KC Regional

MARC
MID-AMERICA REGIONAL COUNCIL

PRIORITY CLIMATE ACTION PLAN

A Prioritized Plan for the People in the Heart of America

Contents

Definitions & Acronyms

Acronym or Abbreviations	Definitions
BAA	Buy America Act
BE-Ex	Building Energy Exchange KC, an initiative of Climate Action KC
BTG	Bridging The Gap
CAKC	Climate Action KC
CBO	Community Based Organization
CCAP	Comprehensive Climate Action Plan
CEC	Climate and Environment Council
CPRG	Climate Pollution Reduction Grant
EPA	Environmental Protection Agency
EV	Electric Vehicle(s)
GHG	Greenhouse Gases
GI	Green infrastructure
LIDAC	Low Income Disadvantaged Communities
MARC	Mid-America Regional Council
MEC	Metropolitan Energy Council
$MTCO_2e$	Metric Tons of Carbon Dioxide Equivalent
PCAP	Priority Climate Action Plan
RCAP/CAP	Regional Climate Action Plan (2021)

Acknowledgment

Our heartfelt thanks go to everyone who shared time, talent, and experience throughout the PCAP planning process. Hundreds of local residents, experts and local government officials participated in workshops, and we received more than 100 project submissions that demonstrate abundant opportunity to implement climate action measures in the next five years. Those ideas provide the foundation for this plan's measures.

Public comments submitted through the form by February 27, 2024 were used to inform the final development of measures in this plan. The PCAP was submitted to the EPA on **March 1, 2024**.

The public was allowed to submit comments through our online form: https://form.jotform.com/240426642971155

Priority Climate Action Plan workshop. Photo courtesy of MARC.

Executive Summary

Crafted by community, the Priority Climate Action Plan (PCAP) prioritizes a set of actions included in the Kansas City Regional Climate Action Plan that was adopted in 2021. That initial plan was produced in partnership with Climate Action KC, whose network of 150 elected officials and hundreds of community stakeholders galvanized community support for the plan. Strong local leadership, combined with deep community engagement and science-based analysis, underlie the strength and impact of climate planning and action in the Kansas City region.

Measures in the PCAP are arrayed across five action areas: building energy efficiency and renewable energy investments; transportation alternatives and technologies; urban greening; agriculture, food and waste systems innovation; and cross-sector measures that help build capacity for action across all project areas. Priority measures were determined based on the original plan, alongside extensive community engagement from September 2023 to February 2024 and analysis of applicable criteria. The measures in this document are organized into each of the five action areas above. Priorities are expected to guide regional and local action during the coming five years.

Through workshops, one-on-one meetings, coalition building and a call for projects, MARC engaged residents from low-income and disadvantaged communities (LIDAC), community benefit organizations, technical experts and local governments in identification of needs, priorities as well as development of measures, programs and projects to achieve climate resilience in the region. Programs and projects proposed during the engagement process are reflected in Appendix 2.

Plan formulation was guided by the MARC Climate and Environmental Council (CEC) and the MARC Board of Directors. The approach will be expanded upon during the development of a Comprehensive Climate Action Plan (CCAP) in the coming year. Importantly, the CCAP creates an opportunity to update the regional greenhouse gas (GHG) inventory, using 2022 data compared to the original 2015 data.

Three primary goals frame the measures included in the PCAP: leveraging public leadership, neighborhood resilience and critical infrastructure resilience. Each goal contributes to the transformative potential of this plan in different ways. MARC programs will support the interconnected implementation of measures—empowering municipalities, neighborhoods and individuals to take action. These actions can lead to systems-level changes, strengthening the vitality and connectivity of neighborhoods and activity centers, and contributing to a circular economy while reducing GHG emissions across the region.

Fire station rooftop solar panels
Photo courtesy of Westside Housing Organization.

Building Energy Efficiency & Renewable Energy Investments

Measure BE-1: Build resilience in LIDAC communities by investing in resilience hubs

Measure BE-2: Reduce energy burden by investing in quality housing

Measure BE-3: Achieve regional energy savings by investing in high-performance public, nonprofit and commercial buildings and schools

Measure BE-4: Deploy renewable energy solutions to reduce grid and cost burden

Transportation Alternatives & Technologies

Measure T-1: Connect resilient neighborhoods and activity centers with green corridors and active transportation

Measure T-2: Connect resilient neighborhoods by expanding and linking trails and separated bikeways

Measure T-3: Enhance low-carbon mobility by Investing in shared electric bike infrastructure and expand the use of electric bikes

Measure T-4: Reduce emissions by expanding the network of publicly-available electric vehicle charging infrastructure to fill network gaps and provide access to underserved communities

Measure T-5: Transition public transit and municipal fleets to zero- and low-emissions technology

Measure T-6: Reduce the need for travel through sustainable land use and development

Urban Greening

Measure UG-1: Increase and maintain tree canopy along green corridors and within neighborhoods to address urban heat islands, conserve energy and protect public health

Measure UG-2: Sequester carbon through the conservation and restoration of riparian and natural areas and through green stormwater infrastructure

Measure UG-3: Adopt stormwater standards and related policies to enhance land stewardship and sequester carbon

Measure UG-4: Leverage regional design and engineering talent to build civic capacity

Agriculture, Food & Waste System Innovation

Measure FA-1: Invest in innovation and entrepreneurship to build capacity of Kansas City regional food system stakeholders

Measure FA-2: Build resilience in LIDAC communities by investing in at least 10 applied regenerative agriculture facilities

Measure FA-3: Increase residential composting and diversion to local livestock

Measure FA-4: Reduce food waste at schools, food service, grocery, distribution, and commercial facilities

Cross-Sector Measures

Measure CS-1: Advance public policy and build collaborative partnerships

Measure CS-2: Develop an equitable green workforce

Measure CS-3: Empower individuals to reduce GHG emissions through action

Measure CS-4: Create multi-faceted professional and community training program to accelerate implementation of measures

Measure CS-5: Develop a co-creation based model to support capacity building, shared leadership and project monitoring and evaluation

Measure CS-6: Kansas City Climate and Environment Education Project

Introduction

This Priority Climate Action Plan (PCAP) builds on the 2021 Kansas City Regional Climate Action Plan and years of prior work setting the stage for climate action. The PCAP outlines a set of priority measures to make substantive reductions in emissions across multiple sectors. The measures included in this plan reflect necessary actions articulated by community members and organizations across the region. Priority measures address the intersection of community need, existing momentum and impact.

Three primary goals create a framework to organize measures included in the PCAP. Each contributes to the transformative potential of this plan in different ways:

1. **Leveraging public leadership:** Investment in public and community leadership creates the potential to build civic capacity to deliver climate action over the long term. With support from Climate Action KC, 19 local governments representing 83% of the region's population have taken formal action to embrace the Kansas City Regional Climate Action Plan since its adoption in March 2021.

   Since that time, plan implementation has proceeded through regional and local policies, plans and investments. As a next implementation step, local governments proposed a variety of projects for the PCAP, including community facility and fleet improvements, electric vehicle charging stations, electric bicycles and cycling facilities, urban forestry, green stormwater infrastructure and more. Grant resource allocation will enable local governments to reduce greenhouse gas emissions, address environmental justice and create new opportunities to lead by example. Leveraging federal dollars with private investment through public-private partnerships will play a catalytic role in advancing implementation of PCAP programs and projects.

2. **Neighborhood resilience:** Community and stakeholder input in 2023 focused primarily on neighborhood resilience through investments in resilience hubs (e.g. community centers, libraries, schools and health centers that can serve as a central point for gathering and sharing information and provide access to emergency resources) and energy efficiency improvements in low-income single and multi-family residential units.

   Building improvements will be complemented by neighborhood-scale, nature-based solutions to relieve urban heat islands, improve walkability, conserve air and water quality, strengthen alternative transportation and technology investments, advance regenerative agriculture and reduce food waste. Community-led resilience efforts will boost the capacity of community organizations to effect change and advance neighborhood priorities over the long term.

3. **Critical infrastructure resilience:** Multiple proposed investments create opportunities to strengthen the sustainability and resilience of regional infrastructure systems related to solid waste, transportation, clean energy, water resource management and regional food production. These include green on- and off-road transportation corridors, restored streamway/riparian corridors, district-scale clean power, applied regenerative agriculture facilities and regional composting facilities.

Climate Action Summit 2019
Photo courtesy of MARC

In addition to delivering a slate of impactful measures, the PCAP seeks to facilitate transformational change by building the neighborhood, civic and institutional capacity to embed climate action and sustainability in community decision-making. Several cross-sector elements will facilitate transformational, enduring outcomes, including:

- Building local capacity and leadership through the co-creation of high-quality professional development, technical assistance, outreach and applied learning, and performance measurement and program evaluation
- Regional climate communications
- Workforce development
- Cooperative procurement
- Local and regional policy development
- MARC project management and administration

CPRG Overview

In 2023, the EPA's Climate Pollution Reduction Grants (CPRG) program provided $5 billion in grants to states, local governments, tribes and territories to develop and implement ambitious plans for reducing greenhouse gas emissions and other harmful air pollution. Authorized under Section 60114 of the Inflation Reduction Act, this two-phase program provided $250 million for noncompetitive planning grants and will provide approximately $4.6 billion for competitive implementation grants. MARC, as lead agency and grantee for the bi-state Kansas City metro area, received $1 million to complete Phase 1 of the CPRG program. In this phase, MARC must produce and submit to the EPA a Priority Climate Action Plan (due March 1, 2024) and a Comprehensive Climate Action Plan (due Aug. 1, 2025).

Development Approach

The PCAP is intended to inspire and support community-led action toward implementation of regional climate action plan goals. Community engagement is at the heart of this plan and it was designed to build leadership and mobilize and unite residents, community-based organizations and local governments across the region in the planning, design and implementation of actions that advance climate resilience in our region.

MARC conducted broad outreach to local governments and stakeholders in LIDAC communities and across the region to announce opportunities to participate in the PCAP development. Community outreach included promoted and organic social media posts, newsletters, blog posts, formal letters to all municipalities and transit providers in the region, and a targeted email campaign to community-based organizations and neighborhoods. Throughout the process, plan development was guided by the MARC Climate and Environment Council and MARC's Board of Directors.

The measures in this plan were developed directly from the needs, ideas and priorities community members shared at engagement events or submitted through the project portal. Measures developed for the PCAP were vetted by the community in a workshop setting to ensure they represent the right set of investments for our region. The criteria to prioritize measures for inclusion in the PCAP included the following:

- Greenhouse gas emissions reductions
- Cost effectiveness and return on investment
- Community benefits, especially for LIDAC communities
- Transformative impact
- Sustainability and air quality co-benefits
- Ability to be replicated or adapted to scale
- Innovation

MARC coordinated with both Kansas and Missouri state CPRG programs throughout the PCAP planning process to coordinate engagement of communities in our region and to identify opportunities for collaboration on implementation of similar measures. A review of authority assessment was conducted to ensure measures could be implemented in the first five years of plan implementation.

MARC referenced the regional climate plan's GHG inventory to establish a baseline for evaluation of PCAP measures. To analyze the emissions-reducing potential for each one, MARC established quantitative goals and worked with technical consultants Climate View and Sustainable Solutions Group to co-develop a custom model to evaluate the impact of each.

PCAP Scope and Required Elements

The Priority Climate Action Plan is a narrative report that includes a list of the highest-priority, shovel-ready measures for reducing greenhouse gas emissions in the Kansas City region. The PCAP does not need to capture all sources of GHG emissions in all sectors, but must include the following elements:

- A GHG inventory
- Measures with quantified GHG reductions
- A low-income and disadvantaged communities (LIDAC) benefit analysis for the full population and geographic area covered by the plan
- A review of authority to implement the measures included in the plan

The PCAP is a pre-requisite for competing in Phase 2 of the CPRG program, which will competitively award $4.6 billion in funding for implementation. Programs and projects included in an application seeking implementation grant funding must be included in a PCAP (either a state-wide or Metropolitan Statistical Area's PCAP). Implementation grant applications may be submitted by entities that were not the lead agency in developing and submitting the PCAP but should coordinate with the lead agency to ensure that their priority projects and programs are covered by the relevant local and/or state PCAPs.

The PCAP represents the highest priorities for near-term GHG emission reductions and is intended to guide the Phase 2 implementation grant application. It is not meant to reflect all sectors and strategies that could reduce GHG emissions in the region, nor does it suggest that additional strategies are unimportant. The PCAP is a precursor and subset of the Comprehensive Climate Action Plan, an update of the Kansas City Regional Climate Action Plan that will be developed through an expanded outreach and engagement process in 2024 and 2025.

Smithville Lake
Photo courtesy of Laura Gilchrist

Stakeholder Engagement

On Sept. 7 and Sept. 8, MARC worked with consultant PRE Collective to design and conduct two half-day workshops that engaged residents from LIDAC communities, community benefit organizations, technical experts and local governments in identification of needs and priorities that could be addressed and implemented through climate resilience and mitigation. Through small working groups, participants developed several promising concepts that led to prioritized focus areas for climate action: high-performance buildings and renewable energy, transportation alternatives and technology, green infrastructure, and food and agriculture system innovation — bringing together high-value GHG emission reduction targets with environmental justice and long-term resilience benefits.

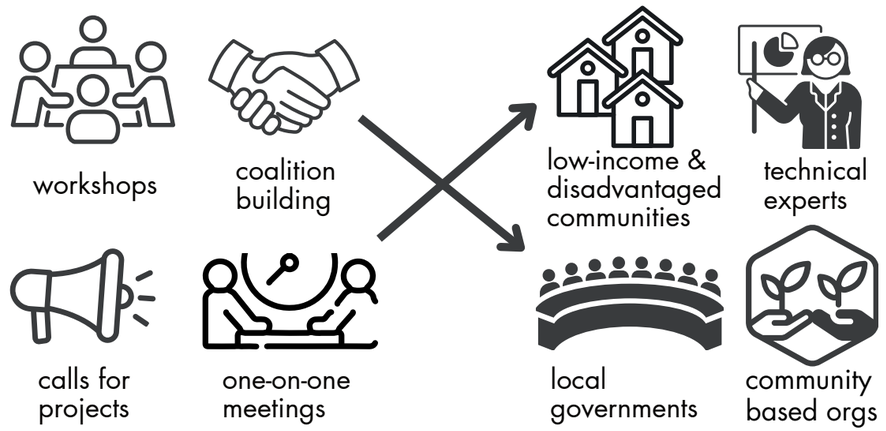
On Oct. 25, MARC opened a portal for project submissions from local governments and community partners. The portal remained open through Dec. 15, 2023. From Nov. 9 through Nov. 13, MARC held coalition meetings with workshop participants to refine shovel-ready project and program ideas to achieve emissions reductions in priority action areas. MARC held one-on-one meetings with organizations and local governments throughout November to identify plans, programs and projects that could be implemented within the next five years. Local government officials met in workshops on Nov. 20 and Nov. 21 to share priorities and collaborate on the development of common measures.

Combining community comments from all engagement events, the MARC climate team drafted a set of priority climate action measures for community review on Dec. 1.

Participants evaluated measures for transformative regional impact on our economy, inclusive economic prosperity, energy savings and carbon emissions reduction potential. Participants discussed implementation and partnerships for potential programs and projects, and how investments might be measured, leveraged and sustained. The MARC Climate and Environment Council, jointly supported by MARC and Climate Action KC, has met throughout the process to guide plan development. The CEC is an action-oriented policy committee that guides the implementation of the Kansas City Regional Climate Action Plan.

The council met on Oct. 27 to review outcomes of community meetings and on Dec. 20 to advise on the development of PCAP measures. In January, the CEC formed a CPRG subcommittee, which met on Jan. 19 to review project submissions and determine a set of specific criteria to evaluate projects for transformative impact in environmental justice communities and across the region. A draft set of PCAP measures was presented to the MARC Board of Directors on Jan. 23.

