New Mexico 2045 Plan

JULY 2021

NMDOT

Acknowledgements

July 2021

On behalf of the New Mexico Department of Transportation (NMDOT) and our partners, I am pleased to present the New Mexico 2045 Statewide Transportation Plan – the New Mexico 2045 Plan. With the help of our stakeholders and transportation partners, we developed a performance-based, long-range transportation plan that prepares NMDOT to navigate the uncertainties of the future and work to meet the transportation needs of New Mexico's residents, businesses, and visitors.

Over the next 25 years, New Mexico will face many exciting changes and challenges, from new technology and changing demographics to uncertain funding and the impacts of climate change. To fulfill our mission to "Provide a safe and efficient transportation system for the traveling public, while promoting economic development and preserving the environment of New Mexico," NMDOT must continue to make effective and data-driven decisions about our policies, programs, and investments.

This New Mexico 2045 Plan sets long-range goals for New Mexico's transportation system, analyzes trends and emerging issues, lays out strategies to achieve the goals, and identifies performance measures which will be used to track progress. Throughout this plan, we report our current system's performance related to safety, reliability, and road, highway and transit asset condition and set the first of many short-term targets by which we will measure our progress towards NMDOT and national transportation goals.

We at NMDOT look forward to continuing to work with local and regional planning organizations, other New Mexico agencies, the business community, and the public to provide a safe, sustainable, and efficient transportation system over the next 25 years and beyond.

Sincerely,

Michael R. Sandoval, NMDOT Cabinet Secretary

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1 Introduction

Introduction and Plan Purpose

The *New Mexico 2045 Plan* creates a new 25-year transportation vision for New Mexico and provides the New Mexico Department of Transportation (NMDOT) with information, guidance, and direction to improve the movement of goods and services throughout the state. To realize these improvements the New Mexico 2045 Plan supports strategic decision making through:

- identifying key trends and issues affecting transportation in New Mexico;

- improving understanding of transportation system conditions, needs, resources, and gaps;

- engaging partners, stakeholders, and the public in investment planning and solving transportation challenges;

- considering changing trends and new initiatives such as the Governor's Executive Order 2019-003 on Addressing Climate Change and Energy Waste Prevention;

- establishing goals, objectives, and policy to guide NMDOT investment decisions; and

- providing mechanisms for tracking performance and plan implementation.

PHASE 1		PHASE 2	
Research & Analysis	Strategic Framework	Scenario Analysis	Implementation Strategies
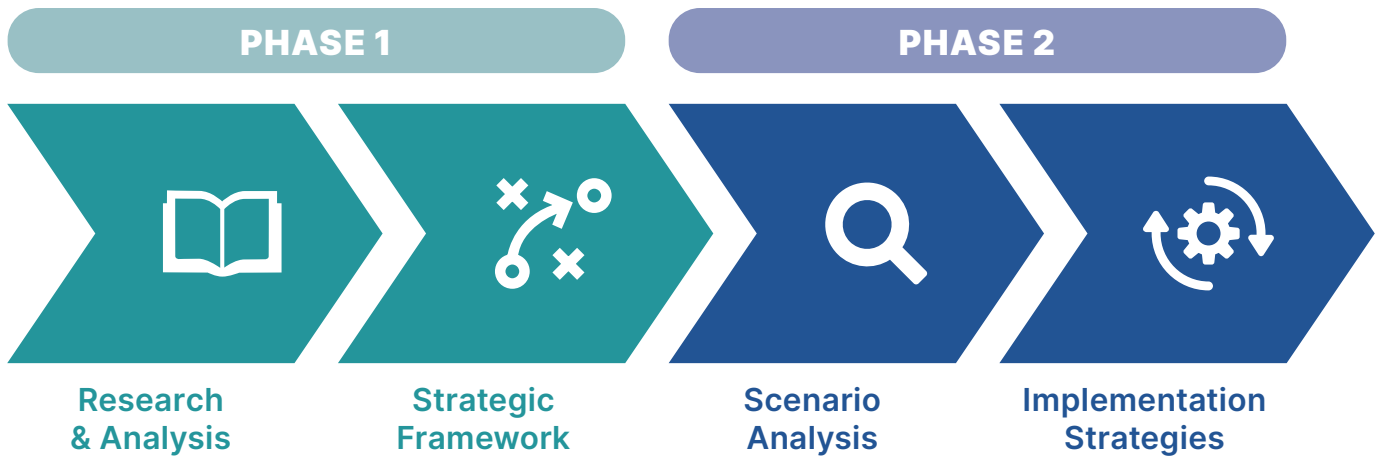
Plan Process

NMDOT completed the *New Mexico 2045 Plan* in two phases. Phase 1 included research and analysis of the current system condition and investment needs, future trends and issues, and available revenue sources. Phase 1 also identified the vision, goals, objectives, and performance measures for the *New Mexico 2045 Plan*. Phase 2 included scenario analysis to explore performance and system needs under different futures and identified implementation strategies that will prepare NMDOT for the future of transportation through 2045.

The *New Mexico 2045 Plan* is a performance-based long-range statewide transportation plan that sets the stage for the future of transportation in New Mexico through the implementation of long-term strategies and monitoring transportation performance.

Plan Summary

The *New Mexico 2045 Plan* includes:

The Planning Context – a description of NMDOT today, federal and state initiatives affecting transportation, and the public engagement process for the *New Mexico 2045 Plan*

Transportation in New Mexico Today – the existing inventory, condition, and performance of New Mexico's transportation system

Looking Forward – the 2045 needs and revenue gap, the trends and issues that may impact future transportation in New Mexico, future performance targets, and a scenario analysis of the transportation consequences of those trends and issues

Strategic Direction – the *New Mexico 2045 Plan* vision, goals, objectives, and performance measures that set the framework for New Mexico DOT's long-range transportation planning

Implementation Strategies – the actions, policies, and programs that will prepare NMDOT to help the state achieve its transportation vision in the face of both known and unanticipated future challenges and opportunities

2 The Planning Context

NMDOT Today

The *New Mexico 2045 Plan* is a performance-based long-range statewide transportation plan which meets the requirements of the Fixing America's Surface Transportation (FAST) Act. The FAST Act requires performance-based planning and programming to facilitate transportation decision-making that supports the seven national transportation goals. NMDOT considered these goals as well as associated performance targets in the development of the *New Mexico 2045 Plan*.

THE 2019 NEW MEXICO CLIMATE STRATEGY *recognizes the transportation sector as the second largest source of greenhouse gas (GHG) emissions in New Mexico and identifies two recommendations to reduce these emissions. The Climate Strategy sets targets for implementing "California clean car standards" and reducing per capita VMT to 15% below 2015 levels by 2027.*

In addition to national-level considerations, NMDOT integrated recent state initiatives and priorities into the development of the *New Mexico 2045 Plan*. These include Governor Lujan Grisham's Executive Order 2019-003 on Addressing Climate Change and Energy Waste Prevention.

As with every other state in the country, the COVID-19 pandemic affected both NMDOT's planning processes and New Mexico's transportation network. For example, the *New Mexico 2045 Plan* stakeholder engagement events were changed from in-person workshops and meetings to four virtual workshops and, as a result of stay-at-home orders and safety precautions, vehicle miles traveled (VMT) declined and e-commerce grew. The actual short-term impacts of VMT reduction on transportation revenue are considered in the *New Mexico 2045 Plan* revenue forecast and the uncertain long-term travel implications of these impacts were explored as part of the scenario analysis and strategy development.

NATIONAL TRANSPORTATION GOALS

Safety

Infrastructure Condition

Congestion Reduction

System Reliability

Freight Movement & Economic Vitality

Environmental Sustainability

Reduced Project Delivery Delays

Public & Stakeholder Engagement Process

NMDOT staff and executive leadership, stakeholders, and the public had multiple opportunities to engage virtually and provide feedback on the *New Mexico 2045 Plan* process and findings. Opportunities included four virtual stakeholder workshops, an online project survey, and a project website that provided information about the planning process and links to related

NMDOT plans and documents. The project website also provided a contact form through which the public submitted input, feedback, and questions.

Four virtual workshops (three regional forums and one for the state's tribes and pueblos) provided opportunities for stakeholders to learn about the plan, weigh in on the plan's strategic direction, and provide input on alternative future scenarios.

