory and conditions report in the 2017 NBI submittal

Percent of NMDOT Bridge Deck Area Classified as Structurally Deficient



Source: 2016 inventory and conditions report in the 2017 NBI submittal

The Structure of the NMDOT TAMP



The TAMP Document

- Communicate the messages in a visual way wherever possible
- Content communicated in easy to understand ways
- Met federal requirements

NEW MEXICO TRANSPORTATION NETWORK AT A GLANCE

25,062
Highway Lane Miles Owned by NMDOT

2,978
Bridges Owned by NMDOT

NEW MEXICO DOT VISION
NMDOT STRIVES TO CREATE A SAFE AND SUSTAINABLE MULTIMODAL TRANSPORTATION SYSTEM THAT SUPPORTS A ROBUST ECONOMY, FOSTERS HEALTHY COMMUNITIES, PROTECTS THE ENVIRONMENT, AND PRESERVES THE STATE'S UNIQUE CULTURAL HERITAGE.

TRANSPORTATION ASSET MANAGEMENT PLAN

APRIL 2018

ASSET MANAGEMENT : A strategic and systematic process of operating, maintaining, and improving physical assets effectively throughout their life cycles. Asset management involves moving beyond reactive repairs to a proactive approach that anticipates costs and maximizes investments.

NEW MEXICO DOT
DELIVERING ASSET PERFORMANCE

New Mexico's Transportation Asset Management Plan (TAMP) establishes the condition of highway and bridge assets across the state and provides a strategy for efficiently maintaining these assets in good condition over the long term. This document provides an introduction to the key elements of the TAMP.

Transportation Asset Management (TAM) utilizes business, economic, and engineering practices to help guide data-driven decisions for resource allocation and project selection.

For New Mexico DOT (NMDOT), TAM ensures better operation, increased maintenance, and overall improvement of physical assets through a process of continuous improvement – for example by better locating and understanding performance gaps, prioritizing and programming asset needs, and streamlining business processes.

In practice, these capabilities allow NMDOT to identify and execute the right projects in the right locations at the right time. Today these capabilities are more critical than ever before, as the agency seeks to maximize the use of limited public resources and strengthen the state's transportation infrastructure.

Together with the right investment levels to maintain and improve bridge and pavement conditions, TAM helps ensure a healthy transportation system that supports the mobility, safety, and economic development of New Mexico and of all New Mexicans.

New Mexico's TAMP complies with the Federal Highway Administration's requirements for National Highway System (NHS) TAMPs. It is also a living document that will be reviewed and updated regularly.

NEW MEXICO DEPARTMENT OF TRANSPORTATION

PAGE 1

Web-Based TAMP

- Provide easier access for all stakeholders
- Available whenever wanted with use of any browser
- Will be basis for the “living TAMP” that supports a continuous improvements approach

