COMPREHENSIVE CLIMATE ACTION PLAN

December 2025

METROPOLITAN COUNCIL

The Met Council's mission is to foster efficient and economic growth for a prosperous metropolitan region.

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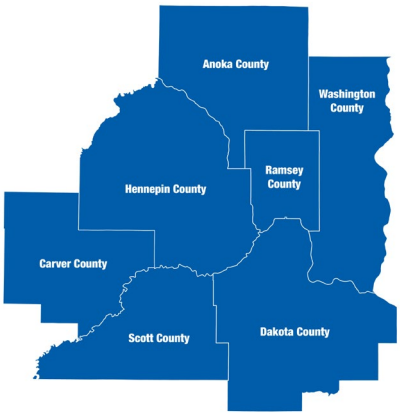

The Metropolitan Council is the regional planning organization for the seven-county Twin Cities area. The Met Council operates the regional bus and rail system, collects and treats wastewater, coordinates regional water resources, plans and helps fund regional parks, and administers federal funds that provide housing opportunities for low- and moderate-income individuals and families. The 17-member Council board is appointed by and serves at the pleasure of the governor.

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Acknowledgements

Definitions and Acronyms

BWSR: Board of Water and Soil Resources

CO_2e: Carbon dioxide equivalent

Comprehensive Climate Action Plan (CCAP): A narrative report that provides an overview of the grantees' significant GHG sources/sinks and sectors, establishes near-term and long-term GHG emission reduction goals, and provides strategies and identifies measures that address the highest priority sectors to help the grantees meet those goals.

CPRG: Climate Pollution Reduction Grant programs from the Environmental Protection Agency

DEED: Minnesota Department of Employment and Economic Development

DNR: Minnesota Department of Natural Resources

DOE: United States Department of Energy

EPA: United States Environmental Protection Agency

EQB: Environmental Quality Board

GHG: Greenhouse gas

Greenhouse gas (GHG) Inventory: A list of emission sources and sinks and the associated emissions quantified using standard methods.

IPCC: United Nations Intergovernmental Panel on Climate Change

IRA: Inflation Reduction Act

LCA: Livable Communities Act

MDA: Minnesota Department of Agriculture

MHFA: Minnesota Housing Finance Agency

MPCA: Minnesota Pollution Control Agency

MMt: Million metric tons

MnDOT: Minnesota Department of Transportation

MSA: Metropolitan statistical areas as defined by the U.S. Census 2020 MSA population. A list of eligible MSAs can be found in Appendix 15.2 in EPA's CPRG: Formula Grants for Planning, Program Guidance for States, Municipalities, and Air Control Agencies.

Municipality: EPA defines municipality for the Climate Pollution Reduction Grants as "a city, town, borough, county, parish, district, or other public body created by or pursuant to State law. Consistent with section 137(d)(1) of the Clean Air Act, a group of municipalities, such as a council of governments, may also be considered an eligible entity under this program in some cases." This definition can be found in Section 4 in EPA's CPRG: Formula Grants for Planning, Program Guidance for States, Municipalities, and Air Control Agencies

PM 2.5: Particulate matter of 2.5 micrometers and smaller

Priority Climate Action Plan (PCAP): A narrative report that includes a focused list of near-term, high-priority, and implementation-ready measures to reduce GHG pollution and an analysis of GHG emissions reductions.

State: All 50 U.S. states and the District of Columbia and Puerto Rico.

SHIP: Statewide Health Improvement Partnership

USDA: United States Department of Agriculture

VMT: Vehicle miles traveled

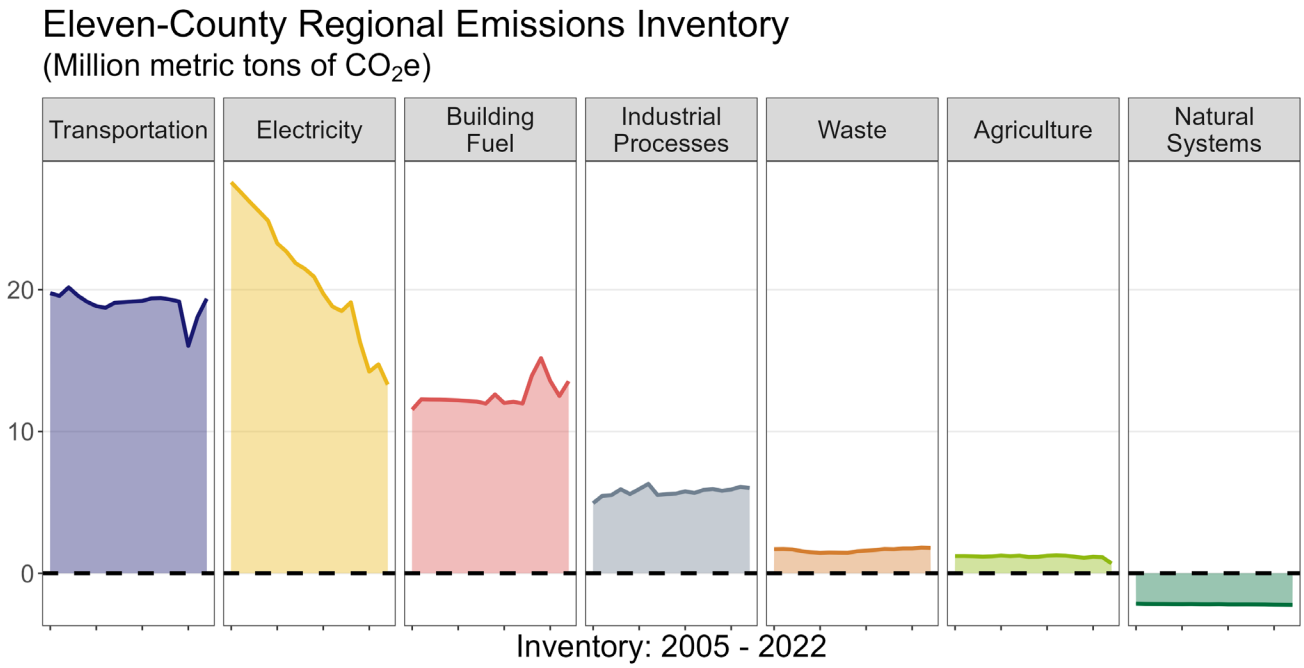
Table of Contents

Executive Summary

The Comprehensive Climate Action Plan (CCAP) is a regional plan to document and guide climate mitigation action across the Twin Cities. The CCAP was developed by the Metropolitan Council and funded and guided by an Environmental Protection Agency Climate Pollution Reduction Grant as well as existing state and regional climate goals and policies.

Engagement with local governments and community members was foundational to the creation of the CCAP. A steering committee of city, county, and tribal staff provided feedback on all aspects of the plan and were especially valuable in developing the emissions reduction measures. In depth community engagement through eight organizations across the region included analysis of climate data and community priorities and guided the development of the plan's community benefits analysis. Finally, a regional climate workforce work group helped ensure the workforce analysis aligned with the experience of agencies, organizations, and companies in the clean economy and workforce development sectors.

Greenhouse gas (GHG) inventory and projections are key components of the CCAP. A GHG inventory shows emissions sources and sequestration from all sectors in the region from 2005 to 2022. The inventory shows the region has reduced emissions 18% since 2005.



GHG projections show how emissions will change in both the short- and long-term. Projections are shown for three scenarios:

- "Business as Usual" assumes emissions will continue based on past patterns and takes into account existing policies including the state's Clean Electricity Standard of 100% carbon-free electricity by 2040.
- Accelerated Policy Pathway shows an intermediate pathway reflecting the current changes at the federal level and known state and local actions that can still be taken to reduce emissions.

- Net-zero shows the necessary policies and actions to achieve very low emissions offset by sequestration by 2050.

Full emissions projections coming in September

GHG reduction measures proposed actions for reducing GHG emissions across all sectors. Collectively, the inventory, projections, and reduction measures outline a path for taking ambitious action to address GHG emissions in the Twin Cities region.

Introduction

CPRG Overview

The Climate Pollution Reduction Grant (CPRG) program supports states, local governments, tribes, and territories in developing and implementing plans for reducing greenhouse gas (GHG) emissions and other harmful air pollution. This two-phase program provides $250 million for noncompetitive planning grants (of which $1 million was awarded to the Met Council) and approximately $4.6 billion for competitive implementation grants.

The two phases of the grant include two primary deliverables – the Priority Climate Action Plan (PCAP) which was submitted by March 1, 2024 and this Comprehensive Climate Action Plan (CCAP) due by December 1, 2025 – along with ongoing status reports through 2027.

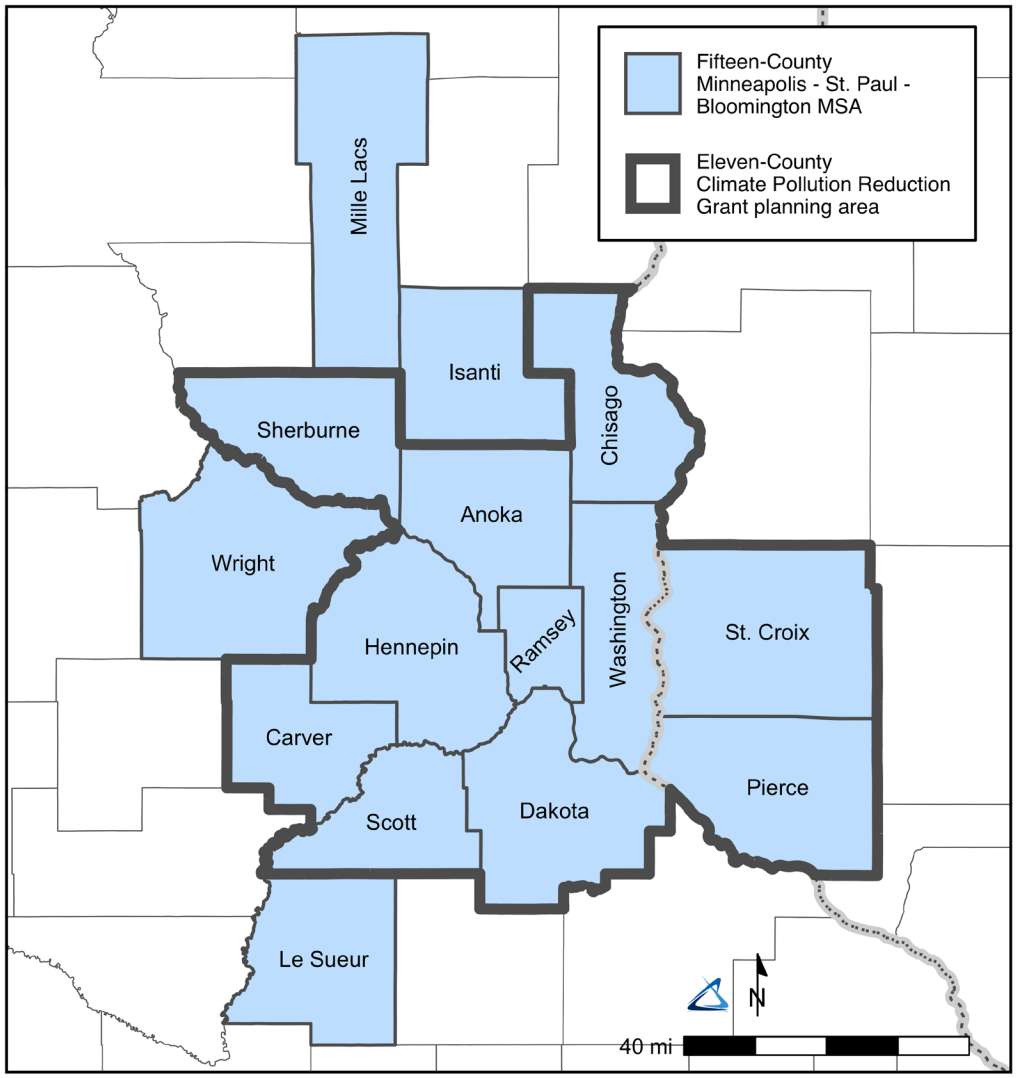
The Comprehensive Climate Action Plan (CCAP) consists of several key components including a comprehensive GHG inventory, projections for GHG emissions, specified measures for GHG reduction, and a thorough benefits analysis covering the entire geographic scope and population addressed by the plan.

CCAP Purpose and Scope

Geographic scope of the CCAP

This CCAP applies to 11 counties in the Twin Cities Metropolitan Statistical Area (MSA): Anoka, Carver, Chisago, Dakota, Hennepin, Ramsey, Scott, Sherburne, and Washington counties in Minnesota along with Pierce and Saint Croix counties in Wisconsin.

Figure 1 Map of Twin Cities Metropolitan Statistical Area and CPRG Planning Area



Source: Metropolitan Council, 2025.

The population of the 11-county region covered in the CCAP is 3,209,316 people across 278 cities and townships as of 2022.

State and Regional Planning Context

The Met Council is the regional planning agency for the seven-county metro region including 181 cities and townships in the counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington. It is responsible for guiding the growth and development of the region, including planning for three regional systems: the regional wastewater system, the metropolitan transportation system, and the regional parks and open space system. The Met Council adopted its most recent regional development guide, Imagine 2050, in February 2025.

As part of the planning process, the Met Council set five regional goals, one of which is: “We lead on addressing climate change: We have mitigated greenhouse gas emissions and have adapted to ensure that our communities and systems are resilient to climate impacts.”

Further, in the 2023 session, the Minnesota State Legislature passed a bill requiring the regional development guide to plan for and consider climate adaptation and mitigation, including mitigation goals and strategies aligned with the state's greenhouse gas emissions goals to reduce emissions by 50% in 2030 and to become carbon-neutral by 2050. The bill also requires local governments in the seven-county metro region to consider greenhouse gas emissions reductions efforts and climate adaptation as a part of their local comprehensive plans. By state law, local comprehensive plans are required to be completed and submitted to the Met Council for review by the end of 2028.

These statutory requirements have guided the Met Council through the development of the CCAP. The analysis compiled in the CCAP has supported technical assistance tools for local governments to complete meaningful climate planning in their 2050 comprehensive plans.

Approach to Developing the CCAP

The Met Council's CPRG work expands on existing regional climate change mitigation work. The Council had developed a GHG inventory and GHG strategy planning tool that quantified how a range of specific strategies may reduce future emissions at the city and township level. When it received the CPRG grant, the Met Council also was in the process of developing regional climate policy for its regional development guide, Imagine 2050. All of these efforts set the context for developing a regional comprehensive climate action plan.

Met Council staff led and largely developed the CCAP. The Minnesota Department of Employment and Economic Development conducted and compiled the workforce development analysis.

Engagement to inform the CCAP

Engagement with local governments and community members was foundational to the creation of the CCAP.

CPRG Steering Committee

The Met Council organized a CPRG Steering Committee of staff from cities, counties, and tribes within the region. The Steering Committee's purpose included:

- Reviewing and refining emissions reductions inventory and strategies
- Identifying impacts of emissions strategies to support community benefit analysis
- Advising on engagement plans for bringing city and county governments as well as community voices into climate planning
- Providing feedback on draft plans to ensure it best supports climate action in the region

The Steering Committee met quarterly over 18 months leading up to the final Comprehensive Climate Action Plan. Committee members included representatives from City of Bloomington, City of Carver, Chisago County, City of Coon Rapids, Dakota County, City of Eagan, Hennepin County, City of Mahtomedi, Mille Lacs Band of Ojibwe, City of Minneapolis, Saint Croix County, City of Saint Paul, City of Savage.

Climate Action Planning Summit

In December 2024, the Met Council convened a Climate Action Planning Summit to engage with planning, natural resource, and sustainability staff from local governments in the region. The summit entailed all-day programming, including a local action panel, a session on

minimum climate and natural systems planning requirements, and breakout sessions. Approximately 110 representatives from local governments across the region participated in the summit. Some key themes from the summit include:

- Interest in and need for greater collaboration within and among communities: Participants mentioned how more coordination can support the development and implementation of climate action. Participants shared specific ideas such as “peer cohorts.”
- Access to data, expertise, and examples: Many participants named the importance of having access to relevant data and examples, such as case studies, strategy banks, cost-benefit analyses, and other plans, as well as access to experts and expertise in the field.
- Dynamic tensions: Discussions pointed to some inherent tensions in this work, including around the role of the Met Council to provide both flexibility and structure when creating comprehensive plan minimum requirements.