FARMINGTON

SANTA FE

RIO RANCHO

ALBUQUERQUE

ROSWELL

LAS CRUCES
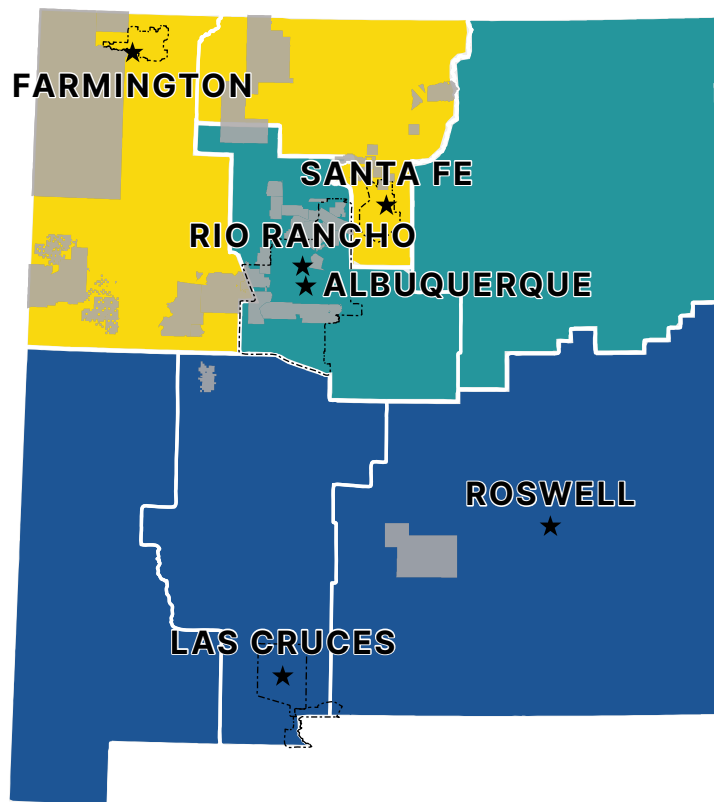
Public Workshop Representation

★ Major Cities

☐ MPO Boundaries

☐ RTPO Boundaries

WORKSHOPS

☐ Workshop #1

☐ Workshop #2

☐ Workshop #3

☐ Tribal Land (Workshop #4)

3 Transportation in New Mexico Today

To set the stage for the *New Mexico 2045 Plan*, this section reviews the state of transportation in New Mexico today. New Mexico's transportation system provides access and connections for the state's residents, businesses, and visitors. The system includes both physical assets such as roads and bridges, bicycle and pedestrian infrastructure, railroads, transit vehicles, and airports, as well as a network of connected intelligent transportation technology. Working together, these networks are intended to create a system that allows people and goods to travel reliably and safely to their destinations.

Statewide Transportation System
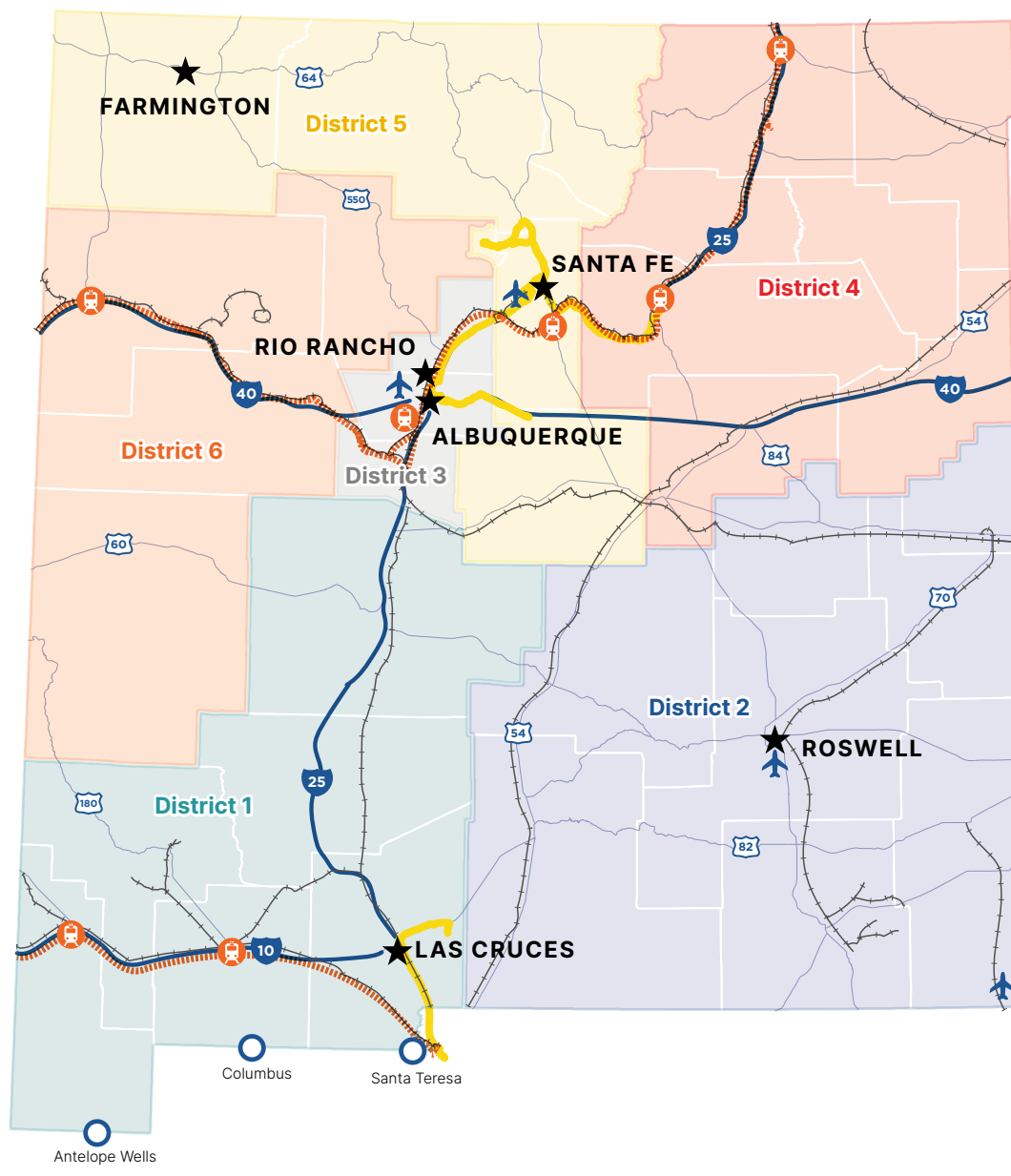
Symbol	Legend		Symbol	Legend
★	Major Cities		▬	Park and Ride
✈	Primary Commercial Airports		▬	Interstate
○	International Ports of Entry		▬	US Highway
🚊	Amtrak Stations		▭	County Boundaries
▪▪▪	Amtrak			
+—+	Statewide Railroad System			

System Inventory

Ports of Entry

3 international land ports of entry along New Mexico's border with Mexico

Roads & Bridges

12,321 centerline miles of state highway system

2,979 bridges and culverts

Airport System

56 airports

4 primary commercial airports

4 heliports

1 seaplane base

Bicycle & Pedestrian

5,212 miles of roads have either dedicated bike infrastructure or 4'+ wide shoulders

Over **12.67 million feet** of sidewalks

Transit

29 active local and regional transit systems

Park and Ride intercity bus service

Vanpooling program

Rail Runner Express commuter train

Railroads

2 Amtrak trains covering **598 miles** and seven station stops

2,055 miles of railroad right-of-way serves rail freight including two Class I railroads and five Class III shortline railroads

Intelligent Transportation System (ITS)

Real-time traveler information

150 closed-circuit televisions

125 dynamic messaging signs

12 roadside weather information systems

150 miles of fiber optics

System Use

The transportation system in New Mexico is important for the efficient movement of people and goods, the quality of life for its residents, and the economic vitality of the state, the region, and the country. A major system function is providing access to jobs. In 2018, most New Mexicans (80%) chose to drive alone in their travel to work while 10% (the next highest percentage) chose to carpool. The system also facilitates tourism and freight movement - in 2019, 38.2 million people visited the state of New Mexico and in 2017, $144.5 billion of freight moved across New Mexico's transportation system.

2.1MIL Population

2.3 Vehicles per household

38.2MIL Annual visitors

14.2MIL Transit ridership

27.3BIL Annual vehicle miles traveled

787,000 Rail Runner Express trips

1.8MIL Registered vehicles

$144.5BIL Annual freight value
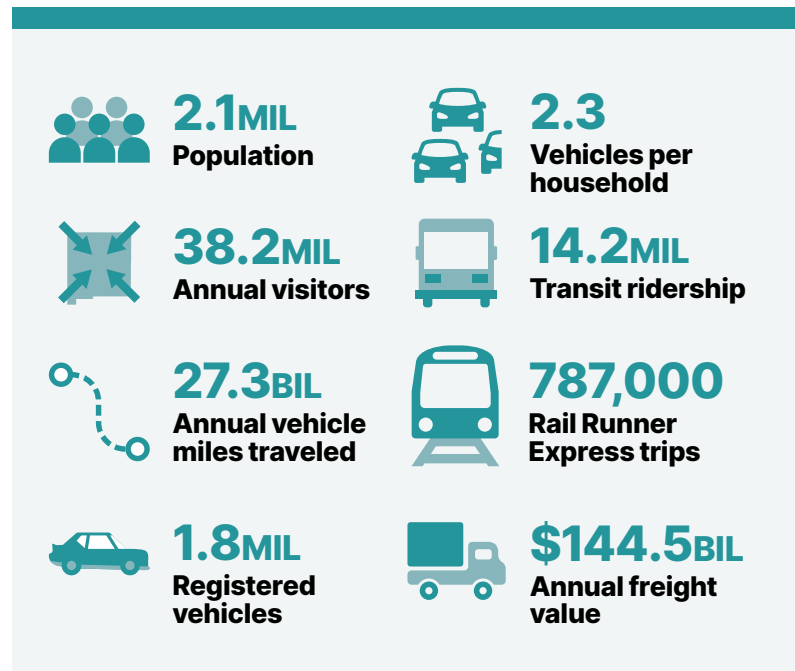
Figure 1: **Transportation Mode to Work**

