METROPLAN

ARKANSAS ENERGY & ENVIRONMENT
INNOVATION PLAN REGIONAL SUPPLEMENT

CENTRAL ARKANSAS COMPREHENSIVE ACTION PLAN

JULY 2025

PROVISO

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Contents

Acronyms and Abbreviations

A.C.A.	Arkansas Code Annotated
AAEF	Arkansas Advanced Energy Foundation
ADPHT	Arkansas Department of Parks, Heritage, and Tourism
ADU	Accessory Dwelling Unit
AEO	Arkansas Energy Office, a Subdivision of the E&E
AEPC	Arkansas Energy Performance Contracting
AHPP	Arkansas Historic Preservation Program
ARDOT	Arkansas Department of Transportation
BAU	Business as Usual
CAP	Comprehensive Action Plan
ClearPath	ICLEI's ClearPath GHG Reporting Tool
C-PACE	Commercial Property Assessed Clean Energy
CPRG	Carbon Pollution Reduction Grant
DC	Direct Current
DER	Distributed Energy Resource
E&E	Arkansas Department of Energy and Environment Energy
EEI	Energy and Environment Innovation
ESPC	Energy Savings Performance Contracting
EV	Electric Vehicle
GHG	Greenhouse Gas
GIS	Geographic Information Systems
ICLEI	International Council for Local Environmental Initiatives
kWh / mWh	Kilowatt Hours or Megawatt Hours
LEP	Limited English Proficiency
LIRC	Low-Income and Rural Community
MSW	Municipal Solid Waste
mt CO_2e	Metric Tons of Carbon Dioxide Equivalents
NOx	Nitrogen Oxides
PAP	Priority Action Plan
$PM_{2.5}$	Fine Particulate Matter
SO_2	Sulfur Dioxide
SSWMP	State Solid Waste Management Plan
STBG	Surface Transportation Block Grant
SWIFR TAP	Solid Waste Infrastructure for Recycling Grant
VMT	Transportation Alternatives Program
VOC	Vehicle Miles Traveled
	Volatile Organic Compound

Acknowledgments

We would like to thank the many staff from state and local government agencies, utilities, nonprofits, businesses, community-based organizations, and members of the public who contributed their expertise to the development of the Central Arkansas Energy and Environment Innovation Comprehensive Action Plan Supplement:

Residents of Central Arkansas who participated in our engagement process

Metroplan Staff

Arkansas Department of Energy and Environment

Arkansas Department of Transportation

Metroplan Board of Directors

Rock Region METRO

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Little Rock Port Authority

Little Rock Sustainability Commission

Little Rock Department of Public Works

Central Arkansas Water

Central Arkansas Planning and Development District

Entergy Arkansas

Entegrity Energy Partners

North Little Rock Electric

Arkansas Advanced Energy Association

Arkansas Apprenticeship Alliance

Southern Bancorp

Little Rock Regional Recycling

Little Rock Regional Chamber

Arkansas Natural Sky Association

Seal Solar

GREAT PLAINS INSTITUTE

Prepared by the Great Plains Institute for Metroplan

Executive Summary

The Central Arkansas Energy and Environment Innovation Comprehensive Action Plan Supplement (CAP) outlines a strategic framework to reduce greenhouse gas (GHG) emissions, improve air and water quality, and enhance community resilience across Faulkner, Grant, Lonoke, Perry, Pulaski, and Saline counties. This plan builds on extensive public and stakeholder engagement and identifies five key measures to drive regional energy and environmental innovation:

Promoting Active Transportation by Investing in Green Corridors: Promoting active transportation, preserving green spaces, and implementing green infrastructure to improve air quality, mitigate heat, and enhance flood resilience.

Increase Energy Savings, Independence, and Resilience by Investing in Local Energy Resources: Investing in solar energy, battery storage, and energy efficiency upgrades to reduce emissions, lower energy costs, and strengthen grid resilience.

Improving Local Air and Water Quality by Investing in Recycling and Waste Reduction: Expanding recycling and composting programs to divert waste from landfills, reduce pollution, and improve soil health.

Revitalizing Communities through Infill Development: Encouraging redevelopment of vacant and underutilized lots to increase housing and workplace opportunities in urban areas.

Regional Electric Vehicle Charging Access: Investing in Clean Transportation Expanding public electric vehicle (EV) charging infrastructure to support clean transportation, reduce emissions, and enhance mobility.

This CAP provides a high-level overview of benefits, metrics for tracking progress, and key implementing organizations and activities for each measure. Further details on implementation, benefits, workforce needs, costs, funding opportunities, and supporting analysis and references are available upon request at Metroplan.org.

Collectively, **the measures in this CAP have the potential to reduce greenhouse gas (GHG) emissions by up to 40.6 million metric tons of carbon dioxide equivalents** (mt CO_2e) cumulatively between 2025 and 2050. By adopting this CAP, Metroplan aims to position Central Arkansas as a leader in sustainable development, fostering healthier communities, economic growth, and environmental stewardship.

Introduction

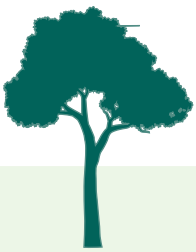
About Metroplan

Metroplan is a voluntary association of local governments that has operated by interlocal agreement since 1955. It is the designated metropolitan planning organization under Title 23 of the United States Code. Metroplan has members in five Central Arkansas counties: Faulkner, Grant, Lonoke, Pulaski, and Saline. The organization acts as a unified voice to serve local governments, convening stakeholders, and providing information and data to address transportation, land use, and environmental issues affecting the region.

Plan Overview

Metroplan is collaborating with state and regional agencies on Energy and Environment Innovation (EEI) planning, which will guide investments and incentives to keep the state's air clean, protect its natural resources, and stimulate economic development in Arkansas. Metroplan's contribution to this planning effort includes public and stakeholder engagement, a regional EEI priority action plan (PAP) supplement, a regional EEI comprehensive action plan (CAP) supplement, and a regional status update supplement. The PAP supplement was submitted to the Arkansas Department of Energy and Environment (E&E) in February 2024. This plan and its appendices represent Central Arkansas's regional EEI CAP supplement.

This plan includes a regional inventory of greenhouse gases (GHGs) and explores five measures to reduce GHG emissions and improve air quality in Central Arkansas. The plan identifies potential regional implementation strategies and their anticipated benefits for the region, including benefits to low-income and rural communities (LIRC). A series of five concept papers to be submitted with this plan provides further details on implementation, benefits, and workforce needs for each measure. These concept papers also include assumptions; quantification methods; references to existing related plans; and citations to relevant case studies, policy, tools, and scientific literature. This CAP supplement will support EEI efforts by Metroplan and its members and will be included in a statewide EEI CAP.



GREEN CORRIDORS

LOCAL ENERGY

WASTE REDUCTION

INFILL

EV CHARGER ACCESS

Air Quality in Central Arkansas

Two common outdoor air pollutants in Central Arkansas that have health implications are ozone and fine particulate matter ($PM_{2.5}$). These air pollutants can be emitted directly by fossil fuel combustion and industrial processes or through reactions in the atmosphere of precursor pollutants, including volatile organic compounds (VOC), nitrogen oxides (NOx), ammonia, and sulfur dioxide (SO_2).

Air quality monitoring data show that average $PM_{2.5}$ levels in Central Arkansas, while still measuring within federal attainment levels, are at rist of exceeding federal standards. Elevated $PM_{2.5}$ levels pose health risks, especially for sensitive populations like children, the elderly, and those with respiratory conditions. Central Arkansas experiences a few elevated ozone days each year. Reducing emissions of ozone, $PM_{2.5,}$ and their precursor pollutants, through the measures included in this CAP is expected to improve public health by lowering risks of asthma, heart disease, and premature death.

Public and Stakeholder Engagement

Throughout EEI planning, Metroplan has centered outreach and public feedback in its processes to inform the development of both the PAP and CAP. The CAP is the culmination of two years of extensive engagement with state and local government agencies, utilities, nonprofits, businesses, community-based organizations, and members of the public. Throughout 2023, PAP engagement activities included the following:

- Attending festivals and public events
- Leading a group facilitation activity with Metroplan Board of Directors
- Leading a workshop with the Arkansas Department of Transportation (ARDOT)
- Posting information on Facebook and Instagram
- Attending summits and similar agency meetings (e.g., Audubon summit)
- Sending out monthly newsletters reporting progress and notifying readers of opportunities for participation in plan development.

Engagement for the CAP began in Fall 2024 and included a workshop for the Metroplan Board of Directors, monthly e-newsletters, and a public survey to determine priority regional EEI measures. The public survey was open from June to December 2024 and was publicized via push cards at events and meetings as well as weekly social media posts.

On January 22, 2025, the Metroplan Board of Directors approved five measures for further outreach and detailed feed-back. From February to April of 2025, Metroplan hosted a series of interactive webinars to introduce stakeholders and members of the public to each measure concept and to gather their general feedback and ideas about potential project locations, costs, benefits, and workforce needs. A Story Map illustrating potential projects suggested by stake-holders and the public can be found at https://storymaps.arcgis.com/stories/4fc030b0d7bd40328c3b65a24b642133.

Alignment with State Priorities

The five measures outlined in this Comprehensive Plan directly align with the State of Arkansas' infrastructure investment strategy, as guided by the Arkansas Office of the Infrastructure Coordinator and the Department of Finance and Administration (DFA). Each measure contributes to the State's vision for maximizing the impact of federal infrastructure funds—particularly from the Infrastructure Investment and Jobs Act (IIJA)—through cross-sector collaboration and strategic implementation.

More information about these priority areas can be found at https://www.dfa.arkansas.gov/infrastructure/.

Facilitating Statewide Economic Growth and Competitiveness

Growing and expanding the economy within Arkansas by increasing access to economic opportunities for communities, advancing transportation and commerce, and maintaining a resilient supply chain.

Keeping Communities Safe

Improving public and transportation safety provisions through promoting road and highway safety education and training programs, strengthening cybersecurity infrastructure, and making safety improvements to roads and bridges.

Preparing the Infrastructure Workforce

Scaling up the workforce needed for project delivery, promoting access to quality jobs, and developing a pipeline of talent across the State.

Preserving and Promoting the Natural State

Celebrating the State's natural resources to develop, create and sustain outdoor recreation, business and employment opportunities through ecology initiatives, environmental resiliency projects, and proper water management practices.

Creating a Portfolio of Reliable, Efficient, and Secure Energy Options

Expanding efficient energy options available to Arkansans through resource development while maintaining a strong energy workforce and secure electric power grid that can withstand emergencies and severe weather.

Workforce Needs

Central Arkansas has a labor force of nearly 380,000, with an unemployment rate of 3.1%. Implementing the measures in this CAP can stimulate further growth in well-paying jobs, especially in sectors like transportation, construction, and workforce preparedness. The concept papers included with this CAP discuss additional information on careers, pay, and skills required for the jobs needed to implement the CAP.

Skillstream

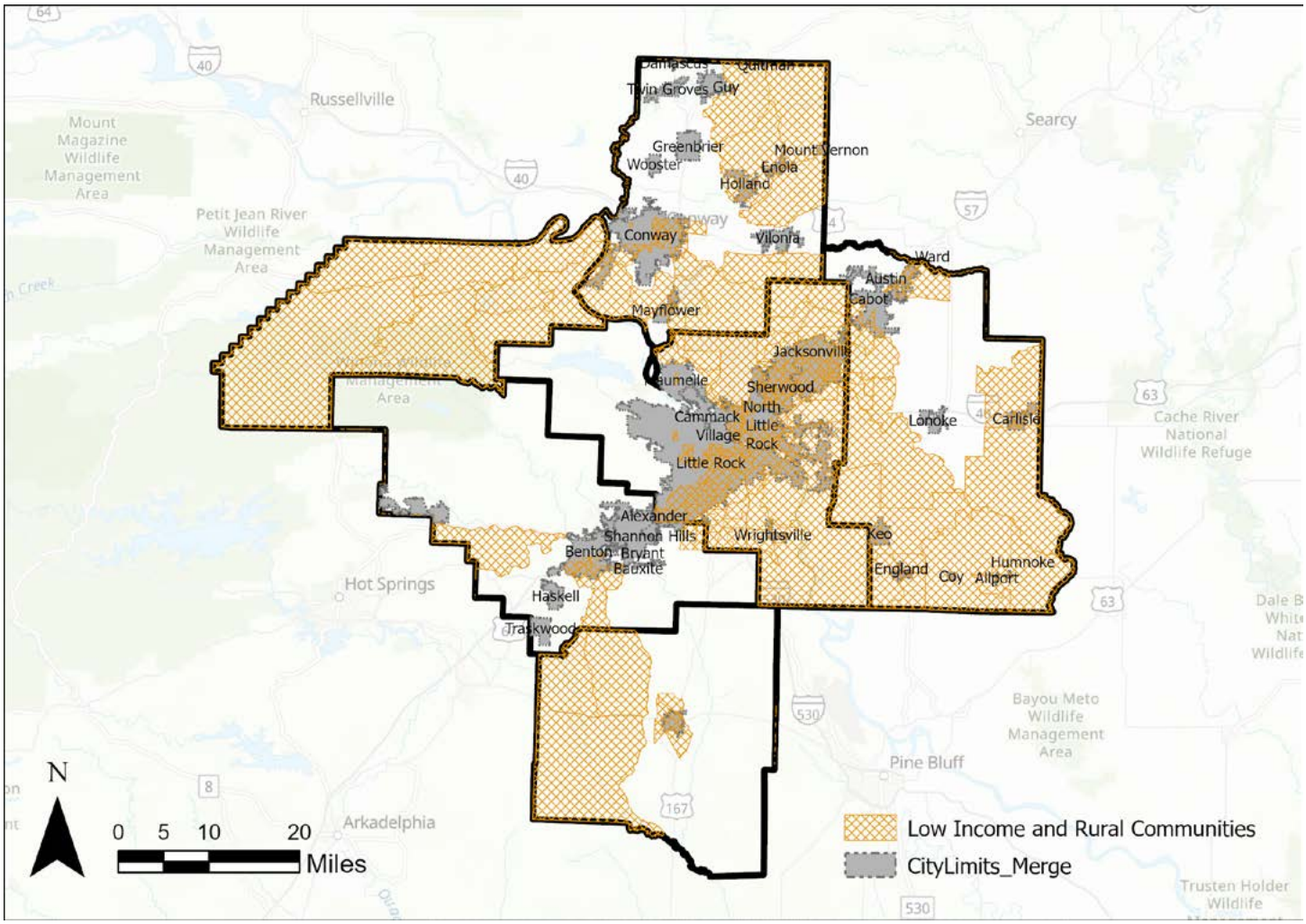
Arkansas Advanced Energy Foundation (AAEF) is spearheading the SkillStream Advanced Energy Workforce project to connect Arkansans—especially students, veterans, formerly incarcerated individuals, and others—to careers in clean energy sectors such as renewable energy, energy efficiency, advanced manufacturing, and EVs. The project offers hands-on training, mentorship, career support, and works to reduce barriers like underrepresentation and lack of awareness. More information about SkillStream is available at https:// www. arkansasadvancedenergyfoundation.org/the-solution.

Low-Income and Rural Communities

LIRC areas, reflected in the map below, were identified areas using technical guidance from the EPA's Climate Pollution Reduction Grants (CPRG) program on conducting benefits analyses for low income communities. The measures outlined in this CAP analyze the benefits of implementation for all Central Arkansans, including those in LIRCs, ensuring that residents in all communities benefit from EEI measures.

More information about defining low income communities is available at https://www.epa.gov/system/files/documents/2023-05/LIDAC%20Technical%20Guidance%20-%20Final_2.pdf

LOW INCOME AND RURAL COMMUNITIES IN CENTRAL ARKANSAS



GREEN HOUSE GAS INVENTORY

KEY TERMS

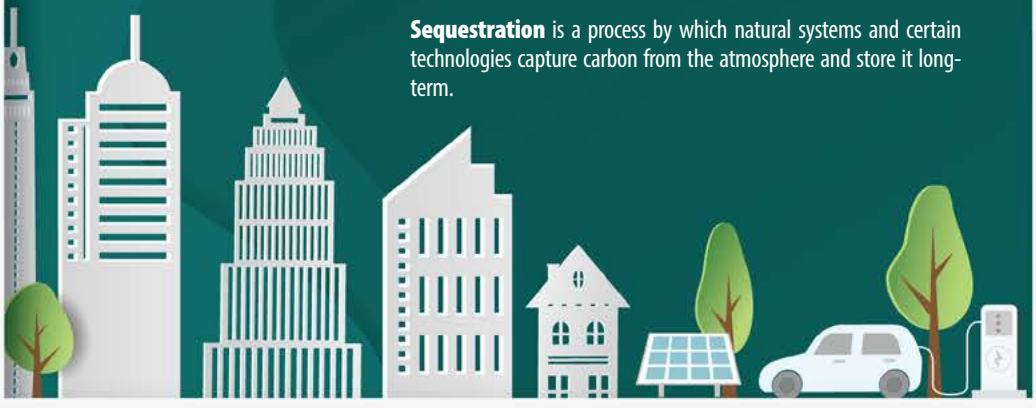
GHGs are gases that trap heat in the atmosphere. These include carbon dioxide, methane, nitrous oxide, and fluorinated gases. GHGs like methane and nitrous oxide have a greater environmental impact than carbon dioxide. **Carbon Dioxide Equivalent** (C02e) converts these gases into the equivalent amount of carbon dioxide to express their overall pollution effect.

An **Emissions Inventory** is a data set that quantifies the amounts of pollutants released into the atmosphere from various sources over a specific period.

A **Base Year** is the inventory year that is used to forecast future year emissions.

Business as Usual (BAU) is a scenario that assumes current trends in economic growth, energy consumption, emissions, and other variables will continue and that no new policy interventions are introduced. The BAU serves as a reference to compare the implementation of the EEI measures.

Sequestration is a process by which natural systems and certain technologies capture carbon from the atmosphere and store it long-term.



Metroplan has developed baseline and forecasted regional GHG emissions inventories for Central Arkansas. For this CAP, Central Arkansas includes the following counties: Faulkner, Grant, Lonoke, Perry, Pulaski, and Saline. These inventories were prepared using the International Council for Local Environmental Initiatives (ICLEI) ClearPath GHG Reporting Tool (ClearPath). Metroplan's approved Quality Assurance Project Plan for the GHG Inventory and Options Identification Phase of the CPRG Program, Q- Trak No. 24-434, and Metroplan's Regional Greenhouse Gas Inventory and Business-As-Usual Forecast Technical Appendix contain detailed methodology and quality assurance procedures for preparing this inventory. The detailed 2020 baseline inventory is available at metroplan.org/eei.

Central Arkansas GHG inventory Sectors

ENERGY USED IN BUILDINGS

- Electricity and fuel consumption for residential homes and group living
- Electricity and fuel consumption for commercial businesses and government buildings
- Electricity and fuel consumption for manufacturing and industrial facilities
- Energy used to distribute potable water
- Energy generation

TRANSPORTATION & MOBILE SOURCES:

- Passenger & Freight Automobiles
- Transit
- Planes
- Passenger & Freight Trains
- Marine Freight & Pleasure Craft
- Heavy Duty Offroad Equipment

WASTE

- Landfills
- Solid Waste
- Process & Fugitive Emissions
- Wastewater Treatment

AGRICULTURE & LAND USE

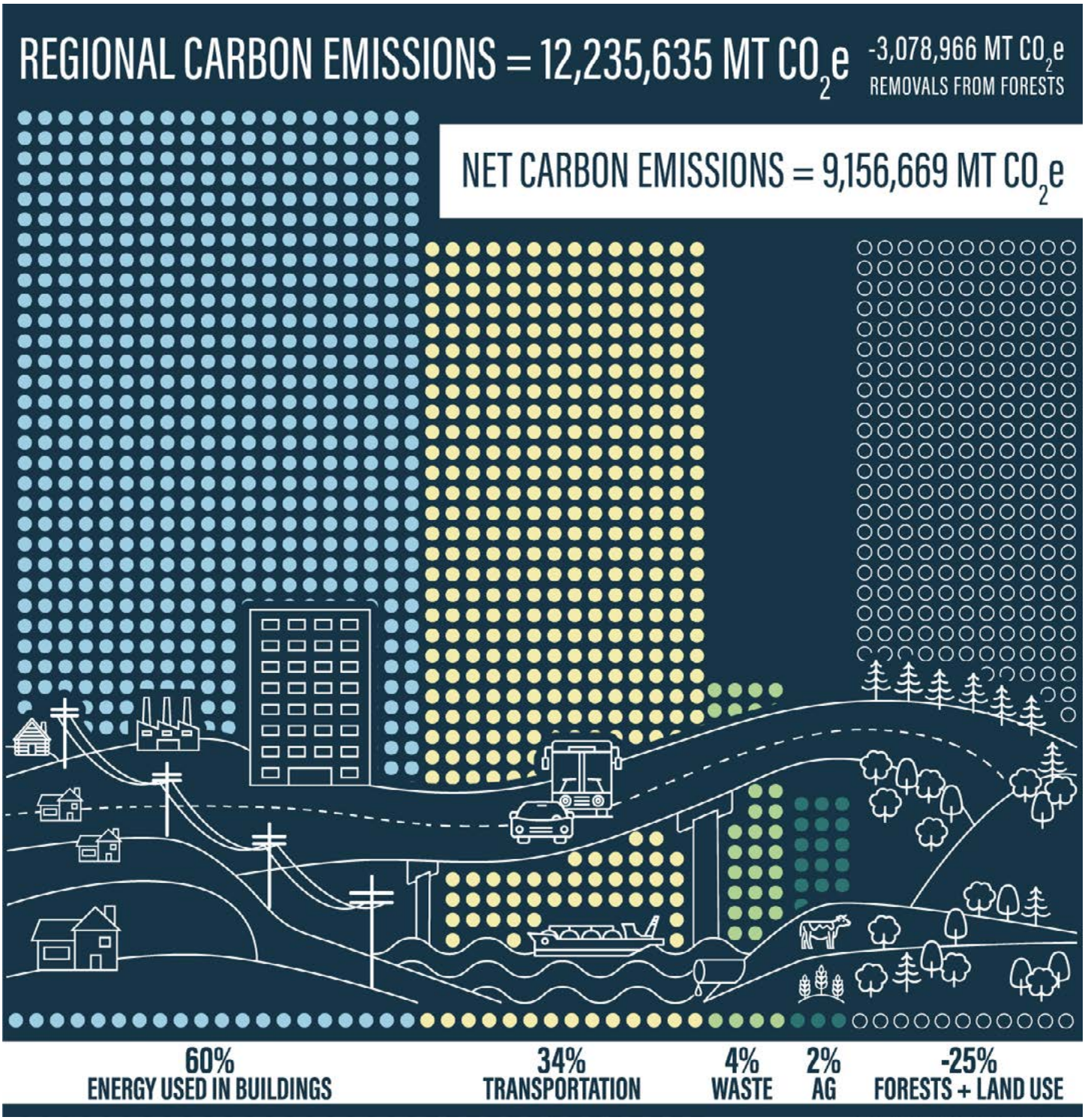
- Agricultural Activities
- Forestry
- Sequestration from Natural Systems

2020 GHG Inventory

In the 2020 base year inventory, Central Arkansas' GHG emissions were 12 million metric tons of carbon dioxide equivalent emissions (mt CO_2e). Transportation and Commercial Energy are the largest sources of GHG emissions in the region. By comparison, water and wastewater, and process and fugitive emissions are relatively minor contributors. Approximately 3.1 million mt CO2e of these annual emissions are offset by the region's AFOLU sector, which sequesters more carbon than it emits.

