

New Mexico Department of Transportation: Report to Legislative Finance Committee

November 2024 Secretary Ricky Serna and David Quintana, P.E.



DISTRICTS USE DATA TO DRIVE PROJECT SELECTION



The Condition Analysis Report (CAR) was developed as part of NMDOT's TAMP Implementation.

□ The purpose of the CAR is for data-driven project selection.



The Conditions Analysis Report (CAR) Information Form allows for a streamlined approach to data collection on potential projects which will then be used for both the state-wide project selection process and level of effort determination for project delivery.

Project Information

Date	Name		NMDOT District	Select
Project Location		Roadway		
Project Length		Project Type		
Bridge No.		Mileposts	Project County	Select

Safety

Fatalities^							
Total Crashes per Mile							

Total Crashes per Million Miles VMT

Conditions

Pavement Condition Rating*	:	Select		
Bridge Condition Rating*		Select		
PMS-Recommended Preservation Treatment ¹		Final Preservation Treatment 1		
Bridge Rating; Poor - <4 Fair - 5	5-6 Good - >7			

Pavement Rating; Poor 0 - 45 Fair 45.01 - 65 Good 65.01 - 100

Mobility

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AADT*	r	Number of Lanes*		AADT per	Lane 1		Shoulder Width ^	
Freight AADT*		Percentage of Fre Traffic in total AAD			Sidewa (Y/N)	No	Transit Route (Y/N) ^	No
Functional Classification*		Select		Planning Area (MPO/RTPO) *		Select		
Daily VMT 1				NM Bike Plan Tier ^		Select		

Physical Deficiencies

NMDOT

B

R

G

Ε

BrM inspection data used to develop a set of bridge priority lists.

Separate lists are developed for bridges on: Interstates | US Routes | NM State Routes | Local Roads | Scour Critical Locations Initial prioritization based on:

GO bridge staff and District review priority lists.

Health

Bridges already programmed in the STIP are moved to the top. Prioritization of others is adjusted based on traffic, detour lengths, safety concerns, local input and other factors.

Highest priority bridges are programmed by each District based on available funding.

Priority lists divide into two treatment categories.

Based on condition, inspector recommendation and engineering judgment

Replacement or Major Rehab

SD due to SD super/substructure condition: Replacement

NBI Condition

SD due to condition: Major rehab Minor Rehab or Preventive Maintenance

Load

Other Prioritized bridges



NMDOT

Collecting Road Conditions Data

- 20 data elements through the LiDAR asset collection project
- Road Inventory System (RIS) database collects data for yearly Highway Performance Monitoring System reporting

> LIDAR

Mobile Laser Mapping System, an optical sensing technology, determines the position, orientation, and other characteristics of pavement and roadside objects.

> PAVE3D TEXTURE (Option 2) Pave3D sensors calculate full lane width texture measured in 5 AASHTO standards.

> PAVEMENT DISTRESS – The ARAN's Pave3D subsytem collects 3D profile data, which is used for automated distress detection and image display.

> RUTTING

The Pave3D System accurately measures the transverse profile of the road with 4000 points over 4 meters.

> ROUGHNESS

The Laser SDP measures longitudinal road profile in real-time Class I roughness index calculation.

> POSITIONING - INERTIAL

Provides real-time ARAN position and orientation tracking, combining data from tactical-grade fiber optic gyros, accelerometers, differential GPS and DMI.

> POSITIONING - GPS

ARANs are equipped with a differential Global Positioning System integrated with a DMI and Inertial Measurement System that will fill in the gaps in the event of lost satellite reception.

> RIGHT-OF-WAY VIDEO

ARANs can be outfitted with up to six 4K cameras to capture right-ofway images, allowing a virtual road view from the comfort and safety of an office.

> GPR

Ground Penetrating Radar detects changes in road structure, including material thickness, composition and condition.

>TEXTURE (Option 1) Smart Texture measures the mean profile depth of the road surface macrotexture.

Automatic Road Analyzer

> POSITIONING - DMI

The Distance Measuring Instrument measures linear distance travelled. It also acts as a GPS position backup, in the event of a poor satellite connection, the DMI and Inertial Reference System will fill in the gaps.

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FUNDING CONSIDERATIONS

Long Range Plan

□ Factors for the STIP

- Inner Years
- Outer Years

Decisions to Shift Funds

- **Given State State**
- Design Timelines

Figure 7: NMDOT Performance-Based Planning and Programming



Advances other desired performance outcomes

NMDOT FUNDING CONSIDERATIONS



State match is added in.

Initial set-asides are removed.

- · State Planning and Research (SPR) monies
- Section 164 alcohol penalty transfer
- · Estimated obligation limit is calculated
- Debt service amount reserved

Distributions and suballocations are set aside.

- Local distribution set-asides e.g. Surface Transportation Program (STP) funding for large urban areas
- Recently, funding was also reserved for bridge preventive maintenance

Limited statewide prioritization takes place.

A statewide call for bridge and pavement projects is used to program CMAQ, HSIP, and Transportation Alternatives Program (TAP) funds.

Remaining funding divided among Districts.

Using formulas incorporating population, lane-miles, and other characteristics, e.g.:

- NHPP funding: 50% by percent of lane miles in each District and 50% by percent of Daily Vehicle Miles Travelled in each District
- STP funding: Centerline miles on and off the NMDOT system plus a populationbased allocation

GO provides targets by funding source

- For pavements: Data to indicate priority areas
- For bridges: Preliminary prioritized list of projects based on inspection data from BrM

Districts make final programming decisions.

Based on local knowledge and priorities, TAMP results, and engineering judgement. Prioritization may be updated throughout the year, with or without GO input.

Districts submit projects to the STIP.

Every two years, districts select the projects for the next four years