



# **Sustainability and Community Engagement**

## **Program Evaluation 2018-19**

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# About the Program



*The current recycling and composting system in place districtwide is the result of research by Belinder Elementary fourth grade students as part of a challenge-based learning project under the direction of fourth grade teacher Jennifer Spears in 2015.*

Shawnee Mission School District leaders and the Board of Education approved a strategic plan based upon input from stakeholders in 2015. One of the seven themes of the strategic plan is dedicated to sustainable and efficient use of resources. In Shawnee Mission, Sustainability is conserving and protecting resources so that they are available for future generations.

Sustainability and Community Engagement is a department within Operations & Maintenance (O&M). O&M staff have primary responsibility for on-the-ground frontline support of Shawnee Mission Sustainability initiatives, that include efficient use of resources and clean and healthy schools in support of student achievement. That support is evident in every building within the district.

The coordinator of Sustainability and Community Engagement serves as a bridge between Operations & Maintenance and Curriculum, Instruction & Assessment. Sustainability project-based capstone projects are grade-level aligned and integrated into PreK-12 curriculum, serving as an opportunity to build community relationships and connect student learning to relevance and civic engagement.

There is no dedicated Sustainability budget. Much of the work is accomplished through partnerships, relationships, gifts, grants and donations.

# Area of Focus

## Shawnee Mission 2016 Sustainability Youth Summit Priorities

Student representatives from all six district high schools were invited to share their concerns and priorities as part of the [Shawnee Mission Sustainability Youth Summit](#) held in March 2016. An interdisciplinary team of teachers and students from the arts, sciences, journalism and social studies attended the Summit hosted by the Center for Sustainability at Johnson County Community College and facilitated by Johnson County Sustainability. Professionals and City Council members joined the students. Five priorities were identified by the students, in priority order:

- Priority 1 | School Gardens and Natural Areas
- Priority 2 | Education, Awareness and Student Involvement
- Priority 3 | Efficiency (energy, water, composting, recycling)
- Priority 4 | Transportation Alternatives (carpooling, walking and biking to school)
- Priority 5 | Health and Well-Being (mental, physical, nutritional)

Elementary and middle school science teachers guided by elementary and secondary curriculum coordinators aligned the priorities to Pre-K-12 district standards (Priority 2, above).

# Evaluator

Joan Leavens, Coordinator, Sustainability and Community Engagement

# Priority 1 | School Gardens + Natural Areas

The Shawnee Mission School District has a long history of outdoor learning supported by curriculum and funded by community partnerships and grants.

Students and teachers work with the Sustainability office and non-profits to plant vegetable and habitat gardens in soil enriched by compost from school cafeterias. All outdoor learning is aligned to Kansas state standards (Next Generation Science Standards) and district priority standards.

Currently, 41 of 47 schools (87%) host school gardens, indoor Tower Gardens or natural areas. Partners include [Kansas City Community Gardens](#), [Cultivate Kansas City](#), [The Giving Grove](#), [Missouri Organic Recycling](#), [Bridging the Gap](#), [Kansas City Native Plant Initiative](#), [Kansas Wildlife, Parks & Tourism Outdoor Wildlife Learning Sites \(OWLS\)](#) and [KU Monarch Watch](#).



The Shawnee Mission School District supports outdoor learning in natural areas. Pre-K and elementary students participate in programs led by high school environmental education students.

- The **Shawnee Mission Environmental Science Laboratory (SMESL)** is a 22 acre preserve at **Shawnee Mission South High School** that includes a woodland, prairie, pond and trails situated along Indian Creek.
- An 18 acre preserve at **Shawnee Mission Northwest High School** includes a wetland, woodland, prairie and managed stormwater detention area planted in native grasses and flowers.
- **Shawnee Mission East High School** is developing an outdoor learning site that will include a greenhouse, native meadow and pond.

- Students in the **Shawnee Mission West High School Environmental Sustainability** program develop outdoor gardens for food and habitat, as well as manage a wind turbine at the school.
- **Trailridge Middle School** grounds include an Outdoor Wildlife Learning Site (OWLS) with a woodland and trails.
- **Hocker Grove Middle School** students have access to a wooded area and Outdoor Wildlife Learning Site (OWLS) with trails and a stormwater detention area planted in native grasses and perennials.