Central Arkansas 2020 GHG Emissions by Sector

Relative Percent Contribution and Values in Million Metric Tons Carbon Dioxide Equivalents (million mt CO_2e)

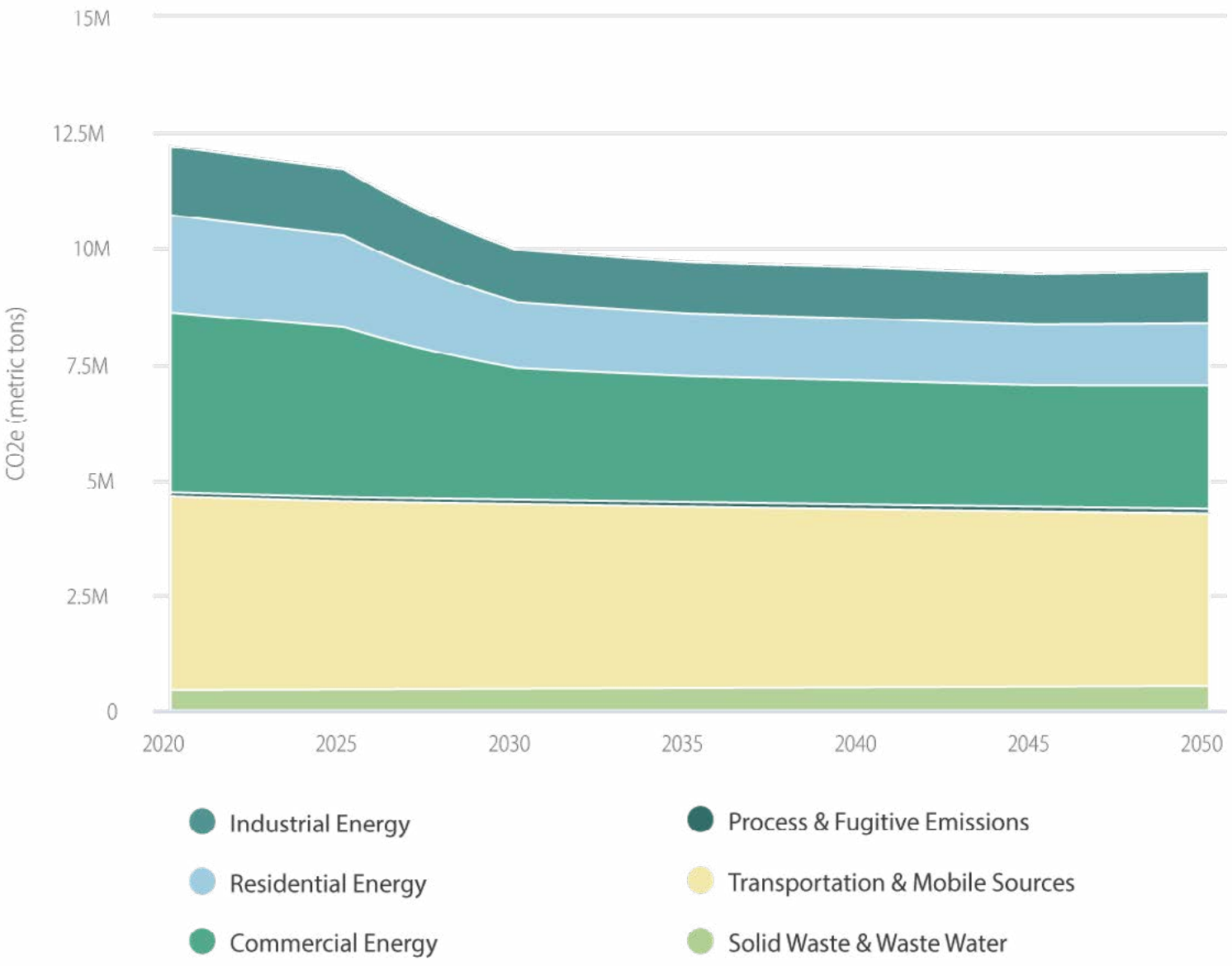


GHG Emissions Forecast

Total annual emissions in the region are projected to decrease by 22% from 2020 levels through 2050 as a result of current federal, state, and local policies. Metroplan forecasted a Business-As-Usual (BAU) CO2e emissions which is reflected in the table below. Commercial Energy, Residential Energy, and Industrial Energy are projected to decrease as the electric grid becomes less reliant on coal. Transportation emissions will also decrease as vehicles become more efficient. Process & Fugitive Emissions, Solid Waste, and Waste and Wastewater emissions, which compose a small fraction of the overall inventory, are anticipated to increase with projected population growth.

Central Arkansas GHG BAU Emissions Forecast by Sector (2020–2050)

Values in million mt CO2e



Central Arkansas Energy & Environment Innovation Measures

Overview

This section provides an overview of measures that Metroplan has identified through a combination of stakeholder engagement and calculation. Investment into the implementation of these measures will aid in the protection and preservation of natural areas and communities throughout Central Arkansas. A series of concept papers is available with additional details, including implementation cost estimates, methods, and references to relevant literature. The information in these concept papers can be used as a foundation to design projects consistent with these EEI measures and pursue implementation funding.

As reflected in the regional inventory, transportation and commercial energy are the largest sources of emissions in Central Arkansas. The measures included in this CAP were identified through public and stakeholder engagement and target innovations in transportation and commercial and local government buildings to reduce emissions from these sectors. Green Corridors preservation, restoration, tree planting, and green infrastructure activities will also offset GHG emissions. These measures have the potential to **reduce cumulative GHG emissions in Central Arkansas by up to 63%** from the BAU forecast by 2050.

CENTRAL ARKANSAS EEI CAP SUPPLEMENT MEASURES AIR QUALITY BENEFITS POTENTIAL[1]

Measure 2025 - 2030	Cumulative GHG Reductions ($mt CO_2e$)		Annual Ozone and $P_{2.5}$ Precursor Reductions (tons)			
	2025 - 2030	2025-2050	NOx	Direct PM2.5	SO_2	VOC
Green Corridors*	2 million	2.5 million	0.1	0.02	0.3	0.6
Local Energy	1.8 million	36 million	1021	118	1,193	32
Waste Reduction	263,157	1.4 million	18	12	1.4	7.5
Infill	61,349	333,720	1.3	0.3	3.1	6.7
EV Fleet Access	12,928	327,825	6.2	0.6	0.1	25.6
TOTAL	4.1 million	40.6 million	1047	131	1198	72.4

*The estimated reductions from land preservation are calculated as one-time credit due to no additional emissions being avoided in the years after the land is preserved from development.

[1] Numbers in this table are rounded.

CENTRAL ARKANSAS MEASURE 1: GREEN CORRIDORS

KEY TERMS

Greenways are paths for bikes and pedestrians only, typically separated from roadways.

Complete streets are built or retrofitted to enable safe access for all people who need to use them, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities.

Green infrastructure integrates stormwater management techniques, natural processes, and landscaping to enhance connectivity, manage stormwater runoff, reduce heat island effects, and enhance overall health and quality of life.

Conservation maximizes the land's long-term environmental benefits by preserving the land in its natural state.

Restoration makes land healthier by removing invasive plants, debris, and garbage and/or planting trees or native plants.

PROMOTING ACTIVE TRANSPORTATION BY INVESTING IN GREEN CORRIDORS

Provide safe, convenient, and sustainable active transportation infrastructure and to preserve and restore green space. Regional greenways connect cities and neighborhoods via separated biking and walking routes. These paths increase opportunities for residents to choose active, healthly transportation methods.

- **Improve Community Safety & Well-being**
- **Improve Air & Water Quality**
- **Reduce Heat and Related Health Risks**
- **Increase Energy Savings**
- **Improve Flood Resilience**
- **Increase Property Values**

What could Green Corridors look like when fully implemented?

- Over 222 miles of regional greenways built
- 21 miles of green and complete streets
- 15,707 urban trees planted
- 34,209 acres preserved
- 3,231 acres restored

Pollution Reduction

2.5 million metric tons of GHGs reduced* through 2050 and up to 1 ton of other air pollutants reduced annually

**As quantified in the 2025 concept paper "Promoting Active Transportation by Investing in Green Corridors."*

Benefits of Green Corridors Strategies

Improved Air Quality

Green corridor implementation strategies, including long-range land-use planning and growth scenarios, increases transportation choice resulting in the reduction of vehicle miles traveled (VMT) while also preserving the beauty and health of the Natural State. By 2030, these strategies could cut up to a cumulative 2 million metric tons of CO_2e with an additional 400 thousand metric tons reduced by 2050. In Central Arkansas, they are also expected to reduce key air pollutants—up to 0.1 tons NOx, 0.02 tons direct PM2.5, 0.3 tons SO2, and 0.6 tons VOC reduced annually.

Improved Community Safety and Well-being

Green Corridors enhance safety and well-being by providing access to nature, promoting active lifestyles, enhancing traffic safety, and reducing crime. They foster mental health benefits and strengthen community connections through walkable, inclusive design.

Improved Water Quality

Green Corridors improve water quality by reducing polluted runoff, enhancing natural filtration, and promoting groundwater recharge. Green, complete streets lower stormwater volume, treatment demands, flooding, and reliance on man-made drainage infrastructure—creating an integrated system that manages water, restores ecosystems, and safeguards water supplies.

Heat Mitigation

Green Corridors help reduce the urban heat island effect by adding trees and green infrastructure, which lower surface temperatures and provide shaded, cooler spaces. Reducing urban heat is critical for public health, as extreme temperatures increase risks of heat-related illness and worsen chronic conditions like asthma and heart disease.

Improved Health Outcomes

Green Corridor strategies improve health by promoting physical activity, providing access to nature, and lowering risks of chronic disease, heat-related illness, and pollution-related health issues. They support physical, mental, and environmental well-being across communities.

Flood Resilience

Green Corridors help reduce flooding by capturing and filtering stormwater through plants and green spaces, mimicking natural systems. This is vital for neighborhoods prone to river and flash flooding. Increasing tree canopy and using green infrastructure like permeable pavement and bioswales can reduce the risk of flash flooding, while natural stream bank stabilization and wetland restoration can reduce the severity of river overflows. These strategies can prevent property damage and reduce stormwater management costs.

Increased Property Values

Green Corridors boost property values and support local economies by attracting residents, increasing retail sales, and drawing new residents to nearby homes. Homes near trails and green infrastructure often see a 3–5% value premium, and municipalities benefit from the resulting rise in tax revenue.[2]

2 Crompton, J. C. (2020). The impact of trails and greenways on property values. National Recreation and Parks Association. https://www.nrpa.org/parks-recreation-magazine/2020/may/the-impact-of-trails-and-greenways-on-property-values/

Implementation

Various private and public organizations are implementing projects that fall under one or more Green Corridors strategies in Central Arkansas. In addition to current or planned work, there is considerable potential and public interest for additional regional greenways, restoration and conservation work, and green and complete streets. The Cities of Conway, Little Rock, and North Little Rock have adopted complete streets policies for new city transportation improvement projects.

KEY ORGANIZATIONS

Metroplan, Cities and Counties in Central Arkansas, State agencies such as: Arkansas Department of Transportation, Arkansas Department of Parks, Heritage, and Tourism, Arkansas Game and Fish Commission, Chambers of Commerce, Utility Providers, Nature and Conservation Nonprofit Organizations, and Universities.

MILESTONES

This table identifies the implementation schedule and milestones used to quantify emissions reductions. Actual implementation may vary by jurisdiction and is sunject to funding availability.

Activity	Milestone/Implementation Schedule Assumptions
Central Arkansas Regional Greenway Network	Some segments included in the Central Arkansas Regional Greenway Plan are already in place and contributing to emission reductions. Several portions of the network are currently funded and under construction, while others will require funding to be secured by 2026 to meet the 2029 completion assumptions in this plan.
White Oak Bayou Restoration/ Conservation	Preservation, riparian restoration, and streambank stabilization activities will be completed by 2028 according to the White Oak Bayou Watershed Management Plan.
Central Arkansas Water Watershed Conservation	Central Arkansas Water actively manages 17,818 acres designated as watershed conservation zones in Pulaski and Perry County, Arkansas.
Complete Streets	Implementation is anticipated to take four years to find funding, design, and retrofit of potential street segments identified using the Metroplan Multimodal Infrastructure Guidelines and through public engagement.
Other conservation, restoration, and tree planting activities	Proposed projects from Metroplan's Green Network grant program will be completed by 2030, and additional projects proposed during public outreach for this plan are anticipated to be completed within four years of securing funding.

TRACKING PROGRESS

Metroplan will evaluate progress on these metrics as part of its Status Update supplement, which is due to E&E in 2027.

- Miles of regional greenways constructed
- Blocks of complete streets with green infrastructure
- Urban trees planted along complete street blocks
- Acres of forest, prairie, and wetlands preserved
- Acres of forest, prairie, wetlands, streambanks, and riparian zones restored

CENTRAL ARKANSAS MEASURE 2: LOCAL ENERGY

KEY TERMS

Solar panels convert the sun's energy into electricity. The electricity can be used immediately or stored in batteries for later use. Panels can be installed on rooftops or on the ground near the building.

Building efficiency upgrades include changes to the building's structure or systems that make it use less energy. Examples include LED lighting, tankless or electric water heaters, more efficient furnaces/air conditioners, better building sealing/insulation, and building automation systems that can turn off lights and adjust the room temperature to save even more energy.

Distributed energy resources (DER) are small-scale energy systems, such as solar panels and batteries, that power a nearby location. DER can be grid-connected or isolated to a specific site.

INCREASE ENERGY SAVINGS, INDEPENDENCE, AND RESILIENCE BY INVESTING IN LOCAL ENERGY RESOURCES

Promote energy savings, community resilience, and reliable clean energy options by supporting building retrofits and the installation of distributed energy resources like solar panels and battery storage. By combining renewable energy systems with efficiency improvements, communities can bolster their energy supply, and improve overall air quality.

- **Improved Air Quality**
- **Decreased Energy Costs**
- **Energy Resilience**

What could local energy look like when fully implemented?

- 777.75 gigawatt hours (GWh) in Annual Energy Savings from Building Efficiency Upgrades
- 585 MW of Battery Storage
- 975 megawatts (MW) of Solar on Medium and Large Buildings

Upgrading thermostats, sealing, windows, insulation, and lighting to improve efficiency

Powering daytime operations to reduce peak grid demand and lower costs

Offsetting 195+ million square feet of commercial and industrial energy usage

Pollution Reduction

36 million metric tons of GHGs reduced* through 2050 and up to 1 ton of other air pollutants reduced annually

**As quantified in the 2025 concept paper "Increase Energy Savings, Independence, and Resilience by Investing in Local Energy Resources"*

Benefits of Local Energy Strategies

Improved Air Quality

Local Energy strategies help reduce GHG emissions and air pollution by decreasing energy demand for conventional energy sources, including grid-based electricity and heating fuels. These strategies could cut up to a cumulative 1.8 million mt CO2e by 2030 and up to 36 million mt CO_2e cumulatively by 2050. Implementation of Local Energy strategies in Central Arkansas is also expected to reduce key air pollutants—Up to 1,021 tons NOx, 118 tons $PM_{2.5}$, 1,193 tons SO_2, and 32 tons VOC reduced annually.

Decreased Energy Costs

Local Energy investments lower long-term energy costs for both individual users and the broader public. By adopting clean, distributed technologies, businesses, governments, and residents can boost energy security while reducing their buildings' energy costs. These investments also ease pressure on the overall power grid, improving reliability and reducing the need for expensive new infrastructure. Energy Sage, a U.S. Department of Energy Incubator Program awardee, has a calculator that can quickly estimate solar potential and savings by address.[3]

Energy Resilience

Battery storage and other distributed resources enhance energy resilience by diversifying power sources and reducing outage risks, especially important in Arkansas, which ranks 48th in electric reliability.[4] Prolonged outages can be costly for households and hazardous for people dependent on medical equipment.

3 EnergySage. (n.d.). *Solar calculator: Estimate 2025 solar savings*. https://www.energysage.com/solar/calculator/

4 Citizens Utility Board. (2021). *Electric utility performance a state-by-state data review*. https://www.citizensutilityboard.org/wp-content/uploads/2021/07/Electric-Utility-Performance-A-State-By-State-Data-Review_final.pdf

Implementation

KEY ORGANIZATIONS

Metroplan, Arkansas Advanced Energy Foundation (AAEF), Community Development Financial Institutions, E&E's Arkansas Energy Office (AEO), Arkansas Development Finance Authority, Cities and Counties in Central Arkansas, Utility Providers, Universities and Technical Colleges.

MILESTONES

Local Energy project implementation in this plan is based on 2030 economic and technical potentials. Actual implementation may vary by jurisdiction and is subject to funding availability.

An Electric Power Research Institute (EPRI) study was used to estimate highly achievable and economically beneficial energy efficiency projects for medium and large buildings in Central Arkansas based on the year 2030. Therefore, this analysis assumes that emissions benefits begin to accrue in 2030.[5]

TRACKING PROGRESS

Metroplan will evaluate progress on these metrics as part of its Status Update supplement, which is due to E&E in 2027.

- **Number of solar panels, batteries, and other zero-emissions DERs installed at government and businesses**
- **Energy savings in megawatt hours**
- **Reduced heating and backup generator fuel use (therms of natural gas or other fuels)**
- **Number of energy efficiency projects completed**
  - **Programmable Thermostats**
  - **Lighting Replacements**
  - **Heat Pumps**
  - **Efficient Windows**
  - **Lighting Automation**
  - **HVAC Automation**
  - **Duct Testing and Sealing**
  - **EnergyStar Certified Products**
  - **Efficient Chiller Systems**

5 Electric Power Research Institute. (2017). State level electric energy efficiency potential estimates. U.S. Department of Energy. https://energy.gov/eere/analysis/downloads/state-level-electric-energy-efficiency-potential-estimates-0

CENTRAL ARKANSAS MEASURE 3: WASTE REDUCTION

KEY TERMS

Material Recovery Facility is a location where recyclable materials are sorted, cleaned, and/or remanufactured into new products.

Recycling Curbside Collection is a process wherein recyclable materials are picked up from homes and businesses.

Recycling Drop-off is a place where people can take recyclable materials to be collected.

Compost Collection Compost Collection is a process wherein organic matter is either dropped off at a central location or picked up from homes and businesses.

Composting Facility is a place that collects and processes organic waste into compost.

IMPROVING LOCAL AIR AND WATER QUALITY BY INVESTING IN RECYCLING AND WASTE REDUCTION

Diverting materials from landfills and repurposing them into new products or soil amendments can improve air and water quality. Access to recycling facilities remains low across some Central Arkansas communities, compost collection remains limited and presents an opportunity for growth. Metroplan has assessed the region's potential to scale up these programs to increase participation, cover more materials, and reduce GHGs.

- Improved Air Quality
- Improved Soil Health
- Alternatives to Chemical Fertilizers
- Reduce Need for Landfill Expansion
- Community Connectedness

What could waste reduction look like when fully implemented?

- 158,358 additional tons recycled annually
- 50,511 additional tons composted annually
- 391,800 total tons diverted from municipal solid waste (MSW) landfills annually

Pollution Reduction

1.4 million metric tons of GHGs reduced* *through 2050 and up to 1 ton of other air pollutants reduced annually*

**As quantified in the 2025 concept paper "Improving Local Air and Water Quality by Investing in Recycling and Waste Reduction"*

Benefits of Waste Reduction Strategies

Improved air quality

Waste Reduction strategies help reduce GHG emissions and air pollution by reducing methane and volatile organic compounds (VOC) emissions produced by landfills, reducing the need to produce new materials and the energy input associated with material extraction, transportation, and processing, reducing the need to produce chemical fertilizers, and reducing emissions associated with food transport.

