Climate Action Plan

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Contents

Introduction

The Greater Cleveland Regional Transit Authority (GCRTA) recognizes that it holds a critical role in efforts to address climate change. The climate impacts of carbon emissions from burning coal, oil, and other fossil fuels are projected to be so devastating globally, including more poverty, extreme heat, sea level rise, habitat loss, and drought, that 193 countries, including the United States, have pledged to take action to keep global warming under 1.5 degrees Celsius. To accomplish this, President Biden has set targets to reduce carbon emissions by 50% from 2005 levels by 2030 and reach net zero emissions by 2050. In 2021 the Federal Transit Administration (FTA) announced the Sustainable Transit for a Healthy Planet Challenge to encourage transit agencies to take bold actions and investments to support President Biden's 2030 goal of 50% reductions by 2030.

In nearly every Climate Action Plan developed for the region, public transportation is a key focus as the transportation sector is the top contributor to U.S. greenhouse gas emissions. The operation of public transit is itself a climate action strategy, since transit is a resource-efficient way to move people and transit use results in low carbon land use patterns. The Cuyahoga Climate Action plan notes transportation emissions rose 9% from 2010 to 2017 in Cuyahoga County, with 79.8% of commuters driving alone to work, which is above the national average. Their plan calls for a return of public transit service and ridership to 2006 levels by 2025 and an increase in mode share.

The Greater Cleveland Regional Transit Authority (GCRTA) is committed to protecting the environment, as it provides public transit services to Northeast Ohio. The GCRTA's Climate Action Plan identifies strategies to help the agency reduce its own internal greenhouse gas emissions from operations and facility; and reduce emissions from the transportation sector on a regional scale through strategies to increase mode-shift.

The Climate Action Plan was developed following the same Plan-Do-Check-Act framework used in the GCRTA's Environmental Sustainability Management System (ESMS) to promote continual improvement.

- Plan:
  - Define the vision and objectives of the Climate Action Plan.
  - Engage both internal and external stakeholders to identify potential strategies and ensure they are both desirable and practical for those individuals involved in their implementation.
  - Establish baseline year and calculate emissions.
  - Analyze potential strategies and set targets and goals.
  - Develop the Climate Action Plan for implementation.
- Do: Implement the Climate Action Plan
- Check: Monitor and measure the process against the strategies, targets and goal.
- Act: Tack action to modify strategies as necessary to keep the Climate Action Plan on track with targets and goal established.

Agency Overview

The Greater Cleveland Regional Transit Authority (GCRTA) provides transportation services across Cuyahoga County's 457 Square Miles and 59 Municipalities. These services include:

- Bus with over 50 routes provide about 4,028 daily trips, serving 5,720 bus stops.
- Two Bus Rapid Transit (BRT) lines connecting locations across the region
- The Red Line, heavy-rail service with 18 rail stations on 38 miles of one-way track from the Hopkins International Airport Station, through the Tower City Station, to the Louis Stokes Station at Windermere in East Cleveland.
- The Blue Line, Green Line and Waterfront Line, light-rail service with 34 stations on 31 miles of one-way track, from the Eastern Suburbs to the Tower City Station.
- Downtown Trolley service connects major Downtown venues with each other, and with the Tower City Station.
- Paratransit services. Designed specifically to meet the needs of the disabled customers who are unable to use regular RTA buses and trains, Paratransit provides door-to-door service, with 80 vehicles owned and operated by RTA, as well as an additional 80 vehicles operated by three private subcontractors.

GCRTA Mission

Connecting the Community

GCRTA Vision

Leading the delivery of safe and creative mobility solutions and community connections

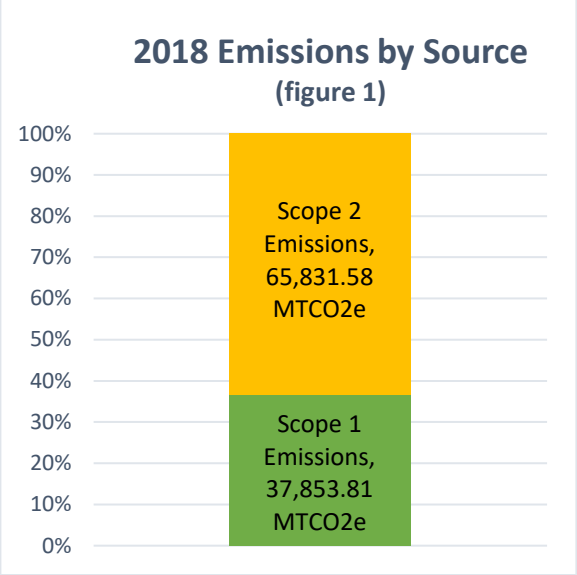
Strategic Plan

The Greater Cleveland Regional Transit Authority (RTA) Board of Trustees approved adoption of the RTA's Strategic Plan for 2020-2030 on October 27, 2020. One of the ten goals identified in the plan was "Environmental Sustainability, RTA will reduce greenhouse gas emissions in the region by providing clean transportation and shifting travelers away from single occupancy vehicles." Some of the plan's potential strategies include:

- Establish a roadmap to mode shift toward transit to meet regional climate crisis goals
- Expand sustainable fleet, including introducing electric-powered buses
- Support bike, pedestrian, scooter, and other multimodal connections to transit
- Implement comprehensive sustainability initiatives for all aspects of RTA's operations
- Expand integration of alternative power at stations/stops
- Offer electric vehicle charging stations at RTA facilities

Emissions Inventory

The Greater Cleveland Regional Transit Authority has documented the agency's emissions from all sources to establish a baseline scenario against which our recommendations and progress can be tracked. For determining our baseline emissions we have selected 2018 as the base year, since it is the year for which the most up-to-date and complete data is available. It also provided the most accurate representation of the authority's service and ridership prior to suffering the effects of the pandemic. The emissions in the Climate Action Plan are represented as CO2e (CO2 equivalent) to take into account any trace amounts of methane and other greenhouse gases.



