PRESERVING SCHOOLS

...it's about kids!

M&O

SUPPORTING ACADEMICS

Albuquerque Public Schools

# Maintenance and Operations Division

## 2016 Year-End Report

ALBUQUERQUE PUBLIC SCHOOLS

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ALBUQUERQUE PUBLIC SCHOOLS

*Preserving Schools and Supporting Academics*


**MAINTENANCE AND OPERATIONS** • 2016 Year End Report

# MISSION STATEMENT

***The mission of the Maintenance and Operations Division is to partner with the schools in creating environments conducive to student success by providing purposeful, comfortable, aesthetic, clean, safe, and accessible learning and activity spaces in meeting academic achievement goals.***

# SYNOPSIS

This Albuquerque Public Schools' ***Maintenance and Operations (M&O)Year End Report*** recaps the Division's key achievements and well as challenges faced during the 2015-16 fiscal year. In providing transparency to taxpayers, parents, students, APS personnel, and the general public, this document is posted in its entirety on the M&O website at **www.aps.edu/maintenance-and-operations.org.**

While this annual Report summarizes M&O's many initiatives in preserving structural and systems' integrity, appearance, safety, and security of the District's schools, support facilities, and grounds, it also repeatedly stresses that M&O's *purpose* is the support of students' academic success. Delivering environments that advance education is the driving force behind all of M&O's efforts. In the case of a school system, the maintenance and operations function extends far beyond the straightforward care for buildings; *M&O's priority is irrefutably the students housed in those facilities and their purpose — learning.*

## *The following is presented in this 2016 Year End Report.*

***Overview of Maintenance and Operations***

- Work order history 2007 – 2016
- M&O budget history 2007 – 2016
- M&O expenditures by school cluster 2007 – 2016

***New Division Wide Initiatives and Highlights in 2015-16***

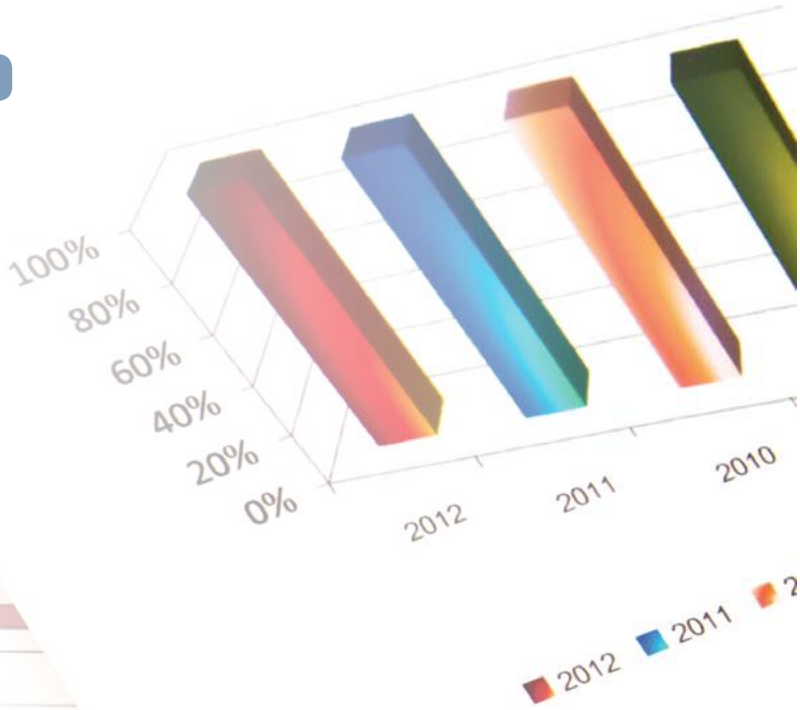
- APS saved $2 million in preventive maintenance work led by an automation work order system
- M&O improved FMAR scores due to new PSFA provided opportunity
- M&O grew preventive maintenance work orders by 37.8%
- Increased legislative funded projects substantially multiplied M&O's workload
- M&O crews worked around the clock in cleaning up extreme vandalism
- Graffiti increased for first time since 2007
- Materials Management Warehouse moved under the M&O umbrella and organization
- M&O Wellness Works Program is beneficial pilot and was expanded in 2015-16
- Progress made in tackling deferred maintenance
- Utility costs were under budget for third consecutive year
- M&O continued to rank in top 5% by the CGCS's annual survey
- 2016 Preventive Maintenance Management Plan complete and accepted by PSFA
- Variable frequency drives updated at Alice and Bruce King Educational Complex
- City Center replacement of electrical distribution completed through Phase III

***Energy Conservation Program Update and Highlights***

- Summary of Water and Energy Conservation Committee
- District's energy goals are ambitious
- The Energy Team has realized energy conservation success
- Data drives the Energy Team's work
- New Energy Center became operational
- Utility submeters installed in new buildings are identifying problems
- Photovoltaic panels were installed at 10 sites
- District received AEE Region IV Institutional Energy Management Award
- APS recognized as a Better Buildings Challenge Partner and presented at the annual summit
- District systematically improved boiler efficiency by 11.3% per boiler
- Internet enabled controls were installed at select school sites
- New design standards for solar water heaters in new construction were adopted
- Powered down electricity during spring and winter breaks saved $95,760
- Consolidation of summer school saved $345,840
- Replaced inefficient heating and cooling controls in portable classrooms
- PNM recognized (awards) APS in two energy savings categories
- PNM sponsored Building Tune-Up program launched at five locations
- APS captured $188,201 in PNM rebates
- Natural gas, electric, and water usage held steady
- Community's facility use program helped recover approximately $300,000 in operation costs

***The following is presented in this 2016 Year End Report (continued)***

- Community summer programs consolidated
- M&O negotiated a sizable reimbursement from water utility
- Reduced irrigation surcharges by 30%
- In spite of using more water, APS paid less
- M&O working with FD+C on irrigation systems at new construction sites
- Gray water system was installed at Alameda Elementary School
- APS earned $9,704 through ABCWUA rebate programs (new construction sites)
- Waste Management sponsored program saved 750 tons of recycled materials
- Alice and Bruce King Educational Complex paper recycling program saved materials and costs




### *Energy Conservations Education Initiatives*

- Energy conservation is included in schools' curriculum
- Conservation and Education Specialist participated in the development of the Energy Center
- M&O "EnergyWise" brochure was drafted and published
- Conservation and Education Specialist guest taught in classrooms
- Two teacher workshops taught "teaching energy conservation"
- Del Norte High School received National Energy Achievement Award
- Conservation and Education Specialist directed summer hibernation campaign

### *M&O Department Highlights*

- Profiles, fiscal year accomplishments, and future goals presented for M&O's eight service departments

### *Facing Ongoing Challenges and Looking Ahead*

- Operational budget cuts will continue to be challenging
- Recruiting skilled workers is out of reach
- Lowering Peak Demand Charges critical
- Make current energy and other programs more sustainable and automatic
- Focus on preventive maintenance
- Close the gap between all work orders and job completion
- Continued support of the APS Academic Master Plan

# OPENING STATEMENT

*By* **John Dufay, Executive Director of Maintenance and Support Operations**

This is the eighth consecutive M&O Year End Report — astonishing to me as our keeping the stakeholders abreast of the workings of M&O on an annual basis started on a whim. During the 2008-09 fiscal year, I was hit with the notion that M&O accomplishes a great deal of work and has many challenges *every* year and it has not been documented. This thought was not of the usual fleeting variety as once planted I couldn't seem to let it go. After a great deal of deliberation, I determined that it might well be a worthwhile endeavor to gather and record the next year's work activity to include quantitative data (hard numbers); qualitative data such as management decisions and methodologies; current and ongoing challenges; and success stories.

While the exercise of collecting data certainly added to M&O's already massive amount of work, the process and results were so enlightening that the effort has repaid more dividends than we could ever have imagined. Each Report clearly indicated where we needed to focus and drive M&O's efforts and resources in the immediate following year as well as set real goals for the upcoming years. The first (2008-09) Year End Report provided M&O leadership with an ***upward*** flight path (a roadmap) to replace the imperfect and incomplete forward endpoint of simply completing work orders. This shift has resulted in every subsequent Report since 2009 being demonstrably more useful than its predecessor. Each year's process of pulling together the document has raised the bar on M&O's performance, goals, accountability, data, and expectations — both internal and external.

M&O's new upward trajectory notably shot way up in the 2011-12 fiscal year when our approach and perspective turned the corner in thinking deeper and broader about our work. It required taking this big and unwieldy ship that is M&O, and turning it around without turning it over. It was time to work a lot smarter and with an analytical assessment of the future, both near and distant. We fully appreciated that it was going to take time as there were many components to M&O's conventional history and "the way it has always been done." A long standing culture of entrenched attitudes and work order habits do not shift overnight. We started with small budges that grew to big swings that eventually resulted in quantifiable and dramatic improvements for the betterment and benefit of the schools, students, M&O personnel, and the District's fiscal outlook.

After reviewing data and focusing on our mission, M&O's emphasis has shifted to the students' education needs and achievements, no longer just completing work requests. Our understanding is sharper and our ship's direction has successfully shifted course. "Fixing what's broken" is now just one cog in the much larger collection of interconnected wheels representing M&O's management and strategy. The "this broke, lets fix it" mentality is totally reactive and excludes critical thinking and planning. Below is a summation of Year End Report themes and most meaningful initiatives since we successfully turned our ship around in 2012 ***and continues to be our focus every year***.

■ **2012: Renewal of Old Quality for 21st Century Learning**

Nationwide public urban school districts are faced with antiquated school buildings replete with poor air quality, insufficient lighting, and failing cooling and heating systems. Deficient classroom conditions are inimical to learning and dispiriting to students and their teachers while the funds to refurbish them are dwindling.

The 2011-12 Report featured the District's many old yet magnificent schools. Like much of the rest of the country, APS also has some aging schools, *but* in APS' M&O we "get it." We appreciate that in order for APS to meet its commitment to student success, we must do our part at M&O. However, that does not mean disposing of all that is old and replacing it with new. On the contrary. APS has a large collection of quality old schools well worth preserving; 44.7 is the average age the District's schools. Whether infused with architectural elegance, or solidly constructed to withstand the rigorous use by hundreds of thousands of students over the span of 50 plus years, these old but still vital facilities are an asset to the District, area communities, and most importantly,

the student population. They stand straight and sturdy because APS has fortunately been able to stay ahead of the eight ball in maintaining and thus *preserving* older functioning schools. The preservation of these old gems is credited to the talented M&O crews across all service departments, as exemplified in the 2013 Year End Report.

### ▪ 2013: Men and Women at Work

As there is no sustaining aging but stately schools or performing general maintenance throughout all schools without qualified and steadfast technicians, the 2013 Report honored the extraordinarily knowledgeable, skilled, and dedicated technicians that value and fully embrace being part of the education team. They know that when lights go out in a classroom wing, it is not darkness they resolve; it is the continuation of the instructional day that they immediately restore. This instilled *support of education culture* — the soul of M&O — that flows down from leadership is embedded in every crew and manifested in every job; it is what separates our tradesmen from others who perform the same jobs elsewhere.

***Cutting-edge technology demands sharper crews and technical professional development.***

It cannot be overstated — today's M&O technician is no longer a person with a tool belt and lunchbox, because today's schools are no longer comprised of classrooms with a chalkboard and desks lined up in neat rows. APS' techs have advanced from those who simply repair what is faulty, replace what is beyond repair, and clean what is soiled. As schools have evolved from basic classrooms to extensive sites with performing arts centers, science and computer labs, and more, M&O technicians have kept pace with the schools' steep ascent in complexity and technology.

By necessity, today's M&O technicians continually expand their knowledge and skills in staying current and in step with evolving technology and innovations. Yes, APS techs still pound nails with hammers and expose buried plumbing systems with shovels, but they now also pack an electronic tablet to track their work orders, materials, and hours; communicate with each other, the schools, and vendors in a timely fashion; bypass auto controls in increasing lighting at school gyms for a special event; or rev up a heating system to prevent pipes from freezing. Technicians are as 21st century tech savvy as they are tool competent and becoming more so every day. Their ongoing professional development is in support of the education process, first and foremost.

**M&O Employee having a blood pressure check**

### ▪ 2014: It's All about the Kids

As all other Year End Reports, the summary of M&O's achievements accentuated that it's *really* not about maintaining the physical schools and all the parts that keep them humming, but rather *it's all about supporting the education process that keep the students humming*. Numerous studies understandably and indisputably support the importance of well-maintained school facilities in the advancement of student performance. Research reveals that student achievement is measurably improved by adequate indoor air quality; comfortable temperature; proper lighting; appropriate acoustical conditions; and adequate classroom size to accommodate students comfortably.

The 2014 Report also underscored the importance of "the village" in APS providing viable schools to our future leaders — the students. Village members include the taxpayers who more often than not vote in favor of tax levies that provide the Capital dollars which M&O depends on; the Facilities Design + Construction Division that designs and erects the schools; M&O staff who indefinitely inherit the facilities in preserving the real estate assets and protecting the occupants and users; and contractor partners who play a vital role in tackling large, specialized, and urgent projects *now*.

The diversity of contractor partners has broadened substantially as the District has advanced from simple classroom spaces to technology based environments replete with cutting edge mechanical systems and computer and digital-driven teaching methodologies outlined in the 2015 Report.

- **2015: Energizing Education**

The "Energizing Education" theme of the 2015 Report encapsulated the many programs that dramatically stepped up support for education *while* conserving precious natural resources and costs. The 2014-15 fiscal year was a groundbreaking period for M&O. Bold ideas, new practices, and complex technologies that were adopted years ago all picked up momentum independently as well as started to work together. The diverse and many components of M&O all began to flow in the same direction.

This issue also summarized the reality of how dramatically schools and students have transformed in the last 10-15 years and how M&O and APS have adapted to these realities resulting in APS' school facilities that have grown in complexity and sophistication. The widely diverse student population, representing an array of family classifications, no longer travel a linear education journey free of transitions and setbacks. Lastly, schools have become evening and weekend community hubs in addition to education sites utilized during the traditional school day. To accommodate these many changes, M&O has transitioned from a straightforward maintenance function to a multifaceted facilities management operation that includes cutting-edge technology (electrical and mechanical systems), and data control; energy conservation programs; state-of-the art monitoring and tracking software; astute facilities use scheduling; and more. It has presented endless new challenging and exciting opportunities to meet rapidly evolving educational needs never imagined by the M&O management teams of yesteryear.

**Truman Middle School**

## M&O'S MOST CONSEQUENTIAL ACHIEVEMENTS AND ONGOING PROGRAMS

The following summarizes M&O's key initiatives and progress to date. New programs are launched and improvements are introduced to these existing programs annually. Note that this is only a representative sampling as a comprehensive summary of all achievements and challenges would be voluminous.

***Significantly advancing data and information management***

Productivity records and data of all types are compulsory to managing M&O as decisions should largely be data driven. M&O data includes a suite of information (various assortments of matrix and stories about the schools and condition of the schools) that enables leadership to take a holistic approach in maintaining each site. Having a broad vision and a good understanding of the value of data in both facilities maintenance and operations work is critical to support schools and students' academic success. Data are produced by SchoolDude, FMARS, high tech energy use monitoring systems, and other tools. Collectively, it is an information toolbox offering the proper tool for each job.

However, this vast collection of data starts out as just numbers that do not necessarily mean anything and certainly is not yet a useful tool — we need to make it mean something. As information expands and grows, the need to expand the analytics also increases. In recent years, M&O greatly advanced the process of controlling and interpreting the plethora of data and creating benchmarks. It is so much data that unless controlled, it can actually be contradictory. This new elevated process eliminates speculation and gets to the crux of the problem in aiding us to make sound business practices and decisions. We're finally looking at a truthful representation of *now,* no longer following only best past practices or other theories that we thought were good based on intuition.

M&O's use and design of Dashboards is imperative in providing a representation of *now*. Dashboards provide at-a-glance views of key performance indicators relevant to a particular objective or business process. Dashboards help management to plainly see current data regarding work order details (status, schedules, materials, labor, and subs). With this real time information, time and effort saving decisions can be made on a daily basis regarding the prudent use of valuable resources and the need to make scheduling or scope-of-work changes. Having real time information allows management to make real time decisions about the District's routine, preventive, and deferred maintenance scheduling and needs. *(See Dashboard examples on pages 98 and 99 in Appendices.)*

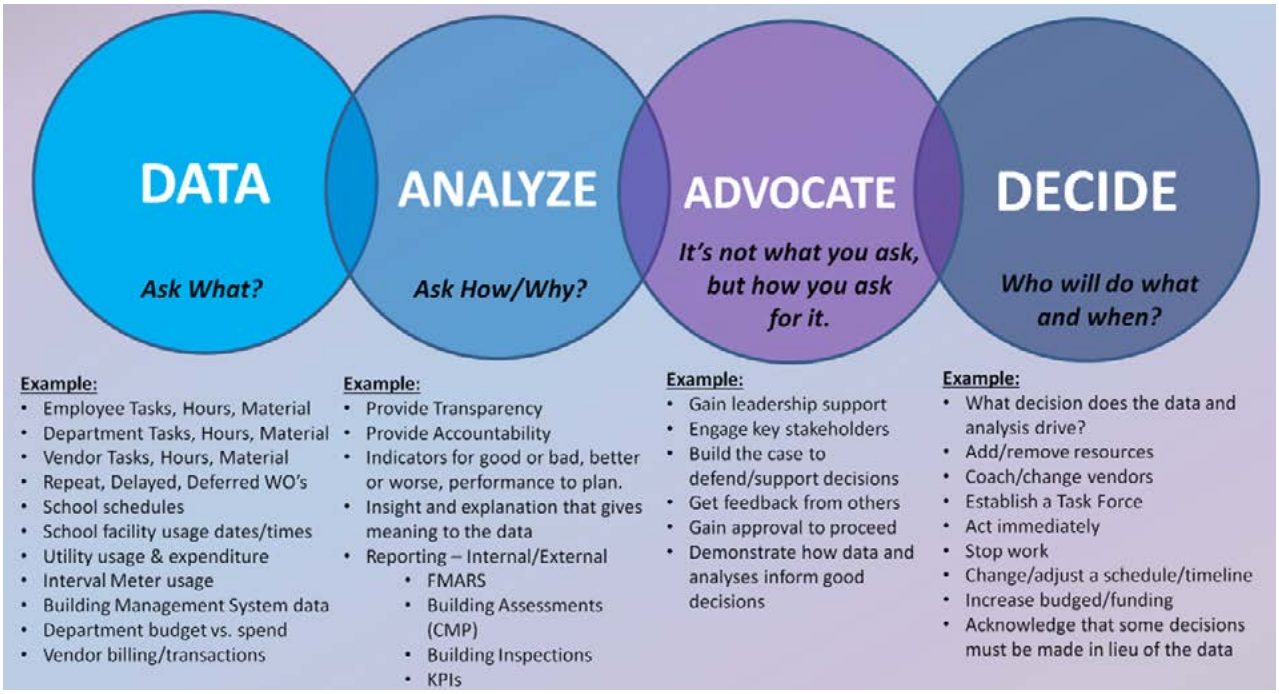
M&O is also working closely with SchoolDude and Public School Facility Authority (PSFA) in fine tuning facilities' maintenance software program to provide the most accurate, pertinent, and useful data possible. Additionally, PSFA and M&O are developing some informative custom dashboards for M&O Craft Shops to use and monitor their progress and productivity.

***A respect for and mining of cutting edge data is impacting a culture shift within M&O***

The understanding and accurate interpretation of data provides leadership with the necessary information to make sound decisions and advocate for the funds or other essentials necessary to carry out those decisions. M&O managers are learning how to use data in defending their proposed new approach to various unique situations and needs. As they learn, they are asked to build a case and support the "whys" with each request for new equipment or procedural change. Managers are learning to use data for advocacy in addition to information; to outline precisely what backs up (advocates for) their decision. The soundness of each case speaks to the manager's confident accountability in executing his or her proposed plan. Thorough case building is becoming a standard operating procedure for each manager to observe in petitioning for their needs in serving the District, and will stand the transparency test that all public institutions should have to pass.

## DECISION MAKING PROCESS

APS M&O enables a data driven culture. It is often not "what" leadership asks for, but rather "how" and "why" it is requested.




***Focusing on preventive maintenance (PM) is an investment in APS***

Because the positive "investment ratios" of preventive maintenance is indisputable, PM is one of M&O's greatest strengths. It goes without saying but is worth shouting, the sooner an asset can be repaired, the less it will cost for general maintenance and the longer the system will last, saving costs during reliable use, and of course, the exorbitant cost of total replacement due to complete failure. PM provides the greatest return on investment (money, time, effort) and benefit to students. For New Mexico's public schools between 2007 and 2013 (most recent findings), the costs per preventive maintenance work order decreased 40.51% and the cost per reactive work order decreased a spectacular 55.88%! As APS' PM program has grown, breakdowns have become smaller and more manageable; large repairs have reduced dramatically; emergency calls have become fewer; and major repairs are now infrequent and less serious. Preventive maintenance work is saving time, natural resources, costs, as well as extending the lifecycle of equipment and systems.

***Tackling deferred maintenance (DM) head-on***

APS' M&O preventive maintenance program focuses on minimizing the deferring of maintenance to a later date when deterioration is worsened and repairs more costly. Historically, lacking adequate funding for deferred maintenance can force districts into a systemic cycle of making limited repair/replacement choices. Regrettably, this only increases the problem until adequate funding is available which in many cases does not happen. This is a ruinous cycle that M&O has worked tirelessly to control at APS.

Since 2007, APS' M&O leadership has focused on resolving the high priority DM problem with *sustainable* funding, as throwing a onetime funding cycle at DM is not a resolution. Deferred maintenance is a reoccurring, ongoing expense, not a onetime event. After 2007, M&O was granted funding for several identified DM projects, but a truly meaningful victory was realized in 2013 when DM was finally classified as a broader definition line expense in the Capital Master Plan. A line item budget allocation provides more flexibility in DM work getting addressed and completed quickly. The previous project listing was quite restrictive and time delayed. In joining forces with Facilities Design + Construction in recent years, DM projects are now included in remodels and rebuilds in economically and efficiently combining several jobs into one.

***Celebrating and supporting M&O employees***

The education process would quite simply not happen without the many technicians that keep the schools comfortable, operational, and safe. And because technicians take care of APS and its students, M&O must take care of them. Manufacturer provided equipment and materials-specific professional development has greatly stepped up for technicians as well as in-house SchoolDude and technology training.

***APS also encouraging employees to take care of themselves***

M&O has also teamed up with the APS Wellness Program and Blue Cross Blue Shield of New Mexico in designing and launching a wellness and health conscious culture specifically for M&O's vital and hardworking employees. It is a major initiative nurturing safe, healthy, productive, and happy employees.

***Refining cost recovery program in continuing to serve community needs***

While APS welcomes the community to use the schools, M&O has to be responsible, not cavalier, of that use. Operation at night and weekends is not free. All operational costs (custodial, supplies, heating, cooling, electricity, and water) escalate when schools are used outside of daily school hours, but the allocated operation funds remain the same. The District implemented, and regularly fine-tunes, a cost recovery program that strategizes conservation and scheduling usage.
Rental fees are considerably less (75-80%) than equivalent commercial space, and non-profit entities may qualify for a further discount, depending on the purpose.

***Initiated a 'root cause' investigation***

M&O initiated a practice that brings together applicable players to discuss and root out the cause of issues regarding a problematic system or piece of equipment. As these individuals meet each time the cause of an ongoing problem has not been determined, glitches are not left to fester and become quite pricy.

***The Energy Conservation (EC) Program has steadily broadened in reaching ambitious goals***

APS' energy conservation efforts began many years ago with attention to behavior efforts and replacing high energy HVAC and lighting systems with energy efficient alternatives. And the various conservation programs have certainly gained momentum and in number with every year. However, since the founding of the Water & Energy Conservation Committee (WECC) in 2013, the District's EC program has grown by leaps and bounds. This has included partnering with the gas, electric, and water utilities; industry leaders; the schools and students; and applicable governmental entities in consolidating all the variables of energy sources, consumption, and education into one comprehensive energy picture that can be managed.

Driven by WECC since 2013, APS' numerous energy efficiency programs have evolved from a holistic recognition that every drop of leaking water could develop into a large lake, and an infinitesimal amount of wasted electricity can add up to enough wattage to power hundreds of motorboats speed racing on that lake. WECC and the Energy Team have discerned that saving energy means getting down to the minutia of *every facet of energy* — the delivery systems; the controls on those systems; the users (building occupants) of the systems; the technicians who service and repair the systems; the systems' design as well as the design of the space the systems cool and heat; when that space is in justifiable use and when the use can be redirected; when and how to most economically purchase the energy; and lastly but most critical to the sustainability of the EC program, participation of the entire energy literate APS populace. It is not only a consolidation of all the variables of energy and energy use, but also the consolidation of the information and education in creating one comprehensive energy strategy that ensures measurable results and cost savings. To date, the District is almost to the halfway mark in meeting its goal of *reducing net water consumption by 20% and net energy consumption by 20% by the end of the 2023-2024 school year as compared to an established 2013-14 school year baseline.*

**Seven Bar Elementary School**


M&O
M&O

# FACING ONGOING CHALLENGES and LOOKING AHEAD

***Operational budget cuts***

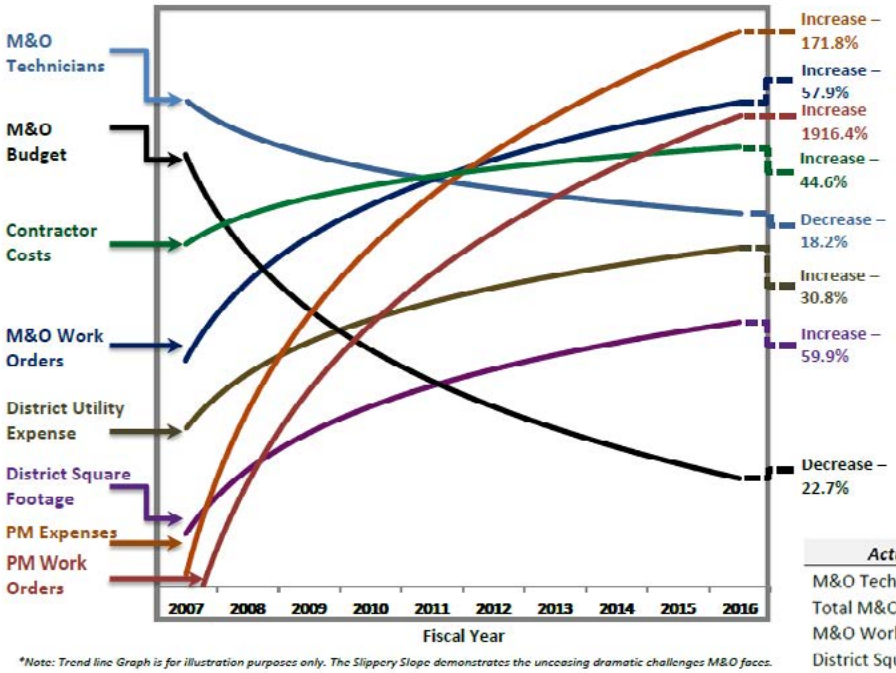
M&O's many ongoing challenges are going to intensify as Operational budgets get squeezed due to New Mexico's slow economic recovery and APS' stagnant student population. As with the past fiscal year, more stress and pressure on the limited available Capital SB-9 funding in 2017-18 is a foregone certainty. It means shrewdly doing much more with much less. With Operational (earmarked for salaries) budget cuts, some personnel vacancies are currently not being filled. As a result, M&O is increasing the use of subcontractors to perform routine as well as PM work that would ordinarily be carried out in-house. Consequently, M&O is challenged to stretch SB-9 funds for additional contractor responsibilities. Prioritizing projects has never been easy or simple, as all needed work is just that, ***needed***. Yet M&O will have to orchestrate an even more precise and targeted prioritization of projects and needed maintenance in the near future.

***Recruiting skilled workers is out of reach***

As throughout the nation, APS' M&O is also facing an aging work force that is getting ready to retire *and* a limited qualified pool to draw from in replacing them. Overall, the District easily competes with outside contractors (private industry) when the entire salary package is taken into consideration. Its generous employee and family health plan and permanent retirement pension plan is second to none. However, many job candidates will focus exclusively on today's take home pay in making job/work choices. In addition to losing these licensed tradesmen to local companies that offer a lesser total salary package for a higher hourly rate, HVAC technicians, plumbers, carpenters and other talented technicians are also leaving New Mexico for neighboring states with abundant construction and job activity that is lacking in Albuquerque, thus reducing the available workforce. The timing of losing highly valued tenured workers couldn't be worse and an issue management, and the industry, is grappling with every day.

As demonstrated by the following Slippery Slope Trends, this issue is not new to the 2015-16 fiscal year. District square footage, expenses, and work orders steadily surge upward, while the budget and employee count steady plunge downward. Every year M&O has integrated new cost and manpower inventiveness in navigating this contrary landscape of higher mountains to climb with fewer resources to get there. And the indispensable emphasis on increasing preventive maintenance makes for an even steeper climb.

## Slippery Slope Trends

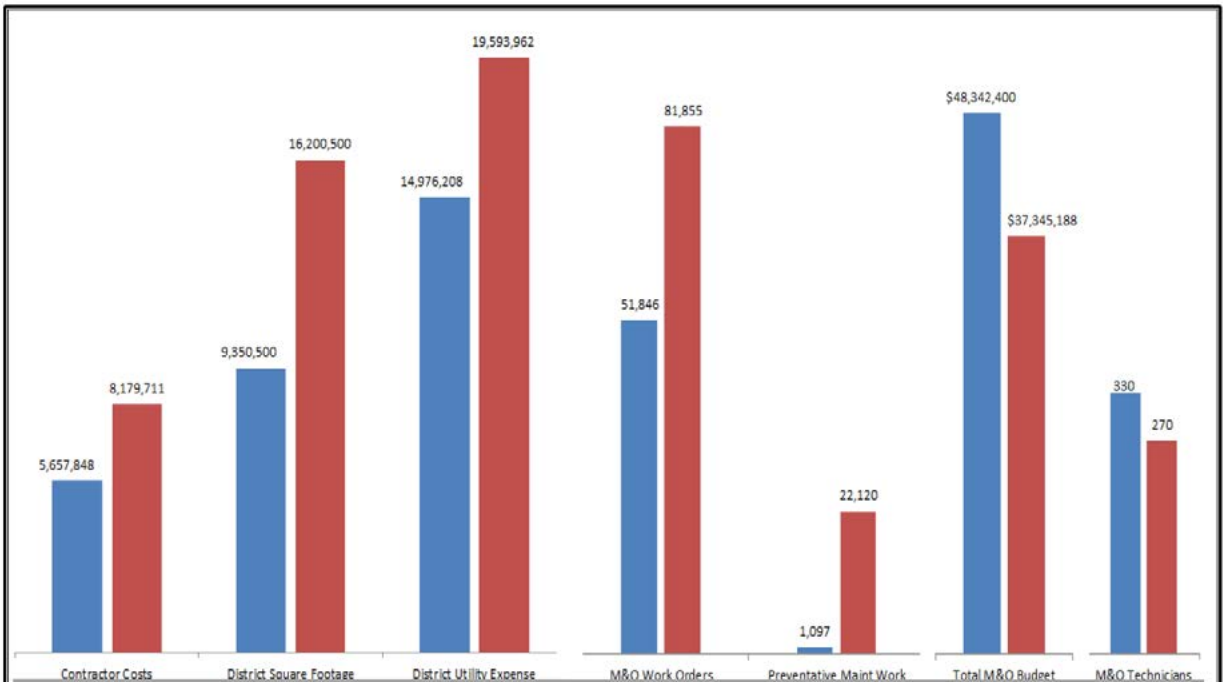



*Note: Trend line Graph is for illustration purposes only. The Slippery Slope demonstrates the unceasing dramatic challenges M&O faces.

| *Actual Slippery Slope Figures* | *2007* | *2016* |
|---|---|---|
| M&O Technicians (FTE's) | 330 | 270 |
| Total M&O Budget | $ 48,342,400.00 | $ 37,345,188.00 |
| M&O Work Orders | 51,846 | 81,855 |
| District Square Footage | 9,350,500 | 16,200,500 |
| District Utility Expense | $ 14,976,208.00 | $ 19,593,962.00 |
| Contractor Costs | $ 5,657,848.00 | $ 8,179,711.00 |
| Preventative Maintenance Expenses | $ 1,777,360.00 | $ 4,831,515.00 |
| Preventative Maintenance Orders | 1,097 | 22,120 |

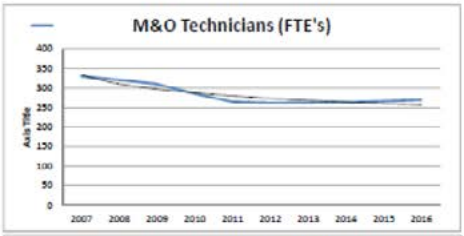
Fiscal Year 2007 -
Fiscal Year 2016 -

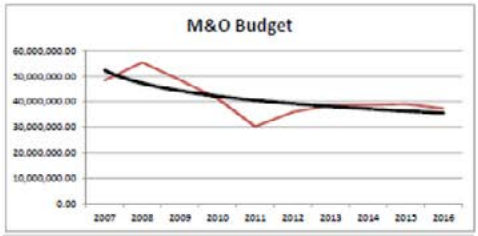
## Status Comparisons 2007 vs 2016

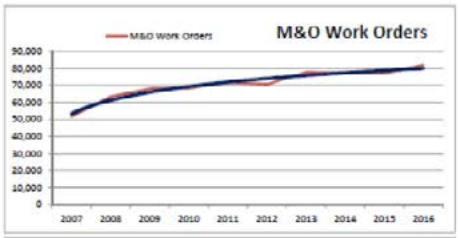


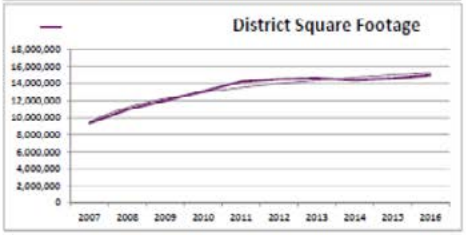

## Trends vs Actual

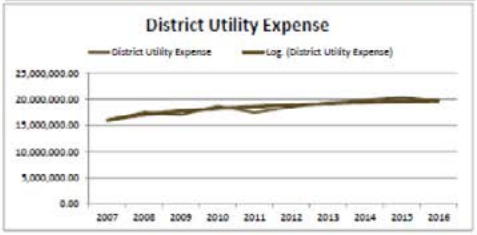
| Category | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | Difference | Calc | Percentage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M&O Technicians (FTE's) | 330 | 321 | 310 | 286 | 265 | 263 | 263 | 264 | 267 | 270 | -60 | -0.18181818 | -18.18% |
| M&O Budget | 48,342,400.00 | 55,391,208.00 | 48,564,786.00 | 41,227,836.00 | 30,327,780.00 | 35,966,909.00 | 38,573,538.00 | 38,655,311.00 | 39,063,004.00 | 37,345,188.00 | -10,997,212.00 | -0.22748585 | -22.75% |
| M&O Work Orders | 51,846 | 63,476 | 68,155 | 68,372 | 71,825 | 70,620 | 77,722 | 77,274 | 77,198 | 81,855 | 30,009 | 0.578810323 | 57.88% |
| District Square Footage | 9,350,500 | 10,975,700 | 12,010,152 | 13,105,100 | 14,207,533 | 14,517,582 | 14,624,261 | 14,402,956 | 14,590,750 | 14,954,427 | 5,603,927 | 0.599318432 | 59.93% |
| District Utility Expense | 16,077,245.00 | 17,544,235.00 | 17,075,949.00 | 18,729,353.00 | 17,498,237.00 | 18,510,534.00 | 19,427,970.00 | 19,731,093.00 | 20,363,696.00 | 19,593,962.00 | 3,516,717.00 | 0.218738783 | 21.87% |
| Contractor Costs | 5,657,848.00 | 12,507,300.00 | 12,668,557.00 | 12,879,675.00 | 9,185,818.00 | 8,586,811.00 | 8,829,460.00 | 11,492,672.00 | 9,269,360.00 | 8,179,711.00 | 2,521,863.00 | 0.445728305 | 44.57% |
| Preventative Maint Expenses | 1,777,360.00 | 1,877,807.19 | 2,630,634.15 | 3,740,583.86 | 3,846,665.05 | 4,854,266.63 | 5,507,883.84 | 4,175,210.18 | 4,035,528.32 | 4,831,515.00 | 3,054,155.00 | 1.718366004 | 171.84% |
| Preventative Maint Work Orders | 1,097 | 1,541 | 2,763 | 8,964 | 20,239 | 18,901 | 18,712 | 14,828 | 16,047 | 22,120 | 21,023 | 19.16408387 | 1916.41% |

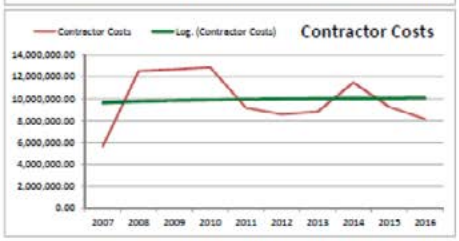


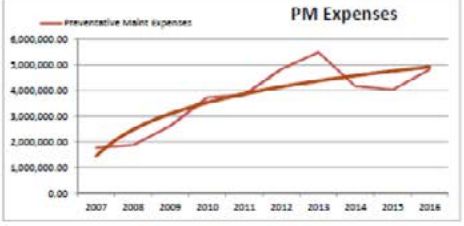



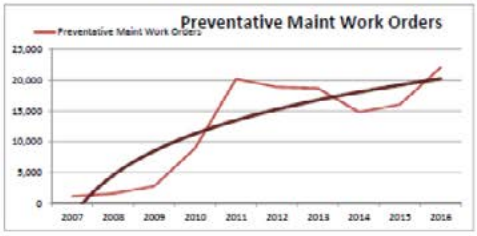



***Goals Looking Ahead***

As the following goals in tackling challenges are interconnected, corrective efforts will sometimes be integrated. It is important to stress that each year's activities build on what was initiated in the previous year. Next year's achievements will build on progress made in the current year; there is rarely a new "focus," rather a continuation of improvement and growth.

**▪ Lowering Peak Demand Charges a priority**

One of the top priorities for M&O going forward is to lower electric peak demand use and charges. The District has made progress but due to the new electric utility rate hike agreement between PNM and the Public Regulation Commission, controlling Peak Demand Charges is going to be more critical than ever as the new charge structure is implausibly even more cost punitive. This is a continuing challenge as the District's need and consumption intersect with the public utility's exorbitantly expensive peak hours. Staggering the start-up of HVAC equipment and utilizing improved scheduling programming in decreasing the surge of electric use has been successful in reducing demand changes, but as demand charges become more astronomically costly to M&O's diminishing budget, these strategies are not enough. *(See On-Peak and Off-Peak Consumption and Cost Summary on pages 106-107 in Appendices.)*

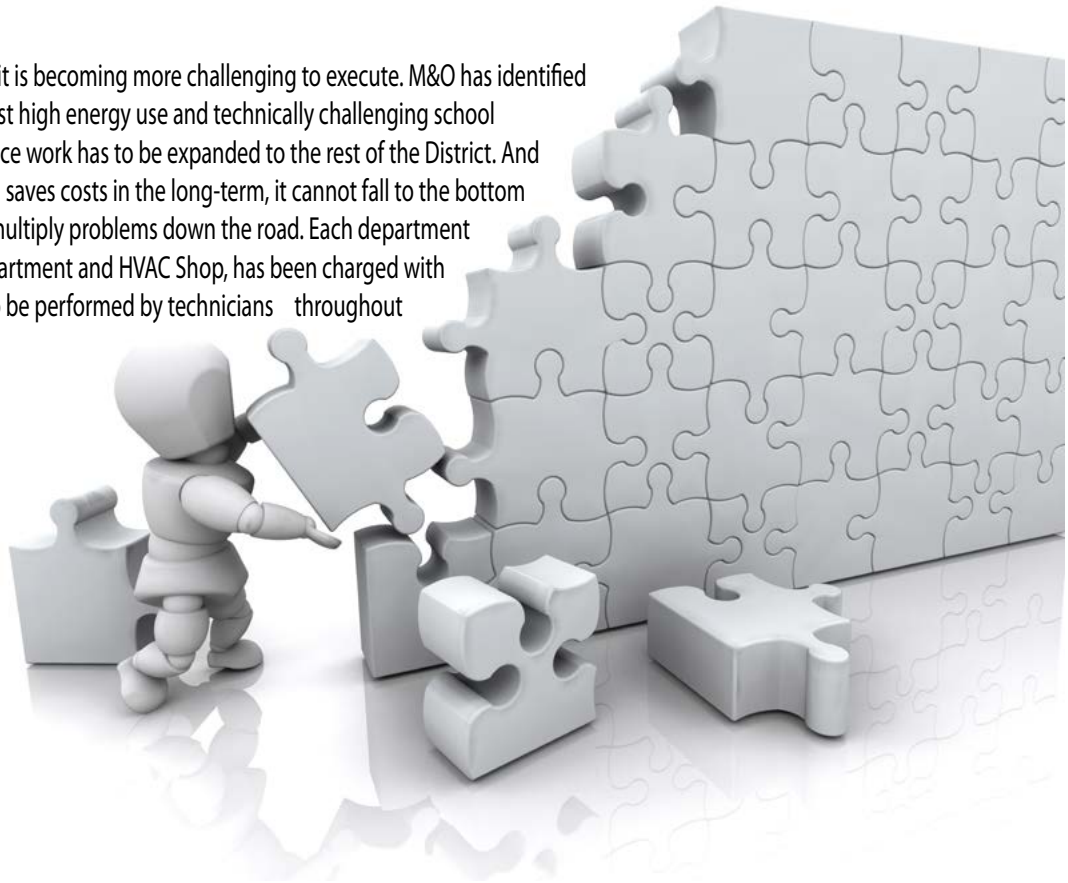
**▪ Make current energy and other programs more sustainable and automatic**

M&O has steadily introduced new time, money, energy, and effort saving programs, as summarized in this and previous Year End Reports. Many of these programs have been fairly economical and delivered an almost immediate return on investment, and many have been complex requiring a higher start-up investment that promises long-term savings. All new programs and practices have been prudently evaluated and strategically implemented.

It is now time to make these current programs more sustainable and automatic. This will require keen monitoring and the fine-tuning of sophisticated new systems and, when necessary, modifying programs to work at their full potential with no waste of resources. The focus will shift from integrating new approaches to perfecting existing practices. Introducing new programs will not be stopped, only slowed, as M&O will continually be open to new ideas and concepts that improve efficiencies and better support academics. And as discussed above, much of M&O's energy focus and resources will be in reducing costly electric Peak Demand Charges.

**▪ Focus on preventive maintenance**

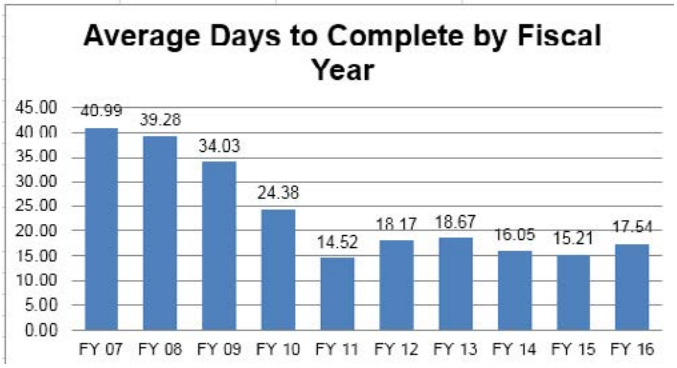
While *attention* to PM has never waned, it is becoming more challenging to execute. M&O has identified much of the low hanging fruit at the most high energy use and technically challenging school facilities, now this preventive maintenance work has to be expanded to the rest of the District. And regardless of today's cost to do so, as PM saves costs in the long-term, it cannot fall to the bottom of the challenges heap as this will only multiply problems down the road. Each department manager, in particular the Electrical Department and HVAC Shop, has been charged with identifying more sustainable PM work to be performed by technicians throughout the course of a typical work day.



**▪ Close the gap between all work orders and job completion**

As illustrated on the bar graph below, M&O has maintained a pretty consistent downward trajectory in closing all work orders faster, until the 15.3% increase in time in 2015-16. Completing work as quickly as possible, *while causing no disruption to the instructional day*, is critical to overall productivity, both students' and M&O personnel. All Craft Shops aim to return to completing the collection of all work in a timely fashion in the 2016-17 fiscal year.

**ALL Work Orders (projects, routine maintenance, PM)**




**▪ Continued support of the APS Academic Master Plan**

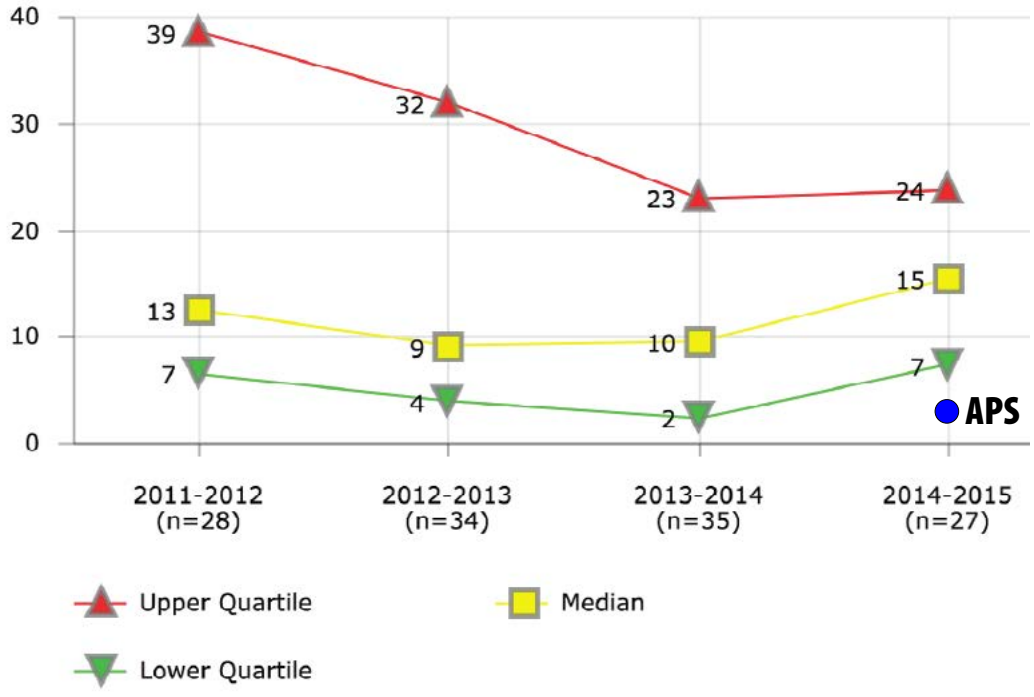
This Report covers a lot of ground regarding the maintenance and operations of the District's schools, but irrespective of the nature of M&O's diverse work outlined here, it is *all* about APS' purpose — *educating students*. M&O employees never lose sight of this indisputable fact. And regardless of the ongoing challenges faced by leadership, solutions will never compromise the quality of students' learning environment. *(Note M&O's work in support of the APS Academic Master Plan on the following page.)*

**▪ Stay connected with the schools**
***(from the Executive Director, John Dufay)***

In the 2016-17 year, I am continuing to make site visits to schools and meet with every school Principal. I want them to know me personally, put a name to a face, and let them know that they are the reason for our existence. Together we tour the campus while they express their most pressing needs. I also enlighten them about how M&O and their staff can work cooperatively in keeping their school operating smoothly. Every Principal is given a copy of the most recent M&O Year End Report to learn all that is currently planned and in progress regarding major maintenance and upgrades at their school. *Onward and upward!*

As noted in the graph below, APS's M&O average number of days to complete routine maintenance is an impressive five days, one of the fastest in the nation according to the *2016 Managing for Results* survey findings published by the Council of Great City Schools. *(See CGCS's national survey results pertaining to urban schools' performance of maintenance and operations functions in the Appendices starting on page 120.)*

**AVERAGE DAYS TO COMPLETE ROUTINE MAINTENANCE WORK ORDERS (urban schools nationwide)a**



## Maintenance & Operations Work on Academic Master Plan

*The mission of the Maintenance and Operations Division of APS is to partner with the schools in creating environments conductive to student success by providing purposeful, comfortable, aesthetic, clean, safe, and accessible learning and activity spaces in meeting academic achievement goals.*

| | In what ways does the work in M&O align to the goal? | Support provided: |
|---|---|---|
| **Goal 1: Early Learning**<br>Early learning begins with parents, is nurtured as children develop language and number skills in elementary school, and grows with students as they mature in supportive classrooms becoming adept at using these skills in a variety of contents. | • Provide age appropriate playgrounds separated by age zones so young students can experience outdoors comfortably and safely.<br>• Set up classrooms to accommodate needs of small students: suitable furniture size; low shelving; clean carpets for floor learning spaces.<br>• Recently expanded playground equipment-use training for schools. Playground Shop Supervisor provided classes to teachers regarding what to watch for in observing children playing on equipment; correct students' misuse of equipment; how to guide them in playing safely; and how to spot and report damaged equipment or a potential safety hazard.<br>• Cushion play fall surfaces with wood chips. | • Conduct annual playground safety inspections.<br>• Inspect fall surfaces annually and rectify issues in ensuring proper condition of protective fall surfaces (rake/add/amend wood chips and rototill, level sand).<br><br>**Support provided for all 3 goals:** |
| **Goal 2: College and Career Readiness**<br>Students acquire skills which support formal and informal life-long learning in order to adapt and remain productive through changing economic and job market landscapes. All students will be prepared for post-secondary opportunities (college and/or career) without the need for remediation. | • Provide students with properly maintained equipment and tools for safe hands-on educational training in auto shop, wood shop, art classes, and other industrial studies.<br>• Provide high school students with the opportunity to acquire practical work experience for course credit in transitioning them from school to the work environment. Transition Services and School on Wheels students have worked side by side with M&O technicians in performing real repairs, maintenance, and preventive maintenance inspections. A few examples include performing vehicle emissions testing in the Fleet Maintenance Department; working with wood and specialty tools in the Carpentry Shop; and learning key and lock skills in the Locksmith Shop.<br>• Involve teachers and students academically in M&O's efforts to meet ambitious energy conservation goals: M&O's Conservation and Education Specialist guest teaches in classrooms regarding energy resources and conservation efforts; fosters Building Buddies teams at schools (includes hands-on teacher and student curriculum aligned to Common Core Standards); invites students to the Energy Center to learn how to interpret data and information collected by the Center from the energy-use web-enabled database that tracks schools' energy use and performance; launched student intern program in 2015-16 that offers academic credit for working in the Energy Center (among other student programs that prepare students for STEM education or careers).<br>• Support of the Carl D. Perkins Vocational and Technical Education Program (in culinary arts) by constructing the appropriate instructional space as well as the installation and continued maintenance of kitchen equipment. | • Ensuring the safety of students and staff is M&O's first and foremost priority.<br>commodate curriculum as teaching methodologies change.<br>• Remodel and modify environmental conditions to meet students' fluctuating needs, most notably upgrading electrical infrastructure and capacity for ever expanding technology in classrooms, computer labs, and unique learning spaces such science labs and Performing Arts Centers.<br>• Consult with architectures, engineers, and building contractors with regard to selecting and installing equipment and systems that best serve the comfort needs of the students and teachers.<br>• Cultivate a culture of the timely performance of repairs in avoiding loss of instructional time.<br>• M&O services every square foot of APS (schools, administrative facilities, support sites, and stadiums) in support of the edict to provide quality education.<br>• Adapt learning spaces to accommodate curriculum as teaching methodologies change. |
| **Goal 3: Developing the Whole Child**<br>APS will ensure each child is safe, engaged, challenged, and supported through programs and practices focused on removing social, emotional, and physical barriers to learning and increasing health and literacy. | • Eliminate all that could be a distraction; ensure clean, safe, comfortable, and aesthetically pleasing environments.<br>• In preserving the environmental quality of learning spaces, conduct OSHA and EPA mandated inspections of schools' air quality; facilities' materials; and domestic water systems and remedy found contaminants straightaway.<br>• Support summer student development activities at APS schools organized by the YMCA; Camp Fire; City of Abq; Rio Grande Education Collaboration; Kids Club House; Children's Choice; Boys and Girls Club; YDI, and others.<br>• Support facility use of APS' numerous 'before and after' school (and weekends) student enrichment, parent, and communicty school partnerships (reading and other academic programs, family nights, and numerous outdoor athletic programs and events).<br>• Support the Summer Garden Program as well as other outdoor classroom spaces.<br>• Support students with disabilities in installing occupational and physical therapy equipment and provide audio enhancement in classrooms and accessibility to the same playground and learning schemes afforded to all students.<br>• Worked hand-in-hand with IT Division in modifying testing spaces to accommodate standardized testing without taking out learning spaces.<br>• Facilate and maintain Camp Gallagher, a mountain refuge and experimental extension of the environmental studies classroom as well as Sandia Mountain Natural History Center (jointly operated by APS and the New Mexico Museum of Natural History and Science).<br>• In collaboration with Alb. and N.M. Environmental Health Departments, APS Nursing Services, and APS Food and Nutrition Services, established a District wide norovirus response protocol and facilitate corrective action. | |


M&O
TMS870B

# OVERVIEW OF MAINTENANCE AND OPERATIONS

M&O's responsibility is facilities management and the vast majority of properly managing a school district's facilities (from schools to administrative sites) is maintenance. It is a straightforward notion that requires a multitude of complex considerations and approaches, as portrayed throughout this Report. Following is a brief overview.

**No cookie cutter solutions**

When a solution is relevant to more than one facility, of course it is applied wherever it fits, however this practice is not typical as there is no typical APS school; every school is unique. M&O faces the growing challenge of maintaining a large collection of old but unique and treasured schools. Older buildings have developed modularly over time and are not easily adaptable to meet current needs. A 1920s era school may have gotten an addition in 1950, which in turn got an addition in 1970, and yet another addition in 1990. The task of caring for these old school buildings, some of which are historically or architecturally significant, at a level that supports contemporary instructional practices that meet the needs of 21st century learners is substantial. These buildings also face age-related issues such as less efficient HVAC systems that require more attention in ensuring a comfortable indoor climate and keeping utility costs down.

Conversely, maintaining the finely tuned workings of new, more technologically advanced facilities also demands considerable expertise and commitment. While the construction of new school facilities certainly support today's high tech teaching methodologies and technology savvy students, even a sparkly new building may have problems with inadequate air circulation which can lead to indoor air quality problems unless remedied. Also, the complex "smart" HVAC and electrical systems require a great deal of tweaking to operate as designed and efficiently.

**Smart planning / strategizing critical**

While the concerns differ, issues with the schools — regardless of age, type, or size — arise daily and must be addressed ***daily*** as to delay invites worsening conditions. Considerable capital investment is squandered when buildings and equipment deteriorate, or warranties become invalidated. Failing to maintain school facilities adequately also discourages future public investment in the education system.

M&O does not cut corners in proactively assessing needs, forecasting, and developing and implementing a plan in preparation of meeting the challenges of effective facilities maintenance. It is simply too big a job to be addressed in a haphazard fashion. A sound facilities maintenance plan serves as evidence that school facilities are currently and will continue to be cared for appropriately while not losing sight on the long-range fiscal outlook of the District. Because facilities maintenance planning is constrained by real world budgets, M&O must often think in terms of trade-offs. Management must frequently weigh routine tasks against preventive maintenance that pays off over the long run, as well as be prepared for emergency responses to broken air conditioners, cracked water pipes, and severe snow storms – all with unknown price tags.

**We're all in this together**

The difficult job of planning for school building maintenance is most effective when it relies upon up-to-date information about the condition and use of buildings, campuses, equipment, and personnel. As such, staff members who are intimately involved in the day-to-day assessment, repair, and maintenance of school facilities must also play an active role in the facilities maintenance planning process. Yet facilities maintenance planning is not solely the responsibility of M&O. Effective planning requires coordination of resources and commitment between M&O, Capital Master Plan, and Facilities Design + Construction.

**Preserving facilities is about supporting education**

School facilities maintenance is concerned about far more than resource management. It is ***all*** about providing clean and safe environments for children conducive to the education process. An appropriate and adequate physical setting is mandatory for learning. A classroom with broken windows and cold drafts does not foster student learning. And heating and cooling systems must work properly in maintaining a comfortable climate that fosters student and instructor alertness, attendance, and wellbeing.

**Eight service departments drive M&O**

M&O serves its important customers, the students, through the following eight departments: *Mechanical, Grounds, Structural, Electrical, Building Services, Fleet Maintenance, Environmental Management,* and *Support Services* (accounting function). The *Computer Network* function, *Energy Conservation* team, *Facility Usage Scheduling* function, and secretarial and clerical support staff complete the Division. The Materials Warehouse personnel and Alice and Bruce King Educational Complex maintenance function also report to the M&O Executive Director. *(See Organizational Chart on page 45 and Department Profiles beginning on page 46.)*

# M&O WORK ORDER TOTALS, BUDGET, AND EXPENDITURES HISTORY 2007 – 2016

### *Work order totals*

As shown below, total work order counts (reactive and preventive maintenance) steadily climb in keeping pace with the physical expansion of the District, most markedly between the 2015 and 2016 fiscal years. In spite of the steady growth in work, the average time to complete a WO has dropped by 41.7% since 2007 due to improved efficiencies, working smarter, and expedited paperwork processing.

| Fiscal Years | | 2007 | 2016 |
|---|---|---|---|
| All Fiscal Years | Total Work Orders | Total Completed | Average Time To Complete WO |
| FY 07 | 57748 | 51846 | 40.99 |
| FY 08 | 63464 | 57969 | 39.28 |
| FY 09 | 68143 | 62854 | 34.03 |
| FY 10 | 68360 | 62767 | 24.38 |
| FY 11 | 71813 | 63430 | 14.52 |
| FY 12 | 70608 | 65272 | 18.17 |
| FY 13 | 77709 | 70844 | 18.67 |
| FY 14 | 77262 | 71403 | 16.05 |
| FY 15 | 77186 | 70792 | 15.21 |
| FY 16 | 86835 | 81885 | 17.54 |
| Totals: | 719,128 | 659,062 | 23.88 |

***Notes:***

- *Unlike the Summary Cluster Report, these figures represent work (maintenance and project work orders) performed **throughout the District**, not just at schools.*
- *"Average Time to Complete WOs" represent the time between when the WO was opened and closed in the database, not the days to actually complete the job.*
- *Retroactive reconciliations of the SchoolDude FIMS' work order system are conducted as WOs change from "pending," "open," and "closed" status, consequently retroactively altering the historical figures reflected throughout this and previous Reports. FIMS is a dynamic, never static system.*

### *M&O budget history*

Following is M&O's budget history indicating a downward course in the allocated budget and number of full-time employees but the incongruent rise in total square footage and number of work orders needed to maintain that bourgeoning growth. APS has grown a massive 60% since 2007 and work orders have increased by 36.6%, yet staff has fallen 18.1%. In 2015-16, M&O endured a 4.3% drop in total budget over the previous year, in part due to the drop in student population as some students elect to attend charter schools. The New Mexico Department of Education funds public school districts utilizing a "per student" formula.

**M&O's Total Budget for Fiscal Years 2007 – 2016**

| Fiscal Years | Work Orders | Square Feet | M & O TOTAL BUDGET | Operational Budget | SB-9 Budget | Salaries OT & Benfits | School Sites | FTEs |
|---|---|---|---|---|---|---|---|---|
| 2007 | 57,760 | 9,350,500 | **$48,342,400.00** | $2,903,213.00 | $31,393,556.00 | $14,045,631.00 | 136 | 330.5 |
| 2008 | 63,476 | 10,975,700 | **$55,391,208.00** | $2,629,799.00 | $37,165,908.00 | $15,595,501.00 | 137 | 320.5 |
| 2009 | 68,155 | 12,010,152 | **$48,564,786.00** | $2,066,226.00 | $30,832,290.00 | $15,666,270.00 | 139 | 310 |
| 2010 | 68,372 | 13,105,100 | **$41,227,836.00** | $1,329,653.00 | $25,350,736.00 | $14,547,447.00 | 141 | 285.5 |
| 2011 | 71,825 | 14,207,533 | **$30,237,780.00** | $ 909,154.00 | $14,776,670.00 | $14,551,956.00 | 142 | 265 |
| 2012 | 70,620 | 14,517,582 | **$35,966,909.00** | $ 925,736.00 | $21,355,325.00 | $13,685,848.00 | 143 | 262.5 |
| 2013 | 77,722 | 14,624,261 | **$38,573,538.00** | $1,005,736.00 | $23,844,843.00 | $13,722,959.00 | 143 | 263 |
| 2014 | 77,274 | 14,402,956 | **$38,655,311.00** | $1,054,080.00 | $23,818,035.00 | $13,783,196.00 | 143 | 263.5 |
| 2015 | 77,198 | 14,590,750 | **$39,063,004.00** | $1,529,562.00 | $23,536,468.00 | $13,996,974.00 | 144 | 266.5 |
| 2016 | 86,848 | 14,954,427 | **$37,345,188.00** | $1,529,562.00 | $21,658,601.00 | $14,157,025.00 | 144 | 270.5 |

***Notes:***

- *Work order totals apply District wide, not just school sites.*
- *A few schools share one campus.*
- *The Operational, SB-9, and Salaries/OT & Benefits columns equal the M&O BUDGET column.*
- *The Budget allocation includes "carryover" monies from previous fiscal years.*

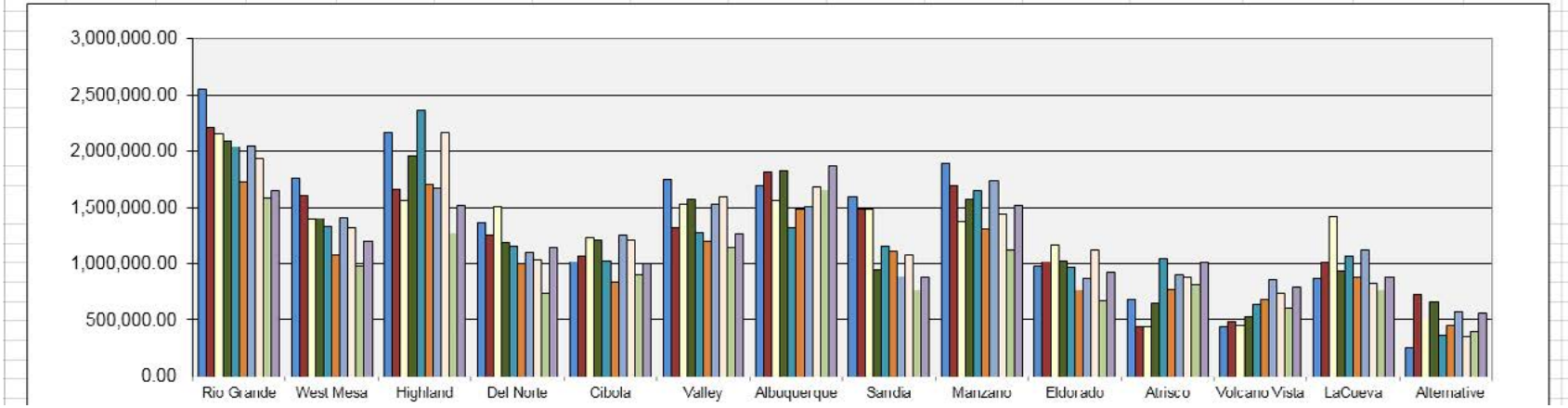
### *M&O expenditures by school cluster*

Following are expenditures by High School Cluster from 2007 through 2016. Figures apply only to work orders on school sites; the higher number of work orders and expense totals stated elsewhere in this Report represent M&O work for ***all*** District facilities and administrative costs. Detailed reports representing each Cluster can be found beginning on page 108 of the Appendices.