By 2030, these strategies could cut up to a cumulative 263,157 mt CO_2e and up to 1,429,220 mt CO_2e cumulatively by 2050. Implementation of Waste Reduction strategies in Central Arkansas are also expected to reduce key air pollutants in Central Arkansas—up to 18.33 tons of NOx, 12.11 tons of $PM_{2.5}$, 1.43 tons of SO_2, and 7.53 tons of VOC, and 1.13 tons of hazardous air pollutants reduced annually. These emission reductions are anticipated to lead to cleaner air and lower rates of asthma, heart disease, and other pollution-related health conditions, particularly benefiting vulnerable populations.

Safer alternative to chemical fertilizers and biosolids

Compost can reduce the use of chemical fertilizers and biosolids. Chemical fertilizers and biosolids may include microplastics, carcinogens, and other health-impacting substances that can leach into drinking water or, in the case of microplastics, become airborne.

Limit the need for new landfill development and expansion

Waste reduction strategies can reduce the need to expand or build new landfills (and their associated cost) and reduce potential environmental risks in host communities.

Implementation

KEY ORGANIZATIONS

Metroplan, City and county departments in Central Arkansas, Solid Waste Management Districts, Solid Waste Service Providers, Solid Waste Haulers, and Arkansas Department of Energy & Environment's Office of Land.

MILESTONES

This table identifies the implementation schedule and milestones used to quantify emissions reductions. Actual implementation may vary by jurisdiction and is subject to funding availability.

Activity	Milestone Implementation
State Solid Waste Management Plan (SSWMP)	Throughout 2025, E&E will host stakeholder meetings across the state to gather information regarding public perception of waste management. No later than 2028, DEQ will have completed updating the SSWMP. The SSWMP will have updated guidelines for tracking and reporting recycling data and will provide education and outreach to make recycling reporting more consistent.
Regional Solid Waste Management District (RSWMD) Plans	Per Arkansas Code Annotated (A.C.A.) § 8-6-1902, within one year of the completion of the SSWMP, each of the six RSWMD in Central Arkansas must develop their own RSWMD.
Ongoing tracking and reporting of solid waste initiatives and information	Once both the SSWMP and RSWMD plans are complete, designated authorizing local and regional entities will deploy implementation efforts and meet tracking and reporting milestones as identified in their plans.

TRACKING PROGRESS

Metroplan will evaluate progress on these metrics as part of its Status Update supplement, which is due to E&E in 2027.

- **Tons of solid waste collected, recycled, composted, or managed via other management pathways for all waste facilities**
- **Number of households served by waste services:**
  - **Curbside Recycling Program**
  - **Recycling Drop-Off & Events**
  - **Compost Collection**

CENTRAL ARKANSAS MEASURE 4: INFILL DEVELOPMENT

KEY TERMS

Infill development means filling in gaps, or the reuse of land in urban areas. This type of development often facilitates walkable and transit-friendly neighborhoods with a strong sense of place.

Transit-oriented development means maximizing residential, business, and leisure spaces within walking distance of public transport.

Multifamily units are buildings containing more than one housing unit (e.g., duplexes and apartments).

Accessory Dwelling Units (ADU) are smaller scale self-contained residential units built on the same lot as another home.

REVITALIZING COMMUNITIES THROUGH INFILL DEVELOPMENT

Encouraging new construction on vacant or underused urban land can reduce infrastructure costs and enable people to live closer to where they work. Compact, walkable neighborhoods are often better-connected to public transit and greenways, giving residents more transportation choices. Strategies include redeveloping abandoned properties, implementing policies in zoning codes and ordinances that encourage compact development, and long-range land-use planning that promotes active transportation and access to multi-modal forms of transportation.

- **Reduced Commutes**
- **Improved Air Quality**
- **Transit & Greenways Access**
- **Lower Infrastructure Costs**
- **Preservation of Farmland & Open Space**
- **Economic Development**

What could infill development look like when fully implemented?

- 6 – 20 dwellings per acre infilled
- 16,034 acres of vacant urban property developed
- 18,095 – 154,639 new housing units by 2050

Pollution Reduction

333,720 metric tons of GHGs reduced* *through 2050 and up to 1 ton of other air pollutants reduced annually*

**As quantified in the 2025 concept paper "Revitalizing Communities through Infill Development"*

Benefits of Infill Strategies

Improved Air Quality

Infill Strategies help reduce GHG emissions and air pollution by minimizing the commutes of Central Arkansas residents. Developing vacant and underutilized lots within a city allows more businesses and homes to fit in a smaller area, thereby reducing commute times and associated fuel costs. Cumulative GHG reductions from Infill in Central Arkansas could reach up to 61,349 mt CO_2e by 2030 and up to 333,720 mt CO_2e by 2050. Infill is also expected to reduce key air pollutants—up to 1.3 tons NOx, 0.25 tons $PM_{2.5}$, 3.1 tons SO_2, and 6.7 tons VOC reduced annually. These emission reductions are anticipated to lead to cleaner air and lower rates of asthma, heart disease, and other pollution-related health conditions, particularly benefiting vulnerable populations.

Reduced Commutes

Denser, mixed-use development allows residents to live closer to work and services, cutting commute times and lowering fuel use. Approximately 27.4 percent of Central Arkansas commuters travel to jobs outside their county of residence according to the 2017–2021 Census Transportation Planning Product (CTTP).

Community Connectedness

Infill development revitalizes underused spaces, creating walkable neighborhoods that support local businesses and nearby job growth.

Transit & Greenways Access

Infill development supports public transit and active transportation by making these modes more practical and accessible.

Lower Infrastructure Costs

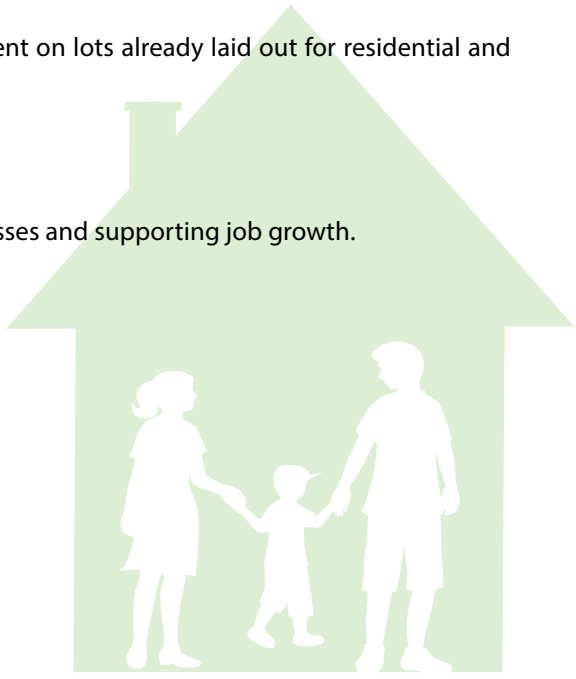
Using existing infrastructure (e.g., roads, sewers) reduces the need for new construction and increases the efficiency of public services.

Preservation of Farmland & Open Space

Infill helps protects farmland critical to Arkansas' economy by focusing development on lots already laid out for residential and commercial use.

Economic Development

Infill boosts productivity, property values, and local tax revenues, attracting businesses and supporting job growth.



Implementation

KEY ORGANIZATIONS

Metroplan, Cities and Counties, Rock Region METRO, Downtown Little Rock Partnership, Conway Downtown Partnership, Argenta Downtown Council, SOMA 501, Homebuilders Associations, Developers, Chambers of Commerce, Capitol Zoning District Commission, Neighborhood Associations, Habitat for Humanity, Community Housing Development Organizations, Universities, and the University of Arkansas Community Design Center.

MILESTONES

This table identifies the implementation schedule and milestones used to quantify emissions reductions. Actual implementation may vary by jurisdiction and is subject to funding availability.

Activity	Milestone/Implementation Schedule Assumptions
Redevelop the River Cities Transit Center into a mixed-use, mixed-income multifamily development (Dock at the Rock)	Rock Region METRO was awarded a 2025 RAISE Round 1 grant to support planning for the Dock at the Rock initiative in January 2025 and began public outreach in April 2025.
Implement the 2024 Downtown Little Rock Master Plan strategies	The 2024 Downtown Little Rock Master Plan includes 45 strategies (including projects, policies, programs, and partnerships) with immediate (0–2 years) short-term (1–3 years), medium-term (4–8 years), and long-term (10+ years) timelines.
Implement the 2023 Oak Street Ahead Plan	The 2023 Oak Street Ahead Plan includes 62 proposed priority improvement projects in Conway, with 28 targeted for completion within 5 years.
Other Infill Development in the Region: • **Little Rock:** Pettaway, Governor's Mansion District, Main & South Main Streets, Hangar Hill, 12th Street, Riverdale, Port, Oak Forest, and Central High School • **North Little Rock:** Argenta/Downtown, Rockwater Village, Levy, Park Hill • **Conway:** Oak Street, Markham Street, Hendrix Village, Central Landing • **Bryant:** Reynolds Road (near railroad tracks) • **Benton:** Downtown Benton • **Cabot:** Downtown Cabot	Depending on housing density, vacant urban land could accommodate all or most of anticipated household and mixed-use growth between now and 2050.

TRACKING PROGRESS

Metroplan will evaluate progress on these metrics as part of its Status Update supplement, which is due to the E&E in 2027.

- **Number of residential units added within urbanized areas**
- **Number of residents living in urbanized areas**
- **Number of new businesses opened in urbanized areas**

CENTRAL ARKANSAS MEASURE 5: EV CHARGING ACCESS

KEY TERMS

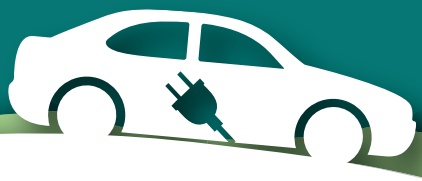
A Level 2 Charging Station is a device that recharges EV batteries using alternating current, similar to home electric outlets, but at a much faster rate. A Level 2 charger can charge an EV up at a rate of 10 – 46 miles in an hour.

A DC Fast Charging Station uses direct current (DC) to recharge an EV battery much faster than both regular home outlets and Level 2 charging stations. DC Fast chargers can charge an EV up at a rate of 180 – 240 miles in an hour

EV Suitability Score means a composite score assigned to potential charger sites based on multiple criteria (e.g., employment density, traffic volume, proximity to amenities, etc.) using GIS tools developed by Metroplan.

Range Anxiety is the fear of running out of EV battery power before reaching one's destination without the ability to recharge.

REGIONAL ELECTRIC VEHICLE CHARGING ACCESS: INVESTING IN CLEAN TRANSPORTATION



Expand available electric vehicle charging infrastructure across Central Arkansas to meet growing demand. By strategically installing more Level 2 chargers at sites like parks and employment centers, communities can increase transportation choice, reduce local emissions, and attract businesses and visitors. Metroplan has used GIS tools to identify and prioritize optimal charging locations based on suitability scores.

- Improved Air Quality
- Increased Accessibility to Clean Transportation
- Enhanced Tourism & Commuter Mobility
- Effective, Trip-Based Charger Siting
- Long-Term Cost Savings
- Reduced Range Anxiety

What could EV Charger Access look like when fully implemented?

- Up to 11,080 Level 2 charging ports supporting the growing, regional use of electric vehicles by 2050

Pollution Reduction

371,825 metric tons of GHGs reduced* *through 2050 and up to 31 tons of other air pollutants reduced annually*

**As quantified in the 2025 concept paper "Regional Electric Vehicle Charging Access: Investing in Clean Transportation"*

Benefits of EV Charger Access

Improved Air Quality

EV charging infrastructure reduces greenhouse gas and pollutant emissions by supporting the use of EVs, which have zero tailpipe emissions and rely on increasingly cleaner electricity sources. Public Level 2 Chargers deployed through EV Charger Access strategies could reduce up to 12,928 mt CO_2e by 2030 and 327,825 mt CO_2e by 2050, as compared to fueling gasoline vehicles the same distance. EV Charger Access is also expected to reduce key air pollutants—up to 6.2 tons of NOx, 0.57 tons of $PM_{2.5}$, 0.11 tons of SO_2, and 25.6 tons of VOC emissions reduced annually. These emission reductions are anticipated to lead to cleaner air and lower rates of asthma, heart disease, and other pollution-related health conditions, particularly benefiting vulnerable populations.

Increased Accessibility to Clean Transportation

Installing EV chargers in high-density and underserved areas enables greater access to EV technology.

Enhanced Mobility

Strategically located chargers support Central Arkansas's commuter and visitors by reducing range anxiety and improving travel continuity for EV drivers.

Effective, Trip-Based Charger Siting

By matching charger locations to real-world travel patterns—such as work commutes and recreational trips—communities can maximize charger use and ensure EV infrastructure meets actual mobility needs.

Distributed Energy Resources (DER) Integration

Electric vehicle (EV) charger deployment supports the development of a smarter, more flexible electric grid by enabling integration with distributed energy resources (DERs), such as solar panels, battery storage systems, and emerging technologies like vehicle-to-grid (V2G). This means that EVs and chargers can not only draw electricity from the grid but may also supply power back when needed, helping balance supply and demand. Coordinating chargers with DERs allows for more efficient use of renewable energy, reduces stress on the grid during peak times, and creates new opportunities for cost savings and resilience at both the local and regional levels.

Long-Term Cost Savings

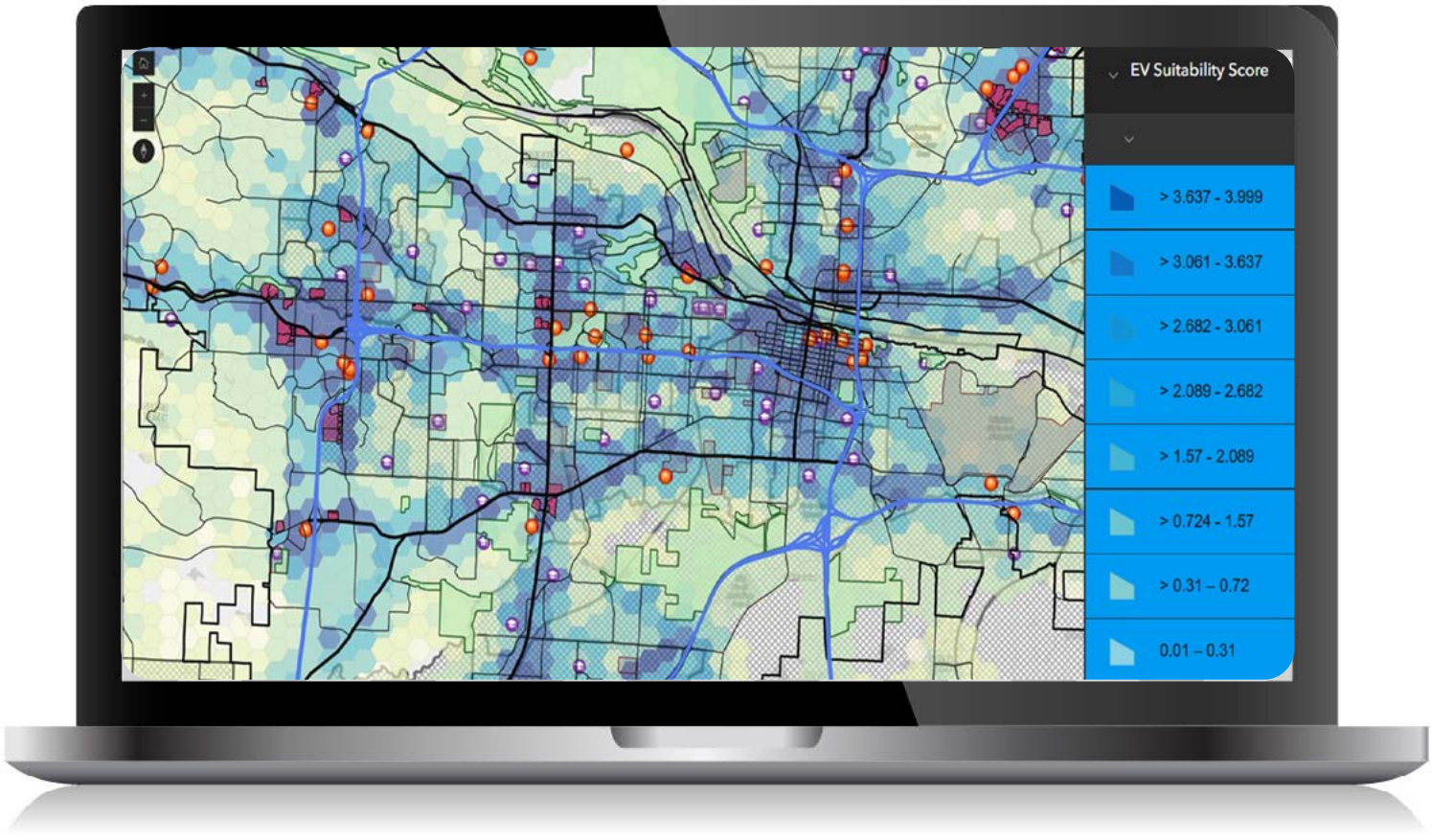
EVs are cheaper to fuel and maintain than gas-powered cars; public chargers make these savings accessible to more households, businesses, and municipal fleets, lowering overall transportation costs.[6]

6 Taylor, Tom and Josh Rosenberg (2022). Comparison between four of the most popular gasoline powered models in the country and an EV equivalent for purchase in 2022. Atlas Public Policy. https://atlaspolicy.com/wp-content/uploads/2022/01/Total-Cost-of-Ownership-Analysis.pdf

Implementation

Central Arkansas is implementing EV Charger Access strategies using a regionally developed GIS-based Suitability Analysis Tool, originally piloted by Metroplan, the Little Rock Sustainability Office, and University of Arkansas at Little Rock students. Now scaled for the full six-county region, the tool evaluates potential charger sites using data-driven, transparent criteria to support strategic, accessible deployment. Priority is given to "hot spots" where public Level 2 chargers would address infrastructure gaps, particularly for residents without home charging access. Chargers placed at walkable destinations and employment centers are expected to offer the most benefit. The map below highlights high-priority areas for public Level 2 charging deployment in Little Rock and parts of North Little Rock identified by the tool.

EV SUITABILITY ANALYSIS TOOL



Unlike gas stations, EV chargers must account for trip patterns, dwell time, and accessibility, requiring a more localized, behavior-based siting strategy. The tool assigns each site a numeric suitability score based on factors such as:

- **Employment density and sector**
- **Traffic volumes and road access**
- **Walkability and nearby amenities**
- **Disadvantaged community location**
- **Proximity to existing chargers**

To match evolving EV demand, the tool emphasizes retail employment density, visibility, safety, electrical readiness, and accessibility for pedestrians and cyclists, guiding smarter charger investments across the region.

KEY ORGANIZATIONS

Metroplan, AAEF, Private Sector & Nonprofit Partners, E&E's AEO, Cities and Counties in Central Arkansas, Utility Providers, Universities and Technical Colleges.

MILESTONES

This table identifies the implementation schedule and milestones used to quantify emissions reductions. Actual implementation may vary by jurisdiction and is subject to funding availability.

Activity	Milestone/Implementation Schedule Assumptions
Launch GIS Suitability Tool	Tool finalized and made public by mid-2025; updated semi-annually through 2030
Metroplan EV Fleet and Charging Rebates	Metroplan will award rebates to eligible organizations to install 136 public level 2 charging ports by 2026.
EV-Ready Technical Assistance	Metroplan will offer members technical assistance to support local jurisdictions in adopting EV-ready zoning codes.
Promote EV education and air quality awareness through outreach programs	Ongoing beginning in 2026; builds on programs like Metroplan's Ozone Action Days partnership to include EV benefits, health, and charge access.
Deployment of additional public-level 2 charging	Public level 2 chargers can be deployed quickly by a certified electrician once funding is procured and a suitable site is located.

TRACKING PROGRESS

Metrics for tracking progress include:

- Number of Level 2 public chargers installed
- Geographic distribution of chargers across jurisdictions and LIRCs
- Total kilowatt hours (kWh) delivered through public charging infrastructure
- Average usage per charger (e.g., sessions/day or kWh/day)
- Share of chargers located within walking distance of multifamily housing, major employers, or transit access points

LOW INCOME AND RURAL COMMUNITIES

Low-Income and Rural Communities

In addition to delivering region-wide benefits, Metroplan has engaged with LIRCs to ensure these communities are included in this plan. This section highlights the anticipated benefits of implementing the regional EEI measures for these communities and strategies to help prevent potential negative impacts that could arise if their needs were not considered. Additional details are included in the respective concept paper for each EEI measure.

Anticipated LIRC Benefits

Improved Air Quality

Applicable EEI Measures: Green Corridors, Local Energy, Waste Reduction, Infill, EV Charger Access

Air pollution is a major driver of health issues, including asthma, cardiovascular disease, stroke, and respiratory illnesses. LIRCs face heightened risks due to disproportionate exposure and limited healthcare access.[7] In Central Arkansas, pollutants like $PM_{2.5}$ and ozone have been linked to increased emergency room visits and negative health outcomes, particularly among Black residents.[8] Green Corridors, Local Energy, Waste Reduction, Infill, and EV Charger Access can reduce air pollution by reducing emissions of $PM_{2.5}$ and ozone precursors.

- Green Corridors and Infill strategies reduce emissions by giving residents opportunities to choose to walk or bike, take public transit, and make shorter vehicle trips.
- EV Charger Access enables residents who drive to choose EVs with zero tailpipe emissions.
- Waste Reduction reduces methane emissions from landfills.
- Local Energy displaces fossil energy on the grid by making buildings more efficient, generating renewable energy, and storing excess energy to use when the renewables aren't generating.