The summit also included a session that gathered feedback about the draft GHG inventory and mitigation measures. Feedback from this session included:

- A request for per-capita as well as total GHG emissions data
- Interest in more information in how sectors and sub-sectors are broken out and defined
- Reflections on the importance of transportation-related actions as it emerges as primary source of GHG emissions
- A suggestion to frame reduction measures through financial benefits
- Questions about how to address emissions sources that are not under local control

All the discussions throughout the Climate Action Planning Summit have helped to guide the content in the CCAP as well as the climate technical assistance tools that the Met Council creates for local governments.

Community Climate Collaboration

The Community Climate Collaboration was the Met Council’s initiative to engage residents across the region in climate planning. The purpose was to obtain qualitative data to enhance regional climate policy, specifically informing the community benefit analysis included in the CCAP. The program intentionally reached community members across the region including those whose voices historically have been excluded in planning processes and who often bear the burden of the impacts of climate change. The engagement also focuses on youth who will inherit the region and its climate. Organizations taking part in the Community Climate Collaboration included Brooklyn Bridge Alliance for Youth, COPAL, Hope for Earth, Hmong American Farmers Association, Islamic Center of Minnesota, Karen Organization of Minnesota, Minnesota 4-H, and Park Plaza Cooperative.

The engagement curriculum included 10 hours of workshop time with each organization, centered around the intersections of climate change and energy, transportation, waste, nature, environmental justice, and agriculture. Workshops focused on analyzing regional climate data, brainstorming climate strategies and their impacts, interviewing community members to better understand interest in and barriers to specific climate actions, and developing a final project to share findings with policy makers and community members. Five key patterns emerged throughout the workshops and interviews.

Pattern 1: Re-centering Government Accountability

"Ensure the program leaders, as well as government officials, honor their commitments, allowing communities to confidently collaborate with them."

Many community members emphasized the importance of a government that shows up, listens, and follows through. Trust between government and communities is built through a proactive presence in community spaces and following through on actions that reflect the priorities and lived experiences of residents. This raises the need for governments to plan and collaborate with communities to help reach common goals, and follow through with policy, tools, resources, and support. As a piece of that accountability, participants also expressed a desire to see governments invest directly in communities, helping lower cost barriers to climate actions for individuals and households. When planning processes are transparent to and inclusive of community members, and when governments demonstrate a pattern of delivering on commitments, communities are more likely to collaborate confidently and sustain engagement over time.

Pattern 2: Empowerment within communities leads to collective action.

"One person doing something doesn't make that much of a difference, it's a collective effort. [...] How can we address this as a community?"

When residents feel agency, climate action scales naturally. Participants highlighted the importance of governments not only consulting communities but also playing a role in strategically convening and supporting the growth of local networks and leadership in ways that foster peer connection, empowerment, and shared learning. Some participants voiced that the relationships built through collective climate work often endure beyond the timeline of any single initiative, building the framework for lasting collaboration. However, peer influence can cut both ways. Public norms can either accelerate adoption of new behaviors or inhibit them. Governments can help shape these norms by amplifying community-driven climate strategies and helping cultivate climate leadership within communities.

Pattern 3: Culture-Centered Messaging & Values Shift

"Nature is a very big part of my life; I grew up in camp. The houses are made from bamboo, and we eat food straight from the ground, it's very organic. So, I would love to be a part of this."

Discussions with participants highlighted that climate strategies and their accompanying messaging are more successful when they speak to identity, heritage, and nature. Many participants spoke about climate change not simply as a technical issue, but as a challenge whose impacts are deeply personal, linked to heritage, health, spirituality, and the desire to care for future generations and beloved places. Additionally, messaging that invokes stewardship over consumer sacrifice resonated more broadly among community members. Participants emphasized the importance of culturally relevant climate storytelling, as well as outreach and education delivered by trusted messengers who reflect the community. Many participants also found nature to be a more tangible and effective entry point into climate action work. Shifting values around consumption, care for nature, and collective action takes culture-centered messaging, sustained connection, and recognition of the historic power dynamics that shape who gets heard and what gets prioritized.

Pattern 4: Education that Leads to Action

"The world is seeing the impact of climate change. People want to help but don't know how. Education drives change."

Without clear, actionable next steps, educational efforts can lead to frustration and inaction. Many participants voiced that in order for climate education to be effective, it needs to be multi-generational, language-accessible, and culturally responsive. Programs that demystify the benefits of climate strategies and offer practical steps are more likely to result in action. Community members also noted the importance of normalizing change, reframing new technologies, behaviors, or land use shifts not as disruptions, but as part of a "new normal". Educational efforts to reduce stigma, whether around taking the bus or adopting non-traditional energy sources, can help shift individual behaviors and public perception.

Pattern 5: Infrastructure & Mobility for Low-Carbon Living

"Establishing more accessible and safe transportation would include more stops, meaning people wouldn't have to walk long distances to their destination."

Many communities voiced a desire for systems-level change, and a need for integrated infrastructure that supports climate-friendly living: safer streets for walking and biking, reliable transit options and multi-modal upgrades, accessible green spaces, and neighborhoods that make it easy to live without a car. Land-use changes that support walkable and bikeable, mixed-use areas were seen as investments in health, equity, affordability, and community well-being. Some participants also encouraged local governments to leverage existing infrastructure, such as installing solar panels on school roofs or parking lots or developing existing parks before building new ones. These approaches were viewed as more equitable, efficient, and responsive to the way people live.

Regional Climate Workforce Work Group

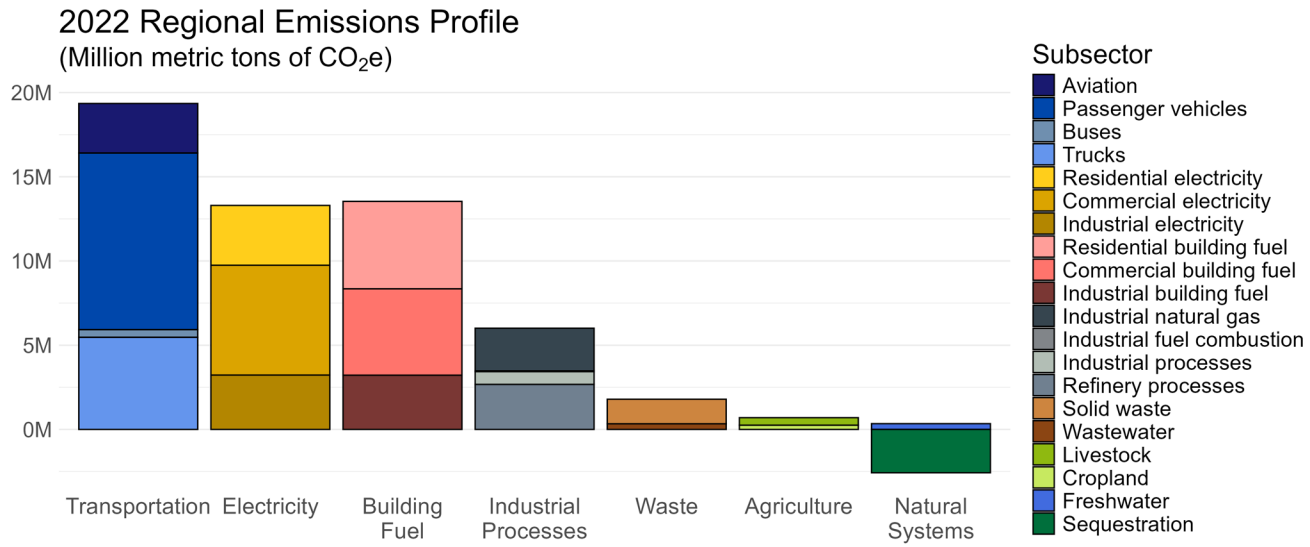
The work group specifically focused on workforce development was convened three times through the development of the Comprehensive Climate Action Plan. The purpose of the group was to advise on the workforce analysis and ensure that its conclusions and recommendations align with the experience of people doing this work day-to-day. Attendees represented state and county governments trade organizations, non-profit organizations focused on workforce training and growing clean economy sectors.

Coming in September: A summary of Work Group feedback will be included here after their late August meeting.

Greenhouse Gas (GHG) Inventory

In 2022, the Twin-Cities MSA generated 54.3 million metric tons of CO_2 equivalent ($MMtCO_2e$) emissions across all economic sectors. Transportation was the largest contributor to GHG emissions (35.4%), followed by building fuel use (24.8%), electricity consumption (24.3%), industrial processes (11.0%), waste (3.3%), and agriculture (2.1%). Natural systems sequestered 2.6 $MMtCO_2e$ in 2022, or 4.9% of the total amount emitted.

Figure 2 2022 Regional Emissions Profile



Inventory Methodology

Methods used to estimate GHG emissions varied by sector. In all cases, the Global Warming Potentials from IPCC5 was used for converting all gases to CO_2 equivalency.

All data manipulation and analysis were conducted in the R programming environment and were tracked in a Metropolitan Council GitHub repository. Sectors were broken up into subtasks and assigned to researchers. As researchers completed tasks, all code and data were submitted for a peer review by another team member before being merged into the main branch of the repository. Datasets and functions were regularly tested and evaluated for reproducibility and consistency. Final datasets were compared with other GHG inventories and contextual data, like population estimates, for correlation and logical consistency. Additional methodology details are listed below each sector.

A more detailed discussion of GHG inventory methods will be included in a CCAP appendix or a separate referenced website or inventory report.

Inventory Results

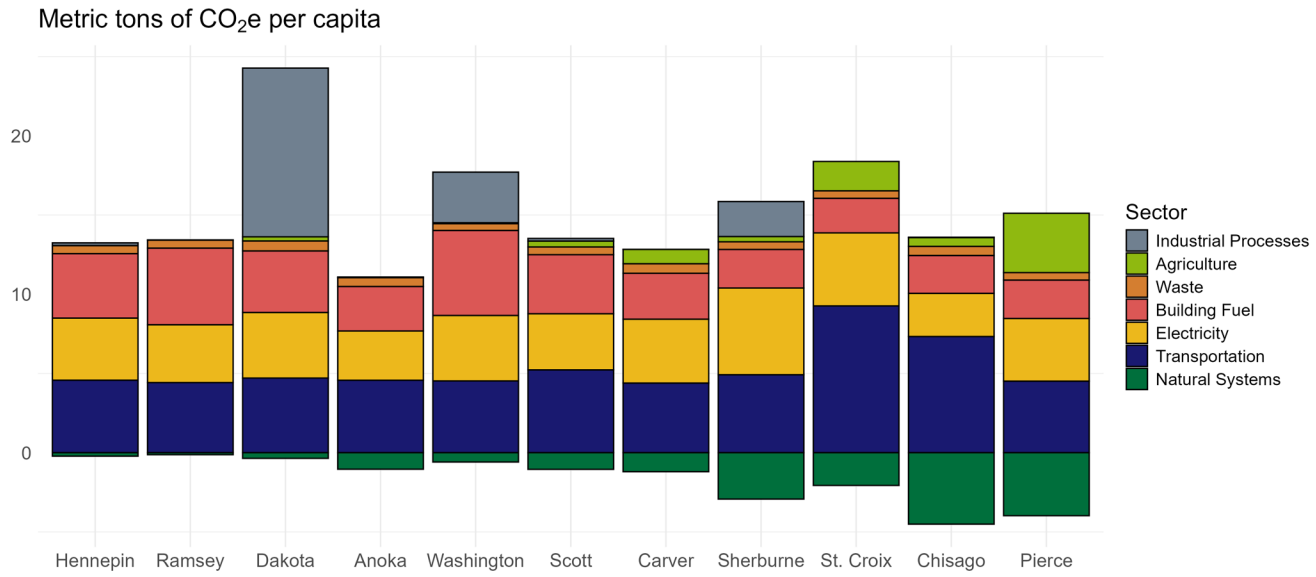
Table 1 Region-wide GHG Emissions Inventory Results

Sector	Base Year (for GHG Reduction Targets) (e.g., 2005)	Most Recent Inventory Year (e.g., 2022)	2022 emissions as a percentage of 2005
Transportation	19,744,882	19,352,543	98%
Electricity Demand	27,564,577	13,299,448	48.2%
Building Fuel	11,537,468	13,538,967	117%
Industrial Processes	4,940,902	6,009,118	122%
Waste	1,695,692	1,791,994	106%
Agriculture	1,216,808	1,132,142	93%
Natural Systems	-2,137,971	-2,223,069	104%
Total Emissions	66,700,329	54,688,034	82%
Net Emissions	64,562,358	52,454,965	81.2%

Inventory Trends and Analysis

Geographic trends

Figure 3 2022 Per Capita GHG Emissions by County

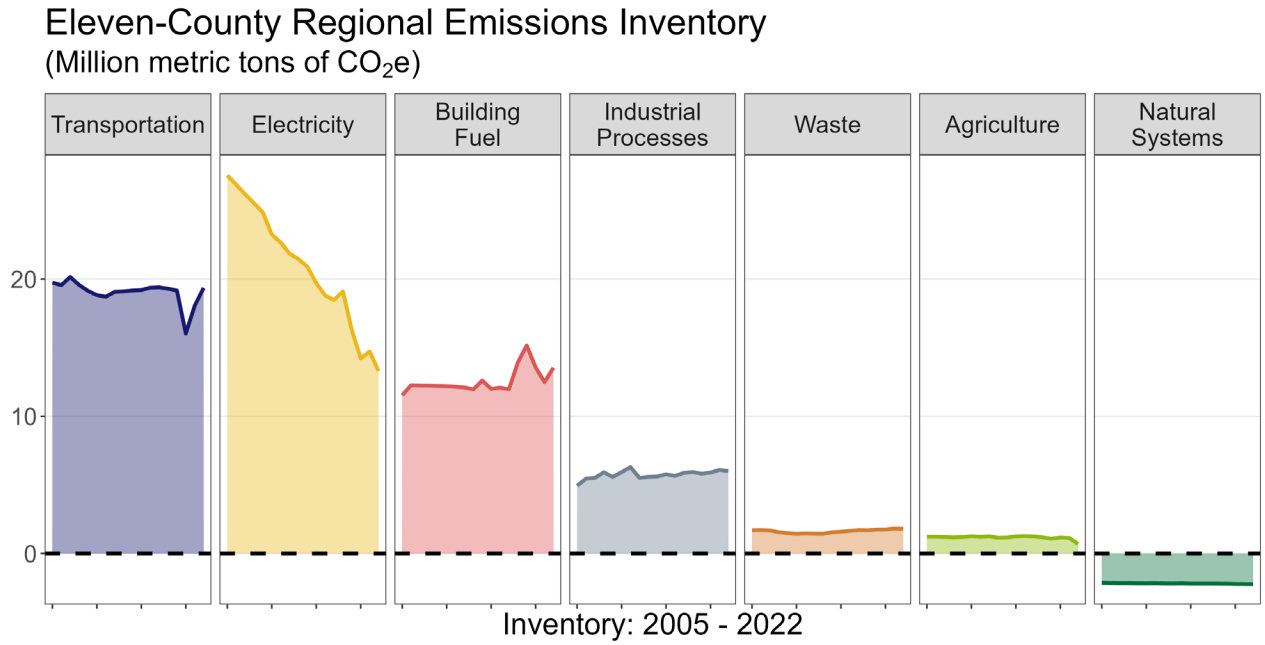


Emissions per county are highly correlated with county population. The graph above shows that per capita emissions are relatively even across the Twin-Cities MSA. The major

exceptions occur due to large industrial point sources, such as an oil refinery in Dakota County, as well as rural counties having more natural systems and agricultural areas. St. Croix and Chisago counties also have large interstate systems running through them with heavy truck traffic which is not offset by their smaller population as they are in other counties.

