

Crawford Area Transportation Authority Climate Action Plan 2022

Crawford and Venango Counties, Pennsylvania



CNG Fixed Route Buses-Meadville PA



Propane Autogas Bus – Oil City PA



April 15, 2022

Contents

Executive Summary	iii
1. Introduction	1
2. Agency Overview	2
3. Emissions Inventory.....	5
4. Past and Current Initiatives.....	8
5. Emission Reduction Goals and Strategies	11
6. Strategies and Actions	12
7. Implementation and Monitoring.....	14

Executive Summary

The Crawford Area Transportation Authority (CATA) was founded in 1979 to provide public transportation services to Crawford County, Pennsylvania. In 2006, an aggressive platform of growth and expansion began as CATA began to operate fixed route and paratransit services internally as opposed to utilizing private contractors in various communities. This transition led to the expansion of transit services, the beginning of major capital investments into fleet, facilities and technology that later paved the way for municipal expansion to neighboring Venango County.

CATA now operates as a two-county public transportation provider servicing a population of 134,000 over 1,700 square miles. CATA maintains 2 operational facilities, 1 administration facility and a fleet of over 60 revenue service vehicles. Despite the low population density and lack of healthcare and human services outside larger municipalities, CATA strives to maintain lifeline services for all residents of Crawford and Venango counties.

Rural communities play a role in global climate mitigation efforts. At CATA, we strive to be a leader not just in rural transit but in sustainability, expansion of mobility and stewards of the communities we serve.

CATA has aggressively built partnerships at the local, state and national level to address climate issues within our traditional service model of public transportation and beyond. These initiatives have led to the current reduction of Greenhouse Gas Emissions (GHG) by over 24% since 2017. Furthermore, through innovative partnerships, the formation of a 501C3 organization to support enhanced mobility options and participation in national platforms, CATA has become a leader for rural communities in the deployment of active transportation and shared use mobility options.

This Climate Action Plan is a result of strategic partnerships and a commitment from the CATA Board of Directors to become a leader for rural communities as we do our part to expand the definition of mobility and set the stage for becoming model stewards of Climate sustainability.

I. Introduction

Purpose:

Climate Sustainability is not a strategy reserved for large urban areas. Rural communities have a role to play in Climate Sustainability. The Crawford Area Transportation Authority (CATA) has long been a recognized leader in rural public transportation and desires to maintain this leadership status through our actions and plans on Climate Sustainability.

Scope and Limits:

The Climate Action Plan is limited to the operations of CATA and its involvement within the communities of Crawford and Venango counties.

Process for developing the plan:

This plan has been prepared by the Board of Directors and staff of CATA. The plan will compare data and processes prior to 2017 with current information. The staff has performed research into new and emerging climate actions that may be used to further reduce climate impact within the organization.

How the agency will use the plan:

CATA will use the plan to guide operations with an eye on reducing climate impact and promoting responsible actions within our communities.



