

Title: Facilities Department and Maintenance Department Report

Objective: The objective of this document is to report the state of facilities readiness to support Beaverton School District's strategic plan.

Introduction:

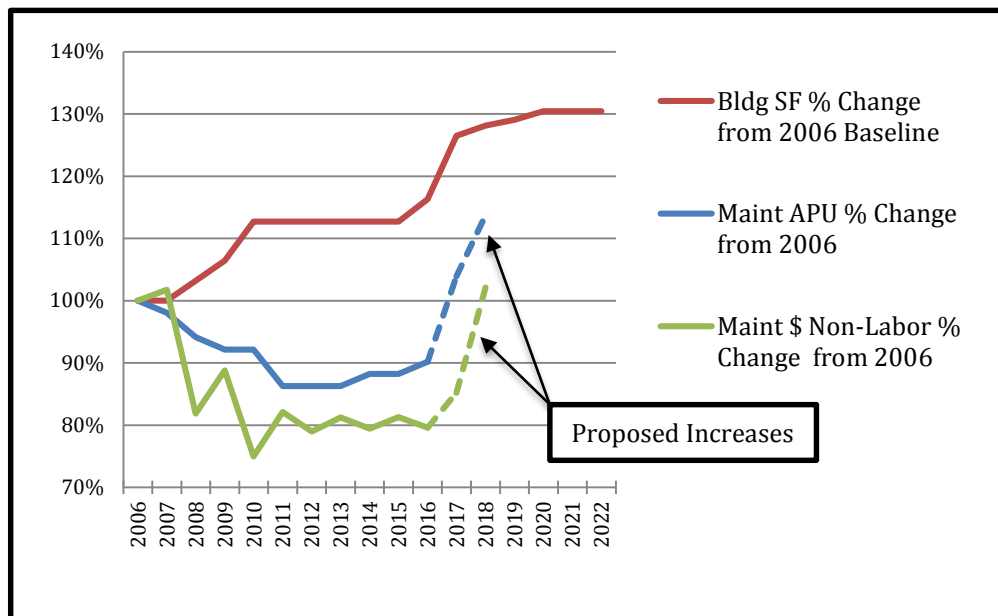
There are many studies supporting a conclusion that the quality of buildings and facilities available to students and teachers has a valuable connection with performance (*Center for Innovative School Facilities*, et al.). Indeed, the Beaverton School District Educational Specifications, which were developed to guide the design of new school buildings in the 2014 Bond program notes: "... the shape and nature of place supports education programs. Without a place to teach and careful consideration of a school's educational needs, learning is impacted." (*Educational Specifications, Beaverton School District, DOWA – IBI Group Architects, Inc. & WHPacific, Inc., May 2014*).

Creation of quality teaching spaces is the foundation, but only the beginning, of a school's life cycle. New schools can be expected to serve the community for many, many decades. Without proper building maintenance coupled with daily cleaning and upkeep, new facilities fall into disrepair and will become unsatisfactory learning spaces. It is generally accepted that 80% of a building's life-cycle cost is from maintenance and operations. It is not difficult to conclude that neglecting maintenance and operations investments impacts student achievement in the long run.

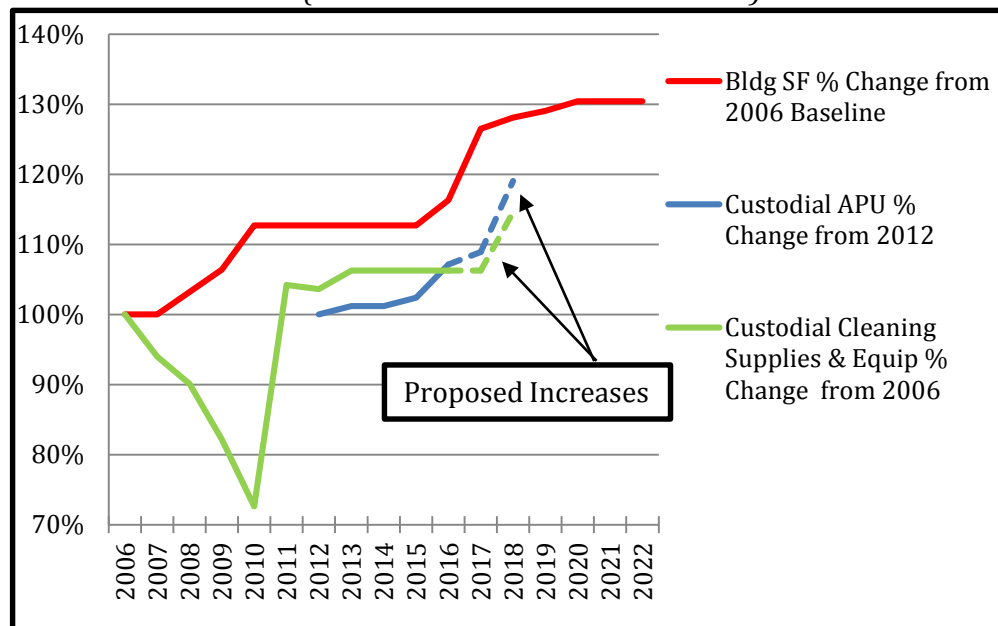
Linking the important work accomplished by these departments with student achievement outcomes is challenging. Specific metrics relating our daily tasks with student performance are not available. To overcome the lack of metrics directly linked to student achievement, we have analyzed funding and staffing trends and also contrasted these with workload increases and expanding building space in Beaverton. It is our belief that significant increases in resources need to be planned in maintenance services and custodial services to keep pace with the growing infrastructure in the School District in order to ensure that the investments supported by our community are protected.