Implementation of these EEI measures is anticipated to benefit all residents in Central Arkansas; however, residents in LIRCs will receive the greatest benefit. While Local Energy, EV Charger Access, and Infill emission reductions are more regional, approximately 60 percent of emission reductions from Green Corridors implementation and nearly 100 percent of emission reductions from Waste Reduction implementation will occur in LIRCs.

Improved Health Outcomes

Applicable EEI Measures: Green Corridors, Local Energy, Waste Reduction, Infill, EV Charger Access

All EEI measures are anticipated to improve health outcomes in LIRCs by improving air quality. In addition, Green Corridor strategies improve health by promoting physical activity and mitigating heat exposure.

7 American Lung Association. (2023). State of the Air 2023. https://www.lung.org/research/sota/health-risks

8 Rodopoulou, S., Samoli, E., Chalbot, M. G., & Kavouras, I. G. (2015). Air pollution and cardiovascular and respiratory emergency visits in Central Arkansas: A time-series analysis. Science of the Total Environment, 536, 872–879. https://doi.org/10.1016/j.scitotenv.2015.06.056

Community Safety & Well-Being

Applicable EEI Measures: Green Corridors, Infill

Green Corridors and Infill strategies support economic development and neighborhood revitalization by increasing transportation choice and improving access to jobs and services. These strategies, when implemented, can result in robust compact development, economic growth, and preservation of the Natural State.

Heat Mitigation

Applicable EEI Measures: Green Corridors

Green Corridor strategies help to cool the urban environment through preserving natural spaces, increasing urban green spaces and trees, and deploying green infrastructure. In Central Arkansas, there is considerable overlap between LIRCs and areas experiencing higher temperatures radiating off buildings and pavement..

Energy Savings and Efficiency

Applicable EEI Measures: Green Corridors, Infill, EV Charger Access

Cooling costs in the South have increased substantially over the past decade. Arkansas ranks among the top five states for low-income energy burden, with many low-income households spending over 10% of their income on energy.[9] Green Corridors, Infill, and EV Charger Access strategies help reduce energy use and costs for LIRCs by reducing the energy needed to cool homes, reducing the energy needed to commute, and reducing the fuel cost for energy to power vehicles. These strategies also offer higher energy efficiency as alternative energy sources increase and lessen the burden on existing infrastructure. Collectively, these EEI measures offer fuel and energy savings that will make daily life more affordable and efficient for LIRCs.

Energy Resilience

Applicable EEI Measures: Local Energy

Local Energy strategies enhance the resilience of commercial and government buildings to power outages, which is especially beneficial during extreme weather events. By installing DERs—such as solar panels—with battery backup, community centers in LIRCs can reliably serve as shelters and temperature relief centers during storms and outages..

Flood Resilience

Applicable EEI Measures: Green Corridors

Green Corridor strategies make LIRCs more flood resilient. Restoring wetlands and preserving green spaces help mitigate flooding from rivers and creeks. Green infrastructure helps absorb stormwater and reduce flash flooding.

9 U.S. Department of Energy Office of Energy Efficiency & Renewable Energy. (2018). Low-Income Household Energy Burden Varies Among States - Efficiency Can Help In All of Them. https://www.energy.gov/sites/prod/files/2019/01/f58/WIP-Energy-Burden_final.pdf

Increased Access to Trails, Green Space, and EV Chargers

Applicable EEI Measures: Green Corridors, Local Energy, Waste Reduction, Infill, EV Charger Access

Sixty percent of the Green Corridors' proposed project locations are in LIRCs. The EV Suitability Tool considers LIRC-designated census block groups for charger placement, ensuring infrastructure reaches all residents. EV Charger visibility also helps overcome the misperception that EVs are only for higher-income or urban households. EVs have become more affordable in recent years and now have a cheaper total cost of ownership (vehicle cost, maintenance, and fuel) than gasoline equivalents.

Potential LIRC Disbenefits and Mitigation Strategies

Although the measures in this CAP provide significant benefits to LIRCs and are generally low-impact and non-disruptive, they may also lead to unintended negative effects that should be recognized and proactively addressed.

Urbanization

Improved infrastructure may attract new residents to certain areas, which can raise the cost of living for existing residents. To prevent such outcomes in Central Arkansas, cities and counties can implement strategies such as:

- Partnering with residents and community-based organizations to develop locally relevant approaches to collaborate on infrastructure siting
- Collaborating across departments—housing, public health, parks, and conservation—to create integrated strategies on where and how to install new infrastructure.Embedding affordability considerations and workforce development into project plans to reduce costs and raise incomes
- Transparent communication with renters and residents about project benefits and boundaries
- Enacting policies that build these strategies into comprehensive planning and development review processes

Additional tools include community land trusts and zoning reforms. Proactive planning and meaningful community engagement are essential to ensuring that existing LIRC residents can benefit fully from EEI measures.

Curbside Use and Reduced Access to General Parking

To ensure EV chargers are accessible, parking spaces with EV chargers should be marked as EV-only. While this can reduce curbside use and parking access for gas-powered vehicles, using existing public facilities and off-street parking can help mitigate these conflicts.

WORKFORCE DEVELOPMENT

Energy and Environment Innovation Workforce

Central Arkansas has a civilian labor force of nearly 380,000, with an unemployment rate of 3.1%, reflecting strong employment levels. Implementing the measures in this CAP can stimulate further growth in well-paying jobs, especially in sectors like agriculture, utilities, construction, transportation, professional services, arts, and public administration.

EEI Jobs

Examples of jobs and development resources for the workforce needed to implement this CAP are summarized below. The concept papers included for each measure discuss additional information on careers, pay, and skills required for the jobs needed to implement the CAP.

Clean Energy & Electrification

- **Installation & Maintenance:** Electricians (including solar-certified); Energy Storage Installers; Heating; Ventilation; and Air Conditioning (HVAC) Technicians (with solar expertise); Solar Installers; Operation and Maintenance Technicians; Solar Site Supervisors; and Solar Fleet Managers.
- **Construction & Project Management:** Solar Project Managers, Solar Installation Contractors, Solar Instructors.
- **Inspection & Auditing:** Commercial Lighting Auditors, Energy Auditors, Building Code Officials (green-certified).
- **Support Roles:** Product Sales Specialists, Energy Efficiency Technicians.

Sustainable Construction & Green Building

- **Skilled Trades:** Carpenters (with solar/green expertise), Plumbers, Brickmasons, Roofers, Iron & Steel Workers, Tiling & Marble Workers.
- **Construction Management:** Construction Managers, Forepersons, Mechanical/Electrical/Plumbing Contractors (green expertise), Sustainable Construction Supervisors (LEED AP).
- **Building Performance:** Indoor Environmental Health Specialists, Insulation Technicians/Journeypersons, Air Sealing Technicians.

Infrastructure & Utilities

- **Engineers & Planners:** Civil Engineers, Electrical Engineers, Environmental Engineers, Transportation Planners.
- **Utility Operations:** Power Line Installers, Plant Operators, Water/Wastewater Treatment Operators, Meter Readers, Compliance Officers.

Agriculture & Land Stewardship

- **Agricultural Roles:** Farmers, Ranchers, Agricultural Managers, Soil & Plant Scientists.
- **Environmental Conservation:** Forest & Conservation Workers, Range Managers, Restoration Planners, Resource Specialists, Conservation Scientists.

Urban Planning, Community Development & Transportation

- **Planning & Design:** Urban/Regional Planners, Architects, Surveying & Mapping Technicians, Political Scientists.
- **Public Sector Services:** Traffic Technicians, Transit Operators & Maintenance Workers, Transportation Workers, Drivers.

Environmental & Health Services

- **Analysis & Oversight:** Environmental Analysts, Technicians & Specialists; Occupational Health & Safety Technicians; Public Safety Inspectors.
- **Recreation & Education:** Recreation Workers, Park Naturalists, Educators, Historians.

Logistics & Administration

- **Operations:** Materials Handlers, Warehouse Workers, Equipment Operators.
- **Office Roles:** Office Administrators, Recordkeepers, Cost Estimators, Inspectors.

Workforce Development Resources

AAEF is spearheading the SkillStream Advanced Energy Workforce project to connect Arkansans—especially students, veterans, formerly incarcerated individuals, and others—to careers in clean energy sectors such as renewable energy, energy efficiency, advanced manufacturing, and EVs. The project offers hands-on training, mentorship, career support, and works to reduce barriers like underrepresentation and lack of awareness. More information about SkillStream is available at https://www.arkansasadvancedenergyfoundation.org/the-solution

Additional workforce development programs include:

- **Apprenticeships**
  - **Employer-Based Apprenticeships**: Some employers offer four-year apprenticeships and youth programs in construction and carpentry.
  - **Associated Builders and Contractors of Arkansas**: Electrical and plumbing programs with journeyperson pathways.
  - **Arkansas Apprenticeship Alliance**: Focused on green building jobs, with LEED certification pathways.
- **Degree Programs**
  - **University of Arkansas – Pulaski Technical College**: Offers associate degrees in technical and industry-related fields.
  - **Hendrix College**: Interdisciplinary and environmental studies with experiential learning and pre-engineering tracks.
- **Workforce Training**
  - **Arkansas Construction Education Foundation**: Provides courses for new and experienced workers in trades like HVAC, plumbing, and electrical.
  - **Arkansas Apprenticeship Alliance**: Includes state-supported green building apprenticeships.
- **K-12 Education**
  - **Little Rock School District**: Its Career and Alternative Education Department equips traditional and non-traditional students with career and college preparation skills. This department includes the Metropolitan Career Technical Center, which uses industry-standard tools to teach skills that prepare students for high-wage, high-demand careers.
  - **North Little Rock School District:** Following the Ford Next Generation Learning model, launched by the Little Rock Chamber of Commerce in 2019, students at North Little Rock High School (NLRHS) and the Center of Excellence (COE), a charter school located within NLRHS, are assigned to one of the following career academies:
    - NLRHS: Academy of Business, Hospitality, and Future Technology; Academy of Digital, Visual, and Performing Arts; or Academy of Health & Human Services.
    - COE: Academy of Health Sciences or Academy of Engineering Technology.
  - **Conway Area Career Center**: Offers construction and drafting programs to prepare students for technical careers.
  - **Pulaski County Special School District**: Offers science, technology, engineering, and math; construction; information technology; and industry-aligned "Academies" across its high schools with business partnerships.

Conclusion

The Central Arkansas EEI CAP represents an exciting, collaborative effort to address the region's environmental challenges while promoting economic and social benefits. By implementing **Green Corridors**, **Local Energy, Waste Reduction**, **Infill**, and **EV Charger Access** measures, the plan aims to reduce emissions, improve public health, and enhance community resilience.

This CAP is an important milestone in Metroplan's ongoing regional planning efforts, achieved through extensive public engagement, rigorous analysis, and strategic planning. The plan was designed to ensure that LIRCs receive equal benefits and are protected from potential negative impacts. The plan also highlights the importance of workforce development, creating pathways to well-paying jobs that support the region's transition to a cleaner, more sustainable future.

Implementation of this plan will result in a 64% reduction in cumulative emissions of GHGs by 2050 and reduces thousands of tons of other air pollutants each year. By adopting this plan, Metroplan commits to a vision of sustainable growth that balances energy and environmental innovation with economic opportunity. The successful implementation of these measures will both improve the quality of life for residents and position the region as a model for energy and environmental leadership.

Appendices

METROPLAN

Appendix A

Outreach and Engagement Summary

Central Arkansas
Energy and Environment Innovation
Comprehensive Action Plan Supplement

May 2025

METROPLAN

Prepared by the Great Plains Institute

Outreach and Engagement Summary

Project Description

Prior to CAP development, Metroplan drafted an engagement plan to ensure that the plan reflects Central Arkansas residents' priorities. Stakeholder and community feedback informed which emissions reduction measures were selected for the plan and subsequent engagement revealed specific implementation priorities.

This appendix represents a finalized version of the engagement plan, updated to reflect the actions Metroplan undertook to empower Central Arkansas community members to participate in the CPRG planning process.

Engagement Timeline

Engagement began in June 2024 and continued through June 2025, when the CAP was completed. Educational materials related to the CAP and its emissions reduction measures will be created and distributed in the latter half of 2025.

Engagement Planning

This Central Arkansas CAP Supplement is the result of extensive engagement with state and local government agencies, utilities, nonprofits, businesses, community-based organizations, and members of the public from Faulkner, Grant, Lonoke, Perry, Pulaski, and Saline counties. Metroplan acknowledged that it was critical to engage a broad swathe of stakeholders so the CAP was truly useful and reflective of local priorities; to this end, Metroplan began prioritizing engagement while developing the PAP and drafted an "Engagement Roadmap" to guide CAP engagement activities. (This appendix is an updated, retroactive version of that document.)

The Metroplan website served as a hub for engagement activities, and throughout the process hosted the preliminary survey, registration links and recordings for all virtual forums, information about the EEI project and timeline, descriptions of each emissions reduction measure, and opportunities for online feedback on each measure.

Priority Action Plan Engagement

Metroplan began conducting engagement to inform the Priority Action Plan supplement in 2023, and by the end of that year had completed the following outreach activities:

- Attended three festivals
- Led a group facilitation activity with Metroplan Board of Directors
- Led a workshop with the Arkansas Department of Transportation
- Posted information on Facebook and Instagram
- Attended summits and similar agency meetings
- Sent out newsletters detailing progress and encouraging survey participation.

CAP Engagement

A preliminary survey to determine community priorities for CAP carbon reduction measures was open from June-December 2024. The survey was publicized via push cards at events and meetings as well as weekly social media posts.

Further engagement began in fall 2024 and included a workshop for the Metroplan Board of Directors and monthly e-newsletters. The five emissions reductions measures were finalized in January 2025. From February-April 2025, Metroplan hosted a series of interactive webinars to introduce stakeholders and members of the public to each measure concept and to gather their general feedback and details about potential project locations, costs, benefits, and workforce needs.

Beginning in spring 2025, concurrent with the virtual forums, the Metroplan website hosted an ongoing survey for each emissions reduction measure. Respondents can share their preferred projects that align with a given measure and map their preferred locations for those projects.

Table __, below, details the full timeline of CAP engagement to date. Engagement will continue through 2027.

Event	**Date**	**Details**
2024		
Preliminary Survey Opened	June 2024	
October Monthly Update Email	10/30/24	Explained CAP Supplement process and timeline and encouraged survey participation.
November Monthly Update Email	11/10/24	Promoted 12/10 stakeholder engagement meeting and encouraged survey participation.
December Monthly Update Email	12/6/24	Promoted 12/10 stakeholder engagement meeting and encouraged survey participation.
CAP Virtual Stakeholder Engagement Meeting	12/10/24	Outlined preliminary ideas for CAP measures and solicited feedback.
Survey Closed	12/15/24	Results informed measure selection and development.
2025		

January Monthly Update Email	1/13/25	Introduced new Metroplan staff working on CAP Supplement.
Metroplan Board Meeting	1/22/25	Emissions reductions measures approved for CAP Supplement by Metroplan Board of Directors.
February Monthly Update Email	2/13/25	Introduced Board-approved measure concepts and shared dates and registration links for virtual forums.
Virtual Forum – Green Corridors	2/27/25	Outlined preliminary ideas for Green Corridors measure and solicited stakeholder feedback, including participatory mapping exercise for implementation.
Virtual Forum – Local Energy	3/13/25	Outlined preliminary ideas for Local Energy measure and solicited stakeholder feedback.
Virtual Forum – Waste Reduction	3/20/25	Outlined preliminary ideas for Local Energy measure and solicited stakeholder feedback.
March Monthly Update Email	3/19/25	Shared dates and registration links for virtual forums.
Virtual Forum – Infill Development	4/3/25	Outlined preliminary ideas for Local Energy measure and solicited stakeholder feedback, including participatory mapping exercise for implementation.
Virtual Forum – EV Charging	4/17/25	Outlined preliminary ideas for Local Energy measure and solicited stakeholder feedback, including participatory mapping exercise for implementation.
April Monthly Update Email	4/16/25	Shared dates and registration links for virtual forums.

Strategies to Overcome Linguistic, Cultural, Institutional, Geographic, and Other Barriers to Participation

To engage the diverse population of Central Arkansas equitably, it was important to provide multiple venues for and methods of engagement. Different stakeholders have different barriers to participation, and Metroplan worked to ensure that everyone had the opportunity to participate in CAP development. Specific strategies to overcome barriers to participation included:

VIRTUAL AND ASYNCHRONOUS FEEDBACK OPPORTUNITIES

Engagement forums were held virtually to overcome any transportation barriers that may have arisen from an in-person meeting. For those who could not attend a virtual meeting due to technological barriers, scheduling issues, or other reasons, surveys and other asynchronous feedback opportunities were available on the Metroplan website along with recordings of virtual forums.

INTERPRETATION/TRANSLATION SERVICES

Metroplan makes every effort to accommodate individuals who have a limited proficiency in speaking, reading or understanding English. Upon request, Metroplan will provide interpretation services, and can provide some document translation.

DISABILITY SERVICES

All CAP materials are available in large print, Braille, and on audiotape upon request.

Appendix B

REGION 6
DALLAS, TX 75270

September 19, 2024

Mr. Casey Covington
Executive Director
Metroplan
501 W. Markham St., Ste. B
Little Rock, Arkansas 77201

Dear Mr. Covington:

The Metroplan Quality Assurance Project Plan (QAPP) for the GHG Inventory and Options Identification Phase of the CPRG Program, Q-Trak No. 24-434. I am pleased to inform you that the QAPP has been reviewed and approved by Brenton Gildner, R6 Air QA Officer, Region 6, EPA. The QAPP has an expiration date of September 5, 2025.

Please send all QAPP's **sixty days prior to** the expiration of the recipient's approved QAPP, if there are any significant changes to operating procedures or regulations, please submit earlier than sixty-days. The recipient shall submit to the Project Officer a revised QAPP or certification that the QAPP is current and include a signed copy of the new approval page(s) for the QAPP.

Please find attached your digitally signed QAPP signature page(s), should you have any questions, please call me at (214) 665-8453.

Sincerely,

TERRIE WRIGHT

Digitally signed by TERRIE WRIGHT
Date: 2024.09.19 12:51:49 -05'00'

Terrie Wright
Project Officer
Air Grants Section

ENCLOSURES
1. GHG Inventory and Options Identification Phase of the CPRG Program

cc: Grant File

1. Project Management (Group A)

1.1. Title and Approval Page

Quality Assurance Project Plan for
Metroplan
for Approval in the GHG Inventory and Options
Identification Phase of the CPRG Program

Prepared by:

METROPLAN
SMART PLANNING MAKES SMART PLACES

Metroplan
501 West Markham Street, Suite B
Little Rock, AR 72201

Prepared for:
US EPA Region 6
1201 Elm Street, Suite 500
Dallas, TX 75270

07/26/2024

Rev 2

APPROVALS:

Metroplan Sr. Approver: Casey Covington, Director — Date: 07/16/2024
Casey R. Covington — 7/30/2024

Metroplan Project Manager: Bernadette Rhodes, Senior Planner — Date: 07/16/2024
Bernadette Rhodes — July 29, 2024

Metroplan Contractor, Task Leader: Linda K. Smith — Date:
Linda K Smith — 7/30/2024

Metroplan Quality Assurance Manager: Jonathan Lupton — Date:
Jonathan Lupton — July 29, 2024

ADEE Project Manager: Erika Droke, Policy Manager — Date:
July 31, 2024

ADEE Grantee QAM: Stacie Wassell, Associate Director — Date:
Interim
31 July 2024

USEPA Region 6 Grants Project Officer: — Date:
TERRIE WRIGHT
Digitally signed by TERRIE WRIGHT
Date: 2024.09.05 08:50:44 -05'00'

USEPA Division Quality Assurance Officer: — Date:
MICHAEL GILDNER
Digitally signed by MICHAEL GILDNER
Date: 2024.09.05 08:30:03 -05'00'

QAPP Revision History

Revision No.	Description	Author	Date
0	Original Version	Linda K. Smith	6/24/2024
1	Corrected Version	Bernadette Rhodes	7/26/2024

1.2. Table of Contents

List of Tables

List of Exhibits

Abbreviations

ADEE	Arkansas Department of Energy and Environment
ADT	average daily traffic
AFOLU	Agriculture, Forestry, and Other Land Use
AR	Arkansas
CAA	Clean Air Act
CCAP	Comprehensive Climate Action Plan
CFR	Code of Federal Regulations
CH_4	methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPRG	Climate Pollution Reduction Grant
DEQ	Division of Environmental Quality
EEI	Energy & Environment Innovation
EIE	Environmental Insights Explorer
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse Gas
GHGRP	Greenhouse Gas Reporting Program (40 CFR Part 98)
GWP	Global Warming Potential
FLIGHT	Facility Level Information on GHG Tool
ICLEA	International Council for Local Environmental Initiatives
ICR	Information Collection Request
IRA	Inflation Reduction Act
LEARN	Land Emissions and Removals Navigator
LULUCF	Land Use, Land-Use Change and Forestry
METROPLAN	Metroplan
N_2O	nitrous oxide
NEI	National Emissions Inventory
OAQ	ADEE Office of Air Quality
OAR	EPA Office of Air and Radiation
OWQ	ADEE Office of Water Quality
PCAP	Priority Climate Action Plan
PM	Project Manager
PO	EPA Project Officer for Grant
POP	Period of Performance
POR	EPA Project Officer's Representative
PWP	Project Work Plan
QA	Quality Assurance
QAM	Quality Assurance Manager
QAMD	Quality Assurance Manager Delegate
QAPP	Quality Assurance Project Plan
QC	Quality Control
QCC	Quality Control Coordinator
SIT	EPA's State Inventory Tool (SIT),[1]
SLOPE	State and Local Planning for Energy
TL	Task Leader
US	United States

[1] https://www.epa.gov/statelocalenergy/state-inventory-and-projection-tool

1.3. Distribution List

This section presents the primary staff who will be working on the project. These staff will be identifying existing[2] data resources for evaluation and potential use under the project or serving in project-specific roles for implementing the Quality Assurance Project Plan (QAPP). The listing in **Table 1.1** includes staff responsible for implementing independent internal quality management steps and staff serving in external oversight roles.

