ASCE **State of New Mexico** Section

CENTENNIAL 1912-2012

NM 2012

NEW MEXICO

LAND OF ENCHANTMENT

Infrastructure Report Card

ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS

NM Infrastructure
Report Card 2012

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AVIATION
BRIDGES
DRINKING WATER
FLOOD CONTROL
RAIL
ROADS
SCHOOLS
SOLID WASTE
TRANSIT
WASTE WATER

NEW MEXICO CENTENNIAL 1912-2012

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Executive Summary

The New Mexico Section of the American Society of Civil Engineers (ASCE) is pleased to present the results of our New Mexico 2012 Infrastructure Report Card. It is through the hard work of the report card committee chairs, their team, and the agencies that oversee the respective infrastructure categories that the New Mexico general public and legislators may understand the state of our infrastructure.

From the time we wake up, until we go to sleep, we depend on our infrastructure as a functional system designed to do the job we think it should do, such as delivering our drinking water and disposing waste water, taking us to work, or providing viable schools for our children. We depend on a reliable infrastructure to enjoy a vibrant workforce, a clean environment, and a good, safe quality of life.

The New Mexico Section of ASCE has more than 760 members. One of our key goals is to promote knowledge of the profession and practice of civil engineering to the citizens of New Mexico. Therefore, providing an assessment of the infrastructure is inherent in our responsibilities.

In 2005 the New Mexico Section of ASCE issued its first Infrastructure Report Card for New Mexico. For the 2005 Report Card seven infrastructure categories were evaluated including: aviation, rail, roads, solid waste, schools, transit and flood control. The composite grade for these seven categories in 2005 was a C. The ASCE NM Section's assessment of the condition of New Mexico's infrastructure for 2012 also resulted in a composite grade of C.

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In addition to the seven categories evaluated in 2005, three new categories were evaluated including bridges, drinking water and waste water. Although a direct comparison of the composite grades of the two report cards cannot be made due to the addition of the three new categories, the individual category grades compare as follows:

Category	US 2009 Grade	NM 2012 Grade	NM 2005 Grade
Aviation	D	D+	C-
Flood Control	--	D+	D+
Drinking Water	D-	C-	--
Bridges	C	C-	--
Rail	C-	C	B
Roads	D-	C	B-
Solid Waste	C+	C	C
Waste Water	D-	C	--
Transit	D	C+	C
Schools	D	B-	C-
Composite	D	C	C

This report illustrates that the citizens and legislators of New Mexico must improve our efforts to prioritize infrastructure improvements. We must set our goals on sustainable infrastructure practices, supporting infrastructure legislation at all levels of government, and moving forward with the community involvement and leadership required to raise these grades. Much like a student's report card that contains a grade based on past performance, the ASCE NM Section's infrastructure report card is a snapshot of past performance. It is also an indication of future capabilities. There is hard work to follow, to maintain or achieve good grades. The report that follows identifies the challenges associated with our infrastructure needs, and provides recommended actions.

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Category	Grade	Description	Page Start
Aviation	D+	New Mexico Airports serve a critical role in the State's economic development. A 2009 New Mexico Airport System Plan study showed that aviation in New Mexico supports 48,795 jobs, generates $1.3 billion in payroll annually, and is responsible for contributing $3.1 billion annually to the economy. However, with only 66% of needed funding available, our aviation infrastructure components are experiencing a steady decline.	14
Bridges	C–	New Mexico has a large number of bridges reaching the end of their design life and a bleak funding outlook which resulted in a rating that is lower than is indicated by condition alone. Cost estimates to repair or replace bridges in New Mexico is currently $178 million; this number will grow rapidly as each additional design life is exceeded.	34
Drinking Water	C–	Many of New Mexico's potable water systems are deteriorating at an ever-increasing rate due to the age of the systems. The systems have been serving their communities very well over the years with safe reliable water, but routine maintenance and rehabilitation must be increased for there to be any chance of keeping up with the sustainability goal for future generations.	45
Flood Control	D+	The condition of flood control infrastructure in New Mexico varies widely, with larger municipalities having more effective facilities than rural areas. On balance, 73% of all jurisdictional dams and 77% of jurisdictional flood control dams are considered deficient or not in satisfactory condition. Ongoing work should improve on the 16% of jurisdictional dams classified as high or significant hazard potential. However, there are significant shortcomings in the state's flood control infrastructure that are expected to worsen over time.	59
Rail	C	Railroads play a major role in New Mexico's economy providing for the movement of natural resources, freight and people. The primary problem with the Burlington Northern (BNSF) Santa Fe and Union Pacific Railroad (UPRR) corridors is capacity. The State, Federal and local governments should pass economic stimulus bills to encourage the development of these rail corridors. The short line railroads are the primary movers of the State's natural resources (coal, potash, copper, etc.) and the Short Line Credit Extension federal legislation should be extended to support this important rail connectors. Finally, New Mexico has a unique passenger rail system in the Rail Runner that provides rail passenger service between Belen and Santa Fe. The State should recognize the transit / tourism benefits and the local governments should promote transit oriented facilities.	68

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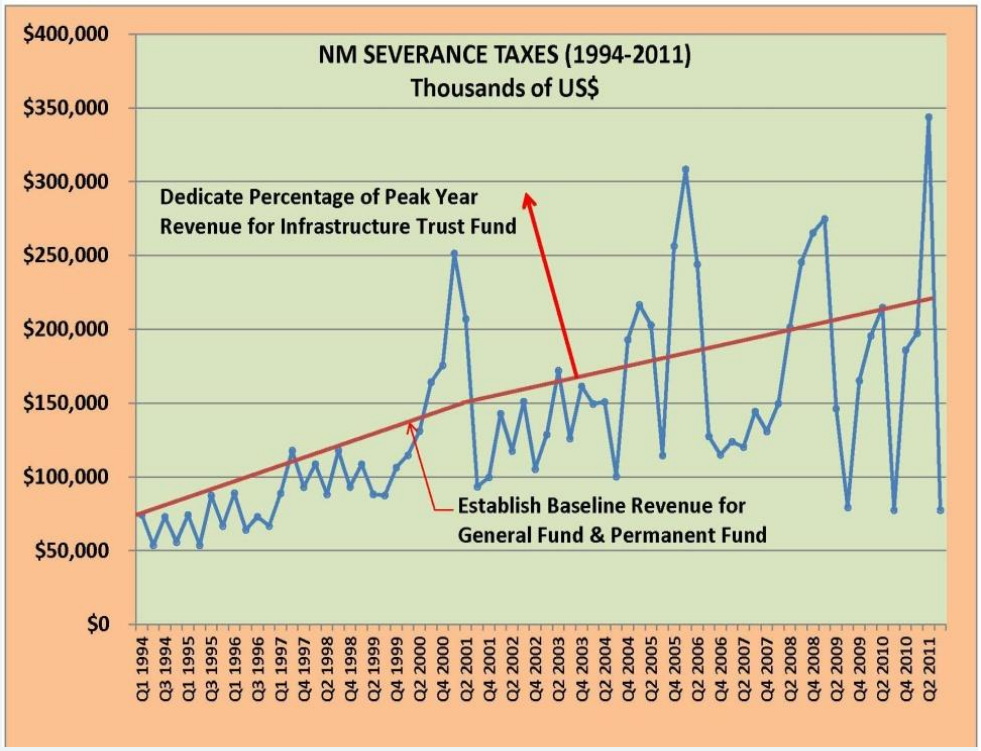
Category	Grade	Description	Page Start
Roads	C	The capacity and condition of New Mexico's roads are above the national average, which is partially a result of the relatively lower statewide population and traffic volume. However, New Mexico's urban roads are among the roughest in the nation. Vehicular travel on New Mexico's roads has been increasing at a rate of about double the national average; increasing high traffic and a shortage of funding have made New Mexico's road serviceability decline over time.	87
Schools	B–	New Mexico's student population increased 3.5% to 337,000 since the last Infrastructure Report Card in 2005. New Mexico public schools utilize over 100 million square feet of building space. The New Mexico Facilities Condition Index (NMCI- needed repairs of a school building divided by its replacement value) improved by 46% since 2003 but the rate of improvement has slowed, and in 2010 began to reverse due to funding constraints. The NMCI enables the comparison of all the public schools in the state to determine greatest need for funds that are available for the correction of school deficiencies. Current unfunded public school facilities needs total $4.05 billion.	100
Solid Waste Management	C	The condition of the State of New Mexico's solid waste infrastructure is good. Solid Waste collection at the curb is provided to more than 60% of the population, disposal capacity exceeds 60 years, recycling services are provided in each of the state's 102 municipalities, and there are drop-off locations for solid waste and recyclables in all 33 counties. The state must focus on continued support of the solid waste system through adequate funding, training, and public education and awareness of the value of a strong solid waste system.	110
Transit	C+	Transit is maintaining a level of service that is currently meeting most of the public's needs. However, in order to provide for increasing ridership, create a competitive alternative to other modes of transportation, and play a role in the solution to increasing roadway congestion, additional funding and a higher placed priority on new program initiatives are required.	122
Waste Water	C	Historically, the cost of waste water treatment in New Mexico has been low in many locations, because treating waste water was not a priority. So, those costs added to any new water conservation measures such as reuse and grey water has made the need for rehabilitating treatment systems slow to be realized. This has led to there being little opportunity or perceived need for new plants, improved system operations or even rehabilitating plants that already exist.	131

Recommended Actions

(1) Preserve the value of our infrastructure assets through new funding mechanisms. In a way that improves the government's financial solvency by gaining revenue through tolls, user fees, increased efficiency, and other broad-based funding mechanisms. Specifically, infrastructure funding based on current tax strategies such as Aviation, Bridges, and Roads needs to be augmented by other permanent revenue streams that are driven by the oil and gas economy. Grants from federal and state agencies, loans, private partnerships, improved maintenance and operations contracts, managed competition, tax relief for owners who invest in infrastructure improvements, and other financial measures must all be considered to maximize viable funding opportunities.

New Revenue Stream – Where?

Federal and State fuel taxes funding transportation infrastructure have been at level rates since 1993, while the cost of infrastructure has increased by 60%! ASCE believes that indexing New Mexico's Severance Tax, which is largely oil and gas related, to infrastructure improvements could be used to provide a dedicated revenue source to an Infrastructure Trust Fund. As the price of oil and gas spikes upward and downward in a market driven economy, a percentage of revenue during peak years can be directed to infrastructure improvements that are related to the oil and gas market including transportation.

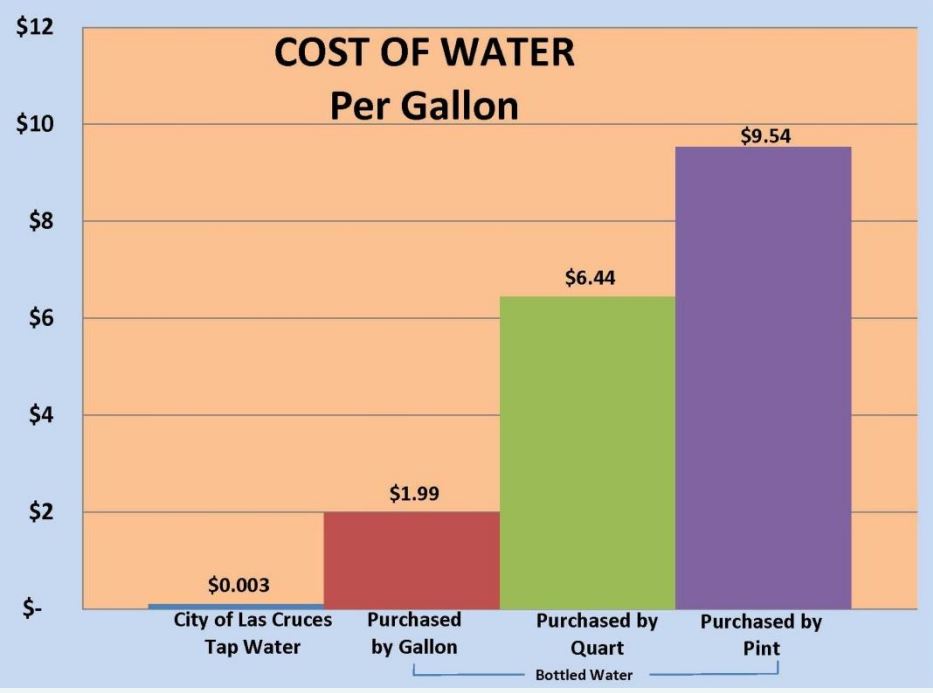


Recommended Actions (continued)

(2) Relate improved infrastructure to positive economic development and associated benefits. Studies have shown that those states that have invested more in infrastructure tend to have greater economic output, greater private investment, and higher employment growth. In particular, user fees for utilities such as water, wastewater, and solid waste should reflect the **value** of the service and not the initial capital cost alone, but also include the financing of sustainable improvements. The community must support infrastructure agencies to gain the full attention of the political powers within the state and federal government to navigate strategic pathways to monetize and manage our infrastructure for maximum benefit. It will be up to special state legislative committees to see that the goals are met.

What is Water Worth?

Water is a bargain! Tap water is delivered to your home fresh, clean, disinfected, safe, and on demand for less than a penny a gallon. How many people are only too willing to pay over 9,000% more for bottled water yet complain over a 5% rate increase in their City water rates? Infrastructure based on a User Fee Revenue Stream should accurately reflect the **value** of water instead of the raw cost. Sustainable and resilient infrastructure needs revenue invested in long -term resource management.



Recommended Actions (continued)

(3) Report on the regular assessments of the important components of our infrastructure. The evaluations of these assessments must be conducted at publicly advertised times with public input. The results of these evaluations must be presented as a formal part of New Mexico's legislative process, with transparent agendas and timelines. In addition, ASCE state and local chapter members must also serve as the strongest, most vocal constituency in support of the current administration's initiative to repair this New Mexico's infrastructure to the benefit of all Americans.

(4) Comprehensively consider large projects that cross city, county, and state lines. Projects that have a broader impact are more efficient and often more profitable than smaller, independent projects. Community Infrastructure Capital Improvement Plans (ICIPs) should be cross-filed for comment with adjoining entities prior to acceptance by the Department of Finance and Administration (DFA). For example, a City water system ICIP should be filed with adjoining municipalities, the County, the Office of the State Engineer, the NM Environment Department, irrigation districts, and adjacent water service providers before it is accepted by DFA.

(5) Assess project outcomes against defined standards to prioritize and maximize efficiency, safety, and cost-effectiveness. State funding should be based on a principled statewide outcomes assessment of priorities. As an example, if the NMDOT establishes a State baseline standard for Safety, Congestion, and Air Quality, then funding applications should document empirically how improvements will specifically address these areas of concern in order to receive priority points at the local, MPO, STIP, and State Legislative level. Similarly, if the NM Environment Department identifies Water Conservation as a statewide priority, then community projects should quantify exactly how potable water delivered to all customers (gallons per customer per day) will be reduced in any given project.

Methodology

The New Mexico Report Card Committee is comprised of nearly fifty engineers and infrastructure professionals with expertise in the various disciplines under the ten categories. The infrastructure categories assessed for this report are aviation, bridges, drinking water, flood control, rail, roads, schools, solid waste, transit, and waste water. The category chairs selected team members who assisted in generating the report card grades and report.

The New Mexico ASCE 2012 Report Card methodology is modeled after the National ASCE report card structure, which identified seven components under each category: capacity, condition, funding, future need, operations and maintenance, public safety, and resilience. In general, the seven components were assessed with some variation based on the nature of the category. In some cases, committees considered the *Future Need* component to be better embedded in the *Funding* component. In other cases, *Future Need* is replaced by the *Planning* component used in this report. If further deviation was required, it is addressed under the category heading.

Questions were generated for each component in order to obtain the proper data to assess and evaluate that component. Twenty-five cities and six counties were identified as jurisdictions from which to collect this publically available data. Each team determined weighting factors for each component, based on the level of importance that component contributed to the overall grade. Subcomponents were also weighted and graded based upon their contribution to the overall category component. The components are defined as follows:

Capacity: Evaluation of the infrastructure system capacity to meet current and future demand.

Condition: Evaluation of the existing or near future physical condition of the infrastructure.

Funding: Evaluation of the current and future level of funding for the infrastructure category as compared to the estimated funding need.

Operations and Maintenance: Evaluation of the owner's ability to operate and maintain the infrastructure properly and determine that the infrastructure is in compliance with government regulations.

Planning and Future Need: Evaluation of the owner's ability to develop and update a master plan by which the six components listed herein are evaluated.

Public Safety: Evaluation of the extent the public's safety is jeopardized by the condition of the infrastructures and what the consequences of failure may be.

Resilience: Evaluation of the ability to expeditiously recover and reconstitute critical services with minimum damage to public safety and health, the economy, and national security.

Report Card Categories

New Mexico's 2012 Report Card follows a letter grade scale similar to that used in other infrastructure report cards.

The New Mexico Report Card uses the *2009 Report Card for America's Infrastructure*:

Grade	Percent	Evaluation
A	90 - 100%	Exceptional
B	80 - 89%	Good
C	70 - 79%	Average
D	51 - 69%	Poor
F	50% or lower	Failure

Each team determined a letter grade for the subcomponents based on both publically available data and the judgment of the engineers on the committee. These subcomponents were then given a weighted grade based upon their level of importance to the overall component grade. The sum of these subcomponent grades produced the overall component grade. In the same way, overall component grades were weighted and summed to produce the final category grade. These tables are found in the Appendices.

The New Mexico Report Card Committee Chairs and Members

Committee Chairs and Members by Category

Report Card Chair: Sonya L. Cooper, P.E.

Aviation

Chair: Jane M. Lucero, AICP
Members: Steve Benson
Kent Freier, P.E.
Mark Huntzinger, P.E.
Mike Provine, P.E.

Roads

Chair: Ruinian Jiang, P.E.
Members: Robert Armijo, P.E.
Ajay Singh, P.E.
Kenneth R. White, P.E.

Bridges

Chair: Kenneth R. White, P.E.
Members: David V. Jauregui, P.E.
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Schools

Chair: Kenny Stevens, P.E.
Members: Chris Aguilar
Wanda Bulger Tamez

Drinking Water

Chair: Tim F. Cynova, P.E.
Members: James Olsen, P.E.
Richard Rose, P.E.
Bruce Thompson, P.E.

Solid Waste

Chair: Jack P. Chappelle, P.E.
Members: Danita S. Boettner, P.E.
Jerome L. Kamieniecki

Flood Control

Chair: J. Phillip King, P.E.
Members: John Allen
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Transit

Chair: Ajay Singh, P.E.
Members: Patrick S. Byrd, P.E.
Andrew de Garmo

Rail

Chair: Steven Metro, P.E.
Members: Tim Harris
Robert Gonzales
Ted Keener
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Waste Water

Chair: Bruce Thompson, P.E.
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Aviation

CENTENNIAL 1912-2012

NM D+

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Albuquerque Airport (December 1929)
Source: New Mexico Department of Transportation

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Overview: Aviation

New Mexico Airports serve a critical role to the State's economic development. In 2009, an impact study was conducted as part of the 2009 New Mexico Airport System Plan. The study showed that aviation in New Mexico supports 48,795 jobs, generates $1.3 billion in payroll annually, and is responsible for contributing $3.1 billion into the economy. The New Mexico Airport System consists of 177 private public airports that are used to transport passengers for business, recreational and medical purposes. There are also three major aviation military facilities located in New Mexico. New Mexico airports vary in size from the Albuquerque International Sunport to rural unattended airstrips primarily used for medical evacuation. While each airport serves an important role to New Mexico and its citizens, this report card limits this study to 54 airports that are under the purview of the NM Department of Transportation – Aviation Division (NMDOT – Aviation Division). Of the 54 airports, 50 are considered significant to the national air transportation system, and are therefore identified within the National Plan of Integrated Airport Systems (NPIAS) and eligible to receive funding under the Federal Aviation Administration (FAA) Airport Improvement Program (AIP).

Albuquerque International Sunport Replaces Terminal Apron

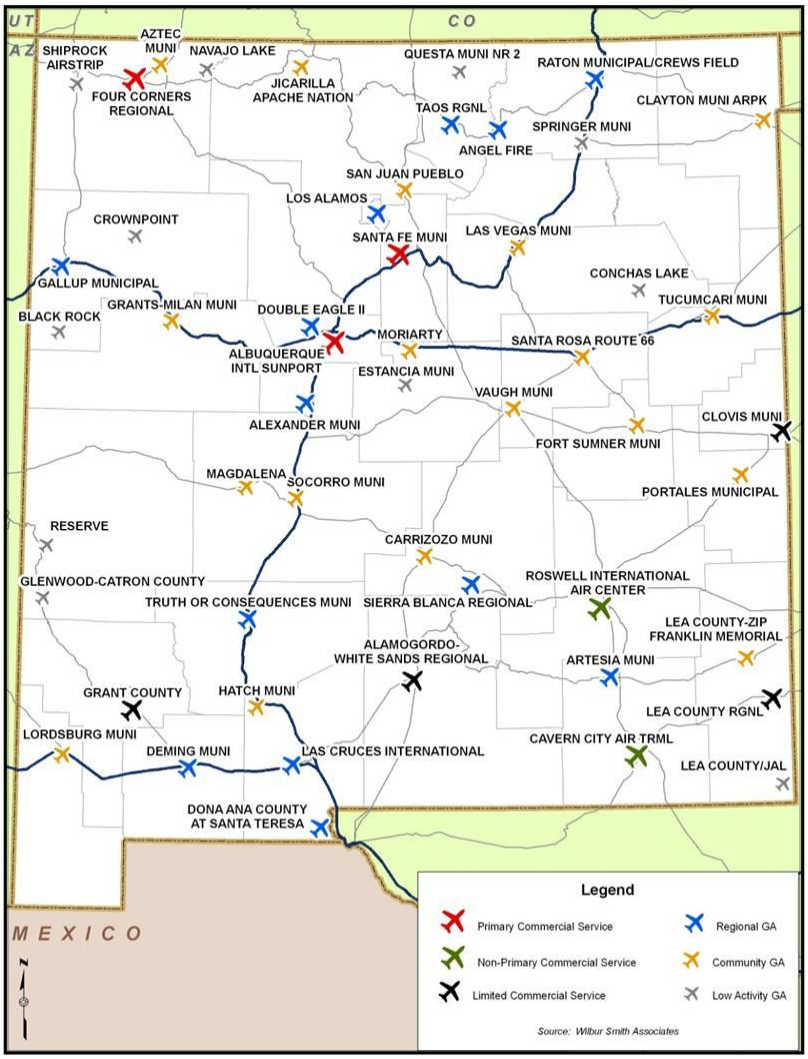
Leveraging approximately $22 million in FAA funding, the City of Albuquerque reconstructed the Terminal Apron at the Sunport. The apron had severe Alkali-Silica Reactivity damage. Photo by M. Provine, 2009.

Overview (cont'd)

Map of New Mexico Airports

Federal and State funding are vital in supporting more than 50 public-use airports in the State.

(Wilbur Smith & Assoc., 2009)



Overview (cont'd)

The airports within this study include over 80 runways with an estimated 10.3 million square yards of pavement. Of the 54 airports included in this study, five are classified as commercial service, three as primary and two as non-primary airports. Commercial service airports board 2,500 or more passengers annually and receive scheduled passenger service. Primary airports are those with annual boarding's over 10,000 and non-primary airports board between 2,500 and 10,000 passengers annually. The remaining airports are classified as general aviation airports.

One of the main issues affecting New Mexico airports and airports all around the country is the current FAA funding levels. The AIP provides critical funding for major maintenance and improvements at airports critical to the national airport and airspace system.

The AIP and its predecessors have been funded solely from fees and taxes charged to users of the system. The AIP survived on short-term, Congressionally authorized extensions from September 2007 through January of 2012. New long-term legislation was finally passed in January 2012 that extends the program through 2015.

The funding levels in the new AIP were actually cut back by nearly five percent (from $3.5 billion to $3.35 billion annually) from previous levels, which have been in place since 2003. This is in spite of the fact that the AIP is solely funded by its users, who also provide a large portion of funding for FAA's operation.

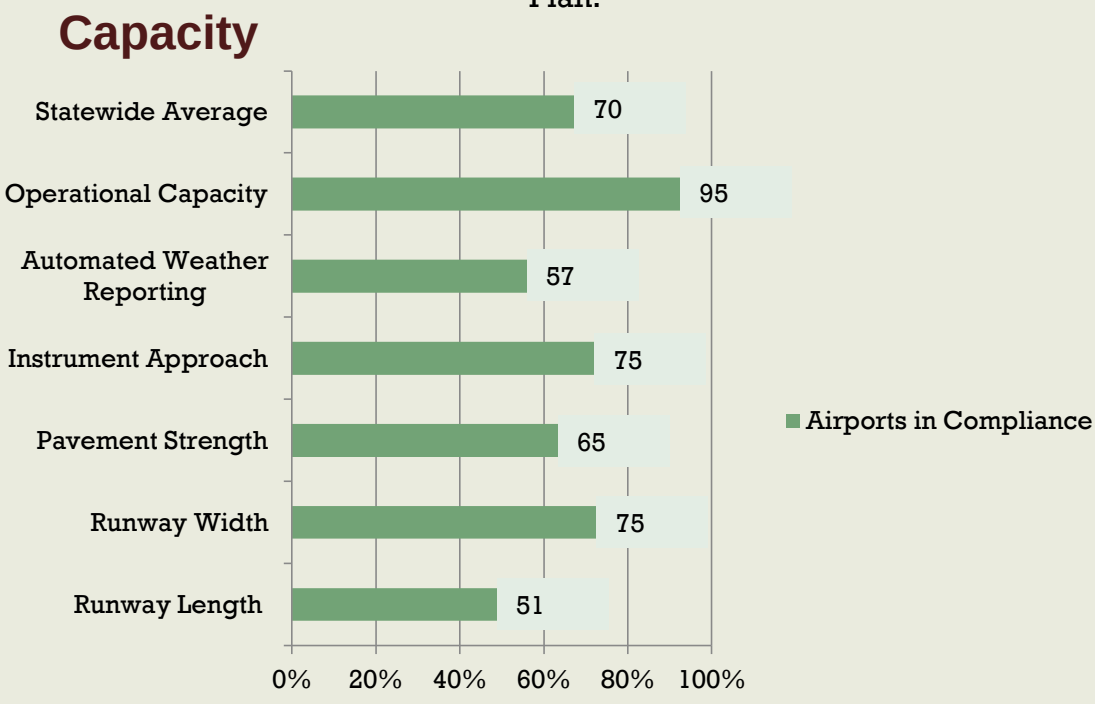
Another funding mechanism available for commercial service airports, passenger facility charges (PFC's), was also maintained at the previous level of $4.50 per passenger. The NMDOT - Aviation Division completed an Airport System Plan in 2009. This plan assessed the State's airport system and the projected needs for the system for the next 20-year planning horizon. New Mexico's aviation system was evaluated for this report card using the benchmarks identified in the System Plan.

These benchmarks include four components listed in the Methodology section: Capacity, Condition, Funding, and Public Safety; plus one additional component called Preserve and Protect Investment in Airports. Performance measures were developed and evaluated using the benchmarks identified and presented in the System Plan and from industry interviews.

Capacity

Grading the overall capacity of New Mexico's aviation system includes analyzing the following airport infrastructures and measuring the ability of the aviation system to accommodate the existing and projected demand. Data for this performance measure is from the 2009 New Mexico Airport System Plan.

Runway Length: The runway length depends on several variables including the airports elevation, the mean maximum temperature of the hottest month, and the length of haul. Each airport role should be able to accommodate a specified aircraft with defined useful loads. Due to the different density altitude requirements for small airplanes and large airplanes as well as different aircraft performance levels, there are some New Mexico airports that have longer runway length requirements. Overall, 51% of airports in New Mexico are in compliance with runway length criteria set by the 2009 New Mexico Airport System Plan.



Capacity (cont'd)

Runway Width: The runway width objective was based on the airports' role category. It should be noted that many of New Mexico's airports are former military institutions with runway widths that exceed the required widths.

It should also be noted that there are several airports in New Mexico that are single runway airports and maintain an extra wide runway account for crosswind conditions. Overall, 75% of airports in New Mexico are in compliance.

Pavement Strength: Pavement strength defines the ability of a runway pavement to handle recurring loads at specified weights. In each airport category minimum pavement strengths were specified. Overall, 65% of airports in New Mexico are in compliance.

Instrument Approach: While New Mexico enjoys 278 days of Visual Flight Rules (VFR) each year, instrument approaches are needed for commercial airlines as well as corporate aviation and entities that prefer flying by instrument flight rules. Currently instrument approaches are available at many airports; however each airport category lists requirements for instrument approaches. Overall, 75% of New Mexico airports are in compliance.

Automated Weather Reporting: On-site weather reporting promotes an increased safety margin during New Mexico's constantly changing weather. With on-site weather reporting, pilots are ensured sufficient weather information at their destination airport. A goal established in the 2009 New Mexico Airport System Plan is for all airports to have on-site automated weather reporting. Currently, 57% of New Mexico airports have weather reporting.

Double Eagle II
Airport Runway 4-22 Reconstruction
The new runway received the first airport smooth pavement award presented by the NM Department of Transportation in 2010.
Photo by J. Lucero, 2010.

Capacity (cont'd)

Operational Capacity: No airport in New Mexico is projected to meet its operational capacity in the near future. There have been recent capacity related projects in New Mexico including an installation of new airport surveillance radar at the Santa Fe Municipal Airport. The capacity issue affecting New Mexico's airports includes terminal and curbside capacity at several of our commercial service airports including Albuquerque International Sunport, Santa Fe Municipal Airport and Hobbs-Lea County Regional airport. Overall 95% of New Mexico airports are in compliance.

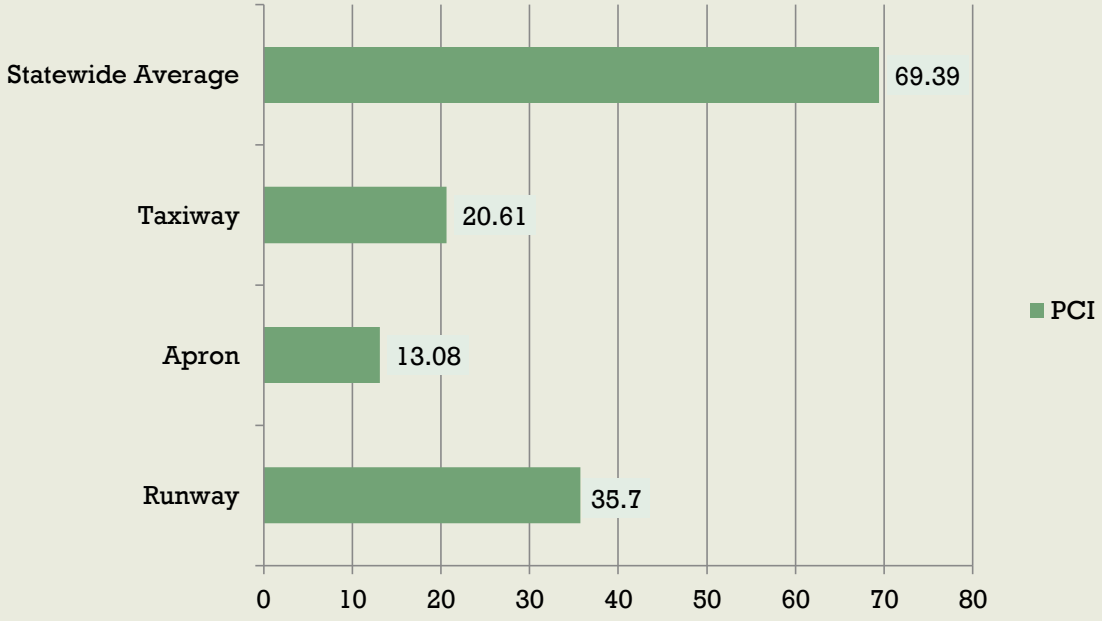
Boeing 787 Lands at Albuquerque During High Altitude Testing.
Boeing chose the Sunport to test the B787 in a high altitude setting.

Condition

This is a measurement of the existing airfield infrastructure. Data for this performance measure is from the 2007 Pavement Condition Index (PCI) Report from the NMDOT - Aviation Division. This category is the primary difference between the 2012 and 2005 report cards.

In 2005 there was no data for existing infrastructure. This data was not collected until 2007 and has been updated as new construction is performed. The PCI program utilized a visual inspection process in accordance with FAA standards.

Pavement Conditions Index (PCI)



Condition (cont'd)

Runway: The statewide runway average PCI is a 71.4. The NMDOT - Aviation Division recommends all airports have a primary runway with a minimum PCI of 71 or greater. This is considered satisfactory. Because runways are the most important infrastructure on an airfield, this category was weighted at 50%.

Taxiways: The statewide taxiway average PCI is 68.7. This is considered fair. While taxiways connect the runway with the remaining portion of the airfield, it was given a weight factor of 30%.

Aprons: The statewide average PCI for aprons is 65.4. This is considered fair. Aprons, while an important element of the airport, are not held to the same requirements as runways and taxiways and therefore were given a weight factor of 20%.

Public Safety:
Fire-Fighting Tanker Refueling at Alamogordo-White Sands Regional Airport
Several of the State's airports serve as fire-fighting air bases during the fire season.
Photo by Exile Aviation.

Public Safety

Public safety is a measurement of the safety and security of New Mexico's Aviation System. Items evaluated under this category include runway safety areas, clear runway approaches, perimeter fencing, visual glide slope indicators, wind coverage and adoption of security and emergency response plans. Data for this performance measure is from the 2009 New Mexico Airport System Plan. Areas were weighted according to importance to the aviation system's safety.

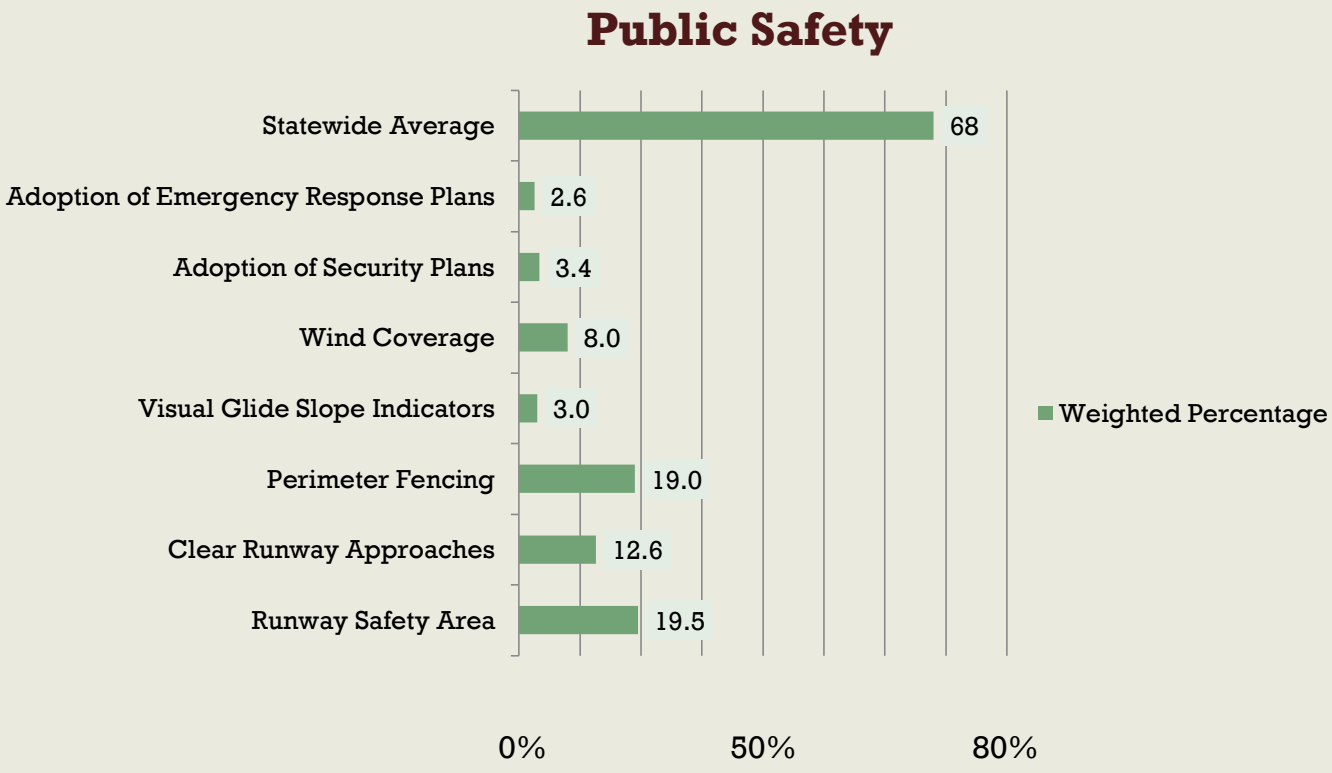
Adoption of Emergency Response Plans: While not a requirement of the FAA for all airports, the NMDOT - Aviation Division believes each airport must have an emergency response plan. Emergency response plans are developed to facilitate the airports response to emergencies occurring on or near the airport. Therefore, this was given a weight factor of five percent. Approximately 51% of airports in New Mexico have an emergency response plan.

