

SouthWest Transit Sustainability Plan

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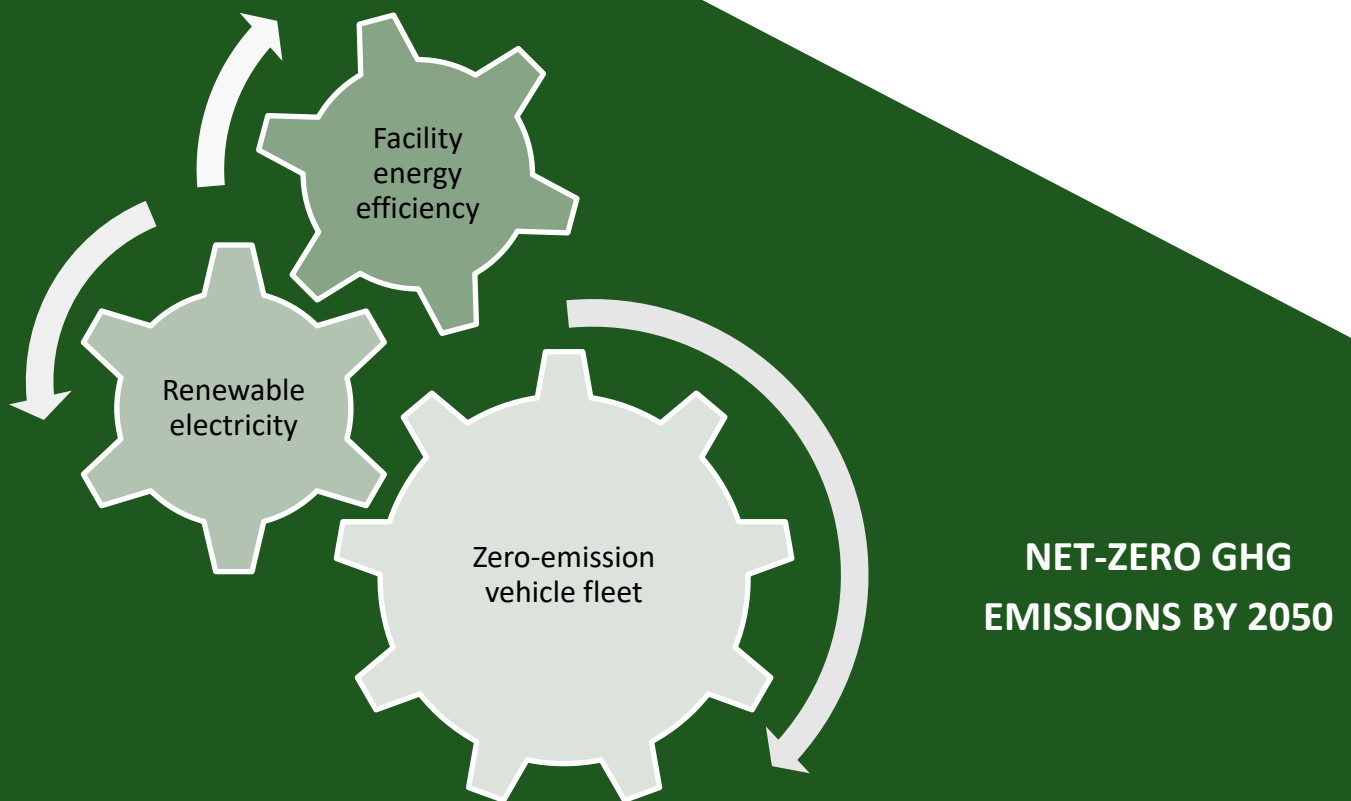
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Introduction

This plan was developed to support sustainability within the communities served by SouthWest Transit. It reports the results of a baseline greenhouse gas (GHG) emissions inventory for the years 2015-2020, establishes goals for reducing energy use and GHG emissions from the agency’s fleet and facilities, and – with feedback from key stakeholders within the agency – establishes a roadmap of tangible action items to achieve these goals by 2050. This plan is intended to be a living document that continues to evolve as implementation occurs and technologies, regulations, partnerships, and funding opportunities shift. Progress updates will be developed annually with highlights included in the agency’s public reports.

Figure 1.
SouthWest Transit's sustainability approach, with goals for facility energy efficiency, renewable electricity and zero-emissions vehicles supporting an overall goal of net-zero GHG emissions by 2050



Agency Overview

In 1986, the cities of Chaska, Chanhassen, and Eden Prairie chose to opt out of the Metropolitan Transit Commission transit system and under a joint powers agreement created their own transit system, SouthWest Metro Transit (now called SouthWest Transit). This agency is a part of the regional transit system that includes a variety of public and private agencies serving the Twin Cities Metropolitan Area, with regional transit policies administered through the Metropolitan Council.

SouthWest Transit provides express service to and from downtown Minneapolis and the University of Minnesota, routes to several other job/student/retail centers, local on-demand door-to-door service (microtransit), non-emergency medical transportation, and seasonal transportation to special events and recreational destinations.

SouthWest Transit consistently provides over 1 million passenger trips annually (pre COVID-19 pandemic) and owns and operates around 85 vehicles (large buses, small buses, trolleys, and a 1947 Greyhound bus restored for promotional use). The agency owns a bus garage and maintenance facility in Eden Prairie that also includes administrative offices. It operates five park and ride locations throughout Eden Prairie, Chanhassen, Chaska, and Carver. These transit stations each include parking for 400-1000 vehicles (primarily in parking ramps) and an air-conditioned transit station for passengers.

The majority of SouthWest Transit’s revenue – which totaled \$12.4M in 2019 – comes from intergovernmental funding through the Minnesota State Vehicle Sales Tax, while about a quarter comes from passenger fares. Nearly 60% of the operating budget funds vehicle operations expenses (e.g. drivers, uniforms, and fuel), 20% funds vehicle maintenance, and the remainder is split between facility maintenance and administration.

Additional information about the agency can be found in its [annual report](#).