Temporal trends

Figure 4 2005 to 2022 Regional Emissions Inventory by Sector



Emissions since 2005 have remained relatively flat with the notable exception of electricity, which has decreased by 51.7% due to a decarbonizing electrical grid. The notable dip in 2020 for the transportation sector is due to the COVID-19 pandemic, though emissions have rebounded to previous levels as of 2022. There is also a notable spike in building fuel usage in 2018 which is attributable to a cold year, which increased building heating demand. Despite the relatively stable emissions profile, when accounting for population growth the emissions per capita decreased from 12.4 metric tons of CO_2e to 11.4 even when discounting electricity.

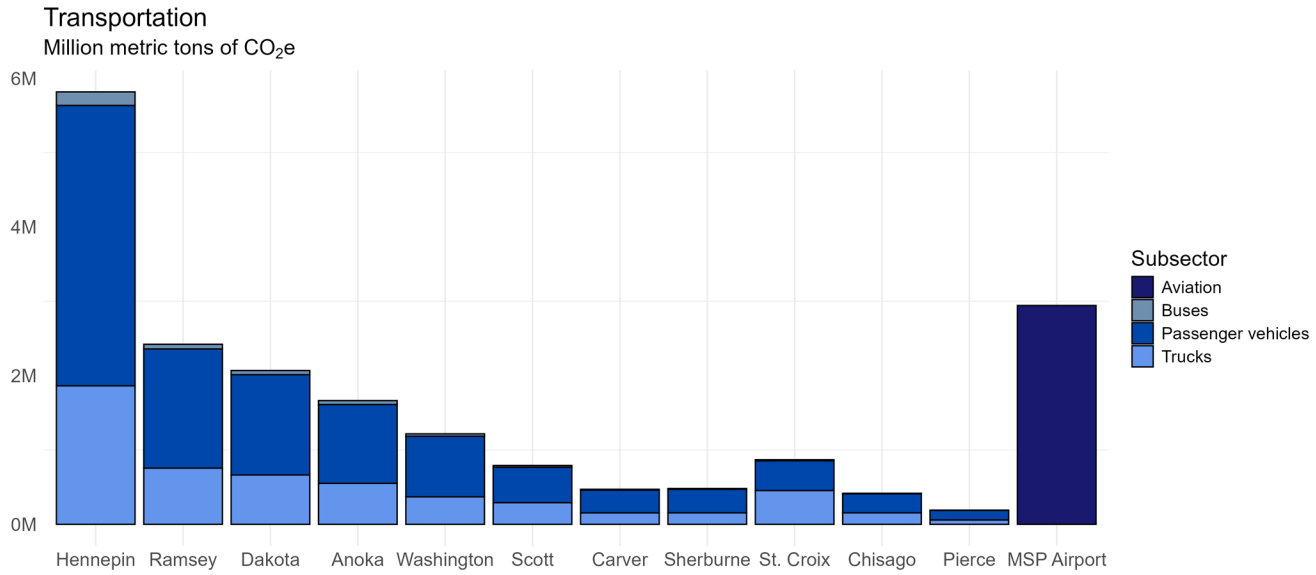
Transportation

The transportation sector generated 19.7 $MMtCO_2e$ of emissions in the Twin Cities MSA in 2022, with aviation accounting for 2.9 $MMtCO_2e$ and the rest arising from on-road emissions. Overall, transportation accounted for 35.4% of emissions in the region in 2022.

This is a county-level, geographic emissions estimate that accounts for on-road emissions that occur in each county. Modes included are motorcycles, passenger cars, intercity buses, light commercial trucks, single unit long-haul trucks, refuse trucks and transit buses.

Aviation emissions are attributed to the entire region and not broken out by county.

Figure 5 2022 Transportation Emissions by County



Accounting Method

County-level transportation emissions data were pulled directly from EPA data sources. Years 2002-2019 are from EPA EQUATES, year 2020 is the National Emissions Inventory (NEI), and years 2021-2022 are from recent EPA Air Emissions Modeling Platforms. For each dataset, we downloaded and compiled SMOKE FF10 tables published by the EPA and the Community Modeling and Analysis System (CMAS). Datasets were cross verified where possible. Full documentation on our transportation emissions data processing are available on our GitHub documentation site.

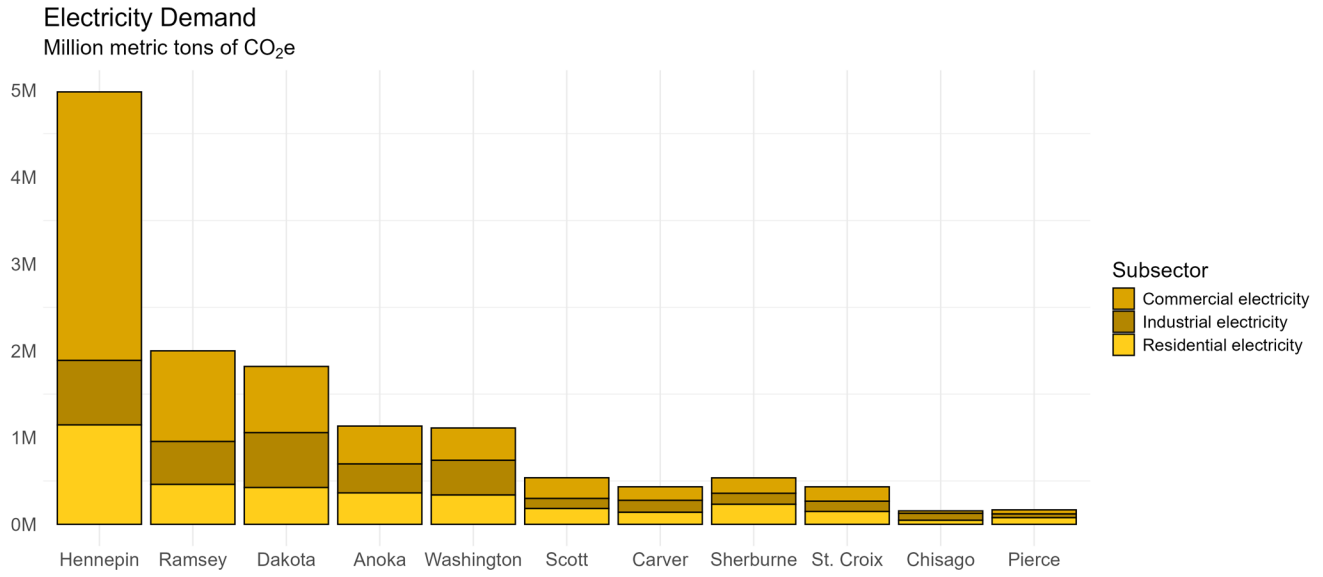
Aviation data originally from the MPCA and downscaled to our region using fuel data from the Metropolitan Airports Commission (MAC).

Electricity

Electricity demand in the Twin Cities MSA generated 13.3 $MMtCO_2e$ of emissions in 2022, accounting for 24.3% of total emissions. This represents a 51.7% decrease in emissions since the 2005 baseline, attributable to decarbonization of electrical grid.

The county level breakdown of electrical emissions largely follows population trends, though larger commercial electrical demand is evident in Hennepin and Ramsey counties which have downtown districts.

Figure 6 2022 Electricity Emissions by County



Accounting Method

Emissions were apportioned to the county level by identifying all electric utilities in the Twin Cities MSA, collecting their reports on energy delivered to customers, and using EPA eGrid emission factors for the Midwest Reliability Organization – West to calculate estimated emissions. The inventory presented here therefore reports demand-side emissions as opposed to within-boundary emissions by the utilities themselves (Scope 2). Utilities with operations in Minnesota reported the specific amount of electricity delivered to each of the Minnesota counties in our inventory. In contrast, utilities with operations in Wisconsin counties reported statewide numbers, which were allocated to Wisconsin counties in our inventory based on either a) the proportion of customer accounts in total utility service territories within the inventory counties, or b) the proportion of population in total utility service territories within the inventory counties, subject to data availability.

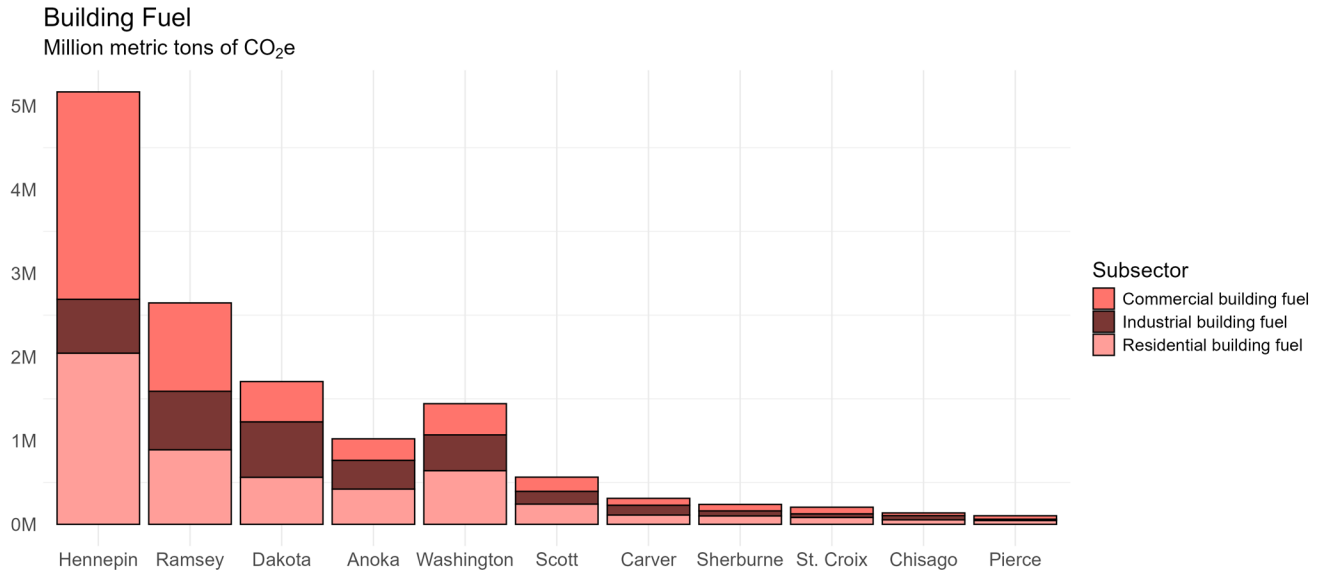
Emissions were apportioned to commercial, industrial, and residential emissions using the State and Local Planning for Energy platform curated by the National Renewable Energy Laboratory.

Building Fuel

Building fuel in the Twin Cities MSA generated 13.5 $MMtCO_2e$ of emissions in 2022, accounting for 24.8% of regional emissions. Building fuel is primarily the combustion of natural gas for heating and appliances, though it does include some other fossil fuels as well. Emissions in this sector grew by 17% from 2005 to 2022.

The county level breakdown of building fuel emissions largely follows population trends, though larger relative commercial demand is evident in Hennepin and Ramsey counties.

Figure 7. 2022 Building Fuel Emissions by County



Accounting Method

Emissions were apportioned to the county level by identifying all natural gas utilities in the Twin Cities MSA, collecting their reports on energy delivered to customers, and using emission factors from the 2022 EPA Emissions Factor Hub to calculate estimated emissions. The inventory presented here therefore reports demand-side emissions as opposed to within-boundary emissions by the utilities themselves (Scope 2). Utilities with operations in Minnesota reported the specific amount of natural gas delivered to each of the Minnesota counties in our inventory. In contrast, utilities with operations in Wisconsin counties reported statewide numbers, which were allocated to Wisconsin counties in our inventory based on the proportion of customer accounts in total utility service territories within the inventory counties.

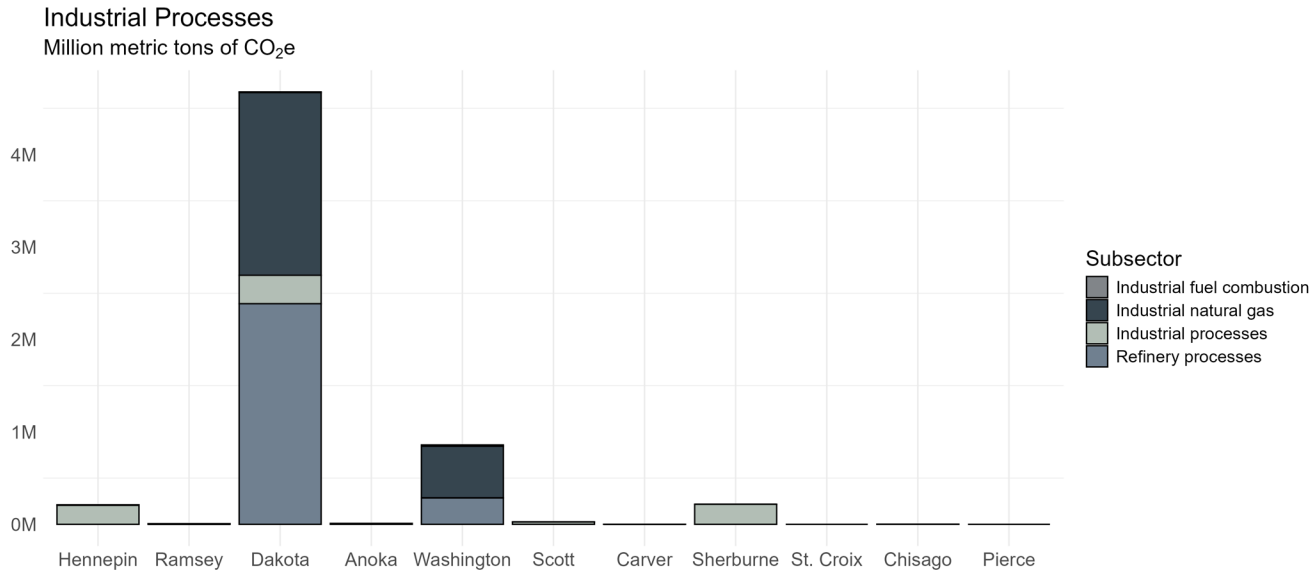
Emissions were apportioned to commercial, industrial, and residential emissions using the State and Local Planning for Energy platform curated by the National Renewable Energy Laboratory.

Industrial Processes

Industrial processes include emissions from industrial facilities *excluding* combustion of utility delivered natural gas, which is accounted for in building fuel. Industrial process emissions in the Twin Cities MSA generated 6.0 $MMtCO_2e$ of emissions in 2022, accounting for 11% of regional emissions and a 21.6% increase from 2005.

The county level breakdown reveals highly uneven geographic spread due to the nature of these point source emissions. The largest emitters in the region are two oil refineries located in Dakota and Washington counties. Other notable emitters include an industrial waste facility in Dakota county and super conductor manufacturers in Hennepin county. St. Croix and Pierce counties had zero reported industrial emissions.

