



CLIMATE ACTION PLAN

CHAMPAIGN-URBANA MASS TRANSIT DISTRICT

APRIL 2022



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Executive Summary

Public transportation plays an important role in reducing greenhouse gas emissions and decreasing reliance on oil by providing an alternative to single-occupancy vehicles. The United States is the second largest country contributing to greenhouse gas emissions, while transportation is the fourth largest industry globally responsible. The Champaign-Urbana Mass Transit District (MTD) strives to enhance this positive environmental contribution by improving vehicles, facilities, and practices as an effort to be even more environmentally sustainable. MTD works diligently towards efforts for environmental sustainability and reducing greenhouse gas emissions. The District has set forth a variety of goals, policies, and practices to operate with a means to enhance the environmental impact in all viable areas. MTD has committed to and implemented a multitude of sustainability efforts to minimize the impact of District operations.

This Climate Action Plan describes how MTD's environmental sustainability efforts have been successful in reducing our impact on the environment. MTD's main goal is to provide safe and reliable transportation to the community we serve. To accomplish this, we must continually recognize and understand how the climate is changing, so that we can prepare for the future.

This Climate Action Plan includes MTD's approach to reducing fossil fuel consumption, reducing greenhouse gas emissions, and investing in renewable energy. Utilizing these frameworks to achieve these initiatives requires sustained leadership, bold policies, forward-thinking projects, and strategic investments. This Climate Action Plan redefines how MTD will lead the way to greater mobility by making meaningful and urgent calls to action in reducing greenhouse gas emissions within our community's transportation sector.

1. Introduction

Greenhouse gases and carbon dioxide emissions are a direct contributor and a primary cause of climate change. These human emissions have continued to be a detriment to our environment and atmosphere and are increasingly impacting climates and natural systems. With no feasible way to reverse the impacts that have resulted from these emissions, the global goal is to slow down the accumulation of these gases. Reducing and stabilizing carbon dioxide emissions in the atmosphere will require prompt, incremental actions be taken by all key contributors. Not only do these emissions alter the Earth's temperature, but also are the cause of rising sea-levels, wildfires, droughts, floods, and a variety of effects to inhabitants. As climate change continues to be an ever-growing threat, the transportation sector must respond.

As the public transportation provider in Champaign, Urbana, Savoy, and the University of Illinois Urbana-Champaign campus, MTD has worked for decades to advance and grow our contribution to the public good, adopt sustainable practices that benefit the environment, and to solicit input and feedback to continually improve our processes. The future of our planet and mobility in our community needs to be protected for future generations. MTD is committed to implementing and continually improving management practices to promote high quality and environmentally sustainable transportation options to the community.

MTD2071 is MTD's integrated quality and environmental management system. It is a combination of International Organization for Standardization (ISO) commitments and an ethos, all in one. MTD's Maintenance Facility received ISO 14001:2004 Environmental Management System certification in 2013 and is now certified in ISO 14001:2015 for all three facilities owned and operated by the District. MTD added a Quality Management System and earned the second certification in ISO 9001:2015 in November 2018. These ISO systems combined, along with a commitment from all MTD employees to work to both increase customer satisfaction and reduce environmental impact, are what form the basis for MTD2071.

What we do now, matters in the future: the year 2071 will likely exceed the professional lives of our current workforce, which is why now is the time to protect and preserve the work that we do. The District is motivated to make the changes and do the work now, to pass our work onto the future – 100 years after MTD's founding in 1971. The ultimate commitment of MTD2071 is to set goals, give regular updates, and keep our promises to our passengers and community in increase customer satisfaction and reduce the District's environmental impact. The guiding document for MTD2071, The [Quality and Environmental Policy](#), outlines the District's commitments through providing a framework for establishing and reviewing quality and environmental objectives.

MTD2071 is utilized as a guide for MTD's Climate Action Plan. This Climate Action Plan outlines MTD's commitments of taking bold actions and investment prioritization strategies with measurable goals to reduce and cut greenhouse gas emissions. This plan aims to support the Biden Administration's ambitious goal to achieve a 50-52 percent reduction from 2005 levels in economy-wide net greenhouse gas (GHG) pollution in 2030.