Emissions Inventory

SouthWest Transit’s GHG emissions for 2015, 2017, 2019, and 2020 have been assessed using methodologies consistent with the *Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories*, produced by ICLEI and The Climate Registry.¹

The assessment analyzes GHGs from fuel used for the agency’s transit services as well as electricity and natural gas used at their bus garage and four owned transit stations.² The majority (84%) of the agency’s GHG emissions are from transportation fuel used for transit services, with 73% from large buses and 11% from small buses. The remaining 16% are from facility energy use, with the Eden Prairie Garage and Maintenance Facility emitting roughly the same amount of GHGs as the four transit stations combined (Figure 2).

The agency’s emissions decreased 9% from 2015 to 2019 due primarily to the start of on-demand service and the associated shift from large to small buses. From 2019 to 2020, emissions dropped 48% due to the decrease in transit services during the COVID-19 pandemic (Figure 3).

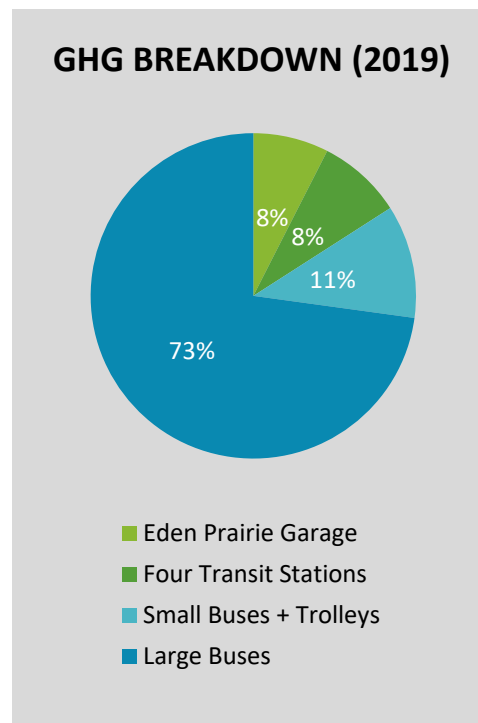


Figure 2. SouthWest Transit GHG emissions breakdown for 2019

SOUTHWEST TRANSIT GREENHOUSE GAS EMISSIONS

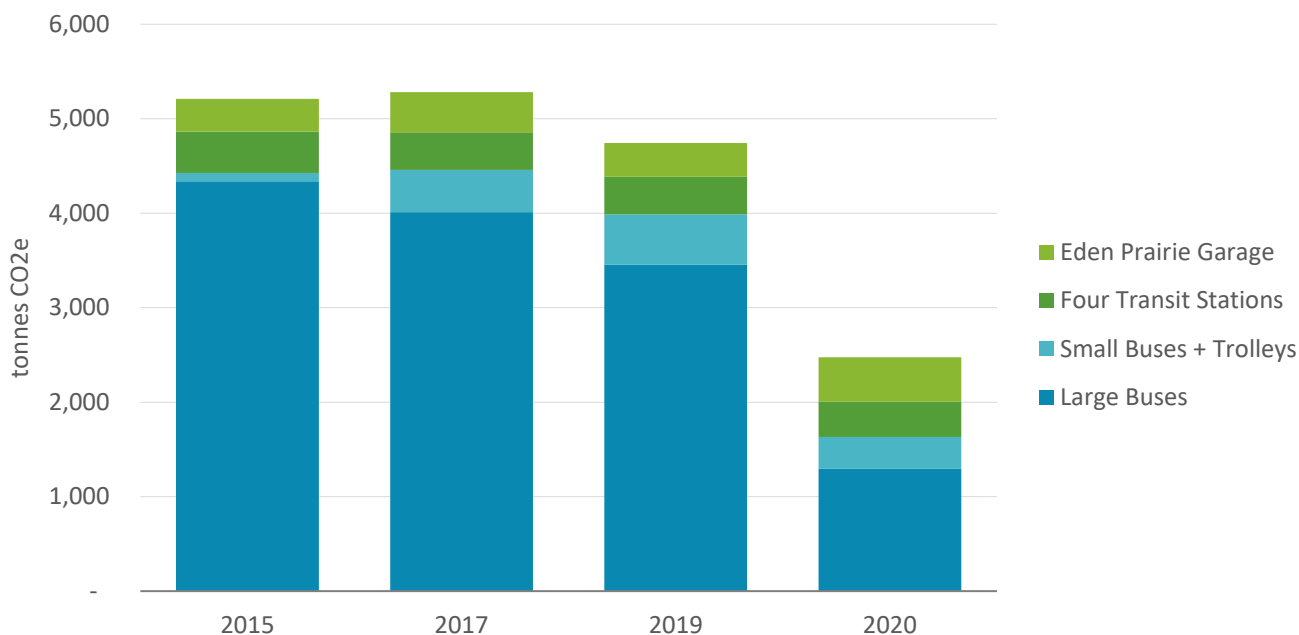


Figure 3. SouthWest Transit GHG emissions by source from 2015 to 2020

Transit Services

Despite a 3% increase in fleet miles traveled from 2015 to 2019 (Figure 4), fleet emissions dropped by 10% over this time period (Figure 5). This is due to the shift from large to small buses with the addition of on-demand services in 2017. Shifting over 400,000 annual miles to these small buses – which are nearly twice as fuel efficient – helped cause a 13% decrease in emissions per mile traveled.

2020 fleet emissions dropped by 59% from 2019 as miles traveled were cut in half due to the COVID-19 pandemic, with the greatest reduction in service coming from large buses.

It should be noted that much of the emissions caused by SouthWest Transit’s operations are displacing regional transportation sector emissions by shifting users from passenger cars to transit, reducing congestion, and enabling more compact development patterns. These emission “credits” have not been quantified for this assessment.