Figure 8. 2022 Industrial Processes Emissions by County



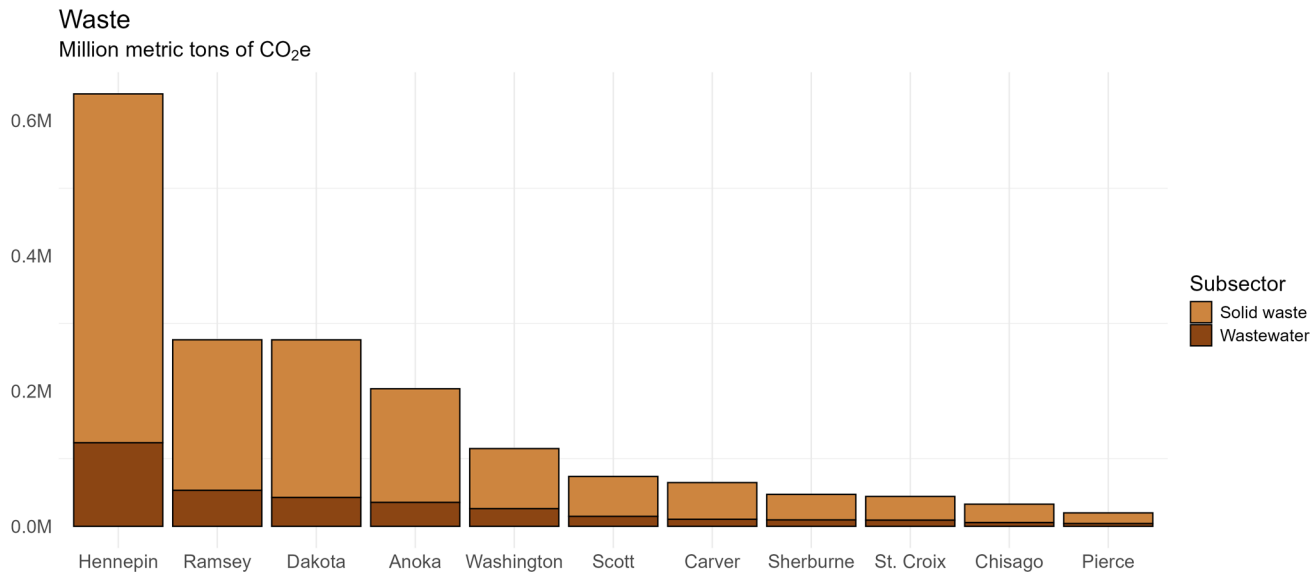
Accounting Method

We compiled industrial emissions from two primary sources. First, the EPA Greenhouse Gas Reporting Program (GHGRP) provides total emissions from any point source emitting more than 25,000 metric tons of CO_2e annually, dating back to 2010. The GHGRP further provides a fuel combustion dataset that allowed us to parse out natural gas combustion from non-refinery sources, allowing us to avoid double counting with utility provisions. The second source was an MPCA data source with a broader set of industrial and commercial facilities that report on-site fuel combustion dating back to 2016. We filtered out any cities that were represented in the GHGRP program (facility to facility comparisons were not feasible due to different naming conventions) and used 2022 EPA Emissions Factor Hub to calculate GHG emissions from the listed fuel combustion. We used the MPCA GHG inventory dating back to 2005 to extend our emission estimates backward, anchoring our curated inventory to the appropriate subsector categories in the MPCA, calculating a statewide proportion, modeling that proportion backwards, and recalculating total emissions by year.

Waste

Waste emissions include methane from landfills, incineration of municipal solid waste, and treatment of wastewater. Waste activities in the Twin Cities MSA generated 1.8 MMtCO2e of emissions in 2022, accounting for 3.2% of regional emissions and a 4.4% increase from 2005.

Figure 9. 2022 Waste Emissions by County



Accounting Method

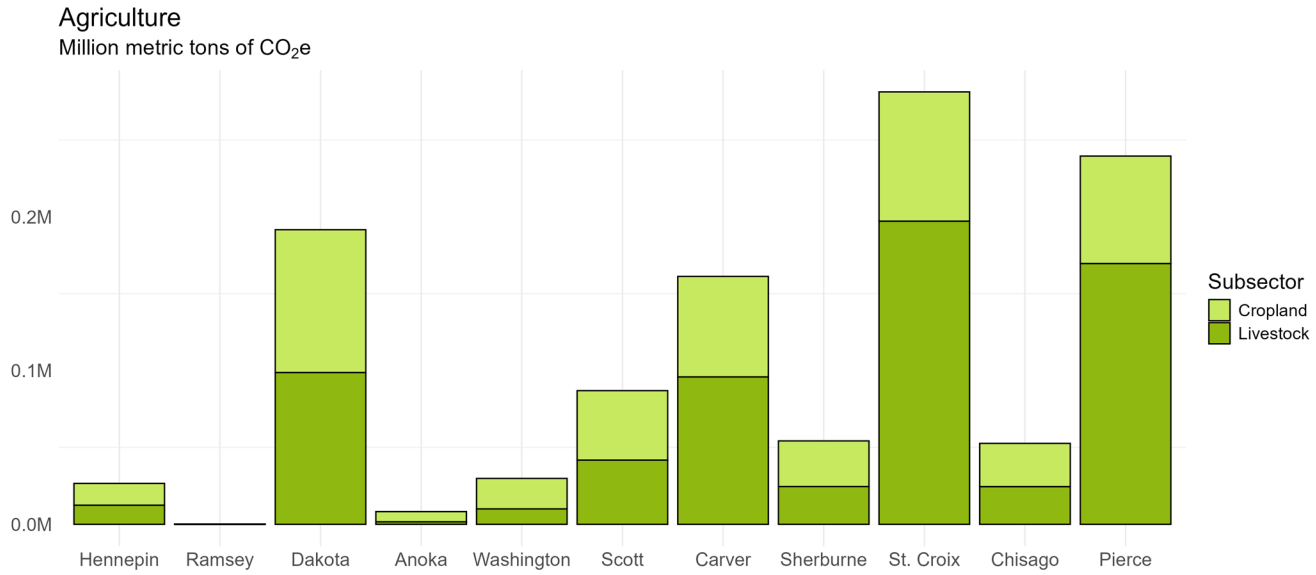
Wastewater emissions were estimated using EPA State Inventory Tool methodology to scale wastewater methane and nitrous oxide emissions based on population. We estimated solid waste emissions using the IPCC methane commitment method, which calculates landfill methane based on county-level waste totals from MPCA's SCORE report and methane generation potential. Compost emissions were estimated using IPCC default factors for aerobic composting (anaerobic digestion does not occur within the region). Incineration emissions were calculated from SCORE-reported waste-to-energy data, applying IPCC and GHG Protocol defaults for combustion efficiency, carbon content, and nitrous oxide emission factors.

Agriculture

Agricultural emissions are predominantly methane emissions from livestock and nitrous oxide emissions associated with manure and crop production. Collectively, the region produced 1.1 $MMtCO_2e$ in 2022, accounting for 1.3% of regional emissions.

County emissions from agriculture unsurprisingly occur in more rural areas, though this does not reflect the consumption of agricultural products largely occur outside of these regions.

Figure 10. 2022 Agriculture Emissions by County



Accounting Method

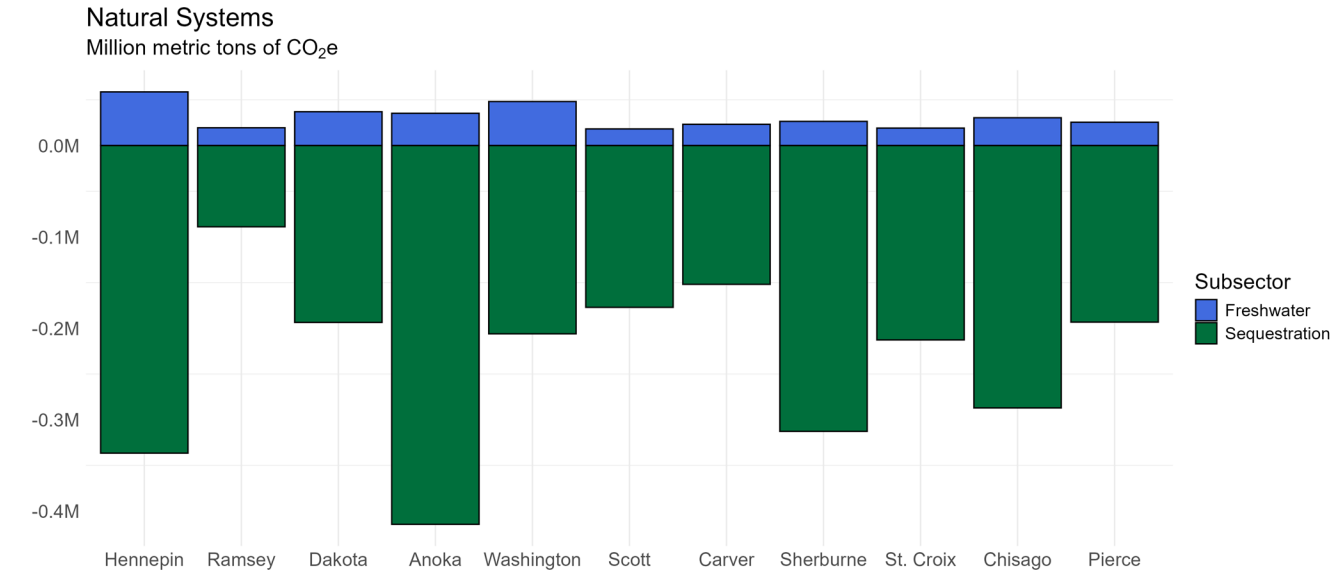
Agricultural emissions are derived from two primary sources. First, we used the USDA agricultural census to provides county level activity data in the form of livestock head counts, crop production, and fertilizer sales Second, we used the EPA State Inventory Tool (SIT) to calculate how Minnesota and Wisconsin specific activities produced GHG in form of enteric fermentation, manure storage and runoff, fertilizer volatilization, and soil residue volatilization. Fertilizer sales were calculated as a proportion of state totals and these proportions were applied to an estimate of statewide fertilizer application found in the SIT.

The USDA census is conducted once every five years (years ending in ’2 and ’7). For interstitial years we used linear interpolation to provide county level estimates.

Natural Systems

Natural systems consist of vegetated ecosystems within and without developed areas and sequester carbon from the atmosphere. Natural systems in the region sequestered an estimated 2.6 $MMtCO_2e$ in 2022, or 4.9% of emissions from the region. Freshwater systems emit methane naturally, but do so at higher rates when disturbed by chronic nutrient input, invasive species, or eutrophication. Freshwater in the region emitted an estimated 0.34 $MMtCO_2e$, or 0.6% of the regional total in 2022.

Figure 11. 2022 Natural Systems Emissions by County



Accounting Method

We used land cover maps from the United States Geological Survey's National Land Cover Database (NLCD) to estimate the area of five land cover types: forests, grasslands, wetlands, urban trees, and turfgrass. We used values derived from the scientific literature on sequestration per area per cover type, matched to be as Minnesota and Wisconsin-specific as possible. For interstitial years, we interpolated changes in land cover between NLCD survey years.

For freshwater systems, we used the USGS National Hydrography Dataset to calculate areas of different freshwater systems (lake, reservoir, river, marsh) and used values determined by the MPCA for expected methane offput rate per unit area.

Near-Term and Long-Term GHG Reduction Targets

The Twin Cities Metropolitan region's GHG reduction targets are:

- Near-term target: Reduce emissions 50% below 2005 emissions by 2030
- Long-term target: Reach net-zero emissions by 2050

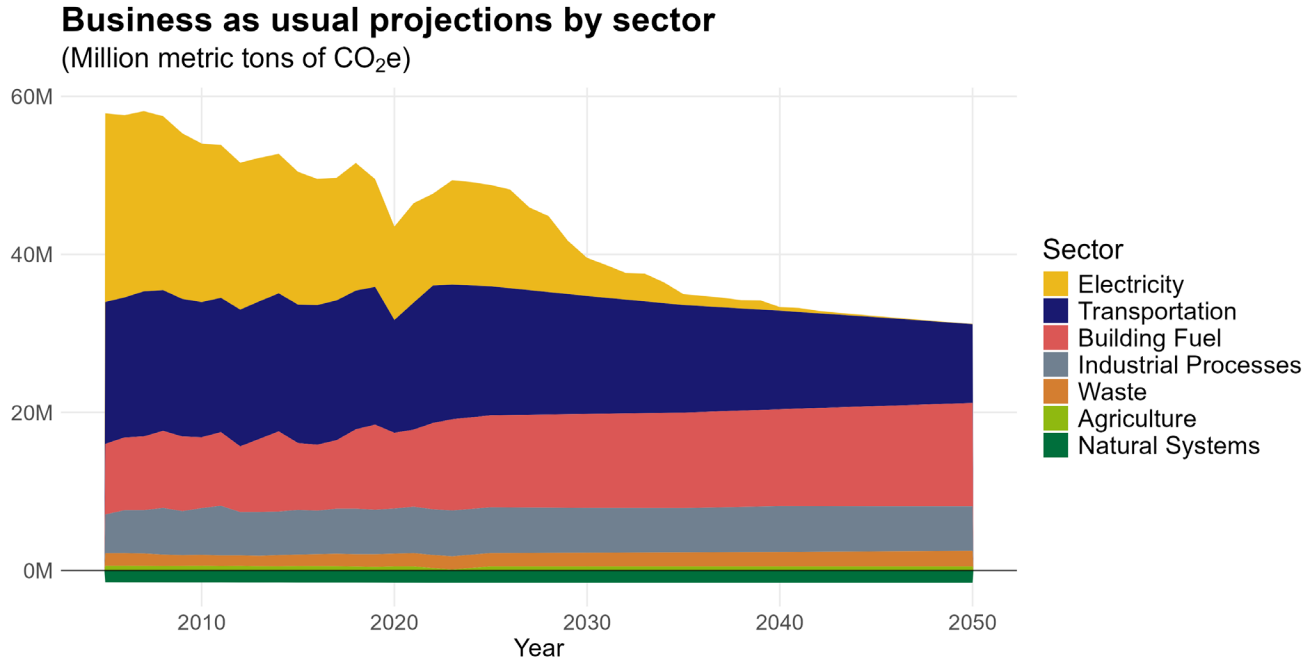
These commitments were adopted in Imagine 2050, the regional development guide for the seven-county metropolitan area, in February 2025 as part of the larger goal "We lead on addressing climate change." These targets also align the region with the goals set by the state of Minnesota and the federal government. 2005 was selected as a baseline year because it aligns with state and federal targets and the region has emissions data at the county scale back to 2005.

BAU GHG Emission Projections

NOTE: Current projection and strategy mitigation data work only reflects the seven-county region. We will expand the projections to the 11-county region and have strategy reduction estimates for all sectors ready for public release in September.

Emission projections reveal the Twin-Cities MSA is estimated to produce 38.0 $MMtCO_2e$ in 2030 and 29.6 $MMtCO_2e$ in 2050. This represents 67.4% and 52.6% of 2005 emissions, respectively. The projected declines represent the decarbonization of the electrical grid and expected increases in fuel efficiency in the transportation sector more than compensating for increased VMT projections. Nonetheless, these declines are well short of both 2030 and 2050 targets, demonstrating the need for continued aggressive policy aimed at GHG mitigation. Below we explore key mitigation strategies and associated policies across all sectors.

Figure 12. Business as Usual Projections by Sector



BAU Projections Methodologies

Coming in September: A discussion of methods will be included in the CCAP appendix.

BAU Projections Results

Table 2. Business as Usual Projections by Sector

Sector	Base Year Emissions (MT CO_2e)	Most Recent Inventory	Short-Term BAU Projection Year (e.g., 2030)	Long-Term BAU Projection

		Year Emissions (MT CO_2e)	(MT CO_2e)	Year (e.g., 2050) (MT CO_2e)
Commercial and Residential Buildings	8,928,858	10,916,104	11,880,901	13,099,522
Electricity Demand	23,887,885	11,626,174	4,820,847	36,410
Transportation	17,953,095	17,394,259	14,941,439	9,965,873
Industrial processes	4,918,540	5,791,102	5,672,962	5,630,863
Agriculture	589,502	504,585	504,585	504,585
Natural Systems	-1,507,386	-1,568,528	-1,568,528	-1,568,528
Waste	1,583,896	1,653,517	1,741,002	1,968,786
Total Emissions	56,090,137	45,148,518	36,943,450	27,797,483
Net Emissions	54,582,752	43,579,990	35,374,922	26,228,955

GHG Emission Reduction Measures and Implementation Scenario Projections

GHG Emission Reduction Measures Summary

The regional CCAP includes 17 GHG emissions reductions measures that address each out the sectors.

