# Aviation

CENTENNIAL 1912-2012

NM D+

NEW MEXICO

LAND OF ENCHANTMENT


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

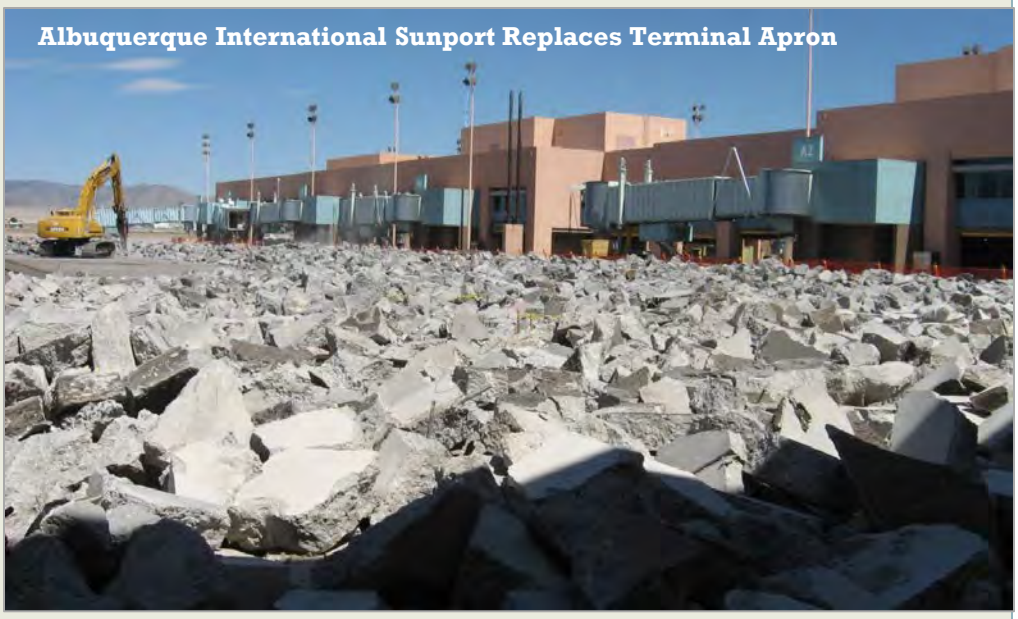
NEW MEXICO CENTENNIAL 1912-2012


FIRST AERO SQUADRON
1916 1917
COLUMBUS, NEW MEXICO

# Overview: Aviation

**N**ew 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.

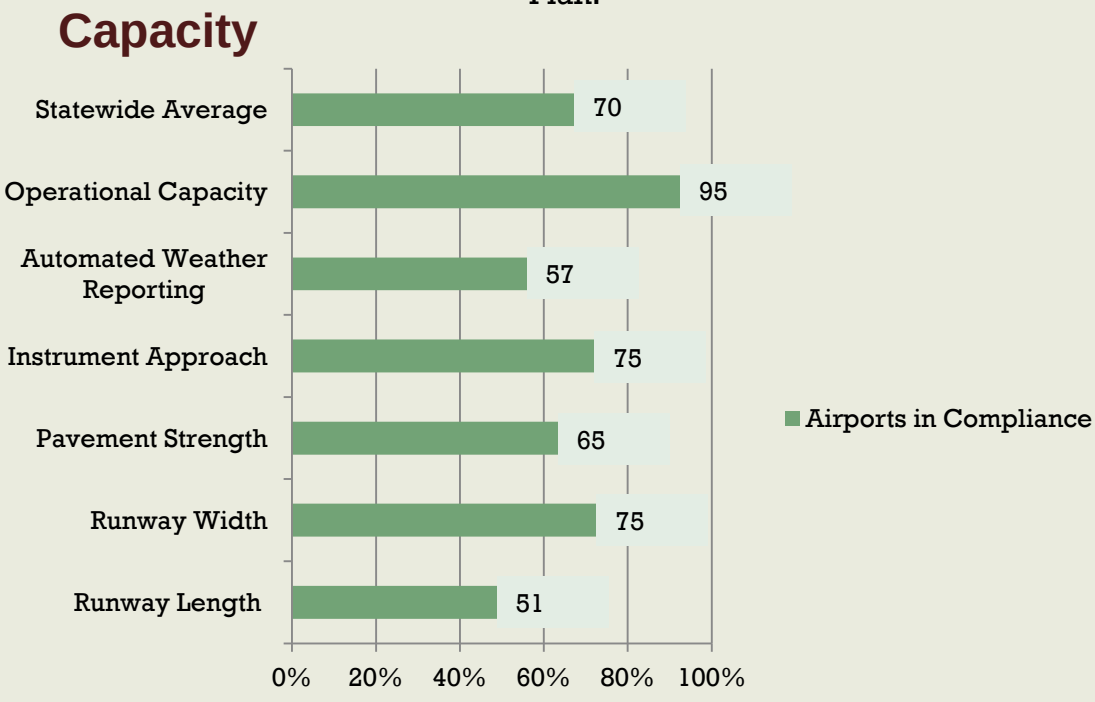
Another funding mechanism available for commercial service airports, passenger facility charges (PFC's), was also maintained at the previous level of $4.50 per passenger. The NMDOT - Aviation Division completed an Airport System Plan in 2009. This plan assessed the State's airport system and the projected 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.