The two charts on Page 2 demonstrate the gaps that exist. Budget financial data have not been adjusted for inflation, thus the actual buying power of the current funding level compared to the baseline year is even less than depicted on the charts. The dashed lines represent the proposed budget increases for 2016-17 and the departments' estimated needs for 2017-18. Additional increases in the out-years will be needed to continue the process of closing the resources gap.

**Maintenance Resources vs.  
District-wide Building Space Increases**  
*(Includes 2014 Bond construction)*



**Custodial Resources vs.  
District-wide Building Space Increases**  
*(Includes 2014 Bond construction)*



## MAINTENANCE SERVICES

**Title:** Provide a Superior Learning Environment for Students

**Objective:** Provide Adequate Resources for Maintenance and Repairs of District Facilities

**Data Sources:** (1) District Budget Documents  
 (2) Data from Comparable School Districts

| Measurement      | 2013/14  | 2014/15  | 2015/16  | 2016/17<br>Goal | 2017/18<br>Goal |
|------------------|----------|----------|----------|-----------------|-----------------|
| Staff APU        | 45       | 45       | 46       | 53              | 58              |
| Non-Labor Budget | \$2.12 M | \$2.12 M | \$2.12 M | \$2.27M         | \$2.72M         |

### Analysis

The Maintenance Department is primarily responsible for district-wide buildings and grounds maintenance and repair work covering over five million square feet of building space contained in 60 separate facilities on 800 acres of property. This work is accomplished through a combination of in-house trades staff and contracted services. The department has 29 trade specific personnel responsible for carpentry, roofing, glazing (windows), painting, HVAC control and repair, plumbing, electrical, and grounds maintenance. The department has critical shortfalls with single tradesman in locks, plumbing, carpentry, roofing, and glazing (glass/windows). The department also maintains its own vehicle fleet.

As the school district's infrastructure has expanded over the past several years, neither staffing nor funding for materials, parts, and contracts have kept pace. 2006 is identified as the baseline year.

Between 2006 and 2017:

- Over 900,000 square feet of new building space will have been added bringing the District to over six million square feet.
- Two new schools, the South Cooper Mountain high school and Kaiser elementary school will have been added.

## **MAINTENANCE SERVICES**

- A new Middle School will be added which will serve as a temporary elementary school for three years as Vose, William Walker, and Hazeldale Elementary Schools are replaced. It will then serve as an Option School as the Arts and Communication Magnet Academy (ACMA) is replaced, and finally as new middle school in 2020.
- Non-labor funding was cut 20% in 2006 while inflation has increased the costs of materials and contracted work steadily about 2% to 3% per year.

### **Successes**

1. Staffing has recovered to 96% of the 2006 baseline year, the pre-recession funding level that also preceded new building space added in the 2006 Bond. While still inadequate, the staffing level has moved in a positive direction.
2. Addition of a second Purchasing Agent to expand capabilities during District breaks and Central Office closure.

### **Issues**

1. The 2014 Bond is in the process of increasing building space to 30% above what existed in 2006 with the new Middle School (167,000 SF) coming online in 2016 and the new High School (330,000 SF) and a new Elementary School (87,000 SF) coming online in 2017. Additionally, three approximate 50,000 SF elementary schools are being replaced with new 87,000 SF facilities which will add an additional 111,000 SF.
2. Staffing must increase significantly to support the building space already added in the 2006 Bond and currently being added as part of the 2014 Bond.
3. Non-labor funding (materials, parts, supplies, contracts) has remained 20% below the 2006 baseline in actual dollars; much lower considering the impact of inflation.
4. Aging maintenance vehicles and equipment need to be replaced.
5. The limited number of maintenance staff has created a backlog of general repair work. Where the deferred maintenance portion of the 2014 Capital Improvement Bond has provided fiscal resources to accomplish repairs, it has increased the demand on the existing maintenance staff to review plans and submittals while also attempting to address a maintenance work backlog.
6. As the economy has recovered, regulators have become less tolerant of inadequate bio-swale and cartridge storm water treatment system management.

## **MAINTENANCE SERVICES**

7. While the proposed 2014 Capital Improvement Bond program is providing \$98 million for investments in major repairs and is replacing four old school buildings, it will also add three new schools totaling over 600,000 SF that cannot be adequately supported with current staffing and funding levels. The existing shortfall should begin to be addressed as soon as possible. Continued increases will be needed to keep pace with the new capacity constructed in the 2014 Bond program.