Table 3. GHG Emissions Reductions Measure Summary

Sector	GHG Emission Reduction Measure
Transportation	1. Accelerate the transition to low- and no-carbon fuels in vehicles and equipment
	2. Increase public transit and shared mobility options
	3. Increase infrastructure for walking, rolling, and biking
	4. Implement land use policies that support compact and multimodal-oriented development
Electricity	5. Encourage energy infrastructure investments aligned with the state's 2040 Clean Electricity Standard
Building Energy	6. Improve residential building energy efficiency
	7. Electrify homes
	8. Improve commercial and public building energy efficiency
	9. Electrify commercial and public buildings
Industrial Processes	10. Encourage industrial adoption of energy efficiency and low-carbon technologies
Waste	11. Promote waste prevention, waste reduction, and recycling
	12. Manage wastewater efficiently
Agriculture	13. Encourage climate-smart agriculture practices that improve soil health and soil organic content
	14. Invest in emerging local and urban agriculture
	15. Manage fertilizer and manure to reduce emissions
Natural Systems	16. Invest in a robust, resilient tree canopy
	17. Restore and protect natural land and water

Implementation Scenario Projections

Coming in September: A summary of quantified emissions reductions from the identified GHG Emissions Reductions Measures under the following scenarios:

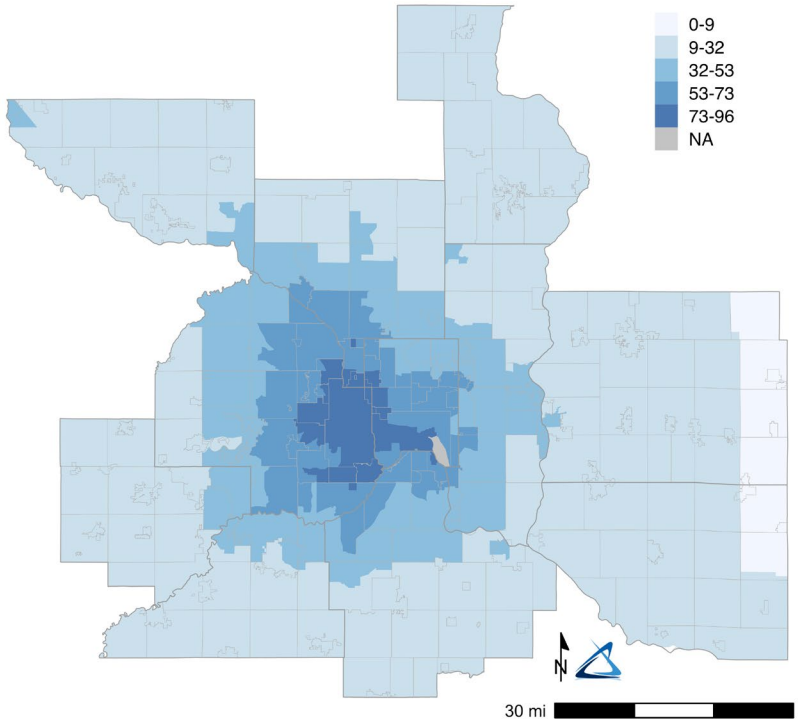
- *"Business as Usual" assumes emissions will continue based on past patterns and takes into account existing policies including the state's Clean Electricity Standard of 100% carbon-free electricity by 2040.*
- *Accelerated Policy Pathway shows an intermediate pathway reflecting the current changes at the federal level and known state and local actions that can still be taken to reduce emissions.*
- *Net-zero shows the necessary policies and actions to achieve very low emissions offset by sequestration by 2050.*

GHG Emission Reduction Measures

Transportation Sector

The transportation sector represents 35.4% of regional emissions as of 2022. The transportation sector includes measures that address increasing modes of travel that are less GHG-intensive and designing cities to support those modes. The measures for the sector align with the seven-county metro region's goal of reducing vehicle miles travelled (VMT) 20% per capita by 2050. They will also help improve public health outcomes by improving air quality in the region which is particularly pronounced in urban centers, as shown in Map 1.

Map 1. Distribution of exposure to inhalable diesel particulate matter by percentiles



Source: Metropolitan Council analysis of Council on Environmental Quality Climate and Economic Justice Screening Tool and Environmental Protection Agency EJScreen Data.

Table 4. Transportation Sector Measures Summary

Transportation Sector Measure Summary	GHG Emission Reductions in 2030 Compared to the BAU ($MTCO_2e$)	GHG Emission Reductions in 2050 Compared to the BAU ($MTCO_2e$)
Measure 1: Accelerate the transition to low- and no-carbon fuels in vehicles and equipment		
Accelerated Policy Scenario		
Net Zero Scenario		
Measure 2: Increase public transit and shared mobility options		
Accelerated Policy Scenario		
Net Zero Scenario		
Measure 3: Increase infrastructure for walking, rolling, and biking		
Accelerated Policy Scenario		
Net Zero Scenario		
Measure 4: 4. Implement land use policies that support compact and multimodal-oriented development		
Accelerated Policy Scenario		
Net Zero Scenario		

Measure 1: Accelerate the transition to low- and no-carbon fuels in vehicles and equipment

Description

Increasing the use of low- and no-carbon vehicles is important to reducing emissions from the transportation sector. While land use and infrastructure may change over the coming decades, personal vehicles will still be integral in many parts of the region for getting around. Transitioning passenger vehicles to technologies including hybrid and battery electric is required to reduce GHG emissions.

It is also necessary to transition fossil-fueled medium-duty, heavy-duty, and off-road vehicles and engines to low- and no-carbon-fueled alternatives. Vehicles and equipment in this category include transit and school buses, heavy-duty and medium-duty trucks, terminal tractors, construction equipment, agricultural equipment, short haul locomotives, and ground and maritime freight equipment. Technology has begun to provide and will continue to increase options for low- and no-carbon fuels including electricity and green hydrogen for these types of vehicles. This measure applies to the whole region.

Community Benefits Analysis

"[Electric cars] are more expensive. We want to make the earth better but how are we supposed to access them if they're expensive? It's hard for us. ¿Como podemos mejorar si las cosas están caras?" [How can we make things better if things are expensive?]

Switching to low- and zero-emission vehicles reduces harmful exhaust pollutants, improving air quality and public health in communities near major roads, freight, and industrial zones. Decarbonizing municipal fleets, heavy-duty trucks, school buses, equipment, and more, can yield benefits especially for residents in high-exposure areas. Equitable implementation requires prioritizing communities most affected by transportation emissions, ensuring accessible charging infrastructure for underserved communities, offering technical assistance, and addressing cost barriers by providing incentives.

Implementation Authority and Responsibilities

- State Government: State agencies including the Department of Transportation, Pollution Control Agency, Department of Administration, Department of Agriculture and have authority and/or influence over the adoption of low- and no-carbon vehicles and equipment.
- Regional Government: The Met Council has several roles related to the availability, visibility and accessibility of electric vehicles including:
    - Planning for regional private and shared electric vehicle charging needs including establishing an approach to define charging infrastructure priorities.
    - Funding, researching, developing, and sharing resources with local agencies to engage and educate residents on vehicle electrification and charging
    - Developing and implementing low/no-emission fleet transition plans, including service and support vehicles
    - Identifying methods and processes to prioritize targeted charging and fueling infrastructure funding with a focus on historically disadvantaged and rural communities
- Local Government: Cities, counties, tribal nations, and port authorities play an important role in strategies such as providing public charging options, planning, regulation, education, internal fleets, and shared mobility.
- Other Actors: Transit providers, school districts, and other heavy- and medium-duty fleet owners have roles in transitioning their fleets to low- and no-carbon vehicles.

Implementation Timelines and Milestones

This is a short- to medium-term measure as the technology exists and implementation efforts are ongoing but are limited by scope and funding availability.

Metrics for Tracking Progress

Percent of light-duty vehicles registered that are electric or zero-emissions vehicles, percent of light-duty emissions vehicles sold that are electric or zero-emissions vehicles, GHG emissions from the transportation sector

Quantified GHG Emission Reduction

Table 5. Measure 1 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 1 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Cost is expected to be low to medium depending on factors including cost of technology and implementation approach.

Intersection with Other Funding Availability

Complementary funding sources include:

- U.S. and Minnesota Diesel Emissions Reduction Act grants
- U.S. Federal Highway Administration Congestion Mitigation and Air Quality Improvement Program
- U.S. Federal Highway Administration Charging and Fueling Infrastructure Discretionary Grant
- U.S. Federal Highway Administration National Electric Vehicle Infrastructure Program
- U.S. Alternative Fuel Vehicle Refueling Property Credit Direct Pay
- Volkswagen settlement grants – available in Minnesota to fund vehicle replacements and invest in electric vehicle charging stations

Measure 2: Increase public transit and shared mobility options

Description

Public transit is an essential part of lowering greenhouse gas emissions from the regional transportation system. Public transit moves more people where they need to go with fewer vehicles miles traveled. It also has many additional benefits including reducing wear on roads, managing congestion, reducing air pollutants, and supporting the mobility of those who cannot drive for any reason. Shared mobility refers to transportation modes where users use the service at the same time or independently of one another and includes microtransit, carpooling, and ride sharing. It can be a more flexible alternative to fixed-route public transit. It is often used in more suburban and rural areas without other public transit, but it can also be used to augment public transit and provide first- and last- mile connections.

Community Benefits Analysis

"Implementing more accessible and safe transit would help our community feel more comfortable taking the public transit. This would include more stops so that people wouldn't have to walk long distances to their destination. We would also like low-emission micro transit."

Expanding and improving public transit and shared mobility options increases access to jobs, education, healthcare, and other essential services, particularly for those without reliable access to a private vehicle. Affordable, frequent, and accessible service can reduce transportation costs and travel times for low-income households, while also cutting greenhouse gas emissions and lowering pollution in communities near major highways and roads. Implementation should include prioritizing high-need routes, improving accessibility, and addressing transportation gaps through micro-transit services such as on-demand shuttles or

vanpools. Additionally, increasing widespread use of public transit especially for young women depends on increasing the passengers' perceived and actual safety on all modes.

Implementation Authority and Responsibilities

- State Government: MnDOT is responsible for planning intercity passenger rail and coordinating with local agencies such as Ramsey County Regional Rail Authority, which owns Union Depot in Saint Paul. MnDOT also coordinates with intercity bus companies in Minnesota, including for areas covered in the CCAP and outside the seven-county metro area.
- Regional Government: As the metropolitan planning organization for the seven-county Twin Cities region, the Metropolitan Council is responsible for coordinating transportation planning and policy - including for public transit - in a continuous, cooperative, and comprehensive process. The Met Council works with cities, counties, transit providers, and other partners like Tribal governments and the state of Minnesota to plan and implement projects, strategies, and services. Metro Transit, the region's largest transit provider, is a service of the Met Council and is governed by it.
- Local Government: Cities and counties work with transit providers on service levels and have control over local land use and zoning which play an important role in transit feasibility across the region.
- Other Actors: Metro Transit is the largest but not the only transit provider in the region. Other providers include Minnesota Valley Transit Authority, SouthWest Transit, Maple Grove Transit, Plymouth MetroLink, the University of Minnesota, Hudson Public Transit Program and, Rivers Falls Transit. Transportation network companies (i.e. Uber and Lyft) also play an important role in providing shared mobilities options in the region. Finally, employers can encourage employees to use public transit through providing subsidized passes.

Implementation Timelines and Milestones

This is a medium-term measure as efforts to expand and increase transit service throughout the region are ongoing and have some existing funding sources. Widespread adoption and implementation will also be dependent on resident use.

Metrics for Tracking Progress

Total transit ridership, the proportion of miles traveled from transit ridership, transit service miles

Quantified GHG Emission Reduction

Table 6. Measure 2 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 2 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Cost is expected to be low to medium depending on implementation approach including the need for new infrastructure.

Intersection with Other Funding Availability

Complementary funding sources include:

- U.S. Federal Transit Administration RAISE program
- U.S. Federal Transit Administration
- Met Council Regional Solicitation
- Metro Area Transportation Sales and Use Tax

Measure 3: Increase infrastructure for walking, rolling, and biking

Description

Active transportation modes including walking, rolling and biking reduce overall greenhouse gas emissions by replacing trips, especially shorter trips, taken in cars. Additionally, increasing infrastructure for active transportation can help improve connections to other modes of travel like public transit. Much of the Twin Cities region has a well-developed bike network composed of almost 4,000 miles of existing bikeways and almost 3,000 miles of additional planned bikeways. Pedestrian infrastructure in the region includes state trails, regional trails, local multiuse paths, sidewalks, skyways, and pedestrian or multiuse bridges or underpasses. Often the most dangerous part of walking or rolling is crossing streets, so street-crossing treatments are critical parts of infrastructure for safe travel by people walking and rolling. Active transportation modes have additional advantages beyond lowering greenhouse gas emissions including overall affordability and physical and mental health benefits.

Community Benefits Analysis

"I like to walk because, well, walking is fun. Plus it's a nice way to get somewhere and feel like I'm being healthy."

"There are no sidewalks, so I'm just walking on the road hoping the car doesn't hit me."

Investments in safe, connected pedestrian and bicycle infrastructure promote physical health, reduce reliance on motor vehicles, and improve neighborhood livability. Residents across the region expressed that walking is a preferred mode of travel when it could get them to their destination. In many underinvested communities, sidewalks, crossings, and bike lanes are inadequate or absent, creating safety and mobility barriers. Prioritizing projects in these areas can enhance access to jobs, schools, parks, and transit while reducing transportation costs and emissions. Inclusive design is also critical to ensure infrastructure is usable for people of all ages and abilities.

Implementation Authority and Responsibilities

- State Government: MnDOT oversees the statewide transportation system which includes planning and research responsibilities related to biking, walking, rolling, and ADA compliance. Additionally, MnDOT develops and maintains some trails and bikeways in the region. They also fund active transportation projects, both directly for the highway system and indirectly through grants to local agencies.
- Regional Government: Within the seven-county region, the Met Council assists in planning for the development of bikeway networks and multiuse trails including developing investment prioritization tools to guide regional investments in the regional

bike network. It also provides guidance around and investment for implementing safe pedestrian infrastructure.

- Local Government: Local governments are key drivers in building out bikeways and pedestrian infrastructure including paths, sidewalks, and street-crossings. Parks agencies are also important partners in developing and maintaining trails throughout the region.
- Other Actors: Non-profit organizations, neighborhood associations, and employers all play roles in encouraging the use of walking, biking, and rolling through actions like incentive programs and infrastructure installation and maintenance.

Implementation Timelines and Milestones

This is a short- to medium-term measure as efforts to expand and improve bicycle and pedestrian infrastructure throughout the region are ongoing and have existing funding sources.

Metrics for Tracking Progress

Miles of regional trails, miles of regional bikeways

Quantified GHG Emission Reduction

Table 7. Measure 3 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 3 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Cost is expected to be low to medium depending on implementation approach including the need for new infrastructure.

Intersection with Other Funding Availability

Complementary funding sources include:

- U.S. Department of Transportation Safe Streets and Roads for All grant program
- U.S. Department of Transportation Reconnecting Communities Pilot Program
- U.S. Department of Transportation Neighborhood Access and Equity Program
- Minnesota Department of Transportation Active Transportation Program
- Minnesota Department of Transportation Safe Routes to School
- Minnesota Department of Health Statewide Health Improvement Partnership

Measure 4: Implement land use policies that support compact and multimodal-oriented development

Description

Land use and transportation are closely interrelated, and changes in land use affect which transportation modes are available and viable for residents across the region. A transportation system that is well connected with uses and services close to an individual's daily needs provides opportunities for choices in travel options beyond a personal vehicle. Land use and

planning can encourage additional density around activity centers and along corridors, a greater mix of uses, and interconnected street and pedestrian networks that support low-carbon transportation modes.

Community Benefits Analysis

> *"We want more walkable cities and communities; places can be too far to walk or bike to."*

Compact, transit-oriented development reduces vehicle miles traveled, lowers transportation costs, and improves access to everyday services and amenities. For low-income households, it can mean shorter commutes, better access to jobs, and reduced dependence on costly car ownership. Equitable land use planning should incorporate affordable housing, anti-displacement measures, and meaningful community engagement to ensure that changes benefit existing residents.

Implementation Authority and Responsibilities

- State Government: State agencies do not have direct authority over local land use.
- Regional Government: Within the seven-county region, the Met Council sets regional planning policy including residential density requirements and guidance for compact growth that fits with communities' unique characteristics. The Met Council also defines and identifies transit market areas in the region which describe how much demand for transit service there is in each neighborhood or community and what kinds of transit service can be expected to meet that demand successfully and efficiently. Land use and urban design factors heavily into transit market areas analysis. The Met Council also provides technical assistance to local governments to implement policies aligned with regional goals.
- Local Government: Local governments have land use authority and are therefore key actors in setting policies that support multimodal-oriented development.
- Other Actors: Transit agencies can work with local governments to support land use planning that is conducive to new or increased transit service.