Produced Emissions:

For produced emissions, the GCRTA primary focus is on Scope 1 and Scope 2 emissions, because they are the emissions that the GCRTA has direct control over. Scope 1 emissions are those that the GCRTA emits directly. An example includes emissions from diesel and CNG buses. Scope 2 emissions are those that are the result of GCRTA's purchases of electricity and natural gas. An example includes the electricity powering the lights at our Main Office Building and power our rail cars. In 2018, the GCRTA's emissions due to its own fossil fuel use and purchases of electricity and natural gas (i.e. its Scope 1 & Scope 2 emissions) were approximately 103,685 metric tons CO2e. Figure 1, above, shows the distribution of these emission. In 2018, Scope 1 emissions accounted for 37% of total emissions where Scope 2 accounted for 67%.

Scope 1 Emissions:

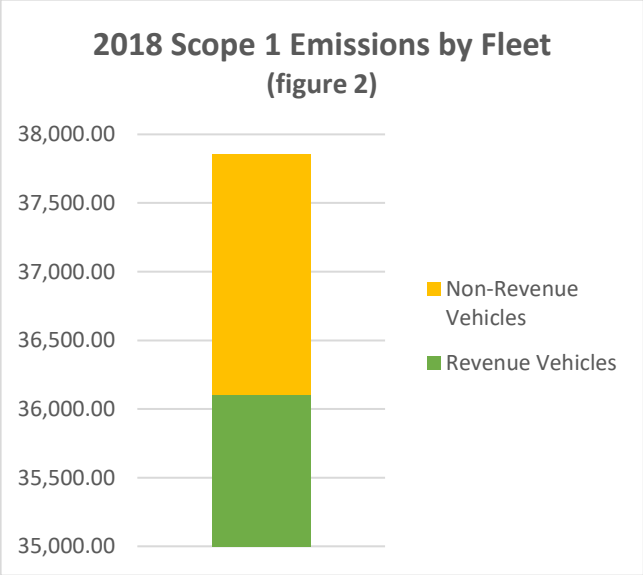
The Scope 1 emissions are comprised of all GCRTA's Revenue and Non-Revenue Fleet. In 2018, the fleet comprised of gasoline, diesel, propane and CNG fueled vehicles. A breakdown of vehicles by type in 2018 can be found below in table 1.

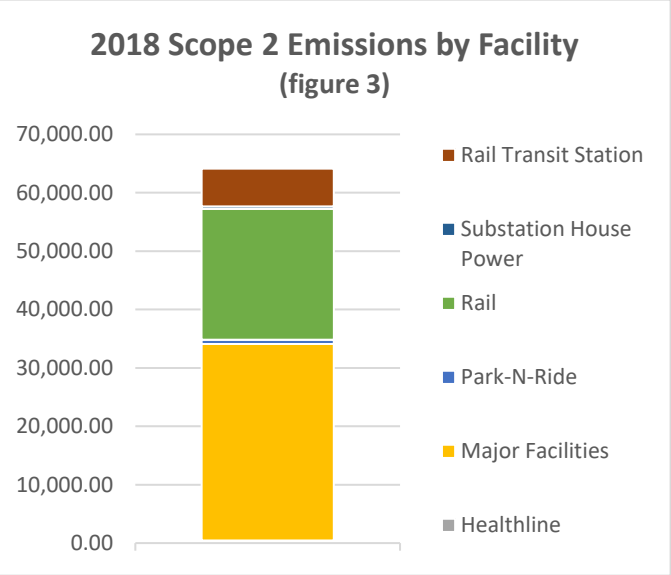
2018 Vehicle Inventory Summary (table 1)		
Vehicle Type - Fuel Type	**Quantity**	**% of Fleet**
Bus - Diesel	282	39.2%
Bus - CNG	118	16.4%
Light Good Vehicle – Gasoline - Year 2005-Present	57	7.9%
Light Good Vehicle - Propane	20	2.8%
Heavy Duty Vehicle – Diesel - Year 1960-Present	42	5.8%
Passenger Car – Gasoline - Year Pre-2004	6	0.8%
Passenger Car – Gasoline - Year 2005-present	195	27.1%
Total Vehicles Owned	**722**	

Scope 1 Emissions Data Collection and Calculations

The GCRTA utilizes the FLEETWATCH System for scope 1 data collection. The FLEETWATCH System is a combination of hardware and software providing real-time control and data acquisition for vehicles. Through FLEETWATCH's Data tools, we are able to generate reliable and accurate reports for each vehicles mileage and fuel usage.

The information from the FLEETWATCH report is compiled and entered into the World Resources Institute (2015), GHG Protocol tool for mobile combustion, Version 2.6 (2015). The GHG Protocol tool takes both the vehicle's fuel usage and mileage and multiplies it by emissions factors provided by US Environmental Protection Agency (EPA) and the Intergovernmental Panel on Climate Change's (IPCC) Guidelines for National Greenhouse Gas Inventories. CO2 emissions are calculated using the fuel use data and CH4 and N2O emissions are calculated using the vehicle mileage. The GHG emissions calculated are then converted into CO2e. In 2018 the GCRTA produced 37,853.81 metric tons CO2e of scope 1 emissions. This equates to 2.04 kg. CO2e per vehicle mile traveled (VMT). Figure 2, below, shows the distribution of these emission between the revenue and non-revenue vehicles.





Scope 2 Emissions:

The Scope 2 emissions incorporate electricity and natural gas consumed by GCRTA's facilities along with the electricity required to power the agency's rail train cars.

Scope 2 Emissions Data Collection and Calculations

The GCRTA utilizes Control Freak Energy Intelligence Platform for its scope 2 data collection. The Control Freak software is a database containing all utility billings for the Authority. From the database, we can pull all of the electric and natural gas usage for each facility. To determine the CO2e emissions, the information extracted is multiplied by the Total Output Emission Factor for the Subregion eGRID. For Cleveland, Ohio the Subregion is RFCW (RFC West). Emission factors are sourced from the EPA's Emission Factors Hub. In 2018 the GCRTA

produced 65,831.58 metric tons CO2e of scope 2 emissions. Figure 3, above, shows the distribution of these emission by facility.