# M&O Expenditures per High School Cluster 2007 – 2016

**M&O Expenditures Per High School Cluster By Fiscal Years (Data applies to school sites only.)**

| | 1 Rio Grande | 2 West Mesa | 3 Highland | 4 Del Norte | 5 Cibola | 6 Valley | 7 Albuquerque | 8 Sandia | 9 Manzano | 10 Eldorado | 11 Atrisco | 12 Volcano Vista | 13 LaCueva | 14 Alternative | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FY 2007 | 2,560,773.36 | 1,761,450.91 | 2,176,408.70 | 1,363,664.81 | 1,024,119.71 | 1,750,422.54 | 1,696,274.63 | 1,596,107.36 | 1,889,713.12 | 976,927.45 | 682,114.66 | 446,305.64 | 872,666.89 | 263,211.27 | **19,060,161.03** |
| FY 2008 | 2,210,404.41 | 1,604,808.80 | 1,664,019.47 | 1,254,359.49 | 1,071,437.56 | 1,324,612.25 | 1,819,590.86 | 1,490,621.06 | 1,698,225.05 | 1,017,962.92 | 445,239.47 | 487,564.96 | 1,012,666.38 | 729,646.92 | **17,831,159.60** |
| FY 2009 | 2,157,903.06 | 1,399,556.10 | 1,571,355.44 | 1,504,688.36 | 1,234,137.54 | 1,534,660.59 | 1,570,097.51 | 1,482,744.17 | 1,370,659.08 | 1,170,309.81 | 443,115.00 | 458,389.74 | 1,420,779.77 | 512,814.28 | **17,831,210.44** |
| FY 2010 | 2,089,431.07 | 1,410,019.99 | 1,961,904.31 | 1,197,353.68 | 1,211,596.27 | 1,579,640.92 | 1,833,832.47 | 953,459.70 | 1,573,304.27 | 1,027,172.44 | 657,638.31 | 533,922.54 | 934,978.83 | 662,330.62 | **17,626,585.42** |
| FY 2011 | 2,043,876.46 | 1,335,700.52 | 2,364,077.98 | 1,167,505.64 | 1,027,473.36 | 1,287,339.19 | 1,328,910.01 | 1,164,875.29 | 1,649,310.92 | 968,170.48 | 1,049,826.20 | 645,018.65 | 1,067,423.80 | 358,388.91 | **17,457,897.41** |
| FY 2012 | 1,731,470.71 | 1,085,263.75 | 1,703,670.32 | 998,657.02 | 833,731.93 | 1,199,186.71 | 1,483,416.38 | 1,115,068.12 | 1,316,006.52 | 769,598.06 | 778,853.37 | 686,920.54 | 878,501.70 | 459,275.81 | **15,039,920.94** |
| FY 2013 | 2,055,026.09 | 1,410,991.87 | 1,681,795.26 | 1,100,283.41 | 1,254,255.57 | 1,541,387.18 | 1,504,331.13 | 890,055.81 | 1,734,472.28 | 868,675.45 | 906,900.57 | 854,158.20 | 1,126,498.86 | 575,179.38 | **17,504,011.05** |
| FY 2014 | 1,937,296.95 | 1,328,522.05 | 2,171,356.68 | 1,042,157.74 | 1,211,050.78 | 1,601,941.89 | 1,683,986.16 | 1,086,018.77 | 1,448,403.64 | 1,119,277.97 | 875,062.95 | 733,090.93 | 830,727.94 | 352,115.53 | **17,421,009.95** |
| FY 2015 | 1,588,061.04 | 980,861.60 | 1,277,137.66 | 741,457.49 | 913,996.51 | 1,138,031.09 | 1,655,100.79 | 766,329.30 | 1,120,085.62 | 673,437.29 | 823,033.63 | 603,663.92 | 766,801.48 | 399,962.89 | **13,447,960.30** |
| FY 2016 | 1,651,773.96 | 1,205,970.96 | 1,514,029.98 | 1,137,328.30 | 1,004,999.83 | 1,263,014.92 | 1,869,470.46 | 875,240.77 | 1,512,845.97 | 929,161.30 | 1,015,642.23 | 798,879.47 | 880,908.94 | 566,204.04 | **16,225,471.13** |




| Note: By Fiscal Year | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Sq. Footage** | 9,350,500 | 10,975,700 | 12,010,152 | 13,105,100 | 14,207,533 | 14,517,582 | 14,624,261 | 14,402,956 | 14,590,750 | 14,954,427 |
| **Total Students** | 87,805 | 88,821 | 85,689 | 88,820 | 89,136 | 89,168 | 89,602 | 86,555 | 86,549 | 85,487 |
| **Total Work Order** | 52,144 | 56,794 | 61,807 | 62,081 | 67,275 | 65,802 | 67,965 | 68,952 | 67,425 | 73,011 |
| **Total Expense** | 19,060,161.03 | 17,831,159.60 | 17,831,210.44 | 17,626,585.42 | 17,457,897.41 | 15,039,920.94 | 17,504,011.05 | 17,421,009.95 | 13,447,960.30 | 16,225,471.13 |
| Color Code for Fiscal Year | | | | | | | | | | |
| * Cost per square foot = | 2.04 | 1.62 | 1.48 | 1.35 | 1.23 | 1.04 | 1.20 | 1.21 | 0.92 | 1.08 |
| * Cost per Student = | 217.07 | 200.75 | 208.09 | 198.45 | 195.86 | 168.67 | 195.35 | 201.27 | 155.38 | 189.80 |

# INITIATIVES and DIVISION HIGHLIGHTS

## ▪ APS saved $2 million in PM work led by an automation of PM work order system

In effectively utilizing Maintenance Essentials Pro, a helpful feature of the SchoolDude facilities management software system, the District realized a savings of $2 million over the last five years in its preventive maintenance program. Maintenance Essentials Pro helps M&O manage more than 70,000 yearly (86,000+ in 2015-16) work order requests and recurring tasks on one platform, increasing productivity while saving at least 30 minutes per WO *and* supporting efforts to reduce energy expenditures. In working closely with SchoolDude, APS has enhanced its energy initiatives by tracking energy costs and usage for all of its facilities. The District has applied these saved monies to paint classrooms, add new playgrounds, modernize schools with new technology, and more. M&O will continue to work with SchoolDude to improve efficiencies within the evolving WO software program.

## ▪ M&O improving FMAR scores due to new PSFA provided opportunity

The New Mexico Public School Facilities Authority provided a new avenue for public school districts to improve their Facility Maintenance Assessment Report rating score per school by responding to the FMAR's Performance Level ratings below Satisfactory and/or Deficiency Factors using FIMS within 30 days of receiving the reports. The requirement is that work orders identifying the deficiency on the FMAR must be verified, corrected, and closed in order for an adjustment to be considered. APS gladly took advantage of this opportunity by immediately addressing Minor and some Major Deficiencies (repairs). The District's Facility Information Management System (FIMS) account revealed potential safety hazards or issues that could cause additional damage to facilities if left unattended at Ventana Elementary School. The following positive FMAR of Ventana Elementary is an example of M&O utilizing this 30 day window of opportunity to raise the condition of the school and M&O's performance.

| Area | Performance Items | Performance Level: Outstanding | Good | Satisfactory | Marginal | Poor | Deficiency Factors: Minor x 1.5 | Major x 3.5 | None | Performance Deficiencies: Weight | Performance | Deficiency | Calculated Score |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Site | Roadway/Parking | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 3 | -0.95 | 0 | -2.85 |
| | Site Utilities | ○ | ○ | ◉ | ○ | ○ | ○ | ○ | ◉ | 5 | -1.89 | 0 | -9.45 |
| | Playgrounds/Athletic Fields | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 5 | -0.95 | 0 | -4.75 |
| | Site Drainage | ○ | ○ | ◉ | ○ | ○ | ○ | ○ | ◉ | 8 | -1.89 | 0 | -15.12 |
| | Sidewalks | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 2 | -0.95 | 0 | -1.90 |
| | Grounds | ◉ | ○ | ○ | ○ | ○ | ○ | ○ | ◉ | 2 | 0 | 0 | 0.00 |
| Building Exterior | Windows/Calking | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 3 | -0.95 | 0 | -2.85 |
| | Walls/Finishes | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 5 | -0.95 | 0 | -4.75 |
| | Entry/Exterior Doors | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 7 | -0.95 | 0 | -6.65 |
| | Roof/Flashing/Gutters | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 10 | -0.95 | 0 | -9.50 |
| Building Interior | Walls/Floors/Ceilings/Stairs | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 3 | -0.95 | 0 | -2.85 |
| | Interior Doors | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 3 | -0.95 | 0 | -2.85 |
| | Restrooms | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 3 | -0.95 | 0 | -2.85 |
| | Housekeeping | ◉ | ○ | ○ | ○ | ○ | ○ | ○ | ◉ | 4 | 0 | 0 | 0.00 |
| Building Equipment and Systems | Electrical Distribution | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 3 | -0.95 | 0 | -2.85 |
| | Lighting | ○ | ○ | ◉ | ○ | ○ | ○ | ○ | ◉ | 5 | -1.89 | 0 | -9.45 |
| | Fire Protection Systems | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 10 | -0.95 | 0 | -9.50 |
| | Equipment Rooms | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 2 | -0.95 | 0 | -1.90 |
| | Heating/Cooling/Ventilation | ○ | ○ | ◉ | ○ | ○ | ○ | ○ | ◉ | 10 | -1.89 | 0 | -18.90 |
| | Air Filters | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 5 | -0.95 | 0 | -4.75 |
| | Kitchen Equipment/Refrig | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 2 | -0.95 | 0 | -1.90 |
| | Plumbing/Water Heaters | ○ | ◉ | ○ | ○ | ○ | ○ | ○ | ◉ | 6 | -0.95 | 0 | -5.70 |
| 8/2/2016 Maintenance Management | PM Plan | ◉ | ○ | ○ | ○ | ○ | | | | 10 | 0 | | 0 |
| | FIMS and Equipment Data | ○ | ○ | ◉ | ○ | ○ | | | | 7 | -1.89 | | -13.23 |
| | Staff Development | ◉ | ○ | ○ | ○ | ○ | | | | 5 | 0 | | 0.00 |
| | Maintenance Safety | ○ | ○ | ◉ | ○ | ○ | | | | 5 | -1.89 | | -9.45 |
| | Maint. Contractor Oversight | ◉ | ○ | ○ | ○ | ○ | | | | 5 | 0 | | 0.00 |
| | Facilities Mater Plan (Renewal) | ○ | ◉ | ○ | ○ | ○ | | | | 3 | -0.95 | | -2.85 |
| Total Performance Deficiencies: -146.85 | Total Score: 853.15 | | | | | | | | | | Overall Rating: | | 85.32% |

**Facility Maintenance Assessment Report**

2016 ALBUQUERQUE
001264 Ventana ES
○ Combined Schools Id 1:
Id 2:
FMAR_Date: 10/11/2016 Weather: Sunny and Warm 78 Degrees
PSFA Reps: Levesque Troy Tillotson, Larry
District Reps :

| Overall School Maintenance Rating | |
|---|---|
| Outstanding | 90.1% to 100% |
| Good | 80.1% to 90% |
| Satisfactory | 70.1% to 80 |
| Marginal | 60.1 to 70% |
| Poor | <= 60% |

| Deficiency Factors | | |
|---|---|---|
| Life Safety, Health or Property Loss Exposure Multipliers | | |
| Minor Deficiency | 1.5 | Potential Threat and No Work Order |
| Major Deficiency | 3.5 | ImmediateThreat and No Work Order |

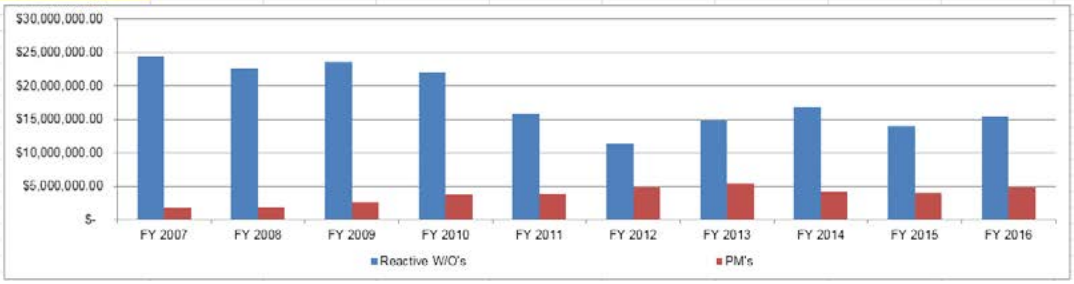
■ **M&O grew preventive maintenance work orders by 37.8%**

The District's preventive maintenance was on a relatively steady upward trajectory until the 2014 and 2015 fiscal years. Much of the drop during this two year period is more reflective of inaccuracies in SchoolDude data entry over truly performing less preventive maintenance work, as M&O has never let up in pushing the PM boulder up the mountain for the benefits are worth the effort. That stated, it is gratifying to see PM numbers return to an ascending momentum. In addition to PM work orders increasing by 37.8%, the PM work order count ratio is up 34% and cost ratio is up 31.2% over the previous year. M&O encouraging schools to be advocates for their facility and report issues (however small) so they are repaired before they escalate to a major problem or cause other issues, is credited for this positive development. School administrators and Principals are being more vigilant in reporting a little drip, a door that is hard to lock, or a window that does not open easily. They previously considered these mere irritants but now realize that small annoyances can worsen severely.

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reactive Work Orders | 56,663 | 61,935 | 65,392 | 59,408 | 51,586 | 51,719 | 59,010 | 62,446 | 61,151 | 64,728 |
| Preventive Maintenance | 1,097 | 1,541 | 2,763 | 8,964 | 20,239 | 18,901 | 18,712 | 14,828 | 16,047 | 22,120 |
| Total Number Of Work Orders | 57,760 | 63,476 | 68,155 | 68,372 | 71,825 | 70,620 | 77,722 | 77,274 | 77,198 | 86,848 |
| | | | | | | | | | | |
| PM Count Ratio | 2% | 2% | 4% | 15% | 39% | 37% | 32% | 24% | 26% | 34% |

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| All Maintenance Cost | $ 24,498,839.54 | $ 22,674,519.27 | $ 23,697,652.27 | $ 22,138,638.46 | $ 15,910,129.08 | $ 11,370,651.70 | $ 14,948,212.77 | $ 16,813,142.53 | $ 14,084,706.44 | $ 15,470,791.03 |
| Preventative Maintenance Cost | $ 1,777,360.19 | $ 1,877,807.19 | $ 2,630,634.15 | $ 3,740,583.86 | $ 3,846,665.05 | $ 4,854,266.63 | $ 5,507,883.84 | $ 4,175,210.18 | $ 4,035,528.32 | $ 4,831,515.44 |
| | | | | | | | | | | |
| PM Cost Ratio | 7.25% | 8.28% | 11.10% | 16.90% | 24.18% | 42.69% | 36.85% | 24.83% | 28.65% | 31.23% |

Growth Of APS's PM Program




■ **Increased legislative funded projects substantially multiplied M&O's workload**

Each year representatives from the State's Senate and House meet to pass new laws, create and approve the New Mexico Operational Budget and K-12 Educational Budget, and approve capital legislative projects for every state district.

Each New Mexico Congress Representative and Senator is allocated a designated amount of legislative memorial capital projects money for use by their constituents. The funds are strictly to benefit community programs, public schools, and other governmental service entities. Previously, FD+C facilitated most of this capital for small projects but about four years ago Capital Finance started moving some of the projects to M&O. In 2014-15, the quantity of legislative funded work doubled, and in 2015-16 M&O carried out three times the amount of work paid for by these monies over the previous year, approximately 75 projects. The funds allow for improvements much appreciated by the schools, but is resulting in considerably more logistical work for M&O. All paperwork, oversight, inspections, and approvals are performed by M&O while the heavy lifting is carried out by APS contractors.

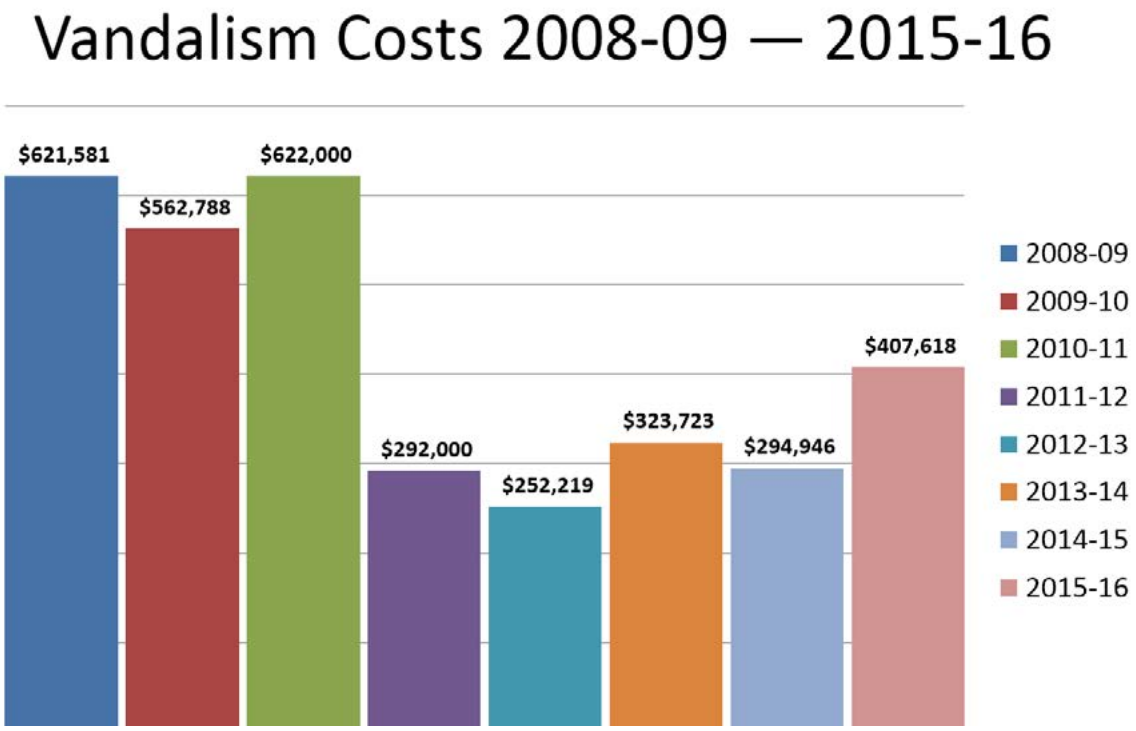
Tight work completion timelines (a six month maximum) for work projects are set by the State Finance office. Pre-quotes have to be obtained, and plans have to be drawn up. Meeting the inflexible timelines is tricky and the logistics are time intensive and laborious. Just controlling project requests is a trial. M&O knows the legislature's parameters well and what they will and will not fund. Also, requests from the schools that cannot be maintained by M&O or completed within the approved timeline are redesigned/restructured to meet the criteria. Approximately 65-70% of the approved requests are granted the maximum six month timeframe. To save time, M&O is completing the planning and putting the proposals together (including pre-quotes) for the legislative liaisons before requests are even submitted so that the Senator or Congress Representative will have the proposal ready to present to the legislature. If the requested project gets passed by the legislature, it goes to the Governor for approval and is signed into law. The State Finance Committee then puts together a proposal to sell general obligation bonds. Once bonds are sold, the state gives M&O the green light to proceed with the project, beginning with bringing the final bids and paperwork current. The new and final bids as well as designs must match the dollar amount appropriated which generally requires a change in the scope-of-work. The Legislative Project/Accounting Manager is tasked with submitting the finalized package of

exhaustive paperwork to the Public Education Department in Santa Fe for approval. When the letter of approval is received, it is forwarded to the M&O Support Services Manager/staff to begin the purchase order process so the work can begin. It is a year round obligation. While contractors are bidding on projects, M&O is starting the new paperwork for next year's legislative requests (currently over 100).

Projects range from $35,000 to $200,000 each in cost and most recently have been used to remodel libraries; purchase new playground equipment, outdoor shade structures, benches and tables; build or upgrade running tracks and other athletic spaces; resurface asphalt; and erosion control. New playground equipment for elementary schools dominated the Playground Equipment Shop Supervisor's time in 2015-16. While M&O has found it challenging to fit in the time to manage these projects, it is greatly appreciative of the school improvements. M&O continues to perform thousands of routine and PM work while also managing these legislative funded projects.

- **M&O crews worked around the clock in cleaning up extreme vandalism totaling $407,618**

It was a particularly unfavorable year for deliberate and unfathomable ruin at District schools. While vandalism dropped dramatically in 2011 due to stepped-up security and APS Police vigilance, it unfortunately suffered an upswing of 38.2% in 2015-16 over the previous year. The $407,618 price tag for 2015-16 damages depicted in the bar graph below is attributed to the sheer force of these assaults. Hundreds of windows were broken District wide with John Baker and Kit Carson Elementary Schools and Jackson Middle School hit during Labor Day weekend. The most extensive destruction occurred at La Cueva High School and Wilson Middle School as described below.




***La Cueva High School targeted multiple times***

M&O crews pride themselves in swiftly restoring damaged classrooms caused for any reason. This often requires working all night or throughout the weekend in not affecting students or their class time. That was simply not possible due to the destruction caused at La Cueva High School. It was vandalized a number of times within a month racking up $49,500 in damages that included destroyed windows (44), many doors and cabinets, and equipment including a smartboard. The most serious of the incidences occurred in the early morning hours of November 9, 2015. Prior to leaving the shattered premises, the vandals turned gas valves on in the science lab risking an explosion that would have caused devastating destruction. It was the third time the lab had been damaged in seven days. Tips from students and area residents provided enough information to help in identifying the miscreants. Window replacements took two weeks while students in one classroom were relocated to another available classroom. There was no disruption to the education process during the widespread repair activity.

***Vandals inflicted exorbitant mayhem at Wilson Middle School***

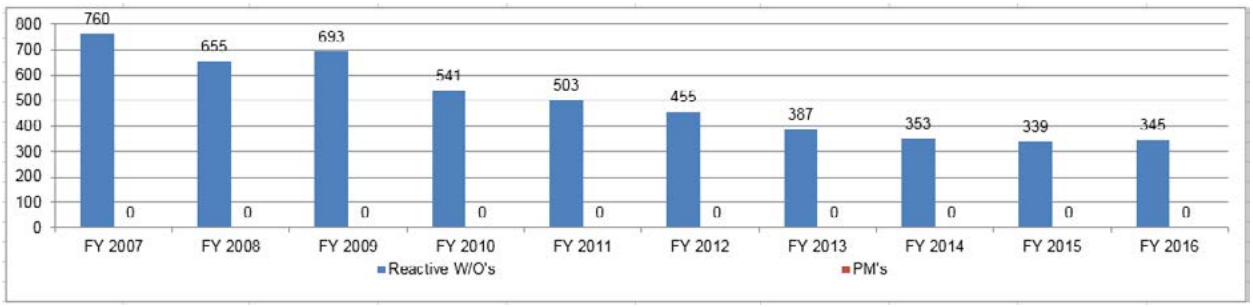
The vandals caused approximately $80,000 in damages at Wilson Middle School the night of December 22, 2015. While students were enjoying the holiday season during winter break, the vandals thought it would be fun to splatter paint throughout eight classrooms; overflow sinks; topple computers and furniture; smash science lab materials; demolish four Promethean interactive whiteboards valued at $5,000 each; and destroy years' worth of classroom work. The delinquents also pilfered three Apple Computers and a couple of laptops. APS crews returned to work during winter break to restore the school in time for the start of the spring semester. Once again, surveillance video aided authorities and investigations.

**Broken windows due to vandalism**

**Graffiti up for first time since 2007 (1.17%)**

Unsightly graffiti is a given at APS and throughout the city. As represented by the declining graffiti work order numbers below, the District has been unrelenting in preventing taggers from their desire to sully school sites. While they were able to get to a few more schools in 2015-16, security systems and procedures are continually reinforced and graffiti removal is immediate in every case, small or large.

**GRAFFITI**



■ **Materials Management Warehouse (MMW) moved under the M&O umbrella and organization**

This warehouse is not to be confused with the M&O Warehouse that stocks the vast inventory of construction materials, supplies, and repair parts used by the M&O maintenance departments. Formerly accountable to the Chief Operations Officer, the MMW was moved to the M&O division in the spring of 2015. The MMW is divided into three distinctly different functions: 1) purchasing and warehousing school and custodial supplies; 2) storing and transporting special equipment (such as music instruments), textbooks and teaching materials; and 3) managing the District's surplus items and salvaging old equipment, furniture, and vehicles. Most of MMW's staff performs tasks within all of the following three functions.

• ***Warehousing***

The MMW purchases school supplies in bulk (for best pricing) from APS vendors and re-sales them to the schools at the same dramatically reduced purchase price; the approximately 30–70% in savings over retail costs is passed on to the schools. The purchasing and warehousing aspect of MMW has declined from about 400 to 100 items over the past eight years in an effort to save on workforce costs. The "just in time" practice, whereby schools purchase needed supplies directly from the vendors (at a 10-15% catalog discount) for quick delivery, has replaced purchasing and stocking in large volume, thus reducing needed warehousing space. The MMW continues to handle the materials that purchased only in very large volume saves the District upwards of 70-80%, such as custodial supplies and large volumes of paper. After a pilot test, the MMW is again purchasing and supplying art and nursing supplies to the schools as it is time, effort, and cost economical to do so.

Product deliveries are checked for accuracy, documented in the Lawson inventory database, and stocked. As schools place orders, a "pick ticket" is printed that directs the MMW employee to accurately pick items off the shelf. The materials are then moved to the dock for loading onto trucks and delivering to the schools. Drivers (MMW's frontline service providers) process the stock from receipt to delivery as well as keep the Warehouse safe and in orderly fashion. Exactness is their mission and the drivers are proud of achieving that goal with near 100% accuracy. When not collecting or distributing inventory (90% of their job), they help with warehousing, adjusting inventory storage, and picking orders.

• ***House and transport unique school materials and equipment***

Largely for use in the District's Title 1 Fine Arts and Music Program as well as reading programs, the MMW moves equipment and academic materials from the dock to storage and vice versa; most notably items that have to be stored when school is not in session. (Title I of the Elementary and Secondary Education Act is the nation's largest federal school assistance program. While all students are eligible to participate in any school wide program, the statute requires schools to provide additional services to the lowest achieving students and those at risk of low achievement.) In addition to music equipment, these unique materials include S.P.I.R.E. reading materials. (S.P.I.R.E. is a comprehensive and multisensory reading system that integrates phonological awareness, phonics, handwriting, fluency, vocabulary, spelling, and comprehension in an instructional design that is based on how struggling readers learn.)

S.P.I.R.E.

The MMW also receives Special Education textbooks and other teaching materials; stores them by grade level (kindergarten – 5th grade); and provides a staging area for teachers to sort out their materials. This includes materials for the visually and hearing impaired student population. The MMW provides an invaluable support service to the large APS student population that might otherwise fall through the cracks if not for merited programs that bolsters their achieving full potential.

• ***Surplus and Salvage***

Managing the District's surplus of materials and salvaging all that has outlived its usefulness is the MMW's primary responsibility (65-70%). Schools relinquish a great deal of excess and/or no longer needed furniture, computers and other old technology, tape recorders, teaching materials, and more, including vehicles which are disposed of through Bentley's Auction. When a salvage request comes in from a school, a stock control clerk transfers the information to an SLV (salvage pick up form) if it does not have an inventory bar code. Only bar coded items are listed in Lawson; on the Equipment Transfer Document, all bar coded items are listed. The Clerk then checks the Lawson inventory database to determine if the item has any book value. If it has book value, the clerk informs the school of its value and inquires why they are discarding it. Only a justifiable reason qualifies a barcoded item for salvage. If confirmation is received that the item is authorized for salvage, the MMW driver is alerted to collect and check the item (now for the second time) against the inventoried list of barcoded items. (Capital Fiscal Services tracks the barcodes annually or when an issue arises. Schools are responsible

for barcoding their own materials and equipment.) When the driver delivers the item to the salvage area of the MMW, the Surplus Receiving Clerk verifies the item against the barcoded inventory list (the third check). The thrice checked list then goes to Capital Fiscal Services who prepares a report which is forwarded to the APS Board of Education for disposal approval of each item. The MMW has to find a use for any item that is declined for disposal. By law, Materials Managements holds the barcoded item for a month in allowing time for schools to reclaim. The Board disposal approval (state law) can take anywhere from one to three months (depending on meeting schedules). Once the Board approves the item for disposal, it is held another month for State Auditor approval. At the conclusion of this process, the MMW clerk sends it to recycling or auction; however, this does not terminate their answerability as they then track the sale of the item. As observing legalities is so cumbersome and protracted, there is little wonder why processing salvaged and surplus items is the primary function of the MMW. Only about 5% of salvaged items are deemed trash and delivered to the city dump.

- **M&O Wellness Works Program is beneficial pilot and was expanded in 2015-16**

The wellness program launched in the last fiscal year, in cooperation with the APS Wellness Works Program, Presbyterian Health Plan, and Blue Cross Blue Shield of New Mexico, is proving to be popular and successful. It has also become somewhat of a District pilot program. M&O is one of the largest departments in the District and due to the physical labor requirements of most staff members, beginning with M&O in launching an APS wide wellness program was logical.

WellnessWorks
at APS - Maintenance and Operations

APS and its insurance providers fully appreciate that a healthier staff directly translates to lower health risks, absenteeism, injuries and illness, medical costs, and worker compensation claims. Quite simply, the payoff of the wellness program is potentially massive! Just over three million nonfatal workplace injuries and illnesses were reported by private industry employers in 2013 according to estimates from the Survey of Occupational Injuries and Illnesses conducted by the U.S. Bureau of Labor Statistics. And the National Safety Council estimated the cost of fatal and non-fatal work injuries at $198 billion in 2012. Nationally, more than one million workers miss time from their job each year, most often due to upper extremity and lower back disorders. Workers with musculoskeletal injuries specifically — and those most applicable to M&O techs — lose 25 days at an average cost of $8,070 per injury! The average cost for all other work related injuries is $824. *(Sources: National Academy of Sciences, 2006, 2008; CDC, 2009, Dept. of Health and Human Services 2010.)*

Because 80% of musculoskeletal disorders (MSD) and conditions are caused by worker posture, faulty body mechanics, and general poor fitness for work, M&O's wellness activities and education focus on preventing these injuries that affect the bones, joints, tendons, ligaments, nerves, and muscles which make up the human body's musculoskeletal or movement system. M&O technicians are exposed to risk factors, such as forceful exertion; lifting heavy items; bending and reaching overhead; pushing and pulling heavy loads; working in awkward body positions; performing the same tasks repetitively; and jarred vibration from operating grinders, routers, drills, and saws that can lead to nerve damage.

It is obviously smart management to avoid injuries. M&O's biggest expense is labor and its greatest investment is its people. M&O's highly skilled and licensed technicians are priceless and never dispensable. They have irreplaceable historical knowledge of the District's vast array of HVAC equipment, complex electrical systems, unique structural conditions, and grounds. Their ongoing training is not just applicable to their trade or craft, but specifically to APS schools and is heavily customer service oriented.

And employees ***want*** to stay well for a myriad of reasons. Getting hurt on the job results in their personal pain adversely affecting their quality of life, golf game, and ability to rough and tumble with their kids. Additionally, they suffer a financial hit as workers' compensation pay is only 66% of their regular income.

As conveyed in last year's Report, the program started with an assessment of the health condition of M&O employees conducted in a culture that supports a healthy, happy, and high-performing workforce. The Wellness Works Program was initiated because M&O leadership recognized that they can *contribute* to the overall physical, emotional, and social health and wellbeing of employees. And because individuals obviously have the greatest control over the state of their own health and physical fitness, the program's focus is in providing support, information, incentives, and options that motivate staff members to actively take care of their physical (and ultimately emotional and mental), wellbeing.

# Preserving Schools and Supporting Academics

Vanessa Olguin, the Fleet Maintenance Department's Fuel Fleet Specialist, was appointed the M&O Wellness Ambassador. Fully committed to the wellness of her colleagues, she administers the following 2015-16 FY contagious developments that fight disease and lethargy through improved fitness, healthy eating, and enriched lifestyle choices. The more people participate, the more others want to jump onboard.

The following new **investments in wellness** were introduced in 2015-16. It makes no sense to perform preventive maintenance on APS equipment and systems to save money in the long term and not do the same for M&O's most valued asset: the technicians and staff who work on the equipment. The following prevent time, cost, and painful injuries and illness – plain and simple.

***Introduced an industrial stretch program***

At the start of the duty day, technicians are encouraged to do simple pre-work stretches to loosen up in preventing accidents and injuries. Each employee is provided with a laminated "stretching card" that illustrates proper stretching techniques applicable for office as well as industrial personnel. Stretching exercises have also been incorporated into the morning safety training courses held every other month. A very motivating professional trainer has joined these meetings to demonstrate stretches and offer encouragement, tips, and inspiration. The safety meetings that were once merely informational are now invigorating, with staff's health and wellness a priority. In addition, morning stretching exercises are incorporated into M&O staff's morning routines prior to leaving their Shop.

***M&O wellness room renovated***

Conveniently located on Lincoln Complex, M&O technicians have put together a wellness room available to M&O employees for use before and after work hours. A fresh coat of paint, lighting, and flooring began the transformation of the space. Crews then added mirrors and installed new workout equipment donated by Blue Cross Blue Shield of N.M. that includes a treadmill, stationary bike, total body gym (machine), stretching cage (station), and free weights. Yoga/floor exercise mats and exercise and yoga videos completed the update. The new wellness room has been very well received.

The Wellness Ambassador, Blue Cross Blue Shield, and APS Risk Management drafted a questionnaire to be completed by each wellness room user regarding their health status and ability to safely use the space, as well as a liability waiver to be signed. The whole point of utilizing the room is to get healthier, not hurt. Should the questionnaire reveal a heart condition or other risky health status, a physician's approval is required to use the wellness room (per Risk Management and BCBS).

**M&O employees performing stretching exercises**

**Vanessa Olguin, Fleet Maintenance Department**
**Patrick Jojola, Electrical Department**

**Wellness Ambassador Vanessa Olguin setting a good example at the District Health Fair**

***• Lunch and Learn sessions moved to facility with a kitchen***

Launched last year in an M&O conference room, the Lunch and Learn sessions are now held in the much more suitable former Lincoln Complex Café which includes a full kitchen. Started with about 10 employees during their lunch hour, each monthly session is now filled to capacity (25-30 people). To accommodate more employees, the program is looking into expanding the Lunch and Learns to include some evening sessions in the next fiscal year. Under the tutelage of a nutritionist, participants create a full course meal (main entree, side dish, salad *and* the dressing, and desert alternative). Employees measure, chop, mix, and stir while learning about portion control and healthy alternatives to their favorite unhealthy foods. For example, employees are shown how a nutritious and delicious hand pie is a better choice over a stuffed sopapilla, and that easy no-bake energy balls are a much better alternative over cookies, yet are every bit as delicious and satisfying. In addition to departing happy and satiated, participants also leave Lunch and Learns with recipes, menus, and giveaways that have included lunchboxes and healthy recipe cookbooks for their at home use.

**M&O techs preparing a healthy meal at "Lunch and Learn" session**

**Everyone participates in the "Lunch and Learn" meal preparation**

**Managers cooking for M&O Staff Luncheon Appreciation**

***• Over 250 pounds lost in weight loss competition***

The four month program carried out August through December 2015 started with 57 contestants weighing-in and concluded with 16 at the final weigh-in. While most (41) dropped out at some point over the fourth month period, over 250 total pounds was lost between the 57 initial contestants. Many participants couldn't schedule in the monthly weigh-ins or otherwise officially remain in the competition, but continued with their weight loss goal. The three finalists included the winner (male) who lost 39 pounds; the close second place contestant, also a man, with a 37 pound loss; and a woman who lost 29 pounds — a combined 105 total pounds! Unmistakably, all the losing contestants were sure winners! The Wellness Ambassador plans to repeat the successful "race to lose" competition in the coming year in sustaining the movement for a healthier life style and vigorous employees.

***• Leadership promoting walking***

The M&O Executive Director is encouraging technicians to take a five to eight minute powerwalk before departing every work site which would add up to the recommended 30 minutes of daily walking for a healthy heart. Furthermore, the Wellness Ambassador reports that many other employees are now choosing to walk briskly over hopping in their car to travel within Lincoln Complex.

**Powerwalk**


***• The wellness campaign works!***

Employees electing to walk over drive and making other healthful choices are in part attributed to the ongoing wellness campaign. Wellness Boards, distributed throughout Lincoln Complex, are switched out monthly and offer health information and nutritious recipes, behavioral reminders, discounts to local fitness centers, and more. Pamphlets (called "fast guides") that provide succinct information regarding exercise, controlling cholesterol, and other helpful ideas are regularly distributed. Weekly email blasts from the APS Wellness Department offer discounts for fitness gym memberships around the city and announce upcoming events and Wellness programs. Lastly but perhaps most importantly — for the considerable benefit of M&O, staff, and the District — leadership is driving a wellness culture for all employees throughout M&O and Support Services.

■ **Progress made in tackling deferred maintenance (DM)**

As a result of the successful passage of the February 2016 Bond Election, a number of deferred maintenance projects were identified and included in the Capital Master Plan and many will be included in Facilities Design + Construction's capital renovation projects. DM projects will be funded and corrective action will be undertaken by M&O.

■ **Utility costs were under budget for third consecutive year**

The success of APS' efforts to curb energy waste cannot be refuted. Utility costs in the 2015-16 fiscal year came in $2,466,038 under budget, ***a remarkable 11.1% less than anticipated***. Only water/sewer expenses were near budget while electricity costs were $1,237,344 under budget and natural gas was $997,656 under budget due to the District's many efforts to reduce waste and conserve. While these reductions are notable, the District continues to be conservation vigilant as two years does not create a trend. The M&O Grounds Department is working hard to curb water use including changing out antiquated valves with new high tech computerized monitoring systems and controls. The M&O Executive Director continues to work with natural gas suppliers in negotiating the most economical purchase of the natural gas commodity. Many other energy savings ingenuities, particularly with regards to HVAC equipment, are presented throughout this Report, including the Energy Conservation Program section beginning on page 31.

**History of APS Utility Expenses District Wide**
**2006 - 2007 — 2015 - 2016**
**2016– 2017 Budget***

| ELECTRICITY | | REFUSE REMOVAL | |
|---|---|---|---|
| 2006-2007 | $6,307,217 | 2006-2007 | $1,137,027 |
| 2007-2008 | $6,628,399 | 2007-2008 | $1,094,743 |
| 2008-2009 | $7,758,639 | 2008-2009 | $1,543,440 |
| 2009-2010 | $8,879,497 | 2009-2010 | $1,563,038 |
| 2010-2011 | $9,149,364 | 2010-2011 | $1,442,888 |
| 2011-2012 | $10,484,017 | 2011-2012 | $1,395,558 |
| 2012-2013 | $11,011,769 | 2012-2013 | $1,461,055 |
| 2013-2014 | $10,938,163 | 2013-2014 | $1,503,571 |
| 2014-2015 | $11,700,256 | 2014-2015 | $1,567,634 |
| 2015-2016 | $11,262,656 | 2015-2016 | $1,269,730 |
| 2016-2017 | $12,500,000* | 2016-2017 | $1,500,000* |
| **NATURAL GAS** | | **WATER / SEWER** | |
| 2006-2007 | $5,313,287 | 2006-2007 | $2,218,677 |
| 2007-2008 | $5,301,009 | 2007-2008 | $2,484,657 |
| 2008-2009 | $5,895,423 | 2008-2009 | $2,482,787 |
| 2009-2010 | $6,063,183 | 2009-2010 | $2,541,377 |
| 2010-2011 | $4,150,665 | 2010-2011 | $2,755,320 |
| 2011-2012 | $3,862,079 | 2011-2012 | $2,768,880 |
| 2012-2013 | $3,783,403 | 2012-2013 | $3,191,743 |
| 2013-2014 | $3,893,150 | 2013-2014 | $3,264,780 |
| 2014-2015 | $3,614,867 | 2014-2015 | $3,411,118 |
| 2015-2016 | $3,402,344 | 2015-2016 | $3,659,232 |
| 2016-2017 | $4,000,000* | 2016-2017 | $3,660,000* |

**TOTAL 2015-16 Utility Costs: $ 19,593,962**
(3.44% ***decrease*** over 2014 - 2015 / $699,913 less!)

**2007–2016 = 30.8% *increase in utility expenditures***

■ **APS' M&O continued to rank in top 5% by the CGCS's annual survey**

The Council of the Great City Schools is a nationwide organization represented by large urban school district members including APS. The CGCS provides the school districts with assistance and guidance in educating their broadly diverse student population to the highest academic standards possible in preparing them to be successful adults, personally and professionally. In the CGCS meeting its mission to advance the education of students and inspire the public's confidence, it recognizes that schools' maintenance and operations programs serve a fundamental role in the education process; there is no schooling without properly operating school facilities.

The organization conducts an annual national web-based survey that defines, collects, and interprets data based on key performance indicators (KPIs) in measuring the non-academic management of school districts' facilities and grounds. The ActPoint® KPI system is an automated intelligence tool whereby member districts enter their raw data into online inquiries. ActPoint then provides performance comparisons in relation to other member districts. The 2016 Report, *Managing for Results in America's Great City Schools* (published in October), includes data quartiles to better aid in setting benchmark targets and managing strategies in reaching goals.

APS is pleased to once again be ranked in the top 5% KPI rating of participating member schools for its management of the M&O Division in the 2016 study. At a cost of $1.07 per square foot and $198 per student, APS is rated the highest of participating member school districts in cleaning schools economically. APS also earned the top rating in performing routine maintenance work orders cost effectively at $250 per WO as well as time to complete the job, five days.

However, regardless of APS' ranking in the various survey categories, the research provides unparalleled data in assisting leadership to set priorities and evaluate areas where performance is stellar as well as where it can be improved upon. M&O leadership relies on the latest findings in prioritizing and planning for the following year. *(See the M&O portion of the 2016 Report in the Appendices beginning on page 120.)*

Council of the Great City Schools

- **2016 Preventive Maintenance Management Plan completed and accepted by PSFA**

The Public School Facilities Authority, a division of the State Public Education Department, requires all public school systems to detail and present their district's preventive maintenance plan to the PSFA for review and evaluation annually. New requirements for 2016 PM Plan included an overview of Building/Property Assessments. The APS Plan received an "outstanding" rating.

- **Variable frequency drives updated in both towers at the Alice and Bruce King Educational Complex (City Center)**

As shutting down power was necessary, the upgrades in the east and west towers' mechanical rooms were carried out over a couple of weekends in the fall of 2015. The contractors were provided the opportunity to stage their equipment during the week prior to the start of the complex and multiphase project that included the replacement of large motors as well as the re-install, balancing, and alignment of return and supply fans. The equipment and motor required lifting to the mechanical penthouses by a large crane. Three established and proven contractors proficiently completed the task on a tight schedule.

**Motor replacement at City Center**

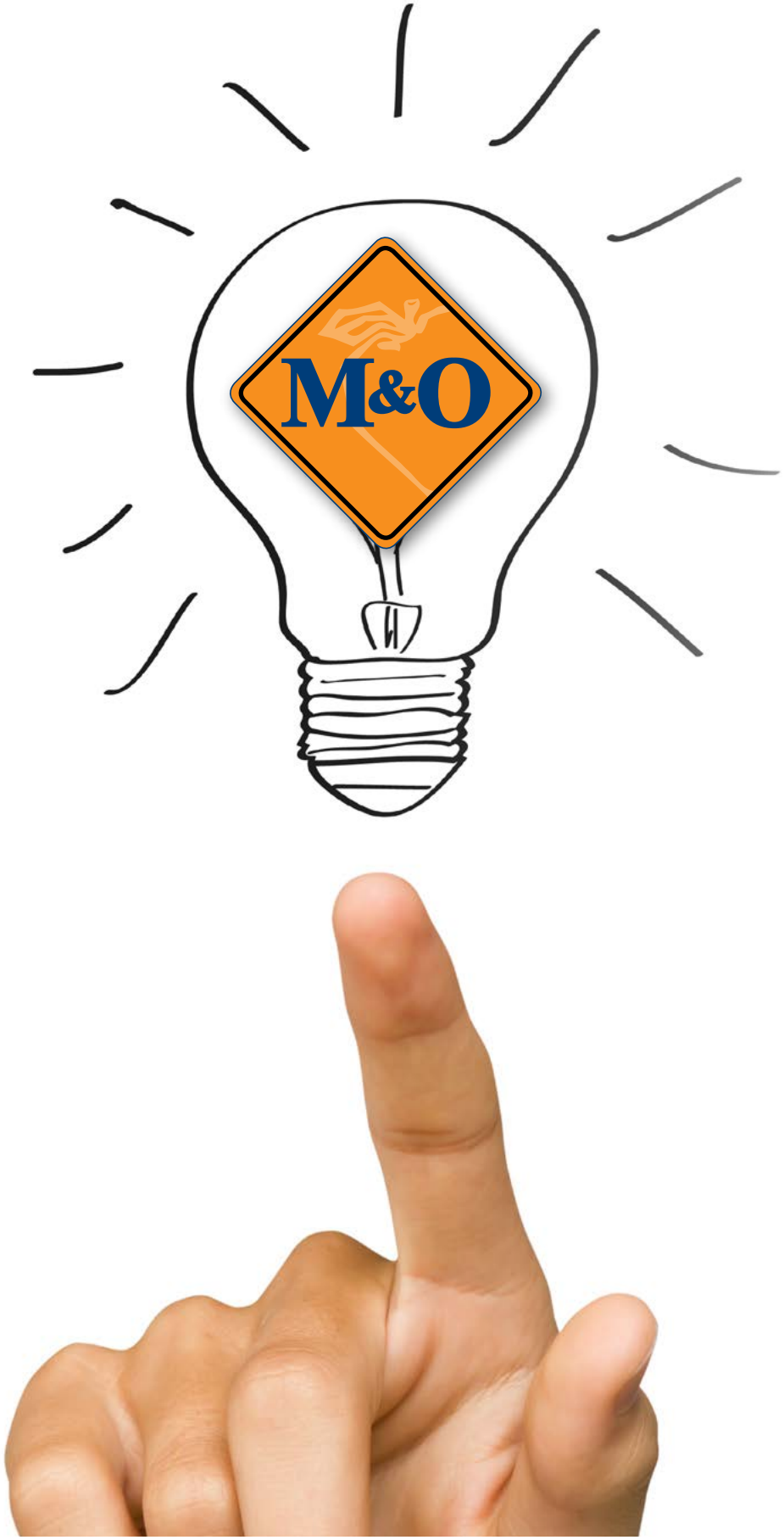
- **City Center replacement of electrical distribution gear completed through Phase III**

In addition, contractors are replacing the electrical distribution system to improve overall capabilities and performance. Phase 1 of an electrical upgrade replaced 30 plus year old switch gear and busway in both towers. Phase II replaced all the old electrical panelboards in existing electrical rooms and brought each floor up to code. Phase III replaced the existing penthouse gear and enable isolating power on each floor without having to shut down the entire tower. Phase IV will complete the job in the 2016-17 FY.

**Installation of new electrical cabling**

Atrisco Elementary School

Atrisco Heritage Academy High School


M&O

# APS ENERGY CONSERVATION PROGRAM

As recounted in the last several Year End Reports, the Water and Energy Conservation Committee (WECC) formed in 2013 has added much suppot to the District's various energy optimization programs. WECC is a consortium of key leadership and department representatives from APS' M&O, Facilities Design + Construction, and Capital Master Plan divisions and a New Mexico Energy, Minerals and Natural Resources Department representative aided by the invaluable participation from municipal utility representatives. Applicable employees from M&O and FD+C make up the APS Energy Team tasked with implementing energy savings strategies.

WECC was a mere idea back in 2013, but all grand breakthroughs start with a simple notion. Back then, WECC's initial instinct was to bring all the players who had anything (big or small) to do with energy use (electric, gas, and water) at APS together and brainstorm how to best manage the District's exorbitant utility costs. To acquire the necessary buy-in from the top decision makers and stakeholders, it soon became evident that executive leadership had to be involved.

WECC
Water and Energy Conservation Committee
Making a Difference for Albuquerque Public Schools

**The District's energy goals are ambitious but doable.** The result of WECC's initial approach to gather everyone together evolved in initiating meaningful conversation has settled into working in concert with one another in holistically meeting the District's ambitious energy conservation goals: ***reduce net water consumption by 20% and net energy consumption by 20% by the end of the 2023-2024 school year as compared to an established 2013-2014 school year baseline.***

***Measures in realizing goals*** *(outlined in greater detail throughout this Report)*

- Reduce APS's environmental impact through responsible use of natural resources.
- Lower the District's environmental footprint.
- Reduce energy consumption in all buildings; redirect a portion of savings to student programs and other uses.
- Empower administrators to make decisions that favorably impact the use of energy at their site.

***Education outreach***

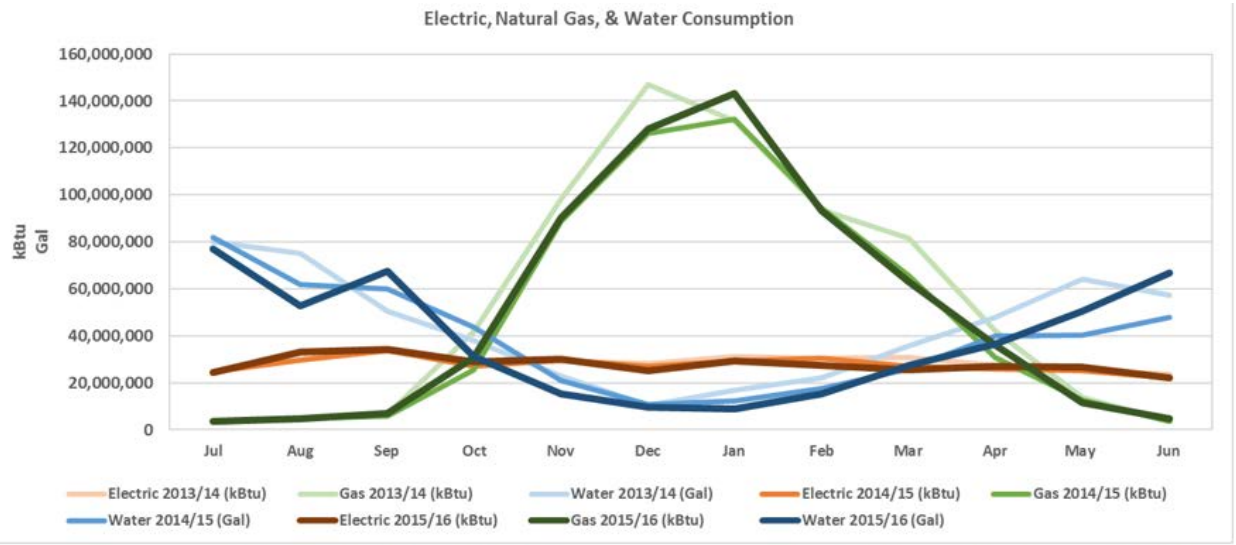
- Educate students, staff, and community on the importance of energy conservation.
- Promote energy literacy and awareness and encourage energy efficient behaviors among all staff and students.
- Engage students and staff in active responsible citizenship through energy activities by creating Building Buddies Teams at their school.

**WECC aids in energy conservation planning and goals setting.** The collective role of the Committee and Energy Team has transformed rapidly in just a few short years. It began with categorizing the many aspects of energy, moved onto formulating ideas (many far reaching), then suggesting action steps to transform the ideas and concepts into a specified direction. WECC's current role is largely driving new energy saving ideas based on all that has been learned to date. Going forward, operational, behavioral, and purchase choices will be more in number and more specific based on findings from dynamic data. The Energy Team can formulate options and make sound recommendations supported by credible data, shared experiences and practices, and suggest attainable goals (both general and defined).

**The education process takes priority in energy saving programs.** This cannot be over stressed: APS is first and foremost in the education business. FD+C may be responsible for designing and constructing the schools while M&O is responsible for maintaining and preserving them, but whether it's erecting the schools or servicing them, it is all done in *support of what transpires **in** them — educating children*. As driven as the Energy Team is to eradicating electric, gas, and water waste, it will be done without ever forfeiting the quality of the education process. Electric juice will power all needed technology and related apparatuses in the schools; the quality and quantity of lighting will never be insufficient; and students will never be distracted by classrooms that are too chilly or too warm. Education needs are met first; eliminating waste is undertaken second.

**Through a spirit of cooperation, the Energy Team has realized energy conservation success.** Since its inception, the Team has helped to identify and monitor conservation programs District wide; the operation of mechanical systems; and the daily practices of the end users (occupants) which incorporates an educational component. (The 2014 and 2015 M&O Year End Reports conveyed the many FD+C, M&O, and energy curriculum successes of the District's energy conservation programs.)

The following chart reflects utility costs affected by utility rate increases and fluctuations. Since the 2013-14 FY, the Energy Team has saved 68,497 thermal units of energy (in spite of a 3.3% increase in square footage), equivalent to $583,000 in energy costs. In addition, the District has reduced water consumption by 63 million gallons since 2014, a 12% decrease which helps counteract significant water utility rate increases.




| | 2013-2014 | 2014-2015 | 2015-2016 |
|---|---|---|---|
| | Baseline Usage | | |
| Electric (kBTU) | 342,633,887 | 331,642,420 | 337,447,781 |
| Natural Gas (kBTU) | 667,941,000 | 594,159,000 | 616,196,000 |
| MSPW- All (Gal) | 521,472,688 | 463,051,644 | 458,464,908 |
| Electric & Gas (kBTU) | 1,010,574,887 | 925,801,420 | 953,643,781 |
| Baseline EUI (kBtu/ft^2) | 66 | 59 | 60 |
| Total Square Footage | 15,359,899 | 15,583,241 | 15,868,294 |

| | 2013-2014 | 2014-2015 | 2015-2016 |
|---|---|---|---|
| | Baseline Spend | | |
| Electric ($) | $11,013,795.83 | $11,670,084.55 | $10,893,348.97 |
| Natural Gas ($) | $2,669,256.04 | $2,518,338.79 | $3,322,219.85 |
| MSPW ($) | $3,169,482.40 | $3,214,271.41 | $3,593,141.13 |
| Total ($) | $16,852,534.27 | $17,402,694.75 | $17,808,709.95 |

**Data drives the Energy Team's work.** As recounted in last year's Report, data collection and the interpretation of that data was greatly improved and expanded in the 2014-15 fiscal year. After a utility use baseline was locked down, verifiable energy use technology accurately monitors and tracks the energy consumption of schools and specific HVAC equipment, lighting systems, and devices within the schools. *(See various utility and energy use visuals beginning on page 102 in the Appendices.)* In addition, educational outreach programs impact positive behavioral practices within APS.

**New Energy Center became operational in 2015-16.** The Energy Center, conceived in the last fiscal year, centralizes all monitoring and conservation programs and is currently 60-70% established. The Center's elastic blueprint is being improved upon as the inhabitants and other stakeholders move forward. In addition to consolidating the efforts of the Energy Team, the Energy Center integrated the many variables of energy, energy use data, and energy literacy education — as each impacts the other — in working to produce one comprehensive energy picture that can be resourcefully managed in the near future.

**APS Energy Center conference area**

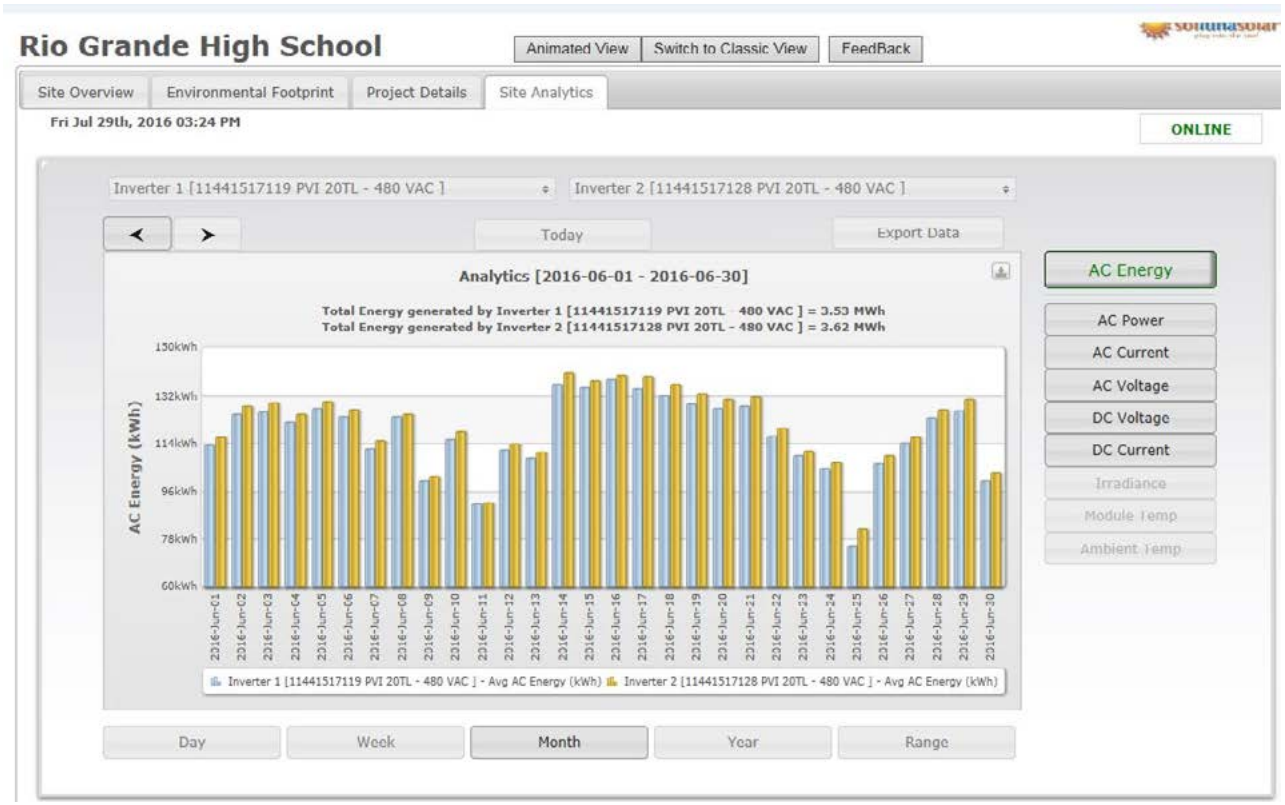
## OTHER ENERGY CONSERVATION HIGHLIGHTS AND INITIATIVES

- **Utility submeters installed in new buildings are identifying problems**

The submeters monitor the electrical consumption of equipment (HVAC, lighting, refrigeration, and more) within facilities and reveal issues with performance, spikes, and waste and ultimately capital and energy saving opportunities. Essentially troubleshooting devices, the District is ramping up the use of utility submeters.

- **Photovoltaic (PV) panels were installed at 10 sites**

APS started installing PV solar systems into all new construction a few years ago. New PV installation that was completed or started in the 2015-16 fiscal year include: Atrisco, Reginald Chavez, Wherry, Marie Hughes, and Onate Elementary Schools; Ernie Pyle and Jefferson Middle Schools; West Mesa and Rio Grande High Schools; and the Career Enrichment Center. Every PV panel installed must have a monitoring system that accurately tracks the power generation of that unit. Note the precise measurement of solar power generated every day during the month of June 2016 at Rio Grande High School's building below.




- **District Received AEE Region IV Institutional Energy Management Award**

APS was named the recipient of the Region IV 2016 Institutional Energy Management Award presented by the Association of Energy Engineers (AEE). Institutional applicants included hospital groups, casinos, and numerous other commercial and governmental entities from the 12-state region that includes neighboring Colorado and Texas. The annual award recognizes comprehensive energy conservation accomplishments and programs that stand out from the rest. The panel of judges deemed the creation of WECC and its inspiring achievements, most notably an invitation to serve as a DOE Better Buildings Challenge Partner, worthy of this esteemed honor *(see following highlight)*. The AEE Award was officially presented to APS on September 20, 2016 in celebration of the opening of the World Energy Engineering Congress held in Washington, D.C. on the following day.

■ **APS recognized as a Better Buildings Challenge Partner and presented at the annual summit**

In 2015, due to the success of the Energy Team's efforts, APS was invited to participate in the U.S. Department of Energy's (DOE) Better Buildings Challenge. In May 2016, over 1,200 participants from a network of energy efficiency business, industrial, and governmental leaders from across the country — over 310 organizations including APS — gathered in Washington, D.C. for the Better Buildings Summit. APS' Executive Director of Capital, Executive Director of Capital Master Plan, and Energy Engineer were invited to speak at the Summit and be formally acknowledged as a Partner by Ernest Moniz, U.S. Energy Secretary. Addressing the school audience, the APS representatives outlined the expanding components of the District's Energy Conservation Program and how savings initiatives could positively affect APS' utility budget. Across all industry categories, presenters and attendees shared how they draw on energy efficiency technologies, business practices, and partnerships to save energy and utility costs, and for the business sector, create new jobs.

Better Buildings® CHALLENGE U.S. DEPARTMENT OF ENERGY

■ **District systematically improved boiler efficiency by 11.3% per boiler**

From December 2015 through mid-January 2016, Fireye United Technologies Corporation (and APS) conducted a gratis pilot experiment at Atrisco Heritage Academy High School, Harrison Middle School, and Ventana Ranch Elementary School to prove that their NXM2G Firebox could substantially optimize the efficiency of the schools' boilers. The NXM2G Firebox, a little brain with sensors, installed on the schools' buildings and boilers, enables each boiler to ramp down if it is not calling for heat (is sufficiently warm). Boilers have been designed to always be on, even when unnecessary. Considering the 11.3% per boiler improved efficiency, use of the NXM2G is being expanded within the District.

■ **Internet enabled controls were installed at select school sites**

• ***HVAC timeclocks installed at 19 schools***

Fixed to HVAC systems, Intermatic Internet enabled timeclocks are programmable through the Internet at a fraction of the cost to operate manually. It allows technicians to program equipment and troubleshoot from their laptops in mere minutes, saving the time and fuel to drive to the site. Leveraging the existing timeclock infrastructure allows for web-based scheduling for occupied and unoccupied settings where building management systems controls are absent. An annual savings of up to $200,000 is possible for the timeclocks installed to date after costs for the timeclocks have been recovered in two years. The "smart" timeclocks will be installed throughout the District in the next few years with the largest campuses taking top priority.

• ***Exterior lighting controls installed at 25 campuses***

The Intermatic timeclocks enable web-based scheduling for exterior lighting optimization depending on nighttime school or community activities. The estimated annual savings of $28,094 will be realized in a little over a year.

INTERMATIC®

■ **New design standards for solar water heaters in new construction were adopted**

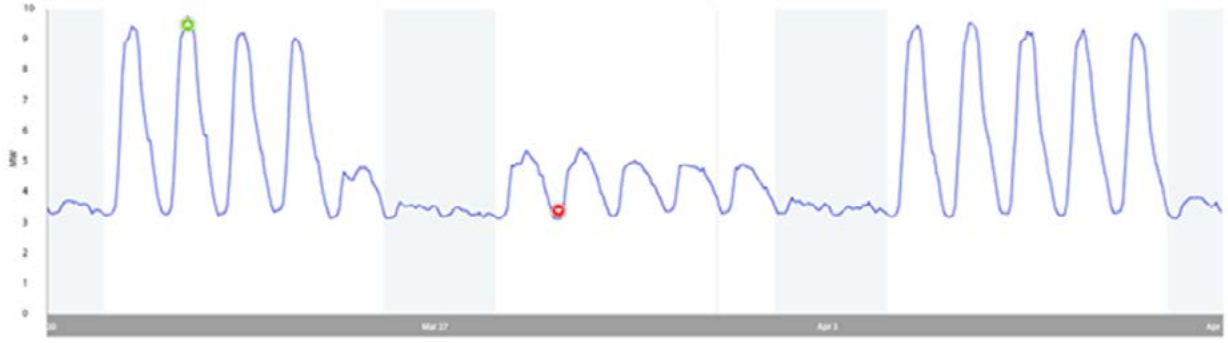
Needed upgrades on the solar water heaters at Rudolpho Anaya Elementary School resulted in new design standards for solar hot water systems for the District. Ordinarily, gas serves as the main source of energy for the water heaters that are backed up by solar. SolarLogic, a renewable energy company in Santa Fe, provided their expertise in reversing the design of the solar water heaters at the school whereby solar may serve as the primary heat source. The new more economical design is now being used in all new construction and will be introduced to upgrade existing domestic hot water heaters in the District as it becomes cost effective.