Implementation Timelines and Milestones

This is a long-term measure as relies on designing and redesigning the way communities across the region are built.

Metrics for Tracking Progress

Quantified GHG Emission Reduction

Table 8. Measure 4 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 4 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Cost is expected to be medium to high depending on implementation approach. Costs are often embedded in community development projects and costs of multimodal-oriented development are not necessarily higher than costs of development generally.

Intersection with Other Funding Availability

Complementary funding sources include:

- Minnesota Department of Health Statewide Health Improvement Partnership

Electricity Sector

The electricity sector represents 24.3% of regional emissions. The electricity measure is important for addressing emissions from all electricity use across the region. The state of Minnesota has a 2040 Clean Electricity Standard that became state law in 2023 and requires that electric utilities to provide carbon-free electricity in Minnesota by 2040.

Table 9. Electricity Sector Measure Summary

Electricity Sector Measure Summary	GHG Emission Reductions in 2030 Compared to the BAU ($MTCO_2e$)	GHG Emission Reductions in 2050 Compared to the BAU ($MTCO_2e$)
Measure 5: 5. Encourage energy infrastructure investments aligned with the state's 2040 Clean Electricity Standard		
Potential Policy Scenario		
Net Zero Scenario		

Measure 5: Encourage energy infrastructure investments aligned with the state's 2040 Clean Electricity Standard

Description

The Twin Cities region has a role in supporting the state's 2040 Clean Electricity Standard, including increasing renewable energy generation and storage capacity and supporting electrical grid and transmission infrastructure. The region will work to align its efforts with the state.

Community Benefits Analysis

Investments in clean energy infrastructure can advance climate goals while providing health, economic, and resilience benefits for communities. Expanding renewable energy generation, and modernizing the grid reduces reliance on fossil fuels, lowering air pollution that disproportionately impacts low-income areas, and communities of color. Implementation should prioritize investments and technical support in historically underserved communities, while creating pathways for community ownership, leadership, or benefit-sharing from clean energy projects. Involving communities in planning and implementation processes of energy infrastructure projects is also an important step to minimize harm and build trust between governments and communities. Additionally, workforce development tied to new infrastructure can also provide high-quality jobs and training opportunities, ensuring that the clean energy transition supports both environmental justice and economic equity.

Implementation Authority and Responsibilities

- State Government: The state has existing authority under Minnesota statue (Minn. Stat. 216B.1691). State agencies led by the Department of Commerce have responsibility for implementation of the Clean Electricity Standard.
- Regional Government: The Met Council does not have authority over electric utilities. The Met Council does have some existing renewable energy generation at its facilities and continues to look at ways to increase renewable energy generation and use across its services. The Met Council also supports local governments in technical assistance for solar planning.
- Local Government: Local governments do not have authority over electric utilities but they do have roles in planning, zoning, and permitting renewable energy projects.
- Other Actors: Electric utilities have a primary role in developing and deploying renewable and carbon-free in electricity to comply with the state's Clean Electricity Standard. Non-profit organizations also play roles in developing community energy projects and connecting residents to opportunities like community solar gardens.

Implementation Timelines and Milestones

This is a medium-term measure as technology exists and the milestones are set by the Clean Electricity Standard.

Metrics for Tracking Progress

Percentage of electrical capacity from carbon-free sources, utility generation capacity, energy storage capacity, electricity demand

Quantified GHG Emission Reduction

Table 10. Measure 5 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 5 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Cost is expected to be medium. Costs will depend on the available technology, implementation approaches, and success of reducing overall electrical load through energy efficiency measures.

Intersection with Other Funding Availability

Complementary funding sources include:

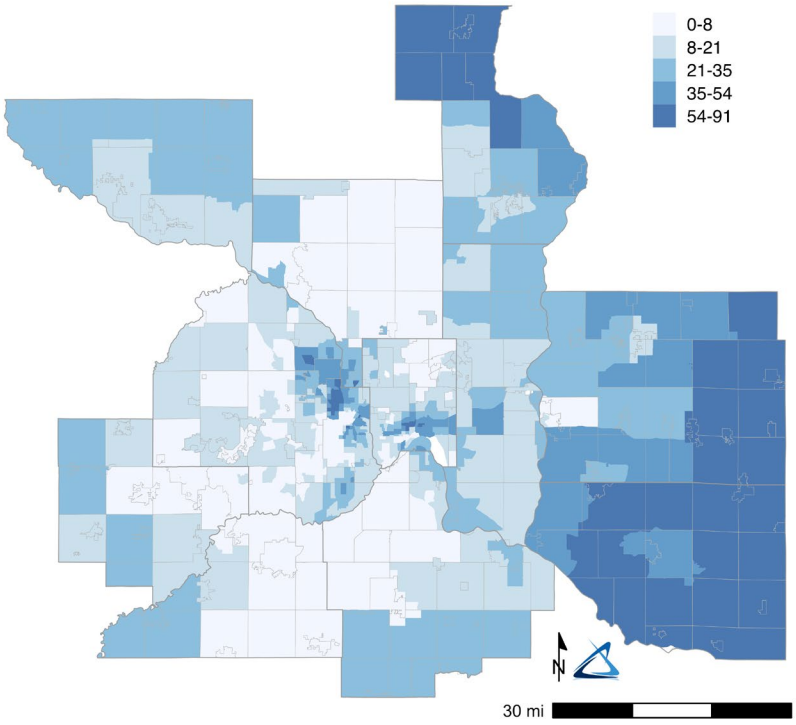
- U.S. Department of Agriculture Electrical Infrastructure Loan and Loan Guarantee program
- Minnesota Climate Innovation Finance Authority

Building Energy Sector

The building energy sector accounts for 24.8% of 2022 regional emissions. Building energy measures reduce building energy use and transition buildings to using renewable energy

sources through electrification. For residents across the region, energy efficiency measures can help reduce energy costs while electrification can improve health outcomes by reducing exposure to air pollutants in the home. These measures are especially impactful for energy cost-burdened households, households that spend a disproportionate amount of their income on energy costs. Those households are especially prevalent in the urban center and rural parts of the region, as shown in Figure x.

Map 2. Distribution of energy cost-burdened households by percentiles



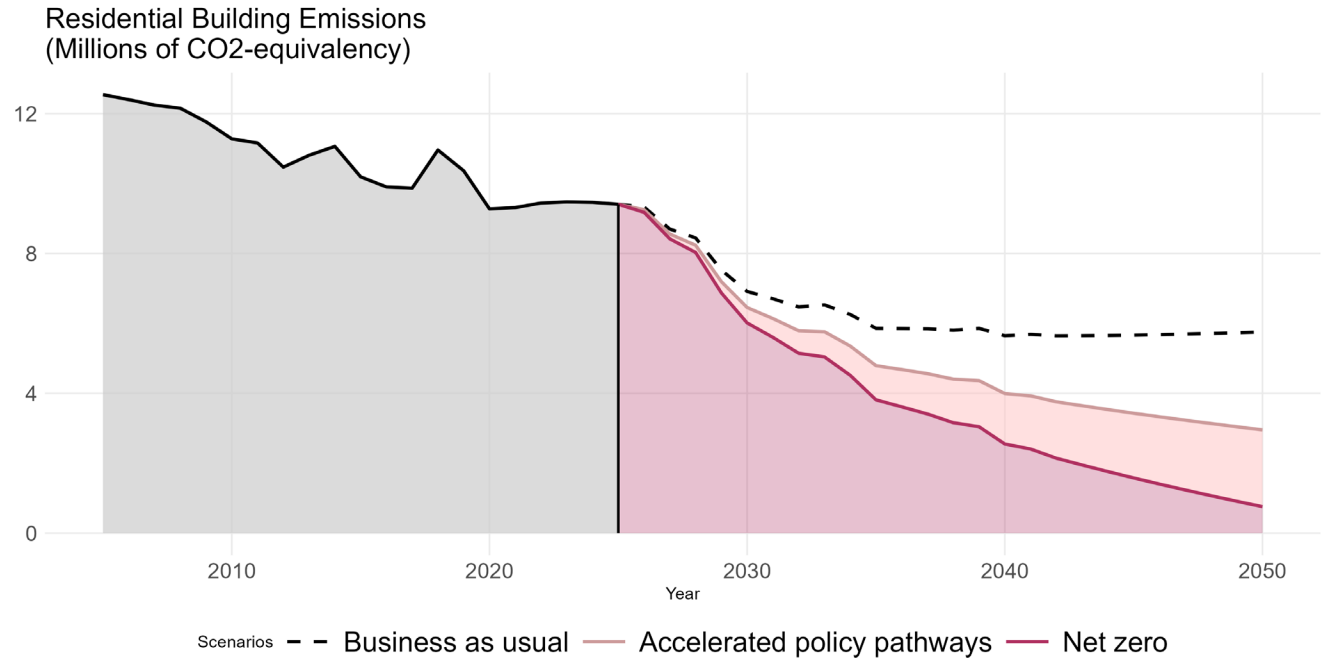
Source: Metropolitan Council analysis of Council on Environmental Quality Climate and Economic Justice Screening Tool and Environmental Protection Agency EJScreen Data.

Table 11. Building Energy Sector Measures Summary

Building Energy Sector Measure Summary	GHG Emission Reductions in 2030 Compared to the BAU ($MTCO_2e$)	GHG Emission Reductions in 2050 Compared to the BAU ($MTCO_2e$)
Measure 6: Improve residential building energy efficiency		
Accelerated Policy Scenario		
Net Zero Scenario		
Measure 7: Electrify homes		
Accelerated Policy Scenario		
Net Zero Scenario		

Measure 8: Improve commercial and public building energy efficiency		
Accelerated Policy Scenario		
Net Zero Scenario		
Measure 9: Electrify commercial and public buildings		
Accelerated Policy Scenario		
Net Zero Scenario		

Figure 13. Example residential building energy projections



Measure 6: Improve residential building energy efficiency

Description

Improving the energy efficiency of residential buildings can considerably reduce the energy consumption of single and multifamily homes across the Twin Cities region. Energy efficiency improvements include enhancing insulation, installing energy-efficient windows, upgrading HVAC systems, and incorporating smart technologies. Retrofitting and weatherizing existing housing units is more difficult and costly than building new homes to be efficient. Cities can adopt policies or programs encouraging new single-family homes to achieve energy efficiency standards similar to LEED Gold and other green building standards. Retrofitting and building new energy-efficient housing can be accelerated by educating residents and providing incentives, designs, and navigation support. This measure is relevant to the whole region. When prioritizing homes for this measure, factors like age of the building, rental or ownership status, and previous energy efficiency upgrades could highlight buildings of highest need and guide the implementation approach.

Community Benefits Analysis

"People are interested in taking action on efficiency and renewable energy if cost wasn't an issue."

Improving the energy efficiency of residential buildings can result in reduced utility costs and increased climate resilience which can be especially impactful for low-income households. Targeted retrofits can reduce indoor and outdoor air pollution, enhance comfort during extreme weather, and address energy insecurity. Energy efficiency programs should be structured to address barriers faced by low-income households including prohibitive upfront costs for improvements that have long-term payback. Implementation should also consider how to design programs to include renters, multi-family housing, and manufactured home communities. Additionally, programs should incorporate energy education and outreach through community partners to overcome access, language, and trust barriers.

Implementation Authority and Responsibilities

- State Government: State agencies have statutory authority to increase efficiency in new construction and provide weatherization programs, primarily through the Department of Commerce and Department of Administration. State agencies also support residents in navigating resources and rebates and provides funding opportunities.
- Regional Government: The Met Council has authority over houses it owns through the Housing and Redevelopment Authority and seasonally conduct home energy audits on both vacant and occupied residences. The Met Council also plays a role in supporting local governments through providing climate planning technical assistance.
- Local Government: Local governments connect residents with energy efficiency programs. Local governments can also offer financial assistance through direct funding, utility and non-profit partnerships, or rebate programs.
- Other Actors: Utilities fund programs that support residential energy efficiency and offer rebates for appliance upgrades. Nonprofit organizations provide services to households like home energy audits and connections to rebate programs. Housing authorities can ensure homes within their portfolio receive timely energy efficiency improvements.

Implementation Timelines and Milestones

This is a medium-term measure as the technology exists and some implementation is ongoing. The timeline for widespread implementation will be impacted by the availability of funding.

Metrics for Tracking Progress

Number of homes weatherized, number of homes retrofitted with energy-efficient HVAC systems, GHG emissions in the residential building sector

Quantified GHG Emission Reduction

Present projected GHG emission reductions (or enhancement of carbon sinks) from identified measures to the extent possible:

- *A brief description of quantification methods, including assumptions and tools or methods used.*

- *Separate GHG emission reduction estimates assessed at time horizons consistent with the near- and long-term target years (e.g. 2030 and 2050) as compared to a BAU year and/or to a specific base year (e.g., the GHG target base year).*
- *If emission reductions are bundled due to the collective impacts of multiple measures, note which measures were quantified together. For example, if there are three energy efficiency measures that cumulatively save 10,000 MWh per year, the emission reductions can be bundled together to simplify emission reduction modeling.*

*Grantees may choose to organize results as a table (e.g., Table 6) or may present results in a text box (see example on page **Error! Bookmark not defined.**). Grantees do not need to present emission reduction data in two formats; EPA is providing two example presentation options and grantees may elect to use one of these or a similar presentation approach for GHG, CAP or HAP reductions.*

Table 12. Measure 6 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 6 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Costs are expected to be low to medium, depending on building type, technology, and scale of implementation. Energy efficiency improvements are significantly more costly in existing buildings while new buildings can be built to meet energy efficiency standards with moderate impacts on the overall costs. Across building types, energy efficiency improvements can have significant upfront costs but then provide a return on investment through lower electricity, heating, and gas utility costs.

Intersection with Other Funding Availability

Complementary funding sources include:

- Minnesota Pre-weatherization Program
- Minnesota Department of Commerce Conservation Improvement Program
- Minnesota Housing Finance Authority Impact Fund
- Minnesota Housing Finance Authority Fix Up Home Improvement Loan Program
- Minnesota Housing Finance Authority Energy Loan Plus Program
- Minnesota Housing Finance Authority Consolidated Request for Proposals
- Minnesota Housing Finance Authority Rental Rehabilitation Deferred Loan
- Minnesota Housing Finance Authority Community Stabilization Program
- Minnesota Department of Commerce Weatherization Assistance Program
- Rebate programs from energy utilities
- U.S. Department of Energy Buildings Upgrade Prize
- U.S. Environment Protection Agency Collaborative Problem Solving Cooperative Agreement Program
- U.S. rebates and credits for home energy upgrades

Measure 7: Electrify Homes

Description

Electrifying homes supports decarbonization by transiting appliances and systems from energy sources like natural gas to power that can be carbon neutral. Residential electrification efforts exist at the individual household scale like heat pump or solar panel installation and also exist at a community scale like district energy networks. This measure is relevant to the whole region. When prioritizing homes for this measure, factors like age of the building, rental or ownership status, and grid mix of electricity could highlight buildings of highest need or potential and guide implementation approach.

Community Benefits Analysis

> *"Switching from gas to electricity can bring high startup costs, fear, and can be hard to navigate on a busy schedule."*

Home electrification reduces indoor air pollution and enhances public health in communities disproportionately exposed to combustion-based emissions. Replacing gas appliances with electric alternatives improves air quality, reduces greenhouse gas emissions, and can stabilize energy costs over time. To ensure equity, programs should consider providing financial assistance for low-income households to address cost barriers and technical assistance such as including trusted community guides to increase participation and comfortability. Local workforce training can deliver additional economic benefits through installation and maintenance jobs.