1% Public Transit

2% Other

5% Work at Home

80% Drive Alone

10% Carpool
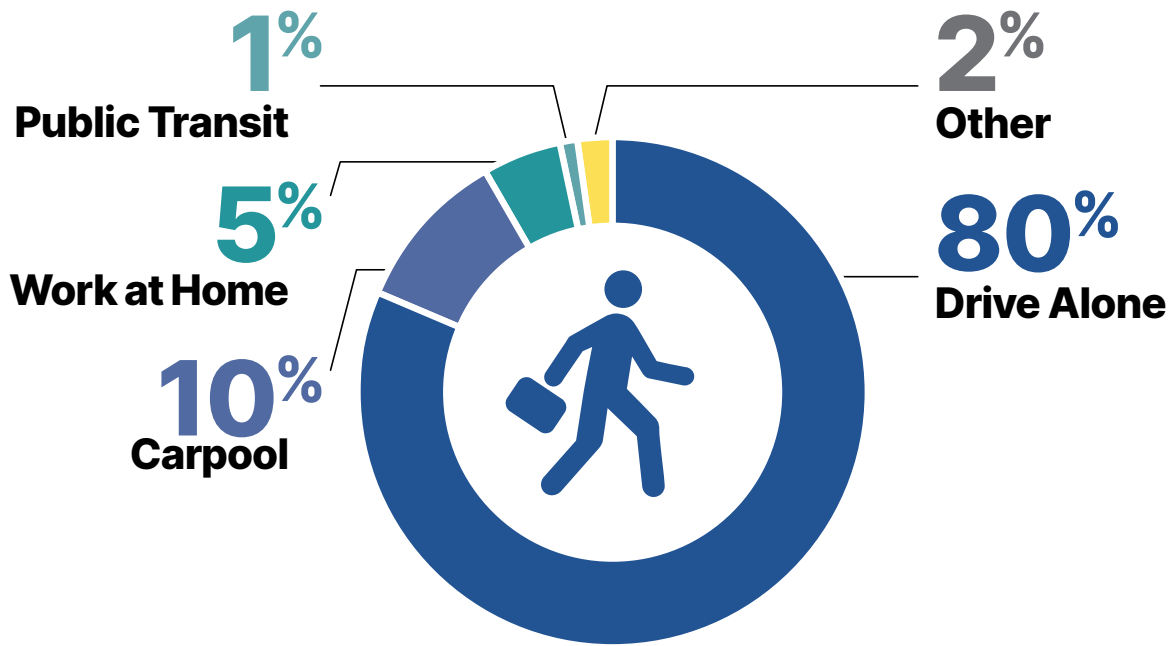
2019 System Performance

To better understand how the current New Mexico transportation system is performing and to comply with federal requirements, NMDOT gathers data to measure safety, pavement and bridge condition, travel time reliability, and emission reductions. This section illustrates the 2019 baseline performance for New Mexico's transportation system.

Asset Management

NMDOT assesses the current condition of pavements and bridges on the Interstate and non-Interstate National Highway System (NHS). The NHS consists of roadways important to the nation's economy, defense, and mobility including the Interstate system, other principal arterials, and major connectors.

Table 1: **2019 Asset Management Outcomes**

Percent of Interstate pavement in good condition	55.0%
Percent of Interstate pavement in poor condition	0.9%
Percent of non-Interstate NHS pavement in good condition	35.8%
Percent of non-Interstate NHS pavement in poor condition	2.5%
Percent of NHS bridges by deck area in Good condition	37.6%
Percent of NHS bridges by deck area in Poor condition	3.1%

Safety

Safety measures are based on five-year rolling averages of fatalities and serious injuries and includes rates per annual hundred million vehicle miles traveled.

Table 2: **2019 Safety Outcomes**

Number of Fatalities	379.6
Fatality Rate (per Hundred Million VMT)	1.373
Number of Serious Injuries	1,145.0
Serious Injury Rate (per Hundred Million VMT)	4.143
Number of Non-Motorized Fatality and Serious Injuries	202.0

Travel Time Reliability

Reliability measures capture the consistency or dependability of travel times across different days or times of day by measuring the extent of unexpected delays. Reliable person-miles traveled is calculated as a ratio of the 80th percentile travel time to the 50th percentile over an entire year. The Truck Travel Time Reliability (TTTR) index is a ratio of the 95th percentile travel time by the 50th percentile travel time on the interstate.

Table 3: **2019 Reliability Outcomes**

Percent of the person-miles traveled on the Interstate that are reliable	96.9%
Percent of the person-miles traveled on the non-Interstate NHS that are reliable	93.7%
Truck Travel Time Reliability index	1.18

Transit Asset Management

Transit Asset Management (TAM) involves the use of asset condition data to guide prioritization funding to keep transit assets in a state of good repair and ensure safe operation.

Figure 2: **2019 Transit Asset Management Outcomes**

	Measure	Asset Type	Group Tier II TAM Plan	City of Albuquerque
Revenue Vehicle	Percent of fleet that is past the useful life benchmark	Automobile	-	-
		Articulated Bus	-	39.53%
		Bus	5.56%	43.18%
		Commuter Rail Locomotive	-	-
		Commuter Rail Passenger Coach	-	-
		*Cutaway	20.83%	0.00%
		Minivan	30.00%	-
		School Bus	100.00%	-
		Van	52.94%	-
Equipment	Percent of fleet that is past the useful life benchmark	Automobiles	62.50%	100.00%
		Trucks and other Rubber Tire Vehicles	50.00%	28.30%
Facilities	Percent of facilities that are rated less than 3.0 on the TERM Scale	Administrative / Maintenance Facilities	11.11%	25.00%
		Parking Structures	-	0.00%
Track	Percent of track segments with performance restrictions	Commuter Rail	-	-

A hyphen indicates that the transit agency does not own or operate a particular asset.

NMDOT-sponsored Group Tier II Transit Asset Management Plan (TAM Plan) includes all recipients of Section 5311 funding for rural public transportation in the State. The TAM Plan covers a four-year period from FFY 2019-2022.

*A cutaway is a type of vehicle where a bus body is mounted on the frame of a van or light-duty truck. Cutaways typically seat 15 or more passengers, and typically may accommodate some standing passengers.

The New Mexico Group Tier II TAM Plan uses both age and mileage to calculate Useful Life Benchmarks (ULBs) for transit rolling stock. These ULBs differ from the National Transit Database reporting, which allows for only a vehicle age ULB. The transit asset management outcomes are presented above using the National Transit Database measure with an age-only ULB. A smaller percentage of vehicles exceed the ULBs when considering both age and mileage. Please reference the New Mexico Group Tier II TAM Plan for additional performance details.

City of Farmington	City of Las Cruces	City of Santa Fe	Rio Metro Regional Transit District	South Central Regional Transit District
-	-	33.33%	-	-
-	-	-	-	-
0.00%	50.00%	0.00%	-	-
-	-	0.00%	-	-
-	-	0.00%	-	18.18%
0.00%	8.00%	25.00%	10.53%	-
-	-	-	33.33%	-
-	-	-	-	-
0.00%	-	27.27%	-	-
-	-	100.00%	0.00%	-
-	22.22%	40.00%	46.67%	-
-	66.67%	0.00%	33.33%	0.00%
-	0.00%	100.00%	0.00%	-
-	-	1.45%	1.45%	-

Resiliency Analysis

Transportation system resiliency involves identifying and assessing system elements that are vulnerable to damage or destruction from events such as floods, forest fires, and other naturally-occurring hazards. Resiliency efforts can include analysis of how critical the at-risk assets are to the transportation network as well as development of strategies to reduce vulnerability and improve response to system failure. These strategies and resiliency considerations can be incorporated into investment decision making.

Due to growing concerns about climate change and its potential impacts on the health, safety, and quality of life for New Mexicans, Governor Lujan Grisham issued an executive order addressing climate change and energy waste prevention in July 2019. Among other initiatives, the order requires all state agencies to evaluate the impacts of climate change on their programs and operations and develop and integrate associated climate change mitigation and adaptation strategies.

In response to the Governor's Executive Order and to ensure the *New Mexico 2045 Plan* effectively guides future investment decisions, plan development efforts included a resiliency analysis. The resiliency analysis was conducted through two stages to identify both vulnerable and critical facilities in the NMDOT network based on data currently available to the department.

The analysis results show that all components of the New Mexico roadway system have vulnerability risks associated with wildfires, flooding, dust storms, and/or rockfalls. While risks are reasonably manageable for facilities such as Interstates that are built to higher design standards, lower road classifications have a significant number of segments and structures that could be negatively affected by the natural events associated with climate change. Understanding these risks will help NMDOT better allocate resources for mitigation projects.

STEP 1

Screen the New Mexico roadway network for vulnerability. The screening generates a ranked list of state-owned facilities (road segments and bridges) based on their current conditions and exposure to natural hazards.

STEP 2

Assessment of selected at-risk facilities to evaluate their criticality. The assessment is based on the impact disruptions could have on outcomes such as mobility, accessibility, equity, freight movement, tourism, and economic vitality.

