



Sustainability  
Management  
Plan 2021  
FINAL

This plan was put together with the help and support of members in the Thompson School District community.

A special thanks to:

Jess Arnold  
Kristen Battige  
Jaymie Cruickshank  
Julie Elliot  
Melissa Feldbush  
Jennifer Gavin  
Sean Hawkins  
Melissa James  
Lisa Kendall  
Matt Kuhn  
Andy Larkins  
Frank Lee  
Denise Lucchesi  
Trish Malik  
Guthrie Manzella  
Matt Payne  
Zoe Smith

The Thompson School District Department Coordination Team  
The Thompson School District Facilities Services Managers Team

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## Vision for Sustainability

The Thompson School District (TSD or District) will promote sustainable practices through inclusive relationships and a supportive culture that embraces stewardship of resources. Our vision empowers and challenges the TSD community to be innovative leaders in sustainable choices. We believe that each individual's commitment to take actions that help the environment will positively impact current and future generations.

## Executive Summary

In support of the District's sustainability vision, goals and strategies were developed within the categories of Energy, Water, and Waste for the short-term (0-5 years). Energy encompasses subcategories of electricity, natural gas, renewable energy, and transportation. No subcategories are included for Water or Waste. The goals in this plan focus on fiscal years (FY), meaning July through June, to best represent the school timeline. Progress towards the goals will be tracked each year in comparison to the baseline metrics. At the end of the 5-year period, the progress of all goals will be evaluated. This plan will be reassessed and a combination of new and existing goals will be established based on needs at that time.

### *Current Goals: 0-5 years (Fiscal Years 2021-22 to 2025-26)*

#### Energy

##### Energy: Electricity

1. Reduce district-wide electricity use by 10% from the baseline metrics by the end of FY2025-26.
2. Have at least three schools participate in an energy challenge competition in FY2021-22 and continue annually with increased participation through FY2025-26.

##### Energy: Natural Gas

3. Reduce natural gas use by 10% of the baseline metrics in the District by the end of FY2025-26.

##### Energy: Renewable energy

4. Install a solar energy system on at least three sites by the end of FY2025-26.

### Energy: Transportation

5. Replace at least two diesel buses with electric buses by the end of FY2025-26.
6. Add at least five electric vehicles to the white fleet by the end of FY2025-26.
7. Install at least six electric vehicle Level II charging stations on District property available for District and public use by the end of FY2025-26.

### Water

1. Reduce 10% of district-wide baseline indoor water usage by the end of FY2025-26.
2. Reduce 10% of district-wide baseline outdoor water use by the end of FY2025-26.
3. Have at least one outdoor learning area at each school by the end of FY2025-26 that converts irrigated turf area to xeriscape.

### Waste

1. Reduce district-wide trash pickup volume by 5% of baseline by the end of FY2025-26.
2. Increase district-wide recycling volume by 10% by the end of FY2025-26.
3. Integrate a functional recycling program in at least 10 schools by the end of FY2025-26.
4. Develop composting programs at three or more schools by the end of FY2025-26.

## Background and Motivation

Thompson School District is the 17th largest school district in Colorado, encompassing 362 square miles and serving approximately 15,000 students. The District's territory includes Loveland and Berthoud, plus sections of Fort Collins, Windsor, Johnstown and unincorporated land in Larimer, Weld, and Boulder Counties. TSD serves students in Pre-K through 12th grade with 13 school-based preschool programs, a dedicated preschool building, two PK-8 buildings, 18 elementary schools, five middle schools, five high schools, two charter schools, and one career campus. Locations of the schools can be seen in Figure 1 below.