SOLARLOGIC

■ **Powered down electricity during spring and winter breaks saved $95,760**

During the six days of spring break (March 25 – April 1), APS' largest campuses saved 45% in electric costs by powering down all but the most basic electric systems with a total savings District wide of $34,560. Powering down electric systems during the winter break, between Christmas and New Year's, saved $61,200.

**SPRING BREAK POWERDOWN**



■ **Consolidation of Summer School saved $345,840 in expenses**

Summer school, held June through July, was consolidated from 69 campuses in 2015 to 51 in 2016. In spite of a 74.8% increase in high school student enrollment over the previous year, APS saved 2.8%; and a 27.8% increase in K – middle school student enrollment, 23.5% was saved in operation costs. Factoring in both curriculum and support and operations dispite expenses (nursing, transportation, utilities, and maintenance) $345,840 was saved in 2016 over 2015. As this was the first "pilot" summer school consolidation, even greater savings is expected in future summers. Also, administrative personnel occupied non-summer school sites in 2016 but have been alerted that access will be very limited going forward.

**SUMMER SCHOOL CONSOLIDATION IMPACT 2015 – 2016**

| Consolidation | Actual 2015 | Actual 2016 | Change |
|---|---|---|---|
| Number of Sites (3 Programs)* | 69 | 51 | 18 |

* Does not include APS Facility Usage

**Variables**

**Curriculum**

| Program | 2015 Enrollment | 2016 Enrollment | Enrollment Change |
|---|---|---|---|
| K3+ | 3,883 | 4,963 | 1,080 |
| High School | 3,350 | 5,859 | 2,509 |

**Support and Maintenance/Operations**

| Operations/Support Category | 2015 | 2016 | Change |
|---|---|---|---|
| Nursing (FTE) | 51 | 39 | -12 |
| Transportation (Busses)* | 66 | 47 | -19 |
| Energy (kWh) | 12,065,051 | 12,732,211 | 667,160 |
| Gas (MMBTU) | 6,965 | 6,841 | (124) |
| Water (Gal) | 120,721,216 | 96,683,488 | (24,037,728) |
| Maintenance (School Dude Requests) | 12,426 | 11,943 | 483 |

| Operations/Support Category | 2015 | 2016 | Change |
|---|---|---|---|
| Facilities Usage (Sites) | 30 | 41 | 11 |

*based on sites served

**Financials**

| Expense | 2015 cost | 2016 cost | Cost Change |
|---|---|---|---|
| K3+ | $ 331,500.00 | $ 253,500.00 | $ (78,000.00) |
| High School | $1,132,776.86 | $1,100,290.00 | $ (32,486.86) |

| Expense | 2015 cost | 2016 cost | Cost Change |
|---|---|---|---|
| Nursing (Cost) | Pending | Pending | Pending |
| Transportation (Cost) | $ 183,150.00 | $ 301,782.00 | $ 118,632.00 |
| Energy (Cost) | $ 1,596,338.00 | $ 1,549,864.00 | $ (46,474.00) |
| Gas (Cost) | $ 28,813.00 | $ 36,236.00 | $ 7,423.00 |
| Water (Cost) | $ 678,738.00 | $ 569,220.00 | $ (109,518.00) |
| Maintenance (Cost) | $ 4,543,104.00 | $ 4,337,687.00 | $ (205,417.00) |

| Revenue | 2015 Revenue | 2016 Revenue | Revenue Change |
|---|---|---|---|
| Facilities Usage (Revenues) | $35,183.75 | $48,848.75 | $ 13,665.00 |

| | |
|---|---|
| Expense Savings | $ (345,840.86) |
| Revenues | $ 13,665.00 |

■ **Replaced inefficient heating and cooling controls in portable classrooms**

Newly installed control systems are estimated to provide an annual energy savings of over $40,000. These include programmable thermostats installed in portable classrooms to better regulate heating, and twist timers installed on coolers to prevent coolers left on while classrooms are unoccupied. This is an ongoing upgrade carried out by the HVAC and Electrical Shops.

■ **PNM recognized (awards) APS in two energy savings categories in 2015**

APS was one of four top winners presented with a ***Business Energy Efficiency Star Award*** by the electric utility. The annual awards are given to PNM business customers with the highest kilowatt savings among all energy efficiency rebate projects paid in 2015 by geographic region and classification. APS' Most Innovative recognition was awarded for implementing 22 comprehensive projects covering a wide range of energy efficiency measures (outlined in this section) that saved 2,426,206 of electricity annually. The impact of these measures saved 1,508.5 metric tons of carbon dioxide; 793,369 gallons of water; and enough energy to power 337 homes for a year.

APS also took the ***Honorable Mention Award in the Building Tune-up Program*** category *(see following highlight)*. Actions resulting in this recognition included two APS staff members earning Building Operator Certifications which is expected to save approximately 420,912 kilowatt hours of electricity annually. The District received PNM rebates totaling $2,400 for participating in this program.

■ **PNM sponsored Building Tune-Up program launched at five locations**

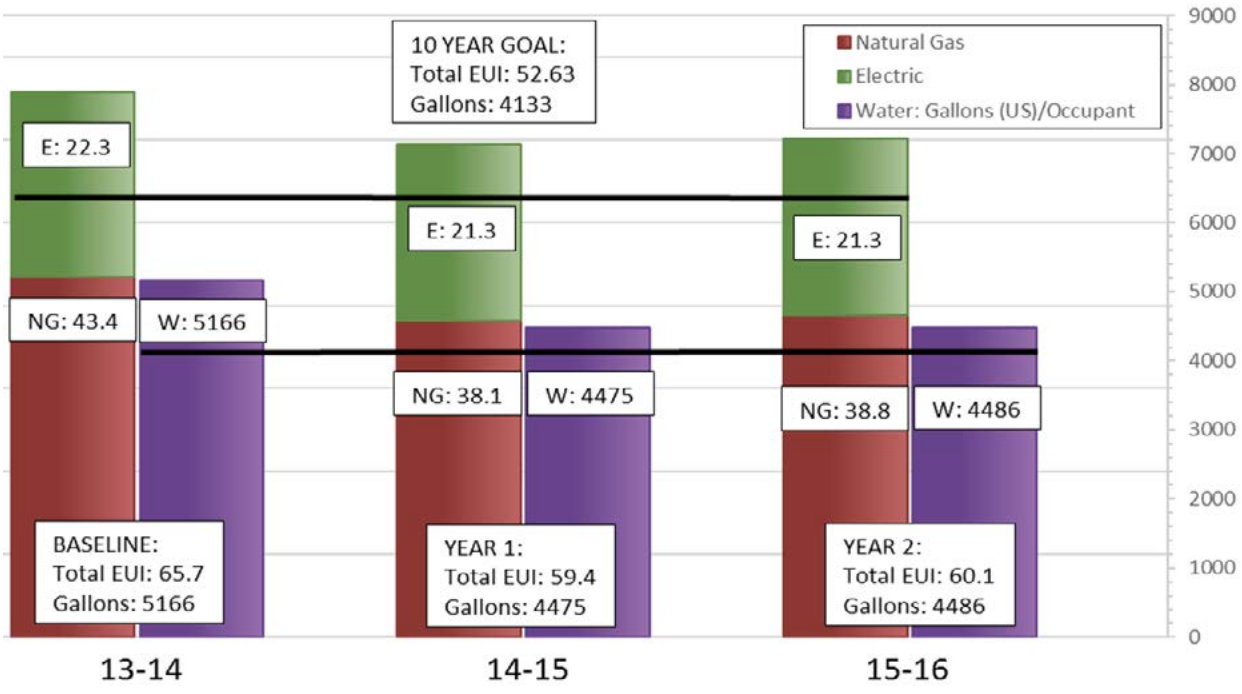
The 2015 Year End Report introduced the retro-commissioning (RCx) program. Conducted as a pilot program in the 2014-15 FY, RCx is the process of monitoring, troubleshooting, and adjusting electrical, mechanical, and other control systems in buildings to improve performance. RCx provides an understanding of how well a system is working for a specific space or building as well as identifies obsolete equipment in need of replacement or adjustment in improving performance while saving energy and costs. The tune-ups performed on HVAC equipment in the 2015-16 FY have a projected annual electric savings of $40,786. Additionally, these measures save 261.7 metric tons of carbon dioxide; 137,638 gallons of water; and enough energy to power 58.5 homes for a year.

■ **APS captured $188,201 in PNM rebates in 2015-16**

New energy saving measures and programs do not just save energy and utility costs, but financial rewards are also realized — a trifecta win! PNM awarded the rebates for a number of initiatives that included energy efficient lighting and HVAC installed in new construction; Energy Star refrigeration and food service equipment; prescriptive and custom retrofits (upgrades) of interior and exterior lighting in existing buildings; installed occupancy sensors; custom high efficiency HVAC equipment in existing facilities; variable speed drives for electric motors; and other measures. *(See all utility rebates 2014-15 to present on page 105 in Appendices.)*

■ **Natural gas, electric, and water usage held steady with growth of facilities**

Although savings performance was relatively flat in 2015-16 over the previous year, a great deal of learning was achieved. Also, many programs (outlined in this section) were introduced in the fiscal year are expected to show 2016-17 FY results.



**▪ Waste Management sponsored program saved 750 tons of recycled materials**

APS vendor Waste Management provides large recycling bins at every school and administrative office complex adjacent to the trash collection bins that they are also responsible for collecting. The M&O Grounds Department monitors the recycling bins, and to not hamper recycling dedication, requests special pick-ups by Waste Management should they fill to capacity before the scheduled weekly pick-up. In the 2015-16 fiscal year, APS students and employees recycled ***750 tons*** of aluminum, cardboard/paper, scrap metals, and plastics. That translates to saving 6,209 mature trees, enough timber resources to produce 76,925,500 sheets of newspaper; 2,609 cubic yards of landfill airspace, enough to fulfill the municipal disposal needs for 3,350 people for a year; 3,081 kilowatt hours of electricity, enough to power 256 homes for a year; and 3,516,800 gallons of water, representing enough water to meet the daily needs of 46,890 people.

**▪ Alice and Bruce King Educational Complex (City Center) paper recycling programs**

The Alice and Bruce King Educational Complex, housing most of APS' executive leadership and administrative personnel, started its recycling program in 2011-12. As illustrated below, impetus soared through the third year of the effort until the 2014-15 FY when management encouraged less paper use, also a savings. In 2015-16, recycling bottles and cans was introduced which saved depositing 56 tons into the landfill. Over a ton of natural resources are saved for every ton of recycled glass. One ton of recycled aluminum saves 40 barrels of oil, 238 million Btu's of energy, 14,000 kilowatt hours of energy, and 10 cubic yards of landfill space.

The 6.7 tons of paper recycled in 2015-16 saved 113.9 trees, 46,000 gallons of water, 22.11 cubic yards of landfill space, 2,546 gallons of oil, and 27,470 kilowatt hours of electricity. City Center's 1.9 tons of recycled cardboard saved, 87.4 gallons of oil, 12.54 million British thermal units (Btu) of energy, and 741 kilowatt hours of electricity.

**Alice and Bruce King Educational Complex**
**Recycled Paper and Cardboard (tons)**

| ITEMS | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 |
|---|---|---|---|---|---|
| Paper | 5.8 | 7.6 | 9.2 | 6.9 | 6.7 |
| Cardboard | unrecorded | 1.3 | 2.9 | 2.8 | 1.9 |
| Bottles/Cans | - | - | - | - | 56 |

# FACILITY USE PROGRAM

The District fully recognizes that APS schools have evolved into "community schools" and welcome parent groups, community organizations, and student associations to utilize the classrooms, gyms, cafeterias, Performing Arts Centers, and athletic fields when school is not in session. Doing so, however, comes at a cost that is not included in the already dwindling M&O and Operational budgets, so a calculated approach is called for.

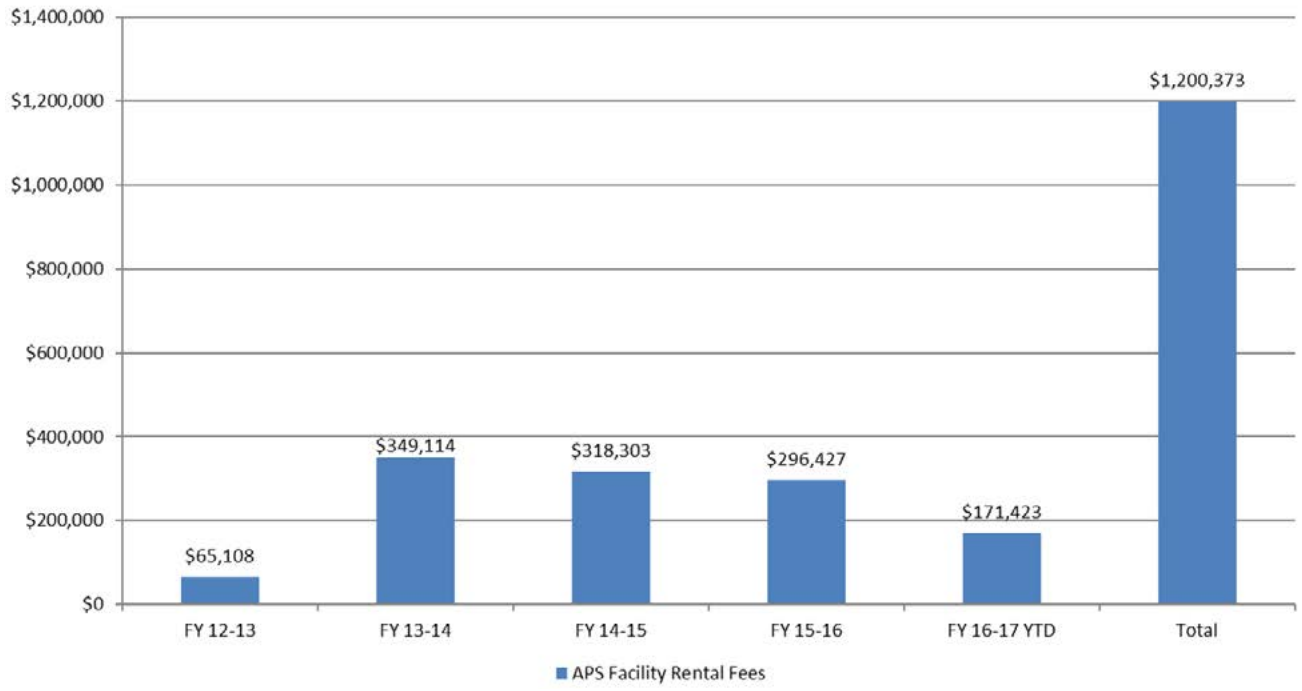
Monica McComas, the Senior Facility Usage Specialist and a member of the Energy Team, is charged with judiciously scheduling all evening and weekend community use programs at school campuses. Her role is indispensable in curbing the costs of the District hosting these events as she assures that the thousands of activities congregate at a designed number of campuses that are suitable for groups' purposes, rather than dispersed throughout the District. The careful and strategic scheduling conserves energy and controls heating, cooling, lighting, materials, and custodian costs.

All groups must state their purpose, have proof of liability insurance, and have non-profit status, with the exception of the movie industry that pay higher hourly fees (two hour minimum for all users). All outside users are required to make space requests only through the community portal at **www.aps.edu/community/facility-rentals**. (EventEssentials Pro scheduling software, provided by SchoolDude, streamlines the scheduling process and reduces energy costs by controlling equipment operation.)

- **Approximately $300,000 in recovery costs realized annually**

The Facility Use Program generated 684 invoices in the 2014-15 fiscal year and 644 in 2015-16 for monthly, yearly, and single-use programs. Just shy of $300,000 was invoiced in 2015-16. Since 2012-13, APS has recovered $1.2 million in rental fees to help offset operational costs.

**APS FACILITY RENTAL FEES COLLECTED 2013-14 to Present**




- **Community summer programs consolidated**

In addition to APS summer school, numerous community activities are held at District campuses. Summer programs are organized by the YMCA; Camp Fire New Mexico; City of Albuquerque; Rio Grande Education Collaboration; Kids Club House; Corrales Community Education; Children's Choice; Boys and Girls Club of Central New Mexico; and YDI. Ms. McComas and other members of the Energy Team collaborated with the above stakeholders to consolidate program-use from 90 school sites down to 56.

# WATER SAVING HIGHLIGHTS

In effort to reduce water usage by 20%, the District is monitoring domestic and irrigation water usage throughout the District in identifying irregular spikes. These questionable surges in use are immediately investigated and resolved by the Irrigation Shop, may it be a leaking irrigation system or a faulty water meter. M&O also initiated the following water conservation programs in 2015-16:

**▪ Negotiated a sizable reimbursement from water utility**

M&O successfully made a case for a $64,011 reimbursement from the ABCWUA for incorrect water billing charges at Manzano High School. Careful scrutiny of invoices and meter monitoring is critical in not overpaying for water. In this case, the water utility billed for irrigation water at the steeper domestic water use rate.

**▪ Reduced irrigation surcharges by 30%**

M&O saved $10,262 in irrigation surcharges over the previous year for the irrigation systems at elementary schools, high schools, and administrative facility spaces, saving 30% in total in spite of an increase in surcharges at middle schools. Old inefficient controls at middle schools are being replaced.

**▪ In spite of using more water, APS paid less**

The District used 3.6% more gallons of water in 2016 over 2015 but the total cost decreased by 13.5% saving $444,011 in water utility costs. A 24% decrease in the irrigation cost per acre (domestic meters switched out with lower irrigation rate per gallon meters), reduced irrigation surcharges, and other conservation efforts are credited.

**▪ Working with FD+C on irrigation systems at new construction sites**

M&O is collaborating with FD+C with regard to new irrigation systems installed at new construction projects and notifying the Albuquerque Bernalillo County Water Utility Authority (ABCWUA) that the fields are strictly irrigation and require only an irrigation meter.

**▪ Gray water system was installed at Alameda Elementary School**

The grey water system, master valve, and irrigation meter installed by APS significantly reduced watering costs at the campus.

**▪ APS earned $9,704 through ABCWUA rebate programs**

*(new construction sites)*

• *Xeriscape Rebate*

Converted grass areas to xeriscape landscaping at Wilson Middle School and the Career Enrichment Center earning credit for the removal of spray irrigation and the installation of bubbler or drip systems. The converted area provides a minimum of 50% low water use plant coverage and resulted in a $4,290 rebate.

• *Treebate*

This program applied to the installation of new trees at nine APS sites for a total rebate of $4,914. Credit was obtained for 25% of the cost of the tree, irrigation supplies, and soil amendments required for the installation of the trees up to but not exceeding $500.

• *Outdoor Rebate*

The Outdoor Rebate Program offers credit for up to 25% of the cost of irrigation supplies, turf removal equipment rental costs, and compost materials up to but not exceeding $500. To date, APS has been able to take advantage of this program at Onate Elementary School for a rebate of $500.

**ABCWUA REBATE PROGRAMS**

| School Name | Xeriscape Rebate Amount | Date of Application | Treebate Amount | Date of Application | Outdoor Rebate Amount | Date of Application | Sod to Turf Amount | Date of Application | Total Rebate for School |
|---|---|---|---|---|---|---|---|---|---|
| APS Career Enrichment Center | $720.00 | 12/21/2015 | $500.00 | 2/3/2016 | $0.00 | | $0.00 | | $1,220.00 |
| Wilson Middle School | $3,570.00 | 1/16/2016 | $0.00 | | $0.00 | | $0.00 | | $3,570.00 |
| Onate Elementary School | $0.00 | | $500.00 | 2/8/2016 | $500.00 | 2/8/2016 | $0.00 | | $1,000.00 |
| Zia Elementary School | $0.00 | | $414.02 | 2/26/2016 | $0.00 | | $0.00 | | $414.02 |
| Dolores Gonzales Elementary School | $0.00 | | $500.00 | 2/26/2016 | $0.00 | | $0.00 | | $500.00 |
| Governor Bent Elementary School | $0.00 | | $500.00 | 2/26/2016 | $0.00 | | $0.00 | | $500.00 |
| Del Norte HS Cafeteria | $0.00 | | $500.00 | 5/16/2016 | $0.00 | | $0.00 | | $500.00 |
| Ernie Pyle MS | $0.00 | | $500.00 | 5/16/2016 | $0.00 | | $0.00 | | $500.00 |
| Chaparral Diagnostic Center | $0.00 | | $500.00 | 5/16/2016 | $0.00 | | $0.00 | | $500.00 |
| Rio Grande HS 9th Grade Academy | $0.00 | | $500.00 | 5/16/2016 | $0.00 | | $0.00 | | $500.00 |
| Douglas MacArthur Elementary School | | | $500.00 | 5/17/2016 | $0.00 | | $0.00 | | $500.00 |
| **total as of 05/17/2016** | $4,290.00 | | $4,914.02 | | $500.00 | | | | $9,704.02 |

**2016-17 Water Saving Goals**

~ Taking advantage of a portfolio of water rights (approximately 382 acres that are currently being used sparingly) drill wells for irrigation purposes at Albuquerque and Valley High School, Los Padillas Elementary School, and Taft, Taylor, Ernie Pyle, and Polk Middle Schools. It is estimated that the cost of drilling the well, over paying the water utility, will pay for itself in approximately two years.

~ Research viability of downsizing water meters. The initial cost to install smaller meters where applicable will save money in the long term.

~ Convert domestic meters at Highland High School and Jefferson Middle School to irrigation.

~ Convert at least four currently grass areas to synthetic turf qualifying for ABCWUA Turfgrass to Synthetic Turf Conversion Program. This rebate is based on the water cost savings of the conversion and allows for $10 per unit of water saved annually up to 50% of the cost of the removal/installation project. A limited number of projects will be able to apply for this rebate annually until the allocated funding is exhausted each year.

**Status of 2015-16 Energy Conservation Goals**

~ Recover costs for after-hours facilities use. *Completed and ongoing*

~ Drive building occupant behavior to be measurably more energy efficient. *Completed and ongoing*

~ Obtain interval data recording meters (IDRs) at all properties to allow better and more useable utility data for troubleshooting and identifying conservation opportunities. *In progress and ongoing*

~ Include solar photovoltaic (PV) projects in the Capital Master Plan for broad implementation District wide. *In progress and ongoing; included in each new building construction project*

~ Gather and analyze building system performance data to inform/influence design choices on new construction and remodel projects. *In progress and ongoing; now a standard procedure*

~ Improve design standards for solar hot water systems to cultivate an approach that is beneficial and cost-effective. *Completed and monitoring to ensure proper operations*

~ Develop a school culture that focuses on energy literacy by harnessing the energy of the classroom—the energy of students. *Launched by Energy Conservation Educator; ongoing*

~ Develop a comprehensive energy management plan for each school in maintaining a sustainable energy conscious school culture. *Launched by Energy Conservation Educator; ongoing*

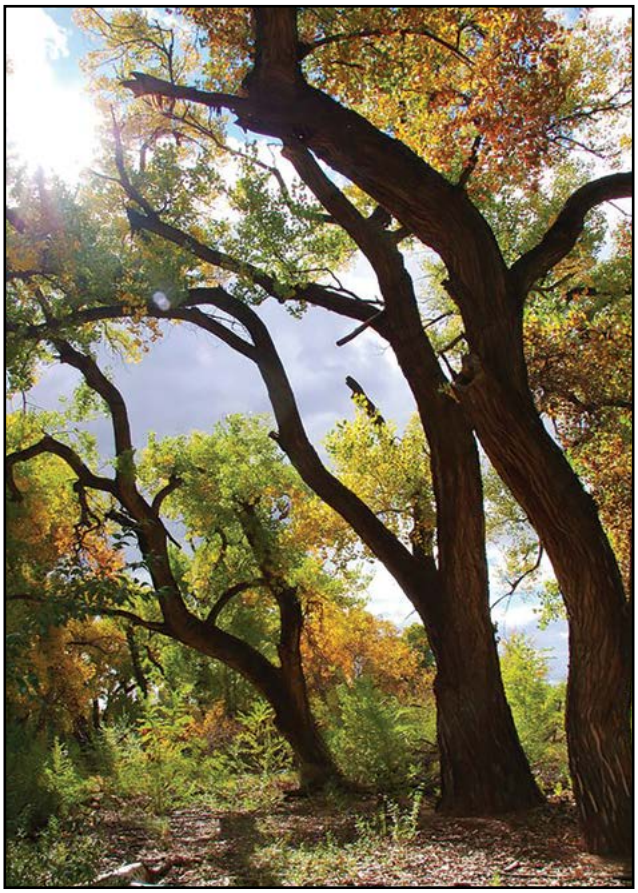
~ Establish energy education and awareness programs for school communities. *Completed*

**2016-17 Energy Conservation Goals**

~ Expand monitoring of electrical usage and systems at schools District wide.

~ Increase utilization of the Facility Scheduling Specialist's services District wide; increase efforts in collection of community use fees; and expand monitoring of community use of APS facilities.

~ Reduce peak demand use and charges.



# ENERGY CONSERVATION EDUCATION


***When students take direct action in their environment, the power of learning is truly demonstrated.***

Conservation and Education Specialist Robert Lazar focuses on every school cultivating conservation literacy and a culture of curtailing energy waste that together create an APS energy conservation *brand that affects change.* Beginning with the students, the brand will build momentum and conservation practices that are celebrated and observed by all personnel District wide. Mr. Lazar's role is to bridge the gap between the District's energy conservation goals, M&O's efforts, and the schools.

Historically, M&O's energy saving procedures and those of the schools have existed independently; this new paradigm serves as a bridge between M&O and the schools. Conserving resources and eliminating water and energy waste can be accomplished by educating and empowering students and staff to: identify waste, raise awareness, and make a unified effort to reduce energy use on a daily basis through behavior changes. Because the results are directly tied to meeting the District's overall goals, Mr. Lazar reports the progress and success of all student and staff educational programs to WECC members.

Following are 2015-16 fiscal year education outreach achievements that raised conservation awareness resulting in student and staff energy use changes:

- **Conservation and Education Specialist participated in the development of the Energy Center**

As stated in the Energy Conservation Program section on page 31, the Energy Center provides a space that focuses on managing utility use and allows for the ability to study, look closely, and identify areas where there are possible issues that need attention, such as verifying time clocks, and observing equipment controls. The Energy Team is constantly looking for opportunities to optimize efficiency. They do this by dialing into data that is streamed live into the Energy Center. As the Center is also used as a learning space, Mr. Lazar contributed to defining how the space would best be utilized in teaching visiting students, administrators, applicable M&O technicians, and others. This includes visitors interpreting data and information collected by the Center from the energy-use web-enabled databases that tracks schools' energy use and performance. The idea is to share knowledge with the school community in both teaching as well as developing a broader base team of energy saving participants. It gives schools an opportunity to become more engaged with how their schools are performing, and take ownership in improving energy use and respecting the planet by becoming stewards of their environment.

- **M&O "EnergyWise" brochure was drafted and published**

This newly created brief, colorful, and most importantly enlightening brochure is used as a program promotion and informational tool when Mr. Lazar meets with Principals, teachers, APS leadership, and the business community. It provides an overview of what the energy conservation program has to offer schools in terms of energy literacy curriculum, its importance in meeting conservation goals, and the numerous hands-on student projects that are as instructional as they are fun. The brochure helps get the message out that M&O is focusing on eliminating waste in schools, saving energy District wide, and supporting students and teachers in learning about the role they play in managing energy use in their schools.


- **Conservation and Education Specialist guest taught in classrooms**

In branding APS' energy conservation efforts, Mr. Lazar delivered 24 EnergyWise presentations to APS classrooms during the 2015-16 school year and will continue to visit classrooms regularly in serving as a change agent for energy-use. His goal is to educate, empower, and provide student leadership an opportunity in which eliminating waste becomes a priority. This model of stewardship can provide a framework for sustainability.

**▪ Two teacher workshops taught "teaching energy conservation"**
On January 26, 2016, Mr. Lazar held a full day workshop sponsored by PNM for 35 APS teachers representing elementary, middle, and high school classes (primarily science, math, and social studies). In conjunction with this workshop, a Building Buddies training session for student energy teams was held as well as many other related workshops for students and teachers.

Promoting the workshops was the ideal catalyst for identifying teachers who are interested in saving energy and establishing a Building Buddies conservation program at their schools. In addition, teachers earned six hours of professional development credit.

***It started with a NEED campaign blast***
As a member of the National Energy Education Development's (NEED) National Teacher Advisory Board, Mr. Lazar was also able to procure NEED's support in these workshops. He recruited teachers via an all-encompassing campaign that included announcements, flyers, e-newsletters, and the EnergyWise website (in development). He emphasized that through participation in the Building Buddies Program, the school would benefit not only educationally, but would support the District's energy goals to lower its environmental impact, thus saving money that would go into Operational funds that directly benefit classrooms. Twelve elementary, middle, and high school Building Buddies teams have been established so far as a result of the above training programs.


**"Energy on the Move" teaching trailer**


**Student generating electricity on stationary bike**

**Students create solar ovens and put them to use.**

*Photos by* ***Randy Montoya***

### ▪ Del Norte High School received National Energy Achievement Award

NEED's annual Youth Awards for Energy Achievement competition recognized Del Norte as the New Mexico Senior School of the Year for outstanding education project. The school's Building Buddies' winning entry, ***The E.A.R.T.H.*** (**E**nthusiastic **A**dvocates **R**especting **T**he **H**ost), is a digital scrapbook of their many energy saving activities (some presented in this section). Mr. Lazar and three of the students traveled to Washington, D.C. in June 2016 to participate in NEED's Energy Achievement program and attend the national recognition ceremony. NEED funded registration and travel costs and the Gas Company of New Mexico donated $500 toward hotel fees.

**Mr. Lazar, top right, with the winning Del Norte Building Buddies team**

### ▪ Mr. Lazar Directed Summer Hibernation Campaign

The Summer Hibernation Campaign, one of the most significant efforts M&O has initiated involving the entire District, was managed by Mr. Lazar. In the spirit of collaboration, the Energy Team (assisted by volunteers including from PNM) solicited the help of the schools to support the goal of eliminating energy waste in schools through the summer months. It began with meeting with school Principals in May 2016 regarding the importance of powering down their campuses during the summer, as well as long holiday weekends throughout the year.


Followed was a full out campaign that blitzed the schools and included a helpful *Summer 2016 Shutdown Checklist* (hibernation brochure). All schools were agreeable to the program and willing to consolidate activities to one area of the school, and following a shutdown check list, turn off lighting and cooling systems throughout the unoccupied spaces. *(See Shutdown List on page 100 in the Appendices).*

Members of the Energy Team then visited every campus beginning in June 2016. The cooperative approach of the walk-through was to help identify opportunities and suggest strategies in support of a $500,000 electric, gas, and water summer savings goal. The initiative was designed to promote awareness and participation in practicing summer season energy optimization. The team functioned with the highest sensitivity to the needs of every school and their education programs and emphasized that all savings achieved are Operational dollars that are returned to the classroom. The Team is also working to bring student education into the 2017 Summer Hibernation Campaign and tie incentives to the Building Buddies program. *(See walk-through findings and recommendations on pages 101-102 in the Appendices.)*

**2016-17 Energy Conservation Education Goals**

~ Increase Building Buddies to 20-25 teams.

~ Develop an Energy/Career Fair open to all APS students to show off and share their energy related accomplishments. Currently working to secure the participation of PNM, Gas Company of New Mexico, ConocoPhillips, geologists, and a solar industry representative.

~ Complete the development of a useful EnergyWise website (in progress) that focuses on energy conservation and highlights schools' accomplishments.

~ Launch an EnergyWise Facebook page, E-Newsletter, and Twitter account in promoting the APS energy conservation brand.

~ Initiate a Conservation Poster Contest at the elementary, middle, and high school levels (three separate competitions). Winners to be profiled on the EnergyWise website. Currently working on incentives.

~ Establish a "back to the schools" rebate program for their realized electric savings (20-25% is goal).

~ Revive the rain barrel program in cooperation with the Albuquerque Bernalillo County Water Authority. ABCWA sold the District 10 rain barrels at a greatly discounted price but more are needed.

~ Introduce a competition challenge in expanding schools' recycling program. Waste Management donated 75 heavy-duty two-wheeled recycling containers with attached lid (48 and 64 gallon) which have been placed at select elementary, middle, and high schools. Presently seeking a funding source for 28-quart recycling wastebaskets to be placed in classrooms. In the meanwhile, teachers will be encouraged to use a painted box until bins are available. Contest results will be published and the winners celebrated.

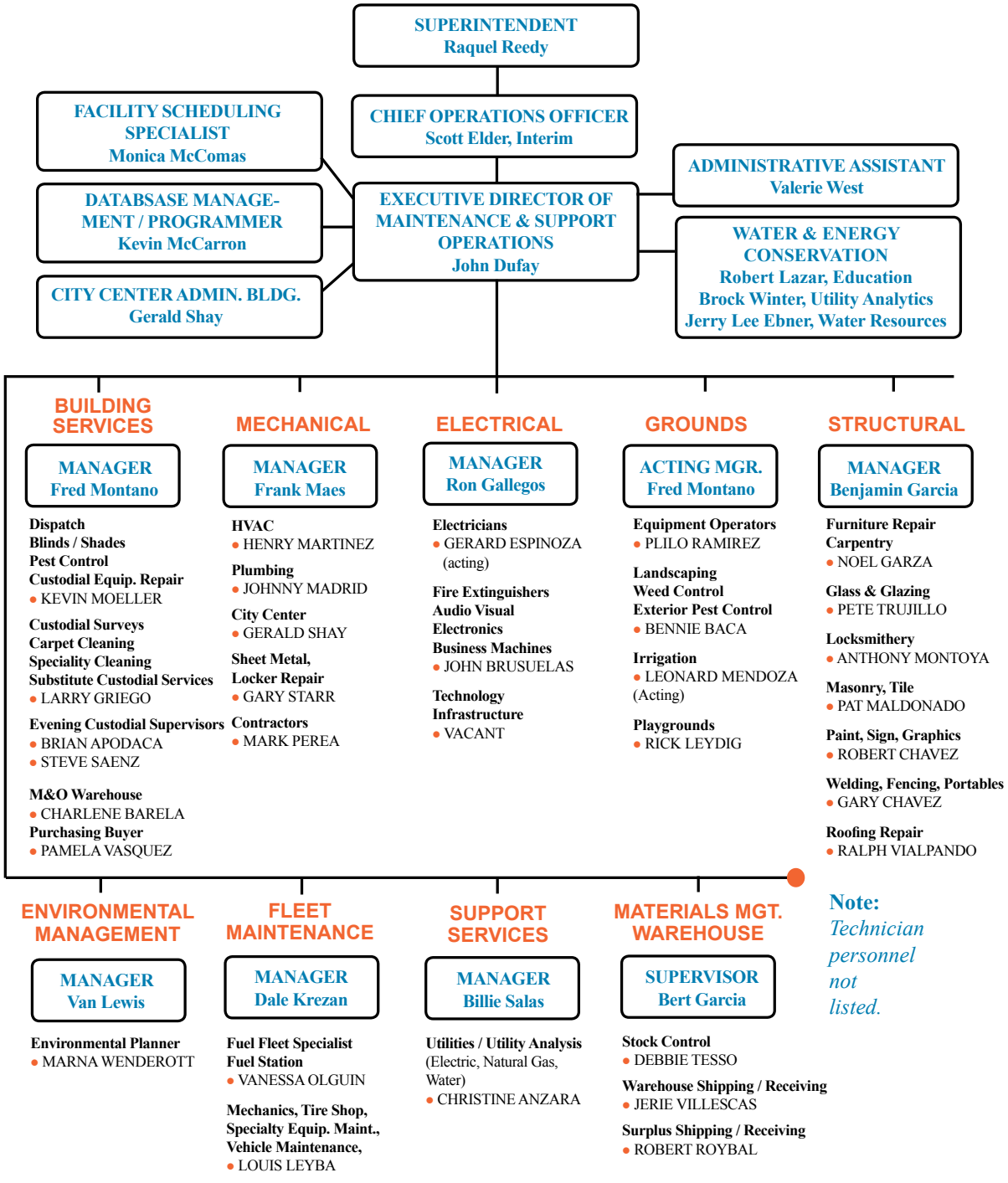
~ Recruit Building Buddies teams to participate in the 2017 Summer Hibernation program.

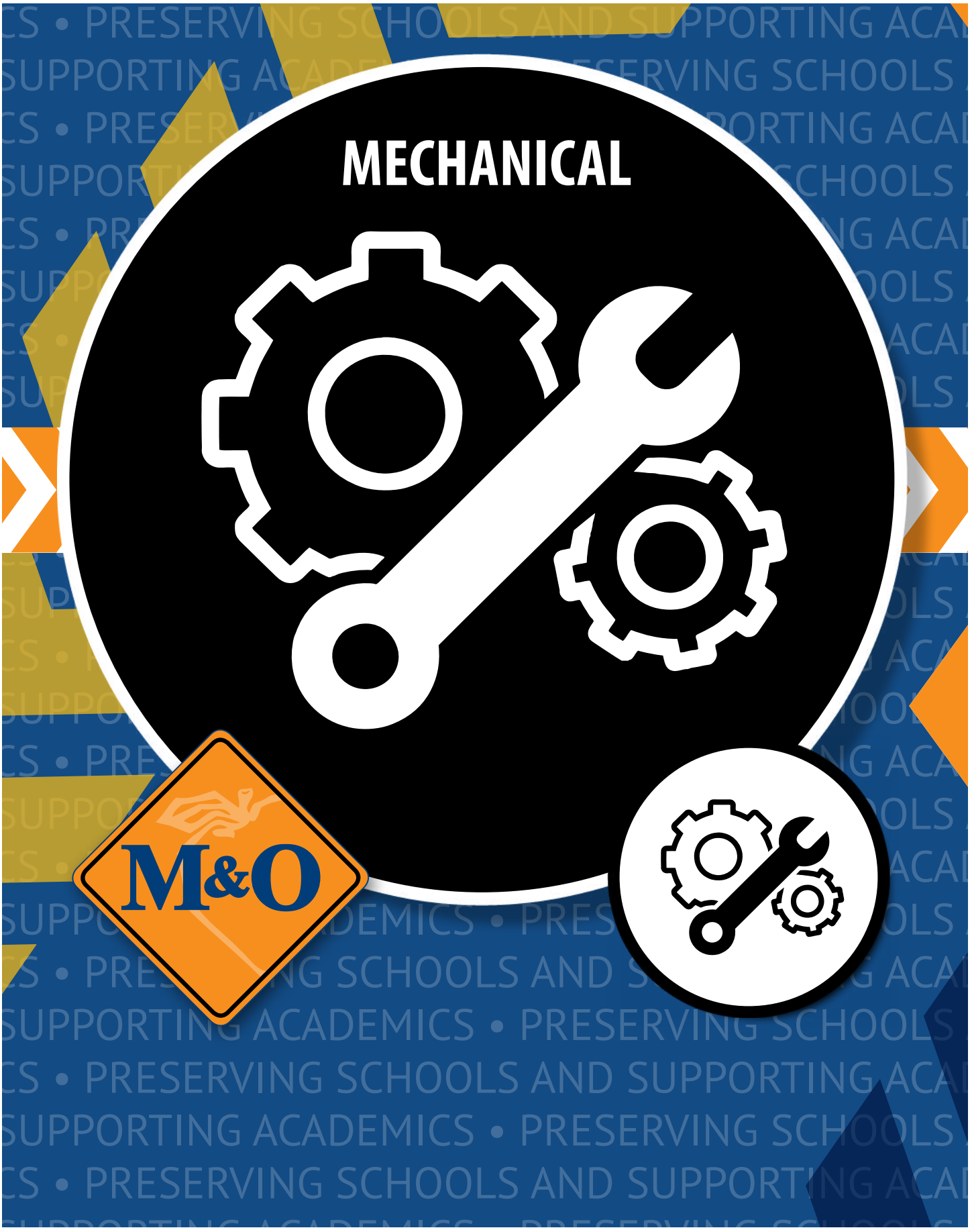
# SERVICE DEPARTMENTS

Profiles of M&O's eight service departments follow the organization chart: **Mechanical, Grounds, Structural, Electrical, Building Services, Fleet Maintenance, Environmental Management,** and **Support Services**.

## APS Maintenance & Operations ORGANIZATION CHART

M&O's following eight integrated departments endeavor to provide the highest possible support of the education process through the reliable delivery of excellent maintenance in District Schools and administrative facilities: **Building Services, Mechanical, Electrical, Grounds, Structural, Fleet Maintenance, Environmental Management,** and **Support Services.**




MECHANICAL
M&O

# MECHANICAL

***Frank Maes***, Manager (24 years with Department, 15 years as manager)
44 technicians and support personnel

Mechanical Craft Shops include HVAC (heating, ventilating, and air conditioning); Sheet Metal (duct work, exhaust vents, venting hot water heaters, installing ceiling grills and air conditioning units, and locker repair); and Plumbing (domestic water, gas, and sewer maintenance).

Indisputably *every* M&O service department delivers needed repairs, replacements, refurbishing, or otherwise improvement services to the schools and administrative facilities; none could be deemed superfluous or eliminated. That specified, weeds on the playground, a door that does not close properly, or a damaged ceiling tile does not put the brakes on the instructional day or adversely affect even one student. No, these seemingly small issues are never ignored to worsen, but rather are attended to as soon as possible. Conversely, a malfunctioning cooling system in August lulls students to sleep and a conked-out heating system in December fully wakes them, but not in a good way! These mechanical issues require and receive attention ***now***; as soon as possible is not quick enough. Simply stated, schools do not meet their purpose of educating students without mechanical and plumbing systems functioning properly every minute of every day year round; mechanical maintenance is the nucleus of facilities management.

The Department concentrates on observing scheduled preventive maintenance inspections and maintenance of systems in staying ahead of equipment glitches *before* they become costly and urgent events. Unlike the damaged ceiling tile, a failed mechanical or plumbing system is pricey and urgent with the potential to shut down the instructional day. Mechanical technicians apply their preventive maintenance and emergency skills expertly in guaranteeing that classroom or entire school closures do not occur.

The Department's comprehensive PM program ensures that HVAC systems are inspected on schedule depending on usage (monthly, quarterly, or annually). Systems' "smart" controls — rapidly becoming more and more cutting-edge — allow for optimal learning conditions and comfort and are continually monitored via the Internet. Safety inspections are conducted monthly on all fire protection sprinkler systems, kitchen hood fire suppressant systems, and boiler systems. The one-man Locker Repair Shop is the only craft not on a PM program as senseless vandalism is the sole cause of needed locker repairs.

## HIGHLIGHTS

- **Tablet computers have streamlined technicians receiving work orders and completing SchoolDude paperwork**

Rather than receiving work orders just once a day, HVAC and plumbing technicians are now able to receive them throughout the duty day as well as enter their hours, job status and comments, and "complete" the WO. Computers are still provided in Shop offices for use by the technicians as needed.

- **Six experienced plumbing techs hired to replace retires and resignees**

The Plumbing Shop endured more than usual turnover in 2015-16, however with a value-added result as the newly employed practiced technicians were able to hit the ground running with no learning curve downtime. With the Shop fully staffed, training all personnel on backflow testing was made possible *(see following Highlight)*.

- **Backflow prevention PM conducted in-house saves the District $90,000 annually**

Previously the testing, inspecting, and repair work was performed by vendors only as needed and not on a PM schedule. Fewer reactive work requests are expected (2.2% so far in 2015-16) and the District will save approximately $90,000 annually. All plumbers are now trained and are certified to conduct these tasks.

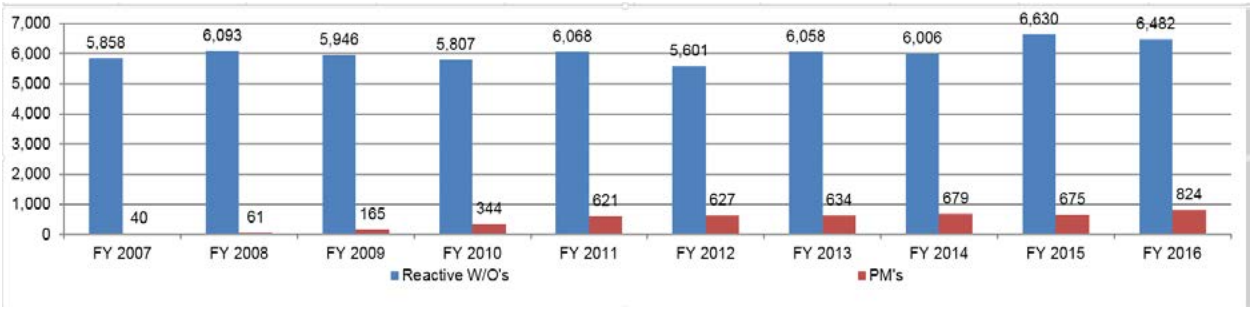
- **Initiated new PM program for hot water heaters**

The Plumbing Shop launched a new preventive maintenance program that annually tests pressure relief valve; checks that burners and pumps are operational; and flushes the tank.

■ **Plumbing Shop increased preventive maintenance work 22%**

As demonstrated from the last two PM related Highlights, the Plumbing Shop was able to perform 149 more PM work orders over the previous year, a 22% increase. In addition, reactive WOs dropped by 2.2%.

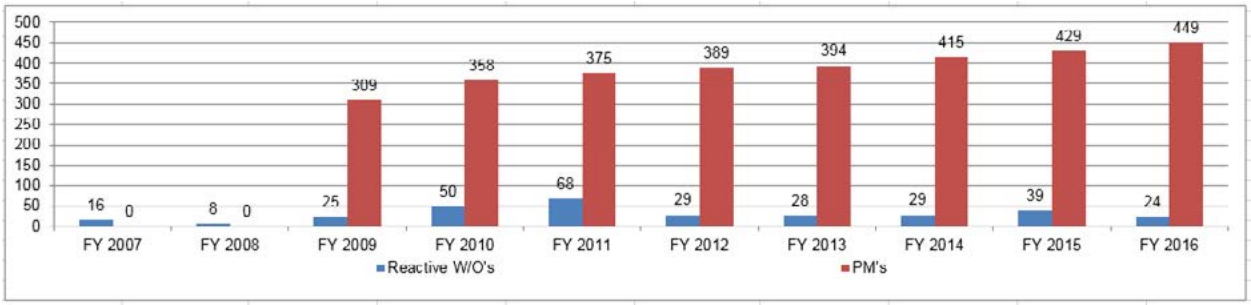
**PLUMBING SHOP**




■ **Fire sprinkler PM work on a consistent upward course**

Reactive fire sprinkler work orders decreased by 38.4% in 2015-16 while PM work increased 4.6%, consistent with its historical upward climb. While the District's physical growth is the reason for some increase in preventive maintenance work orders, the newly hired sprinkler technician (a licensed and Certified Fire Sprinkler Inspector) is credited for assuming some of the PM testing, inspecting, and repairing previously performed by an outside vendor. His goal is to build up to eliminating the contractor entirely.

**FIRE SPRINKLER SHOP**




■ **HVAC Shop is taking over water treatment PM for water cooled chillers and boilers from contractors**

Three technicians are exclusively assigned to this work that is 100% completed District wide for boilers and has started with water cooled chillers. The PM necessitates chemically treating and monitoring the water systems in chillers and boilers to prevent corrosion and microbicides (including algae) and nitrate accumulation. The annual estimated savings over paying vendors is $185,000. The transition away from contractors will be completed in the 2016-17 FY.

**Mechanical equipment vandalism on high school roof**

■ **Upgraded evaporative coolers, air washers, refrigerated cooling, and heating units at select sites**

As much of this equipment is installed on rooftops, it is regularly imperiled by intense sun, pounding rain, snow, hail, and gale winds. While preventive maintenance can argue with Mother Nature, she eventually wins and the equipment must be replaced. Upgrades in 2015-16 include: a new chiller at the APS Data Center; replacement of two air washers and refurbishment of 80 cooling units at La Cueva High School; air washers refurbished at Longfellow Elementary School; and replacement of heating and refrigerated air units at Del Norte High School's Performing Arts Center and Sandia High School's administrative building. Eventually all aspen type evaporative coolers will be phased out and replaced with MasterCool type coolers.

■ **Department Manager participated in the design of VRF and DDC HVAC systems at new construction sites**

Heating and cooling variable refrigerant flow systems and direct digital controls (low voltage electronics on heating and cooling systems individually operated via the APS Intranet) save energy, service needs, repair time, and costs. VRF and DDC systems are the new standard for all new or replacement projects and installations and in 2015-16 included: Rio Grande High School 9th Grade Academy; the gyms and classroom wings at Monzano and Valley High Schools; rebuild of Mountain View Elementary School; new classroom additions at Atrisco, Reginald Chavez, and Comanche Elementary Schools as well as Ernie Pyle Middle School and Aztec Special Education Complex; and the Northwest Family School currently under construction on Albuquerque's west side.

■ **Installed programmable t-stats curb heating costs**

The Mechanical Department installed 300 plus (valued at $100 per unit) programmable thermostats in portable classrooms provided by the Gas Company of New Mexico at no cost to APS for replacing inefficient manual controls that ran year round. The heating and cooling systems are now pre-programmed on schedule: On at 6:30 AM and off at 4:40 PM with a possible temperature range only between 68-72°. An override button allows a teacher to turn heating or cooling on for one hour (every hour) after 4:40 PM.

■ **Cleaned out sewer sanitary lines and storm drains at select schools**

Utilizing the jetter previously used only for emergencies, high pressure washed systems to prevent backups (a common result of connecting a new system to an existing system) at Collect Park and Wherry Elementary Schools as well as Valley High School.

**New plumbing installation in classroom**

■ **Replaced multi-zone heating and cooling units at Eldorado High School's administrative building**

The antiquated and timeworn unit that outlived its projected life span was replaced with an energy efficient system that provides considerably more comfort and requires less maintenance.

■ **Relief fans PM terminated, but in this case it's a good thing**

The preventive maintenance conducted on evaporative cooling and kitchen hood relief fans was ceased as a benefit was not evident. The work is now performed only on an as needed basis saving time to address more advantageous tasks.

**▪ PM programs (ongoing)**

As many HVAC and plumbing service inspections are state-mandated (but not state funded), the Mechanical Department is ahead in developing PM programs; however, many of the following PM programs are not required. All PM work is automatically generated by the PM Direct work order system. PM work orders are scheduled monthly, bi-monthly, semi-annually, and annually (depending on use and function) and visual inspections are performed weekly. PM Direct inspection and/or service work orders are automatically generated for the following:

- Fire protection sprinkler systems
- Kitchen hood suppression systems
- Exhaust fans
- HVAC filter change-out
- AC equipment inspection and fully serviced (pads changed every other year)
- Spring AC start-ups (evaporative)
- Winterize AC shut-downs (evaporative)
- Cooling tower and chiller services to include air cooled chiller water closed-loop systems
- Hot water heaters inspection (quarterly, pressure testing *new*)
- Boiler testing, inspection, and repair:
  - Steam boiler service
  - Steam boiler prep for winter heating
  - Steam boilers layup
  - Steam boilers (summer)
  - Hot water boilers (summer)
  - Boiler inspections (visual, weekly)
  - Chemical treatment for boilers and chillers
- All heating system start-ups (with and without boilers)
- Plumbing systems (annually, primarily summer)
- Water softener treatment
- Chlorinate treatment
- Plumbing inspections at all school sites (drains, faucets/fixtures, toilets, urinals, water fountains)
- Septic pumping and disposal
- Grease trap pumping
- Backflow testing and inspection / backflow prevention
- Air compressors
- Fire pump flow
- Dry pipe system drip test
- Water cooled chillers and boilers water treatment
- Ground source closed-loop service
- Natural gas pipe run/inspection: Per the New Mexico Public Regulation Commission, by Congressional Mandate the Natural Gas Pipeline Safety Act, all gas lines from the meter to the building, in accordance with Mandate (Docket PS-135, Amendment 192-3), all buried gas lines are to be periodically inspected for leakage and repaired if unsafe conditions are found. One third of APS gas lines are inspected on an every third year rotation (summer). APS pressure tests at 5 PSI or service line pressure, greases all gas stops, and repairs any gas lines as needed per the pressure test.

**▪ New PM program** *(note Highlight above)*

- Pressure test hot water heaters (annually)

**Emergency water line repair at Highland High School crews worked night and day**

✓ **Special Challenge / Issue**

~ ***Department is struggling to recruit competent technicians at a competitive salary.*** While private industry does not provide APS' advantageous employee benefits, they do offer enticing salaries that APS simply cannot match. As the Department's workforce retires, it is becoming more and more difficult to find qualified licensed replacement technicians.

**GOALS**

**Status of 2015-16 Goals**

~ Complete an updated inventory of equipment. Leadership is evaluating options regarding adopting a better method with FD+C for capturing new equipment added to re-builds, additions, and renovations as well as deleting discarded equipment. A sustainable method needs to include all replaced (new) HVAC and electrical equipment (motors, fans, control panels, and more) when construction work is completed. *In progress; FD+C has successfully negotiated contractors providing inventory listings with each maintenance service agreement on all new construction projects.*

~ Complete training and certification of most if not all technicians in testing, inspecting, and repairing backflow devices District wide. It is estimated that once accomplished 90% of this work can be performed in-house at an astronomical savings. *Completed to 100% surpassing goal; see Highlight on page 47.*

~ Complete training and certification of all HVAC technicians and Supervisors in variable Refrigerant Flow (VRF) and Direct Digital Controls (DDC). *Follow through on goal slowed down due to needed funding.*

~ Replace the multi-zone heating and cooling units at Eldorado High School. *Completed; see Highlight on page 49.*

~ Assign simple, low skill level work to contractors in freeing up highly skilled in-house technicians to perform the more difficult work orders. This will require a thorough and scrupulous analysis of work order data to determine how to strategically shift work assignments to make the best use of both in-house techs and contractors. An annual savings of $200,000 – $450,000 is projected. *As in-house technicians retire it becomes more difficult to hire new highly qualified HVAC technicians just as it has become for the Plumbing Shop.*

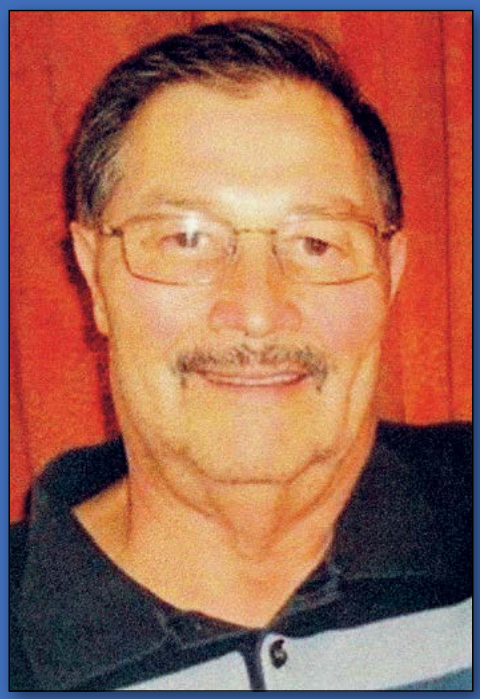
**2016-17 Goals**

~ Complete the transition of PM work for water cooled chillers and boilers performed by contractors to conducted 100% in-house.

~ At Jefferson Middle School, refurbish two air washers in classroom wing; replace all HVAC equipment in Science Building; and replace air washer system with refrigerated heating and cooling systems school wide (currently in consideration for design and construction).

~ Eliminate inefficient high energy-use equipment and replace it with low maintenance and energy efficient equipment at approximately 10 sites.

# Joe Salas



July 26, 1954 – February 1, 2016
**(28 years of APS service)**

Joe started his plumbing career as a teenager, helping his father, learning the trade throughout the years in new construction and in the repair aspect. Using that knowledge, Joe joined APS in 1988 and was very happy working in town, having consistent work, a regular paycheck, and with the benefits. Over time, he came to know the District inside and out as well as APS personnel from administrators, teachers, custodial and cafeteria workers, various APS departments' staff, and of course, the M&O family. We rarely went anywhere in Albuquerque that he didn't see someone he knew from APS or vendors and contractors he dealt with often. Joe was happy in his role as a technician followed by the Plumbing Shop Supervisor in completing almost 28 years as a dedicated employee. I know he is missed by those who knew and worked with him. He was loved by all of his fellow employees and staff. I thank everyone who was a part of his successful APS career and life.

*~ Billie Salas, Wife*

Joe is a great loss to M&O personally and professionally. His knowledge, work ethic, and positive disposition cannot be replaced. Joe was an extremely skilled technician and his leadership skills shined as he transformed the Plumbing Shop into a role model of dependability and professionalism. Along with his wife Billie and their family, he is deeply missed by his colleagues, many M&O friends, and the school administrators who came to depend on his expertise, kindness, and readiness to serve them.

*~ John Dufay, Executive Director of Maintenance and Support Operations*


GROUNDS
M&O

# GROUNDS

***Fred Montaño,*** Acting Manager (36 years with APS, one year as Acting Manager)
45 technicians and support personnel

Grounds Craft shops include Heavy Equipment Operators; Landscape Maintenance (includes Tree Trimming); Weed and Exterior Pest Control; Irrigation; Grounds Safety Inspection; Water Resources; Paving; Portable Maintenance; and Playground Maintenance and Repair.

The M&O Grounds Department supports students' full potential for academic success by delivering safe, healthy, appealing, and purposeful outdoor common areas, playgrounds, sports fields, tennis courts, running tracks, and outdoor learning spaces. And in meeting this need for students, Grounds maintenance concurrently contributes to the preservation of APS' real estate. Lastly, the upkeep of all facilities' curb appeal and outdoor aesthetics inspires a sense of school pride felt by the students and their parents, teachers and staff, and the neighboring residents.

Portable maintenance technicians provide exterior maintenance and access (including ADA access) for over 1,400 portable classrooms. The Landscape and Irrigation Shops maintain and irrigate the District's 360 plus acres of athletic fields; over 150 and multiplying playgrounds; and thousands of native trees, drought tolerant plants, shrubs, and ornamental grasses; lawns; school summer gardens; and other open space vegetation.

Playground technicians are dedicated to providing the safest possible playground equipment and play areas for the enjoyment and recreation of kindergarten and elementary school kids. Regularly scheduled inspections and repairs are performed on a wide assortment of thousands of pieces of playground equipment certified by the International Play Equipment Manufacturers Association (IPEMA). And as the Shop's technicians are all skilled and licensed welders, they are frequently called upon to support other M&O Departments' welding needs.

Trained and licensed by the New Mexico Department of Agriculture (NMDA), the Department's horticultural pest control technicians safely exterminate unremitting weeds and insects that are annoying at minimum and a serious health hazard if left to propagate. Infinitely more than simple weed eradicators and bug exterminators, the horticulturalists are knowledgeable in all areas of both approved and restricted chemical use. These include applicator certification and state licensing; worker protection and safety; pesticide registration; protection of water and endangered species from pesticides; and complaint investigation. The NMDA ensures compliance with both federal and state laws related to agricultural and horticultural pesticides use. The technicians stay up-to-date regarding newly introduced chemical products and their proper application through continuing education curricula conducted by the NMDA. A consistent labor of record keeping and database are required by federal regulations and NMDA.

The Heavy Equipment Shop provides support to other M&O technicians, most often plumbers and electricians, in performing repairs with minimal if any disruption to classroom instruction. In addition, they perform heavy equipment-required jobs with regards to erosion control, ADA access, and snow/ ice removal. Lastly, heavy equipment operators are responsible for maintaining the District's paved surfaces, grading dirt tracks and open playground spaces for student safety, and the collection and delivery of materials (sand, wood chips, and fill-dirt) to playgrounds and other areas.

**Heavy equipment operator assists in replacing water line**

# HIGHLIGHTS

**▪ Grounds Department's new leadership team yielding notable results**

Three individuals were at the helm of managing the Department between 2009 and 2015, all having moved up from Grounds technician positions. That's quite a lot of leadership shuffling for the large and pivotal department responsible not only for every square inch of the District's outdoor real estate but also vital in aiding other M&O departments for many with repairs requiring welding and heavy equipment assistance.

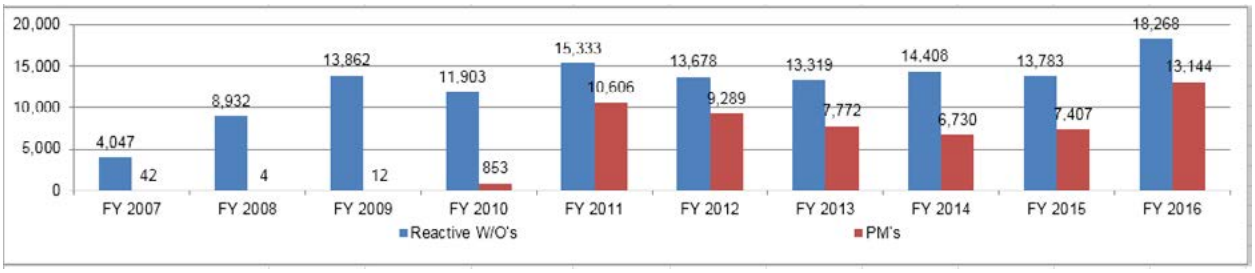
With the retirement of Acting Manager number three in 2015, the Executive Director took a different approach in appointing Fred Montano, the long standing Manager of Building Services, to oversee the Department and personnel that had undergone too much flux for too long. Although Mr. Montano, taking over Grounds at the start of the 2015-16 FY (while still overseeing Building Services), may have limited grounds experience, he was a proven manager and just the ticket to stabilize the Grounds Department.

Morale has never been better and significantly improved productivity has followed. Mr. Montano credits his newly appointed Supervisors and Assistant Supervisors for the positive transformations in every Craft Shop. Likewise, the Supervisors (featured below) credit their new and competent Manager for empowering them to independently apply their many years of experience and knowledge of APS to lead their crews. All employees across the board are also now held accountable and glad for it, and are also working better in assisting other departments. Mr. Montano has effectively turned Grounds into a high performing department.

**▪ Preventive maintenance increased 77.4% department wide**

As charted throughout this section, Grounds Department personnel hit *their* ground running in 2015-16 like never before. The remarkable 77.4% increase in PM work over the previous year is due to assuming preventive maintenance work previously conducted by contractors as well as stepping up existing PM programs. More accountability is also credited for increased PM and productivity across all Craft Shops. Reactive work orders also increased as crews present on school sites to address requested work took the initiative to survey the campus and execute any detected needed repairs. Mother Nature also contributed to the heightened work activity in 2015-16. Torrential rains encouraged weed growth, unwelcomed mosquitoes and other insects, as well as increased mowing and vegetation trimming and grooming. Strong winds called for heavy equipment operators to clean-up downed trees and other debris. All this in addition to the already scheduled work placed more stress and pressure on the department as depicted by the following bar graph.