What We Heard: Public & Stakeholder Engagement

Public perception provides another mechanism for assessing how New Mexico's transportation system is currently performing and meeting the needs of the state's residents and businesses. A public survey asked New Mexico residents a range of questions including how they perceive the current state of transportation and the services that keep the system running. Responses were rated on a scale of one (strongly disagree or strongly dissatisfied) to five (strongly agree or strongly satisfied). Generally, public perception indicates there is room for improvement. While many respondents answered neutrally (a score of three) across all questions, a lack of high scores resulted in almost all service areas rated below neutral.

HIGHLIGHTS OF PUBLIC PERCEPTION SURVEY

35% *of respondents agree that the transportation system is* **better today than 5 years ago**

58% *of respondents feel that they* **do not have good access to different transportation options**

WINTER MAINTENANCE
Highest satisfaction rating (3.00 out of 5 - Neutral)
★★★☆☆

BICYCLE FACILITY AVAILABILITY
Lowest satisfaction rating (2.23 out of 5)
★★☆☆☆

4 Looking Forward
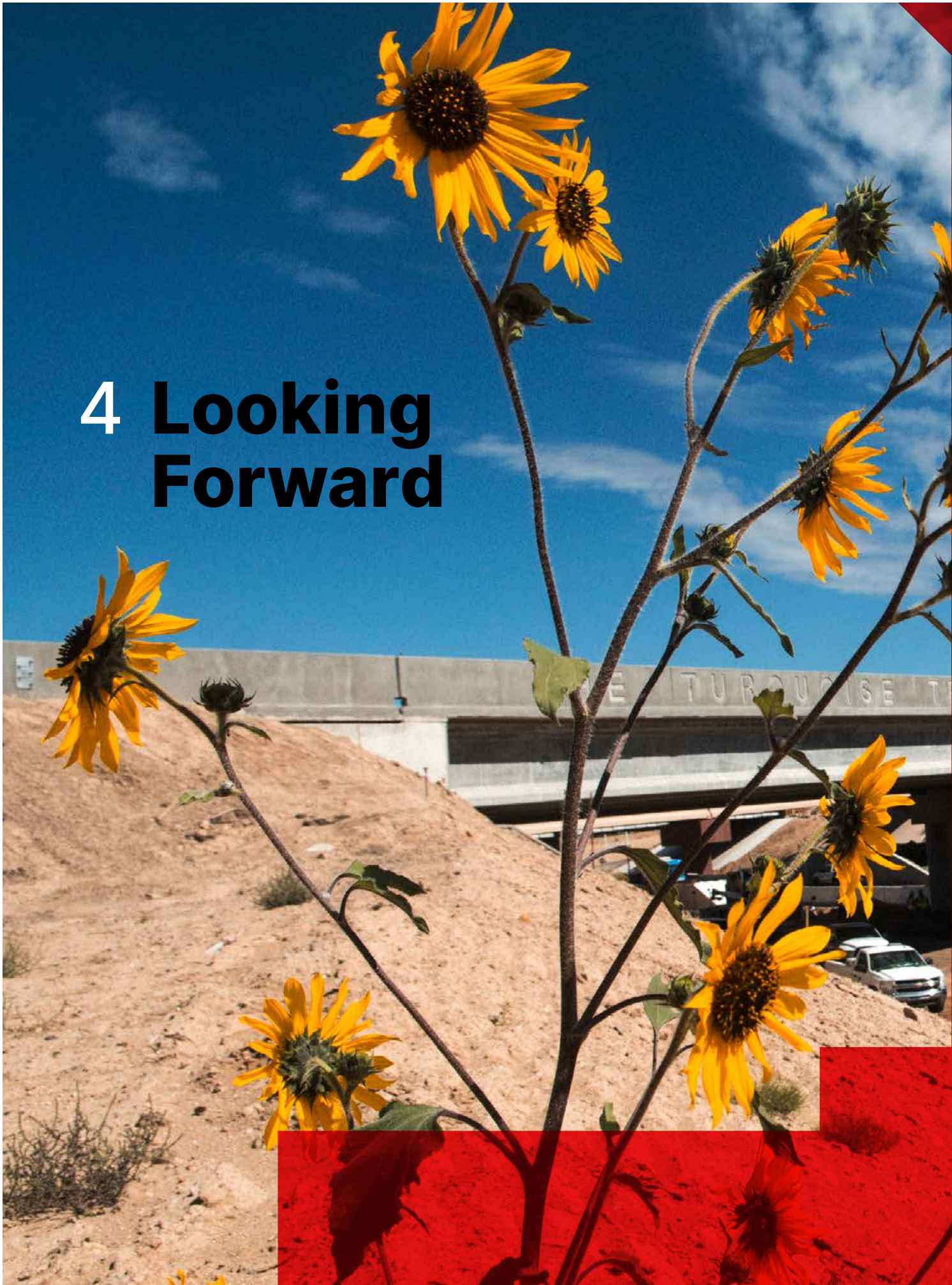
Building from an understanding of how New Mexico's transportation system performs today, the *New Mexico 2045 Plan* looks ahead by considering and analyzing future performance targets, funding needs, and anticipated revenues, external trends and issues, and public engagement feedback.

Transportation Needs and Revenue Gap

In addition to evaluating the transportation system's current performance, NMDOT also sets realistic targets for how it aims to perform in the near future. NMDOT must balance multiple competing needs for infrastructure preservation and system improvements to ensure that funds are invested in the most effective way possible. NMDOT developed a data-driven Project Evaluation Process that is flexible and can be applied to a variety of project types or funding sources. The project evaluation criteria align with the Transportation Asset Management (TAM) project evaluation process and are clustered into six categories:

- safety,
- pavement conditions,
- general mobility,
- freight,
- multi-modal, and
- economic development.

The source and share of funding allocated to projects may vary, but NMDOT expects to apply the same Project Evaluation Process each year. By tracking and reporting these measures over time, NMDOT gains valuable information about what strategies and investments have the greatest impact on improving safety, bridge and pavement condition, reliability, and emissions reductions.

NMDOT and its partners (MPOs and transit agencies) report short term federal performance targets. NMDOT coordinates with its partners to develop these performance targets using data analysis and consideration of future investments on the transportation system.

NMDOT uses TAM – a strategic and systematic process of operating, maintaining, and improving transportation assets effectively throughout their life cycles. This process can be applied to all project types managed by NMDOT.

Figure 3: **Project Evaluation Process**

Project Concepts Identified at District Level

Individual Project Evaluation

Consultation with Districts (Feasibility, Funding)

Final Project Selection
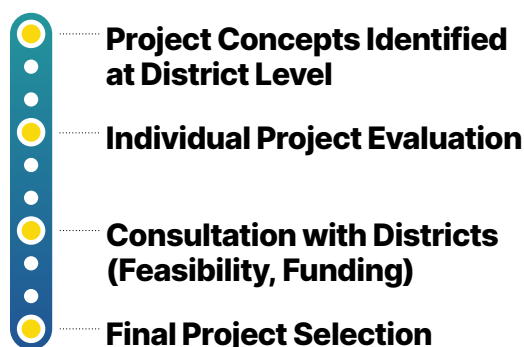
System Performance Targets

Safety

Safety targets are based on five-year rolling averages of fatalities and serious injuries, and and anticipated change to: annual Vehicle Miles Traveled (VMT).

Table 4: **2021 Safety Targets**

Number of Fatalities	411.6
Fatality Rate (per Hundred Million VMT)	1.486
Number of Serious Injuries	1,030.5
Serious Injury Rate (per Hundred Million VMT)	3.722
Number of Non-Motorized Fatality and Serious Injuries	200.0

Travel Time Reliability

In coordination with its MPOs and Regional Transportation Planning Organizations (RTPOs) NMDOT develops reliability targets based on anticipated changes to the reliability of the system either due to traffic growth or new projects.

Table 6: **2021 Reliability Targets**

Percent of the person-miles traveled on the Interstate that are reliable	95.1%
Percent of the person-miles traveled on the non-Interstate NHS that are reliable	90.4%
Truck Travel Time Reliability index	1.15

Asset Management

In coordination with other NHS owners and regional planning partners, NMDOT sets targets for the future condition of pavements and bridges on the interstate and non-interstate NHS through asset management.

Table 5: **2021 Asset Management Targets**

Percent of Interstate pavement in Good condition	55.0%
Percent of Interstate pavement in Poor condition	5.0%
Percent of non-Interstate NHS pavement in Good condition	34.2%
Percent of non-Interstate NHS pavement in Poor condition	12.0%
Percent of NHS bridges by deck area in Good condition	30.0%
Percent of NHS bridges by deck area in Poor condition	3.3%

Emissions Reduction

The Total Emission Reduction measure is the 2-year and 4-year cumulative estimated emission reduction for all projects funded by the Congestion Mitigation and Air Quality Improvement Program (CMAQ). Currently, El Paso Metropolitan Planning Organization (EPMPO) is the only recipient of mandatory CMAQ funds in New Mexico for a portion of southern Dona Ana County that is in nonattainment.

Table 7: **2021 Emissions Reduction Target**

Emissions (kg/day) reduced through CMAQ projects, 4 year cumulative	3.482

Transit Asset Management

Transit Asset Management (TAM) targets guide prioritization of funding to keep transit networks in a state of good repair and ensure safe operation of assets. Annual targets are established in October of each year.