The CPRG subcommittee reviewed and approved the draft plan on Feb. 6. The plan was published for public comment from Feb. 13 to Feb. 27, and MARC hosted two webinars focused on reviewing the PCAP during this period. MARC staff addressed public comments and presented a final draft to the MARC Board of Directors on Feb. 27 prior to submission to the EPA.



GHG Inventory

MARC completed a regional GHG inventory in 2020 that included the nine MARC counties plus Douglas County, Kansas. The inventory represents the best estimate of regional GHG emissions, helping planners identify opportunities for GHG reduction. The inventory process followed the carbon accounting and reporting standard used by the Global Covenant of Mayors, which is based on the ICLEI Greenhouse Gas Protocol.

The GHG inventory published in 2020 using 2015 data represented the first regional inventory for the Kansas City metropolitan area. Though the inventory was not comprehensive for all GHG sectors, it focused heavily on diligently quantifying emissions from the three sectors considered the greatest sources of emissions: grid distribution of power, on-road transportation and building emissions.

In addition, quantifications from the waste management and wastewater treatment sectors, despite their smaller contributions, were obtained because there is ongoing regional action in these sectors producing readily available data. An update to the inventory, beginning in 2024, will include all sectors in the protocol and will inform the mitigation strategies in the Comprehensive Climate Action Plan.

Grid-Distributed Energy

The inventory of this sector included data from electric utilities (Evergy, IP&L, KCBPU, City of Gardner and several electric co-ops). Data collected from utility partners could only be divided between residential and non-residential use. Non-residential combined commercial, institutional, public, manufacturing and industrial buildings. However, greater interest in GHG tracking and reporting is expected to de-aggregate the non-residential end users for 2022, informing the development of the new CCAP and updated inventory beginning in 2024.

Transportation

The existing GHG inventory of the transportation sector is limited to on-road contributions, including passenger vehicles, freight trucks and public transit. Railroads, off-road/construction and non-vehicular airport-based emissions were not assessed for this inventory. Waterway port emissions are also typically included within a GHG inventory. However, the water port, being re-established in the Kansas City area, received its first barge traffic in August 2015. Therefore, while the emissions associated with the port do not contribute a prominent source of GHG for the baseline inventory, this element of the transportation sector will require monitoring as traffic expands.

Buildings

Natural gas and steam providers (Spire Energy, Kansas Gas Service, ONE Gas), Atmos Energy and Veolia (now Vicinity) provided delivery data to residential and non-residential customers in the same categorization used by power providers. Emissions associated with combustion of natural gas were ascribed to building GHG releases following their categorization as Scope 1 (on-location combustion) emissions.

Solid Waste and Wastewater

The solid waste GHG inventory was based on the tons of waste sent to in- and out-of-region landfills. Regional landfills are required to regularly report information to the states on the volume of solid waste processed and the composition of the mixture of materials, as well as the location of its final disposition. This data provided a high-quality picture of the greenhouse gases generated by the sector.

Wastewater GHG estimates were found based on a combination of reported volumes from some treatment plants (and water treatment volumes for unreported facilities using population-based estimates) using specific treatment methods reported by plants.

What is CO_2e?

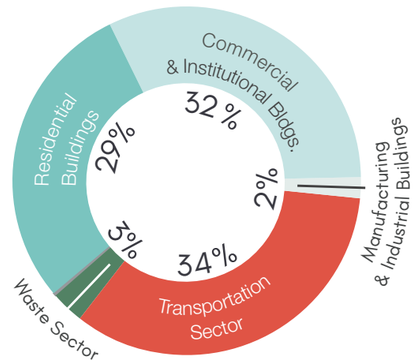
Not all greenhouse gases (carbon dioxide, methane, nitrous oxide, water vapor and fluorinated gases) have the same global warming potential. For instance, nitrous oxide has a global warming potential 273 times that of CO_2 for a 100-year timescale. (Environmental Protection Agency, 2023)

However, carbon dioxide (CO_2) is the most prevalent greenhouse gas. So for the ease of measuring total greenhouse gases, CO_2 equivalent (CO_2e) is used. For any quantity and type of greenhouse gas, CO_2e signifies the amount of CO_2 which would have the equivalent global warming potential.

Emissions Baseline

An emission baseline is a reference point against which we can measure change. The MARC climate action team originally focused on developing a plan that was at least compatible with the Paris Agreement — meaning that the regional climate action plan would strive to meet a target of 80% GHG reduction from 2005 levels. While the team knew that regional activity data for each sector in 2005 would likely be fragmented and imprecise, we sought to find the first, best year that provided data clarity and confidence. Upon examination of the data, it was determined that 2015 would be the baseline, and data from that year would be back-casted, based on population change, to come up with the 2005 reference point. Future inventories will use a baseline year that captures the most recent, complete data for all sectors in support of a net-zero target.

GHG Inventory Results by Sector



Inventory Results

Stationary Energy

GHG emissions associated with stationary energy use are estimated to be 18,862,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year, representing nearly two-thirds of the regional GHG contribution. Driven by the fuel mix used to provide this power and regional energy demand, successful reduction in these emissions will require a combination of ongoing investment in renewable/sustainable energy and improvements in the energy efficiency of buildings. Direct combustion of coal for district heating only results in about 249,000 $MTCO_2e$/yr and natural gas emits 4,638,000 $MTCO_2e$/yr of GHG.

In these dedicated utilities, fuel switching opportunities are limited. However, grid-based electrical power use accounts for most of the energy provided to the region with an equally large level of 13,348,000 $MTCO_2e$/yr in emissions. Between 2005 and 2015, Evergy, the regional electric utility, has heavily invested in renewable power. Successful reduction in regional GHG will rely heavily on implementation of their Sustainable Transformation Plan. In addition, during this 10-year period, all utilities have undertaken infrastructure maintenance and replacement programs to minimize leakage and transmission losses associated with distribution of power and natural gas.

When considering the demand for energy, it becomes more useful to review the stationary energy emissions by end-user sectors, e.g. buildings. Review of the inventory shows that emissions related to commercial and institutional facilities are estimated to be 9,665,000 $MTCO_2e$/yr, slightly higher than the 8,723,000 $MTCO_2e$/yr for residential buildings.

Stationary Energy (cont.)

Emissions resulting from manufacturing and construction processes are difficult to ascertain with accuracy because reporting from electrical utilities combines this power use with the overall facilities and environmental controls. However, partial quantification of the emissions derived from natural gas supporting these activities indicates an initial level of about 464,000 $MTCO_2e$ per year.

Adoption of 2012 energy codes for new building construction, promotion of Energy Star appliances, use of more efficient lighting technology and weatherization programs supported between 2010 and 2015 all contributed to a reduction in GHG emissions in the Kansas City region between 2005 and 2015.

However, significant opportunities continue to exist for energy efficiency, particularly with improvement of the building envelope (insulation, windows and excess leaks/ventilation). Improvement of residential structures offers a greater benefit than commercial structures, but they are widely understood to be more difficult to achieve.

Similarly, bringing existing out-of-date structures up to code provides a greater relative reduction than an incremental improvement associated with implementing a tighter energy standard on new construction. Updating or retrofitting existing building stock is often much more challenging due to policy constraints, community support, funding and enforcement.

Transportation

On-road transportation produced just over one-third of the region's GHG emissions at 10,159,000 $MTCO_2e$/yr. National fuel efficiency standards for passenger vehicles and heavy-duty trucks improved dramatically between 2005 and 2015 with improvements accelerating after 2007. Continued reduction in transportation emissions will require both improvement in vehicle technology, fuel switching, sustainable land use and behavior change. In the near- to mid-term, research and innovation into battery capacity, advanced engine design and other fuel efficiency refinements represent a critical part of reducing transportation emissions. However, fuel efficiency efforts will wane over time and switching to clean, renewable fuel will become much more important. Commitments to low-carbon urban design, public transit investment and carpooling, as well as shifting away from motorized transportation represent a small but resilient strategy for decreasing emissions. By 2050, changing transportation behavior and design could account for over 25% of ongoing emissions reduction.

Waste

GHG emissions due to solid waste disposal in 2015 are estimated at 886,000 $MTCO_2e$/yr. In 2008, the regional solid waste district embraced a goal to achieve 80% waste diversion by 2023 using stepwise goals of 40%, 60% and 80% with a stretch goal of zero waste by 2028. While ambitious, the region has taken strong, positive strides in this direction between 2008 and 2015. Continued efforts to divert paper and plastic, and expansion of compost collection are being made in concert with the development of innovative businesses, which utilize recycled products and provide compost as feedstock.

Business-as-Usual Projections

A business-as-usual (BAU) projection uses locally specific parameters like population growth or gross domestic product (GDP) growth projections to model future emissions in the planning area. A BAU projection allows us to see what will happen to GHG emissions in the region if we do not act. Based on this projection, GHG emissions are estimated to increase by 28% from the 2005 base year to 37 million $MTCO_2e$ by 2050 if no actions are taken. These projections are based on current population and transportation emissions forecasts for the MARC region.

Emissions Reduction Target – Net Zero by 2050

Meeting a "net zero by 2050" target means that the region will need to reduce this projected 37 million $MTCO_2e$ through reduced emissions and the drawing down of greenhouse gases already in the atmosphere through natural sequestration or technology.

More information on the inventory can be found in the 2020 Greenhouse Gas Inventory report.

Bike lanes on Grand Boulevard, Downtown KC
Photo courtesy of BikeWalkKC

Priority Action Areas

Building Energy Efficiency & Renewable Energy Investment

Resilience in low-income and disadvantaged communities (LIDAC), reduced energy burden and costs

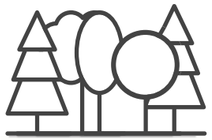
Transportation Alternatives & Technology

Connectivity between resilient neighborhoods and activity centers with expanded low- or no-carbon options

Agriculture, Food & Waste Systems Innovation

Resilience in LIDAC communities through regenerative agriculture infrastructure, expanded food production, carbon sequestration and food waste and landfill mitigation

Urban Greening



Address financial and health costs of urban heat islands and stormwater runoff, with increased civic capacity and conservation of natural areas

Cross-Sector Measures

Advance public policy and collaborative partnerships through zoning, codes and best practice policies

Building Energy Efficiency & Renewable Energy Investments

An array of housing units, commercial and industrial structures, community centers and schools make our communities vibrant and livable. This robust built environment comes at a cost, however, generating 63% of our region's GHG emissions. Basic energy conservation measures like efficient windows, insulation, lighting and heating/cooling will cut back on emissions from energy usage. A more holistic, whole-building approach that evaluates broader building systems, facilities and how they interact with the grid can lead to deeper savings.

A healthy and diverse local clean energy economy reduces the burden on the grid. Clean energy is a key driver of economic development, fostering job growth, project investments and significant tax revenue to the benefit of local communities. The Kansas City area is well-positioned for renewable energy production, with access to enough wind and solar resources to replace the use of fossil fuels. A clean energy transition will require a more diverse, distributed, flexible and technology-forward system. Local governments can establish policies and processes that foster energy generation and storage.

Measure BE-1

Build resilience in LIDAC communities by investing in resilience hubs

Work with established community-managed facilities and partners to co-develop a program investing in community anchor buildings, or resilience hubs, that provide shelter and power access during times of severe weather and serve as outreach centers for neighborhood resilience-building. Resilience hubs will provide neighborhood-based, capacity-building infrastructure for community-led implementation of all PCAP measures and existing neighborhood plans. Each community anchor building will host various public educational programming and resources to facilitate climate action.

Hub components and programs will be designed to meet the needs and priorities of surrounding neighborhoods and could include education on home retrofits, renewable energy, green infrastructure, sustainable food production and access, health programs, makers spaces and repair cafes, neighborhood-based programs, outdoor public gathering spaces and connections to sustainable transportation.

Each facility will be designed to offer refuge and/or resources to residents during extreme weather disruptions and energy outages. Buildings will be supported with alternative and/or backup energy sources. Deep energy retrofits provided for all resilience hubs could include but are not limited to energy efficiency upgrades, solar installations and battery storage, electric vehicle and bikeshare infrastructure, gardens and orchards, and community food storage and distribution.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- Resilience Hubs: 3,377 $MTCO_2e$

Implementing agencies/partners:

Implementation partners may include public, private or nonprofit organizations such as local governments, federally-qualified health centers, library systems, churches, farms, schools, senior and childcare centers, universities, colleges and community colleges. For example, potential hubs have been identified by such organizations as the cities of Overland Park and Prairie Village, Kansas; the cities of Kansas City and Grandview, Missouri; Civic Saint; Hispanic Economic Development Corporation; Kansas City Public Library; The Resilient Activist; University of Missouri - Kansas City; Urban Neighborhood Initiative; Re.Use.Full; and YMCA of Platte County.

Lead implementing authority: MARC, along with building owners, local governments and others

Other implementing organizations with authority: Nonprofit building owners in collaboration with associated community members and stakeholders

Other partners: Climate Action KC/Building Energy Exchange KC, Metropolitan Energy Center, Bridging The Gap, UMKC, local governments

Implementation schedule and milestones:

Create an advisory board to develop specific criteria for hub selection and, through an application process, identify resiliency hub sites within LIDAC neighborhoods in the region. Site selection criteria will include meaningful neighborhood support and engagement in the project. In addition to building performance measures, hub applicants also are encouraged to incorporate complementary measures such as urban agriculture, green infrastructure, electric vehicle charging, bicycle infrastructure and building retrofit programming within or near the hub. Coordinate criteria development and selection with the Renew America's Nonprofits grant (received in 2023; funded by the Department of Energy) implementation and utilize this additional funding to support nonprofit buildings that could accommodate resilient strategies.

Once selected, conduct an energy audit analysis with hub building owners to determine energy conservation measures and solar capacity. Engage with a design team to incorporate measures into an energy model and evaluate building performance against extreme weather conditions. Create a streamlined procurement process for hub retrofit work exploring bulk procurement strategies for labor and materials. Leverage this opportunity to increase the skilled workforce and strengthen the ability of DBE/MBE firms to serve the energy conservation market. Once completed, conduct post-occupancy energy commissions to optimize systems where needed. Work with hub building owners to incorporate severe weather programming and outreach for supporting nearby vulnerable populations.

Funding sources: EPA CPRG Implementation Grant, EPA Community Change Grant, utility incentives and subsidies, Greenhouse Gas Reduction Funds, Department of Energy, local philanthropic organizations

Metrics for tracking progress: Number of facilities reaching net-zero energy usage, GHG emissions reduction, energy cost savings, capacity of buildings to shelter LIDAC community members, community implementation of allied climate actions in area residences and businesses

Measure BE-2

Reduce energy burden by investing in quality housing

Develop a program to invest in the development, construction and retrofitting of new and existing residential units, including single-family and multi-unit structures, prioritizing low-income and disadvantaged communities. Education, technical advisement and capital investment activities will help advance the energy performance of regional building stock to minimize on-site combustion and maximize solar potential. This measure includes three main features: empowering residents with quick-fix housing weatherization strategies, growing the capacity of the Home Modification Coalition of Greater Kansas City to integrate minor home repair programs with weatherization work, and increasing energy upgrades in LIDAC communities by investing in nonprofit housing providers. Housing providers and homeowners will be eligible for community grants and will have access to a pool of skilled contractors.

Contractors, particularly smaller firms serving single-family markets, face workforce challenges in finding skilled labor, and minor home repair service providers are not currently tied into weatherization work or other energy-related programs. Through increased coordination among minor home repair service providers and by growing a more inclusive labor pool, housing upgrades are expected to result in improvements to the region's older housing building stock and previously untapped energy efficiency opportunities.

The multi-family programs will guide local nonprofit community developers to establish high-performance implementation strategies, maximize local and federal incentives, and connect projects to skilled labor. This deep technical assistance will connect hundreds of affordable housing units to energy upgrade opportunities and improve the performance of new affordable housing, thereby impacting the health of future generations.

