

# STATE OF NEW MEXICO

PUBLIC SCHOOL CAPITAL OUTLAY COUNCIL  
PUBLIC SCHOOL FACILITIES AUTHORITY

FY 2017 ANNUAL REPORT



## Letter From The Chair

### of the Awards Subcommittee

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The Public School Capital Outlay Council (PSCOC) awarded the first standards-based project in fiscal year 2005. Over the past twelve years, the state has invested approximately \$2.4 billion into replacing and renovating New Mexico's public schools. When the program began, the average Facility Condition Index score, or the level of repair needed for a brick and mortar facility, was 70.6%; today, that average is 34.35% (lower is better). As the condition of our school facilities improved, the PSCOC recognized the need to adapt the program to maintain this progress, which meant strategically replacing facility systems.

This year, the PSCOC initiated the first awards cycle for the systems-based program, inviting districts to apply for state funding to help replace vital systems, giving the PSCOC and districts more flexibility towards scoping effectively sized projects that will extend school facilities' lives, reduce maintenance costs and minimize operational costs. This program also includes requirements for districts to include these projects as priorities in their long-term facilities planning by including them in the district's facilities master plans. The PSCOC is awarding the first two systems-based cycles in 2017.

We are also excited about the key role the Broadband Deficiencies Correction Program has played in helping school districts leverage federal E-rate funding. As schools continue to incorporate online learning and testing in their curricula, it is important they have access to adequate and reliable internet service.

Our work is possible due to the commitment of each PSCOC member, the New Mexico Legislature, Governor Martinez, the Public School Capital Outlay Oversight Task Force, and in cooperation with our public school districts and charter schools. Rest assured the PSCOC and Public School Facilities Authority remain committed to providing the best school facilities possible for our students.

Cordially,



**Joe Guillen**  
NMSBA Designee

## Public School Capital Outlay Council Members

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**Jessica Kelly**  
Governor's Designee  
Administration, Maintenance &  
Standards Subcommittee Chair

**Gilbert Peralta**  
PEC Designee

**Raúl Burciaga**  
LCS

**Stephanie Clarke**  
DFA Designee



**David Abbey**  
LFC  
PSCOC Chair



**Joe Guillen**  
NMSBA Designee  
Awards Subcommittee Chair

**Pat McMurray**  
CID  
PSCOC Vice Chair

**Rachel Gudgel**  
LESC

**Paul Aguilar** PED  
Designee  
(Retired September 2017)

## PUBLIC SCHOOL CAPITAL OUTLAY COUNCIL

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The PSCOC has been directed by the New Mexico Legislature to manage the allocation of the Public School Capital Outlay Act funds to public school facilities statewide. Consisting of members representing executive and legislative branches as well as representatives of school districts, the Council oversees the various programs administered by the Public School Facilities Authority (PSFA).

By statute, no later than December 15 of each year, the Council shall prepare a report summarizing its activities during the previous fiscal year and submit it to the Governor, Legislative Finance Committee (LFC), Legislative Education Study Committee (LESC) and Public Education Commission (PEC).

## PUBLIC SCHOOL FACILITIES AUTHORITY

The PSFA serves as staff to the PSCOC to assist districts in the planning, construction and maintenance of their facilities; to assist in training district facilities maintenance staff; and to implement systems and processes that establish adequate public school facilities throughout New Mexico via efficient and prudent use of funds.

Photo Credit (Front): New Mexico School for the Deaf, © 2016 NMPSFA, All rights reserved; Zuni/Shiwi Ts'ana Elementary© 2016 NMPSFA, All rights reserved; San Antonio Elementary School Ground Breaking, © 2016 NMPSFA, All rights reserved.  
Photo Credit (Back): Capitan High School, © 2016 NMPSFA, All rights reserved; Los Alamos Middle School, © 2016 NMPSFA, All rights reserved; Zuni/Shiwi Ts'ana Elementary© 2016 NMPSFA, All rights reserved (Front and Back).

# Public School Facilities Authority

Partnering with New Mexico's communities to provide quality, sustainable school facilities for our students and educators.

## PSFA Organizational Chart

**Robert Gorrell, Director** (Retired April 2017)

**Jonathan Chamblin, Director** (October 2017)

**Rocky Kearney, Deputy/Acting Director** (Retired October 2017)

- Contracts Administrator
- Research & Policy Analyst

**Denise Irion, Chief Financial Officer**

- Financial Specialists

**Bryan M. King, Chief Information Officer**

- IT Support Technician
- IT Business Process Manager
- Student Intern

**Larry Tillotson, Facilities Maintenance & Operations Support Manager**

- Maintenance Specialists

**Lacey Sawyer, Human Resources & Training Manager**

- CIMS Trainer
- Technical Coordinator

**Martica Casias, Planning & Design Manager**

- Facility Master Planners
- Facility Database Manager
- Facility Specialist
- Project Technician
- Field Assessor Supervisor
- Field Assessors

**Ovidiu Viorica, Broadband Program Manager**

- Project Managers
- Project Coordinator

**Cassandra Cano, Programs Support Manager**

- Administrative Assistants

**Edward Avila, Senior Facilities Manager**

- Central Coordinators
- Assistant Field Coordinator
- Regional Managers
- Environmental Operations Engineer
- Student Intern

## About us

### Financial and Administrative Support

The Administration Group is responsible for managing overall agency operations, supporting all agency groups, administering the application and awards process, budgets and contracts and complying with state laws, rules and protocols. Human Resources oversees personnel services, benefits administration and employee relations. Training staff serve customers on a range of topics and systems.

### Project Management

The Field Group partners with the school districts to oversee award applications, budgeting, procurement, project management and project oversight. The Field Group is the main point of contact with school districts. Regional Managers live and work in the districts they serve, enabling them to provide valuable assistance in a wide variety of school-related matters, including facility standards, guidelines and assistance identifying potential projects for state match funding.

### Project Planning

The Planning Group provides master planning assistance to school districts and reviews projects in the design stage for state code compliance and compliance with the PSCOC Adequacy Standards. The Planning Group develops and maintains the Adequacy Standards, planning guidelines and building standards. The Planning Group has a staff of facility assessors who assist in maintaining the statewide Facility Assessment Database (FAD) used to monitor facility conditions and rank school facility needs statewide.

### Facility Maintenance

The Maintenance Group provides consultative services in an effort to assist school districts in establishing and optimizing their maintenance programs. This program focuses on preventive maintenance strategies in an effort to extend the life of the facilities and their systems. The goal is assessing local facility management challenges and developing real-world solutions for operational cost-reduction while providing safe, healthy and reliable environments in support of the state's educational process.

### Information Support

The Systems Support Group is responsible for managing a multitude of systems that support school districts' facilities needs and the agency's mission. Additionally, the Broadband Deficiencies Correction Program resides within this Group.