Figure 4: **2020 Transit Asset Management Targets**

Measure		Asset Type	Group Tier II TAM Plan	City of Albuquerque
Revenue Vehicle	Percent of fleet that is past the useful life benchmark	Automobile	-	-
		Articulated Bus	-	0%
		Bus	20%	43%
		Commuter Rail Locomotive	-	-
		Commuter Rail Passenger Coach	-	-
		Cutaway	20%	48%
		Minivan	20%	-
		School Bus	20%	-
		Van	20%	-
Equipment	Percent of fleet that is past the useful life benchmark	Automobiles	20%	72%
		Trucks and other Rubber Tire Vehicles	20%	50%
Facilities	Percent of facilities that are rated less than 3.0 on the TERM Scale	Administrative / Maintenance Facilities	20%	25%
		Parking Structures	-	0%
Track	Percent of track segments with performance restrictions	Commuter Rail	-	-

A hyphen indicates that the transit agency does not own or operate a particular asset.

NMDOT-sponsored Group Tier II Transit Asset Management Plan (TAM Plan) that covers all recipients of Section 5311 funding for rural public transportation in the State. The TAM Plan covers a four-year period from FFY 2019-2022.

The New Mexico Group Tier II TAM Plan uses both age and mileage to calculate Useful Life Benchmarks (ULBs) for transit rolling stock. These ULBs differ from the National Transit Database reporting, which allows for only a vehicle age ULB. The New Mexico Group Tier II TAM Plan uses both age and mileage ULBs to set targets and identify performance, which informs decision-making around asset management of transit vehicles. These ULBs more accurately reflect the condition of older vehicles with low mileage.

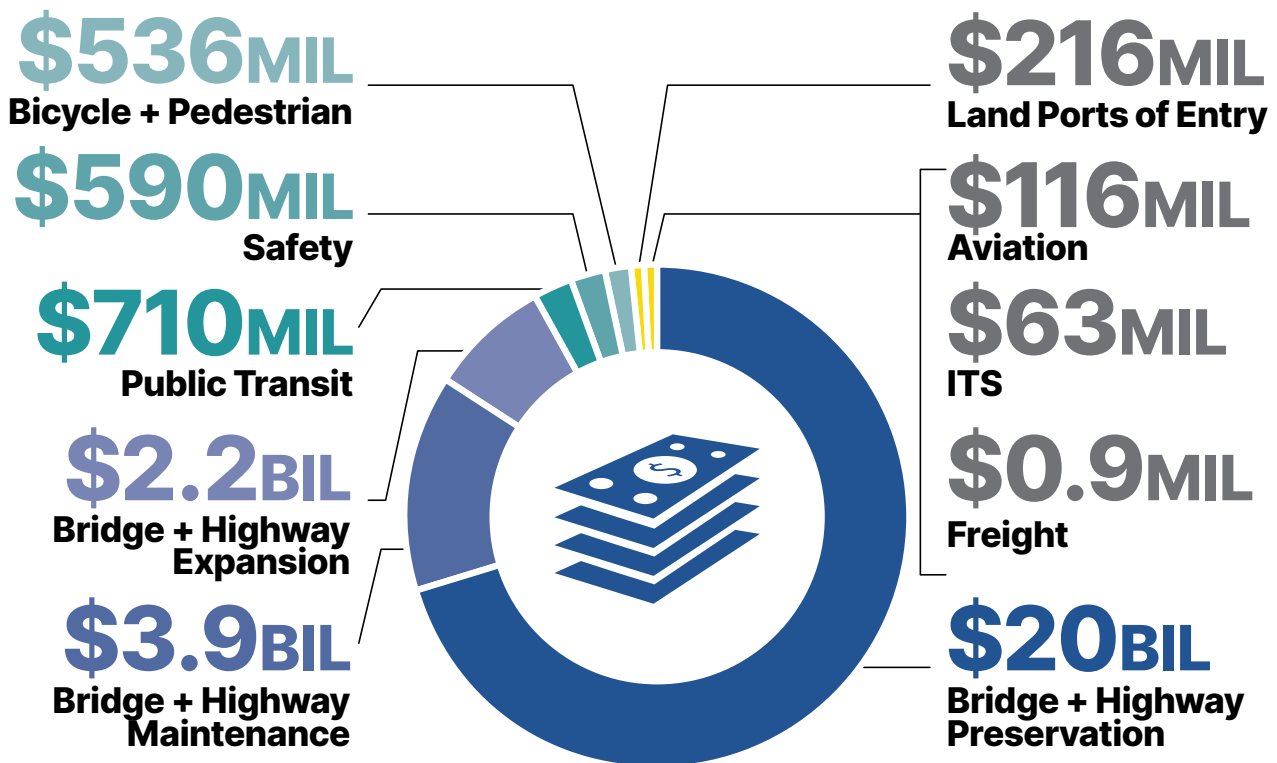| City of Farmington	City of Las Cruces	City of Santa Fe	Rio Metro Regional Transit District	South Central Regional Transit District
-	-	0%	-	-
-	-	-	-	-
0%	50%	0%	-	-
-	-	0%	-	-
-	-	0%	-	0%
14.28%	28.5%	0%	39.47%	-
-	-	-	33.33%	-
-	-	-	-	-
0%	-	20%	-	-
-	-	80%	0%	-
-	22.22%	40%	40%	-
-	66.67%	0%	28.57%	0%
-	0%	100%	0%	-
-	-	5%	5%	-

NMDOT Transportation Investment Needs

To achieve these performance targets and sustain or improve the system's performance over time, NMDOT will need to invest in capital improvements, maintenance, and operations. These costs, referred to as "needs", are the investment levels that will be necessary to keep the infrastructure, technology, and services in working order for safe, efficient, and connected transportation over the next 25 years.

Generally, the 25-year needs estimates are based on existing NMDOT plans, programs, and analyses such as the Transportation Asset Management Plan (TAMP), the State Transportation Improvement Program (STIP), and the Highway Safety Improvement Program (HSIP). Other needs estimates for assets that are the responsibility of other agencies and local governments are based on existing and anticipated future funding that NMDOT will provide for those improvements. New Mexico's estimated 25- year transportation system needs are $28.4 billion.

Figure 5: **New Mexico 25-Year Capital Investment Needs**

$536MIL
Bicycle + Pedestrian

$590MIL
Safety

$710MIL
Public Transit

$2.2BIL
Bridge + Highway Expansion

$3.9BIL
Bridge + Highway Maintenance

$216MIL
Land Ports of Entry

$116MIL
Aviation

$63MIL
ITS

$0.9MIL
Freight

$20BIL
Bridge + Highway Preservation

NMDOT's transportation investment needs will be paid for by state and federal funding sources. A baseline revenue forecast model estimates how much funding is likely to be available from 2020 and 2045 based on projected state revenues under current state and federal law, and NMDOT's share of federal apportionment for highways and transit. The forecast assumes federal funding will remain at nominal 2020 levels over the 25-year plan period. The forecasted state funding is based on existing NMDOT forecasts and projected changes in population, gross domestic product, fuel prices, vehicle miles traveled, vehicle registrations, and the types of vehicles that make up New Mexico's vehicle fleets (including electric vehicles).

The revenue forecast model suggests that, under current law, there will be $11.8 billion in revenue available over the course of this 25-year plan. Compared to the estimated investment needs of $28.4 billion, New Mexico DOT is likely to see a gap of about $16.7 billion.

*Table 8: **2020-2045 Revenue Needs, Funding and Gap***

Need Area	Needs	Funding	Gap
Bridge + Highway	$26,144.3	$10,315.7	$15,828.6
Public Transit	$709.7	$473.8	$235.9
Safety	$590.0	$590.0	$ -
Bicycle + Pedestrian	$536.1	$120.7	$415.4
Land Ports of Entry	$215.5	$ -	$215.5
Aviation	$115.8	$115.8	$ -
Intelligent Transportation Systems (ITS)	$63.3	$ -	$63.3
Freight	$0.9	$ -	$0.9
TOTAL	$28,375.6	$11,616.9	$16,758.7

*Figure 6: **2020-2045 Revenue Gap***

Bridge + Highway*

41% Funded	59% Gap

Aviation**

100% Funded

Public Transit

67% Funded	33% Gap

Bicycle + Pedestrian

	78% Gap

22% FUNDED

Total

41% Funded	59% Gap

*Bridge and Highway (includes bridge, pavement, freight, safety, and ITS)

**Aviation needs and funding based on programmed projects.

Note: non- bridge and highway modes include only needs that are funded through NMDOT. Additional needs may exist based on projects and service outside of NMDOT funding or funding allocation.
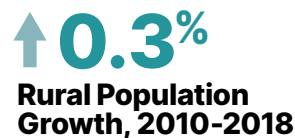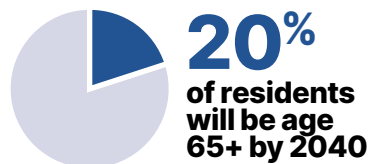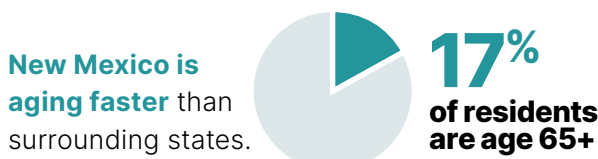
Trends and Issues

New Mexico and the world will undoubtedly change over the next 25 years. The 21st century has, thus far, connected society in unforeseen ways through new economic opportunities and technological advances. To prepare for 2045, NMDOT explored the trends impacting travel today and the emerging issues of the future.