Zoning codes and ordinances established through cross-section measure CS-1 will also advance standards in energy efficiency for new and existing housing.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- Single-family home retrofits: 11,475 $MTCO_2e$
- Single-family home weatherization: 50,625 $MTCO_2e$
- Multi-family home retrofits (In progress): 1,918.2 $MTCO_2e$
- New multi-family builds: 3,727.5 $MTCO_2e$

Implementing agencies/partners:

MARC; Habitat for Humanity of Kansas City and Truman Heritage; Hope BUILDERS; Westside Housing Organization; Northland Neighborhoods, Inc.; Urban Neighborhood Initiative; Community Action Agency of Greater Kansas City; Bridging The Gap; Metro Lutheran Ministries; Jerusalem Farm; Community LINC; Metropolitan Energy Center; Johnson County, Kansas government; Kansas City Community Land Trust; Children's Mercy: Healthy Homes Program; Front Porch Alliance; Rebuilding Together KC; Rebuilding Together Shawnee; Jewish Family Services; Christmas in October; MARC Aging Services; City of Westwood, Kansas; West Central Missouri Community Action Agency; East Central Kansas Economic Opportunity Corporation; Community Housing of Wyandotte County; Shepherd's Center; HUD entitlement communities

Lead implementing authority: Collaborative model among participating agencies and organizations

Other implementing organizations with authority: MARC

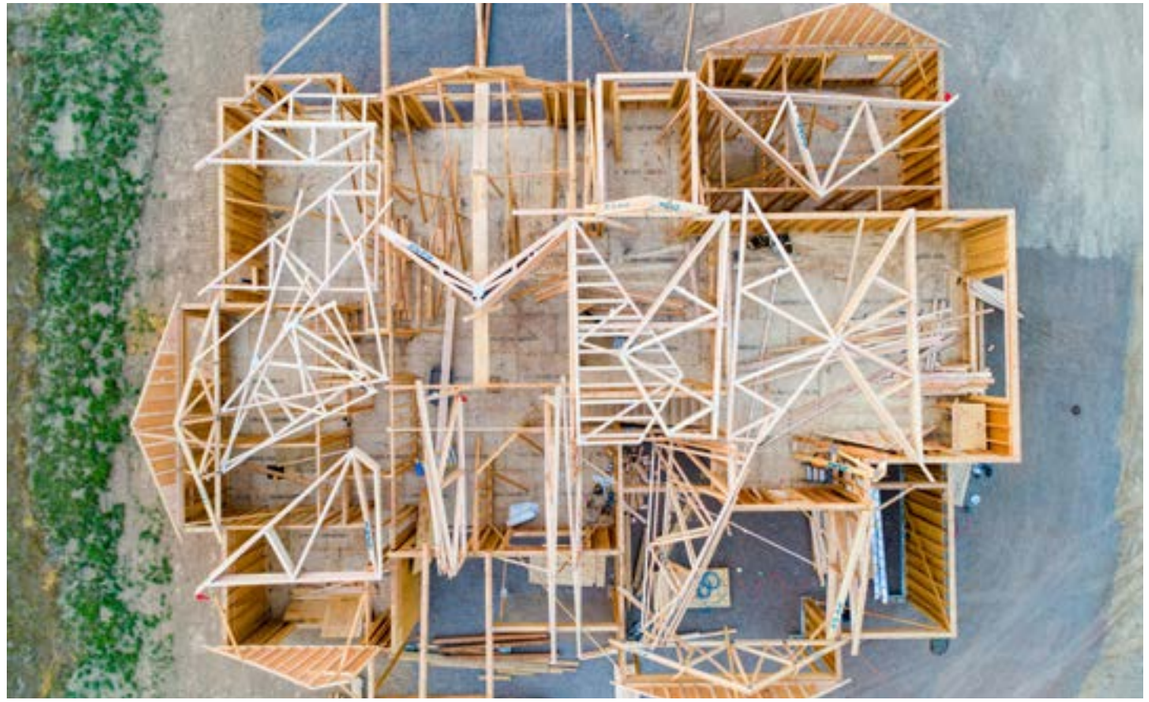
Implementation schedule and milestones:

All housing-related work will start by bolstering the capacity of community-based organizations (CBOs) to support neighborhood outreach and program implementation. CBOs will be paired with a technical assistance partner to distribute energy efficiency kits to homeowners, housing providers and renters in their communities. The Home Modification Coalition of Kansas City, an existing organization of minor home repair service providers, will grow its convening capacity and engage with a technical assistance provider to develop a collective strategy around incorporating energy retrofit projects into their minor home repair project stream. Technical assistance providers will conduct contractor recruitment and training programs to grow the coalition's access to a shared pool of skilled labor. This will include entry-level training for neighborhood residents in energy auditing, deconstruction and preservation, and weatherization means and methods.

Initial engagement with nonprofit housing providers includes the creation of a "community classroom" where building decision-makers and other neighborhood leaders can learn how to integrate high-performance building practices into their structures and connect to the appropriate financial tools to fund their projects. Grants for these providers will be allocated through a competitive process with criteria and selection supported by a community advisory board. Once selected, conduct an energy audit analysis with building owners to determine appropriate energy conservation measures. Next steps include engaging with a design team for any necessary design services or energy modeling, and then exploring bulk procurement strategies for labor and materials. This opportunity can be leveraged to increase the skilled workforce and strengthen the ability of DBE/MBE firms to serve the energy conservation market. Once work is completed, post-occupancy energy commissioning will be conducted and systems will be optimized where needed.

Funding sources: Greenhouse gas reduction funds, utility incentives and rebates, IRA tax incentives and rebate programs, weatherization programs and agencies, Department of Housing and Urban Development

Metrics for tracking progress: Number of housing providers engaged in education programming, number of households connected to an energy efficiency kit, amount of funding provided for energy efficiency/conservation improvements in single-family and multi-family structures, number of jobs created, reduction in energy costs, neighborhood-scale investment



Measure BE-3

Achieve regional energy savings by investing in high-performance public, non-profit and commercial buildings and schools

Develop a program to invest in energy conservation improvements in public, nonprofit and commercial buildings to reduce their energy costs and offer healthier and more comfortable spaces for the delivery of services and employment. Incorporating high-performance building practices into public buildings and schools saves taxpayer dollars and can educate residents about the value of healthier, low-carbon building practices. Education, technical advisement and capital investment activities will help advance the energy performance of regional building stock to minimize on-site combustion and maximize solar potential.

Cost savings associated with energy conservation will allow nonprofit organizations to expand mission-focused budgets on items such as social services, health, education, literacy and the environment. Also, privately held commercial buildings make up a significant portion of our regional real estate and can leverage private debt to increase their building performance.

This measure includes three levels of investment: educate a wide range of building decision-makers, provide direct technical assistance and directly invest in projects. Educational programming will specifically cater to building decision-makers within each building type. Providing educational opportunities that are inclusive and accessible to diverse audiences allows everyone to see their role in building decarbonization. Topics will cover all aspects of the real estate process, connecting engineers to emerging HVAC technologies while connecting brokers to best practices in green leasing.

Focus on leveraging additional capital through local, state and federal incentives and green lending products. Educational programming will provide an overview of these topics, direct technical assistance will incorporate them into a project-specific financial strategy, and capital investment will consider these tools and fill gaps that are necessary to catalyze a project.

Invest in schools, nonprofits and public buildings via a competitive grant process and establish a revolving loan fund for commercial buildings and for-profit, multi-family projects that will complement future lending products developed through the GHG Reduction Fund.

Support the growth of high-performance practices in commercial buildings through the growth of diverse construction firms. Provide ongoing support for the Rising Trades Contractor Network, a program of Climate Action KC/Building Energy Exchange KC, which supports diverse business owners in growing their firms to meet the demands of a clean energy economy.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- Public, nonprofit and commercial buildings: 6,672 $MTCO_2e$

Lead implementing authority: MARC and Climate Action KC/Building Energy Exchange KC

Other partners: Metropolitan Energy Center, Greater Kansas City LISC, AltCap, Central Bank of Kansas City, IFF, SEED Collective, Elevate, Business Services Collective, Missouri Energy Initiative

Implementation schedule and milestones:

Support the growth of Building Energy Exchange KC to create a broad platform for educating public, nonprofit and commercial building decision-makers. Utilize energy and GHG-related data to communicate the carbon footprint of each building type or industry to its respective audience. Grow an educational presence to include several hundred annual attendees representing a broad spectrum of professionals in the real estate industry. Coinciding with the growth of educational activities, develop a technical and financial concierge service for building owners that connects them to energy audits, advises on the application of local and federal incentives, and introduces them to the necessary service providers to effectively complete their project. Establish a revolving loan fund for commercial buildings that interjects capital where other federal funding and private financing are absent thereby catalyzing a commercial retrofit project. Revolving loan funds and grants will be allocated via a competitive process that will consider both GHG reduction and community benefits in its criteria.

Continue the growth of the Rising Trades Contractor Network through the support of business leader alumni and emerging business leaders. Extend existing programs that provide construction firms with a variety of back-office services via diverse administrative firms. Extend mentorship programs, educational training and strategic coaching that connect business leaders to the high-performance buildings industry. Connect the Rising Trades Network to the growing project pipeline that will emerge from CPRG and other regional capital investments.

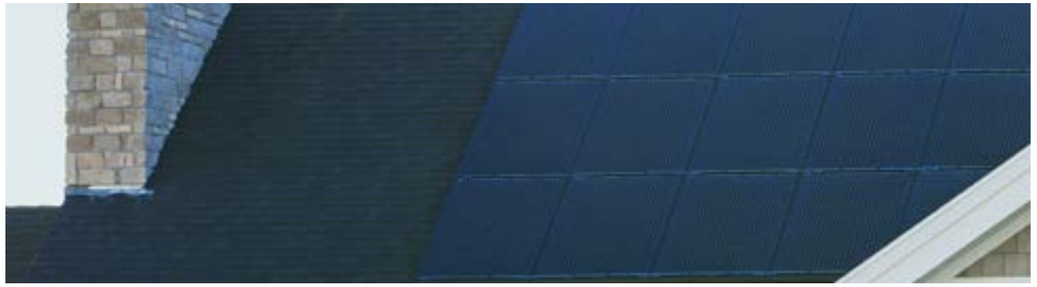
Funding sources: Utility incentives and rebates, IRA related incentives, GHG Reduction Fund, DOE Renew America's Schools, DOE Renew America's Nonprofits, Kauffman Foundation, local government capital improvement funds, private investment

Metrics for tracking progress: Number of buildings retrofitted, number of square feet retrofitted, reduction in energy costs for tenants and building owners, increase in program-related revenue for Rising Trades participants, number and type of attendees at educational events, number of projects catalyzed by technical and financial concierge services

Sunset Office Building, Johnson County, Kansas
Photo courtesy of Johnson County government

Measure BE-4

Deploy renewable energy solutions to reduce grid and cost burden



Invest in site, neighborhood and district-scale renewable energy with sustainable technologies including rooftop PV, micro-grid solar arrays and battery storage as well as district heating and cooling. Support municipal governments in the installation of solar arrays to achieve energy savings for public buildings and co-develop model policies that encourage developers to include both site and district renewable energy installation in new construction and redevelopment projects.

In the downtown area of Kansas City, Missouri, partner with district heating and cooling provider Vicinity to accelerate the transition from gas to electric power generation and work with utility Evergy to source off-site renewable energy. Increase access to alternative clean energy sources by addressing and removing barriers through cross-sector measure CS-1, working with partners and local governments to advance an equitable transition to renewable energy across the region. Work with Evergy and BPU to expand a community solar program that benefits communities, especially low-income renters and homeowners. Where it is not feasible for Evergy to currently deploy arrays, work with stakeholders to develop policies that make it easier for cities and counties to install community solar.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- 33,086 $MTCO_2e$ from district heating and cooling improvements with another 592 MTCO2e from 300 kW of solar installation added to projects selected through the regranting process

Lead implementing authority: MARC

Other partners: MARC, Metropolitan Energy Center, Missouri Environmental Improvement and Energy Resources Authority, Missouri Department of Natural Resources Division of Energy, Kansas Housing Resources Corporation, Evergy, Renew Missouri, Vicinity Energy, Missouri Energy Initiative

Implementation schedule and milestones:

In year one, work with local and state governments to co-develop policies that encourage site and district-scale renewable energy. Work with Renew Missouri to include the Kansas City region in the Statewide energy burden dashboard and resource navigator and provide data to regional local governments in the implementation of cross-sector measure CS-1 to advance an equitable transition to renewable energy in the region.

In years one through five, leverage CPRG grant funds with other funding sources to implement at least three model renewable energy projects to power residential, municipal and mixed-use areas in LIDAC communities. Work with Vicinity Energy to accelerate the decarbonization of the downtown district energy plant and work with the City of Kansas City, Missouri, and Evergy to increase access to renewable power.

Funding sources: Solar for All, other GHG reduction funds, IRA tax incentives, Show Me PACE program, philanthropy, privately held utilities.

Metrics for tracking progress: Number of solar arrays installed, cost and energy reductions, number of building owners receiving technical assistance.

Transportation Alternatives & Technologies

The way we move and how we develop our communities plays a critical role in the amount of greenhouse gases we emit. In the Kansas City region, on-road transportation accounts for 29% of GHG emissions. Reducing emissions from transportation sources — primarily from light-duty cars and trucks — can be accomplished through three central strategies: reducing the need to travel due to sustainable land-use and development practices, shifting to and increasing the share of sustainable modes of transportation, and improving the energy efficiency of transportation modes and vehicles technology. Sequestration strategies, like increasing tree canopy coverage and planting native vegetation along roadways as green stormwater infrastructure, not only help draw down atmospheric carbon but also provide a wealth of benefits to communities and ecosystems.

Economically and socially vital communities thrive where transportation equitably serves and benefits everyone in the community. Expanding a mix of safe, affordable transportation options, such as walking, biking and public transit, supports economic mobility by helping people save money and increases access to jobs and educational opportunities. These modes of travel enable healthier, more active lifestyles and better health outcomes, especially in communities burdened by pollution from transportation. Further reducing pollution in neighborhoods will require transitioning fleets to zero- and low-emissions technology. Municipal and transit agency vehicles that accrue significant mileage each year are low-hanging fruit for reducing pollution in neighborhoods. Replacing internal combustion fleet vehicles with electric versions also helps municipal governments reduce lifetime vehicle costs and better predict operational costs, as liquid fuels tend to have more volatile prices than electricity.

MAX Red Bus Line, Downtown KC
Photo courtesy of RideKC

Measure T-1

Connect resilient neighborhoods and activity centers with green corridors and active transportation


Streetcar, Downtown KC
Photo courtesy of MARC

Build out a network of connected, green and complete corridors throughout the region, with a focus on connections to and greater accessibility for low-income/disadvantaged communities. Enhance the comfort and safety of using active modes of transportation (transit, walking, biking) through the installation of shade trees, solar- and/or LED-powered lighting, native plantings and other amenities along corridors and in surrounding neighborhoods. Expand programming through existing organizations that support mode shift, including public education and outreach, travel and safety training, and transit ambassadors.

Complete and green streets provide comfortable places for people to walk, roll, bike and drive while managing stormwater with nature-based solutions. While all streets cannot accommodate all users, most can be retrofitted to allow for the comfortable and safe travel of all users. In the Kansas City region and across the country, many streets can undergo a “road diet,” replacing pavement previously only designated for motor vehicles with transit facilities, bike lanes, sidewalks, multi-use paths or other public spaces. Furthermore, green elements can provide additional benefits such as beautification, place-making, providing shade and urban heat reduction, and decreased flooding through better water retention. By increasing complete and green streets throughout the region, at times facilitated through rapid prototyping or tactile urbanism, local governments will facilitate a mode shift from driving to walking and biking, thereby reducing vehicle miles traveled while mitigating the effects of climate change.