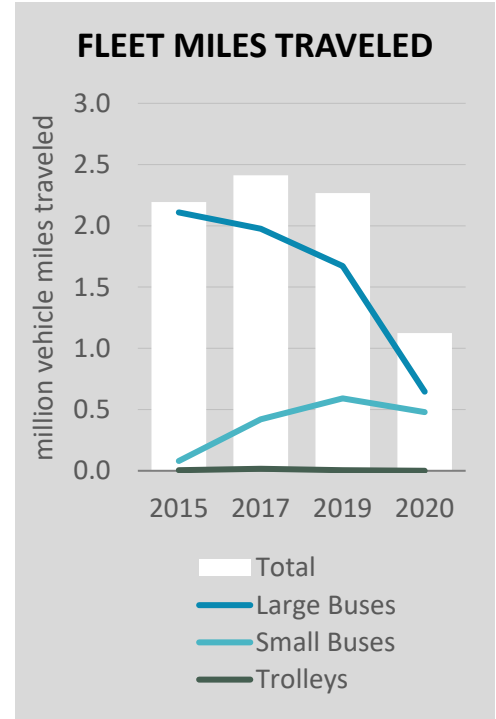


Figure 4. SouthWest Transit fleet miles traveled by vehicle type from 2015 to 2020

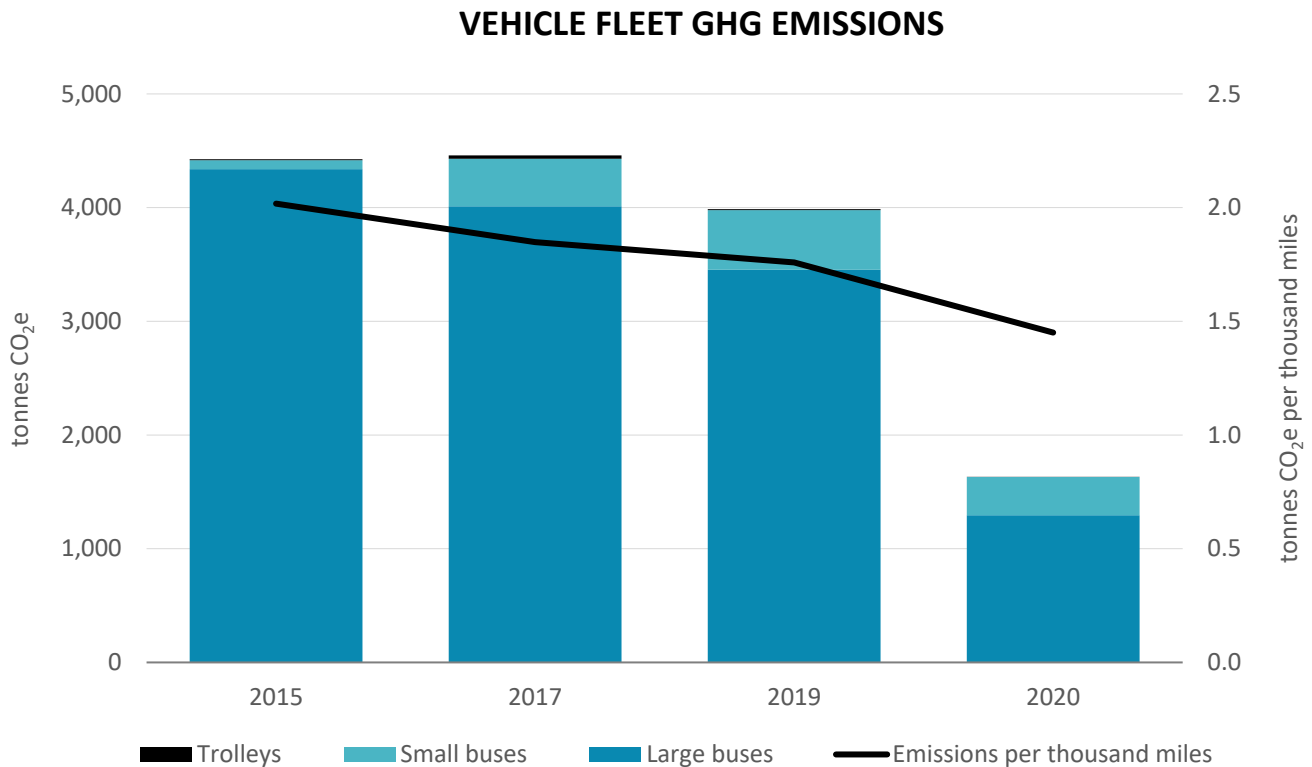


Figure 5. SouthWest Transit fleet GHG emissions by vehicle type and overall fleet GHG emissions intensity from 2015 to 2020

Facilities

The Eden Prairie Garage and Maintenance Facility uses electricity and natural gas to serve its enclosed bus garage, maintenance shop, and office spaces. The agency’s four transit stations use energy to serve small indoor spaces as well as for lighting their open-air parking structures. Two of the transit stations (SouthWest Station and SouthWest Village) are all-electric, using heat pumps rather than natural gas equipment for heating.

Facility energy use varied significantly over the study period, with the highest year (2020) 26% higher than the lowest year (2015) (Figure 6). Some of the changes can be attributed to shifts in building use. In 2019-2020, the agency relocated administrative staff from the SouthWest Station to SouthWest Village and the Eden Prairie Garage, where an additional level of office space was constructed. This construction project also added air conditioning to the maintenance shop and upgrades to the natural gas-powered infrared heaters in the garage, helping explain why natural gas use at this facility increased by 76% from 2019 to 2020.

Energy use variation in several of the transit stations can also be attributed to weather – 2019 was the coldest winter – as well as energy efficiency projects such as switching to LED lighting, which has been occurring since before the 2015 baseline year.³ There did not appear to be significant facility energy savings associated with the reduction in transit services during the COVID-19 pandemic in 2020. This, along with the large variation in energy use over time, suggests there may be opportunities to implement low- or no-cost energy-efficient operations strategies to reduce energy use and associate emissions and costs.

Although facility GHG emissions trends are heavily dependent on energy use, the sources of energy are also impactful. Despite the 26% increase in energy use from 2015 to 2020, facility GHG emissions only increased by 8%. This reflects the relative breakdown between natural gas and electricity as well as cleaner electricity supplied by the utility companies serving the facilities; the electricity emissions rate (tonnes CO₂e per kWh) dropped by 11% over this time period.