This Climate Action Plan intends for the realization of sustainable transit practices involving the balancing of costs, risks, opportunities, and performance benefits while tying investment priorities to MTD’s goals, objectives, and overall mission. In addition, this plan enhances the District’s ability to publicly communicate MTD’s successful approach to environmental sustainability in the transportation sector and the benefits of investing in energy efficient practices and possibilities. This Climate Action Plan includes objectives and strategies to optimize environmental sustainability and decrease greenhouse gas emissions in alignment with Federal, State, and local goals.



2. Agency Overview

The Champaign-Urbana Mass Transit District (MTD) provides the communities of Champaign, Urbana, and Savoy, and the University of Illinois with public transportation options. In Fiscal Year 2019 over 11.5 million rides were provided through MTD’s fixed-route bus service, paratransit service, and demand response van service. The District services the University of Illinois students, faculty, and staff, as well as Unit 4 and District 116 middle and high school students, elementary students, Parkland College students, faculty, and staff, Research Park researchers, and Carle Foundation patients within the community. MTD champions all efforts to decrease the number of single-occupancy vehicle trips taken within the community, reducing overall congestion, the impact on the shared environment, and saves the school districts and university millions of dollars every year in transportation costs. In addition to providing transportation, MTD regularly supports other forms of sustainable transportation such as biking, walking, and car sharing to promote mobility throughout the community. Public transit, biking, and walking all have direct, proven health benefits, and they have indirect benefits, too. The bus you take today reduces the congestion and environmental damage to which another one-person car trip would contribute.

Public transportation plays an important role in reducing greenhouse gas emissions and decreasing reliance on oil by providing an alternative to single-occupancy vehicles. MTD strives to enhance this positive environmental contribution by improving vehicles, facilities, and practices as an effort to be even more environmentally sustainable. MTD owns and operates four facilities: a maintenance facility; an Administration and Operations building; a CDL training center; and a downtown intermodal center, Illinois Terminal. The service area covered by the District includes three cities, with a population of approximately 135,000 residents. MTD’s 114-vehicle fixed-route fleet consist of two zero-emission hydrogen fuel-cell buses, 108 diesel-electric hybrid buses, and four standard diesel buses.

MTD will lead the way, not passively follow. As the District recognizes and embraces the never-ending need for greater mobility, comes the recognition of the never-ending possibilities of sustaining the community in which MTD operates. MTD’s mission and vision are an effort to take the focus beyond day-to-day operations, toward excellence. MTD will fervently and actively advocate for community mobility efforts and will both lead and partner to achieve the best possible outcomes and keep the community thriving.

Leading the way to greater mobility.

MTD goes beyond traditional boundaries to promote excellence in transportation.

The District’s mission and vision express clear values that are held throughout the organization and support the rich history of innovation and environmental efforts put forth. MTD was the first transit provider in the state of Illinois and sixth in the nation to achieve ISO 14001 Certification for the implementation of the Environment and Sustainability Management System (ESMS). The ISO 14001-Certified ESMS ensures that MTD is incorporating environmentally sustainable and responsible principles into all activities, products, and services. The District takes immense pride in the achievement of this certification and is working diligently to attain the ISO 9001:2015 Certification.



3. Past and Current Initiatives

The District adheres to all Federal, State, and local policies and goals that surround compliance of environmental sustainability efforts. These policies and goals set forth by governmental agencies help shape the framework in which the District develops measurable goals and implements strategies described in this Climate Action Plan.

Federal

- President Biden’s April 22, 2021, statement announcing the U.S. goal of achieving 50-52 percent reduction from 2005 levels in economy-wide net greenhouse gas pollution in 2030, 100 percent carbon pollution-free electricity by 2035, and achieving net-zero greenhouse gas emissions by no later than 2050.
- U.S. 40 CFR Parts 1500-1508: Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act
- U.S. Environmental Protection Agency’s Diesel Emissions Reduction Act (DERA)
- U.S. Clean Air Act (CAA), 42 U.S.C. 7401 et seq.