This QAPP and, as applicable, all major deliverables relying on existing data will be distributed to the staff presented in **Table 1.1.** Additionally, this QAPP will be provided to any unlisted staff who are assigned to perform work under this project. A secured copy of this QAPP will be maintained in the project files on Metroplan or Metroplan contractor project servers.

Table 1.1 QAPP Distribution List

Name	Organization	Role
Terrie Wright wright.terrie@epa.gov 214-665-8453	US EPA, Region 6	EPA Project Officer (PO) or PO Representative (POR)
Michael Gildner gildner.michael@epa.gov 214-665-7376	US EPA, Region 6	EPA Quality Assurance Manager (QAM) or QAM Delegate (QAMD)
Stacie Wassell stacie.wassell@arkansas.gov 501-682-0744	ADEE	ADEE Interim Quality Assurance Manager (QAM), OWQ Associate Director
Erika Droke erika.droke@arkansas.gov 501-682-0542	ADEE	ADEE Project Manager, OAQ Policy Manager
Casey Covington ccovington@metroplan.org 501-372-3300	Metroplan	Grantee Sr. Approver, Executive Director
Bernadette Rhodes brhodes@metroplan.org 501-372-3300	Metroplan	Grantee Project Manager (PM)
Linda K. Smith Lksmith72227@gmail.com 501-680-1573	Metroplan, Contractor	Grantee Task 1-7 Leader (TL), Technical Advisor (TA)
Jonathan Lupton jlupton@metroplan.org 501-372-3300	Metroplan	Grantee QAM, Senior Planner for Publications
Brittany Nichols think.circl@gmail.com 479-439-2277	Metroplan, Contractor	Grantee Technical Specialist
Jeff Runder jrunder@metroplan.org 501-372-3300	Metroplan	Grantee Technical Specialist, Senior Planner for Technical Analysis

[2] The term "existing data" is defined by the EPA's *Environmental Information Quality Policy* (CIO 2105.3) as "… data that have been collected, derived, stored, or reported in the past or by other parties (for a different purpose and/or using different methods and quality criteria). Sometimes referred to as data from other sources." The term "secondary data" may also be used to describe "existing data" in historical EPA quality-related documents.

1.4. Project / Task Organization

The primary personnel responsible for implementation of this project are the Metroplan Project Manager (PM), Quality Assurance Manager (QAM), and Task Leader (TL). Their duties are outlined briefly in this section. The project QAM is independent of the unit generating the data.

Bernadette Rhodes is the Metroplan PM and will provide senior-level oversight. Bernadette has 16 years' experience in the non-profit and government sectors. She earned a Master of Public Administration from UA Little Rock in 2019 and membership in the American Institute of Certified Planners in 2023. Bernadette manages the CPRG planning process for Metroplan, which is the Central Arkansas sub awardee of CPRG planning grant through the Arkansas Department of Energy and Environment.

The PM is responsible for Metroplan's technical and financial performance as well as maintaining communications with the EPA to ensure mutual understanding of grant requirements, EPA expectations, and conformity with EPA quality procedures; managing oversight and conduct of project activities including allocation of resources to specific tasks; ensuring that quality procedures are incorporated into all aspects of the project; developing, conducting, and/or overseeing QA plans as necessary; ensuring that any corrective actions are implemented; operating project activities within the documented and approved QAPP; and ensuring all products delivered to the EPA are of specified type, quantity, and quality.

The Metroplan PM will assign a TL for all technical tasks with instructions to complete a baseline emissions inventory for the sector(s) under the task and to develop options for potential emissions reductions with estimated reductions per option.

Linda K. Smith will serve as the TL for assigned technical tasks. Linda earned a BS in Chemical Engineering in 1984 from the University of Arkansas and has over 40 years' experience in technical and engineering experience in the petroleum and sustainability sectors. She has 15 years direct experience with GHG and sustainability projects with the US Green Building Council (LEED buildings) and as the Director of Sustainability for a regional water utility where she prepared GHG reports and developed a Net Zero 2050 Climate Action Plan. She has jointly presented at national water conferences with the EPA staff for case studies using the EPA Climate Resilience Evaluation and Awareness Tool (CREAT). Resilient tool.

Project-level management system. Tasks are expected to proceed concurrently, in parallel. The PM will maintain close communications with the TL and ensure any difficulties encountered or proposed changes at the task level are reviewed for implications on other similar or related tasks. The PM is also responsible for communicating progress or difficulties encountered (across all tasks) to the EPA PO or POR, who provides the EPA's primary oversight function for this project at EPA OAR/ Region 6 Office and is responsible for review and approval of this QAPP and any future revisions. The PM (with support from the TL and assigned Metroplan technical staff) will be responsible for consulting with the EPA PO or POR, on planning, scheduling, and implementing the QA/QC for all project deliverables and obtaining required EPA approvals.

The Metroplan QAM, Jonathan Lupton, is responsible for overseeing the quality system, monitoring and facilitating QA activities on tasks, and generally helping the Metroplan contracted PM and TL understand and comply with EPA QA requirements. He will not be involved in data collection or analyses, which will be done by the Metroplan's contracted consultant and other Metroplan staff.

Jonathan graduated from Kalamazoo College with a bachelor's degree in history in 1982. In 1987 he earned a master's degree in geography from the University of Chicago, and in 1990 a master's degree in community and regional planning from the University of Texas at Austin. He has worked at Metroplan

since 1993, with an emphasis on demographic and economic forecasting, data analysis, research, and writing. In 1998 he became a member of the American Institute of Certified Planners.

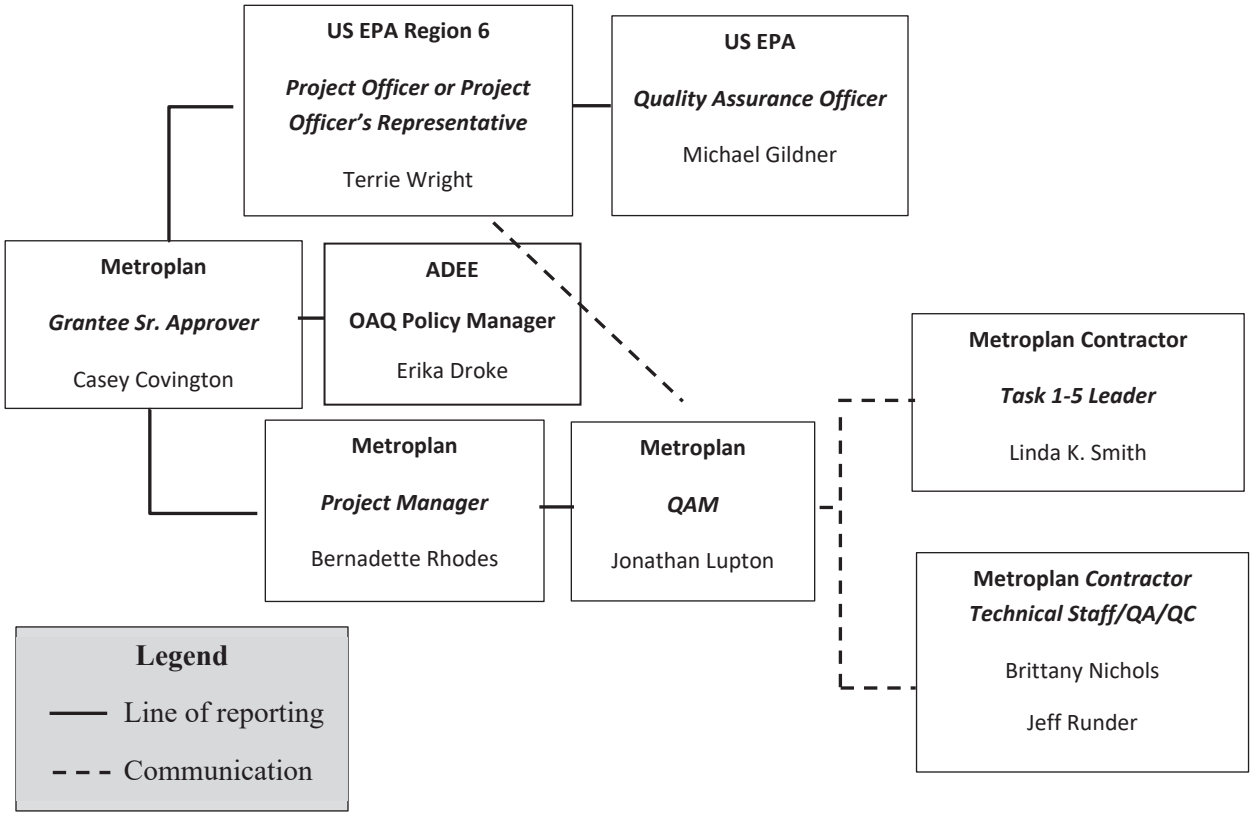
QC functions will be carried out by other technical staff and will be carefully monitored by the PM, who will work with the QAM to oversee this plan and implement quality improvements. Metroplan will also consult with ADEE QAM and Policy and Planning for guidance. For work done under this project, technical staff will include persons with expertise in the region's residential, commercial, and industrial activities. Technical staff may also include persons with expertise in air pollution engineering, technical reviewers, database specialists, quality auditors, and technical editors. The PM will ensure that technical staff do not review work in a QA capacity for which they were a primary or contributing author.

Brittany Nichols, contracted with Metroplan, is an experienced professional in project management and strategic operations, specializing in emissions inventories, data visualization, and program design in the public sector. Brittany holds a bachelor's degree from Arkansas Tech University in Industrial and Organizational Psychology and has been involved in national cohorts such as ICLEI's Race to Zero, DOE's Clean Energy to Communities, and NOAA's 2023 Heat Watch Campaign. A member of the Southeast Sustainability Directors Network, she currently works at the City of Little Rock, and contracted with Metroplan in 2023 to provide technical deliverables associated with the Climate Pollution Reduction Grant.

Jeff Runder, a Senior Planner for Technical Analysis with Metroplan, will serve as a technical staff member for data analysis and mapping. Jeff's work with Metroplan has focused on transportation planning, planning assistance to member jurisdictions, Geographic Information Systems, and Travel Demand Modeling. A member of the American Institute of Certified Planners, he received a Bachelors in Geography from the University of Tennessee in 1993 and a MS in Geography from the University of Memphis with an emphasis in Geographic Information Systems, Cartography, and Remote Sensing in 1996.

Exhibit 1 presents the organizational chart for the project.

Exhibit 1. Project Organization[3]



1.5. Problem Definition / Background

Originally formed as the Metropolitan Area Planning Commission of Pulaski County in 1955, Metroplan has served as the area's federally designated Metropolitan Planning Organization (MPO) since 1972. Its function as an MPO is to work with local governments, the state department of transportation, and local transit providers to determine transportation needs and funding priorities for federal transportation investments. Metroplan also provides general planning, mapping, and technical assistance to local governments.

Under this project, Metroplan will identify, evaluate, and utilize data resources[4] to develop a regional inventory of the major sources of greenhouse gas (GHG) emissions within Pulaski, Lonoke, Saline, Faulkner, Grant, and Perry counties, Arkansas, and use that inventory data to develop a climate action plan. Task leaders and specialists will compile all data within the International Council for Local Environmental Initiatives' (ICLEI) ClearPath GHG Reporting Tool (ClearPath). ICLEI's ClearPath tool has two tracks: the Local Government Operations (LGO) track is specific to municipal and county

[3] Under CIO 2105-S-02.0, section 3, the organization chart must also identify any contractor relationships relevant to environmental information operations.
[4] EPA, *Environmental Information Quality Policy*, CIO 2105.3, 03/07/2023 (p. 8) provides common examples of environmental information used to support the EPA's mission at https://www.epa.gov/system/files/documents/2023-04/environmental_information_quality_policy.pdf.

governments and evaluating GHG emissions by their departments, and the Community-wide (CW) track, which could also include local government information. The two modules are companion tools, and any totals estimated in the LGO track can be included in the CW track. For example, a county could use the CW track and incorporate data from the LGO track completed by the cities within the county. Grantees using both tracks should conduct a quality check to ensure that emissions do not get double-counted. This template is based on the CW track and USCP.

This QAPP focuses on the handling of environmental information under sector-specific tasks by technical staff charged with completing the following subtasks in a future planning project implemented in accordance with this QAPP:

1. Develop a comprehensive GHG inventory for the largest sources within each sector,
2. Develop options for reducing emissions within each sector,
3. Develop estimates or ranges of estimates for reductions achievable under each option,
4. Present these analyses and options in technical reports consistent with the deliverables required under the CPRG planning grants.

The GHG inventory may utilize:

1. National-level data derived from EPA's GHG Reporting Program (GHGRP) Inventory Data Explorer[5] that includes GHG emissions and sink emissions data for all sectors during the years 1990 through 2021.

2. State-level data derived from
   a. EPA's GHG Inventory Data Explorer that includes GHG emissions and sink emissions data for all sectors during the years 1990 through 2021; and
   b. EPA State Inventory Tool (SIT) for Arkansas
   c. DOE's State and Local Planning for Energy (SLOPE) Data Viewer

3. Community-level data derived from
   a. US Community Protocol's Land Emissions and Removals Navigator (LEARN) Tool[6] in conjunction with International Council for Local Environmental Initiatives' (ICLEI) ClearPath GHG Reporting Tool for Land Use, Land-Use Change and Forestry (LULUCF) sink emissions data
   b. Facility Level Information on GHG Tool (FLIGHT)
   c. Source-point data from vendors

4. County-level data derived from
   a. EPA's National Emission Inventory (NEI) Data Retrieval Tool[7] for the transportation, industrial, and agricultural sectors during the years 2017 and 2020.
      – Excludes LULUCF sink emissions data
      – Data for the industrial sector includes only emissions derived from industrial equipment
      – Data for the agricultural sector includes only emissions derived from agricultural equipment

[5] https://cfpub.epa.gov/ghgdata/inventoryexplorer/#allsectors/allsectors/allgas/econsect/all
[6] https://icleiusa.org/LEARN/
[7] https://awsedap.epa.gov/public/single/?appid=20230c40-026d-494e-903f-3f112761a208&sheet=5d3fdda7-14bc-4284-a9bb-cfd856b9348d&opt=ctxmenu,currsel

b. DOE's State and Local Planning for Energy (SLOPE) Data Viewer
c. Arkansas Department of Agriculture Annual Reports
    1. Distribution of Fertilizer Sales
    2. Lime Tonnage
    3. Forestry Division
        a. Prescribed Burns and Wildfires
        b. County Forest Profiles and Fact Sheets
d. Google's Environmental Insight Explorer (EIE) Tool[8] for the transportation sector during the years 2018 through 2023 as a supplemental tool to federal and state data; and
    - Includes commercial and residential building data for six counties (Pulaski, Saline, Faulkner, Lonoke, Grant, and Perry) in Metroplan area
    - Excludes LULUCF sink emissions data

5. City-level data derived from
    a. DOE's State and Local Planning for Energy (SLOPE) Data Viewer
    b. Google's Environmental Insight Explorer (EIE) Tool for the transportation sector during the years 2018 through 2023 as a supplemental tool to federal and state data; and
    c. The City of Little Rock's emissions inventory for all sectors except for agriculture during the years 2018-2022

Any independent regional estimates will be compared to corresponding federal, state, and/or local estimates for validation, as available. Significant differences between federal, state, or local estimates will be evaluated and discussed in the inventory report with the underlying data and methodology used for the independent regional estimates. The regional inventory will include the following source categories and gases:

ClearPath Source Categories

1. Transportation
2. Electricity Consumption
3. Stationary Combustion
4. Agriculture, Forestry, and other Land Use (AFOLU)
5. Solid Waste
6. Water and Wastewater
7. Other

Greenhouse Gases (across all sectors)

carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), fluorinated gases (F-gases) including hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)

[8] https://insights.sustainability.google/

1.5.1. Rationale for Selection of Sectors

For each sector included in the regional inventory, **Table 1.2** briefly describes why the sector was included in the inventory and the relative significance of the sector in terms of the magnitude of air emissions from existing inventories, the associated geographic distribution of the sources, and recent trends in readily available activity data for the source category.

Table 1.2 Rationale for Sector Selection

Sectors Included in Inventory	Rationale for Including in GHG Inventory
Transportation	Transportation activities were the largest source (27 percent) of total US GHG emissions in 2020. Transportation activities were the second largest source (24 percent) of total Arkansas GHG emissions in 2020. GHG emissions from transportation primarily come from burning fossil fuel for cars, trucks, ships, trains, and planes. Over 94 percent of the fuel used for transportation is petroleum based, which includes primarily gasoline and diesel. Transportation activities occur across all regions.
Electric Power Generation	The electric power sector accounted for 25 percent of total US GHG emissions in 2020. Electric power activities were the largest source (28 percent) of total Arkansas GHG emissions in 2020. Electric power includes emissions from electricity production used by other end sources (i.e. industry, commercial, and residential) and comes from burning fossil fuels, mostly coal and natural gas. Power generation and/or consumption occurs across all regions.
Industry	The industrial sector accounted for 24 percent of US GHG emissions in 2020. Since 1990, industrial sector emissions have declined by 11 percent. Industrial activities were the fourth largest source (16 percent) of total Arkansas GHG emissions in 2020. GHG emissions from industry primarily come from the burning of fossil fuels, Scope 2 emissions associated with the purchase of electricity, as well as GHG emissions from certain chemical processes involved in the production of goods from raw materials. Any point source of emissions large enough to be included in EPA's FLIGHT database, which is not already included in another sector, should also be included.
Commercial	The commercial sector accounted for about 7 percent of US GHG emissions in 2020. Emissions from the commercial sector has increased since 1990. In 2020, the commercial sector accounted for 7 percent of total Arkansas GHG emissions. Emissions in Arkansas from the commercial sector have increased since 1990.

Table 1.2 Rationale for Sector Selection

Sectors Included in Inventory	Rationale for Including in GHG Inventory
	GHG emissions from the commercial sector include fossil fuels burned for heat and Scope 2 emissions associated with the purchase of electricity.
Residential	The residential sector accounted for about 6 percent of US GHG emissions in 2020. Emissions from the residential sector have increased since 1990. In 2020, the residential sector accounted for 3 percent of total Arkansas GHG emissions, respectively. GHG emissions from the residential sector include fossil fuels burned for heat and Scope 2 emissions associated with the purchase of electricity.
Agriculture	Agriculture accounted for about 11 percent of US. GHG emissions in 2020, and agricultural soil management was the largest source of N_2O emissions. Agricultural activities were 21 percent of total Arkansas GHG emissions in 2020. GHG emissions from agriculture come from livestock such as cows, agricultural soils, and rice production.
Land Use, Land-Use Change and Forestry (LULUCF)	This sector includes increased carbon from activities such as converting forests to agricultural use and practices that decrease CO_2 from the atmosphere and store it in long-term carbon sinks like forests. In 2020, the net CO_2 removed from the atmosphere by natural and working lands was 12.5 percent of total US GHG emissions. Between 1990 and 2020, total carbon sequestration in this sector decreased by 14 percent, primarily due to a decrease in the rate of net carbon accumulation in forests, as well as an increase in CO_2 emissions from urbanization. A study published in 2017 in the Proceedings of the National Academy of Sciences estimated that nature-based solutions can account for up to 37 percent of the carbon sequestration needed to keep average global temperatures from increasing 2 degrees Celsius by 2030[9] and up to 20 percent of the carbon sequestration needed to keep average global temperatures from increasing 2 degrees Celsius by 2050[10].
Water and Wastewater	This sector includes landfills, composting, and anaerobic digestion. Landfills were the third largest source of anthropogenic methane emissions in 2021, and landfills accounted for 1.9 percent of total U.S. greenhouse gas emissions. Wastewater treatment, both domestic and industrial, was the third largest anthropogenic source of N_2O emissions in 2021, accounting for 5.2 percent of national N_2O emissions and 0.3 percent of total U.S. greenhouse gas emissions. Emissions from wastewater treatment increased by 6.1 MMT CO_2e (41.6 percent) since 1990 as a result of growing U.S. population and protein consumption.

[9] https://www.ipbes.net/global-assessment
[10] https://pubmed.ncbi.nlm.nih.gov/29078344/

1.5.2. Decisions to be Made

Existing EPA datasets of GHG emissions by sector and the state of Arkansas SIT tool provide many default values to facilitate developing regional estimates that are consistent with the National Inventory of GHG Emissions[11]. ICLEI's ClearPath tool covers categories of GHG emissions by source category (e.g., transportation, solid waste, etc.). ClearPath provides many default values to facilitate developing local estimates using methods consistent with the USCP for CW GHG Emissions. The TL will be charged with three primary decisions under each task of this project.

1. Determine (for each major activity) if the ClearPath estimate, a different federal estimate or tool, or a non-federal estimate should be used for the regional baseline estimate.
2. Determine the best options for reducing emissions of air pollution and achieving the following objectives[12] under the Inflation Reduction Act (IRA):
    a. Deliver cleaner air by reducing harmful air pollution in places where people live, work, play, and go to school.
    b. Reduce climate pollution, create good jobs, and lower energy costs for families.
    c. Accelerate work addressing environmental injustice and empowering community driven solutions in overburdened neighborhoods.
3. Develop an estimate (or range) of reductions that could be achieved under each option.