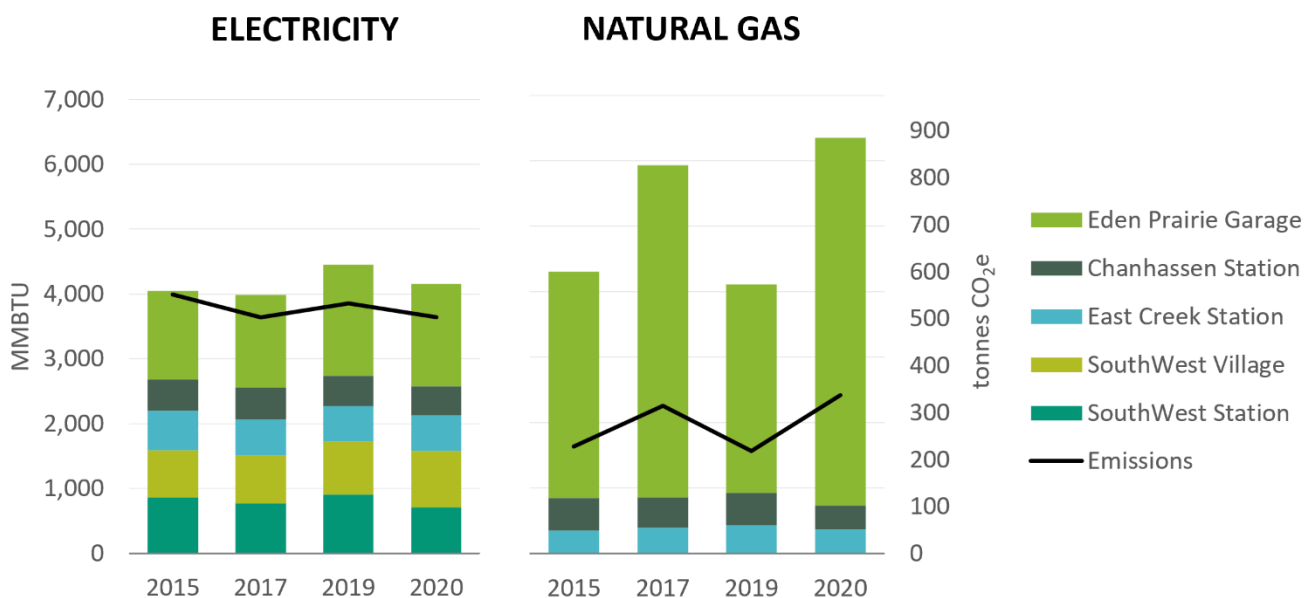


Figure 6. SouthWest Transit facility electricity use (left) and natural gas use (right) by facility for 2015 to 2020, with units shown on the left vertical axis. Total GHG emissions from electricity and natural gas use are shown as lines, with units shown on the right vertical axis.

Past and Current Initiatives

Agency Actions

Over the past decade, SouthWest Transit has engaged in several efforts that have reduced energy use and GHG emissions, including replacing lighting fixtures with LEDs and expanding microtransit services that improve system efficiency and use smaller vehicles with better fuel economy.

Additionally, SouthWest Transit has a history of innovation as an early adopter of transit-oriented development, coach express buses, 45-foot low floor buses, wi-fi, and phone apps. The agency is currently working on an autonomous vehicle demonstration pilot service in Eden Prairie and will be piloting its first electric vehicle as part of its SW Prime microtransit service.

City Goals

This Sustainability Plan was inspired by Eden Prairie's Climate Action Plan, which presents a goal of community-wide carbon-neutrality by 2050. The Climate Action Plan models a pathway to achieve this through strategies ranging from local solar electricity to 100% electric vehicles (Table 1). Eden Prairie's actions can inform and support those taken by SouthWest Transit.

Relevant Eden Prairie actions include:

- Promote building and operations Best Management Practices
- Publicize financial [resources for energy efficiency and renewable energy projects](#) on City website
- Create a Commercial Energy Squad program
- Promote renewable energy
- Encourage flex [utility] pricing participation
- Promote participation in Xcel Energy's renewable energy programs such as [Windsource®](#) and [Renewable*Connect®](#)
- Provide education on types of green power options
- Adopt and enforce an energy disclosure policy
- Prepare for grid modernization and battery stations
- Educate, promote and continue offering [PACE financing](#) for clean energy projects
- Explore incentives to promote fuel switching

The other communities SouthWest Transit serves also include sustainability policies related to renewable energy, building efficiency, and electric vehicles in their 2040 Comprehensive Plans (Table 1).

Table 1. Relevant sustainability goals and policies for communities served by SouthWest Transit

	Eden Prairie ⁴	Chaska ⁵	Chanhausen ⁶
Renewable Energy	10% local solar electricity by 2030	Encourage businesses to participate in renewable energy programs or install renewable energy systems	Support business solar development
Building Efficiency	50% participation in utility conservation programs by 2025 for large users	Promote and support energy efficient building design and operations	--
Building Electrification	70% commercial building electrification by 2050	--	--
Electric Vehicles	100% electrification of vehicles by 2050	Implementation of electric vehicle technologies along transit areas, where cost-effective	Explore vehicle electrification

State Goals

The State of Minnesota also has sustainability goals that can inform SouthWest Transit’s efforts, including:

- Reduce greenhouse gas emissions (GHG) statewide to a level at least 15% below 2005 base levels by 2015, 30% by 2025, and 80% by 2050 (Minn. Stat. §216H.02).
- Derive 25% by 2025 of total energy used in the state from renewable resources for heating, industrial processes, transportation, and electricity generation (Minnesota Statute §216.05).
- Derive 25% of retail electricity sold in the state from renewable resources by 2025; 30% for Xcel Energy by 2020 (Minn. Stat. §216B.1691, Subdivision 2a).
- Generate 1.5% of public utility retail electricity sales from solar energy by 2020, and 10% of all retail electricity sales from solar energy by 2030 (Minn. Stat. §216B.1691, Subd. 2f).
- Achieve energy savings of 1.5% of average annual retail sales each year for electric and natural gas utilities, unless adjusted by the commissioner to no less than 1.0% (Minn. Stat. §216.241).

