



# **SUSTAINABILITY MANAGEMENT PLAN**

**2017-2020**



## Executive Summary

During the 2016-2017 Fiscal Year, a Sustainability Planning Committee was convened to produce the first sustainability plan for Adams 12 Five Star Schools. The committee was a diverse group of more than 30 Five Star employees and community members that met on multiple occasions to develop a sustainability vision statement, and set goals around the plan's four focus areas: **energy, water, waste** and **student and community engagement**. The outcome of this undertaking, the sustainability management plan (SMP), will guide the Five Star District's development and integration of sustainable practices into the district's culture over the next three years.

## Vision Statement

Adams 12 Five Star Schools will develop sustainable practices in our schools and community that will benefit future generations. This will be accomplished through environmental stewardship and education, leaving a smaller footprint on the world.





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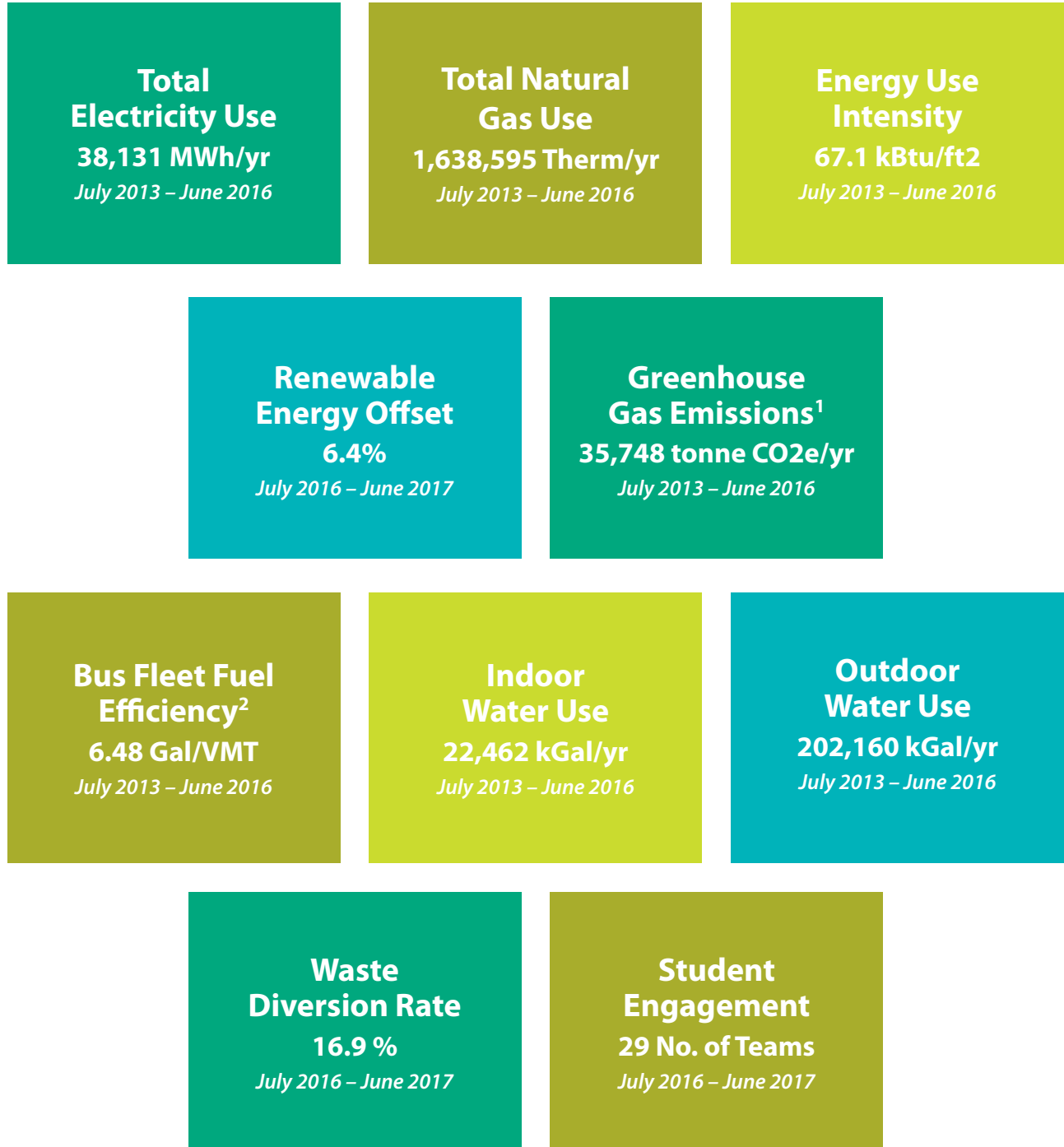
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# Adams 12 Five Star Schools – Then and Now



## THEN: “YOU CAN’T MONITOR WHAT YOU DON’T MEASURE”

Setting goals for the future and documenting improvement over the past both require a starting point. Adams 12 Five Star Schools has selected specific baseline periods for comparison, based on available data and relevance of the selected time period to the metric being tracked. Below are the current metrics and respective baseline periods identified.