State

- State of Illinois Executive Order No. 2019-06: enters the State of Illinois into the U.S. Climate Alliance, committing to reducing greenhouse gas emissions consistent with the UN Paris Agreement.

Local

- The City of Urbana’s Climate Action Plan outlines a goal for 80% reduction in GHG emissions by 2050. This Plan indicates that the City’s transportation sector is the second largest contributor of greenhouse gases.
- The City of Champaign’s 2013 Environmental Sustainability Plan outlines a goal to reduce consumption of non-renewable energy to reduce GHG emissions and outline steps to increase power generation from wind and solar means.

Alongside ensuring compliance with all environmental sustainability requirements and goals, the District has taken its role in the community as an environmental leader very seriously.

MTD has achieved an abundance of key climate action contributions to date and takes pride in the rich history of innovation and environmental efforts made thus far. The past initiatives that have been set out to achieve, help identify where the District's continued efforts should be directed, based on success of reduction on environmental impact through sustainability achievement. Sustainability accomplishments will be explained in order to gain understanding of the previous initiatives that were successful, as a framework to understand the path the District has taken.

Vehicles

- **Hybrid buses** were first introduced into the District's fleet in 2009. As Hybrid buses were added to the fleet, standard diesel buses have been retired.
- A District-wide **Idling Policy** was instituted in 2009. This policy was proposed to protect public health and improve the environment by reducing noise, lowering emissions, and conserving fuel. The policy states that no MTD vehicle is to idle more than three minutes or engines must be shut down.
- MTD was awarded the largest single grant from the Illinois EPA through the Clean Diesel Grant Programs for the procurement of **Diesel Particulate Filters** (DPFs) in 2010. According to research, DPFs capture 90 percent of sub-particulates, and 75 to 85 percent of carbon monoxide and hydrocarbon emissions.
- In 2018, MTD secured grant funding for two **hydrogen fuel-cell buses**. The first two zero emission buses were in service in 2021. These buses came with some large goals such as: zero emission transportation, reducing fossil fuel consumption, and minimizing operational impact-range/fueling time.
- By 2023, MTD's bus fleet will be **100% low- or no-emissions**, with 98% of the feet made up of low-emission diesel-electric hybrid and 2% zero-emission hydrogen fuel cell.

"We want to plan our service to serve our community. We don't want to plan our service to serve our equipment. The beauty of the fuel cell bus is that, operationally, there are no alterations to our system that we need to make. The battery-electric buses do not have the range that allows you to just put a bus out and have it run for 18 hours. A hydrogen bus has a range that is equivalent to a diesel bus, so it's a one-for-one replacement."

— Karl Gnadt, Managing Director



Facilities

- Through the FTA's Transit Investments for Greenhouse Gas Energy Reduction Program, the District was awarded a grant to install a **geothermal heating and cooling system** in 2010. The National Renewable Energy Laboratory (NREL) completed calculations on MTD's energy usage and GHG emissions and which showed an annual reduction of 97.2 tons of CO2 equivalents. Those calculations result in a projected lifetime GHG savings of 2,916.15 tons of CO2 equivalents, translating into a 67-percent reduction in GHG emissions from this facility's HVAC system.
- The Administration and Operations building underwent a roof replacement project using Thermoplastic Olefin (TPO) constructed from ethylene propylene rubber to cover this facility with a **white roof**. The material reflects over 70-percent of sunlight, reducing the amount of heat absorbed and the air conditioning costs. During the installation of the white roof, lighting tubes were installed in hallway ceilings to bring in natural light and reduce the use of electric light inside the building.
- **Rapid roll doors** are used at the Maintenance Facility where buses are stored. Decreasing the time the doors are open allows for less heated or cooled air to escape the building, lowering energy demand for this facility.
- MTD's **Solar Array** project began in 2013. A 296.94 kilowatt photovoltaic system was installed on the roof of MTD's Maintenance facility. The goal of this project was to build a clean energy generating system to supplement and displace the Maintenance facility's purchased energy needs. This solar array was estimated to save 270 tons of GHG emissions, while generating approximately 347,218 kilowatt hours per year. Since installation, MTD's solar array has saved 943 metric tons of Greenhouse Gas emissions per year and generated approximately 1.3 million kilowatt hours of solar energy.
- MTD is leasing 8 acres of land and rooftop across the street from MTD's facilities in Urbana. Energy from the solar array will be used to produce hydrogen to fuel zero-emission fuel cell buses. MTD was awarded \$4,547,500 in state grant funding in December 2020 through the Rebuild Illinois program to complete the solar array expansion project. The estimated annual solar production is 3,150,000 kilowatt hours.
- MTD is the first transit agency in the nation with a hydrogen fleet fueled entirely from our own 100% renewable source.