New Mexico Department of Transportation

Online Transportation Asset Management Plan



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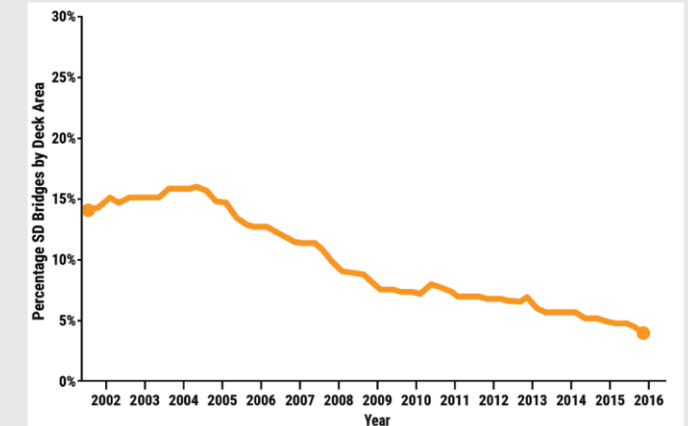
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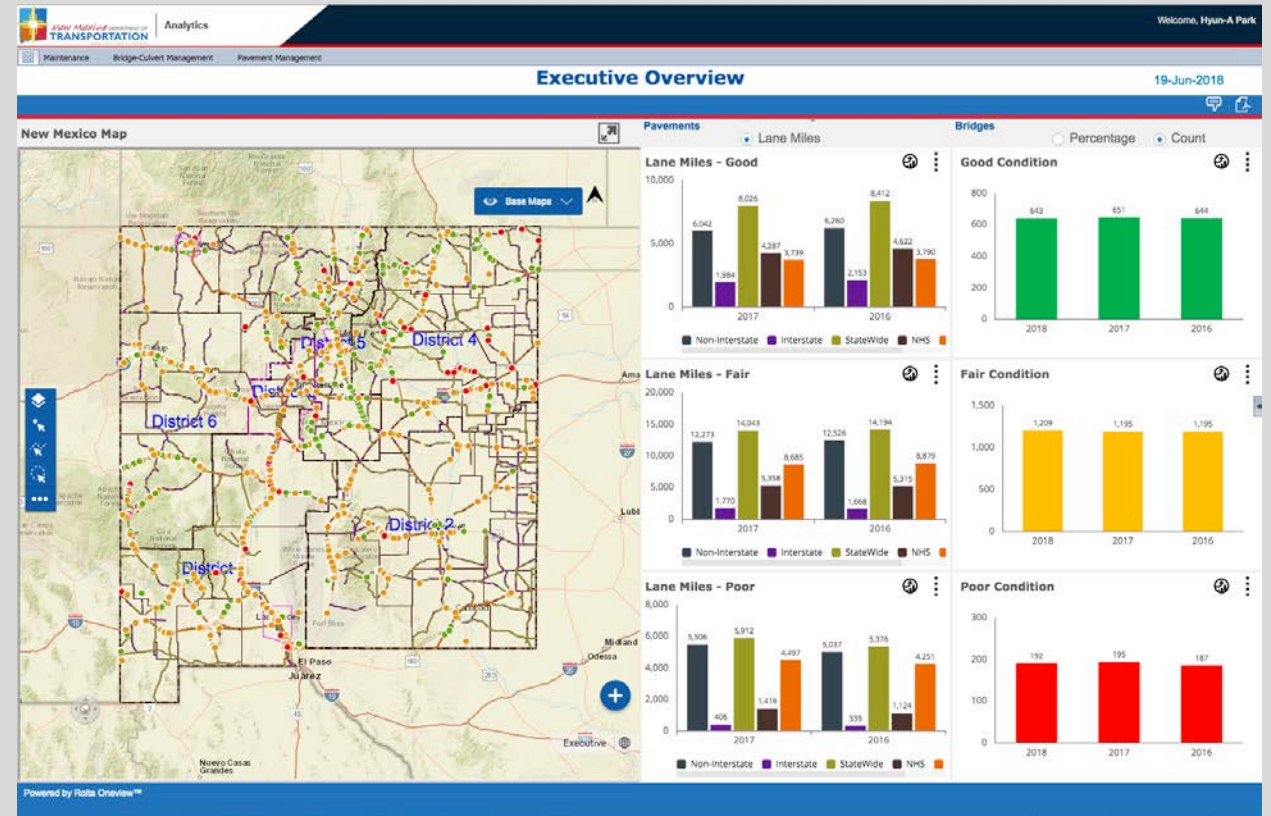
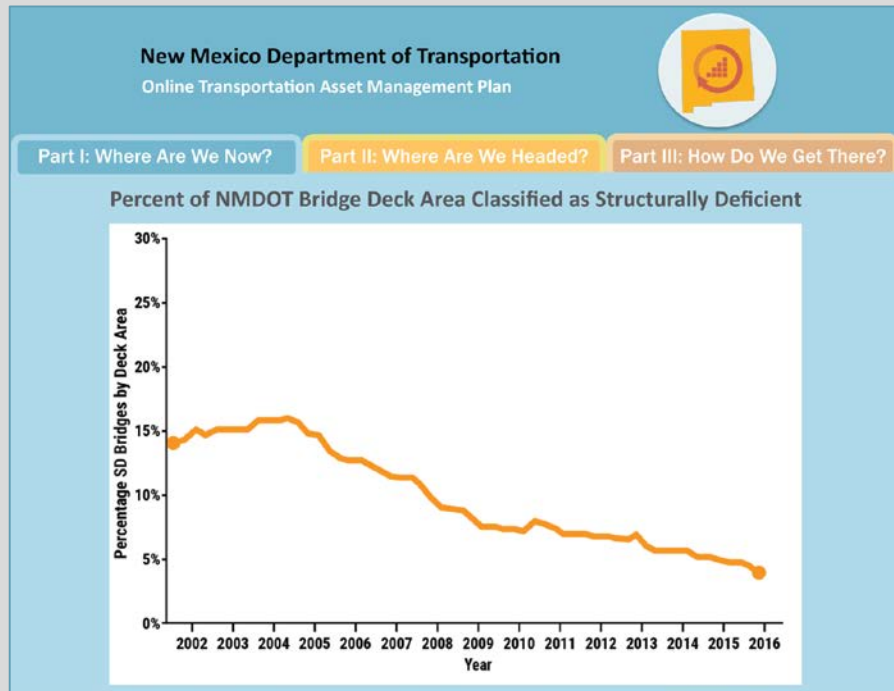
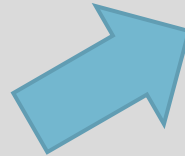
Percent of NMDOT Bridge Deck Area Classified as Structurally Deficient