## Sunflower Learnscape

Through a partnership with Hollis + Miller, Sunflower Elementary students were invited to [Hollis + Miller offices](#) to design an outdoor learning space with refinements recommended by teachers. Hollis + Miller continues to partner with Sunflower Elementary to explore teacher-led professional learning to maximize use of the space and collaborate with University of Missouri researchers to learn more about the effect of outdoor experiences on student learning.

## Landscaping for Sustainability

The Shawnee Mission School District supports sustainable landscape site design to increase student achievement, improve environmental quality and serve the community.

In 2016 a Landscape Advisory of landscape architects, stormwater engineers, university faculty, Mid-America Regional Council, and district engineering faculty and students was convened to set the direction for sustainable site design and adaptive land management in Shawnee Mission. The resulting [Sustainable Site Design Strategies](#) serve as an aspirational guide for future landscape design and management.

### **Native plants increase habitat and reduce maintenance.**

- Native plants support wildlife, including pollinators, birds and monarch butterflies.
- Drought-tolerant and heat-resistant native plants require less watering once they are established.
- Stands of native plants reduce mowing.

**The Center for Academic Achievement** is an example of multi-use site design:

- The 1.3-acre urban farm and native landscape stormwater features serve as a resource to multiple curricular programs including the Engineering, Culinary and Biotechnology Signature programs.
- Native plants and grasses provide habitat to support birds, bees and pollinators.
- Sustainable design captures up to 7.9 inches of rain water running off parking lots and roofs over a 24-hour period. The stormwater filters through a series of swales and streamways. 20,000 gallons of rainwater collects in an underground cistern to irrigate the farm.
- Walking trails and cut-throughs from the neighborhood welcome the community.

The Mid-America Regional Council highlighted the Center for Academic Achievement in the [Green Infrastructure Playbook](#) as an example of integrated sustainable site design which serves as a model for students entering the workforce in related fields and as an example of best practices for the community.

## Priority 2 | Education, Awareness and Student Involvement

Sustainability and Community Engagement works with Curriculum, Instruction & Assessment to align sustainability with Kansas state standards and priority district standards. Students develop sustainability project-based learning capstone projects that impact their school and community.

### **Sustainability Capstone Projects | Elementary Grade Level Alignment**

The elementary grade level alignment for sustainability project-based learning capstone projects follows:

- Grades Pre-K through 2 | School Gardens and Native Plants
- Grade 3 | Butterfly Gardens (life cycles/habitats), Severe Weather
- Grade 4 | Energy Efficiency (including energy audits) and Air Quality
- Grade 5 | Water Quality Monitoring
- Grade 6 | Energy Alternatives (renewable energy)

Grades K-12 Health standards include Recycling and Composting.

### **Sustainability Curriculum Integration | Middle School Water Quality Alignment**

A 2018-2019 service agreement with the City of Overland Park to provide water quality education consistently across all middle school eighth grade science courses was leveraged to secure support from Johnson County Stormwater and Operations & Maintenance to integrate water quality education into sixth, seventh and eighth grade science with cross-curricular connections to English language arts, history, government, social studies and civic engagement. The agreements support professional learning, teacher release time to map curriculum and streamside field studies for eighth grade students. The resulting middle school essential questions and aligned Next Generation Science standards follow:

- **Grade 6 | Should I Drink the Water?**
  - ESS3-4 Water Cycle Modeling
  - ESS3-1 Geosciences Processes Change Earth's Surface

- **Grade 7 | What's Happening to My Water?**
  - ESS3-1 Geosciences Processes Change Earth's Surface
  - ESS3-3 Monitoring and Minimizing Human Impacts
- **Grade 8 | How Can I Change My Local Environment?**
  - ESS3-3 Monitoring and Minimizing Human Impacts
  - LS4-4 Genetic Variations Impact Ability to Survive in Specific Environments