1.5.3. Actions to be Taken, Action Limits, and Expected Outcomes

Initially, local estimates will be derived using ClearPath for each source category. Subsequently, Metroplan may elect to supplement estimates derived using ClearPath with estimates for each source category from existing local inventories, existing local activity data, or from other EPA or state resources. Calculated estimates derived from local activity data will be compared to federal datasets and/or downscaled state or county estimates for validation. The rationale for including any emissions estimates that show significant discrepancies from state or federal estimates will be documented in the Metroplan's GHG inventory report along with the underlying data and calculation methodology.

When identifying the best options for reducing air pollution, the TL will consider the activities affecting the largest numbers of people, business establishments, recreation areas, and schools. Options will include potential reductions in task-level activities impacting nonattainment areas and impacting residential, commercial, and school districts in close proximity to the largest sources of air pollution.

1.5.4. Reason for Project

The baseline GHG inventory and options analyses developed under this regional community project will be utilized by Metroplan for planning purposes to support Metroplan's development of the following CPRG planning deliverables:

- Metroplan's **Priority Climate Action Plan** (PCAP), was submitted on December 1, 2023. This plan includes near-term, implementation-ready, priority GHG reduction measures and is a prerequisite for any implementation grant.
- Metroplan's **Comprehensive Climate Action Plan** (CCAP) is due on February 28, 2025. This plan will review all sectors that are significant GHG sources or sinks and include both near- and long-term GHG emission reduction goals consistent with state policy and strategies.

[11] https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2021
[12] CPRG Program Guidance, page 4. Available at https://www.epa.gov/inflation-reduction-act/climate-pollutionreduction-grants#CPRGProgramGuidance.

- Metroplan's **Status Report** on progress towards statewide reduction goals, which is due in 2027. This progress report will include updated analyses, plans, and next steps for key metrics.

This QAPP describes in detail the necessary QA and QC requirements and technical activities that will be implemented to ensure the baseline GHG inventory, and the sector-specific emissions reduction options are reliable for the PCAP and CCAP.

1.5.5. Relevant Clean Air Act Mandates and Authorizations

The inventory produced under this project will support grant applications authorized under 42 U.S.C.A. § 7437 for *Greenhouse Gas Air Pollution Plans and Implementation Grants*. The inventory will be used to evaluate opportunities for reducing GHG emissions from all major-emitting sources including both mobile source categories and stationary source categories. This project will include the fundamental research necessary to evaluate and plan new programs (and amendments to existing Clean Air Act [CAA] programs) for reducing emissions from fossil fuel combustion activities. Many activities in the GHG inventory (and subsequent emissions reductions options analyses) include major sources of criteria and air pollutants. Accordingly, the purpose of this project (to evaluate and plan for reductions in GHG emissions, including reductions from usage or production of fossil fuels) is also consistent with the following statutory mandates and authorizations under Clean Air Act Title I:

- ***§ 7403. Research, investigation, training, and other activities***
  (a) Research and development program for prevention and control of air pollution
  The Administrator shall establish a national research and development program for the prevention and control of air pollution ….
  (1) conduct, and promote the coordination and acceleration of, research, investigations … and studies related to the causes … extent, prevention, and control of air pollution;
  (2) encourage, cooperate with, and render technical services and provide financial assistance to air pollution control agencies and other appropriate public or private agencies, institutions, and organizations, and individuals in the conduct of such activities ….
  (b) Authorized activities of Administrator in establishing research and development program
  In carrying out the provisions of [paragraph (a)] the Administrator is authorized to–
  (1) collect and make available, through publications and other appropriate means, the results of and other information, including appropriate recommendations by him in connection therewith, pertaining to such research and other activities….
  (2) make grants to air pollution control agencies … for purposes … in subsection (a)(1) ….

- ***§ 7404. Research related to fuels and vehicles***
  (a) Research programs; grants; ….
  The Administrator shall give special emphasis to research and development into new and improved methods, having industry-wide application, for the prevention and control of air pollution and control of air pollution resulting from the combustion of fuels… he shall–
  (1) conduct and accelerate research programs directed toward development of improved, cost-effective techniques for–
  (A) control of combustion byproducts of fuels, ….
  (B) improving efficiency of fuels combustion so as to decrease atmospheric emissions ….

- ***§ 7405. Grants for support of air pollution planning and control programs***
  (a) Amounts; limitations; assurances of plan development capability.

(1)(A) The Administrator may make grants to air pollution control agencies … in an amount up to three-fifths of the cost of implementing programs for the prevention and control of air pollution …. For the purpose of this section, "implementing" means any activity related to the planning, developing, establishing, carrying-out, improving, or maintaining of such programs….
(C) With respect to any air quality control region or portion thereof for which there is an applicable implementation plan under section 7410 … grants under subparagraph (A) may be made only to air pollution control agencies which have substantial responsibilities for carrying out such applicable implementation plan.

1.5.6. Information Provided by the EPA under § 7403(b)(1)

Under authority of CAA § 7403(b)(1) the EPA has provided the following resources to regions to ensure reliable air emissions inventories are produced to support plans for reducing emissions:

- Agency-wide Quality Program Documents
- Quality Assurance-specific Directives
  - CIO 2105.3 – *Environmental Information Quality Policy*, April 10, 2023
  - CIO 2105-P-01.3 – *Environmental Information Quality Procedure*, March 7, 2023
  - CIO 2105-S-02.0 – *EPA's Environmental Information QA Project Plan Standard*
  - EPA Regional Sites for Quality Management Plans and Guidance:
    - Region 1
    - Region 2
    - Region 3
    - Region 4
    - Region 5
    - Region 6
    - Region 7
    - Region 8
    - Region 9
    - Region 10
- QA Guidance
  - Latest QA guidance published on the following website: https://www.epa.gov/quality/agency-wide-quality-program-documents

Metroplan will utilize these resources, as applicable, to ensure evaluation of existing data and utilization of those data are consistent with the EPA's relevant directives and guidance.

1.6. Project / Task Description

An example schedule of deliverables for the technical tasks (Tasks 1-7) for GHG inventory QAPPs is presented in **Tables 2.1** through **2.7.** The work to be performed under this project involves preparing a regional GHG emissions inventory for Metroplan. The organization of the work is based on the use of the EPA's GHG Inventory Data Explorer, EPA's NEI Data Retrieval Tool, Arkansas ADEE's SLEIS,[13] US Community Protocol's LEARN Tool, Google's EIE, and the City of Little Rock's Emissions Inventory under the following sector-specific tasks:

Task 1: Regional inventory of transportation sector GHG emissions.

[13] Recognizing the possibility of duplication between federal data and SLEIS, priority will be given to federal data and SLEIS used as a supplement.

Task 2: Regional inventory of electric power generation sector GHG emissions.

Task 3: Regional inventory of industrial sector GHG emissions.

Task 4: Regional inventory of commercial sector GHG emissions.

Task 5: Regional inventory of residential sector GHG emissions.

Task 6: Regional inventory of agricultural sector GHG emissions.

Task 7: Regional inventory of LULUCF GHG sinks and emissions.

For each sector-specific task, **Tables 2.1–2.7** provide planned activities and a schedule of deliverables for use by the region in preparing GHG inventories. The resulting estimates from a regionally developed inventory will be compared to EPA's existing county, state, and national-level emissions data.

ClearPath is a greenhouse gas inventorying tool provided by ICLEI to ICLEI member communities. The tool performs both local government operations and community-wide inventories. The tool works by taking activity data (e.g. vehicle miles traveled) or usage data (e.g. gallons of diesel consumed) and uses emissions factors from national databases to calculate emissions. Additionally, ClearPath will accept calculated or modeled emissions data. For this project, staff will use the community-wide track of the ClearPath tool. Staff will complete seven separate inventories in ClearPath – one for each of the six counties in the region, and one for the six-county region as a whole, for calendar year 2020. Unless indicated, staff will obtain county-level data for each county, then sum that data for the regional inventory. For each sector-specific task, **Tables 2.1–2.7** provide planned activities and a schedule of deliverables for use by communities preparing GHG inventories.

Metroplan will use contractors to support inventory development. Prior to the development of any emissions data by a contractor, each contractor must agree to the terms of each specific project and this QAPP. The PM and TL will review all inventory data submitted by each contractor prior to Metroplan's acceptance of the data.

Table 2.1 Technical Task Descriptions for Task 1.

Tasks and Deliverables	Schedule
Task 1. Transportation	
1. The PM or TL will assign staff to collect county-level GHG emissions data for the transportation sector from the EPA's NEI Data Retrieval Tool. Agricultural and industrial equipment will be removed from this dataset and designated supplemental to their coordinating sectors. This refined data will then be compared to the SIT and approximated based on state-level data from the EPA's GHG Inventory Data Explorer and adjusted based on assumptions made for the transportation sector. Local source-point data will be used if available. 2. An independent regional GHG inventory will be produced, including a profile of mobile source emissions using the following tools and resources: a. 2020 state-level data from the EPA's GHG Inventory Data Explorer. b. 2020 county-level data from the EPA's NEI Data Retrieval Tool for mobile sources.	Concurrent to and within 120 days of QAPP approval by EPA.

Table 2.1 Technical Task Descriptions for Task 1.

Tasks and Deliverables	Schedule
Task 1. Transportation	
c. 2020 city-level data from the Google Environmental Insights Explorer. d. 2020 city-level data from the City of Little Rock's Emissions Inventory. e. 2020 source-point data, if available. 3. After the primary GHG emission calculations are complete, the PM, TL, or QAM will assign a QC staff member to complete the following steps: a. Review the original sources of data from EPA's NEI Data Retrieval Tool and any other sources used. b. Validate that the values from the original state- and county-level sources were correctly calculated to produce regional approximations. c. Compare the outputs, percentages, and listing of sources of the Arkansas GHG emission data for the transportation sector from the EPA's GHG Inventory Data Explorer to the outputs, percentages, and listing of sources of the approximated Metroplan GHG emission inventory data for the transportation sector from EPA's NEI Data Retrieval Tool. d. Assess, if necessary, then calculate GHG emissions to reflect GWP and adjust accordingly. The EPA's NEI Data Retrieval Tool provides data by GHG (carbon dioxide, methane, and nitrous oxide) and will require conversions based on GWP values. The EPA's GHG Inventory Data Explorer provides data in CO2e, which does not require conversions based on GWP values. e. Document findings and submit to the PM, TL, and QAM for resolution. f. Document steps taken to resolve any findings. 4. Staff will review chapter 7 on transportation in the Global Protocol for Community-Scale GHG Emissions [available at Protocol for Community-Scale Inventories]. 5. The GHG inventory report or separate report based on the GHG inventory will include a listing of options for emissions reductions from this sector that includes the following components: a. The specific source categories and activities affected by the proposed option. b. An estimate of the quantity of GHG emissions reduced by the options. c. An estimate of the air pollutant emissions (as defined under applicable local, state, or federal rules for air toxics) reduced by the option. d. A description of any estimated benefits including co-benefit reductions of criteria emissions and air pollutant emissions. e. A description of any benefits that the option will impart to communities with known environmental injustice issues such as close proximity to major transportation corridors and other sources of air pollutant emissions.	

Table 2.2 Technical Task Descriptions for Task 2.

Tasks and Deliverables	Schedule
Task 2. Electric Power	
1. The PM or TL will assign staff to collect state-level GHG emissions data for the electric power sector from the EPA's GHG Inventory Data Explorer. This data will then be compared to the SIT and approximated and adjusted based on assumptions made for the electrical sector. Local source-point data will be used if available. 2. An independent regional GHG inventory will be produced, including a profile of electric power emissions using the following tools and resources: a. 2020 state-level data from the EPA's GHG Inventory Data Explorer. b. 2020 county-level data, if available. c. 2020 city-level data from the Google Environmental Insights Explorer. d. 2020 city-level data from the City of Little Rock's Emissions Inventory. e. 2020 source-point data, if available. 3. After the primary GHG emission calculations are complete, the PM, TL, or QAM will assign a QC staff member to complete the following steps: a. Review the original sources of data from EPA's GHG Inventory Data Explorer. b. Validate that the values from the original state-level sources were correctly calculated to produce regional approximations. c. Compare the outputs, percentages, and listing of sources of the Arkansas GHG emission data for the electric power industry sector from the EPA's GHG Inventory Data Explorer to the outputs, percentages, and listing of sources of the approximated Metroplan GHG emission inventory data for the electric power sector. d. Assess, if necessary, then calculate GHG emissions to reflect GWP and adjust accordingly. The EPA's GHG Inventory Data Explorer provides data in CO_2e, which does not require conversions based on GWP values. e. Document findings and submit to the PM, TL, and QAM for resolution. f. Document steps taken to resolve any findings. 4. Staff will review chapter 6 on stationary energy in the Global Protocol for Community-Scale GHG Emissions [available at Protocol for Community-Scale Inventories]. 5. The GHG inventory report or separate report based on the GHG inventory will include a listing of options for emissions reductions from this sector that includes the following components: a. The specific source categories and activities affected by the proposed option. b. An estimate of the quantity of GHG emissions reduced by the options. c. An estimate of the air pollutant emissions (as defined under applicable local, state or federal rules for air toxics) reduced by the option. d. A description of any estimated benefits including co-benefit reductions of criteria emissions and air pollutant emissions. e. A description of any benefits that the option will impart to communities with known environmental injustice issues such as close proximity to major transportation corridors and other sources of air pollutant emissions.	Concurrent to and within 120 days of QAPP approval by EPA.

Table 2.3 Technical Task Descriptions for Task 3.

Tasks and Deliverables	Schedule
Task 3. Industry	
1. The PM or TL will assign staff to collect county-level GHG emissions data for industrial equipment from the EPA's NEI Data Retrieval Tool. This data will then be compared to the SIT and approximated based on state-level data from the EPA's GHG Inventory Data Explorer and adjusted based on assumptions made for the industrial sector. Local source-point data will be used if available. 2. An independent regional GHG inventory will be produced, including a profile of industrial emissions using the following tools and resources: a. 2020 state-level data from the EPA's GHG Inventory Data Explorer. b. 2020 county-level data from the EPA's NEI Data Retrieval Tool for industrial equipment. c. 2020 city-level data from the Google Environmental Insights Explorer. d. 2020 city-level data from the City of Little Rock's Emissions Inventory. e. 2020 source-point data, if available. 3. After the primary GHG emission calculations are complete, the PM, TL, or QAM will assign a QC staff member to complete the following steps: a. Review the original sources of data from the EPA's NEI Data Retrieval Tool, EPA's GHG Inventory Data Explorer, and any other sources. b. Validate that the values from the original state-level sources were correctly calculated to produce regional approximations. c. Compare the outputs, percentages, and listing of sources of the Arkansas GHG emission data for the industrial sector from the EPA's GHG Inventory Data Explorer to the outputs, percentages, and listing of sources of the approximated Metroplan GHG emission inventory data for industrial equipment from the EPA's NEI Data Retrieval Tool. d. Assess, if necessary, then calculate GHG emissions to reflect Global Warming Potential (GWP)[14] and adjust accordingly. The EPA's NEI Data Retrieval Tool provides data by GHG (carbon dioxide, methane, and nitrous oxide) and will require conversions based on GWP values. The EPA's GHG Inventory Data Explorer provides data in CO_2e, which does not require conversions based on GWP values. e. Document findings and submit to the PM, TL, and QAM for resolution. f. Given that industrial equipment may not represent the entire industrial sector, QC staff member and PM, TL, or QAM will deem emission totals for the sector suitable or unsuitable for the region. If unsuitable, approximations will be made based primarily on state-level data and their correlating percentages for the industrial sector from the EPA's GHG Inventory Data Explorer. g. Document steps taken to resolve any findings.	Concurrent to and within 120 days of QAPP approval by EPA.

[14] https://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

Tasks and Deliverables	Schedule
Task 3. Industry	
4. Staff will review chapter 9 on industrial processes and product use in the Global Protocol for Community-Scale GHG Emissions [available at Protocol for Community-Scale Inventories]. 5. The GHG inventory report or separate report based on the GHG inventory will include a listing of options for emissions reductions from this sector that includes the following components: a. The specific source categories and activities affected by the proposed option. b. An estimate of the quantity of GHG emissions reduced by the options. c. An estimate of the air pollutant emissions (as defined under applicable local, state or federal rules for air toxics) reduced by the option. d. A description of any estimated benefits including co-benefit reductions of criteria emissions and air pollutant emissions. e. A description of any benefits that the option will impart to communities with known environmental injustice issues such as close proximity to major transportation corridors and other sources of air pollutant emissions.	Concurrent to and within 120 days of QAPP approval by EPA.

Table 2.4 Technical Task Descriptions for Task 4.

Tasks and Deliverables	Schedule
Task 4. Commercial	
1. The PM or TL will assign staff to collect state-level GHG emissions data for the commercial sector from the EPA's GHG Inventory Data Explorer. This data will then be approximated and adjusted based on assumptions made for the commercial sector. Local source-point data will be used if available. 2. An independent regional GHG inventory will be produced, including a profile of commercial emissions using the following tools and resources: a. 2020 state-level data from the EPA's GHG Inventory Data Explorer. b. 2020 county- and city-level data from the Google Environmental Insights Explorer. c. 2020 city-level data from the City of Little Rock's Emissions Inventory. d. 2020 source-point data, if available. 3. After the primary GHG emission calculations are complete, the PM, TL, or QAM will assign a QC staff member to complete the following steps: a. Review the original sources of data from EPA's GHG Inventory Data Explorer and any other sources used. b. Validate that the values from the original state-level sources were correctly calculated to produce regional approximations. c. Compare the outputs, percentages, and listing of sources of the Arkansas GHG emission data for the commercial sector from the EPA's GHG Inventory Data Explorer and Google's EIE to the outputs, percentages, and	Concurrent to and within 120 days of QAPP approval by EPA.

Tasks and Deliverables	Schedule
Task 4. Commercial	
listing of sources of the approximated Metroplan GHG emission inventory data for the commercial sector. d. Assess, if necessary, then calculate GHG emissions to reflect GWP and adjust accordingly. The EPA's GHG Inventory Data Explorer provides data in CO_2e, which does not require conversions based on GWP values. Google's EIE provides data in CO_2 and will require conversions based on GWP values. e. Document findings and submit to the PM, TL, and QAM for resolution. f. Document steps taken to resolve any findings. 4. Staff will review chapter 6 on stationary energy in the Global Protocol for Community-Scale GHG Emissions [available at Protocol for Community-Scale Inventories]. 5. The GHG inventory report or separate report based on the GHG inventory will include a listing of options for emissions reductions from this sector that includes the following components: a. The specific source categories and activities affected by the proposed option. b. An estimate of the quantity of GHG emissions reduced by the options. c. An estimate of the air pollutant emissions (as defined under applicable local, state or federal rules for air toxics) reduced by the option. d. A description of any estimated benefits including co-benefit reductions of criteria emissions and air pollutant emissions. e. A description of any benefits that the option will impart to communities with known environmental injustice issues such as close proximity to major transportation corridors and other sources of air pollutant emissions.	

Table 2.5 Technical Task Descriptions for Task 5.

Tasks and Deliverables	Schedule
Task 5. Residential	
1. The PM or TL will assign staff to collect state-level GHG emissions data for the residential sector from the EPA's GHG Inventory Data Explorer. This data will then be approximated and adjusted based on assumptions made for the residential sector. Local source-point data will be used if available. 2. An independent regional GHG inventory will be produced, including a profile of residential emissions using the following tools and resources: a. 2020 state-level data from the EPA's GHG Inventory Data Explorer. b. 2020 county- and city-level data from the Google Environmental Insights Explorer. c. 2020 city-level data from the City of Little Rock's Emissions Inventory. d. 2020 source-point data, if available.	Concurrent to and within 120 days of QAPP approval by EPA.

Tasks and Deliverables	Schedule
3. After the primary GHG emission calculations are complete, the PM, TL, or QAM will assign a QC staff member to complete the following steps: a. Review the original sources of data from EPA's GHG Inventory Data Explorer and any other sources used. b. Validate that the values from the original state-level sources were correctly calculated to produce regional approximations. c. Compare the outputs, percentages, and listing of sources of the Arkansas GHG emission data for the residential sector from the EPA's GHG Inventory Data Explorer and Google's EIE to the outputs, percentages, and listing of sources of the approximated Metroplan GHG emission inventory data for the residential sector. d. Assess, if necessary, then calculate GHG emissions to reflect GWP and adjust accordingly. The EPA's GHG Inventory Data Explorer provides data in CO_2e, which does not require conversions based on GWP values. Google's EIE provides data in CO_2 and will require conversions based on GWP values. e. Document findings and submit to the PM, TL, and QAM for resolution. f. Document steps taken to resolve any findings. 4. Staff will review chapter 6 on stationary energy in the Global Protocol for Community-Scale GHG Emissions [available at Protocol for Community-Scale Inventories]. 5. The GHG inventory report or separate report based on the GHG inventory will include a listing of options for emissions reductions from this sector that includes the following components: a. The specific source categories and activities affected by the proposed option. b. An estimate of the quantity of GHG emissions reduced by the options. c. An estimate of the air pollutant emissions (as defined under applicable local, state or federal rules for air toxics) reduced by the option. d. A description of any estimated benefits including co-benefit reductions of criteria emissions and air pollutant emissions. e. A description of any benefits that the option will impart to communities with known environmental injustice issues such as close proximity to major transportation corridors and other sources of air pollutant emissions.	

Table 2.6 Technical Task Descriptions for Task 6.