Geographic location(s): Regional, with a focus on corridors that connect to LIDAC communities and enhance mobility and accessibility for these communities’ residents

Estimated GHG Emissions Reduction (2030):

- Green corridors (30 miles): 7,671 $MTCO_2e$

Lead implementing authority: Local governments and transit agencies

Other partners: MARC, Bridging The Gap, BikeWalkKC, Metropolitan Energy Center

Implementation schedule and milestones: Complete identification of priority corridors that bring the most benefit to LIDAC communities. Once corridors have been identified, work with community members to develop a place-sourced vision and complete preliminary engineering. To the extent possible, align timing of green corridor project bidding and procurement to reduce costs.

Funding sources: Municipal general funds, special district revenue, federal grant programs (USDOT, EPA, DOE, etc.)

Metrics for tracking progress: Linear miles of complete and green streets, number of new street trees and acres of native vegetation, bike and pedestrian counts, mode shift to alternative transportation modes along corridor, ambient temperature change

Measure T-2

Connect resilient neighborhoods by expanding and linking trails and separated bikeways

Armour Road complete street, Downtown North Kansas City, MO
Photo courtesy of MARC

Expand, connect and improve shared-use trails and separated bicycle facilities in alignment with local and regional bikeway plans. Invest in trails that connect residential and commercial centers of activity and expand separated bikeways as a cost-effective way to reduce emissions and contribute to the vibrancy and resiliency of neighborhoods. Where possible, improve and upgrade significant bikeways to improve safety and function. Bikeways and trails, when well-connected to activity centers, provide increased access to job opportunities, services and goods, while also helping people save money and improving their health. Given the growth in vehicle miles traveled (VMT) in the region, this strategy will facilitate mode shifts, particularly reducing single-occupant car trips that are less than one mile. Where possible, bicycle and pedestrian infrastructure will be paired with green infrastructure installed to manage stormwater, mitigate heat islands and provide shade and beautification. New infrastructure will connect to transit and mobility hubs, where possible.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- Bikeways (150 miles): 32,615 $MTCO_2e$

Lead implementing authority: Local governments

Other partners: MARC, BikeWalkKC, transit agencies, Bridging The Gap

Implementation schedule and milestones: Through a call for projects, identify the highest-priority connections that will increase both biking and walking, but also the share of non-recreational trips. To the extent possible, projects should be within or connected to planned green corridors. Begin final design in consultation with impacted communities, followed by construction.

Funding sources: Municipal general funds, USDOT and EPA grant programs

Metrics for tracking progress: Linear miles of new trails and separated bikeway connections, bicycle and pedestrian counts, trees planted, acres of native vegetation (landscaping or engineered green infrastructure)

Measure T-3

Enhance low-carbon mobility by investing in shared electric bike infrastructure and expand the use of electric bikes

Photo courtesy of RideKC

Expand access to electric bikeshare and establish an electric bike and multi-modal active transportation voucher programs that would lower the cost of personal electric bikes. Focus on expanding service to low-income/ disadvantaged communities and introducing adaptive and cargo bicycles.

Increased biking has the power to transform cities and communities. We know that bike-friendly communities — where equity, safety and connectivity are at the center — are economically vital communities. These communities reap economic benefits, such as increased home values and retail activity. Biking reduces emissions and improves air quality for neighborhoods and the entire region. And, as a more active mode of transportation, biking can contribute to better health outcomes.

The popularity of e-bikes is increasing due to their ease of use and range. A regional e-bike incentive program would increase access to personal e-bikes, especially for low-income individuals who may find purchasing an e-bike cost-prohibitive. MARC's WAY TO GO program will partner with BikeWalkKC to deliver the incentive program and provide bicycle education programming to potential and current e-bike owners. A tiered incentive system would allow for greater subsidies for income-eligible participants to purchase regular e-bikes or cargo bikes. Individuals with disabilities would be eligible for adaptive bikes.

Electric bikeshare provided by BikeWalkKC under the branding RideKC Bike has seen year-over-year increases in ridership since its inception in 2012. In 2023, 8,500 riders took nearly 52,000 trips on bikeshare bikes. There is a strong demand for bikeshare for expansion of the program throughout the region.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- E-bike incentive program (11,000 rebates/bikes and 200 bikeshare bikes): 5,127 $MTCO_2e$

Lead implementing authority: MARC's WAY TO GO program and BikeWalkKC

Other partners: Bike shops, contractors, cities and counties, social service agencies

Implementation schedule and milestones: Launch regional electric bike incentive program. A lottery for e-bike incentives would be held every quarter for five years. Expand RideKC bikeshare into interested cities' communities.

Funding sources: EPA Climate Protection Reduction Grant, local funds, USDOT programs (for bikeshare)

Metrics for tracking progress: Number of e-bikes distributed per year, percent of e-bikes distributed to income-eligible participants, number of car trips replaced per week, increase in bikeshare bikes

Measure T-4

Expand the network of publicly accessible electric vehicle charging infrastructure to fill network gaps and provide access to underserved communities

Provide the necessary electric vehicle charging infrastructure to support the growing number of electric vehicles on Kansas City region roadways. The metropolitan area has a substantial network of EV charging infrastructure due to Evergy — the region's largest investor-owned electric utility — and their installation of over 1,000 charging stations as part of their Clean Charge Network. However, large geographic gaps exist, especially in areas serviced by other electric utilities. Additionally, LIDAC communities are underserved by existing charging stations. By providing charging infrastructure to these communities, we can reduce the harmful impacts of transportation-related emissions, increase transportation equity and promote environmental justice.

Workforce development in support of installing and maintaining the infrastructure will help ensure the ongoing reliability of the chargers. There are several organizations, such as the Metropolitan Energy Center, Full Employment Council and local community colleges, that are working toward organizing training for this purpose.

Geographic location(s): Regional, with a focus on closing infrastructure gaps in the network, including gaps in LIDAC communities

Estimated GHG Emissions Reduction (2030):

- Charging stations (327 ports): 2,205 $MTCO_2e$

Lead implementing authority: Cities, counties, transit agencies, Metropolitan Energy Center

Other partners: MARC, Metropolitan Energy Center, Climate Action KC (Plug in KC), Full Employment Council, community colleges, IBEW

Implementation schedule and milestones: Complete the MARC Regional EV Readiness Plan to assess existing conditions, identify needs and evaluate site suitability. Apply for funding from the USDOT Charging and Fueling Infrastructure Program for highest priority charging station locations, identify bulk procurement strategies and release RFP for single-source procurement, if necessary. Install EV charging stations and develop/expand workforce training programs to support construction and maintenance of charging equipment.

Measure T-5

Reduce emissions by transitioning public transit and municipal fleets to zero- or low-emissions technology

Photo courtesy of United Government of Wyandotte County and Kansas City, Kansas

Transition municipal and transit agency fleet vehicles to vehicles with zero- or low-emissions technology (electric, hydrogen, or hybrid electric). Local governments and public agencies have a significant opportunity to lead the transition away from gas-powered vehicles and save money while doing so. As fleet vehicles are replaced, local governments can make use of federal funds and cooperative procurements to decrease overall costs or minimize additional costs. For the electrification of fleets, local governments and public agencies should also consider the source of the electricity from an overall emissions standpoint. Pairing fleet transitions with opting into renewable energy sources will help further reduce emissions. Furthermore, electrifying public fleets, such as transit vehicles and police patrol vehicles, will also help reduce ground-level emissions in communities that already experience higher rates of asthma and other respiratory conditions.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- Passenger cars and trucks (175): 521,238 $MTCO_2e$
- Utility/refuse trucks (30): 12,156 $MTCO_2e$
- Buses (20): 10,981 $MTCO_2e$

Lead implementing authority: Cities, counties and transit agencies

Other partners: MARC, Metropolitan Energy Center/Clean Cities Coalition, RideKC transit providers, EV suppliers, EPA, DOE, NREL, environmental advocacy groups, electric utilities

Implementation schedule and milestones: Cities, counties and transit agencies that have not started planning for the transition of their fleets to zero- or low-emissions technology can begin that process. Cooperative procurement opportunities exist to help reduce costs. For replacement vehicles that can comply with Buy America Act (BAA), there are several USDOT funding programs that can support these projects. MARC will hold a call for projects for these funds. EPA CPRG funds can support vehicle purchases without the need to comply with the BAA.

Funding sources: CMAQ, Carbon Reduction Program, EPA Climate Pollution Reduction Grant, local government capital improvement programs

Metrics for tracking progress: Number of vehicles transitioned to electric, hybrid or other clean fuel versions, reduction in internal combustion engine vehicles

Measure T-6

Reduce travel distances by encouraging sustainable land use and development

Work with local governments and developers through cross-sector measure CS-1 to establish zoning codes and ordinances to support sustainable development. Provide resources to support partnerships between cities and developers to develop sites to the highest and best use compatible with multi-modal transportation networks along key regional corridors and activity centers. Development should offer affordable housing, EV infrastructure and EV car-sharing, e-bikes, trail connections, canopy coverage green infrastructure and renewable energy. When destinations such as retail stores, service providers, community centers, homes and offices are located close to each other and near transit, walking and bike facilities, people are more likely to find using these modes more convenient. Additionally, this thoughtful integration allows individuals to incorporate physical activity into daily routines, save money on transportation and enable more freedom and mobility to low-income individuals, older adults, disabled persons and others who cannot or choose not to drive or own a car.

MARC's Planning Sustainable Places program provides a framework to guide integrated land use, transportation, housing and environmental planning. Integrated planning has been shown to reduce VMT by at least 7% by facilitating mode shifts to walking, bicycling and transit. Opportunities to link land use/transportation with related heat island reduction, building energy efficiency and clean energy initiatives would deepen the level of sustainability in the geographies of interest. For example, linking climate measures with existing and proposed Planning Sustainable Places projects would provide compelling new case studies and could catalyze additional transformation nearby or elsewhere in the region.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- 176,306 $MTCO_2e$

Lead implementing authority: Cities, counties, transit agencies, developers, investors, MARC

Other partners: Community and residents, nonprofit organizations, philanthropic organizations, environmental organizations, utilities, educational institutions

Implementation schedule and milestones: The Planning Sustainable Places program will administer two calls for projects for planning studies. Upon completion of their study, communities will pursue a variety of implementation funding through federal funding programs, local funding, public financing tools, special district funding and/or investors.

Funding sources: Federal funding programs, local funding, public financing tools, special district funding, investor funding, EPA Brownfields program

Metrics for tracking progress: Change in density (population, employment, and households), increased transit ridership, bicycle and pedestrian count, increase in diversity of land use, increase in diversity of housing, increase in destination density, increase in sales tax revenue

Urban Greening

Greening the city is one of the least expensive and most impactful ways to increase community health, prosperity and connection. From trees and rain gardens to prairies, wetlands and forests — green infrastructure provides a long list of benefits, such as clean air and water, reduced flood risk, energy conservation, habitat, recreation, carbon sequestration and improved public health. Nature-based solutions present meaningful, scalable opportunities to mitigate greenhouse gas emissions at large and small landscape scales while helping with adaptation and resilience toward key climate threats of heat and flooding.

Sequestration opportunities will allow the region to achieve net zero reductions after energy generation, energy efficiency and transportation measures are implemented. MARC estimates that current riparian forests sequester approximately 600,000 tons CO_2e/year. Area forests, prairies and savannas are estimated to sequester approximately 1.5, 3-5, and 5-7 tons of CO_2/year, respectively. Doubling a well-managed riparian habitat would double carbon sequestration.

Prairie, forest or wetland restoration nested within parks, greenways and open space protection provide watershed-scale benefits. Alternatively, resilient site-scale opportunities abound, including green stormwater infrastructure in greenfield and redevelopment projects, tree planting at bus stops, native landscaping along streetscapes or orchards and gardens at schools and community centers.

Photo courtesy of Bridging The Gap

Measure UG-1

Increase and maintain tree canopy and biodiversity along corridors and within neighborhoods to address urban heat islands, conserve energy and protect public health

Photo courtesy of Bridging The Gap

Invest in large-scale urban cooling by installing concentrated/massed tree canopy for large-scale urban cooling along 30 miles of transportation corridors and parks over approximately 13,000 acres of urban land. Disperse planting into upland neighborhoods and streets, with a focus on urban heat island neighborhoods and vacant lots. Reduce residential energy costs by planting a substantial number of trees (and native landscaping) along residential streets and at the southwest corner of homes. Conduct habitat assessment and management plans for large-scale restoration sites identified through the CCAP process.

Work with local governments to conduct municipal tree audits and neighborhood green space audits designed through community engagement to determine key neighborhood locations for prairie-like shrub and tree installations. Design and install green canopied spaces with neighborhood engagement and support, prioritizing native and climate-adaptive plants and trees that provide habitat for pollinators. Work with local governments and partners across jurisdictions to support the implementation of cross-sector measure CS-1, establishing municipal codes to protect and increase tree canopy cover and native plant installations.

Expand nursery capacity and source material for native plantings, provide workforce development for arborists and others, and further engage the public by developing a nursery and education center program modeled on best practices in collaboration with existing nurseries and seed-collection organizations.

Regionalize Evergy's heat island reduction pilot project in northeast Kansas City, Missouri, to communities throughout the metropolitan area. Programmatic elements include tree planting, native landscaping, green stormwater infrastructure, white roofs, and street and parking lot retrofits. Community-based implementation would rely upon partnerships among neighborhoods, nonprofits, utilities and local governments.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- Tree canopy: 256,639 $MTCO_2e$

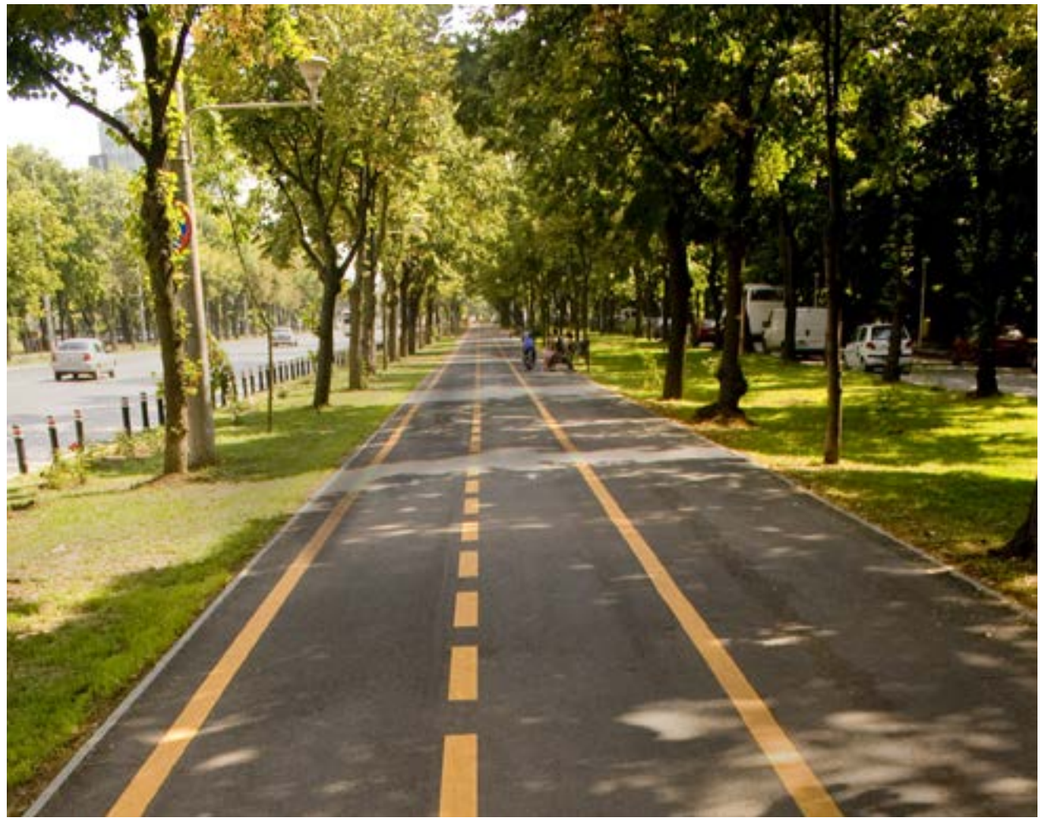
Lead implementing authority: Local governments, including cities of Kansas City and Lee's Summit, Missouri; cities of Olathe and Overland Park, Kansas; Unified Government of Wyandotte County and Kansas City, Kansas; Jackson County Parks and Recreation; Johnson County Parks and Recreation; Johnson County Stormwater Management

Other implementing organizations with authority: MARC; Heartland Conservation Alliance; Bridging the Gap; Groundwork NRG; Deep Roots; ReLeaf Missouri; Evergy; University of Missouri-Kansas City; University of Kansas; My Region Wins!; Metropolitan Energy Center; Neighborhood Associations: Heart of the City Neighborhood Association; Central Area Betterment Association; Westside Housing Association; Indian Mound North; Indian Mound South; Scarritt Point; Pendleton Heights; Independence Plaza: Lykins, Sheffield, Paseo West, Parkview; Independence Plaza: Forgotten Homes; Kansas City Community Gardens

Implementation schedule and milestones: In the first year, conduct engagement among community stakeholders and local governments, prioritize locations for tree planting and native landscaping based on alignment with allied PCAP and local initiatives, local support, leveraged resources and sustainability co-benefits, among other criteria. Finalize contracts with local governments and community-based organizations (including Bridging the Gap's Heartland Tree Alliance and Deep Roots). Bridging The Gap and Deep Roots will launch initial plantings in targeted communities to demonstrate initial success. Cooperative contracting will be included to maximize economies of scale in securing plant materials. Planting will continue through 2030.