### **Action Plan**

#### **This Year**

1. Expanded purchasing capabilities of the department to respond to needs when the Central Office is closed.
2. Modify painting staff schedules to increase responsiveness.

#### **Long Term**

1. The department is adding five grounds personnel in 2016/17 to better maintain the synthetic field warranties while also adding capacity to better maintain the district grounds and provide some preventive maintenance effort in both HVAC belt and filter replacement and roof and gutter leaf removal.
2. The Department is looking to add additional staff in 2017/18 to further reduce maintenance preventive maintenance and painting backlog.
3. Provide additional increases in the out-years to continue the process of closing the resources gap.
4. Continue to expand the communication of maintenance work with stakeholders.

## CUSTODIAL SERVICES

- Title:** Provide Healthy Learning Environment for Students
- Objective:** Provide Adequate Resources for Cleaning School Buildings
- Data Sources:** (1) District Budget Documents  
 (2) Data from Comparable School Districts

| Measurement                                   | 2013/14   | 2014/15   | 2015/16   | 2016/17<br>Goal | 2017/18<br>Goal |
|---|-----------|-----------|-----------|-----------------|-----------------|
| Custodial APU                                 | 170       | 172       | 180       | 183             | 200             |
| Cleaning Supplies & Equipment (on-going)      | \$881,000 | \$881,000 | \$881,000 | \$881,000       | \$950,000       |
| Supplies & Equipment (outfitting new schools) | -         | -         | -         | \$200,000       | tbd             |

### Analysis

The custodial team is configured with 57 Foremen and 113 Custodians deployed to the schools with 24 centralized roving custodial teams to respond to vacancies and 4 supervisors based out of the Maintenance Services offices. Custodial Services makes up over 74% of the total manpower of the Maintenance Services Department. Custodial was restructured into a centralized management model in 2011/12 in order to achieve cost savings and improve effectiveness, customer service, and districtwide consistency. The 2014/15 budget fine-tuned the new model by increasing all of the 42, 185-day contract positions to 210-day contracts which had a nominal 2% impact on district-wide custodial labor costs. These extra contract days provided better custodial coverage in schools during the three weeks prior to school opening in the fall, plus one week after school ends in June, and on non-student days throughout the school year.

As new school buildings in the 2014 Bond come on-line, staff will need to be added for those schools beginning in the 2016/17 budget.

Additionally, cleaning supplies and equipment represent about 6% of the total custodial program budget and have not been adjusted for inflationary costs for several years. The next budget year should remedy this shortfall by recognizing the inflation impact on this portion of the custodial budget. Additional funding for supplies will also be needed to support the new schools in the 2014 Bond.

**Successes**

1. Custodial staffing has improved with the increase in contract days from 185 to 210 for 42 staff.
2. Eight Custodial I, 260-day positions were added during 2015/16 to support Title 1 programs Districtwide and the expanded programs, including the relocation of the Bridges Academy (formerly Deer Park), to the Capital Center.
3. Custodial Foreman pay parity was implemented to recognize the expanded responsibility to manage the District's Middle and High Schools. Foreman II and Foreman III positions were implemented at the Middle and High Schools, respectively.
4. Implementation of a facility use reservation management system has identified the facility usage that was not visible to the District Office. The usage created additional demands on already strained and under resourced custodial staff.

**Issues**

1. Cleaning supplies and equipment must be significantly augmented to address the existing shortfall and to support the new schools beginning in 2017/18.
2. The new schools will require new compliments of custodial staff and equipment.
3. Additional field supervisory staff is needed to better manage the custodial team.

**Action Plan****This Year**

1. Implemented an internal custodial emergency response team and response plan to deal with viral outbreaks at schools.
2. Redeployed custodial staff to support program moves to the Capital Center and support district wide Title I meal programs.

**Long Term**

1. Continue to refine the custodial staffing deployment model to better reflect District custodial needs.
2. Provide additional increases in the out-years to continue the process of closing the resources gap.

## OTHER SERVICES

**Title:** Provide Healthy Learning Environment for Students

**Objective:**

- (1) Provide Technical Support for School-Funded Facility Improvement Projects (FIP)
- (2) Provide Capacity for Managing District-wide Surplus Materials
- (3) Provide Resources for Delivering Bond-Funded Repair Projects
- (4) Provide Resources to Manage the Community Usage of the District's Facilities

**Data Sources:** District Budget Documents

| Measurement                                  | 2013/14 | 2014/15 | 2015/16 | 2016/17 Goal | 2017/18 Goal |
|--|---------|---------|---------|--------------|--------------|
| District-wide Surplus Materials Services APU | 6       | 6       | 6       | 6            | 6            |
| Facility Use APU                             | -       | -       | 1       | 2            | 2            |
| Bond Program APU                             | -       | 1       | 1       | 7            | 7            |
| Project Coordinator APU                      | 5       | 5       | 5       | 6            | 6            |
| FIP Projects <sup>1</sup>                    | 88      | 109     | 180     | tbd          | tbd          |
| Non-FIP Projects <sup>1</sup>                | 127     | 124     | 96      | tbd          | tbd          |
| Maintenance Contracts <sup>1</sup>           | 166     | 291     | 233     | tbd          | tbd          |
| Bond Repair Projects <sup>1</sup>            | -       | 3       | 73      | tbd          | tbd          |