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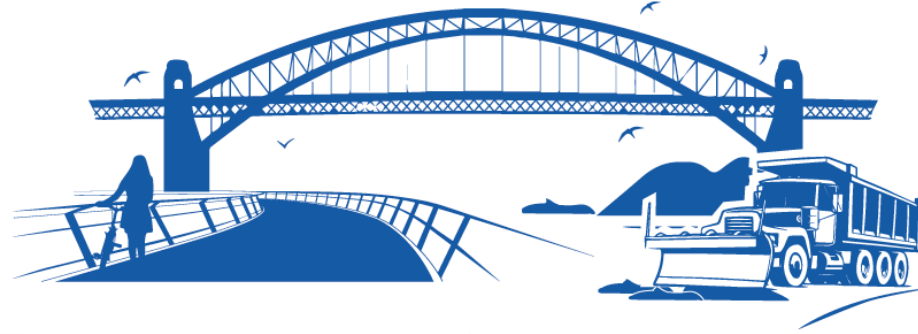
Asset Management Dashboard Link

- Launch Asset Management Dashboard from web-based TAMP to access current data and create flexible views of asset information



- Created Asset Management Dashboard using Rolta OneView
- Allows flexible reporting and views of asset information

Entering the Dashboard



Analytics

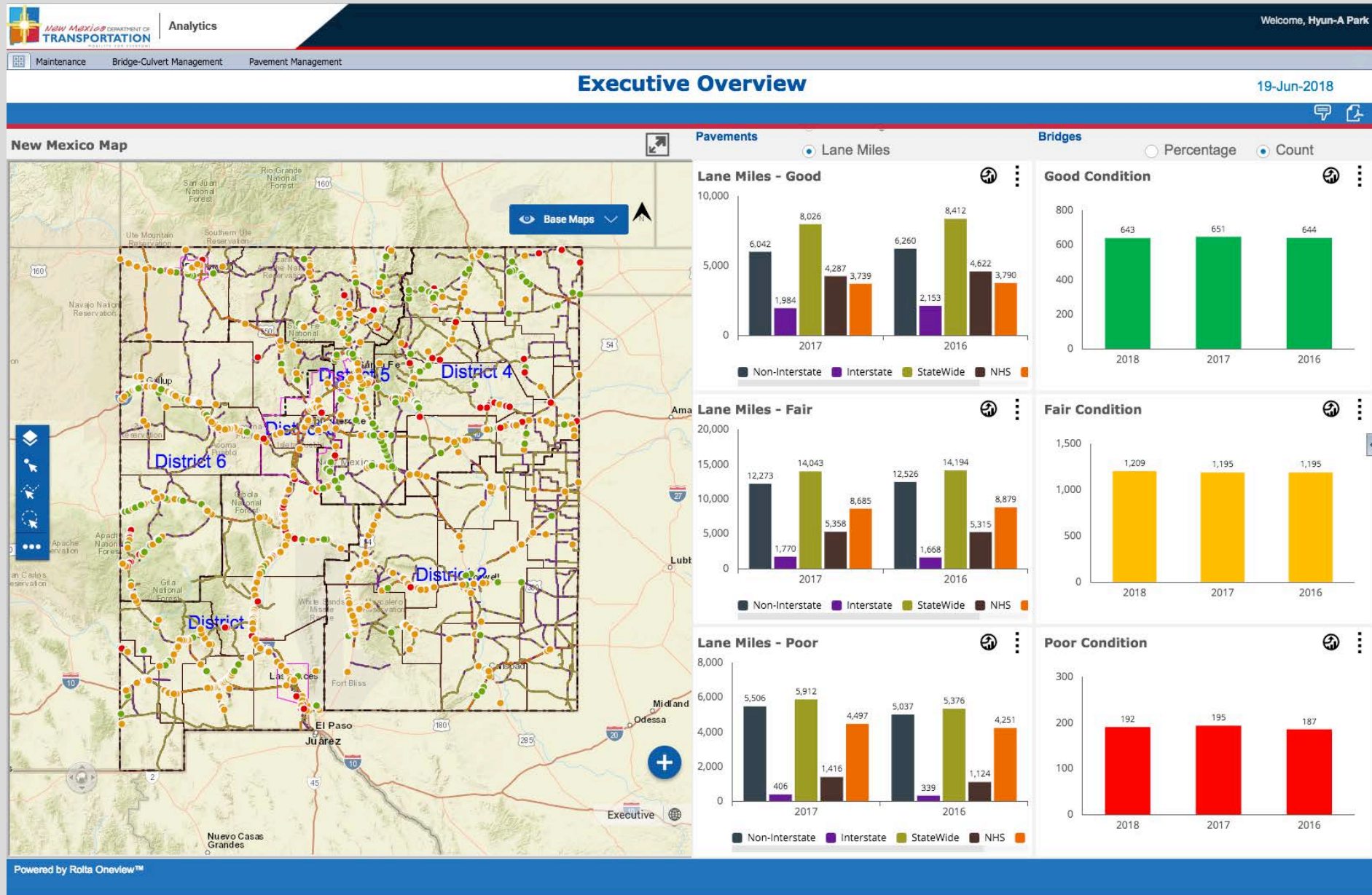
Analytics provides role based cross functional insights using real-time and historical data from the various internal and external networks.