## Project Ranking Criteria

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The FY 2017 standards-based award cycle final funding pool was open to all facilities with a weighted New Mexico Condition Index (wNMCI) of 60% or greater. Three facilities within the 2016-2017 Final wNMCI Ranking were eligible based on this criteria.

The PSCOC also released the first systems-based award cycle in FY 2017 with the following eligibility criteria: 1) the school must be in the top 50 of the 2016-2017 wNMCI Final Ranking List; 2) feasibility/utilization/engineering evaluation report(s) are complete and demonstrate that the post-project wNMCI would be one-third lower than pre-project wNMCI, and the total project cost is 50% or less of the total facility replacement costs; 3) the district has its funding match; and 4) the facility must have an Facility Maintenance Assessment Report (FMAR) score of 60% or better. Eight total applications were received. As a result of the systems application being released in proximity to the next award cycle, the 2016-2017 systems applications were later consolidated with the 2017-2018 award cycle and the eligibility criteria was expanded based on the preliminary 2017-2018 wNMCI ranked list in order to streamline award cycle activities. No systems-based awards were made in FY 2017. As a new and evolving program, discussions regarding systems-based award eligibility criteria are ongoing, and thus eligibility requirements may change in future award cycles.

## PSFA Checklist Overview

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The PSFA made great strides in an effort to provide simplicity, clarity and a focus on customer service in alignment with the PSFA Core Values through the release of the updated PSFA Checklist Manual in August 2016. This checklist encompasses all five stages of a project - planning, funding, project development, construction and facility-management and is designed to make it easier to learn about, and make effective use of, state resources without having to wade through lengthy source documents. PSFA Process Owners will update the checklist biannually, in July and December, though mid-stream updates may be necessary. Published on the PSFA's website, this document is easily accessible as a single downloadable document, or individual topics (boxes) can be downloaded for your needs.

## Other Council Actions

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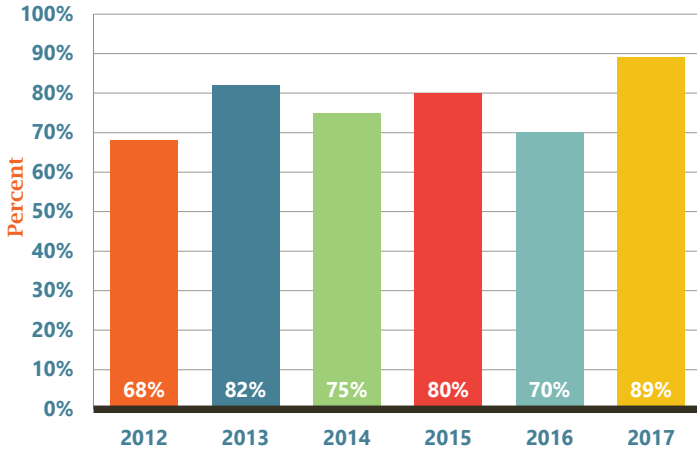
In addition to annual approvals of award cycle activities, out-of-cycle awards, lease assistance program awards, master plan assistance awards, Broadband Deficiencies Correction Program awards and the PSFA budget, the PSCOC took action on the following:

- July 2016 – Approval of the 2016 – 2019 PSFA Strategic Plan and Action Item Matrix Template.
- September 2016 – Mr. David Abbey was approved to serve as the PSCOC Chair and Mr. Pat McMurray was approved to serve as the PSCOC Vice Chair for fiscal years FY 2017 and FY 2018.
- January 2017 – Final approval of the eligibility and scoring criteria for the first round of the new systems-based initiative.

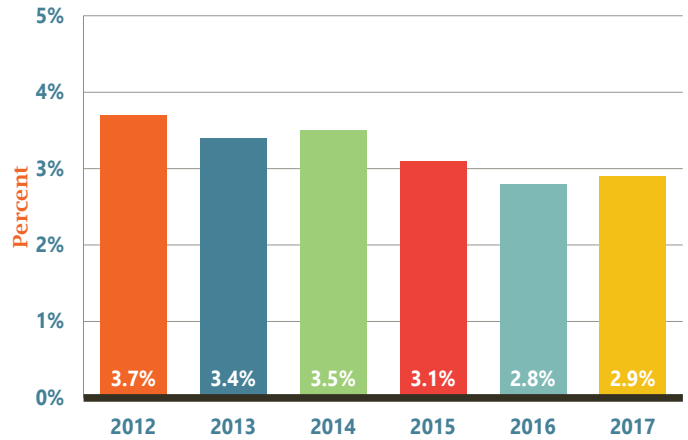


# Operational Data

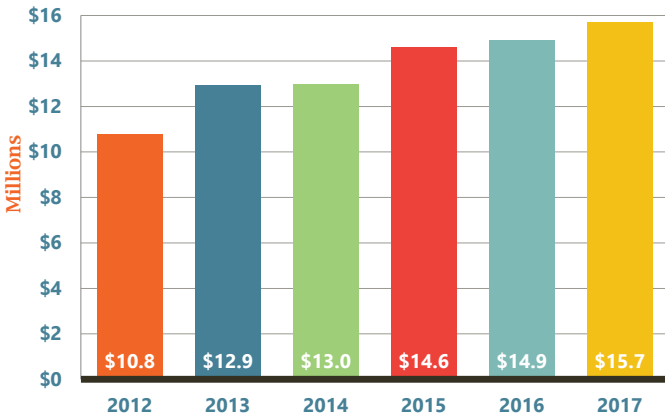
Percent of Award Dollars Under Contract 18 Months from Time of Award - FY 2012 - FY 2017



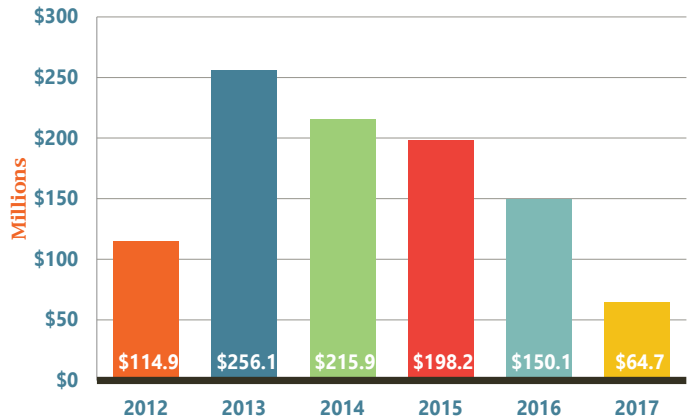
PSFA Operational Budget as a Percent of Annual Capital Outlay Awards - FY 2012 - FY 2017