Transportation and Land-Use Efficiency:

Scope 3 emissions are those generated from the GCRTA's value chain. Examples include emissions from employee commuting, waste disposal, purchasing supplies, transit access trips and transportation and land-use efficiency. For Scope 3 emissions the GCRTA has chosen to focus on the transportation and land-use efficiency, as they show the greatest regional impact and show the benefit the GCRTA has on the environment.

Transportation efficiency benefits occur as drivers switch to the less polluting and more reliable modes offered by transit. The benefits of transit efficiency increase as a transit agency's ridership and passenger miles traveled increase. This movement from private vehicles to transit is called mode shift.

Studies have found transit fosters more compact, dense development patterns than in regions without transit services. People living in more compact developments, whether taking transit or not, tend to drive less and walk and bike more. Households in close proximity also tend to own less vehicles. Land-use efficiency measures the indirect impacts of transit on reducing vehicle miles traveled (VMT) to due an increased density within a region, which would not be possible without the services provided by transit.

Transportation Efficiency Calculation

To calculate the transportation efficiency benefit, the GCRTA follows APTA's recommendations found in SUDS CC-RP-001, rev 1, *Quantifying Greenhouse Gas Emissions from Transit*. The Authority's passenger miles travel (PMT) is multiplied by a population-based mode shift factor. The mode shift factor is a ratio of transit passenger miles traveled to displaced private auto miles. This gives us the private vehicle miles displaced by transit (VMT). With the VMT, you can then calculate the estimated fuel displaced using the U.S. DOT's average fuel economy of 21.4 miles per gallon. The estimated fuel and VMT is then converted into CO2e based on default emission factors from *The Climate Registry General Reporting Protocol.* Based on the GCRTA's PMT in 2018, 20,588 metric tons of CO2e were displaced through transportation efficiency.

Land-use Efficiency Calculation

The land-use efficiency for GCRTA is calculated using the *Land Use Benefit Calculator* created as part of the Transit Cooperative Research Program (TCRP) Report 176. The calculator compares the GCRTA's current service to a hypothetical case without transit. Using a statistical model, it estimates what the land use characteristic of the region would be without transit. Based on the calculator the GCRTA reduces vehicle miles traveled in the region by 9.9% offsetting 578,184 metric tons CO2e of greenhouse gases.

Passenger Miles Traveled (PMT):

The Federal Transit Administration (FTA) requires transit authorities to report data in various transit performance and efficiency measures; one of the performance measurements reported is Passenger Miles Traveled (PMT). PMT is the cumulative sum of the distances ridden by each passenger. For transit authorities that utilize a sampling method to report PMT, a statistically valid data collection plan must be approved by a qualified statistician.

For each fixed-route transit mode (Heavy Rail, Light Rail, Bus Rapid Transit, and Bus), the Greater Cleveland Regional Transit Authority (RTA) assigns Service Monitors to randomly sample a statistically-valid number of

revenue trips to calculate average trip distance. The estimated average trip distances are applied to the appropriate monthly ridership counts for each fixed-route transit mode to produce the monthly PMT.

Individual demand-response passenger trips are recorded in the Trapeze PASS scheduling software and distance traveled is recorded at the time of delivery of service. Because the distances traveled for each individual passenger are recorded, the Paratransit service does not require a sampling method to calculate and report PMT.

Past & Current Initiatives

GCRTA's Environmental Policy Statement and Commitments

In support of the Greater Cleveland Regional Transit Authority's (GCRTA) Mission, Vision and Values, the following environmental policy statement and commitments were developed to evolve best practices that serve GCRTA's value and vision to be a champion of sustainable transportation through environmental and sustainability management. The policy was adopted December 17, 2019, Board Resolution No. 2019-123.

GCRTA is committed to protecting the environment as it provides public transit services to northeast Ohio. We will utilize sound business practices that measure and improve our environmental and sustainability performance through a formal Environmental and Sustainability Management System (ESMS). The ESMS will be integrated throughout the Authority to create a healthier and more livable environment for the staff, customers and the community we serve. GCRTA will make the following environmental commitments:

- Communicate and advance the use of environmental practices and strategic frameworks throughout GCRTA.
- Comply with all applicable local, state, federal, and other environmental laws, regulations, standards and monitoring requirements.
- Incorporating environmental responsibility into business operations by planning for environmental protection, reviewing and developing policies, providing resources, setting targets, and reviewing and auditing performance.
- Prevention of pollution and conservation of resources, by reducing energy and water consumption, increasing reuse and recycling, and procuring sustainable products and technologies.
- Establish an ESMS that will be documented, implemented, and maintained.
- Commit to continual improvement by reviewing and enhancing GCRTA's ESMS program and environmental performance at appropriate intervals to meet objectives and support on-going performance excellence strategies.
- Engage and empower the workforce and community through effectively communicating GCRTA's Environmental Policy Statement and Commitment.

This Policy applies to all employees, departments and functions throughout the Authority. Full participation by all staff is required in order to meet the commitments set forth in this policy. This Policy will be communicated to all persons, including contractors and vendors, working for or on behalf of GCRTA.

Scope 1 Emission Reduction Initiatives:

To reduce the GCRTA's Scope 1 emission the focus has been placed transitioning the revenue bus fleet from diesel fuel to compressed natural gas (CNG) fuel. In 2015, renovations were completed at the Hayden District Garage to allow fueling of CNG buses. By 2018 the GCRTA were operating over 100 CNG buses. Since 2018 the GCRTA has expanded its CNG bus fleet by 44 buses and reduced its diesel bus fleet by 100 buses. A breakdown of vehicles by type in 2021 can be found below in table 2. To expand the CNG fleet further, renovations are nearly complete for the Triskett District Garage to accommodate CNG bus Fueling. Renovations are expected to be completed in mid-2022.