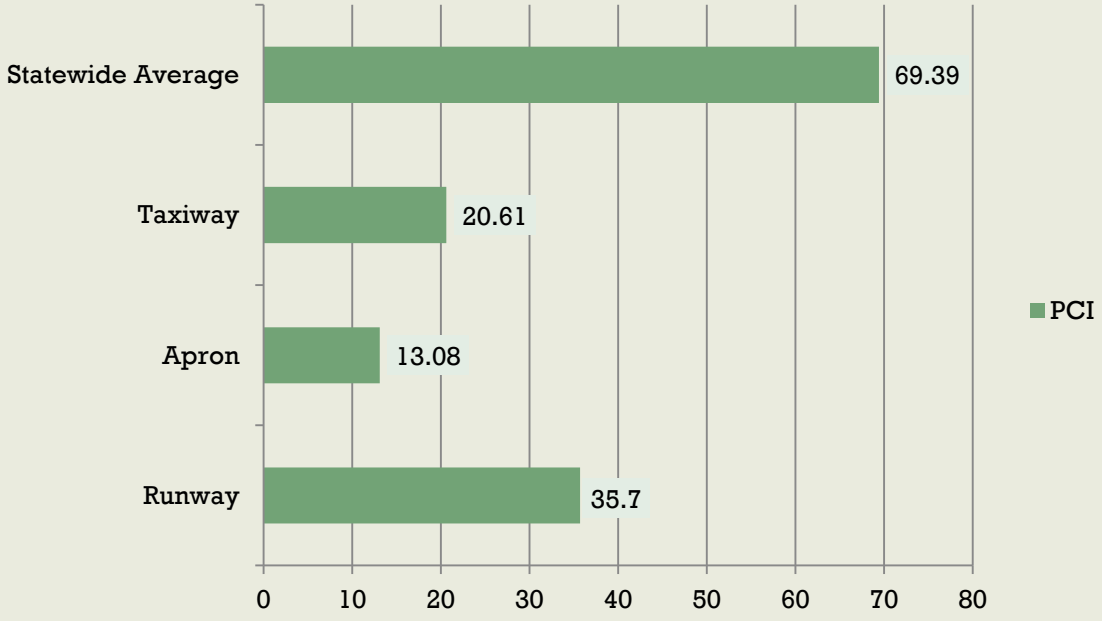

**Boeing 787 Lands at Albuquerque During High Altitude Testing.**
Boeing chose the Sunport to test the B787 in a high altitude setting.