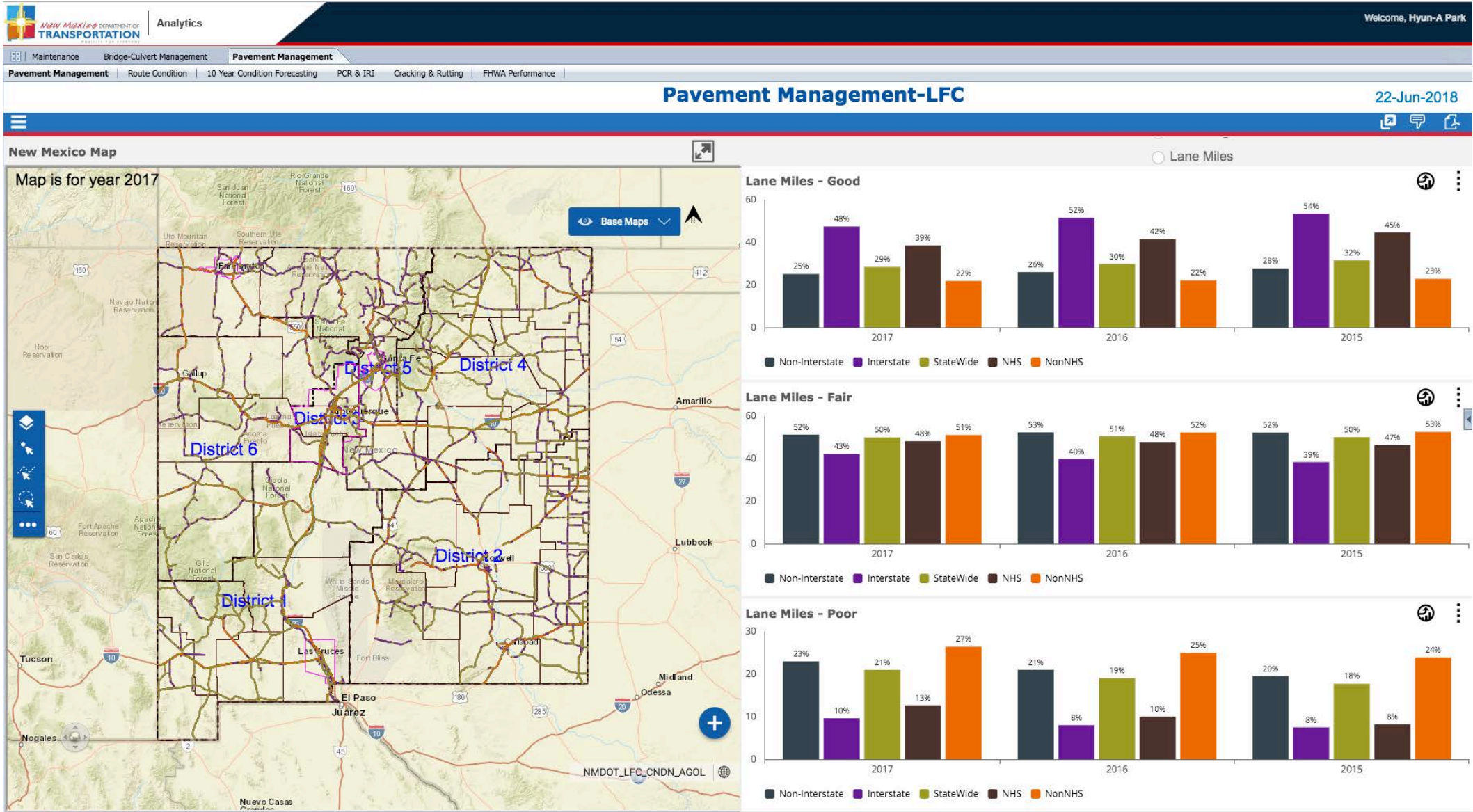
Bridge Condition Forecasting

Bridge condition forecasting application forecast condition of the bridges for period of 10 years based on the NHS budget, Non-NHS budget, Priority and unspecified uses with the current condition of the bridges or considering the worst case conditions.

Overview Screen



Pavement View



Condition Forecast



10 Year Condition Forecasting based on Funding

22-Jun-2018

Scenario : KEEP CRNT CONDITION , NHS : All , Route Prefix : BL; FL; I; NM; NMX; US; USX;