**GROUNDS DEPARTMENT (includes all Craft Shops)**




**Landscaping, Trees, and Weed and Outdoor Pest Control Shop – *Bennie Baca*, *Assistant Supervisor***

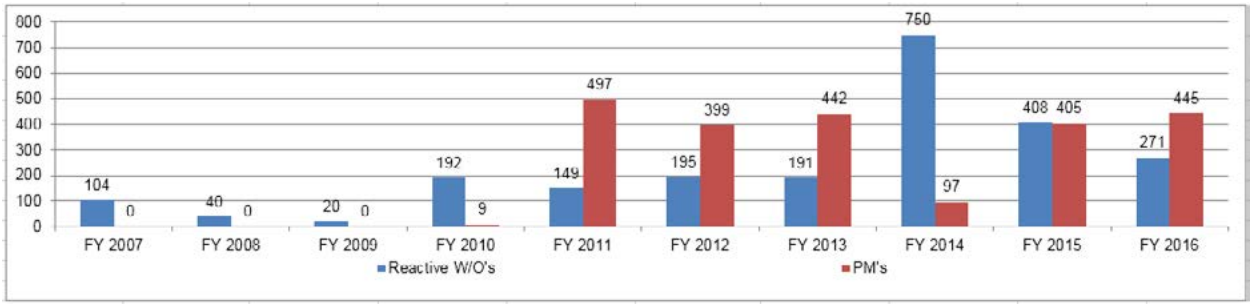
Previously a landscape technician, Mr. Baca replaced a retiree and immediately initiated more expedient procedures including better utilization of PM Direct. He is exceptionally conscientious, needs little supervision, and is adept at employing the right vendor for each specific task. He credits his crew that has gladly stepped up to the plate and exceeded his expectations. As all technicians comprehend that in suitably maintaining outdoor learning spaces for the students, their jobs are much larger than tending to weeds and flora! Mr. Baca is also resolute in keeping technicians abreast of the training required to work with new products and materials, including synthetic turf.

**▪ Weed control PM work orders up 9.8%, reactive work orders down 33.5%**

Mr. Baca has completely changed the approach to battling pernicious weeds in initiating a new two point PM program that increased preventive maintenance work orders by 9.8% resulting in a dramatic 33.5% decrease in reactive work orders. The horticulturalists are no longer reacting to work requests to eradicate a few weeds but rather proactively tackling many more at one time. They are also educating custodians, Principals, and administrators on the new program so they know not to issue work requests. Pre-emergent weed control, conducted in October, prevents weeds in weed prone areas

from ever revealing themselves. Post-emergent weed control, carried out in March, exterminates established and growing weeds. The PM cost ratio increased 48% over the previous year, weeds are much more under control, the schools are happier, and the District is quickly getting sites in compliance with the New Mexico Department of Agriculture.

**WEED CONTROL SHOP**

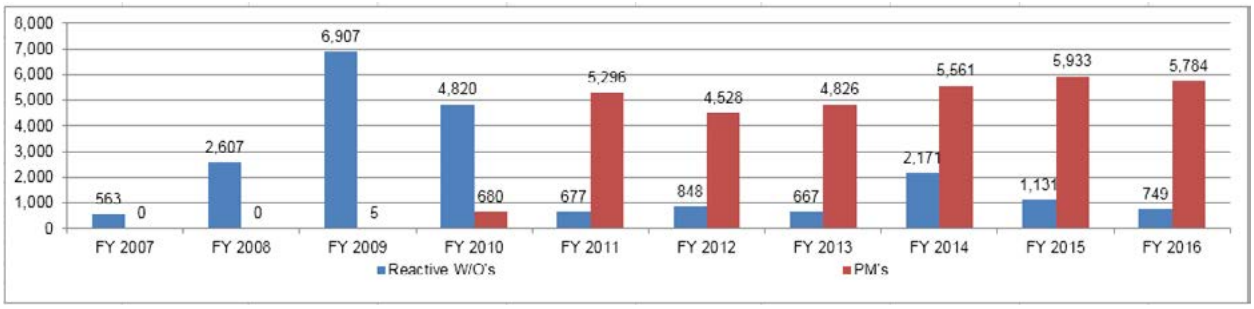



The Shop is also incorporating more organic manual approaches to eradicating weeds including shoveling it out or using tractors for larger jobs. While chemicals certainly serve their purpose, pesticides are not always the smartest and most efficient solution.

**▪ Landscaping reactive work orders down 33.7%**

The Landscaping Shop has realized the same success as the Weed Control Shop — reactive work orders have declined 33.7% due to technicians doing a more thorough job of cleaning up the site with each work request. Rather than just trim one overgrown shrub as requested, all foliage is inspected and trimmed as needed.

**LANDSCAPING**

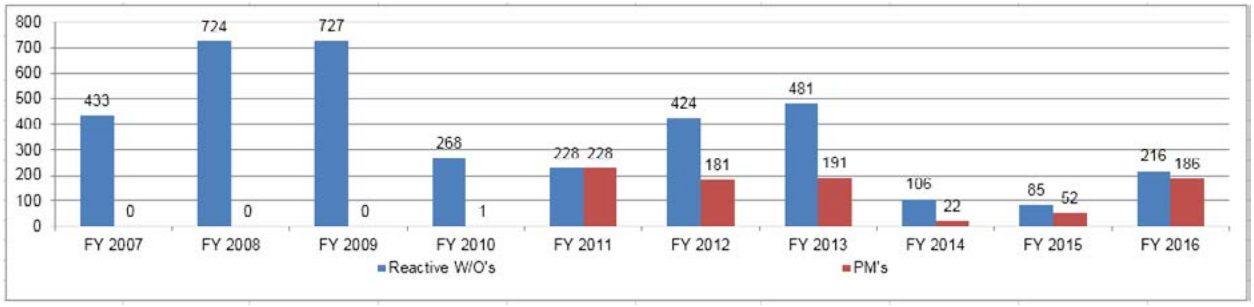



**Controlling pests can be dangerous. This snake was captured at a west side school**

**▪ Outdoor pests defeated due to 257.6% increase in PM work**

As the following graph exemplifies, outdoor pests received a great deal of attention in 2015-16 over recent years. Reactive work orders increased by 154.1% and PM work increased by a dramatic 257.6%. The existing PM program was heightened with horticulturalists visiting campuses more frequently in proactively combating the eternal problem of bothersome pests.

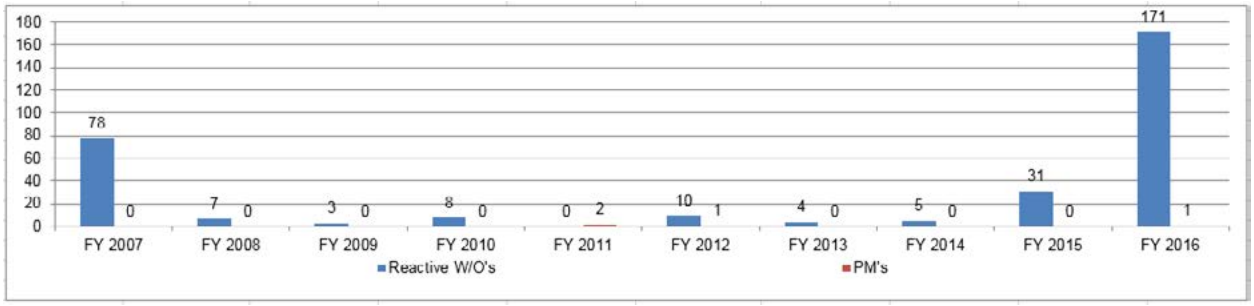
**OUTDOOR PEST CONTROL**




**▪ Tree trimming services increased by 451.6%**

As illustrated by the following bar graph, 2015-16 was also a very busy year for tree cleanup. As the District's trees are getting older and bigger, they are becoming more of a health hazard. The violent winds and heavy rains caused many fallen limbs and other tree damage. To save the trees and ensure safety to the students, contractors assisted in quickly attending to the issue saving all but one tree throughout the District.

**TREE SERVICES**




**Irrigation Shop – *Leonard Mendoza*, *Acting Assistant Supervisor***

Previously an irrigation technician, Mr. Mendoza assumed control from the Water Resources Specialist of the MIR 5000 (the radio controlled District wide irrigation system) in better aligning technicians' field work to the MIR 5000 central control system. Programming, scheduling, and communication between Mr. Mendoza and field technicians are all vastly improved; as a result, the efficiency of the irrigation system, along with technician performance, has also markedly improved. Due to newly implemented and staggered communication timeframes between the MIR 5000 and irrigation controls, technicians are now able to work with the irrigation schedule, not compete against it. In addition, Mr. Mendoza is working much closer with MIR 5000 tech support in enhancing the performance of the sophisticated system and better utilizing helpful features.

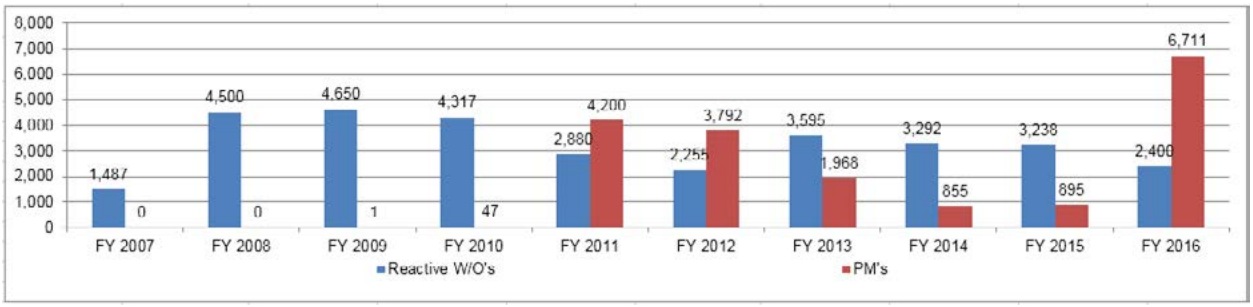
In assuming his new role, Mr. Mendoza was also immediately charged with launching an improved irrigation PM program to streamline efforts. While PM work initially increased radically *(note following Highlight)*, a forthcoming decrease is expected as the new PM program becomes more effective. He is also working with the M&O Executive Director in assessing the viability of drilling irrigation wells at the most opportune school sites, such as Ernie Pyle and Taft Middle Schools, Albuquerque High, and Los Padillas Elementary in taking advantage of water rights owned by APS in both saving in water utility costs as well as perfecting the District's valuable water rights.

Mr. Mendoza recognizes the contributions of Fabian Garcia, Lead Technician, in greatly assisting in the Shop realize the following 2015-16 achievements:

■ **Irrigation Shop increased preventive maintenance work by a dramatic 649.8%**

There are multiple reasons for this seemingly implausible increase in PM work: 1) Previously, one PM work order was generated for a "route check" and many sites and systems were inspected on that single work order; 2) Better utilization of PM Direct is more accurately identifying and tracking the number of PM work orders (distinguishing from reactive), and 3) More PM is also actually being conducted as technicians aren't waiting for breaks on the manual controls. The central MIR 5000 monitors and immediately identifies most controllers' issues, but manual controls are still in use at many sites. Techs are now assigned to perform either exclusively PM or reactive work which has enabled the PM crews to inspect sprinklers and other devices more thoroughly and regularly catch little matters before they become large problems. Additionally, more systems that could have been controlled via the Internet but weren't, have been moved to the central system freeing up much time to perform other needed work.

**IRRIGATION SHOP**




■ **Transitioned three school sites from Motorola irrigation controls to Rainbird**

As the longstanding Motorola units (that communicate with the valves that open and close the water flow) malfunction, they are being replaced with Rainbird units in problem areas where Motorola is not appropriate. Should one Rainbird unit shut down, all the subsequent irrigation sites are not automatically shut down in response. An alarm alerts the techs to manually turn on the Rainbird and inspect the system. Rainbird units were installed at Los Padillas, Tierra Antigua, and Marie Hughes Elementary Schools.

■ **Irrigation backflow procedures significantly improved**

The need and use of contractors is irrefutable and often the wisest approach, but as the following demonstrates, M&O crews possessing ownership and pride in their work are indispensable. Mr. Mendoza implemented the following three new procedures in 2015-16 in greatly improving the performance and maintenance costs of the District's approximately 350 irrigation backflow assemblies.

· ***Transitioned all annual backflow testing from contractors to in-house state licensed technicians***

With irrigation technicians now conducting 100% of this work, the District expects to save approximately $30,000 –$40,000 annually.

· ***Began upgrading backflow prevention assemblies***

In M&O techs taking over the task of backflow testing, they discovered that many units were not freeze protected, hence not in compliance with the Albuquerque Bernalillo County Water Utility Authority. The Irrigation Shop expects to have all assemblies upgraded by the end of the fiscal year in preventing the flooding caused by frozen pipes bursting.

**Replacement of old in-floor heating pipes at Hayes Middle School**

- ***Organized and cleaned-up backflow testing database records***

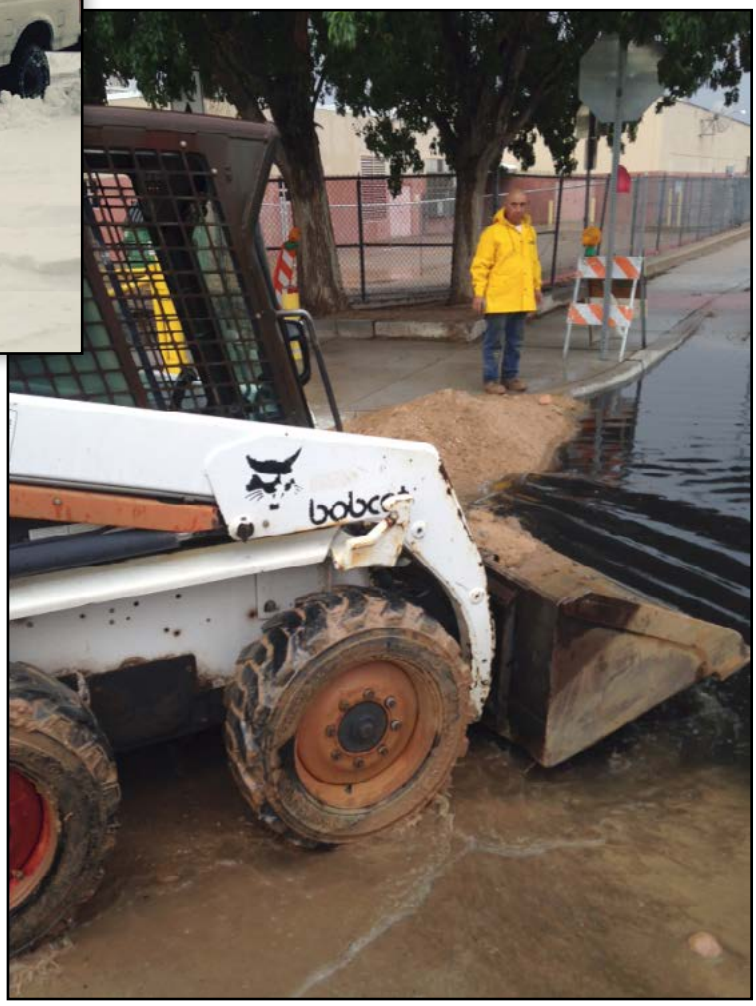
Also as a result of in-house technicians assuming testing previously performed by outside contractors, it was discovered that some devices were not identified properly or at all in the database. The location of some units was incorrect, and APS was paying for backflow assemblies owned by the City of Albuquerque Parks and Recreation Department and Bernalillo County. (The status of joint-use fields shared between APS, the City, and the County fluctuate requiring the update of billing procedures and records.)

- **Began process of labeling and identifying irrigation program lines and descriptions of irrigation stations**

Technicians have experienced unnecessary confusion while working in the field due to the many distinctly different program lines and irrigation stations. Clear labeling of lines and detailed descriptions of irrigation stations simplifies and fast-tracks tasks as well as makes for a more user friendly MIR 5000.

**Damaged underground irrigation system**

**Snow removal is winter routine at east mountain schools**



**Heavy equipment needed for heavy flood erosion control**

**Heavy Equipment and Paving Shop – *Philo Ramirez*, *Assistant Supervisor***

Possessing 14 years of experience in the Grounds Department, Mr. Ramirez was highly qualified to replace a retiree. Previously a Playground Shop tech and more recently a heavy equipment operator, he has increased communication between his crew as well accountability — from his own down to every technician. Mr. Ramirez has tackled the long overdue task of cleaning up many "on hold" and "pending" work orders. Extremely knowledgeable and professional, his leadership and skills set have passed muster with all technicians.

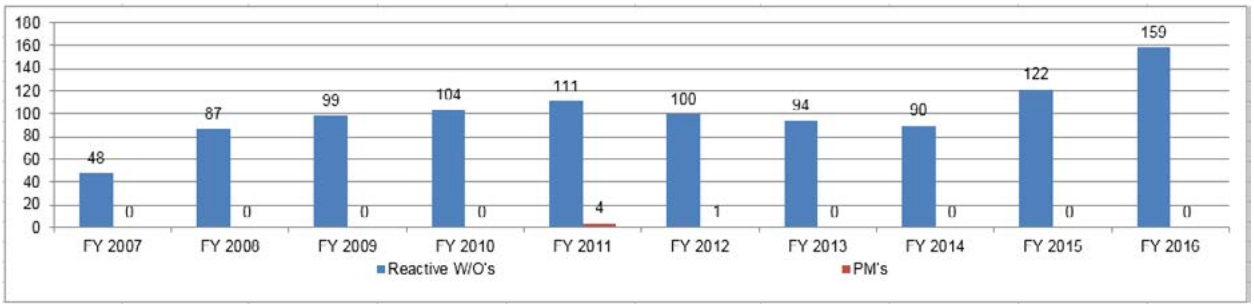
**▪ Replaced sorely needed equipment**

As mentioned elsewhere in this section, the Grounds Department is in dire need of updated equipment and made a bit of progress in 2015-16 with the replacement of asphalt cutters and compactors as well as jumping jack tampers used for trenching and compacting dirt.

**▪ Paving improved District wide**

The Paving Shop performed 30.3% more work orders over the previous year and as the following bar graph illustrates, many more than ever before. Simply stated, much of the District's asphalt is old and old asphalt buckles, cracks, and wears thin. The roots of APS' long-standing trees also raise and break asphalt. These long ago paved lots have been screaming for attention and under the direction of the new Assistant Supervisor, they are getting it! Mr. Ramirez reclassified "on hold" projects (scheduled for repaving by contractors) to "just do it now in-house" projects. Many repaving and other "middle" classified projects (more than a repair but less than a repave), customarily performed by contractors were carried out by M&O technicians. The schools are quite pleased and the technicians are more challenged and rewarded.

**PAVING SHOP**



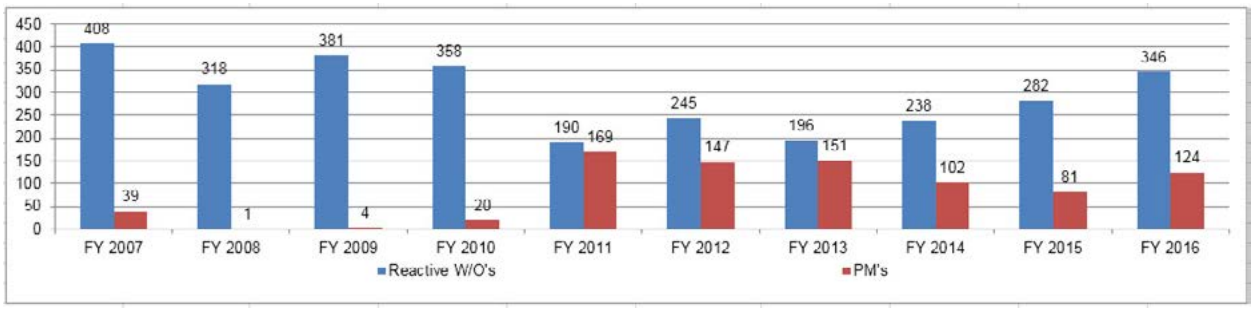

**Playgrounds and Portables Shops – *Rick Leydig*, *Supervisor***

Mr. Leydig, with the Department for 16 years, is Grounds' most tenured Supervisor. He has adeptly headed the Playgrounds Shop since 2007 and recently also assumed supervision of the Portable Shop.

**▪ Playground Shop improved use of PM Direct in more accurately tracking preventive maintenance work**

The 53% increase in PM work depicted below actually signifies the improved use of PM Direct which has simplified and made PM work more achievable.

**PLAYGROUND SHOP**



**▪ Expanded playground equipment-use training for schools**

The Playground Shop provided classes to teachers regarding what to watch for in observing children playing on equipment; how to correct students' misuse of equipment; how to guide them in playing safely; and how to spot and report damaged equipment or a potential safety hazard.

**▪ Enlisted the support of vendors in identifying playground equipment with possible issues**

Although the inspection of equipment is on a PM schedule, the more eyes on the job, the less likelihood of injury. Vendors were asked and agreed to inspect all their manufactured playground equipment when they are on the site regarding a specific piece of equipment (providing training, or installing equipment) and inform the Shop Supervisor of any found issues. The vendor photographs the questionable equipment for the Supervisor who sends a technician to verify its condition. It's a win for all parties; the vendor has an opportunity to make a piece of equipment safe; students are safer as potential breaks are identified before an accident; and in-house inspection time and repairs are lessened.

**▪ New PM programs**

. October – pre-emergent weed control
. March – post-emergent weed control

**▪ PM programs (ongoing)**

• *Grounds and Fields:*

. Grading dirt tracks
. Irrigation controllers' verification and testing (daily)
. Landscape maintenance of baseball and softball fields (corrective action at infields and infield lips)
. Playground equipment audits (cut back from twice a year, then to annually, and currently down to once every 14 months due to scheduling work issues)
. Grounds safety inspections and parking lot surveys
. Spring and summer fertilization of all athletic fields and ornamental grass (February through March and again May through July fertilization proved to be more drought-tolerant)
. Pre-emergent weed control on bare ground and all perimeter fencing to prevent weeds from germinating. Program expanded in 2015-16
. Aerating and re-seeding (and top dressing where needed) athletic fields (cut back on frequency from twice a year to once except on football fields which are aerated and re-seeded twice a year)
. Fields inspection of sprinkler heads and bare spots (weekly)
. Inspection of tennis courts and paved tracks (resurfacing and other maintenance as needed)
. Parking lot asphalt inspection and repairs, from minor to complete resurfacing and pothole patching
. Softball and baseball fields grooming (annually remove buildup of clay on grass; repair clogged and broken sprinklers; raise or lower sprinklers as needed; clean running paths between bases)
. Annual summer grub inspection and spraying of athletic fields throughout the District (June through September). Grub control program minimizes damage to athletic fields and lessens repairs.
. Clean outside storm drains and jet action pipes every spring prior to monsoon season.
. Sweep all District parking lots every summer and clean following rain storms.
. Mow athletic fields at high schools twice a week (seasonal) and at other locations once a week (now PM Direct scheduled)
. Irrigation system route inspections (weekly)
. Winterize irrigation systems (fall) – shut down system, drain backflows, and inspect to ensure heat sources that prevent freezing are working. This process is reversed in the spring.
. Watering trees and bushes takes place when warmer weather allows for irrigation systems to be used during the winter.
. Grooming of synthetic fields (monthly)
. G-max testing of synthetic fields (annually) – safety impact testing to measure the shock-attenuation performance. Loosen compaction to protect injuries as required.

• *Playgrounds and fall zones:*

. Playground safety inspection (annually)
. Playground maintenance (annually)
. Maintain proper condition of protective fall surfaces (rake woodchips)
. Maintain condition of sand (rototill, level)
. Tractor sweep the six foot parameter equipment pod

## GOALS

### Status of 2015-16 Goals

~ Resurface playground asphalt (outside of play zones) at needed Elementary Schools. *Completed with more needed*

~ Resurface asphalt staff and student parking lots at needed Middle and High Schools (prioritize and schedule). *Completed with more needed*

~ Install a separate metered system (from MIR 5000) that taps into the main water line for use by coaches. Currently, coaches are manually accessing quick couplers connected to the main water line in watering their fields. These quick couplers are not metered nor do they communicate with the District wide MIR 5000 computerized irrigation system that automatically shuts the water off in the event of a water line break. A separated metered system that prevents the coaches from over-riding the MIR 5000 system and defeating its purpose is the solution. *Completed*

~ Transition at least two ornamental lawns from independent manual irrigation system to computer controlled system. *Completed*

~ Provide Elementary School playgrounds with ADA access updates, woodchips, and sand in meeting ADA safety code (March 2012). *In progress*

## GOALS

### 2016-17 Goals

~ Landscaping Assistant Supervisor to obtain his Pest Control License issued by the New Mexico Department of Agriculture.

~ Start eliminating two-way radio communication between the main irrigation system and equipment in the field and bring them into the APS Intranet system for faster communication and less communication breakdowns.

~ In improving on irrigation system reliability, efficiency, and ultimately cost, install Rainbird irrigation system in new construction or renovations at one half the cost of Motorola. Three are in place at real problem areas and three are in progress at new construction sites.

~ Tie in exiting Motorola systems currently radio controlled and connect to the Internet control in vastly improving performance quality and speed. And at six of the larger school clusters with more complex configurations, upgrade to ACE controllers.

~ Complete upgrading backflow prevention assemblies.

~ Complete labeling and identifying irrigation program lines and station descriptions.

~ Complete the conversion (started July 2016) of irrigation routes from schools and the cluster schools that feed them (proximity regions) to irrigation "controllers" regions (connected regions). This much more contiguous route will vastly streamline work and increase technicians' knowledge of fewer systems.

~ Transition two ornamental lawns from independent manual irrigation system to computer controlled system.

~ Replace badly worn and outdated equipment. Most needed are frontend loaders, Bobcats, track hoes (with better reach), backhoes, and service vehicles. Fatigued existing equipment is unreliable and their maintenance costs have become prohibitive. The Grounds Department has had to rely on renting equipment so work is not put on hold which is also quite prohibitive.

~ Evaluate all preventive maintenance programs department wide; fine tune existing programs and introduce new programs if necessary and possible.

~ As student and school safety is top priority, improve condition of asphalt around playgrounds and repave parking lots where needed. While trip hazards are repaired daily, much of the District's paving was laid prior to application of a base course that provides a more durable and lasting foundation. These old lots need constant maintenance and should be replaced entirely. The Paving Shop made a great deal of progress in 2015-16 *(note Highlight above)*, but much more needs to be done.

~ Expand duties of Portable Shop technicians to include assisting the Playground Shop.


STRUCTURAL
M&O

# STRUCTURAL

***Benjamin Garcia***, Manager (29 years with M&O, four years as manager)
63 technicians and support staff

Structural Craft Shops include Furniture Repair; Carpentry; Glass and Window Repair; Locksmith; Masonry/Tile; Flooring (tile, carpet, wood, concrete); Painting; Signage; Graphics; Welding; Fence Repair; Parking Lot Striping; Bleachers; Ceiling Tile; Doors and Hardware; and Roof Repair (and all yearly roof PM work and warranties).

The largest of the service departments, adept Structural crews are charged with safeguarding the aesthetics, physical integrity, security, and safety of schools and administrative facilities. While utility and functionality trump appearances for the obvious reasons, keeping up the visual appeal of schools is nonetheless vital to students' morale, comfort, and pride in their school.

Technicians' work dials way up during the summer months when large projects can be accomplished efficiently with no inconvenience to teachers or their students. Emergency repairs and smaller work orders are performed throughout the school year with little to no classroom disturbance whenever possible, including evenings, holidays, and weekends if necessary.

The Department's accomplished carpenters, roofers, painters, glass fitters, masons, tile and carpet installers, welders, locksmiths, and sign and graphic artists provide clean, safe, comfortable, and visually inviting learning and administrative spaces. They aim to eliminate all that could be a distraction to occupants and their objective — teaching, learning, or otherwise supporting the education process. Hindrances such as damaged flooring, unstable furniture, or leaking ceilings divert students' attention from absorbing lessons and performing scholastically. Structural crews wholly appreciate the importance of how their job constructively supports students effectively doing *their* job. It is essential to carry out needed corrections and repairs without interruption of classroom instructional time.

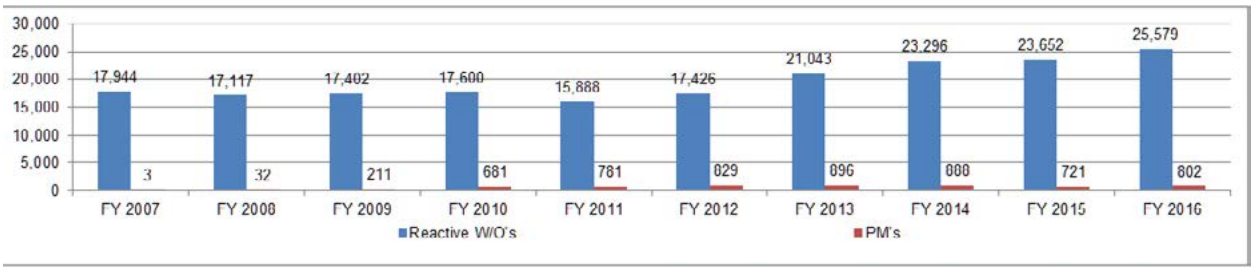
The start of every school year delivers a surge of work orders. After these are addressed, all craft shops concentrate their efforts on preventive maintenance tasks in keeping minor breaks and wear and tear from mushrooming into major repairs or even irrevocable damage.

## HIGHLIGHTS

- **PM grew 11.2% department wide**

As the following bar graph indicates, the department was able to increase PM work over the previous year for the first time since 2013. In spite of a 3.9% increase in reactive WOs, technicians were finally able to carve out time to tend to PM in 2015-16, particularly in the Signage, Windows and Glass, and Carpentry Shops.

**STRUCTURAL (includes all Craft Shops)**

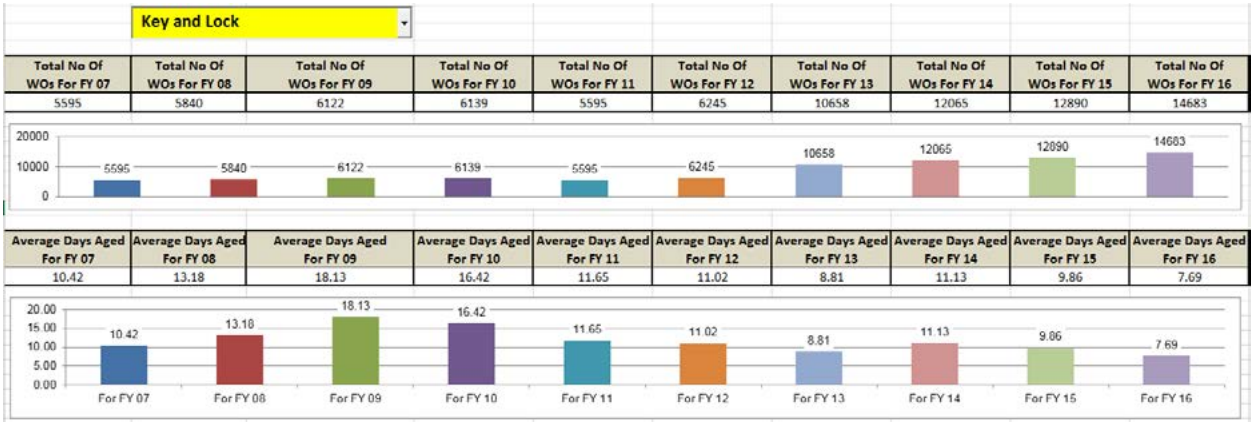


***Locksmith Shop***

**▪ Master key audit conducted District wide in achieving greater key control**

Due to many discrepancies between the Locksmith Shop's inventory master key list and each school's list, the Shop conducted an audit at all sites. Findings uncovered key holders unauthorized to possess keys and "extra" keys at schools not issued to anyone. The leading discrepancy was with high school gym keys held by staff members with no permission to access the locked gym. The schools were required to turn in extra and unauthorized keys before they would be issued any new authorized keys. However, regularly deploying tighter controls *only decelerates* the incidences of key use infringements, a daily struggle for the Shop. *(See Special Challenge below.)* As the following bar graph illustrates, the Shop's WO count has steadily increased since 2013 when a WO was first required for every master key request.

The Shop also reports good news: technicians' performance of SchoolDude WO data entry now conducted *daily* has decreased the time to complete a work order by 22% over the previous year.




**▪ Total rekeying conducted at West Mesa High School and other campuses**

Security was seriously compromised at West Mesa due to the many stolen, extra, and improper use and possession of keys which necessitated the rekeying of the entire campus. The situation also provided the perfect opportunity to transition the school from several systems to a single key system, greatly simplifying the issuing and tracking of keys.

Due to theft of master keys or other issues, total rekeying projects were also undertaken at Chaparral, Atrisco, McArthur, and Lavaland Elementary Schools; School on Wheels; La Cueva High School (which included new hardware); Student Transition Services (both locations); and 'M' Building on Lincoln Complex.

**▪ Partial rekeying projects completed at select campuses**

Due to the construction of new buildings, rekeying was carried out at Rio Grande High School 9th Grade Academy; Mountain View and Onate Elementary Schools; Jefferson Middle School; and the Career Enrichment Center.

**▪ Began incorporating new MasterKing key system into District**

An additional system was required as APS reached the quantity capacity on the existing system. The restricted six chambers per lock limit the number of locks that can be issued under any one key system.

MasterKing®

**▪ Implemented new key policy for contractors**

It is necessary to provide vendors with facility keys for large projects that take many weeks or even months to complete. The longer contractors are in possession of APS keys, however, the greater likelihood that keys will be lost, shared, or exploited. Vendors are now required to re-check out keys at six months. If a contractor is unable to produce a key at six months, the Shop is alerted that rekeying may be necessary.

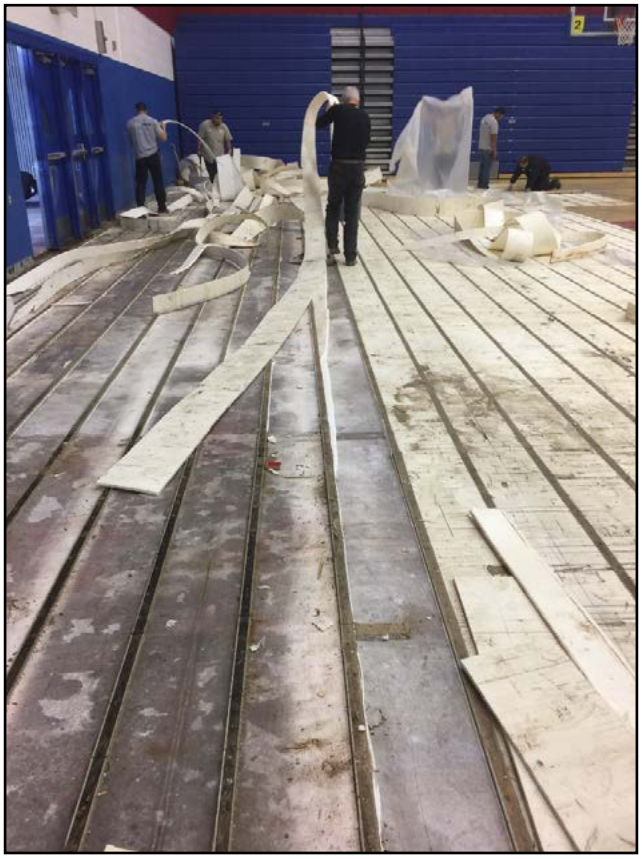
*Carpentry Shop*

**▪ Installed new bleachers at Cibola High School's main gym**

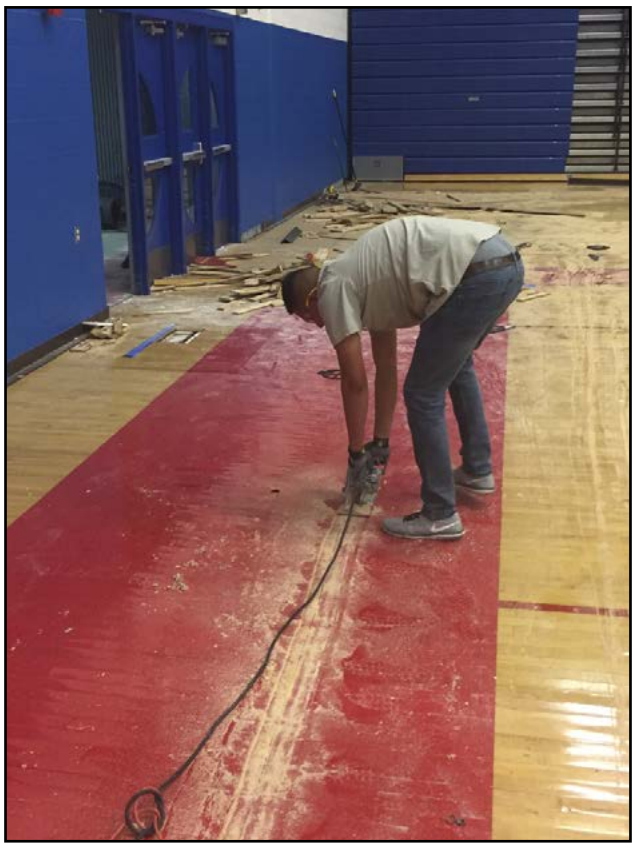
The Shop began replacing antiquated bleachers — so old that parts are no longer available for repairs — at the most needed school sites several years ago. The new bleachers at Cibola are easier and more economical to operate and maintain.

**▪ Completed the restoration of gym floors District wide**

The time intensive project of sanding and refinishing auxiliary and main floors throughout APS began about six years ago and was completed in the 2015-16 FY.



**Installation of new flooring at West Mesa High School gym**



**Installation of new flooring at West Mesa High School gym**

**Floor repair in portable classroom.**

### *Paint Shop*

**▪ The Paint Shop acquired a new enclosed trailer and equipment**

The new trailer stores and transports riding paint sprayers used for parking lots. In replacing the old dog-eared trailer (and accompanying equipment) productivity was increased and maintenance lessened.

**▪ New paint sprayer accelerated work performance**

The new sprayer purchased in the previous fiscal year was expected to expedite work and it didn't disappoint. Technicians completed WOs an astounding 57% faster as the following bar graph illustrates. Faster contractor invoicing and timelier SchoolDude paperwork processing furthered this improvement.

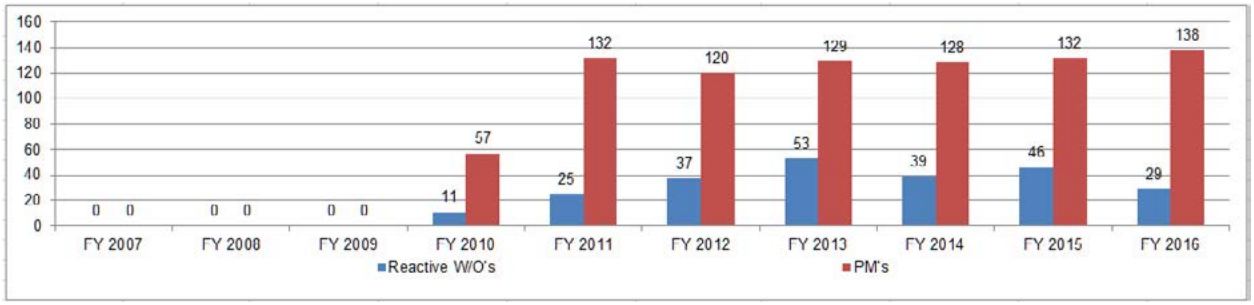
**PARKING LOT STRIPING (Average Days Aged)**

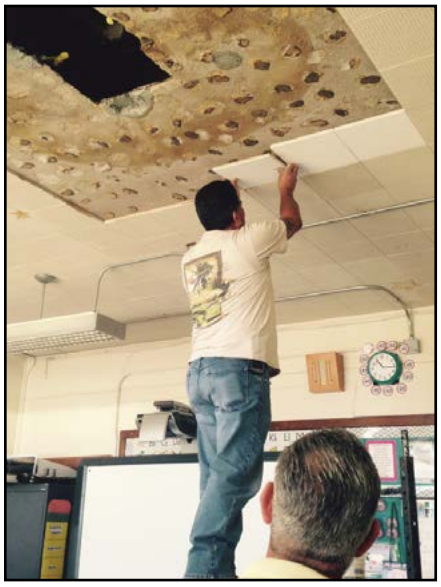
| Average Days Aged For FY 07 | Average Days Aged For FY 08 | Average Days Aged For FY 09 | Average Days Aged For FY 10 | Average Days Aged For FY 11 | Average Days Aged For FY 12 | Average Days Aged For FY 13 | Average Days Aged For FY 14 | Average Days Aged For FY 15 | Average Days Aged For FY 16 |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 158.97 | 70.07 | 92.41 | 79.65 | 88.57 | 98.16 | 42.20 |


**▪ Parking lot striping PM holding work requests down**

The parking lot striping preventive maintenance program has reduced reactive work to the occasional painting of a handicap space or an employee name on a parking bumper. And should a school request striping work, they are informed that all parking lots on their campus are scheduled for painting in short order.

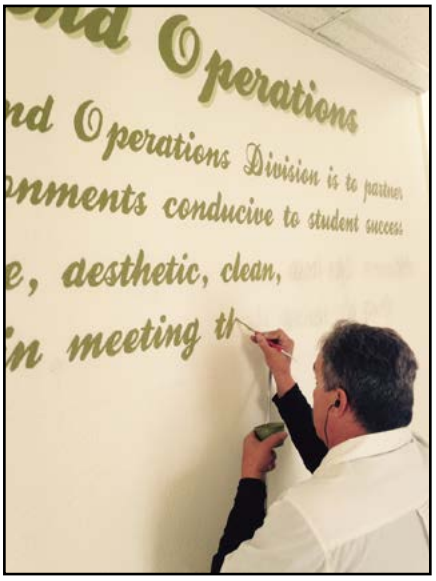
**PARKING LOT STRIPING**



Ceiling repair due to major roof damage

Classroom remodel




Graphic designer painting

***Welding and Fence Repair Shop***

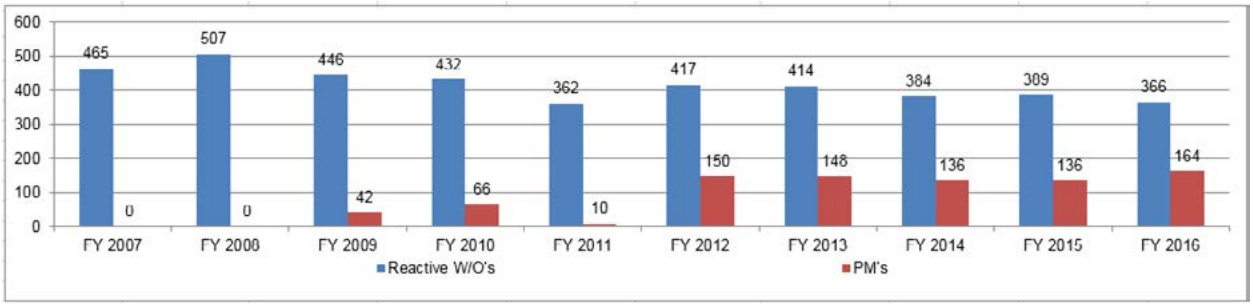
**▪ Purchased advantageous new equipment**

Technicians are gladly working with a new belt sander, plasma cutter, and tig welder capable of multiple welding tasks over the old equipment. All the new technology is more adaptable, efficient, and substantially easier to work with.

**▪ Fence Repair technicians decreased reactive work and boosted PM**

Technicians completed the inspection and repair of fencing at all school and administrative sites in 2015-16. As indicated below, the PM project launched in 2012 has resulted in a steady decline in reactive work orders and a 20.5% surge in PM in finalizing the project in the 2015-16 FY.

**FENCE REPAIR**




**▪ Installation of locking devices on PNM transformers continued**

The Welding and Fence Shop technicians are busy fabricating locking devices for PNM transformers at school sites to thwart copper theft. Fortifying transformers District wide is a long-term initiative with progress made every year.

***Other Shops***

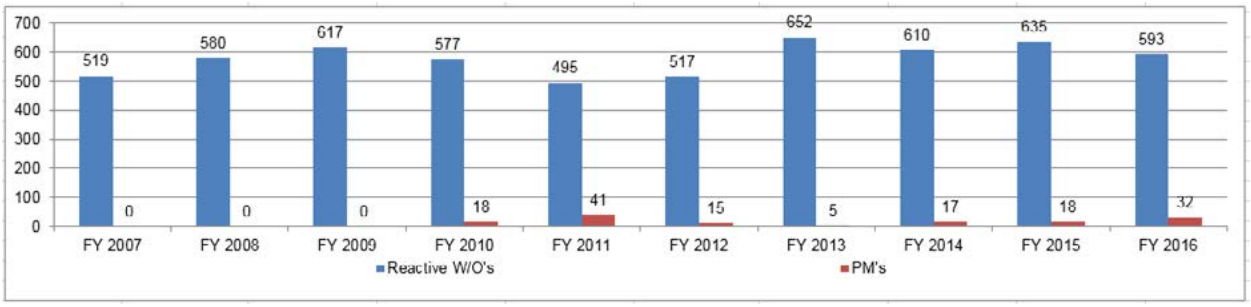
**▪ Flooring Shop replaced floors at two school sites**

VCT (vinyl composition tile) is being installed at old schools due to its durability, aesthetic appeal, and ease in maintaining. VCT was installed at Ernie Pyle Middle School and Valle Vista Elementary School in 2015-16.

**▪ Decrease in work requests made time for PM in Signage Shop**

The one-man shop took full advantage of the 6.6% decrease in reactive work requests by accomplishing 77.7% more PM work.

**SIGNAGE SHOP**



■ **PM programs (ongoing)**

. Roll-up doors inspection and repair
. Interior bleachers inspection and repair
. Inspection of gym floors every six months and performance of spot repairs
. Glass and window inspection and repair
. Replacing Alsynite with clear glass
. Doors inspection, weather stripping, and repair
. Repainting of fire and bus lanes
. Parking lot re-striping with focus on fire lanes and crosswalks
. Fabricating and installing security window screens
. ADA automatic door opener
. Gym wood floors refinished annually
. Inspection of gates and perimeter fencing around school sites (completed in 2015-16, will repeat annually)
. Inspection of basketball goalposts in High School gyms (all completed in 2014-15, will repeat annually)

✓**Special Challenges / Issues**

***The eight-man Carpentry Shop is down three technicians.*** Two employees retired and one resigned leaving the Shop short on essential resources. What should be a simple matter to resolve is not due to the absence of applicants for the vacant positions. It is a consistent problem throughout M&O departments; the District is simply unable to match current salaries paid to tradesmen in the private sector, in spite of its superb benefits plan.

***Some Schools' unwillingness to observe essential key control protocol endangers security.*** It is a longstanding problem that unceasingly intensifies with every school year. Schools will request more master keys than APS security policy allows and will tap every possible channel outside of M&O in obtaining them. Some local lock and key cutters' willingness to duplicate keys in spite of the "Do Not Duplicate" imprint is intensifying the challenge. Declining key requests and attempting to restrict issuing keys in following security protocol is a daily battle for the Locksmith Shop. M&O will continue working with schools on their requests and security issues experienced within the District. All stakeholders have legitimate concerns regarding access to schools.

***Tile and Mason Shop struggling to keep up with concrete related work orders.*** Due to the age of the District and many of its schools, old lifting concrete surfaces are causing trip hazards that must be attended to immediately. This excess of high priority work is pushing other needed but not urgent concrete work aside, challenging technicians to get to the important but not high priority work.

**Driver accidently drives through building at EldoradoHigh School requiring major repair**

**Ceiling damage due to broken water line**

## GOALS

### Status of 2015-16 Goals

~ Further train Roofing Shop technicians on basic computer skills and the SchoolDude work order system, and instill the importance of conducting data entry, most importantly closing work orders, on a timely basis. *In progress*

~ Launch a PM program for ADA door inspections (pilot project funded). *Goal suspended due to shortage of funding*

~ Replace bleachers at McKinley and Taft Middle Schools. *Not totally completed due to a shortage of funding; moved to 2016-17 Goals*

~ Complete the impletion of automatic issuing ADA door button opener PM work orders to contractor that was started in 2014-15 fiscal year. *Goal slowed due to funding issues*

~ Conduct re-keying projects to strengthen security:

- New George I. Sanchez K-12 School build on the west side in 2014-15 FY. (The school's doors came with locks that are inconsistent and not up to par with APS' security system.) *Completed*
- M&O Lincoln Complex. *Moved to 2016-17 Goals*
- School on Wheels. *Completed*
- APS Diagnostic Centers (re-key the three sites to one master key system). *Completed*
- Select elementary schools and Atrisco Heritage Academy High School (those buildings that have different outdoor key locks from master, the result of keys that shouldn't have been being duplicated). *Completed*

~ Install new flooring at Ernie Pyle Middle School classroom building hallway and Valle Vista Elementary School (during winter break while school is not in session). *Completed*

~ Assess condition of all old Elementary Schools' gym floors and replace at the most needed (Longfellow and Hawthorne). *Goal moved to 2016-17 due to funding projects*

~ Assess condition of drop ceilings and concrete District wide and replace at sites with the most need (funding permitting). *Drop ceiling not yet addressed (more funding needed); concrete project (trip hazards) completed*

~ Assess condition of all parking lot striping, painted curbs, and symbols at every site and re-paint where needed. *Completed*

### 2016-17 Goals

~ Conduct complete rekeying at Rio Grande and Valley Schools High Schools (may be partial); Valle Vista and Chaparral Elementary Schools; APS Soccer Complex; Milne, Wilson, and APS Nusenda Community Sports Stadiums; and all M&O (Lincoln Complex) facilities.

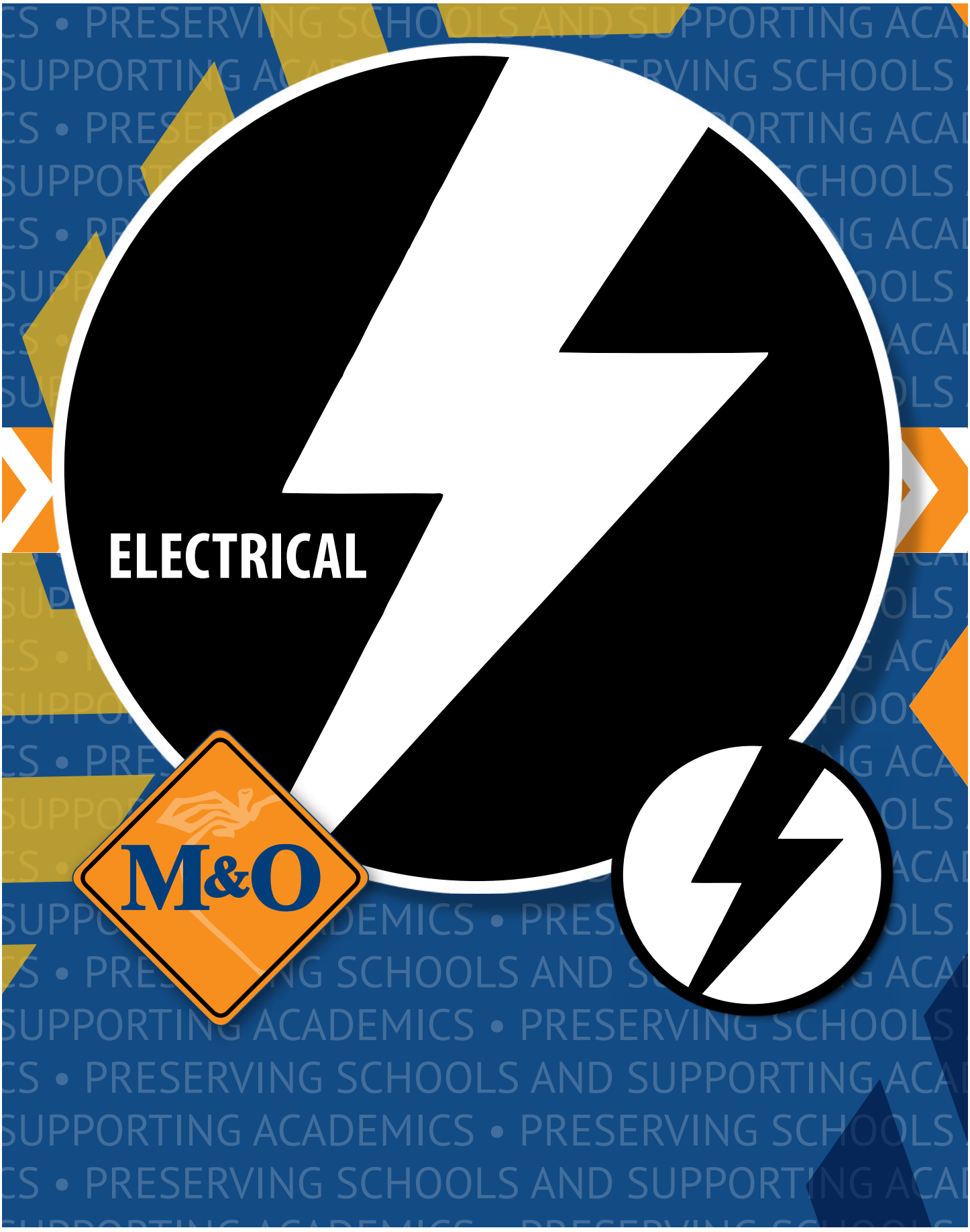
~ Replace bleachers at West Mesa High School's main gym and at McKinley and Taylor Middle Schools' gyms.

~ Purchase a new 36" wide belt sander greatly needed for tabletop and furniture repair as well as construction, and an air compressor water displacer for Carpentry Shop.

~ Recruit new Signage Shop technician to replace retiree (highly technical and skilled position).

~ Purchase hydraulic trailer for transporting the Department's electric lift and Bobcat for the Mason and Tile Shop.

~ Assess condition of all old elementary schools' gym floors and replace at the most needed (Longfellow and Hawthorne).


ELECTRICAL
M&O

# ELECTRICAL

***Ron Gallegos,*** Manager (28 years with M&O, manager 25 years)
28 technicians and support personnel

Electrical Department Craft Shops are comprised of Electrical (includes back-up emergency generators); Industrial Arts Repair; Audio Visual; Electronics; Business Machines Repair; Fire Extinguisher Service; Elevators (inspections by City of Albuquerque and service handled by a contractor); and Technology Infrastructure.

Much like the Mechanical Department, the responsibilities of the Electrical Department are pivotal to the smooth operation of classrooms, computer and science labs, gyms, libraries, performance arts centers, kitchens and cafeterias, and the many administrative facilities that support the schools.

Long gone are the days when school districts' electricians merely kept the lights on and the typewriters powered. Today a downed electrical system at a school shuts down the educational day as smart boards, computers, and their many related peripherals go black. This is rare at APS because the Electrical Department consistently stays ahead of the eight ball in keeping the District's sophisticated electronics and technology amply powered at schools and offices. But their work has expanded far beyond just ensuring sufficient electricity that the schools have come to depend more and more on with every graduating class. They have to concurrently stay abreast of upgrading the electrical infrastructure required to accommodate new energy saving technology and products being introduced at a rapid fire rate, much of it directed by federal regulations to reduce energy consumption. And reducing energy use and its cost is yet another responsibility that the Department is challenged to meet, all the while without conceding an environment favorable to learning and security.

APS' journeymen electricians are required to be far more versatile than those of even just ten years ago in meeting the District's infinitely evolving teaching methodologies and industry advancements, all the while saving APS resources *and* the environment. All technicians are committed to never allowing electrical glitches to hinder students' focus on learning while simultaneously consuming the least about of wattage possible.

The Industrial Arts Repair Shop provides the students with well-maintained and safe equipment and tools for a hands-on industrial trades learning environment. These technicians service a vast array of teaching machinery that includes science equipment; microscopes; scales and balances; sewing machines; paper cutters; kilns; potting wheels; ice machines and appliances; auto, welding, and wood shop equipment; and numerous other pieces of instructional related machinery. The Fire Extinguisher Shop is responsible for keeping the District's thousands of fire extinguisher equipment up to code. The Shop is 100% self-sufficient (no work is contracted out) and entirely PM with the exception of vandalism and theft of extinguishers. Completing the team is the Technology Infrastructure Coordinator, a journeyman electrician charged with coordinating and synchronizing the installation of new electrical infrastructure for technology systems, as well as mechanic and electronic equipment, throughout the District.

**Tech working on an electrical upgrade**

## HIGHLIGHTS

▪ **Implemented electric "coordination studies" performed by contractors**

Due to the age of the District's electrical systems, Eaton — an international company providing energy efficient services managing electrical power — provided on-site electric audits at three schools to check that wire sizes were correct and that trip factors were accurately set. Local APS vendor B&D Electric worked alongside Eaton representatives to infrared systems in exposing issues from minor to impending emergencies. The process has more than paid for itself in averting costly repairs or replacements. Critical findings were addressed immediately and other discovered problems were scheduled for repair when school is out of session. Started in December 2015, audits were completed at Cibola High School, Truman Middle School, and Jackson Elementary School. The audit will be conducted throughout the District in order of priority with eight schools slated for audit in 2016-17.

EATON
Powering Business Worldwide

▪ **Installed twist timers on evaporative coolers in portable classrooms**

In support of WECC and the Mechanical Department's HVAC Shop, electricians installed twist timers to prevent coolers left on all night and are programmed to run for four hour intervals during the school day. The District's $12,500 investment in the units will pay for itself in less than a year and deliver an estimated 36% energy savings.

▪ **Retrofitted Alvarado Elementary School with interior and exterior LED lighting**

The complex conversion from high energy use fluorescent lighting to high efficiency LED lighting throughout the campus resulted in a $4,276 rebate to the District and an estimated annual electric cost savings of $14,783. Incalculable but obviously immense is the maintenance savings as fluorescent lighting requires annual maintenance while the projected life of LED lighting is 20-25 years.

**Electrical secondary upgrade**


**Emergency electrical repairs**

**▪ Other LED lighting retrofits (four campuses)**

Retrofitting the District's high energy incandescent lighting with energy efficient LED lighting is carried out during weekends and winter break to avoid disruption to the education process. The Electrical Department has yet to get even a single work order on any of the retrofits conducted to date as LED systems are much more reliable, require no lamps to change out (or keep in inventory), and require a small fraction of the maintenance. Retrofit projects in 2015-16 included:

. Van Buren Middle School – music classrooms/offices
. Washington Middle School – partial lighting retrofit in gym locker room
. Cochiti Elementary School – partial lighting retrofit in hallways throughout school
. Eugene Field Elementary School – total interior and exterior campus retrofit

**▪ Upgraded computer lab electrical systems at six schools**

Modernizing schools' computer labs to accommodate the rapidly expanding quantity of technology is an ongoing effort that involves providing a panel, circuits, outlets, and adaptations for data. Computer labs were updated at Arroyo del Oso, Mary Ann Binford, Inez, and Ventana Ranch Elementary Schools; S.Y. Jackson Middle School; and Albuquerque High School.

**▪ Installed web-enabled timeclocks at select school sites**

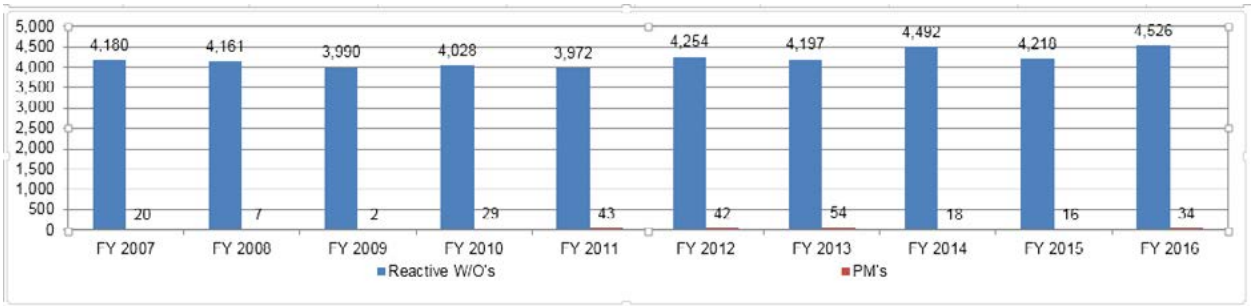
HVAC systems that were previously programmed manually at 19 campuses are now programmed via the Internet saving immeasurable time, energy, and utility costs. *(See more in the Energy Conservation section on page 34.)*

Exterior web-enabled lighting controls were installed at 25 schools saving approximately 90% in labor costs. The Electrical Department will eventually transition every school to Internet controlled lighting as funding permits.

**▪ Electrical Shop increased PM work**

The Department's largest Craft Shop staffed by journeymen was able to double PM work over the previous year. As with the rest of the Department, PM work orders have been few due an unfortunate lack of time. The technicians are encouraged, however, to open a PM work order to perform needed work while working on a reactive WO, such as inspecting and cleaning electrical panels and checking emergency egress lighting.

**ELECTRICAL SHOP**



**▪ Modifying testing labs to accommodate PARCC testing completed**

The Partnership for Assessment of Readiness for College and Careers (PARCC) is a consortium between a group of states (including New Mexico), the District of Columbia, and the Bureau of Indian Education working in partnership to adopt standard kindergarten through grade 12 assessments in mathematics and English based on the Common Core State Standards. Recently instituted by the U.S. Department of Education, PARCC replaced state standardized tests which required that APS testing labs be adapted to accommodate this new testing conducted at every school site.

The Electrical Department began modifying the testing labs in 2015 with the proper electrical system and data cabling necessary for PARCC testing. Temporary infrastructure had to serve for the initial testing and in 2016 permanent infrastructure was completed at every school site. Schools continue to request new testing labs with the funding source determining if their request is a "want" or "need" and if a "want," the school absorbs the cost with Capital School Improvement Money funding. (PARCC work orders are not reflected in the above WO bar graph.)

PARCC
Partnership for Assessment of Readiness for College and Careers

**▪ PM programs (ongoing)**

*Federal and state Fire Marshal mandated PM work is performed by contractors and includes:*

. Fire extinguisher, sprinkler, and alarm inspection
. Fire suppression systems
. Elevator (quarterly) inspection and service (monthly inspections performed by City of Albuquerque)
. Emergency generators inspection (twice a year)

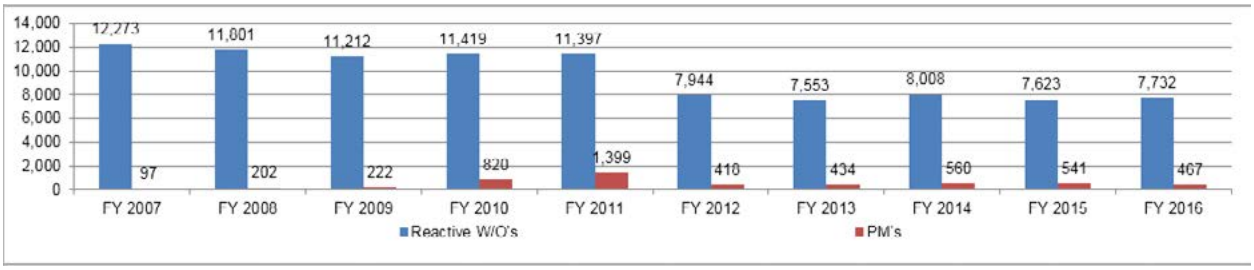
*Not government mandated PM is performed in-house:*

. Replacement of high energy systems with energy and cost effective systems throughout the District

**✓Special Challenges / Issues**

***PM down department wide.*** As shown in the bar graph below, the Electrically Department's PM work orders fell by 13.6%. The District continues to grow (2.4% in 2015-16) while staff numbers remain the same. Although the Department fully supports PM and its benefits, there is simply not the manpower to carry it out formally. Technicians with a moment of free time, however, are encouraged to open and complete a PM work order.