# 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.

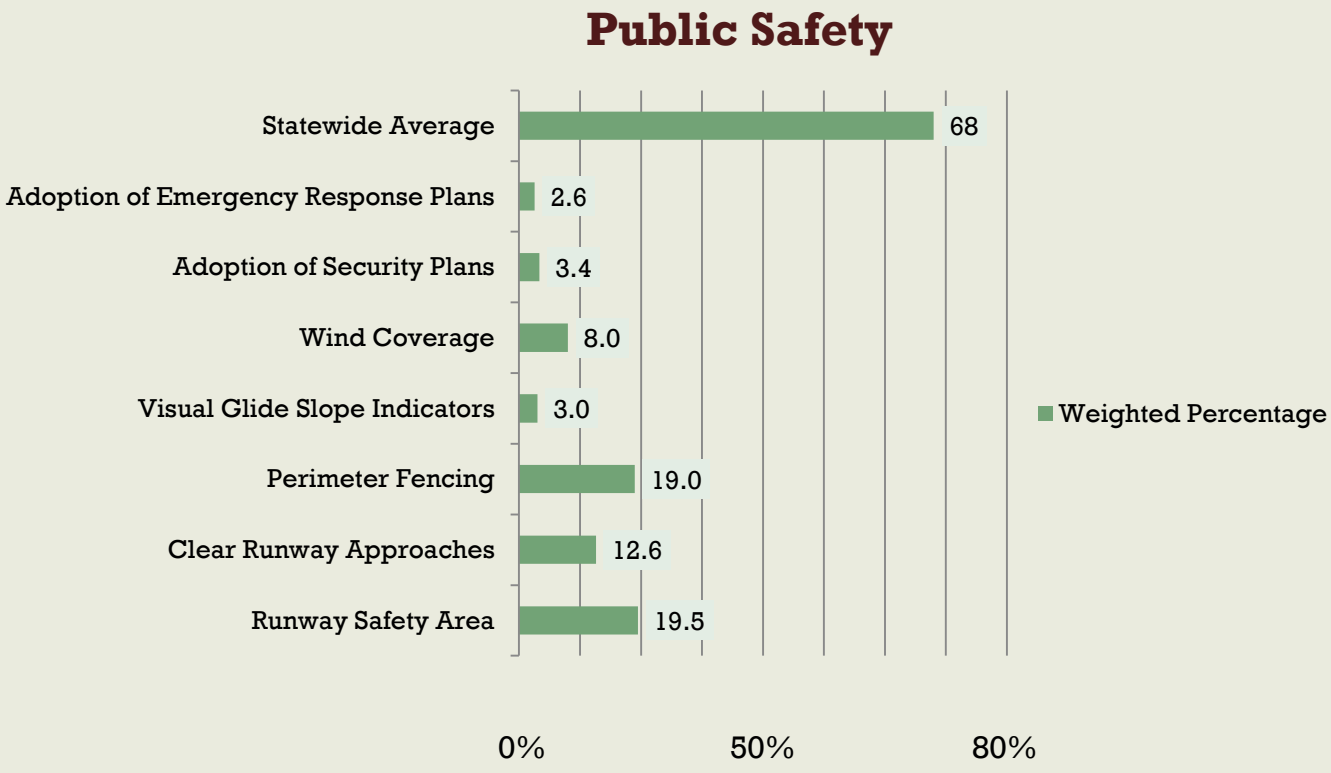
**Adoption of Emergency Response Plans:** While not a requirement of the FAA for all airports, the NMDOT - Aviation Division believes each airport must have an emergency response plan. Emergency response plans are developed to facilitate the airports response to emergencies occurring on or near the airport. 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.

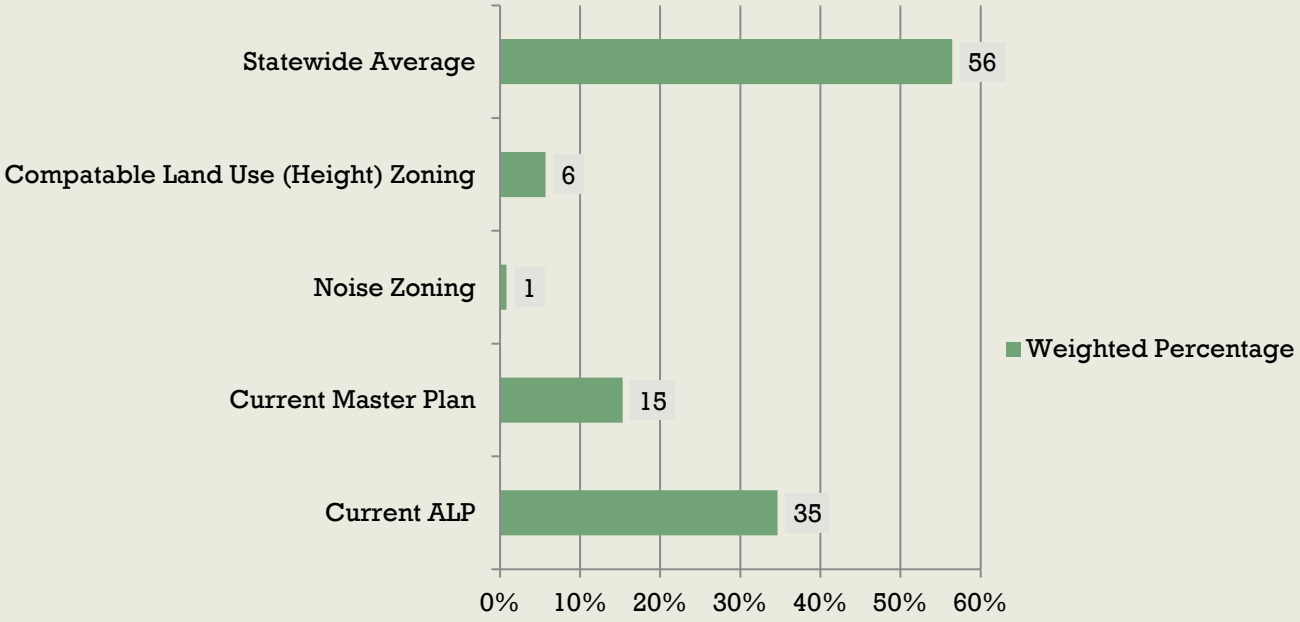
**Clear Runway Approaches:** Federal Aviation Regulation Part 77, Objects Affecting Navigable Airspace, provides guidelines and requirements for airspace protection around airports. Airspace protection is critical in runway approaches since take offs and landings represent the segments of flight with 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.