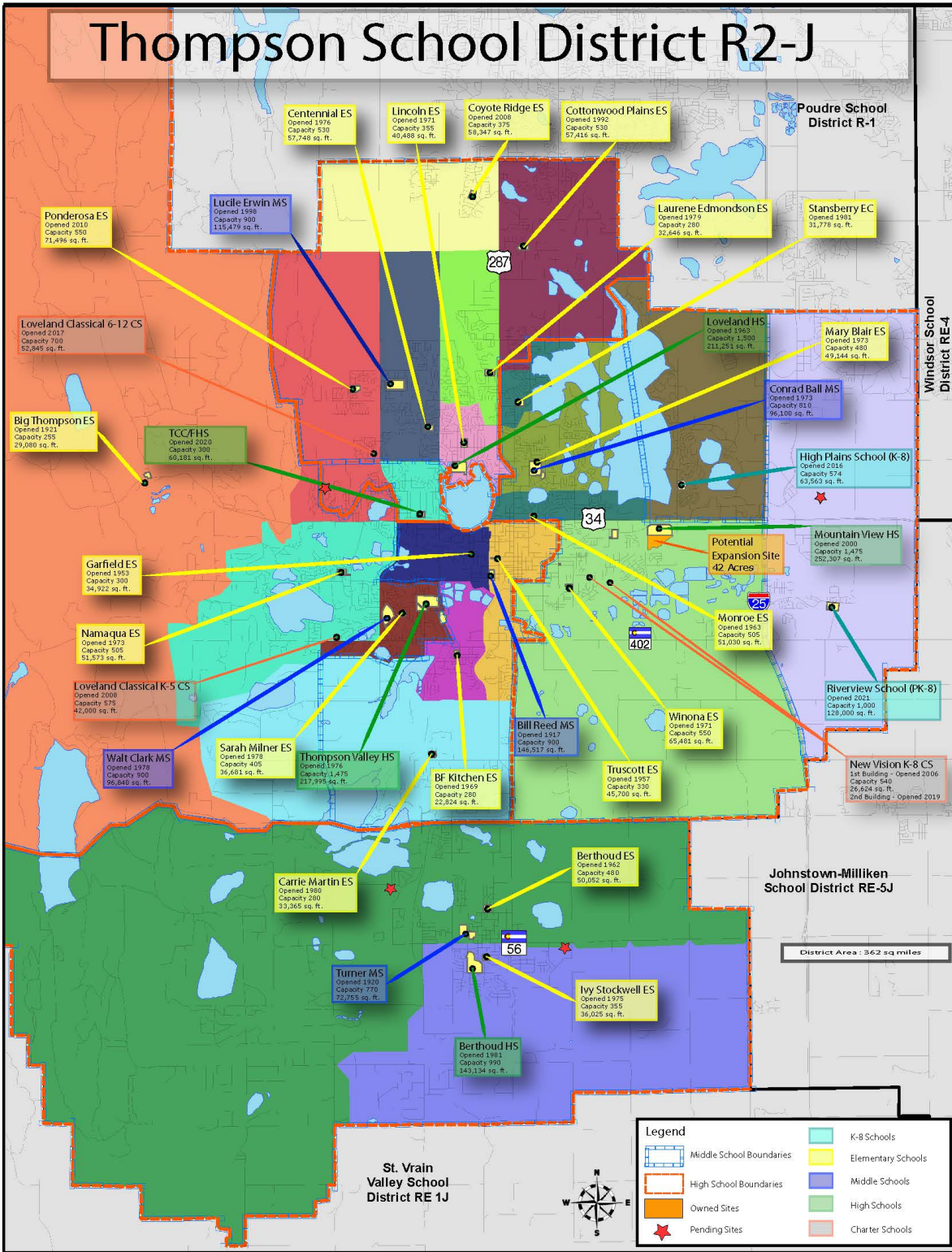


Figure 1. Thompson School District School Locations

The District continues to grow as Northern Colorado expands. TSD meets the goals to nourish and enrich student experience with the construction of new buildings and renovation of existing building envelopes.

However, the infrastructure is aging and becoming less efficient, and utility rates increase with inflation, increased demand, and strained resources. All of these factors have led to higher utility bills each year. Utility bills consist of water, electricity, and natural gas use, as well as associated service expenses from the utility providers such as stormwater management, impact fees, and franchise fees (noted in Figure 2 below as “Other Costs”).

Figure 2 shows the fiscal year costs for each utility category approaching a total of \$4M. Waste collection services and nonpotable water (untreated and not for human consumption) used to irrigate some school sites are not included in the annual utility costs.