Adoption of Security plans: While not a requirement of the FAA for all airports, aviation security is among an airports top priority to provide safe transportation of passengers as well as prevention of aircraft theft. Therefore, this was given a weight factor of five percent. Approximately 67% of airports in New Mexico have a security plan.

Wind Coverage: Wind coverage is collected to determine prevailing wind patterns at airports. The FAA requires that all runways be orientated so that an aircraft may use the airport at least 95% of the time while not exceeding the aircrafts' designed crosswind component. Approximately 40% of airports in the State do not meet the required 95% crosswind coverage. In some instances, it is impossible to put a crosswind runway to meet wind requirements due to terrain. Due to the safety aspects of this category, it was given a weight factor of 20%.

Public Safety (cont'd)

This table shows the results of the evaluation of the safety and security of New Mexico's Aviation System:



Data for this performance measure is derived from the 2009 New Mexico Airport System Plan.

Public Safety (cont'd)

Visual Glide Slope Indicators (VGSI): Visual Glide Slope Indicators are lighting systems that provide approach information to pilots. The NMDOT - Aviation Division identified VGSIs are desirable at both primary runway approach ends for almost all classifications of airports. While not an FAA requirement; it is a desirable navigational aid for pilots. This was given a weight factor of five percent. Approximately 60% of airports in New Mexico currently meet this requirement.

Perimeter Fencing: While not a requirement to have perimeter fencing at all airports, perimeter fencing provides a level of security and safety to the airport. In New Mexico, 95% of airports have a perimeter fence. Though this is not a requirement, it was given a weight of 20% as it provides a safer and more secure operating environment.

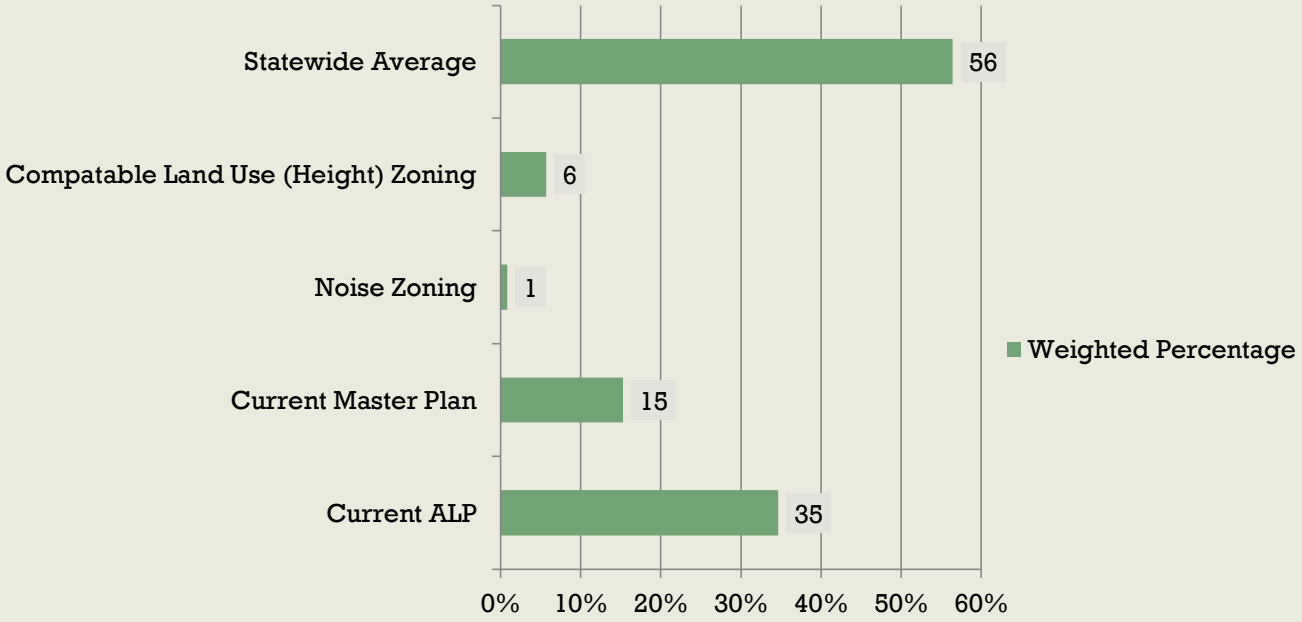
Clear Runway Approaches: Federal Aviation Regulation Part 77, Objects Affecting Navigable Airspace, provides guidelines and requirements for airspace protection around airports. Airspace protection is critical in runway approaches since take offs and landings represent the segments of flight with the highest accident risk. Sixty-three percent of New Mexico airports have clear runway approaches. As this measurement is directly related to safety, this was given a weight of 20%.

Runway Safety Areas: The runway safety area (RSA) is a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to an aircraft in the event of an undershoot, overshoot or departure from the runway. The size of this area is based on a number of items including the type of aircraft that is using the airport and current approaches. The RSA has a specific grading requirement and must be clear of all obstructions. Seventy-eight percent of New Mexico's airports report existing RSA compliance. As this measure is directly related to safety, a weight factor of 25% was applied.

Protecting Taxpayers' Investment

Protecting taxpayers' investment is a measurement of how New Mexico's Aviation System is using taxpayers' dollars in airports and how the state's aviation system is protecting that investment. Items evaluated within this category include having a current Airport Layout Plan (ALP), having a current master plan, having a noise zoning ordinance, and having a compatible land-use zoning ordinance. Data for this performance measure is derived from the 2009 New Mexico Airport System Plan. Some of the areas were weighted as they relate to the protection of the aviation system.

Preserve and Protect Taxpayers' Investment



Protecting Taxpayers' Investment (cont'd)

Current Master Plan: Master Plans serve specific needs of the airports which allow airport issues to be specifically reviewed through a methodical study. This plan includes inventories and forecasts facility needs and development alternatives. Most importantly, it provides a financial analysis, capital improvement program and public participation effort. A master plan is considered current if it is less than five years old. Fifty-one percent of New Mexico's airports have current master plans. This measurement was given a weight factor of 30%.

Current ALP: Airport Layout Plans are critical for funding purposes as well as implementing planned development. The ALP should serve as a continuous planning tool and therefore its currency should be a top priority. Any project that requires federal or state funding must be identified on the ALP. An ALP is considered current if it is less than five years old. Sixty-three percent of New Mexico Airports have a current ALP. Because of its importance to receive funding, this measurement was given a weight factor of 55%.

Noise Zoning: Noise has been and will continue to be an ongoing airport and community concern. As the population continues to grow around New Mexico, noise zoning is going to become a more prevalent issue. Only 16% of airports currently have noise zoning ordinances in place. This measurement was given a weight factor of five percent.

Protecting Taxpayers' Investment (cont'd)

Compatible Land Use Zoning: Compatible land use and height zoning is a protective measure to protect an airport from encroachment, obstructions and having a non-compatible use within the approaches. When accepting federal money, this is a requirement of all airports.

Currently 57% of New Mexico airports have a compatible land use or height zoning ordinance. This measurement was given a weight factor of 10%.

A Vital Component of the Region's Infrastructure
The airport system in New Mexico is responsible for over $3.0 billion in economic activity (NM Airport System Plan, 2009). Photo by M. Provine, 2011.

Funding

This is a measurement of the funding received by New Mexico Airports. Funding for aviation projects in New Mexico originates from federal, state, local sources.

Federal Funding: The Federal Aviation Administration distributes funding through the AIP. In the most recent legislation passed, The FAA AIP grant covers 90% of eligible project costs for public use airports within the National Plan of Integrated Airport Systems (NPIAS). While the FAA percentage has changed since the most recent legislation and some airports in New Mexico receive more than 90% from the FAA, a majority of the airports in New Mexico receive the 90% share from the FAA. The remaining 10% of the project cost is split equally between the State of New Mexico Aviation Division and the local airport owner. The AIP funding is broken up into apportionment, entitlement funding and discretionary funding.

Apportionment: Apportionment is a set number based on a formula that takes into account New Mexico's population and the number of airports within the NPIAS. Apportionment funding received a B grade.

Entitlements: Airports within the NPIAS receive entitlements each year. The entitlements range from $150,000 per year for non-primary airports to $1,000,000 for primary airports. This money can be used for approved projects and is a set amount. Entitlement funding received a B grade.

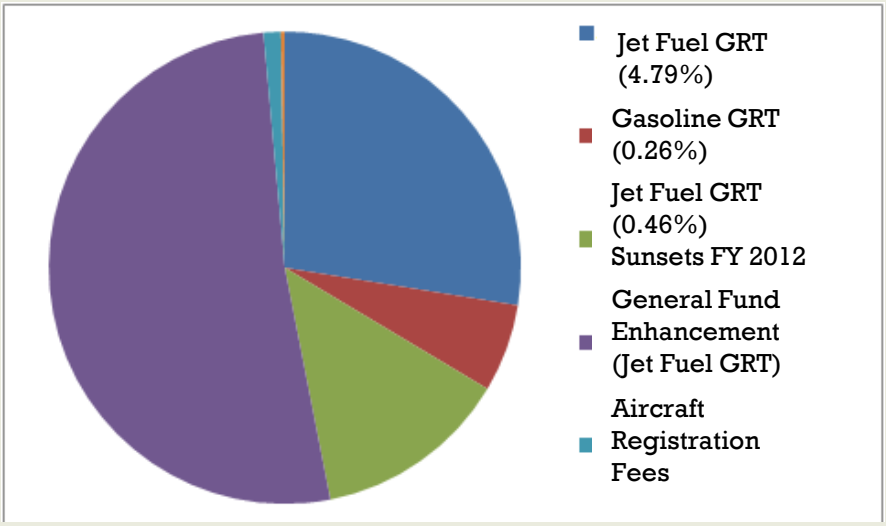
Discretionary: Any available discretionary monies may be available to airports within the NPIAS. This money is distributed at the discretion of the regional FAA office. This is the only federal category that New Mexico does not compete well in. While recently there has been more discretionary funding coming to the State, we are still lagging behind when compared to other states in the FAA southwest region. Overall, discretionary funding receives a D grade.

State Funding: The NMDOT - Aviation Division covers funding for 50% of the non-federal share of projects as well as a percentage of projects as approved by the Aviation Division.

Funding (cont'd)

State Funding: The State's ability to fund projects and match Federal dollars has greatly increased since 2007 with the addition of the general fund enhancement monthly deposit from gross receipts tax; however on June 30, 2012, one of the revenue sources for the aviation division is sun-setting. This will mean a cut in funded projects.

The State of New Mexico Aviation Division covers funding for 50% of the non-federal share of projects as well as a percentage of projects as approved by the Aviation Division. This funding is graphically represented in the pie chart below. Overall, state funding received a B.

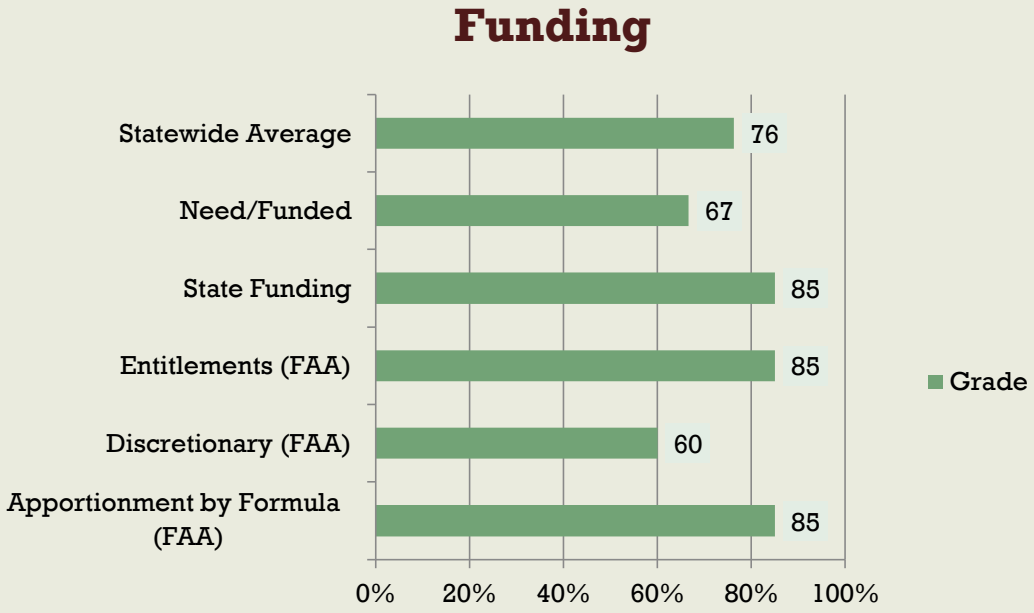


Jet Fuel GRT (4.79%)	$1,600,000
Gasoline GRT (0.26%)	$350,000
Jet Fuel GRT (0.046% Sunsets FY 2012)	$775,000
General Fund Enhancement (Jet Fuel GRT)	$3,000,000
Aircraft Registration Fees	$68,000
Interest	$16,000

Funding (cont'd)

Funding versus Need: Like many other States across the region, New Mexico airports have more needs than available funds. Capital Improvement projects are based on actual needs and New Mexico Airports average $45,000,000 in CIP requests per year with only an average of $30,000,000 in funding available. Funding versus need receives a D.

This table shows the results of the evaluation of New Mexico's Aviation System for funding:



AVIATION

New Mexico is the fifth largest state in the nation and aviation is vital to New Mexico's economy and public safety. Historically a leader in aerospace and aviation, New Mexico is continuing to grow in private and commercial air service and space commercialization. However this evaluation indicates that the current resource commitments are not sufficient to meet the needs of the system. The FAA, state aviation divisions, and airports are being forced to make decisions on projects of the highest priority to maintain a safe, efficient, and environmentally compatible airport system. The Aviation industry continues to be affected by increasing fuel prices, cuts in FAA and State funding, economic ups and downs, and increasing construction costs and increasing costs of engineering design due to federal regulations. However, despite these increases, aviation is still important to New Mexico and the nation's economy; in recent years with new technology, aviation has shown signs of moving toward recovery.

Summary NM Aviation 2012:

D+

Evaluation Criteria	Grade
Capacity	C
Condition	D+
Funding	C
Preserve and Protect Investment in Airports	D-
Public Safety	C-
Aviation Final Grade = D+ (69.0)	

Recommendations

The NMDOT - Aviation Division should continue to implement its current grant program and priority system for capital projects. They should also continue State Price Agreements for pavement maintenance

Legislatively revise state funding streams to allow for use on airport capital projects

Continue working with our Federal partners on funding

Increase aviation activity, which will in turn increase funding, through ties with the tourism industry and Spaceport America

Light replacement with more energy-efficient fixtures

Coordinate with military and USFS operations to increase public airport funding through lease agreements

Promote local business financial support of aviation activity throughout the state
The revenues received by the aviation industry (such as gross receipts tax on fuel) are user fees and those revenues should be put into the New Mexico Aviation fund to be used to fund capital aviation projects.

Eligible airports should explore other funding sources such as collecting available Passenger Facility Charges.

Educate local elected officials on the importance of airports within economic development

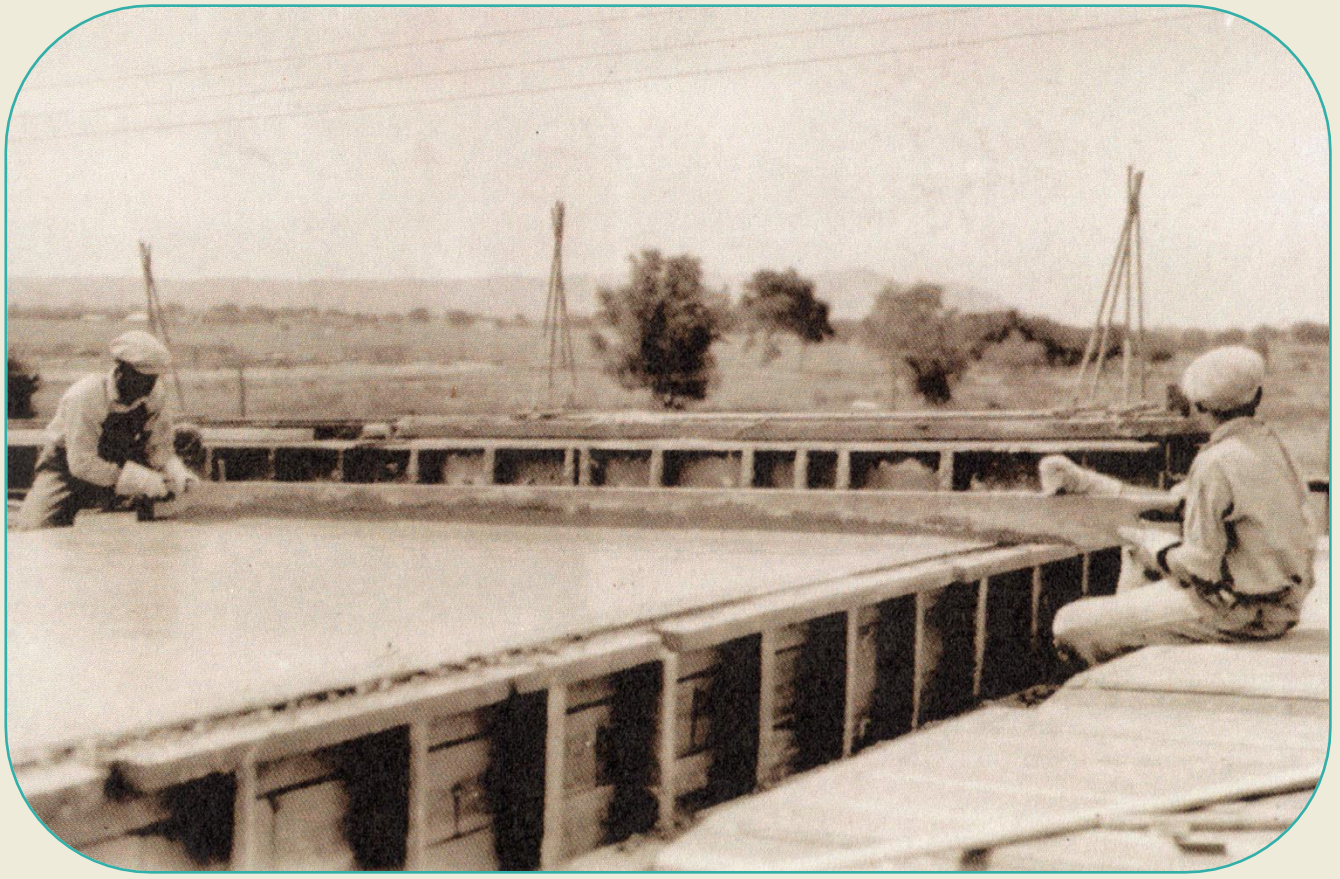
Bridges

CENTENNIAL 1912-2012

NM C -

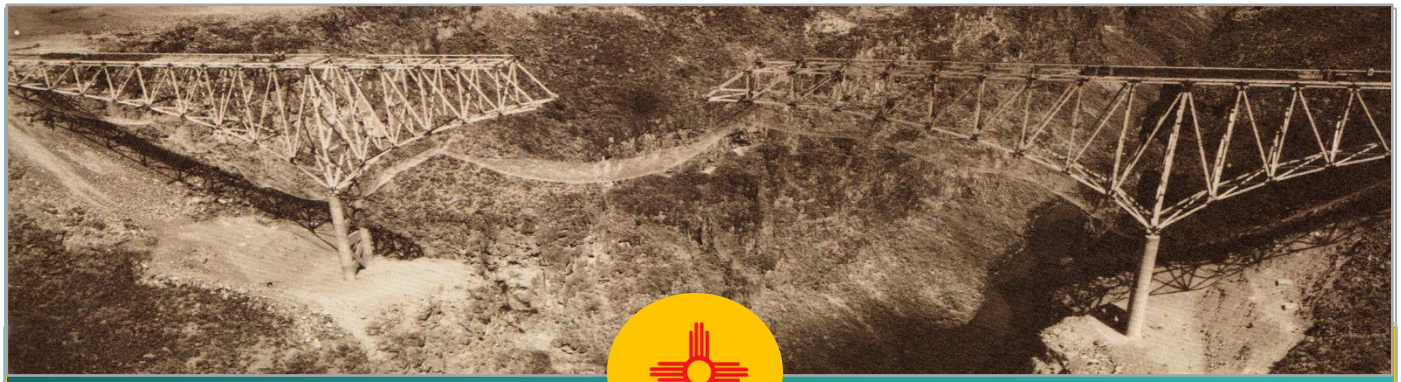
NEW MEXICO

LAND OF ENCHANTMENT



Las Cruces viaduct; finishing floor.
Source: NM Department of Transportation

NEW MEXICO CENTENNIAL 1912-2012



Overview: Bridges

New Mexico has 3715 vehicular bridges. The state owns 2972 bridges. The state owns 191 of the 319 bridges that are currently classified as structurally deficient. The state owns 158 of the 367 bridges that are currently classified as functionally obsolete. The median age of state-owned bridges is 43 years.

The Federal Highway Administration (FHWA) requires inspections to be performed at least once every 24 months on all publically owned bridges or culverts longer than 20 feet. The results of these biennial inspections, along with other non-inspection related data, are recorded in the FHWA's National Bridge Inventory (NBI) database to determine a sufficiency rating.

The inspections yield condition ratings, which are scaled from 0 to 9, for three structural categories; bridge deck, superstructure and substructure. Bridge decks include the deck itself plus the joints, rails and wearing surface. The superstructure includes all the primary load-carrying members, bearings, bracing and connections and the substructure includes all piers and abutments. The lowest of the three condition ratings is used in the following FHWA formula:

Sufficiency Rating =
S1 + S2 + S3 - S4 (0% to 100%)

S1 – measures the structural adequacy and safety (55% max)
S2 – measures serviceability and functional obsolescence (30% max)
S3 – measures essentialness for public use (15% max)
S4 – special reduction (10% max)

A component receiving a rating of 4 (a poor condition rating) will classify the structure as deficient, thereby making it eligible for federal funding. New Mexico has 686 bridges classified as deficient.

The formula calculates the sufficiency rating with up to 55% of the result coming from the structural condition, up to 30% from serviceability and functional obsolescence, up to 15% from its essentialness for public use, and up to 10% for special reductions per FHWA's specifications for the NBI and Recording and Coding Guide for the Structural Inventory and Appraisal of the Nation's Bridges.

Federal Highway Administration Criteria

The sufficiency rating indicates the bridge's capability to remain in service and is used for establishing eligibility and priority for replacement or rehabilitation with federal funding. It is formulated to a 0 – 100 scale.

A bridge with a sufficiency rating greater than 80 is ineligible for federal funds. A rating between 80 and 50 meets the requirement for federal rehabilitation funds, and below 50 qualifies the bridge for federal replacement funds. All bridges with a rating of less than 80 are considered deficient and are classified as either functionally obsolete (FO) or structurally deficient (SD).

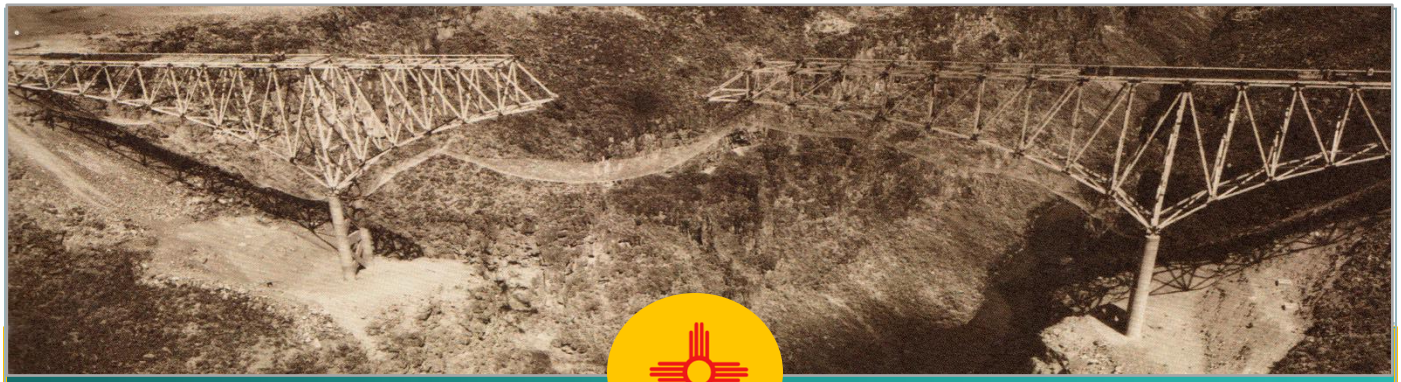
A FO bridge was designed and built to satisfy the design standards at the time of design and construction but has outdated geometrics, load-carry capacity and/or waterway adequacy. Geometric requirements have continually become more stringent to improve safety and design loads have increased with increasing vehicles weights and volume. Waterway adequacy requirements have become a part of the design process. The FO designation provides the owner an opportunity and the time to plan an upgrade to meet current design standards.

Overview (cont'd)

The SD classification for bridges means that either the condition rating is 4 or lower for a load-carrying component; or if unacceptable traffic interruptions may occur during high water levels. The SD designation does not necessarily mean that the structure is unsafe. SD bridges may remain in service but typically have weight limitations, fatigue or shear cracks, or significantly damaged or deteriorated components. SD bridges usually require more frequent inspections and more resources to maintain.

A deficient bridge must be either designated FO or SD. A bridge meeting both classifications would be classified as SD since this is the more significant of the two classifications. In addition to completing the NBI database, the NMDOT also records the condition of every bridge element per the FHWA's National Bridge Inventory Standards (NBIS) coding guidelines using the Pontis® Bridge Management System.

This includes 5 – 1 "Core Element" condition reporting for all bridge elements including every slab, beam, girder, bent, column, footing, pile, shaft or caisson. The Pontis® software models further bridge deterioration and recommends an optimal policy for preservation of the existing bridge infrastructure for a given budget.



Capacity

Operation and Maintenance

The cost of travel delays to the average driver due to bridge maintenance or rehabilitation is not a significant concern except in metropolitan areas.

The more significant delays occur on Interstate routes through Albuquerque or Las Cruces. Replacement or rehabilitation of several structures is presently ongoing in both cities.

Less than 5% of New Mexico bridges are weight restricted, closed to traffic or in jeopardy of being posted. Less than 10% are functionally obsolete compared to 13% nationally. The capacity of the system was given a grade of B.

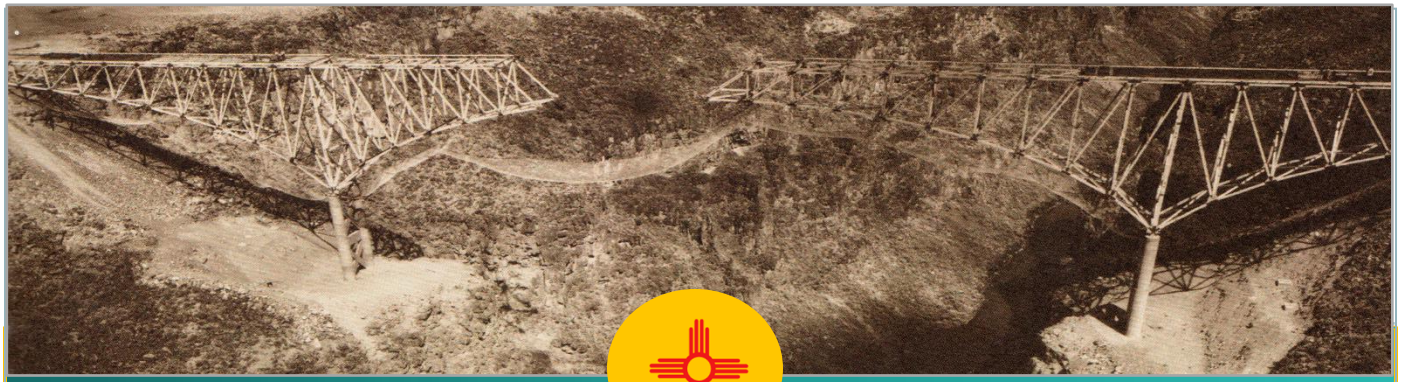
Operation and Maintenance

NMDOT uses the Pontis® software originally developed by the FHWA to most effectively maintain and operate the 3,715 bridges throughout the state. This system uses the database of all bridge structures to recommend the most optimal policy for preserving the existing bridge infrastructure for a given annual budget.

Such operations and maintenance include, but are not limited to, pavement, roadside and bridge maintenance; traffic operations and assistance to traffic. The annual budget has to provide for labor, overhead, equipment, supply costs and contract maintenance.

Cost estimates to repair or replace the structurally deficient or functionally obsolete bridges in New Mexico is presently $178 million and this number will grow rapidly as their design life is exceeded. New Mexico spends between $20-25 million per year.

Approximately 35% of New Mexico bridges were built before 1962, and so are nearing the end of their design life. A grade of D- was assigned this portion of the evaluation.



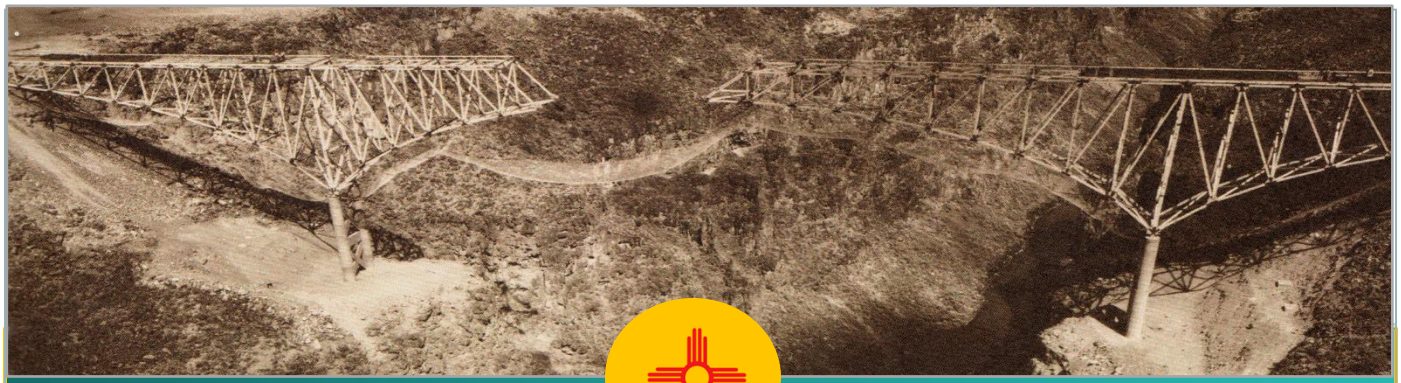
Condition

More than 18% of New Mexico's bridges are classified as either structurally deficient or functionally obsolete, which is 15th among the 50 states.

More than eight percent are classified as structurally deficient, and 10% are classified as functionally obsolete. If measured in terms of bridge count, 686 of New Mexico's 3715 bridges (more than 18%) are classified as deficient.

This includes those bridges classified as structurally deficient (8%, or 319 bridges), and those classified as functionally obsolete (10%, or 367 bridges). Several bridges along the heavily travelled I-10 and I-40 corridor have fatigue cracks that produce the "deficient classifications."

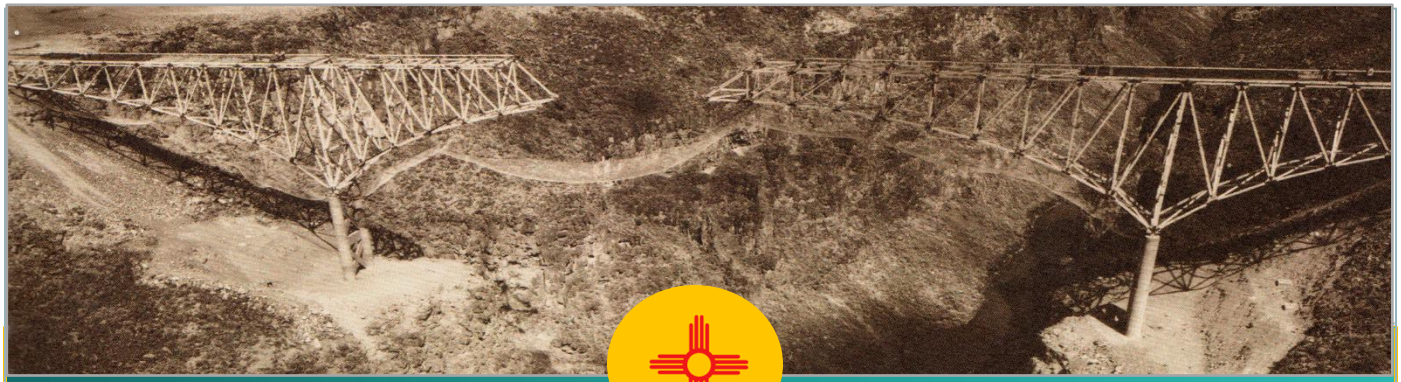
Inspection of the Rio Grande Gorge Bridge.



Condition (cont'd)

The average bridge deficiency rate of the 50 states and the District of Columbia (those bridges defined as being structurally deficient or functionally obsolete) is 25%. ASCE national set this 25% deficient bridge inventory at Grade C, thereby providing a datum for each state's evaluation of its bridge infrastructure. New Mexico is above the national average in the deficient category and the NMDOT has a goal to reduce the number of deficient bridges to five percent. This provided the primary basis for the grade determination of B for the condition category.

Safety inspection of complex truss bridge.



Public Safety

According to the FHWA, spending $100 million on highway safety improvements prevents 145 fatalities over a 10-year period, and studies have shown that every dollar invested in the national highway system produces $5.40 in economic benefits in improved safety, lower vehicle costs and reduced delays.

Highway bridges are the most vulnerable segment of our ground transportation system. However, since bridges represent a small fraction of the Highway system, extreme forces caused by floods, traffic impacts, seismic or terrorist acts are most likely to interrupt the highway function.

A grade of B is assigned to this portion of the evaluation.

Resilience

Resilience is the consideration of New Mexico's bridges against multiple extreme event loadings and the subsequent ability to quickly repair damage.

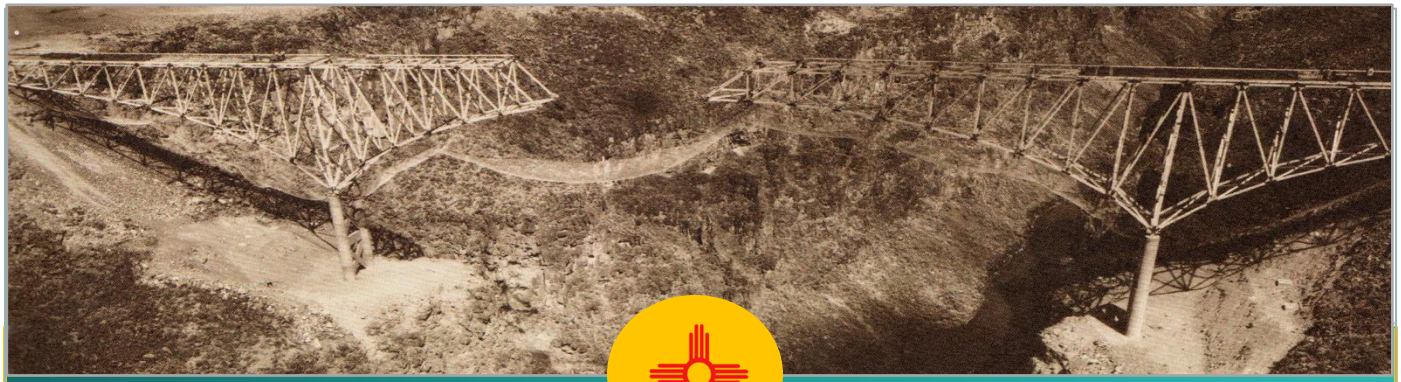
Transportation is so critical that it is imperative we have the ability to repair or replace damaged bridges quickly to assure minimal adverse impacts to public safety, the economy and security.