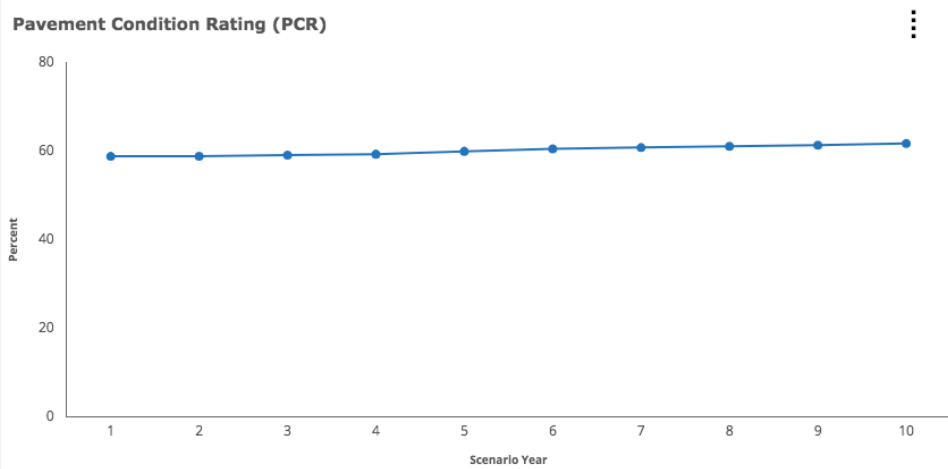
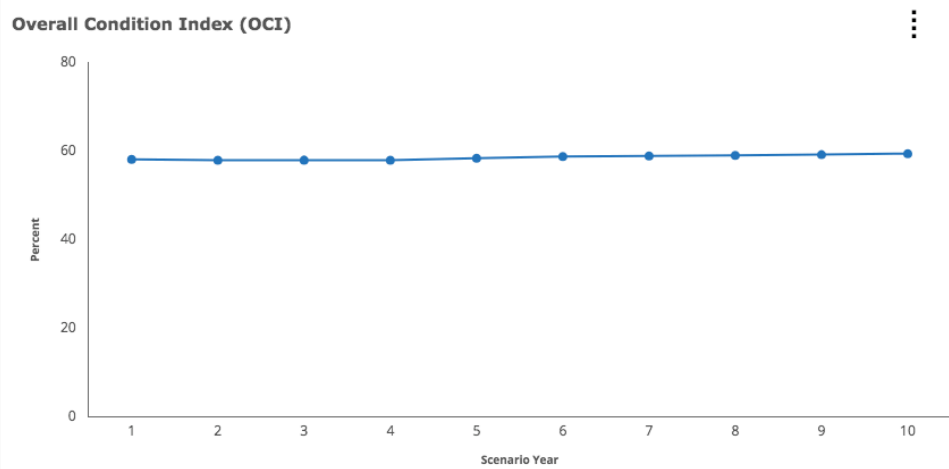
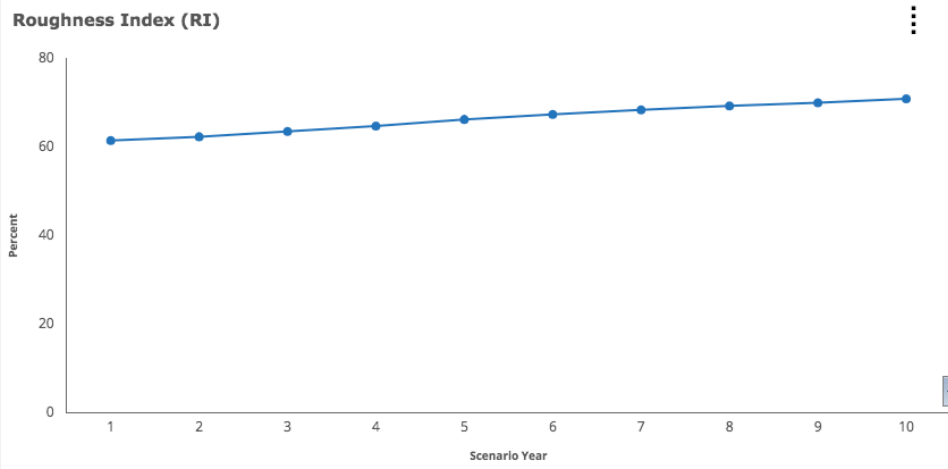
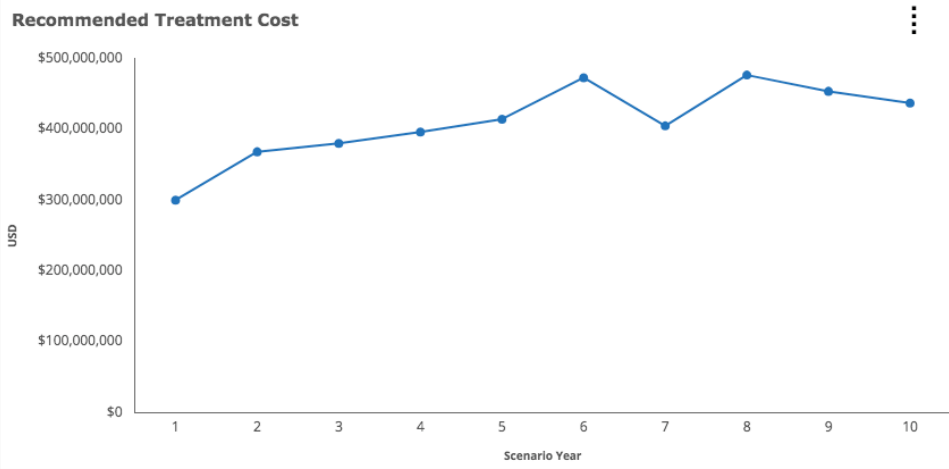


- Scenario**
- KEEP CRNT ...
 - INCREASE T...
 - CRNT FUNDI...