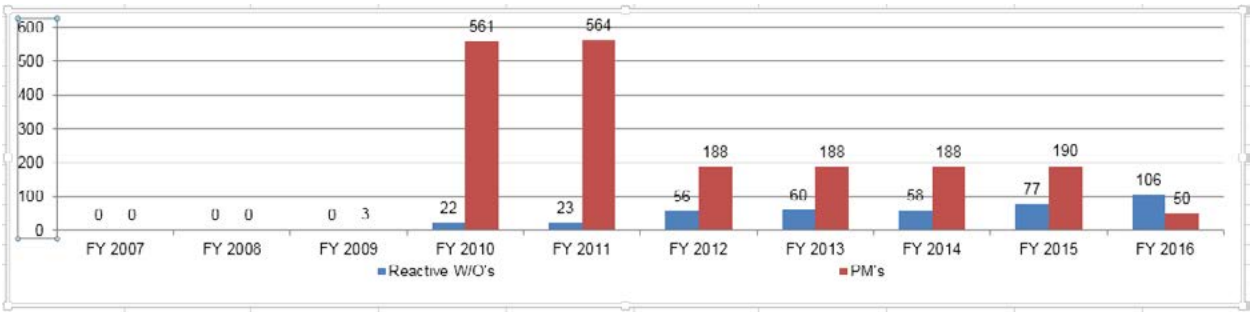
**ELECTRICAL DEPARTMENT**




**Replacing secondary electrical distribution system at Monte Vista Elementary School**

***Elevators reactive work is on the rise and PM on the decline.*** As indicated below, the quantity of reactive work in relation to PM work has severely shifted over the last seven years. Improper use and student abuse of the elevators at schools has escalated dramatically and regrettably necessitating a 37.6% increase in reactive work and a 73.6% decrease in preventive maintenance. While still compliant, PM inspections have decreased from monthly to quarterly to accommodate vandalism repairs, unreturned keys, and other issues. All school elevators are *intended* strictly for service and ADA use, not convenience. In addition to their frequent unnecessary convenient use, key control is an issue resulting in numerous work requests.

**ELEVATORS**




## GOALS

### Status of 2015-16 Goals

~ Begin installing twist timers in the District's 1,000 plus portables. Occupants leave air coolers and heaters on during nights and weekends wasting precious and costly energy. Twist timers operate controls in preventing occupants from running systems during non-use times. *In progress*

~ Install lighting improvements in Del Norte High School's weight/ cheerleading room and the corridor between the two gyms. *Completed*

~ Upgrade electrical systems at two aging school sites (planning begun). *Completed at West Mesa High School and Hoover Middle School*

~ Overhaul at least two (to be determined) old elevators to be new code compliant. *Not yet completed due to funding issues. Moved to 2016-17*

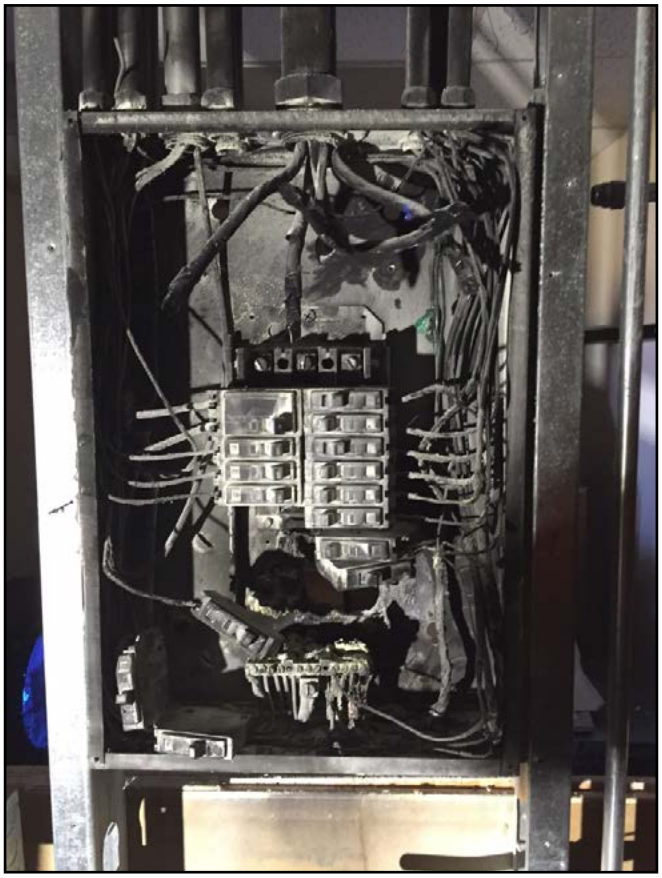
### 2016-17 Goals

~ Overhaul at least two (to be determined) old elevators to be new code compliant.

~ Perform electric "coordination studies" at Sandia and Eldorado High Schools; Hoover and Hayes Middle Schools; and La Mesa, Hawthorne, Inez, and John Baker Elementary Schools.

~ Install web-enable exterior lighting controls at approximately 30 school sites.

~ Focus on increasing preventive maintenance work orders.



**Electrical panel failure**


BUILDING
SERVICES
M&O

# BUILDING SERVICES

***Fred Montaño,*** Manager (36 years with APS, manager 14 years)
50 technicians and support personnel

Building Services Craft Shops include Graffiti Removal; Custodian Coordination; Pest Control; Custodial Equipment Repair; Carpet Cleaning (includes water extraction); Specialty Cleaning; Blinds and Shades; Emergency Dispatch; and M&O Warehouse Management.

The Department's crews clean up all that is foul, flooded, soiled, unhygienic, unsightly, hazardous, menacing, and/or a health risk. Steadfast in maintaining clean and sanitary education environments that facilitate learning rather than discomfort and distraction, the vast majority of their work orders (approximately 80%) are emergency status and attended to straightaway. These include water extraction due to flooding; cleaning up any and all bodily fluids as well as pigeon excrement; washing and sandblasting graffiti off every conceivable surface; and the extermination of pesky at best and harmful at worst indoor and outdoor pests that include ants, wasps, and mice, as well as the humane removal of bees, skunks, and feral cats. An unsanitary classroom due to an ailing student is not favorable to learning or the health of his classmates, and defacing graffiti is offensive to *everyone* — students, teachers, staff, parents, visitors, and area residents.

Essential cleaning projects that do not require immediate attention are scheduled in PM Direct and include annual school wide carpet cleaning as well as power washing and disinfecting restrooms and cafeteria tables.

Non-cleaning responsibilities include custodial equipment repair; window blinds repair and replacement; and two emergency dispatchers charged with responding to emergency calls and ensuring that all emergency status work is immediately communicated to pertinent Department Managers and technicians. Lastly, the M&O Warehouse is under the Building Services umbrella and is responsible for the purchasing, stocking, and distributing of approximately $1.2 million worth of inventory utilized by all service departments that include repair materials, supplies, tools, equipment parts, and more. APS operating its own M&O Warehouse saves an incalculable amount of time, cost, and manpower resources. Seasonal and other regularly used items are purchased in large volume at a substantial discount and stocked in the Warehouse for speedy access by all technicians for the majority of their daily work orders. The need to visit vendors for unique and specific items is less frequent when the Warehouse is stocked properly.

Lastly, the Building Services Department directs the District's school custodian program responsible for hiring and training all APS custodians. Newly hired custodians begin in the substitute pool and are assigned to school sites to fill in for custodians out on leave. All permanent school custodians are hired from the sub-custodial pool.

**Emergency response and repairs at school cafeteria**

**Major water line failure in school cafeteria causes severe damage**

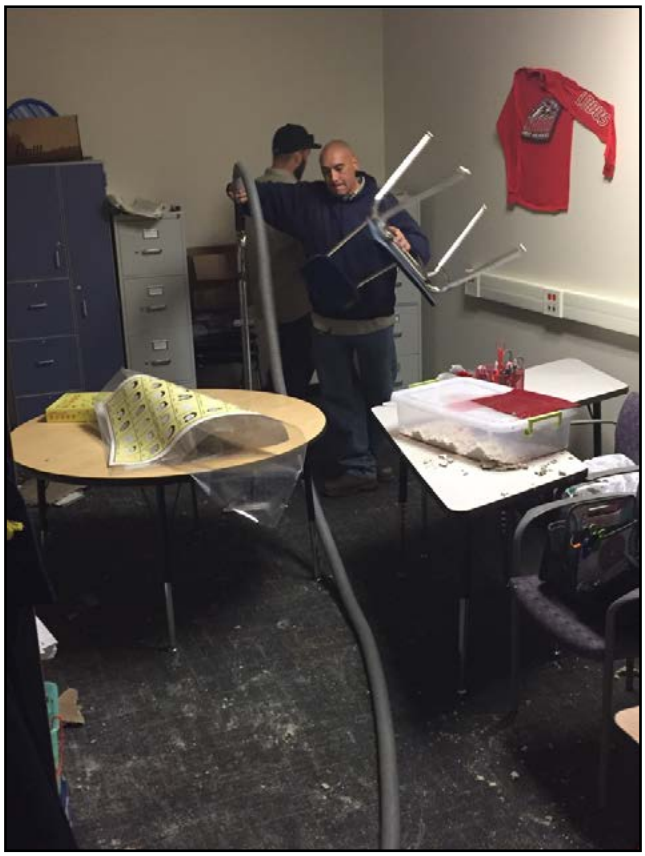
## HIGHLIGHTS

**▪ Supervisor of Pest Control is now state licensed in three areas**

Pest Control Supervisor Kevin Moeller (also supervises the Custodial Repair Shop, Vacuum Repair Shop, and Dispatch office) passed the New Mexico Department of Agriculture licensing test and now holds three Pest Control Licenses: 7A – Structural Pests (such as ants, spiders, and cockroaches), 7B – Vertebrate Pests (such as birds, rats/mice, and prairie dogs), and 3A Ornamental and Turf Pests (common insects found in flower gardens and other ornamental foliage). As holding the applicable Pest Control License is required by law to exterminate pests in New Mexico, M&O is now better equipped to address these work orders in the absence of the sole long-licensed pest control technician. It saves engaging a contractor; the problem is tackled immediately; and staffing a licensed Supervisor is in managerial compliance with NMDA regulations.

**▪ Newly hired Procurement Specialist is an asset to M&O Warehouse**

As Pamela Vasquez previously worked in Support Services, she is well-versed regarding the New Mexico Procurement Code, purchase requisitions, and the District's purchasing procedures and policies. She most recently served as an emergency dispatcher and is dedicated and conversant regarding all M&O Department needs.



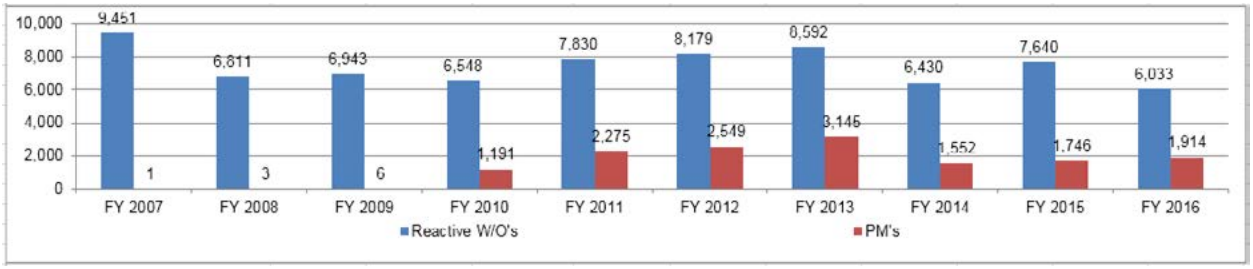
**Flood damage cleanup at La Cueva High School**

**Graffiti sandblasting cleanup is never ending**

■ **Reactive work decreased by 21%**

As demonstrated below, the Building Services Department reached a record low in the volume of work requests in the 2015-16 FY — 21% decrease over previous year and a 36.1% decrease since the high in 2007. Although all PM programs are credited for the consistent decline in reactive work, an extended pest control PM program is responsible for much of the decline in reactive work orders and increase in PM between 2015 and 2016.

**BUILDING SERVICES WORK ORDER TOTALS**



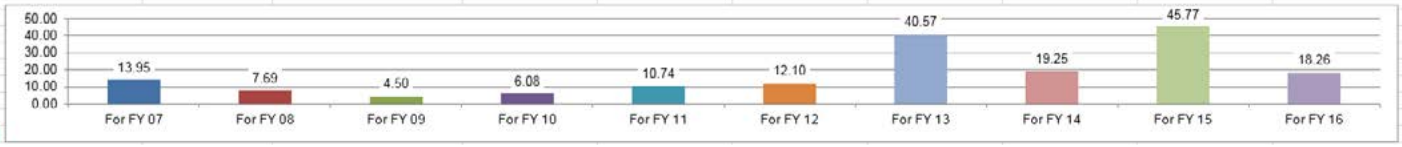

■ **Custodial Repair Shop improved time to complete work by 60.1%**

Work increased a slight 2.8% and the time to complete the work declined 60.1%, however, this is not an indication that the Shop's sole technician was previously lax in carrying out repairs. Rather, the high volume of work requests from all schools resulted in a backlog in the previous year. When a request was made, necessary parts were ordered, and as noted below, the wait for delivery resulted in an average of 45 days before the work could be completed. Stocking vacuum cleaner parts was made a budget priority in 2015-16 resulting in faster repairs and much appreciative custodians and schools.

Custodial Equipment Repair

| Total No Of WOs For FY 07 | Total No Of WOs For FY 08 | Total No Of WOs For FY 09 | Total No Of WOs For FY 10 | Total No Of WOs For FY 11 | Total No Of WOs For FY 12 | Total No Of WOs For FY 13 | Total No Of WOs For FY 14 | Total No Of WOs For FY 15 | Total No Of WOs For FY 16 |
|---|---|---|---|---|---|---|---|---|---|
| 433 | 431 | 467 | 563 | 538 | 517 | 534 | 466 | 497 | 511 |


| Average Days Aged For FY 07 | Average Days Aged For FY 08 | Average Days Aged For FY 09 | Average Days Aged For FY 10 | Average Days Aged For FY 11 | Average Days Aged For FY 12 | Average Days Aged For FY 13 | Average Days Aged For FY 14 | Average Days Aged For FY 15 | Average Days Aged For FY 16 |
|---|---|---|---|---|---|---|---|---|---|
| 13.95 | 7.69 | 4.50 | 6.08 | 10.74 | 12.10 | 40.57 | 19.25 | 45.77 | 18.26 |



**▪ Conducted District wide custodian workshops**

In the spring of 2016, members of the Energy Team conducted custodian workshops regarding their pivotal role as guardians of their schools regarding the importance of energy conservation and efficiency. As intended, the workshops successfully raised their dedication to saving energy and promoting positive energy saving habits. In learning how the controls of heating, cooling, and lighting systems are programmed for optimal efficiency, they were onboard with observing necessary controls (which they have access to) protocol. The custodians were also taught energy saving cleaning habits and made to understand how their role is crucially important in any energy conservation program. A custodian is usually the first to enter the building each day and the last to leave at night and is regularly moving about the building throughout the day. They alone possess full knowledge of the daily workings of their building and the problem areas. Lastly, they know the staff and their energy needs.

Custodians are key in leading energy conservation at their schools by setting good examples for the rest of the staff. They can educate others on common misconceptions about energy usage and be continuously alert for energy waste habits including their own. The custodians were also reminded of the importance of reporting heating and air conditioning problems to M&O immediately as well as working with M&O staff to determine the most efficient hours of operation for the heating and cooling equipment; consideration of season and daily weather forecasts is required.

**▪ PM programs (ongoing)**

. Thorough pressure washing of each school's cafeteria tables annually (summer)

. Interior pest control school inspection (monthly – reduced from 12 to 9 months a year)

. Custodial equipment inspection and maintenance at every school site (annual)

## GOALS

### Status of 2015-16 Goals

~ Hire new personnel: M&O Warehouse stock clerk to replace retiring clerk; new carpet cleaning technician; and an emergency dispatcher. (Kudos is extended to the departed dispatcher who earned an education degree while working at M&O and transferred to Truman Middle School as a special education teacher.) *Completed*

~ Launch a carpet cleaning PM program that provides for carpets being cleaned *at least* once every two to three years, sooner if doable (would require increased contractor funding and planning/scheduling). The schools with the most soiled carpets will be addressed first. (All emergency status soiled carpets are addressed straightaway.) *In progress and ongoing*

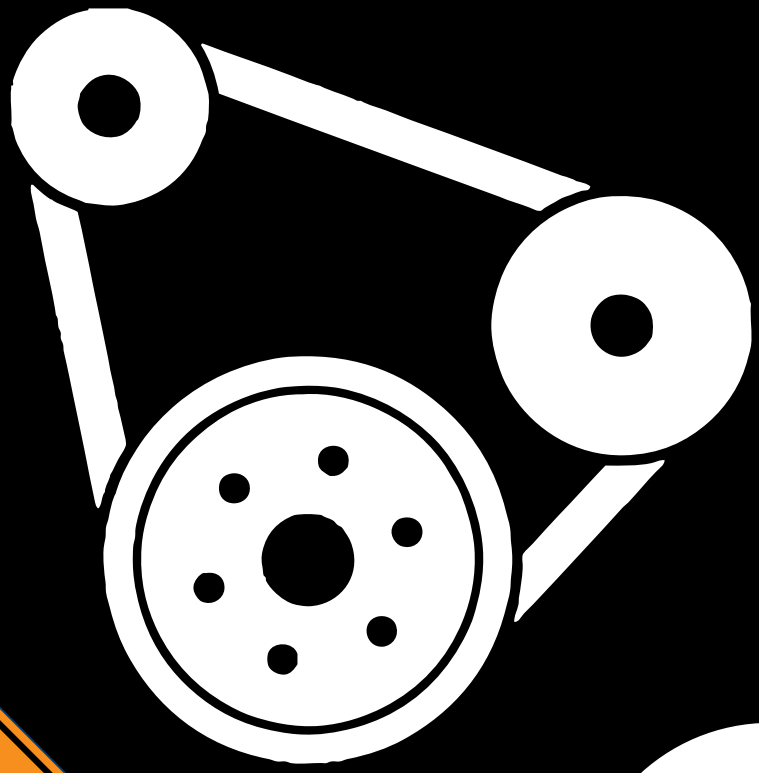
### 2016-17 Goal

~ Hire a qualified emergency dispatcher. One dispatcher is currently proficiently handling the two-man office but it's a challenge.

**Water line break damage can be severe and require the services of several M&O departments**


# Safety first!

# FLEET MAINTENANCE



# FLEET MAINTENANCE

***Dale Krezan,*** Manager (9 years with APS outside of M&O, manager 4 years)
14 Technicians and Support Personnel

Fleet Maintenance responsibilities includes Vehicle Maintenance; Specialty Equipment Maintenance (small engine grounds equipment); Tire and Towing; Fuel Station/Propane Dispensing; Lincoln Complex automated security gate access and fueling systems maintenance; initial point of contact for vehicle accident processing insurance claims and repairs; and APS Drivers' License issuance, driver's license background checks, and management of the fleet program.

The Fleet Maintenance Department maintains the District's wide array of safe, dependable, and fuel-efficient fleet of approximately 750 vehicles. Included in this inventory are cars issued to administrative leadership and APS Police; M&O's all-inclusive assortment of service vans and trucks and commercial earth moving and other heavy equipment (backhoes, loaders, trailers, water trucks, road graders, snow removal equipment, and wreckers); and refrigerated box trucks used by APS Food and Nutrition Services. Department personnel also service grounds maintenance equipment consisting of over 7,000 pieces of machinery located at schools, M&O departments, and other sites throughout the District. These include riding and push lawn mowers, trimmers, hedgers, blowers, chainsaws, golf carts, gators, and other miscellaneous motorized equipment too numerous to list.

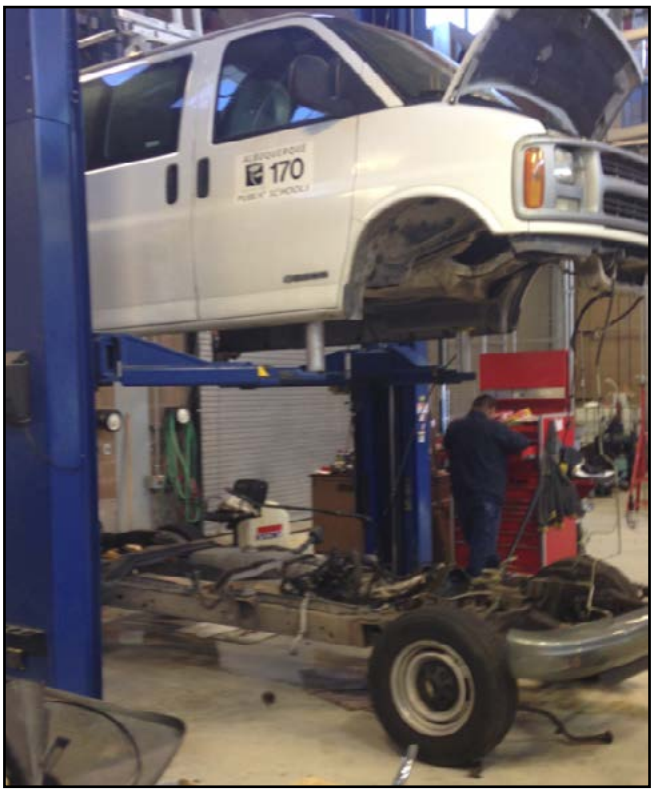
The technicians hold a mechanic certification; State of New Mexico Commercial Driver's License (required to operate heavy equipment); an Air Care Station certification for conducting emissions and issuing "passed" certifications on site; and are also skilled welders and fabricators. APS' in-house fleet maintenance operation results in an innumerable time and cost savings to the District.

The Department's Tire Shop technicians provide road repairs and wrecker service. The sole Fuel Station technician monitors the fueling system that dispenses over 1,000 gallons of unleaded gasoline and approximately 300 to 500 gallons of diesel fuel daily to operate APS' and CNM's (reimbursed to the District) fleet of vehicles. The Fuel Station also provides propane gas for roofing equipment, Materials Management forklifts, heavy equipment, and other miscellaneous small equipment. Fuel is purchased at spot price weekly and delivered to the Fuel Station through a negotiated contract with a wholesale distributor. Fleet vehicles can also be handily power washed and interiors vacuumed at any time during the duty day by staff/drivers.

Unlike the other service departments, Fleet Maintenance's work orders are managed by two computer software systems. FleetVision "smart tracking" software is utilized for vehicle maintenance control that includes vehicle history; driver information; VIN and license plate numbers; maintenance records; PM due notification; and vehicle fueling history that includes quantity, date, and miles to the gallon. The Department's work orders are managed by SchoolDude to track all work activity including labor, materials, and cost. The dual entry system ultimately provides for more accurate WO data, better fleet control and management, efficient customer service, and the ability to make databased operational decisions.

Lastly, Trak Engineering's Dream Island software is a security system that monitors and records all APS and CNM vehicles entering and exiting Lincoln Complex during off-hours when the Complex is locked down. Dream Island is an electronic key system that coordinates the Fuel Station information that is exported to the FleetVision software system.

In the unfortunate case of an accident, the Department's administrative responsibilities include obtaining vehicle body repair estimates from vendors, directing the repairs, and coordinating all activity with Risk Management, as well as guiding APS drivers through the post-accident process. The Department also manages the M&O APS Driver's License program which involves running monthly drivers' license background checks on all approved APS drivers as well as staying abreast of their state drivers' license (including CDL) status with the New Mexico Motor Vehicle Department.



## HIGHLIGHTS

**▪ Utilized School on Wheels and Transition Services students for needed assistance**

These high school students are afforded the opportunity to acquire practical work experience for course credit in transitioning them from the school to the work environment. One student assisted in the Small Engines Repair Shop, one tech savvy student performed sorely needed WO data entry, and another conducted vehicle emissions testing data entry *(see following Highlight)*. Students also assisted in filing documents and assisting mechanics when needed.

**▪ Translate emission inspections certificates into report format mandated by the City of Albuquerque**

Previously, a City of Albuquerque staff member would audit the actual emissions certificates every year but began requiring a less time consuming (for them) report detailing the emissions testing activity of APS vehicles (passes, failures, technician conducting test, test date, and next due date). This necessitated Fleet Maintenance converting the time consuming information on the emissions certificates into the mandated report for the current and past three years. The Fleet Specialist trained a Transitions Services student to perform the technical data entry task needed to produce the four-year report. Now compliant and up-to-date, submitting the annual report will be much less time intensive and a City representative is on site only to inspect the emissions machine and check that technicians' testing certifications are up to date.

**▪ Progress made in SchoolDude work order data entry and numbers' accuracy**

The Department began a dual WO data entry process (for auto mechanics) three years ago requiring the continued entry of work orders in the long used and indispensable FleetVision database *as well as in* SchoolDude. As expected, it was a cumbersome process to train employees in SchoolDude and *accurately interpret and enter the data*. Staff members are now SchoolDude proficient and confident and WO details are accurate. In addition, the Department developed an efficient method in the 2015-16 FY of converting FleetVision information into SchoolDude which has minimized and simplified data entry. Fleet Maintenance is working hard to catch up on processing work orders; while not quite current, the Department has made great progress.

**▪ Now including pick-up and delivery time in cost of small engine repair work orders**

The Fleet Maintenance small engine technicians have modified the information on their work orders to include additional hours spent on work coined within M&O as "windshield time." Windshield time adds up for the small engine mechanics that collect and deliver repaired equipment back to the schools lacking an APS vehicle. Also, the pick-up and delivery service keep custodians and yardmen on the job rather than on the road. The mechanic drives to the school, locates the appropriate staff member requesting service to collect the equipment, and then drives the equipment back to the Shop. Depending on the school location and traffic patterns around the school, this could take a 1.5 hour chunk of time out of the mechanic's day. Mechanics also spend considerable time on some days just accumulating repairable equipment from various schools in close proximity to each other.

**▪ Mechanic Shop Supervisor implemented flatbed and box trailers PM**

All vehicles are on a strictly observed preventive maintenance program but trailers and other wheeled apparatuses hitched to service trucks had not been routinely inspected. In being safety responsible, the Mechanic Shop Supervisor has now initiated an inspection schedule for anything attached to a truck possessing a vehicle identification number. Mechanics look for cracks on the metal frame and rotting or weathered trailer decking as well as grease the wheel bearings in bringing all trailers up to safety standards.

**▪ Secured outstanding authorizations from APS drivers to allow retrieval of the DMV and Samba records**

The Fleet Specialist utilizes Samba driver monitoring software that speedily provides the driving records (and flags violations) monthly for all APS drivers. Samba requires the approval of each individual to allow access of their private Department of Motor Vehicles records including New Mexico driver's license information. An audit revealed that some drivers were lacking the required authorization; an oversight that was quickly corrected.


**▪ Performing more large projects and minor body work in-house**

With the addition of a new mechanic with body work experience, the Department is now able to perform some minor vehicle damage repairs. And utilizing applicable salvaged vehicles, mechanics have routinely swapped out the doors, lights, bumpers, and other body parts in-house in saving time and costs. In addition, mechanics are now doing more engine and transmission replacements over sending these out for replacement. The Department is saving considerably in purchasing new transmissions and installing them in-house.

**▪ Thanks to the drop in gas prices, 57.9% was saved in operational costs.**

Although the Department cannot take credit for the significant drop in unleaded gas and diesel prices, it has certainly celebrated the $1 million plus in savings over the previous year. Considering M&O's 14.1% drop in total budget in 2016 over the previous year, the savings couldn't have been more fortuitous.

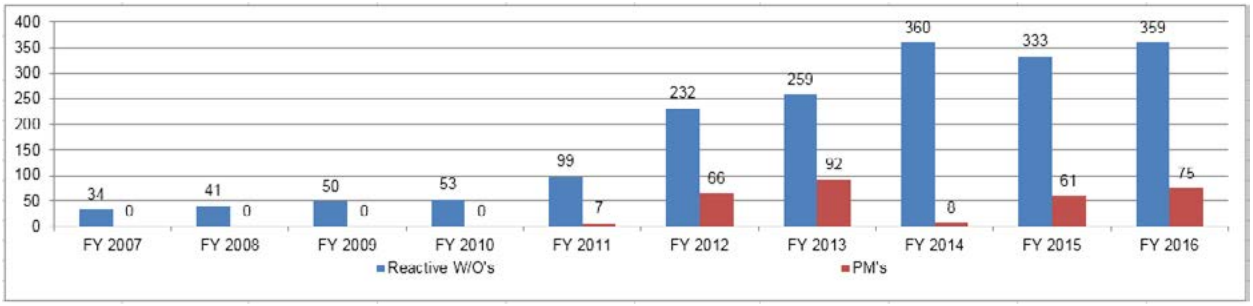
**▪ Purchased seven new APS Police vehicles**

Four of the replaced police vehicles were marked, three were unmarked detective vehicles, and all were direly needed. Six of the previous cars were salvaged due to mechanical or collision damage as well as high mileage.

**▪ Grounds Equipment Repair Shop increased PM by 22.9%**

Schools own their own grounds maintenance equipment and until recently did not use the in-house repair service available to them, rather they utilized pricy outside vendors for repairs. M&O is gladly saving the schools this expense and labor costs. M&O techs collect the equipment and provide the repair labor at no cost, leaving the schools responsible only for the cost of parts. As budgets shrink, the schools are using more of the Department's services in maintaining their yard equipment.

**GROUNDS EQUIPMENT REPAIR**




**▪ New PM program**

- Inspect trailers and all equipment on the trailer as well as anything else hitched to a truck.

**▪ PM programs (ongoing)**

- In preserving the fleet, the Department performs scheduled preventive maintenance based on mileage (4,000 / 12,000 / 48,000) that includes all vehicle manufacturers' required tasks.
  - PM inspections and repairs are performed to prevent major servicing at a later date. Preventive maintenance improves gas mileage, reliability of fleet, and extends the life of vehicles.
  - A minimum of three or four PM work orders are scheduled every day in Fleet. The PM includes oil changes, transmission flushes, brake inspection and other safety inspections and repairs as required and recommended by manufacturers' specifications.

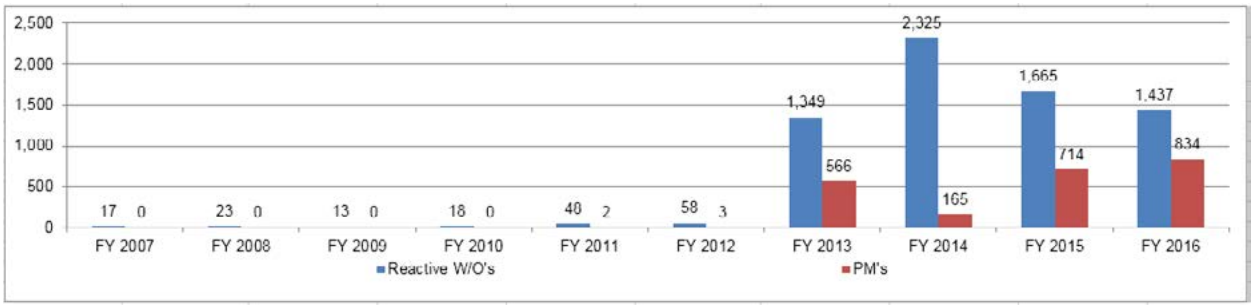
- Large grounds equipment inspection and service (typically performed in off season while not in use with the exception of rider lawn mowers which are top priority during growing season).

✓**Special Challenges / Issues**

***Managing APS Driver's License Program requires time intensive work.*** Several years ago the Department's Fleet Specialist took over the program from the APS Risk Management Division. In assuming the role, the intensive time needed in getting up to date with initial driver licensing was anticipated; not expected is the continuous time demanding management of the program. Each APS driver's license renewal (every two years) takes 15–30 minutes and to register a new employee takes at least 30 minutes as each requires the verification of driver information in two databases and data entry into four databases. Administering the Driver's License Program is consuming approximately 30% of the Fleet Specialist's time. To lessen discussion time, she created an instructional "How To" package for each situation (new driver, driver renewal, and accidents) that includes all application information for each driver. This has helped with faster completion of all applications.

***Vehicle repairs have escalated significantly due to age of fleet.*** The following numbers depicting a 13.6% decline in reactive work orders is a bit misleading as the 16.8% increase in PM work is due to performing the many more discovered needed repairs found in routine inspections. Quite simply, an old fleet needs a lot more care and attention to keep it safely on the road.

**VEHICLE MAINTENANCE**




***Vehicle accidents have increased dramatically.*** APS drivers in 2015-16 were involved in many more accidents, irrespective of fault, and in many cases the damage exceeded the value of the vehicle. It can be a bit thorny to resolve such a problem as the $3,000 vehicle with $3,200 in damage is needed and cannot be replaced for the value amount. For M&O vehicles, Risk Management engages the services of I.A.D.A. Automotive Damage Appraisers to officially determine the extent of the damages which aids in deciding how to proceed. Should damages exceed the value of the vehicle, APS Risk Management will issue a check for the value of the vehicle and Fleet Maintenance will have it repaired and pay the lesser $750 deductible expense. Other departments are responsible for making this decision and paying the deductible for their department vehicles.

## GOALS

### Status of 2015-16 Goals

~ At the end of the last fiscal year, the Department took over the issuing of APS driver's licenses for all M&O drivers of District vehicles from the Risk Management Division, as well as administering driver testing for the required every two year license renewals. This has been a time intensive undertaking along with completing the initial registration for all drivers. The Fleet Specialist is striving to have all completed by June 30, 2016. *Completed and ongoing (two-year renewals)*

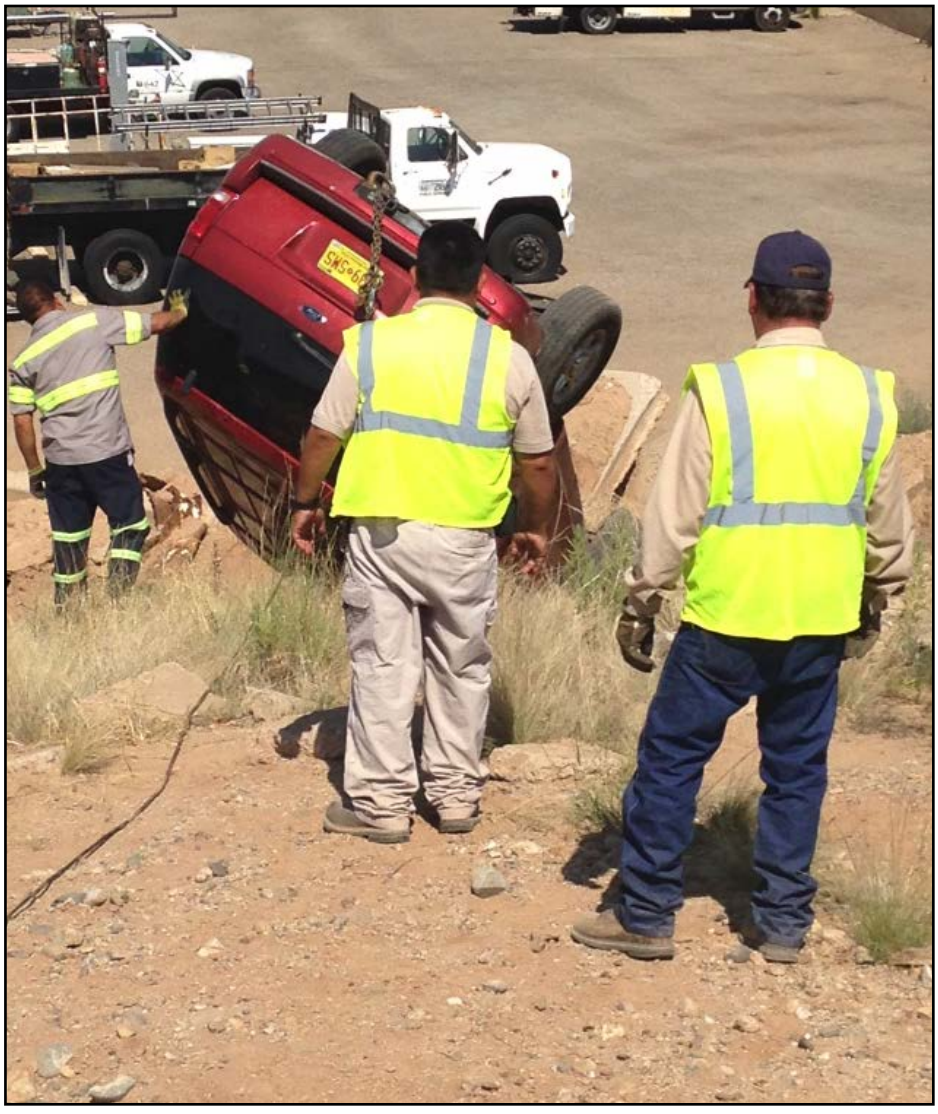
~ Continue updating the Fleet Maintenance Department Procedures Manual to reflect the many new and improved procedures and policies that have been adopted since the Manual was first drafted in 2010. *In progress; ongoing*

~ Identify the most worn M&O service trucks and replace (pending funding). *Completed (Police cars); ongoing vehicle replenishments/replacements*

### 2016-17 Goals

~ Replace M&O's oldest and most high mileage service trucks that are all too often in repair therefore out of commission much of the time (costly).

~ Implement propane dispensing safety and certification program for applicable technicians. The Department will conduct the reoccurring safety training and certify more technicians to refuel and dispense propane in better serving customers.



**Fleet Department provides accident and emergency services**


ENVIRONMENTAL
MANAGEMENT
M&O

# ENVIRONMENTAL MANAGEMENT

***Van Lewis,*** Manager (20 years with M&O, manager 10 years)
9 Inspectors/staff

The Environmental Management Department is staffed by certified Environmental Inspectors charged with conducting federally mandated inspections and overseeing the remediation of any environmental quality issues that are identified. APS' Inspectors maintain over 20 specialized certifications and licenses that include Asbestos Contractor Supervisor, Asbestos Inspector, Asbestos Management Planner, and Asbestos Project Designer. Certifications are also required in Hazardous Waste Operations, Water Quality, Waste Water Systems, and Indoor Air Quality.

Clean and safe indoor air is indispensable to teachers' ability to instruct and their students' ability to grasp the lessons and apply them successfully. In guaranteeing the welfare of students and other occupants of APS facilities, the District has been in the forefront of the nation's public schools since the creation of its in-house environmental management department in 1989 (in response to asbestos abatement legislation soon becoming effective). M&O's Environmental Management Manager and inspectors provide top-quality environmental services saving inestimable costs and time over engaging outside inspectors and contractors. Personnel stay current on new EPA regulations as they come into effect and are duly credited for APS never failing an EPA asbestos inspection audit or being cited for non-compliance of any environmental regulation.

Certified in numerous environmental disciplines, APS environmental inspectors perform scheduled EPA and OSHA delegated inspections and direct the resolution of discovered pollutants that include asbestos, mold, lead-based paint, and radon. Department personnel also mitigate and oversee the safe handling and removal of contaminant materials (floors, ceilings, walls, and plumbing) present in repairs performed by M&O departments as well as demolitions and renovations conducted by Facilities Design + Construction. The pertinent Supervisor or Manager must request an AHERA Compliance Work Plan prior to starting *any* project where contaminants are detected. The environmental inspectors must first review the site's history, sample the affected materials for analysis, and generate the AHERA permit that strictly specifies how to execute the work safely.

Lastly, in meeting federal and state compliance, the Department also conducts scheduled drinking and wastewater sampling. In the rare event that irregularities are found, the water condition is immediately restored long before toxicity looms.

Unlike the other M&O service departments, Environmental Management does not have a PM program as their work does not prevent future maintenance. PM Direct, however, is effectively utilized to manage inspection schedules.

The District's decision to launch its own environment program almost 27 years ago has far exceeded expectations. It was quite an ambitious investment and undertaking at the time that has paid for itself many times over. APS assumed control over costs, liabilities, quality of performance, scheduling, and turnaround time with the astute choice to oversee its own environmental issues to the benefit of students, teachers, other occupants, and taxpayers.


**Environmental sanitation fogging**

## HIGHLIGHTS

**▪ Supported large asbestos abatement projects**

In supporting Facilities Design + Construction's need in demolition of structures to rebuild classroom and other campus buildings, the Department oversaw the removal of asbestos from buildings prior to demolition at Valley and West Mesa High Schools, Ernie Pyle Middle School, and Mountain View and Atrisco Elementary Schools. In addition, the Department managed the mitigation of asbestos at M Building on Lincoln Complex.

**▪ Participated in the planning of new irrigation wells at select sites**

Due to the impact on water regulations, the Department is working with the Irrigation (Grounds) and Plumbing (Mechanical) Shops in the planning the drilling of irrigation wells in transitioning irrigation away from the more costly city domestic water system at feasible select campuses. (As various review teams are involved in this endeavor, it is mentioned elsewhere in this Report.)

**✓Special Challenge / Issue**

***The state Environmental Department changing format of mandatory documents required rewriting the APS water systems' guidelines.***

The New Mexico Environmental Department requires that written guidelines exist for all APS wells and other drinking water systems. In meeting this requirement, last year the Department Manager drafted and submitted procedures for each of the District's four applicable systems (Corrales and Los Padillas Elementary Schools, Polk Middle School, and Sandia Mountain Natural History Center). He was *then* informed that the state had so radically changed the required format of the documentation that a complete rewrite of these procedural guidelines was required in the 2015-16 FY.

## GOALS

### Status of 2015-16 Goals

~ Conduct asbestos abatement in Building M at Lincoln Complex in preparation of administrative personnel currently located at the APS Montgomery Complex moving into the soon to be remodeled Lincoln facility. Asbestos containing floor tile and sheet rock will be safely removed before renovation commences. *Completed*

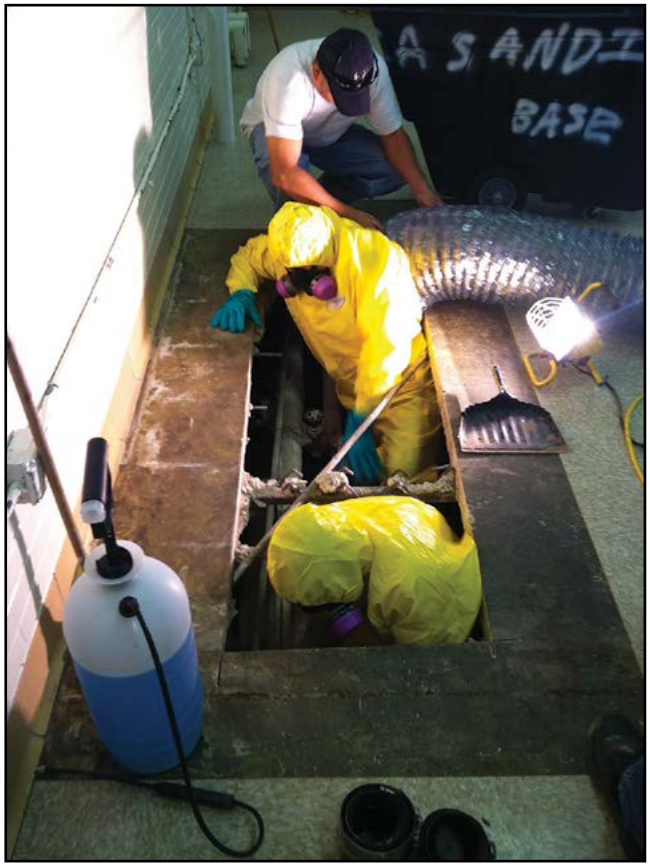
~ Modify the SchoolDude WO system to accommodate the classification of work as a specific type of inspection *in addition to PM*. Currently, a work order has to be classified as either one or the other (an inspection *or* PM) but needs to be recorded as *both* as well as specify the type of inspection, such as asbestos or water sampling. This will greatly aid in scheduling inspections through PM Direct as well as more accurately record keeping and tracking PM work. *Not completed as not possible to SchoolDude's incapability with environmental functions (not commonly in-house functions at school districts)*

~ Add more environmental inspections to the PM Direct schedule. *Also not completed as not possible due to SchoolDude's incapability with environmental functions.*

### 2016-17 Goals

~ In preparation of re-building, oversee the removal of asbestos at Albuquerque High School and Montgomery Complex (began in late 2015-16 FY).

~ Oversee the new drinking water well system at Los Padillas Elementary School which includes managing all paper documents (applications, cost estimates, engineering drawings, and more) as well as sample water and obtain approvals.



**Asbestos abatement in tunnels below floor**

# Asbestos abatement


SUPPORT
SERVICES
M&O

# SUPPORT SERVICES

***Billie Salas,*** Manager (29 years with M&O, manager 10 years)
10 employees

The Support Services Department is responsible for the administration of Budget Management; Invoice and Payment Processing; Contract Administration; and Utilities Management.

Support Services provides the financial accounting function for M&O enabling the service departments to carry out their routine work and large projects in a timely manner utilizing available and sometimes specifically designated budgeted dollars. In department Managers serving this end and meeting their goals, they work closely with Support Services as well as the M&O Executive Director. Ms. Salas also collaborates with APS' Finance, Procurement, and Accounts Payable offices in overseeing M&O's fluctuating budget balance (consisting of Operational and Senate Bill 9 funds), expenses, and daily finance operations.

The administering of Operational monies is relatively straightforward as it pays for the somewhat predictable employee salaries, services, routine materials and supplies, fleet fuel, and utilities. Managing SB-9 dollars used to pay for outside contractor services and more costly materials and equipment, however, calls for infinitely more prudent and watchful maneuvering. Operational funds, apportioned annually, allow no carry-over options. On the other hand, SB-9 monies, created in the 1990s by voter approval, are reloaded after every funding cycle and unspent monies in the current fiscal year are carried over to the following year.

Ms. Salas works in concert with M&O Managers in reserving funds as precisely as feasible in anticipation of planned major projects as well as the unforeseen yet certain emergencies that consume approximately 35% of each year's budget. This insightful strategizing depends on all M&O Managers identifying priorities to meet APS' most demanding needs within budgetary confines. Ms. Salas also works closely with the Executive Director on all budget issues including allocations, expenditures, and budgets for specific projects paid for by Operational and Capital funds.

Ms. Salas is also responsible for the daily review and approval for payment of M&O's voluminous number of invoices in accordance of procurement rules and procedures. Questioned invoices are researched and approved invoices are forwarded to APS' Procurement and/or Accounts Payable Departments for payment. Prompt invoice processing is important to the education process as a logjam in the payment system delays work projects at schools. Contractors are *not* in the education business and sometimes do not hesitate to terminate work at *any* phase, whether it shuts down classrooms or not, if invoices are overdue. M&O however, along with every other APS division — curriculum or otherwise — *is* in the education business and makes every effort to never interrupt the instructional day.

As illustrated by the following table, M&O continues a downward funding trajectory in spite of the District adding new schools and expanding existing campuses. Due to a declining student population and new outside demands on limited Capital funding, M&O's budget dropped 4.3% in 2016 over the previous year. Since 2007, the Division's total budget has declined 22.7% while its number of employees has dwindled by 18%!

## M&O Budget History 2007 – 2016

(Total M&O Budget Allocation Includes "Carry Over" SB-9 Monies from Previous Fiscal Years)

| Fiscal Years | Work Orders | Square Feet | M & O TOTAL BUDGET | Operational Budget | SB-9 Budget | Salaries OT & Benfits | School Sites | FTEs |
|---|---|---|---|---|---|---|---|---|
| 2007 | 57,760 | 9,350,500 | **$48,342,400.00** | $2,903,213.00 | $31,393,556.00 | $14,045,631.00 | 136 | 330.5 |
| 2008 | 63,476 | 10,975,700 | **$55,391,208.00** | $2,629,799.00 | $37,165,908.00 | $15,595,501.00 | 137 | 320.5 |
| 2009 | 68,155 | 12,010,152 | **$48,564,786.00** | $2,066,226.00 | $30,832,290.00 | $15,666,270.00 | 139 | 310 |
| 2010 | 68,372 | 13,105,100 | **$41,227,836.00** | $1,329,653.00 | $25,350,736.00 | $14,547,447.00 | 141 | 285.5 |
| 2011 | 71,825 | 14,207,533 | **$30,237,780.00** | $ 909,154.00 | $14,776,670.00 | $14,551,956.00 | 142 | 265 |
| 2012 | 70,620 | 14,517,582 | **$35,966,909.00** | $ 925,736.00 | $21,355,325.00 | $13,685,848.00 | 143 | 262.5 |
| 2013 | 77,722 | 14,624,261 | **$38,573,538.00** | $1,005,736.00 | $23,844,843.00 | $13,722,959.00 | 143 | 263 |
| 2014 | 77,274 | 14,402,956 | **$38,655,311.00** | $1,054,080.00 | $23,818,035.00 | $13,783,196.00 | 143 | 263.5 |
| 2015 | 77,198 | 14,590,750 | **$39,063,004.00** | $1,529,562.00 | $23,536,468.00 | $13,996,974.00 | 144 | 266.5 |
| 2016 | 86,848 | 14,954,427 | **$37,345,188.00** | $1,529,562.00 | $21,658,601.00 | $14,157,025.00 | 144 | 270.5 |

***Notes:***

*Work order totals apply District wide, not just school sites.*

*Several schools sometimes share one campus.*

*The Operational, SB-9, and Salaries/OT & Benefits columns equal the M&O TOTAL BUDGET.*

# HIGHLIGHTS

**▪ Created a BSR Credit Listing by vendor separate from the drawdown purchase orders**

Credits from vendors for returned merchandise are common throughout M&O departments and *shouldn't* pose a problem. (M&O had a total of 28 vendor credits in 2015-16.) However, these credits have resulted in incongruity between the M&O financial database (BSR) and the District wide financial database (Lawson). When invoices are entered into Lawson, they are deducted from the allocated balance. However, when a credit is entered, it changes the encumbered balance in the BSR but does not affect the Lawson PO balance. All credits in Lawson are applied against the vendor, not the PO. As a result, it has been necessary to manually calculate credits at the close of every fiscal year and request a revision in matching Lawson's balance to the penny and automatically close the PO. The newly created BSR Credit Listing by vendor now tracks entered credits enabling Support Services personnel to view true, matching PO balance(s) between the BSR and Lawson databases. The BSR Credit Listing has greatly simplified matching Lawson's balance exactly and saves immeasurable time in solving inaccuracies between the two systems.

**▪ Purchasing Department's District compliance change is expediting the payment process**

This change shifted the contract compliance responsibility from the District compliance technician to the APS Division or Department level. Due to the vast number of purchase agreements (contracts) utilized throughout the District, it was concluded that as each APS division or department is thoroughly familiar with the specifics of their own contracts, invoicing should reflect the signed agreement and only correct invoices would be authorized for payment by each division/department head's approval signature. This new procedure allowed M&O (as well as other divisions) to reject inaccuracies promptly. Previously, invoices moved through the many payment steps before mistakes were detected. With only one key individual reviewing the invoice for correct pricing and other details, bottlenecks are averted, employee time is saved, and vendors receive payment promptly – and for M&O, this means no delay in projects due to stalled payment of invoices and faster service to the schools!

✓**Special Challenge / Issue**

***Changed direct purchasing processes affected all divisions District wide, including M&O.*** Over the years, purchasing processes became a bit inconsistent between the various District departments. Understandably, the Procurement office's return to observing strict protocol caused a few hiccups for M&O with regards to some vendors on temporary extensions. These unexceptional extensions allowed M&O to use those contracts due to a delay in the request for proposals schedule by the Procurement office. Some problems occurred, however, when products and services that were needed to serve the schools had reached the procurement threshold which necessitated Small Purchase Orders to be issued. It was a rational deviation in keeping up with the District's routine maintenance demands. Purchasing processes are now smooth and a better pathway between the Procurement office and M&O exists in securing contract services and products.

## GOALS

### Status of 2015-16 Goals

~ Utilities Management staff member to conduct a utility invoice audit comparing invoices to the District's hundreds of utility meters. It is an arduous task but important in not unknowingly overpaying utility expenses. *Planning in progress. Task requires the participation of Irrigation Shop, Plumbing Shop, and the Electrical Department (see 2016-17 Goal below). It is important to note that every suspect invoice is scrutinized and investigated. Meter is checked and follow-up with the applicable utility is conducted.*

~ Create a 2015-16 BSR Credit Listing by vendor separate from the drawdown purchase orders. *Completed (note first Highlight above)*

### 2016-17 Goal

~ Formalize an audit comparing invoices to the District's hundreds of utility meters.


M&O

# APPENDICES

Maintenance Work Orders per Student (Dashboards)
Preventive Maintenance Work Orders per Student (Dashboards)
APS Summer Shutdown Checklist (Hibernation Program)
Hibernation Observation Comments Example
Weekly vs. Weekend Electric Use
Heat Map Illustrating High Peak Usage
Weekend Checker Report (Rudolpho Anaya, Sunset View, Tierra Antigua Elementary Schools)
Performance Against Baseline (New Futures and Atrisco Heritage Academy High Schools)
APS Utility Rebates 2014-15 to Spring 2017
On-Peak vs. Off-Peak Consumption and Costs (Atrisco Heritage Academy High School

## M&O DEPARTMENT WORK ORDER TOTALS

Mechanical
Grounds
Structural
Electrical
Building Services
Fleet Maintenance
Environmental Management

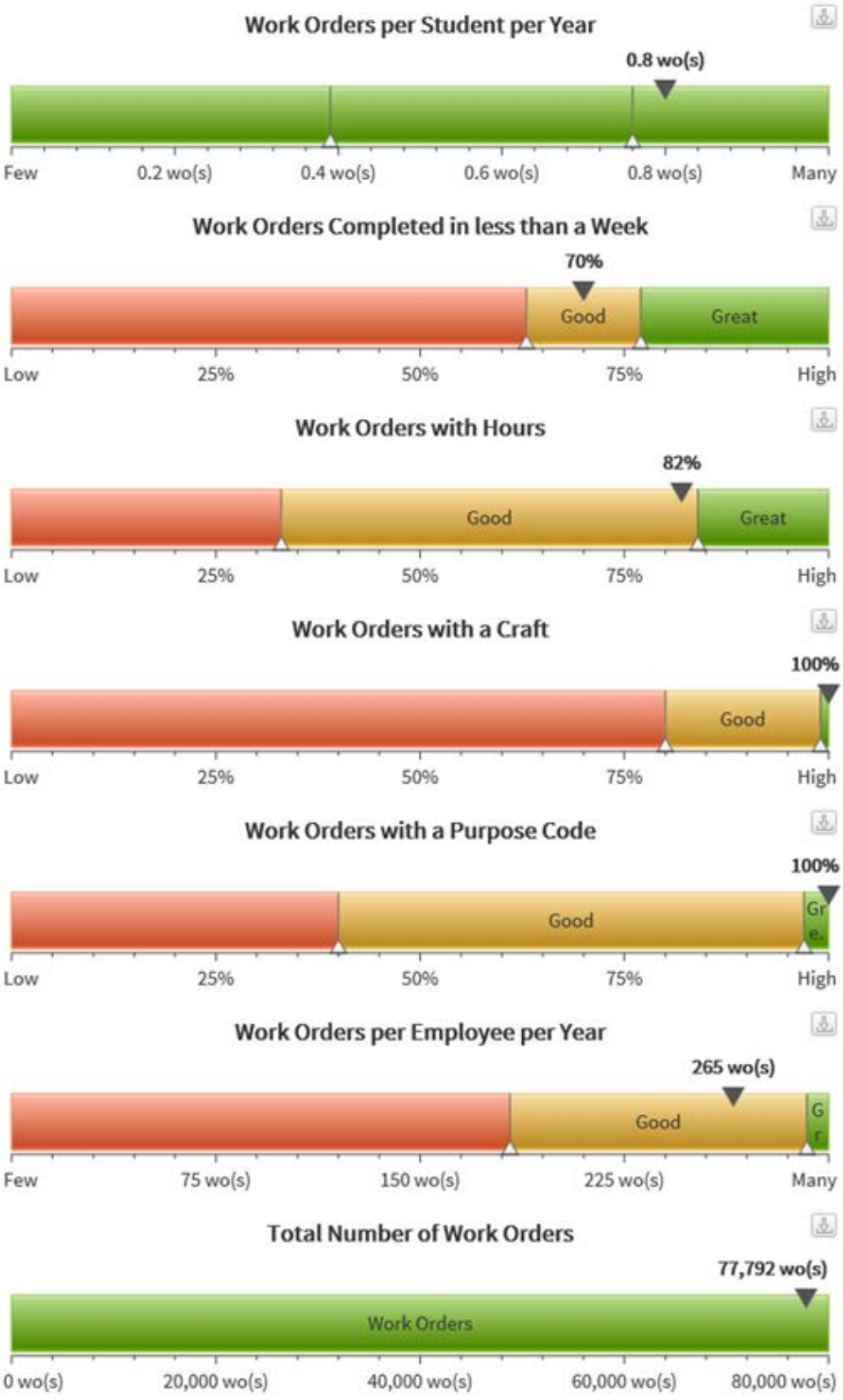
## M&O EXPENDITURES PER HIGH SCHOOL CLUSTER 2007–2016

## INDIVIDUAL CLUSTER REPORTS

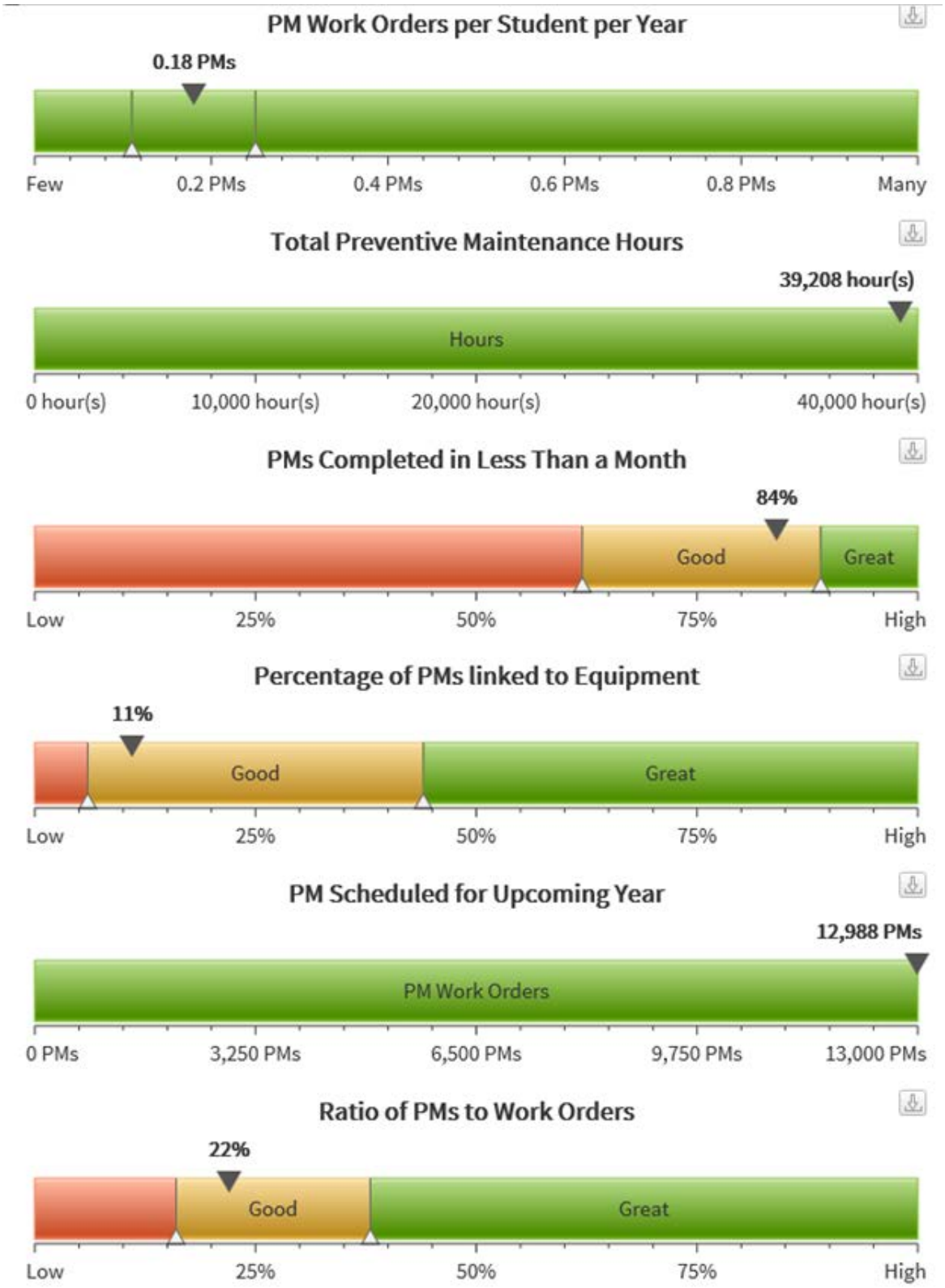
Rio Grande High School
West Mesa High School
Highland High School
Del Norte High School
Cibola High School
Valley High School
Albuquerque High School
Sandia High School
Manzano High School
Eldorado High School
Atrisco Heritage Academy High School
Volcano Vista High School
La Cueva High School
Alternative Schools

## MANAGING FOR RESULTS IN AMERICAN'S GREAT CITY SCHOOLS (M&O PORTION OF 2016 STUDY RESULTS)

## Maintenance Work Orders per Student (Dashboards indicating "now")



## Preventive Maintenance Work Orders per Student
(Dashboards indicating "now")



# APS Summer Shutdown Checklist
## A list for summer "hibernation" of your school

| School Name: | BY WHOM | DATE COMPLETE |
|---|---|---|
| **Building** | | |
| -- Ensure that all windows and doors to the outside are closed and locked. | Custodian | |
| --Report any roof or window leaks discovered during the summer as work orders to School Dude | Principal designee | |
| **Water** | | |
| -- Check all drinking fountains, faucets, showers and toilets for water leaks or drips. | Custodian | |
| -- Immediately report any leaks discovered during the summer. | All school staff | |
| -- Turn off all water heaters that will not be needed. *Approved technicians only.* | Fac. Tech | |
| **Refrigeration** | | |
| -- Where possible, turn off, or unplug drinking fountains containing individual refrigeration units. | Custodian | |
| -- Empty, unplug and clean all classroom refrigerators and aquariums prior to teachers leaving for the summer. | School Staff | |
| -- Coordinate with School Food Services to see if they can empty the reach-in coolers and freezers so they can be shut down for the summer. | Cafeteria Mgr. | |
| -- Milk coolers and ice machines not in use should be turned off. | Cafeteria Mgr. | |
| **Electricity** | | |
| -- Ensure that all unnecessary electrical appliances are turned off and unplugged! This includes: Promethean Boards, projectors, copiers, computers, printers, televisions, fax machines, radios, water coolers, task lighting, video carts, microwave ovens. | Teachers, custodian | |
| -- Unplug vending machines (inform vendor of intentions). | Custodian | |
| -- Check computer labs. Turn off and unplug computers, monitors and printers. | School Staff | |
| -- Turn off intercom and classroom bell systems, when feasible. | School Admin. | |
| **Lighting** | | |
| -- For exterior lights that will be operated during the summer, check that time clocks are set correctly for summer hours and/or photocells controlling exterior lights work correctly. Contact the Utilities Manager to schedule the exterior lights to turn on and off. | Fac. Tech | |
| -- Restrict the use of interior lighting to only those areas of the school being worked in or occupied. | Custodian | |
| -- Turn off all display case lighting. | Custodian | |
| -- Where possible, turn off all interior lights, except exit and emergency lighting. | Custodian | |
| **HVAC** | | |
| -- Confirm that all kitchen equipment not being used during the summer, both gas and electric, is turned off. *Only an approved technician can turn on and off pilot lights.* | Cafeteria Manager | |
| -- Ensure that all compressors used in auto, wood or other shops are turned off and/or | Shop Teacher | |
| -- Turn off all automatic and manual exhaust fans. Review the need for building ventilation, and shut down all unnecessary ventilation fans. *Only an approved technician can turn on and off exhaust fans unless they have an easily accessible switch such as those near or on a light switch.* | Fac. Tech | |
| -- Adjust your HVAC time clocks according to required schedules. | Fac. Tech | |
| -- Turn off electric water heaters at circuit box. Turn off any hot water boosters for kitchen dishwashers. *Approved technicians only.* | Fac. Tech | |
| -- Turn off domestic hot water circulating pumps, if feasible. *Approved technicians only.* | Fac. Tech | |
| **Miscellaneous** | | |
| -- Discontinue garbage services. Request "on call" service only, if needed. Contact the Utilities Manager to make arrangements. | Principal Designee | |
| -- Organize and plan summer building cleaning and phased waxing with resource conservation in mind. Provide a color-coded school map indicating cleaning schedule. | Custodian | |
| --Portable classrooms. Lights are to be turned off and thermostats set to unoccupied mode. Refrigerators emptied, cleaned and turned off. | School staff/custodians | |
| Look for any other appliances or equipment that do not need to run during the summer, and shut them off and/or unplug. | School staff/custodians | |

## Hibernation "Observation Comments" Example

WECC Water and Energy Conservation Committ

**APS Summer Shutdown Checklist**

**A List of Observations for Summer "Hibernation"**

| | | | | |
|---|---|---|---|---|
| **School:** | North Star ES - 9301 Ventura NE | | **Date of Walkthrough:** | 6/22/2016 |
| **Observers:** | Jim Klein (Community Volunteer) | | | |
| **School Contacts** | Jason Enjady | | | |
| **School Administration:** | **Principal:** | Stephanie Fascitelli | (505) 856-6578 | |
| | **Asst Principal:** | Misty Smith | | |
| | **Head Custodian:** | Jason Enjady | | |

**Brief Historical Context:**

North Star Elementary is a relatively new school, but has a distributed infrastructure of Evaporative (swamp) Coolers for summer comfort. Each classroom has its own control, and coolers are turned on by turning a timer on. The swamp cooler turns itself off when the timer times out. Heat Pumps are located at exterior doors, and for the most part seemed ineffective.