Business Practices

In 2011, MTD established an Environmental and Sustainability Management System (ESMS) for the Maintenance Department. In turn, the District adopted an Environmental Policy. This policy is a commitment to monitor MTD's environmental impacts and set measurable goals towards resource reductions and pollution prevention. The ESMS was created to demonstrate the value MTD places on addressing environmental concerns to better serve the community.

MTD is thoroughly committed to reducing the organization's impact, actual or potential, on the environment through this ESMS. This process allows for a better understanding of how activities within the Maintenance Department interact with the environment, as well as gain a perspective on which activities pose the greatest opportunities to have an impact. MTD's ESMS also allows all district employees to have more complete awareness of the environmental factors that day-to-day operations affect.

Community Initiatives

Supporting the community's environmental efforts is an important aspect of the District's contribution to maintaining a safe and clean environment. MTD was a lead agency to bring the car share program, ZipCar, to Champaign, Urbana, and the University of Illinois campus.

MTD, in partnership with the City of Champaign, the City of Urbana, and the University of Illinois at Urbana-Champaign, secured a \$15.7 million federal Transportation Investment Generating Economic Recovery (TIGER VI) Grant to expand mobility choices and increase access to employers, education, healthcare, and other services along five core transit corridors in the University District. The \$46.9 million Multimodal Corridor Enhancement (MCORE) project represents a significant investment in public infrastructure that is bringing streets to a state of good repair and enhancing connections between the Cities' downtowns and the Illinois campus.

Employee Participation

The Champaign-Urbana Mass Transit District takes its role in the community as an environmental leader very seriously. With support from the Board of Trustees and Managing Director, all MTD employees are all encouraged to participate in and promote the District's sustainability initiatives.

A Sustainability Committee consisting of operators, maintenance employees, and staff members meets monthly to generate ideas and identify ways in which the agency's environmental impact can be further reduced. One significant accomplishment includes the creation of a recycling center in the Operator's Lounge. Employees have the ability to safely recycle electronic devices, ink cartridges, batteries, compact fluorescent light bulbs, and used eyeglasses. MTD participates in the City of Urbana's "Adopt a Road" program, organizing agency litter clean-ups in a specified area throughout the year.

All MTD staff members are encouraged to choose alternative modes of transportation. This is accomplished by providing ample bicycle parking spots at MTD facilities, as well as a pass permitting free transportation on all buses operated on regular service to all active and retired employees. In 2009, MTD was named a bronze-level Bicycle Friendly Business by the League of American Bicyclists. This was upgraded to the silver level in 2011.

All MTD employees participate in awareness training, which covers the organization's sustainability accomplishments and opportunities to become involved. Employees are continuously notified and updated about environmental happenings through an internal monthly newsletter, which always features at least one sustainability-focused article written by a MTD staff member. Employees are encouraged to submit environmental-related comments or concerns to the ESMS Team using an electronic feedback form on the employee intranet.