## Sustainability Curriculum Integration | Schools as Teaching Tools

The US Green Building Council Center for Green Schools piloted *Schools as Teaching Tools* in 12 schools nationwide in 2018-2019. Two of the schools are in Shawnee Mission. The Center for Academic Achievement Civil Engineering program and Briarwood Elementary participated. The program included teacher, administrator and Operations & Maintenance training, as well as mentoring by professional leaders in current sustainable design and practice. Instructors Greg Thiel at CAA and Susan Cunningham at Briarwood led the pilot programs. The high school students incorporated LEED principles into their designs for a new school. The second graders led a [Zero Food Waste Challenge](#) in their school.

## Priority 3 | Efficiency

### Cafeteria Recycling and Composting

- All elementary, middle and high schools and the Center for Academic Achievement are recycling and composting food waste in the cafeteria.
- Food Service set the stage by eliminating all Styrofoam in 2007 and assuring that the majority of materials coming through the cafeteria line are reusable, recyclable or compostable.
- The cafeteria composting program began in 2008 at Briarwood and Tomahawk Elementary schools and spread across the district as a grassroots effort initiated by students, teachers, administrators, parents and community members.
- In 2017, Shawnee Mission diverted over 600,000 pounds of food waste from the landfill.
- The food is collected by Missouri Organic Recycling and commercially composted during a ten-week process.
- The compost returns to Shawnee Mission to enrich school gardens, many of which grow food as part of curriculum and instruction. The Center for Academic Achievement Broadmoor Urban Farm received 15 tractor trailer loads of compost to enrich the soil in preparation for planting the farm and orchard.





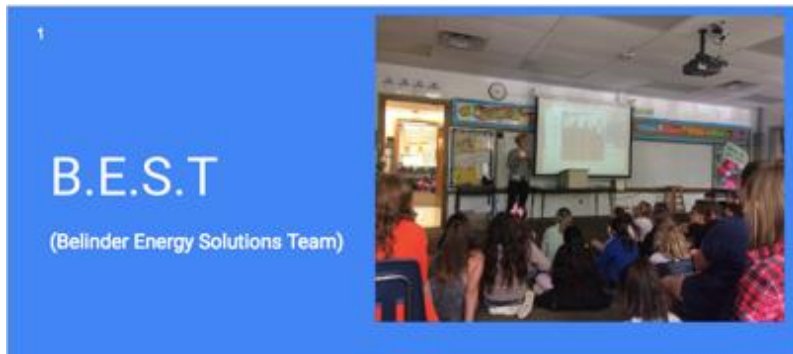
The Cafeteria Recycling and Composting Program was completed with the support of multiple agencies:

- Johnson County Health & Environment provides equipment, staffing, technical assistance and recognition. All schools participating through 2018-2019, the Center for Academic Achievement and the district itself have achieved R5 Certification (Rethink, Reinvest, Reduce, Reuse and Recycle).
- Until 2016-2017, Kansas Department of Health & Environment provided equipment, resources, field trips, assemblies and environmental arts programs through Green Schools solid waste reduction grants. These grants are no longer available. However, Johnson County partnered to fund recycling receptacles for district stadiums in 2017-2018.
- US EPA provides technical assistance and recognition. The district was recognized with a regional Food Recovery Challenge award in 2017. In 2018, Christa McAuliffe was recognized as the recipient of the [K-12 Food Recovery Challenge award](#), the only K-12 school to receive the recognition nationally.

## Energy

- Eleven Shawnee Mission schools achieved Energy Star status. The schools' energy performance standards place them in the top 25% of energy efficient buildings nationwide.
  - Apache Innovative School
  - Brookwood
  - Corinth
  - Indian Hills MS
  - McAuliffe
  - Overland Park
  - Pawnee
  - Santa Fe Trail
  - Shawanoe