<sup>1</sup> Only includes Scope I and Scope II emissions from district facilities.  
<sup>2</sup> Only includes bus fleet, maintenance vehicles not included in this baseline.



## NOW: DOING THE RIGHT THING

Leading up to and during development of the Adams 12 Five Star Schools sustainability management plan, the district has not been idle in doing the right thing around sustainability. In every area of sustainability, Five Star employees have reduced our impact on the local environment. The following is a quick snapshot of current and previous efforts.

**Electricity:** While electricity rates have steadily increased over the past seven years, districtwide electricity costs have not increased concurrently. This is due to decreased electricity usage and demand for the district, even while increasing the total square footage of the district during that same time frame. These trends in electricity use across the district have been accomplished through collaboration between the facilities, maintenance and operations teams. Specific projects have included integrated building management for heating and cooling equipment, in-school energy challenges for electricity use reduction, and converting some of our largest spaces from old and inefficient lighting to highly efficient LED lighting.

**SPACE CONVERTED**  
465,000 sq. ft.

**ENERGY SAVED**  
268,339 kWh/yr

**Natural Gas:** The primary uses of natural gas in the district are heating/cooling our buildings, heating domestic water and cooking. Efforts to reduce our consumption of natural gas include incorporating Technical Guidelines requiring any boiler for building heat or domestic water heating to be high efficiency (>90 percent) units. Design considerations in the construction of both the transportation building and the Veterans Memorial Aquatic Center (VMAC) also focused on reduction of natural gas consumption. At the VMAC, a passive solar array was designed in the roof to utilize the power of the sun to pre-heat pool water and reduce the amount of natural gas needed to maintain a proper pool temperature.



The panels on the roof of the VMAC capture the heat of the sun by circulating water through the panels to pre-heat the water and then pass this water through a heat exchanger to transfer that heat into the pool water. This allows us to run our natural gas fired water heaters less frequently for this facility.

**Renewable Energy:** Utilization of renewable energy allows for both cost savings to the district, as well as offsetting our total energy use and reducing our carbon footprint. Sources of renewable energy in the district leading up to 2017 include solar photovoltaic (PV) and solar thermal. The Five Star District has one on-site solar PV system (96.7 kW, nominal) installed on the roof of Coronado Hills Elementary. Average monthly production has been 10.63 MWh/mo, approximately one third of the average monthly usage for the school. Additionally, in Aug. 2015 the district began receiving solar energy from a solar garden through a contract with SunShare Solar. By purchasing 1.4 MW/yr of electricity from the solar garden we are able to partially offset our electricity use at 12 facilities.

**Transportation:** Fuel efficiency in both our bus fleet and maintenance vehicle fleet are an important component of sustainability. These sources are a large contributor to our greenhouse gas inventory, and represent a significant cost as well. Through intelligent contract negotiation, our maintenance vehicle fleet is almost entirely on lease agreements that allow us to ensure we have the most up-to-date vehicles to maintain our facilities while providing improved fuel efficiency. In our bus fleet, movement toward more propane buses allows for lower costs while reducing our environmental impact from vehicle emissions. Beginning in the 2012-2013 Fiscal Year, we had only four propane buses. At the close of the 2016-2017 Fiscal Year, 14 propane buses were operating across the district.

**Water:** In recent years, water has become our second most costly utility, behind only electricity in annual cost. However, trends in water use across the district have stayed relatively flat due to several efforts by our facilities and maintenance teams. Current technical guidelines for the district require Environmental Protection Agency WaterSense® labeled, low-flow fixtures for all new installations and end-of-life replacements. We have also reduced our area of irrigated turf by installing synthetic turf fields at several of our facilities, drastically reducing the amount of water required for those spaces. Finally, in Jan. 2017 Business Services created a Water Resource Specialist position to focus on improving and maintaining the central irrigation system and components utilized across the district for managing and reducing our irrigation water use, which accounts for roughly 80-90 percent of our total water use at each facility.

**Waste:** Often the first target of sustainability efforts, reducing the amount of waste that goes to the landfill is a well-established practice at Five Star Schools. Recycling programs at the school level have been in place for many years throughout the district, although we only began tracking diversion data in Feb. 2016. Waste diversion through warehouse operations is also highly efficient with multiple waste diversion streams including commingled recycling, book and furniture auctioning, metals recycling and hazardous waste management.