As noted above, bridges are the most vulnerable portion of our highway system. We must appraise our bridges against extreme event loadings.

New Mexico has the ability to quickly repair small and moderate size bridges but not large, complex structures with high traffic volumes.

Unfortunately, none of the bridges, to our knowledge, has been designed taking the possibility of terrorist acts into account.

The resulting grade for this category is a C-.



Funding

New Mexico is in the bottom quartile in the nation in both trucking fees and gas taxes, making for a weak funding base for transportation. These funding limitations placed New Mexico last in the Rocky Mountain states despite having the largest number of centerline and lane miles of any state in this region.

The gas tax in New Mexico is fixed rather than being indexed as most other states therefore as gas prices rise, the percent tax decreases, plus the state is having a significant decrease in gas purchases. Motivating the 14th least-populated state to absorb a much larger portion of the costs of rehabilitating or replacing deficient bridge inventory is a significant challenge.

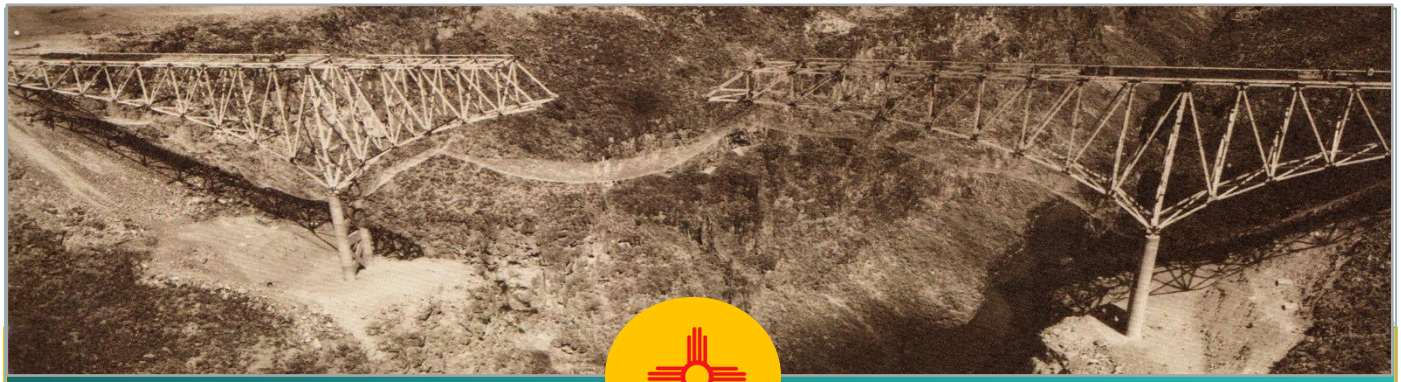
New Mexico is rapidly losing ground in replacement/rehabilitation of the bridges that are beyond their design life, plus the existence of structurally deficient and functionally obsolete bridges.

The funding for transportation at the state and federal levels has been static for several years with no end in sight.

Also about 35% of the present funds are dedicated to debt payment and inflation has significantly reduced the purchase power of the remaining funds.

As the demands for increased maintenance and operation funds increase, the funding needs have become critical.

The funding outlook for the next five years is very bleak; thus the resulting grade for this category is an F.



Planning

At the present time, more than 35% of New Mexico's bridges are more than 50 years old and a large block of bridges built for the Interstate System is rapidly approaching their design life. The design life is already exceeded when you consider the number of trucks passing through New Mexico.

The number of deficient bridges will rapidly increase over the near term. By 2018, more than half of all bridges currently in New Mexico will be more than 50 years old. Only the high dry climate of the state has prevented serious deficiency problems, but the large percentage of heavy truck traffic will soon negate that advantage.

Although the bridges being designed and built today have a design life of 75 years or greater, almost every bridge constructed prior to 1980 was designed to last only 50 years.

In addition to the looming expense of our aging and deteriorating bridges exceeding their design lives, additional burdens are being placed on our transportation systems, including rising construction costs, declining revenues, increased congestion, an expanding trucking industry, diversion of available funds, the need to improve bridge safety and new bridge needs, such as the ability to thwart terrorist attacks. Resultantly, this category received a D.

BRIDGES

The current evaluation process revealed that 35% of New Mexico's bridges have already reached their design life, and 50% will reach their design life by 2018.

These facts coupled with a bleak funding outlook resulted in an overall rating that is lower than is indicated by the condition alone.

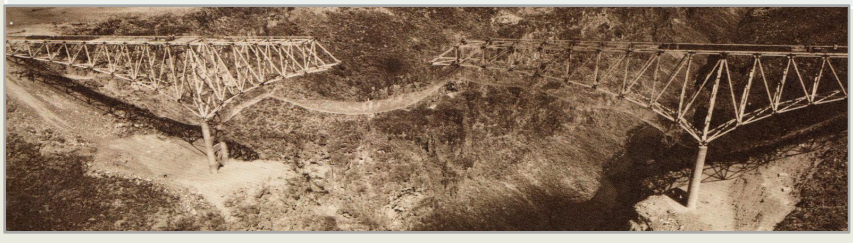
Cost estimates to repair or replace bridges in New Mexico is $178 million, and this number will grow rapidly as each design life is exceeded.

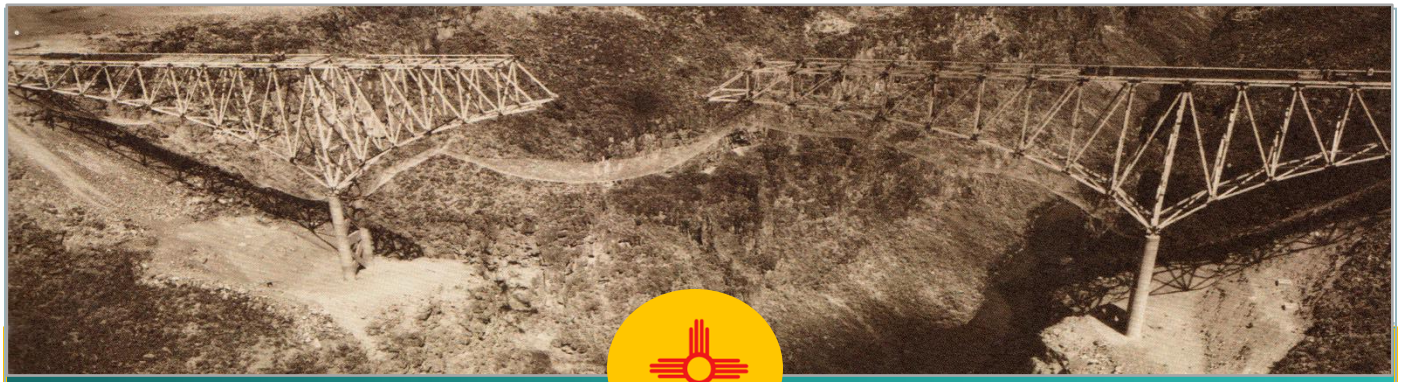
Summary NM Bridges 2012:

C –

Evaluation Criteria	Grade
Capacity	B
Condition	B
Operations and Maintenance	D-
Public Safety	B
Funding	F
Planning (Future Needs)	D
Resilience	C-

Bridges Final Grade = C – (71.25)





Recommendations

Projects should be prioritized to give more attention to existing bridges by performing thorough inspections on a routine schedule, and following up on maintenance needs from field observations. In addition, Civil Engineers need to adopt and implement advanced analytical methods and non-destructive testing techniques to better evaluate the condition and remaining life of existing bridges.

State-of-the-art approaches toward determining the load capacity of existing bridges and enforcing load-posting restrictions could extend the service life of some bridges. In New Mexico, there is a strong bridge inspection and bridge management program in place to prioritize projects for the sustainability of existing bridges based on repair, rehabilitation, and retrofit needs. However, the lack of funding keeps the state from efficiently moving forward.

The engineering community must work closely with the transportation agencies to get the full attention of the political powers within the state and nation to provide a more sustainable funding program for the rehabilitation and replacement of bridges.

Drinking Water

CENTENNIAL 1912-2012

NM C -

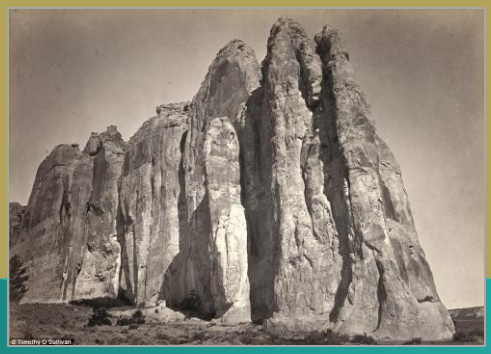
NEW MEXICO

LAND OF ENCHANTMENT

Inscription Rock has been a resting place and watering hole for centuries

El Morro National Monument New Mexico (1873).
Photographer: Timothy O' Sullivan.
http://www.dailymail.co.uk/news /article-214989.

NEW MEXICO CENTENNIAL 1912-2012



Overview: Drinking Water

New Mexico, with a population of 2,062,710 and a land base of 121,336 square miles, is one of the driest states in the United States. For the whole state, precipitation averages between 10 and 20 inches of moisture annually.

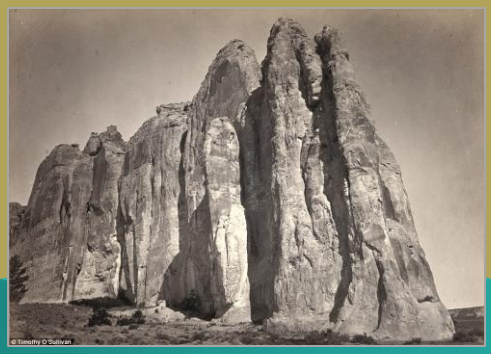
Largely because of this, most Community Drinking Water Systems (CWS) utilize a groundwater source (GWS) for their water supply (95% of the systems are GWS) although over 48% of the people served by GWS also consume surface water (Albuquerque and Santa Fe service this large percentage of the State's population, and they have surface water systems).

Albuquerque with the greatest population just recently started using surface water, whereas Santa Fe has been a long time surface water system user.

Including the systems in those two large cities New Mexico has approximately 1,200 public water systems that use ground water extensively and primarily as their drinking water source. About 70% of New Mexico GWS serve populations under 500, yet those same small systems provide water to only 4% of the total population served by GWS.

As to the actual water being used, only about 13% of the water from New Mexico's surface and ground water sources is actually allocated for drinking water. Agricultural irrigation, about 70%, uses the bulk of available water sources in New Mexico with any remaining water going to other entities. In most areas of the state ground waters and surface waters are being depleted by over pumping and surface irrigation, and in most cases the aging and deteriorating water supply and distribution systems are not capable of providing the needed potable water for future.

Therefore, better allocation methods, planning, and increased funding are key elements to providing New Mexico with a safe and adequate supply of drinking water in the future. A recent data/ needs survey of the larger domestic water users was taken by the ASCE NM Section Drinking Water Committee (DWC). The survey is being used as a guide to grade the public water systems. The DWC also consulted with the New Mexico Rural Water Users Association Board to get their input concerning the standards being used for the categories' final grades.

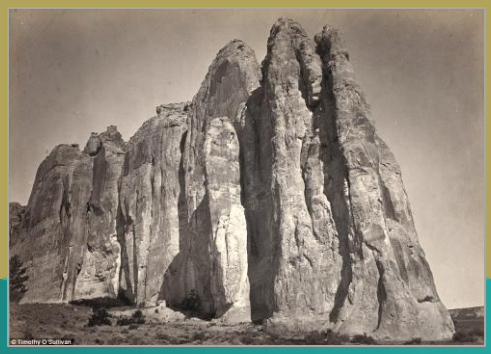


Capacity

The NM ASCE Drinking Water Committee (DWC) recently conducted a data/ needs survey of the larger domestic water use. The survey is being used as a guide to grade the public water systems. The DWC also consulted with the New Mexico Rural Water Users Association Board to get their input concerning the standards being used for this category's final grade. Water is New Mexico's most precious resource. Only about 13% of water used from New Mexico's surface and ground water sources is used for drinking water demands. Agricultural irrigation uses the bulk of available water sources.

Drinking water plant tour - Albuquerque Bernalillo County Water Utility Authority (NM Section ASCE Spring meeting 2009).

About 70% of New Mexico's CWS serve populations under 500; however, those same small systems provide water to only four percent of the total population served by CWS. Whereas 95% of New Mexico's water systems use groundwater, only 48% of the population served by Ground Water Systems also consumes surface water. In 1998-1999, the New Mexico Drinking Water Bureau (NMDWB) developed and implemented the capacity assessment component of the Capacity Development Program. In State Functional Year 04, the New Mexico Drinking Water Bureau contracted with the New Mexico Environmental Finance Center to develop a new three-tiered capacity assessment approach. The tiered capacity assessments were designed to focus more time and attention on systems that had immediate compliance or capacity problems (Tier 1), and less time and attention on systems that appeared to be in good working order but may have had capacity deficiencies that would have resulted in public health issues over the long term.



Capacity (cont'd)

In State Functional Year 11, the NMDWB revised the tiered capacity assessments, creating separate assessments for specific purposes:

1. A *New System Capacity Assessment*, used to determine whether a Public Water System (PWS) has adequate capacity to begin construction and operation;

2. A *Capacity Assessment for Assistance Actions*, used to determine the capacity assistance a system should be offered; and

3. A *Drinking Water State Revolving Fund (DWSRF) Capacity Assessment*, used to determine whether a PWS meets the capacity criteria for a DWSRF loan.

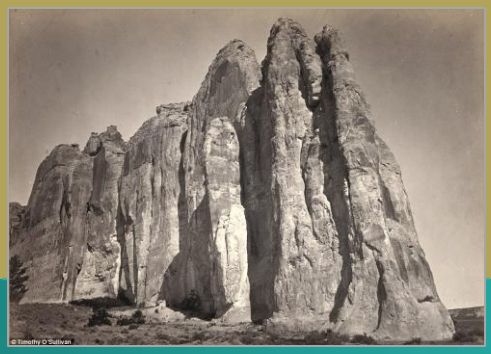
The NMDWB undertook the revisions to the assessments in recognition of the fact that the capacity criteria differed depending on the purpose of the assessment.

For example, the capacity criteria used to evaluate a new system must be tailored to systems that are beginning operations or setting up management structures.

New Mexico Drinking Water Regulation 20.7.10.201.F requires new public water systems to demonstrate "sufficient" capacity prior to receiving approval from the New Mexico Drinking Water Board (NMDWB) for construction and operation (but may be denied if "the public water system does not demonstrate sufficient technical, managerial or financial capacity; or public safety").

New systems in New Mexico must submit an "Application for Construction or Modification of Public Water System."

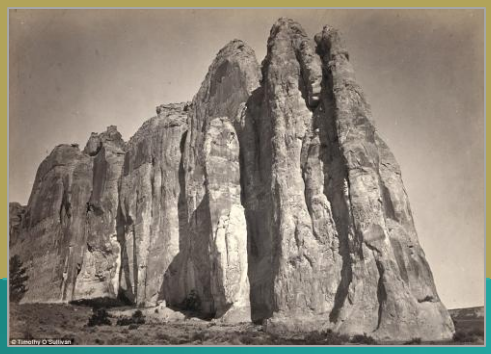
This application must include plans and specifications, an engineering design summary, disinfection and sampling plan, an inventory of contamination sources and a set of documents from which it can be determined whether the public water system has sufficient technical, managerial and financial capacity.



Capacity (cont'd)

The public water systems in New Mexico have the treatment and distribution system capacity to meet the demands of its customers. There is a need for upgrades to be able to continue to meet the sustainability goal and consequently, alternate sources will be needed in the future. Based on this information the grade for Capacity is a C.

Main water line break at the corner of Copper and Jefferson Albuquerque, NM (March 2012).



Condition

Funding

New Mexico is a very rural state that has not updated many of its older systems. It ranks 5th in the nation for population living below the poverty level and many of its water infrastructure systems are more than 80 years old. It is the 5th largest state in land mass area, but ranks 37th in population and 47th in population density (approximately 17 people per square mile based on the 2010 Census).

The population is so spread out that as a result, New Mexico has a wide diversity of drinking water system sizes and a large number of small systems. At the end of SFY11, there were 1,201 PWS . Of these, 609 were CWS, 152 were Non-Transient Non-Community systems (NTNC) and 440 were Transient Non-Community systems. Seventy percent of CWS serve a population under 500. However, those same small systems provide water to only four percent of the total population served by CWS.

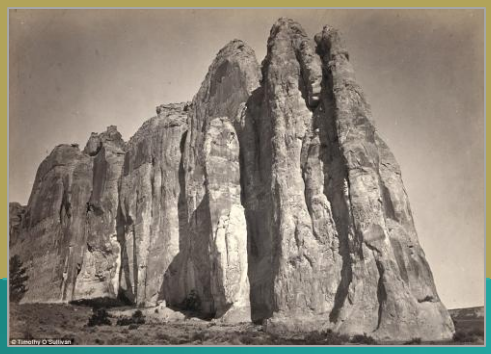
New Mexico's potable water systems are deteriorating at an ever increasing rate due to the age of the systems. Most were constructed before 1960, and due to the low income/ low cost of the availability of water (water bills) to its users there has been little if any rehabilitation conducted since the systems were built. Most rehabilitation is done when a system fails or there are outside regulations/ enforcement pressures to do so.

The systems have been serving their communities very well over the years with safe reliable water, but routine maintenance and rehabilitation must be increased for there to be any chance of keeping up with the sustainability goal for future generations.

Therefore New Mexico's water systems receive a D+ for Condition.

Funding

The Safe Drinking Water Act (SDWA), as amended in 1996, established the DWSRF to make funds available to drinking water systems to finance infrastructure improvements and to provide assistance to public water systems (PWSs) for the purpose of ensuring the protection of public health.



Funding (cont'd)

The State of New Mexico adopted the *DWSRF Act* to support these efforts and implement the State's DWSRF program. DWSRF funds are used to ensure public health protection, compliance with drinking water standards, and affordable access to safe drinking water.

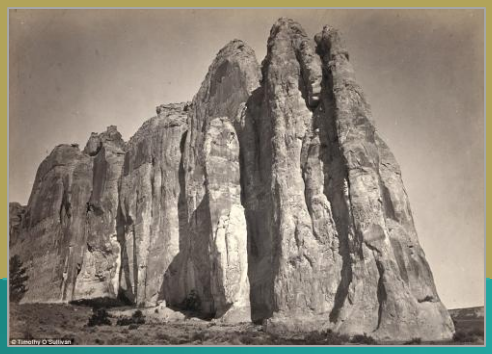
With the most significant impact affecting New Mexico's drinking water funding being the age of the basic infrastructure itself (50 – 70 years for most locations), and with revenues declining due to water conservation and increased maintenance costs (also age related) --now coupling those things with growth/ tax, investment stagnation, and fewer revenue/ state funds available for most construction/ renewal projects, Rehabilitation Funds are drying up. Another factor impacting New Mexico's drinking water funding is increased regulation. New regulations will be difficult to implement and will probably impose large capital costs on local communities.

The DWSRF Capacity Development Program will be needed to meet the funding needs for the Enhanced Surface Water Treatment Rules, Ground Water Rule, and new Maximum Contaminant Levels for Arsenic and Radon long beyond their implementation.

The DWSRF will be crucial in providing loans to meet these regulations, but not all publicly owned systems in New Mexico can afford to pay back loans.

Due to requirements of the new rules and most funding sources, there will be a major increase in the number of hours required to manage and operate a public water system. This increase will be seen most significantly in the need for more detailed and accurate record keeping and in the hours needed to operate a water system to be in compliance with the SDWA.

In order for water systems to continue to be in compliance with ever-tightening requirements, many systems will need to upgrade or add new water treatment technology. Additionally, New Mexico has many small, old, volunteer-operated systems constructed pursuant to the state Sanitary Projects Act.



Funding (cont'd)

Operation and Maintenance

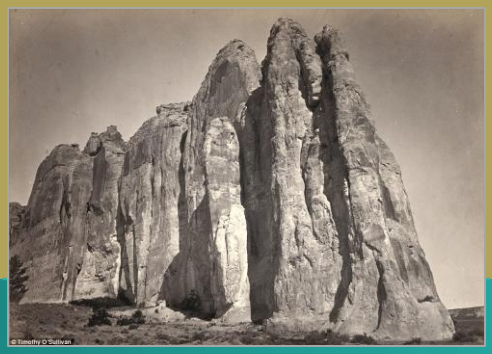
All of these systems require also a major overhaul of failing distribution networks that have outlived their useful life. Even though there are several funding sources available for New Mexico water systems, - a possible new source of funding called the Water Infrastructure Finance and Innovation Act has been outlined by the Water Environment Federation - obtaining matching funds or paying for loans will be a hard choice for systems with large rehabilitation needs. The shortfalls in revenue and available "free" funding result in a Funding grade of D+ for New Mexico.

Operation and Maintenance

The operators of CWS in small rural areas are typically overwhelmed by the conditions and responsibilities of operating and maintaining a public water system. And the operators of larger water systems are short on revenues/funds to adequately rehabilitate the system to desired levels. Because of the many infrastructure needs of New Mexico water systems and the persistent management problems and needs with some of the smaller systems in New Mexico, there is a considerable short fall in available Revenue/funds. The Capital outlay portion (free) from the State legislature has not happened since 2009. Because there is no more "free money" and EPA, WTB and CDBG matching funds money is available only on a limited basis, the smaller systems in New Mexico are using a multi-agency effort.

The NMDWB staff, working in coordination with Rural Community Assistance Corporation, New Mexico Rural Water Association, regional Councils of Government and other organizations, is assisting regionalization groups with the myriad of tasks required to successfully regionalize.

There are numerous hurdles to overcome in allocating finances/availability for Drinking Water Operations: under New Mexico water law, all ground and surface waters belong to the public and are subject to appropriation under the Doctrine of Prior Appropriation, a constitutional provision that says earlier appropriations have priority over later appropriations.



Operation and Maintenance (cont'd)

An example of this for surface water use in New Mexico is the *acequia*. Acequias, or community ditches, are recognized under New Mexico law as political subdivisions of the state.

Many of the state's acequia associations have been in existence since the Spanish colonization period of the 17th and 18th centuries. Historically, they have been a principal local government unit for the distribution and use of surface water. The associations have the power of eminent domain and are authorized to borrow money and enter into contracts for maintenance and improvements. Acequia associations do not have the power to tax, so the expenses of maintenance and improvements are borne by the individuals served by the irrigation system. Almost all of these systems are in rural areas.

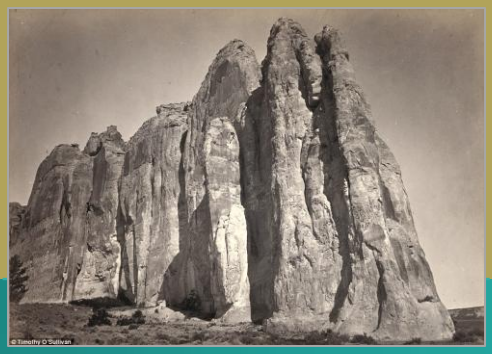
Also a problem for smaller systems is getting qualified operating and construction assistance to meet regulations. Due to the requirements of new rules and most funding sources, there will be a major increase in the number of hours required to manage and operate a public water system.

The NMDWB and other assistance providers such as the New Mexico Rural Water Association, the Rural Community Assistance Corporation, and regional Councils of Government coordinate together to ensure that assistance for educating and training is directed where needed and available.

As in the section on Infrastructure condition, this increase will be seen most significantly in the need for more detailed and accurate record keeping and in the hours needed to operate a water system in compliance with the SDWA.

Historically, for New Mexico, the cost of water (water revenue) is and has been low in many locations.

This fact mixed with the increasing costs of water conservation measures, and the need for alternate new sources provides a grade of D+ for Operation and Maintenance and for Sustainability.



Public Safety

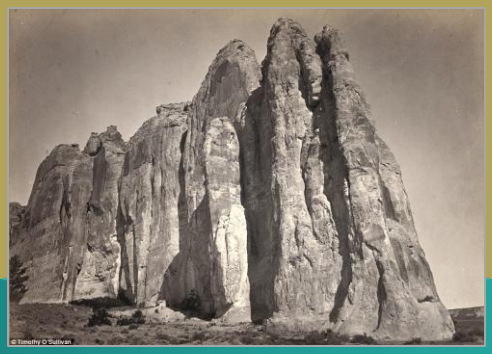
All of the New Mexico water systems providers pride themselves on delivering safe and reliable drinking water. The safety of a public drinking water system is contingent upon its infrastructure condition and upon its operational protection/security.

The concerns attendant to the condition of the infrastructure for New Mexico have mainly to do with its age and the issues and costs that stem from that age. Most basic systems in New Mexico are 50 – 70 years old (some are even older).

Though many of these systems serve limited populations, and are therefore not generally targets for terrorism or sabotage, a water problem/ outage, when it occurs, will manifest quickly, and the ensuing damage can be extensive.

In such cases, the local communities and small municipalities have few ways to replace/rebuild them and can only repair and maintain their systems with their minimal revenue funds, or they must obtain outside (matching or borrowed) funds that have specific guidelines and requirements for use. Larger water systems, in contrast, have emergency response plans, by law, and contractors to assist when there are system problems. Larger systems also have trained people, company rules, IT systems, and experience on how to handle safety situations. Again, through no fault of their own, this is usually not true of the rural systems.

1950s steel line leak. Photo by J. Myers (11 May 2012)



Public Safety (cont'd)

Going forward, the most significant trends affecting New Mexico's drinking water protection efforts result from the work being done to meet all the many Federal standards and regulations. Regulations that are being proposed for radon and arsenic and other new regulations will be difficult to implement.

Most of the technology needed to ensure system compliance with these new regulations are highly advanced and will require a significant increase in the level of training, expertise of the public water system operators in New Mexico, and, therefore funding.

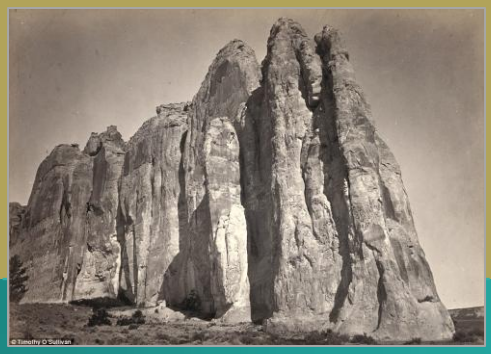
Additionally, many of these technologies have significant concerns associated with them, such as excessive water loss (in a desert state this is a real problem) and generation of hazardous and/or radioactive waste streams.

The needed additional operator training and operator expertise is a major concern for all New Mexico communities but especially weighs on smaller communities. Other areas of drinking water infrastructure safety which include production, distribution, storage, and measurement system security have not been well addressed since New Mexico has such a wide diversity of drinking water system sizes and an abundance of small marginal operations systems.

With such disparity in number and size, it will be difficult to secure for a terrorist type of contingency. Whether we think such a thing will happen or not, though, it is still an issue that must be examined.

The Rural Community Assistance Corporation and regional Councils of Government are coordinating efforts in the areas of education and training to ensure they are directed where needed, appropriate and to insure compliance with the new regulations for public safety. Also the ASCE/AWWA/WEF WISE (Water Infrastructure Security Enhancements) training and videos are available to any of the water systems.

With these measures in mind and with the systems receiving assistance from state agencies for security measures, Public Safety receives a C for a grade.



Resilience

The "resilience" of a water system is defined as the system's ability to provide water to its customers on a continuing and sustainable basis. Most small water user suppliers in New Mexico are able to provide water to their customers on a continuing basis. However, if there are operational problems or infrastructure damages, water in these systems can be off for long periods of time.

For municipalities and large water systems the system resilience is much better. Large water system operators reported an ability to repair or bypass system breaks within 12 hours or less. Therefore, water system outages tend to be shorter in duration, and, in most cases, there is no outage at all. Another factor to consider is the State's DWSRLF program the Sustainable Water Infrastructure Management portal (SWIM), (formerly referred to as the Uniform Funding Application, Public Water Systems).

The purpose of SWIM is to ensure projects are fully funded and able to meet minimum capacity requirements. Under this program water systems are required to conduct capacity assessments to make funding applications. Project interest forms submitted through SWIM for water projects are forwarded to the NMDWB to perform a Capacity Assessment if the Public Water System (PWS) did not have recent assessment. In addition to conducting the capacity assessments, NMDWB staff collaborates with the NMED Construction Programs Bureau to assist the PWS in identifying and determining qualifications for funding of infrastructure projects.

In conclusion, most major water systems in New Mexico have constructed robust water distribution systems and have adequate capacity for the near-term. The small water communities have reliable and safe systems, and even though they are determined to reliably operate and maintain their systems, they are on the edge when it comes to source supply and ability to do so.

New Mexico Public Water Systems are given a C+ when it comes to Resilience.

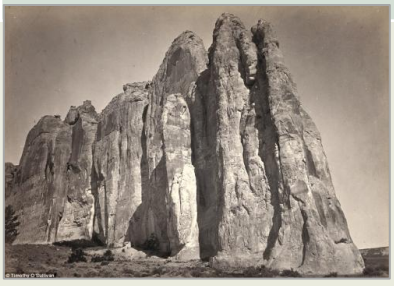
DRINKING WATER

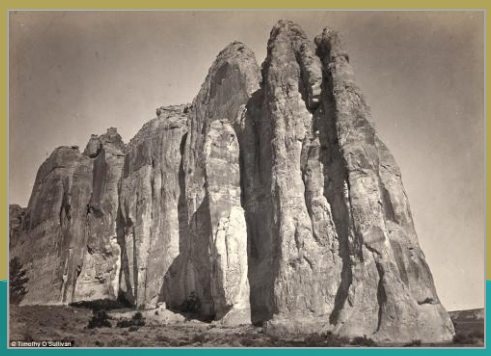
Because ground water is being depleted in many locations, there must be an increased emphasis on: decreasing dependence on groundwater, groundwater recharging, conservation measures, and on alternate potable water sources.

Summary NM Drinking Water 2012:

C –

Evaluation Criteria	Grade
Capacity	C
Condition	D+
Funding	D+
Operation and Maintenance	D+
Public Safety	C
Resilience	C+
Drinking Water Final Grade = C – (70.8)	





Recommendations

Sustainable increased funding sources in the form of grants or loans need to be identified. Example: Encourage the passage of the "2010 Sustainable Water Infrastructure Investment Act." There are existing programs that can be applied for with SWIM but the available funds are lacking.

EPA and the State expect water projects to be sustainable – therefore all loan and grant applicants must be reviewed to meet the criteria, plus require that the user, the loan and grant users help the effort to educate the public about the "true cost of water."

Continued use and research of the use of brackish water as an additional water resource.

Water conservation at all levels/ types of use will need to be promoted by all suppliers/purveyors.

Because ground water is being depleted in many locations, there must be an increased emphasis on: decreasing dependence on groundwater, groundwater recharging, conservation measures, and on alternate potable water sources.

Flood Control

CENTENNIAL 1912-2012

NM D+

NEW MEXICO

LAND OF ENCHANTMENT

Conchas Dam was built during the 1930s.
U. S. Army Corps of Engineers, Albuquerque District, New Mexico.
prn1/553118_10150707387691585_367402591584_9438001_1571999896_n.jpg.

Overview: Flood Control

In the 2005 Infrastructure Report Card, participating agencies reported a total of 390 dams permitted by the Office of the State Engineer's (OSE) Dam Safety Bureau, 194 miles of flood control channels, and a financial need of $585 million to bring the state's flood control infrastructure up to par.

The report assigned a grade of D+ to the flood control infrastructure in New Mexico. That report, like this one, does not address larger storage and regulating dams and levee systems operated by federal agencies, as they are included in the 2009 report Card for America's Infrastructure compiled by the American Society of Civil Engineers (ASCE).

Since the 2005 Infrastructure Report Card for the State of New Mexico, some noteworthy developments have occurred with respect to the state's flood control infrastructure:

(1) In 2006, the Village of Hatch in Doña Ana County was devastated by flooding from extreme rainfall during the monsoon season. The Placitas Arroyo, which drains out of the Sierra de Las Uvas, has no flood control dams on it, so there was no dam overtopping or failure. The arroyo overtopped both banks, flooding into downtown Hatch as well as significant acreage of agricultural land. There was no loss of life in the event, but the damage to property and economic loss was significant.

Two years later, flooding induced by the remnants of Hurricane Dolly caused extensive flooding and property damage in Ruidoso. Again, an extreme weather event hit a watershed with relatively little protection.

(2) In 2009, the statutory definition of a jurisdictional dam was changed, reducing the number of dams that are classified as jurisdictional.

The new definition, consistent with the definition of an Inventory Dam under the National Dam Safety Inspection Act, excludes: (a) Dams less than 25 feet high with less than 50 acre-feet of storage

Overview (cont'd)

capacity, (b) Dams less than six feet high regardless of capacity, and (c) Dams with less than 15 acre-feet of storage capacity regardless of height.

(3) A few agencies responsible for flood control dams developed, as required by state engineer dam safety regulations, flood inundation mapping and emergency action planning; which, while it does not constitute physical infrastructure, certainly demonstrates planning and improvements in public safety. The work is underway, with much left to do.

(4) The state's existing physical infrastructure got seven years older.

Many of the flood control dams were built with a 50 year design life, and of those several are beyond that age. While maintenance may extend the useful life of facilities, routine upkeep is an issue in the state. Many of the flood control dams do not comply with current dam safety regulations, and information to support the design of the dam is not available to the state regulatory authority. As a result of this missing critical data, the state has classified these dams in poor conditions based on the 2008 National Inventory of Dams definitions for the condition assessment.

The Village of Hatch, NM.
Photo by Gary Esslinger
(August 2006).

Overview (cont'd)

There remains a broad spectrum of infrastructure conditions in the state, making it difficult to assign a meaningful grade to the state as a whole. Urban and peripheral suburban areas tend to have much better flood control infrastructure, reflective of more severe consequences of failure and better planning and enforcement.

Rural areas continue to be plagued by development around aging low hazard dams without upgrading them to reflect the high hazard nature of the developed state. Inadequate spillway capacity, deterioration of pipes, gates, valves, etc. continue to be problematic.

However, summary indicators such as the grading system employed here provide useful guidance to policy makers in the form of a distilled snapshot without the encumbrance of voluminous detail.

Current discussions on a National Levee Safety Program (NLSP) could have significant impacts on New Mexico's flood control infrastructure rating. The NLSP in its current form would classify above-grade irrigation canals as levees.

New Mexico has thousands of miles of irrigation canals, many of which are more than a century old, and the vast majority were not designed with engineered levee specifications. The discussion over classification of irrigation canals is ongoing. Non-federal levee systems are generally not regulated. Specifications for levees associated with dams are included in the Dam Safety Bureau's rules and regulations.

Levees as components of flood control systems are reviewed by federal, city, county, and soil and water conservation districts as appropriate for location, but there appears to be no centralized database on the existence or status of levees not directly associated with dams. While the NLSP could assist in the development and maintenance of such a database, the administrative investment required is daunting, particularly if irrigation canals are included.

Furthermore, there is a huge number of levees that have not gone through a review process, particularly on private land, and capturing them in a database would be problematic.

Capacity

Condition

Some 390 dams, regardless of the purpose, were identified in the 2005 report card, 20% of which did not meet design standards. Recent changes in the definition of jurisdictional dams have reduced the number of jurisdictional dams to 300. An effort by the OSE Dam Safety Bureau to assign a condition classification to all dams began in 2006. In 2008, the National Inventory of Dams established standard definitions for the condition assessment, which were very similar to the definitions used by the Dam Safety Bureau. All have been classified with a condition assessment. There are 218 dams (73%) considered deficient or not in satisfactory condition. Of the jurisdictional dams, 144 are for flood control and 112 (78%) are considered deficient or not in satisfactory condition. Weight: 10%; Score: 66; Grade: D.

Water main break. 4 April 2007.

Condition

Urban areas tend to have facilities in better condition. Many rural and suburban areas have dams that were not built for their current hazard level, are at or beyond their design life, have accumulated significant amounts of sediment, and have deteriorating structural components. The diversity of physical conditions reflects the broad range of funding availability and organizational capacity. Weight: 30%; Score: 70; Grade: C-.