Tasks and Deliverables	Schedule
Task 6. Agriculture	
1. The PM or TL will assign staff to collect county-level GHG emissions data for agricultural equipment from the EPA's NEI Data Retrieval Tool. This data will then be compared to the SIT and approximated based on state-level data from the EPA's GHG Inventory Data Explorer. Local source-point data will be used if available. 2. An independent regional GHG inventory will be produced, including a profile of agricultural emissions using the following tools and resources: a. 2020 state-level data from the EPA's GHG Inventory Data Explorer. b. 2020 county-level data from the EPA's NEI Data Retrieval Tool for agricultural equipment. c. 2020 city-level data from the Google Environmental Insights Explorer. d. 2020 city-level data from the City of Little Rock's Emissions Inventory. e. 2020 source-point data, if available. 3. Assess the urban and rural landscape of the Metroplan region in comparison to that of the state. a. Research obtained from readily available and credible sources shows that approximately 92.4 percent of the region is rural, and 7.6 percent is urban. In comparison, about 99 percent of Arkansas is rural and one percent is urban. Since the Metroplan agricultural sector emissions data may be approximated based primarily on state-level data, this will likely require adjustments. Assumptions should be made that the agriculture sector emissions are to be reduced. The remaining percentage points shall be re-allocated to the other sectors. 4. After the primary GHG emission calculations are complete, the PM, TL, or QAM will assign a QC staff member to complete the following steps: a. Review the original sources of data from the EPA's NEI Data Retrieval Tool, the EPA's GHG Inventory Data Explorer, and any other sources used. b. Validate that the values from the original state-level sources were correctly calculated to produce regional approximations. c. Compare the outputs, percentages, and listing of sources of the Arkansas GHG emission data for the agriculture sector from the EPA's GHG Inventory Data Explorer to the outputs, percentages, and listing of sources of the approximated Metroplan GHG emission inventory data for agricultural equipment from the EPA's NEI Data Retrieval Tool. d. Assess, if necessary, then calculate GHG emissions to reflect GWP and adjust accordingly. The EPA's NEI Data Retrieval Tool provides data by GHG (carbon dioxide, methane, and nitrous oxide) and will require conversions based on GWP values. The EPA's GHG Inventory Data Explorer provides data in CO_2e, which does not require conversions based on GWP values. e. Document findings and submit to the PM, TL, and QAM for resolution.	Concurrent to and within 120 days of QAPP approval by EPA.

Table 2.6 Technical Task Descriptions for Task 6.

Tasks and Deliverables	Schedule
Task 6. Agriculture	
f. Similar to the industrial sector, agricultural equipment may not represent the entire agricultural sector. The QC staff member and PM, TL, or QAM will deem emission totals for the sector suitable or unsuitable for the region. If unsuitable, approximations will be made based primarily on state-level data and their correlating percentages for the agricultural sector from the EPA's GHG Inventory Data Explorer. The QC staff member and PM, TL, or QAM will then consider the conclusions drawn from the urban and rural landscape research collected for the region and determine how that compares to the state of Arkansas. Adjustments will be made accordingly. g. Document steps taken to resolve any findings. 5. Staff will review chapter 10 on agriculture, forestry, and other land use in the Global Protocol for Community-Scale GHG Emissions [available at Protocol for Community-Scale Inventories]. 6. The GHG inventory report or separate report based on the GHG inventory will include a listing of options for emissions reductions from this sector that includes the following components: a. The specific source categories and activities affected by the proposed option. b. An estimate of the quantity of GHG emissions reduced by the options. c. A description of any estimated benefits including co-benefit reductions of criteria emissions and air pollutant emissions. d. A description of any benefits that the option will impart to communities with known environmental injustice issues such as close proximity to major transportation corridors and other sources of air pollutant emissions.	

Table 2.7 Technical Task Descriptions for Task 7.

Tasks and Deliverables	Schedule
Task 7. Land Use, Land Use Change and Forestry (LULUCF)	
1. The PM or TL will assign staff to collect community-level GHG sink emissions data for LULUCF. Local source-point data will be used if available. This data will then be used to inventory GHG sink emissions. 2. A profile of LULUCF sink emissions will either be approximated using state-level sink data from the EPA's GHG Data Explorer, or will be inventoried using IPCC[15] and/or EPA emission factors for the following categories if land use data is available: a. Forest Land Remaining Forest Land b. Settlements Remaining Settlements	Concurrent to and within 120 days of QAPP approval by EPA.

[15] https://ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

Table 2.7 Technical Task Descriptions for Task 7.

Tasks and Deliverables	Schedule
Task 7. Land Use, Land Use Change and Forestry (LULUCF)	
c. Land Converted to Forest Land d. Cropland Remaining Cropland e. Wetlands Remaining Wetlands 3. After the primary GHG emission reduction calculations are complete, the PM, TL, or QAM will assign a QC staff member to complete the following steps: a. Review the original sources of data from the tools and resources utilized. b. Validate that the values from the tools, resources, and inputs (i.e. acres of land use category, emissions factors used to calculate GHG sink emissions) were correctly compiled. c. Validate that the values from the tools, resources, and outputs (i.e. acres of land use category, emissions factors used to calculate GHG sink emissions) were correctly calculated. d. Document findings and submit to the PM, TL, and QAM for resolution. e. Document steps taken to resolve any findings. 4. The GHG inventory report or separate report based on the GHG inventory will include a listing of options for emissions reductions from this sector that includes the following components: a. The specific source categories, sectors, and activities affected by the proposed option. b. An estimate of the quantity of GHG emissions reduced by the options. c. A description of any estimated benefits including co-benefit reductions of criteria emissions and air pollutant emissions. d. A description of any benefits that the option will impart to communities with known environmental injustice issues such as close proximity to major transportation corridors and other sources of air pollutant emissions.	

1.7. Quality Objectives / Criteria

1.7.1. Data Quality Objectives

The primary objectives for this project are to develop reliable inventories for each of the GHG-emitting sectors in the region, and to identify options for reducing emissions from those sectors. Accordingly, all quality objectives and criteria are aligned with these objectives. The quality system used for this project is the joint responsibility of the Metroplan PM, TL, and QAM. An organizationally independent QAM will maintain oversight of all required measures in this QAPP. QC functions will be carried out by technical staff and will be carefully monitored by the responsible TL, who will work with the QAM to identify and implement quality improvements. All activities performed under this project will conform to this QAPP.

1.7.2. Data Quality, Management, and Analyses

For this project, Metroplan will use a variety of QC techniques and criteria to ensure the quality of data and analyses. Quality will largely be ensured and inherent because readily available datasets from EPA will primarily be used. Data of known and documented quality are essential components for the success of the project, as these data will be used to inform the decision-making process for the CCAP and Status Reports as discussed in Section 1.5.4.

The data quality objectives and criteria for this project are accuracy, precision, bias, completeness, representativeness, and comparability. *Accuracy* is a measure of the overall agreement of a measurement to a known value. It includes a combination of random error (precision) and systematic error (bias). *Precision* is a measure of how reproducible a measurement is or how close a calculated estimate is to the actual value. *Bias* is a systematic error in the method of measurement or calculation. If the calculated value is consistently high or consistently low, the value is said to be biased. Our goal is to ensure that information and data generated and collected are as accurate, precise, and unbiased as possible within project constraints. It is not anticipated that this project will include primary data collection. Generally, existing data and tools provided by the EPA and other qualified sources will be used for project tasks. A subject matter specialist familiar with technical reporting standards will be used to QA all data utilized for developing the regional GHG inventory. Metroplan will verify the accuracy of all data by checking for logical consistency among datasets. All existing environmental data shall meet the applicable criteria defined in CFR and associated guidance, such as the validation templates provided in the *EPA QA Handbook Volume II*.

For the data analysis completed under this project, analytical methods will be reviewed to ensure the approach is appropriate and calculations are accurate. Spreadsheets will be used to store data and complete necessary analyses. Design of spreadsheets will be configured for the intended use. All data and methodologies specific to each analysis will be defined and documented. Tables and fields will be clearly and unambiguously named. Spreadsheets will be checked to ensure algorithms call data correctly and units of measure are internally consistent. Hand-entered or electronically transferred data will be checked to ensure the data are accurately transcribed and transferred.

The draft inventory will be evaluated for GHG-emitting-sector and geographic completeness. Metroplan will utilize the framework of sectors in the EPA's GHG Inventory Data Explorer, to ensure that the inventory prepared under this project includes all major GHG-emitting sectors.

Representativeness is a qualitative term that expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Metroplan will use the most complete and accurate information available to compile representative data for the region's GHG-emitting activities.

Data *comparability* is a qualitative term that expresses the measure of confidence that one dataset can be compared to another and can be combined for the decision(s) to be made. Metroplan will compare datasets when available from different sources to check for the quality of the data. This QA step will also ensure that any highly correlated datasets or indicators are identified. Supporting data, such as information on reference methods used and complete test reports, are important to ensure the comparability of emissions data.

1.8. Special Training / Certifications

All Metroplan staff assigned to work on this project shall have appropriate technical and QA training to properly perform their assignments. The PM and TL under this project will have completed an online training course on air emissions inventories on the Air Knowledge website[16]. The contractor team shall have experience quantifying GHG emissions.

No additional technical training is required. If training is required for new staff or for particular segments of the GHG inventory, the PM in coordination with the TL will identify available training resources for the inventory segment and incorporate the required training into the project schedule.

1.9. Documents and Records

Metroplan will document in electronic form (and/or hard copy) QC activities for this project. The TL is responsible for ensuring that copies of all completed QC forms, along with other QA records (including this QAPP), will be maintained in the project files. Project files will be retained for a minimum of five years by Metroplan on its general server after the completion of the project until they are obsolete or superseded. The types of documentation that will be prepared for this project include:

- Planning documentation (e.g., QAPP)
- Implementation documentation (i.e., Review/Approval Forms)
- Metroplan GHG Emissions Inventory and calculations records

Detailed documentation of QC activities for a specific task or subtask will be maintained using the *QC Documentation Form* shown in **Appendix A**. This form will document the completion of the QC techniques planned for use on this project as listed in Technical Task Descriptions, Tables 2.1 through 2.7. One or more completed versions of these forms, as necessary, will be maintained in the project files. The types of documents and activities for which QC will be conducted and documented may include raw data, data from other sources such as data bases or literature, data entry into the EPA tools and conversion calculators, calculations necessary to transform raw data into sector specific category data summarizations, and comparisons of primary state-level data with Metroplan estimates.

Technical reviews will be used to corroborate the scientific defensibility of any data analyses. A technical review (i.e., internal senior review) is a documented critical review of a specific technical work product. It is conducted by subject matter experts who are collectively equivalent (or senior) in technical expertise to those who performed the work. Given the nature of the deliverables under this project, a technical review is an in-depth assessment of the assumptions, calculations, extrapolations, alternative interpretations, and conclusions in technical work products.

At this time, Metroplan does not expect the project will collect or handle personally identifiable information (PII) subject to the Privacy Act of 1974. However, if during the course of this project technical staff determine that PII is required to support project objectives, Metroplan will meet all

[16] https://airknowledge.gov/EMIS-SI.html

requirements of the Privacy Act of 1974. **Appendix B** indicates the status of the region's determination regarding applicability of the Privacy Act of 1974 under this project.

2. Existing Data Acquisition and Management Protocols (Group B)

2.1. Sampling Process Design

2.1.1. Need and Intended Use of Data Used

As indicated in **Tables 2.1–2.7**, a wide range of data for a diverse set of GHG-emitting activity is necessary to prepare a regional inventory. Existing data resource may include source-specific or facility-specific GHG emissions estimates, emissions factors, or activity data for use with emissions factors. Existing data resources (including but not limited to data from previously completed inventories) will be utilized to develop the primary GHG emissions estimates using the EPA's GHG Inventory Data Explorer, EPA's NEI Data Retrieval Tool, ADEE SLEIS,[17] US Community Protocol's LEARN Tool, Google's EIE, and the City of Little Rock's Emissions Inventory.

Subsequently, QC staff will complete an independent assessment of proper use of the original data source and will validate that the original data was properly transformed for the primary entries into Metroplan's estimated emission inventory spreadsheet. Any discrepancies between the primary state-level data and Metroplan estimates will be reviewed by the PM or QAM and documented including the steps taken to reconcile any significant differences.

2.1.2. Identification of Data Sources and Acquisition

The following data sources will be evaluated for use under each task to develop primary estimates for the major-emitting sectors in Metroplan or for use in validation of the primary estimates:

- Task 1: Transportation
  - 2020 EPA GHG Inventory Data Explorer state-level data.
  - 2020 EPA National Emissions Inventory (NEI) county-level data for mobile sources.
  - 2020 Google Environmental Insights Explorer city-level data.
  - 2020 City of Little Rock's Emissions Inventory city-level data.
  - 2020 source-point data, if available.

- Task 2: Electric Power Generation
  - 2020 EPA GHG Inventory Data Explorer state-level data.
  - 2020 county-level data, if available.
  - 2020 Google Environmental Insights Explorer city-level data.
  - 2020 City of Little Rock's Emissions Inventory city-level data.
  - 2020 source-point data, if available.

- Task 3: Industry
  - 2020 EPA GHG Inventory Data Explorer state-level data.

[17] Recognizing the possibility of duplication between federal data and SLEIS, priority will be given to federal data and SLEIS used as a supplement.

  - 2020 EPA National Emissions Inventory (NEI) county-level data for industrial equipment.
  - 2020 Google Environmental Insights Explorer city-level data.
  - 2020 City of Little Rock's Emissions Inventory city-level data.
  - 2020 source-point data, if available.

- Task 4: Commercial
  - 2020 EPA GHG Inventory Data Explorer state-level data.
  - 2020 Google Environmental Insights Explorer county- and city-level data.
  - 2020 City of Little Rock's Emissions Inventory city-level data.
  - 2020 source-point data, if available.

- Task 5: Residential
  - 2020 EPA GHG Inventory Data Explorer state-level data.
  - 2020 Google Environmental Insights Explorer county- and city-level data.
  - 2020 City of Little Rock's Emissions Inventory city-level data.
  - 2020 source-point data, if available.

- Task 6: Agriculture
  - 2020 EPA GHG Inventory Data Explorer state-level data.
  - 2020 EPA National Emissions Inventory (NEI) county-level data for agricultural equipment.
  - 2020 Google Environmental Insights Explorer city-level data.
  - 2020 City of Little Rock's Emissions Inventory city-level data.
  - 2020 source-point data, if available.

- Task 7: Land Use, Land Use Change, and Forests (LULUCF)
  - 2020 EPA GHG Inventory Data Explorer state-level data.
  - 2020 land use data and IPCC data.
  - 2020 source-point data, if available.

2.2. Quality Control

All data operations conducted for this project will involve existing, non-direct measurement data. All data received will be reviewed by a senior technical staff member to assess data quality and completeness before their use. In addition to reviewing and assessing the data collected, all data entered into spreadsheets and all calculations completed for analyses will be reviewed by a senior technical QC reviewer. The QC reviewer will evaluate the approach to ensure the methods are appropriate and have been applied correctly to the analysis. The QC reviewer will also confirm all data were entered correctly and that calculations are complete and accurate. Calculations will be checked by repeating each calculation, independently, and comparing the results of the two calculations. Any data entry and calculation errors will be identified and corrected. Data tables prepared for the draft and final reports will be checked against the spreadsheets used to store the data and complete the analysis.

No statistical analysis and calculations were required to assess the data/datasets because readily available data from the EPA was used.

2.3. Non-direct Measurements

All data operations conducted on this project will involve existing, non-direct measurement data. All existing data received will be reviewed by a senior technical staff member to assess data quality and completeness before their use.

Consistent with the EPA's QA requirements, this QAPP describes the procedures that will be used to ensure the selection of appropriate data and information to support the goals and objectives of this project. Specific elements addressed by this QAPP include:

- Identifying the sources of existing data,
- Presenting the hierarchy for data selection,
- Describing the review process and data quality criteria,
- Discussing quality checks and procedures should errors be identified, and
- Explaining how data will be managed, analyzed, and interpreted.

Data presented in the GHG inventory will be traced to its source (e.g., database input and output). Key resources include data collected by the EPA (e.g., NEI data), and data from EPA-approved data sources. These sources may include primary literature (i.e., peer-reviewed journal articles and reports) or databases. We may also use approved existing sources (e.g., handbooks, databases). Original sources for all information and data contained in the document will be included in a list of references with appropriate citations. When peer-reviewed literature or EPA-approved data sources cannot be used, we will document any significant limitations to the data sources used.

We will document information regarding each dataset and our rationale/selection criteria for selecting the data sources used in the inventory. The TL will be responsible for overseeing and confirming the selection of the data for the project tasks.

Table 3.1 provides a hierarchy for data quality when identifying and reviewing available sources of data and information. When evaluating data resources, efforts will be made to identify and select data sources that most closely conform to the highest ranked criteria. Data quality metrics and documentation may not be provided by each source, and as necessary, we may consult with subject matter experts from permitted facilities or trade associations operating in Central Arkansas to qualify data for use to meet project objectives.

Any available data quality information will be reviewed by Metroplan and project advisors to ensure that the data represent full-scale designs and commercial processes, and that they are applicable to economic and regulatory conditions in the United States. Metroplan will document data sources used and any significant limitations of utilized data or information to ensure that the data are appropriate for their intended use. An internal technical reviewer will review the approach for selecting and compiling data; the review will include examination of the data sources and the intended use of the data. The specific QC techniques used will depend on the technical activity or analysis to which they are applied. The Metroplan PM and TL are responsible for verifying the usability of data and related information.

Table 3.1 Existing Data Quality Ranking Hierarchy

Quality Rank	Source Type
Highest	Federal, state, and local government agencies
Second	Consultant reports for state and local government agencies
Third	NGO studies; peer-reviewed journal articles; trade journal articles; conference proceedings
Fourth	Conference proceedings and other trade literature: non-peer-reviewed
Fifth	Source-point data from vendors

Metroplan will work with EPA and ADEE to ensure that all data used for the project are appropriate for their intended use. The main criteria that will be used in the selection of the data are the vintage and quality of the data (based on peer review). The quality of the data will consider the credibility of the source, and the QA documentation provided by the data source. Senior technical staff will also evaluate the availability of alternative datasets, suitability of the selected data for the intended purpose, and agreement with TGIT estimates.

Metroplan will use the Secondary Data Quality Ranking Hierarchy when identifying and reviewing available sources of data and information. The source types in **Table 3.1** appear in the order in which they are likely to meet the data quality criteria. For example, federal government data are more likely to be from a credible source, thoroughly reviewed, suitable, available, and representative, and any exceptions to these data criteria are likely to be noted in the government data, providing transparency. Data from individuals are expected to be less reliable, not peer reviewed, and may not be suitable or representative of regional activities.

If it is determined that data meeting the fourth (i.e., conference proceedings and other trade literature: non-peer-reviewed) or fifth (i.e., individual estimates such as personal communications with vendors) level compose the best or only available data source, the TL will include in the inventory a description of these data with associated limitations for review and approval by the EPA PO or delegate.

These measures of data quality will be used to judge whether the data are acceptable for their intended use. In cases where available data do not or may not meet data quality acceptance criteria, the TL will include in the inventory a discussion for review and approval by the EPA PO or delegate explaining how emissions estimate that relied on such data compare to state-level data from the EPA's GHG Inventory Data Explorer.

We will also consider, for example, the age (i.e., date of the source dataset) and the representativeness of the data and will include in the inventory report for review and approval by the PM and QAM any quality concerns or uncertainties introduced with use of these data, such as data gaps or inconsistencies with other sources. Any data source utilized that is older than 10 years will specifically be flagged in the inventory report.

Representativeness will be evaluated by determining that the emissions or activity data are descriptive of conditions in the United States, that the data are current, and that the data are descriptive of similar processes within Metroplan. Any incomplete datasets will be identified, and deficiencies will be evaluated to determine whether data are missing or confusing and if they meet secondary-use quality objectives.

Key screening criteria will be used to screen the sources identified. The Metroplan TL will provide oversight to the screening process to ensure sources collected are the most relevant and meet quality requirements. Available data and information from the selected sources will be compiled and relevant summary information will be extracted out of the information sources to develop the required output for each of the project tasks.

2.3.1. Criteria for Accepting Existing Data for Intended Use

The criteria for determining whether the data are acceptable for use in developing the region-wide inventory will be based on a comparison of the primary emissions estimate to the independent emissions estimate produced using the EPA's GHG Inventory Data Explorer, EPA's NEI Data Retrieval Tool, ADEE SLEIS, US Community Protocol's LEARN Tool, Google's EIE, and the City of Little Rock's Emissions Inventory or other reliable sources of activity data.

2.4. Data Management

Data management procedures include file storage and file transfer. All project and data files will be stored on Metroplan or Metroplan contractor project servers. Files will be organized and maintained by the TL in folders by project, task, and function, including a system of file labeling to ensure version control. File naming, version control, and storage will be using established Metroplan and/or contractor procedures.

Note that changes made to deliverables will be documented using the software's *track changes* feature, which allows a user to track and view all changes that are made to the document version. All deliverable reviews will be documented in a QC Documentation Form (see **Appendix A**) for the project. This form will be maintained in the project files.

ICLEI ClearPath software as well as general software available through the Microsoft Suite including Excel, PowerPoint, Access, and Word will be used to perform the work (described in **Tables 2.1–2.7)** for this project.

3. Assessment and Oversight (Group C)

Metroplan is committed to preparing a comprehensive and reliable inventory of GHG emissions for the region. Under this project our senior management team has dedicated the necessary resources to ensure we deliver an inventory that can be relied upon for future policy decisions. Accordingly, under this project, we will concurrently implement existing quality management systems that Metroplan has previously utilized.

3.1. Assessments and Response Actions

The QA program includes periodic review of data files and draft deliverables. The essential steps in the QA program are as follows:

1. Identify and define the problem
2. Assign responsibility for investigating the problem
3. Investigate and determine the cause of the problem
4. Assign and accept responsibility for implementing appropriate corrective actions
5. Establish the effectiveness of and implement the corrective action
6. Verify that the corrective action has eliminated the problem.