**<sup>1</sup> DEFINITIONS**

FIP Projects: Number of School requested, school funded improvement projects managed by Maint. Dept. Project Coordinators

Non-FIP Projects: No. of Maintenance, Facilities, or Risk funded improvement projects managed by Maint. Dept. Proj. Coordinators

Maintenance Contracts: Number of Maintenance Work Orders using contracted services managed by Maint. Dept. Proj. Coordinators

Bond Repair Projects: Number of Projects managed by Maintenance Department Project Coordinators

## Analysis

The Maintenance Department houses two additional critical services for the District: surplus material management and project coordination for contracted-out services. Surplus material management is centralized at the warehouse that is located at the Transportation Services Center.



## OTHER SERVICES

It is composed of one shipping clerk and five courier staff. This staff manages the removal, warehousing, and final disposition of the District's surplus curriculum, technology, furniture, and equipment.

The department has a small five-person contracted-services office that manages approximately 150 school-funded Facility Improvement Projects (FIP) and 350 contracted maintenance service projects, annually. The work has expanded from 250 projects annually in 2008/09 to over 600 in 2015/16. This technical support is essential to ensure building code compliance, legal permitting requirements are met, and District procurement rules are followed. School staff depend upon this support and expertise.

The contracted-services group is also delivering a portion of the \$98 million 2014 Capital Improvement Bond. The Bond identifies approximately 980 repair projects throughout the district. Delivery of this work is shared between the Facilities Development team and Maintenance on a project-by-project basis depending upon size and complexity of projects.

The contracted-services group was created in June of 2008 with one program specialist and two project coordinators which has grown to include an additional program specialist and a supervisor. This group is also charged with managing asbestos, mold, and portable moves for the district. FY 2012/13 was the first year of the State-mandated Integrated Pest Management (IPM) program. In 2014/15, one Bond funded Program Specialist III was added to manage repair projects in the Bond, following the successful practice begun in 2008, and providing close coordination with the maintenance trades. One additional Bond-funded position is currently being filled.

### Successes

1. Restructured courier department with five couriers to a Courier Lead, three Moving Couriers, and two Mail Couriers.
2. Identified savings to the district by investing in training internal staff to take on Class III asbestos abatement projects. This has created over \$11,000 in savings on maintenance related work and potentially \$25,000 in FIP related work.
3. Expanded pesticide and herbicide spray application capabilities by licensing internal staff. This lowers District costs by not contracting out these services,
4. Expanded the capabilities of the Integrated Pest Management (IPM) program.
5. Added one General Fund Maintenance Program Specialist due to FIP volume.
6. Addition of six trades-workers: roofer/carpenter, locksmith, plumber, HVAC technician, electrician, and project coordinator to provide added capacity to address Bond-funded repair projects.

## **OTHER SERVICES**

### **Issues**

1. Continued growth of school-funded FIP projects has overwhelmed staff capacity and severely impacted responsiveness to schools.
2. New schools, grounds, and facilities have outpaced the capacity of the internal maintenance trades staff. The department has utilized contracted services to meet the need. However, the booming construction activity in the region has significantly increased the cost of contracted maintenance projects.
3. Currently, the department has 204 maintenance projects unassigned due to the lack of available staff to manage projects. Of that, 107 of those projects are school requested FIP backlog.

### **Action Plan**

#### **This Year**

1. Implemented a Facility Use Team to standardize and centralize the process on how community members and organizations can reserve and utilize district facilities.
2. Reinvigorated annual bio swale maintenance program.
3. Implemented an online asbestos and lead management database.

#### **Long Term**

1. Staff is being added to directly reduce FIP backlog and increase Bond project delivery.
2. The project coordination team is exploring contracting methods to further bundle Bond funded deferred maintenance program.
3. Finalize the online submittal and FIP status communication

## FACILITIES DEVELOPMENT

**Title:** Provide Adequate Capacity and Renovations to Support a Quality Learning Environment

**Objective:** Execute 2014 Bond Construction Program Delivering Quality Facilities, on Time, and within Program Budget

**Data Sources:** (1) Reports to the Bond Accountability Committee  
 (2) 2014 Bond Construction Program Report to the Business Office; *February 2016 Report*; located at:  
<https://www.beaverton.k12.or.us/depts/facilities/Bond%20Accountability%20Committee/Bond%20Financial%20Summaries/2016%20Financial%20Summaries/Report%20to%20Business%20Office%202-2016.pdf>

| Measurement        | 2012/13 | 2013/14 | 2014/15 | 2015/16 Goal | 2016/17 Goal |
|--------------------|---------|---------|---------|--------------|--------------|
| Bond Program Staff | 3       | 4       | 20      | 25           | 28           |
| Completed Projects | -       | -       | 4       | 20           | 21+          |

### Analysis

The 2014 Bond program was approved by the voters less than 2 years ago. The Facilities Development Department has rapidly moved forward and is currently into the second year of this 8-year construction program.