Demographics

Population growth is slowing. New Mexico is on track for its slowest population growth between census years in recorded history.

2.1MIL → **2.4**MIL*
Population in 2018   **Population in 2040**

New Mexico is aging faster than surrounding states.

17% of residents are age 65+

20% of residents will be age 65+ by 2040

↑**2.5**% **Urban Population Growth, 2010-2018**
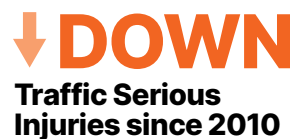
↑**0.3**% **Rural Population Growth, 2010-2018**

84% of growth will concentrate in the most urban counties of **Bernalillo, Sandoval,** and **Doña Ana.**
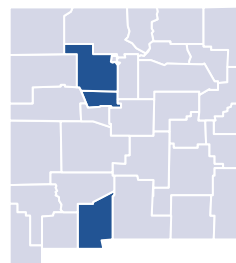
2045 projections unavailable as of June 2021. Population projections provided by the University of New Mexico Geopatial and Population Studies.

Transportation

80% **of New Mexico commuters drive alone** *+2.5% since 2010*

↑**4.9**% **Increase in vehicle miles traveled, 2010-2019** *National growth: +9.6%*

↓**2.9**% **Public Transit Ridership, 2018** *-23.9% since 2013 peak*

↑**UP** **Heavy Truck Collisions since 2011**

→**FLAT** **Highway-Rail Casualties since 2010**

↓**DOWN** **Traffic Serious Injuries since 2010**

→**FLAT** **Traffic Fatalities since 2008**

↑**UP** **Nonmotorized Fatalities & Serious Injuries since 2013**

Socioeconomics

INDUSTRY

↑ **$9**BIL
**Government +
Financial Activities**

↓ **$3.5**BIL
Manufacturing

Gross Domestic Product (GDP) growth since 2000

HOUSEHOLD INCOME

Household income is growing and the proportion of lower-income households is shrinking but at a slower rate than surrounding states.

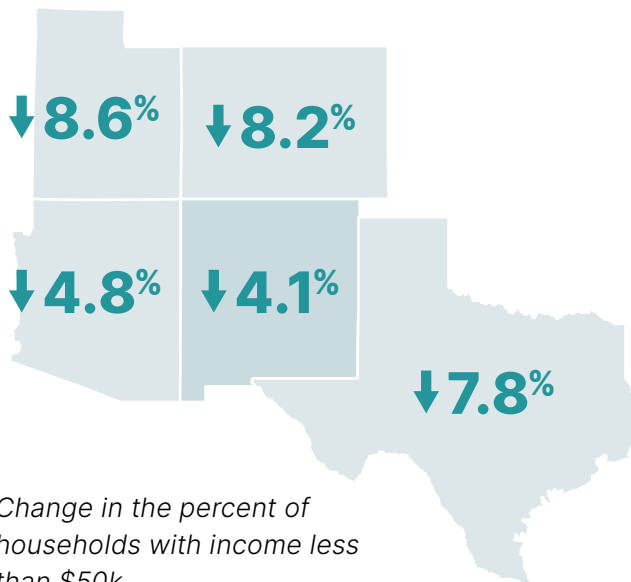↓**8.6**%   ↓**8.2**%

↓**4.8**%   ↓**4.1**%

↓**7.8**%

Change in the percent of households with income less than $50k

FREIGHT

Truck freight growth is increasing.

↑**227**%

**Annual truck border crossings at
Columbus and Santa Teresa (2009-2019)**

EDUCATION

New Mexico residents became more educated.
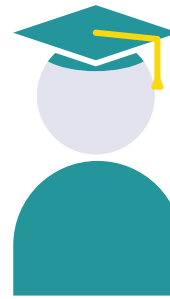
↑**3.7**%
**High school degree
or higher**

↓**2.7**%
No high school diploma

EMPLOYMENT

Employment levels peaked before the 2008 financial recession. For eleven years, the labor force slowly recovered, surpassing the 2008 peak in March 2019.

Total employment in New Mexico was 1.10 million in 2017, up 3.6 percent from the corresponding 1.06 million in 2010. Most major sectors increased employment during this time; however, **Government, Information, and Manufacturing all reduced jobs.**

↓**5.1**%
Government *(11,151 fewer jobs)*

↓**10.5**%
Information *(1,791 fewer jobs)*

↓**3.9**%
Manufacturing *(1,335 fewer jobs)*

Environment

"New Mexico is already experiencing the effects of climate change. We see changes in our weather manifested in hotter and longer summers, more intense storms, and more frequent droughts. We see less predictable and robust harvests of our agricultural products, an increase of natural disasters like flash floods and brushfires, and in the health of New Mexicans – who are experiencing higher rates of asthma and heat-related illnesses."

"...Transportation is now the second-highest source of greenhouse gas emissions in New Mexico. We have seen some decline in transportation sector emissions between 2005 and 2018 (9%), largely because motor vehicles have become more fuel-efficient. Fuel-efficient vehicles use less gasoline and diesel fuel to do the same work, and thus produce a decline in emissions overall."

New Mexico Climate Strategy Initial Recommendations and Status Update (2019)

Emerging Issues

ELECTRIC VEHICLES (EVs)

EV adoption is a focus of the New Mexico Climate Strategy.

Sales of EVs, hybrids, and plug-in hybrids comprised

2.9%

of total sales in NM in 2018

EVs are projected to make up

21.2%

of all registered NM vehicles by 2045

State and federal tax revenue would decrease by $3 billion, or 5 percent if EVs reach 20 percent with the current funding model.

CONNECTED & AUTONOMOUS VEHICLES (CAVs)

No fully automated vehicles are available on the market, but systems are currently being developed and tested at varying levels.
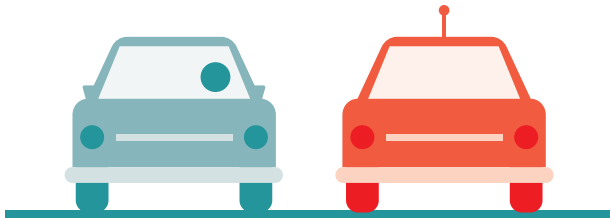
In 2020, self-driving vehicle testing by the private auto industry **expanded to New Mexico's public roads.**

CAVs have **planning implications** for safety, right-of-way, VMT and congestion, mobility, public transit, land use, and parking.

E-COMMERCE & REMOTE SERVICES

are growing on a national level.

E-commerce made up

14.3%

of total commerce in the third quarter of 2020

4.8%

of New Mexico worked from home in 2018

COVID-19 resulted in a large shift to remote work across the world. Many will likely continue to work from home in the future.

TECHNOLOGY

Emerging technology trends could benefit populations in rural areas.

Mobility as a Service (MaaS) and CAV could alleviate transit and mobility gaps.

Telemedicine reduces the need for those seeking medical services to travel to healthcare centers.

E-commerce and direct-to-door deliveries provide an option for purchasing goods without traveling to the store.

Scenario Planning

Building on the information outlined in Transportation in New Mexico Today and incorporating the key disruptors of the Trends and Issues, the project team developed three scenarios to explore the needs for New Mexico's future and how NMDOT might prepare for, adapt to, and direct this future through the *New Mexico 2045 Plan*. The three scenarios considered during the planning process are not mutually exclusive - combinations of all three scenarios, and other future eventualities, are likely to define New Mexico's outlook.

WHAT IS SCENARIO PLANNING?

Scenario planning is a tool to identify and explore a variety of futures. It enables transportation decision-makers to consider policies and strategies for tomorrow by (1) defining versions of the future (scenarios) and (2) walking through the impacts and responses of that future.

Scenario 1: Steady Cities, Diverse Economy

In this scenario...

- Urban population is growing fast
- More people are in cities and suburbs
- Increasing share of professional services in the economy
- Shared and active transportation use increases
- Freight increases around and through urban areas
- Mobility and technology gaps widen between urban and rural areas

Scenario 2: Resiliency Challenged

In this scenario...

- More prevalent intense storms, droughts, floods, and fires
- New health and economic impacts including disruption to agriculture and mining
- EV adoption rates grow quickly
- Population growth slows with out-migration
- Freight networks face disruptive events
- Redundancy and response infrastructure is more important

Scenario 3: Technology Advances

In this scenario...

- Advances in technology establish new opportunities and industries
- Universal broadband access, e-commerce, and remote work in demand
- Remote opportunities draw population to rural areas
- CAVs and EVs are more established in the market
- Connected freight and alternative goods delivery are growing
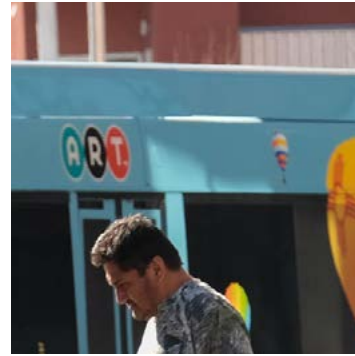
Key Takeaways

Working through these three extreme scenarios and the impacts they would cause for the NMDOT system highlighted points of action and consideration when looking forward to 2045.