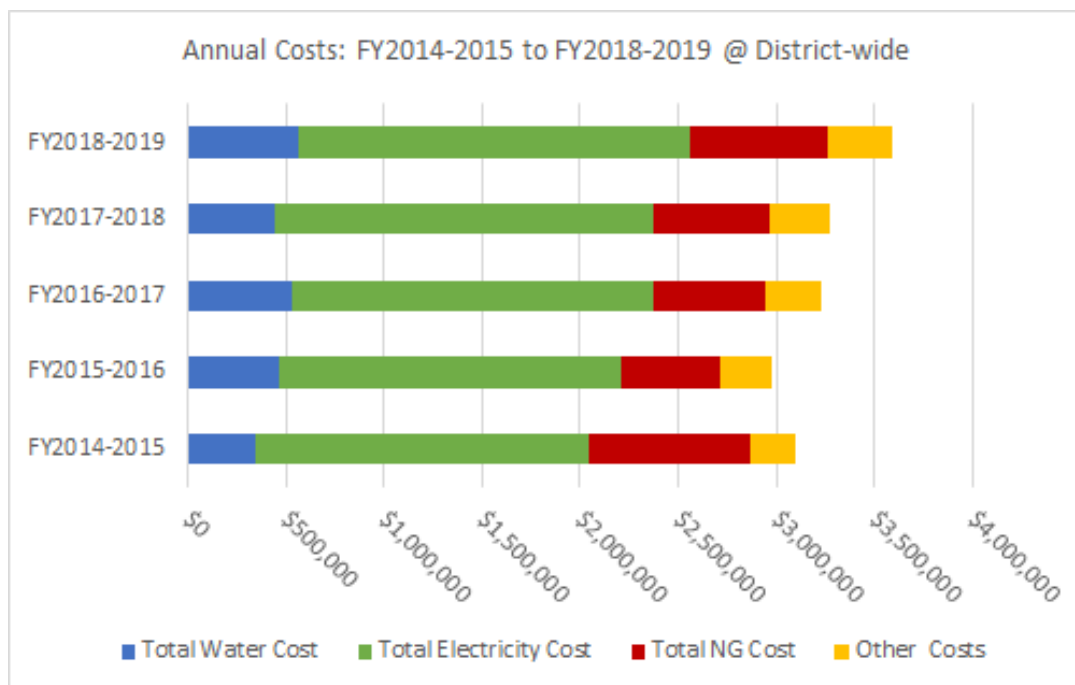


Figure 2. Annual Utility Costs District-wide from FY2014-2015 through FY2018-2019

As population growth, a warming climate, limited water and land resources continue to challenge everyday life along the Front Range of the Rocky Mountains, the District is working to do its part to reduce the negative impacts on community health and wellbeing. By reducing the District’s energy and water use, the District will not only save money, but will also improve air quality and decrease the strain on water and land resources. The intention of this plan is to establish the District’s purpose and method for achieving and measuring sustainable improvements over the next five years.



## Baseline Metrics

The baseline metrics that TSD will use to assess our effectiveness in reducing energy and water use will compare annual District usage to a five-year average baseline. We will compare average usage of fiscal years (FY) 2014-2015 to 2018-2019 with each future fiscal year to see progress. Since 2020 was an abnormal year with fewer building occupants due to COVID-19 and irregular building operations, FY2019-2020 is not included in the five-year average baseline.

## Goals and Strategies

In order to follow the path to TSD's sustainability vision, we have selected goals for each of the following environmental areas: **Energy**, **Water**, and **Waste**. With the level of uncertainty that accompanies adoption and implementation of sustainability goals, our goals are based on a range of 0-5 years (FY2020-2021 to FY2025-2026). This allows for the District to reevaluate and broaden the goals as time goes on. Each goal includes associated strategies that the District will use to achieve the goal.

### Energy

The District's energy providers have sustainability goals that aim to reduce greenhouse gas emissions created from sourcing and transporting their energy supplies. Subsequently, incentives such as grants and rebates are available to encourage reduced energy use. The following sections discuss the baseline metrics, goals, and strategies of **Energy: Electricity**, **Energy: Natural Gas**, **Energy: Renewable Energy**, and **Energy: Transportation**.

### Energy: Electricity

#### Baseline Metrics

The District receives electricity from Xcel Energy, Loveland Water and Power, Poudre Valley Rural Electric Association, Inc. (PVREA), and Fort Collins Utilities. Electricity use across the District occurs year-round; however, the majority of use is experienced during the school year with full occupancy, as is expected.

Figure 3 depicts the annual electricity usage across the District from FY2014-2015 to FY2018-2019 and indicates the five-year average of 18,991 megawatt-hour. Table 1 shows the baseline metrics for the District as a whole, elementary schools, middle schools, and high schools.