Operation and Maintenance

The Dam Safety Bureau periodically inspects high and significant hazard dams on a yearly to every five years basis depending on the hazard classification, purpose and capabilities of the owner. Low hazard dams are inspected every five years. Resources are limiting the frequency with which dams are inspected. However, State Engineer Dam Safety regulations require every owner of a high or significant hazard potential dam owner to have an

Public Safety

Funding

operation and maintenance manual. 33 dams out of 211 classified as high or significant hazard potential have an approved operation and maintenance manual. Required work ranges from maintenance to major rehabilitation. Again, urban infrastructure tends to be better maintained than rural systems. Weight: 15%; Score: 70; Grade: C-.

Public Safety

The Dam Safety Program helps to ensure public safety related to dams in urban and many suburban areas. However, a large number of rural and suburban residential areas are in areas nominally protected by dams and flood channels that are not built for high hazard duty. Emergency action planning somewhat mitigates the risk of loss of life. The Hatch flood of 2006 and other events in Ruidoso in 2008 suggest that public safety is at risk in some areas not due to aged or poorly maintained flood control infrastructure, but by anomalous storms striking watersheds with little or no protective facilities. While property damage was extensive in both cases, there was no loss of life. Weight: 15%; Score: 68; Grade: D+.

Funding

Particularly rural and suburban areas have antiquated and inadequate funding mechanisms. For example, Land Improvement Districts assess levies on properties in the areas they protect, but the rates are generally far out of date. Soil and Water Conservation Districts have the ability to assess levies, but they must be passed by referendum, and such levies are not generally popular.

The report card in 2005 presented funding needs of $585 million in surveyed areas. The current value for dams, provided by the Dam Safety Bureau, is $240 million for all dams and $135 million for flood control dams. A value was not estimated for this report for all flood control infrastructure. The value is likely higher as the backlog of maintenance, rehabilitation, and reconstruction needs grows as the infrastructure ages.

Weight: 10%; Score: 64; Grade: D.

Planning Resilience

Planning

Planning is traditionally a problematic area, where arroyos may pass through several flood management jurisdictions that have little coordination. Regional coordination in urban areas can provide flood master planning ability. Progress has been made in breach analyses, flood plain mapping, and emergency action planning. Ongoing efforts to coordinate regionally (e.g. South-Central New Mexico Stormwater Management Coalition) are encouraging. Weight: 10%; Score: 72; Grade: C-.

Resilience

Active planning and development of emergency action plans in many areas of the state has improved responsiveness to potential failures of flood control dams. Much work remains to be done.

Many flood control structures, particularly in rural areas have been designed and built with little attention to upstream or downstream facilities, creating the potential for cascading failures.

Coordination and master planning can help going forward, including identifying and prioritizing areas with heightened hazards from interaction among structures. Climate change is emerging as an issue of long term concern. Recent and on-going climate change research is settling on the conclusion that the southwestern United States, including New Mexico, will likely be faced with more extreme events, with altered timing, in the future climate.

Flood control infrastructure design standards implicitly assume statistically stationary behavior in flood events, and so a system or structure that was designed for a 100 year event in 1975 may be entirely inadequate for the equivalent probability event in 2040.

Weight: 10%; Score: 67; Grade: D.

FLOOD CONTROL

The condition of flood control infrastructure in New Mexico varies widely, with larger municipalities having more effective facilities than rural areas. Many rural and suburban locales have dams that were not built for their current hazard level, are at (or beyond) their design life, have accumulated significant amounts of sediment, and have deteriorating structural components.

On balance, 73% of all jurisdictional dams and 77% of jurisdictional flood control dams are considered deficient or not in satisfactory condition. Ongoing work should improve 16% of jurisdictional dams classified as high or significant hazard potential. However, there are significant shortcomings in the state's flood control infrastructure that are expected to worsen over time.

Summary NM Flood Control 2012:

Evaluation Criteria	Grade
Capacity	D
Condition	C -
Operation and Maintenance	C-
Public Safety	D+
Funding	D
Planning	C-
Resilience	D
Flood Control Final Grade = D+ (68.8)	

Recommendations

Equitable funding mechanisms should be developed and implemented to provide resources for increasingly expensive maintenance and rehabilitation, and where development raises hazard level, redesign and reconstruction. While this is a political hot potato, necessary work will not get done without it.

The ongoing effort to complete breach analyses, inundation mapping, and emergency action planning should be a priority among planning agencies and the entities that allocate resources to them

.

The OSE Dam Safety Bureau, like many state agencies, has critical functions but few resources to carry them out. Permitting, inspection, and general interaction with the community of dam owners and managers could be improved with additional support.

A discussion of the impacts of climate change is underway among the community of flood control managers and regulators. Support in guiding this discussion to productive conclusions will help.

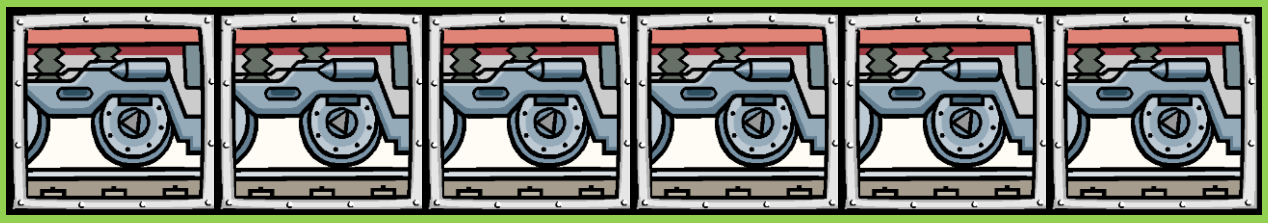
Rail

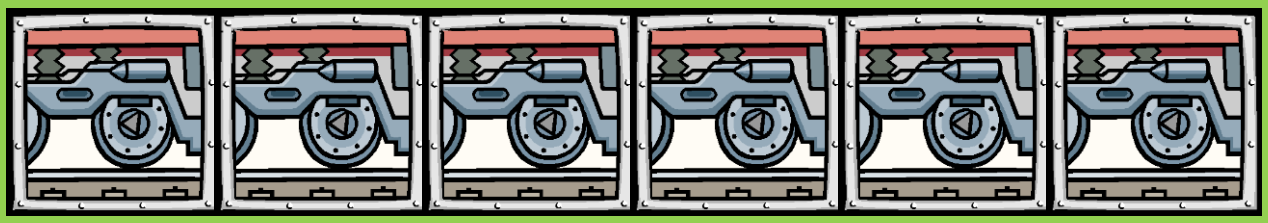
CENTENNIAL 1912-2012

NM C

NEW MEXICO

LAND OF ENCHANTMENT





Overview: Rail

Railroads and New Mexico are intertwined in their histories, and railroads still play a major role in the economy and commerce of the state. Truck / rail intermodal services are a primary revenue generator for the national railroads and are used to connect West Coast ports with major markets.

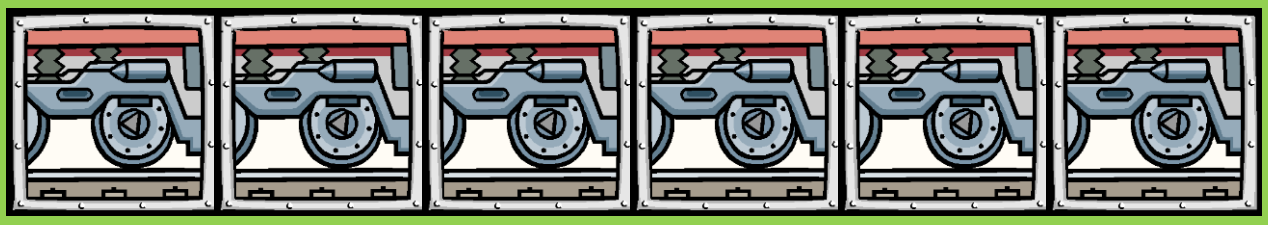
However with the Union Pacific Railroad's construction of a new intermodal facility in southern New Mexico, the Santa Teresa area will have a key inland port that will be a focal point for goods movement in southwestern U.S. and to the Mexican *maquiladora* industry.

The freight railroads in New Mexico employ approximately 1600 staff with an annual payroll / benefit package of $160 million. In addition each rail employee supports 4.5 jobs in New Mexico. With the UP construction of a major rail hub in southern New Mexico, the freight rail employment will increase by 600 in New Mexico.

The freight railroads also invest about $0.40 of each dollar in capital improvements to the rail system. The UP is investing over $400 million in the Santa Teresa Facility and the BNSF has invested over $1.8 billion in the Transcon. This construction work is largely done by New Mexico contractors.

Freight rail traffic in New Mexico is critical to the nation as a whole due to the traffic mix. While little of the freight is destined for New Mexico consignees, both major railroads in the state are important arteries for international commerce as well as domestic manufactured products and refined chemical traffic. The movement of that traffic through New Mexico has always been a major employer for the state and will continue to be.

New Mexico has taken an aggressive stance that other states have been reticent to do in relation to passenger rail development and cooperation with freight railroads. The development of the Rail Runner Express as an alternative to further highway expansion was major movement to a multi-modal transportation system in New Mexico. The two metropolitan areas of Albuquerque and Santa Fe are connected by I-25.



Overview (cont'd)

This corridor required additional capacity primarily for the commuter traffic. Providing alternate routes or adding lanes to I-25 was constrained due to the Indian Lands. The existing rail corridor paralleling I-25 was selected for a passenger transit corridor to provide the needed capacity and redundancy as well as an alternate mode of travel for those without automobiles. In terms of ridership, the initial Belen to Santa Fe segment has been a success. The future of its further development is critical in preservation of a historically important rail route that has great potential to further the interest of New Mexico and its neighboring states for both freight and passenger uses.

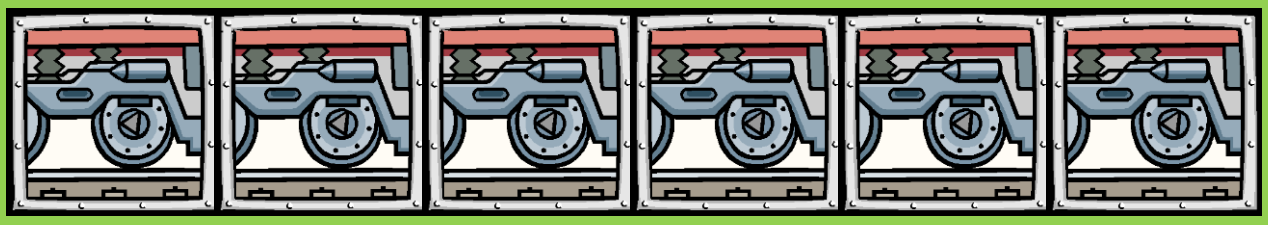
Through the New Mexico Department of Transportation (NMDOT), the state has been cooperative in working with private freight railroads to develop grade separation projects and other improvement projects that enhance the safety and quality of life for the general public while providing operational improvements for the railroads. These projects have been mutually beneficial to the public and the railroads resulting ultimately in a cleaner, safer environment for everyone.

While this proactive position has had positive benefits, the general state of the nation's economy has had its effects on rail infrastructure. Development of future projects, both publicly and privately funded, is heavily dependent upon a resurgence of the economy.

An example is the UPRR Strauss Yard that was delayed two years in construction due to decreased freight traffic. Tax revenues are down on the public side because the economy is slow on the private side.

The train traffic in New Mexico decreased about 25% in 2008 with the economic recession. However, the current rail traffic is moving back to the pre-recession period. Funding of capital improvements for the private railroads has been limited to projects that are essential or are funded by shippers or third parties who will benefit from that construction.

Lack of tax revenues has resulted in substantial retrenchment in proposed expansion of the Rail Runner Express not to mention the traditional highway transportation projects more normally associated with NMDOT.



Overview (cont'd)

At the same time there has been a significant economic downturn, the federal government has taken a keen interest in development of passenger rail ranging from light rail to high-speed rail.

While we may not have a comprehensive view of how long and how deep the investment in passenger rail transportation will be, the development of a funding plan provides a necessary tool for being able to set priorities and apply for funds available under the federal Passenger Rail Investment and Improvement Act (PRIIA).

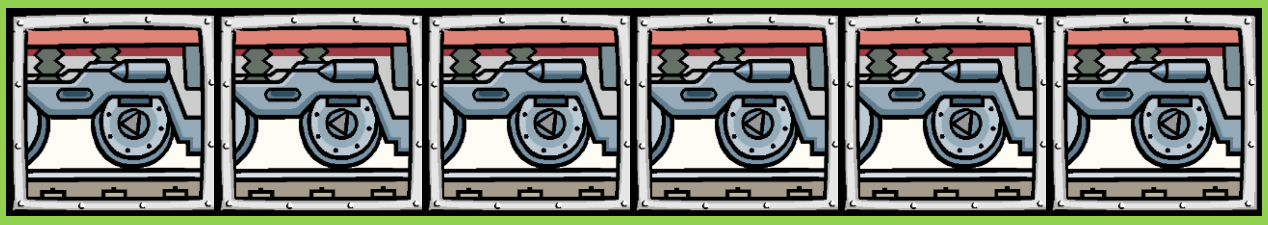
Other funding mechanisms have been available in the past and it is likely that other avenues will be available in the future.

The BNSF line from Gallup to Clovis is part of the "Transcon," the pre-eminent transcontinental route across the United States. The Transcon is major conveyor of consumer goods and international trade in the United States depends upon the quality of service that is provided on the route. The UPRR line from El Paso to the west coast through Lordsburg, the Sunset Route, is similar in importance.

While also conveying a smaller amount of consumer goods, it is a critical route between the Gulf Coast and the West Coast for chemical traffic and automotive products. UPRR also possess a major Midwest connection with the Golden State Route from El Paso through Vaughn and Tucumcari.

BNSF and UPRR serve El Paso with connection for international traffic at Ciudad Juarez. The current crossing is hampered by limited hours of operation and lack of capacity at the same time. The international traffic has largely consisted of agricultural and automotive products.

Amtrak is represented on BNSF, UPRR and NM Rail Runner tracks. New Mexico has an integrated rail system for moving freight. In addition to the two main Class 1 railroads with Amtrak operations, short line operations exist on former Santa Fe Railway lines.



Overview (cont'd)

The lines operated by Southwestern Railroad include the former Deming and Silver City Subdivisions from Rincon to the copper mines in the Silver City area, and the former Carlsbad Subdivision from Clovis to the potash mines around the Carlsbad area.

BNSF has taken an approach that they determine whether they lease or sell their lines that are spun off. The operations to the copper mines include leased and sold lines while the Carlsbad line is strictly a lease from BNSF. Southwestern Railroad is a subsidiary of The Western Group headquartered in Ogden, Utah.

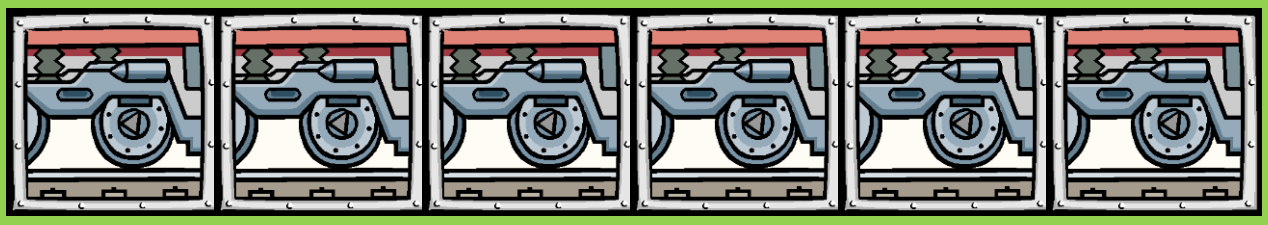
The Santa Fe Southern Railroad line from Lamy to Santa Fe was one of the early line sales by the then Santa Fe Railway. While Santa Fe Southern was originally owned by investors with headquarters in Santa Fe, the line is now owned by NMDOT.

Iowa Pacific Holdings headquartered in Chicago, Illinois owns two separate operations in New Mexico. The former Missouri Pacific line, operated as the Texas-New Mexico Railroad, runs from the West Texas Permian Basin area through Jal and Hobbs terminating in Lovington. Their other operation is centered around Lordsburg with operations on two former Southern Pacific branches that access the copper mining areas in southeastern Arizona.

In addition to short line operations that are the current model for many branch lines spun off from the Class 1 railroads, coal mining has specialized operations in the state.

One operation is the captive line used to transport coal to the Four Corners power plant over the Navajo Railroad. The other is the Escalante Western Railroad owned by Western Fuels Association to transport coal from mines in the Lee Ranch area to the Prewitt Electric Generating Station. Both of these operations are single purpose lines built strictly for hauling coal to the power plants.

One of the more unique railroad operations in the nation is the Cumbres & Toltec Scenic Railroad operating between Chama,



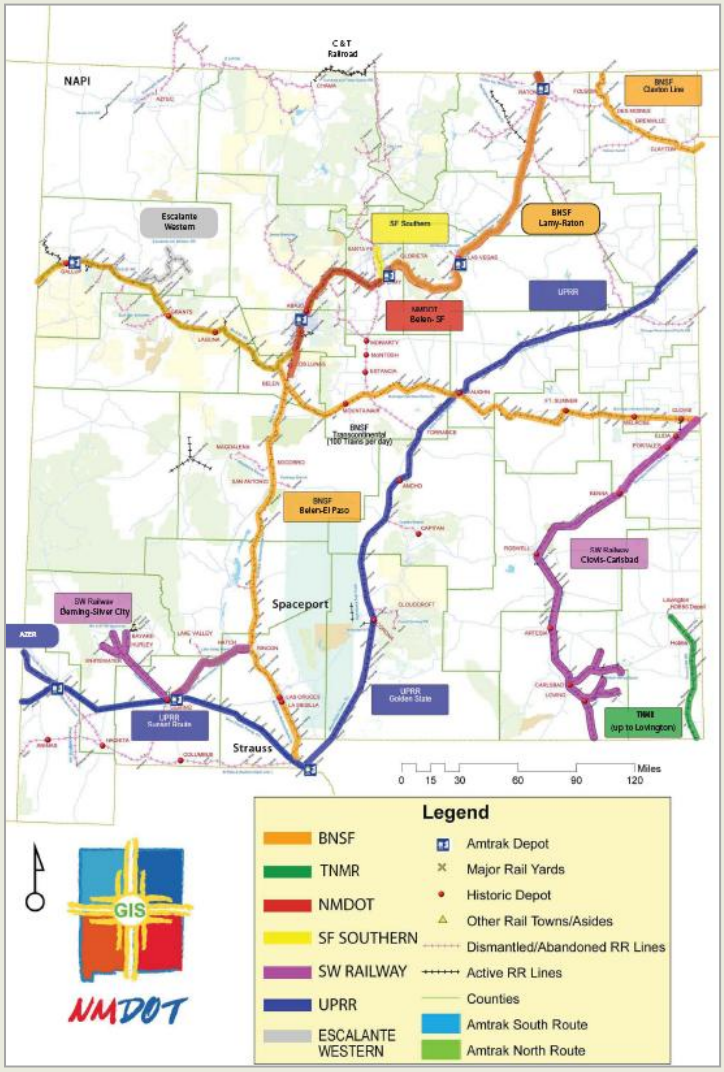
Overview (cont'd)

NM and Antonito, CO. The railroad is jointly owned by the states of New Mexico and Colorado and is one of the remnants of the old Rio Grande narrow gauge railroad.

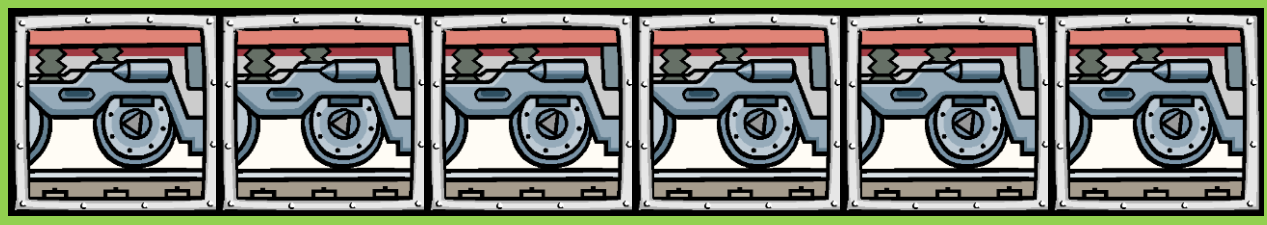
While this railroad is strictly a tourist operation, its value to the economy of northern New Mexico is quite significant. It is an asset that has proven to be a popular attraction while also providing employment to that area of northern New Mexico.

In summary, New Mexico needs to look at freight movement as an integrated system. Rail movements' major constraint is rail capacity and truck access in a service area.

The rail industry has changed significantly in the last 20 years and will continue to develop to provide cost effective movement of freight. The more efficient the rail system is the less truck traffic will be on the major trade corridors of I-10 and I-40 through New Mexico. A strong rail system integrated with the truck routes in New Mexico will improve roadway safety and the environment.



(Above) Map of New Mexico's rail system prepared by the NM Department of Transportation.



BNSF Transcon

BNSF Transcon. This rail corridor is the heaviest travelled rail corridor in New Mexico with up to 100 trains per day that connects Chicago to Los Angeles.

Amtrak runs the Southwest Chief Route from Belen to Arizona on this line. The corridor is primarily double tracked with two segments single track – Vaughn to Carnero and a segment at Fort Sumner.

The BNSF maintains the Transcon and the track is in good condition. Major improvements for this rail corridor are included in the BNSF CIP including: a Clovis Block Swap Yard; Belen Yard Improvement / El Paso Wye Connection; Double Track of the single track segments; Gallup Yard Improvements for Coal Trains; triple track Belen to Dalies; and numerous other improvements to improve operational efficiencies and train velocities.

The Transcon received high grades for track condition and operations but was graded lower due to capacity constraints and the need for grade separations. The Rail Grade for the Transcon is a B-.

BNSF Belen to El Paso

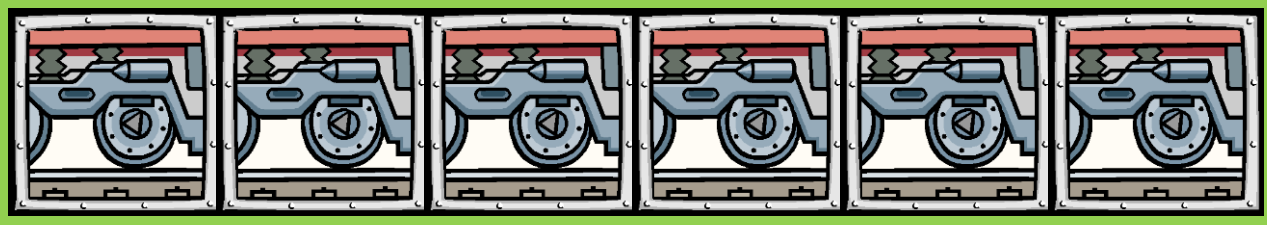
BNSF Belen to El Paso. This rail corridor is a connector line from the Transcon to the El Paso Industries and Mexico. It has approximately 8 trains per day and is single track with low speed and no centralized train control (dark territory).

The track is in fair condition with maintenance by the BNSF. The track does have issues with occasional flooding and there are projects by the Corps of Engineers in the San Marcial area and the International Water & Boundary Commission in the Elephant Butte Irrigation District area. Also, the at-grade crossings, particularly in Las Cruces, are in need of improvements.

This rail corridor has potential for passenger rail service, industry service, and access to the Space Port. The BNSF Belen to El Paso line requires improvements to the track, drainage structures and grade crossings. The Rail Grade for the Belen to El Paso rail corridor is a C.

BNSF Transcon

BNSF Transcon crossing the Rio Grande River at Belen, NM



BNSF Clayton

UPRR Sunset Route

BNSF Clayton Line. This rail corridor is a single track line used by the BNSF to return approximately ten coal trains per day to the Powder River Basin in Wyoming. The track is in fair condition and basically runs from the Texas line through Clayton to the Colorado line at Branson.

The City of Clayton has expressed interest in developing a rail served siding for an ethanol plant and possibly other rail served industries. This line is maintained by the BNSF. This rail corridor was rated high on capacity and fair on track condition with the need for crossing improvements. This low volume rail corridor was graded at a C+.

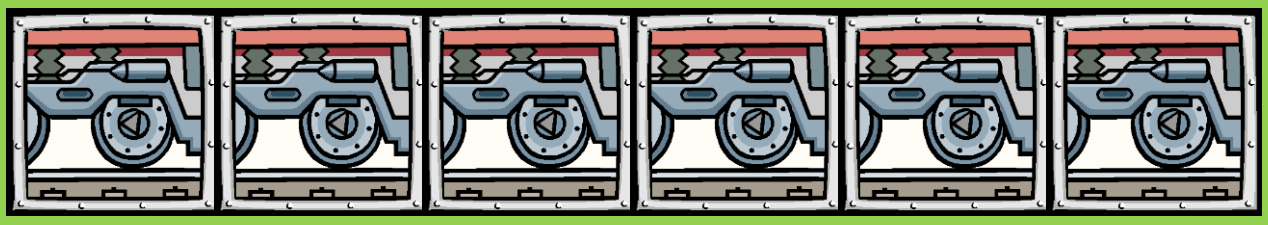
UPRR Sunset Route. This rail corridor is the Union Pacific Railroad's primary route from Los Angeles to El Paso where the UPRR routes divide to go northwest to Chicago (Golden State Route), west to Dallas, and southwest to Houston / New Orleans. Amtrak operates the Sunset Limited Route on this line. The UPRR runs about 45 trains per day on this track and the line is currently restricted due to capacity constraints. The UPRR is investing over $1 billion to double track the Sunset Route and is adding a Terminal at Strauss, NM to improve efficiency and to bring on new customers.

The Strauss facility will move the fueling facility from El Paso and include a run through fueling platforms capable of fueling 8 trains, expandable to 16. The Strauss Yard will also include a block swap yard to connect trains together running west and to disconnect trains running east where the tracks split into three directions. The existing intermodal yard in El Paso will be relocated to the Strauss Yard to serve the region.

In addition, the UPRR Sunset Route has the potential to add chemical/mining sidings and facilities. The rail grade for this corridor is graded a C due to the rail corridor restrictions and the need for grade separation and crossing improvements . The UPRR is constructing the double tracking and the Strauss Yard with completion estimated in 2015.

UPRR Sunset Route

Photo of Strauss Yard, Union Pacific Railroad Sunset Route, under construction (May 2012).



UPRR Golden

UPRR Golden State Route. This is the northwest rail route from El Paso to Chicago that follows US54 in New Mexico. The rail corridor carries up to 30 trains per day and is a single track that crosses the BNSF Transcon at Vaughn, NM.

The UPRR has a rail auto facility in Santa Rosa and services Fort Bliss and White Sands from this line. The track is in good condition and is maintained by the UPRR. There is potential for transload / industries at Alamogordo and Tucumcari.

This rail corridor is in good condition and has fair capacity. This rail corridor was graded at a B.

NMDOT Belen – SFe

NMDOT Belen to Santa Fe. The Rail Runner is a commuter passenger train operated by Herzog and managed by the Rio Metro Transit District. The rail corridor is owned by the NMDOT and operating funds come from gross receipts taxes in Valencia, Bernalillo, Sandoval and Santa Fe Counties. Additional funding is received from the Federal Transit Authority (FTA), fares, and NM Legislative funding.
The track is a single track with sidings with 14 stations between Belen and Santa Fe. The Rail Runner has 8 train sets that carry 4,000 passengers round trip daily.

The Rio Metro Transit District has made great strides in developing bus service to complement the rail service. In addition to the passenger trains, the BNSF runs 6 trains per day to provide freight service to industries primarily in the Albuquerque area.

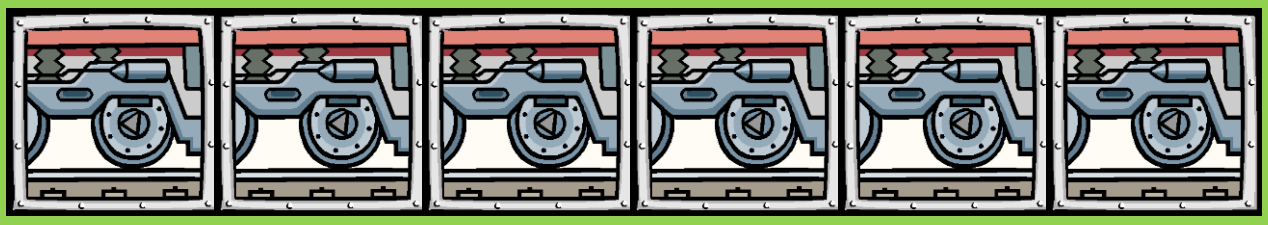
Currently the track and bridges are in average condition with tie / rail needed along with mechanical facilities in the Albuquerque Yard. The Rail Runner operations are limited in the Belen to Bernalillo area and a double track is needed to yield the maximum ridership.

Due to the track conditions, capacity constraints, the need for Positive Train Control, and grade crossing improvements, the rail inventory grade for the Rail Runner is C-.

BNSF Lamy to Raton

BNSF Lamy to Raton. This is a single track rail line through the northern mountains of New Mexico that is owned by the BNSF. The only trains using this line are Amtrak – the Southwest Chief. The track and bridges are maintained in fair condition as required by Amtrak. As part of the Rail Runner negotiation between the BNSF and NMDOT this line was to be purchased for passenger service to tie into the Colorado Front Range passenger system. This sale never occurred and the BNSF maintains ownership of this line. Recently there have been discussions to move the Southwest Chief off of this line and move to the BNSF Transcon. There is potential for industry development along this line tied to the communities of Las Vegas and Raton and to the mining potential in the area. Due to the track condition, funding constraints and need for crossing improvements, the rail inventory grade for this rail corridor is C-.

Albuquerque Rapid Ride Train Station. Photo by Lee Engineering.



SWRR Clovis

SWRR Clovis to Carlsbad. This short line rail line is owned by the BNSF and operated by the Southwestern Railroad (SWRR). This line has approximately three trains per day and interchanges with the BNSF at Clovis.

The short line serves industries at the Roswell Industrial Park, Artesia, and Carlsbad. Improvements in various stages of development include:

Artesia – expand the Holly Refinery rail storage yard into the Industrial Park;

Carlsbad – add a transload for frac sand and oil field supplies and potash transload for Mosaic.

The rail inventory grade for this short line is C due to track condition.

SWRR Deming to Silver City and Deming to Rincon. The Southwestern Railroad operates the rail line between

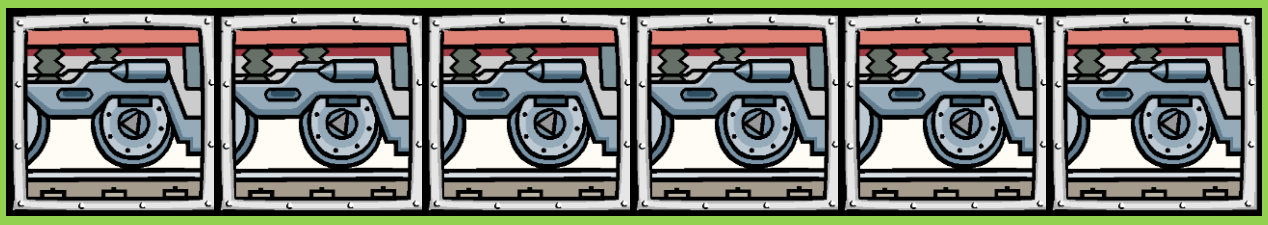
SWRR Deming

Rincon and Deming. This line is owned by the BNSF and provides service to the Hatch Uvas Grain Dairy. The flour mill five miles west of Rincon is provided rail service from this line. The SWRR interchanges with the BNSF at Rincon.

The Bayard / Hurley line from Deming to Silver City primarily serves the Phelps Dodge mines in the Silver City area. This line is operated by SWRR, and as the mining industry increases in activity this line's rail traffic increases.

These lines operated by the SWRR are in fair condition and are funded by industries and SWRR / BNSF. The future usage is minimal and may include the Peru Mill in Deming. Grade crossing improvements are needed.

The rail inventory grade for these rail corridors is C due to the track condition.



TNMR-UP

TNMR - UP to Lovington. The Texas – New Mexico Railroad (TNMR) operates 104 miles of railroad extending from a Union Pacific connection at Monahans, TX to Lovington, New Mexico. The railroad serves the oil fields of west Texas and southeast New Mexico.

The primary commodities hauled are oilfield chemicals and minerals, construction aggregates, industrial waste and scrap. This rail line is owned by Iowa Pacific Holdings. The rail line has a single track in good condition with the potential for industry service to the Permian Basin and the Eunice Waste Line. Communities served are Jal, Eunice, Hobbs, and Lovington.

Potential projects on this rail line include a distribution center at Jal and improvements to the Univar USA in Lovington. The grade crossings need improvement in Hobbs and Artesia. The rail inventory grade for this line is C due to the track condition.

Santa Fe Southern

Santa Fe Southern Rail. The Santa Fe Southern Rail line is a short line between Santa Fe and Lamy that is owned by NMDOT and operated by the Santa Fe Southern Railway.

The rail line has an occasional excursion train and a freight train providing aggregates to Santa Fe. The line has potential for a green terminal / warehouse and transload facility in Santa Fe and a transload facility in Lamy (see NM Rail Plan 2012).

The track / ties are in poor condition on this rail corridor and several grade crossings need improvements. This rail line has a grade of D+ due to the poor condition of the track and the grade crossings.
This rail line could be improved with an economic development investment in the warehousing and transload facilities.

State funding would probably be needed to develop this project.

Additional Short Lines

Escalante Western Rail. This short line rail corridor is a coal line from the Lee Ranch to the BNSF Transcon near Milan, NM. The line is maintained by the short line and has a single purpose of shipping coal from Lee Ranch to the coal-fired generating plants at Prewitt, NM and Holbrook / St. Johns, AZ. The line has potential for providing rail service to the uranium mines in the area. This rail line was given a grade of C+

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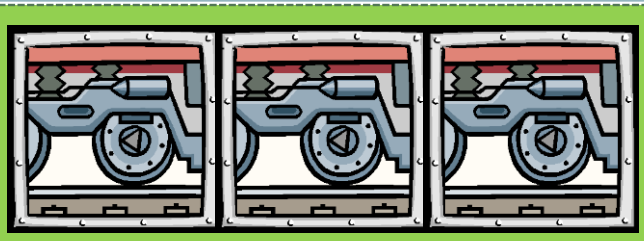
Arizona Eastern Rail. The AZER line is a single track short line from Lordsburg to the AZ copper mines. The track is in poor condition and AZER has applied for a $28 million Railroad Rehabilitation and Investment Financing (RRIF) loan for rail rehab (relay rail, install new ties, and resurface track) to increase safety, speeds and to improve efficiency. The rail line is currently graded a C- but will improve with the RRIF upgrade.

Combres & Toltec Excursion Rail (C&TS). This rail line is an excursion narrow gage scenic corridor from Chama, NM to Antonio, CO. The C&TS has recently overhauled the existing track and replaced a bridge that had burned down. The funding for these improvements was provided by the states of NM and CO. The rail inventory grade for this line is C-. This line is not critical to the transportation network but was included in the NM State Rail Plan and thus included in this report.



Railroad	1	2	3	4	5	6	7	8	9	Rail Line Type
BNSF Transcon	80	B-	85	95	70	75	95	70	70	Class I
BNSF Belen to El Paso	77	C	90	80	70	70	75	75	80	Class I
BNSF Clayton Line	79	C+	90	80	70	75	75	75	90	Class I
UPRR Sunset Route	76	C	70	85	70	75	95	70	70	Class I
UPRR Golden State Route	84	B-	85	95	75	80	90	80	80	Class I
NMDOT Belen to Santa Fe	69	D+	80	70	60	70	70	70	60	Rail Runner
BNSF Lamy to Raton	71	C-	85	60	60	75	75	60	85	Amtrak
SWRR Clovis to Carlsbad	74	C	85	70	70	75	75	75	70	Shortline
SWRR Rincon to Deming to Silver City	75	C	85	75	70	75	75	75	70	Shortline
TNMR UP - Lovington	74	C	75	75	70	75	75	75	70	Shortline
Santa Fe Southern Rail	68	D+	85	60	60	70	60	70	70	Shortline /Excursion
Escalante Western Rail	79	C+	85	80	80	75	80	80	75	Shortline
Arizona Eastern Rail	72	C-	85	60	60	75	75	75	75	Shortline
Combres & Toltec	71	C-	75	75	70	70	70	70	70	Excursion

KEY: 1 = Composite Grade, 2 = Grade, 3 = Capacity, 4 = Condition, 5 = Funding, 6 = Future Need, 7 = Operation and Maintenance, 8 = Public Safety, 9 = Resilience.