### Successes

Since the April 2015 Report, the department has continued to expanded from a staff of 20 to 28, while simultaneously accomplishing a significant amount of work including:

- Capital Center Building Improvements, Phases I and II
- Conestoga MS roof replacement
- Conestoga MS HVAC system & controls
- Fire alarm replacement at Jacob Wismer K-5
- Fire alarm replacement Sexton Mountain K-5
- IT Data Center at Capital Center
- Raleigh Hills K-8 Phase I classroom addition
- School security upgrades, Phase I, Group 1 Schools
- Sunset HS Title IX improvements

- Sunset HS stadium turf field replacement
- Sunset HS multi-function fields (donor project)
- Sunset HS auditorium lighting
- Springville K-8 covered play expansion
- Title IX Projects, Group II
- Unified Communication projects including Telecomm Phases 1-5 and VoIP and District-wide Wireless

## **Issues**

1. Construction cost indices continue to indicate that inflationary pressures on Portland metro-area construction costs are higher than anticipated during development of the bond budget. Since the last report, these challenges have extended to include reduced availability of the work force and materials which has also driven costs up.

## **Action Plan**

### **This year**

- Design and construction work is on track for major projects to be executed in summer 2016:
  - McKay K-5 – new lift and other ADA improvements
  - Capital Center Building Improvements, Phase III – construction
  - Cedar Park MS – HVAC Upgrade
  - Meadow Park MS – HVAC Upgrade
  - Conestoga MS – Plumbing Repair
  - District-wide Playgrounds
  - District-wide Auditoriums
  - New Middle School – construction will be complete
  - Vose K-5 Replacement – construction begins
  - New K5, North Bethany at Kaiser Rd – construction begins
  - New High School – construction continues
  - District-wide Security Upgrades – continue
  - William Walker K-5 Replacement – design begins
  - Westview HS Reroof – design continues
  - Raleigh Hills K-8 Phase II – design begins
  - ACMA Replacement – design begins
  - Five Oaks Renovation – design begins

## **FACILITIES DEVELOPMENT**

- Maintenance Facility Improvements – design begins
- Hazeldale K-5 Replacement – design begins
- AHS Title IX – design begins
- BHS sports fields (donor projects) – design begins
- Various seismic – designs begin
- Various roofing – designs begin

### **Long-term**

1. Collaborate with Washington County, City of Beaverton, and the Metro Regional Government to develop a 50-year Futures Study with respect to Beaverton School District's enrollment projection and new school and real estate requirements.
2. Utilize the School Board appointed commercial real estate agent of record to assist in identifying suitable future school sites and to participate in negotiating real estate purchase agreements.
3. Develop a budget for strategic real estate investments.

## ENERGY AND RESOURCE CONSERVATION

**Title:** Energy Conservation Program

**Objective:** Meet Electricity and Natural Gas Consumption Targets

**Data Sources:** Energy Performance Scorecard; *January 2016 Report Attached*

| Measurement                                 | 2012/13 | 2013/14 | 2014/15 | 2015/16<br>Goal | 2016/17<br>Goal |
|---|---------|---------|---------|-----------------|-----------------|
| <b>Electricity</b><br>(kWh x 1,000)         | 29,405  | 30,279  | 29,958  | 29,165          | tbd             |
| <b>Natural Gas</b><br>(Therms x 1,000)      | 1,169   | 1,293   | 975     | 1,202           | tbd             |
| <b>Solar PV Production</b><br>(kWh x 1,000) | 160     | 303     | 313     | 324             | 300             |

### Analysis

BSD continues to be a leader in energy management locally and nationally. The District currently has 31 EPA-recognized Energy Star schools, more than any other school district in Oregon, and 18 certified Oregon Green Schools. BSD's current Energy Star® score across our school building portfolio is 91 out of 100 possible points, meaning our schools average 91% better in energy use than similar school buildings across the country. Additionally, all but one of our schools is currently within the Oregon Department of Energy (ODOE) recommended Energy Use Index (EUI) range with an average of 38 kBtu/SF/year. Since 2011, student enrollment has increased 4% yet electricity consumption has increased only 1.1% and natural gas usage has decreased a remarkable 14.5%.

Renewable energy production continues to meet design expectations. The photovoltaic (PV) solar systems at Capital Center/HSS, Elmonica, and Springville set an annual production record last year of 324,273 kWh of electricity. Since 2011, our PV systems have produced over 1.2 million kWh of electricity - enough electricity to power 110 average sized homes for a year. The net benefit to the District is over \$80,000 in avoided electricity costs.