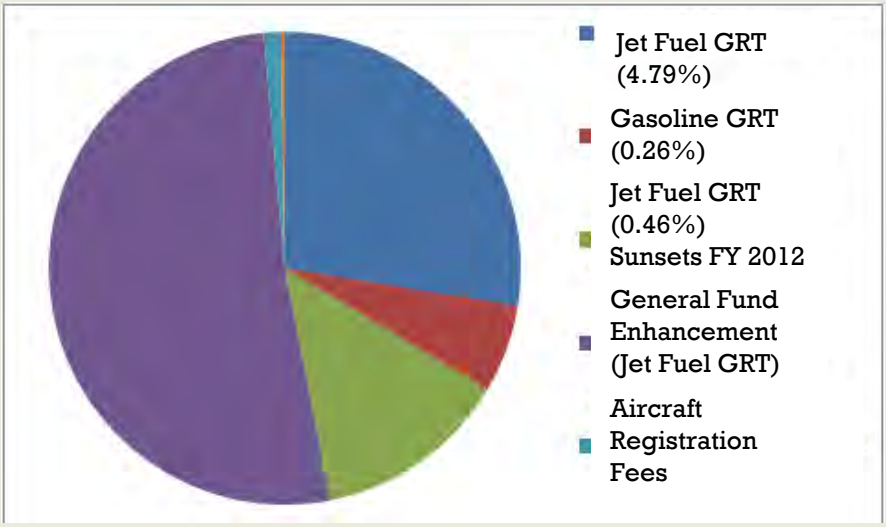
**Discretionary:** Any available discretionary monies may be available to airports within the NPIAS. This money is distributed at the discretion of the regional FAA office. This is the only federal category that New Mexico does not compete well in. While recently there has been more discretionary funding 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.

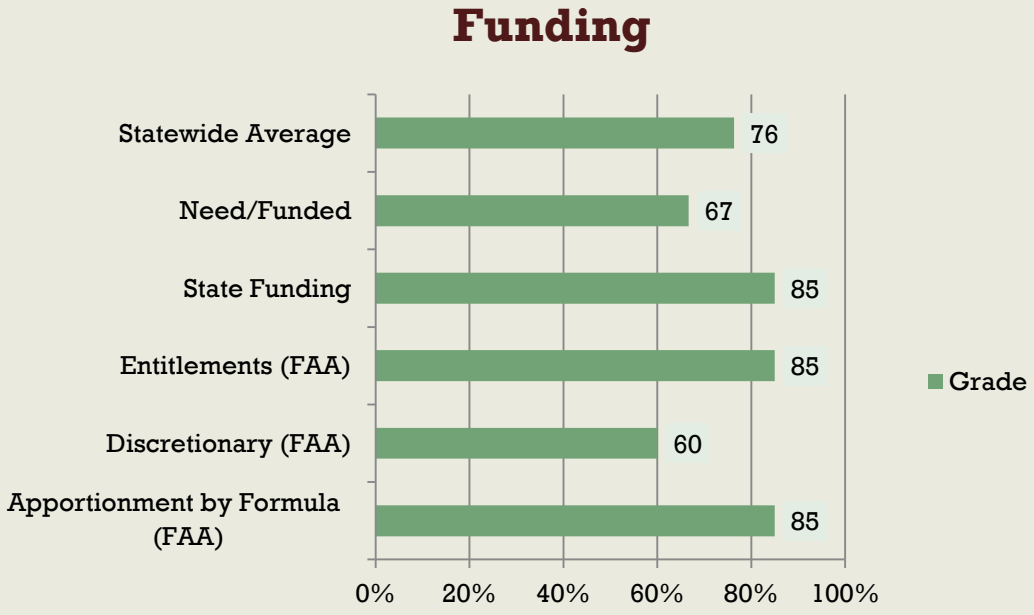



| | |
|---|---|
| Jet Fuel GRT (4.79%) | $1,600,000 |
| Gasoline GRT (0.26%) | $350,000 |
| Jet Fuel GRT (0.046% Sunsets FY 2012) | $775,000 |
| General Fund Enhancement (Jet Fuel GRT) | $3,000,000 |
| Aircraft Registration Fees | $68,000 |
| Interest | $16,000 |


# 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