PSCOC Lease Assistance FY 2012 - FY 2017

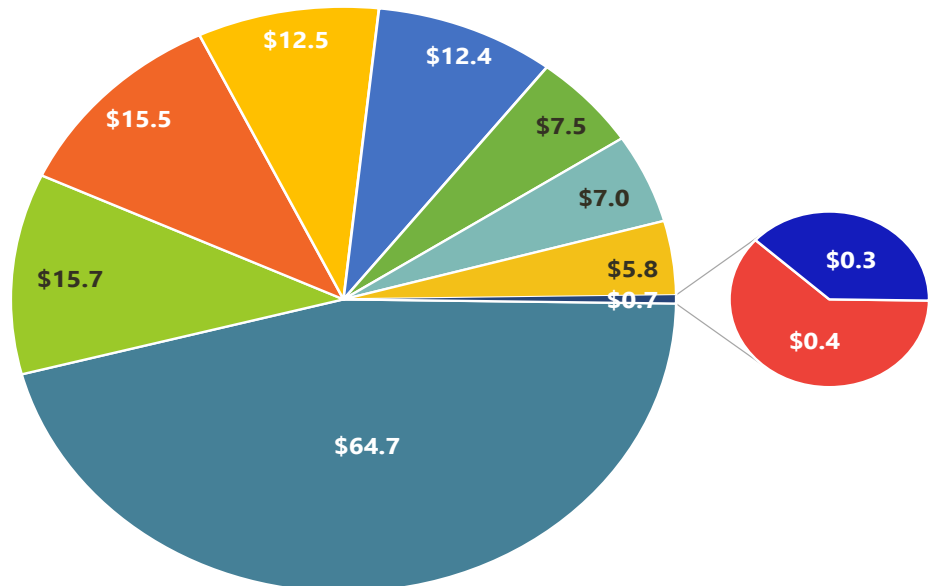


PSCOC Standards-Based Awards History FY 2012 - FY 2017



Supplemental Severance Tax Bond (SSTB) Uses by PSCOC in FY 2017 (Dollars in Millions)

- Construction Projects \$64.7
  - Lease Assistance \$15.7
  - Capital Improvements Act (SB9) \$15.5
  - Instructional Materials/Transportation Distribution (SB4) \$12.5
  - General Fund Restore Allotment (Project Reversions) (SB8) \$12.4
  - Broadband \$7.5
  - School Buses (HB219) \$7.0
  - PSFA Operating Budget \$5.8
  - Master Plan Awards \$0.4
  - Construction Inspections \$0.3
- Total: \$135.6**



# FY 2017 Awarded Standards Based Projects (10 projects, \$64.7 Million)

Alamogordo

## Combined Heights-Oregon Elementary School

- Award Amount: \$1,301,852
- Award Expended: \$212,028
- Estimated Completion: November 2019

The new Alamogordo combined school is currently being designed as a 58,486 square foot replacement facility for 450 students, grades K-5 that will combine Heights ES and

Oregon ES. The new school will be constructed on the existing Heights ES site, which will remain operational during construction. The project scope includes a bus lane, parent drop-off, playing fields and playgrounds. Once the district occupies the new school, the Heights ES and Oregon ES will be abated and demolished so that the remaining site work can be completed.



Alamogordo Combined School(P15-001), © 2016 NMPSFA, All rights reserved.

Clovis

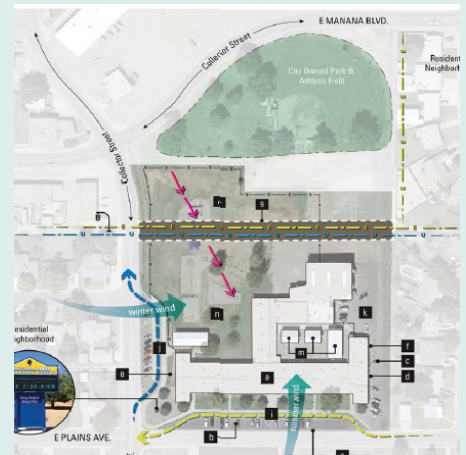
## Highland Elementary School

- Award Amount: \$1,214,683
- Award Expended: \$73,325
- Estimated Completion: July 2019

The Highland ES award is for the design of a 43,551 square foot replacement school for 320 students, grades K-5 in the Clovis Municipal School District. The existing 65-year-old

school has undergone six major additions and numerous minor renovation efforts, including re-roofing, electrical upgrades and mechanical system replacements.

Replacing this facility will allow the district to address programmatic and facility needs. The design was awarded in April 2017, and construction is anticipated to be funded in the spring of 2018.



Highland Elementary School(P16-001), © 2017 NMPSFA, All rights reserved.

Clovis

## Parkview Elementary School

- Award Amount: \$13,716,932
- Award Expended: \$639,811
- Estimated Completion: June 2018

The Parkview ES project in the Clovis Municipal School District is an award for a 63,272 square foot replacement school for 500 students, grades K-5. The project will be built on a new, undeveloped site. The district

based the design on its desire to have flexible learning spaces that can serve different needs depending on the population and curriculum. The project highlights include favorable site conditions and the district's emphasis on lean construction. The district drove the project team to keep the project cost as low as possible without sacrificing quality. Construction of the new school began in May 2017.



Parkview Elementary School(P15-005), © 2017 NMPSFA, All rights reserved.

## Deming Intermediate School

- Award Amount: \$14,868,487
- Award Expended: \$1,105,899
- Estimated Completion: September 2018

The Deming Intermediate School award is for the construction of a new 61,836 square foot school for 450 6<sup>th</sup> grade students. The school is designed specifically to meet the needs of these students

as they transition from elementary school to middle school. Multipurpose breakout spaces are designed within classroom areas and open up to outdoor learning plazas. Two wings of the school were strategically oriented to maximize daylighting, increase energy efficiency and shelter the play area from wind. Construction is currently in progress.



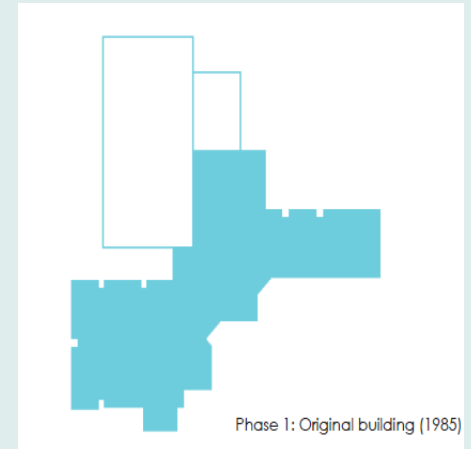
Deming Intermediate School(P14-008), © 2017 NMPSFA, All rights reserved.

## Abiquiu Elementary School

- Award Amount: \$198,059
- Award Expended: \$43,689
- Estimated Completion: March 2019

The Española Public School district was awarded funding for a building systems analysis and design to renovate the existing Abiquiu ES for 130 students, grades K-6. Based upon the Statewide Adequacy Standards,

one of the goals for the design is to reduce the school by 5,704 square feet. The project includes addressing all life and safety issues, renovating site conditions, improving drainage and replacing windows, doors and roofs. The project will also address Americans with Disabilities Act compliance issues and will replace or repair plumbing systems, the Heating, Ventilation, and Air Conditioning system and electrical systems. The project is in the early phases of design.