While CNG emits reduced levels of greenhouse gasses, the GCRTA understands the need to invest in zero-emission vehicles. Over the past decade, the popularity of electric buses within the transit industry has increased as the technology rapidly evolves. As a first step toward moving to a zero-emission fleet the GCRTA will be conduct an electric bus pilot program with 10 vehicles. More information on the pilot can be found in the *Strategies and Actions* section.

2021 Vehicle Inventory Summary (table 2)		
Vehicle Type - Fuel Type	**Quantity**	**% of Fleet**
Bus - Diesel	182	30.1%
Bus - CNG	162	26.8%
Light Good Vehicle – Gasoline - Year 2005-Present	65	10.7%
Light Good Vehicle - Propane	11	1.8%
Heavy Duty Vehicle – Diesel - Year 1960-Present	29	4.8%
Passenger Car – Gasoline - Year Pre-2004	0	0%
Passenger Car – Gasoline - Year 2005-present	156	25.8%
Total Vehicles Owned	**605**	

Scope 2 Emission Reduction Initiatives:

Sustainability Rating Systems

To reduce the GCRTA's Scope 2 emission the agency has supported multiple sustainability initiatives. As part of the agency's Station Reconstruction Program, the GCRTA used a sustainability rating system to help guide the design, to make its facilities more energy efficient, and reduce their carbon footprint. In 2018 the GCRTA's E. 105th – Quincy Rapid Transit Station received a Two Green Globe certification, in 2019 the Brookpark Rapid Transit Station received LEED Silver Certification, the Tri-C – Campus Rapid Transit Station received SITES Silver Certification, and in 2021 the E. 79th Street Red Line Rapid Transit Station received SITES Certification.

Environmental Sustainability Management System (ESMS)

The GCRTA implemented an Environmental Sustainability Management System (ESMS) multi-site program in 2019. An ESMS is a set of processes and practices that enables an organization to reduce its environmental impacts and increase operating efficiency. As part of the ESMS program, facilities identify those activities, products or services that have the potential to negatively impact the environment. These impacts are referred to as environmental aspects, which are then rated based upon a defined set of criteria to determine their significance.

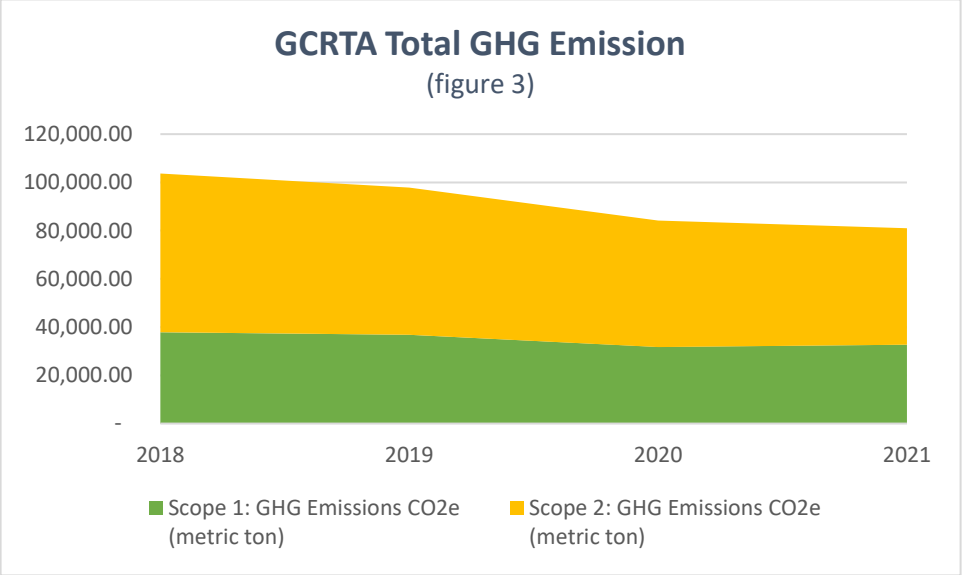
The four facilities included in the GCRTA's ESMS program are the Main office Building, Triskett District Garage, Hayden District Garage, and Central Bus Maintenance Facility. Each facility established specific significant aspects to address with the implementation of the ESMS. Electricity and natural gas consumption were identified as a significant aspects by all four facilities and they have been working to reduce their consumption through a series of small maintenance projects such as the replacement of existing lighting with LED. There are additional projects in the design stage to replace the HVAC systems at the Hayden District Garage and Main Office Building. These projects are expected to start in 2022 and 2023.

GCRTA Rail System

43% of the GCRTA Scope 2 emissions are produced by the rail system. For the purpose of emission reporting the GCRTA rail system includes everything that draws its electricity from one of GCRTA's 17 substations (i.e. train cars, wayside equipment, rail yard and complex buildings). Since 2007 the GCRTA has be in the process of replacing substations to increase reliability and efficiencies. One of the biggest impacts in reducing the rail systems electricity consumption was adding the track switch heaters to a control system that allows them to be operated remotely. Prior to installation of the system, the heaters were turned on in October and ran continuously until April. Now they can be turned on and off as needed. Over the winter of 2020-2021, 4,300 MWh have been saved.