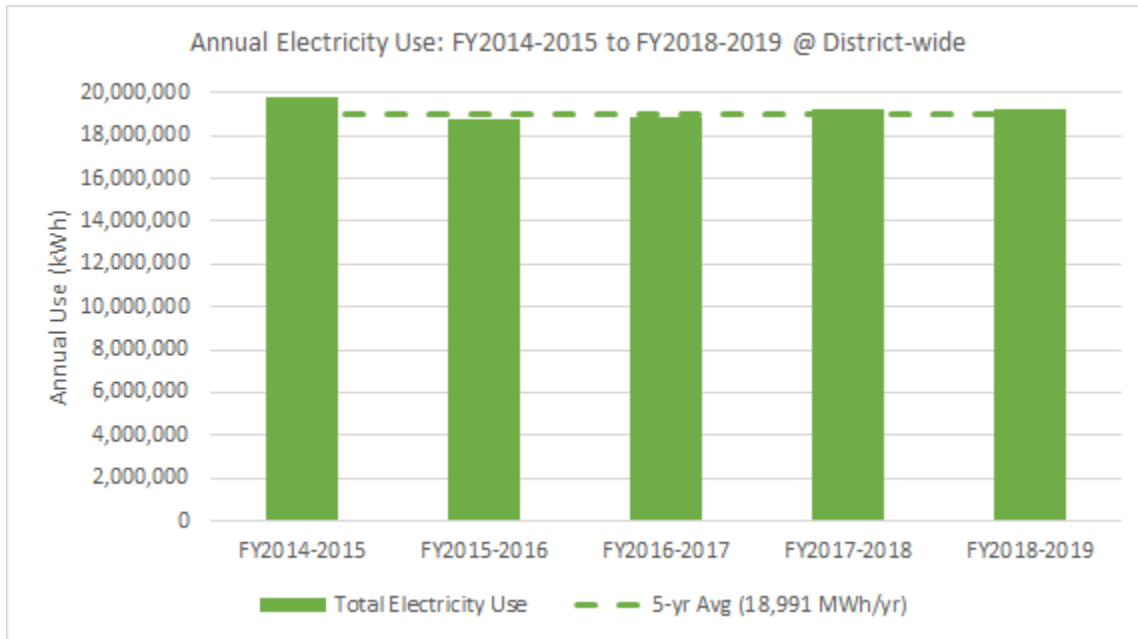


Figure 3. District-wide Annual Electricity Use from FY2014-2015 through FY2018-2019

Table 1. Five-Year Average Baseline Metrics for Electricity Use by Sector

Sector	Baseline Metric
District-wide Use	18,991 MWh/yr
Elementary School Use	295 MWh/yr
Middle School Use	706 MWh/yr
High School Use	1,232 MWh/yr

### Goals and Strategies to reduce Electricity Use

Reduce district-wide electricity use by 10% from the baseline metrics by the end of FY2025-26.

- Strategies:
  - Convert fluorescent and incandescent bulbs to LEDs.
  - Add occupancy and daylight sensors to appropriate areas (i.e., lounges, hallways, copy rooms, etc.).
  - Ensure programmable systems are set up efficiently.
  - Educate students and staff about phantom loading and encourage items to be unplugged when not in use and turn off lights when last leaving the room.
  - Have students develop posters and reminders for turning off lights.

Have at least three schools participate in an energy challenge competition in FY2021-22 and continue annually with increased participation through FY2025-26.

- Strategies:
  - Start with schools that have expressed interest in an energy challenge competition and that have an eGauge installed.
  - Encourage kids to determine their own goals and strategies.
  - Provide the schools with monetary incentives to support sustainable upgrades for the winning school.

## Energy: Natural Gas

### Baseline Metrics

The District uses Xcel Energy and Tiger Natural Gas as natural gas suppliers. A majority of natural gas use is seen during the colder months, as natural gas is used mostly for heating. Water heaters and gas stoves also use natural gas year-round.

Figure 4 depicts the annual natural gas usage across the District from FY 2014-2015 to FY 2018-2019 and indicates the five-year average of 1.2 million Therms. Table 2 shows the baseline metrics for the District as a whole, elementary schools, middle schools, and high schools.

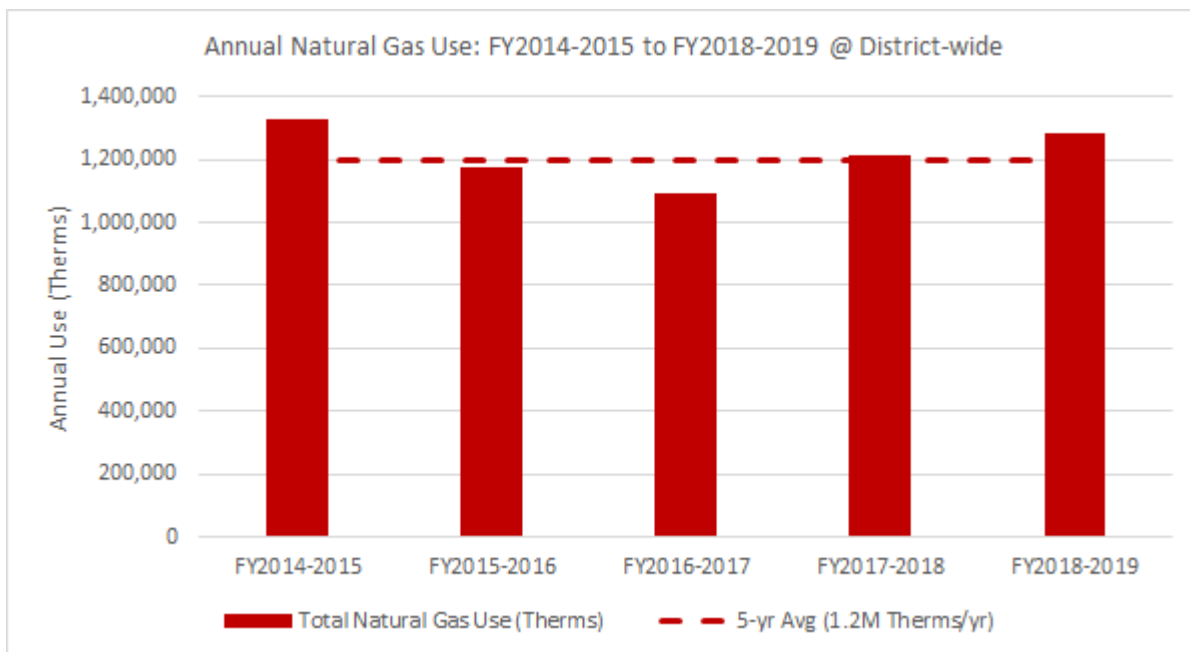


Figure 4. District-wide Annual Natural Gas Use from FY2014-2015 through FY2018-2019