Abiquiu Elementary School(P16-002), © 2017 NMPSFA, All rights reserved.

## Old Tibbetts Middle School Demolition

- Award Amount: \$468,000
- Award Expended: \$20,713
- Estimated Completion: December 2017

Originally funded in November 2011, demolition of the old Tibbetts MS in the Farmington Municipal School District was delayed to allow the facility to be used as swing space for

other projects within the district. During the FY17 initiative to close out projects, the district requested and received approval to re-budget and expend the funds to complete the demolition by December 2017.



Old Tibbetts Middle School(P10-003B), © 2017 NMPSFA, All rights reserved.



## Gadsden High School (Old English Building)

- Award Amount: \$4,831,755
- Award Expended: \$0
- Estimated Completion: May 2018

Gadsden HS was awarded funding in June 2017 for the renovation of the 20,314 square foot Old English Building, which is on the New Mexico Historic

Register. This is the final phase of the Gadsden HS project, which was originally awarded in 2007 and has consisted of multiple phases with a total state award of \$48,470,454. The intent of the project is to improve the teaching environment and enhance the utility and safety of the structure. Construction of the final phase began in August 2017.



Gadsden High School (Old English Building)(P08-003E), © 2017 NMPSFA, All rights reserved.

## Lincoln Elementary School

- Award Amount: \$18,328,259
- Award Expended: \$606,930
- Estimated Completion: April 2019

The Lincoln ES project, located in the Gallup-McKinley County School district, was awarded to combine Lincoln ES and Roosevelt ES into a 50,486 square foot, two-story building

for 380 students, grades K-5. This project is located on a difficult site that is divided by a drainage channel and that has very challenging soil conditions. The owners have worked to ensure that the quality of the project is maintained while reducing the project cost. Construction is scheduled to begin in late 2017.



Lincoln Elementary School(P15-007), © 2017 NMPSFA, All rights reserved.

## Mountainair Jr/Sr High School

- Award Amount: \$9,020,122
- Award Expended: \$3,334,963
- Estimated Completion: April 2018

The Mountainair Jr/Sr HS is a 34,727 square foot replacement school for 170 students, grades 6-12. This facility will have an additional 11,900 square feet of renovated and grandfathered spaces that are designed and will be constructed around the

existing library and clinic. This will allow for convenient access to the shared administrative space, the library and music areas. The existing school will remain operational during construction of the replacement school. The project scope includes renovating the gym, food service spaces and vocational buildings. Upon completion, the existing school will be abated and demolished so that remaining site work can be completed. Construction is anticipated to be completed by the end of 2018.



Mountainair Jr/Sr High School(P15-008), © 2017 NMPSFA, All rights reserved.

## Glenwood Elementary School

Reserve

- Award Amount: \$70,000
- Award Expended: \$0
- Estimated Completion: TBD

Glenwood ES, located in the Reserve Independent School District, was awarded funding for a feasibility study to explore options to house nine students, grades K-3. The

district will return to the PSCOC for approval of a project plan prior to proceeding with design. Options that may be considered include a partial renovation of the existing Glenwood ES as well as demolition of the existing school to be replaced with a portable building. The district has put this project on hold pending confirmation of enrollment from the Public Education Department.



Existing Site

Glenwood Elementary School(P17-001), © 2016 NMPSFA, All rights reserved.

## Previously Awarded Projects (Highlighted Projects)

### Judy Nelson Elementary School

Central

- Award Amount: \$15,250,000
- Award Expended: \$13,462,781
- Completed: November 2016

Judy Nelson ES, located in the Central Consolidated School District, combined two local elementary schools, Grace B. Wilson and Ruth N. Bond, into a single 94,882 square foot facility for 715 students.

The existing gymnasium, music room and associated spaces were retained and renovated while the remainder of the facility was new construction. The consolidation of the two schools replaced outdated facilities and standardized grade configurations in the Kirtland area. The existing Grace B. Wilson ES was minimally renovated and utilized as swing space, with the temporary addition of several portables to house students during construction.



Judy Nelson Elementary School(P14-007), © 2017 NMPSFA, All rights reserved.

### Cloudcroft High School Emergency Funds

Cloudcroft

- Award Amount: \$501,791
- Award Expended: \$9,938
- Estimated Completion: August 2018

The PSCOC approved an emergency advance to the Cloudcroft Municipal School District to mitigate anchoring issues of the exterior wall veneer at Cloudcroft HS. After the school was constructed, the stone

masonry veneer began falling. Upon investigation of the failure, it was determined that the anchoring systems were not installed in either the stone or the masonry wall veneers. Rather than removing the masonry, the team identified a solution that would allow for an anchoring system to be installed into the mortar joints of the existing concrete masonry wall and tied back to the structure. The stone will be removed and properly replaced or reinstalled to ensure the safety of the students.



Cloudcroft High School(E15-002), © 2017 NMPSFA, All rights reserved.



### Farmington High School

- Award Amount: \$40,291,113
- Award Expended: \$28,661,808
- Estimated Completion: August 2018

The Farmington HS project demolished the main academic buildings and renovated remaining portions of the existing school. The new design for the campus

features two-and three-story classroom wings, a new gym, a renovated fine arts building and a core that includes a centralized dining space, library and all administration functions. The construction is taking place in three phases.



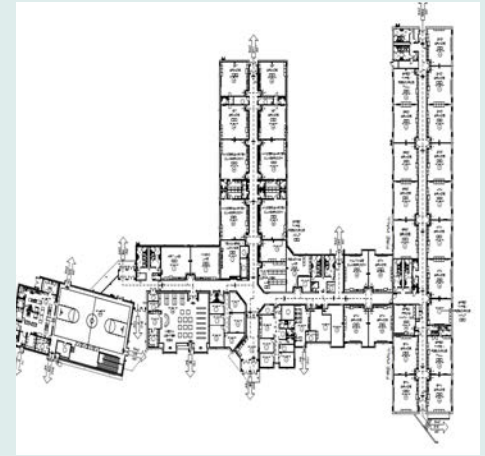
Farmington High School(P13-006), © 2016 NMPSFA, All rights reserved.

### Chaparral Elementary School

- Award Amount: \$12,828,187
- Award Expended: \$10,086,183
- Completed: November 2017

The new Chaparral ES, in the Gadsden Independent School District, was built to adequacy for 550 students, grades K-6. The addition includes a kitchen, art/music rooms and a much-needed multi-purpose room that will

serve as the cafeteria and gym. Portables on-site will be removed and replaced with play fields. The school is designed to ease traffic and congestion from the front of the school. The project was done in four phases: general classrooms, special education, administrative space and the library.



Chaparral Elementary School(P14-012), © 2017 NMPSFA, All rights reserved.