Funding sources: USDA Urban and Community Forestry Program, local governments, local philanthropic organizations, WIFIA, SRF, Evergy pilot heat island reduction program

Metrics for tracking progress: Number of trees planted, tree mortality rates, community engagement in tree care;, number of acres of native landscaping planted, number of residents participating in workshops and training sessions about land stewardship, urban forestry and native landscaping



Measure UG-2

Sequester carbon through the conservation and restoration of riparian and natural areas and through green stormwater infrastructure

Restore riparian areas and protect natural areas to sequester carbon. Multiple local studies conducted by Kansas State University, The Nature Conservancy, Heartland Conservation Alliance and MARC have demonstrated the potential of riparian restoration and natural area protection to sequester substantial amounts of carbon, while at the same time serving as the most effective resilience measure to reduce flood risk. Heartland Conservation Alliance's Water Equity Roadmap for the Blue River Greenway developed through the EPA Urban Waters Federal Partnership clearly illustrates how such investments can provide demonstrable environmental justice benefits.

Based on projected green stormwater infrastructure installations associated with future growth and redevelopment trends in the metro, restore 40,880 acres in regional riparian corridors and install 13,200 acres of nature-based green infrastructure solutions including streetside and site-scale green stormwater infrastructure and landscape restoration. Implementation will include an explicit focus on the reduction of particulate matter alongside key transportation corridors to protect public health in disadvantaged communities. Riparian forest/wetland protection and restoration will sequester approximately 9.6 million $mtCO_2e$ by 2050. These benefits will accrue contingent upon the implementation of cross-sector measure CS-1 through the regional adoption of new stormwater engineering standards and criteria, and related stream setback, tree protection and native landscaping policies.

Implement existing green corridor, trail, urban heat island reduction, and highway right-of-way stormwater management and restoration plans and projects. Prioritize work in communities with environmental justice issues. Expand existing conservation and restoration programs among local governments and nonprofit organizations through capacity-building, supplies and cooperative equipment purchases. Scale up and replicate project successes through regional policy development, high-quality training and workshops and demonstrated success of existing pilot projects.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- Restoration and infrastructure: 802,038 $MTCO_2e$

Lead implementing authority: Jackson County; Kansas City, Missouri; KC Water; city of Grandview, Missouri; Unified Government of Wyandotte County and Kansas City, Kansas; Johnson County, Kansas; other local governments

Other implementing organizations with authority: Johnson County Stormwater Management Advisory Council; city of Overland Park, Kansas; city of Lee's Summit, Missouri; city of Grandview, Missouri; Heartland Conservation Alliance, Bridging The Gap, American Public Works Association – Kansas City Chapter

Other partners: MARC, The Nature Conservation Fund, Urban Waters Federal Partnership

Implementation schedule and milestones: Kansas City, Missouri, KCMO in collaboration with Heartland Conservation Alliance, MARC, Bridging the Gap, Deep Roots KC and adjacent neighborhoods and CBOs, expect to reforest and enhance the wetlands of 200-270 acres of riparian habitat along the Blue River by 2026 using Missouri ARPA funds. Restore at least an additional 100 acres of riparian restoration, including at least 20 acres of riparian agroforestry measures or food forests including such fruit/nut-bearing species as pecan, pawpaw, persimmon and wild plum. At least 20 acres will be planted in year one in locations that provide demonstrable benefits (e.g., nature access, food security, clean water, heat island reduction) to adjacent environmental justice communities. After restoration work is completed, develop a riparian buffer zone restoration guidebook to facilitate regional scaling and replication.

Funding sources: American Rescue Plan Act, Missouri Department of Natural Resources, Missouri Department of Conservation, Kansas Department of Health and Environment, local governments

Metrics for tracking progress: Acres protected through local adoption of policies such APWA 5600, stream setback/buffers, native landscaping/invasive species, and tree protections; acres of riparian forests and wetland restored; amount of food produced in food forests managed by community-based organizations; production of a riparian buffer restoration handbook to facilitate replication of project results

Measure UG-3

Adopt stormwater standards and related policies to enhance land stewardship and sequester carbon

Complete implementation of the Regional Green Infrastructure Policy Framework, adopted by the MARC Board of Directors in 2018. All policy measures are currently under development, including updating regional stormwater engineering standards, stream buffer/setback requirements, green infrastructure-focused planning and zoning, tree protection and native landscaping ordinances, the latter of which also focuses on reducing invasive species.

The Kansas City Chapter of the American Public Works Association, together with 22 local governments and MARC, is updating regional stormwater engineering standards and criteria. Principles guiding this effort were developed by a 22-member task sustainable stormwater task force representing local governments, the APWA, and professional consulting firms and community stakeholders. Principles focus on resilience, risk management, land stewardship and asset management.

The watershed-based, resilience-focused standards, once adopted by the APWA membership, are anticipated to be adopted and used by local governments throughout the metro area, substantially increasing the area of ecologically and hydrologically functional landscapes capable of sequestering significant amounts of carbon while reducing flood risks and improving water quality. One key element of the new standards will include guidance for management and restoration of the region's 225,000 acres of stream and riparian buffers.

Model tree protection and native landscaping ordinances have been adopted by two communities. MARC will evaluate opportunities and challenges to broadening regional consideration of these policies to sequester carbon while providing significant co-benefits such as clean air and water, flood risk reduction, alternative transportation, energy conservation and public health.

Last, in 2023, a conservation finance workgroup proposed Climate Improvement Districts as a policy approach to advance climate-smart restoration. CIDs, structured as a zoning overlay and governance structure comparable to community improvement districts, would encourage innovative climate solutions and create workforce training opportunities in green infrastructure. CIDs can function in a variety of ways to advance multi-benefit projects directed at emissions reductions and resilience for shipping and logistics sectors, green stormwater infrastructure and flood risk mitigation systems and regenerative agriculture.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- Standards and policies: 1.92 $MTCO_2e$

Lead implementing authority: American Public Works Association, MARC

Other implementing organizations with authority: Regional jurisdictions

Implementation schedule and milestones: APWA membership is expected to vote to adopt new standards in May 2025. Local governments across the region will then consider local adoption, many of which will do so by reference in local regulations. Subsequently, MARC will host trainings for all area stormwater engineers and interested planners and community stakeholders, and then re-convene APWA and interested stakeholders to update APWA 5600 again in 2027 upon the release of climate-informed precipitation standards known as NOAA Atlas 15. CIDs, tree preservation, native plant and landscaping ordinance will be implemented on rolling schedules as opportunities arise.

Funding sources: Local governments, Kansas City Chapter of the American Public Works Association, KDHE, MDNR, EPA

Metrics for tracking progress: Water quality and flood risk reduction, adoption of standards by APWA membership, number of communities adopting new standards, number of professional engineers trained, application of the new standards in new and redevelopment projects.

Measure UG-4

Leverage regional design and engineering talent to build civic capacity

A key regional (and national) constraint to generating higher levels of community impact and benefit is the civic and institutional capacity to deliver effective climate action. To address this issue, leading regional design and engineering firms and interested local governments will be convened to create a short-term job placement/sharing program for private sector individuals to contribute to public and nonprofit capacity. This program would align current civic capacity needs with private sector needs to address design and engineering recruitment, retention and talent development opportunities at multiple career levels. Ultimately, this effort would help develop projects that attract federal infrastructure funds supporting conservation and environmental stewardship and resilient infrastructure.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- None

Lead implementing authority: MARC

Implementation schedule and milestones: MARC is working to develop civic partnerships with area architecture, engineering and construction firms to initiate this program. At the same time, funds are being solicited from national foundations. With the acquisition of funding, a two to three-year pilot of this concept would be launched in 2025 to build civic capacity to deliver climate action.

Funding sources: National philanthropic organizations

Metrics for tracking progress: Number of job placements, job retention rates at consulting firms, projects completed with additional capacity, additional federal funds obtained

Agriculture, Food & Waste Systems Innovation

Over the last four decades, the Kansas City region has developed a strong regional network of food system stakeholders and community-based organizations along every step of the food system cycle: from production, processing and food safety; to storage and distribution; to promotion, affordability, and marketing. Our network also covers nutrition, food access and security, and prevention of food loss and waste through production of environmentally beneficial products. Collaboration amongst food system stakeholders in Kansas City is extensive, contributing to a vibrant, growing circular economy through interconnected activities that reduce GHG emissions and sequester carbon.

The measures included in this sector will expand the scope and reach of the KC Foodwise program to build the capacity of regional stakeholders to collaboratively advance food system priorities through interrelated programs and projects. Kansas City Food Wise is a regional effort to reduce food waste, increase access to healthy food and build a sustainable food system that benefits us, our community and our planet.

Investments in applied regenerative agriculture facilities will increase local food production while demonstrating regenerative agriculture practices that sequester carbon, regenerate soil, and reduce GHG emissions, educating community members and new farmers to implement practices in gardens and on farms, improving the livelihood of farmers and increasing healthy food access in LIDAC communities.

KC Foodwise worked with the MARC Food Waste Advisory Committee to develop the EPA-supported Regional Food Loss and Waste Reduction Action Plan, adopted in 2023. Measures in this plan will advance regional goals to reduce food loss in waste, helping stakeholders to overcome barriers and expand their efforts to increase food security while reducing GHG emissions. Food redirection programs and projects will build the capacity of community-based organizations to connect regional agencies with healthy food while reducing methane emissions by diverting waste from the landfill. Compost and biochar programs and projects will divert food and plant waste, reduce emissions, regenerate soil and sequester carbon while producing beneficial soil amendments and sustainable building materials.

Chicken tunnel, Fair Share Farms
Photo courtesy of Fair Share Farms

Measure FA-1

Invest in innovation and entrepreneurship to build capacity of Kansas City regional food system stakeholders

Work with partners to implement measures FA-2 through FA-4 by investing in nonprofit, private and public food system stakeholders for programs and projects that build regional capacity and catalyze sustainable growth of the regional food system while reducing GHG emissions, increasing healthy food access for food-insecure residents, and decreasing food waste across the region.

Capacity-building priorities for regional stakeholders include investment in energy-efficient buildings and renewable energy to power operations, energy efficient transportation and equipment, innovative technology, workforce expansion and training opportunities, and expansion of outreach, education and marketing capabilities. GHG reductions would be achieved by sequestering carbon through regenerative agriculture, through increasing the amount of food kept out of the landfill via food rescue and production of compost and biochar, and through upgrading current capital (buildings, trucks, refrigerators, etc.) to more energy-efficient or renewable energy models.

Programs and projects supported through this measure will reflect the racial, ethnic, gender, cultural and economic diversity of our community in their leadership, staffing, and engagement. Our stakeholders have a positive impact on all demographics in our region regardless of income, location and age of those served. However, the communities that will receive the most benefit through PCAP implementation are low-income and disadvantaged communities.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- Innovations: 140,985 $MTCO_2e$ (and reduction from application of biochar as a soil amendment)

Lead implementing authority: MARC Solid Waste Management District, farmers, composters, food-related business

Other partners: MARC; Kansas City Community Gardens; Cultivate KC; Compost Collective; Urbavore Farm; KC Farm School; Antioch Urban Gardens; After the Harvest; El Centro Inc; The Foundation for Regeneration; Groundwork NRG; Kansas City Community Gardens; University of Missouri-Kansas City; The Soil Inventory Project; City of Kansas City, Missouri; City of Grandview, Missouri; community gardens and orchards; urban farmers; farmers markets; schools; churches; extension offices; non-profits; HOAs/neighborhood associations and local governments; Missouri Department of Elementary & Secondary Education; Kansas State Department of Education; schools (pre-K-12; postsecondary schools); Culinary Training Entities; Kansas City Environmental Education Network; Missouri Environmental Education Association and Kansas Association for Conservation and Environmental Education; grocery stores; food service establishments; food distribution companies; compost collection businesses/organizations and nonprofits; Johnson County Green Business Program (JCGBP); farmers; local government and state agencies

Implementation schedule and milestones: In year one, establish a Food and Agriculture advisory working group of the KC Foodwise committee to guide programming and investments. Leverage CPRG funds with other federal and private strategic investments in programs and projects that reduce GHG emissions, sequester carbon, and regenerate soil while catalyzing advancement of regional food system goals. Conduct an annual inventory of food system assets through KC Food Wise and update the KC Food Wise food system map and dashboard to strengthen connections between food system stakeholders and support resource development.

Funding sources: MARC Solid Waste Management District, Department of Agriculture, Department of Energy, Environmental Protection Agency

Metrics for tracking progress: Number of applied regenerative agriculture facilities in production, acres of land dedicated for regenerative agriculture production, number of buildings retrofitted, number of square feet retrofitted, number of new farms catalyzed by technical and financial assistance at applied regenerative agriculture facilities, number of households participating in residential composting, number of entities supporting/promoting residential composting, number of curbside programs and drop-off locations offered, number of partnerships between residents and urban farmers, diversion measurements (weights and/or volume), volume of compost sold and utilized in area markets, number of participating schools, types of initiatives implemented, number of participating schools, grocery stores, food service companies, commercial and distribution companies, Number of participating food access agencies, expanded volume of food recovered and compost produced

Measure FA-2

Build resilience in LIDAC communities by investing in at least 10 applied regenerative agriculture hubs

Work with established community organizations and partners to co-develop a program investing in a network of at least 10 applied regenerative agriculture hubs that will catalyze the increase of regional food production by demonstrating regenerative agriculture practices, increasing healthy food access for LIDAC communities, and meeting market demand for local food. Invest in infrastructure to equip hubs with renewable energy and energy efficient operations and programming such as community education for production, nutrition and food preparation, training of new growers, aggregation and storage of food, processing value-added foods, and marketing and distribution.

Work with partners and local governments to support dedication of land for permanent regenerative agricultural use and to increase access to land for beginning farmers in urban, peri-urban and rural areas.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- Initial estimates from project submissions total a minimum of 56,630 $MTCO_2e$. Existing and new projects and collaborations are under development and will increase this impact.