Propane Fueling Station - Meadville PA

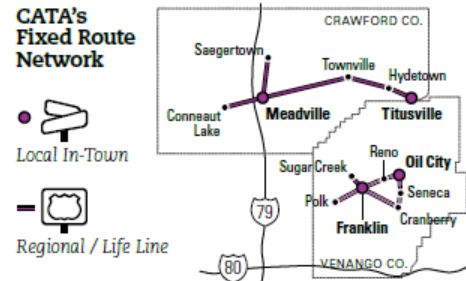


Meadville BikeShare

2. Agency Overview

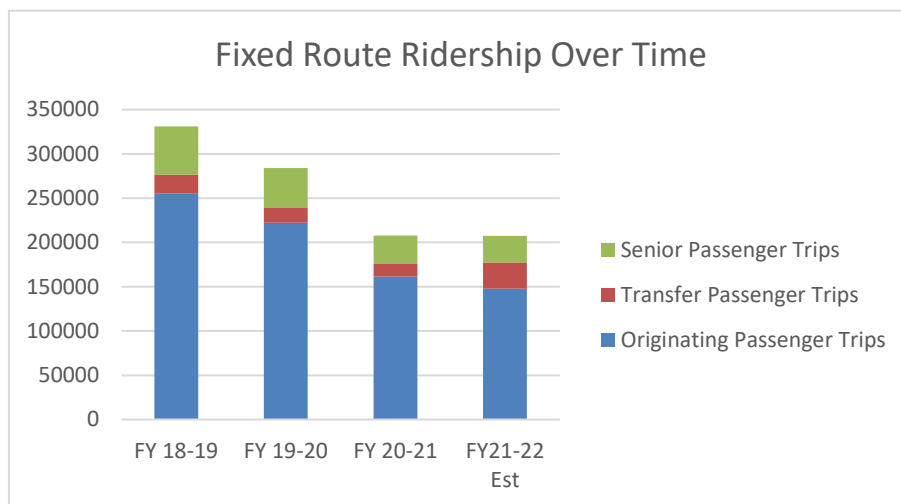
Crawford Area Transportation Authority (CATA) has been the provider for public transportation throughout Crawford County, Pennsylvania since 1979. In 2016, CATA began a management contract with neighboring Venango County Transit in an effort to reduce duplicative administrative costs and refocus administrative savings into operational improvements. In 2017, the two organizations merged as CATA to become a unified multi-county public transportation provider servicing both Crawford and Venango counties.

CATA's service area covers over 1,700 square miles and consists of rural farmland, many small towns and municipalities, and 4 small third-class cities: Meadville, Titusville, Oil City and Franklin ranging in population from 5,000 – 12,800. Combined population of the counties is 134,392 (www.census.gov 2020 estimate). Of these, 12.8% live at or below the poverty level and 8.6% of households have no vehicle available to them.

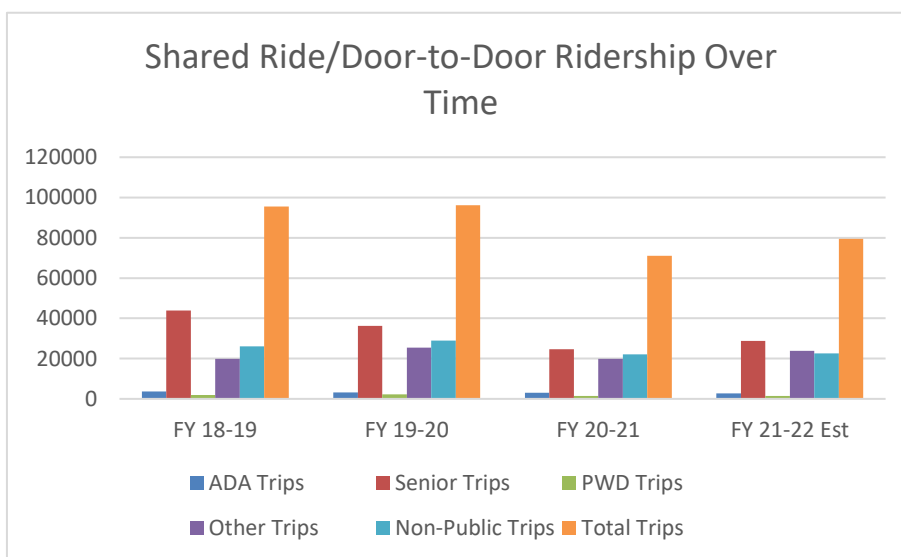


Population & Transportation Statistics - Census.Gov 2020 ACS 5-Year Estimates				
	Crawford	Venango	SUM or Average	
Population	83,938	50,454	134,392	
# White	77,804	47,324	125,128	
# Non-White	6,134	3,130	9,264	
Percent Non-White	7.3%	6.2%	6.9%	
Median Age	43.3	47.4	44.8	
Employment Rate	53.9%	52.2%	53.26%	
Percent in Poverty	12.5%	13.5%	12.88%	
Highest Educational Attainment				
High School Diploma	47.3%	48.0%	47.56%	
Post Secondary Completion	28.3%	28.4%	28.34%	
Households	35,169	22,103	57,272	
Median Household Income	\$51,919	\$51,405	\$51,726	
# Households w/no vehicle available	3,247	1,694	4,941	
% Households w/no vehicle available	9.23%	7.66%	8.63%	
Means of Transportation to Work				
Drive Alone	78.0%	79.6%	78.6%	
Carpool	9.4%	9.9%	9.6%	
Public Transportation	0.4%	0.3%	0.4%	
Walk	6.0%	3.8%	5.2%	
Other	1.2%	6.0%	3.0%	
Work from Home	5.0%	5.8%	5.3%	