### Gallup Del Norte Elementary School

- Award Amount: \$78,710,196
- Award Expended: \$13,278,658
- Completed: September 2017

The new Del Norte ES, located in the Gallup-McKinley County School District, combined two existing elementary schools, Washington and Juan De Oñate. The design embraced the topography of the existing

Washington ES site. The new two-story building is composed of concrete masonry and steel construction totaling 60,352 square feet, featuring the common functions at the core of the design. The new facility is constructed adjacent to Washington ES and upon completion of the Del Norte facility, the old structure will be demolished in its entirety and site work will be completed to include bus routes and parking areas.



Gallup Del Norte Elementary School(P11-005), © 2017 NMPSFA, All rights reserved.

## Lordsburg High School

- Award Amount: \$16,751,185
- Award Expended: \$12,450,346
- Completed: August 2017

The Lordsburg HS project was a renovation and replacement of facilities to adequacy for 480 students, grades K-12, among various sites within the Lordsburg Municipal School District. The intent of the award was to provide

significant renovation to Lordsburg HS while consolidating schools and shifting students from Southside ES and Central ES into RV Traylor ES and Dugan-Tarango MS. Upon completion of Lordsburg HS, the Southside ES and Central ES will be disposed. When fully executed, this plan will reduce the district's gross square footage (GSF) from 219,779 to 129,414 GSF, which is a total elimination of 90,365 GSF. It will reduce the number of schools in the district from five to three.



Lordsburg High School(P14-017), © 2017 HB Construction, All rights reserved.

## Ojo Caliente Elementary School

- Award Amount: \$5,339,034
- Award Expended: \$4,776,314
- Completed: August 2017

The new Ojo Caliente ES was built on the existing site in the Mesa Vista Consolidated School District. The school is located on a K-12 campus and incorporated a Pre-K classroom in the new

improvements. An important goal of this project was to reduce the overall campus GSF through reorganization of the campus. This was accomplished by constructing a new elementary school for grades K-6 and relocating the middle school students (grades 7 and 8) into renovated space, allowing for demolition of the old middle school.



Ojo Caliente Elementary School(P14-018), © 2017 NMPSFA, All rights reserved.

## Reserve Combined School

- Award Amount: \$14,256,519
- Award Expended: \$13,483,333
- Completed: November 2016

The Reserve Combined School project renovated and replaced facilities for 140 students, grades K-12. The new facility is 24,193 square feet and includes upgraded systems. The school encompasses 14 classrooms, a reception area,

administrative offices, a teacher workroom, a mail/copy room, nurse's office, resource tutor area and a technical education classroom associated with each grade. The project also consisted of a 7,329 square foot gym, track refurbishment and drop-off lanes. The overall campus was reduced by approximately 25,000 square feet.



Reserve Combined School(P14-022), © 2016 Greer Stafford/SJCF Architecture, Inc., All rights reserve. Photo by Patrick Coulie Photography.



### San Antonio Elementary School

- Award Amount: \$4,739,738
- Award Expended: \$3,579,529
- Completed: July 2017

San Antonio ES is a new, single-story, 12,137 square foot school located in the Socorro Consolidated School District. The school serves grades K-5, with six core classrooms and support spaces. Construction for this

project included the installation of age appropriate playground areas and improved vehicular and pedestrian circulation. The original school facility will be turned over to the county.



San Antonio Elementary School(P12-011), © 2017 NMPSFA, All rights reserved.

### Zuni Elementary School (Shiwi Ts'ana ES)

- Award Amount: \$29,210,359
- Award Expended: \$26,353,647
- Completed: August 2016

Shiwi Ts'ana ES, located in the Zuni Public School District, was designed to encompass Zuni cultural values and traditions while providing a 21<sup>st</sup> century learning facility for its students.

The design consolidated the school facility and outdoor spaces within a circular layout, which enhances campus security, student interaction and site functionality. The site incorporates breathtaking views of the Dowa Yalanne Mesa, which serves as the backdrop for cultural events. The building features a two-story classroom wing for the upper grades and a single story classroom wing for kindergarten and Pre-K classes.



Zuni Elementary School(P13-010), © 2016 NMPSFA, All rights reserved.



Zuni Elementary School(P13-010), © 2016 NMPSFA, All rights reserved.



Zuni Elementary School(P13-010), © 2016 NMPSFA, All rights reserved.



Zuni Elementary School(P13-010), © 2016 NMPSFA, All rights reserved.

# PSFA Building Guidelines and Best Practices

PSFA Building Guidelines and Best Practices is currently being composed by the PSFA and is anticipated to be released in the spring of 2018. These guidelines and best practices have been designed, constructed and arranged to provide guidance and accessible information to the districts we work with, the communities we build in and the taxpayers whose support provides funding for these projects. To aid in the navigation of the guidelines and best practices, the document has been organized to mimic a project’s life cycle.

Design and construction are no simple task and require thought and foresight when combining the needs of the users with future maintenance and operational capacity. The goal with these building standards is to help educate the spectrum of participants in the process of design and construction by sharing what we have learned, what is proven to work and what we require as part of our Adequacy and Planning Guidelines, and by providing the necessary tools to make informed decisions when designing and building an educational facility.

<b>SD</b>	<b>SITE DESIGN</b> 02 Building Orientation 04 Site Selection 06 Landscape	<b>01 - 07</b>	SITE DESIGN
<b>SS</b>	<b>STRUCTURAL SYSTEMS</b> 09 Foundation Systems 13 Framing Methods	<b>08 - 14</b>	STRUCTURAL SYSTEMS
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<b>SY</b>	<b>MECHANICAL / ELECTRICAL / PLUMBING SYSTEMS</b> 25 HVAC SYSTEMS 29 Electrical Systems 31 Plumbing Systems	<b>24 - 33</b>	MEP SYSTEMS
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## Table of Contents and Organization

The document is organized to follow the usual design and construction sequence of a building beginning with site selection and continuing with the implementation of building systems and culminating with facility management.



# PSFA's Guidelines and Best Practices

are intended to assist school districts, planning committees, and all interested participants regardless of their familiarity with the design or construction processes. The guidelines are intended to provide a high-level overview of practical information generated from on-the-job experience. Through the diagrams and brief explainers, users can understand aspects of construction and facility ownership that are often times overlooked.

Siting/Shading

BUILDING ORIENTATION

SD

**Building Orientation**

Building orientation is the practice of siting a building to maximize certain aspects of its surroundings, such as street presence, capturing views, drainage considerations and solar exposure. With increasing energy costs, it's becoming important for owners/design team to orient buildings to reduce reliance upon energy-driven systems. For owners, it will increase their indoor comfort and reduce their energy consumption. Thus, building orientation, daylighting and thermal mass are crucial considerations of passive solar construction that can be incorporated into virtually any new design.