## ENERGY AND RESOURCE CONSERVATION

### Successes

1. BSD is investing in energy efficiency more now than ever through effective bond collaboration. The Energy and Resource Conservation Department (E&RC) has worked very closely with Facility Development and the Maintenance Departments provide energy efficient building system upgrade opportunities through bond renovation and BCA efforts.
2. E&RC was able to invest nearly \$1.4 million of BSD's SB1149 funding towards energy efficiency measures (EEMs) at Capital Center, Conestoga, and Sunset during the summer 2015 bond renovation effort. Enhancements to roof insulation, HVAC and lighting systems and associated control systems are expected to save the District nearly 800,000 kWh and over 5,000 Therms annually for a total estimated cost savings of \$72,500 per year. This cost savings does not even account for the net benefit to maintenance operation and maintenance (O&M).
3. E&RC has also provided energy-efficient design input on new construction. Our new schools will have cutting edge systems such as full LED lighting, latest solar technology, real-time energy information with green kiosks, smarter and more dynamic system controls, and better building system integration than ever before.

### Action Plan

#### This year

1. Meet E&RC's aggressive energy consumption targets for 2015-16. Our district-wide electricity usage target is set at 2.5% below last year's usage. Natural gas target is to beat our 5-yr average.
2. Provide EEMs that align with the bond renovation effort. E&RC will conduct additional energy audits, update our SB1149 program, and work to ensure success of Summer 2016 projects.
3. Finalize the solar PV plan for meeting State-required investment in the '1.5 for Green Energy Technology' in the Bond Program.
4. Expand BSDs Energy Star Certification Portfolio. Recent system enhancements in our schools not only save energy but provide better thermal comfort, ventilation, and enhanced lighting environments that provides opportunity to pursue additional Energy Star certification.

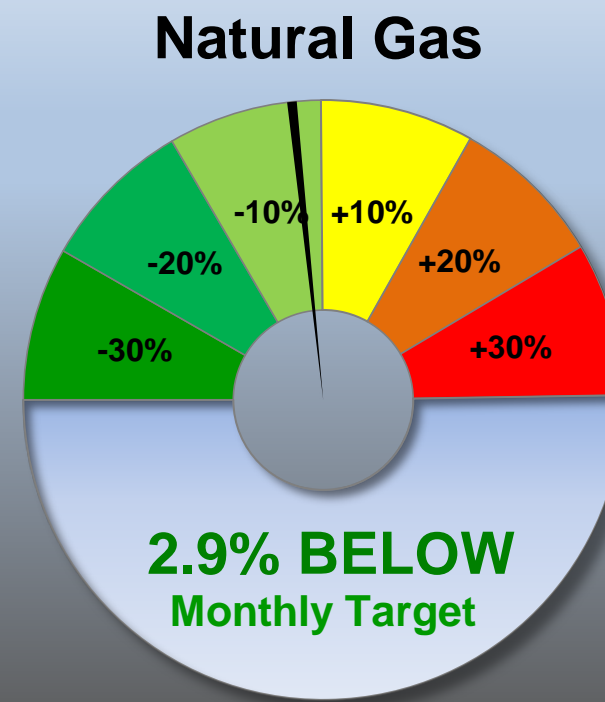
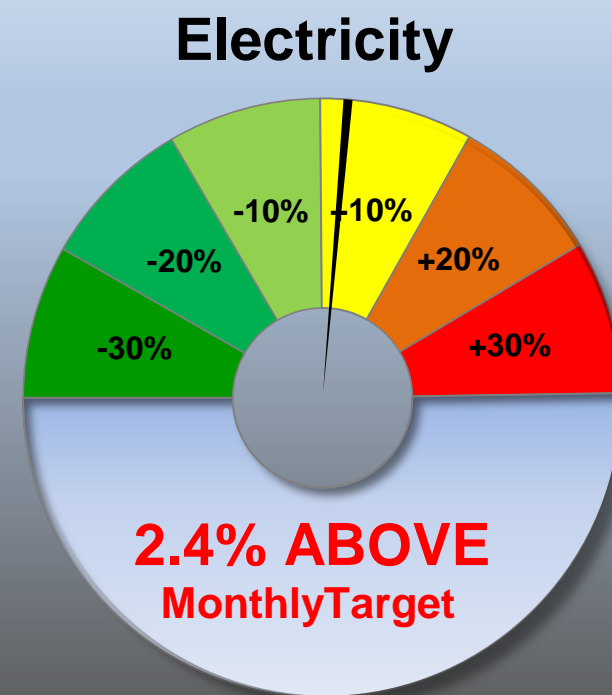
## **ENERGY AND RESOURCE CONSERVATION**

### **Long-term**

1. Work closely with commissioning agents to ensure our new school buildings meet Energy Star certification and ODOE EUI target ranges as designed.
2. Leverage our experience with new building systems to develop a comprehensive retrofit plan for our existing schools to integrate real-time energy meters and green kiosks to promote energy engagement for all schools.
3. Pursue Energy Management Information System (EMIS) software enhancements that will tie together with HVAC Building Management System, fault detection, and building analytics to further improve energy and building performance while driving operations and maintenance to a more predictive model.