Implementation Authority and Responsibilities

- State Government: State agencies already have authority to pursue incentive-based programming, including fuel-switching under Minnesota's utility conservation program. Legislative action would be required for a regulatory approach.
- Regional Government: The Met Council does not have direct authority over residential electrification. The Met Council plays a role in supporting local governments through providing climate planning technical assistance.
- Local Government: Cities and counties can directly connect residents with programs that may support new technology adoption.
- Other Actors: Nonprofit organizations provide services to households like connections to rebate programs. Utilities may provide rebate programs for some technologies and access to renewable energy resources.

Implementation Timelines and Milestones

This is a medium- to long-term measure as the technology exists but is costly for households and not widely adopted. The timeline will be impacted by the availability of funding.

Metrics for Tracking Progress

Number of homes electrified, GHG emissions from the residential building sector

Quantified GHG Emission Reduction

Table 13. Measure 7 quantified emission reductions as compared to BAU emissions (MT CO2e)

Measure 7 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Cost is expected to be medium for this measure and ranges significantly based on building type and technology.

Intersection with Other Funding Availability

Complimentary funding sources include:

- Minnesota Climate Innovation Finance Authority
- Minnesota Housing Finance Authority Energy Loan Plus Program
- Rebate and rewards programs from energy utilities

Measure 8: Improve commercial and public building energy efficiency

Description

Retrofitting existing commercial and public buildings can considerably reduce their energy consumption. Energy efficiency improvements include enhancing insulation, upgrading heating and cooling systems, and replacing lighting systems with energy-efficient alternatives. Once facilities are retrofitted, it is critical that technicians have the skills to operate and maintain technologies correctly and efficiently. This ensures that new equipment will operate as intended for its expected lifetime. This measure is relevant to the whole region. When prioritizing buildings for this measure, factors like age of the building, building energy use, and previous energy efficiency upgrades could highlight buildings of highest need and guide implementation approach.

Community Benefits Analysis

"We should incentivize or require new construction and buildings to be energy efficient and have cleaner energy."

Energy efficiency upgrades in commercial and public buildings can reduce utility costs and improve indoor conditions, particularly in underserved areas and for small and BIPOC-owned businesses. Equitable implementation should prioritize under-resourced neighborhoods, and address education and cost barriers by including incentives and guidance for property owners.

Implementation Authority and Responsibilities

- State Government: State agencies including the Department of Administration and Department of Commerce have some existing statutory authority and responsibility to increase efficiency in new construction and weatherization, including through the B3 program. State agencies also offer funding opportunities and support navigation of

resources and rebates. Additionally, state agencies have direct control over state-owned public buildings.

- Regional Government: The Met Council has direct control over Council-owned public buildings and infrastructure. The Council continually works to improve the efficiency of its buildings, particularly large buildings and infrastructure that serve the regional wastewater and transit systems.
- Local Government: Local governments have direct control over the energy efficiency of their municipal buildings. Many local governments in the Twin Cities region have initiated or completed projects energy efficiency projects on their buildings. They also can provide financial or technical assistance to commercial property owners.
- Other Actors: Utilities fund programs that support commercial energy efficiency offer rebates for energy efficiency projects and equipment upgrades. Nonprofit organizations provide services to businesses like energy efficiency consultations and connections to rebate programs.

Implementation Timelines and Milestones

This is a medium-term measure as the technology exists and can provide a return on investment but needs to be implemented at a broad scale. The timeline will be impacted by the availability of funding.

Metrics for Tracking Progress

Number of public buildings weatherized, number of public buildings retrofitted with energy-efficient HVAC systems, number of public buildings retrofitted with LEDs, GHG emissions from commercial building sector.

Quantified GHG Emission Reduction

Table 14. Measure 8 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 8 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Costs are expected to be low to medium, depending on building type, technology, and scale of implementation. Energy efficiency improvements can have significant up front costs but then provide a return on investment through lower electricity, heating, and gas utility costs.

Intersection with Other Funding Availability

Complementary funding sources include:

- Minnesota Climate Innovation Finance Authority
- Minnesota Department of Commerce Air Ventilation Pilot Grants
- Minnesota Department of Commerce Conservation Improvement Program and Energy Conservation and Optimization Programs
- Utility energy efficiency equipment rebates
- U.S. 179D Commercial Building Energy-Efficiency Tax Deduction

- U.S. Department of Agriculture Small Community Facilities Grant
- U.S. Department of Agriculture Rural Development Energy Programs

Measure 9: Electrify commercial and public buildings

Description

Electrifying commercial and public buildings supports decarbonization by transitioning appliances and systems from energy sources like natural gas to power that can be carbon neutral. Similar to the residential sector, commercial and public building electrification efforts exist at the individual building scale like heat pump or solar panel installation and also exist at a community scale like district energy networks. This measure is relevant to the whole region. When prioritizing buildings for this measure, factors like age of the building, building purpose and required systems, and grid mix of electricity could highlight buildings of highest need or potential and guide implementation approach.

Community Benefits Analysis

"Huge [temperature] fluctuations impact older buildings management of heating systems. It will put more strain on whatever systems we have in place, especially the older ones. You just have to power through a whole day where it's either really hot or really cold. Could electrification help with that?"

Electrifying commercial and public buildings improves air quality by reducing GHG emissions. In public facilities such as schools and community centers, electrification creates safer, healthier spaces and demonstrates visible leadership in the clean energy transition. Focusing investments in overburdened neighborhoods ensures these health and resilience benefits reach the communities most in need and addresses cost barriers to participation. Offering guidance programs for property owners may aid in addressing gaps in education and understanding.

Implementation Authority and Responsibilities

- State Government: State agencies including the Department of Commerce have authority to pursue incentive-based programming, including fuel-switching under Minnesota's utility conservation program. Legislative action would be required for a regulatory approach. State agencies also have direct control over state-owned public buildings.
- Regional Government: The Met Council has direct control over Council-owned public buildings and infrastructure. The Council has installed solar panels at some facilities and continues to explore opportunities to further electrify and decarbonize its buildings.
- Local Government: Local governments have direct control over municipal buildings. Many local governments in the Twin Cities region have initiated or completed projects to electrify municipal buildings including installing solar panels and purchasing renewable energy. They also can provide financial or technical assistance to commercial property owners.
- Other Actors: Utilities may offer rebates for new equipment and programs to allow commercial customers access renewable energy.

Implementation Timelines and Milestones

This is a medium- to long-term measure as the technology exists but is costly and not widely adopted. The timeline will be impacted by the availability of funding.

Metrics for Tracking Progress

Number of public buildings with on-site renewable energy generation, Square footage of commercial/industrial space decarbonized, GHG emissions from commercial building sector.

Quantified GHG Emission Reduction

Table 15. Example table of Measure 9 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 9 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Cost is expected to be medium for this measure and ranges significantly based on building type and technology.

Intersection with Other Funding Availability

Complementary funding sources include:

- Minnesota Climate Innovation Finance Authority
- Minnesota Department of Commerce Solar for Schools program
- Minnesota Department of Commerce Solar on Public Buildings grant program
- Proposed Xcel Energy Community Ground Source Heat Pump demonstration project

Industrial Processes Sector

The industrial processes sector represents 11% of regional emissions. The industrial reduction measure is important for addressing these emissions while recognizing that the feasibility of transitioning to low-carbon technology varies by industry and use. Transitioning to low-carbon technologies often can have public health benefits by improving air quality both for workers and residents who live near industrial areas.

Table 16. Industrial Sector Measure Summary

Industrial Sector Measure Summary	GHG Emission Reductions in 2030 Compared to the BAU ($MTCO_2e$)	GHG Emission Reductions in 2050 Compared to the BAU ($MTCO_2e$)
Measure 10: Encourage industrial adoption of energy efficiency and low-carbon technologies		
Potential Policy Scenario		
Net Zero Scenario		

Measure 10: Encourage industrial adoption of energy efficiency and low-carbon technologies

Description

Reducing emissions from the industrial sector involves increasing energy efficiency and material efficiency and adopting low-carbon technologies where possible and as technology evolves. Energy efficiency actions including implementing ISO 50001 standard for energy management systems and can reduce overall energy costs. Low- and no-carbon energy sources like the direct use of renewable energy or hydrogen are feasible varying degrees for different industrial uses and increasing adoption of those technologies will also be an important part of reducing emissions in the sector.

Community Benefits Analysis

"I want my future to be cleaner neighborhoods. When you're in neighborhoods here, you see more industrial buildings that could be used for reducing carbon. The more we use these spaces for things that are ruining our ecosystem, it reverses every part - less housing, fewer jobs, health issues. A lot of people get asthma because they're in such industrialized environments."

Industrial decarbonization reduces air pollution and associated health risks in nearby communities. Many industrial facilities are located near low-income neighborhoods and communities of color, who bear a disproportionate burden of pollution and its accompanying impacts. Implementation of low-carbon technologies should involve frontline communities in planning and execution, while creating opportunities for workforce transition.

Implementation Authority and Responsibilities

- State Government: State agencies including the Pollution Control Agency already have some authority to implement this measure but full implementation may require legislative action.
- Regional Government: The Met Council does not have authority over or a significant role in the industrial sector processes and emissions.
- Local Government: Local governments do not have authority over or a significant role in the industrial sector processes and emissions.
- Other Actors: Federal programs like Energy Star provide support and technical assistance to industrial manufacturers.

Implementation Timelines and Milestones

This is a medium- to long-term measure as existing technology and funding does not meet the implementation need.

Metrics for Tracking Progress

GHG emissions from the industrial sector, participation in ISO 50001 standards, number and capacity of carbon capture and storage projects

Quantified GHG Emission Reduction

Table 17. Measure 10 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 10 Emissions Reductions	2030	2050
Accelerated Policy Scenario		

Net Zero Scenario		

Measure Costs

Cost is expected to be medium to high. Costs will depend on the available technology and type of operation. Costs of energy efficiency improvements will be offset by lower energy costs.

Intersection with Other Funding Availability

Complementary funding sources include:

- Public-Private cost share

Waste Sector

The waste sector accounts for 3.2% of regional emissions as of 2021 and includes solid waste reduction and wastewater management. While a small percentage of overall emissions, the waste sector is important as many people connect with waste reduction as a mechanism for reducing emissions from material production.

Table 18. Waste Sector Measures Summary

Waste Sector Measure Summary	GHG Emission Reductions in 2030 Compared to the BAU ($MTCO_2e$)	GHG Emission Reductions in 2050 Compared to the BAU ($MTCO_2e$)
Measure 11: Promote waste prevention, waste reduction, and recycling		
Accelerated Policy Scenario		
Net Zero Scenario		
Measure 12: Manage wastewater efficiently		
Accelerated Policy Scenario		
Net Zero Scenario		

Measure 11: Promote waste prevention, waste reduction, and recycling

Description

In the waste sector, reducing greenhouse gas emissions takes many forms including by preventing waste, effectively managing solid waste, increasing opportunities for reuse and recycling, diverting and managing organics, promoting alternative packaging methods, fixing landfill methane leaks, and promoting zero waste practices, a circular economy, and climate-smart development. Promoting biochar for environmental and economic benefits including landfill methane mitigation and soil contamination remediation also supports overall emissions reductions.

For the seven-county metro region, the Minnesota Pollution Control Agency leads the development and implementation of the Metropolitan Solid Waste Management Policy Plan. The most recent plan for the 2022-2042 timeframe was released in January of 2024 and includes the following related goals:

- Reduce waste production in the metro area by 15% compared to current projections.

- Establish curbside organics collection in all cities with a population greater than 5,000 by 2030.
- Each of the seven counties in the metro area must recycle a minimum of 75% (by weight) of total municipal solid waste they generate by 2030.

This measure is region-wide, though the most appropriate waste prevention and reduction efforts may vary by community.

Community Benefits Analysis

"The biggest dream is composting food waste and containers. We don't have any options in River Falls, and it's too expensive to haul it to Eau Claire."

Waste prevention and recycling reduce environmental burdens from landfills and incinerators, which are disproportionately located near low-income communities and communities of color. Expanding access to recycling, composting, and reuse programs can cut greenhouse gas emissions, lower disposal costs, and create green jobs. Implementation should address barriers faced by renters and residents in multi-unit buildings and include culturally relevant outreach and education.

Implementation Authority and Responsibilities

- State Government: The MPCA is the main agency responsible for waste planning and management, including developing the Metropolitan Solid Waste Management Policy Plan.
- Regional Government: The Met Council does not have direct authority or responsibilities in solid waste management. The Met Council plays a role in supporting local governments through providing climate planning guidance and technical assistance including related to waste reduction.
- Local Government: Counties are responsible for developing and implementing solid waste management plans aligned with the MPCA regional plan. City, township, and tribal governments also play roles in solid waste management including providing recycling and organics recycling services to residents and businesses.
- Other Actors: Non-profit organizations and commercial and industrial businesses all have roles in supporting waste prevention and reduction efforts.

Implementation Timelines and Milestones

This is a short- to medium-term measure as implementation efforts are ongoing and have some existing funding sources.

Metrics for Tracking Progress

County recycling rates, tons of waste landfilled, total households served by organic curbside collection, Greenhouse gas emissions reductions.

Quantified GHG Emission Reduction

Table 19. Measure 11 quantified emission reductions as compared to BAU emissions (MT CO2e)

Measure 11 Emissions Reductions	2030	2050
Accelerated Policy Scenario		

Net Zero Scenario		

Measure Costs

Cost is expected to be low to medium depending on implementation approach.

Intersection with Other Funding Availability

Complementary funding sources include:

- Minnesota Pollution Control Agency Prevention of Wasted Food and Food Rescue Grants
- Minnesota SCORE funds
- Minnesota Department of Health Statewide Health Improvement Partnership

Measure 12: Manage wastewater efficiently

Description

Improper wastewater management emits methane and nitrous oxide and can pollute waterways, while emerging technology can mitigate its environmental harm and recapture clean water, nutrients, and energy. The Met Council serves most of the urbanized extent of the region, providing wastewater services to 111 communities, home to more than 2.8 million of the region's 3.4 million people. By pursuing energy efficiency and electrification opportunities, increasing our purchase and generation of renewable energy, and maximizing energy and resource recovery from our operations, the Met Council has been working to reduce emissions in our operations across our nine water resource recovery facilities. Several other smaller plants serve the remainder of primarily smaller cities in the region like St. Francis and Jordan.

In addition to emissions from wastewater treatment, there is an opportunity to recover thermal energy from wastewater and biosolids incineration to produce clean, thermal energy for integration into existing hot water district energy heating systems, further reducing reliance on fossil fuels. The measure is region-wide.

Community Benefits Analysis

> *"Wastewater or gray water systems, and rain barrels are a good way to recycle and reuse."*

Upgrading wastewater systems improves water quality, reduces energy use, and protects public health in communities with aging or undersized infrastructure. Overflow events and untreated discharges can expose residents to harmful pathogens and degrade aquatic ecosystems. Prioritizing investments in vulnerable neighborhoods, combined with local hiring and workforce training, ensures that both environmental and economic benefits are shared equitably.

Implementation Authority and Responsibilities

- State Government:
- Regional Government: Metropolitan Council Environmental Services manage nine water resource recovery facilities that serve the majority of residents in the region. The Council continues to implement improvements to reduce operational emissions.
- Local Government: Municipal and wastewater operators beyond the Met Council also have a role in the wastewater they manage.
- Other Actors: Additional partners include district energy operators to capture thermal energy.

Implementation Timelines and Milestones

This is a medium-term measure as implementation efforts are ongoing and have some existing funding sources, but reaching the full potential of this measure require technology innovations and additional funding.

Metrics for Tracking Progress

Greenhouse gas emissions from wastewater, renewable energy produced or purchased for Met Council-owned water resource recovery facilities.

Quantified GHG Emission Reduction

Table 20. Measure 12 quantified emission reductions as compared to BAU emissions (MT CO2e)

Measure 12 Emissions Reductions	2030	2050
Potential Policy Scenario		
Net Zero Scenario		

Measure Costs

Cost is expected to be medium to high depending on implementation approach, though some measures provide a long-term return on investment.