Lead implementing authority: MARC and participating organizations

Other partners: MARC, Kansas City Community Gardens, Cultivate KC, Compost Collective, Urbavore Farm, KC Farm School, Antioch Urban Gardens, After the Harvest, El Centro Inc, The Foundation for Regeneration, Groundwork NRG, University of Missouri-Kansas City, The Soil Inventory Project, City of Kansas City, Missouri, City of Grandview, Missouri, Kansas City Black Urban Growers, Center for Neighborhoods

Implementation schedule and milestones: In the first year, work with the KC Foodwise advisory committee and partners to guide allocation of funds to champion projects. Invest in at least 10 champion projects that have catalytic and transformative potential. Provide technical assistance through an application process to identify opportunities for collaboration and shared resources for at least 10 applied regenerative agriculture facilities that serve LIDAC communities in the nine-county Kansas City region. Once sites are selected, engage technical assistance partners to assess site needs including construction and retrofit needs for buildings that are integral to farm operations, solar capacity, food storage, and distribution and marketing.

In years one through five, work with champion organizations, technical assistants, local governments, and the USDA urban agriculture office to identify opportunities to dedicate land for regenerative agriculture production in urban, peri-urban, and rural areas. Identify policy opportunities to catalyze the growth of regional food production to meet the demand for local food and support surrounding neighborhoods, including urban agriculture overlay zones, and community scale solar installation.

Support collaborative activities amongst hubs including a streamlined process for bulk procurement of materials and labor, leveraging opportunities to increase a skilled workforce, partnerships for educational programming with neighborhoods and schools in surrounding areas, identifying opportunities to implement other PCAP measures, and more. Equip farmers to conduct regular soil tests to evaluate soil organic matter content and other factors to assess the impact of carbon sequestration on an annual basis.

Develop a funding strategy to leverage CPRG funds with other federal programs.

Funding sources: CPRG Implementation Grant, EPA Community Change Grant, USDA, private foundations, revenue from farming operations

Metrics for tracking progress: Acres of land dedicated for regenerative agriculture production, acres of land converted from blighted use, amount of carbon sequestered, number of buildings retrofitted, number of square feet retrofitted, reduction in energy costs for tenants and building owners, number and type of attendees at educational events, number of new farmers trained, number of new farms established, number of projects catalyzed by technical and financial assistance at applied regenerative agriculture facilities.

Measure FA-3

Increase residential composting and diversion to local livestock


Photo courtesy of Bad Seed Urban Farm

Increase regional capacity for residents to divert and compost food waste at home, including on-site backyard composting, vermicomposting, bokashi composting, curbside pickup, community drop-off opportunities and diversion to locally raised livestock. In 2019 the EPA estimated that about 96% of wasted household food ended up in landfills, combustion facilities or in the sewer system, a statistic reflected in local food waste management. The region also has a growing number of small and urban farms which can utilize food waste to feed their livestock.

The growth of all residential composting options is needed to capture the large amount of food waste. Scale up residential compost infrastructure by investing in policies, organizations and programs to increase residential composting and diversion of food waste to locally raised livestock. Provide residents with resources to participate, including education and incentives.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- 51,600 $MTCO_2e$ per facility

Lead implementing authority: MARC Solid Waste Management District, local governments, farmers, commercial composters

Partners: Compost collection businesses/organizations, community gardens, regenerative agriculture, urban farmers, farmers markets, schools, churches, extension offices, non-profits, HOAs/neighborhood associations and local governments

Implementation schedule and milestones: Prior to the funding announcement, the MARC Solid Waste Management District will secure preliminary commitments from potential project partners and work with them to create a draft scope of work, budget, and timeline. The scope of work will build upon established projects and programs run by local entities (potential partners) including compost collection businesses/organizations, urban farmers, extension offices, and non-profits. In year one, the MARC Solid Waste Management District will secure formal commitments from project partners, work with them to finalize the scope of work, budget and timeline, launch/expand projects and programs and assess them on a quarterly basis. In years two through five, project partners will continue to assess, improve and grow their projects and programs. Once the funding period ends, project partners will continue to sustain projects and programs via fees for service, grants and other financial investments.

Funding sources: MARC Solid Waste Management District, federal agencies, state agencies, local government and fee for services

Metrics for tracking progress: Number of households participating in residential composting, number of entities supporting/promoting residential composting, number of curbside programs and drop-off locations offered, number of partnerships between residents and urban farmers, and diversion measurements (weights and/or volume), volume of compost sold and utilized in area markets

Measure FA-4

Reduce food waste at schools, food service, grocery, distribution, and commercial facilities

Kansas City Food Wise will work with partners to co-develop a program to address inventory ordering, food handling, storage, preparation, portion sizes, customer engagement/education, food donation and composting for schools, food service, grocery store, commercial and food distribution sectors.

Work with partners to co-develop and implement regional food waste reduction initiatives for schools to implement best practices for reduction of food waste. The importance of ingraining food waste reduction awareness, knowledge and behavior change in youth makes schools a high priority in the Kansas City metro area. Over time, schools can approach food waste reduction from multiple angles including curricular and instruction, food storage, purchasing and preparation, share tables, serving as a community food pantry location and composting programs.

Composting programs provide an excellent gateway to not only raise awareness about food waste and spur behavior change, but to reduce a significant amount of food waste going to the landfill in a relatively short period of time. Invest in regional organizations and programs to provide financial, administrative and staff support to develop sustainable, scalable school composting programs.

According to ReFED, U.S. restaurants and foodservice businesses generated 13 million tons of surplus food in 2022, more than 85 percent of which went to landfill or was incinerated as waste. Less than 1 percent of this surplus was donated – mainly because it's more difficult to transport, store and distribute food that is already prepared. Grocery retailers generated 4.99 million tons of surplus food in 2022, nearly 35 percent of which went to the landfill or was incinerated as waste.

Food service, grocery store and food distribution facilities' policies, practices and engagement efforts are key to reducing the large amount of food waste these sectors create. Best practices need to be implemented to prevent and divert food waste from front and back of the house operations in each of these sectors.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- 15,381 $MTCO_2e$

Lead implementing authority: Solid Waste Management District and partners involved in KC Food Wise

Other implementing organizations with authority: MARC

Other partners: Compost collection businesses/organizations, community gardens, urban farmers, extension offices, non-profits, HOAs/neighborhood associations, local governments, Missouri Department of Elementary & Secondary Education, Kansas State Department of Education, schools (pre-K-12, postsecondary schools), Culinary Training Entities, Kansas City Environmental Education Network, Missouri Environmental Education Association and Kansas Association for Conservation and Environmental Education, Grocery stores, food service establishments, food distribution companies, compost collection businesses/organizations, and non-profits, Johnson County Green Business Program (JCGBP), farmers, local government and state agencies

Implementation schedule and milestones: Prior to the funding announcement, the MARC Solid Waste Management District will secure preliminary commitments from potential project partners, including schools, compost collection entities, food service, grocery and distribution entities, and work with them to create a draft scope of work, budget, and timeline. The scope of work will be based on established programs run by local compost collection businesses/organizations (potential partners) like Missouri Organic Recycling, KC Can Compost, and Compost Collective KC, Kanbe's Harvest, and After the Harvest. In year one, the MARC Solid Waste Management District will secure formal commitments from project partners, work with them to finalize the scope of work, budget and timeline, launch/expand programs and assess them on a quarterly basis. In years two through five, project partners will continue to assess, improve and expand their projects and programs. This includes expanding composting programs to additional schools. Once the funding period ends, project partners will continue to sustain projects and programs via fees for service, grants and other financial investments.

Funding sources: MARC Solid Waste Management District, Johnson County Kansas Green Business Program, Kansas Department of Health and Environment Solid Waste Grants, Sustainable Agriculture and Research Education Program and USDA

Metrics for tracking progress: Number of participating schools, types of initiatives implemented, diversion measurements (weights and/or volume) and potential savings from landfilling costs, Number of participating entities, types of initiatives implemented, diversion measurements (weights and/or volume), potential savings from landfilling costs, number of impressions (digital campaign) and pre/post surveys at point of sale measuring sentiment and consumer behavior change over time.

Cross Sector Measures

Working with residents, community-based organizations, universities and local governments, MARC will implement several measures to build capacity and climate resilience. These measures include the co-development of policies, workforce development, empowerment of neighborhoods and nonprofits and leadership development across the region.

Crystal Baddoo, Elevate nonprofit, Priority Climate Action Plan workshop
Photo courtesy of MARC

Government CPRG workshop
Photo courtesy of MARC

Measure CS-1

Advance public policy and build collaborative partnerships

Work with local governments, building and development stakeholders and nonprofit organizations to identify and co-develop model zoning codes and ordinances that address multiple issues and sectors. Opportunities and community interests may focus on energy benchmarking, IECC building codes, ASHRAE codes, building performance measures, incentive policies and support for building decarbonization investment and more.

Address and adapt zoning practices that constrain integrated transportation, land use, housing and environmental planning, design and development. Work with local governments and partners toward a just and equitable transition to renewable energy, identifying opportunities and removing barriers to support installation of district and community scale solar arrays.

From an urban greening perspective, opportunities include partnerships and municipal codes that support urban forestry and tree protection, installation of native and climate adaptive landscaping and removal of invasive species, establishment of stream buffers/setbacks, and advancement of stormwater management engineering standards and criteria. Work with local governments to address a variety of planning and zoning issues that affect the viability of urban agriculture practices and work with local governments and partners to advance supportive policies such as overlay zoning and protection of land for regenerative agricultural use.

Collaborate with municipalities across jurisdictions to advance opportunities to reduce waste and GHG emissions while strengthening a circular economy, including the development of Materials Waste Recovery Facilities and innovative organic waste reduction solutions.

In partnership with NOAA, collaborate with the states of Kansas, Missouri, Nebraska and Iowa to build peer exchange networks to advance collaborative climate planning and implementation. Collaborative development of policy alternatives by area stakeholders will guide implementation of this measure. Shared learning, training, data evaluation, and stakeholder dialogue are pivotal to develop consensus on area policy approaches.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- IECC policy: 2,773 $MTCO_2e$
- APWA 5600 policy: 9.6 $MTCO_2e$

Lead implementing authority: MARC, local governments

Other implementing organizations with authority: Local governments and community stakeholders

Other partners: American Public Works Association – Kansas City Chapter, American Planning Association, Urban Land Institute, American Society of Landscape Architects – Prairie Gateway Chapter, US Green Building Council, Urbavore Farm, Cultivate KC

Implementation schedule and milestones: In year one, work with the Policy and Metrics committee of the Climate and Environment Council to host regional local governments and stakeholders in an engagement process to set goals for policy development in each sector. In years two through five, work with partners toward implementation. Participate in energy decisions at the Missouri Public Service Commission and Kansas Corporation Commissions, continue partnership with the Kansas City Metro Chapter of the American Association of Public Works, and track policy changes to measure progress toward policy goals and implementation of PCAP measures across sectors.

Funding sources: Department of Energy; Environmental Protection Agency, Environmental Justice Government to Government program; local governments, utilities, Missouri Department of Natural Resources, Kansas Department of Health and Environment

Metrics for tracking progress: Number of stakeholders convened to evaluate alternative policy measures; number of stakeholder meetings convened; number of local governments and population served by adopting measures; outcome measures associated with energy saved, vehicle miles traveled, food produced, air and water quality conserved

Measure CS-2

Develop an equitable green workforce

Work with partners to develop a program to increase equitable training and sustainable job opportunities in ten environmental career pathways. Complete an inventory of workforce development organizations, including two public workforce organizations (Full Employment Council and Workforce Partnership), three community college systems, numerous public and private colleges and universities, trainings offered or hosted by community-based organizations and union and trade association training programs (including pre-apprenticeship and apprenticeship opportunities). Outline career pathways for ten priority green workforce positions in green infrastructure management, forestry, vehicle electrification and EV repair, and energy-related fields.

Meet market demand by investing in key organizations to recruit and train workers as the market demand for labor by employers increases in response to energy project opportunities. The region has a strong construction industry, and there are opportunities to both enhance the skills of existing employees and add to the existing workforce. Engage and support employers and unions to track labor demand and potential for hire. Invest in programs to widen the skill sets of current participants to increase career options.

Promote quality training and seek state-approved credential/certification to allow for public funding reimbursement. A review of state-approved training and apprenticeships will be used to inform the region's efforts to build a qualified workforce and offer good-paying jobs. As the need for trained workers grows, resources will be needed to increase the capacity to train more individuals. Provide support for key organizations to develop and monitor this information and make it available to all workforce system parties. Resources to expand capacity of existing training programs.

Support community colleges, trade associations and unions working with employers to increase apprenticeships. Provide resources to support curriculum design and to establish or expand programs. Provide support for apprenticeships with established employers to offer on-the-job training and employment. Empower small business support organizations and training institutions to assist small businesses and entrepreneurs to become more established in green industries.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030): The indirect impact of this measure is accounted for in direct reduction measures listed throughout sectors.

Lead implementing authority: MARC, and partners

Other partners: Full Employment Council, Workforce Partnership, local universities and colleges, trades programs, labor unions, etc.

Implementation schedule and milestones: In year one, complete an inventory of workforce development organizations. Create an advisory board to develop specific criteria for selection and through an application process, identify at least ten organizations to recruit and train workers as market demand increases in response to project opportunities. In years two through five, work with partners to promote training programs and connect skilled workforce to climate resilience projects.

Funding sources: Environmental Protection Agency; U.S. Department of Labor, Carl D. Perkins Career and Technical Education Improvement Act

Metrics for tracking progress: Number of people trained, number of apprenticeships and jobs created, number of businesses created, number of projects completed

Measure CS-3

Empower individuals to reduce GHG emissions through action

Building on the recent work completed in partnership with Barkley and the Kansas City Art Institute, implement a five-year communications and social marketing program to inspire individual participation in climate action using paid, earned, social and digital media strategies, along with community engagement and event strategies. Create a Climate Action Dashboard that connects individuals to opportunities to participate in climate action through partner programs and PCAP measure implementation.

Seventy-three percent of the Kansas City metro population is concerned with climate change but over 50% of those concerned face barriers to living more sustainably (sources: MARC KC Metro Segmentation, YouGov). To achieve metro goals for climate change mitigation and adaptation, we must remove this friction to enable the establishment of new social norms through behavior change at the individual and corporate level.

Campaigns will focus on messaging to create broad community support for investment in climate action, while focusing on those behaviors identified as having the highest readiness and potential for behavior change. Goals for action will include weatherization of homes for low-income renters, energy efficiency upgrades for residential homeowners, planting 10% more trees in Kansas City, Missouri and Kansas city, KS, reduction of car journeys by telecommuting for one day a week, and food composting. Messaging will be shared across constituencies and income groups connecting individuals to implementation of PCAP measures and empowering them to build climate resilience in their lives and communities.

The program is designed according to the Community-Based Social Marketing framework, an evidence-based approach to behavior change that is grounded in psychology and executed at the community level. It will be implemented through a local coalition of a professional communication services agencies, the Applied Behavioral Sciences department from a state university, graphic design services from a local art college and a network of aligned community groups.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030):

- 804,259 $MTCO_2e$

Lead implementing authority: MARC

Other partners: Barkley, Kansas City Art Institute, local governments and community stakeholders

Implementation schedule and milestones: In year one, work with partners to test the concepts that were created through a creative process led by MARC, Barkley, and the Kansas City Art Institute on three primary audiences, using feedback to create final campaign design. Establish a baseline of key behavior change performance indicators methods to track progress on an annual basis. In years one through five, execute the communication plan across multiple channels.

Funding sources: CPRG implementation grant, private foundations

Metrics for tracking progress: Number of people signing commitments to take climate actions, number of homes weatherized, number of efficiency upgrades completed, reduction of car trips, number of households composting

Measure CS-4

Create multi-faceted professional and community training program to accelerate implementation of measures

Expand MARC's Academy for Sustainable Communities, created in 2008, to accelerate implementation of PCAP measures. The ASC over time has provided leadership, technical and information training to over 20,000 discrete individuals through over 500 events. Events have included national experts, workshops to evaluate barriers and opportunities regarding certain best practices, peer-to-peer learning, field trips, webinars and more.