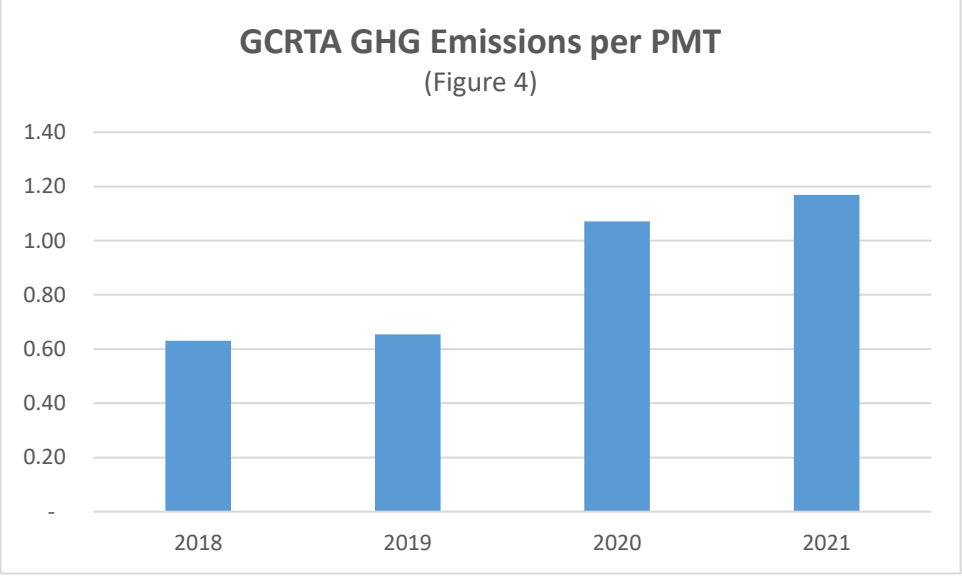
Where are we now?

The GCRTA has made progress since the baseline year in overall emission reductions. In 2021, the GCRTA's emissions due to its own fossil fuel use and purchases of electricity and natural gas were approximately 81,036 metric tons CO2e (figure 3). This is a reduction of 21.84%.

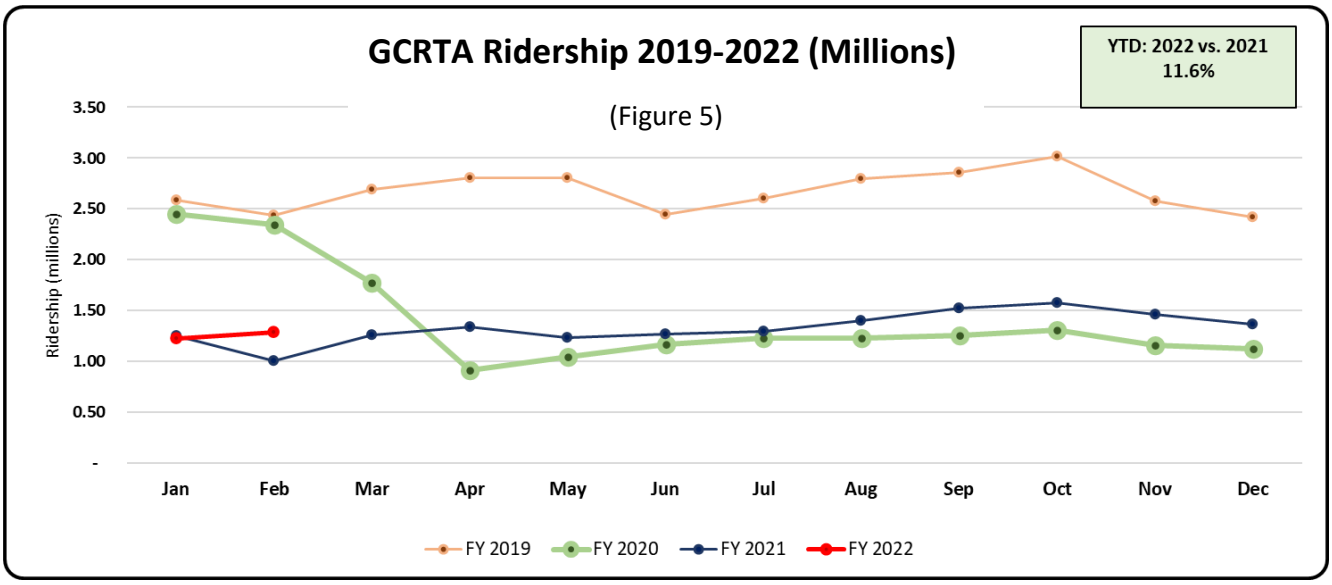


GCRTA Passenger Miles Traveled

In 2018 GCRTA ridership was 35,150,711 passenger trips and passenger miles travelled (PMT) was 164,600,139. While the GCRTA has reduced its overall emissions, its emissions per PMT have increased by 85.62% form 0.63 kg. CO2e per PMT to 1.17 kg. CO2e per PMT, see figure 4 below.



The sharp increase in 2020 emissions per passenger mile traveled is primarily due to the effects the pandemic has had on ridership. Figure 5 shows the sharp drop in ridership at the beginning of the pandemic and continued depressed ridership.



Stakeholder Input

GCRTA convened both internal and external stakeholder groups to inform the development of Climate Change Plan. Internal stakeholders from the following GCRTA departments contributed to the plan:

- Engineering
- Planning and Programming
- Power and Way
- Asset and Configuration Management
- Office of Management and Budget
- Administration and External Affairs
- Service Planning
- Service Management
- Fleet Management

GCRTA staff made informational presentations to the GCRTA Board of Trustees and the GCRTA Community Advisory Committee to seek feedback on the plan.

The Climate Change Plan External Stakeholder Steering Committee met on February 22, 2022, and April 6, 2022 to review and discuss the plan. Committee members represented the following organizations:

- Northeast Ohio Areawide Coordinating Agency (NOACA)
- Ohio Department of Transportation
- Cuyahoga County Department of Sustainability
- City of Cleveland Department of Sustainability
- Cleveland Foundation
- Gund Foundation
- Black Environmental Leaders
- Ohio Environmental Council
- Greater Ohio
- The Metrohealth System Sustainability Office
- The Cleveland Clinic Office for a Healthy Environment
- Case Western Reserve University Office of Energy and Sustainability
- Cleveland 2030 District
- Clevelanders for Public Transit

GCRTA's climate change plan is additionally informed by GCRTA's participation in the development of other regional climate action initiatives, including the NOACA Climate Action Summit and Regional Climate Action Plan, the Cuyahoga County Climate Action Plan, the City of Cleveland Climate Action Plan, and the City of Lakewood Climate Action Plan.