Transportation services included in CATA’s offerings are Fixed Route service in Meadville, Titusville, Oil City, Franklin, and Seneca. This service operates 5-6 days per week. Limited fixed route service, identified as “Life Line”, operates 2-5 days per week providing service from smaller outlying communities into the Meadville area. Services operate over 450,000 miles and 26,000 hours and provide 230,000 trips on average every year.



CATA provides paratransit and demand response service throughout both counties. This door-to-door service operates six days per week and covers all areas of the counties above and beyond ADA boundaries. More than 88,000 trips are delivered each year. While this transportation service is available to the general public the majority of riders are seniors, persons with disabilities, and clients of qualified human service organizations who receive subsidized funding through the PA Lottery program, Non-Emergency Medical Transportation and more. The door-to-door service operates for approximately 595,000 miles and 34,000 hours each year.



Since March 2020, COVID-19 pandemic has impacted both Fixed Route and Shared Ride/Door-to-Door services. Social Distancing, Quarantining and Stay-at-home mandates prevented people from traveling as freely as they normally would. While ridership numbers are continuing to improve, they have not reached pre-pandemic levels. In addition to the pandemic impact, CATA has seen a drop in the number of willing and available employees necessitating a continued reduction in service. This is not an anomaly to CATA, as worker shortage appears to be affecting most industries across the nation.

In 2011, CATA completed construction on an administrative facility in Meadville. This location serves as the administrative offices and a fixed route transfer point. This facility met all the standards to be designated a LEED Silver certification.

In 2018, CATA completed construction of a maintenance and storage facility in Meadville. This facility includes 3 maintenance bays, a bus wash, storage space for 30 vehicles and functions as the main dispatch/customer service center for the organization.

In 2020, CATA formed the Northwest Pennsylvania Mobility Alliance, Inc a registered 501c3 non-profit to provide education and funding to enhance mobility options in Northwest Pennsylvania. The first mobility project of the Alliance was the funding of the Meadville Bikeshare program. Meadville Bikeshare began operation in the spring of 2021 with 20 bikes available for hourly rental via a smart phone application to enhance coordination between public transportation and alternative forms of mobility. 8 rental stations were placed in the Meadville area at or in close proximity to existing transit stops. CATA completed over 630 rental transactions in 2021 with the highest use location being the Ernst Trail trailhead along PA route 322.

In 2021, a new maintenance and storage facility was opened in Oil City to house the Venango County fleet. This facility includes 4 maintenance bays, bus wash, storage for 25 vehicles and administrative office space.

To serve the Titusville community in eastern Crawford County, a small office and parking lot are leased from the Titusville Redevelopment Authority in an industrial park which was formerly the site of a steel mill.

The annual budget for CATA is approximately \$4.8 million. As a municipal authority, CATA collects approximately 13% of operating costs through rider fares. The remainder is supported by state and federal grants, local match, third-party rider sponsorships, and organizational route support.



3. Emissions Inventory

CATA utilized FY 16-17 as the baseline emissions inventory year, as that was the most recent year where the fleet consisted 100% of diesel and gasoline powered vehicles. CATA is comparing the baseline emissions inventory from FY 16-17 to FY 21-22, with the use of fuel assumptions being made for FY 21-22 as only fuel usage data for the first half of the fiscal year was available at the time of the plan creation. To compare a full year's worth of fuel usage between FY 16-17 and FY 21-22, FY 21-22 data has been doubled. While only partially into the transition to an alternative fuel fleet, CATA is already seeing real fuel use and emissions reduction benefits.