Children's Choices is currently operating a summer program at the school, with usage limited to several classrooms on the upper level, and the cafeteria area. The Kitchen is closed down for the summer. Summer floor maintenance is underway, so there is furniture placed in unusual locations to permit floor stripping and waxing.

All corridors and common areas were illuminated. Corridor lighting is controlled by keyed switches, and in discussion with Jason Enjady, it is the responsibility of the last custodian to leave the building every night to turn off all of the lights.

**General Summary of Findings:**

Children's Choice summer program is underway so there is activity on the main level of the school. This meant that there were several areas that were being used although not continuously occupied. In some circumstances, lights were being turned off as the class left the room. In other classrooms, the class left and the lights were not extinguished. This is an education/behavior training issue.

*Following is a partial list of findings and recommendations.-*

**Concluding Comments:**

Weather Conditions at time of observations - 12:45 - 87^ - 11% - calm and mostly clear. The temperature quickly rose to the mid-90's during the course of the observation.

The Evaporative coolers were not effective in controlling the occupied areas. Jason has observed that several (many?) of the coolers were not properly started up, pads and panels not properly put in place, and a number of coolers are not circulating water so they are just blowing very hot air into the building (at least in some circumstances). Jason indicated that he has placed a work order for this problem.

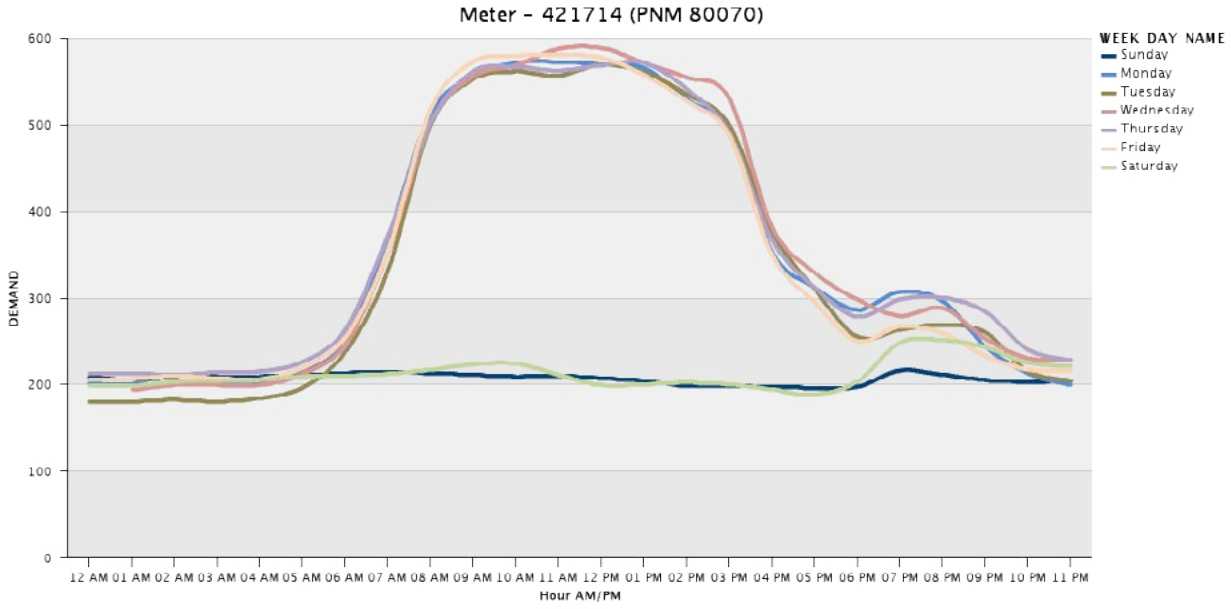
With the exception of common area lighting, the building was being properly managed. Devices left on were more the exception than the rule. Unoccupied classrooms (except a few - probably with faulty timers) were for the most part dark, unconditioned, and with few if any devices running. Refrigerators are distributed widely through the building. With the temperatures I was observing, these refrigerators will be working hard to maintain a cool compartment - and this is magnified by the lack of stored items in the many refrigerators. The lack of thermal mass causes refrigerators to short cycle, using not only energy, but causing premature failure of the appliance.

Page 2 - APS Summer Shutdown Checklist / Observations

| North Star ES - 9301 Ventura NE | 6/22/2016 |
|---|---|

| Room | Occupied | Evap / AC | Temp | Lights | Devices | Note |
|---|---|---|---|---|---|---|
| Cafeteria | Lightly | On | 77.8 | On | | LED lights throughout the space. Evaporate coolers on high speed and not keeping up with the heat. |
| Kitchen | Unoccupied | Off | 80.0 | Off | On | Fixed in place Freezer and refrigerator locked but temp readings at low set point. Freestanding refrigerator on, unlocked and completely empty. Grille pilot light on and grille surface hot. |
| Main Entrance | Lightly | On | 82.4 | On | | Appropriate for occupancy except that there is very good 'borrowed light' from entrances which made the artificial lighting irrelevant. |
| 203 - Health Room | Unoccupied | Off | 82.9 | Off | On | Printers and computer screens energized and in standby. Refrigerator on with almost zero content. |
| Hallway 200 - Kindergarden | Lightly | Off | 82.2 | On | | Two classrooms in use inconsistently. Hallway lighting is key switched so unable to reduce lighting to take advantage of natural lighting and skylights. |
| Classroom 204 | Unoccupied | Off | 83.4 | Off | On | Promethium left on over summer |
| Classroom 206 | Occupied | On | 76.4 | On | On | Refrigerator in minimal use. Classroom in use, but unoccupied when observed. Lights all on. Something chirping (electronic) in room. |
| Workroom/lounge | Unoccupied | Off | 85.4 | Off | On | Copier in sleep mode, Pepsi machine running. Very warm. |
| First Grade hallway | Unoccupied | Off | 82.4 | On | | Good natural light, but all lights on and key switched so there is no local control. |
| Classroom 230 | Unoccupied | Off | 83.5 | Off | Off | Well done |
| Classroom 234 | Unoccupied | On | 77.1 | Off | On | But in use for summer program. Lights out! Good stewardship! |
| Room 242 - PTA | Unoccupied | On | 81.1 | Off | | HOT, in spite of evaporate cooler on high. |
| Library | Unoccupied | Off | 80.6 | Off | Off | Copier in standby rather than powered off. |
| Technology lab - 120 | Unoccupied | On | 76.2 | Off | Off | AC indicated on, and room was one of the cooler in the building, but the evaporate is usually loud, and this one wasn't. Good job shutting down the technology. |

## Weekday vs. Weekend Electric Use

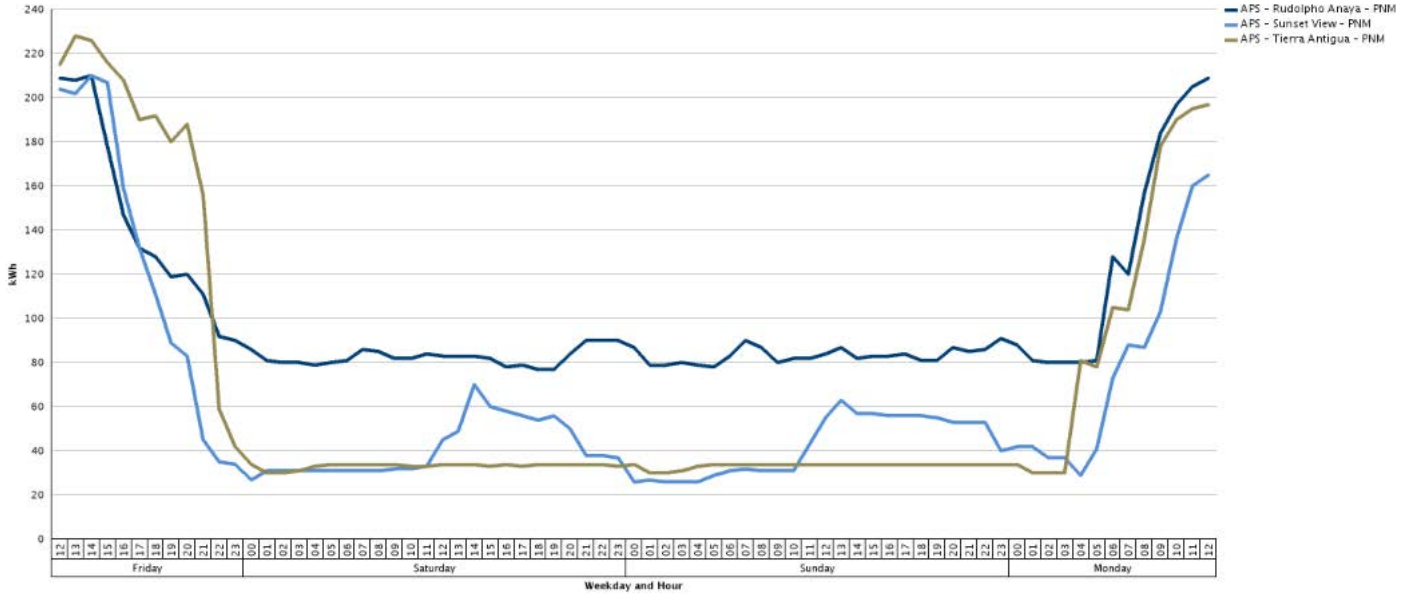


# Heat Map Illustrating High Peak Usage (highest usage in red)

| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|---|
| 12 AM | 210 | 202 | 181 | | 214 | 207 | 199 |
| 01 AM | 206 | 200 | 181 | 195 | 214 | 207 | 199 |
| 02 AM | 210 | 203 | 183 | 200 | 212 | 211 | 204 |
| 03 AM | 210 | 202 | 181 | 200 | 215 | 208 | 205 |
| 04 AM | 210 | 201 | 185 | 200 | 216 | 207 | 206 |
| 05 AM | 211 | 215 | 197 | 213 | 227 | 220 | 210 |
| 06 AM | 214 | 255 | 238 | 247 | 264 | 255 | 211 |
| 07 AM | 215 | 370 | 332 | 353 | 372 | 354 | 213 |
| 08 AM | 214 | 513 | 500 | 502 | 503 | 518 | 218 |
| 09 AM | 212 | 556 | 553 | 556 | 562 | 573 | 224 |
| 10 AM | 210 | 572 | 562 | 569 | 567 | 580 | 225 |
| 11 AM | 211 | 573 | 557 | 588 | 563 | 581 | 212 |
| 12 PM | 208 | 570 | 570 | 589 | 569 | 578 | 200 |
| 01 PM | 205 | 566 | 561 | 572 | 572 | 558 | 201 |
| 02 PM | 199 | 530 | 536 | 555 | 542 | 528 | 203 |
| 03 PM | 199 | 492 | 500 | 531 | 491 | 488 | 201 |
| 04 PM | 198 | 354 | 378 | 383 | 368 | 351 | 195 |
| 05 PM | 197 | 313 | 311 | 330 | 313 | 296 | 189 |
| 06 PM | 198 | 287 | 256 | 299 | 279 | 251 | 204 |
| 07 PM | 217 | 308 | 264 | 280 | 299 | 268 | 249 |
| 08 PM | 212 | 297 | 270 | 289 | 301 | 260 | 252 |
| 09 PM | 206 | 245 | 261 | 254 | 285 | 234 | 244 |
| 10 PM | 204 | 214 | 216 | 231 | 241 | 218 | 226 |
| 11 PM | 205 | 200 | 205 | 230 | 229 | 216 | 222 |

## Weekend Checker Report for Rudolpho Anaya, Sunset View, Tierra Antigua Elementary Schools

(Generated March 8, 2017)




| | | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Max Daily Usage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APS - Rudolpho Anaya - PNM | Friday | | | | | | | | | | | | | 209 | 208 | 210 | 178 | 147 | 132 | 128 | 119 | 120 | 111 | 92 | 90 | 210 |
| | Saturday | 86 | 81 | 80 | 80 | 79 | 80 | 81 | 86 | 85 | 82 | 82 | 84 | 83 | 83 | 83 | 82 | 78 | 79 | 77 | 77 | 84 | 90 | 90 | 90 | 90 |
| | Sunday | 87 | 79 | 79 | 80 | 79 | 78 | 83 | 90 | 87 | 80 | 82 | 82 | 84 | 87 | 82 | 83 | 83 | 84 | 81 | 81 | 87 | 85 | 86 | 91 | 91 |
| | Monday | 88 | 81 | 80 | 80 | 80 | 81 | 128 | 120 | 157 | 184 | 197 | 205 | 209 | | | | | | | | | | | | 209 |
| APS - Sunset View - PNM | Friday | | | | | | | | | | | | | 204 | 202 | 210 | 207 | 159 | 132 | 111 | 89 | 83 | 45 | 35 | 34 | 210 |
| | Saturday | 27 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 32 | 32 | 33 | 45 | 49 | 70 | 60 | 58 | 56 | 54 | 56 | 50 | 38 | 38 | 37 | 70 |
| | Sunday | 26 | 27 | 26 | 26 | 26 | 29 | 31 | 32 | 31 | 31 | 31 | 43 | 55 | 63 | 57 | 57 | 56 | 56 | 56 | 55 | 53 | 53 | 53 | 40 | 63 |
| | Monday | 42 | 42 | 37 | 37 | 29 | 41 | 73 | 88 | 87 | 103 | 136 | 160 | 165 | | | | | | | | | | | | 165 |
| APS - Tierra Antigua - PNM | Friday | | | | | | | | | | | | | 215 | 228 | 226 | 216 | 208 | 190 | 192 | 180 | 188 | 156 | 59 | 42 | 228 |
| | Saturday | 34 | 30 | 30 | 31 | 33 | 34 | 34 | 34 | 34 | 34 | 33 | 33 | 34 | 34 | 34 | 33 | 34 | 33 | 34 | 34 | 34 | 34 | 34 | 33 | 34 |
| | Sunday | 34 | 30 | 30 | 31 | 33 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| | Monday | 34 | 30 | 30 | 30 | 81 | 78 | 105 | 104 | 136 | 178 | 190 | 195 | 197 | | | | | | | | | | | | 197 |

## Performance Against Baseline at New Futures and Atrisco Heritage Academy High Schools

(Compares meter against weather and occupancy, generated March 8, 2017)

Report Summary

| Parameters | | Results | |
|---|---|---|---|
| Customer | APS #594 New Futures High School | Total kWh | 4,486,680 |
| Location | APS - Atrisco Heritage - PNM | Total Estimated Cost | $493,535 |
| Utility Billing Period | Mar 8, 2016 - Mar 8, 2017 | Total Baseline kWh | 4,345,894 |
| Blended Unit Cost | $0.11/ kWh | Average % Performance Against Baseline | 3% |
| Level of Aggregation | Meter | Variance Between kWh and Baseline | 140,787 |
| | | Cost Variance Between Actual and Baseline | $15,487 |

**Best Performing Locations**

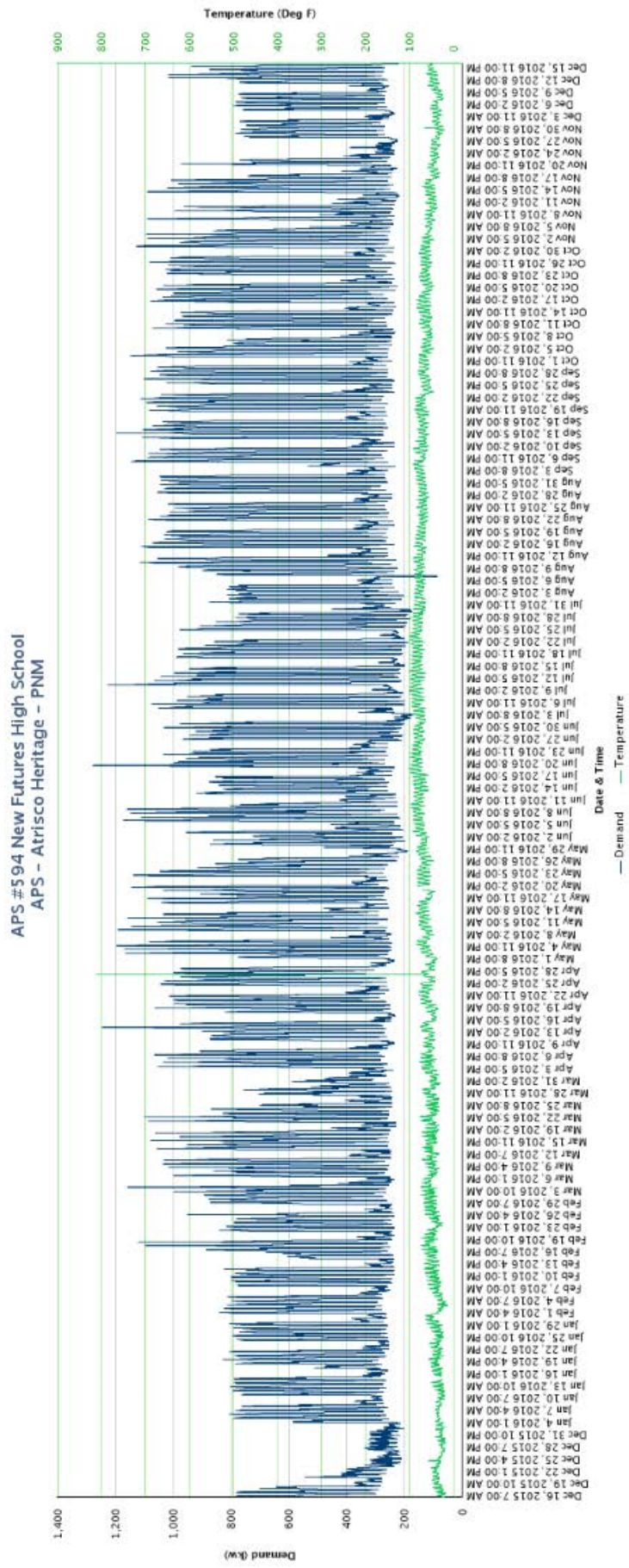
| Location | Meter Name | % Performance against Baseline | Rank |
|---|---|---|---|
| APS - Atrisco Heritage | Meter - 714918 | 3% | 1 |

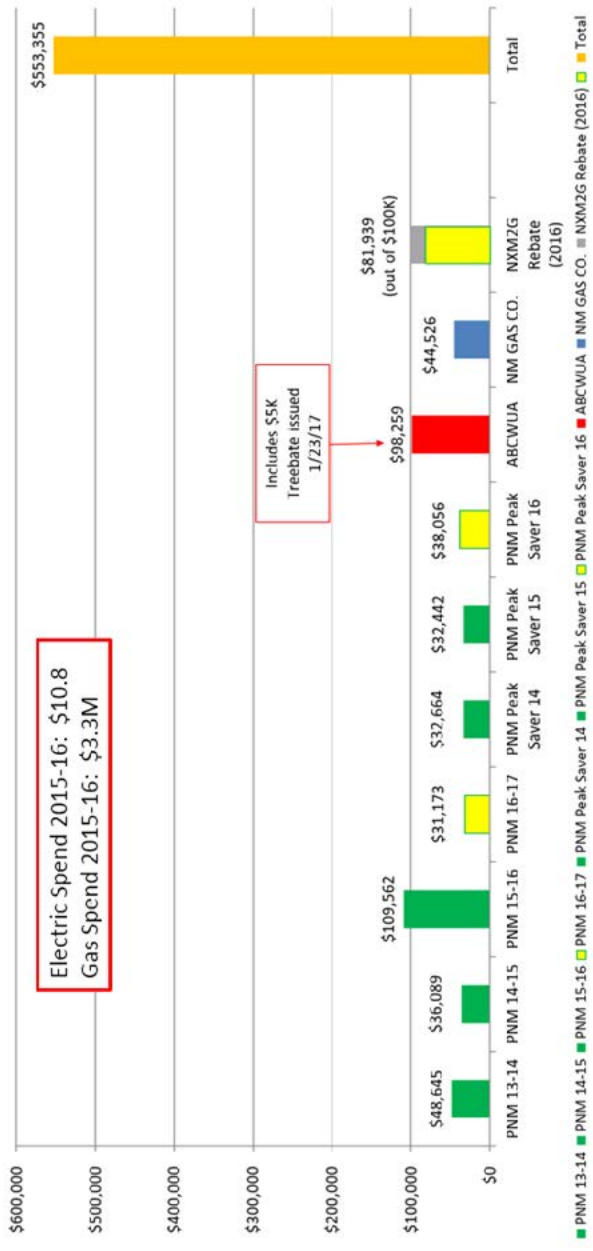
**Worst Performing Locations**

| Location | Meter Name | % Performance against Baseline | Rank |
|---|---|---|---|
| APS - Atrisco Heritage | Meter - 714918 (PNM 82130) | 3% | 1 |

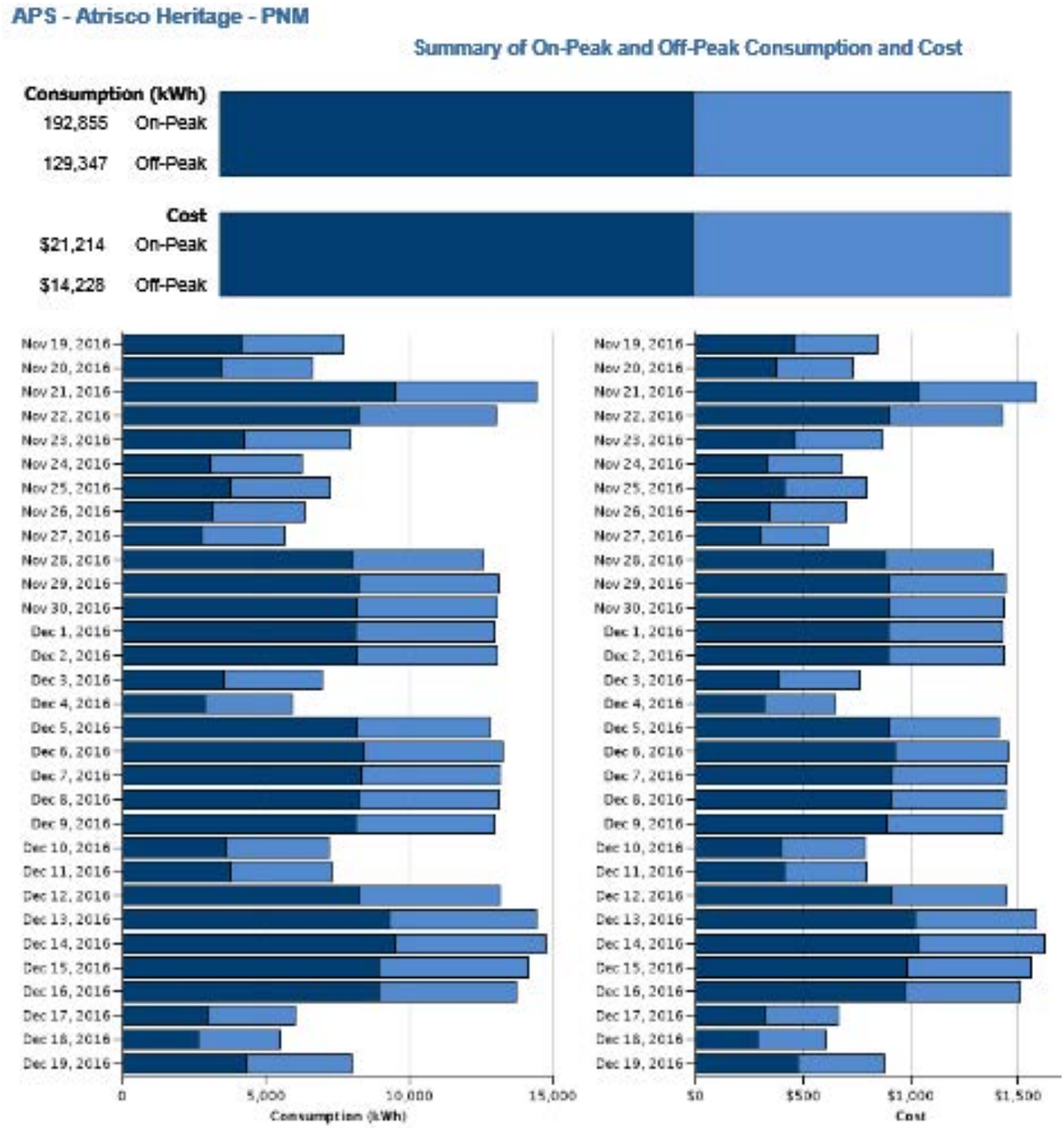
**Baseline Performance**

| Location | Meter Name | Total kWh | Total Estimated Cost | Total Baseline kWh | % Performance against Baseline | kWh above/below baseline | $ above/below baseline |
|---|---|---|---|---|---|---|---|
| APS - Atrisco Heritage | 714918 (PNM 8 | 4,486,680 | $493,535 | 4,345,894 | 3% | 140,787 | $15,487 |


APS #594 New Futures High School
APS – Atrisco Heritage – PNM
Temperature (Deg F)
Demand (kw)
Date & Time
Demand
Temperature


APS Utility Rebates 2014-15 to Spring 2017
Electric Spend 2015-16: $10.8
Gas Spend 2015-16: $3.3M
Includes $5K Treebate issued 1/23/17
$553,355
$109,562
$98,259
$81,939 (out of $100K)
$48,645
$36,089
$31,173
$32,664
$32,442
$38,056
$44,526
PNM 13-14
PNM 14-15
PNM 15-16
PNM 16-17
PNM Peak Saver 14
PNM Peak Saver 15
PNM Peak Saver 16
ABCWUA
NM GAS CO.
NXM2G Rebate (2016)
Total
PNM 13-14 PNM 14-15 PNM 15-16 PNM 16-17 PNM Peak Saver 14 PNM Peak Saver 15 PNM Peak Saver 16 ABCWUA NM GAS CO. NXM2G Rebate (2016) Total

## On-Peak vs. Off-Peak Consumption and Costs at Atrisco Heritage Academy High School (Generated 3-8-17)



# EE-014 On-Peak vs. Off-Peak Consumption

| Report Parameters | | | | | |
|---|---|---|---|---|---|
| **Customer** | APS #594 New Futures High School | **Granularity** | **Daily** | On-Peak Tariff | 0.11 |
| Start Date | Dec 19, 2016 | On-Peak Start Time | 8:00 AM | Off-Peak Tariff | 0.11 |
| End Date | Jan 17, 2017 | Off-Peak Start Time | 8:00 PM | On-Peak Hours on Weekend | Yes |

## APS - Atrisco Heritage - PNM

| | On-Peak (kWh) | On-Peak Cost | Off-Peak (kWh) | Off-Peak Cost |
|---|---|---|---|---|
| Dec 19, 2016 | 4,316 | $475 | 3,668 | $403 |
| Dec 20, 2016 | 4,549 | $500 | 3,720 | $409 |
| Dec 21, 2016 | 5,082 | $559 | 3,933 | $433 |
| Dec 22, 2016 | 5,039 | $554 | 4,409 | $485 |
| Dec 23, 2016 | 3,714 | $408 | 4,262 | $469 |
| Dec 24, 2016 | 3,475 | $382 | 4,164 | $458 |
| Dec 25, 2016 | 3,402 | $374 | 3,512 | $386 |
| Dec 26, 2016 | 3,650 | $402 | 3,668 | $403 |
| Dec 27, 2016 | 3,797 | $418 | 3,614 | $398 |
| Dec 28, 2016 | 3,730 | $410 | 3,553 | $391 |
| Dec 29, 2016 | 3,743 | $412 | 3,622 | $398 |
| Dec 30, 2016 | 3,646 | $401 | 3,588 | $395 |
| Dec 31, 2016 | 3,495 | $385 | 3,363 | $370 |
| Jan 1, 2017 | 3,380 | $372 | 3,069 | $338 |
| Jan 2, 2017 | 4,722 | $519 | 3,642 | $401 |
| Jan 3, 2017 | 6,646 | $731 | 4,171 | $459 |
| Jan 4, 2017 | 8,113 | $892 | 4,774 | $525 |
| Jan 5, 2017 | 8,394 | $923 | 4,925 | $542 |
| Jan 6, 2017 | 6,474 | $712 | 4,810 | $529 |
| Jan 7, 2017 | 4,977 | $547 | 4,566 | $502 |
| Jan 8, 2017 | 3,910 | $430 | 4,078 | $449 |
| Jan 9, 2017 | 8,273 | $910 | 5,577 | $613 |
| Jan 10, 2017 | 8,664 | $953 | 5,713 | $628 |
| Jan 11, 2017 | 8,724 | $960 | 5,746 | $632 |
| Jan 12, 2017 | 8,461 | $931 | 5,657 | $622 |
| Jan 13, 2017 | 8,240 | $906 | 5,575 | $613 |
| Jan 14, 2017 | 4,184 | $460 | 4,206 | $463 |
| Jan 15, 2017 | 3,758 | $413 | 3,871 | $426 |
| Jan 16, 2017 | 4,908 | $540 | 4,465 | $491 |
| Jan 17, 2017 | 8,497 | $935 | 5,422 | $596 |
| **Total** | **161,964** | **$17,816** | **129,341** | **$14,227** |

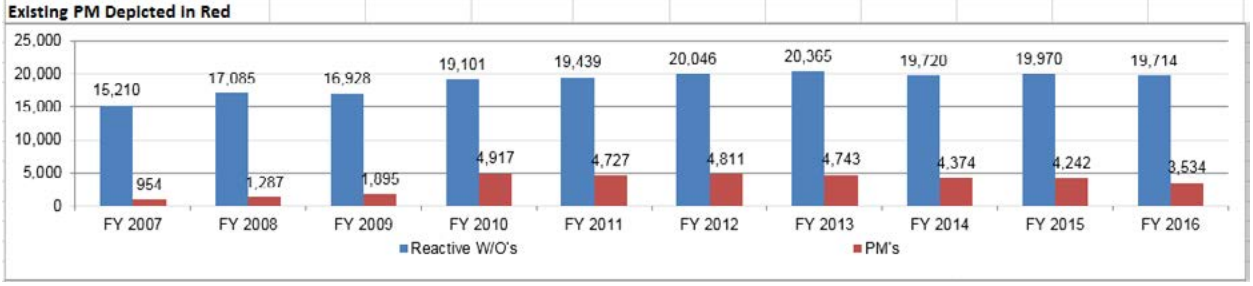
# M&O DEPARTMENT WORK ORDER TOTALS

**Mechanical Total**

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reactive Work Orders | 15,210 | 17,085 | 16,928 | 19,101 | 19,439 | 20,046 | 20,365 | 19,720 | 19,970 | 19,714 |
| Preventive Maintenance | 954 | 1,287 | 1,895 | 4,917 | 4,727 | 4,811 | 4,743 | 4,374 | 4,242 | 3,534 |
| Total Work Order For Fiscal Year | 16,164 | 18,372 | 18,823 | 24,018 | 24,166 | 24,857 | 25,108 | 24,094 | 24,212 | 23,248 |
| PM Count Ratio | 6% | 8% | 11% | 26% | 24% | 24% | 23% | 22% | 21% | 18% |

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| All Maintenance Cost | 5,667,399 | 5,983,465 | 6,140,969 | 6,102,492 | 5,716,160 | 6,083,476 | 6,280,883 | 6,715,532 | 5,639,955 | 5,919,530 |
| Preventative Maintenance Cost | 1,663,951 | 1,596,942 | 2,101,255 | 2,565,293 | 1,820,847 | 2,564,035 | 2,587,634 | 2,213,515 | 1,668,540 | 1,369,239 |
| PM Cost Ratio | 29.36% | 26.69% | 34.22% | 42.04% | 31.85% | 42.15% | 41.20% | 32.96% | 29.58% | 23.13% |

Existing PM Depicted in Red

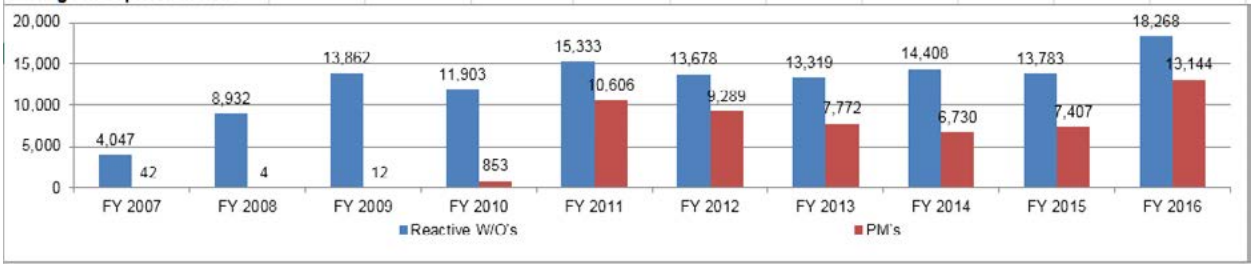



**Grounds Total**

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reactive Work Orders | 4,047 | 8,932 | 13,862 | 11,903 | 15,333 | 13,678 | 13,319 | 14,408 | 13,783 | 18,268 |
| Preventive Maintenance | 42 | 4 | 12 | 853 | 10,606 | 9,289 | 7,772 | 6,730 | 7,407 | 13,144 |
| Total Work Order For Fiscal Year | 4,089 | 8,936 | 13,874 | 12,756 | 25,939 | 22,967 | 21,091 | 21,138 | 21,190 | 31,412 |
| PM Count Ratio | 1% | 0% | 0% | 7% | 69% | 68% | 58% | 47% | 54% | 72% |

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| All Maintenance Cost | 3,796,578 | 3,711,413 | 6,547,999 | 3,929,549 | 2,815,527 | 2,377,939 | 3,051,906 | 2,587,648 | 2,313,421 | 4,018,847 |
| Preventative Maintenance Cost | 17,613 | 4,596 | 1,139 | 126,275 | 1,151,534 | 1,338,962 | 1,382,796 | 805,959 | 672,493 | 1,109,875 |
| PM Cost Ratio | 0.46% | 0.12% | 0.02% | 3.21% | 40.90% | 56.31% | 45.31% | 31.15% | 29.07% | 27.62% |

Existing PM Depicted in Red

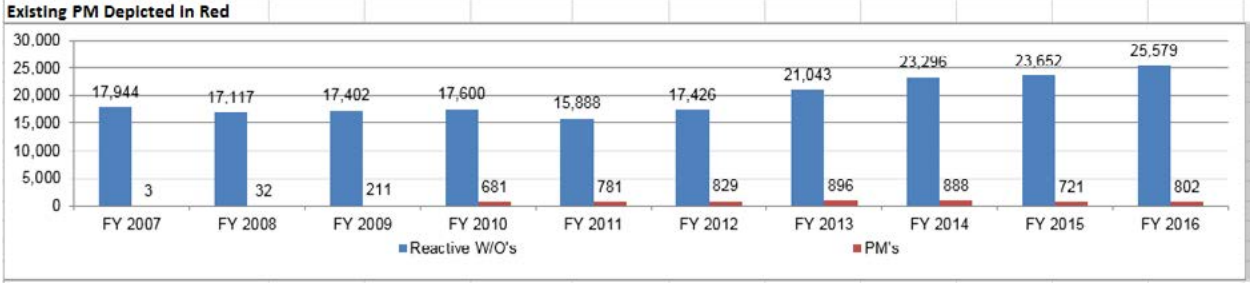


**Structural Total**

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reactive Work Orders | 17,944 | 17,117 | 17,402 | 17,600 | 15,888 | 17,426 | 21,043 | 23,296 | 23,652 | 25,579 |
| Preventive Maintenance | 3 | 32 | 211 | 681 | 781 | 829 | 896 | 888 | 721 | 802 |
| Total Work Order For Fiscal Year | 17,947 | 17,149 | 17,613 | 18,281 | 16,669 | 18,255 | 21,939 | 24,184 | 24,373 | 26,381 |
| PM Count Ratio | 0% | 0% | 1% | 4% | 5% | 5% | 4% | 4% | 3% | 3% |

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| All Maintenance Cost | 7,700,369 | 5,339,451 | 4,871,746 | 5,036,998 | 3,172,319 | 3,765,766 | 3,841,700 | 4,413,015 | 3,941,852 | 4,355,556 |
| Preventative Maintenance Cost | 2,857 | 75,037 | 260,214 | 677,673 | 507,519 | 469,698 | 717,123 | 610,105 | 571,967 | 590,541 |
| PM Cost Ratio | 0.04% | 1.41% | 5.34% | 13.45% | 16.00% | 12.47% | 18.67% | 13.83% | 14.51% | 13.56% |

Existing PM Depicted In Red

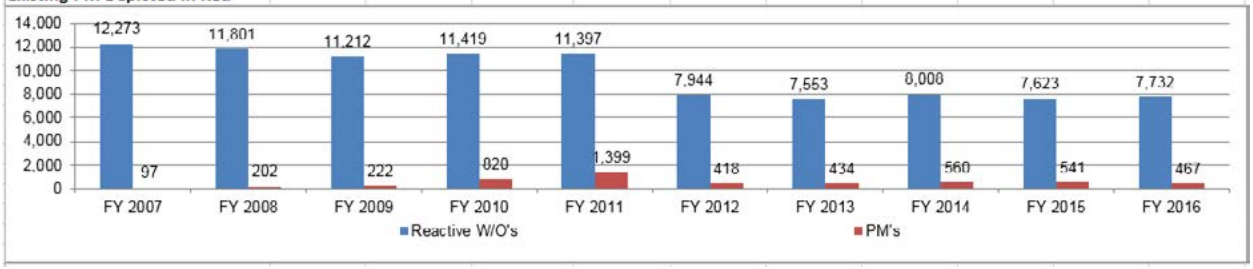



**Electrical Total**

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reactive Work Orders | 12,273 | 11,801 | 11,212 | 11,419 | 11,397 | 7,944 | 7,553 | 8,008 | 7,623 | 7,732 |
| Preventive Maintenance | 97 | 202 | 222 | 820 | 1,399 | 418 | 434 | 560 | 541 | 467 |
| Total Work Order For Fiscal Year | 12,370 | 12,003 | 11,434 | 12,239 | 12,796 | 8,362 | 7,987 | 8,568 | 8,164 | 8,199 |
| PM Count Ratio | 1% | 2% | 2% | 7% | 12% | 5% | 6% | 7% | 7% | 6% |

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| All Maintenance Cost | 2,787,810 | 3,461,964 | 2,999,326 | 2,922,397 | 2,162,429 | 2,075,036 | 1,806,513 | 2,611,480 | 2,346,345 | 2,246,996 |
| Preventative Maintenance Cost | 92,654 | 157,148 | 128,456 | 157,800 | 138,547 | 123,236 | 137,514 | 203,002 | 155,357 | 174,866 |
| PM Cost Ratio | 3.32% | 4.54% | 4.28% | 5.40% | 6.41% | 5.94% | 7.61% | 7.77% | 6.62% | 7.78% |

Existing PM Depicted in Red

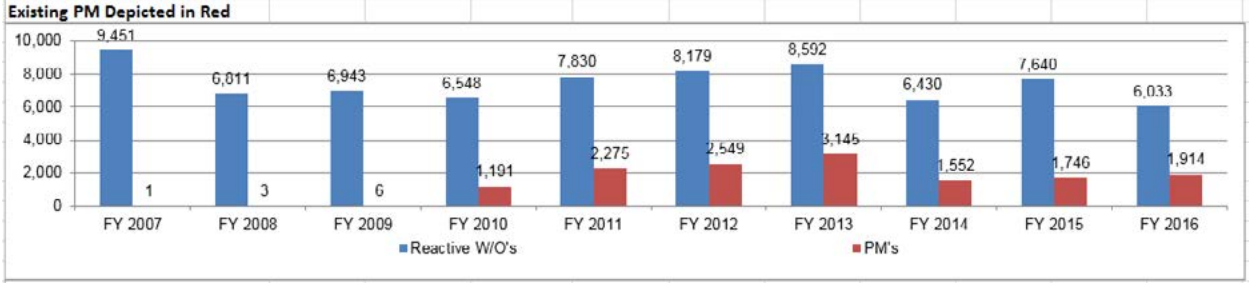


**Building Services Total**

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reactive Work Orders | 9,451 | 6,811 | 6,943 | 6,548 | 7,830 | 8,179 | 8,592 | 6,430 | 7,640 | 6,033 |
| Preventive Maintenance | 1 | 3 | 6 | 1,191 | 2,275 | 2,549 | 3,145 | 1,552 | 1,746 | 1,914 |
| Total Work Order For Fiscal Year | 9,452 | 6,814 | 6,949 | 7,739 | 10,105 | 10,728 | 11,737 | 7,982 | 9,386 | 7,947 |
| PM Count Ratio | 0% | 0% | 0% | 18% | 29% | 31% | 37% | 24% | 23% | 32% |

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| All Maintenance Cost | 1,523,987 | 1,088,156 | 925,944 | 815,473 | 664,953 | 760,322 | 1,113,295 | 741,812 | 1,290,704 | 1,358,794 |
| Preventative Maintenance Cost | 211 | 705 | 1,481 | 123,331 | 165,688 | 218,921 | 331,537 | 163,627 | 174,875 | 227,265 |
| **PM Cost Ratio** | **0.01%** | **0.06%** | **0.16%** | **15.12%** | **24.92%** | **28.79%** | **29.78%** | **22.06%** | **13.55%** | **16.73%** |

**Existing PM Depicted in Red**

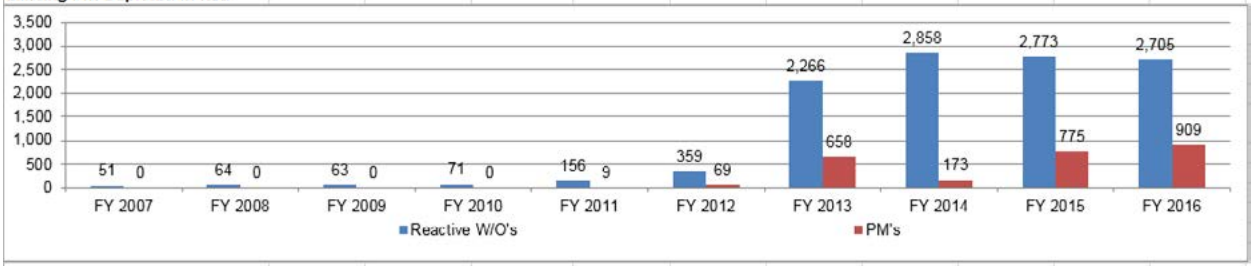



**Fleet Total**

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reactive Work Orders | 51 | 64 | 63 | 71 | 156 | 359 | 2,266 | 2,858 | 2,773 | 2,705 |
| Preventive Maintenance | 0 | 0 | 0 | 0 | 9 | 69 | 658 | 173 | 775 | 909 |
| Total Work Order For Fiscal Year | 51 | 64 | 63 | 71 | 165 | 428 | 2,924 | 3,031 | 3,548 | 3,614 |
| PM Count Ratio | 0% | 0% | 0% | 0% | 6% | 19% | 29% | 6% | 28% | 34% |

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| All Maintenance Cost | 161,731 | 0 | 633 | 128 | 26,519 | 70,028 | 616,506 | 2,122,069 | 2,007,732 | 844,476 |
| Preventative Maintenance Cost | 0 | 0 | 0 | 0 | 1,701 | 29,210 | 245,775 | 76,127 | 331,572 | 393,773 |
| **PM Cost Ratio** | **0.00%** | **0.00%** | **0.00%** | **0.00%** | **6.41%** | **41.71%** | **39.87%** | **3.59%** | **16.51%** | **46.63%** |

**Existing PM Depicted in Red**

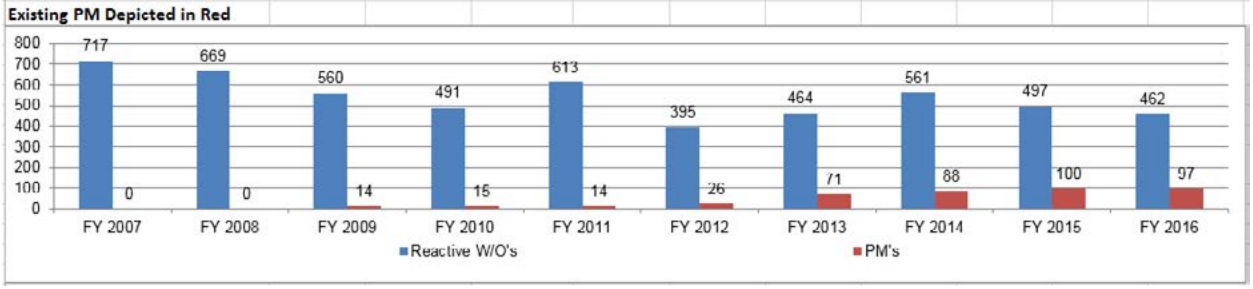


**Environmental Total**

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Reactive Work Orders | 717 | 669 | 560 | 491 | 613 | 395 | 464 | 561 | 497 | 462 |
| Preventive Maintenance | 0 | 0 | 14 | 15 | 14 | 26 | 71 | 88 | 100 | 97 |
| Total Work Order For Fiscal Year | 717 | 669 | 574 | 506 | 627 | 421 | 535 | 649 | 597 | 559 |
| PM Count Ratio | 0% | 0% | 3% | 3% | 2% | 7% | 15% | 16% | 20% | 21% |

| Fiscal Year | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| All Maintenance Cost | 1,893,109 | 1,595,237 | 861,651 | 958,191 | 612,940 | 409,834 | 566,265 | 840,399 | 411,215 | 473,689 |
| Preventative Maintenance Cost | 0 | 0 | 828 | 19,063 | 18,497 | 43,117 | 34,412 | 16,912 | 20,608 | 22,353 |
| PM Cost Ratio | 0.00% | 0.00% | 0.10% | 1.99% | 3.02% | 10.52% | 6.08% | 2.01% | 5.01% | 4.72% |

Existing PM Depicted in Red



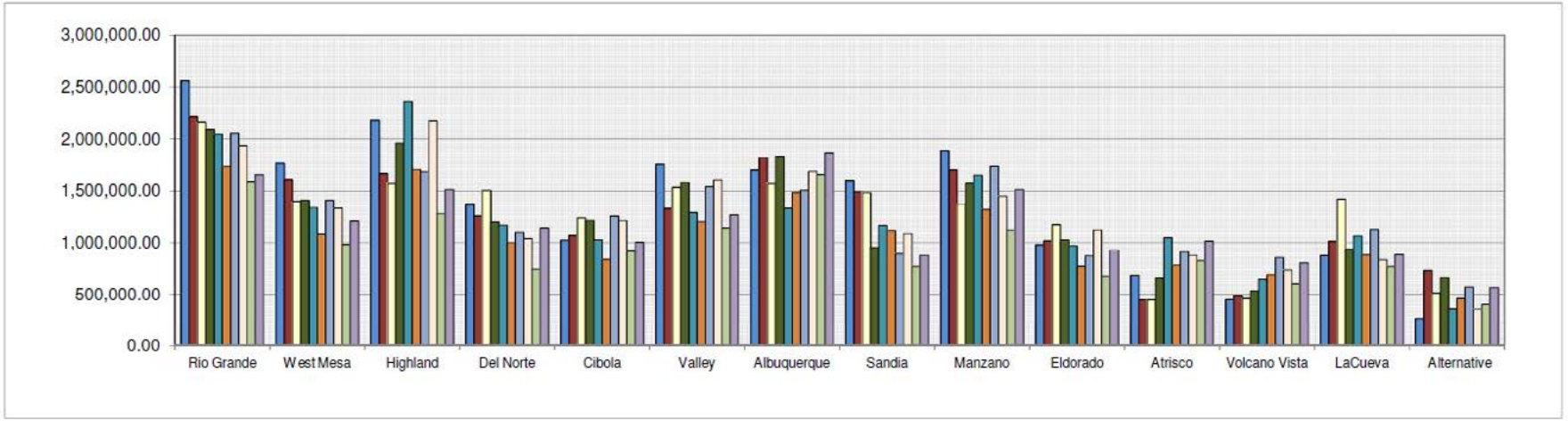

***Note:*** *Due to the nature of the Environmental Management Department's role (**support** to other M&O Departments and FD+C), it is difficult to accurately identify "reactive" WOs. The Department's work, whether routine inspections or support work related to repairs or construction, is always scheduled work in response to a regulation.*

*In addition, the above graph does not illustrate time, but rather costs and not necessarily costs to the Environmental Management Department. Because every asbestos work order, including those generated by FD+C, goes through Environmental Management, the costs are included in the Environmental WO even if the Department does not actually cover the costs. To exclude costs in the WO, however, would be negligent as costs would then not be accurately tracked anywhere.*

# M&O EXPENDITURES PER HIGH SCHOOL CLUSTER 2007–2016

## M&O Expenditures Per High School Cluster By Fiscal Years

| | 1 Rio Grande | 2 West Mesa | 3 Highland | 4 Del Norte | 5 Cibola | 6 Valley | 7 Albuquerque | 8 Sandia | 9 Manzano | 10 Eldorado | 11 Atrisco | 12 Volcano Vista | 13 LaCueva | 14 Alternative | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FY 2007 | 2,560,773.36 | 1,761,450.91 | 2,176,408.70 | 1,363,664.81 | 1,024,119.71 | 1,750,422.54 | 1,696,274.63 | 1,596,107.36 | 1,889,713.12 | 976,927.45 | 682,114.66 | 446,305.64 | 872,666.89 | 263,211.27 | **19,060,161.03** |
| FY 2008 | 2,210,404.41 | 1,604,808.80 | 1,664,019.47 | 1,254,359.49 | 1,071,437.56 | 1,324,612.25 | 1,819,590.86 | 1,490,621.06 | 1,698,225.05 | 1,017,962.92 | 445,239.47 | 487,564.96 | 1,012,666.38 | 729,646.92 | **17,831,159.60** |
| FY 2009 | 2,157,903.06 | 1,399,556.10 | 1,571,355.44 | 1,504,688.36 | 1,234,137.54 | 1,534,660.59 | 1,570,097.51 | 1,482,744.17 | 1,370,659.08 | 1,170,309.81 | 443,115.00 | 458,389.74 | 1,420,779.77 | 512,814.28 | **17,831,210.44** |
| FY 2010 | 2,089,431.07 | 1,410,019.99 | 1,961,904.31 | 1,197,353.68 | 1,211,596.27 | 1,579,640.92 | 1,833,832.47 | 953,459.70 | 1,573,304.27 | 1,027,172.44 | 657,638.31 | 533,922.54 | 934,978.83 | 662,330.62 | **17,626,585.42** |
| FY 2011 | 2,043,876.46 | 1,335,700.52 | 2,364,077.98 | 1,167,505.64 | 1,027,473.36 | 1,287,339.19 | 1,328,910.01 | 1,164,875.29 | 1,649,310.92 | 968,170.48 | 1,049,826.20 | 645,018.65 | 1,067,423.80 | 358,388.91 | **17,457,897.41** |
| FY 2012 | 1,731,470.71 | 1,085,263.75 | 1,703,670.32 | 998,657.02 | 833,731.93 | 1,199,486.71 | 1,483,416.38 | 1,115,068.12 | 1,316,006.52 | 769,598.06 | 778,853.37 | 686,920.54 | 878,501.70 | 459,275.81 | **15,039,920.94** |
| FY 2013 | 2,055,026.09 | 1,410,991.87 | 1,681,795.26 | 1,100,283.41 | 1,254,255.57 | 1,541,387.18 | 1,504,331.13 | 890,055.81 | 1,734,472.28 | 868,675.45 | 906,900.57 | 854,158.20 | 1,126,498.86 | 575,179.38 | **17,504,011.05** |
| FY 2014 | 1,937,296.95 | 1,328,522.05 | 2,171,356.68 | 1,042,157.74 | 1,211,050.78 | 1,601,941.89 | 1,683,986.16 | 1,086,018.77 | 1,448,403.64 | 1,119,277.97 | 875,062.95 | 733,090.93 | 830,727.94 | 352,115.53 | **17,421,009.95** |
| FY 2015 | 1,588,061.04 | 980,861.60 | 1,277,137.66 | 741,457.49 | 913,996.51 | 1,138,031.09 | 1,655,100.79 | 766,329.30 | 1,120,085.62 | 673,437.29 | 823,033.63 | 603,663.92 | 766,801.48 | 399,962.89 | **13,447,960.30** |
| FY 2016 | 1,651,773.96 | 1,205,970.96 | 1,514,029.98 | 1,137,328.30 | 1,004,999.83 | 1,263,014.92 | 1,869,470.46 | 875,240.77 | 1,512,845.97 | 929,161.30 | 1,015,642.23 | 798,879.47 | 880,908.94 | 566,204.04 | **16,225,471.13** |




| Note: By Fiscal Year | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Sq. Footage | 9,350,500 | 10,975,700 | 12,010,152 | 13,105,100 | 14,207,533 | 14,517,582 | 14,624,261 | 14,402,956 | 14,590,750 | 14,954,427 |
| Total Students | 87,805 | 88,821 | 85,689 | 88,820 | 89,136 | 89,168 | 89,602 | 86,555 | 86,549 | 85,487 |
| Total Work Order | 52,144 | 56,794 | 61,807 | 62,081 | 67,275 | 65,802 | 67,965 | 68,952 | 67,425 | 73,011 |
| Total Expense | 19,060,161.03 | 17,831,159.60 | 17,831,210.44 | 17,626,585.42 | 17,457,897.41 | 15,039,920.94 | 17,504,011.05 | 17,421,009.95 | 13,447,960.30 | 16,225,471.13 |
| Color Code for Fiscal Year | | | | | | | | | | |
| * Cost per square foot = | 2.04 | 1.62 | 1.48 | 1.35 | 1.23 | 1.04 | 1.20 | 1.21 | 0.92 | 1.08 |
| * Cost per Student = | 217.07 | 200.75 | 208.09 | 198.45 | 195.86 | 168.67 | 195.35 | 201.27 | 155.38 | 189.80 |

# INDIVIDUAL CLUSTER REPORTS

## Rio Grande High School Cluster

| Rio Grande Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Adobe Acres ES - 206 | 80,046 | 562 | 531 | $ 131,611.02 | 73,332 | 607 | 547 | $ 131,356.69 | 73,332 | 607 | 504 | $ 77,084.51 | 71,540 | 632 | 527 | $ 90,655.86 |
| Armijo ES - 215 | 64,307 | 452 | 593 | $ 97,015.19 | 62,375 | 450 | 504 | $ 82,757.25 | 62,375 | 450 | 570 | $ 126,471.99 | 62,375 | 441 | 596 | $ 75,931.22 |
| Atrisco ES - 216 | 61,228 | 351 | 501 | $ 125,631.27 | 61,357 | 380 | 459 | $ 87,093.48 | 61,357 | 380 | 392 | $ 75,630.64 | 58,781 | 357 | 383 | $ 61,338.66 |
| Barcelona ES - 225 | 76,338 | 529 | 373 | $ 120,915.36 | 75,544 | 542 | 369 | $ 89,039.94 | 75,544 | 542 | 314 | $ 51,868.90 | 75,545 | 415 | 316 | $ 46,131.08 |
| Ernie Pyle MS - 450 | 175,633 | 653 | 743 | $ 207,384.60 | 118,396 | 634 | 675 | $ 233,720.80 | 118,396 | 634 | 603 | $ 142,255.09 | 118,620 | 604 | 665 | $ 153,508.17 |
| Harrison MS - 415 | 134,416 | 925 | 637 | $ 140,926.91 | 122,148 | 897 | 766 | $ 151,830.37 | 122,148 | 897 | 663 | $ 127,849.88 | 122,260 | 659 | 610 | $ 119,186.65 |
| Kit Carson ES - 231 | 72,211 | 517 | 552 | $ 91,353.12 | 72,211 | 486 | 482 | $ 82,474.96 | 72,211 | 486 | 472 | $ 69,455.12 | 70,899 | 477 | 562 | $ 99,125.37 |
| Los Padillas ES - 297 | 45,801 | 292 | 715 | $ 157,538.89 | 45,801 | 276 | 581 | $ 124,926.27 | 45,801 | 276 | 571 | $ 125,847.72 | 49,640 | 253 | 698 | $ 225,571.54 |
| Mountain View ES - 324 | 53,844 | 398 | 402 | $ 73,903.95 | 53,844 | 372 | 418 | $ 73,596.46 | 53,844 | 372 | 517 | $ 70,416.70 | 55,781 | 336 | 410 | $ 65,570.92 |
| Navajo ES - 327 | 76,400 | 679 | 547 | $ 96,271.95 | 82,562 | 689 | 517 | $ 90,755.16 | 82,562 | 689 | 534 | $ 99,615.95 | 82,562 | 581 | 550 | $ 128,438.78 |
| Pajarito ES - 333 | 71,070 | 611 | 466 | $ 163,085.95 | 71,070 | 549 | 441 | $ 108,655.07 | 71,070 | 549 | 474 | $ 125,100.49 | 77,939 | 514 | 505 | $ 77,691.70 |
| Polk MS - 448 | 89,869 | 459 | 591 | $ 127,127.27 | 91,565 | 415 | 589 | $ 114,219.56 | 91,565 | 415 | 599 | $ 103,880.72 | 89,773 | 354 | 658 | $ 98,550.36 |
| Rio Grande HS - 540 | 390,728 | 1,464 | 1462 | $ 415,842.14 | 390,728 | 1,523 | 1400 | $ 447,649.81 | 390,728 | 1,523 | 1383 | $ 303,661.07 | 359,632 | 1,508 | 1475 | $ 315,464.49 |
| Valle Vista ES - 370 | 72,192 | 656 | 482 | $ 106,418.45 | 72,192 | 566 | 586 | $ 119,221.12 | 72,192 | 566 | 606 | $ 88,922.26 | 68,783 | 538 | 588 | $ 94,609.16 |
| Totals | 1,464,083 | 8,548 | 8,595 | $2,055,026.09 | 1,393,125 | 8,386 | 8,384 | $1,937,296.95 | 1,393,125 | 8,386 | 8,202 | $1,588,061.04 | 1,364,130 | 7,669 | 8,543 | $1,651,773.96 |

## West Mesa High School Cluster

| West Mesa Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Alamosa ES - 210 | 64,460 | 684 | 542 | $ 181,669.47 | 77,376 | 652 | 437 | $ 62,816.12 | 77,376 | 652 | 575 | $101,263.74 | 77,376 | 618 | 693 | $ 169,145.73 |
| Chaparral ES - 234 | 92,682 | 894 | 679 | $ 150,061.20 | 92,682 | 901 | 697 | $ 331,660.79 | 92,682 | 901 | 604 | $ 87,644.33 | 113,596 | 845 | 712 | $ 104,555.64 |
| Jimmy Carter MS - 445 | 170,939 | 1,233 | 569 | $ 129,267.31 | 173,061 | 1,232 | 518 | $ 134,713.04 | 173,061 | 1,232 | 595 | $148,054.11 | 176,061 | 1,224 | 656 | $ 95,245.81 |
| John Adams MS - 405 | 128,054 | 703 | 779 | $ 154,567.42 | 122,976 | 677 | 722 | $ 136,456.57 | 122,976 | 677 | 705 | $127,653.42 | 122,080 | 632 | 775 | $ 136,545.47 |
| Lavaland ES - 288 | 65,123 | 681 | 477 | $ 129,134.36 | 65,123 | 698 | 529 | $ 72,531.33 | 65,123 | 698 | 466 | $ 81,088.80 | 66,175 | 643 | 419 | $ 62,445.49 |
| Painted Sky ES - 275 | 98,452 | 1,028 | 589 | $ 132,722.85 | 98,452 | 1,096 | 590 | $ 149,409.75 | 98,452 | 1,096 | 614 | $ 96,468.03 | 103,844 | 1,143 | 687 | $ 127,596.55 |
| Susie Rayos Marmon ES - 280 | 102,758 | 776 | 514 | $ 90,609.85 | 102,758 | 862 | 492 | $ 78,688.10 | 102,758 | 862 | 434 | $ 67,631.17 | 102,758 | 821 | 505 | $ 63,928.03 |
| West Mesa HS - 570 | 365,570 | 1,551 | 1,310 | $ 442,959.41 | 365,570 | 1,453 | 1,382 | $ 362,246.34 | 365,570 | 1,453 | 1,251 | $271,058.01 | 350,574 | 1,568 | 1,447 | $ 446,508.24 |
| Totals | 1,088,038 | 7,550 | 5,459 | $1,410,991.87 | 1,097,998 | 7,571 | 5,367 | $1,328,522.05 | 1,097,998 | 7,571 | 5,244 | $980,861.60 | 1,112,464 | 7,494 | 5,894 | $1,205,970.96 |

## Highland High School Cluster

| Highland Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Bandelier ES - 222 | 75,688 | 594 | 637 | $ 139,234.44 | 77,057 | 579 | 603 | $ 107,138.98 | 77,057 | 579 | 496 | $ 73,597.27 | 77,057 | 600 | 626 | $ 108,610.60 |
| Emerson ES - 255 | 67,096 | 492 | 748 | $ 118,783.75 | 67,096 | 504 | 659 | $ 121,065.39 | 67,096 | 504 | 530 | $ 92,184.53 | 80,584 | 518 | 610 | $ 112,493.88 |
| Hawthorne ES - 270 | 68,151 | 526 | 518 | $ 190,382.36 | 68,151 | 497 | 557 | $ 106,384.51 | 68,151 | 497 | 527 | $ 97,538.05 | 69,576 | 566 | 594 | $ 111,572.23 |
| Hayes MS - 416 | 111,478 | 370 | 343 | $ 121,159.98 | 113,562 | 381 | 312 | $ 224,443.06 | 113,562 | 381 | 288 | $ 59,244.72 | 108,522 | 395 | 351 | $ 94,630.62 |
| Highland HS - 520 | 397,798 | 1,602 | 1,422 | $ 248,321.03 | 397,798 | 1,495 | 1,448 | $ 500,237.42 | 397,798 | 1,495 | 1,283 | $ 260,501.92 | 410,490 | 1,386 | 1,202 | $ 232,190.49 |
| Kirtland ES - 279 | 53,038 | 369 | 474 | $ 98,834.62 | 53,038 | 352 | 486 | $ 63,289.51 | 53,038 | 352 | 430 | $ 50,442.61 | 59,653 | 307 | 490 | $ 68,270.16 |
| La Mesa ES - 285 | 83,429 | 732 | 478 | $ 84,666.72 | 83,429 | 709 | 586 | $ 100,666.55 | 83,429 | 709 | 672 | $ 111,211.30 | 86,160 | 641 | 569 | $ 86,257.16 |
| Manzano Mesa ES - 264 | 81,644 | 739 | 412 | $ 66,881.88 | 81,644 | 748 | 466 | $ 81,604.11 | 81,644 | 748 | 435 | $ 55,743.07 | 78,377 | 713 | 463 | $ 69,118.67 |
| Mark Twain ES - 364 | 72,423 | 402 | 544 | $ 88,380.30 | 72,423 | 395 | 636 | $ 97,026.68 | 72,423 | 395 | 709 | $ 109,554.24 | 65,071 | 380 | 472 | $ 157,539.92 |
| Sandia Base ES - 348 | 51,430 | 492 | 452 | $ 115,756.55 | 51,430 | 450 | 418 | $ 91,455.03 | 51,430 | 450 | 427 | $ 70,990.29 | 56,038 | 484 | 531 | $ 88,623.49 |
| Van Buren MS - 460 | 113,204 | 533 | 581 | $ 143,467.23 | 111,194 | 544 | 498 | $ 116,609.17 | 111,194 | 544 | 344 | $ 55,578.48 | 112,090 | 560 | 473 | $ 90,533.24 |
| Wherry ES - 376 | 67,333 | 533 | 431 | $ 72,910.46 | 67,333 | 543 | 460 | $ 102,240.36 | 67,333 | 543 | 446 | $ 74,417.09 | 82,825 | 494 | 459 | $ 71,439.27 |
| Whittier ES - 379 | 68,592 | 499 | 426 | $ 97,316.88 | 68,592 | 453 | 355 | $ 87,557.47 | 68,592 | 453 | 358 | $ 41,519.91 | 67,181 | 381 | 375 | $ 56,515.91 |
| Wilson MS - 470 | 100,408 | 518 | 455 | $ 95,699.04 | 128,408 | 508 | 671 | $ 371,638.44 | 128,408 | 508 | 682 | $ 124,614.16 | 130,465 | 503 | 675 | $ 166,234.34 |
| Totals | 1,411,712 | 8,401 | 7,921 | $1,681,795.26 | 1,441,155 | 8,158 | 8,155 | $2,171,356.68 | 1,441,155 | 8,158 | 7,627 | $1,277,137.66 | 1,484,089 | 7,928 | 7,890 | $1,514,029.98 |