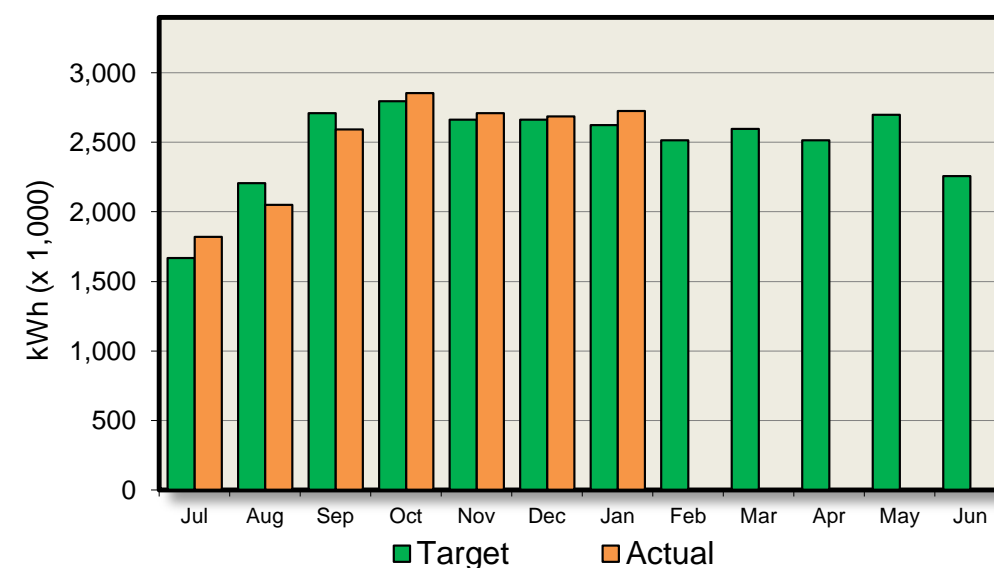


## Month of January District-Wide Consumption



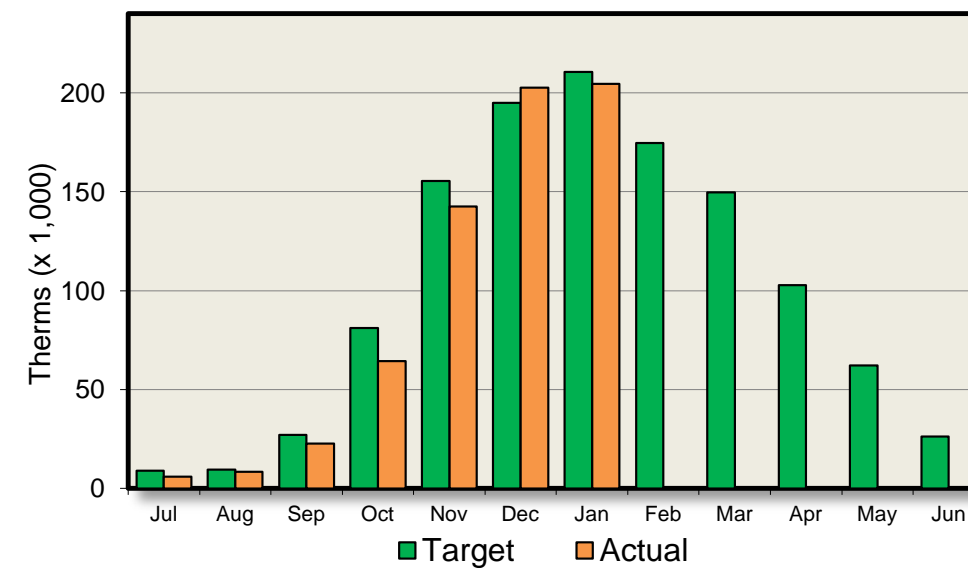
## District-Wide Utility Profile

### Electricity



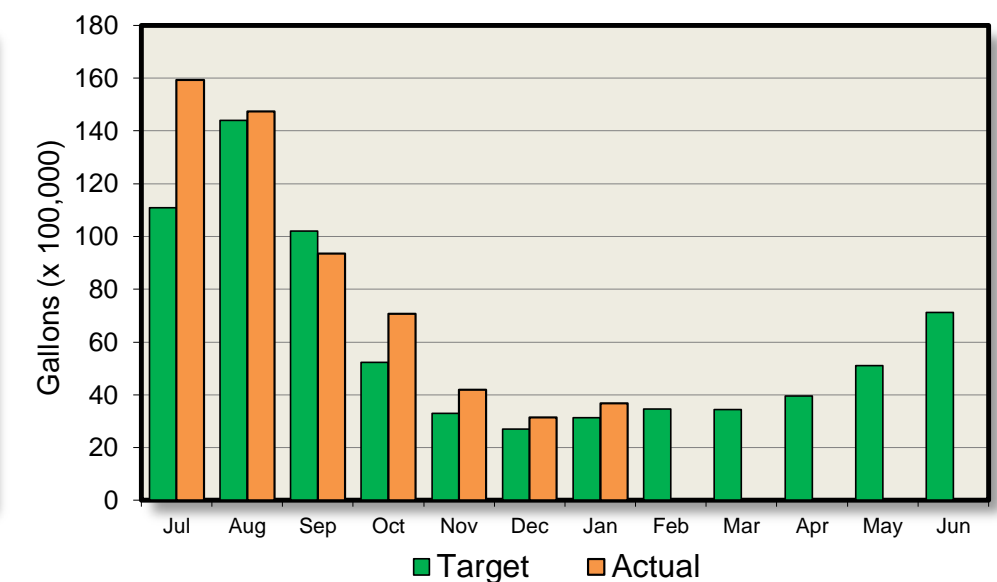
**0.3% ABOVE YTD TARGET**

### Natural Gas



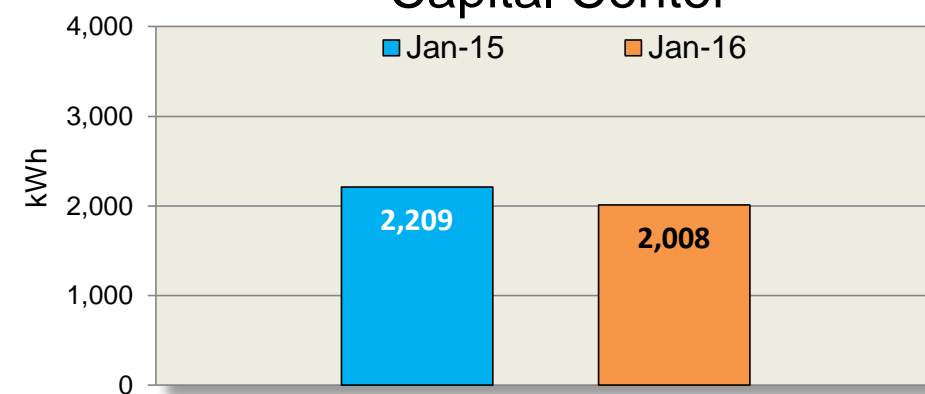