- NHS**
- All
 - NHS
 - Non-NHS

- Route Prefix**
- All
 - BL
 - FL
 - I
 - NM
 - NMX
 - US
 - USX

Go



District 3 View



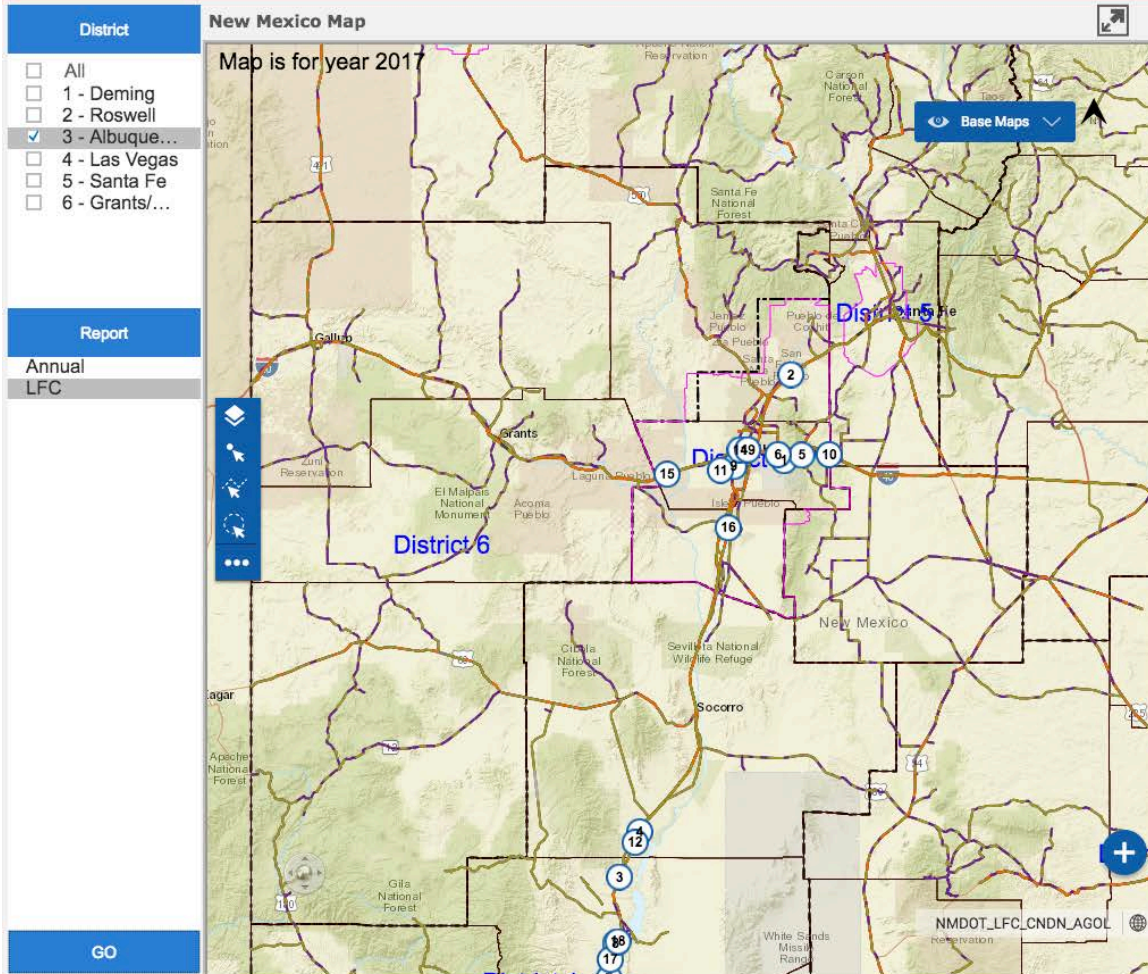
Analytics

Welcome, Hyun-A Park

- Maintenance
- Bridge-Culvert Management
- Pavement Management**
- Route Condition
- 10 Year Condition Forecasting
- PCR & IRI
- Cracking & Rutting
- FHWA Performance