The TL will provide day-to-day oversight of the quality system. Periodic project file reviews will be carried out by the QAM, at least once per year to verify that required records, documentation, and technical review information are maintained in the files. The QAM will ensure that problems found during the review are brought to the attention of the TL and are corrected immediately. All nonconforming data will be noted, and corrective measures to bring nonconforming data into conformance will be recorded.

The TL and QAM are responsible for determining whether the quality system established for the project is appropriate and functioning in a manner that ensures the integrity of all work products. All technical staff have roles and will participate in the corrective action process. Corrective actions for errors found during QC checks will be determined by the TL and, if necessary, with direction from the QAM or PM, as appropriate. The originator of the work will make the corrections and will note on the QC form that the errors were corrected. A reviewer or TL, not involved in the creation of the work, will review the corrections to ensure the errors were corrected. Any problems noted during audits will be reviewed and corrected by the QAM and discussed with the TL as needed. Depending on the severity of the deficiency, the TL may consult the QAM and stop work until the cited deficiency is resolved. Deficiencies identified and their resolution will be documented in monthly project reports, as applicable. The QAM, PM, and TL will comply and respond to all internal and EPA audits on the project, as needed. The QAM will produce a report outlining any corrective actions taken.

4. Data Validation and Usability (Group D)

4.1. Data Review, Verification, Validation

All work conducted under this project will be subject to technical and editorial review. When existing data for the same GHG-emitting activity are available from multiple sources, the background information documents will be reviewed for all sources to determine the dataset that is the most representative of regional operations. Additionally, the inventory report will include the vintage of the existing data resource and preference will be given to the most recent dataset that is representative of similar GHG-emitting regional activities. Reviews will be conducted by an independent, qualified person—or a person not directly involved in the production of the deliverable. The term “validation” refers to whether the data meet the QAPP-defined user requirements while the term “verification” refers to whether conclusions can be correctly drawn from the data. The quality of data used and generated for the project will be reviewed and verified at multiple levels by the project team. This review will be conducted by the Metroplan TL or a senior technical reviewer with specific, applicable expertise. All original and modified data files will be reviewed for input, handling, and calculation errors. Additionally, all units of measure will be checked for consistency. Any potential issues identified through this review process will be evaluated and, if necessary, data will be corrected, and analysis will be revised as necessary, using corrected data. These corrections will be documented in project records. These measures of data quality will be used to judge whether the data are acceptable for their intended use. In cases where available data do not or may not meet data quality acceptance criteria, the TL will document these findings in the inventory along with corrective actions or use of alternative data sources.

4.2. Verification and Validation Methods

As a standard operating procedure, all data (retrieved and generated) will be verified and validated through a review of data files by an independent, qualified technical staff member (i.e., someone other than the document originator), and ultimately, the Metroplan TL. Forms for documenting

QC activities and review of deliverables are included in **Appendix A**. Documentation of calculations will be included in spreadsheet work products and in supporting memoranda, as appropriate.

4.3. Reconciliation with User Requirements

All data (retrieved and generated) and deliverables in this project will be analyzed and reconciled with project data quality requirements. To ensure deliverables meet user requirements, the TL or senior technical lead will review all data and deliverables throughout the project to ensure that the data, methodologies, and tools used meet data quality objectives, are clearly conveyed, and represent sound and established science.

5. References

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Appendix A: Example QC Documentation Form

<Grantee Org.>

Documentation of QA Review and Approval of Electronic Deliverables

Approvals on this form verify that all technical and editorial reviews have been completed and the deliverable meets the criteria for scientific defensibility, technical, and editorial accuracy, and presentation clarity as outlined in the Quality Assurance (QA) Project Plan, QA Narrative, Quality Management Plan, and/or according to direction from the EPA PO.

Client:	EPA Region <X>
Grant Number:	<enter grant number>
EPA Project Officer:	<enter EPA PO>
Project Number:	<enter internal Project ID>
Project Name:	<enter internal project name>
Grantee Org. Project Manager	<enter grantee's project manager>

QA Form Details

Item Number	File Name (Copy the name of the File Reviewed)	Deliverable Description	Date Sent to Client	Deliverable (Draft)	Deliverable (Final)	Document Originator	QA Review Information (Review Type)	(Reviewer Name)	(Date Review was Performed)	(Brief Summary of Review Findings and Other Notes)	QA Review Information (Have all Findings Been Resolved)	(Originator Signature)	(Reviewer Signature)	(File Location) *Copy Long Folder Path Name*
01				☐	☐		*Technical*				☐ Yes			
							Technical				☐ Yes			
02				☐	☐		*Technical*				☐ Yes			
							Technical				☐ Yes			
03				☐	☐		*Technical*				☐ Yes			
							Technical				☐ Yes			
04				☐	☐		*Technical*				☐ Yes			
							Technical				☐ Yes			

Appendix B: Example Check Lists of Quality Control Activities for Deliverables

<table>
<tr><th>Tasks and Deliverables</th><th>Quality Control Procedures</th></tr>
<tr><td colspan="2">Task 1. Transportation Sector GHG Inventory (Mobile Sources)</td></tr>
<tr><td>Statewide tabular inventory of GHG emissions from mobile sources with narrative report describing data sources, methodology, and documentation of QAPP implementation.</td><td>1. Comparison of (a) statewide inventory versus (b) statewide inventory developed using the EPA's State Inventory Tool (SIT).
2. For any values used in state inventory inconsistent with values calculated using the SIT, the table below will be utilized to assess precision and bias of the statewide inventory versus SIT estimates:
<table><tr><th>Transportation Fuel</th><th>State Estimate</th><th>Federal Estimate</th><th>Statistics*</th></tr><tr><td>Aviation Gasoline</td><td></td><td></td><td rowspan="12"></td></tr><tr><td>Distillate Fuel</td><td></td><td></td></tr><tr><td>Ethanol</td><td></td><td></td></tr><tr><td>Jet Fuel, Kerosene</td><td></td><td></td></tr><tr><td>Jet Fuel, Naphtha</td><td></td><td></td></tr><tr><td>Hydrocarbon Gas Liquids</td><td></td><td></td></tr><tr><td>Lubricants</td><td></td><td></td></tr><tr><td>Motor Gasoline</td><td></td><td></td></tr><tr><td>Natural Gas</td><td></td><td></td></tr><tr><td>Residual Fuel</td><td></td><td></td></tr><tr><td>Other</td><td></td><td></td></tr></table>* Precision and bias calculations will be in accordance with the EPA's Data Assessment Statistical Calculator (DASC) Tool available at https://www.epa.gov/sites/default/files/2020-10/dasc_11_3_17.xls with the state's estimate taken as the measured value and the SIT value taken as the audit value.
3. Review by TL or senior technical reviewer—analytical methods and results are explained clearly, technical terms are defined, conclusions are reasonable based on information presented, and level of technical detail is appropriate.
4. Editor review—writing is clear, free of grammatical and typographical errors.</td></tr>
</table>

<table>
<tr><th>Tasks and Deliverables</th><th>Quality Control Procedures</th></tr>
<tr><td colspan="2">Task 2. Electric Power Generation and Consumption</td></tr>
<tr><td>Statewide tabular inventory of GHG emissions from electric power generation with narrative report describing data sources, methodology, and documentation of QAPP implementation.</td><td>1. Comparison of (a) statewide inventory versus (b) statewide federal estimate developed by the EPA.

2. For any values in the state inventory that are significantly different from federal estimates, the table below will be utilized to assess precision and bias of the state's estimate versus the federal estimate:

<table>
<tr><th>Electric Power Fuel</th><th>State Estimate</th><th>Federal Estimate</th><th>Statistics*</th></tr>
<tr><td>Coal</td><td></td><td></td><td rowspan="7"></td></tr>
<tr><td>Distillate Fuel</td><td></td><td></td></tr>
<tr><td>Natural Gas</td><td></td><td></td></tr>
<tr><td>Petroleum Coke</td><td></td><td></td></tr>
<tr><td>Residual Fuel</td><td></td><td></td></tr>
<tr><td>Wood</td><td></td><td></td></tr>
<tr><td>Other</td><td></td><td></td></tr>
</table>
* Precision and bias calculations will be in accordance with the EPA's Data Assessment Statistical Calculator (DASC) Tool available at https://www.epa.gov/sites/default/files/2020-10/dasc_11_3_17.xls with the state's estimate taken as the measured value and the SIT value taken as the audit value.

Ensure the GWPs used for the state estimate and the federal estimate are on the same basis. For example, the SIT tool uses AR5 GWP (e.g., methane GWP = 28).

3. Technical review of methods, calculations, and underlying datasets—data are appropriate for intended use, data are complete and representative and current, data sources documented, analytical methods are appropriate, and calculations are accurate.

4. Review by TL or senior technical reviewer—analytical methods and results are explained clearly, technical terms are defined, conclusions are reasonable based on information presented, and level of technical detail is appropriate)

5. Editor review—writing is clear, free of grammatical and typographical errors.</td></tr>
</table>

<table>
<tr><th>Tasks and Deliverables</th><th>Quality Control Procedures</th></tr>
<tr><td colspan="2">Task 3. Natural and Working Lands and Forestry</td></tr>
<tr><td>Statewide tabular inventory of GHG emissions and sinks from natural and working lands and forestry with narrative report describing data sources, methodology, and documentation of QAPP implementation.</td><td>1. Comparison of (a) statewide inventory versus (b) statewide inventory developed using the EPA’s State Inventory Tool (SIT).

2. For any values used in state inventory inconsistent with values calculated using the SIT, the table below will be utilized to assess precision and bias of the statewide inventory versus SIT estimates:

<table>
<tr><th>Natural and Working Lands and Forestry Component</th><th>State Estimate</th><th>SIT Estimate</th><th>Statistics*</th></tr>
<tr><td>Net Forest Carbon Flux</td><td></td><td></td><td rowspan="8"></td></tr>
<tr><td>Urban Trees</td><td></td><td></td></tr>
<tr><td>Landfilled Yard Trimmings Food Scraps</td><td></td><td></td></tr>
<tr><td>Forest Fires</td><td></td><td></td></tr>
<tr><td>N_2O from Settlement Soils</td><td></td><td></td></tr>
<tr><td>Agricultural Soil Carbon Flux</td><td></td><td></td></tr>
<tr><td>Other</td><td></td><td></td></tr>
</table>
* Precision and bias calculations will be in accordance with the EPA’s Data Assessment Statistical Calculator (DASC) Tool available at https://www.epa.gov/sites/default/files/2020-10/dasc_11_3_17.xls with the state’s estimate taken as the measured value and the SIT value taken as the audit value.

3. Technical review of methods, calculations, and underlying datasets—data are appropriate for intended use, data are complete and representative and current, data sources documented, analytical methods are appropriate, and calculations are accurate.

4. Review by TL or senior technical reviewer—analytical methods and results are explained clearly, technical terms are defined, conclusions are reasonable based on information presented, and level of technical detail is appropriate)

5. Editor review—writing is clear, free of grammatical and typographical errors.</td></tr>
</table>

<table>
<tr><th>Tasks and Deliverables</th><th>Quality Control Procedures</th></tr>
<tr><td colspan="2">Task 4. State Inventory of GHG Emissions from Other Major Sectors</td></tr>
<tr><td>Statewide tabular inventory of GHG emissions from the state's major industrial, sources with narrative report describing data sources, methodology, and documentation of QAPP implementation.</td><td>
1. Comparison of (a) statewide inventory versus (b) statewide inventory developed using the EPA's State Inventory Tool (SIT).
2. For any values used in state inventory inconsistent with values calculated using the SIT, the table below will be utilized to assess precision and bias of the statewide inventory versus SIT estimates:
<table>
<tr><th>Fuels and Feedstocks for Other Major Sectors</th><th>State Estimate</th><th>SIT Estimate</th><th>Statistics*</th></tr>
<tr><td>Asphalt and Road Oil</td><td></td><td></td><td rowspan="25"></td></tr>
<tr><td>Aviation Gasoline Blending Components</td><td></td><td></td></tr>
<tr><td>Coal</td><td></td><td></td></tr>
<tr><td>Coking Coal</td><td></td><td></td></tr>
<tr><td>Crude Oil</td><td></td><td></td></tr>
<tr><td>Distillate Fuel</td><td></td><td></td></tr>
<tr><td>Feedstocks, Naphtha less than 401 F</td><td></td><td></td></tr>
<tr><td>Feedstocks, Other Oils greater than 401 F</td><td></td><td></td></tr>
<tr><td>Hydrocarbon Gas Liquids</td><td></td><td></td></tr>
<tr><td>Kerosene</td><td></td><td></td></tr>
<tr><td>Lubricants</td><td></td><td></td></tr>
<tr><td>Misc. Petro Products</td><td></td><td></td></tr>
<tr><td>Motor Gasoline</td><td></td><td></td></tr>
<tr><td>Motor Gasoline Blending Components</td><td></td><td></td></tr>
<tr><td>Natural Gas</td><td></td><td></td></tr>
<tr><td>Pentanes Plus</td><td></td><td></td></tr>
<tr><td>Petroleum Coke</td><td></td><td></td></tr>
<tr><td>Residual Fuel</td><td></td><td></td></tr>
<tr><td>Special Naphtha</td><td></td><td></td></tr>
<tr><td>Still Gas</td><td></td><td></td></tr>
<tr><td>Unfinished Oils</td><td></td><td></td></tr>
<tr><td>Waxes</td><td></td><td></td></tr>
<tr><td>Wood</td><td></td><td></td></tr>
<tr><td>Other</td><td></td><td></td></tr>
</table>
* Precision and bias calculations will be in accordance with the EPA's Data Assessment Statistical Calculator (DASC) Tool available at https://www.epa.gov/sites/default/files/2020-10/dasc_11_3_17.xls with the state's estimate taken as the measured value and the SIT value taken as the audit value.
3. Technical review of methods, calculations, and underlying datasets—data are appropriate for intended use, data are complete and representative and current, data sources documented, analytical methods are appropriate, and calculations are accurate.
4. Review by TL or senior technical reviewer—analytical methods and results are explained clearly, technical terms are defined, conclusions are reasonable based on information presented, and level of detail appropriate.
5. Editor review: writing is clear, free of grammatical and typographical errors.
</td></tr>
</table>

<table>
<tr><th>Tasks and Deliverables</th><th>Quality Control Procedures</th></tr>
<tr><td colspan="2">Task 5. State Inventory of GHG Emissions from Minor Sectors</td></tr>
<tr><td>Statewide tabular inventory of GHG emissions from the state's minor sectors with narrative report describing data sources, methodology, and documentation of QAPP implementation.</td><td>1. Comparison of (a) statewide inventory versus (b) statewide inventory developed using the EPA's State Inventory Tool (SIT).
2. For any values used in state inventory inconsistent with values calculated using the SIT, the table below will be utilized to assess precision and bias of the statewide inventory for minor sectors versus SIT estimates:
<table>
<tr><th>Fuels and Feedstocks for Other Major Sectors</th><th>State Estimate</th><th>SIT Estimate</th><th>Statistics*</th></tr>
<tr><td>Asphalt and Road Oil</td><td></td><td></td><td rowspan="24"></td></tr>
<tr><td>Aviation Gasoline Blending Components</td><td></td><td></td></tr>
<tr><td>Coal</td><td></td><td></td></tr>
<tr><td>Coking Coal</td><td></td><td></td></tr>
<tr><td>Crude Oil</td><td></td><td></td></tr>
<tr><td>Distillate Fuel</td><td></td><td></td></tr>
<tr><td>Feedstocks, Naphtha less than 401 F</td><td></td><td></td></tr>
<tr><td>Feedstocks, Other Oils greater than 401 F</td><td></td><td></td></tr>
<tr><td>Hydrocarbon Gas Liquids</td><td></td><td></td></tr>
<tr><td>Kerosene</td><td></td><td></td></tr>
<tr><td>Lubricants</td><td></td><td></td></tr>
<tr><td>Misc. Petro Products</td><td></td><td></td></tr>
<tr><td>Motor Gasoline</td><td></td><td></td></tr>
<tr><td>Motor Gasoline Blending Components</td><td></td><td></td></tr>
<tr><td>Natural Gas</td><td></td><td></td></tr>
<tr><td>Pentanes Plus</td><td></td><td></td></tr>
<tr><td>Petroleum Coke</td><td></td><td></td></tr>
<tr><td>Residual Fuel</td><td></td><td></td></tr>
<tr><td>Special Naphtha</td><td></td><td></td></tr>
<tr><td>Still Gas</td><td></td><td></td></tr>
<tr><td>Unfinished Oils</td><td></td><td></td></tr>
<tr><td>Waxes</td><td></td><td></td></tr>
<tr><td>Wood</td><td></td><td></td></tr>
<tr><td>Other</td><td></td><td></td></tr>
</table>
* Precision and bias calculations will be in accordance with the EPA's Data Assessment Statistical Calculator (DASC) Tool available at https://www.epa.gov/sites/default/files/2020-10/dasc_11_3_17.xls with the state's estimate taken as the measured value and the SIT value taken as the audit value.
3. Technical review of methods, calculations, and underlying datasets—data are appropriate for intended use, data are complete and representative and current, data sources documented, analytical methods are appropriate, and calculations are accurate.
4. Review by TL or senior technical reviewer—analytical methods and results are explained clearly, technical terms are defined, conclusions are reasonable based on information presented, and level of detail appropriate.
5. Editor review: writing is clear, free of grammatical and typographical errors.</td></tr>
</table>

Appendix C: Compliance with Requirements Under the Privacy Act of 1974

Note about Personally Identifiable Information (PII)

The Privacy Act of 1974 (5 U.S.C. § 552a) mandates how federal agencies maintain records about individuals. Per OMB Circular A-130, Personally Identifiable Information (PII) is "information that can be used to distinguish or trace an individual's identity, either alone or when combined with other information that is linked or linkable to a specific individual."

EPA systems/applications that collect PII must comply with EPA's Privacy Policy and procedures to guard against unauthorized disclosure or misuse of PII in all forms. For more information click here. If PII are collected, then the QAPP will describe how the PII are managed and controlled.

Personally identifiable information (PII):

Please verify one of the following two options by checking the corresponding box:

1. This project **will not** collect Personally Identifiable Information (PII): ☒
2. This project **will** collect Personally Identifiable Information (PII): ☐

This QAPP will comply with 5 U.S.C. § 552a and EPA's Privacy Policy.

Appendix C

Available upon Request

Promoting Active Transportation by Investing in Green Corridors

Central Arkansas
Energy and Environment Innovation

Concept Paper
July 2025

METROPLAN

Prepared by the Great Plains Institute for Metroplan

Appendix D

Available upon Request

Increase Energy Savings, Independence, and Resilience by Investing in Local Energy Resources

Central Arkansas
Energy and Environment Innovation

Concept Paper
July 2025

METROPLAN

Prepared by the Great Plains Institute for Metroplan

Appendix E

Available upon Request

Improving Local Air and Water Quality by Investing in Recycling and Waste Reduction

Central Arkansas
Energy and Environment Innovation

Concept Paper
July 2025

METROPLAN

Prepared by the Great Plains Institute for Metroplan

Appendix F

Available upon Request

Revitalizing Communities through Infill Development

Central Arkansas
Energy and Environment Innovation

Concept Paper
July 2025

METROPLAN

Prepared by the Great Plains Institute for Metroplan

Appendix G

Available upon Request

Regional Electric Vehicle Charging Access: Investing in Clean Transportation

Central Arkansas
Energy and Environment Innovation

Concept Paper
July 2025

METROPLAN

Prepared by Metroplan

Appendix H

The Energy and Environment Innovation Comprehensive Plan Synopsis was adopted by the Metroplan Board on July 23, 2025. For more information, please visit metroplan.org.

METROPLAN
SMART PLANNING MAKES SMART PLACES.

RESOLUTION 25-14
A RESOLUTION APPROVING THE CENTRAL ARKANSAS ENERGY AND ENVIRONMENT INNOVATION COMPREHENSIVE ACTION PLAN EPA CLIMATE POLLUTION REDUCTION GRANT (CPRG)

WHEREAS, Metroplan is the officially designated metropolitan planning organization (MPO) for the Little Rock-North Little Rock-Conway metropolitan statistical transportation management area; and

WHEREAS, the Arkansas Department of Energy and Environment's Division of Environmental Quality (DEQ) received a $3 million action planning grant from the Environmental Protection Agency through the federal Climate Pollution Reduction Grant (CPRG) Program; and

WHEREAS, DEQ suballocated $440,000 over four (4) years to Metroplan to perform regional CPRG action planning for the Little Rock-North Little Rock-Conway Metropolitan Statistical Area (Resolution 23-10); and

WHEREAS, Metroplan has completed the consultant-led Central Arkansas Energy and Environment Innovation Comprehensive Action Plan, which targets five (5) regional air pollution reduction/sequestration measures developed through consultation with expert stakeholder, Board members, and public outreach across Central Arkansas; and

WHEREAS, the Metroplan Board of Directors supports the Metroplan's partnership with DEQ and the five (5) identified measures for reducing greenhouse gas emissions and other harmful air pollution; and

WHEREAS, Metroplan's Memorandum of Understanding with DEQ indicates a due date of August 1, 2025 for the Central Arkansas Supplement to the state's Comprehensive Action Plan.

NOW, THEREFORE, BE IT RESOLVED, that the Metroplan Board of Directors, the Policy Committee of the MPO, hereby approves the Central Arkansas Energy and Environment Innovation Comprehensive Action Plan and the strategies and potential projects identified therein.

Duly recorded this 23rd day of July 2025.

SIGNED: _____
Allen Dodson, President
Judge, Faulkner County

ATTEST: _____
Matt Brumley, Secretary
Judge, Saline County