Rail Network

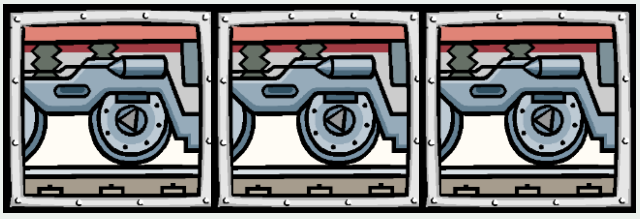
The NM Rail Network is critical to the economy in New Mexico and investments are needed to build and maintain a safe, reliable, efficient and affordable system. The information provided in this report is a snap shot of the condition of NM's rail infrastructure.

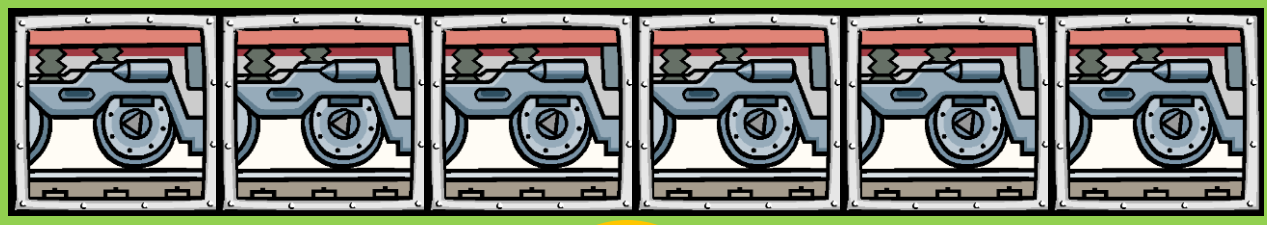
Summary NM Rails 2012:

C

Rail Type	Overall Grade
Class I	B-
Rail Runner	D+
Amtrak	C-
Short Lines	C
Excursions	C

Rail System Final Grade = C (74.9)





Recommendations

BNSF Transcon

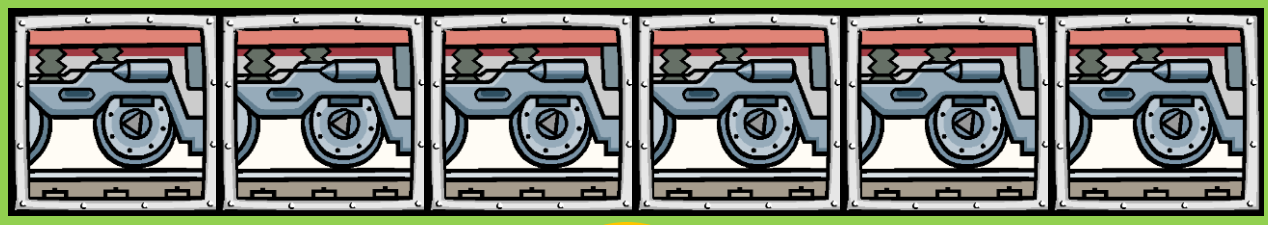
The NM Legislature had a bill in the 2012 session that would provide the BNSF a deduction from the gross receipts tax and compensating tax for locomotive fuel if the BNSF invested $50 million or more in rail infrastructure improvements. This bill got through the Committees but did not get on the Senate floor at the end of the 30 day session. With the passage of this bill the BNSF would upgrade the Transcon and "Raise the Grade" for this important rail corridor in New Mexico. Additional public – private partnerships for grade separations and industry facilities would also optimize the safety and economic opportunities with the Transcon.

BNSF Belen to El Paso

The rail corridors could be improved by working with the communities and private industries to develop transload facilities and multiple commodity switching yards for the agricultural and Space Port support facilities. Also if the BNSF El Paso Yard is relocated to Vado, NM as part of the TXDOT Border Highway project, the Vado area could become a rail intermodal and switching yard to serve El Paso and Southern New Mexico.

UPRR Sunset Route

The Strauss, NM Yard and Fueling Facility was made possible by the NM Legislature by passing a bill giving the UPRR a tax exemption on diesel fuel that was passed in 2011. This bill made NM competitive with TX and provided the stimulus for the UPRR to invest approximately $500 million in the area. This type of public – private cooperation is necessary to develop the rail infrastructure in New Mexico.



Recommendations (cont'd)

Rail Runner

The Rail Runner grade can be improved with the following actions:
Federal – continue the FTA funding and evaluate the tie to the population. If the Rail Runner region would have had 8,000 more population in the last census, the Rail Runner would have received $10 million more in FTA funding. State – continue the support of the Rail Runner and publicize the benefits to the State to enhance the transit operations.
The Rail Runner is unique to New Mexico and enhances tourism and commuter options.
Locally, support the areas around the Rail Runner Stations by providing multi-modal access – trails, sidewalks, parking facilities – along with the property zoning to develop transit-oriented facilities.

BNSF Lamy to Raton

To maintain this rail corridor from Lamy to Raton in the transportation system it is important that the Amtrak service be maintained and the rail industry service be developed.

Short lines

Short line freight railroads provide an integral part of the transportation network providing shipping links for industry in the state. A key legislation important to short line railroads is the Short Line Credit Extension (HR 721 and S 672). This legislation is important to allow short line railroads to invest in their rail infrastructure.

Roads

CENTENNIAL 1912-2012

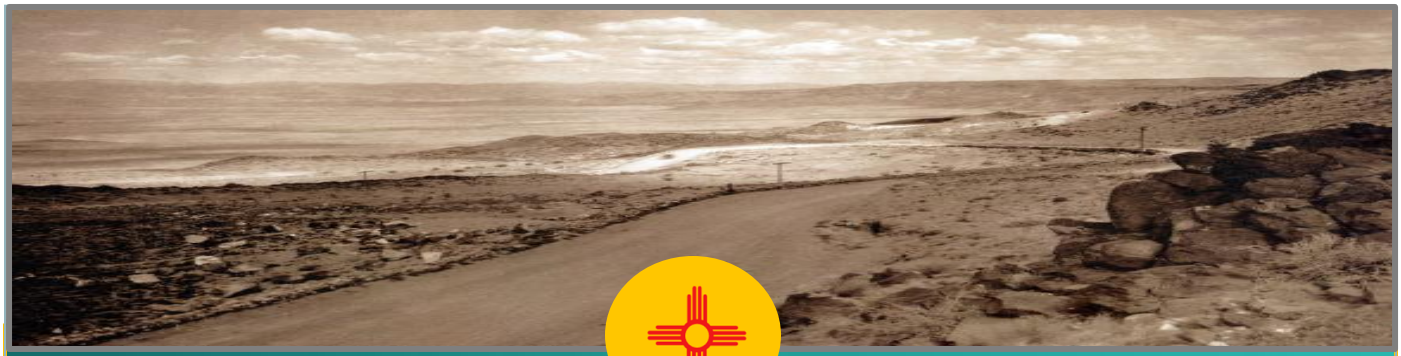
NM C

NEW MEXICO

LAND OF ENCHANTMENT

La Bajada Hill (1920)
Source: NM Department of Transportation

NEW MEXICO CENTENNIAL 1912-2012



Overview: Roads

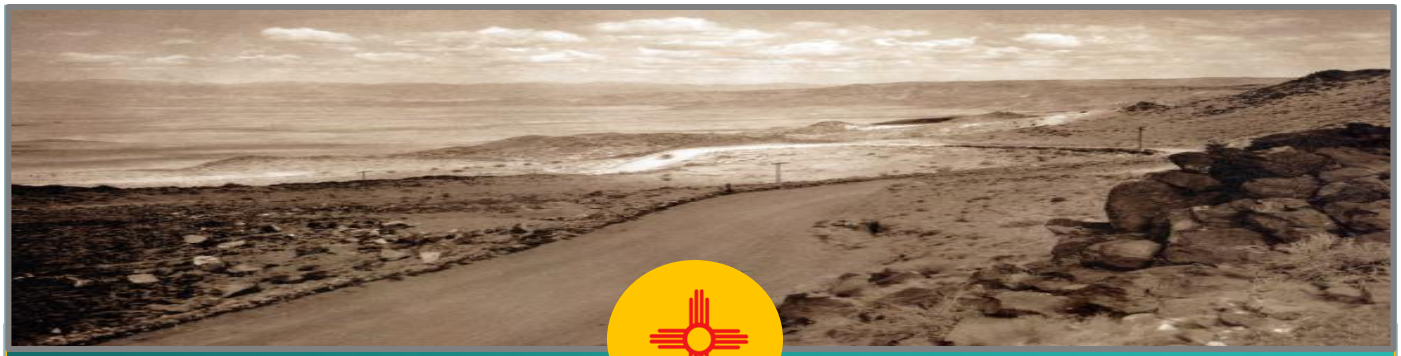
There are 27,853 lane miles in the New Mexico State Highway System, including all paved Interstate, US, and NM designated routes and off-Interstate Business Loops.

This does not include unpaved routes, Frontage Roads or FR designated routes. The summary of roads in NM according to the functional classification is summarized in Table 1. Sixty-five percent of all the commodities delivered annually from sites in New Mexico are transported by trucks on the state's highways. An additional 18% is delivered by parcel, U.S. Postal Service or courier, which use multiple modes, including highways.

The road system of NM is ranked based on the weighted average of capacity, condition, funding, future needs, operation & maintenance, public safety, and resilience. Findings for each category are summarized.

Table 1: Highway Statistics of New Mexico in 2009 (lane-miles)(1)

Rural								
Interstate	Freeways And	Principal	Minor	Major	Minor	Local 2/	Total	
	EXPRESSWAYS	ARTERIAL	ARTERIAL	COLLECTOR	COLLECTOR 2/			
3,386		5,550	4,075	7,889	6,300	97,442	124,642	
Urban								Total
Interstate	Freeways And	Principal	Minor	Major	Minor	Local 2/	Total	Lane
	EXPRESSWAYS	ARTERIAL	ARTERIAL	COLLECTOR	COLLECTOR			Miles
714	10	2,832	1,598	3,119		10,024	18,297	142,939



Capacity

New Mexico expects rapid population growth in the next twenty five years, especially in metropolitan areas. For example, the Albuquerque metropolitan area will reach 1 million people by 2025 and 1.3 million by 2035, with a population increase by more than 550,000 (3). New Mexico's population grew by 33% from 1990 to 2009.

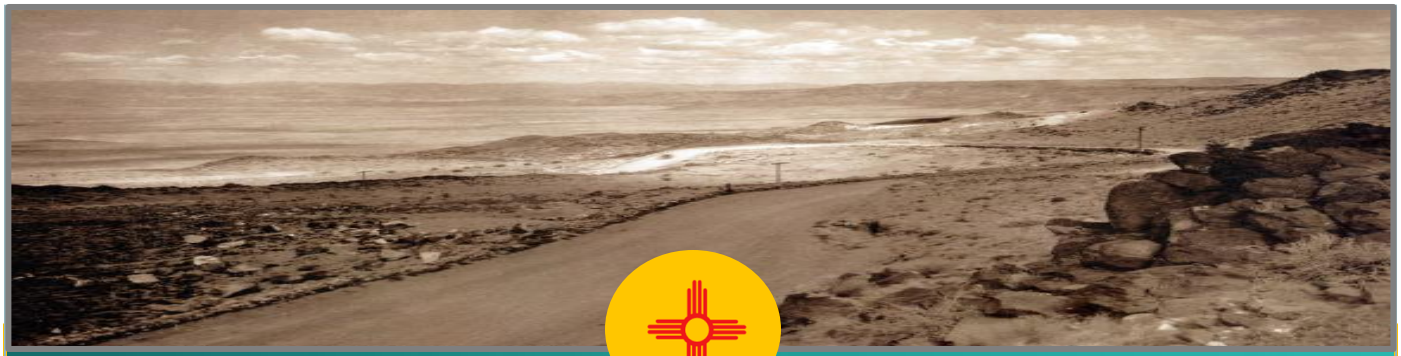
The rapid increase in population creates high demand on road traffic systems. Vehicle travel on New Mexico's highways increased by 61% from 1990 to 2009 (higher than the 39% national average); as a result, 19% of New Mexico's major urban roads are congested.

The continued increase in traffic, especially in urban areas, is placing significant wear and tear on urban roads at a time when transportation funding is inadequate to keep pace with the rate of deterioration on the roads. Total vehicle travel in New Mexico increased by 66% from 1990 to 2007 and is anticipated to increase by another 60% by 2020. According to the REASON report, 18.71% of New Mexico's urban interstate routes are congested in 2008, (ranked 9th in the nation). In addition, 5.09% of the rural roads in New Mexico have narrow lanes (do not meet the requirement), ranking 23rd in the nation in 2008.

Transportation agencies realized that adding roadway capacity alone will not be enough to match the amount of expansion on demand. For example, it was estimated that adding physical road capacity can only contribute 17% of the total effort in addressing the river crossing traffic demand in Albuquerque area.

Other measures will need to be used to solve the capacity issue including improving land use, vehicle occupancy, transit, and operational efficiency.

Considering the above factors, a grade of B (83) is given for this category. The capacity grade contributes 15% to the total grading of roads.



Condition

Twenty-two percent of New Mexico's major roads are in poor or fair condition. Driving on rough roads costs New Mexico motorists $397 million a year in extra vehicle repairs and operating costs – $291 per motorist.

Urban roads in New Mexico are in very poor condition, in general. In 2009, Albuquerque's major urban roadways were among the roughest in the nation, costing area drivers $576 each year in extra vehicle operating costs.

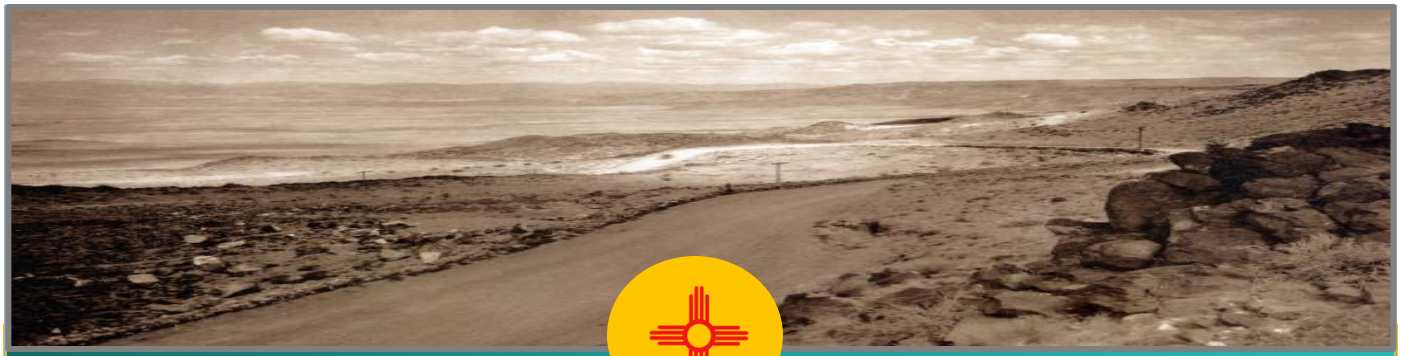
According to TRIP and the American Association of State Highway Transportation Officials (AASHTO), 36% of major urban roads in Albuquerque are in poor condition, and an additional 27% are in mediocre condition. Table 2 summarizes the road condition in Albuquerque in 2011.

According to the REASON report, the overall highway performance of New Mexico's state highway systems ranked 2nd in the nation for 2007 and 4th for 2008, and no rural and urban interstate roads were in poor condition for 2008 (4). Only 0.11% of New Mexico's rural roads (other than principal arterial pavement) were in poor condition, which ranked these roads 11th in the nation. In 2011, a total of 3,171 lane miles of the New Mexico State Highway System are considered to be in deficient condition. Figure 1 shows the change of percent of Good Condition of the NM State Highway System (Interstate Highways) and Figure 2 shows the change of lane-miles in deficient condition.

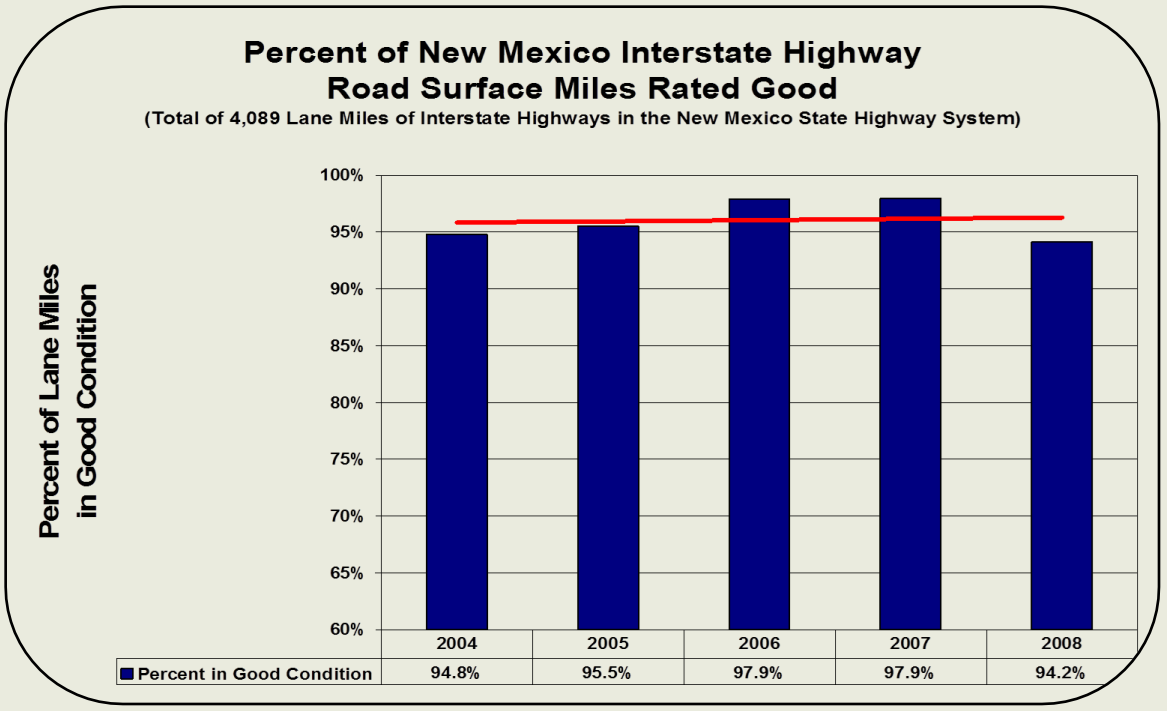
Based on the above facts, the weighted grade for roadway condition in New Mexico is B. It contributes 20% to the total grade of the road category. Previous reports are not cited directly but added to the Sources section.

Table 2: Condition of Roads in Albuquerque in 2011 (Albuquerque Roads Survey)

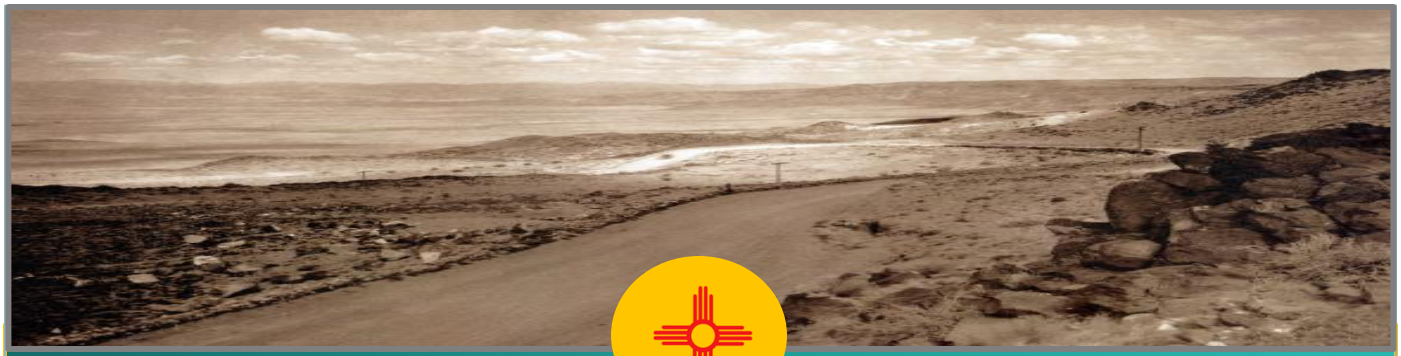
Very Good	Good	Fair	Poor	Very Poor
14.3%	27.8%	31.2%	19.5%	7.3%



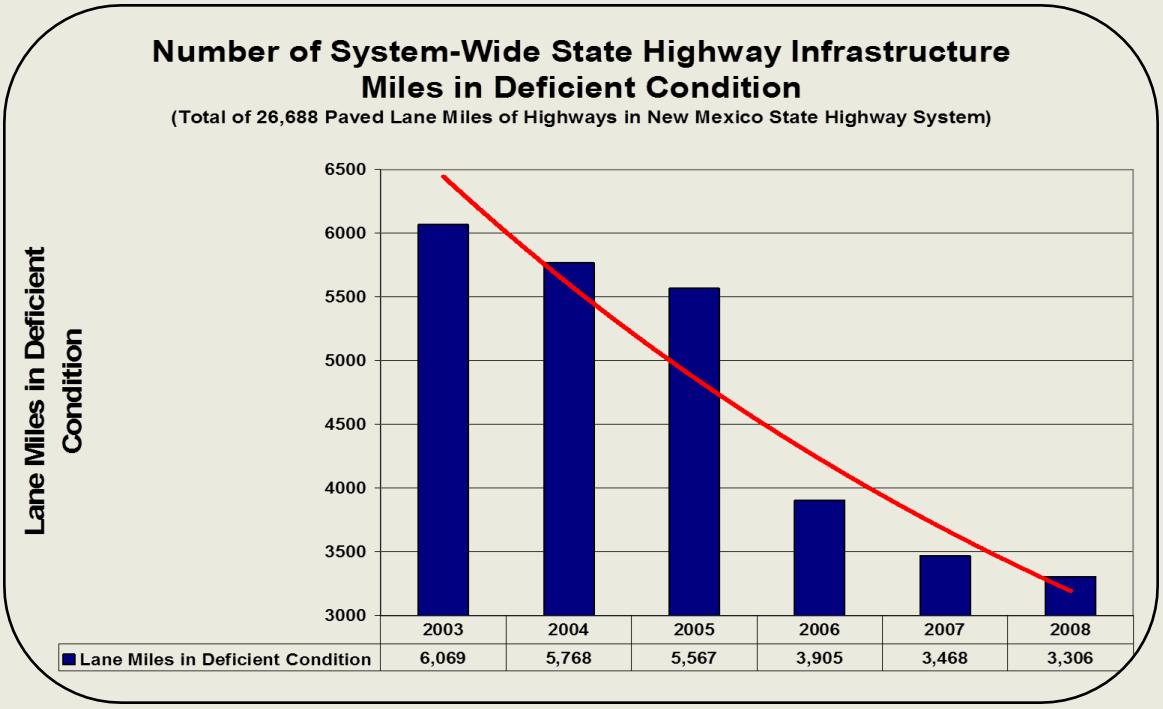
Condition (cont'd)



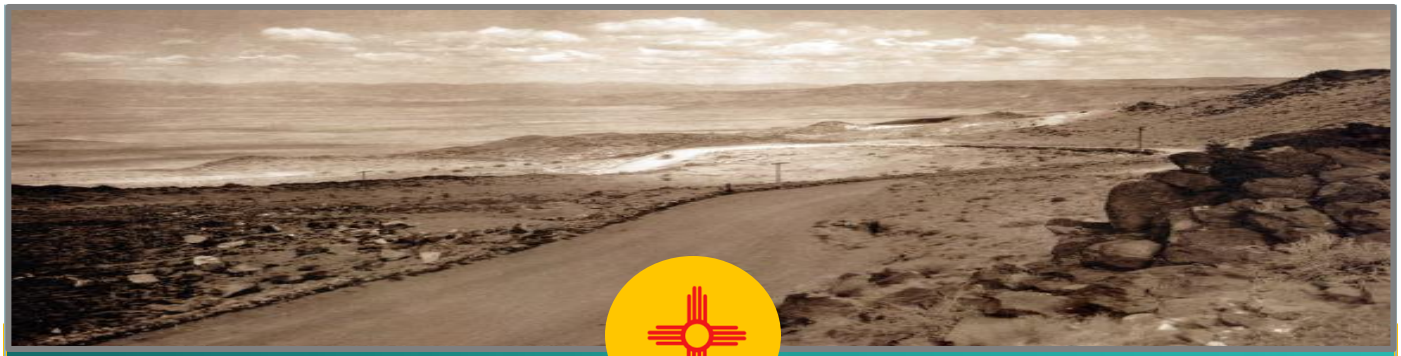
Good to Great Strategic Plan Condition of the NM State Highway System (Interstate Highways) (4)



Condition (cont'd)



Good to Great Strategic Plan Condition of the NM State Highway System Non-Interstate Highways) (4)



Funding

The DOT's Construction program has been historically funded with Federal Aid Funds via the Federal Highway Administration. New Mexico has received approximately $350 million annually as part of the most recent Federal funding authorization act.

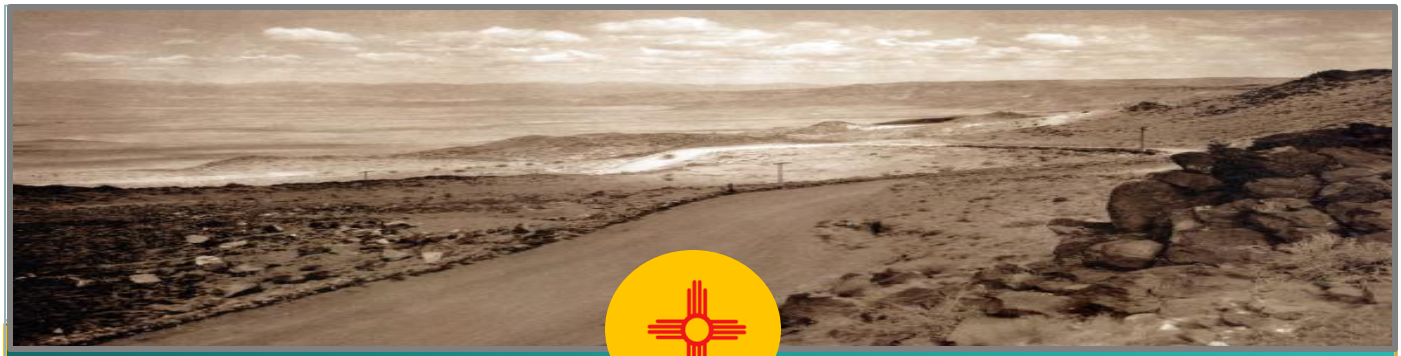
Historically approximately $280 million was used for construction projects. However only $140-$150 million remains for construction projects due to NMDOT's requirement to service its outstanding bonding debt, which is only 50% of the federal funding. According to the Reason report , New Mexico's maintenance disbursements per mile in 2008 ranked the 22nd in the nation.

The NMDOT's 20-year long-range plan identifies an infrastructure need of $16 billion. Its current annual need is approximately $450 million for highway construction and does not include any mega high profile type projects. The need for bridge construction is an additional $150 million annually. NMDOT's total budget is $800 million a year; of which about half comes from federal highway funds. NMDOT estimates that its current level of funding is only enough to address about 20% of its projected needs.

The funding was $9,000,000 in 2010 for Albuquerque, as compared to $18,000,000 in 2008. The need is $20,000,000 per year to keep up with repairs and fuel cost.

Due to the economic recession, automobile travel fell about 3.5% during 2008 from 2007 levels nationwide, which helped relieve road deterioration to some degree. Also, beginning in late 2008 and continuing into 2009 and 2010, federal stimulus funding contributed an additional 31.7% to New Mexico resources. The ARRA funds for New Mexico were $796.3 million in 2008. These events have eased New Mexico in addressing some long-needed construction projects. But looking forward, the funding will be much below the need for road construction and maintenance.

Considering the above facts, a grade of D is given to this category, which contributes 15% to the total grade.



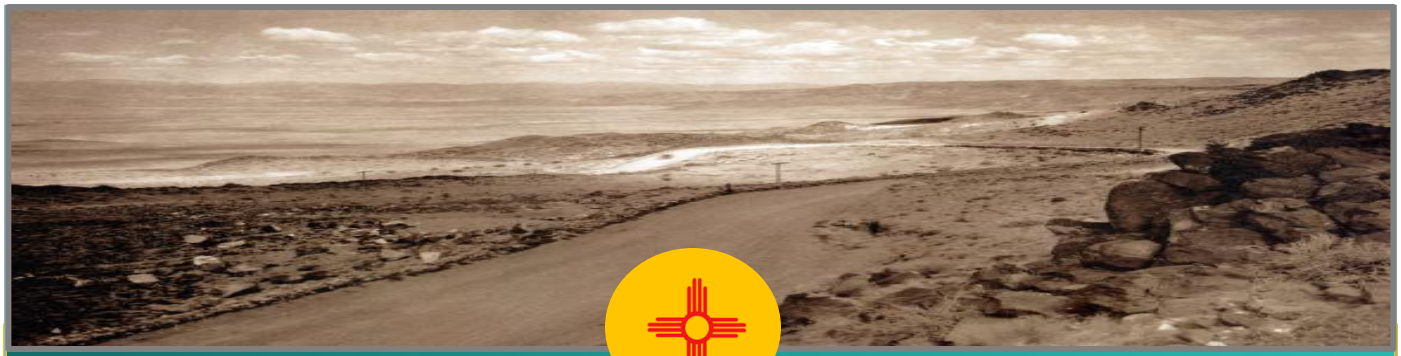
Planning

Considerable population growth is forecasted in New Mexico and the growth is not evenly distributed over the whole state. Metropolitan areas will expect a much higher population increase than other areas. For example, Albuquerque experienced extensive growth between 2000 and 2008, and the metropolitan area of Albuquerque is expected to add over 550,000 residents between 2008 and 2035, an increase of 74%. According to historic data, the percent increase of Vehicle Miles Traveled (VMT) has been rising at more than three times the percent of population increase. The increase in VMT is expected to continue; for example, there were 6.2 million miles of daily travel in Doña Ana County in 2011.

By 2015 that number could increase to between 6.6 and 6.9 million miles.
The rapid increase of traffic will result in increased congestion and immense burdens placed on existing infrastructure.

The New Mexico Department of Transportation (NMDOT) currently designs pavement sections for a specific design life: 5 years for pavement preservation activities, 10 years for rehabilitation projects, and 20 years for new construction and reconstruction projects. Most of the road sections have approached their design lives. The total maintenance needs for state highways include $135M for 2011; $128M for 2012; $143M for 2013; and $107M for 2014, respectively. Albuquerque has 1,170 lane miles in poor and very poor condition, which would take $240 million to mill and inlay.

Due to funding constraints, only minimum maintenance can be conducted. The investment cannot meet the rapid increase of demand; this category is graded as D resultantly, which contributes 10% to the total rate.



Operation and Maintenance

The NMDOT uses a strategy of using pavement preservation treatments on roadways that greatly improves the efficiency of road maintenance. NMDOT and most city and county agencies have a sound plan that schedules road maintenance and rehabilitation/reconstruction in an orderly, programmatic manner.

But the shortage of road maintenance fund limits the maintenance at a relatively lower standard. The DOT's Operational and Maintenance programs are funded with revenues to the State Road Fund.

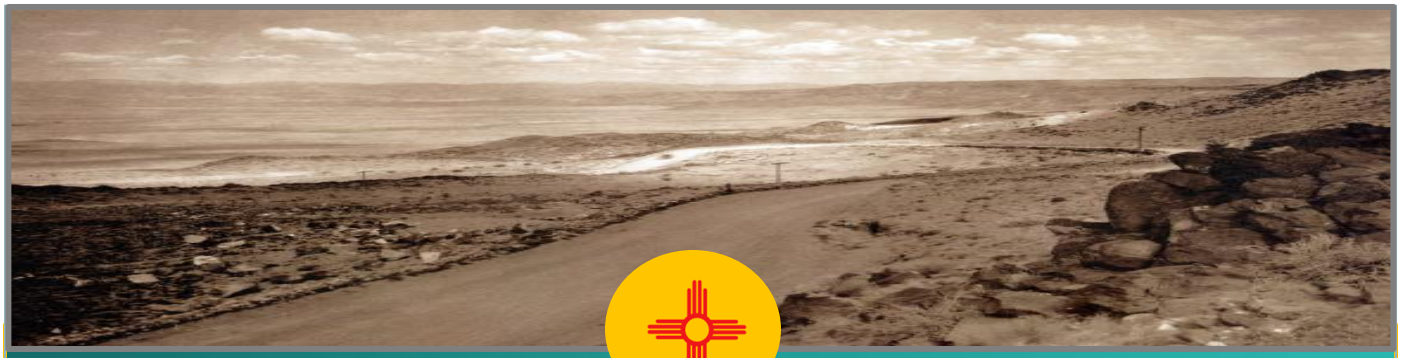
This Fund is used primarily to fund routine maintenance functions across each District. The State Road Funds are also used to provide the required match for use of Federal Aid Funds at a prorated amount, on the average of 15%.

The State Road Fund, however, is not used to fund construction projects. The State Road Fund receives approximately $400 million annually from receipts of Gas Tax, Special Fuels Tax, Vehicle Registration and Weight Distance Tax from truckers. The State Road Fund receives no General Funds.

The DOT's basic need for maintenance could sustain an additional $200 million annually to support basic maintenance operations and very basic pavement preservation.

The need for bridge maintenance and rehabilitation type work is as much as $50 million annually. The DOT also is responsible for maintaining its Fleet equipment of over 6,400 units used to maintain its infrastructure. The total asset value is approximately $250 million. The current deficient replacement costs are $140 million, and service life is currently in excess of what is recommended.

This category is given a grade of B; contributing 10% to the total rate.



Public Safety

According to national statistics, approximately one-third of traffic fatalities are due to roadway deficiencies.

There were 361 traffic fatalities in 2009 in New Mexico. A total of 2,112 people died on New Mexico's highways from 2005 through 2009. New Mexico's traffic fatality rate was 1.39 per 100 million vehicle miles of travel, which is higher than the national average of 1.14 .

The fatalities per 100 million vehicle miles of New Mexico were ranked the 32nd in the nation in 2008. Table 3 gives the fatality rates in New Mexico, with comparison with the national average and the best state rates in the nation.

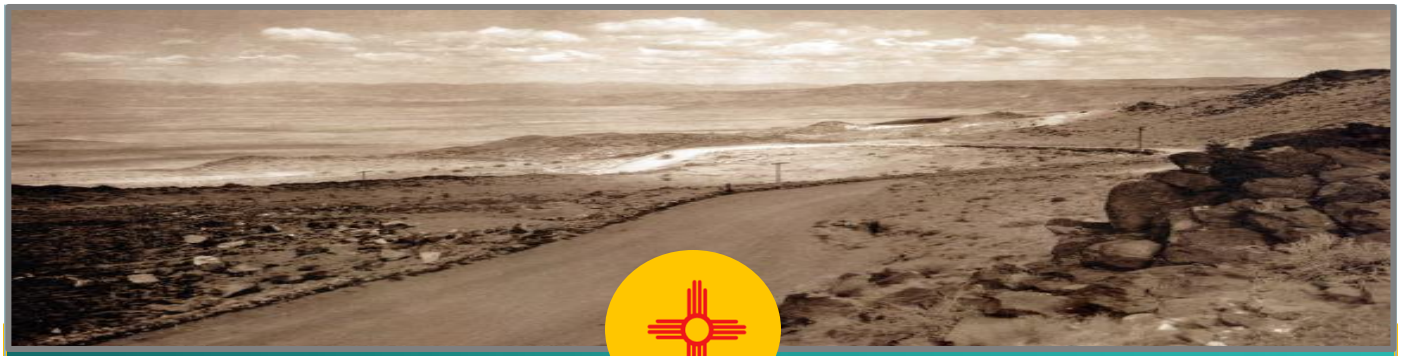
A rate of D is given for this category, contributing 20% to the total rate.