New policy proposals presented by the Walz-Flanagan administration include 100% carbon-free electricity by 2040, as well as a goal to reduce carbon in existing buildings by 50% by 2035.⁷

Federal Goals

In April 2021, President Biden set a goal for the United States to achieve a 50-52 percent reduction in economy-wide net greenhouse gas pollution in 2030, from 2005 levels. To support this goal, the U.S. Federal Transit Administration launched the *Sustainable Transit for a Healthy Planet Challenge*, which calls on transit agencies to develop GHG reduction goals and strategies. SouthWest Transit was one of the 170 agencies that signed up for the Challenge.⁸

Goals and Strategies

SouthWest Transit has established an overarching goal to achieve **net-zero GHG emissions by 2050**. This goal is supported by three additional goals, each of which is supported by one or more strategies (Figure 7) as well as a series of actions.

1. Decrease building energy use intensity by 25% by 2030 from 2015
2. 100% renewable electricity by 2030
3. Zero-emission vehicle fleet and equipment by 2050

SouthWest Transit Sustainability Goals and Strategies

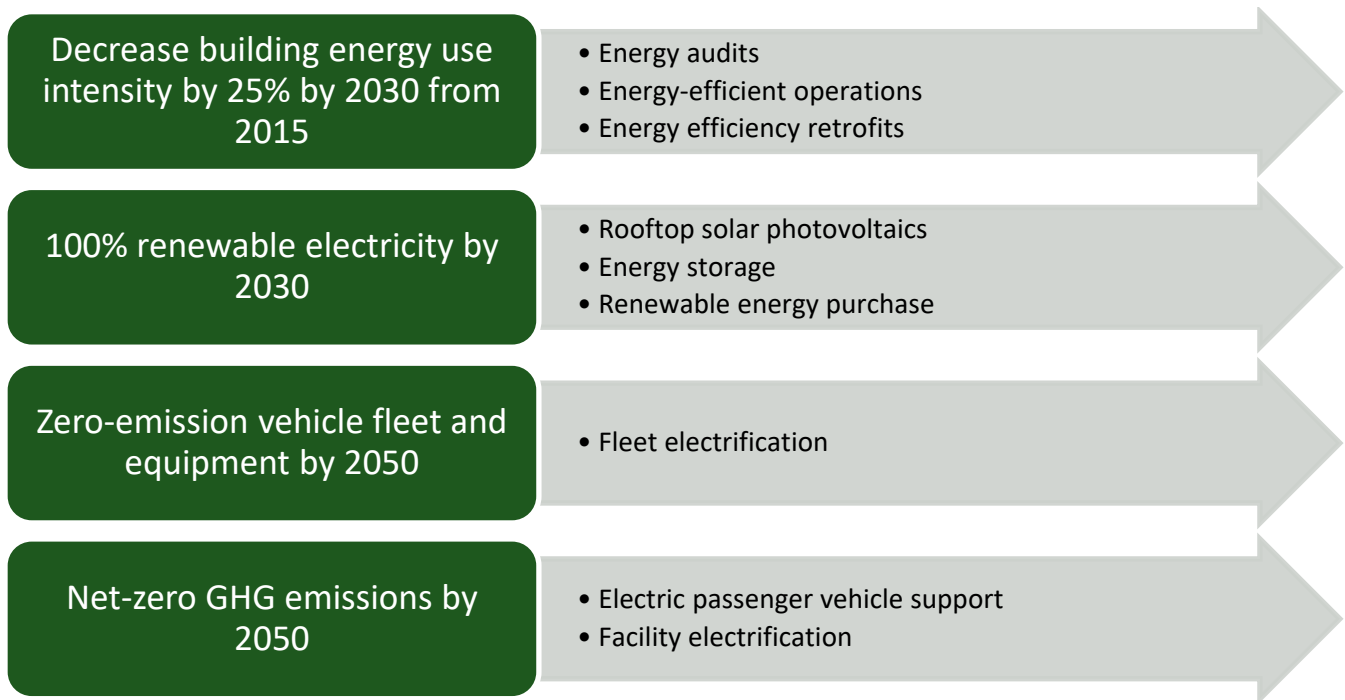


Figure 7. SouthWest Transit sustainability goals and strategies

Actions

The action matrix below identifies specific actions for each strategy, along with metrics to track progress, a timeframe for completion, and the responsible party. This matrix is intended to be used as a work plan during the implementation period. See Appendix A: Timeline for Actions for a breakdown of near- vs. long-term actions.

GOAL #1: DECREASE BUILDING ENERGY USE INTENSITY BY 25% BY 2030 FROM 2015

Strategy	Actions	Metric	Timeframe	Responsible
Energy audits	Develop a current set of owner’s project requirements (OPR) for the Eden Prairie Garage. Include a seasonal/weather-based bus wash schedule and define ventilation requirements for the existing bus fleet and as the fleet changes. ⁹	Y/N OPR complete	Summer 2022	Vehicle & Facilities Maintenance Director
	Confirm the OPRs are current for the transit stations.	Y/N OPRs complete	Summer 2022	Vehicle & Facilities Maintenance Director
	Conduct an energy audit of the Eden Prairie Garage – including process loads – to identify large energy users and potential retrofit projects.	Y/N energy audit complete	Fall 2022	Vehicle & Facilities Maintenance Director
	Conduct energy audits of the four transit stations.	# of facilities with energy audit complete	Fall 2022	Vehicle & Facilities Maintenance Director
Energy-efficient operations	Conduct re-commissioning of the Eden Prairie Garage, informed by the large energy users/wasters identified in the audit. Update the building’s sequence of operations based on the current OPR, including recommendations to adjust building operations (e.g. ventilation) as the fleet transitions to electric.	Y/N re-commissioning complete Y/N sequence of operations updated	Winter 2022/2023	Vehicle & Facilities Maintenance Director
	Participate in the B3 Energy-Efficient Operations program for the Eden Prairie Garage.	Y/N participating in program	Spring 2023 – Ongoing	COO & Vehicle & Facilities Maintenance Director
	Ensure the seasonal bus wash schedule is being followed at the Eden Prairie Garage.	Y/N schedule being following	Spring 2023 – Ongoing	Facilities Engineer
	Conduct regular leak detection in compressed air systems at the Eden Prairie Garage.	# of annual leak detection activities	Spring 2023 – Ongoing	Vehicle & Facilities Maintenance Director & Facilities Engineer