The broad face of a building should be within 25° of true south to achieve optimal building orientation and reduce the building's heating load. Orientate the building along the east/west axis to capture southern exposure. Reduce east/west facing windows to control difficult exposures.

**Eastern/Western Exposures-** To the greatest extent possible, limit the amount of east and west glass, since it is difficult to shade and control. If east/west facing windows are required, utilize vertical shading devices, fins, or consider the use of landscaping to shade eastern and western exposures.

**Northern Exposures-** The north side receives little direct solar gain so shading is not as important as other exposures. Northern windows experience diffused lighting conditions that work well with classroom environments. Limit large expanses of northern glazing to reduce heat loss.

**Southern Exposures-** Use fixed overhangs or horizontal louvers on south-facing glass to control solar radiation. Indirect (diffused radiation) should be controlled by high-performance glazing.

Typical window shading strategies include shading windows during the summer months while allowing for winter sun to penetrate occupied spaces to increase solar gain.

SITE DESIGN

SITE DESIGN

STRUCTURAL SYSTEMS

BUILDING ENVELOPE

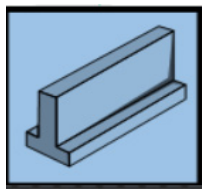
M&P SYSTEMS

SPECIALIZED DESIGN

FACILITY MANAGEMENT



Site Design



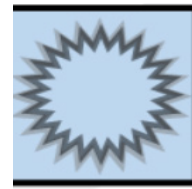
Structural Systems



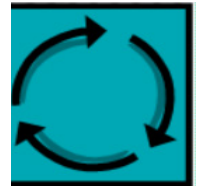
Building Envelope



Mechanical/  
Electrical/  
Plumbing  
Systems



Specialized Design



Facility Management

Typology

FOUNDATION SYSTEMS

SS

**Foundations**

A building's foundation is arguably the most important structural element. Regardless of its particular location, a foundation must support the building above it and all the loads that are exerted on it. The foundation must adequately transfer loads acting on the structure to the supporting soils and must resist weathering, decay and corrosion (with little or no maintenance) in order to remain viable for the entire life of the building. The foundation must perform all of these functions while being exposed to damaging effects and conditions.

FEMA

**Stem Wall Foundations:** Stem wall foundations are similar to crawlspace foundations. They consist of perimeter foundation walls (typically masonry or concrete), but the interior space that would otherwise form the crawlspace is backfilled with soils that support a floor slab.

**Slab-on-Grade Foundations:** Slab-on-grade foundations are similar to stem wall foundations. Like stem wall foundations, the floor consists of a concrete grade slab. Unlike stem wall foundations, slab-on-grade foundations do not have a true perimeter foundation wall, but instead have thickened portions of the slab that function as footers for the exterior and interior bearing walls.

**Crawlspace Foundations:** Crawlspace foundations typically consist of perimeter masonry or concrete foundation walls and a system of interior beams and piers that support an elevated floor framing system.

FEMA

STRUCTURAL SYSTEMS

SITE DESIGN

STRUCTURAL SYSTEMS

BUILDING ENVELOPE

M&P SYSTEMS

SPECIALIZED DESIGN

FACILITY MANAGEMENT

- Best practices
- Basic architectural design approaches
- PSFA requirements for PSCOC funded projects
- Cost saving strategies
- Visual layout of building components
- Schematic diagrams of system operations
- Simplified technical concepts
- Color coded and structured for ease of use

## PSFA Regional Manager Assignments

- Region 1: David Biggs
- Region 2: Karl Sitzberger
- Region 3: Richard Dicks
- Region 4: Jeremy Jerge
- Region 5: Daniel Juarez
- Region 6: Irina Ivashkova
- Region 7: Jeremy Sánchez
- Region 8: Jorge Au
- Region 9: Scott Ficklin
- Region 10: Jeremy Sánchez
- Region 11: Anthony Lucero



Regional Manager Assignments Map, © 2015 NMPSFA, All rights reserved.

## Facility Planning

### Annual FCI for All New Mexico Schools

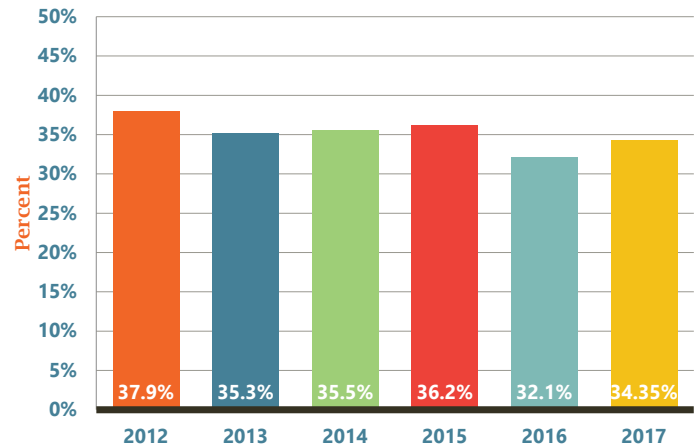
The Facility Condition Index (FCI) is a key performance measure for all public school building conditions. The FCI indicates the level of repair needed for a facility. The percent amount is the ratio of needed repairs to facility value. The current FCI is 34.35%, an increase of 2.25 percentage points from FY16.

### Estimated Funds to Maintain the Current FCI

It is estimated to cost a combined average of \$445M annually, from state and local sources, to maintain the current FCI over the next six years, an increase of \$12M from the FY16 estimated average. This increase is based on the following factors that contribute to changes in the FCI:

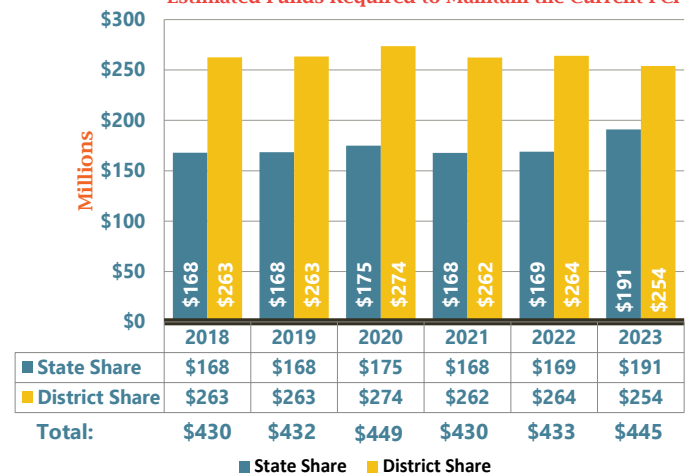
- Systems that are at or beyond their expected life do not factor into the projection of funds needed to maintain the FCI. Systems that are at, or past, their useful life are fully depleted systems with an FCI of 100% and do not continue to age or contribute increasing dollars.
- Construction, renovation or systems that have not reached their expected life do factor into the FCI. Newly funded projects begin to contribute deficiencies as soon as construction is complete.
- PSCOC/district dollars spent on repair, renovation or new construction.
- Facility assessments that capture age and condition of systems.