Emission Reduction Plan

The plan seeks to align with national and regional goals of a 50% drop in carbon emissions from 2005. GCRTA is using a baseline year of 2018, and assuming some operational efficiencies already occurred in 2005 -2018.

Key Goals

The key goals use the baseline year of 2018 as a starting point for emissions reductions.

Fleet

- 2030: Reduce GHG emissions/VMT from fleet by 30%
- *2050 Aspirational:* Convert to 100% zero emissions fleet

Rail

- 2030: Reduce emissions/VMT from rail system by 30%

Facilities

- 2030: Reduce emissions from facilities by 40%
- Prepare facilities to service additional non-diesel vehicles

Energy Sources

- 2030: Produce 2% of GCRTA's electricity needs on-site
- *2050 Aspirational:* Use 100% clean energy sources

Ridership

- 2030: Achieve a return to pre-pandemic ridership
- 2050: Achieve a 10% increase over year 2018 of Passenger Miles Traveled (PMT)
- *2030 Aspirational:* Achieve a 20% increase over year 2018 of PMT
- *2050 Aspirational:* Achieve a 100% increase over year 2018 of PMT

  To meet the aspirational ridership goals, both GCRTA strategies and regional policies will be needed.

Overall Emissions Targets

All the targets use the baseline year of 2018 as a starting point for emissions reductions.

2030 Targets:

- Achieve a 35% reduction of GHG emissions per Vehicle Mile Traveled (VMT)
- Achieve a 10% reduction of GHG emissions per Passenger Mile Traveled (PMT)
- *Aspirational:* Achieve a 40% reduction of GHG emissions / PMT

2040 Targets:

- Achieve a 30% reduction of GHG emissions/PMT
- *Aspirational:* Achieve a 60% reduction of GHG emissions/PMT

2050 Targets:

- Achieve a 60% reduction of GHG emissions/PMT by 2050
- *Aspirational:* Achieve net zero emissions by 2050

We have set several overall targets in terms of Passenger Miles Traveled (PMT), a measure which represents the amount of service provided to passengers by GCRTA. PMT accounts for ridership and as such has declined significantly since 2005 and dropped again by about half during the pandemic. Ridership decline negatively affects the emissions displaced by GCRTA ridership, and additionally a decline in PMT has a negative impact on GCRTA's overall resource efficiency. For these reasons GHG emissions / PMT is the best indicator of GCRTA's overall GHG impact.

We have set both minimum and aspirational goals and targets. The minimum goals and targets have been set with a high level of confidence that they can be achieved. The aspirational goals and targets will be influenced by external factors to a larger degree. These external factors include the carbon intensity of the electric grid, and regional policies and incentives impacting ridership. The minimum targets assume a conservative rate of ridership rebound and the aspirational targets assume a high rate of mode shift and ridership growth. The aspirational target for 2050 of net zero emissions also assumes we have fully transitioned to zero emission energy sources including purchase of green power.

Equity Considerations

Low income and disadvantaged populations will be the most impacted by climate change. Cuyahoga County developed a Climate & Social Vulnerability map tool, layering social (e.g., income, age, mobility) and physical factors (e.g., flooding, housing stock age, proximity to heat islands) to identify areas in the county where populations are most vulnerable to the impacts of climate change. The mapping tool clearly demonstrates higher vulnerabilities for those living in the City and inner-ring suburbs, areas in which GCRTA service and ridership is concentrated. GCRTA's Climate Change Plan has the potential to both directly benefit these residents through improved transit service and air quality, as well as indirectly by mitigating the impacts of global climate change.

Carbon emissions are closely tied to local air pollution that has multiple health impacts, including exacerbation of asthma. In 2022, EPA designated Cuyahoga County as a marginal non-attainment area for ozone (O3), and re-designated it as a maintenance area for course particles (PM10) and fine particles (PM2.5). GCRTA should look for opportunities to align carbon reduction strategies with reduced air pollution in targeted areas. For example, the electric bus pilot should take into consideration benefits of targeting the first electric bus routes to areas with high asthma rates and high local air pollution.

GCRTA is also committed to emphasizing equity in mode shift initiatives. Strategies to increase ridership by making it more convenient and affordable for low income residents to take transit will reduce GHG emissions while also equitably increasing all the benefits of transit including mobility, economic opportunity, and spending power. Increased transit service will also encourage transit-oriented reinvestment in low income areas. New TOD should be affordable and inclusive. Equity was an important consideration in the development of the NextGen network redesign, as well as the Expanded Funding Concept Plan.

Strategies and Actions

The GCRTA's Climate Action Plan Strategies are divided into five categories based on the agency's operations and how emissions are tracked. These categories are Fleet, Rail System, Facilities, Energy Source and Mode-shift/ Ridership. Each strategy is tied to one of the key goals.