Pavement Management-LFC

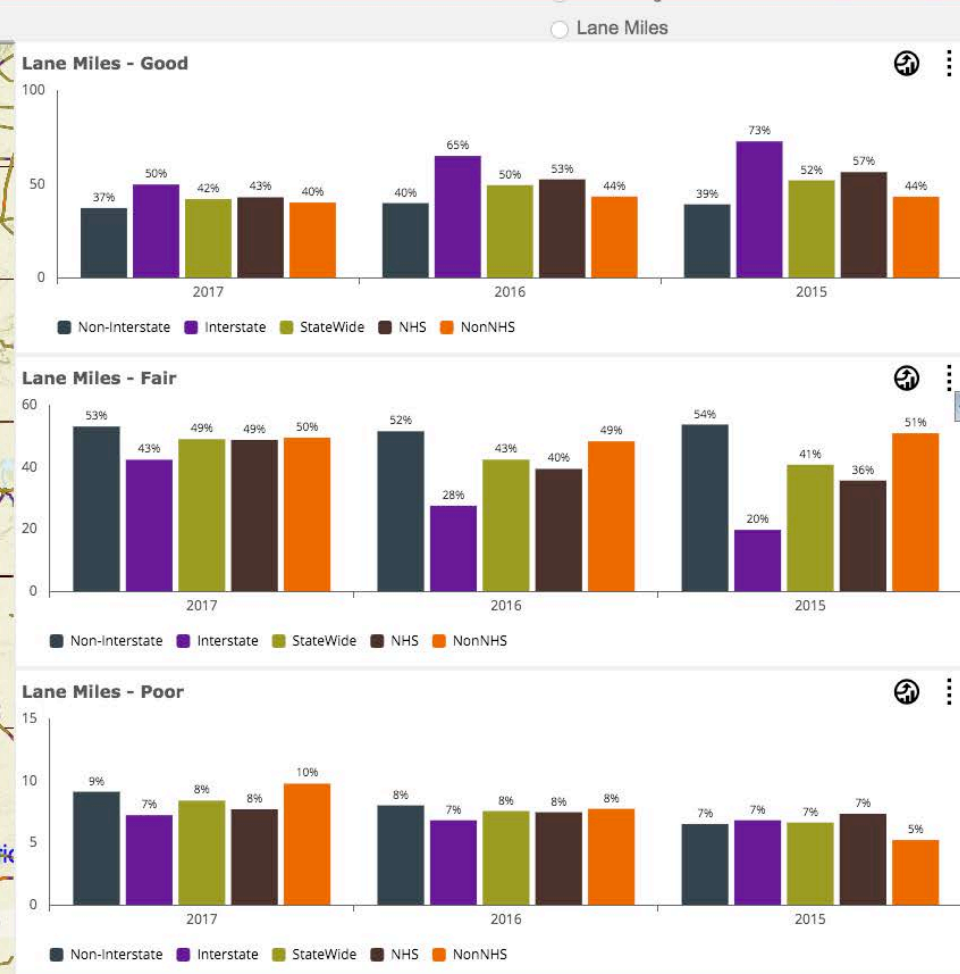
22-Jun-2018



- District
- All
 - 1 - Deming
 - 2 - Roswell
 - 3 - Albuquerque
 - 4 - Las Vegas
 - 5 - Santa Fe
 - 6 - Grants/...

- Report
- Annual
 - LFC**

GO



Benefits of Visualization Investments

- Greater buy-in from stakeholders on our TAMP
- Support from leadership for TAM
- Understanding of TAM strategies at district level
- Ability to connect statewide performance targets with district specific needs