### Annual Facilities Condition Index (FCI)\* for All New Mexico Schools



\*FCI applies to brick and mortar facility conditions only.

### Estimated Funds Required to Maintain the Current FCI



\*wNMCI = FCI + the facility's ability to support educational functions.



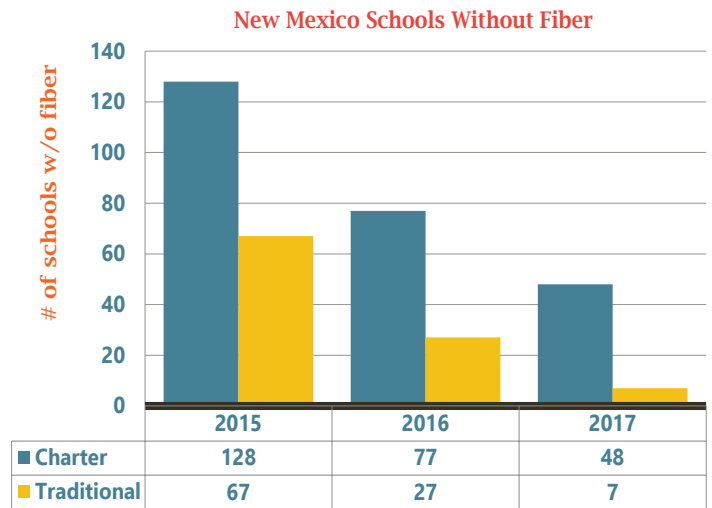
## Broadband Deficiencies Correction Program (BDCP)

Senate Bill 159 of 2014 established the Education Technology Infrastructure Deficiency Correction Initiative. This initiative allows the PSCOC to expend up to \$10M per year for five years to help public schools upgrade their broadband infrastructure. The PSCOC’s goal is to leverage state dollars to maximize the federal funding available through the E-rate program (an 80-90% match). The PSFA provides schools with a streamlined funding process, ready-to-use procurement tools, technical assistance, project management support and contractor assistance with the E-rate process. In FY 2017, the PSCOC approved funding for 55 fiber and equipment broadband upgrade projects encompassing approximately 260 schools.

### Deming Public Schools (Category 1 - Fiber)

- Project Total: \$686,275
- E-rate Share: \$651,961
- District Share: \$0
- PSCOC Award Amount: \$34,314
- Project Completion Date: June 2017

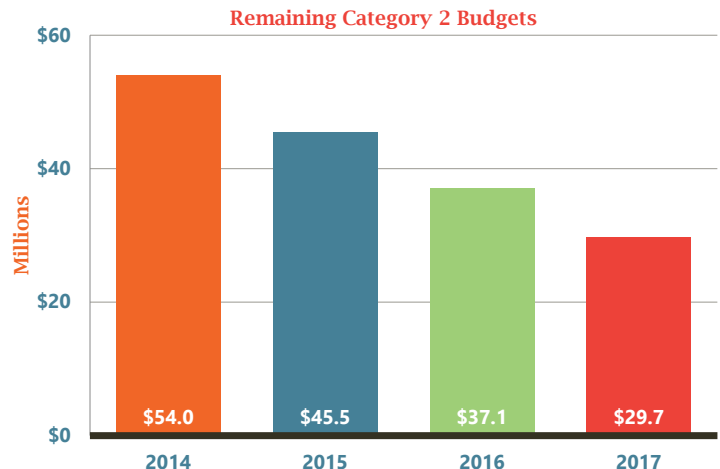
“Deming was able to connect Columbus Elementary, 32 miles away and just 2 miles from the Mexico border. Thanks to the support of the BDCP, EducationSuperHighway, NMPED and the E-rate program, we now have a reliable connection. Students now have access to high speed internet and are able to participate in collaborative, personalized learning, while school administrators are able to connect with parents who cannot cross the border via online meeting tools.” Ragena Blankenship, Director of Technology



### Farmington Municipal Schools (Category 2 – Equipment)

- Project Total: \$730,401
- E-rate Share: \$584,321
- District Share: \$52,589
- PSCOC Award Amount: \$93,610
- Project Completion Date: August 2017

In FY 2017, the Farmington Municipal School District targeted its wireless infrastructure by upgrading over 300 wireless access points across the district. In order to handle the added wireless Local Area Network (LAN) traffic, the District also added LAN switches for better data traffic management.