Strategy	Actions	Metric	Timeframe	Responsible
	Conduct regular checks of lighting controls and operation at the transit stations.	# of annual lighting checks	Fall 2022 – Ongoing	Facilities Engineer
	Track building energy use for all facilities in B3 Benchmarking. Review data monthly and investigate any unexpected changes.	Y/N energy data is up-to-date in B3 Benchmarking % reduction in building energy use intensity from 2015 (goal is 25%)	Spring 2022 – Ongoing	COO & Vehicle & Facilities Maintenance Director
	Track water use for the Eden Prairie Garage in B3 Benchmarking, with the bus wash water broken out from other water uses. Review data monthly and investigate any unexpected changes.	Y/N water data is up-to-date in B3 Benchmarking	Spring 2022 – Ongoing	COO & Vehicle & Facilities Maintenance Director
	When the fleet transition is 50% complete, update the Eden Prairie Garage OPR, conduct re-commissioning, and update the sequence of operations.	Y/N re-commissioning complete	TBD	CEO, COO & Vehicle & Facilities Maintenance Director
	When the fleet transition is 100% complete, update the Eden Prairie Garage OPR, conduct re-commissioning, and update the sequence of operations.	Y/N re-commissioning complete	TBD	CEO, COO & Vehicle & Facilities Maintenance Director
Energy efficiency retrofits	Develop and implement an equipment replacement protocol to ensure equipment is replaced with energy- and water-efficient models at end-of-life, and to prioritize electric equipment (vs. fossil fuel-based).	Y/N equipment replacement plan developed	Spring 2022 – Ongoing	Vehicle & Facilities Maintenance Director
	Develop an implementation plan for energy efficiency retrofits recommended in the energy audits, including timeline, estimated costs, and funding sources. Prioritize electric equipment (vs. fossil fuel-based).	Y/N implementation plan developed	Spring 2023	COO, Vehicle & Facilities Maintenance Director
	Implement energy efficiency retrofits.	# of retrofit projects completed	Summer 2023 – Summer 2028	Vehicle & Facilities Maintenance Director, Facilities Engineer

GOAL #2: 100% RENEWABLE ELECTRICITY BY 2030

Strategy	Actions	Metric	Timeframe	Responsible
Rooftop solar photovoltaics	Coordinate with the electric utilities serving each facility to understand current regulatory and programmatic opportunities and constraints regarding rooftop solar photovoltaics.	Y/N rooftop solar opportunities and constraints identified	Spring 2022	CEO, COO, Vehicle & Facilities Maintenance Director, Facilities Engineer
	Engage a solar specialist to develop an RFP for solar photovoltaics on the Eden Prairie Garage rooftop, defining the targeted size, structural reinforcing plan, and system configuration.	Y/N RFP developed	Summer 2022	CEO, COO, Vehicle & Facilities Maintenance Director, Facilities Engineer
	Install solar photovoltaic system on Eden Prairie Garage.	# kW of solar PV installed % of total agency electricity use offset by rooftop solar generation (from all facilities)	Fall 2022 – Fall 2026	Vehicle & Facilities Maintenance Director, Facilities Engineer
	Engage a solar specialist to develop an RFP for solar photovoltaic canopies on the transit stations' parking decks, defining the targeted initial size, structural reinforcing plan (if needed), system configuration, and recommendations for future expansion.	Y/N RFP developed	Winter 2022	CEO, COO, Vehicle & Facilities Maintenance Director, Facilities Engineer
	Install solar photovoltaic canopies on transit stations with provisions to expand as electric loads increase to accommodate personal vehicle charging.	# kW of solar PV installed % of total agency electricity use offset by rooftop solar generation (from all facilities)	Spring 2023 – Spring 2035	CEO, COO, Vehicle & Facilities Maintenance Director
	Expand solar arrays on transit stations to accommodate increased electric loads and/or changes in solar tariffs.	# kW of solar PV installed	TBD	CEO, COO, Vehicle & Facilities Maintenance Director

Strategy	Actions	Metric	Timeframe	Responsible
Energy storage	Evaluate the best approach for energy storage at the Eden Prairie Garage and transit stations to maximize renewable energy generation, optimize energy cost savings, and provide resilience.	Y/N energy storage approach developed	Fall 2023	COO, Vehicle & Facilities Maintenance Director
	If appropriate, implement energy storage.	kWh of energy storage capacity	TBD	CEO, COO, Vehicle & Facilities Maintenance Director
Renewable energy purchase	Purchase renewable energy credits (RECs) for all electricity use not covered by rooftop solar.	% of total agency electricity purchased from renewable sources (goal is 100%) ¹⁰	Fall 2029 – Ongoing	COO, Vehicle & Facilities Maintenance Director