4. Emissions Inventory

Indicator	Normalization Factor	2009 Baseline		2018 Follow Up		% Change from Baseline
		Amount	Normalized Total	Amount	Normalized Total	
GHG emissions	VMT	8,281 CO2e	0.0026884	7,798 CO2e	0.0022841	-15%
Vehicle energy use	VMT	821,273 gal	0.2666221	720,804 gal	0.1988169	-25%
Low-emissions Fleet	Total Fleet	9 hybrid	9%	92 hybrid	83%	+74%

GHG: Greenhouse Gas

VMT: Vehicle Miles Travelled (2005: 3,080,289 / 2018: 3,625,467)



5. Goals, Targets, and Actions

The Champaign-Urbana Mass Transit District has established the following goals, targets, and actions.

Goals

- 1. Reduce fossil fuel consumption
- 2. Reduce greenhouse gas emissions
- 3. Invest in renewable energy

Targets

- Target 1: 100% of fleet low- or zero-emission by 2023.
- Target 2: 20% of fleet zero-emission by 2030.
- Target 3: Decrease annual greenhouse emissions from transit fleet by 25% by 2030 compared to 2009 levels.
- Target 4: Use four megawatt hours of solar energy annually by 2025.



Actions

Action	Completion Year	Target			
		1	2	3	4
Replace four 60-foot standard diesel buses with hybrid buses	2009	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Diesel Particulate Filters on standard diesel buses	2010			<input checked="" type="checkbox"/>	
Replace 36 40-foot standard diesel buses with hybrid buses	2011	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Replace 10 40-foot standard diesel buses with hybrid buses	2013	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Complete Solar Array on Maintenance Facility	2013				<input checked="" type="checkbox"/>
Replace 40 40-foot standard diesel buses with hybrid buses	2016-2021	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Replace six 60-foot standard diesel buses with hybrid buses	2020-2021	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Replace two 60-foot standard diesel buses with fuel cell buses	2021	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Complete Solar Array Expansion Phase I	2022				<input checked="" type="checkbox"/>
Purchase solar energy through Illinois Solar for All	2023				<input checked="" type="checkbox"/>
Complete Solar Array Expansion Phase II	2023				<input checked="" type="checkbox"/>
Replace four 60-foot standard diesel buses with hybrid buses	2023	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Replace 10 40-foot diesel electric hybrid buses with fuel cell buses	2025		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Expand capacity of Hydrogen Fueling Station	2025		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Replace four 60-foot diesel electric hybrid buses with fuel cell buses	2026		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

6. Implementation and Monitoring

This Climate Action Plan is intended to be bold, forward-thinking, and strategic. As a continuous improvement process, this plan will be implemented as a living document, to be amended as needed and reflect the effectiveness of the initiatives set forth within.

As a living document, the data collected, performance measures and deliverables will be updated as the District strives to measure progress towards achievements of the approaches, objectives, and strategies implemented as a result of this plan. The updates provided will help establish frameworks for future environmental sustainability possibilities for the District, as this plan will continue to adapt toward next steps in sustainable practices. The direction set forth in this plan for both short- and long-term initiatives represent concise alignment with all federal, state, and local policies and goals. MTD is committed to taking urgent and meaningful action towards reducing emissions and promoting environmental sustainability to address climate change for the continual improvement for both our passengers and the environment.

MTD monitors, measures, analyzes, and evaluates its performance through MTD2071.

- MTD2071 identifies the following for the Management System: what needs to be monitored and measured; the methods for monitoring, measurement, analysis, and evaluation needed to ensure valid results; the criteria against which the organization will evaluate its environmental performance, and appropriate indicators; when the monitoring shall be performed.
- Results from monitoring and measurement are analyzed and evaluated on a triannual basis, during the Management Review. Appropriate documented information is retained as evidence of the monitoring, measurement, analysis, and evaluation results in MTD2071.
- A key performance indicator (KPI) report is provided to Top Management monthly and maintained as records. Process Owners meet weekly with Top Management and meeting minutes are maintained.