*Table 2. Five-Year Average Baseline Metrics for Natural Gas Use by Sector*

Sector	Baseline Metric
District-wide Use	1.2M Therms/yr
Elementary School Use	19,147 Therms/yr
Middle School Use	41,736 Therms/yr
High School Use	83,315 Therms/yr

### Goals and Strategies to Reduce Natural Gas Use

*Reduce natural gas use by 10% of the baseline metrics in the District by the end of FY2025-26.*

- Strategies:
  - Ensure the programmable HVAC and water heater systems are set up properly.
  - Upgrade dish washing stations to have low-flow sprayers and appropriate efficiency settings.
  - Educate staff and students about closing windows and doors in the winter and using fans and windows in the summer when AC is not on (if AC is available).

## Energy: Renewable Energy

### Baseline Metrics

Existing renewable energy within the District includes purchasing credits from the utilities and generating a small amount of energy at one of the middle schools through a parking lot solar and wind turbine system and a few building-attached solar panels. Efforts are underway to identify an ideal pilot location for a full rooftop solar panel system.

### Goals and Strategies to Increase Renewable Energy Use

*Install a solar energy system on at least three sites by the end of FY2025-26.*

- Strategies:
  - Use energy contractors to determine ideal locations and solar systems within the District with the best financing strategy.
  - Utilize the solar energy systems as educational tools within the science curriculum.
  - Acquire battery storage to allow for summer energy collection and school year energy use.

## Energy: Transportation

### Baseline Metrics

The District’s bus fleet consists of about 100 buses used for student transportation and are a variety of diesel, propane, and gasoline engines with the majority of the buses being diesel. The baseline metrics for transportation considers the bus fleet fuel efficiency in vehicle miles traveled per gallon of fuel (VMT/gal), which normalizes consumption across the various types of engines. The white fleet (trucks, vans, cars used for employee daily tasks) use both diesel and gasoline and are a mixture of makes, models, and years. White fleet fuel efficiency is not included in the baseline metric as it is too variable to track; however, it is expected that improvements will be made to the overall efficiency profile of the white fleet over the life of this plan.

Due to limited data availability, this baseline metric uses a three-year average from FY 2017-2018 to FY 2019-2020. Figure 5 depicts the annual bus fleet fuel efficiency across the District from FY 2017-2018 to FY 2019-2020 and indicates the three-year average of 7.6 vehicle miles traveled (VMT) per gallon. Table 3 shows the baseline metrics for the District as a whole.