GOAL #3: ZERO-EMISSION VEHICLE FLEET & EQUIPMENT BY 2050

Strategy	Actions	Metric	Timeframe	Responsible
Fleet electrification	Develop vehicle electrification agency requirements defining service criteria (e.g. bus size and range), bus count, bus technology, and charging location(s) and timing.	Y/N requirements developed	Winter 2022	COO, Planning Department, Vehicle & Facilities Maintenance Director
	In coordination with the Metropolitan Council, develop an electric vehicle purchasing plan that will result in all electric buses by 2050.	Y/N plan developed	Winter 2023	COO, Vehicle & Facilities Maintenance Director
	Identify potential funding sources and pursue funding.	\$ pursued	Winter 2022 - Ongoing	CEO, COO, Vehicle & Facilities Maintenance Director
	Complete small electric vehicle and equipment pilot/testing and associated facility upgrades.	Y/N pilot complete	Summer 2022 – Spring 2024	COO, Vehicle & Facilities Maintenance Director
	Develop a Basis of Design defining charging infrastructure, facility retrofit requirements, resilience approach, and utility interface (e.g tariffs, peak loads, load shifting through battery storage).	Y/N BOD developed	Summer 2023	Vehicle & Facilities Maintenance Director, Facilities Engineer
	Develop a Concept of Operations Plan to define equipment performance criteria and an operational strategy to maximize resilience and minimize the cost of energy.	Y/N plan developed	Summer 2023	Vehicle & Facilities Maintenance Director, Facilities Engineer
	Upgrade facilities to accommodate electric vehicles.	Y/N facilities updated	Summer 2024 – Ongoing	CEO, COO, Vehicle & Facilities Maintenance Director
	Complete large electric bus pilot/testing.	Y/N pilot complete	Spring 2025 – Fall 2030	CEO, COO, Vehicle & Facilities Maintenance Director
	Implement vehicle purchasing plan.	% of vehicles that are electric (goal is 100%)	Spring 2025 – Winter 2049	COO, Vehicle & Facilities Maintenance Director

GOAL #4: NET-ZERO GHG EMISSIONS BY 2050

Strategy	Actions	Metric	Timeframe	Responsible
Electric passenger vehicle support	Develop a plan for adding EV charging infrastructure for passenger vehicles at facilities, targeting at least 40% of all utilized parking spots by 2050. The plan should include the number, location, and type of chargers, potential for engaging third-party partners (to install, own, operate, and/or maintain charging stations), approach to metering/billing, expansion capabilities, and a detailed timeline.	Y/N plan developed	Spring 2023	CEO, COO, Vehicle & Facilities Maintenance Director
	Implement EV charging infrastructure plan.	% of parking spots with electric vehicle supply equipment	Summer 2023 – Winter 2049	CEO, COO, Vehicle & Facilities Maintenance Director
Facility electrification	Develop facility electrification plan including which natural gas loads can be replaced with electric alternatives, an approach for any equipment without electric alternatives, a cost analysis, funding sources, and a detailed timeline.	Y/N plan developed	Spring 2023	CEO, COO, Vehicle & Facilities Maintenance Director
	Implement facility electrification plan.	% of energy use provided by fossil fuels (goal is 0%)	Summer 2023 – Winter 2039	CEO, COO, Vehicle & Facilities Maintenance Director

Implementation and Monitoring

Accountability for achieving the sustainability goals outlined in this plan must come from agency leadership, who will need to ensure the goals remain a priority among other agency efforts, maintain a strong team to implement actions, and sustain the momentum for this work over time. To the extent practical, the actions listed here will be incorporated into existing agency processes and products, making them an integral part of the workflow rather than an additional responsibility that may not always reach the top of the priority list.

With support from agency leadership, an internal working group of staff members will implement the plan’s actions and track progress. Detailed internal updates and summary-level public updates will be produced annually, and updated GHG inventories will be conducted every three years (Table 2).

Table 2. Plan implementation action matrix

Strategy	Actions	Timeframe	Responsible
Implement working group	Establish an internal working group of staff members responsible for plan implementation.	Spring 2022	CEO, COO, Vehicle & Facilities Maintenance Director
	Develop detailed steps for completing each near-term action, such as identifying and securing funding, engaging external consultants or partners, etc.	Spring 2022	Working group
	Meet regularly to report on working group activities and work through any issues that arise.	Monthly	Working group
	Record current status and open questions for each action within the action matrix in preparation for each working meeting.	Monthly	Working group
	Update the action matrix as needed to reflect changes in technologies, regulations, partnerships, and funding opportunities that may impact the actions and timelines.	As needed	Working group
Report progress	Produce an internal annual report on implementation progress and share with agency leadership. This should describe the work to-date, report on the metrics listed in the action matrix, and highlight any changes made to the actions or timeline.	Annually, by December 15	Working group
	Highlight current sustainability actions and metrics in the agency’s annual report and State of the Agency presentation to the SouthWest Transit Commission.	Annually, by February 15	CEO, COO, Vehicle & Facilities Maintenance Director
	Conduct a GHG inventory of agency operations for the most recent three years, using the same scope and methodology as the baseline inventories conducted for the Sustainability Plan. ¹¹	Every three years, starting in Spring 2024	Vehicle & Facilities Maintenance Director, Facilities Engineer

Partnerships

While several of the actions listed in this plan can be accomplished internally, strategic partnerships will enable more efficient and meaningful progress. This will involve coordination and collaboration with current partners such as the Metropolitan Council and Minnesota Department of Transportation, as well as other transit service providers in the area – several of whom are working toward similar goals.

As described in the Past and Current Initiatives section, the City of Eden Prairie is working on multiple initiatives that can support SouthWest Transit, such as providing connections to resources for energy efficiency, renewable energy, and building electrification. Similarly, the cities of Chaska and Chanhassen may be interested in partnering to install local renewable energy and EV charging infrastructure. By serving as a pilot or case study, the agency can help inspire additional action within the communities it serves.

Energy utilities will be another key partner in plan implementation. The utilities serving SouthWest Transit’s facilities offer incentives for energy audits, commissioning, and efficiency retrofits, and may be interested in partnering on renewable energy, storage, and EV charging projects.

Finally, it will be valuable to connect with specialists from the private sector – who can provide additional expertise and capacity for specialized tasks – as well as other transit agencies from around the country to exchange lessons learned.

Value Alignment

The actions listed in this plan will be implemented in accordance with the agency’s mission to: *provide customers a first-class experience while bringing value to the businesses and the communities we serve*, as well as its values of:

- Commitment to Excellence
- Commitment to Customer Satisfaction and Service
- Commitment to Innovation, Technology, and Entrepreneurship
- Commitment to Employee Morale and Well-Being
- Commitment to Financial Strength and Independence
- Commitment to Leadership
- Commitment to the Communities We Serve

This alignment with values will include considering how actions demonstrate leadership and innovation as well as how they impact customers, employees, and the agency’s financial independence. For example, the agency will consider how environmental benefits (such as air quality improvements from zero emissions buses) are distributed equitably across its service area during plan rollout, as well as how their actions can best support operational resilience (such as setting up rooftop solar plus energy storage to serve as backup power).