- Our transportation assets will need to respond to new technologies and environmental impacts. Proactive and responsive asset design and management will help assist future asset needs and use transitions.

- The safety of vulnerable populations will continue to be a critical concern. New travel patterns increase the prevalence of active transportation users, and new technology will introduce new conflicts.

- With a range of new mobility and accessibility tools anticipated, project prioritization and data-driven investments can help NMDOT balance community concerns with long-standing infrastructure goals.

- Changing funding sources and technologies raise interest and the need for consideration of alternative funding sources.

- Evolving planning and partnership expectations require NMDOT to be adaptable and proactive in working with others.

- Reliability and freight bottlenecks will worsen with more and different types of travel unless preparations are made to address geographically- and technology-based changes.

- Rural and tribal equity will be a concern across all scenarios. NMDOT's ability to respond will require long-term and comprehensive planning and policymaking.

What We Heard: Public & Stakeholder Engagement

Both the public survey and the July 2020 stakeholder workshops encouraged people to discuss and provide input on the future of New Mexico's transportation environment.

When asked to provide input on their future spending preferences, nearly all respondents prioritized:

- Preserving the highway system
- Supporting economic development
- Improving highway safety

Public survey respondents also generally revealed an unfavorable perception or level of acceptance of new mobility options beyond the private automobile.

51% *of respondents strongly disagreed when asked if they were eager to switch to an electric vehicle*

50+% *of respondents would not be comfortable with autonomous vehicles, mobility as a service, or ride-hailing services*

Stakeholders also rated the technology-based future scenario a slightly lower priority during the July 2020 virtual workshops. Though responses were well dispersed, urbanization and economic changes were prioritized as the most critical planning concerns for The *New Mexico 2045 Plan* by stakeholders in three of the four workshops.

Public and stakeholder input on the future indicates a heightened interest in preserving transportation assets, improving safety, and supporting communities through economic and demographic changes. Lastly, even though it received relatively low public interest, technology is a major emerging issue across the transportation sector. New Mexico residents may require more support, education, or incentives to accommodate new technology-driven mobility options.

Table 9: **Virtual Workshop Scenario Rankings**

Scenario	North & Northwest Regions	Mid-Region, Northeast, & Eastern Regions	Southwest, South Central, & Southeast Regions	Tribal Nations & Pueblos
Steady Cities, Diverse Economy	1	2	1	1
Resiliency Challenged	2	1	3	2 (tie)
Technology Advances	3	3	2	2 (tie)

5 Strategic Direction

What We Learned: Process & Engagement

NMDOT conducts several activities across the agency that include strategic planning and visioning elements. The results of these efforts, which include the agency's overall strategic direction, the current long-range statewide transportation plan (2040 Plan), and other modal and topical plans, provide an important starting point for developing the vision, goals, and objectives for the *New Mexico 2045 Plan*. In addition to building from existing NMDOT plans, NMDOT also considered national transportation goals and performance management guidance, as well as input from the public, stakeholders, and the Plan Steering Committee, to develop the strategic framework for the *New Mexico 2045 Plan*.

NMDOT monitors system progress across several key performance measures, including the federally required transportation performance measures. The department will leverage existing data collection and performance monitoring efforts to track progress in achieving the *New Mexico 2045 Plan* goals and objectives.

The majority of stakeholders agreed that the *New Mexico 2045 Plan* goals and objectives represent what needs to be achieved for New Mexico's future transportation system.

Goal / Objective	North & Northwest Regions	Mid-Region, Northeast, & Eastern Regions	Southwest, South Central, & Southeast Regions	Tribal Nations & Pueblos
Asset Management	78%	79%	95%	100%
Safety	87%	93%	84%	75%
Mobility & Accessibility	95%	100%	57%	75%
Program Delivery	89%	100%	79%	100%

Performance-Based Planning and Programming in New Mexico

As illustrated in Figure 7, the *New Mexico 2045 Plan* is heavily integrated with NMDOT's overall transportation performance management activities. Several NMDOT and partner program and planning activities (which are influenced by federal performance goals and measures) helped inform plan development. For example, the allocation of resources, prioritization of projects and initiatives, and associated performance targets in the HSIP, TAMP, and Regional/Metropolitan Transportation Plans all supported documentation of current system performance and development of future needs estimates in the *New Mexico 2045 Plan*. In turn, the vision, goals, objectives, and policies in the *New Mexico 2045 Plan* will help guide future NMDOT decisions about how future funds are invested to ensure alignment with both short-term federal performance targets, as well as long-term progress toward achieving national transportation goals.

Figure 7: **NMDOT Performance-Based Planning and Programming**

| Highway Safety Improvement Program | Strategic Highway Safety Plan | Transportation Asset Management Plan | Transit Asset Management Plans | CMAQ Performance Evaluations |

New Mexico 2045 Plan
Provides policy and strategic direction

INFORMS

| Regional Transportation Plans | Metropolitan Transportation Plans |

GUIDES INVESTMENT DECISIONS

GUIDES INVESTMENT DECISIONS

Project Evaluation Process

| State Freight Plan / Fiscally-Constrained Freight Investment Plan | Statewide Transportation Improvement Plan | Regional Transportation Improvement Program Recommen-dations | MPO Transportation Improvement Programs |

Supports national, state, and regional performance goals
Makes progress towards achieving targets
Advances other desired performance outcomes

NM 2045 Plan Goals, Objectives, Performance Measures

Safety

Improve safety for all transportation system users

Objectives	Performance Measures
• **Reduce the number of roadway fatalities**	• Number of fatalities (statewide, rural, and urban)
• **Reduce the number of roadway serious injuries**	• Rate of fatalities per 100 million VMT
• **Reduce the number of nonmotorized fatalities and serious injuries**	• Number of serious injuries
• **Reduce the number of fatalities and serious injuries in NMDOT roadway work zones**	• Rate of serious injuries per 100 million VMT
• **Invest in infrastructure and programs that improve pedestrian safety.**	• Number of non-motorized fatalities and non-motorized serious injuries
	• Number of employee injuries occurring in work zones
	• Number of pedestrian fatalities

Mobility & Accessibility

Efficiently and equitably invest in infrastructure and technology to provide reliable multimodal access and connectivity, improve mobility, foster economic growth, and minimize transportation's contribution to climate change

Objectives	Performance Measures
• **Improve mobility and accessibility in strategic corridors.**	• Percent of the person-miles traveled on the Interstate that are reliable
• **Address bottlenecks identified in the New Mexico Freight Plan**	• Percent of the non-Interstate NHS person-miles traveled that are reliable
• **Facilitate the transition of the fleet to electric vehicles and alternative fuels**	• Interstate Truck Travel Time Reliability Index
• **Expand transportation choice through multimodal investments and complete streets design**	

Program Delivery

Deliver transportation programs through approaches and processes that improve resiliency, respect New Mexico's unique cultures, and promote fiscal and environmental stewardship

Objectives	Performance Measures
• Deliver projects that adhere to local plans and respect New Mexico's unique cultural resources and community context.	• Emission Reductions for PM10[1] through Congestion Mitigation and Air Quality Improvement Program (CMAQ) projects
• Implement projects and programs that reduce negative impacts on the natural environment	• Percent of cost-over-bid amount on highway construction projects
• Deliver projects on-time and within budget	• Percent of projects completed according to schedule
	• Projects put out for bid as scheduled

Asset Management

Optimize spending to cost effectively preserve our transportaion assets in the best possible condition over the long term

Objectives	Performance Measures
• Maintain pavement in a state of good repair	• Percent of lane miles of pavement in fair or better condition by tier (Interstate/non-interstate/ NHS/non-NHS)
• Maintain bridges in a state of good repair	• Percent of pavement in good condition (Interstate/non-interstate NHS)
• Assess and address system risks to improve resiliency	• Percent of pavement in poor condition (Interstate/non-interstate NHS)
• Support improvement in the state of good repair for transit assets throughout the state	• Percent of New Mexico DOT bridges in fair or better condition (based on deck area)
	• Percent of NHS bridges by square footage of deck area in good condition
• Maintain applicable runways in the state	• Percent of NHS bridges by square footage of deck area in poor condition
	• Percent of revenue vehicles exceeding useful life benchmark (ULB)[1]
	• Percent of non-revenue service vehicles exceeding ULB
	• Percent of facilities rated under 3.0 on the Transit Economic Requirements Model (TERM) condition rating scale[2]
	• Percent of track segments under performance restriction
	• Percent of airport runways in satisfactory or better condition

1 Useful Life Benchmark is the expected lifecycle of a capital asset for a particular transit provider's operating environment, or the acceptable period of use in service for a particular transit provider's operating environment.

2 The TERM rating scale is from 1 to 5. Ratings below 3.0 include Marginal and Poor.

6 Implementation Strategies

The previous sections of the New Mexico 2045 Plan provide context on the New Mexico transportation system today the long-term goals for the future of transportation New Mexico in 2045, and the challenges that NMDOT may encounter over the life of the plan. Using this information, the New Mexico 2045 Plan includes a series of strategies that, when implemented, will prepare NMDOT for the future and provide the best support for the statewide transportation system. The strategies are arranged by goal area and include a mix of topics such as new policies, improved decision-making processes, enhanced stakeholder collaboration, and staff development.