Every element included in this PCAP would benefit from providing high quality, facilitated training to varied audiences. From a local government perspective, target audiences might involve elected officials, chief administrative officers, planners, stormwater and transportation engineers, parks managers, codes officials, inspectors and more. From a private sector perspective, training might focus on a broad range of stakeholders including lenders, appraisers, designers, building owners, lenders, auditors and more. High-quality training will be offered to support implementation of policy and program goals, while at the same time facilitating broader regional adoption and implementation of priority measures.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030): The indirect impact of this measure is included in the direct reduction measures listed throughout sectors.

Lead implementing authority: MARC

Other partners: Local governments, community stakeholders, universities, colleges, community colleges, American Public Works Association – Kansas City Chapter, American Planning Association, American Society of Landscape Architects – Prairie Gateway Chapter, US Green Building Council, University of Kansas, University of Missouri-Kansas City, Urban Land Institute

Implementation schedule and milestones: A suite of training programs will be formulated for all sectors, and for diverse demographics, constituencies, and stakeholder groups. MARC will partner with a variety of subject matter experts to deliver training programs across sectors and constituencies. After a two- to three-month ramp-up period, MARC will deliver at least two training programs per month over five years for a total of 120 events.

Funding sources: Department of Energy, Environmental Protection Agency, local governments, utilities, Missouri Department of Natural Resources, Kansas Department of Health and Environment

Metrics for tracking progress: Number of stakeholders convened to evaluate alternative policy measures; number of stakeholder meetings convened; number of local governments and population served by adopting measures; outcome measures associated with energy saved, vehicle miles traveled, food produced, air and water quality conserved

Measure CS-5

Develop a co-creation based model to support capacity building, shared leadership, and project monitoring and evaluation

Implement the University of Missouri Kansas City Co-LEAD program to build capacity and leadership for implementation and evaluation of PCAP measures. This collaborative leadership, assessment, evaluation and data collection (Co-LEAD) program is focused on engaging and empowering small nonprofits and local neighborhoods to participate in development and implementation of Priority and Comprehensive Climate Action plans and the CPRG grants program. Co-LEAD aims to provide capacity-building workshops, develop an interactive platform for community engagement and decision-making, and conduct a formative and summative evaluation of the regional CPRG initiative. The capacity building, leadership, assessment, evaluation and data collection (Co-LEAD) program optimizes the distribution and effectiveness of sub-grants provided to public and nonprofit organizations and supports alignment with the objectives of the Environmental Protection Agency (EPA) and the Justice40 Initiative, ensuring adherence to CPRG's foundational goals.

Co-LEAD will engage stakeholders to co-create capacity building, leadership programming, and the platform. Components include leadership programming, workshops, stakeholder engagement, the Co-LEAD app which will facilitate data collection, evaluation, and reporting, and the Co-LEAD data dashboard, which will pull from the app platform to give real-time assessment of the broader project.

Central to Co-LEAD is the co-creation process, a participatory approach where stakeholders collaboratively contribute to a shared outcome, valuing each participant's unique insights. This process fosters joint ownership and responsibility, crucial for the effective execution of the project. Complementing this is the sociocracy or dynamic governance model, which underpins decision-making and governance structures. It emphasizes equality, transparency, and effectiveness through a consent-based approach, ensuring decisions are made without significant objections.

A pivotal aspect of Co-LEAD is its commitment to continuous learning and adaptation. Feedback mechanisms will facilitate continuous stakeholder input. Co-LEAD will draw from local businesses, nonprofits, local governments, academic institutions, and neighborhood leaders for technical expertise and shared knowledge. The evaluation of the CPRG-funded projects includes both formative and summative analyses to gain a comprehensive understanding of each sub-granted project's progress and impact. This involves leveraging data-driven decision-making for strategic planning, capacity-building, leadership training, and other development programs to enhance the skills of community leaders and members, and a focus on research and development to keep abreast of emerging technologies and methodologies.

Co-LEAD will support environmental and social responsibility through prioritizing that the community's diversity is represented on the stakeholder council. The platform will combine opportunities for online capacity building, data collection, and evaluation. Co-LEAD will offer easy and effective impact measurement and reporting, that provides MARC with regular analysis of CPRG-s social, economic, and environmental impacts through a data dashboard. A transparent reporting mechanism will maintain stakeholder trust and accountability.

Geographic location(s): Regional

Estimated GHG Emissions Reduction (2030): The indirect impact of this measure is included in the direct reduction measures listed throughout sectors.

Lead implementing authority: University of Missouri-Kansas City, Midwest Center for Nonprofit Leadership, Center for Neighborhoods, and Collaborative for Education Systems Learning and Analysis.

Other partners: Local governments, neighborhoods and community stakeholders

Implementation schedule and milestones: The development of the Co-LEAD app is strategically planned through key milestones: Initially, requirements gathering and planning are to be completed within the first two months, culminating in a detailed project roadmap. A prototype, showcasing core functionalities, follows within four months. User testing then takes place over a month, providing critical feedback. The next two months see the development of a beta version, integrating this feedback. Comprehensive beta testing and final feedback integration span the subsequent three months. The launch preparation, including marketing strategies, is set for the month preceding the launch. The official launch is targeted at 12 months from inception. Finally, a post-launch review three months later ensures ongoing improvements and updates, ensuring the app's continuous evolution and relevance

In-person capacity building for small nonprofits and neighborhoods tackling GHG emissions reduction will focus on leadership building and other strategies to help the organization participate in the CPRG grants program and make a contribution toward GHG emissions reduction for their part of the region. Workshops will also help organizations inexperienced with participating in large regional efforts use Co-LEAD to contribute their data and reports and to make evidence-based decisions. Depending on need, there may also be content-focused workshops where UMKC invites regional experts to help smaller organizations plan for and submit proposals.

Process Evaluation: This involves scrutinizing the sub-grant allocation process against the intended programmatic goals.

- Formative Outcomes Evaluation: Implemented on a regular cadence, this activity focuses on monitoring ongoing project progress using a dynamic dashboard, primarily informed by data from sub-grantees.
- Summative Outcomes Evaluation: Conducted annually, this evaluation offers a comprehensive review of the sub-grant progress, employing a mixed-methods approach for a deeper understanding of the impact in targeted communities.
- Professional Development: training students in community-embedded evaluation methods, integrating both quantitative and qualitative data analysis techniques. Additionally, regional grant committee members will also be trained in these methods, enhancing their evaluative skills.

Funding sources: TBD

Metrics for tracking progress: Number of attendees at each capacity-building workshop, frequency and duration of user interactions with the Co-LEAD app, qualitative feedback from stakeholders on program effectiveness, changes in community engagement, awareness, and participation, efficiency and impact of grant funds used by participating nonprofits, improvements in local environmental conditions or practices, number and quality of partnerships formed, development of leadership skills among participants

Measure CS-6

Kansas City Climate and Environmental Education Project

Expand and improve K-12 climate and environmental education throughout the region by providing educators with an array of professional development opportunities, students with sustainable workforce development opportunities and schools with opportunities to green their operations and culture. The Kansas City Environmental Education Network along with other local STEM and environmental educators could help develop and implement this project.

Geographic location(s): Regional

Estimated GHG Emissions Reduction: The indirect impact of this measure is included in the direct reduction measures listed throughout sectors.

Lead implementing authority: MARC Solid Waste Management District

Other partners: Greater Kansas City Writing Project, U.S. Green Building Council, University of Missouri-Kansas City, University of Kansas, Kansas State University, Kansas Department of Health and Environment, Missouri Department of Natural Resources, Missouri Department of Conservation, MEEA/MO Green Schools, Kansas Association for Conservation and Environmental Education, North American Association for Environmental Education, Missouri Department of Elementary and Secondary Education, Kansas Department of Education, and Federal Department of Education.

Implementation schedule and milestones: Prior to the funding announcement, the MARC Solid Waste Management District (SWMD) will secure commitments from project partners and work with them to create a draft scope of work, budget, timeline and a list of willing host organizations that could staff and implement the Kansas City Climate and Environmental Education Project. The scope of work will utilize established models to outline the types of professional development opportunities to be provided to educators, sustainable workforce development opportunities to be provided to students, and opportunities for schools to green their operations and culture. These models come from established entities including the Greater Kansas City Writing Project, Missouri Environmental Education Association, Kansas Association for Conservation and Environmental Education, North American Association for Environmental Education, Missouri Green Schools and Green Schools National Network. In the first year, the SWMD will work with project partners to secure an agreement with the host organization, work with them to finalize the scope of work, budget, and timeline, and design and plan the project's initial professional development, workforce development, and green schools programs. In year two, the host organization will launch these programs, assess them on a quarterly basis, and make adjustments as needed. In years three through five, the host organization will continue to improve and grow its programs. By year six, the Kansas City Climate and Environmental Education Project will be self-sustaining.

Funding sources: state and federal departments of education, state natural resource/conservation departments, universities, U.S. Green Building Council.

Metrics for tracking progress: Number of professional development opportunities offered, number of educators participating, number of students receiving sustainable workforce training, number of schools who have undertaken green schools initiatives, number of green schools initiatives undertaken and completed.

Low-Income Disadvantaged Communities Benefits Assessment

LIDAC Engagement Process (past and future)

The Mid-America Regional Council serves nine counties and 119 cities, providing a forum for the region to work together to advance social, economic and environmental progress. Within our region, 141 census tracts meet EPA's definition for low-income and disadvantaged communities. More than 382,000 residents in these communities face disproportionate environmental burdens and socio-economic challenges. Residents and critical infrastructure in LIDAC communities are more vulnerable to environmental hazards that pose the greatest risk to our region: extreme heat (>105 degrees), drought, severe thunderstorms, severe winter weather, flooding and tornadoes. A list of LIDAC communities in our region is included in Appendix 1.

Engagement of LIDAC communities for the Priority Climate Action Plan builds on community engagement undertaken as part of the Kansas City Regional Climate Action Plan (2021) and the preceding decades of work building relationships and trust in communities most impacted by environmental injustices and disinvestment.

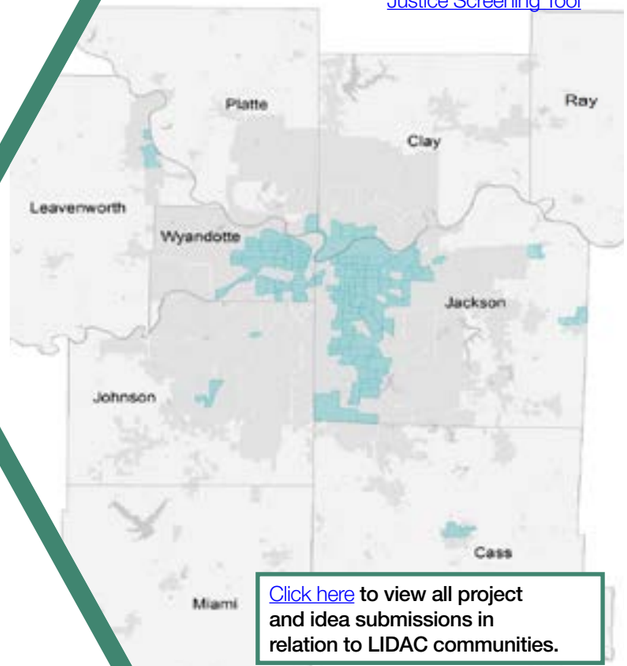
The Kansas City Regional Climate Action Plan was developed during a time in which systemic inequities and community vulnerabilities were illuminated in a very powerful way.

The Kansas City Regional Climate Action Plan was developed during the COVID-19 pandemic, a time during which systemic inequities and community vulnerabilities were illuminated in a very powerful way. Engaging LIDAC communities during this time, when many individuals were impacted by illness, continued to work in public settings and felt over-engaged, was a significant hurdle.

However, MARC and Climate Action KC established a flexible engagement plan providing many different entry points for anyone who wanted to engage, on their own timeline. Longstanding relationships with neighborhood leadership and the extensive networks of champions across different sectors helped bring the community along throughout the process. Communication about the planning effort and engagement opportunities were channeled through partners, such as transit agencies and community-based organizations, to help reach vulnerable communities.

Low-Income Disadvantaged Communities (LIDAC) in the Kansas City Region

Source: Climate and Economic Justice Screening Tool



Click here to view all project and idea submissions in relation to LIDAC communities.

Community engagement for the plan included a Climate Action Summit with over 725 in attendance, climate workshops for local government leadership, recorded webinars featuring the outcomes of the GHG Inventory and Climate Risk and Vulnerability Assessment, mobile-friendly online engagement for idea sharing, sector-based working groups, interviews with CBOs in LIDAC communities, community review sessions, Climate Conversations videos featuring community leaders, a youth committee, MARC committee and cross-departmental engagement (Early Learning/Head Start, Aging Services, Emergency Services, etc.).

The PCAP process, being on a more compressed timeline, built on prior engagement to create an engagement plan that was both efficient and effective. MARC staff developed this plan using feedback from the Climate and Environment Council's (CEC) Equity and Engagement Workgroup. The CEC is a diverse mix of community members, nonprofits, planners and sector-focused experts representing all parts of the region. The engagement plan centered on holding a series of three community workshops that brought together neighborhood leaders from LIDAC communities, city staff, nonprofits, advocacy groups, private businesses and others.

During workshops throughout the PCAP planning process, residents and community-based organizations from LIDAC communities identified and recorded needs in their communities which were the foundation for ideas and projects for this plan and are reflected in this analysis. Staff followed up with participants in these workshops to begin the work of fleshing out ideas and projects and drawing connections between them that could begin to create greater transformation.

The LIDAC Communities Benefits Assessment will be an ongoing guide for outreach and program implementation of PCAP measures. For the Comprehensive Climate Action Plan, MARC staff will work with technical consultants and the CEC to build capacity in LIDAC communities for community-led climate actions.

Green Infrastructure, Marlborough neighborhood Photo courtesy of MARC

Climate risks, impacts, and vulnerabilities among LIDACS and projected PCAP benefits

Climate change doesn't affect everyone in the same way. While increasing temperatures and precipitation in the Kansas City metropolitan area pose a threat to all residents and infrastructure, climate impacts can perpetuate and even worsen existing social inequity. Disadvantaged groups suffer disproportionately from climate impacts, making climate change a social and political issue, as well as environmental.

Social inequities such as race, gender, ethnicity, religion, age, income and access to leadership and public resources often overlap with regional or spatial inequities. An example of this is redlining: the discriminatory practice of rating neighborhoods based on their racial character and environmental conditions popularized by the Home-Owners Loan Corporation (HOLC) in the 1930s.

Red-lining encouraged investment and development in some communities while denying others access to wealth-generation strategies like homeownership. Over time, discriminatory practices like these gave some communities access to the means to create intergenerational wealth, but not to others. Like inequity, climate vulnerability and risk are unevenly distributed across our communities. In general, economically disadvantaged and socially marginalized populations are more vulnerable to climate impacts and at higher risk of suffering negative health and financial burdens. There are three primary mechanisms for the persisting inequity in climate impacts. Disadvantaged groups are:

1. More likely to be exposed to the adverse impacts of climate change
2. More susceptible to damage caused by climate change
3. Less able to cope with and recover from damage caused by climate change

The primary determinant of exposure is location, especially proximity to high-risk areas. Even for communities with similar levels of exposure, access to resources gives some communities the opportunity to rapidly adapt and become more resilient. For example, higher-quality housing stock or access to heating and cooling can alleviate climate-related impacts for those who can afford it. Those who can't are often left to weather the worst climate impacts.

Economically disadvantaged and socially marginalized communities often have less access to resources for mitigation, response and adaptation.

As a result, recovery is often slow. Disrupting these patterns and working alongside LIDAC communities to implement PCAP measures is critical to building climate resilience.