## Del Norte High School Cluster

| Del Norte Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Arroyo Del Oso ES - 329 | 50,658 | 415 | 283 | $ 100,448.50 | 50,658 | 439 | 291 | $ 79,935.93 | 50,658 | 439 | 263 | $ 52,759.83 | 50,658 | 425 | 333 | $ 78,913.18 |
| Bel Air ES - 228 | 75,519 | 375 | 560 | $ 92,787.81 | 71,495 | 420 | 594 | $ 76,536.98 | 71,495 | 420 | 557 | $ 72,864.17 | 61,359 | 339 | 500 | $ 128,906.12 |
| Cleveland MS - 407 | 115,858 | 666 | 395 | $ 130,389.36 | 108,036 | 648 | 393 | $ 155,947.70 | 108,036 | 648 | 432 | $ 98,794.29 | 108,036 | 630 | 490 | $ 86,390.87 |
| Del Norte HS - 514 | 305,891 | 1,188 | 969 | $ 326,326.60 | 305,891 | 1,182 | 883 | $ 225,507.51 | 305,891 | 1,182 | 842 | $175,967.71 | 323,611 | 1,176 | 954 | $ 213,460.05 |
| E.G. Ross ES - 219 | 65,163 | 496 | 437 | $ 97,444.84 | 65,163 | 506 | 447 | $ 80,796.78 | 65,163 | 506 | 388 | $ 52,209.21 | 65,163 | 496 | 434 | $ 188,975.05 |
| Governor Bent ES - 230 | 64,797 | 527 | 646 | $ 107,946.13 | 65,631 | 530 | 559 | $ 95,097.34 | 65,631 | 530 | 638 | $ 80,971.56 | 65,631 | 488 | 724 | $ 160,164.31 |
| Hodgin ES - 273 | 79,856 | 586 | 462 | $ 67,846.38 | 79,856 | 588 | 503 | $ 82,549.22 | 79,856 | 588 | 510 | $ 67,748.40 | 74,813 | 532 | 633 | $ 109,514.81 |
| McKinley MS - 440 | 95,335 | 572 | 582 | $ 118,321.85 | 97,802 | 540 | 546 | $ 165,457.22 | 97,802 | 540 | 462 | $ 72,869.16 | 102,850 | 476 | 529 | $ 103,837.78 |
| Zuni ES - 388 | 57,125 | 415 | 404 | $ 58,771.95 | 57,125 | 431 | 413 | $ 80,329.05 | 57,125 | 431 | 515 | $ 67,273.15 | 59,758 | 459 | 471 | $ 67,166.13 |
| Totals | 910,202 | 5,240 | 4,788 | $1,100,288.41 | 901,657 | 5,284 | 4,629 | $1,042,157.74 | 901,657 | 5,284 | 4,607 | $741,457.49 | 911,879 | 5,021 | 5,068 | $1,137,828.30 |

## Cibola High School Cluster

| Cibola Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Cibola HS - 580 | 394,545 | 1,822 | 1,389 | $ 335,357.23 | 394,545 | 1,842 | 1,423 | $ 495,395.42 | 394,545 | 1,842 | 1,395 | $309,716.81 | 394,321 | 1,881 | 1,431 | $ 423,535.33 |
| Corrales ES - 351 | 70,034 | 457 | 635 | $ 264,498.63 | 70,034 | 440 | 671 | $ 106,261.09 | 70,034 | 440 | 570 | $ 83,777.13 | 61,547 | 405 | 648 | $ 120,334.52 |
| James Monroe MS - 490 | 150,684 | 976 | 421 | $ 101,729.27 | 150,684 | 977 | 420 | $ 98,065.23 | 150,684 | 977 | 494 | $ 83,235.99 | 161,722 | 1,000 | 459 | $ 91,554.62 |
| Petroglyph ES - 317 | 67,369 | 736 | 492 | $ 144,922.96 | 67,369 | 663 | 497 | $ 146,395.66 | 67,369 | 663 | 432 | $ 74,280.16 | 79,635 | 675 | 487 | $ 87,183.25 |
| Seven Bar ES - 265 | 71,120 | 828 | 367 | $ 72,899.95 | 87,288 | 809 | 367 | $ 79,195.53 | 87,288 | 809 | 434 | $ 96,006.30 | 86,628 | 813 | 515 | $ 85,351.07 |
| Sierra Vista ES - 356 | 73,253 | 794 | 441 | $ 142,047.97 | 73,253 | 783 | 470 | $ 82,690.18 | 73,253 | 783 | 515 | $113,675.13 | 85,228 | 742 | 551 | $ 82,644.07 |
| Sunset View ES - 393 | 85,304 | 531 | 378 | $ 60,902.41 | 85,304 | 584 | 391 | $ 55,407.28 | 85,304 | 584 | 431 | $ 54,966.96 | 85,304 | 686 | 350 | $ 43,304.22 |
| Taylor MS - 457 | 115,836 | 509 | 578 | $ 131,897.14 | 114,270 | 495 | 644 | $ 147,640.38 | 114,270 | 495 | 441 | $ 98,338.04 | 114,270 | 489 | 450 | $ 71,092.75 |
| Totals | 1,028,145 | 6,653 | 4,701 | $1,254,255.57 | 1,042,747 | 6,593 | 4,888 | $1,211,050.78 | 1,042,747 | 6,593 | 4,712 | $913,996.51 | 1,068,655 | 6,691 | 4,891 | $1,004,999.83 |

## Valley High School Cluster

| Valley Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Alameda ES - 207 | 45,911 | 252 | 412 | $ 114,215.38 | 45,911 | 259 | 337 | $ 60,254.70 | 45,911 | 259 | 345 | $ 78,128.24 | 45,911 | 274 | 419 | $ 98,207.58 |
| Alvarado ES - 213 | 49,321 | 401 | 431 | $ 95,782.94 | 49,321 | 368 | 444 | $ 363,560.60 | 49,321 | 368 | 440 | $ 88,569.62 | 49,321 | 344 | 435 | $ 88,756.03 |
| Cochiti ES - 237 | 50,652 | 279 | 252 | $ 63,531.83 | 50,652 | 290 | 362 | $ 103,732.96 | 50,652 | 290 | 327 | $ 52,002.02 | 51,705 | 319 | 327 | $ 68,541.63 |
| Duranes ES - 249 | 55,340 | 328 | 430 | $ 141,646.68 | 55,530 | 302 | 439 | $ 115,055.06 | 55,530 | 302 | 392 | $ 91,248.83 | 55,530 | 252 | 415 | $ 78,559.64 |
| Garfield MS - 410 | 96,192 | 347 | 349 | $ 91,918.97 | 101,741 | 331 | 357 | $ 70,879.65 | 101,741 | 331 | 377 | $ 68,863.13 | 101,741 | 341 | 465 | $ 94,174.15 |
| Griegos ES - 267 | 46,749 | 378 | 494 | $ 69,505.53 | 46,749 | 368 | 419 | $ 68,817.28 | 46,749 | 368 | 441 | $ 71,888.56 | 42,885 | 371 | 449 | $ 140,825.37 |
| La Luz ES - 282 | 51,672 | 220 | 367 | $ 73,136.85 | 51,672 | 222 | 382 | $ 79,745.49 | 51,672 | 222 | 313 | $ 52,794.71 | 52,254 | 215 | 349 | $ 59,414.53 |
| Los Ranchos ES - 336 | 56,977 | 341 | 521 | $ 126,447.73 | 56,977 | 343 | 524 | $ 90,443.02 | 56,977 | 343 | 515 | $ 61,557.92 | 58,239 | 348 | 482 | $ 61,557.92 |
| MacArthur ES - 308 | 46,228 | 248 | 463 | $ 92,675.85 | 46,228 | 233 | 554 | $ 124,663.89 | 46,228 | 233 | 564 | $ 76,916.10 | 53,874 | 259 | 592 | $ 76,916.10 |
| Mission Avenue ES - 309 | 58,833 | 435 | 528 | $ 151,728.60 | 58,833 | 406 | 468 | $ 110,107.80 | 58,833 | 406 | 473 | $ 92,034.26 | 62,891 | 418 | 497 | $ 92,034.26 |
| Taft MS - 455 | 123,136 | 524 | 526 | $ 128,618.24 | 121,869 | 514 | 645 | $ 120,320.93 | 121,869 | 514 | 590 | $ 88,771.89 | 121,869 | 458 | 632 | $ 88,771.89 |
| Valley HS - 560 | 349,380 | 1,340 | 1,564 | $ 392,178.60 | 349,380 | 1,231 | 1,380 | $ 294,360.50 | 349,380 | 1,231 | 1,371 | $ 315,255.82 | 350,070 | 1,155 | 1,421 | $ 315,255.82 |
| Totals | 1,030,391 | 5,093 | 6,337 | $1,541,387.18 | 1,034,863 | 4,867 | 6,311 | $1,601,941.89 | 1,034,863 | 4,867 | 6,148 | $1,138,031.09 | 1,046,290 | 4,754 | 6,483 | $1,263,014.92 |

## Albuquerque High School Cluster

| Albu. Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Albuquerque HS - 590 | 311,621 | 1,712 | 734 | $ 260,571.90 | 334,109 | 1,665 | 909 | $ 353,927.79 | 334,109 | 1,665 | 940 | $ 702,344.64 | 335,005 | 1,824 | 1,015 | $ 328,727.78 |
| Coronado ES - 243 | 43,036 | 278 | 289 | $ 48,352.88 | 43,036 | 295 | 327 | $ 49,754.49 | 43,036 | 295 | 271 | $ 30,368.84 | 43,036 | 306 | 342 | $ 43,874.11 |
| Dolores Gonzales ES - 244 | 52,926 | 415 | 398 | $ 68,994.55 | 52,926 | 415 | 553 | $ 86,517.80 | 52,926 | 415 | 401 | $ 52,740.31 | 52,520 | 396 | 410 | $ 112,552.40 |
| East San Jose ES - 252 | 68,174 | 620 | 430 | $ 138,001.58 | 68,174 | 596 | 432 | $ 120,237.67 | 68,174 | 596 | 578 | $ 109,566.99 | 69,836 | 585 | 742 | $ 144,977.38 |
| Eugene Field ES - 261 | 52,111 | 367 | 333 | $ 72,229.17 | 52,111 | 327 | 344 | $ 62,279.35 | 52,111 | 327 | 383 | $ 64,205.10 | 54,894 | 285 | 508 | $ 221,352.95 |
| Jefferson MS - 425 | 123,372 | 930 | 696 | $ 154,251.69 | 123,372 | 852 | 789 | $ 235,004.65 | 123,372 | 852 | 859 | $ 142,594.94 | 128,351 | 811 | 893 | $ 133,359.90 |
| Lew Wallace ES - 373 | 34,089 | 299 | 246 | $ 45,843.46 | 34,089 | 295 | 281 | $ 71,958.78 | 34,089 | 295 | 288 | $ 85,248.03 | 41,552 | 282 | 335 | $ 56,536.43 |
| Longfellow ES - 291 | 47,698 | 294 | 377 | $ 69,841.80 | 47,698 | 291 | 339 | $ 58,963.09 | 47,698 | 291 | 370 | $ 66,707.45 | 48,443 | 305 | 416 | $ 147,317.62 |
| Lowell ES - 300 | 54,341 | 395 | 484 | $ 105,783.37 | 53,572 | 356 | 572 | $ 126,755.95 | 53,572 | 356 | 476 | $ 71,655.00 | 53,572 | 344 | 385 | $ 79,875.63 |
| Monte Vista ES - 312 | 55,790 | 492 | 351 | $ 95,403.56 | 55,790 | 523 | 427 | $ 108,568.52 | 55,790 | 523 | 412 | $ 69,709.67 | 59,814 | 508 | 504 | $ 123,851.23 |
| Montezuma ES - 315 | 75,997 | 505 | 275 | $ 61,122.84 | 75,997 | 474 | 314 | $ 90,517.48 | 75,997 | 474 | 362 | $ 63,062.03 | 78,342 | 422 | 466 | $ 111,095.24 |
| Reginald Chavez ES - 330 | 46,279 | 340 | 410 | $ 219,200.28 | 46,279 | 316 | 348 | $ 77,541.43 | 46,279 | 316 | 327 | $ 47,396.60 | 47,891 | 309 | 434 | $ 114,330.24 |
| Washington MS - 465 | 95,488 | 463 | 312 | $ 87,597.00 | 97,407 | 486 | 389 | $ 98,204.64 | 97,407 | 486 | 358 | $ 92,371.48 | 97,407 | 469 | 415 | $ 83,472.96 |
| Zia ES - 385 | 59,983 | 409 | 425 | $ 77,137.04 | 59,983 | 436 | 451 | $ 143,754.51 | 59,983 | 436 | 412 | $ 57,129.70 | 66,604 | 409 | 443 | $ 168,146.59 |
| Totals | 1,120,905 | 7,519 | 5,760 | $1,504,331.13 | 1,144,543 | 7,327 | 6,475 | $1,683,986.16 | 1,144,543 | 7,327 | 6,437 | $1,655,100.79 | 1,177,267 | 7,255 | 7,308 | $1,869,470.46 |

## Sandia High School Cluster

| Sandia Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Bellehaven ES - 229 | 51,261 | 317 | 283 | $ 43,868.33 | 51,074 | 328 | 308 | $ 70,430.52 | 51,074 | 328 | 292 | $ 45,144.42 | 51,074 | 355 | 384 | $ 91,253.53 |
| Comanche ES - 241 | 49,478 | 409 | 320 | $ 48,236.61 | 49,365 | 417 | 331 | $ 39,272.35 | 49,365 | 417 | 385 | $ 66,717.42 | 62,267 | 439 | 389 | $ 65,962.01 |
| Eubank ES - 258 | 60,226 | 497 | 636 | $103,385.86 | 60,226 | 466 | 427 | $ 158,650.29 | 60,226 | 466 | 363 | $ 59,731.31 | 59,912 | 475 | 373 | $ 68,454.20 |
| Grant MS - 413 | 116,722 | 635 | 425 | $ 92,677.16 | 139,519 | 615 | 560 | $ 117,774.71 | 139,519 | 615 | 493 | $ 90,537.03 | 139,519 | 645 | 593 | $ 97,277.84 |
| Inez ES - 276 | 60,877 | 444 | 399 | $ 83,682.83 | 60,877 | 451 | 585 | $ 140,770.76 | 60,877 | 451 | 462 | $ 91,137.76 | 63,772 | 393 | 538 | $109,191.88 |
| Madison MS - 435 | 121,188 | 732 | 585 | $143,379.54 | 124,271 | 704 | 599 | $ 159,606.43 | 124,271 | 704 | 552 | $ 92,729.95 | 124,271 | 705 | 489 | $104,648.72 |
| Osuna ES - 382 | 48,769 | 430 | 267 | $ 50,175.17 | 48,769 | 439 | 341 | $ 91,333.94 | 48,769 | 439 | 318 | $ 56,546.74 | 55,424 | 492 | 363 | $ 54,265.81 |
| Sandia HS - 550 | 336,821 | 1,886 | 993 | $278,449.38 | 336,821 | 1,844 | 966 | $ 229,239.10 | 336,821 | 1,844 | 1,047 | $184,309.63 | 365,380 | 1,803 | 1,046 | $230,394.78 |
| Sombra Del Monte ES - 357 | 62,295 | 383 | 333 | $ 46,200.94 | 62,295 | 392 | 382 | $ 78,940.67 | 62,295 | 392 | 394 | $ 79,475.04 | 58,670 | 346 | 410 | $ 53,792.00 |
| Totals | 907,637 | 5,733 | 4,241 | $890,055.81 | 933,217 | 5,656 | 4,499 | $1,086,018.77 | 933,217 | 5,656 | 4,306 | $766,329.30 | 980,289 | 5,653 | 4,585 | $875,240.77 |

## Manzano High School Cluster

| Manzano Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| A. Montoya ES - 321 | 65,971 | 316 | 359 | $ 84,005.17 | 65,971 | 356 | 290 | $ 101,278.22 | 65,971 | 356 | 298 | $ 48,382.65 | 67,803 | 368 | 290 | $ 71,189.74 |
| Acoma ES - 204 | 45,141 | 192 | 273 | $ 55,365.74 | 45,141 | 158 | 335 | $ 60,416.30 | 45,141 | 158 | 289 | $ 36,252.98 | 45,141 | 109 | 323 | $ 40,608.51 |
| Apache ES - 214 | 58,830 | 428 | 384 | $ 58,072.25 | 58,830 | 428 | 387 | $ 96,278.60 | 58,830 | 428 | 358 | $ 45,603.41 | 59,726 | 381 | 446 | $ 91,909.05 |
| Chelwood ES - 236 | 89,716 | 602 | 445 | $ 58,940.49 | 76,152 | 609 | 509 | $ 86,812.93 | 76,152 | 609 | 581 | $ 77,014.76 | 76,152 | 581 | 604 | $ 88,234.17 |
| Collet Park ES - 240 | 44,807 | 355 | 318 | $ 73,960.29 | 45,696 | 365 | 315 | $ 76,677.73 | 45,696 | 365 | 347 | $ 63,273.88 | 42,336 | 364 | 449 | $ 174,114.84 |
| Jackson MS - 420 | 88,934 | 609 | 536 | $ 122,208.98 | 88,934 | 577 | 528 | $ 110,157.22 | 88,934 | 577 | 547 | $ 96,601.92 | 88,742 | 537 | 555 | $ 91,945.99 |
| Kennedy MS - 427 | 107,782 | 502 | 543 | $ 111,743.93 | 107,782 | 485 | 527 | $ 113,137.89 | 107,782 | 485 | 506 | $ 91,397.25 | 105,606 | 478 | 541 | $ 123,612.53 |
| Manzano HS - 530 | 408,812 | 1,802 | 1,335 | $ 733,110.81 | 343,394 | 1,718 | 1,257 | $ 314,154.56 | 343,394 | 1,718 | 1,163 | $ 294,446.61 | 342,738 | 1,658 | 1,376 | $ 379,309.75 |
| McCollum ES - 307 | 66,687 | 412 | 417 | $ 82,668.58 | 66,687 | 397 | 418 | $ 84,701.66 | 66,687 | 397 | 487 | $ 85,355.44 | 69,748 | 392 | 497 | $ 91,689.50 |
| Roosevelt MS - 452 | 103,470 | 359 | 435 | $ 136,346.23 | 98,852 | 333 | 415 | $ 187,723.18 | 98,852 | 333 | 406 | $ 132,175.32 | 98,852 | 330 | 465 | $ 200,239.36 |
| San Antonito ES - 345 | 53,719 | 284 | 332 | $ 139,853.99 | 53,719 | 268 | 320 | $ 114,405.15 | 53,719 | 268 | 298 | $ 65,585.91 | 51,603 | 328 | 372 | $ 88,175.38 |
| Tomasita ES - 363 | 64,719 | 378 | 414 | $ 78,195.81 | 64,719 | 402 | 494 | $ 102,660.19 | 64,719 | 402 | 411 | $ 83,995.50 | 60,695 | 401 | 496 | $ 71,817.15 |
| Totals | 1,198,588 | 6,239 | 5,791 | $1,734,472.28 | 1,115,877 | 6,096 | 5,795 | $1,448,403.64 | 1,115,877 | 6,096 | 5,691 | $1,120,085.62 | 1,109,142 | 5,927 | 6,414 | $1,512,845.97 |

## Eldorado High School Cluster

| Eldorado Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Eldorado HS - 515 | 370,620 | 1,886 | 1,295 | $288,674.42 | 370,620 | 1,830 | 1,101 | $ 436,002.22 | 370,620 | 1,830 | 989 | $242,642.79 | 346,250 | 1,845 | 920 | $380,326.06 |
| Georgia Okeefe ES - 328 | 85,000 | 605 | 225 | $ 35,951.85 | 91,842 | 604 | 249 | $ 39,780.77 | 91,842 | 604 | 247 | $ 28,599.68 | 91,842 | 648 | 342 | $ 85,881.21 |
| Hoover MS - 418 | 112,220 | 684 | 559 | $235,698.47 | 111,605 | 678 | 536 | $ 136,072.99 | 111,605 | 678 | 536 | $105,800.39 | 114,965 | 620 | 822 | $174,941.70 |
| John Baker ES - 217 | 69,535 | 477 | 330 | $ 79,506.48 | 69,535 | 549 | 336 | $ 60,585.26 | 69,535 | 549 | 321 | $ 58,397.20 | 69,535 | 571 | 381 | $ 54,001.93 |
| Matheson Park ES - 305 | 43,375 | 321 | 325 | $ 65,599.22 | 43,375 | 344 | 381 | $ 147,681.07 | 43,375 | 344 | 274 | $ 70,427.46 | 43,333 | 309 | 306 | $ 54,510.02 |
| Mitchell ES - 310 | 54,078 | 430 | 375 | $ 65,210.04 | 54,078 | 411 | 438 | $ 115,362.53 | 54,078 | 411 | 318 | $ 37,297.54 | 55,275 | 393 | 346 | $ 61,648.27 |
| Onate ES - 227 | 45,309 | 227 | 191 | $ 38,591.79 | 42,879 | 221 | 182 | $ 70,269.62 | 42,879 | 221 | 144 | $ 36,233.45 | 44,932 | 197 | 254 | $ 49,078.51 |
| S.Y. Jackson ES - 360 | 55,388 | 572 | 351 | $ 59,443.18 | 55,388 | 585 | 428 | $ 113,523.51 | 55,388 | 585 | 383 | $ 94,038.79 | 57,041 | 580 | 379 | $ 68,773.60 |
| Totals | 835,525 | 5,202 | 3,651 | $868,675.45 | 839,322 | 5,222 | 3,651 | $1,119,277.97 | 839,322 | 5,222 | 3,212 | $673,437.29 | 823,173 | 5,163 | 3,750 | $929,161.30 |

## Atrisco Heritage Academy High School Cluster

| Atrisco Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Atrisco Heritage HS - 576 | 473,000 | 2,413 | 1077 | $312,534.36 | 473,000 | 2,329 | 1246 | $301,753.29 | 473,000 | 2,329 | 1092 | $241,457.54 | 470,597 | 2,509 | 1208 | $ 283,227.46 |
| Carlos Rey ES - 339 | 95,166 | 852 | 494 | $115,115.78 | 95,166 | 775 | 449 | $ 82,274.39 | 95,166 | 775 | 520 | $ 96,121.22 | 91,915 | 728 | 607 | $ 88,012.35 |
| Edward Gonzales ES - 262 | 84,363 | 664 | 271 | $ 75,753.33 | 84,363 | 649 | 277 | $ 64,416.36 | 84,363 | 649 | 319 | $ 59,630.79 | 76,392 | 605 | 395 | $ 117,416.52 |
| George I Sanchez - 496 | 0 | 0 | 0 | $ - | 0 | 0 | 0 | $ - | 0 | 0 | 2 | $ 876.84 | 217,000 | 917 | 178 | $ 30,458.94 |
| Helen Cordero ES - 395 | 83,877 | 848 | 325 | $ 69,209.43 | 83,877 | 798 | 350 | $ 48,413.14 | 83,877 | 798 | 387 | $ 61,978.65 | 81,906 | 682 | 471 | $ 77,755.77 |
| Mary Ann Binford ES - 250 | 74,203 | 915 | 483 | $114,039.66 | 74,203 | 900 | 498 | $138,394.02 | 74,203 | 900 | 668 | $148,833.45 | 94,674 | 780 | 521 | $ 177,748.79 |
| Rudolfo Anaya ES - 392 | 90,680 | 811 | 394 | $ 83,534.23 | 104,904 | 873 | 418 | $ 71,266.98 | 104,904 | 873 | 499 | $ 81,180.26 | 104,680 | 682 | 451 | $ 96,292.64 |
| Truman MS - 475 | 174,438 | 1,391 | 578 | $136,713.79 | 174,438 | 1,396 | 534 | $168,544.78 | 174,438 | 1,396 | 585 | $132,954.88 | 165,881 | 1,176 | 673 | $ 144,729.76 |
| Totals | 1,075,727 | 7,894 | 3,622 | $906,900.57 | 1,089,951 | 7,720 | 3,772 | $875,062.95 | 1,089,951 | 7,720 | 4,072 | $823,033.63 | 1,303,045 | 8,079 | 4,504 | $1,015,642.28 |

## Volcano Vista High School Cluster

| Volcano Vista Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Chamiza ES - 295 | 70,747 | 575 | 534 | $203,619.98 | 70,747 | 518 | 440 | $124,471.49 | 70,747 | 518 | 518 | $107,218.99 | 71,275 | 493 | 516 | $117,645.33 |
| LBJ MS - 485 | 165,859 | 915 | 589 | $156,801.20 | 165,859 | 872 | 541 | $145,986.71 | 165,859 | 872 | 564 | $111,305.03 | 165,859 | 915 | 528 | $125,782.38 |
| Marie Hughes ES - 365 | 69,110 | 600 | 449 | $104,283.15 | 69,110 | 567 | 457 | $115,837.07 | 69,110 | 567 | 396 | $ 79,754.49 | 69,382 | 534 | 452 | $ 83,298.15 |
| Tierra Antigua ES- 389 | 85,304 | 718 | 318 | $ 70,551.73 | 85,304 | 757 | 395 | $ 69,348.33 | 85,304 | 757 | 444 | $ 56,215.18 | 93,816 | 905 | 519 | $ 79,224.43 |
| Tony Hillerman MS - 492 | 172,000 | 910 | 542 | $139,180.22 | 178,766 | 1,006 | 464 | $123,834.87 | 178,766 | 1,006 | 431 | $ 74,567.56 | 178,766 | 1,078 | 498 | $202,076.33 |
| Ventana Ranch ES - 264 | 99,329 | 777 | 321 | $ 53,815.46 | 99,329 | 732 | 309 | $ 68,428.68 | 99,329 | 732 | 337 | $ 55,889.10 | 87,417 | 770 | 443 | $ 64,648.37 |
| Volcano Vista - 575 | 484,630 | 2,159 | 940 | $329,526.44 | 484,630 | 2,180 | 892 | $209,655.27 | 484,630 | 2,180 | 1,089 | $225,932.55 | 473,875 | 2,170 | 979 | $243,849.81 |
| Totals | 1,076,232 | 6,079 | 3,159 | $854,158.20 | 1,082,998 | 6,114 | 3,058 | $733,090.93 | 1,082,998 | 6,114 | 3,261 | $603,663.92 | 1,069,115 | 6,372 | 3,419 | $798,879.47 |

## La Cueva High School Cluster

| La Cueva Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Dennis Chavez ES - 203 | 83,364 | 652 | 611 | $ 107,438.69 | 83,026 | 614 | 697 | $102,251.17 | 83,026 | 614 | 589 | $ 85,513.73 | 83,026 | 589 | 550 | $ 88,640.84 |
| Desert Ridge MS - 430 | 157,039 | 1,048 | 476 | $ 133,498.34 | 159,767 | 1,028 | 418 | $128,533.24 | 159,767 | 1,028 | 408 | $ 76,097.30 | 159,767 | 970 | 490 | $100,743.60 |
| Double Eagle ES - 350 | 65,651 | 492 | 407 | $ 97,771.63 | 65,651 | 535 | 539 | $ 90,272.61 | 65,651 | 535 | 507 | $ 71,448.84 | 65,737 | 574 | 622 | $142,467.21 |
| Eisenhower MS - 480 | 137,017 | 888 | 544 | $ 126,410.95 | 135,825 | 895 | 679 | $126,431.76 | 135,825 | 895 | 646 | $116,071.48 | 135,825 | 898 | 674 | $119,876.50 |
| Hubert Humphrey ES - 221 | 76,440 | 478 | 497 | $ 108,981.98 | 58,879 | 447 | 490 | $ 86,234.13 | 58,879 | 447 | 522 | $ 71,582.08 | 58,879 | 459 | 473 | $ 65,576.46 |
| La Cueva HS - 525 | 387,921 | 1,849 | 1,098 | $ 479,040.02 | 387,921 | 1,846 | 979 | $238,559.61 | 387,921 | 1,846 | 972 | $309,768.67 | 352,769 | 1,776 | 1,114 | $301,109.26 |
| North Star ES - 268 | 79,693 | 741 | 357 | $ 73,357.25 | 79,693 | 628 | 270 | $ 58,445.41 | 79,693 | 628 | 262 | $ 36,319.39 | 79,410 | 600 | 339 | $ 62,495.07 |
| Totals | 987,125 | 6,148 | 3,990 | $1,126,498.86 | 970,762 | 5,993 | 4,072 | $830,727.94 | 970,762 | 5,993 | 3,906 | $766,801.48 | 935,413 | 5,866 | 4,262 | $880,908.94 |

## Alternative Schools' Cluster

| Alternative Cluster | 2012- 2013 | | | | 2013- 2014 | | | | 2014- 2015 | | | | 2015- 2016 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost | Square Footage | Total Students | Work Orders | Total Cost |
| Aps @ Cnm - 591 | 0 | 0 | 5 | $ 42,026.78 | 0 | 0 | 15 | $ 2,337.53 | 0 | 0 | 13 | $ 21,005.92 | 0 | 0 | 14 | $ 1,086.01 |
| Career Academic & Technology Academy (CATA) - 765 | 0 | 0 | 0 | $ - | 0 | 0 | 0 | $ - | 0 | 0 | 0 | $ - | 0 | 0 | 0 | $ - |
| Career Enrichment Center - 592 | 52,906 | 1,661 | 342 | $ 60,477.16 | 52,906 | 0 | 346 | $ 54,726.92 | 52,906 | 0 | 283 | $ 37,927.70 | 52,906 | 0 | 354 | $ 66,861.54 |
| Crossroads - 512 | 0 | 6 | 0 | $ - | 0 | 6 | 0 | $ - | 0 | 0 | 0 | $ - | 0 | 0 | 0 | $ - |
| Court House - 615 | 0 | 0 | 0 | $ - | 0 | 0 | 0 | $ - | 0 | 0 | 0 | $ - | 0 | 0 | 0 | $ - |
| Data Charter - 743 | 0 | 0 | 0 | $ - | 0 | 0 | 17 | $ 9,113.54 | 0 | 0 | 80 | $ 29,233.53 | 0 | 0 | 62 | $ 38,532.26 |
| Desert Willow Family School - 900 | 29,451 | 249 | 116 | $ 15,815.21 | 0 | 244 | 133 | $ 28,158.63 | 29,451 | 244 | 127 | $ 20,278.31 | 27,286 | 241 | 195 | $ 23,147.62 |
| eCademy - 511 | 44,397 | 0 | 159 | $ 33,408.68 | 44,397 | 31 | 148 | $ 18,686.89 | 44,397 | 31 | 153 | $ 21,406.97 | 44,273 | 113 | 172 | $ 17,969.34 |
| Freedom HS - 596 | 41,434 | 178 | 193 | $ 38,195.89 | 41,434 | 159 | 207 | $ 38,754.49 | 41,434 | 159 | 193 | $ 37,803.71 | 41,434 | 155 | 268 | $ 54,275.95 |
| Juvenile Detention Center - 048 | 4,480 | 55 | 6 | $ 163.76 | 0 | 0 | 1 | $ 85.44 | 0 | 0 | 1 | $ 13,899.56 | 4,368 | 46 | 3 | $ 9,694.45 |
| Montessori Rio Grande - 723 | 14,671 | 0 | 123 | $ 43,062.46 | 0 | 0 | 146 | $ 19,793.05 | 21,597 | 0 | 134 | $ 18,543.75 | 23,425 | 0 | 178 | $ 20,712.47 |
| Native American Community Academy - 762 | 30,912 | 0 | 144 | $ 23,194.31 | 0 | 0 | 33 | $ 9,287.41 | 0 | 0 | 6 | $ 1,160.08 | 30,912 | 0 | 8 | $ 902.70 |
| New Futures HS - 549 | 35,933 | 194 | 307 | $ 53,458.12 | 35,933 | 154 | 317 | $ 57,230.01 | 35,933 | 154 | 253 | $ 44,437.51 | 43,657 | 148 | 304 | $ 43,590.02 |
| Nex+Gen Academy - 516 | 46,894 | 254 | 86 | $ 15,226.57 | 46,606 | 307 | 123 | $ 20,333.97 | 46,606 | 307 | 170 | $ 23,888.94 | 46,606 | 320 | 158 | $ 34,824.12 |
| Nuestros Valores - 739 | 0 | 0 | 0 | $ - | 0 | 0 | 28 | $ 10,765.65 | 0 | 0 | 3 | $ 21.36 | 0 | 0 | 0 | $ - |
| Public Academy For Performing Arts (PAPA) - 747 | 29,568 | 0 | 149 | $ 32,457.72 | 0 | 0 | 88 | $ 8,423.64 | 29,344 | 0 | 86 | $ 11,081.60 | 29,344 | 0 | 125 | $ 11,576.43 |
| Robert F Kennedy HS - 728 | 43,904 | 0 | 168 | $ 60,678.07 | 0 | 0 | 62 | $ 9,703.86 | 43,904 | 0 | 86 | $ 16,807.40 | 59,618 | 0 | 199 | $ 18,886.07 |
| Sandia Rec - 154 | 13,200 | 0 | 55 | $ 104,246.96 | 0 | 0 | 41 | $ 4,763.35 | 13,200 | 0 | 35 | $ 3,028.41 | 13,200 | 0 | 48 | $ 27,356.49 |
| School On Wheels - 597 | 19,338 | 124 | 138 | $ 23,122.47 | 19,338 | 127 | 137 | $ 19,312.70 | 19,338 | 127 | 166 | $ 21,429.46 | 19,338 | 93 | 214 | $ 122,616.80 |
| Sierra Alt HS - 594 | 0 | 0 | 2 | $ 56.96 | 0 | 0 | 4 | $ 397.44 | 0 | 0 | 2 | $ 42.72 | 0 | 0 | 3 | $ 255.66 |
| South Valley Academy - 725 | 0 | 0 | 11 | $ 4,587.86 | 0 | 0 | 127 | $ 26,683.15 | 41,562 | 0 | 251 | $ 48,043.18 | 41,562 | 0 | 293 | $ 39,193.25 |
| Vision Quest - 840 | 3,380 | 7 | 115 | $ 17,153.75 | 3,380 | 22 | 69 | $ 6,810.61 | 3,380 | 22 | 76 | $ 22,757.74 | 9,520 | 6 | 81 | $ 27,351.25 |
| Western Trails Alt. HS - 598 | 8,736 | 0 | 53 | $ 7,803.91 | 0 | 0 | 53 | $ 6,747.23 | 8,736 | 0 | 53 | $ 7,165.05 | 10,752 | 0 | 84 | $ 7,371.61 |
| 21st Century Charter School - 727 | 0 | 0 | 1 | $ 42.72 | 0 | 0 | 1 | $ - | 0 | 0 | 1 | $ - | 0 | 0 | 0 | $ - |
| Totals | 419,204 | 2,728 | 2,173 | $ 575,179.38 | 243,994 | 1,050 | 2,096 | $ 352,115.53 | 431,788 | 1,044 | 2,172 | $ 399,962.89 | 498,201 | 1,122 | 2,763 | $ 566,204.04 |

# Managing for Results
## in America's Great City Schools
# 2016

RESULTS FROM FISCAL YEAR 2014-15


ActPoint KPI
PERFORMANCE MANAGEMENT SYSTEM

A REPORT OF THE PERFORMANCE MEASUREMENT AND BENCHMARKING PROJECT

OCTOBER 2016

# INTRODUCTION

## OVERVIEW

### The Performance Management and Benchmarking Project

In 2002 the Council of the Great City Schools and its members set out to develop performance measures that could be used to improve business operations in urban public school districts. The Council launched the Performance Measurement and Benchmarking Project to achieve these objectives. The purposes of the project were to:

- Establish a common set of **key performance indicators** (KPIs) in a range of school operations, including business services, finances, human resources, and technology;
- Use these KPIs to benchmark and compare the performance of the nation's largest urban public school systems;
- Use the results to improve operational performance in urban public schools.

Since its inception, the project has been led by two Council task forces operating under the aegis of the organization's Board of Directors: the Task Force on Leadership, Governance, and Management, and the Task Force on Finance. The project's work has been conducted by a team of member-district managers, technical advisors with extensive expertise in the following functional areas: business services (transportation, food services, maintenance and operations, safety and security), budget and finance (accounts payable, financial management, grants management, risk management, compensation, procurement and cash management), information technology, and human resources.

### Methodology of KPI Development

The project's teams have used a sophisticated approach to define, collect and validate school-system data. This process calls for each KPI to have a clearly defined purpose to justify its development, and extensive documentation of the **metric definitions** ensures that the expertise of the technical teams is fully captured.

At the core of the methodology is the principle of **continuous improvement**. The technical teams are instructed to focus on operational indicators that can be *benchmarked* and are *actionable,* and thus can be strategically managed by setting improvement targets.

From the KPI definitions the surveys are developed and tested to ensure the comparability, integrity and validity of data across school districts.

### Power Indicators and Essential Few

The KPIs are categorized into three levels of priority—Power Indicators, Essential Few, and Key Indicators—with each level having its own general purpose.

- **Power Indicators:** Strategic and policy level; can be used by superintendents and school boards to assess the overall performance of their district's non-instructional operations.
- **Essential Few:** Management level; can be used by chief executives to assess the performance of individual departments and divisions.
- **Key Indicators:** Technical level; can be used by department heads to drive the performance of the higher-level measures.

This division is more or less hierarchical, and while it is just one way of many to organizing the KPIs, it is helpful for highlighting those KPIs that are important enough to warrant more attention being paid to them.

### A Note on Cost of Living Adjustments

We adjust for **cost of living** in most cost-related measures. Regions where it is more expensive to live, such as San Francisco, Boston, New York City and Washington, D.C., are adjusted downward in order to be comparable with other cities. Conversely, regions where the costs of goods are lower, such as Columbus, OH, and Nashville, TN, are adjusted upwards.

Managing for Results in America's Great City Schools 2016

# Maintenance & Operations

Performance metrics in maintenance and operations (M&O) assess the cost efficiency and service levels of a district's facilities management and labor. Areas of focus include *custodial work, maintenance work, renovations, construction, utility usage,* and *environmental stewardship*. The cost efficiency of custodial work is represented broadly by **Custodial Workload** and **Custodial Cost per Square Foot**, where low workload combined with high cost per square feet would indicate that cost savings can be realized by reducing the number of custodians. Additionally, the relative cost of supplies can be considered by looking at **Custodial Supply Cost per Square Foot**.

The relative cost of utilities is represented by **Utility Usage per Square Foot** and **Water Usage per Square Foot**.

These KPIs should give district leaders a general sense of where they are doing well and where they can improve. The importance and usefulness of each KPI is described in the "Importance of Measure" and "Factors that Influence" headings, which can be used to guide improvement strategies.

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## Custodial Work - Cost per Square Foot


### Description of Calculation

Total cost of district-operated custodial work plus total cost of contract-operated custodial work, divided by total square footage of all non-vacant buildings.

### Importance of Measure

This measure is an important indicator of the efficiency of the custodial operations. The value is impacted not only by operational effectiveness, but also by labor costs, material and supply costs, supervisory overhead costs as well as other factors. This indicator can be used as an important comparison with other districts to identify opportunities for improvement in custodial operations to reduce costs.

### Factors that Influence

- Cost of labor
- Collective bargaining agreements
- Cost of supplies and materials
- Size of school

### Districts in Best Quartile (2014-2015)

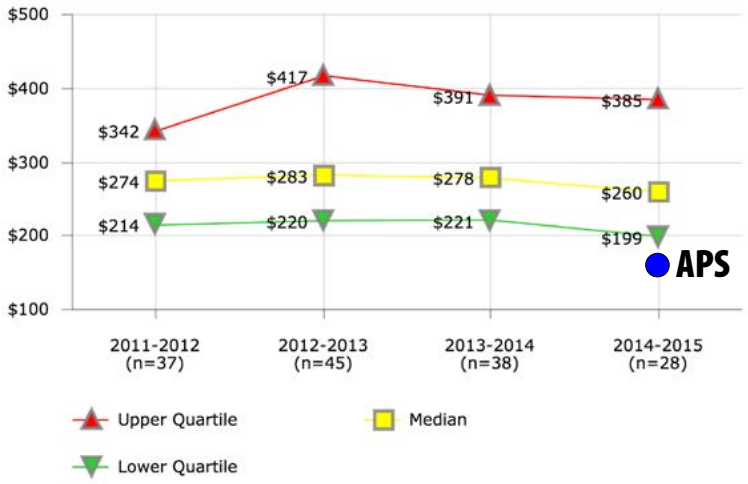
- Albuquerque Public Schools
- Atlanta Public Schools
- Baltimore City Public Schools
- Charlotte-Mecklenburg Schools
- Dallas Independent School District
- Guilford County School District
- Houston Independent School District
- Palm Beach County School District

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | $1.81 | | $1.74 | |
| 2 | $1.70 | $2.03 | $1.63 | |
| 3 | $1.83 | $1.87 | $2.06 | $2.02 |
| 4 | $1.73 | $1.77 | $1.73 | $1.59 |
| 5 | $1.64 | $1.56 | $1.52 | $1.55 |
| 6 | | $1.94 | | |
| 7 | $1.76 | $2.08 | $1.82 | $1.82 |
| 8 | $1.11 | $1.17 | $1.17 | $1.17 |
| 9 | $2.45 | $2.39 | $2.30 | $2.20 |
| 10 | $1.55 | $1.61 | | $1.81 |
| 11 | $1.43 | $1.55 | | |
| 12 | $2.52 | $2.41 | $2.54 | $2.71 |
| 13 | $1.55 | $1.77 | $1.65 | $1.95 |
| 14 | $1.19 | $1.20 | $1.15 | $1.07 |
| 16 | $1.64 | $1.89 | $1.87 | $1.80 |
| 19 | $2.57 | | $3.00 | |
| 20 | $2.00 | $1.75 | $1.84 | $1.87 |
| 21 | $1.87 | $1.94 | $2.48 | $2.45 |
| 23 | $1.74 | $1.37 | $1.24 | |
| 25 | $2.80 | $2.65 | | |
| 26 | $3.71 | | | |
| 28 | $1.19 | $1.20 | $1.23 | $1.26 |
| 30 | $1.50 | $1.42 | $1.40 | $1.43 |
| 32 | | $1.60 | | |
| 33 | | $1.68 | $1.96 | |
| 34 | $1.78 | $1.86 | $1.58 | $1.72 |
| 35 | $3.49 | $3.64 | | |
| 37 | $1.64 | $1.45 | $1.12 | |
| 39 | $1.21 | $1.23 | $1.22 | $1.25 |
| 41 | $0.82 | $1.21 | | $1.08 |
| 43 | $3.39 | $3.38 | $3.32 | |
| 44 | $1.73 | $1.72 | $1.76 | $1.83 |
| 45 | $2.60 | $0.73 | | |
| 46 | | $1.08 | $1.16 | $0.53 |
| 47 | $1.64 | $1.64 | $1.70 | $1.41 |
| 48 | $1.31 | $1.31 | | $1.36 |
| 49 | $1.24 | $1.20 | $1.00 | $0.99 |
| 52 | $1.64 | $1.87 | $1.97 | $2.08 |
| 53 | $2.45 | | | |
| 54 | $1.55 | | | |
| 55 | $1.47 | $1.60 | $1.47 | $1.36 |
| 56 | $2.24 | $2.26 | | |
| 57 | $0.95 | $0.94 | $0.97 | |
| 58 | | $2.37 | $2.81 | $2.39 |
| 62 | $1.83 | | | |
| 63 | $2.29 | $2.20 | $2.25 | |
| 66 | $2.07 | $2.45 | $2.42 | $2.21 |
| 67 | $1.76 | $3.40 | $2.40 | |
| 71 | $1.64 | $1.89 | $1.80 | $2.21 |
| 74 | | | $2.25 | $2.15 |
| 77 | | $3.57 | | |
| 79 | | $2.02 | | |
| 101 | $1.98 | $2.00 | | |

Managing for Results in America's Great City Schools 2016

MAINTENANCE & OPERATIONS

## Custodial Work - Cost per Student




### Description of Calculation

Total custodial work costs (contractor and district operated), divided by total student enrollment.

### Importance of Measure

This measure is an important indicator of the efficiency of the custodial operations. The value is impacted not only by operational effectiveness, but also by labor costs, material and supply costs, supervisory overhead costs as well as other factors. This indicator can be used as an important comparison with other districts to identify opportunities for improvement in custodial operations to reduce costs.

### Factors that Influence

- Cost of labor
- Cost of supplies and materials
- Scope of duties assigned to custodians

### Districts in Best Quartile (2014-2015)

- Albuquerque Public Schools
- Atlanta Public Schools
- Baltimore City Public Schools
- Dallas Independent School District
- Guilford County School District
- Houston Independent School District
- Palm Beach County School District

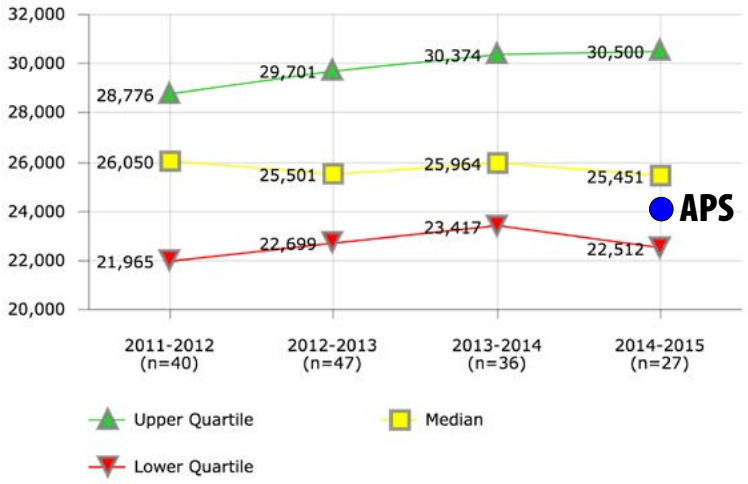
| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | $342 | | $320 | |
| 2 | | $423 | | |
| 3 | $332 | $348 | $391 | $393 |
| 4 | $314 | $337 | $319 | $297 |
| 5 | $295 | $283 | $271 | $274 |
| 6 | | $344 | $315 | |
| 7 | $281 | $337 | $299 | $299 |
| 8 | $205 | $186 | $186 | $185 |
| 9 | $272 | $261 | $251 | $243 |
| 10 | $214 | $212 | $216 | |
| 11 | $187 | $213 | | |
| 12 | $493 | $472 | $451 | $478 |
| 13 | $227 | $256 | $236 | $235 |
| 14 | $198 | $212 | $201 | $198 |
| 16 | $180 | $206 | $214 | $207 |
| 19 | $517 | | $600 | |
| 20 | $380 | $347 | $354 | $358 |
| 21 | $379 | $401 | $543 | $501 |
| 23 | $302 | $244 | $226 | |
| 25 | | $572 | | |
| 26 | $754 | | | |
| 28 | $274 | $263 | | $135 |
| 30 | $318 | $309 | $311 | $322 |
| 32 | | $210 | | |
| 33 | | $538 | | |
| 34 | | $466 | $458 | $518 |
| 35 | $601 | $625 | | |
| 37 | $283 | $245 | $181 | |
| 39 | $190 | $182 | $182 | $182 |
| 41 | $262 | $203 | $146 | $178 |
| 43 | $726 | $686 | $825 | |
| 44 | $236 | $227 | $236 | $246 |
| 45 | $730 | $210 | | |
| 46 | | $236 | $253 | $118 |
| 47 | $294 | $288 | $285 | $239 |
| 48 | $214 | $204 | $221 | $226 |
| 49 | $218 | $221 | $185 | $185 |
| 52 | | $417 | $410 | $459 |
| 54 | $240 | | | |
| 55 | $224 | $242 | $221 | $200 |
| 56 | | $259 | $258 | |
| 57 | $194 | $220 | $234 | |
| 58 | | $513 | $517 | $452 |
| 63 | | | $660 | |
| 66 | $429 | $507 | $495 | $444 |
| 67 | $179 | $341 | $248 | |
| 71 | $255 | $293 | $293 | $363 |
| 74 | | | $384 | $377 |
| 77 | | $620 | | |
| 79 | | $441 | | |
| 101 | $197 | $197 | | |

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## Custodial Workload




### Description of Calculation

Total square footage of non-vacant buildings that are managed by the district, divided by total number of district custodial field staff. This measure only applies to district-operated sites.

### Importance of Measure

This measurement is a very good indicator of the workload for each custodian. It allows districts to compare their operations with others to evaluate the relative efficiency of the custodial employees. A value on the low side could indicate that custodians may have additional assigned duties, or have opportunities for efficiencies as compared to districts with a higher ratio. A higher number could indicate a well managed custodial program or that some housekeeping operations are assigned to other employee classifications. It is important for a district to examine what drives the ratio to determine the most effective workload.

### Factors that Influence

- Assigned duties for custodians
- Management effectiveness
- Labor agreements
- District budget

### Districts in Best Quartile (2014-2015)

- Charlotte-Mecklenburg Schools
- Cincinnati Public Schools
- Milwaukee Public Schools
- Minneapolis Public Schools
- St. Louis City Public School District
- St. Paul Public Schools
- Wichita Public Schools

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | 34,079 | 33,247 | 32,886 | |
| 2 | | 24,825 | 24,409 | 22,512 |
| 3 | 33,099 | 32,192 | 30,596 | 31,110 |
| 4 | 26,580 | 30,113 | 30,029 | 32,499 |
| 5 | 29,481 | 28,888 | 28,888 | 28,694 |
| 7 | 24,717 | 26,593 | 30,331 | 30,331 |
| 8 | 23,676 | 23,554 | 23,250 | 23,565 |
| 9 | 23,256 | 23,487 | 23,836 | |
| 10 | 18,611 | 17,812 | 17,729 | 17,479 |
| 11 | 27,992 | 26,863 | | |
| 12 | | 23,679 | 24,173 | 25,027 |
| 13 | 25,982 | 25,905 | 27,861 | 23,686 |
| 14 | 23,916 | 23,365 | 26,019 | 25,102 |
| 16 | 22,131 | 24,748 | 24,016 | 27,455 |
| 19 | 25,777 | 25,124 | 24,658 | |
| 20 | 28,070 | 30,372 | 30,580 | 30,500 |
| 21 | 27,696 | 26,301 | 25,955 | 25,752 |
| 23 | | 23,289 | | |
| 25 | 17,153 | 15,130 | | |
| 26 | 32,123 | 28,871 | | |
| 28 | 526 | | 30,996 | |
| 30 | 38,132 | 41,223 | 39,030 | 38,372 |
| 32 | | 21,540 | | |
| 33 | | 29,701 | 29,213 | |
| 34 | 27,074 | 17,747 | 23,585 | 23,185 |
| 35 | 21,612 | 22,699 | | |
| 37 | 27,145 | 27,502 | 25,806 | |
| 39 | 19,308 | 21,658 | 20,181 | 20,342 |
| 41 | 26,605 | 29,122 | 27,621 | 28,986 |
| 43 | 32,842 | 25,854 | 23,879 | |
| 44 | 16,892 | 17,669 | 15,625 | 18,018 |
| 45 | | 37,244 | | |
| 46 | | 20,307 | 21,559 | 19,528 |
| 48 | 24,684 | 23,088 | 26,168 | 25,475 |
| 49 | 23,217 | 23,217 | 21,849 | 21,849 |
| 52 | 31,537 | 31,371 | 30,721 | 30,504 |
| 53 | 21,798 | | | |
| 54 | 26,117 | | | |
| 55 | 31,326 | 30,506 | 30,417 | 31,842 |
| 56 | 17,000 | 14,719 | | |
| 57 | 37,264 | 45,692 | 44,399 | |
| 58 | | 20,238 | 19,157 | 23,414 |
| 62 | 45,009 | 52,381 | | |
| 63 | | 31,506 | 31,506 | 32,718 |
| 66 | 26,816 | 25,973 | 25,973 | 25,451 |
| 67 | 17,949 | 16,933 | 16,878 | |
| 71 | 12,350 | 12,422 | 12,422 | 18,850 |
| 77 | | 29,534 | | |
| 79 | 26,737 | 25,501 | | |
| 101 | 23,961 | 23,961 | | |

Managing for Results in America's Great City Schools 2016

MAINTENANCE & OPERATIONS

## Custodial Supply Cost per Square Foot


### Description of Calculation

Total custodial supply cost of district-operated custodial services, divided by total square footage of buildings managed by the district. This measure only applies to district-operated sites.

### Importance of Measure

This measure is an important indicator of the efficiency of the custodial operations. The value is impacted not only by operational effectiveness, but also by labor costs, material and supply costs, supervisory overhead costs as well as other factors. This indicator can be used as an important comparison with other districts to identify opportunities for improvement in custodial operations to reduce costs.

### Factors that Influence

- Cost of labor
- Cost of supplies and materials
- Scope of duties assigned to custodians

### Districts in Best Quartile (2014-2015)

- Albuquerque Public Schools
- Anchorage School District
- Dallas Independent School District
- Guilford County School District
- Milwaukee Public Schools
- Palm Beach County School District

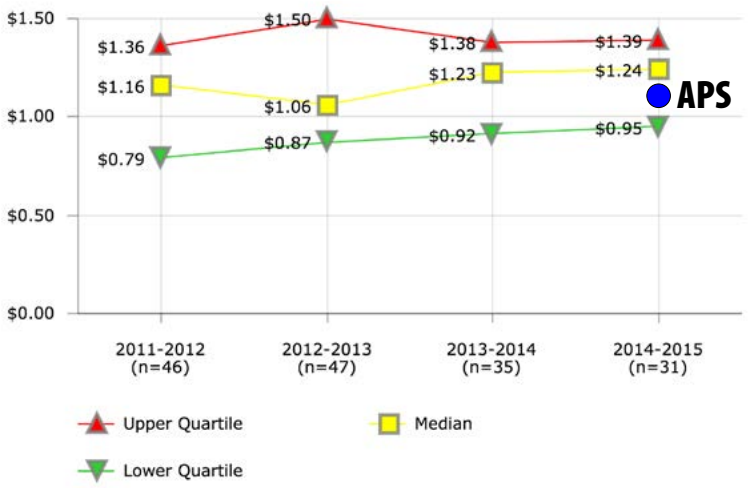
| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | $0.36 | $0.11 | $0.13 | |
| 2 | | $1.96 | $0.09 | $0.09 |
| 3 | $0.16 | $0.15 | $0.15 | $0.18 |
| 4 | $0.18 | $0.16 | $0.16 | $0.17 |
| 5 | $0.17 | $0.14 | $0.13 | $0.15 |
| 7 | $0.08 | $0.08 | $0.06 | $0.07 |
| 8 | $0.07 | $0.07 | $0.07 | $0.07 |
| 9 | $0.13 | $0.09 | $0.12 | |
| 10 | $0.10 | $0.12 | $0.12 | $0.13 |
| 11 | $0.08 | $0.09 | | |
| 12 | $0.12 | $0.02 | $0.11 | $0.14 |
| 13 | $0.08 | $0.08 | $0.08 | $0.09 |
| 14 | $0.04 | $0.04 | $0.04 | $0.04 |
| 16 | $0.09 | $0.09 | $0.09 | $0.09 |
| 19 | $0.12 | $0.17 | $0.26 | |
| 20 | $0.23 | $0.19 | $0.21 | $0.21 |
| 21 | $0.08 | $0.08 | $0.08 | $0.11 |
| 25 | $0.23 | $0.19 | | |
| 26 | $0.11 | | | |
| 28 | | | $0.24 | |
| 30 | $0.04 | $0.04 | $0.04 | $0.05 |
| 32 | | $0.02 | | |
| 33 | | $0.06 | $0.06 | |
| 34 | $0.09 | $0.26 | $0.17 | $0.17 |
| 35 | $0.12 | $0.17 | | |
| 37 | $0.11 | $0.11 | $0.11 | |
| 39 | $0.11 | $0.11 | $0.15 | $0.11 |
| 41 | $0.10 | $0.11 | $0.10 | $0.08 |
| 43 | $0.09 | $0.13 | $0.10 | |
| 45 | $0.08 | $0.07 | | |
| 48 | $0.07 | $0.09 | $0.10 | $0.12 |
| 49 | $0.01 | $0.02 | $0.05 | $0.02 |
| 52 | $0.14 | $0.14 | $0.18 | $0.14 |
| 53 | $0.06 | | | |
| 55 | $0.12 | $0.16 | $0.10 | $0.10 |
| 56 | $0.08 | $0.08 | | |
| 57 | $0.11 | $0.09 | $0.10 | |
| 58 | $0.53 | $0.13 | $0.09 | $0.09 |
| 62 | $0.13 | | | |
| 66 | $0.11 | $0.12 | $0.11 | $0.11 |
| 67 | $0.13 | $0.12 | $0.12 | |
| 71 | $0.09 | $0.11 | $0.10 | $0.15 |
| 77 | | $0.24 | | |
| 101 | $0.10 | $0.10 | | |

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## Routine Maintenance - Cost per Square Foot




### Description of Calculation

Cost of district-operated maintenance work plus cost of contractor-operated maintenance work, divided by total square footage of non-vacant buildings.

### Importance of Measure

This provides a measure of the total costs of routine maintenance relative to the district size (by building square footage).

### Factors that Influence

- Age of infrastructure
- Experience of maintenance staff
- Training of custodial staff to do maintenance work
- Deferred maintenance backlog

### Districts in Best Quartile (2014-2015)

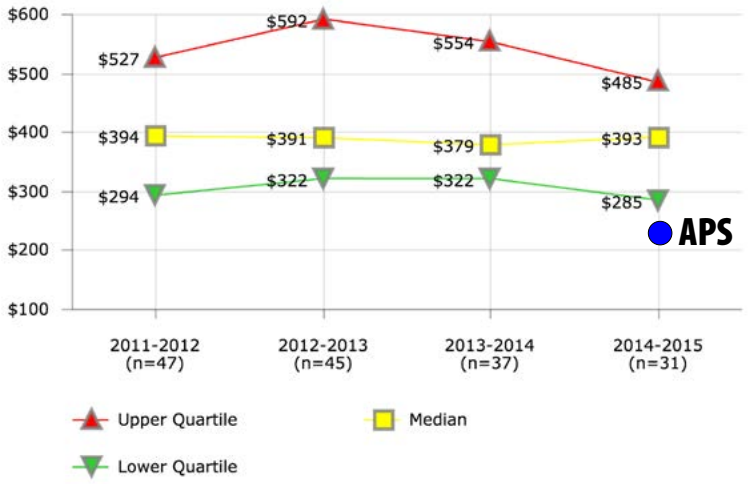
- Anchorage School District
- Des Moines Public Schools
- Guilford County School District
- Orange County Public Schools (FL)
- Portland Public Schools
- Richmond City School District
- School District of Philadelphia
- St. Louis City Public School District

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | $0.62 | $0.14 | $0.71 | |
| 2 | $1.14 | $0.36 | $0.65 | $0.67 |
| 3 | $1.33 | $1.41 | $1.00 | $1.09 |
| 4 | $0.66 | $0.90 | $1.13 | $1.05 |
| 5 | $0.81 | $0.97 | $1.01 | $0.92 |
| 6 | $1.18 | $1.75 | | |
| 7 | $1.45 | $1.47 | $1.38 | $0.61 |
| 8 | $0.81 | $0.90 | $0.92 | $1.00 |
| 9 | $1.30 | $1.25 | $1.15 | $1.24 |
| 10 | $1.23 | $0.97 | | $1.06 |
| 11 | $0.46 | $1.03 | | |
| 12 | $1.15 | $1.06 | $0.92 | $0.95 |
| 13 | $0.71 | $1.02 | $1.26 | $1.52 |
| 14 | $1.44 | $1.45 | $1.30 | $1.19 |
| 16 | $1.00 | $0.77 | | $1.05 |
| 19 | $1.52 | $1.55 | $1.34 | |
| 20 | $1.35 | $1.18 | $1.25 | $1.36 |
| 21 | $0.83 | $0.91 | $0.83 | $1.62 |
| 23 | $1.17 | $0.96 | $1.07 | |
| 25 | $1.29 | $1.71 | | |
| 26 | $0.65 | $0.87 | | |
| 28 | $1.21 | $1.57 | $1.65 | $1.57 |
| 30 | $1.25 | $0.90 | $1.32 | $1.33 |
| 32 | | $1.18 | | |
| 33 | | $1.19 | $1.38 | |
| 34 | $1.73 | $2.59 | $1.33 | $1.32 |
| 35 | $1.58 | $1.57 | | |
| 37 | | $0.77 | $0.69 | |
| 39 | $1.41 | $1.56 | $1.53 | $1.56 |
| 41 | $0.39 | $0.82 | | $1.39 |
| 43 | $1.36 | $1.38 | $1.36 | |
| 44 | $1.20 | $1.50 | $1.44 | $1.55 |
| 45 | $0.74 | $0.18 | | |
| 46 | | $0.87 | $1.23 | $1.26 |
| 47 | $1.53 | $1.45 | $1.56 | $1.48 |
| 48 | $0.70 | $0.74 | | $0.75 |
| 49 | $0.72 | $0.73 | $0.67 | $0.68 |
| 52 | $1.32 | $1.56 | $1.88 | $1.48 |
| 53 | $1.15 | | | |
| 54 | $1.49 | | | |
| 55 | $1.75 | $1.36 | $1.32 | $1.38 |
| 56 | $1.43 | $2.16 | | |
| 57 | $0.72 | | $0.61 | |
| 58 | $0.81 | $0.56 | $0.55 | $0.55 |
| 62 | $0.94 | | | |
| 63 | $0.37 | $0.54 | $0.65 | $0.82 |
| 66 | $0.91 | $0.93 | $1.08 | $1.04 |
| 67 | $2.52 | $2.45 | $2.56 | |
| 71 | $1.01 | $1.07 | $1.02 | $1.24 |
| 74 | | | $1.70 | $1.31 |
| 77 | | $0.35 | | |
| 101 | $0.79 | $2.01 | | |

Managing for Results in America's Great City Schools 2016

MAINTENANCE & OPERATIONS

## Routine Maintenance - Cost per Work Order




### Description of Calculation

Total costs of all routine maintenance work, divided by total number of routine maintenance work orders.