**5.2% BELOW YTD TARGET**

### Water



**16.0% ABOVE YTD TARGET**

### Capital Center

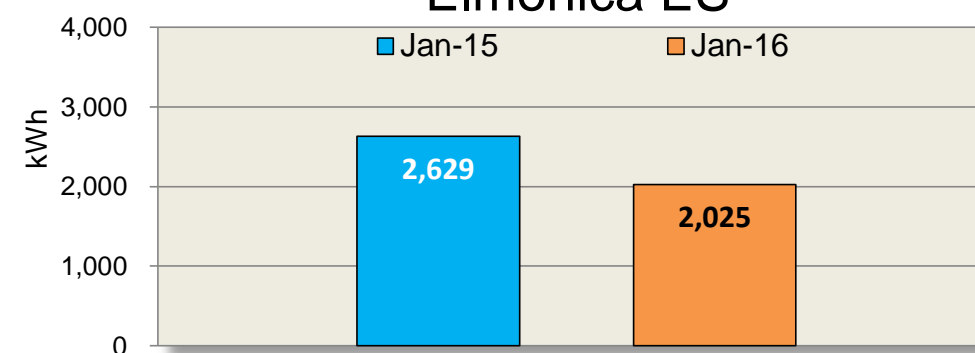


**57,480 kWh YTD**

### January Solar Electricity Production

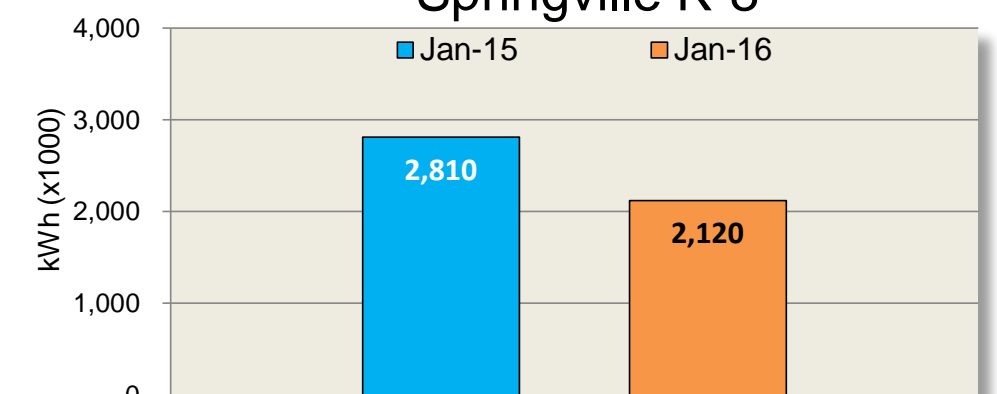
(Note: The average U.S. home uses ~11,000 kWh annually)

#### Elmonica ES



**59,524 kWh YTD**

### Springville K-8



**53,710 kWh YTD**