At the time of FY 21-22 data collection, CATA maintains a fleet of 61 vehicles with six operating compressed natural gas (CNG), five operating liquified petroleum gas (propane autogas), 48 operating gasoline, and two operating diesel fuel. In March 2022, CATA placed an additional nine propane autogas vehicles into service bringing the total propane autogas fleet to 14 and decreasing the total gasoline vehicle inventory to 39. Alternative fuel vehicles were first procured after FY 16-17, in combination with disposing of several older gasoline and diesel fueled vehicles, to reduce fuel consumption and fleet emissions.

In FY 16-17, diesel fuel use was 50,003 gallons, gasoline fuel use was 157,482 gallons, and total fuel usage was 207,485 gasoline gallon equivalents (GGE). In FY 21-22, diesel fuel use decreased to a total of 382 gallons and gasoline use decreased to 117,221 gallons; this represents a 99% and 26% decrease, respectively. Due to increased alternative fuel deployment, in FY 21-22 CNG fuel use was 38,086 GGE and propane fuel use was 28,450 GGE. Even with the introduction of new fuel types, the total GGE fuel usage for FY 21-22 was 184,139 or an 11% decrease from FY 16-17.

In FY 16-17, diesel fuel vehicles emitted 675 MT of carbon dioxide (CO₂) and gasoline fuel vehicles emitted 1,898 MT of CO₂. The total greenhouse gas emissions (GHG) for baseline year FY 16-17 was 2,573 MT of CO₂. In FY 21-22, reductions in diesel and gasoline use led to a drop in GHG emissions by 24% overall, or a drop to 1,948 MT of MT CO₂. Due to increased alternative fuel deployment, FY 21-22 CNG GHG emissions were 318 MT of CO₂ and propane GHG emissions were 212 MT of CO₂. With the deployment of new alternative fuel vehicles, diesel GHG emissions dropped 99% to only five MT of CO₂ and gasoline emission dropped 26% to 1,413 MT of CO₂.

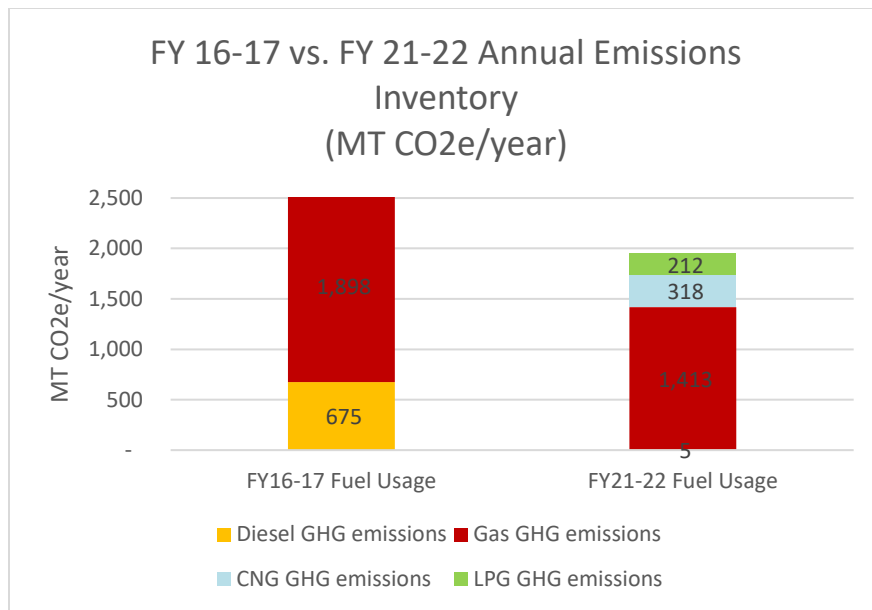


Figure 1: Annual Emissions Inventory in FY 16-17 and FY 21-22

Diesel and gasoline are CATA’s highest carbon intensity (CI) fuels and therefore the highest GHG emitting fuels. While the energy density of diesel is 134.47 MJ/gallon and gasoline is 119.53 MJ/gallon, their CI is equally high. The CI of diesel is 100.45 g/MJ and the CI of gasoline is 100.82 g/MJ. In comparison, CNG has a CI of 79.21 g/MJ and propane has a CI of 83.19 g/MJ. Their respective energy densities are 105.5 MJ/gallon of CNG and 89.63 MJ/gallon of propane. While CNG and propane have a lower energy density, their lower CI means lower tailpipe emissions.