**Student/Community Engagement:** Student and community engagement on sustainability efforts is not new to Five Star Schools. Multiple green teams or environmental clubs currently exist working on topics such as recycling, composting, community service projects, school gardens, energy challenges and environmental education. Several schools, through student-led teams, earned recognition in past years through the National Wildlife Federation’s Eco-Schools program, participated in activities with Eco-Cycle, and participated in activities hosted by a variety of local and regional groups focused on environmental education and sustainability activities.

# The Future and Beyond



## SMART GOALS FOR THE FUTURE

The following section is organized by the four focus areas of this Sustainability Management Plan: **Energy**, **Water, Waste**, and **Student and Community Engagement**. Each focus area has multiple SMART Goals, detailing specific actions that the district will strive toward during the timeframe associated with each goal. SMART goals are defined for this document as Specific, Measurable, Actionable, Realistic and Time bound statements covering a one to three year implementation period.



### ENERGY

#### Electricity

1. Develop electricity challenge open to all schools, to occur once per school year beginning with the 2017-2018 school year through the 2019-2020 school year.
2. Reduce districtwide electricity usage (kWh/yr) by 15 percent from the July 2013 to July 2016; baseline by June 2020.
3. Amend district technical guidelines to include daylight monitoring and vacancy sensors for all new lighting projects conducted beginning summer 2018.
4. Create solar build-out program associated with the Career and Technical Education (CTE) centers to install one row of solar panels each school year as a learning opportunity through the CTE program beginning with the fall 2019 class for the new school.

#### Natural Gas

1. Conduct a building envelope R-Factor audit (roofs, walls, windows/doors) for a third of district facilities by June 2018.
2. Amend district technical guidelines to standardize on tankless domestic hot water heaters for all new water heaters beginning summer 2018.
3. Amend district technical guidelines to standardize on natural gas fired boilers with average fuel use efficiency of 90 percent or greater beginning summer 2018.

#### Energy Use Intensity

1. Reduce building specific Energy Use Intensity (EUI) from July 2013-June 2016 baseline by June 2020, as follows:
  - 1.1 Elementary schools by 15 percent.
  - 1.2 Middle schools by 10 percent.
  - 1.3 High schools by 10 percent.
  - 1.4 Alternative schools and Support Facilities by 15 percent.
2. Conduct energy audit of 10 buildings with highest EUI from July 2013-June 2016 baseline to identify greatest opportunities for energy reductions by June 2018.
3. Create sustainability report cards on a school-by-school basis to include electricity, natural gas and water use, waste diversion and green team metrics. Report cards will be released early each school year, covering data for the previous school year, beginning with the 2017-2018 school year and continuing through the 2019-2020 school year.

## Renewable Energy

1. Offset 13 percent of districtwide electricity use (kWh/yr) with renewable energy by June 2019.
2. Offset 25 percent of districtwide electricity use (kWh/yr) with renewable energy by June 2020.
3. Construct solar PV canopy over transportation services bus parking by June 2019.
4. Create solar build-out program associated with the new Career and Technical Education (CTE) center to install one row of solar panels each school year as a learning opportunity through the CTE beginning with the fall 2019 class for the new school.

## Transportation

1. Develop districtwide idling guidance for buses and maintenance vehicle fleet to minimize idling; provide training on guidance to all bus drivers and maintenance vehicle drivers at the beginning of the 2017-2018 school year.
2. Establish bus fleet and white fleet idling-time baselines of one year from July 2013-June 2016.
3. Retire and replace three diesel buses with propane buses per year beginning fiscal year 2018 through fiscal year 2020.



## WATER

1. Convert two athletic fields or playfields per year from bluegrass to artificial turf, beginning June 2018 and continuing through June 2020.
2. Develop public outreach materials regarding bluegrass to native seed conversion, for release to the public prior to spring break 2018.
3. Decrease per occupant indoor water use by 10 percent from July 2013-June 2016 baseline by June 2019.
4. Convert 50 percent of current (April 2017) non-playfield, irrigated areas to non-irrigated native turf by June 2020.
5. Upgrade central irrigation control system to most current version of existing system by June 2018.
6. Reduce districtwide water use from July 2013- June 2016 baseline as follows:
  - 6.1 10 percent by December 2017.
  - 6.2 20 percent by end of October 2018.
  - 6.3 25 percent by end of October 2020.



## WASTE MANAGEMENT

1. Establish a waste diversion rate baseline from July 2016 through June 2017.
2. Increase cafeteria recycling program participation by 20 percent from the summer 2016 audit baseline by June 2019.