Resilience

New Mexico has contingency plans in the event of a natural or man-made disaster. NMDOT has measures designed to reduce the severity of damage by natural or man-made disasters in all plans for future highway and bridge construction projects.

There are relatively fewer national disasters in NM compared to other states. It is difficult to find a detour when a road section is closed due to dust storms or other incidents because of the widely separated road network.

A grade of B is assigned to this category, which contributes 10% to the total grade.



Public Safety

Accidents

Year		Fatalities	Total Vehicle Miles Traveled (Millions)	Fatalities Per 100 Million Vehicle Miles Traveled	Total Population	Fatalities Per 100,000 Population
2006	New Mexico	486	25,787	1.88	1,962,137	24.67
	US	42,780	3,014,371	1.42	298,379,912	14.3
	Best State*			0.78		6.48
2007	New Mexico	413	26,850	1.54	1,990,070	13.70
	US	41,259	3,031,124	1.36	301,231,207	14.3
	Best State*			0.79		6.53
2008	New Mexico	366	26,279	1.39	2,010,662	18.20
	US	37,423	2,976,528	1.26	304,093,966	12.31
	Best State*			0.67		5.63
2009	New Mexico	361	26,013	1.39	2,036,802	17.72
	US	33,883	2,956,764	1.15	306,771,529	11.05
	Best State*			0.62		4.90
2010	New Mexico	346	25,325	1.37	2,065,932	16.75
	US	32,885	2,966,506	1.11	309,349,689	10.63
	Best State*			0.58		3.97

*State (or States) With Lowest Rates: Lowest VMT and Population Rates Could be in Different States.

Source: United States Department of Transportation website.

ROADS

There are 27,853 lane miles in the New Mexico State Highway System, including all paved Interstate, US, and NM designated routes and off-Interstate Business Loops.

Sixty-five percent of all the commodities delivered annually from sites in New Mexico are transported by trucks on the state's highways. An additional 18% is delivered by parcel, U.S. Postal Service or courier, which use multiple modes, including highways.

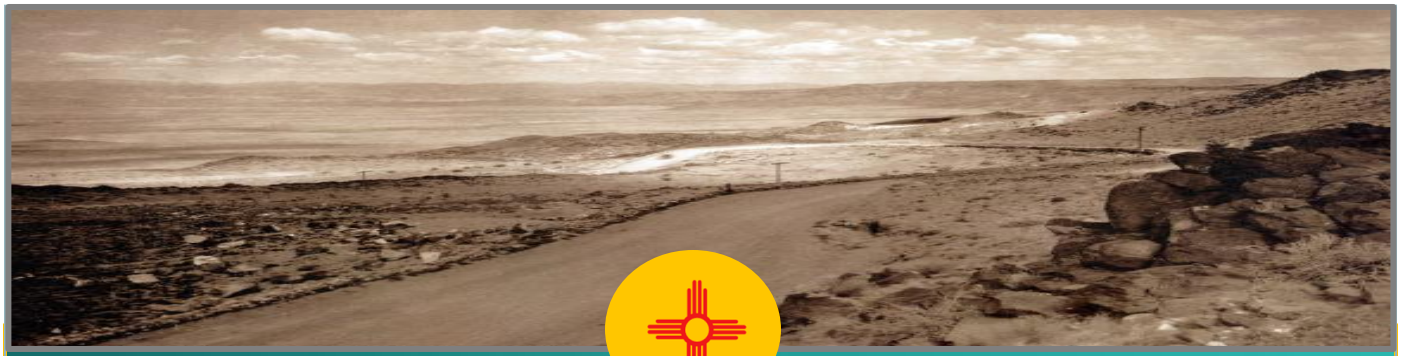
The road system of NM is ranked based on the weighted average of capacity, condition, funding, future needs, operation & maintenance, public safety, and resilience.

The final grade is a C.

Summary NM Roads 2012:

Category	Grade
Capacity	B
Condition	B
Funding	D
Future Needs	D
Operations and Maintenance	B
Public Safety	D
Resilience	B

Roads Final Grade = C (75.0)



Recommendations

The main difficulty New Mexico faces is the shortage of funding: New Mexico must find more resources for its road improvement and maintenance. A long-term and comprehensive solution is needed, not merely a one-time measure. Some specific recommendations are listed below:

Look for stable funding sources through legislative and other innovative programs. For example, New Mexico is now using a flat fuel tax rate for road maintenance funding. We may work with legislators (state and federal) to index the gas tax to the price of gas.

Use life-cycle integrated and innovative design methods, and high performance materials to improve life expectancy of the road system.

Use comprehensive approach to reduce highway traffic. Encourage the use of high-volume traffic mode, car-pool, and optimal land use; and improve the efficiency of transit.

Reduce accident severity by more stringent DWI, vehicle condition inspection and enforcement; and

Adopt new technology to improve the design and maintenance approaches.

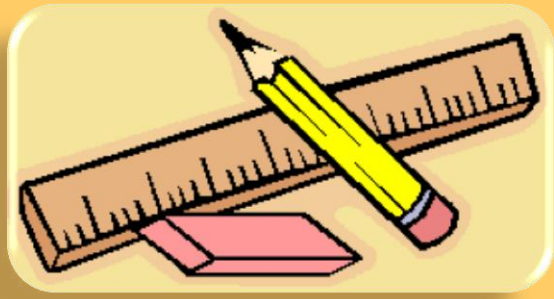
Schools

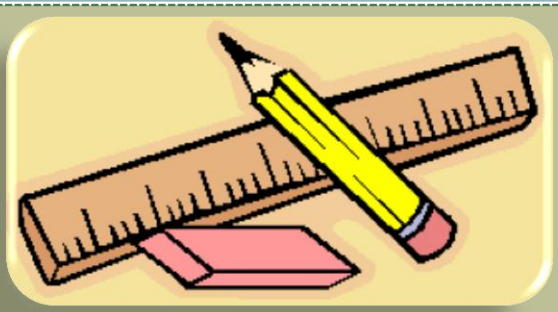
CENTENNIAL 1912-2012

NM B-

NEW MEXICO

LAND OF ENCHANTMENT





Overview: Schools

New Mexico's public school population at the time of the last Report Card was 326,000 in 89 school districts.

For the 2011-2012 school year, the student population was 337,000, an increase of nearly 3.5%.

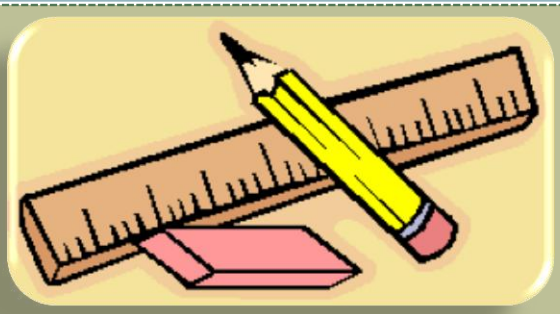
The size of these districts varies widely from a high of 95,000 students in Albuquerque to less than 100 students in several of the state's rural areas.

Public school capital outlay financing is both a local and state responsibility in the state of New Mexico.

School districts can generate state revenues through two statutory measures. One measure is through direct legislative appropriations, which provides funding for specific needs. The second is through a standards based process under the Public School Capital Outlay Act.

Locally, districts generate capital outlay revenues primarily from the sale of bonds and direct levies. Earnings can also be generated from investments, rents, sales of real property and equipment, as well as other miscellaneous sources.

The Public Schools Capital Outlay Council (PSCOC) is responsible for managing state funding for the 89 school districts. The New Mexico Public Schools Facility Authority (PSFA) serves as staff to the PSCOC and assists school districts in the planning, construction, and maintenance of their facilities.



Capacity

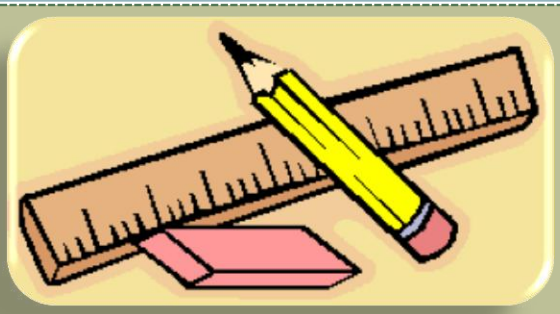
New Mexico public schools utilize over 100 million square feet of building space. In urban areas of the state, enrollment is generally increasing.

In most rural areas the enrollment is steady or slightly declining. In general, those districts with increasing enrollments are at or slightly over capacity.

In almost all of the larger school districts, a significant proportion of classroom capacity (10-30%) is obtained using portable buildings. Most districts, however, would like to reduce their dependence on portables since they are generally located at the fringes of school grounds and tend to detract from the overall accessibility and cohesiveness of the campus.

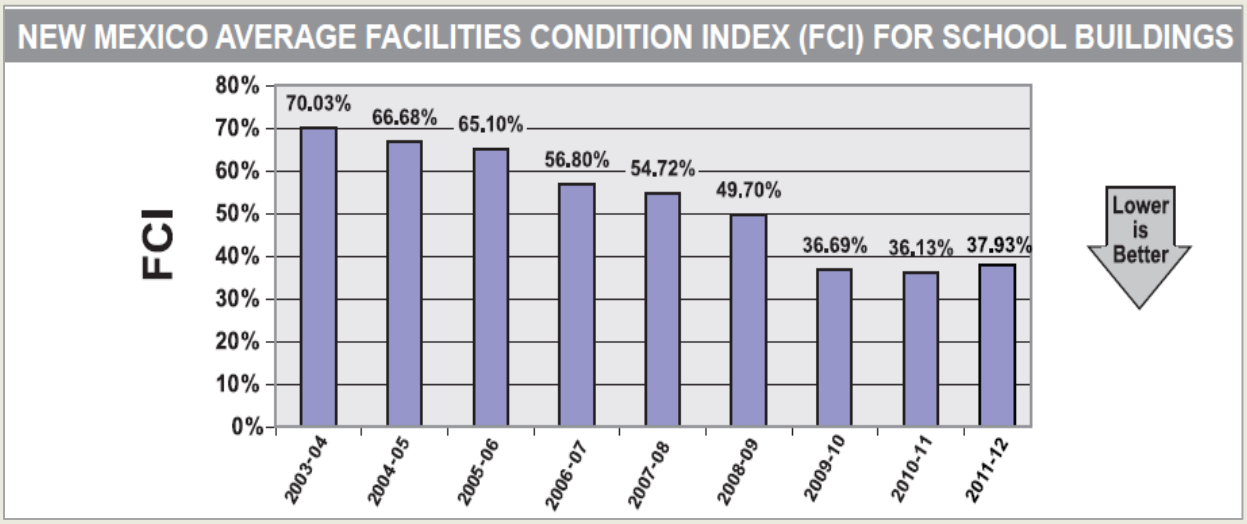
According to 2010 data, 77 of the 89 New Mexico School districts have current five-year facilities master plans. A majority of these master plans express a concern for future growth capacity issues and remodeling needs to meet various educational standards (*i.e.*, educational technologies)

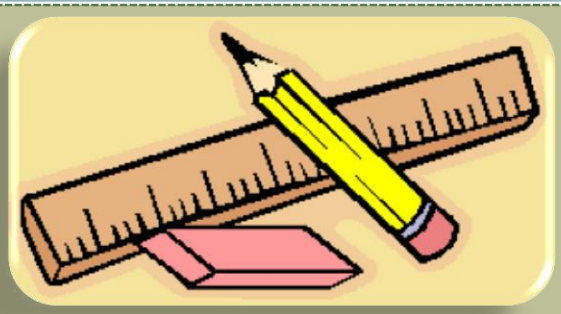
The grade for capacity is B.



Condition

A key performance measure for New Mexico public school building condition is the Facilities Condition Index (FCI). The FCI is the tool commonly used in rating buildings and how these buildings compare to others. It is a ratio of needed repairs (including life cycle renewal requirements) divided by replacement value. For New Mexico Schools, the PSCOC combines building repair cost & system life cycle analysis with New Mexico Educational Adequacy Standards to create the New Mexico Condition Index (NMCI). Weight factors are then applied to create the Weighted New Mexico Condition Index (wNMCI). This index enables the comparison of all the public schools in the state to determine greatest need for funding the correction of school deficiencies. This list is ultimately sorted so that a ranking can be generated identifying greatest capital need. The ranked list will display the schools in most need of repair or replacement, at the top of the list, sorted by wNMCI. Every year the state works down from the top of the list and fund needs as available revenues allow. Once corrected, the school drops to the bottom of the ranked list, and lower level needs accordingly move up in priority. The FCI improved by 46% since 2003 but the rate of improvement has slowed, and in 2010 began to reverse due to funding constraints. Despite significant progress, school facilities remain in less than ideal condition. The grade for condition is B.



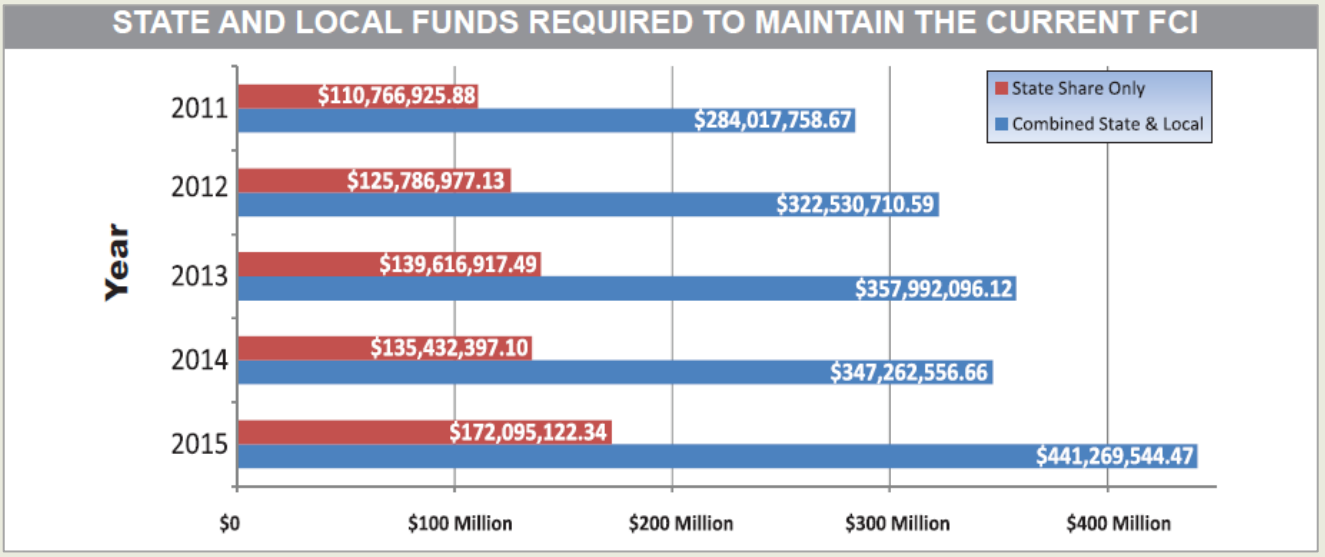


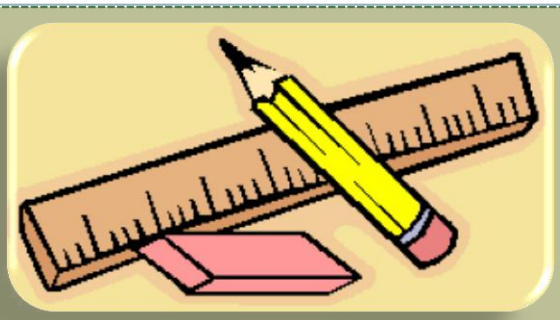
Funding

Throughout the 1970's, 80's and 90's, facilities in many lower income school districts deteriorated. In 1999, a number of these districts brought a capital funding/facilities suit, Zuni School District v. State, CV-98-14-II (Dist. Ct., McKinley County Oct. 14, 1999), claiming that the funding system for capital items was unconstitutional.

The trial court granted partial summary judgment in favor of plaintiffs and ordered the state to "establish and implement a uniform funding system for capital improvements…and for correcting existing past inequities" and set a deadline at the end of the 2001 legislative session.

At the end of 2001, a proposal to fund a $1.2 billion capital program was defeated by a filibuster, and the state settled on nearly $400 million and a new capital funding system intended to establish a standards-based, adequacy level for facilities in all districts. This led to the creation of the NMCI and wNMCI indices.





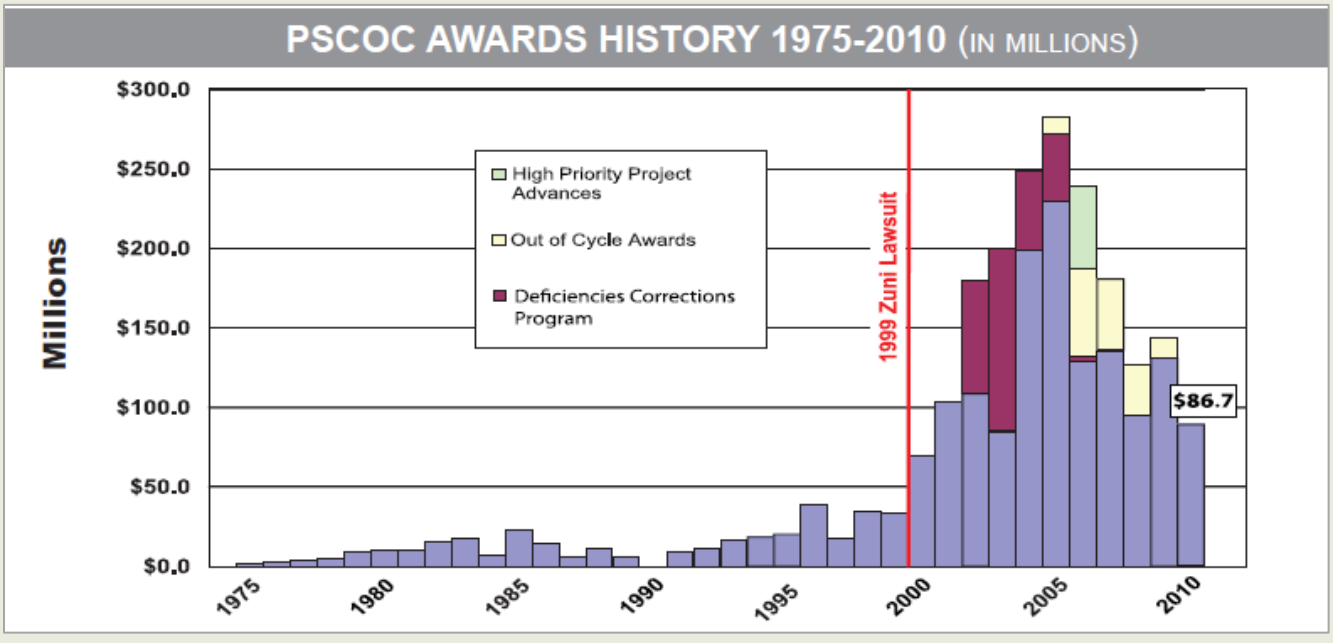
Funding (cont'd)

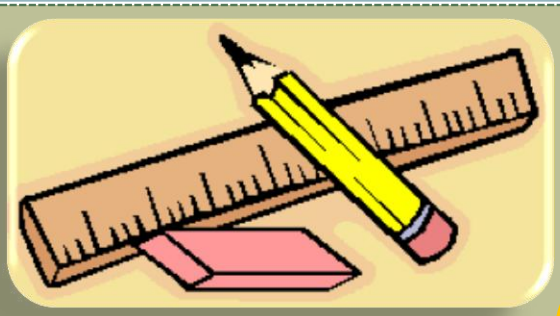
As previously noted, these indices enable the comparison of all the public schools in the state to determine greatest need for funding the correction of school deficiencies.

Current unfunded public school facilities needs total $4.05 billion. To maintain an FCI of 37.9%, over the next 5 years, an average of $343 million annually would need to be invested in school facilities—state funding currently represents 39% of school construction, so funds from the state would need to be about $134 million per annum.

At lower funding levels, degradation exceeds renovation/repair and facilities decline. In 2010, standards-based capital outlay awards totaled $86.7 million. Overall funding decreased by 26% over 2009, and by 80% since 2006. However, the current state government has repeatedly committed to adequately fund educational infrastructure.

The grade for funding is C-.

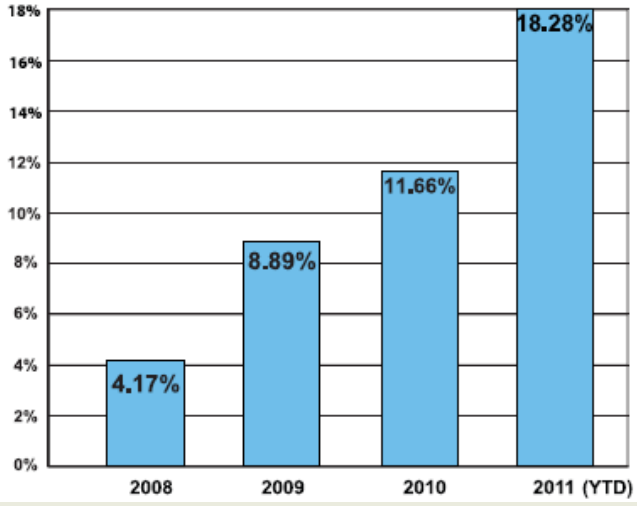


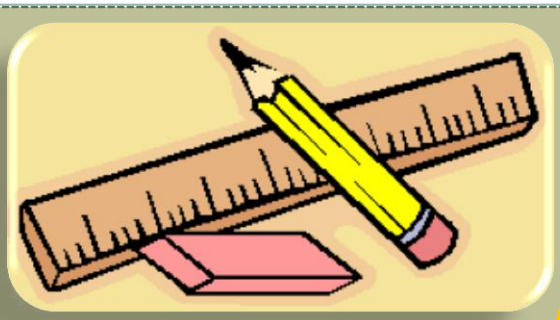


Operation and Maintenance

Repair is an integral part of the FCI. Maintenance is not. Until 2008 most district master plans did not adequately address maintenance needs. Strides have been made toward improving maintenance issues. The PSFA website emphasizes that research in New Mexico has shown that for every one dollar invested in preventive maintenance, four dollars can be saved in maintenance expenditures overall. Investment in preventative maintenance has increased by 77% since 2008.
PSFA established a series of maintenance achievement awards to individuals and school districts that have demonstrated progress in developing effective maintenance management practices. These awards have succeeded in raising the awareness of maintenance issues. Seventeen school districts and 16 individuals received awards in 2010 Cooperative Educational Services (CES), whose membership includes every school district in the state, provides procurement services and O&M education. It allows smaller districts to take advantage of the economy of scale. CES has been cited as one of the best educational service agencies in the country. The grade for Operation and Maintenance is a C+.

DISTRICT PREVENTIVE MAINTENANCE AS A PERCENT OF TOTAL MAINTENANCE EXPENDITURES





Public Safety

Issues that pose immediate threats to the life, health or safety of persons within a school facility are the most heavily weighted factor in the wNMCI
A facility with a high wNMCI index moves to the top of the ranking of schools requiring repair or remediation and thus, access to funding opportunities. School districts can contract directly with CES which has access to providers with expertise in asbestos abatement, resolving code violations, and damage mitigation.

The grade for Public Safety is A-.

	Data Category	Weight
1	Adequacy, life, safety, health	3.50
2	Potential mission impact/degraded	1.50
3	Mitigate additional damage	2.00
4	Beyond expected life	0.25
5	Grandfathered or state/district recommended	0.50
6	Adequacy: facility	1.00
7	Adequacy: space	3.00
8	Adequacy: equipment	0.50
9	Normal – within lifecycle	0.25

SCHOOLS

New Mexico's public school population at the time of the last Report Card was 326,000 in 89 school districts.

For the 2011-2012 school year, the student population was 337,000, an increase of nearly 3.5%. The size of these districts varies widely from a high of 95,000 students in Albuquerque to less than 100 students in several of the state's rural areas.

The Schools Final Grade is a B-.

Summary NM Schools 2012:

B–

Category	Grade
Capacity	B
Condition	B
Funding	C-
Operation and Maintenance	C+
Public Safety	A-

Schools Final Grade = B- (81.0)

Recommendations

Continue towards implementation of an effective facility maintenance program

Assist school districts in coming up with local matching funds to leverage state capital outlay awards

Educate the general public on the fact that good school facilities are just as important as school operating budgets

Encourage more school districts to take advantage of procurement cooperatives (like CES) for construction, operation and maintenance issues

Solid Waste Management

CENTENNIAL 1912-2012

NM C

NEW MEXICO

LAND OF ENCHANTMENT

Overview: Solid Waste Management

Solid waste is collected in a number of ways -- at the curb, convenience centers, and drop-off locations-- as well as directly hauled to a disposal facility. The New Mexico Solid Waste Act is legislation that provides statutory requirements for the handling of solid waste in the state. This statute is implemented by the New Mexico Environment Department's Solid Waste Bureau.

Each of the 33 counties that comprise the state is responsible for solid waste within its respective county.

There are 21 landfills in the State of New Mexico that provide for the proper disposal of municipal solid waste. There are also asbestos, construction and demolition, and other specialty landfills within the state. In addition, a variety of recycling and waste recovery services - ranging from the curbside collection of recyclables to the provision of recycling drop-off locations - are offered throughout New Mexico.
The New Mexico Solid Waste Rules were adopted by the New Mexico Environmental Improvement Board pursuant to authority granted in the Solid Waste Act. These rules are administered and enforced by the New Mexico Environment Department's Solid Waste Bureau.

The bureau's responsibilities include the permitting, enforcement, training, and other regulatory services for the state's solid waste infrastructure. Outreach is an important part of the Solid Waste Bureau's efforts and the bureau works through both the New Mexico Roadrunner Chapter of the Solid Waste Association of North America and the New Mexico Recycling Coalition.

Overview (cont'd)

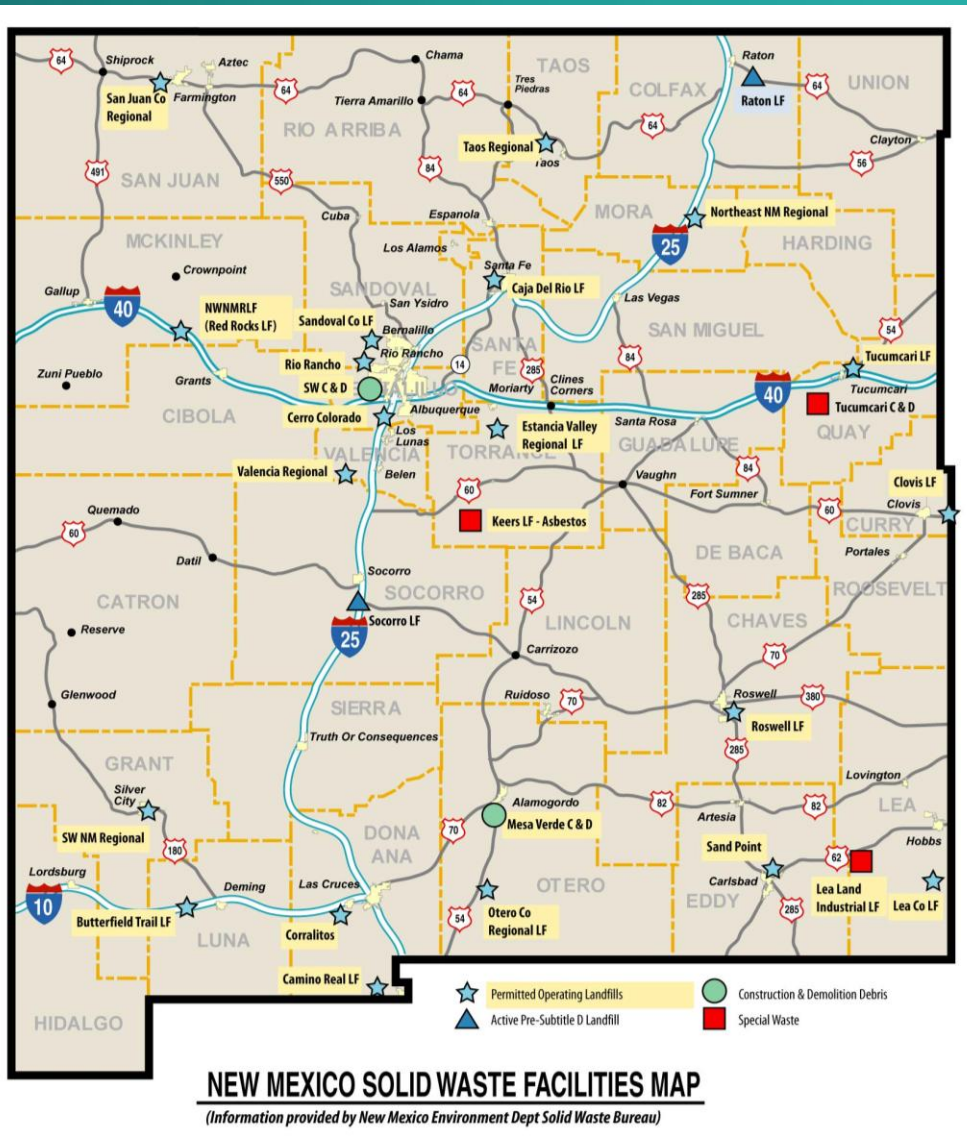
Collection: The collection of solid waste is provided by both public and private entities. These entities' service levels vary from curbside collection to convenience centers and drop-off locations as well as direct hauling to a disposal facility. Collection of municipal solid waste is provided in all communities with a population of 3,000 or more.

The collection of solid waste for communities with a population less than 3,000 is more frequently accomplished via convenience centers or drop-off locations.

The public sector provides the majority of collection services in the state, with both cities and counties providing collection. A city's or county's geographic size or population dictates the level and extent of services offered.

Disposal: The proper disposal of municipal solid waste within New Mexico is provided by 22 (20 permitted and two registered) active landfills, with varying capacities. The total remaining capacity of all 22 landfills is more than 240,000,000 cubic yards.

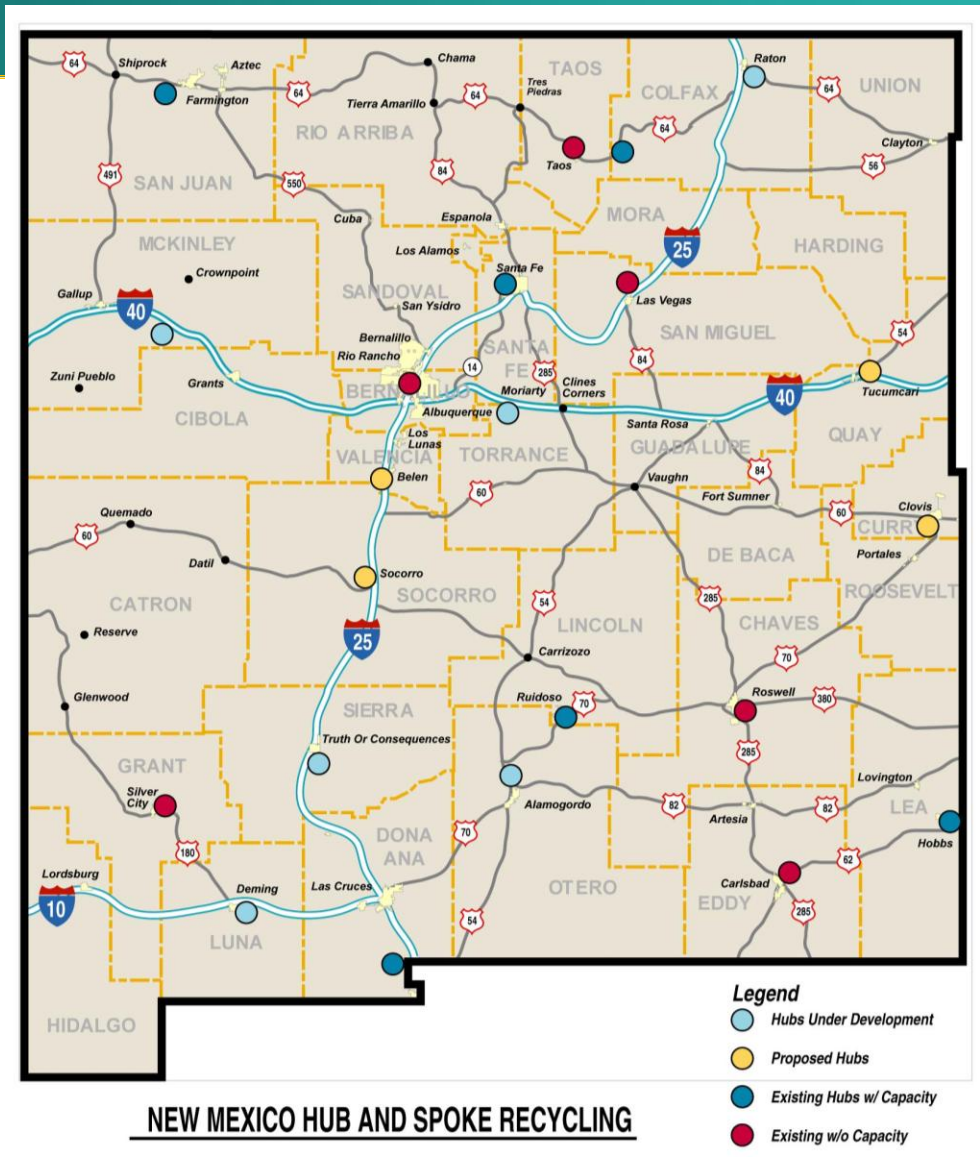
Operations at the Taos Regional Landfill. Photo provided by Engineering Solutions & Design, Inc. (2002)



NEW MEXICO SOLID WASTE FACILITIES MAP

(Information provided by New Mexico Environment Dept Solid Waste Bureau)

This map provides the location of all landfills, including those that provide for the disposal of construction and demolition debris or other special wastes. Each landfill is permitted or registered under the New Mexico Solid Waste Rules; and all of the landfills in New Mexico are operated as loose-fill landfills.



NEW MEXICO HUB AND SPOKE RECYCLING

Overview (cont'd)

Solid waste recycling and reuse in New Mexico is provided through curbside collection, drop-off centers, and various local collection programs. The New Mexico Environment Department's Solid Waste Bureau supports recycling and reuse efforts through bureau programs as well as its support of the New Mexico Recycling Coalition's efforts. The New Mexico Recycling Coalition has implemented a number of public education programs and has assisted with and supported the establishment of recycling facilities throughout the state. The New Mexico Recycling Coalition is presently spearheading a program that establishes recycling processing centers in strategically located areas of the state and links these centers with recycling drop-off centers. This "hub-and-spoke" concept is the first large-scale effort of its kind in the United States and is being utilized as a testing ground for this type of program. Please see the map in this section to see the location of these "hub-and-spoke" operations.

Sort Line at Bio Pappel Material Recovery Facility in Albuquerque, New Mexico.

Photo provided by Engineering Solutions & Design, Inc. (2009)

Overview (cont'd)

Condition

The New Mexico solid waste infrastructure was evaluated utilizing a number of techniques and resources. These included surveying representatives of various communities and counties within the state, accessing the Solid Waste Bureau's database of information, conversations with individuals who are very familiar with the solid waste system in New Mexico, and direct observations of solid waste efforts in New Mexico.

The results of this evaluation have been reviewed by the New Mexico Section of ASCE and have been provided to the local chapter of the Solid Waste Association of North America, the New Mexico Recycling Coalition, and the New Mexico Environment Department's Solid Waste Bureau.

As noted previously, the condition, capacity, maintenance, safety, funding, planning, consequences of failure, and state and local policy relating to New Mexico's solid waste infrastructure were evaluated. The active landfills in the state have significant life expectancy. There are 20 modern landfills (and one additional landfill permitted but not constructed) that service all 33 of New Mexico's counties.

In addition, there are 15 permitted transfer stations and approximately 170 small registered collection centers presently operating within the state. A number of composting and recycling operations are also in place. The majority of the state's landfills have new constructed lined cells to protect groundwater, and most of the active landfill cells have been constructed within the past 6 to 10 years.

Transfer stations in the state are also relatively new; however, the condition of these transfer stations vary throughout the state. Recycling facilities within the state are also relatively new and the condition of these facilities vary depending on their location. Those counties with smaller populations and significant distance between communities tend to have less maintained facilities.