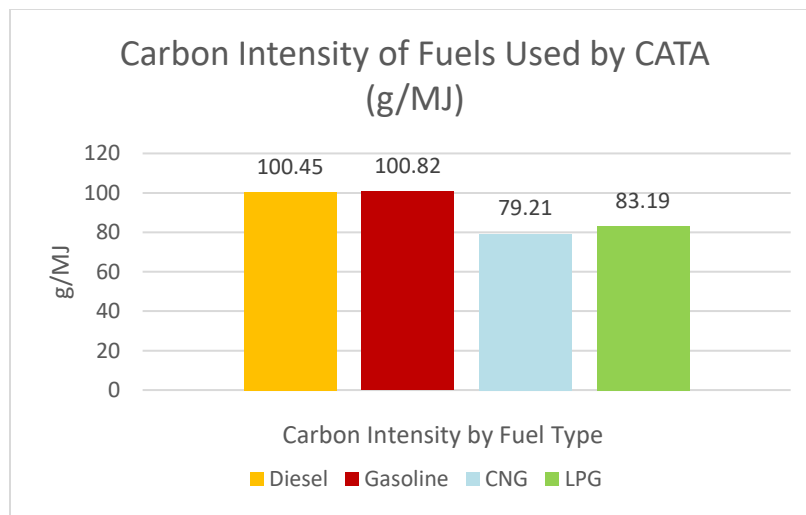


Figure 2: Carbon intensity of fuels used by CATA: diesel, gasoline, CNG, and LPG

CATA receives its fuel usage data from its partnered fuel providers. The fuel usage data was used to calculate the fuel throughput emissions inventory and reductions from the adoption of cleaner technologies, CNG and LPG. Carbon Intensity and energy density of gasoline, diesel, CNG, and LPG were

sourced from the LCFS – CA GREET 3.0 Model and the LCFS Quarterly Data Spreadsheet – 01.31.2022.

CATA will continue to run baseline emissions inventory to current emissions inventory calculations each year through 2030 when CATA reaches its goal of 80% adoption of alternative fuel vehicles (CNG and LPG) to replace conventional diesel and gasoline vehicles. CATA will continue to carefully look at the vehicles that are being replaced during this transition period to ensure the cleanest possible CNG and LPG vehicles are being deployed.

Sources:

California LCFS Quarterly Summary Data Spreadsheet:

<https://ww2.arb.ca.gov/resources/documents/low-carbon-fuel-standard-reporting-tool-quarterly-summaries>

CA-GREET 3.0 Model - <https://ww2.arb.ca.gov/resources/documents/lcfs-life-cycle-analysis-models-and-documentation>

4. Past and Current Initiatives

This is the initial climate action plan for CATA. It is designed to reflect the climate impact reductions that have already been put into place over the past 6 years and to set goals and plans to reach future goals.

State and Regional Plans and Their Impact on Public Transportation

In 2021, the Commonwealth of Pennsylvania adopted a Climate Action Plan with a goal of reducing greenhouse gas emissions 26% by 2025 and 80% by 2050. The 2017 baseline data showed net emissions in Pennsylvania to be 233.7 MMTCO₂e, with 24% of that coming from transportation. That percentage includes all forms of transportation: public, private and commercial. Of the strategies developed in that plan, those affecting public transportation include:

- Increase fuel efficiency of light duty vehicles and reduce vehicle miles traveled for single occupancy vehicles
- Increase adoption of light-duty electric vehicles
- Institute a low-carbon fuel standard to reduce the carbon intensity of transportation fuels
- Implement a multi-state memorandum of understanding to make all medium- and heavy duty vehicle sales zero emission vehicles by 2050.