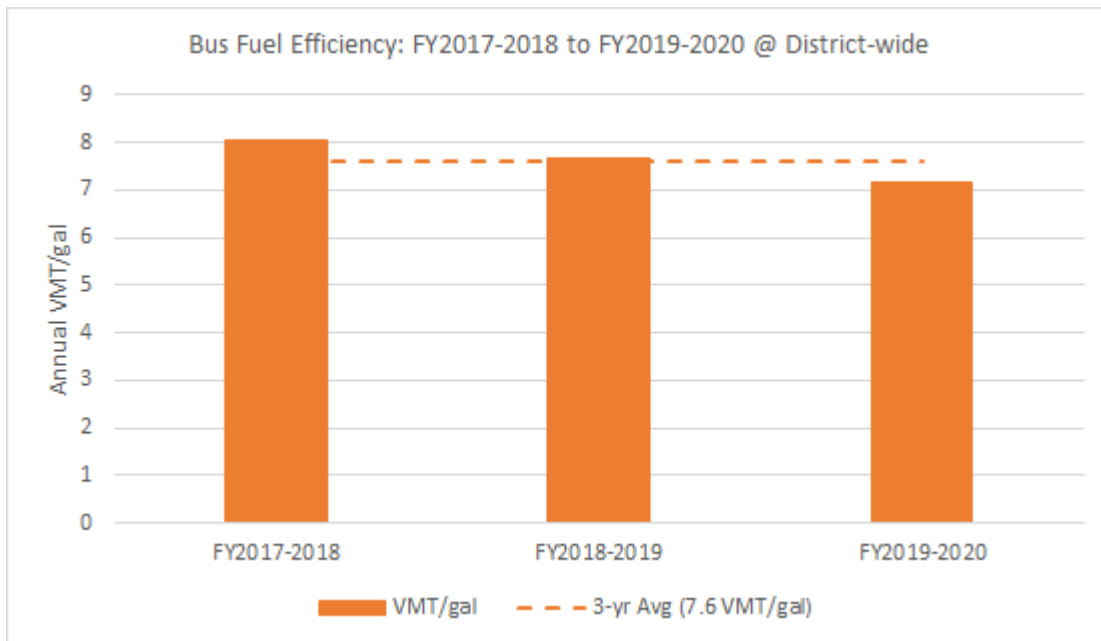


Figure 5. District-wide Bus Fuel Efficiency from FY2017-2018 through FY2019-2020

*Table 3. Three-Year Average Bus Fuel Efficiency Baseline Metric*

Sector	Baseline Metric
District-wide total	7.6 VMT/gal

*\*Note: Operations in 2020 were reduced due to the COVID-19 pandemic.*

### Goals and Strategies to Improve Transportation Efficiency

*Replace at least two diesel buses with electric buses by the end of FY2025-26.*

- Strategies:
  - Install solar panels at the transportation station to support the buses.
  - Apply for grants and develop partnerships with local governments to help cover the costs of the buses and infrastructure.

*Add at least five electric vehicles to the white fleet by the end of FY2025-26.*

- Strategies:
  - Contact departments and managers who are interested and have flexible transport requirements for ease of electric vehicle integration. Example departments include Security and Information Technology Services (ITS).
  - Apply for federal and state grants to help offset the costs of the vehicles.

*Install at least six electric vehicle Level II charging stations on District property available for District and public use by the end of FY2025-26.*

- Strategies:
  - Create partnerships with local utility companies, state departments, and investors to cost share on the installations and energy costs for the charging stations.
  - Educate the staff and community about the availability of the charging stations to boost awareness and popularity of the stations, thereby increasing visibility and acceptance of EVs.

## Water

### Baseline Metrics

The District receives potable (treated, safe for human consumption) water from Loveland Water and Power, Fort Collins-Loveland Water District, Little Thompson Water District, and the Town of Berthoud. Aging infrastructure and fixtures in many of the schools result in high indoor water use (i.e. sinks, toilets, dishwashers, etc.). Large grass turf field sites, which rely on outdoor water use (i.e. irrigation), make up about 75% of the District's annual water use. Raw water (untreated, unsafe for human consumption) irrigation systems exist at a handful of properties and are not included in this plan since they are not widespread and not as easily tracked and reported as potable water irrigation systems.

While the other metrics use fiscal years (July through June), the annual water use is calculated based on a calendar year. Monthly indoor water use is the average of the winter months (January, February, March, April, November, and December), as these months do not usually include any outdoor irrigation in the school schedule. Monthly outdoor water use is calculated by taking the average of the summer months (May, June, July, August, September, and October) minus the estimated indoor water use. To estimate the annual water use, the monthly indoor average is multiplied by 12 to account for year-round indoor water usage, while the monthly outdoor average is multiplied by six to account for the irrigation season.

Figure 6 depicts the annual water usage across the District from FY 2014-2015 to FY 2018-2019 and indicates the 5-year average of 74,447 kilogallons for outdoor water use and 24,274 kilogallons for indoor use. Table 4 shows the baseline metrics for the District as a whole, elementary schools, middle schools, and high schools.