Capacity

The capacity of New Mexico's solid waste infrastructure is very good. Landfills in the state have more than 240,000,000 cubic yards of available airspace. There are two unlined landfills that are nearing their present landfill capacity and these will be closed within the next two or three years.

One permitted landfill has 17 years of remaining capacity and the operators are in the process of investigating possible options (siting a new landfill or transfer station). One new landfill was just permitted in March 2012, and an application for another new landfill has been received for consideration. With these efforts being pursued, it is likely that the capacity of the state's landfills will remain adequate or increase in the future.

The State of New Mexico generates approximately two million tons of municipal solid waste annually. With present capacity, the overall life of landfills in New Mexico exceeds 60 years. In most locations, the state's transfer stations and recycling facilities are sized to meet present demand. The state is experiencing continued population growth, and with this growth will be an increase in solid waste generation. To meet this growth, expansion of the transfer stations' or recycling facilities' capacities may be required.

Operation and Maintenance

Adequate funding for the maintenance of solid waste facilities continues to be a problem.

The level of maintenance varies significantly within the state and is typically better in the state's larger communities. Limited efforts regarding maintenance have had an adverse impact on solid waste systems in the state.

This is reflected in all phases of the solid waste system. For collection, maintenance issues impact the prompt and consistent collection of waste. For landfills, maintenance issues typically relate to availability of adequate amounts of staff and equipment. The loss of a critical piece of equipment can debilitate the proper operation of a landfill. In addition, the lack of funds to support litter control, surface

Public Safety

Funding

water drainage way cleaning, and access road maintenance have significant negative impacts on landfill operations. The state's recycling facilities also experience production and collection impacts when equipment and structural maintenance is delayed or simply not conducted.

Public Safety

There is an inconsistency in the safety record in New Mexico. Efforts have been made to improve safety both at the state and local level. These efforts include safety training by the New Mexico Chapters the Solid Waste Association of North America and the Recycling Coalition. In spite of these efforts the solid waste industry is still one of the most dangerous industries in the country (ranked 7th in a most recent study by the National Safety Council). From anecdotal information the problem appears to be that personnel tend to experience lapses in judgment which often result in negative consequences. These lapses in judgment include not setting the safety switch on the blade on the solid waste vehicle or entering traffic areas without looking in all directions.

The lack of long-term funding for solid waste at all levels continues to be a problem in New Mexico. Funding is especially a problem in rural areas with small population centers, as waste must be hauled long distances, and it is difficult to obtain economies of scale.

Inconsistent rate increases at the local and county levels, the lack of any funding from the federal government, adequate amounts of state funding available for grant programs, and variable state funding via Legislature Capital outlay appropriations has made it difficult for some owners/operators to maintain their system and to set aside the necessary funds for financial assurance requirements.

Additionally, the Solid Waste Bureau's funding is tied directly to the state's general fund and results in on-going cuts in budget funding. Inadequate or incorrectly calculated tipping fees and inconsistent funding affect the overall operation and development of solid waste facilities.

Funding (cont'd)

Significant efforts have been made to improve the situation in recent years by targeting those systems in greatest need of fiscal and technical assistance, by providing greatly enhanced operator certification training, focused use of limited grant funds, and ensuring that the selection and design of solid waste facilities are consistent with the solid waste management needs and fiscal capacity of the community.

There is some inconsistency in planning efforts within the state. Some agencies at the local level are very forward thinking while other solid waste operations do not consider planning an integral part of their program. Examples of this are agencies that have developed long-term plans, greater than 10 years, which are aggressively followed and adjusted on an annual basis compared to some counties in the state that have no plans and depend on the support of the state or other agencies.

Resilience

There has been an improvement in the link between the funding of solid waste programs and planning for future needs. There is a lack of vision at the local level; most planning efforts are focused on addressing immediate problems rather than long-term issues. There does appear to be an effort to improve planning efforts related to the state's solid waste infrastructure; however, these efforts need continued support at the state level.

Resilience

The policy of state and local governments is relatively supportive of solid waste systems but inconsistent. It appears from past problems within the state that solid waste issues are typically addressed only in an emergency.

The priority for addressing solid waste issues takes a back seat to that of water, waste water, and transportation issues.

SOLID WASTE MANAGEMENT:

Resilience and the Consequence of Failure

Given the state's solid waste infrastructure and the willingness of the New Mexico Environment Department's Solid Waste Bureau to support solid waste facilities during emergencies, the potential impact of system failures is relatively controlled. The size of the state and the distance between facilities is the biggest concern regarding response to emergencies. The identification of other options for facilities that experience emergencies, particularly when there is a need for the long distance transfer of solid waste, is lacking.

Summary NM Solid Waste Management 2012:

C

Categories	Grade
Capacity	B
Condition	B
Operation and Maintenance	C
Public Safety	C-
Funding	C
Planning	C
Resilience	C+
State and Local Policy	C
Solid Waste Final Grade = C (77.3)	

Recommendations

Considering the geographical size of the state, low population, how the population of the state is dispersed, and the state's arid environment, the condition of the state's solid waste infrastructure is fair to good. This is a tribute to the hard work of the personnel who provide solid waste services throughout the state on a daily basis.

It is also a tribute to the New Mexico Environment Department's Solid Waste Bureau and solid waste system and operations managers throughout the state. Implementation of the following recommendations would provide the opportunity to further improve New Mexico's solid waste infrastructure:

Efforts need to be made by national solid waste organizations to educate the federal government about the importance of funding for solid waste management and infrastructure in the United States. No federal dollars are available for RCRA Subtitle D implementation by states or local governments.

Identify permanent funding sources for state's solid waste infrastructure.

Establish a planning program at both the state and regional level.

Link state and local policies to ensure the solid waste infrastructure users are well served.

Establish a more aggressive safety program that is consistent and proactive across the state.

Recognize and support innovations in solid waste infrastructure through grants and exceptions to potentially restrictive rules.

Transit

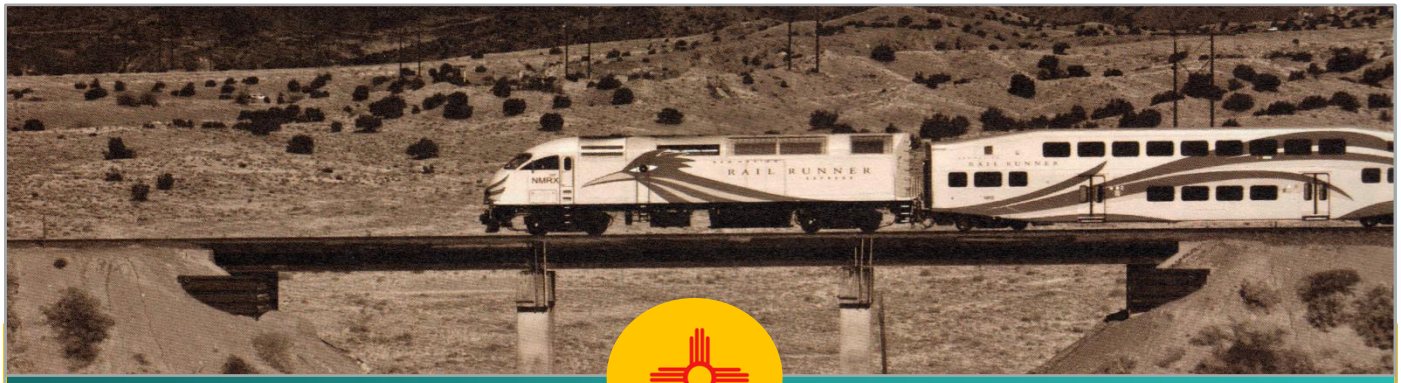
CENTENNIAL 1912-2012

NM C+

NEW MEXICO

LAND OF ENCHANTMENT

New Mexico Rail Runner.
Photo by: Robert McDonnell (2008).
http://kupit-knigu-krug-zhenskoj-sily.prv.pl/new-mexico-rail-runner-express.php.



Overview: Transit

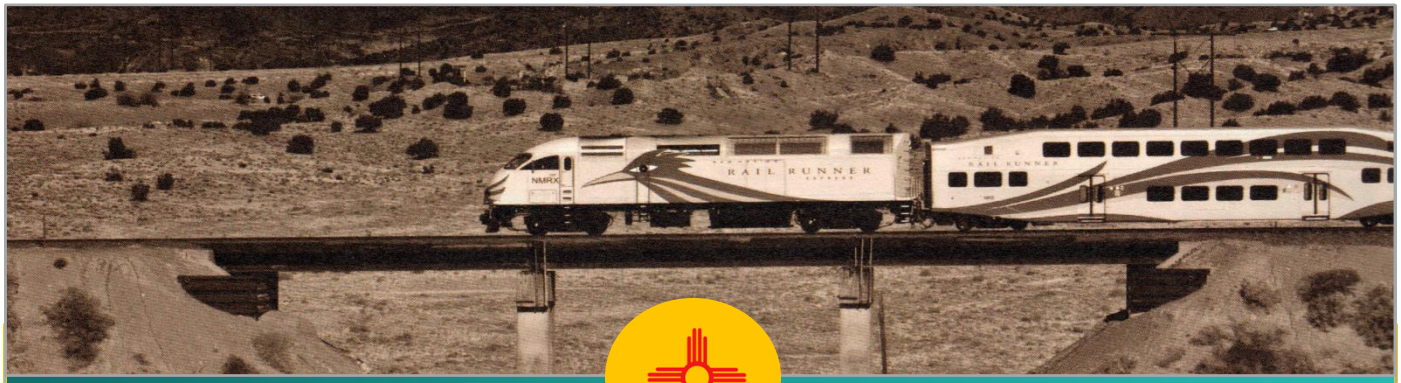
ABQ Ride, the City of Albuquerque's Transit Department, continues to be the largest transit agency in the state. ABQ Ride operates 253 maximum available vehicles including buses and vans, and nearly 11,380,763 unlinked trips in 2010. ABQ Ride was ranked nationally in the top 100 by the 2011 Public Transportation Fact Book, for number of unlinked (not counting transfers) trips.

Santa Fe Trails, transit agency for the state capital, is the state's second largest transit agency with a fleet of 34 transit buses and 15 para-transit vans; and serving 880,335 unlinked trips in 2010 ranking it in the top 400 nationwide for unlinked trips.

Finally, Las Cruces Area Transit maintains a transit fleet of 36 total vehicles available for maximum service serving 655,919 unlinked trips. The remaining communities are generally served by much smaller rural agencies with fleets ranging anywhere from a few para-transit vans (Meadow City Express-City of Las Vegas) to a fleet of 35 buses and vans (North Central Regional Transit District). Most of these communities are demand response services, although some like City of Hobbs do have regular bus routes. The Rio Metro Regional Transit District (RMRTD) operates the Railrunner, which provides regional rail transit service between Albuquerque and Santa Fe since 2008, serving 11.5 million passengers in 2011.

The Railrunner could play a crucial role in freeing highway capacity and offers an alternative to driving between the two cities. Statewide, transit use has increased 7.2% between 2009 and 2010 serving a total of 16.2 million passengers.

A survey discussing capacity, fleet condition, funding, operations and maintenance, public safety, and resilience was distributed to 25 agencies with 13 responding. Respondents provided a good cross-section of the New Mexico transit agencies ranging from the largest to the much smaller communities.



Capacity

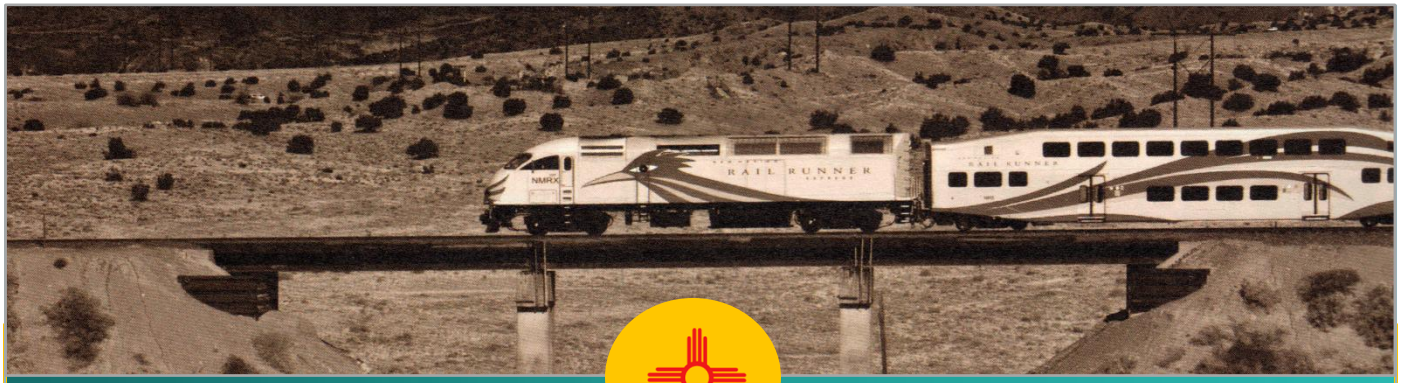
For the majority of communities, especially in the large urban centers, transit demands have grown steadily over the past 5 years. The "Transit Totals" table indicates the past three years of ridership in terms of percent growth or decline for the three major transit agencies. As indicated, all have shown anywhere from a four percent to an eight percent annual growth rate.

It should be noted that Las Cruces experienced a decline between 2009 and 2010 due to fare increases, but now is trending back toward growth. Based on the majority of the survey responses, transit agencies in the state are expecting ridership demands to increase anywhere from five percent to seven percent annually.

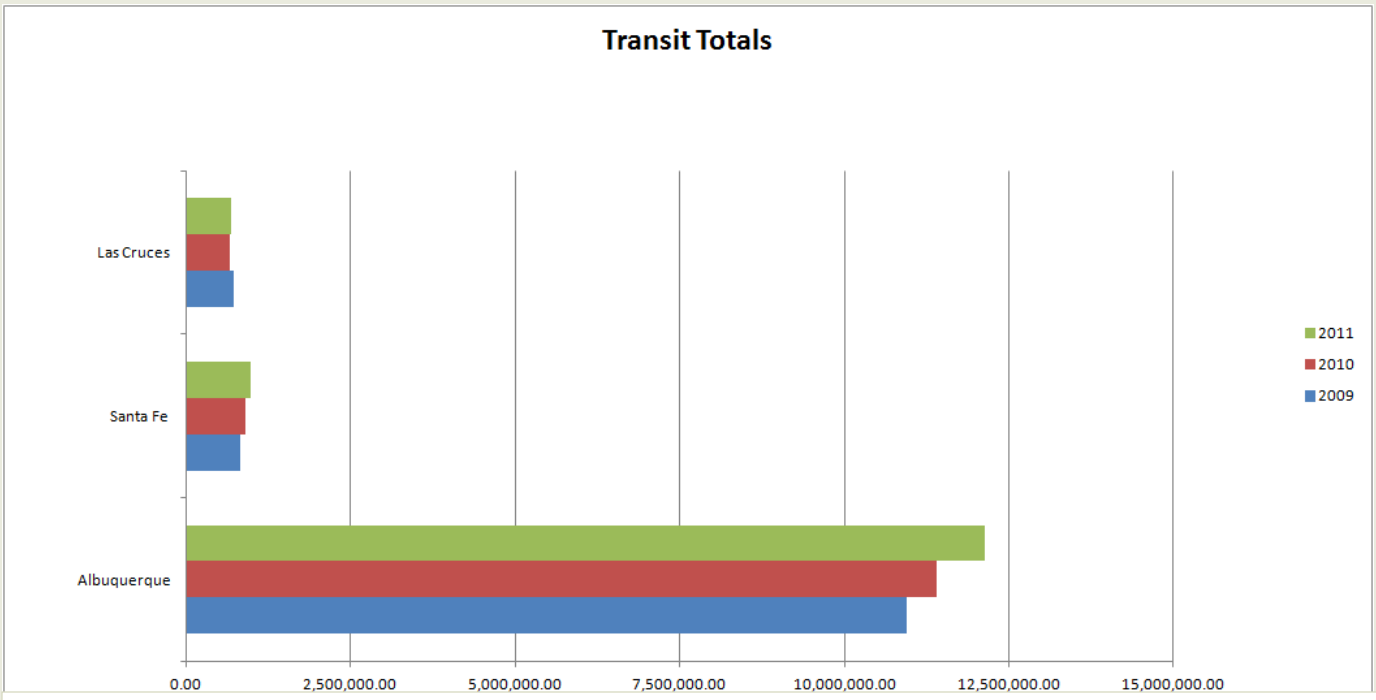
Additionally, some transit agencies such as NCRTD cover wide areas, in this case three counties, and are looking to expand operations. The Railrunner currently operates nine locomotives, nine cab cars, and 13 coach cars. Expansion of operations could increase demand growth even more than anticipated.

This has already been the case in such communities as Clovis where new fixed route systems have been introduced. In general, transit agencies are meeting needs of current demands, but due to increase in future demands will need to expand services which will require more funding.

Farmington Red Apple Transit.
Photo by Lee Engineering.



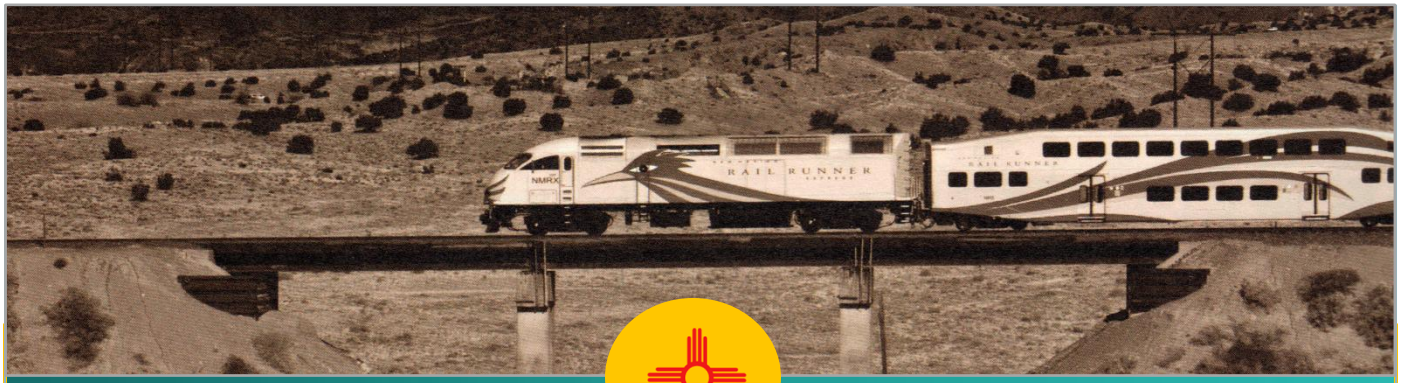
Capacity (cont'd)



Ridership (Number of Passengers)

Year	Albuquerque	Santa Fe	Las Cruces	Statewide
2009	1,076,0341	824,733	656,590	1,141,308
2010	11,177,097	892,789	601,782	1,403,849

Source: National Transit Database.



Funding

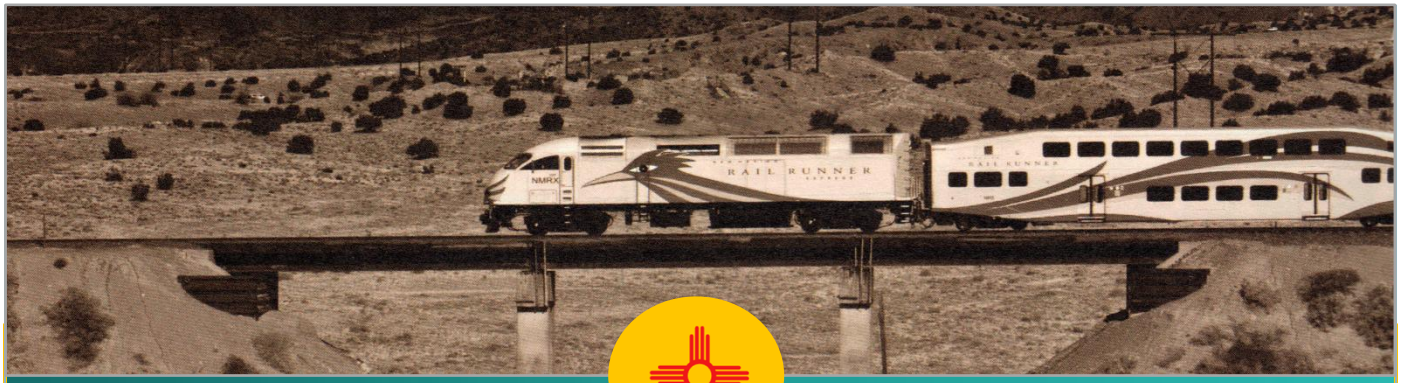
In order to maintain capacity and expand services to meet the growing transit demand of the future, transit agencies must keep their fleets in excellent working order. For more recently formed agencies, this is not as great an issue. However, it is important for these newer agencies to keep a record of fleet ages in order to know when new vehicles are needed.

In general, most of New Mexico's transit agencies have a fleet management plan in place with average fleet ages ranging from six to seven years for buses and four to five years for vans. Most agencies identified that at the moment their fleet is in excellent shape, but will require additional funding to maintain.

Also, some communities are in the process of transitioning from a demand-response service to some fixed route services, which will require funding for new vehicles. Per survey responses, the general consensus among transit agencies, large or small, is that funding is not enough and is getting smaller to maintain current operations.

Agency responses ranged from 30 to 100% of funding levels relative to funding needs. Some agencies mentioned that they have been operating with the same budget levels for the past three years, and if this trend continues may have to reduce services. Additionally, with operating budgets constrained, many agencies desiring to expand services will need to delay these plans without new funding sources.

Albuquerque Ride Transit Stop.
Photo by Lee Engineering.



Operations and Maintenance

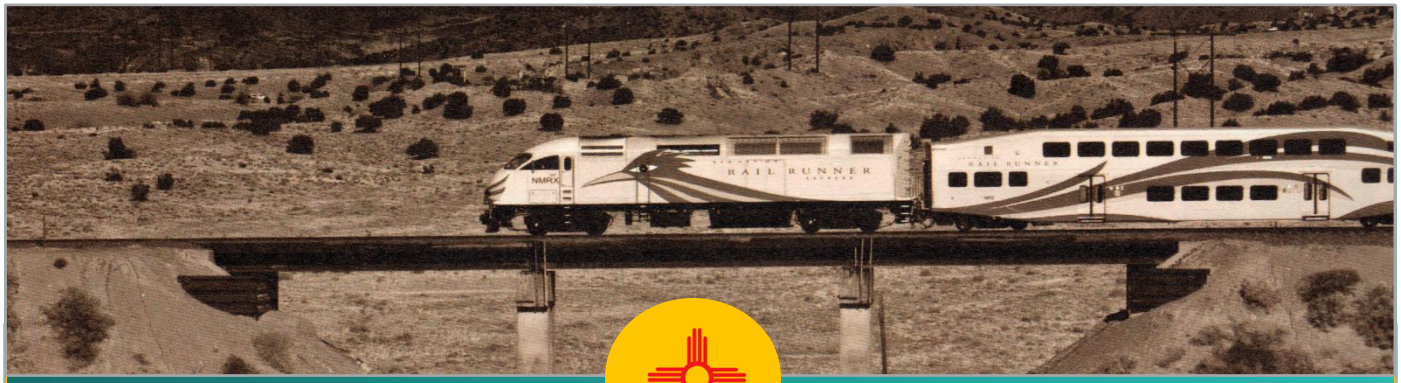
Public Safety

All agencies reported that operations and maintenance levels are adequate to more than adequate for meeting current demands. However, some of the smaller agencies identified the need for their own full-time mechanic for vehicle maintenance. Also, most agencies voiced concerns about having the required budget to replace older fleet vehicles.

Several agencies such as the City of Albuquerque have expanded facilities such as new park and ride facilities and implemented operational improvements such as signal preemption for buses. It should also be noted here that transit agencies across the nation have taken the lead in providing alternative fuel and low emission vehicles. New Mexico is no exception with several agencies utilizing natural gas buses, hybrid vehicles, and utilizing solar panels for transit facilities in order to reduce energy expenditures. Continuation of these energy smart strategies will be crucial in meeting budgets in a future that will likely see traditional energy costs continue to increase. The majority of agencies reported low vehicle related crash rates, with the greater frequency of crashes occurring within the larger service areas like Albuquerque, Santa Fe, and Las Cruces. However, when compared to the ridership of these agencies, the crash rate of their vehicles are relatively low.

In general, New Mexico transit vehicles and facilities are safe with low safety incidences.

There were responses that indicated many agencies' concern with the frequency of mechanical break-downs of vehicles, especially at the larger agencies where there is much more technology equipped on their vehicles that may need to be serviced and can cause a vehicle not to be deployed into the field that certain day. This concern could be mitigated through better fleet management and condition maintenance.



Resilience

Resilience deals with a transit system's ability to handle natural disasters and an interruption of service. Most transit agencies surveyed either have a current emergency response plan in case of disasters or participate with another agency's emergency response plan, and feel they can be up and running relatively quickly after an emergency.

However, the ability to get transit up and operating after an event is very much dependent on what the disaster is and to what severity it is.

Most respondents conceded that while they did have a contingency plan, usually in coordination with local emergency response agencies, further attention and planning could be done in attempt to be ready for disasters common to our state, such as fires, storm events, dust storms etc.

Also, it was identified that transit agencies could actually help mitigate disasters if they are returned to operation quickly by providing emergency transportation for citizens that have been displaced by a disaster and need transport to a disaster housing facility. This is something that could be reviewed in the development of future emergency plans.

As mentioned, current funding levels for many transit agencies have remained level for the past three years, and in order to meet the growing demand, additional funding sources will need to be secured just to maintain current operations.

New Mexico transit agencies have the current demand and desire to expand routes and fleets, but lack the capital to implement these expansion plans, and therefore in the foreseeable future these expansion plans will need to be put on hold. Therefore, new and creative funding methods will be needed to get these expansion plans started.

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TRANSIT

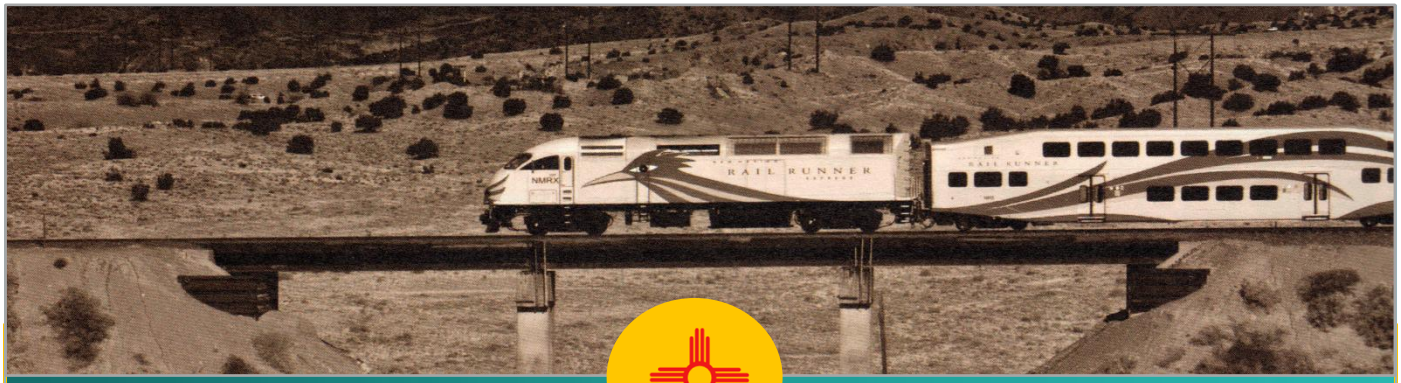
Similar to national trends, the need and demand for transit to take a greater role in New Mexico's transportation system is more crucial with every passing year. When one thinks of transit, the image of a city bus comes to mind, but by the sheer numbers of transit systems in this nation, Para-transit , a call demand based transit usually utilizing smaller vehicles like vans, is the most common form of transit tending to serve our rural and smaller urban areas. From the larger communities such as Albuquerque, needing to solve a continuing road congestion and bridge crossing issue to smaller communities like Farmington needing to maintain commercial health and connectivity for the future, transit is an important factor in both urban and rural transportation.

Summary NM Transit 2012:

C+

Category	Grade
Capacity	C
Condition	B
Funding	C-
Operation and Maintenance	B
Public Safety	C+
Resilience	B+
Transit Final Grade = C+ (78.6)	

Currently, New Mexico's communities are providing excellent transit services with the limited resources available. However, the fact remains: The construction of streets alone cannot sustain future transportation growth and demand. State and local governments will need to assign greater priority and funding to transit in the coming years in order to resolve the continuing congestion problems.



Recommendations

It is understood that in the coming years funding will continue to be constrained, but a higher prioritization of transit budgets could ease budget needs and open up capacity in other transportation areas such as roads.

Investigate the viability of high occupancy routing options, such as Bus Rapid Transit (BRT) for the larger urban areas. BRT could specifically offer capacity values for constrained bridge crossings in the City of Albuquerque.

Continued alternative energy strategies for both vehicles and facilities such as solar power, and natural gas powered and hybrid powered vehicles.

Continued implementation of capacity improving strategies for transit vehicles such as signal pre-emption, queue jump lanes, and exclusive bus lanes.

Increased investment in public awareness and advertising for transit services.

Develop new and creative funding sources to allow transit expansion of service and new routes.

Waste Water

CENTENNIAL 1912-2012

NM C

NEW MEXICO

LAND OF ENCHANTMENT

Overview: Waste Water

Public sewer service is only provided to approximately 73% of the households in New Mexico. In these cases, most New Mexico metropolitan areas have replaced septic systems with advanced treatment methods. Sometimes, though, even in these areas there are some densely developed pockets with setback between wells and septic systems with old leach fields. This circumstance has allowed/caused ground-water and drinking-water pollution.

With approximately 90% of New Mexico's population depending on ground water for drinking and with the majority of rural areas having shallow groundwater for their sources this pollution can be a serious problem. The other approximately 27% of New Mexico households use on-site sewage systems, including an estimated 215,000 septic systems (septic tanks and cesspools) and 24,000 privies or other systems.

According to The New Mexico Water Quality Control Commission, "Household septic tanks, cesspools, and leaky transmission lines constitute the single largest source of shallow ground water contamination in the state."

In the desert, water is everything, so New Mexico must protect its valuable ground water resource from contamination. The infrastructure needs to be addressed to accomplish this; whether it is setbacks or leaky sewer transmission lines, or advanced waste water treatment systems.

New Mexico's streams and lakes are a great natural resource and everything depends on clean water in New Mexico for continued development, growth and health and safety.

Overview (cont'd)

A bright spot for New Mexico waste water is becoming a reality. Waste water effluent will help meet our future water demands by becoming a new source of water called reuse. Reuse projects in metropolitan areas are supplying the water for parks, golf courses and sports complexes.

Final clarifier at SWRP. WUA photo (no date).

Another example of reuse for New Mexico is grey water; it is essentially, any water, other than toilet wastes, draining from a household. Grey water can serve many purposes in an arid land: it reduces the amount of freshwater needed to supply a household, irrigates vegetation and gardens, and reduces the amount of waste water entering sewer or septic systems.

A recent data/ needs survey was taken by NM ASCE Drinking Water Committee (DWC) of the larger domestic water/ waste water generators and the collected data was used as a guide to grade the public water systems.

The DWC also consulted with the New Mexico Rural Water Users Association Board about the grades for the categories being used to obtain the final grades.

Capacity

The main source of water for the state's public sewer services is ground water. 92% of New Mexico's water systems use groundwater, and only 48% of the population served by GWS also consume surface water.

About 70% of New Mexico's Community Water systems (CWS) serve populations under 500; however, those same small systems provide water to only four percent of the total population served by CSW.

New sources of capacity are being explored for New Mexico with non-replaceable brackish water being one of them and another being reuse effluent and grey water for another. But the common element in all of this is that they are expensive compared to the existing costs of service to the consumers.

There will need to be a marked increase in infrastructure investment to obtain this added capacity. New Mexico has liquid waste water systems in place/ being built that will handle the amount of waste the population is putting out; it is the future that is in question. Therefore New Mexico receives a C+ for waste water capacity.

Primary clarifier (solids at SWRP settling). WUA photo (no date).

Condition

As previously mentioned in the Drinking Water section, New Mexico is a very rural state and has many small systems. It ranks 5th in the nation for a population living below the poverty level and has waste water systems that are more than 80 years old. It is the 5th largest state in area in the nation, but ranks 37th in population and 47th in population density.

As a result, New Mexico has a wide diversity of waste water systems, sizes, and a large number of small systems.

About 27% of New Mexico residents use on-site sewage systems, including an estimated 215,000 septic systems (septic tanks and cesspools), with 2,400 using advanced waste water treatment systems, and 24,000 using privies or other systems. The system conditions vary as much as there are differing systems.

Most rehabilitation is done when a system fails or there are outside regulations/ enforcement agency requirements to do so. The systems have been serving their communities very well over the years with marginal to safe waste water treatment but routine maintenance and rehabilitation must be increased for there to be any chance of keeping up with the sustainability goal for future generations. Therefore New Mexico's waste water systems receive a C for current condition.

Sludge drying bed at SWRP.
WUA photo (no date).

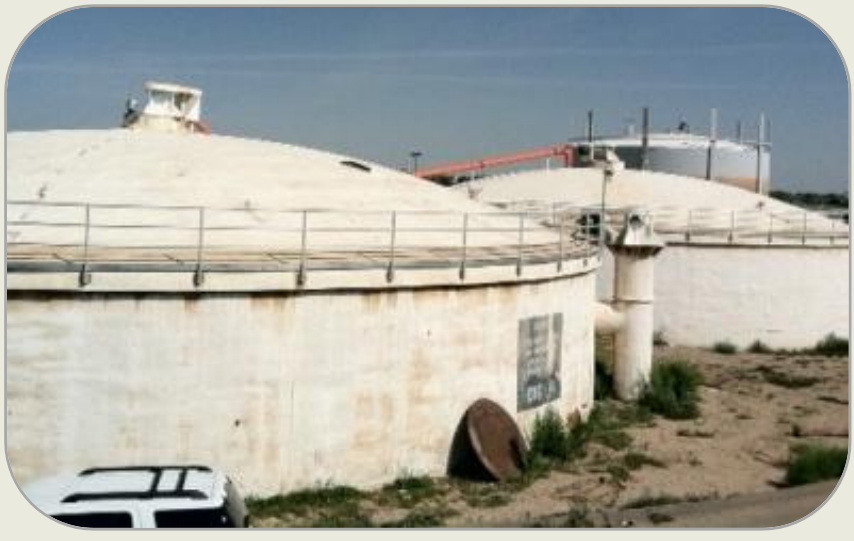
Funding

Because of the many infrastructure needs of New Mexico water systems and the persistent management problems and needs of some of the smaller systems in New Mexico, there is a considerable short fall in available revenues/funds.

The Capital outlay portion (free) from the State legislature was last made available in 2009. EPA, WTB and CDBG matching funds money is available on a limited basis for loans or matching grants.

To help obtain the means to get available funding for the smaller systems in New Mexico, there is a multi-agency effort to support the appropriate regionalization of PWSs in this state. The NMDWB staff, working in coordination with Rural Community Assistance Corporation, New Mexico Rural Water Association, regional Councils of Government and other organizations, is assisting regionalization groups with the myriad of tasks required to successfully regionalize.

New Mexico has $160 million in waste water infrastructure needs, not including the Albuquerque Bernalillo County Water Utility Authority area waste water plant rebuild, where costs will exceed $150 million.



Anaerobic digesters at the SWRP. WUA photo (no date).

Funding (cont'd)

Potential funding sources for New Mexico systems include:

- NMFA - PPRF, Planning Fund, DWRL, WTB, Colonias (Drinking Water Revolving Loan) (Water Treatment Board)
- NMED - CWSRF (Community Water System Revolving Fund), RIP
- USDA - Rural Development Loans/Grants <10k
- DFA - CDBG (Main Street Stimulus Grant)
- IDA - TIF (Tribal Infrastructure Fund)

The EPA and the State expect projects to promote sustainability. All applications will be reviewed for minimum criteria to determine their level of compliance with sustainability goals. A possible new source of funding to increase investment in water infrastructure has been outlined by the Water Environment Federation. It is called the Water Infrastructure Finance and Innovation Act (WIFIA). Even though there are several funding sources available for New Mexico sewer/water systems, coming up with matching funds or paying for loans will be a hard choice for systems with large rehabilitation needs. The shortfalls in revenue and available "free" funding result in a grade of D+ for Funding for New Mexico.