MARC staff conducted a benefits analysis of PCAP measures for LIDAC communities using the EPA's Climate and Environmental Justice Screening Tool (CJEST) to visualize projects that could implement measures on a map. The CJEST tool provides information on specific climate risks and burdens in these areas, which are described here by action area alongside a list of benefits that would result from implementation of PCAP measures.

Buildings and Energy

Extreme summer and winter temperatures lead to peak energy use that contribute to a household's energy burden, defined as the percentage of gross household income spent on energy costs. According to the Department of Energy, the average burden for non-low-income households is 3% of household income. The average energy burden across LIDAC communities in the Kansas City region is 4.7%, with more than 30 tracts at or above the 90th percentile for energy burden.

Increased energy costs are combined with a higher housing cost burden in these areas. The Department of Housing and Urban Development defines a cost-burdened household as one that spends more than 30% of their income on housing. The average housing cost burden across LIDAC communities is 36%, and residents in 48 census tracts within the region spend more than 40% of their income on housing.

The risk of damage from lightning, heavy rain and high winds can lead to significant building damage. Across the tracts, an average of 57% of building value is at risk from natural hazards and 34% of properties are at risk of fire.

Workshop participants expressed concern about power outages and loss of heating, cooling and refrigeration for medication, putting vulnerable residents' health at risk. They emphasized a need for backup power and shelter during extreme temperatures and weather events.

Potential Benefits of PCAP measures

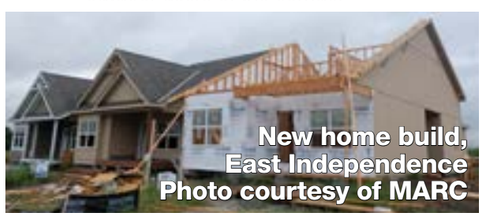
- Improved quality of housing
- Reduced energy burden
- Cost savings
- Increased climate resilience
- Increased community capacity to lead development efforts,
- Increased social capital
- Increased resources to support homeowners and tenants to enhance home health and efficiency
- Increased social capital
- Reduced energy burden
- Cost savings
- Workforce development
- Public health benefits – reduction in heat exhaustion and heat stroke, asthma rates, heart attacks and strokes, lung cancers, pre-mature death
- Increased climate resilience

Transportation

Workshop participants expressed a need for safe, reliable, frequent transportation. They also expressed concerns about high air pollution and lack of walkability, making them vulnerable to health conditions resulting from environmental stressors. In LIDAC communities across Kansas City, 45% of adults have asthma, 57% have diabetes, and 27% have coronary heart disease. The average life expectancy in LIDAC communities is 65. Workshop conversations called for safe and convenient non-car-based travel and human-focused transit to mitigate these risks. Communities across the region, and LIDAC communities in particular, will benefit from this plan's transportation measure in many ways. Creating infrastructure and facilities that are safe and comfortable will encourage more walking and biking, enabling a host of near- and long-term health benefits. Active transportation, such as biking, walking and riding public transportation, allows for increased physical exercise and reduces harmful ground-level pollution. And, the integration of urban greening strategies will reduce heat, provide vegetative buffers for pollution mitigation, improve mental health through greater connectivity to natural settings and increase attractiveness and neighborhood vitality.

Potential Benefits of PCAP measures

- Reduced ozone and particulate matter
- Heat island mitigation
- Traffic calming
- Mobility choices
- Increased shade and comfort for active outdoor users of the corridor



New home build, East Independence
Photo courtesy of MARC

- Improved walkability
- Reduction in asthma rates, heart attacks and strokes, lung cancers, and pre-mature death
- Reduced stress and improved mental wellbeing
- Active healthy lifestyles and improved health outcomes
- Increased attractiveness of green corridors
- Potential to stimulate increased density and mixed uses, reducing travel demand
- Job accessibility
- Workforce development opportunities
- Increased neighborhood vitality
- Increased connectivity and access to opportunity
- EV infrastructure will lead to a lower lifetime cost for consumers
- Transitioning to EVs will reduce noise pollution
- Lower fuel price volatility, increased predictability and cost savings for organizations

Urban Greening

Increasing precipitation, especially during high-intensity rainfall events, is expected to contribute to increased flooding in the Kansas City metropolitan area. Disadvantaged groups located in low-lying areas will be more exposed to overland and riverine flows and will bear the brunt of the damage caused by flooding. Aging infrastructure is sensitive to extreme rain events, and flooding in urban centers is a significant problem for some LIDAC census tracts, where more than half of land is covered by impervious surface. In summer heat, urban heat islands lead to high energy burden and air quality conditions that contribute to poor health outcomes.

Potential Benefits of PCAP measures

- Heat mitigation
- Reduced energy burden
- Reduced flooding
- Vegetation for pollution filtration
- Improved air and water quality
- Reduced asthma rates, heart attacks and strokes, lung cancers, pre-mature death
- Workforce development
- Increased natural settings
- Increased biodiversity
- Increased connections to fragmented habitats, protecting flora and fauna

Agriculture, Food & Waste Systems Innovation

Extreme temperatures and severe weather can lead to disruptions in our regional food supply, resulting in increased prices for consumers and reduced access to healthy food. Meanwhile, food loss and waste occur at every step along the food supply chain, further reducing access to healthy affordable food.

In the Kansas City region, one in eight people is food insecure. Agencies in our area feed 141,500 people each month; 25% are children, 20% are seniors, and 49% of households fed have at least one adult who worked in the last year. 54% of these households have had to choose between paying for food and paying the rent or mortgage.

In the average year, the Kansas City metro generates about 296,000 tons of food waste from residential and commercial sources. The average annual cost of food waste for households in the U.S. is $1,866. When food and food-soiled paper decompose in a landfill they produce methane, a powerful greenhouse gas (GHG). Landfills are the third-largest source of global methane emissions, after agriculture and oil and gas systems. Even though it accounts for about 11 percent of greenhouse gas emissions and lasts about 12 years in the atmosphere, methane traps 80 times more heat in the atmosphere than carbon dioxide, contributing to regional heat island and air quality issues.

Bioswale and elevated trail, Shawnee Mission
Photo courtesy of MARC

Potential Benefits of Agricultural PCAP measures

- Increased access to land for food production
- Increased access to healthy food
- Increased capacity of regional food system organizations to meet LIDAC community needs
- Decreased consumer costs, from reduced landfill costs, whether through the tax base or through direct costs
- Enriched soil nutrient value and organic matter content from compost and biochar, boosting the productivity of gardens, farms and orchards
- Increased soil water holding capacity, leading to reduced flood risk and improved water quality.
- Enhanced plant growth reduces ground level ozone through direct uptake, while reducing particulate matter through increased levels of deposition
- Energy production; co-generation opportunities to use heat generation to support greenhouses and affordable housing; and the opportunity to produce sustainable soil amendment and construction materials
- Workforce development
- Increased opportunities for entrepreneurship
- Increased education, community capacity building, and social capital through food programs at resilience hubs and food focused hubs
- Heat mitigation
- Improved air quality
- Reduced asthma rates, heart attacks and strokes, lung cancers and pre-mature death

Cross-Sector Measures

Socioeconomic disparities lead to reduced resilience in LIDAC communities. During workshops residents and community organizations emphasized the importance of community involvement in decision making spaces, community-led design and development, and called for capacity building initiatives that would empower residents to build climate resilience and intergenerational wealth. They called for the recruiting, train and hire residents into sustainable, quality jobs in green industries to implement plan measures in LIDAC neighborhoods.

Potential Benefits of Cross-Sector PCAP measures

- Increased education, community capacity building, and social capital
- Empowerment to guide decisions and development within LIDAC communities
- Co-development of policies with community organizations and local governments
- Increased climate resilience
- Increased wealth building opportunities
- Reduced energy burden
- Increased mobility
- Decreased flooding
- Increased neighborhood connectivity
- Public health benefits, including reductions in asthma rates, heart attacks and strokes, lung cancers and pre-mature death
- Nonprofits empowered with the knowledge and skills needed for effective participation in community resiliency projects
- Community-led training and leadership development will enhance neighborhood and organizational effectiveness and community influence
- Broader and more effective participation in PCAP and CCAP development and implementation leading to more impactful community projects
- Equitable access to grant opportunities for smaller, less-resourced organizations
- Strengthened community bonds through collaborative learning and project development
- Enhanced local engagement and participation in sustainability and resiliency initiative
- Access to tools for data collection and analysis, aiding in informed decision-making
- Empowerment can translate into more resilient communities, better equipped to address challenges and leverage opportunities, especially in the context of CPRG projects
- Empowerment can contribute to sustainable community development that is inclusive and reflective of diverse community needs and voices

Review of Authority to Implement

The measures in the PCAP are voluntary. Municipalities and local agencies undertaking these measures do so with an authority to implement them. At this time, no additional action to obtain appropriate authority has been identified as a need to implement the measures.

Intersection with Other Funding Availability

The Kansas City region has embraced a funding approach that seeks to "stack" funding from multiple funding sources. Funding sources range from individual, corporate and philanthropic on the private side to local, state and federal on the public side. Ultimately, all project funding seeks to ensure the long-term financial viability of priority projects and initiatives to ensure durable outcomes.

As funding alternatives are explored, through the Climate Pollution Reduction Program and other federal programs, MARC and community partners routinely assess how resources may be leveraged, multiplied and layered to achieve shared community goals. Given the multiplicity of federal programs funded through the Bipartisan Infrastructure Law and Inflation Reduction Act, the regional community continually strives to maximize funding opportunities across programs and agencies. At the federal level, these include programs overseen by DOE, DOT, EPA, FEMA, HHS, HUD and USDA.

Buildings & Energy

Funding for building efficiency projects sought through CPRG will deliberately leverage utility investments and demand-side management programs and federal Greenhouse Gas Reduction Funds. In nearly every case, funding will create the regional organizational infrastructure necessary to continue to scale up work well after federal funding dissipates. Linkages to federal environmental justice programs (such as Climate Justice Block Grants and Thriving Communities Grantmakers and Technical Assistance Centers) and state programs such as Show Me PACE funding will help articulate regional and community investments with Justice 40 communities. Renewable energy projects will leverage CPRG funds and private investments with federal programs including Solar for All, the National Clean Investment Fund, and the Clean Communities Investment Accelerator program.

Transportation

There are many sources of funding available for transportation measures included in this plan. USDOT funding programs include transportation programs that are sub-allocated to MARC. Apart from projects that intend to build density related to Measure T-6 (i.e., new buildings not serving a transportation purpose), all other potential project types would be eligible under one of the funding programs administered by MARC. However, competition for these funds locally and the length of time between project award and implementation may be prohibitive in meeting the intended implementation timeline of measures in PCAP. EPA CPRG funds, if awarded, could be used to initiate new or scale up existing implementation of these measures. Compliance with the Buy America Act (BAA) has been identified as an issue for implementing certain projects, such as vehicle electrification projects, using USDOT funds. EPA CPRG funding helps fill this funding gap by allowing for vehicle purchases without BAA compliance.

Agriculture, Food and Waste Systems Innovation

Organizations and farm owners leading applied regenerative agriculture facilities can leverage USDA grants for conservation, nutrition, forestry, horticulture, rural development and resilient food system infrastructure to fund activities specific to the unique context of each facility. CPRG implementation funds will play a foundational role to establish or expand existing facilities – funding land acquisition, efficiency measures for on-site buildings, and solar installation, which aren't available through USDA. EPA Community Change and Environmental Justice grants can be leveraged to create programs for each site to connect LIDAC communities with healthy, sustainable, local food. The MARC Solid Waste Management District utilizes $500,000 per year for regional grants including composting and food waste mitigation. Revenue from farm activities can create diversified sustainable funding strategies for long-term implementation. Stakeholders leading food redirection, compost, and biochar efforts also rely on USDA funding and revenue generation from product sales.

Urban Greening

Multiple funding sources exist to support urban greening. These include: Carbon offset programs, Climate Improvement Districts, Environmental Protection Agency, local governments, Missouri Department of Conservation, Missouri Department of Natural Resources, national and local philanthropy, place-based fees and concessions, State Revolving Loan Funds – Green Project Reserve, The Conservation Fund, The Nature Conservancy, Trust for Public Lands, USDA Urban and Community Forestry Program, US Department of Transportation (Carbon Reduction Program, PROTECT, Surface Transportation Program, CMAQ, Surface Transportation Block Grant program, Water Infrastructure Finance and Innovation Act, revenue generation from sustainably managed working lands, and FEMA Building Resilience in Communities.

Next Steps

Funding the PCAP

The PCAP represents a near-term plan for implementation. MARC will continue to work with stakeholders to apply for grant funding for projects derived from measures in this plan, including applying as a region for Phase 2 EPA Climate Pollution Reduction Grant funding.

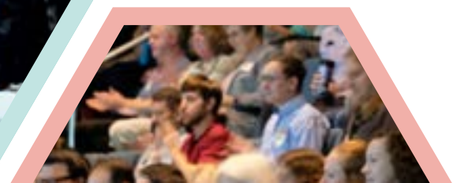
Comprehensive Climate Action Plan

MARC's adopted regional climate action plan and the PCAP will serve as the basis for a CCAP. The CCAP development will be guided by the Climate and Environment Council, under the supervision of the MARC Board of Directors, and in partnership with Climate Action KC and many other community collaborators. The process will interweave qualitative and quantitative elements and analysis, strong community engagement and a structured approach to the adoption of a more robust plan that is embraced by all members of the community.

The CCAP will include the following required elements:

- GHG Inventory that includes all sectors
- GHG emissions projects
- GHG reduction targets
- Quantified GHG reductions for each measure
- Benefits analysis
- Low-income Disadvantaged Communities benefits analysis
- Review of authority to implement
- Intersection with other funding availability
- Workforce planning analysis

In addition to these mitigation-focused elements required by the EPA, the CCAP will include elements focused on regional climate adaptation. MARC will update its Climate Risk and Vulnerability Analysis in partnership with stakeholders and communities. This analysis will support adaptation strategies included in the final CCAP.



Public Engagement

MARC will develop a refined public engagement process in consultation with the Climate and Environment Council and the CEC Engagement and Equity Workgroup and will publish this plan on the plan website: https://kcmetroclimateplan.org/get-involved/climate-planning/.

The public engagement process will be designed to achieve several goals:

1. **Understand the local context and community:** Understand the unique needs of stakeholders and community members by employing tactics centered on listening. These tactics may include focus groups, piggybacking on neighborhood meetings, participating in community-based events and targeted outreach.
1. **Meet people where they are:** Deepen engagement at the community level by physically being available and present in communities. This will enable deeper relationships and trust to be built and reduce extractive engagement.
2. **Work in partnership with the community:** Planners may bring structure, findings and information to community engagement, but successful place-based solutions come from the community and stakeholders. Collaboration requires strong communication, continuous feedback and nurturing.
3. **Enable continued participation:** Be consistent in ensuring transparency in the process and providing accessible information for members of the community representing a spectrum of experience. Educate about the planning and technical process, findings from technical analysis, resources available to help communities to enact change in the near-term and collective feedback received throughout the process. Communications and critical information will be translated and made available on the CAP website.

CPRG workshop
Photo courtesy of MARC

Appendices

1. **List of LIDAC Communities**

   MARC PCAP LIDAC Analysis - Communities

2. **Public Engagement Content and Project List**

   On September 7 and 8 2023, MARC hosted a pair of half-day workshops on climate mitigation and climate resilience to advance implementation of the Climate Action Plan and to inform the development of a regional Priority Climate Action Plan (PCAP) for EPA Climate Pollution Reduction Grant (CPRG) funding. The workshops identified community-centered regional needs, priorities, and potential projects across all sectors. The comments from those workshops, recorded in the document below, are categorized by sector (tabs), and listed by need, ideas, projects or grant ideas.

   MARC PCAP public engagement notes

   MARC opened a call for projects on October 25 and accepted submissions through December 15, 2023. Information on each project is available in the document below.

   MARC_PCAP_project database

3. **GHG Quantification and Methodology**

   MARC_PCAP_methodology