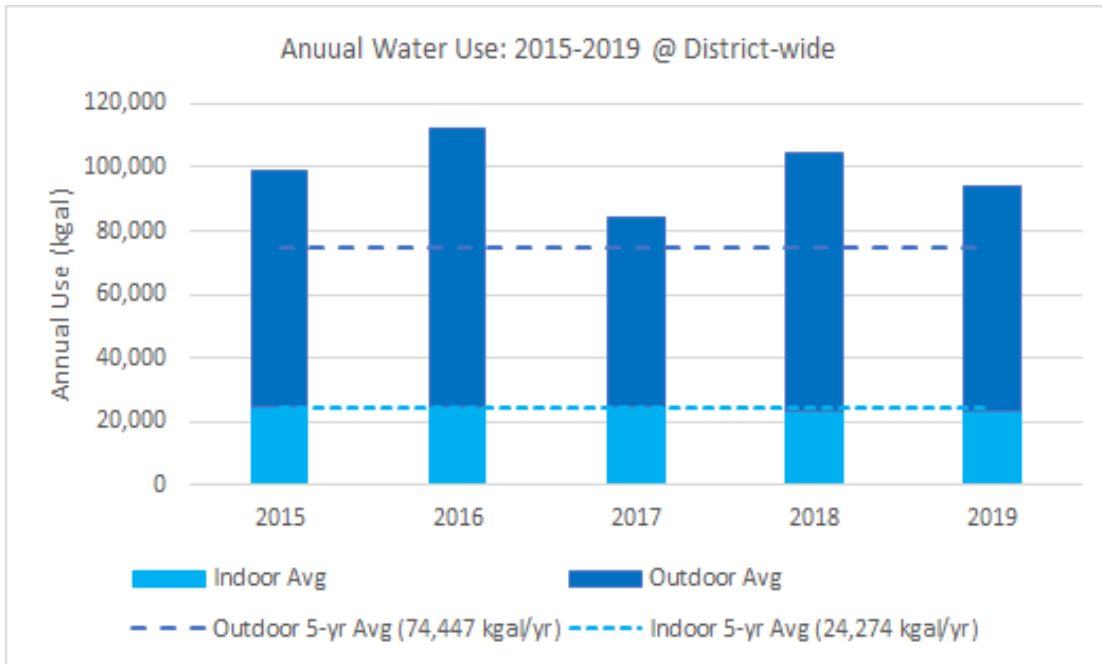


Figure 6. District-wide Annual Water Use from FY2014-2015 through FY2018-2019

Table 4. Five-Year Average Baseline Metrics for Water Use by Sector

Sector	Baseline Metric
District-wide Use	Total: 98,721 kgal/yr Outdoor*: 74,447 kgal/yr Indoor: 24,274 kgal/yr
Elementary School Use	Total: 2,194 kgal/yr Outdoor*: 1,728 kgal/yr Indoor: 467 kgal/yr
Middle School Use	Total: 6,459 kgal/yr Outdoor*: 5,628 kgal/yr Indoor: 830 kgal/yr
High School Use	Total: 4,706 kgal/yr Outdoor*: 3,269 kgal/yr Indoor: 1,436 kgal/yr

\*Note: This only includes potable water.



## Goals and Strategies to Reduce Water Use

*Reduce 10% of district-wide baseline indoor water usage by the end of FY2025-26.*

- Strategies:
  - Add low-flow faucet aerators on bathroom and classroom sinks where appropriate.
  - Replace inefficient toilets and urinals with low-flow ones.
  - Educate students and staff on how to reduce water waste indoors.
  - Review process with staff on how to report leaks, running toilets, etc. to custodial and maintenance staff.
  - Host a district-wide student competition to develop posters, artwork, etc. about reducing water use in the schools and community-wide.

*Reduce 10% of district-wide baseline outdoor water use by the end of FY2025-26.*

- Strategies:
  - Conduct irrigation audits to determine how to improve system efficiency.
  - Install smart sprinkler systems where feasible.
  - Determine where turf is unnecessary and shift to xeriscape as appropriate.
  - Change the status quo to accept xeriscape as natural beauty and the norm rather than large grass fields through student poster campaigns, design competitions, and demonstration gardens.

*Have at least one outdoor learning area at each school by the end of FY2025-26 that converts irrigated turf area to xeriscape.*

- Strategies:
  - Get community members involved in the development of outdoor structures and sitting areas to increase awareness and ownership.

## Waste

### Baseline Metrics

The District contracts weekly waste collection services to a local waste hauler. Waste is a reality of today's society. However, there are opportunities to reduce what is sent to the landfill through behavioral and awareness programs. Ensuring that everything is disposed of properly is key to not only reducing the amount of waste being sent to landfills, but also reduces our waste collection costs.

The diversion rate looks at the percent of total waste by volume being diverted from the landfill in the form of recycling or compost. At Thompson School District, no current composting programs are in place; therefore, our diversion rate considers recycling only. Figure 7 depicts the annual waste diversion rate across the District from FY 2014-2015 to FY 2018-2019 and indicates the five-year average of 32%. Table 5 shows the baseline metrics for the District as a whole, elementary schools, middle schools, and high schools. The waste hauler generally anticipates an average diversion rate around 30-40% at schools.