3. Increase number of schools participating in composting by one elementary, one middle and one high school by June 2018.
4. Improve waste management education by end of the 2017-2018 fiscal year as follows:
  - Create guidance document/training tools.
  - Field trips for schools and custodians.
  - Increase marketing via signage/stickers.
  - Emails about available grants/resources.
5. Increase districtwide diversion rate from July 2016-June 2017 baseline as follows:
  - 5.1 20 percent by June 2018.
  - 5.2 30 percent by June 2019.
  - 5.3 40 percent by June 2020.
6. Establish baseline for existing purchasing practices of “green” products by end of fiscal year 2018.



## **STUDENT & COMMUNITY ENGAGEMENT**

1. Survey all schools once per year from 2017 through 2020 to collect the following information:
  - Do they have an active green team/environmental club?
  - How many students participate?
  - What “green” activities are they currently doing?
  - Do they have a student leader?
  - What “green” activities are they interested in doing?
2. Get at least ten schools to host a zero-waste lunch once per school year beginning fall 2017 and continuing through spring 2020.
3. Develop a Problem Based Learning project to baseline waste diversion rate to occur during the 2017-2018 school year..
4. Create a districtwide reuse network to include green teams/environmental clubs, the warehouse and community partners for launch at the end of the 2017-2018 school year.
5. Create sustainability report cards on a school-by-school basis to include electricity use, natural gas use, water use, waste diversion and green team metrics. Report cards will be released early each school year, covering data for the previous school year, beginning with the 2017-2018 school year through the 2019-2020 school year.
6. Develop a digital badge program to recognize students and staff for participation in “green” activities. Pilot this program with 5-10 schools that have active green teams during the 2017-2018 school year, and make the program available for the whole district starting with the 2018-2019 school year.



## **BEYOND THE GOALS**

As a first effort toward a sustainability road map, this SMP identifies short term targets the committee feels will reduce the Five Star District's impact on the environment and improve the learning atmosphere for our students. These goals do not capture the entire breadth and depth of sustainability work throughout the district. The following section details those areas not specifically covered by one of the preceding goals, but of strong interest to the district.

### **Global Climate Change**

Central to any discussion focused on long term sustainability for a school district are the factors and influences of global climate change, and the impacts that may be felt by communities everywhere. Supporting resiliency within our communities aligns directly with our vision of ensuring the students we serve can attain the knowledge and skills necessary to pursue the future of their choosing, and are equipped to navigate and thrive in our rapidly changing world. Therefore, we are committed to reducing our greenhouse gases (GHGs) inventory in line with our reducing other impacts to our local, regional and global community.

The Five Star Schools' GHGs baseline detailed in this SMP, includes contributions to our carbon footprint from Scope I and Scope II emissions stemming from purchased electricity and natural gas use. These elements were chosen due to the retro-active nature of the baseline development, and the availability of data for all sources over the same time period. Future benchmarking of this metric will compare those same sources to the baseline, while also establishing a new baseline to include Scope II emissions from waste production and Scope III emission from purchase goods, business travel and employee/student commuting. This new baseline will be established once two full years of data are available for these sources.

No specific GHG reduction targets have been set in this SMP, however that does not mean progress toward GHG reductions won't happen. Many of the goals set forth in this document will have a direct reduction in greenhouse gases, should those goals be met. For instance achievement of Energy goal no. 2 – to reduce our districtwide electricity use by 15 percent from baseline by 2020, will directly reduce that portion of our GHG inventory associated with purchased electricity by 15 percent as well. Similarly, the goals set forth to increase our utilization of renewable energy within the district will contribute to a reduced carbon footprint.

### **Employee Engagement**

As an institution of public education, our number one priority is to serve our students and the communities they live in. Several goals within this document serve to meet that priority, however specific goals to serve the employees of the district were not identified during the development of this SMP. Areas for growth in the district include how our employees get to work, ability for employees to maintain an active lifestyle during the day, and ensuring all staff have the same knowledge and engagement around energy use reduction, water use reduction and waste reduction that our students receive.

## Materials Management

Reducing the amount of waste Adams 12 Five Star Schools sends to the landfill is a clear priority of this SMP. Further impacting those reductions beyond traditional recycling and composting however, will require consideration of the materials and products we source. Reducing the volume of non-recyclable and non-compostable materials, as well as simply reducing the total amount of packing and other aspects of our operations that lead to waste are important components of a larger materials management program.

Additionally, the cleaning products, pest management products and other consumable items can have a large impact on our local and regional environmental health. Moving toward less abrasive chemicals and more responsibly sourced products will further our efforts to minimize negative impacts on our communities and to protect the health of our students and staff.



# Acknowledgements



## THANK YOU!

Adams 12 Five Star Schools sustainability personnel want to sincerely thank everyone involved in the development of this document, and the hard work that went into make this SMP a success. Critical to those efforts were the individuals who came to each committee meeting, voted on the materials produced and/or helped review and finalize this document for release to the public.

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