### Importance of Measure

This provides a measure of the costs of each routine maintenance work order.

### Factors that Influence

- Age of infrastructure
- Experience of maintenance staff
- Training of custodial staff to do maintenance work
- Deferred maintenance backlog

### Districts in Best Quartile (2014-2015)

- Albuquerque Public Schools
- Anchorage School District
- Austin Independent School District
- Duval County Public Schools
- Hillsborough County Public Schools
- Palm Beach County School District
- Richmond City School District
- San Diego Unified School District

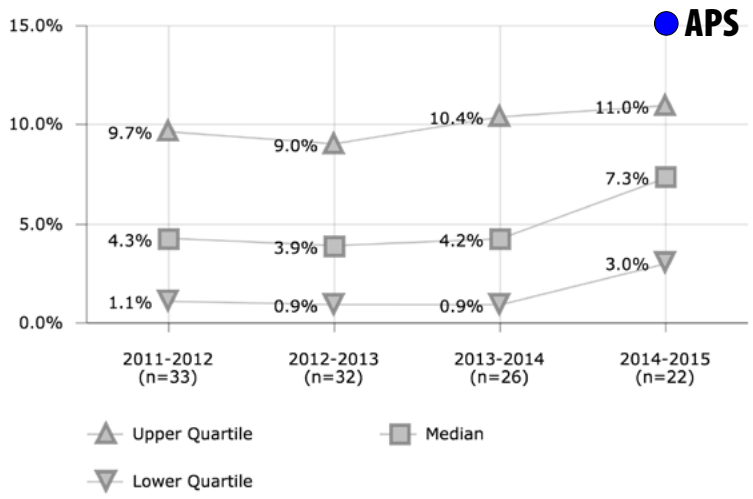
| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | $163 | | $169 | |
| 2 | $327 | $370 | $205 | $230 |
| 3 | $1,038 | $827 | $554 | $492 |
| 4 | $231 | $337 | $438 | $317 |
| 5 | $470 | $546 | $659 | $475 |
| 6 | $1,273 | $1,014 | $1,093 | |
| 7 | $441 | $600 | $436 | $186 |
| 8 | $257 | $242 | $259 | $285 |
| 9 | $470 | $492 | $403 | $485 |
| 10 | $349 | $252 | $275 | $268 |
| 11 | $105 | $265 | | |
| 12 | $504 | $552 | $373 | $399 |
| 13 | $449 | $652 | $673 | $692 |
| 14 | $294 | $357 | $242 | $250 |
| 16 | $280 | $178 | | $274 |
| 19 | $494 | $598 | $496 | |
| 20 | $493 | $321 | $357 | $450 |
| 21 | $32 | $322 | $322 | $516 |
| 23 | $321 | $355 | $331 | |
| 25 | $1,502 | $1,082 | | |
| 26 | $917 | $1,141 | | |
| 28 | $378 | $386 | $568 | $466 |
| 30 | $1,064 | $710 | $1,026 | $1,045 |
| 32 | | $853 | | |
| 33 | | $391 | $340 | |
| 34 | $446 | | | $1,272 |
| 35 | $569 | $578 | | |
| 37 | $42 | $470 | $368 | |
| 39 | $394 | $428 | $440 | $417 |
| 41 | $321 | $314 | $294 | $393 |
| 43 | $498 | $483 | $498 | |
| 44 | $175 | $190 | $179 | $187 |
| 45 | $721 | $174 | | |
| 46 | | $211 | $326 | $330 |
| 47 | $620 | $592 | $568 | $448 |
| 48 | $308 | $332 | $357 | $375 |
| 49 | $289 | $279 | $322 | $306 |
| 52 | $536 | $667 | $872 | $622 |
| 53 | $326 | | | |
| 54 | $3,463 | | | |
| 55 | $425 | $342 | $347 | $354 |
| 56 | $361 | $675 | | |
| 57 | $1,545 | | | |
| 58 | $527 | $456 | $379 | $410 |
| 62 | $344 | | | |
| 63 | $338 | $350 | $415 | $355 |
| 66 | $396 | $374 | $404 | $390 |
| 67 | $374 | $373 | $597 | |
| 71 | $186 | $206 | $170 | $206 |
| 74 | | | $828 | $661 |
| 77 | | $396 | | |
| 101 | $201 | $504 | | |

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## Routine Maintenance - Proportion Contractor-Operated, by Work Orders




### Description of Calculation

Number of routine maintenance work orders handled by contractors, divided by total number of routine maintenance work orders.

### Importance of Measure

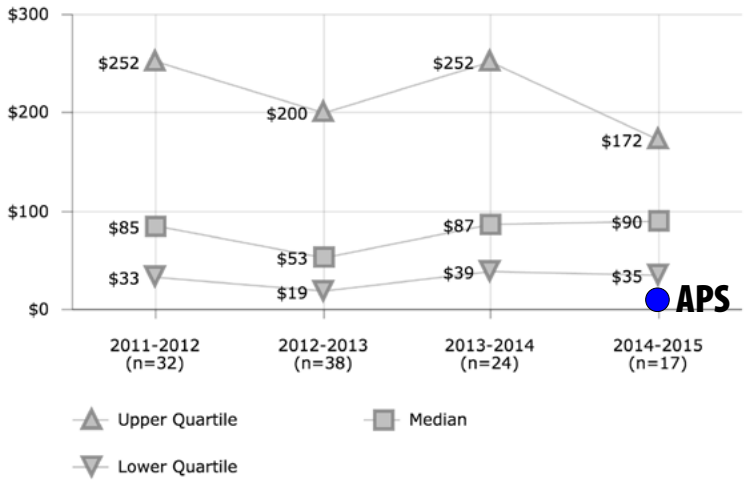
Can be used to identify districts that utilize contractors to perform routine maintenance.

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | 4.4% | 0.8% | 0.8% | |
| 2 | 5.3% | 1.5% | 2.5% | 3.1% |
| 3 | 5.3% | 8.9% | 0.6% | 2.1% |
| 4 | | | | 10.9% |
| 6 | | 1.9% | | |
| 7 | 0.2% | 0.3% | | |
| 9 | | 0.0% | | |
| 10 | 15.0% | 12.5% | 15.3% | 12.9% |
| 11 | 0.0% | 0.0% | | |
| 12 | 3.6% | 4.0% | 4.6% | 7.0% |
| 13 | 1.3% | 0.8% | 0.8% | 0.8% |
| 14 | 18.6% | 14.0% | 12.4% | 18.4% |
| 16 | 1.4% | 0.3% | 0.8% | 0.8% |
| 19 | 0.9% | | | |
| 20 | 6.7% | 4.4% | 0.9% | 6.4% |
| 21 | 9.7% | 9.0% | 3.0% | 3.0% |
| 23 | 2.4% | 11.6% | 12.9% | |
| 25 | 13.5% | | | |
| 26 | 100.0% | 100.0% | | |
| 28 | 1.1% | 2.5% | 10.4% | 13.5% |
| 30 | 13.8% | 4.7% | 4.2% | 7.6% |
| 32 | | 3.8% | | |
| 34 | 1.6% | | | 9.0% |
| 37 | 0.8% | 1.0% | 2.5% | |
| 39 | 28.0% | 20.0% | 20.0% | 20.0% |
| 41 | 1.0% | 3.5% | 1.0% | 2.3% |
| 43 | 9.5% | 8.2% | 6.7% | |
| 44 | 3.8% | 3.8% | 4.3% | 4.5% |
| 45 | 4.3% | | | |
| 46 | | 10.0% | 10.8% | 12.2% |
| 47 | 1.5% | 5.0% | | |
| 48 | 0.8% | 6.8% | 5.8% | 11.0% |
| 49 | 32.1% | 3.8% | 10.4% | 9.2% |
| 52 | 8.8% | 9.1% | 8.8% | 8.9% |
| 54 | 100.0% | | | |
| 57 | 9.1% | 28.6% | | |
| 66 | 0.4% | 0.5% | 0.4% | 0.4% |
| 67 | | | 0.3% | |
| 71 | 0.9% | 0.8% | 0.9% | 3.9% |
| 74 | | | 100.0% | |

Managing for Results in America's Great City Schools 2016

MAINTENANCE & OPERATIONS

## Major Maintenance - Cost per Student




### Description of Calculation

Total cost of major maintenance work divided by total student enrollment.

### Importance of Measure

This looks at the cost of major maintenance projects relative to the size of the district (by student enrollment).

### Factors that Influence

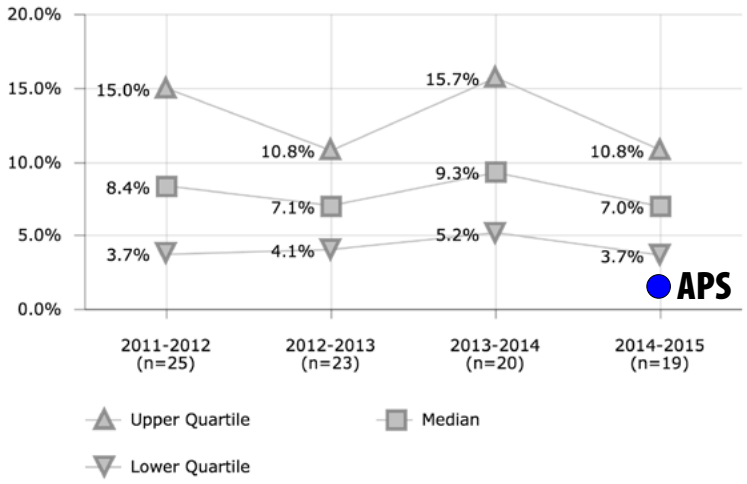
- Number of capital projects
- Deferred maintenance backlog
- Passage of bond measures
- Age of infrastructure
- District technology plan

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | $109 | $48 | $44 | |
| 2 | | | | $13 |
| 3 | $318 | $302 | $233 | $230 |
| 4 | $655 | $467 | $413 | $511 |
| 5 | $183 | $228 | $105 | $73 |
| 6 | | $26 | | |
| 7 | $248 | $303 | $508 | $354 |
| 8 | $46 | $8 | $20 | $43 |
| 10 | $102 | $90 | | |
| 11 | $24 | $1 | | |
| 12 | $252 | | | |
| 13 | $83 | $57 | $90 | $90 |
| 14 | $29 | $32 | $52 | $21 |
| 16 | $87 | $107 | | $121 |
| 19 | | $19 | $106 | |
| 20 | $6 | $3 | | |
| 21 | $311 | $354 | $584 | |
| 23 | $94 | $79 | $132 | |
| 26 | $56 | | | |
| 28 | $154 | $60 | | |
| 30 | $308 | $200 | $83 | $172 |
| 32 | | $47 | | |
| 33 | | $80 | | |
| 34 | | $1,094 | $1,029 | $1,021 |
| 35 | $0 | $38 | | |
| 37 | $66 | $95 | $82 | |
| 39 | $289 | $13 | $82 | $131 |
| 41 | $1,387 | $976 | | |
| 43 | $400 | $414 | $288 | |
| 44 | $24 | $48 | $73 | $28 |
| 45 | $253 | $19 | | |
| 46 | | $11 | $16 | |
| 48 | $18 | $18 | | $35 |
| 49 | $28 | $230 | $170 | |
| 52 | | $70 | $271 | |
| 55 | $36 | $32 | $32 | |
| 56 | | $8 | $21 | |
| 57 | $56 | $200 | | |
| 66 | $54 | $42 | $33 | $31 |
| 67 | $5 | $4 | $6 | |
| 71 | | | | $146 |
| 74 | | | | $53 |
| 101 | $40 | $31 | | |

Managing for Results in America's Great City Schools 2016

MAINTENANCE & OPERATIONS

## Major Maintenance - Design to Construction Cost Ratio




### Description of Calculation

Design costs of all major maintenance/minor renovation projects, divided by construction costs of all major maintenance/minor renovation projects.

### Importance of Measure

This can be used to evaluate the cost of delivered construction relative to design costs.

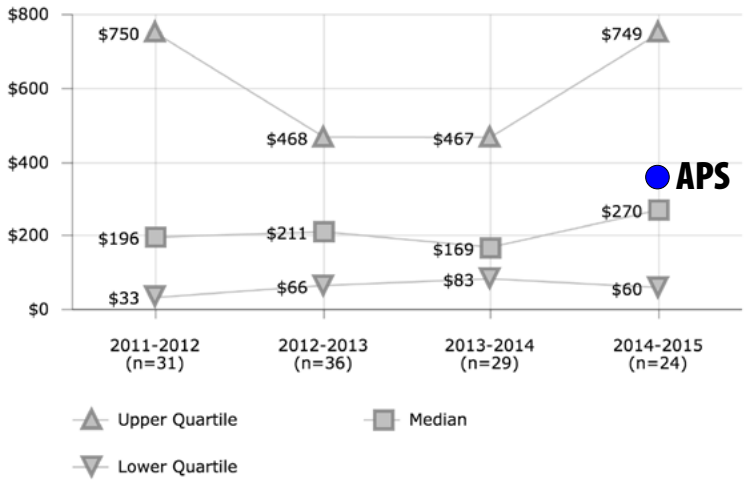
| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | 8.9% | | | |
| 3 | 11.5% | 7.1% | 11.3% | 12.4% |
| 4 | 4.4% | 3.7% | 4.3% | 2.2% |
| 5 | 12.6% | 5.7% | 5.1% | 8.4% |
| 7 | 33.8% | 22.6% | 14.4% | 12.2% |
| 8 | | | 1.8% | 0.6% |
| 9 | | | | 0.2% |
| 10 | 8.4% | 8.3% | 4.6% | 6.3% |
| 11 | 0.4% | 1.4% | | |
| 12 | 0.9% | | | |
| 14 | | 0.0% | 3.8% | 2.5% |
| 16 | 10.7% | 10.8% | | 8.9% |
| 19 | | | 5.4% | |
| 21 | 7.1% | 5.1% | 6.9% | 9.8% |
| 23 | 4.3% | 10.4% | 17.0% | |
| 25 | 0.2% | | | |
| 28 | | 4.1% | 31.9% | 10.8% |
| 30 | 4.1% | 4.3% | 8.6% | 4.8% |
| 32 | | 3.4% | | |
| 34 | 0.4% | 29.4% | 11.6% | 3.7% |
| 35 | | 2.7% | | |
| 37 | | 7.1% | 9.9% | |
| 39 | 1.2% | | | |
| 41 | 6.7% | 6.0% | 18.0% | 8.8% |
| 43 | 27.8% | 25.6% | 24.1% | |
| 44 | 8.7% | 9.1% | 10.2% | 6.8% |
| 45 | 23.3% | | | |
| 49 | 15.2% | 9.2% | 6.1% | 7.0% |
| 52 | 33.4% | 32.9% | 19.5% | 11.1% |
| 53 | 15.0% | | | |
| 57 | 40.0% | | | |
| 66 | 2.6% | 5.5% | 5.8% | 5.8% |
| 71 | | | | 11.0% |
| 101 | 3.7% | 72.1% | | |

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## Renovations - Cost per Student




### Description of Calculation

Total cost of renovations divided by total student enrollment.

### Importance of Measure

This indicates the level of spending on major renovations relative to the size of the district (by student enrollment).

### Factors that Influence

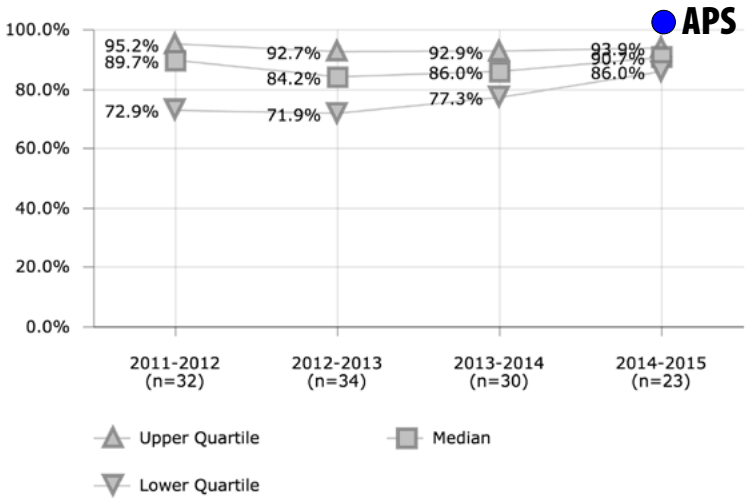
- Number of capital projects
- Age of infrastructure
- District technology plan

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | $199 | $79 | $147 | |
| 3 | $504 | $384 | $397 | $444 |
| 4 | $1,426 | $117 | $97 | $122 |
| 5 | $33 | $132 | $387 | $781 |
| 6 | | $602 | $195 | |
| 7 | $71 | $240 | $60 | $775 |
| 8 | $196 | $2 | $11 | $12 |
| 9 | | | | $67 |
| 10 | $282 | $255 | $169 | |
| 11 | $30 | $376 | | |
| 12 | $1,291 | $1,399 | $725 | $1,240 |
| 13 | | | | $30 |
| 14 | $114 | $31 | $83 | $393 |
| 16 | $175 | $181 | $533 | $640 |
| 20 | $324 | $536 | $467 | $147 |
| 21 | $3 | $4 | $7 | $9 |
| 23 | $20 | | $21 | |
| 25 | | $275 | | |
| 26 | $784 | $589 | | |
| 28 | $814 | $437 | | $99 |
| 30 | | $163 | $89 | $100 |
| 32 | | $60 | | |
| 33 | | $499 | | |
| 34 | | $1,478 | | $446 |
| 35 | $0 | $107 | | |
| 37 | | $672 | $547 | |
| 39 | $723 | $941 | $674 | $960 |
| 43 | $65 | $49 | $274 | |
| 44 | $9 | $34 | $1 | $43 |
| 45 | $3,705 | | | |
| 46 | | $11 | $13 | $23 |
| 48 | $750 | $416 | $709 | $786 |
| 49 | $954 | $402 | $130 | $124 |
| 52 | | $426 | $661 | $1,630 |
| 54 | $22 | | | |
| 55 | $69 | $78 | $384 | $442 |
| 56 | | $3 | | |
| 57 | $378 | | $262 | |
| 58 | $326 | $58 | $99 | $53 |
| 63 | | | $1,336 | |
| 66 | $33 | $142 | | |
| 67 | $5 | | | |
| 71 | $158 | $71 | $101 | $723 |
| 74 | | | $26 | |
| 101 | $1,328 | $1,329 | | |

Managing for Results in America's Great City Schools 2016

MAINTENANCE & OPERATIONS

## Renovations - Delivered Construction Costs as Percent of Total Costs




### Description of Calculation

Construction costs of major rehab/renovation projects, divided by total costs of all major rehab/renovation projects.

### Importance of Measure

This can be used to evaluate the cost of delivered construction relative to design costs and personnel costs.

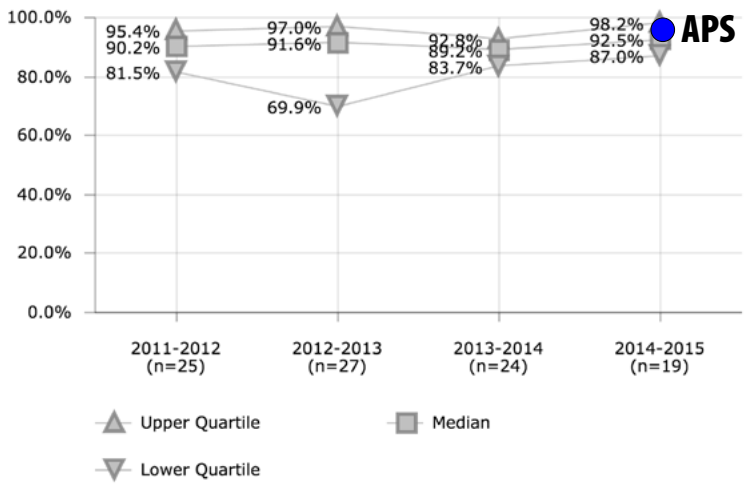
| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | 57.0% | 21.8% | 46.0% | |
| 3 | 86.8% | 83.4% | 78.6% | 82.9% |
| 4 | 96.2% | 92.6% | 89.6% | 93.2% |
| 5 | 60.0% | 58.3% | 63.2% | 71.2% |
| 6 | | 89.8% | 85.4% | |
| 7 | 64.3% | 77.8% | 77.3% | 87.0% |
| 8 | 88.4% | | 74.2% | 81.9% |
| 9 | | | | 83.8% |
| 10 | 92.7% | 92.7% | 86.6% | 91.4% |
| 11 | 64.4% | 85.0% | | |
| 12 | 92.6% | 99.1% | 92.9% | 95.1% |
| 13 | | | | 88.2% |
| 14 | 94.8% | 97.4% | 91.9% | 98.4% |
| 16 | 78.7% | 80.1% | 88.1% | 87.9% |
| 20 | 99.8% | 100.0% | 100.0% | 100.0% |
| 23 | 86.0% | | 87.0% | |
| 25 | | 72.6% | | |
| 26 | 95.0% | | | |
| 28 | | 71.6% | 80.2% | 93.9% |
| 30 | | 87.8% | 75.6% | 90.7% |
| 32 | | 73.7% | | |
| 33 | | 83.0% | 83.0% | |
| 34 | 74.4% | 92.4% | | 90.1% |
| 35 | | 90.2% | | |
| 37 | | 71.9% | 78.1% | |
| 39 | 95.6% | 94.9% | 96.4% | 98.3% |
| 43 | 50.1% | 39.5% | 85.3% | |
| 44 | 90.2% | 93.2% | 53.1% | 86.0% |
| 45 | 99.7% | | | |
| 46 | | 64.0% | 50.8% | |
| 48 | 96.0% | 92.8% | 92.8% | 93.7% |
| 49 | 93.3% | 93.3% | 86.6% | 86.9% |
| 52 | 71.4% | 66.5% | 82.1% | 92.4% |
| 53 | 84.9% | | | |
| 54 | 41.6% | | | |
| 55 | 100.0% | 71.7% | 95.5% | 91.8% |
| 56 | 100.0% | 2.2% | | |
| 57 | 94.5% | 100.0% | 99.8% | |
| 58 | 81.2% | | 100.0% | 100.0% |
| 63 | 95.5% | 92.0% | 98.3% | |
| 66 | 58.2% | 72.0% | | |
| 71 | 89.3% | 82.4% | 70.9% | 76.3% |
| 74 | | | 100.0% | |
| 101 | 92.4% | 92.4% | | |

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## New Construction - Delivered Construction Costs as Percent of Total Costs




### Description of Calculation

Delivered construction costs of new construction projects, divided by total costs of all new construction projects.

### Importance of Measure

This can be used to evaluate the cost of delivered construction relative to design costs and personnel costs.

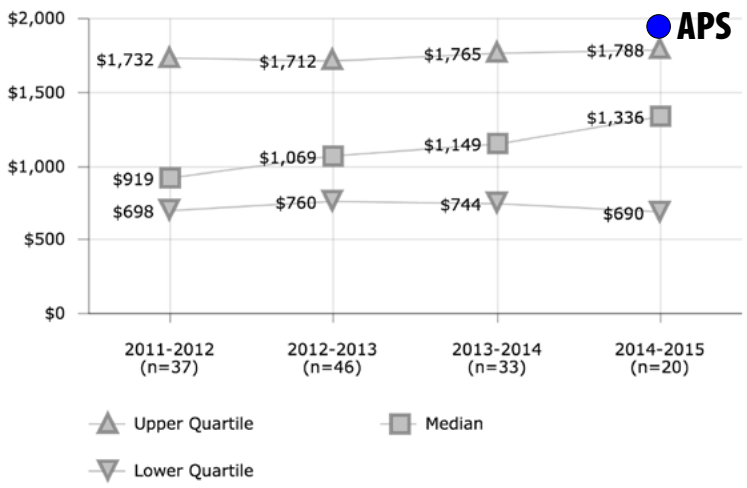
| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | | 8.7% | 27.9% | |
| 4 | 95.1% | 94.6% | 83.4% | 98.2% |
| 5 | 75.5% | 32.4% | 51.8% | |
| 6 | | 90.8% | 87.9% | |
| 7 | | | 88.2% | |
| 8 | 68.1% | | 91.0% | 90.3% |
| 9 | | | | 99.3% |
| 10 | 93.4% | 73.6% | 83.9% | 89.1% |
| 11 | | 71.6% | | |
| 12 | 97.7% | 99.1% | 95.9% | 88.4% |
| 13 | | | | 83.5% |
| 14 | 92.6% | 97.3% | 93.2% | 98.4% |
| 16 | 80.0% | 77.0% | 86.6% | 87.0% |
| 20 | 84.5% | 97.6% | 96.1% | 100.0% |
| 23 | | 99.2% | 94.8% | |
| 25 | 36.5% | | | |
| 28 | | 98.6% | 92.5% | 95.5% |
| 30 | | | | 99.6% |
| 32 | | 69.9% | | |
| 35 | | 98.1% | | |
| 37 | 100.0% | 29.1% | 33.1% | |
| 39 | 95.4% | 92.3% | 98.6% | |
| 41 | 95.9% | 97.0% | 83.3% | 94.3% |
| 44 | 90.2% | 92.3% | 87.7% | 92.5% |
| 46 | | 28.9% | | |
| 47 | 94.3% | 86.0% | 90.4% | 68.1% |
| 48 | 93.5% | 91.9% | 91.1% | 90.6% |
| 49 | 95.5% | 85.9% | 88.2% | 45.7% |
| 52 | 81.5% | 91.6% | 70.2% | 92.5% |
| 53 | 84.9% | | | |
| 54 | 84.0% | | | |
| 55 | 100.0% | 92.4% | 91.0% | 96.6% |
| 56 | 21.3% | 21.3% | | |
| 57 | | | 96.6% | |
| 58 | 83.5% | | | |
| 66 | 97.7% | 96.8% | | |
| 71 | 84.8% | 59.1% | 90.1% | 84.7% |
| 101 | 10.3% | | | |

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## M&O Cost per Student




### Description of Calculation

Total custodial costs (district and contractor) plus total grounds work costs (district and contractor) plus total routine maintenance costs (district and contractor) plus total major maintenance/minor renovations costs plus total major rehab/renovations

### Importance of Measure

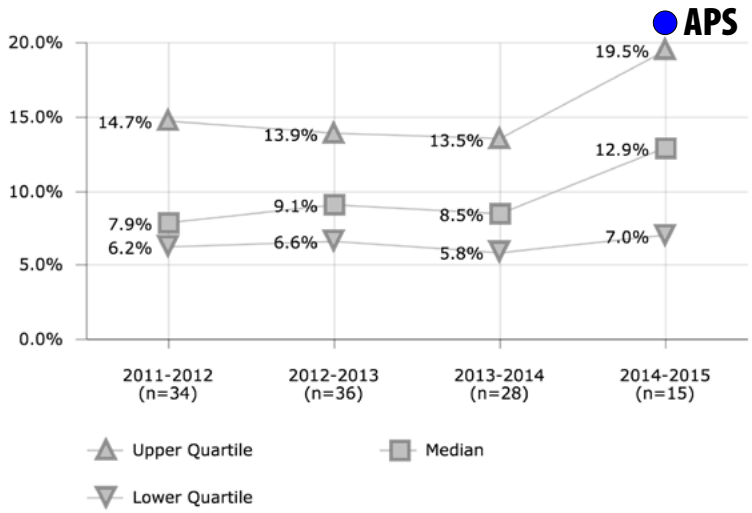
This is a broad view of the costs of maintenance, operations and facilities work. Expenditures may fluctuate drastically depending on the number of capital projects.

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | $794 | $225 | $858 | |
| 2 | | $507 | | $2,659 |
| 3 | $1,430 | $1,321 | $1,245 | $1,311 |
| 4 | $2,618 | $1,712 | $1,494 | $2,824 |
| 5 | $698 | $835 | $980 | $1,361 |
| 6 | $2,521 | $2,791 | | |
| 7 | $884 | $1,193 | $1,844 | $1,588 |
| 8 | $631 | $364 | $624 | $543 |
| 9 | $447 | $429 | $406 | |
| 10 | $919 | $770 | | |
| 11 | $367 | $1,103 | | |
| 12 | $2,309 | $2,528 | $1,624 | |
| 13 | $460 | $504 | $548 | $595 |
| 14 | $1,279 | $1,264 | $2,422 | $1,955 |
| 16 | $723 | $880 | $1,623 | $2,019 |
| 19 | $884 | $968 | $1,072 | |
| 20 | $6,275 | $3,832 | $1,765 | $919 |
| 21 | | $981 | $1,353 | |
| 23 | $694 | $2,973 | $3,609 | |
| 25 | | $1,233 | | |
| 26 | $1,732 | $760 | | |
| 28 | $1,576 | $3,339 | | |
| 30 | $926 | $920 | $802 | $1,107 |
| 32 | | $535 | | |
| 33 | | $1,518 | | |
| 34 | | $3,765 | | $2,493 |
| 35 | $892 | $1,828 | | |
| 37 | $525 | $2,014 | $2,080 | |
| 39 | $1,930 | $1,486 | $1,279 | $1,539 |
| 41 | $2,660 | $1,923 | | |
| 43 | $1,540 | $1,486 | $1,793 | |
| 44 | $739 | $858 | $598 | $673 |
| 45 | $4,939 | $285 | | |
| 46 | | $498 | $608 | |
| 47 | $1,139 | $837 | $1,208 | $741 |
| 48 | $1,538 | $1,058 | | $1,398 |
| 49 | $2,272 | $1,154 | $741 | |
| 52 | | $1,966 | $1,970 | |
| 54 | $558 | | | |
| 55 | $621 | $910 | $1,013 | |
| 56 | | $597 | $407 | |
| 57 | $813 | | $2,715 | |
| 58 | | $705 | $744 | $626 |
| 63 | | | $2,208 | |
| 66 | $1,307 | $1,259 | $804 | $699 |
| 67 | $595 | $943 | $812 | |
| 71 | $759 | $1,080 | $1,149 | $1,621 |
| 74 | | | $725 | $681 |
| 77 | | $681 | | |
| 101 | $1,740 | $1,831 | | |

Managing for Results in America's Great City Schools 2016

MAINTENANCE & OPERATIONS

## M&O Costs Ratio to District Operating Budget




### Description of Calculation

Total custodial costs (district and contractor) plus total grounds work costs (district and contractor) plus total routine maintenance costs (district and contractor) plus total major maintenance/minor renovations costs plus total major rehab/renovations

### Importance of Measure

This is a broad view of the costs of maintenance, operations and facilities work. Expenditures may fluctuate drastically depending on the number of capital projects.

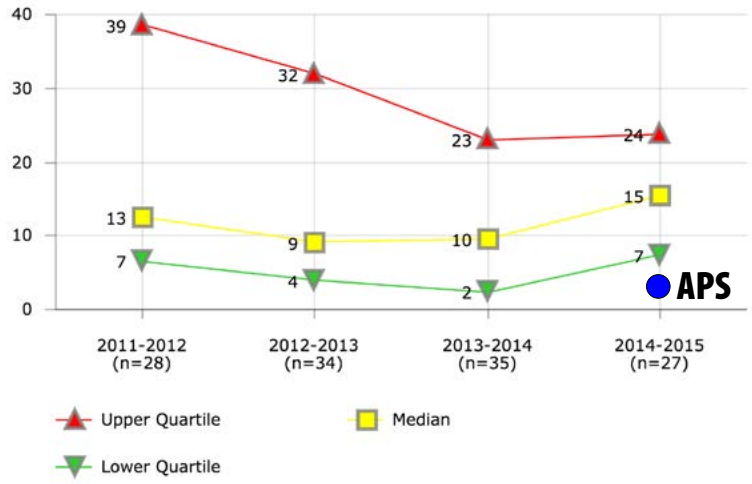
| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | 8.2% | 2.4% | 9.1% | |
| 2 | | 3.7% | | 19.5% |
| 3 | | 10.0% | | |
| 4 | 24.0% | 12.7% | 11.4% | 22.7% |
| 5 | 7.2% | 9.0% | 10.9% | |
| 6 | 23.0% | 26.2% | | |
| 7 | 7.5% | 9.5% | 14.9% | 7.3% |
| 8 | 7.5% | 4.7% | 7.9% | 6.9% |
| 9 | 5.5% | | 5.2% | |
| 10 | 10.0% | 8.4% | | |
| 11 | 3.8% | | | |
| 12 | 13.5% | 15.0% | | |
| 13 | 6.2% | 6.7% | 7.3% | 7.8% |
| 14 | 14.7% | 13.9% | 26.6% | 21.0% |
| 16 | 11.4% | 11.9% | 20.7% | 25.7% |
| 19 | | | 4.7% | |
| 20 | 35.3% | 22.7% | 8.5% | 3.9% |
| 21 | | 4.6% | 5.9% | |
| 23 | 7.1% | 29.6% | | |
| 25 | 5.7% | 5.4% | | |
| 26 | 13.7% | | | |
| 28 | 10.0% | | | |
| 30 | 6.6% | 6.3% | 5.8% | 7.7% |
| 32 | | 6.5% | | |
| 33 | | 6.8% | | |
| 34 | | 29.8% | | 15.6% |
| 35 | 4.2% | 9.0% | | |
| 37 | 5.5% | 21.2% | 22.2% | |
| 39 | 21.8% | 17.7% | 14.3% | 17.1% |
| 41 | 31.4% | | | |
| 43 | 7.0% | 6.7% | 6.9% | |
| 45 | | 1.2% | | |
| 46 | | | 3.7% | |
| 47 | 10.5% | 7.5% | 10.8% | 7.0% |
| 48 | 17.9% | 13.6% | | 14.8% |
| 49 | | 11.6% | 8.0% | |
| 52 | 15.1% | 13.9% | 14.0% | |
| 54 | 5.7% | | | |
| 56 | 6.5% | 8.9% | 5.7% | |
| 57 | 4.0% | | 13.1% | |
| 58 | | 4.5% | 4.6% | 4.0% |
| 63 | | | 15.4% | |
| 66 | 10.6% | 9.7% | 6.0% | |
| 67 | 6.6% | 8.4% | 8.4% | |
| 71 | 6.2% | 9.1% | 9.3% | 12.9% |
| 74 | | | 5.4% | |
| 101 | 25.7% | 27.2% | | |

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## Work Order Completion Time (Days)




### Description of Calculation

Total aggregate number of days to complete all work orders, divided by total number of work orders.

### Importance of Measure

This measure is an indicator of a district's timeliness in completing work orders

Districts with lower completion times are more likely to have a management system in place with funding to address repairs.

### Factors that Influence

- Menu Number of maintenance employees
- Management effectiveness
- Automated work order tracking
- Labor agreements
- Funding to address needed repairs
- Existence of work flow management process

### Districts in Best Quartile (2014-2015)

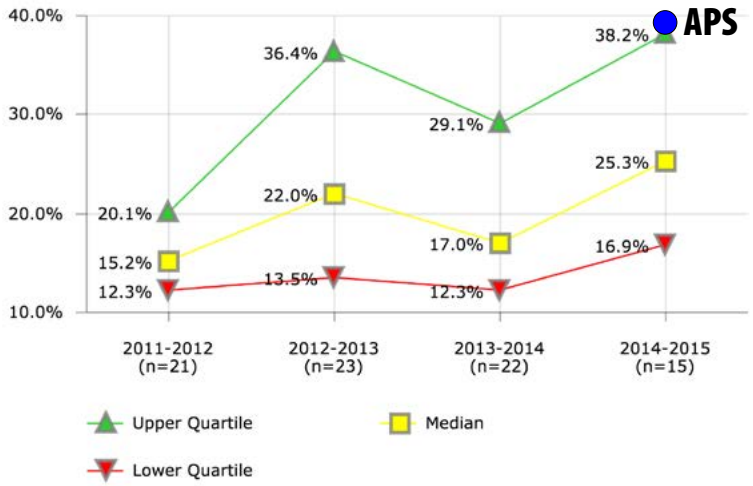
- Albuquerque Public Schools
- Austin Independent School District
- Guilford County School District
- Omaha Public School District
- Richmond City School District
- School District of Philadelphia
- Wichita Public Schools

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | 38 | 36 | 20 | |
| 2 | | | 5 | 5 |
| 3 | | 23 | 13 | 18 |
| 4 | | 6 | 7 | 6 |
| 5 | 42 | 32 | 24 | 29 |
| 6 | | 5 | | |
| 7 | 28 | 23 | | |
| 8 | 50 | 40 | 45 | 45 |
| 9 | 5 | 2 | 2 | 9 |
| 10 | | 1 | 17 | 17 |
| 11 | 9 | 65 | | |
| 12 | 288 | | 23 | 15 |
| 13 | 36 | 39 | 53 | 53 |
| 14 | 5 | 5 | 5 | 5 |
| 16 | 51 | 64 | 63 | 10 |
| 19 | | 9 | 5 | |
| 20 | 5 | 29 | 27 | 12 |
| 21 | | 32 | 43 | 19 |
| 23 | 13 | 9 | 10 | |
| 25 | | 4 | | |
| 26 | 4 | | | |
| 28 | | 6 | 7 | 24 |
| 30 | 86 | 86 | 57 | 59 |
| 33 | | 2 | 2 | |
| 34 | 7 | | | |
| 35 | 20 | 21 | | |
| 37 | 12 | 102 | 140 | |
| 39 | 42 | 3 | 0 | 39 |
| 41 | 28 | 26 | 23 | 43 |
| 43 | | | 0 | |
| 44 | 6 | 7 | 7 | 9 |
| 45 | 39 | | | |
| 46 | | 10 | 10 | 10 |
| 47 | 1 | | | |
| 48 | 20 | | 19 | 22 |
| 49 | 8 | 8 | 6 | 7 |
| 52 | 7 | 9 | 14 | 9 |
| 55 | 11 | 11 | 12 | 16 |
| 56 | 7 | | | |
| 58 | | | 0 | 0 |
| 63 | | 1 | 2 | |
| 66 | | 1 | 1 | 1 |
| 67 | | | 0 | |
| 71 | 4 | 4 | 4 | 2 |
| 74 | | | 0 | 16 |
| 101 | | 1 | | |

Managing for Results in America's Great City Schools 2016

MAINTENANCE & OPERATIONS

## Recycling - Percent of Total Material Stream




| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 3 | 36.4% | 42.4% | 34.2% | 46.7% |
| 5 | 6.3% | 23.6% | 25.3% | 25.3% |
| 8 | 15.7% | 16.2% | 15.7% | 15.7% |
| 9 | 15.2% | 43.9% | 33.6% | 30.9% |
| 10 | | 100.0% | | |
| 11 | 58.2% | 54.0% | | |
| 12 | 14.1% | | 17.1% | 16.9% |
| 14 | 44.3% | 36.4% | 37.8% | 38.2% |
| 16 | | 32.7% | | 28.9% |
| 19 | 9.0% | 16.4% | 16.5% | |
| 20 | | | 16.9% | 100.0% |
| 21 | 5.1% | 8.4% | 14.9% | 9.7% |
| 23 | 23.4% | 100.0% | 28.2% | |
| 25 | | 1.7% | | |
| 28 | | 13.5% | 11.6% | |
| 30 | 3.7% | 4.1% | 29.9% | 22.8% |
| 33 | | | 1.5% | |
| 37 | 13.1% | 12.3% | 12.3% | |
| 41 | 16.5% | 18.7% | 20.1% | 20.0% |
| 43 | 3.6% | 22.0% | 6.3% | |
| 48 | 17.3% | 28.1% | 45.4% | 53.0% |
| 52 | 13.4% | 19.2% | 27.1% | 27.1% |
| 53 | 12.3% | | | |
| 54 | 13.9% | | | |
| 55 | 16.1% | 15.5% | 16.8% | 19.8% |
| 62 | | 26.9% | | |
| 66 | 20.1% | 8.4% | 11.3% | 13.0% |
| 67 | 29.4% | 27.0% | 29.1% | |
| 74 | | | 4.8% | |

### Description of Calculation

Total material stream that was recycled (in tons), divided by total material stream (in tons).

### Importance of Measure

This measures the degree to which districts recycle.

### Factors that Influence

- Placement of recycling bins near waste bins
- Number of recycling bins deployed
- Material collection contracts
- Commitment to environmental stewardship
- State requirements

### Districts in Best Quartile (2014-2015)

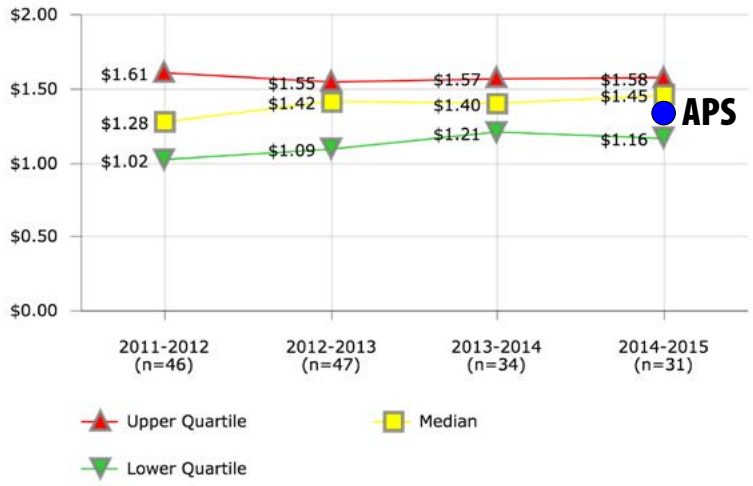
- Albuquerque Public Schools
- Cincinnati Public Schools
- Orange County Public Schools (FL)
- St. Paul Public Schools

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## Utility Costs - Cost per Square Foot




### Description of Calculation

Total utility costs (including electricity, heating fuel, water, sewer), divided by total square footage of all non-vacant buildings.

### Importance of Measure

This measures the efficiency of the district's building utility operations

It may also reflect a district's effort to reduce energy consumption through conservation measures being implemented by building occupants as well as maintenance and operations personnel.

Higher numbers signal an opportunity to evaluate fixed and variable cost factors and identify those factors that can be modified for greater efficiency.

### Factors that Influence

- Age of buildings and physical plants
- Amount of air-conditioned space
- Regional climate differences
- Customer support of conservation efforts to upgrade lighting and HVAC systems
- Energy conservation policies and management practices

### Districts in Best Quartile (2014-2015)

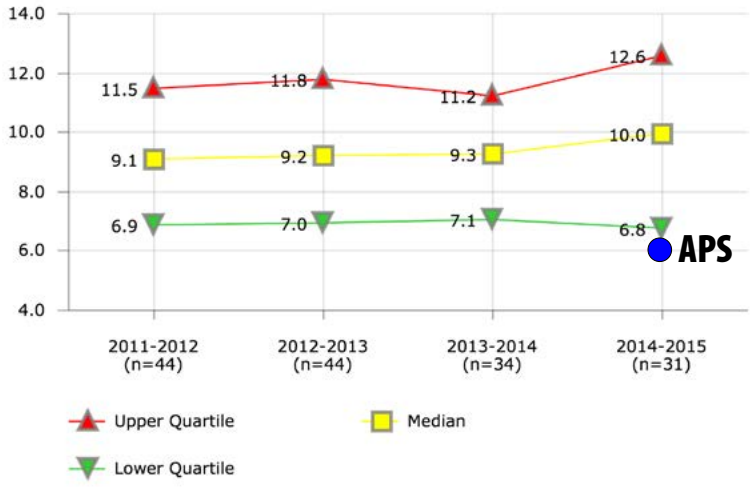
- Des Moines Public Schools
- Milwaukee Public Schools
- Palm Beach County School District
- Portland Public Schools
- Providence Public Schools
- San Diego Unified School District
- St. Paul Public Schools
- Wichita Public Schools

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | $0.76 | $0.58 | $0.54 | |
| 2 | $1.20 | $1.35 | $1.42 | $1.54 |
| 3 | $0.81 | $0.86 | $1.29 | $1.02 |
| 4 | $0.96 | $1.19 | $1.20 | $1.13 |
| 5 | $1.02 | $0.79 | $0.86 | $0.83 |
| 6 | $2.07 | $2.87 | | |
| 7 | $1.45 | $1.42 | $1.36 | $1.49 |
| 8 | $1.18 | $1.18 | $1.10 | $1.13 |
| 9 | $1.61 | $1.55 | $1.57 | $1.55 |
| 10 | $1.70 | $1.69 | | $1.65 |
| 11 | $1.00 | $1.04 | | |
| 12 | $0.92 | $0.81 | $0.96 | $0.93 |
| 13 | $1.41 | $1.42 | $1.38 | $1.63 |
| 14 | $1.05 | $1.26 | $1.27 | $1.23 |
| 16 | $0.85 | $0.87 | | $0.96 |
| 19 | $1.63 | $1.50 | $1.96 | |
| 20 | $1.68 | $1.70 | $1.71 | $1.83 |
| 21 | $1.39 | $1.46 | $1.50 | $1.39 |
| 23 | $1.27 | $1.52 | $1.55 | |
| 25 | $1.20 | $1.68 | | |
| 26 | $1.29 | $1.34 | | |
| 28 | $1.85 | $1.58 | $1.55 | $1.60 |
| 30 | $1.28 | $1.09 | $1.21 | $1.16 |
| 32 | | $1.51 | | |
| 33 | | $0.96 | $1.33 | |
| 34 | $1.74 | $1.74 | $1.51 | $1.61 |
| 35 | $1.84 | | | |
| 37 | $0.92 | $0.91 | $0.77 | |
| 39 | $1.84 | $1.66 | $1.51 | $1.57 |
| 41 | $0.93 | $1.77 | | $1.58 |
| 43 | $1.44 | $1.50 | $1.37 | |
| 44 | $1.48 | $1.44 | $1.24 | $1.17 |
| 45 | $0.89 | $0.88 | | |
| 46 | | $1.44 | $1.81 | $1.45 |
| 47 | $1.80 | $2.00 | $1.96 | $1.75 |
| 48 | $1.63 | $1.53 | | $1.61 |
| 49 | $1.51 | $1.52 | $1.50 | $1.54 |
| 52 | $1.07 | $1.28 | $1.61 | $1.38 |
| 53 | $1.56 | | | |
| 54 | $1.10 | | | |
| 55 | $1.12 | $1.06 | $1.19 | $1.19 |
| 56 | $0.69 | $0.68 | | |
| 58 | $1.08 | $1.25 | $1.62 | $1.37 |
| 62 | $0.81 | $1.21 | | |
| 63 | $1.37 | $1.40 | $1.48 | $1.48 |
| 66 | $1.03 | $1.20 | $1.36 | $1.31 |
| 67 | $1.68 | $1.88 | $1.85 | |
| 71 | $1.41 | $1.50 | $1.64 | $1.49 |
| 74 | | | $1.18 | $1.05 |
| 79 | | $1.83 | | |
| 101 | $1.07 | $1.13 | | |

Managing for Results in America's Great City Schools 2016

MAINTENANCE & OPERATIONS

## Utility Usage - Electricity Usage per Square Foot (KWh)




### Description of Calculation

Total electricity usage (in kWh), divided by total square footage of all non-vacant buildings.

### Importance of Measure

This measures the level of electricity usage. Districts with high usage should investigate ways to decrease usage in order to reduce costs.

### Factors that Influence

- Use of high-efficiency lightbulbs
- Automated light switches
- Shutdown policy during winter break
- Regulation of heating and air conditioning

### Districts in Best Quartile (2014-2015)

- Albuquerque Public Schools
- Guilford County School District
- Milwaukee Public Schools
- Portland Public Schools
- Providence Public Schools
- San Diego Unified School District
- School District of Philadelphia
- St. Paul Public Schools

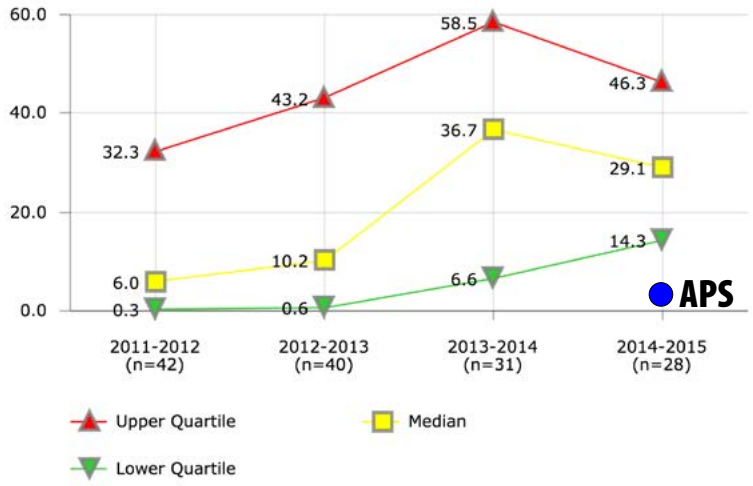
| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | 5.8 | 6.2 | 6.0 | |
| 2 | 9.9 | 10.6 | 10.5 | 11.7 |
| 3 | 6.6 | 6.5 | 6.2 | 6.2 |
| 4 | 9.0 | 9.3 | 9.6 | 9.6 |
| 5 | 4.0 | 4.2 | 4.1 | 4.1 |
| 7 | 9.5 | 9.2 | 8.6 | 8.5 |
| 8 | 11.1 | 10.9 | 11.2 | 11.2 |
| 9 | 12.2 | 12.5 | 12.2 | 13.4 |
| 10 | 13.4 | 13.5 | | 12.6 |
| 11 | 7.4 | 7.6 | | |
| 12 | 8.0 | 7.8 | 8.9 | 8.5 |
| 13 | 14.2 | 14.0 | 14.1 | 16.5 |
| 14 | 6.8 | 6.7 | 6.5 | 6.2 |
| 16 | 5.0 | 4.8 | | 5.1 |
| 19 | 11.1 | 11.6 | 12.8 | |
| 20 | 11.6 | 12.0 | 12.6 | 11.8 |
| 21 | 8.5 | 8.3 | 8.3 | 8.9 |
| 23 | 9.2 | 10.8 | 1.6 | |
| 25 | | 5.7 | | |
| 26 | 4.6 | 4.6 | | |
| 28 | 16.3 | 14.1 | 14.5 | 14.1 |
| 30 | 6.4 | 6.5 | 6.3 | 6.2 |
| 32 | | 14.9 | | |
| 33 | | 9.6 | 0.1 | |
| 34 | 17.7 | 15.8 | 13.8 | 13.3 |
| 35 | 10.0 | | | |
| 37 | 6.9 | 9.2 | 7.7 | |
| 39 | 16.2 | 17.4 | 16.6 | 16.7 |
| 41 | 7.2 | 13.8 | | 14.5 |
| 43 | 8.5 | 7.9 | 7.1 | |
| 44 | 10.9 | 11.0 | 10.5 | 10.4 |
| 45 | 5.5 | | | |
| 46 | | 8.3 | 8.3 | 8.1 |
| 47 | 13.2 | 13.0 | 12.3 | 12.1 |
| 48 | 13.4 | 12.8 | | 13.1 |
| 49 | 10.4 | 10.6 | 10.2 | 1.0 |
| 52 | 7.4 | 8.0 | 8.4 | 8.5 |
| 53 | 11.4 | | | |
| 54 | 9.4 | | | |
| 55 | 9.0 | 8.5 | 8.9 | 9.2 |
| 56 | 4.0 | 3.9 | | |
| 58 | 6.1 | 6.4 | 7.5 | 6.8 |
| 62 | 6.1 | 6.5 | | |
| 63 | 11.8 | 11.1 | 10.6 | 10.4 |
| 66 | 10.2 | 9.8 | 10.4 | 10.0 |
| 67 | 8.8 | 9.0 | 9.6 | |
| 71 | 11.5 | 11.0 | 10.7 | 11.2 |
| 74 | | | 5.0 | 4.8 |
| 101 | 7.6 | 7.2 | | |

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## Utility Usage - Heating Fuel Usage per Square Foot (KBTU)




### Description of Calculation

Total heating fuel usage (in kBTU), divided by total square footage of all non- vacant buildings.

### Importance of Measure

This measures the level of heating fuel usage. Heating fuel can be in a variety of forms, such as fuel oil, kerosene, natural gas, propane, etc. This excludes electricity that is used for heating.

### Districts in Best Quartile (2014-2015)

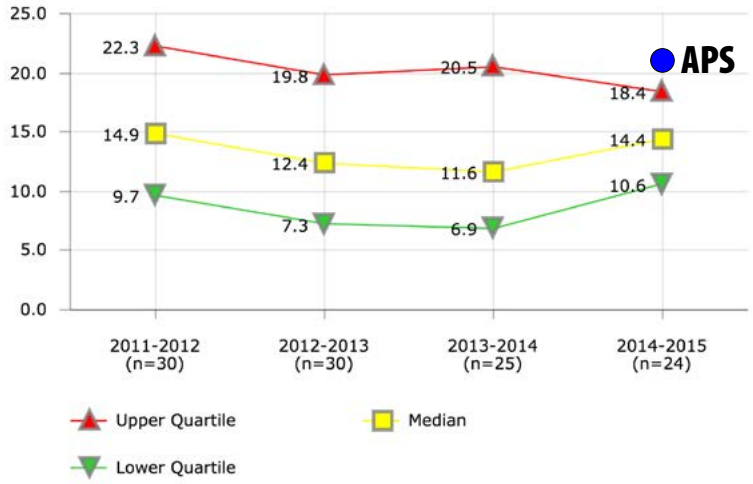
- Albuquerque Public Schools
- Austin Independent School District
- Hillsborough County Public Schools
- Houston Independent School District
- Orange County Public Schools (FL)
- Palm Beach County School District
- San Diego Unified School District

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | 20.8 | 0.2 | 19.1 | |
| 2 | 0.2 | 0.3 | 71.1 | 65.6 |
| 3 | 39.9 | 49.1 | 49.2 | 48.1 |
| 4 | 26.0 | 33.4 | 36.7 | 30.6 |
| 5 | 43.9 | 43.1 | 46.2 | 37.5 |
| 7 | 0.8 | 0.8 | | 68.3 |
| 8 | 1.4 | 1.4 | 1.4 | 1.3 |
| 9 | 14.5 | 15.1 | 13.5 | 16.0 |
| 10 | 5.0 | 5.9 | | 0.6 |
| 11 | 0.0 | 10.2 | | |
| 12 | 0.2 | 52.0 | 58.9 | 23.0 |
| 14 | 4.4 | 66.4 | 66.2 | 0.4 |
| 16 | 8.9 | 7.6 | | 4.0 |
| 19 | 42.9 | 42.7 | 46.7 | |
| 20 | 34.8 | 41.8 | 39.5 | 34.7 |
| 21 | 53.5 | 52.0 | 64.3 | 54.4 |
| 23 | 2.7 | 3.3 | 3.4 | |
| 25 | 0.3 | 0.6 | | |
| 26 | 0.6 | 0.6 | | |
| 28 | 10.9 | 14.5 | 15.9 | 16.0 |
| 30 | 0.4 | 0.5 | 58.5 | 54.8 |
| 33 | | 46.6 | 0.4 | |
| 34 | 0.0 | 50.8 | 44.3 | 36.6 |
| 35 | 42.0 | | | |
| 37 | | 0.0 | 0.0 | |
| 39 | 5.5 | 5.6 | 6.6 | 10.2 |
| 41 | 6.5 | 12.0 | | 14.9 |
| 43 | 57.3 | 65.1 | 66.5 | |
| 44 | 0.8 | 0.8 | | |
| 45 | 44.2 | | | |
| 46 | | 43.3 | 48.1 | 44.5 |
| 47 | 0.2 | 0.3 | 0.2 | 20.2 |
| 48 | 1.6 | 1.9 | | 1.9 |
| 49 | 23.0 | 22.8 | 28.7 | 27.5 |
| 52 | 56.1 | 71.6 | 78.2 | 69.4 |
| 53 | 19.8 | | | |
| 54 | 51.9 | | | |
| 55 | 13.0 | 0.1 | 17.3 | 17.1 |
| 56 | 0.1 | 0.1 | | |
| 58 | | 46.5 | 61.5 | 58.4 |
| 62 | 0.2 | | | |
| 63 | 32.3 | 0.0 | 0.0 | 39.5 |
| 66 | 0.3 | 33.9 | 34.9 | 33.6 |
| 67 | 22.2 | 0.2 | 0.2 | |
| 71 | 0.0 | 10.1 | 13.8 | 13.7 |
| 74 | | | 52.8 | |
| 101 | 0.1 | | | |

Managing for Results in America's Great City Schools 2016

MAINTENANCE & OPERATIONS

## Utility Usage - Water (Non-Irrigation) Usage per Square Foot (Gal.)




### Description of Calculation

Total water usage (in gallons) excluding irrigation, divided by total square footage of all non-vacant buildings.

### Importance of Measure

Can be used to evaluate water usage.

### Factors that Influence

- Low-flow toilets and urinals
- Maintenance of faucet aerators
- Motion-sensor faucets to reduce vandalism

### Districts in Best Quartile (2014-2015)

- Anchorage School District
- Atlanta Public Schools
- Cincinnati Public Schools
- Dallas Independent School District
- St. Paul Public Schools
- Wichita Public Schools

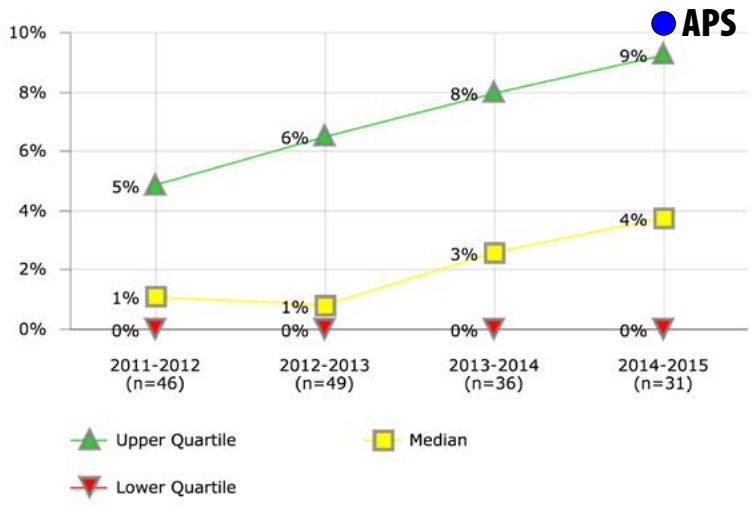
| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | | | 5.3 | |
| 2 | | | | 12.3 |
| 3 | | | 5.7 | 9.7 |
| 4 | 8.6 | 7.8 | 8.5 | 8.5 |
| 5 | 14.3 | 13.2 | 11.6 | 11.6 |
| 7 | 8.5 | 5.0 | 6.9 | 7.3 |
| 8 | 14.4 | 14.1 | | |
| 9 | 20.3 | 19.8 | 20.5 | |
| 10 | 29.6 | 37.4 | | 14.4 |
| 12 | 12.1 | 11.4 | 11.7 | 11.9 |
| 13 | 53.3 | 55.8 | 63.9 | 75.0 |
| 14 | 18.3 | 26.1 | 24.0 | 21.6 |
| 16 | 10.9 | 11.0 | | |
| 19 | | | 0.1 | |
| 20 | 9.6 | 11.2 | 8.8 | 8.7 |
| 21 | 13.4 | 13.0 | 12.3 | 13.9 |
| 25 | 5.9 | 7.0 | | |
| 26 | | 6.3 | | |
| 28 | 9.4 | 7.3 | 7.0 | 6.4 |
| 30 | 22.3 | 19.8 | 20.9 | 18.7 |
| 35 | 10.3 | | | |
| 37 | 6.2 | 8.1 | 6.2 | |
| 39 | 55.6 | 0.0 | | 16.5 |
| 41 | 31.3 | 28.4 | | 1.1 |
| 43 | 9.7 | 8.4 | 8.9 | |
| 44 | 15.3 | | | |
| 45 | 6.5 | | | |
| 46 | | 17.9 | 20.8 | 18.5 |
| 47 | | 2.1 | | 17.6 |
| 48 | 15.5 | 0.0 | | 14.7 |
| 49 | 29.7 | 29.5 | 30.1 | 30.7 |
| 52 | 12.4 | 13.1 | 13.7 | 14.5 |
| 53 | 24.7 | | | |
| 55 | | 11.7 | 12.1 | 12.7 |
| 56 | 26.4 | 25.8 | | |
| 58 | 17.6 | 14.4 | 9.8 | 16.4 |
| 62 | | 0.9 | | |
| 63 | 21.9 | 22.6 | 0.0 | 18.3 |
| 66 | | | 87.4 | 98.6 |
| 71 | 19.1 | | 18.6 | |
| 74 | | | 0.0 | |

Council of the Great City Schools

Performance Measurement and Benchmarking Project

MAINTENANCE & OPERATIONS

## Green Buildings - Buildings Green Certified or Equivalent




### Description of Calculation

Square footage of all permanent buildings (academic and non-academic) with a green building certificate, plus square footage of all permanent buildings (academic and non-academic) that were built in alignment with a green building code but not certified.

### Importance of Measure

This measure compares the number of energy efficient or "green" buildings in the district.

### Factors that Influence

- Community support for environmental and sustainability measures
- Grant availability
- District policy
- Environmental site assessment
- Local health issues

### Districts in Best Quartile (2014-2015)

- Albuquerque Public Schools
- Atlanta Public Schools
- Cincinnati Public Schools
- Dallas Independent School District
- Orange County Public Schools (FL)
- Providence Public Schools
- Richmond City School District
- San Diego Unified School District

| District ID | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|---|---|---|---|---|
| 1 | 12% | 0% | 0% | |
| 2 | 0% | 4% | 4% | 13% |
| 3 | 0% | 0% | 0% | 0% |
| 4 | 0% | 0% | 0% | 0% |
| 5 | 1% | 1% | 1% | 1% |
| 6 | 0% | 0% | | |
| 7 | 1% | 1% | 1% | 4% |
| 8 | 5% | 0% | 5% | 5% |
| 9 | 0% | 6% | 5% | 5% |
| 10 | 0% | 0% | | 1% |
| 11 | 4% | 2% | | |
| 12 | 88% | 93% | 0% | 0% |
| 13 | 0% | 0% | 0% | 0% |
| 14 | 24% | 27% | 36% | 56% |
| 16 | 9% | 10% | 11% | 14% |
| 19 | 86% | 79% | 84% | |
| 20 | 100% | | 95% | 98% |
| 21 | 0% | 0% | 0% | 0% |
| 23 | 23% | 19% | 31% | |
| 25 | | 0% | | |
| 26 | 0% | 0% | | |
| 28 | 27% | 26% | 31% | 32% |
| 30 | 0% | 0% | 0% | 0% |
| 32 | | 15% | | |
| 33 | | 15% | 18% | |
| 34 | 0% | 0% | 0% | 0% |
| 35 | 0% | 0% | | |
| 37 | 3% | 3% | 5% | |
| 39 | 5% | 6% | 8% | 8% |
| 41 | 7% | 9% | | 9% |
| 43 | 0% | 0% | 0% | |
| 44 | 5% | 5% | 5% | 5% |
| 45 | 1% | 1% | | |
| 46 | | 0% | 0% | 0% |
| 47 | 3% | 5% | 8% | 7% |
| 48 | 2% | 8% | | 23% |
| 49 | 17% | 21% | 21% | 0% |
| 52 | 0% | 2% | 2% | 2% |
| 53 | 0% | | | |
| 54 | 4% | | | |
| 55 | 0% | 0% | 0% | 0% |
| 56 | 3% | 79% | | |
| 57 | 2% | 1% | 2% | |
| 58 | 2% | 2% | 3% | 3% |
| 62 | 1% | 0% | | |
| 63 | 0% | 0% | 0% | 0% |
| 66 | 1% | 1% | 4% | 4% |
| 67 | 0% | 0% | 0% | |
| 71 | 6% | 6% | 7% | 8% |
| 74 | | | 0% | 11% |
| 77 | | 0% | | |
| 79 | | 0% | | |
| 101 | 1% | 1% | | |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*- M. M. Kunin*

ALBUQUERQUE PUBLIC SCHOOLS