- Tomahawk
- Westwood View
- Recent initiatives:
  - Three Level 2 KCPL Electric Vehicle Charging Stations are installed at CAA.
  - The number of personal appliances (printers, refrigerators, coffee makers) was reduced districtwide to reduce energy consumption.
  - Centralized printing and copying saves energy and reduces printing costs.
- Nine new buildings, including the CAA and Aquatic Center opening fall 2019, are designed to Leadership in Energy and Environmental Design (LEED) Silver standards.
  - Most buildings are two-story with a smaller, more energy efficient footprint.
  - Increased daylight leads to less energy needed for lighting and higher student achievement (Eitland, *Schools for Health*, Harvard, 2018).
  - Increased use of LED lighting and light sensors reduces energy.
- The district energy portfolio currently consists of 93% electricity and 7% natural gas.
  - KCP&L is the district electric utility provider.
  - The KCP&L energy portfolio currently consists of 23% renewable energy and total non-carbon energy generation of 34%.
- Belinder Elementary students researched renewable energy and conducted audits of their school's energy use. The [resulting recommendations](#) were presented to district administrators.
- Prairie Elementary students worked with the City of Prairie Village to research and develop videos to improve curbside recycling in the City. The City Council unanimously approved the messages as part of the public information campaign.



## Water

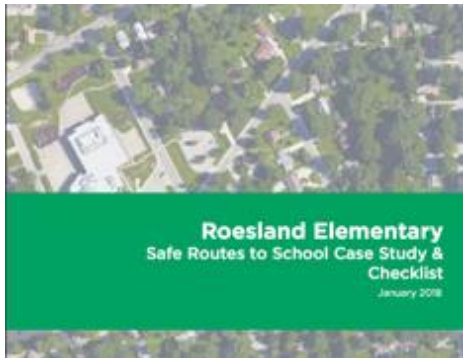
- New facilities include refillable water bottle stations as a standard.
- Middle school students are learning about water as a finite resource and how to protect it through a partnership with the City of Overland Park and Johnson County Stormwater.
- Fifth and sixth grade students learn about the difference between tap, bottled and surface water through a partnership with WaterOne.

# Priority 4 | Transportation Alternatives

The Shawnee Mission School District encourages active transportation alternatives for students and families wishing to bike or walk to school.

## Biking and Walking to School

- The City of Roeland Park, BikeWalkKC and Johnson County Department of Health & Environment collaborated with Roesland Elementary and Shawnee Mission to write a grant to Safe Kids USA. The resulting [Roesland Elementary Safe Routes to School Case Study & Checklist](#) includes a list of considerations and a checklist for those school communities wishing to encourage walking and biking to school. The funding provided a two-day workshop, new signage and pedestrian activated flashing-beacon crosswalk signs surrounding Roesland and on Mission Road.
- Trailwood parents organized meetings with the cities of Overland Park and Prairie Village to advocate for improved crosswalk markings, a crossing guard and a school zone. The pedestrian improvements are being piloted and evaluated during 2018-2019.
- Sustainability and Community Engagement participated in the City of Lenexa Quivira Corridor Study and currently serves on the Lenexa Complete Streets Advisory to assure safe routes to school are among the considerations in planning.
- The City of Leawood consults with Sustainability and Community Engagement in planning implementation of *Main Routes to School* to encourage walking and biking to school.



# Priority 5 | Health and Well-Being

Shawnee Mission Sustainability Youth Summit students identified a broad list of considerations to enhance student health and well-being:

- Mental health and stress education.
- Physical health supported by physical education, biking and outdoor learning.
- Dietary health that includes nutrition education and local food options, including food grown in school gardens.
- Sanitary health and updated facilities.
- Facilities that provide indoor air quality and natural light.
- Student innovation and involvement on the school level.

These issues are incorporated into the previous priorities and are addressed through the Strategic Planning process by multiple departments.

## Program Goal

Connect students to rigorous, relevant learning that positively impacts their community, building self-confidence and motivation to engage the more challenging coursework required to meet their aspirations while assuring healthy learning environments ensure their future.

## Future Focus

- Develop high quality district standards for buildings and grounds that improve student health and well-being and increase student achievement.
- Conduct student perception surveys and evaluate achievement data to understand the impact of Sustainability project-based learning on student engagement and achievement.
- Continue to identify and implement Sustainability practices that increase efficiency and reduce costs.