As of this submission date, the City of Meadville is preparing to adopt its own climate action plan to address the key goal of net zero emissions by the year 2050. Objectives in the Meadville Plan that may have an impact on CATA and public transportation include:

- Reduce transportation emissions
- Expand trail & bike infrastructure
- Promote the use of electric vehicles
- Develop micro-mobility options

Facilities

In 2011, CATA constructed an administrative building at 214 Pine Street, Meadville which received LEED Silver Certification. Items to reduce climate impact included:

- Variable refrigerant flow HVAC system
- Large skylight for daylight harvesting
- Motion and time of day lighting controls
- Low flow water and plumbing fixtures
- Low VOC carpet and paints
- Recycled content for wood, floor finishes, ceiling tiles, steel, concrete fly ash

When constructing the two maintenance/storage facilities in 2018 and 2020, consideration was given to maintaining energy efficiency, greenspace, and stormwater runoff. Energy efficient lighting and heating systems were installed. Other conservation measures include low flush toilets, automatic shut off faucets, and bottle-filling water fountains. Permeable paving surface was used in each parking lot for effective stormwater absorption. At the Oil City facility, 85% of the water used for washing buses is recaptured, filtered and reused for additional washes.



Vehicles

In 2017 CATA partnered with the Pennsylvania Department of Transportation Bureau of Public Transportation and Trillium, Inc. as part of a public/private partnership, to install a Compressed Natural gas (CNG) fueling station at the maintenance/storage facility on Rogers Ferry Road in Meadville. Since that time, CATA has purchased six 29 ft. CNG mass transit buses which are operating on the fixed route system in the city of Meadville.

In 2019, CATA was the only transit authority in the Commonwealth to receive a grant from the Pennsylvania Department of Environmental Protection Alternative Fuel Incentive Grant (AFIG) to convert 14 body-on-chassis demand response vehicles from gasoline to propane. In 2022, 14 propane vehicles have been received and are operating in both Crawford and Venango Counties. CATA has installed propane fueling stations at its maintenance/storage facilities in Meadville, Crawford County and Oil City, Venango County. To maintain these vehicles, CATA invested in training of the mechanics on repair of propane and CNG vehicles.

Bus Stops and Shelters

CATA continues to work closely with area developers to ensure that public transportation (i.e. bus stops and shelters) are included in the planning of new construction and roadway projects. In 2019, CATA installed and/or replaced 6 aging bus shelters with 6 new shelters that include solar powered lighting. The bus stop improvement plan includes the replacement or new installation of a minimum of 6 energy

efficient shelters each year to further CATA's strategic goals of improving the rider experience.

Alternate Transportation Modes

All fixed route vehicles include a bicycle rack. Riders can ride their bicycle to the bus stop, load the bike and ride the bus to their destination. This assists riders in their first mile/last mile transportation needs.

In 2021 CATA, through the Northwest Pennsylvania Mobility Alliance Inc., began a bike share program in the City of Meadville. Bike Share is a service in which bicycles are made available for shared use to individuals on a short-term basis. Bike share systems allow people to rent a bike from a "dock" and return it at another dock belonging to the same system. Docks are special bike racks that lock the bike, and only release it by smart phone Bluetooth control. Meadville Bikeshare began operation in the spring of 2021 with 20 bikes available for short term rental via a smart phone application to enhance coordination between public transportation and alternative forms of mobility. Eight rental stations were placed in the Meadville area at or in close proximity to existing bus stops. CATA completed over 630 rental transactions in 2021 with the highest use location at the Ernst Trail trailhead along PA Route 322. The inaugural season of the program showed that this type of initiative is not just limited to larger urban areas. Bike Shares can be effective in smaller, rural communities to increase mobility and provide options for people who are not able or do not want to drive. The program will expand to 30 bikes and more locations in 2022.