# Facility Maintenance

## Ben Lujan Maintenance Awards

### Class 6a:

Winner: Clovis Municipal Schools

Runner Up: Rio Rancho Municipal Schools

### Class 5a:

Winner: Farmington Municipal Schools

Runner Up: Aztec Municipal Schools

### Class 3a:

Winner: Tucumcari Public Schools

### Class 2a:

Winner: Questa Independent Schools

### Class 1a:

Winner: Wagon Mound Public Schools

### Honorable Mention:

Central Consolidated Schools

Gadsden Independent Schools

Hobbs Municipal Schools

Roswell Independent Schools

### Individual/Team Awards:

Fabian Sherman – Central Consolidated Schools

Tommy Nez – Central Consolidated Schools

Jose Pinion – Gadsden Independent Schools

Custodial Team – Farmington Municipal Schools

Maintenance Team – Farmington Municipal Schools

Steve Vollmert – Farmington Municipal Schools

Ted Lasiewicz – Farmington Municipal Schools

Custodial Team – Questa Independent Schools

Jacob Montoya – Questa Independent Schools

Maintenance Team – Questa Independent Schools

Chris Ellwood – Rio Rancho Public Schools

Dave Kasten – Rio Rancho Public Schools

John Anderson – Rio Rancho Public Schools

Luis Melendez – Rio Rancho Public Schools

Maintenance Team – Rio Rancho Public Schools

Rick Baker – Rio Rancho Public Schools

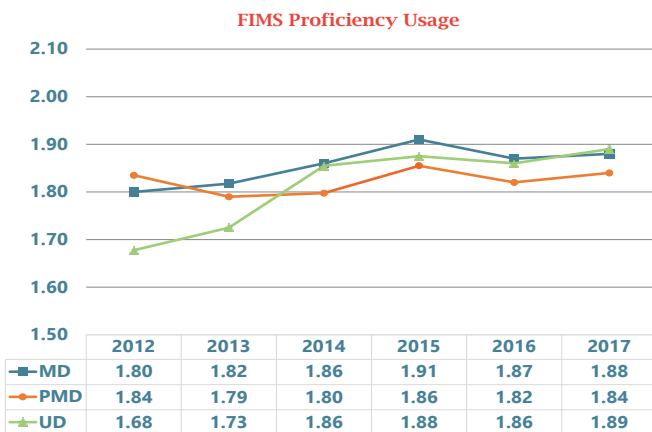
Wayne Myers – Rio Rancho Public Schools

Juan Tirado – Roswell Independent Schools

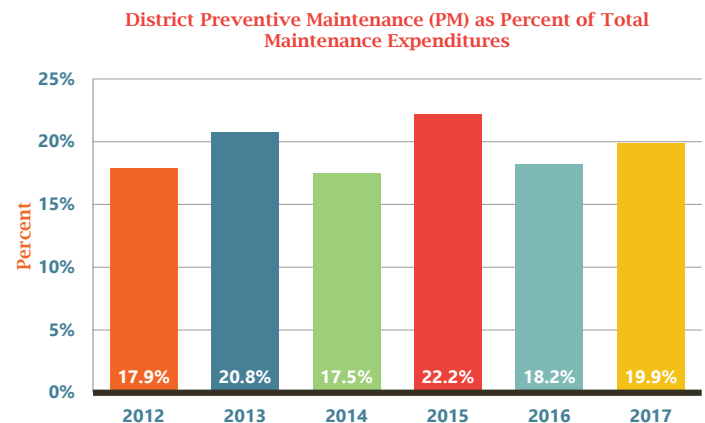
William Russ Robertson – Roswell Independent Schools

Cody Ryen – Tucumcari Public Schools

Will Horton – Tucumcari Public Schools



School district FIMS usage of Maintenance Direct (MD) and Preventive Maintenance Direct (PMD) has improved from 2015 and is 1.88 and 1.84 respectively. Utility Direct (UD) use is 1.89, an increase from FY 2016.



School district investments in preventive maintenance as a percent of total maintenance expenditures are now 19.9%, an increase of 1.7 percentage points from FY 2016.

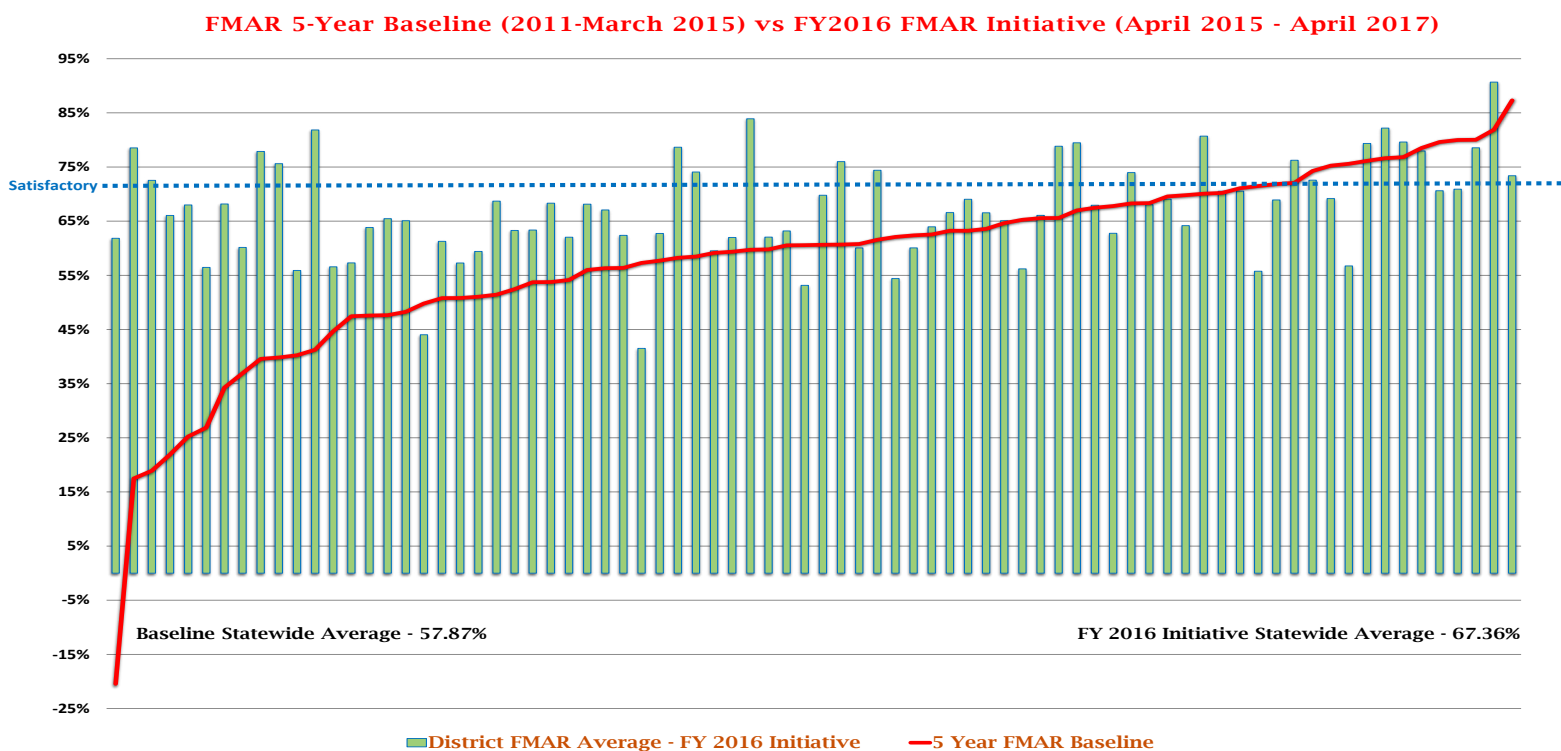
## Maintenance – A Success Story:

Maintaining facility conditions to support educational environments is a big challenge across the United States, not just in New Mexico. The Facility Maintenance Assessment Report (FMAR) is a measure of maintenance performance that consists of a physical building audit of 22 maintenance categories, maintenance planning efforts, and the use of the state provided Facility Information Management System (FIMS) resources.

In April 2015, the 5-year maintenance performance baseline was completed and determined that only 22% of New Mexico schools would achieve the expected life of their major building systems, which may cause inefficient use of funding resources as capital dollars are spent to replace those assets well before recommended replacement schedules.

In April 2017, the FY 2016 FMAR initiative showed many success stories and improved facility conditions statewide as compared to the 5-year FMAR baseline. These improvements have been accomplished through better maintenance planning efforts, increased use of FIMS resources, new training opportunities, and shared best practices to achieve successful maintenance programs. Effective maintenance strategies are an important key to reducing capital needs and extend the life of building systems, adding value to the State's educational environments. Districts are also taking advantage of the new FMAR response process to garner improved ratings and facility conditions.

Several initiatives to improve awareness and educate districts have been piloted and will be fully implemented in FY 2018. New Mexico has gained momentum but there is still work to be done. With new tools and resources, such as the FMAR response process and updated training materials available to districts and charter schools, we will no doubt see continued improvement.





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Public School Facilities Authority  
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Albuquerque, NM 87106