Old reuse tank at SWRP.
WUA photo (no date).

Operation and Maintenance

The operators of CWS in small rural areas are typically overwhelmed by the conditions and responsibilities of operating and maintaining a waste water system as new rules and regulations come in. And the operators of larger water/ waste water systems are short on revenues/ funds to adequately rehabilitate the system they have to operate at desired levels.

Due to the requirements of new environmental rules and regulations and to apply and use most funding sources, there will be a major increase in the number of hours required to manage and operate a waste water system. This increase will be seen most significantly in the need for more detailed and accurate record keeping and in the hours needed to operate a waste water system in compliance with the SDWA.

Also a problem for smaller systems is getting qualified operating and construction assistance. So the NMDWB and other assistance providers such as the New Mexico Rural Water Association, the Rural Community Assistance Corporation and regional Councils of Government are coordinating to ensure that (minimal cost) assistance for educating and training is directed where needed and is available.

Also a Contract form for use by PWS when contracting certified operators has been standardized by NMDWB. The contract helps protect a PWS when contracting for operator/maintenance services. It provides waste water systems guidance on many important aspects of contracting with an operator/contractor.

These aspects include: what type of tasks the operator is expected to complete; how the operator will be paid; how to terminate the contract; and if the operator will be required to obtain liability insurance, what is the contract duration and liability of the contractor.

Public Safety

Security is an essential function of all waste water systems. It is not only about protecting a waste water system from contamination, spills, vandalism and terrorism, but also preparation for other threats such as accidents, natural disasters, and fires.

For example, New Mexico may not get much precipitation, but even small amounts of rain can cause floods that damage a waste water system. Also, the desert winds/storms can produce powerful tornadoes.

The New Mexico Drinking Water Bureau (DWB) is participating in the New Mexico Water and Waste Water Alert Response Network (NM WARN) which is an intrastate mutual aid network. It facilitates assistance by other water systems to those water systems in need. The DWB is sending minutes of all meetings out to all community water systems (CWS) serving more than 3300 people (and other interested parties).

It is hoped that the NM WARN will keep larger water systems in an information loop and encourage all water systems to participate in the NM WARN. Please click on the WARN link above to view the WARN agreement.

DWB has created a Security Team to enhance waste water system security and emergency response through training and assistance throughout New Mexico. The Security Team has a trained water security staff member in each DWB District.

Public Safety (cont'd)

Some system problems and failures have included:

- Outbreaks of waterborne disease in New Mexico have been traced to drinking water supplies contaminated by sewage and to people swimming in surface water contaminated by sewage.

- Ground water nitrate pollution has caused the "blue baby syndrome" in New Mexico.

- Ground water manganese levels in some anoxic ground waters in New Mexico are up to ten times greater than the level considered to be protective against neurological disease.

The concerns attendant to the condition of the waste water infrastructure for New Mexico have mainly to do with its age and the issues and costs that stem from that age. Most basic systems in New Mexico are 50 – 70 years old (some are even older). Though many of these systems serve limited populations, and are therefore not generally targets for terrorism or sabotage, a waste water problem/ overflow or outage, when it occurs, will manifest quickly, and the ensuing damage even though contained can be extensive. In such cases, the local communities and small municipalities have few ways to replace/rebuild their systems and can only repair and maintain them with their minimal revenue funds.

Additionally, they may need to bypass to holding lagoons longer than is normal. There will be odor complaints and other out extra-ordinary obstacles to handle.

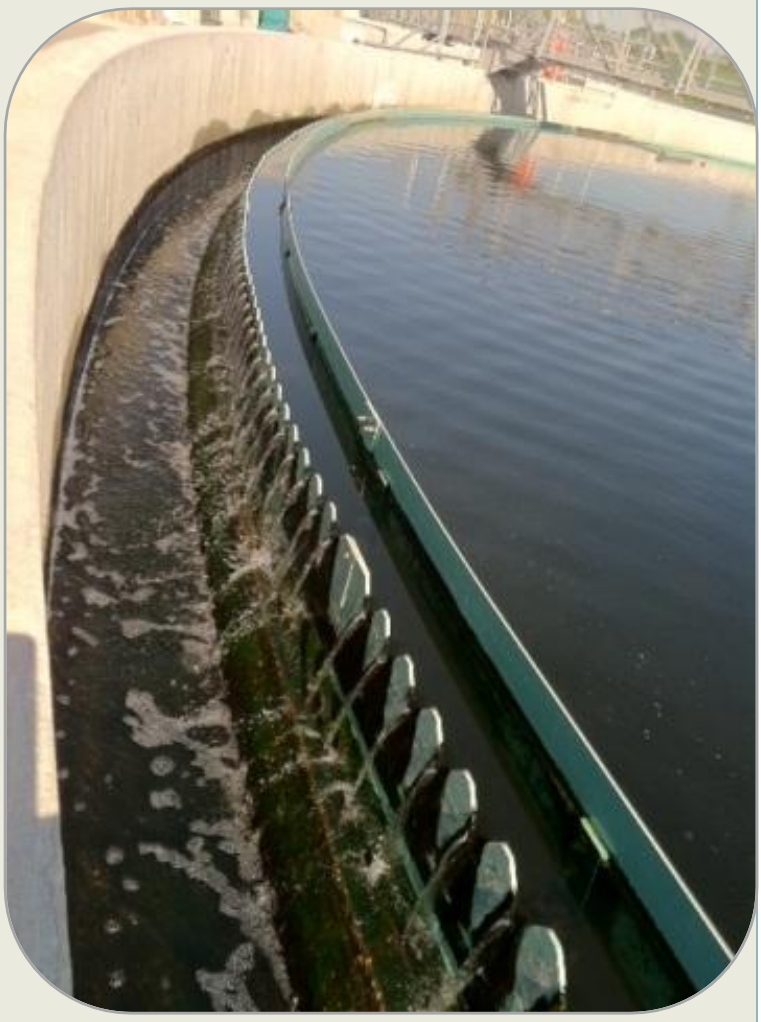
Larger waste water systems have emergency response plans and contractors to assist with system problems. They also have trained people, company rules, IT systems, and experience to handle spills and safety situations. Not so in the rural communities. But again, it is the rebuilding of treatment plants and collection systems that will be the greatest challenge.

Public Safety (cont'd)

The NMDWB and other assistance providers such as the New Mexico Rural Water Association, the Rural Community Assistance Corporation and regional Councils of Government are coordinating to ensure assistance for educating and training, and to ensure that assistance is directed where it is needed and is appropriate to any new regulations for public safety.

Also the WISE (Water Infrastructure Security Enhancements) training and videos are available to any water and waste water system.

With these measures in mind, and with the systems receiving assistance from state agencies for security measures, public safety receives a grade of C.



Weir on clarifier at SWRP. Photo by WUA (no date).

Resilience

The Resilience of a waste water system is based on the system's ability to clean effluent to State standards for reintroduction back to streams and ecosystems and protect its customers/ State residents on a continuing and sustainable basis.

Large water system operators reported an ability to repair or bypass system breakdowns within 12 hours or less. In addition under the State's DWSRLF program the Sustainable Water Infrastructure Management portal (SWIM), formerly referred to as the Uniform Funding Application, PWS when making funding applications are required to conduct capacity assessments.

The purpose of SWIM is to ensure projects are fully funded and meet minimum capacity requirements. Project interest forms submitted through the SWIM for water projects are forwarded to the NMDWB to perform a Capacity Assessment if the PWS did not have a recent assessment.

In addition to conducting the capacity assessments, NMDWB staff collaborates with the NMED Construction Programs Bureau to assist the PWS in identifying and determining qualifications for funding of infrastructure projects.

Most major public waste water systems in New Mexico in the past have constructed robust collection, primary and tertiary treatment systems and have adequate capacity for the near-term. The small water communities have reliable and safe systems but are on the edge when it comes to the ability to reliably operate and maintain their systems, and the individual septic and cesspools users are compliant.

New Mexico Waste Water Systems are given a C+ when it comes to Resilience.

WASTE WATER:

Additional Information
Operations & Maintenance

Historically, the cost of waste water treatment in New Mexico has been low in many locations, because treating waste water was not a priority. So, those costs added to any new water conservation measures such as reuse and grey water has made the need for rehabilitating treatment systems slow to be realized. This has led to there being little opportunity or perceived need for new plants, improved system operations or even rehabilitating plants that already exist. Therefore, for waste water a grade of C for Operations and Maintenance is appropriate.

Summary NM Waste Water 2012:

C

Category	Grade
Capacity	C+
Condition	C
Funding	D+
Operation and Maintenance	C
Public Safety	C
Resilience	C+

Waste Water Final Grade = C (74.7)

Recommendations

Sustainable increased funding sources in the form of grants or loans will have to be identified. Support the effort to establish a clean water trust fund like the 2009 USG Accountability office 2009 study recommended to clean up "damaged"/waste waters. This is part of the "true cost of water" valuation.

The EPA and the State expect water projects to be sustainable – therefore all loan and grant applications will have to be reviewed to meet the criteria. Recipients of the loans and grants must support the "waste water management" effort demonstrated to implement forward-thinking water management solutions, such as reuse and recycled water.

Local Government entities should continue to implement new public treatment programs/ systems to accommodate those areas not served by public sewer infrastructure.

Opportunities for alternate water use: Grey water, effluent reuse, re-cycled water, storm water capture, and the like should continue to be promoted.

Information Sources

AVIATION

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3. NMDOT – Aviation Division Airport IQ Program, GCR
4. NMDOT Aviation Division Interviews
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8. New Mexico Finance Authority - Dr. Rose, Bureau Chief (ret.)- Presentation
9. New Mexico ASCE Drinking Water Committee Survey

Appendices

Aviation: Summary

ASCE 2012 NM Report Card

Evaluation Criteria	Weighting Factor	Raw Score	Weighted Score
Capacity	10%	70	7
Existing Infrastructure	40%	69	27.6
Funding	20%	76	15.2
Preserve and Protect Investment in Airports	10%	56	5.6
Safety and Security	20%	68	13.6
TOTAL	**100%**		**69**

Aviation Final Grade = D+

Aviation: PCI

Pavement Conditions Index (PCI)

Area	Weighted PCI	Weight Factor	PCI
Runway	71.4	0.5	35.7
Apron	65.4	0.2	13.08
Taxiway	68.7	0.3	20.61
STATEWIDE AVERAGE	**68.5**	**1**	**69.39**

Classification	PCI Values
Good	86-100
Satisfactory	71-85
Fair	56-70
Poor	41-55
Very Poor	26-40
Serious	11-25
Failed	0-10

Aviation: Protecting Taxpayers' Investment

Performance Measure	Compliance	Weight Factor	Weighted Percentage
Runway Safety Area	78%	25%	19.5%
Clear Runway Approaches	63%	20%	12.6%
Perimeter Fencing	95%	20%	19.0%
Visual Glide Slope Indicators	60%	5%	3.0%
Wind Coverage	40%	20%	8.0%
Adoption of Security Plans	67%	5%	3.4%
Adoption of Emergency Response Plans	51%	5%	2.6%
STATEWIDE AVERAGE	**76%**	**100%**	**68%**

Notes: Data is from the 2009 System Plan. We weighted as there are some areas that are of vital importance in reference to safety and security.

Aviation: Protecting Taxpayers' Investment

Performance Measure	Compliance	Weight Factor	Weighted Percentage
Current ALP	63%	55%	35%
Current Master Plan	51%	30%	15%
Noise Zoning	16%	5%	1%
Compatible Land Use (Height) Zoning	57%	10%	6%
Statewide Average	**31%**	**100%**	**56%**

Notes: Not all airports need noise zoning. Those that do have ordinance. We weighed these as we feel some have a greater importance in preserving and protecting.

Aviation: Protecting Taxpayers' Investment

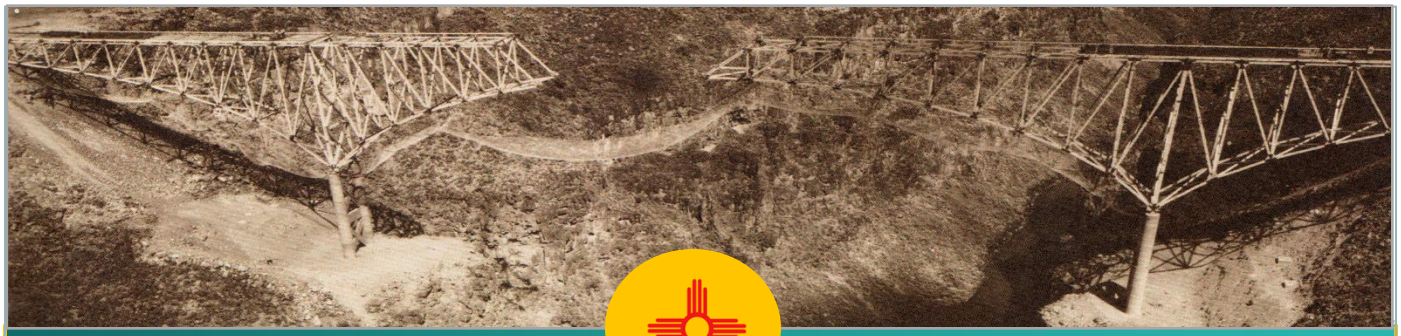
Performance Measure	Score/Grade	Grade	Performance Measure
Apportionment by formula (FAA)	B	85%	Apportionment by formula (FAA)
Discretionary (FAA)	D	60%	Discretionary (FAA)
Entitlements (FAA)	B	85%	Entitlements (FAA)
State Funding	B	85%	State Funding
Need/Funded	D	67%	Need/Funded

Annual CIP Needs = 45,000,000
Annual Funding from FAA = 30,000,000
Need vs. Funded = 0.67

80% of money you need = B
70% of money you need = C
60% of money you need = D
< 50% of money you need = F

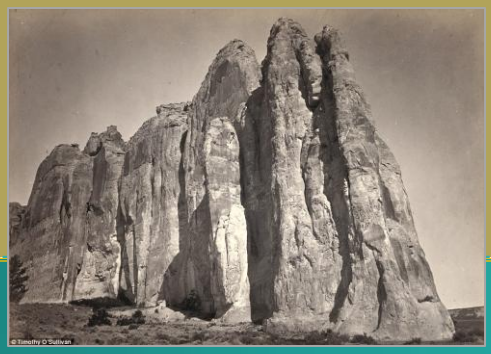
Notes:

CIP needs are based on actual needs, not 'pie in the sky 'CIP needs. Annual Funding from FAA is an average of the past three years.



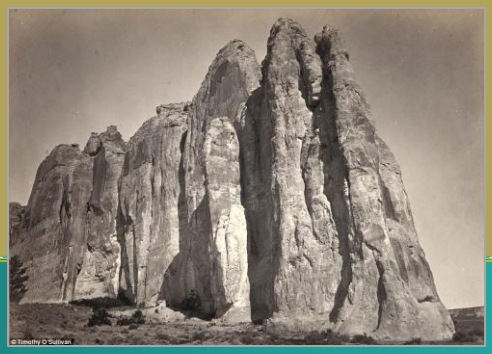
Bridges

Category	Grade	Comments
Capacity 15%	B	Less than 5% of NM bridges are weight restricted, closed to traffic or in jeopardy of being posted. Less than 8% are functionally obsolete (compared to 13% nationally).
Condition 20%	B	New Mexico is above) the national average in structurally deficient bridges. NMDOT goal is to reduce number of structurally deficient bridges from 13% to 5%. Overall NM is ranked 15th among 50 states in fewest number of deficient bridges.
Funding 15%	F	NM is rapidly losing ground in replacement/rehabilitation of structurally deficient and functionally obsolete bridges. The funding outlook for the next five years is very bleak.
Operation & Maintenance 10%	D–	Cost estimates to repair or replace the structurally deficient and functionally obsolete bridges in NM is $178 million. NM spends between $20-$25 million per year. About 35% of NM bridges were built before 1962.
Planning 10%	D	About 35% of NM bridges were built before 1962 which means they are already beyond their design life. The large number of bridges built as part of the Interstate System is now rapidly approaching their design life.
Public Safety 20%	B	Bridges are the most vulnerable segment of our ground transportation system (from floods, traffic impacts, seismic or terrorist acts). Fortunately, most fracture critical bridges that are structurally deficient in NM are on low volume roads.
Resilience 10%	C–	As noted above, bridges are the most vulnerable portion of our highway system. We must appraise our bridges against extreme event loadings. NM has the ability to quickly repair small and moderate size bridges but not large, complex structures with high traffic volumes.



Drinking Water

Category	Grade	Comments
Capacity 25%	C	In State Functional Year 04, the New Mexico Drinking Water Bureau contracted with the New Mexico Environmental Finance Center to develop a new three-tiered capacity assessment approach. The tiered capacity assessments were designed to focus more time and attention on systems that had immediate compliance or capacity problems (Tier 1), and less time and attention on systems that appeared to be in good working order but may have had capacity deficiencies that would have resulted in public health issues over the long term. There is a need for upgrades to be able to continue to meet the sustainability goal and consequently, alternate sources will be needed in the future.
Condition 25%	D+	New Mexico's potable water systems are deteriorating at an ever increasing rate due to the age of the systems with most being constructed before 1960. The systems have been serving their communities very well over the years with safe reliable water, but routine maintenance and habilitation must be increased for there to be any chance of keeping up with the sustainability goal for future generations.
Funding 15%	D+	The most significant impact affecting New Mexico's drinking water funding is the age of the basic infrastructure itself, 50 – 70 years for most locations and with revenues declining due to water conservation and increased maintenance and materials costs (also age related) --now couple those things with new compliance requirements, investment stagnation, and fewer revenue/ state funds available for most construction/ renewal projects - rehabilitation funds are scarce.
Operation & Maintenance 15%	D+	In New Mexico, there is a considerable short fall in rehabilitation and operation funds - Because of the many infrastructure needs of the New Mexico aging water systems coupled with the low cost of water and the rising costs of materials. Also due to the requirements of new sustainability rules and most State funding sources, there will be a major increase in the number of hours required to manage and operate a public water system for New Mexico. This fact mixed with the increasing costs of water conservation measures, and the need for alternate new sources provides a grade of D+ for Operation and Maintenance and for Sustainability.



Drinking Water

Category	Grade	Comments
Public Safety 10%	C	The safety of a public drinking water system is contingent upon its infrastructure condition and upon its operational protection/security. Most of the technology needed to ensure system compliance with new water and system safety regulations are highly advanced and will require a significant increase in the level of training/ expertise of the public water system operators in New Mexico, and, therefore increased funding. With these measures in mind and with the operating systems receiving assistance from state agencies for education and training for security measures, Public Safety receives a C for a grade.
Resilience 10%	C+	The "resilience" of a water system is defined as the system's ability to provide water to its customers on a continuing and sustainable basis. Most small water user suppliers in New Mexico are able to provide water to their customers on a continuing basis and most major water systems in New Mexico have constructed robust water distribution systems and have adequate capacity for the near-term. The many communities have reliable and safe systems, and even though they are determined to reliably operate and maintain their systems, they are on the edge when it comes to financing, source supply and ability to do so.

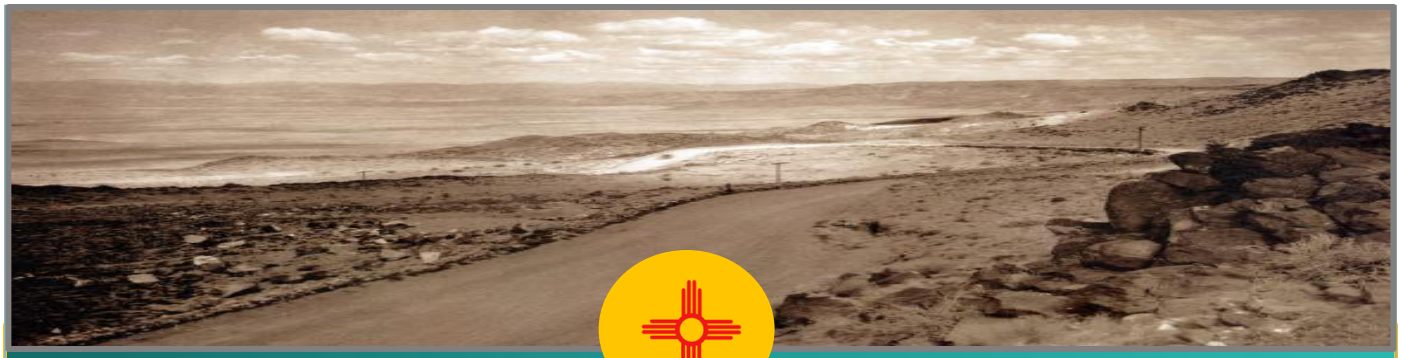
Drinking water Final Grade = C- (70.8)

Flood Control

Category	Score	Grade	Comments
Capacity 10%	66	D	New Mexico has 300 jurisdictional dams of all types, 218 of which (73%) are deficient or not in satisfactory condition. Of 144 jurisdictional flood control dams, 112 (78%) are considered deficient or not in satisfactory condition.
Condition 30%	70	C-	Urban areas tend to have facilities in better condition. Many rural and suburban areas have dams that were not built for their current hazard level, are at or beyond their design life, have accumulated significant amounts of sediment, and have deteriorating structural components.
Funding 10%	64	D	Rural and suburban areas have antiquated and inadequate funding mechanisms. The current value for dams, provided by the Dam Safety Bureau, is $240 million for all dams and $135 million for flood control dams. A value was not estimated for this report for all flood control infrastructure. The value is likely higher as the backlog of maintenance, rehabilitation, and reconstruction needs grows as the infrastructure ages.
Operation & Maintenance 15%	70	C-	The Dam Safety Bureau inspects high and significant hazard dams on a yearly to every five years basis depending on the hazard classification, purpose and capabilities of the owner. Low hazard dams are inspected every five ten years. State Engineer Dam Safety regulations require every owner of a high or significant hazard potential dam owner to have an operation and maintenance manual. Thirty-three dams out of 211 (16%) classified as high or significant hazard potential have an approved operation and maintenance manual. Required work ranges from maintenance to major rehabilitation. Urban infrastructure tends to be better maintained than rural systems.
Planning 10%	72	C-	Planning is traditionally a problematic area, where arroyos may pass through several flood management jurisdictions that have little coordination. Regional coordination in urban areas can provide flood master planning ability. Progress has been made in breach analyses, flood plain mapping, and emergency action planning.

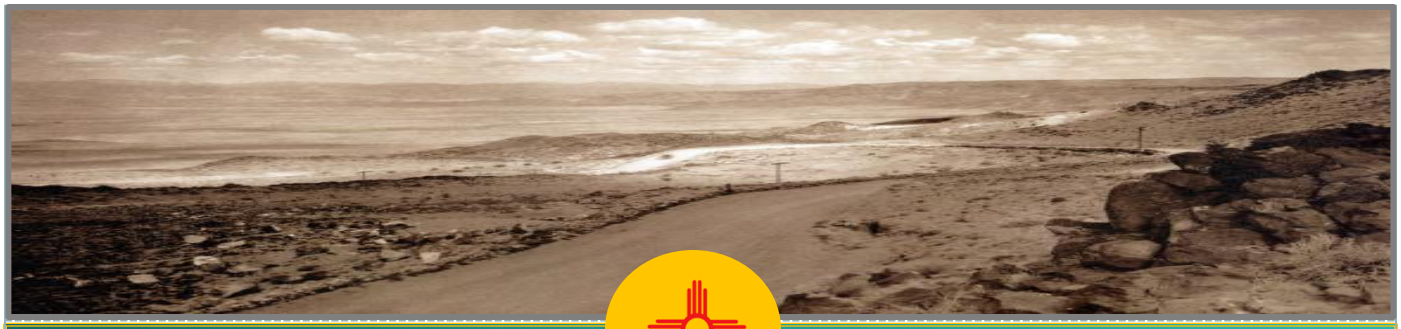
Flood Control (cont'd)

Public Safety	15%	68	D+	The Dam Safety Program helps to ensure public safety in urban and many suburban areas. However, a large number of rural and suburban residential areas are in areas nominally protected by dams and flood channels that are not built for high hazard duty. Emergency action planning somewhat mitigates the risk of loss of life.
Resilience	10%	67	D	Active planning and development of emergency action plans in many areas of the state has improved responsiveness to potential failures of flood control dams. Many flood control structures have been designed and built with little attention to upstream or downstream facilities, creating the potential for cascading failures. Recent and on-going climate change research is settling on the conclusion that New Mexico will likely be faced with more extreme events, with altered timing, in the future climate.
Overall	**100%**	**68.8**	**Flood Control Final Grade = D+**	



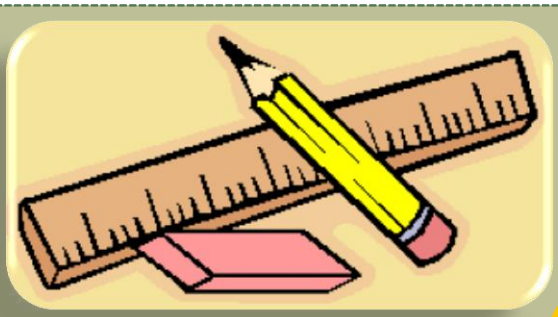
Roads

Categories Weight	Grade	%	Comments
Capacity 15%	B	83	New Mexico's traffic congestion mainly exists in metropolitan areas. In 2008, 18.71% of all NM urban Interstate roads were congested, rated the 9th in the nation, and 5.09% of the rural roads are narrow lanes, rated the 23rd in the nation. Vehicle travel on New Mexico's highways increased by 61% from 1990 to 2009, but little increase in road length.
Condition 20%	B	85	22% of New Mexico's and 58% of Albuquerque's major roads are in poor or fair condition. New Mexico's urban roads are among the roughest in the nation. In general, the poor road condition costs New Mexico motorists about $400 million a year in extra vehicle repairs and operating costs – $290 per motorist. In Albuquerque, this costs drivers about $576 each year in extra vehicle operating costs. However, the total road performance ranking by REASON shows NM 4th in the nation, therefore, giving a grade of B.
Operation & Maintenance 10 %	B	85	The NMDOT uses a strategy of using pavement preservation treatments on roadways that greatly improves the efficiency of road maintenance. NMDOT and most city and county agencies have sound plan that schedules road maintenance and rehabilitation/reconstruction in an orderly, programmatic manner. But the shortage of road maintenance fund limits the maintenance at a relatively lower standard.



Roads (cont'd)

Categories Weight	Grade	%	Comments
Public Safety 20 %	D	65	Roadway conditions are a significant factor in approximately one-third of traffic fatalities. There were 361 traffic fatalities in 2009 in New Mexico. A total of 2,112 people died on New Mexico's highways from 2005 through 2009. New Mexico's traffic fatality rate of 1.39 fatalities per 100 million vehicle miles of travel is higher than the national average of 1.14, ranked the 32nd in the nation.
Funding 15 %	D	60	The DOT's 20 year long range plan identifies an infrastructure need of $16 billion. Its current annual need is approximately $450 million for highway construction. New Mexico has received approximately $350 million annually as part of the most recent Federal funding authorization act. Historically approximately $280 million was used for construction projects. However due to NMDOT's requirement to service its outstanding bonding debt, only $140-$150 million remains for construction projects, a 50% reduction.
Planning 10 %	D	65	The considerable population growth seen in New Mexico in recent years is expected to continue. For example, the Albuquerque metropolitan area is expected to add over 550,000 residents between 2008 and 2035, an increase of 74%. NMDOT estimates that its current level of funding is only enough to address about 20% of its projected needs.
Resilience 10 %	B	85	New Mexico has contingency plans in the event of a natural or man-made disaster. NMDOT has measures designed to reduce the severity of damage by natural or man-made disasters in all plans for future highway and bridge construction projects. There are relatively less national disasters in NM.
		Roads Final Grade = C (74.95 %)	



Schools

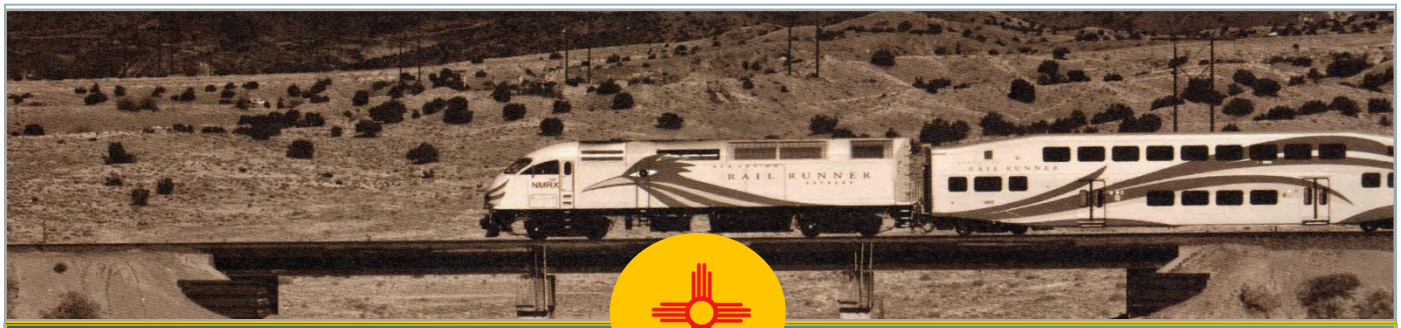
Categories	Grade	%	Comments
Capacity 30%	B	86	New Mexico public schools utilize over 100 million square feet of building space. In urban areas of the state, enrollment is generally increasing. In most rural areas the enrollment is steady or slightly declining. Seventy-seven of the 89 New Mexico School districts have current five-year facilities master plans. A majority of these master plans express a concern for future growth capacity issues and remodeling needs to meet various educational standards.
Condition 20%	B	84	The very well documented New Mexico Condition Index (NMCI) is in place. The index enables the comparison of all the public schools in the state to determine greatest need for funding the correction of school structural deficiencies. Average repair to replacement ratio is 37%. Cooperative Educational Services (CES), a procurement agency overseen by New Mexico school districts, provides its services to facilitate repairs and improvements.
Funding 20%	C–	70	Funding between state and local sources was keeping pace with infrastructure needs until 2006. Since 2006, state funding has dropped by 80% . Current unfunded public school facilities needs total $4.05 billion.
Operations & Maintenance 20 %	C+	78	Repair is an integral part of the NMCI. Maintenance is not. Until 2008 most district master plans did not adequately address maintenance needs. Since then strides have been made toward improving maintenance issues.
Public Safety 10%	A–	90	Issues that pose immediate threats to the life, health or safety of persons within the school facility are the most heavily weighted factor in the NMCI. School districts have ready access to providers with expertise in asbestos abatement, resolving code violations, and damage mitigation through agencies like CES.

Schools Overall Grade: B- (81.0)

Solid Waste

Categories	Grade	%	Comments
Capacity	B	85	Capacity of system similar to "Existing Infrastructure Condition". Landfills have over 240,000,000 cubic yards of available air space.
Condition	B	85	Landfills in state have significant life expectancy. There are 26 Subtitle D landfills to service 33 counties and 18 transfer stations in place. Number of composting and recycling operations in place to address needs of state. Capacity of System B (85).
Funding	C	75	Adequate tipping fees and consistent funding affect the overall operation and development of solid waste facilities. Efforts have been made to improve the situation in recent years.
Operations & Maintenance	C	75	Uncertainty of adequate funding for all solid waste facilities in state. Possible lack of adequate tipping fee and too great a dependence on grants and legislative funding.
Public Safety	C–	70	There is an inconsistency in the safety record in New Mexico. Efforts have been made to improve safety but it is still one of the most dangerous occupations.
Consequences of Failure	C+	78	Given the infrastructure of the state and the willingness of the New Mexico Environment Department to support solid waste facilities during emergencies, the potential impact of system failures is relatively controlled. The size of the state and the distance between facilities is the biggest concern regarding response to emergencies.
Other Factors-Policy	C	75	The policy of the state and local governments is relatively supportive of solid waste systems. The priority for addressing solid waste issues is not as high as that for water, waste water, and transportation issues.

Solid Waste Overall Grade: C (77.3)



Transit

Agency	Grade	Grade Point	Ridership	Grade Point x Ridership =
Albuquerque, ABQ Ride	C+	79	11,400,737	900,658,223
Las Cruces, Road Runner Transit	D+	69	689,757	47,593,233
Santa Fe, Santa Fe Trails	B-	82	970,903	79,614,046
NCRTD (North Central Regional Transit District)	C+	79	374,211	29,562,669
Rio Metro Regional Transit District	C	72	1,240,518	89,317,296
Lincoln County Transit	B+	90	24,870	2,238,300
Carlsbad Municipal Transit System	A	95	43,050	4,089,750
Clovis Area Transit System	C+	80	68,000	5,440,000
City of Hobbs, Hobbs Express	B-	80	32,386	2,590,880
Las Vegas, Meadow City Express	A-	90	16,500	14,850,000
NMDOT Park & Ride	A-	90	292,476	26,322,840
Cibola	B	83	17,273	1,433,659
Red River	B-	80	27,908	2,232,640

Transit Cumulative Grade: C+ (78.0)

Waste Water

Category	Grade	Comments
Capacity 25%	C+	Public sewer service is only provided to approximately 73% of the households in New Mexico. The other approximately 27% of New Mexico households use on-site sewage systems, including an estimated 215,000 septic systems (septic tanks and cesspools) and 24,000 privies or other systems. There will need to be a marked increase in infrastructure investment to obtain improved waste water facility added capacity. New Mexico has Liquid Waste systems in place/ being built that will handle the amount of waste the population is generating, it is the future that is in question. Therefore New Mexico receives a C+ for waste water capacity.
Condition 25%	C	About 27% of New Mexico residents use on-site sewage systems, including an estimated 215,000 septic systems (septic tanks and cesspools), with only 2,400 using advanced waste water treatment systems. Most system rehabilitation is done when a system fails or there are outside regulations/ enforcement agency requirements to do so. The systems have been serving their communities very well over the years with marginal to safe waste water treatment but routine maintenance and rehabilitation must be increased for there to be any chance of keeping up with the sustainability goal for future generations. Therefore New Mexico's waste water systems receive a C for current condition.
Funding 15%	D+	New Mexico has $160 million in waste water infrastructure needs, not including the Albuquerque Bernalillo County Water Utility Authority area waste water plant rebuild, where costs will exceed $150 million. To help obtain the means to get available funding for the smaller systems in New Mexico, there is a multi-agency effort to support the appropriate regionalization of PWSs in this state. Even though there are several funding sources available for New Mexico sewer/water systems, coming up with matching funds or paying for loans will be a hard choice for systems with large rehabilitation needs. The shortfalls in revenue and available "free" funding result in a grade of D+ for Funding for New Mexico.

Waste Water

Category	Grade	Comments
Operations & Maintenance 15%	C	Due to the requirements of new environmental rules and regulations and the requirements to apply for and use most funding sources, there will be an increase in the number of hours required to manage and operate a waste water system. For New Mexico the cost of waste water treatment has been historically low in many locations. That mixed with new water conservation measures, Re-Use, and grey water uses the need for new treatment has been slow in realization. This leads to little opportunity or perceived need for new sources of revenue for O&M budgets.
Public Safety 10%	C	Security is an essential function of protecting a waste water system from contamination, accidental spills, vandalism and terrorism, but also preparation for other threats such as accidents, fires, and natural disasters. Though many of these systems serve limited populations, and are therefore not generally targets for terrorism or sabotage, a waste water problem/ overflow or outage, when it occurs, will manifest quickly, and the ensuing damage even though contained can be extensive. All New Mexico respondents said that they could respond to and contain an emergency within hours of notification/ identification. With these measures in mind and with the systems receiving assistance from state agencies for security measures, Safety receives a grade of C.
Resilience 10%	C+	The Resilience of a waste water system is based on the system's ability to clean effluent to State standards for reintroduction back to streams and ecosystems and protect its customers/ State residents on a continuing and sustainable basis. Most major public waste water systems in New Mexico in the past have constructed robust collection, primary and tertiary treatment systems and have adequate capacity for the near-term. The small water communities have reliable and safe systems but are on the edge when it comes to the ability to reliably operate and maintain their systems, and the individual septic and cesspools users are compliant.

Waste Water Final Grade = C (74.7)