Electronic Ticketing

CATA has implemented electronic ticketing for the fixed route system via a smart phone app. This option allows riders to purchase bus passes through the app (or with cash at the CATA office), reducing cash handling and the need for the printing of paper tickets. To date approximately 8% of fixed route ridership uses the mobile app.

5. Emission Reduction Goals

This climate action plan provides a baseline and record of past and current emissions. The plan identifies opportunity to develop additional measures to increase emission reduction over the next 10-15 years.

CATA's emission reduction goals include:

1. Convert 80% of the revenue fleet to alternative fuels by 2030
2. Achieve 80% GHG emission reduction by 2030
3. Expand the footprint of public transportation services
4. Expand the definition of active transportation
5. Educate and Support rural community involvement in Climate Policy
6. Integrate public EV charging stations into mobility options

6. Strategies and Actions

Strategy:	<u>Convert 80% of the revenue fleet to alternative fuels by 2030</u>
Action:	Replace 100% of Mass Transit fleet to Compressed Natural gas (CNG)
Metric:	Capital and Discretionary Grant approvals for vehicle acquisition
Timeframe:	COMPLETED
Action:	Replace Paratransit vehicle fleet to Propane Autogas
Metric:	Capital and Discretionary Grant approvals for vehicle acquisition
Timeframe:	2022-2030

Strategy:	<u>Achieve 80% GHG emission reduction by 2030</u>
Action:	Prioritize placement of alternative fuel vehicles on high mileage/high service frequency routes
Metric:	Annual Operational Planning Statistics
Timeframe:	2022-2030

Strategy:	<u>Expand the footprint of public transportation services</u>
Action:	Advocate for expansion of Lifeline service model providing regional fixed routes to communities under 5,000 population with 1-3 day per week services into core service area
Metric:	Census population data
Timeframe:	2022-2030
Action:	Expand frequency of public transportation services in communities over 5,000 population with the addition of early morning and late evening services targeted to non-traditional work hour transportation needs
Metric:	Revenue service miles and timeframes of service operation
Timeframe:	2022-2030
Action:	Increase marketing and promotion as well as building relationships with area businesses and organizations
Metric:	Increased ridership/reduction of single occupancy vehicle travel
Timeframe:	2022-2030

Strategy:	<u>Expand the definition of active transportation</u>
Action:	Expand the Meadville Bike Share program to other core communities including municipalities, state parks and recreational trail heads
Metric:	Total number of bikes available for rental on daily basis, total rental transactions per year
Timeframe:	2022-2030
Action:	Engage local communities and municipalities to embrace policies that support active transportation in the form of bikeshare, walking and shared mobility
Metric:	Comprehensive planning support
Timeframe:	2022-2030

Strategy:	<u>Educate and Support rural community involvement in Climate Policy</u>
Action:	Active participation in National organizations that support climate sustainability
Metric:	Ongoing participation in climate sustainability organizations
Timeframe:	2022-2030

Strategy:	<u>Integrate public EV charging stations into mobility options</u>
Action:	Pursue EV charging stations that coincide with public transportation transfer points and Bike Share stations to create seamless connections to engaging local communities
Metric:	Increased EV charging station availability
Timeframe:	2022-2030

7. Implementation and Monitoring

CATA will seek planning services from Regional Planning entities, national associations and foundations that support climate sustainability to properly implement and maintain the Climate Action Plan. Partnerships with the Northwest Commission, Crawford County Planning Office, Venango County Planning office, PennDOT Multimodal Transportation Division, Pennsylvania Department of Environmental Protection and more will be engaged to support the efforts of CATA's Climate Action Plan.

The Vision of maintaining CATA as a leader in rural climate sustainability will guide our policy and implementation of this Climate Action Plan.

Emerging challenges that will need to be considered focus on the continued push for older adults to age in place. This will pose operational challenges for public transportation and active transportation as CATA meets the mobility needs of our communities over a large geographical area. The expansion of public transportation and active transportation models is just as important in communities under 5,000 population as it is in communities over 5,000 population.