Fleet					
GOAL: Reduce GHG Emissions/VMT by 30% from 2018 levels by 2030 **ASPIRATIONAL GOAL: Convert to 100% zero emissions fleet by 2050**					
Strategy	Action	Metric	Task	Participating Departments	Target Date/ Status
CNG Bus Conversion	Convert the GCRTA revenue fleet from diesel fuel to CNG fuel	# CNG buses in service	Follow the bus replacement schedule to replace all but the nine 2019 MCI diesel buses.	Fleet Asset Management	2026/ 53% Complete
			Replace the remaining nine 2019 MCI diesel buses at the end of their useful life.	Fleet	2033/ 0% Complete
Electric Bus Conversion	Develop Electric Bus Pilot	Y/N Pilot Complete	Develop RFP for purchase of up to 10 electric buses	Fleet Engineering	2022/ 80% Complete
			Route & Bus Modeling	Fleet Planning Operations	
			Develop Construction Documents and install EV charging stations.	Fleet Engineering	2023/ 0% Complete
			Place electric buses into service.	Fleet Operation	2024/ 0% Complete
	Convert the GCRTA revenue bus Fleet to Electric	# Electric buses in service	Develop zero-emission transition plan	Planning Operation Engineering Fleet	2022
			Place electric buses into service at end of CNG bus useful life, 10% of fleet	Fleet Operations	2030
			Place electric buses into service at end of CNG bus useful life, 100% of fleet	Fleet Operations	2050
Paratransit Fleet Conversion	Replace the Paratransit gasoline and diesel fueled vehicles with hybrid and Electric Vehicles	# hybrid vehicles in service # electric vehicles in service	Research availability and options for purchasing hybrid and electric vehicles	Fleet Planning	2022
			Develop zero-emission transition plan for Paratransit Vehicles	Fleet Planning Operation Engineering	2022
			Replace gasoline fueled vehicles with electric at end of useful life, 25% of fleet	Operations Fleet	2030
			Replace gasoline fueled vehicles with electric at end of useful life, 100% of fleet	Operations Fleet	2050

Fleet					
GOAL: Reduce GHG Emissions/VMT by 30% from 2018 levels by 2030 **ASPIRATIONAL GOAL: Convert to 100% zero emissions fleet by 2050**					
Strategy	Action	Metric	Task	Participating Departments	Target Date/ Status
Non-Revenue Fleet Conversion	Replace the Non-Revenue gasoline fueled Fleet with hybrid and Electric Vehicles	# hybrid vehicles in service #electric vehicles in service	Research availability and options for purchasing hybrid and electric vehicles	Fleet Planning	2022
			Develop plan for installation of electric vehicle charging station	Fleet Engineering	TBD
			Develop zero-emission transition plan for non-revenue Vehicles	Fleet Planning Operation Engineering	2022
			Replace gasoline fueled vehicles with electric at end of useful life	Fleet Operations	TBD

Rail System					
GOAL: Reduce Emissions/VMT from Rail System by 30% by 2030					
Strategy	Action	Metric	Task	Participating Departments	Target Date/ Status
Rail Switch Heaters	Add all of the rail switch heaters to the remote access system	# heaters on system	Plan for adding network connectivity to Light Rail under development	Rail Engineering	2022
			Connect remaining switch heaters to remote access control system	Rail	TBD
Substation Renewal Program	Upgrade Substation	# stations upgraded	Puritas Substation Replacement	Engineering	Sept-2020/ Complete
			Warrensville Van Aken Substation Replacement	Engineering	April-2022/ 66% Complete
			W. 117th St. Substation Replacement	Engineering	Aug-2022/ 40% Complete
			Windermere Substation	Engineering	TBD
			East 120th St. Substation Replacement	Engineering	TBD
			West 30th Transformer/ Rectifier Replacement	Engineering	July-2022/ 75% Complete
			East 55th Transformer/ Rectifier Replacement	Engineering	TBD
Rail Car Replacement	Replace the existing rail car fleet	# new rail cars in service	Develop RFP for replacement of rail fleet	Fleet Engineering Operations	Complete
			Award of contract	Fleet Engineering Operations	Aug.-2022
			Delivery of first vehicles	Fleet Engineering Operations	Sept-2025
			Base order of 24 vehicles purchased under contract in service	Fleet Engineering Operations	Dec-2026
Light Rail Track Rehabilitation		# Miles of track rehabbed	Truck Line Track Rehabilitation - Sections 1 & 2	Rail Engineering	Complete
			Truck Line Track Rehabilitation – E. 75th St. Interlocking	Rail Engineering	Design at 100%
			Warrensville – Van Aken Track Rehabilitation	Rail Engineering	2023
			Blue Line	Rail Engineering	2024
			Green Line	Rail Engineering	2025

Rail System					
GOAL: Reduce Emissions/VMT from Rail System by 30% by 2030					
Strategy	Action	Metric	Task	Participating Departments	Target Date/ Status
Catenary Restoration Project		# Miles of Catenary restored	Catenary Inspection Program	Rail Engineering	Complete
			Catenary Structure Rehabilitation Phase 1 – Red Line West	Rail Engineering	Aug- 2022 60% Complete
			Red Line East Catenary Rehabilitation	Rail Engineering	Design Complete 2023 0% Complete
			Light Rail Catenary Rehabilitation	Rail Engineering	TBD 0% Complete

Facilities					
GOAL: Reduce Emissions from Facilities by 40% from 2018 by 2030					
Strategy	Action	Metric	Task	Participating Departments	Target Date/ Status
Energy Audit	Conduct an Energy Audit at all Major Facilities	Y/N Completed	Develop RFP for Energy Audit.	Facilities Engineering	2022
			Conduct Energy Audit	Facilities Engineering	2023
Hayden HVAC Replacement	Replace buildings existing rooftop units and install a new building automation system.	Y/N Completed	Develop Drawings and specifications	Facilities Engineering	Feb-2022/ Complete
			Install new HVAC Units	Facilities Engineering	Dec-2022/ 0% Complete
Main Office Building HVAC Replacements	Replace buildings existing rooftop units and install a new building automation system	Y/N Completed	Develop Drawings and specifications	Facilities Engineering	2022
			Install new HVAC Units	Facilities Engineering	2023
Central Bus Maintenance Facility	Install a new building automation system	Y/N Completed	Develop Drawings and specifications	Facilities Engineering	2022
			Install new HVAC Units	Facilities Engineering	2023
Central Rail Shop Floor Heating Replacement	Replace the building existing electric heating system.	Y/N Completed	Develop Drawings and specifications	Facilities Rail Engineering	2030
			Install new floor heating system	Facilities Rail Engineering	2030
LED Lighting Retrofits	Paratransit Exterior Lighting	# lights replaced	Procure and install replacement bulbs and fixtures.	Facilities	July-2022
	MOB Interior Track Lighting		Procure and install replacement bulbs and fixtures.	Facilities	Dec-2022
Substation HVAC Controls Replacement	Install new thermostats within the substation to control the HVAC system remotely	# substations retrofitted	Innovatory substation controls and develop scope of work.	Rail Engineering	2027
			Procure and Install new HVAC controls	Rail Engineering	2030