The New Mexico 2045 Plan strategies originated from numerous sources and represent the full scale of work completed as part of the New Mexico 2045 Plan process. The conversations, engagement and research conducted during the planning process brought together diverse input from across NMDOT and across the state. Many of the strategies are already underway as NMDOT proactively plans for a resilient, adaptable transportation system and continues to integrate data-driven decision making.

What We Heard: Public & Stakeholder Engagement

The strategies considered input from the New Mexico 2045 Plan public survey where respondents provided input on their programmatic spending preferences. Nearly all participants rated preserving the highway system, improving highway safety, and supporting economic development as very important or important priorities for future spending.

Figure 8: **Public Survey Transportation Infrastructure and Services Top 4 Spending Priorities**

Preserving the Highway System	4.40
Supporting Economic Development	4.40
Improving Highway Safety	4.34
Operating the Highway System	4.00
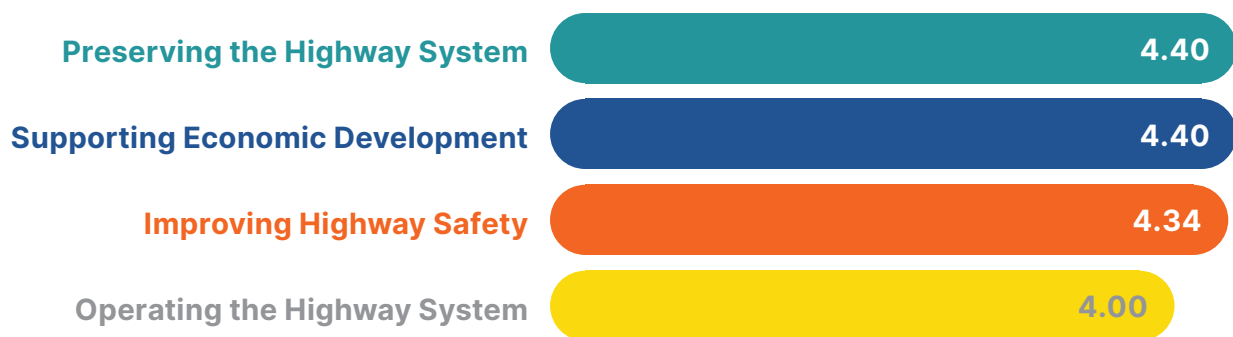
(Numbers shown represent the weighted responses where a score of five indicated the priority is very important, a score of three is seen as neutral, and a score of one is not important.)

Stakeholder input continued through the July 2020 virtual workshops and was supplemented by the review of best practices and relevant stakeholder planning documents, as well as numerous discussions across NMDOT staff and leadership.

Asset Management

"Optimize spending to cost effectively preserve our transportation assets in the best possible condition over the long term"

The New Mexico 2045 Plan identifies nine strategies to support cost-effective asset management for the long-term preservation and resiliency of pavement, bridges, transit assets airport runways, and other transportation assets. These strategies highlight opportunities to use and improve data in decision-making, prepare for new technology and climate change risks, and support our transit and aviation partners.

Asset Management Strategies

Continue to expand the scope and improve the quality of data collected to inform asset management decision-making. Examples include expanding data collection to pedestrian assets and improving the quality of Geographic Information System (GIS) spatial data.

Integrate the Project Evaluation Process to advance performance-based asset management.

Assess Connected and Autonomous Vehicles (CAV) related preservation needs, conduct roadway baseline assessment, develop an approach for integrating into asset management related decision-making.

Identify data for and conduct a study to identify risks to system assets. Create a plan to address priority assets.

Develop process for incorporating resiliency and impacts of increasingly severe weather and increased environmental stress into asset management and project design.

Provide technical assistance for transit agencies planning and funding-pursuits that will lead to the electrification of assets.

Support statewide aviation in the assessment and improvement of airfield pavement condition.

Invest in staff and staff training to prepare the organization for changing technology standards and build organizational capacity to prepare for CAVs and advanced ITS.

Mobility and Accessibility

"Efficiently and equitably invest in infrastructure and technology to provide reliable multimodal access and connectivity, improve mobility, foster economic growth, and minimize transportation's contribution to climate change"

The eight Mobility and Accessibility strategies aim to leverage investments, technology and relationships to improve mobility and accessibility on strategic corridors, address freight bottlenecks, support the transition to electric vehicles and expand transportation choice. The Mobility and Accessibility strategies include wide-ranging tactics to work with others for a comprehensive and safe multimodal system. These collaborative strategies are paired with tools to strengthen existing NMDOT efforts through expanded services and decision-making and evaluation tools.

Mobility and Accessibility Strategies:

Invest in and establish partnerships to build direct current fast charging (DCFC) stations along EV corridors and expand corridors to provide better coverage across NM.

Continue to enhance the data-driven evaluation and prioritization of freight projects to improve reliability.

Work with the Department of Health, Environment Department, Department of Agriculture, or other relevant agencies to study potential freight impacts and needs resulting from the 2021 legalization of recreational cannabis (House Bill 12).

Promote and support the expansion of vanpooling services to close transit service gaps, improve mobility and reduce Vehicle Miles Traveled (VMT).

Formalize opportunities for existing committees and functional groups to provide guidance for project design and project implementation.

Update Guidance Manuals and processes to include Complete Streets Principles. Develop and conduct training for staff on process changes. Integrate Complete Streets approaches into the development process of new and reconstruction projects.

Develop a NMDOT Climate Change Plan to develop adaptation and resiliency strategies as well as strategies to reduce transportation emissions.

Develop a framework for measuring and evaluating the impacts of policy, program, and project implementation from an equity standpoint.

Program Delivery

"Context Sensitive Solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders to provide a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. The CSS is an approach that addresses the total context within which a transportation facility is planned, implemented, maintained and operated."

Source: https://highways.dot.gov/federal-lands/about/context-sensitivity

"Deliver transportation programs through approaches and processes that improve resiliency, respect New Mexico's unique cultures, and promote fiscal and environmental stewardship"

The New Mexico 2045 Plan sets a goal to deliver projects on-time and on-budget while reducing negative impacts on the natural environment and both adhering to and respecting local plans and heritage. Improving NMDOT program delivery approaches and processes can result from strengthened internal capacity and better relationships with partners.

Program Delivery Strategies:

Establish procedure guidelines for integrating context-sensitive solutions (CSS). Identify project eligibility to determine where the CSS process will be deployed. Train staff on CSS procedures and tools.

Study revenue options and projections, continue coordination with RUC West (an multi-state organization dedicated to exploring Road Usage Charging (RUC)) to learn from efforts from other states and build legislative support for alternative revenue sources to supplement motor fuel taxes, including electric vehicle fees and road user charges.

Continue to explore road user charge pilot project in partnership with neighboring states. Establish evaluation process, collect data, and evaluate performance.

Identify opportunities to leverage NMDOT projects to expand broadband access and ITS infrastructure, especially in underserved areas.

Expand and strengthen partnerships with tribal and local public agencies (T/LPA) as well as other regional organizations including economic development agencies. Establish a process for considering and incorporating T/LPA and regional plans into NMDOT project prioritization and design, as applicable.

Continue to build support for legislative action that will allow alternative delivery of projects by preparing and conveying information of the process improvements and cost savings.

Develop the alternative delivery guidance (including edits to the NMDOT Design Manual) and project eligibility standards. Develop and conduct training for staff on process changes.

Increase internal staff capacity to reduce reliance on external consultants and contractors.

Safety

"Improve safety for all transportation system users"

Safety for all transportation system users is an ongoing priority through all NMDOT plans and actions. Achieving fewer driver, bicycle, and pedestrian fatalities and serious injuries will require interventions in project scoping and design, as well as through driver awareness and education. As such, the New Mexico 2045 safety strategies span varying processes. The five strategies include implementing recommendations from bicycle and pedestrian plans, increasing organizational capacity, improving project selection processes, and preparing for future safety concerns such as those that may arise from the recent legalization of recreational cannabis.

Safety Strategies:

Implement recommendations from the NM Bike Plan for reconstruction and rehabilitation projects to increase safety for local and tourist cyclists and reduce VMT.

To prepare for the use of recreational cannabis, study best practices regarding safety campaigns designed to reduce driving under the influence of cannabis safety campaigns. Build a coalition to spread cannabis driving safety awareness.

Implement the Network Screening and data-driven project selection process outlined in the Highway Safety Improvement Program (HSIP) Manual.

Implement recommendations from the NMDOT Pedestrian Safety Action Plan.

Increase organizational capacity for safety management and HSIP execution.

The New Mexico 2045 Plan gathers the information necessary to understand the future and a provides a blueprint for NMDOT to prepare for what is coming. NMDOT will implement the New Mexico 2045 Plan strategies over the next 25 years to make measurable performance improvements to the multimodal transportation system. Ultimately, the New Mexico 2045 Plan is a plan to help NMDOT meet the long-term needs of our current and future residents, businesses, and visitors.