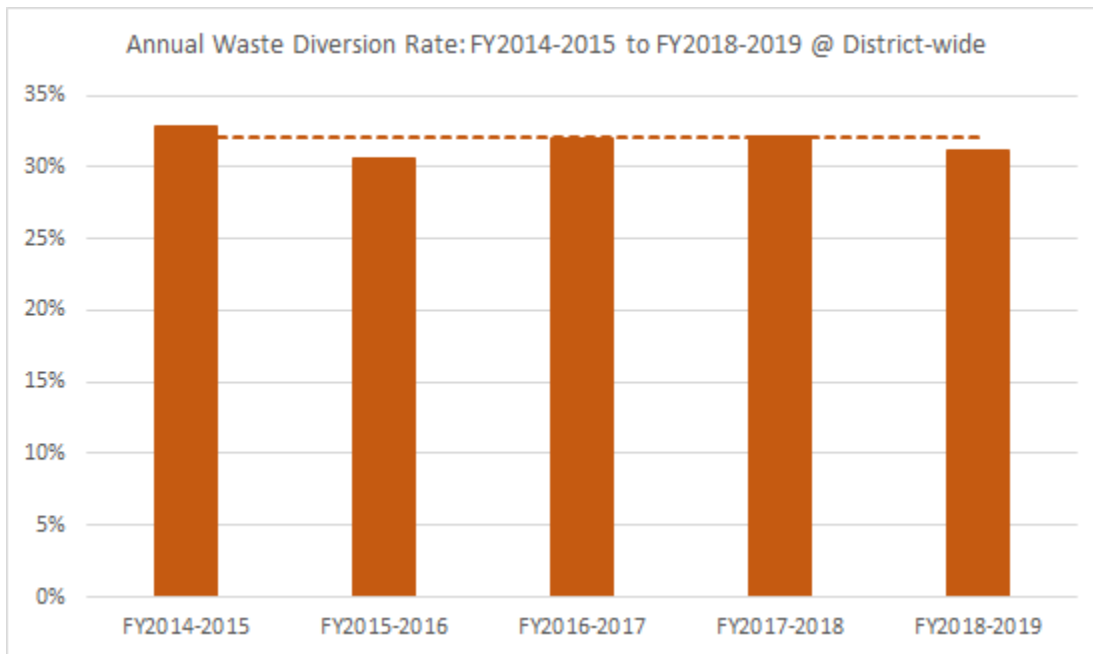


Figure 7. District-wide Annual Waste Diversion Rate from FY2014-2015 through FY2018-2019

*Table 5. Five-Year Average Baseline Metrics for Waste Diversion Rate by Sector*

Sector	Baseline Metric
District-wide total	32%
Elementary School	35%
Middle School	27%
High School	25%

### Goals and Strategies to Reduce Waste

*Reduce district-wide trash pickup volume by 5% of baseline by the end of FY2025-26.*

- Strategies:
  - Encourage the reduction of single-use items in schools through collaboration with Nutrition Services.
  - Install compactors and other space-saving techniques in schools.
  - Educate staff and students about stacking and compacting trash.
  - Ensure the use of reusable items rather than single-use items.
  - Host zero waste competitions to engage students and staff in a gamified manner.

*Increase district-wide recycling volume by 10% by the end of FY2025-26.*

- Strategies:
  - Ensure schools have the bins and signage they need.
  - Educate staff and students on proper recycling.
  - Host zero waste competitions to engage students and staff in a gamified manner.

*Integrate a functional recycling program in at least 10 schools by the end of FY2025-26.*

- Strategies:
  - Ensure the schools have the recycling bins and signage they need.
  - Partner with the waste management company to develop consistent messaging for the schools.
  - Educate the custodial staff on disposal and separation of waste streams.
  - Educate students and staff on importance and proper disposal of waste streams.
  - Take students on field trips to waste sorting facilities.
  - Host waste diversion workshops, competitions, guest speakers, etc.

*Develop composting programs at three or more schools by the end of FY2025-26.*

- Strategies:
  - Start with the schools who have expressed interest and conduct pilot programs.
  - Ensure the proper collection bins are available.
  - Host composting workshops for students and community members.

## Management of Hazardous and Universal Wastes

Hazardous wastes are unfortunate realities of society. Hazardous wastes include items that threaten human health and the environment such as mercury, lead, and asbestos. TSD has adopted environmentally-focused practices for generating and disposing of hazardous and electronic wastes. These practices are on an as-needed basis. Therefore, preventative goals and strategies are not realistic at this time in this plan. Below are some key approaches that support the District's environmental stewardship when managing hazardous wastes.

- TSD is licensed with the U.S. Environmental Protection Agency (EPA) as a very small quantity generator (VSQG) of hazardous wastes. This means that TSD does not generate more than 100 kg (220 lbs) of hazardous waste per month and no more than 1 kg (2.2 lbs) of acute hazardous waste per month. TSD transfers hazardous wastes to an authorized facility for management and disposal of the wastes.
- Each year, TSD collects approximately 1,500 fluorescent light bulbs from school campuses. The bulbs are transferred to a facility, which safely crushes and manages the waste stream. This process reduces the potential release of mercury into the environment.
- The composition of chemicals inside batteries can vary with the type of battery. Some chemicals commonly found in batteries include cadmium, lead, mercury, nickel, and lithium. Batteries can end up in landfills when thrown in the trash. These chemicals can leach into the soil, affecting the water supply, or can cause fires in the landfill when the chemicals encounter other materials. Batteries that have reached the end of their life are collected from school campuses and brought to a battery collection facility.
- TSD's Information Technology Services (ITS) Department reuses and recycles electronics on a replacement schedule. Equipment that has reached its end of life or end of usefulness is made available via an auction site for sale, sold back to manufacturers, refurbished, or disposed of through authorized electronic recyclers.
- Waste tires generated by the Transportation and Grounds Departments are transferred to a registered waste tire hauler. By using a registered hauler, TSD ensures that waste tires do not present safety or environmental concerns.