Facilities					
GOAL: Reduce Emissions from Facilities by 40% from 2018 by 2030					
Strategy	Action	Metric	Task	Participating Departments	Target Date/ Status
GOAL: Prepare Facilities to Service Non-Diesel Vehicles					
CNG Infrastructure Upgrades	Modifications to the Triskett District Garage to allow fueling and maintenance of CNG vehicles	Y/N Completed	Construction of Improvements	Engineering	July-2022/ 97% Complete
Electric Infrastructure Upgrades	Modifications to Garages and Sites to allow charging of Electric vehicles	# vehicles able to be charged	Plan and Schedule of Improvements	Fleet Facilities Engineering	2030
			Construction of Improvements	Facilities Engineering	2040

Energy Sources					
GOAL: Produce 2% of GCRTA's electricity needs on-site by 2030 *Aspirational:* Use 100% of clean energy sources by 2050.					
Strategy	Action	Metric	Task	Participating Departments	Target Date/ Status
Solar Panels	Install Solar Panel field at one of the GCRTA's Properties	# KW capacity of panels installed	Engage consultant to evaluate viability of various GCRTA site locations.	Facilities Engineering	2030
			Develop construction documents.		
			Construction of solar panel field.		
	Solar Catenary Pilot	#KW capacity of panels installed	Engage consultant to evaluate viability of installing solar panels over rail line.	Rail Facilities Engineering	2030
			Develop construction documents.		
			Construction of solar panel pilot.		
Clean Power Purchase	Evaluate Opportunities to Purchase Clean Power	Y/N Completed	Develop evaluation strategies	Finance	2024
			In next power purchase solicitation, ask for quotes that include various percentages of renewable energy	Finance	2024

Mode Shift/ Ridership					
GOAL: Achieve a return to pre-pandemic ridership by 2030 and a 10% increase over year 2018 of Passenger Miles Traveled by 2050 **ASPIRATIONAL GOAL: Achieve a 20% increase over year 2018 of Passenger Miles Traveled by 2030 and 100% increase over year 2018 of Passenger Miles Traveled by 2050**					
Strategy	Action	Metric	Task	Participating Departments	Target Date/Status
Increased Bus Service	Prioritize funding for Expanded Funding Concept	Y/N Funding Secured	Identify Funding Plan	Planning Finance	2023
			Secure Funding	Finance	2024
	Implement Expanded Funding Concept	Y/N Concept Implemented	Community Outreach	Service Planning External Affairs	2025
			Design of Final Service Increase	Service Planning	
Implement BRT Amenities on Priority Corridors	Implement MetroHealth BRT	Y/N Implemented	Design	Planning Engineering	2023
			Construction	Planning Engineering	2026
	Implement BRT Amenities on additional priority corridors including signal priority	# corridors with BRT amenities	Planning for Priority Corridors	Planning	2030
		#routes with signal priority	Bus Traffic signal priority on main transit corridors	Planning ITS	2030
Fare Equity Strategies	Implement Subsidized Fare Programs	% of passengers receiving reduced or free fares	Baby on Board	Planning	2023
			Workforce Training Initiatives	Planning	2030
			Plan additional initiatives	External Affairs Planning	2030
Regional Policies and Partnerships to Increase Ridership	TOD	# of TOD Projects	Partner with Cuyahoga County on Planning and Zoning TOD initiative, building on earlier NOACA TOD plan	Planning	2022
			Identify and promote key development sites	Planning	Ongoing
			Joint development with MRN at W25th Rapid Station	Planning	2023
			Review with City of Cleveland of priority corridor projects	Planning	2022 and Ongoing
	Work with partners to develop mode-shift strategies	# Regional policies promoting mode-shift	Participate in regional climate change and planning efforts	Planning	Ongoing
			Convene stakeholders	Planning	Ongoing
			NEORide Mobile Fare App	IT	2022
			NOACA commuter programs	Planning	Ongoing

Implementation, Monitoring & Continual Improvement

The GCRTA is committed to building a more sustainable transit system. Progress has been made in reducing emissions by investing in sustainable technologies, increasing operational efficiency and promoting sustainability. As an Authority, we know more needs to be done. The Climate Action Plan will serve as a guide and implementing its strategies will be an ongoing, agency-wide effort, led by the GCRTA's Engineering & Project Management (EMP) Division.

The plan is built on the Agency's current circumstances with reasonable assumptions of potential future scenarios as it relates to financial factors, technological development, and ridership. Over time, ridership trends change, new technologies are developed, or funding becomes available. These changes will have an impact on the strategies and actions required for the Authority to reach their sustainability goals. Through the GCRTA's Performance Management Program, Traction, EMP will calculated, analyze and report out quarterly the Authority's emissions data to the executive team. This will allow necessary adjustment on a regular basis to ensure the targets are reached. As the Authority moves forward, individual strategies from the Climate Action Plan will be added to Traction.

While this is the GCRTA's first Climate Action Plan, it is in no way its last. The Climate Action Plan was developed in a relatively short time to meet the submission deadlines for the FTA Sustainable Transit for a Healthy Planet Challenge. Many of the identified strategies are in their infancy and require additional analysis and development. The GCRTA will continue to refine the Climate Action Plan and produce an annual update.

During the creation of the Climate Action Plan, internal stakeholder meetings were held to help identify the potential strategies above. The meetings involved GCRTA staff across all levels to get agency-wide commitment and sense of ownership. The GCRTA also held external stakeholder meetings to solicit feedback on the identified strategies. As part of the continual improvement process, the GCRTA will keep both stakeholder groups engaged to keep the plan on track and make sure it aligns with regional goals.