Appendix A: Timeline for Actions

This list groups SouthWest Transit’s sustainability actions based on their implementation timeline. For more detail on what the actions entail, see the Actions section of the Sustainability Plan.

In the first six months:

- Develop current owner’s project requirements (OPR) for Eden Prairie Garage and confirm OPRs for transit stations.
- Begin tracking building energy and water use.
- Develop an equipment replacement protocol.
- Develop an RFP for solar photovoltaics on the Eden Prairie Garage.
- Begin small electric bus pilot/testing and associated facility upgrades.

In the first year:

- Conduct energy audits of five owned facilities.
- Recommission Eden Prairie Garage.
- Begin regular lighting checks at the transit stations.
- Begin implementing equipment replacement protocol.
- Begin installing solar photovoltaic system on Eden Prairie Garage.
- Develop an RFP for solar photovoltaic canopies on the transit stations.
- Develop bus electrification agency requirements and an electric bus purchasing plan, and pursue funding for electric buses.
- Complete small electric bus pilot/testing and associated facility upgrades.
- Continue to track building energy and water use.

In the first three years:

- Participate in Energy-Efficient Operations program for the Eden Prairie Garage. Begin to use seasonal bus wash schedule and conduct regular leak detection in compressed air systems.
- Develop an implementation plan for energy efficiency retrofits and begin implementing.
- Begin installing solar photovoltaic canopies on transit stations.
- Evaluate energy storage options.
- Upgrade facilities to accommodate electric buses (based on a Basis of Design and Concept of Operations Plan).
- Develop an EV charging infrastructure plan for passenger vehicles and begin implementing.
- Develop a facility electrification plan and begin implementing.
- Complete: installation of solar photovoltaic system on Eden Prairie Garage and small electric bus pilot/testing and associated facility upgrades.
- Continue: tracking building energy and water use, regular lighting checks at the transit stations, implementing equipment replacement protocol, and pursuing funding for electric buses.

By 2050:

- Update OPR, conduct recommissioning, and update the sequence of operations for Eden Prairie Garage.
- Expand solar arrays on transit stations.
- Implement energy storage.
- Purchase renewable energy credits.
- Complete large electric bus pilot/testing.
- Implement bus purchasing plan.
- Complete: energy efficiency retrofits, installation of solar photovoltaic canopies on transit stations, EV charging infrastructure for passenger vehicles, and facility electrification.
- Continue: tracking building energy and water use, regular lighting checks at the transit stations, energy-efficient operations for the Eden Prairie Garage (including seasonal bus wash schedule and regular leak detection in compressed air systems), implementing equipment replacement protocol, and pursuing funding for electric buses.

Notes

¹ The *Local Government Operations Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories* serves as a national standard to define which emissions sources and activities should be included in an operations-based inventory and provides methodologies to account for these emissions. The ICLEI Protocol accounts for the six internationally recognized GHGs that directly impact the climate (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride). While these gases have different levels of heat-trapping potential, they are assessed using the common metric of carbon dioxide equivalents (CO₂e). Consistent with the ICLEI Protocol, greenhouse gases are expressed in metric tonnes, which equal 1,000 kilograms, or 2,204.6 U.S. pounds.

All the sources of data for the GHG assessment are transparent, fully identified, verifiable, and reliable. They consist of SouthWest Transit records and staff reports; utility records and reports to the Minnesota Public Utilities Commission; internationally recognized methodologies and published scientific papers regarding the calculation of GHG emissions; federal, state, and county agencies (USDOT, USEPA, MNDOT, MPCA) and other published sources.

² Carver Station is completely owned by the City of Carver. However, the agency operates from the facility and maintains it on a contract basis. The GHG assessment does not include the emissions related to the operation of the facility, but it does include the emissions associated with liquid fuel consumption from vehicular operations based at the facility.

Greenhouse gas emissions related to the management of solid waste and sanitary sewer outflows are negligible compared to the emissions from transportation fuels and facility operations. Consistent with the ICLEI protocol, these emissions can be considered as *de minimis* and addressed qualitatively instead of quantitatively.

The agency also operates several maintenance vehicles and a 1947 Greyhound bus that the maintenance staff restored for promotional and ceremonial purposes. Emissions from fuel consumption for these operations is negligible compared to the overall agency GHG footprint, and as such, they are also considered *de minimis* emissions.

³ LED lighting changeouts for the SouthWest Village and SouthWest Station facilities were completed during 2015. Bulbs in the Eden Prairie Garage (not the office area) were changed out in December 2020 to LED.

⁴ Eden Prairie Climate Action Plan, March 17, 2020. These targets represent the strategies used to model a pathway to Eden Prairie's carbon neutrality goal. <https://www.edenprairie.org/community/sustainable-eden-prairie/climate-action-plan>

⁵ City of Chaska, 2040 Comprehensive Plan, Chapter 3 Natural and Environmental Resources Protection and Chapter 6 Transportation. <https://www.chaskamn.com/605/2040-Comprehensive-Plan>

⁶ City of Chanhassen 2040 Comprehensive Plan, adopted February 10, 2020. <https://www.ci.chanhassen.mn.us/1328/2040-Comprehensive-Plan>

⁷ Office of Governor Tim Walz and Lt. Governor Peggy Flanagan, "Governor Walz, Lieutenant Governor Flanagan, House and Senate DFL Energy Leads Announce Plan to Achieve 100 Percent Clean Energy in Minnesota by 2040," January 21, 2021. <https://mn.gov/governor/news/?id=1055-463873>

⁸ For more information, visit FTA's *Sustainable Transit for a Healthy Planet Challenge* website: <https://www.transit.dot.gov/climate-challenge>

⁹ This initial set of Owner's Project Requirements will not reflect the electrical system changes needed to charge EVs that are acquired in the future.

¹⁰ Including rooftop solar (if RECs are owned) and purchased RECs

¹¹ In future years, consider normalizing operational GHG emissions by passenger miles traveled or a similar indicator to better understand GHG emissions in the context of provided services.