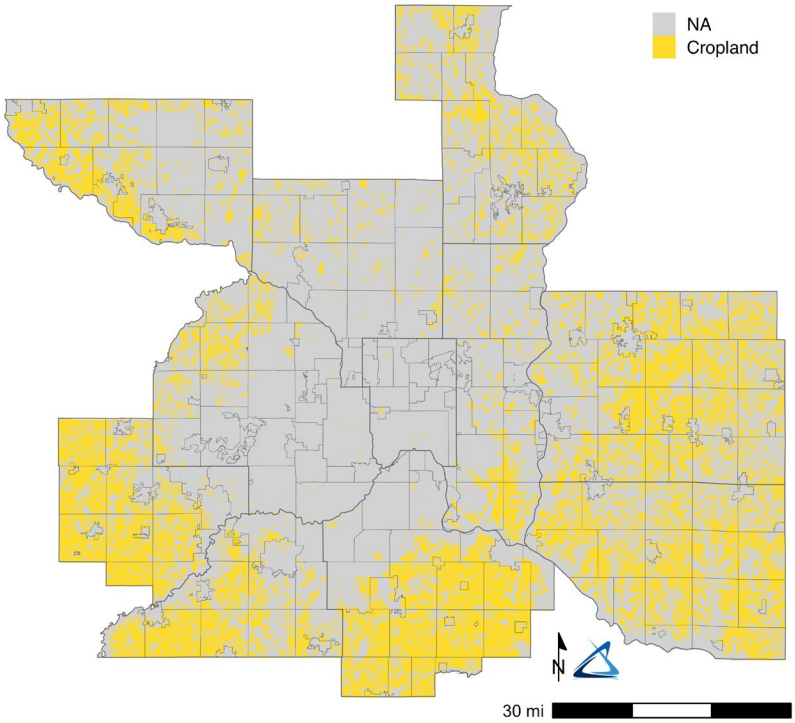
Intersection with Other Funding Availability

Complementary funding sources include utility conservation improvement programs.

Agriculture Sector

The agriculture sector accounts for 1.3% of regional emissions as of 2021. Agriculture sector measures focus on reducing emissions from large-scale agriculture in the region through practice changes and supporting small-scale and urban agriculture efforts.

Map 3. Agricultural working lands throughout the 11-county MSA



Source: Metropolitan Council analysis of USGS National Land Cover Database data.

Table 21. Agriculture Sector Measures Summary

Agriculture Sector Measure Summary	GHG Emission Reductions in 2030 Compared to the BAU ($MTCO_2e$)	GHG Emission Reductions in 2050 Compared to the BAU ($MTCO_2e$)
Measure 13: Encourage climate-smart agriculture practices that improve soil health and soil organic content		
Accelerated Policy Scenario		
Net Zero Scenario		
Measure 14: Invest in emerging local and urban agriculture		
Accelerated Policy Scenario		
Net Zero Scenario		
Measure 15: Manage fertilizer and manure to reduce emissions		
Accelerated Policy Scenario		
Net Zero Scenario		

Measure 13: Encourage climate-smart agriculture practices that improve soil health and soil organic content

Description

Climate-smart agriculture practices improve soil health and soil organic carbon content while provide additional benefits including increasing nutrient-use efficiency, reducing erosion, and improving water quality. Climate-smart practices include cover crops, conservation tillage, diverse crop rotations, forest farming, silvipasture, perennial crops, and winter annual crops. These measures can be supported through developing and expanding relevant markets, increasing access to specialized equipment, and providing education on and incentives for specific practice adoption. This measure is most relevant to rural and agricultural parts of the region.

Community Benefits Analysis

"How do we build microbiomes here, improve soil, and sequester more carbon through our practices? How do we incorporate cover crops, reduce soil erosion, create economic opportunities for us, while keeping it vibrant here? As farmers, we're not just thinking about this year, but we're thinking about next year and the years to come. How do we rejuvenate and make sure we have longevity? Agriculture is something that's necessary to feed all of us, feed the world."

"There is willingness from farmers [to try cover cropping], but there's a huge gap of knowledge of how to get here. The key is to lowering that barrier of knowledge as much as possible."

Climate-smart agricultural practices strengthen farm resilience, protect local waterways and improve water quality, and store carbon in soils, providing both environmental and economic benefits to rural communities. While many practices provide a long-term return on investment, farmers, and especially underserved farmers, need financial support and technical assistance to learn about and decide to test new methods. Additionally, implementation should consider developing markets for end-products from diverse and alternative crops to make these practices financially viable.

Implementation Authority and Responsibilities

- State Government: State agencies including the Department of Agriculture, Pollution Control Agency, and Board of Water and Soil Resources have authority and/or influence over the adoption of climate smart agricultural practices.
- Regional Government: The Met Council helps implement the Metropolitan Agricultural Preserves program in partnership with property owners and local authorities in the seven-county region. The program establishes a local planning process to designate agricultural areas as a long-term land use and provides benefits to maintain viable, productive farm operations. This program supports agriculture viability in the region generally and does not specifically address climate-smart practices.
- Local Government: Local governments including soil and water conservation districts play an important role in providing programs that support producers in adopting climate-smart practices and connecting farmers to addition resources including federal funding programs.

- Other Actors: The University of Minnesota Extension program plays an important role in providing resources on climate-smart practices and connecting producers to research on best practices. There are also many non-profit organizations working to support producers in adopting best practices and developing markets for climate-smart crops.

Implementation Timelines and Milestones

This is a short- to medium-term measure as implementation efforts are ongoing and have existing funding sources.

Metrics for Tracking Progress

Number of acres with climate-smart agriculture practices, Number of acres newly enrolled in conservation programs, GHG emissions and sequestration data from cropland

Quantified GHG Emission Reduction

Table 22. Example table of Measure 13 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 13 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Costs are expected to be low to medium depending on implementation approach. Different practices have varying upfront costs, and some provide a return on investment over time.

Intersection with Other Funding Availability

Complementary funding sources include:

- Minnesota Board of Water and Soil Resources Soil Health Cost-Share Program
- Minnesota Department of Agriculture Continuous Living Cover Grant
- Minnesota Department of Agriculture Minnesota Agricultural Water Quality Certificate Program
- Minnesota Department of Agriculture Down Payment Assistance Grant
- Minnesota Department of Agriculture Emerging Farmer Technical Assistance Grant
- Minnesota Clean Water, Land and Legacy Amendment Funds
- U.S. Department of Agriculture Regional Conservation Partnership Program funds
- U.S. Department of Agriculture Environmental Quality Incentives Program
- U.S. Department of Agriculture Conservation Stewardship Program
- U.S. Department of Agriculture Conservation Reserve Program and Conservation Reserve Enhancement Program

Measure 14: Manage fertilizer and manure to reduce emissions

Description

Fertilizer and manure are two agriculture materials that can be managed to reduce greenhouse gas emissions from the agriculture sector. Slow-release or controlled-release fertilizers and stabilizers can increase the nitrogen efficiency of fertilizers, lowering nitrous oxide emissions

while ensuring crops still receive the benefits. Manure management techniques like solid-liquid separation, diet adjustments, and anaerobic digestion can reduce the greenhouse gas emissions from livestock. These practices are particularly relevant for rural and agricultural parts of the region, especially Carver, Dakota, Pierce, and St. Croix Counties.

Community Benefits Analysis

"We need more affordable natural fertilizers. To match cover crops to environment and reduce synthetic fertilizer, education is required."

Improved fertilizer and manure management protects public health by reducing nutrient runoff into waterways and lowering harmful emissions. Rural, low-income communities often bear the brunt of these impacts, facing contaminated drinking water and degraded air quality. Equitable implementation should ensure low-income, rural, and historically underserved farmers have access to funding and technical assistance to make these practices financially viable. Supporting reduced emission fertilizer and manure best-practices can safeguard environmental health while improving operational efficiency for farmers.

Implementation Authority and Responsibilities

- State Government: State agencies including the Department of Agriculture and Pollution Control Agency, and Board of Water and Soil Resources have authority and/or influence over this measure.
- Regional Government: The Met Council does not have direct authority over agriculture practices including fertilizer licensing and manure management plans. The Met Council does have a role in water quality in the region, partnering with agencies and organizations for watershed planning and water quality monitoring.
- Local Government: Local governments including counties and soil and water conservation districts play an important role in providing programs that educating and providing support to producers interested in adopting new practices like transitioning to enhanced efficiency nitrogen fertilizers.
- Other Actors: The University of Minnesota Extension program plays an important role in providing resources and training on nitrogen and manure management and connecting producers to research on best practices.

Implementation Timelines and Milestones

This is a short- to medium-term measure as implementation efforts are ongoing and have some existing funding sources. Timelines will depend on funding, product, and technology availability.

Metrics for Tracking Progress

Amount of enhanced efficiency nitrogen fertilizers sold, feedlot permit and registration data, GHG emissions from the agriculture sector

Quantified GHG Emission Reduction

Table 23. Example table of Measure 14 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 14 Emissions Reductions	2030	2050
Accelerated Policy Scenario		

Net Zero Scenario		

Measure Costs

Costs is expected to range from low to high depending on implementation approach. Enhanced efficiency nitrogen fertilizers can cost more than traditional fertilizers but provide a return on investment by reducing overall input costs and increasing yield, making it a relatively low-cost measure. Manure management practices can be more costly as they may require infrastructure investments.

Intersection with Other Funding Availability

Complementary funding sources include:

- Minnesota Department of Agriculture Minnesota Agricultural Water Quality Certificate Program
- Minnesota Clean Water, Land and Legacy Amendment Funds
- Minnesota Department of Agriculture Nitrogen Management Financial Assistance Pilot Program
- U.S. Department and Agriculture Environmental Quality Incentives Program

Measure 15: Invest in emerging local and urban agriculture

Description

While greenhouse gas emissions from agriculture largely come from more industrial scale production, it is also important to support the smaller scale agriculture that continues to expand in more urban areas. Local and urban food systems emerge in many forms from rooftop gardens to year-round indoor greenhouses to food recovery projects. Supporting these efforts can include providing resources and workforce development opportunities, expanding the Local Food Purchase Assistance Program, providing financial and technical assistance to local food producers, and developing markets for long-lived wood products that store carbon and incentivize beneficial uses for waste wood such as millwork, mulch, and biochar. This work is important across the region and particularly impactful in areas with food deserts.

Community Benefits Analysis

"Supporting community gardens and diversity of green spaces at schools can help with better nutrition, saving money, and less reliance on the corporate food system."

Increased investment in local and urban agriculture can improve food security, affordability, access, and quality in communities, especially underserved areas. By increasing access to fresh, culturally relevant foods, these actions can address diet-related health disparities and foster community connections. Additional benefits may include multicultural integration, increased civic engagement, strengthened cultural identity, improved mental health, decreased stress, increased physical activity, healthy nutrition knowledge, improved community safety, and increased access to greenspace. Equitable implementation approaches should ensure secure land tenure, supportive zoning, technical assistance, and targeted funding for marginalized and low-income communities.

Implementation Authority and Responsibilities

- State Government: State agencies including the Department of Natural Resources, Pollution Control Agency, and Department of Agriculture have authority and roles related to this measure.
- Regional Government: The Met Council plays a role in supporting local governments through providing climate planning guidance and technical assistance including related to local food systems resilience.
- Local Government: Local governments have roles in workforce development, zoning and permitting, and program development that can support local and urban agriculture practices.
- Other Actors: Non-profit organizations in the region play many important roles in implementing this measure from organizing farmers markets to owning and managing community gardens.

Implementation Timelines and Milestones

This is a short- to medium-term measure as implementation efforts are ongoing and have some existing funding sources.

Metrics for Tracking Progress

Acreage and geographic distribution of community gardens, greenhouses, and rooftop gardens, number of local farmers markets and geographic distribution of local farmers markets

Quantified GHG Emission Reduction

Table 24. Example table of Measure 15 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 15 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Cost is expected to be low to medium depending on implementation approach.

Intersection with Other Funding Availability

Complementary funding sources include:

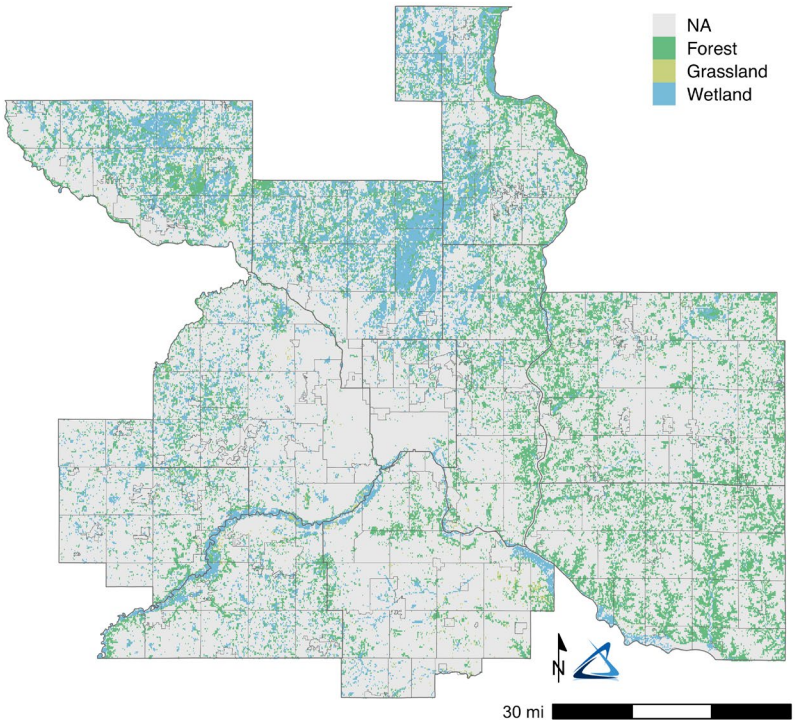
- The Good Acre's Local Economic Accelerator for Farmers (LEAFF)
- Minnesota Department of Agriculture Local Food Purchase Assistance Program
- Minnesota Forestry Association Call Before You Cut Program
- Minnesota Department of Natural Resources forest stewardship cost share programs
- U.S. Department of Agriculture Environmental Quality Incentives Program (EQIP)
- U.S. Department of Agriculture Conservation Stewardship Program
- U.S. Department of Agriculture Urban Agriculture and Innovative Production Grants

- Federal funding for woodland owners

Natural Systems Sector

The natural systems sector primarily sequesters greenhouse gases, reducing regional emissions 4.3% in 2021. Natural systems measures focus on increasing sequestration while improving the quality of natural systems accessible to residents throughout the region. Land cover in the region, shown in Figure x, is primarily developed or agricultural. Protecting or restoring natural systems where possible and improving tree canopy throughout the region can significantly improve quality of life while sequestering greenhouse gases.

Map 4. Natural systems throughout the 11-county MSA (excluding built-up environments)



Source: Metropolitan Council analysis of USGS National Land Cover Database data.

Table 25. Natural Systems Sector Measures Summary

Natural Systems Sector Measure Summary	GHG Emission Reductions in 2030 Compared to the BAU ($MTCO_2e$)	GHG Emission Reductions in 2050 Compared to the BAU ($MTCO_2e$)
Measure 16: Invest in a robust, resilient tree canopy		
Accelerated Policy Scenario		
Net Zero Scenario		

Measure 17: Restore and protect natural land and water		
Accelerated Policy Scenario		
Net Zero Scenario		

Measure 16: Invest in a robust, resilient tree canopy

Description

Trees act as natural carbon sinks by absorbing carbon dioxide from the atmosphere and storing it in their trunks, branches, leaves, and roots. Increased tree planting can also provide additional benefits, such as reducing urban heat island effects, improving air quality, promoting biodiversity, and enhancing aesthetic appeal. Tree planting and maintenance is relevant region-wide, with priority areas being those with lower tree canopy as identified through the Council's Growing Shade tool.

Community Benefits Analysis

"Trees are one of the most important parts of our natural world."

"We don't have that many trees. My big things are developing more cropland, and green spaces. There are not enough trees. If I had a wish, I would wish that these developed areas would be a mixture of trees and development."

Due to residential segregation through explicit codification in laws and institutional practices and historic disinvestment in segregated areas, some communities in the region have less tree coverage. Trees can reduce the urban heat island effect, increase natural cooling, improve air quality and aesthetics, help manage stormwater runoff, increase property value, and improve mental health. Equitable tree planting programs should prioritize underserved areas and involve community members in planning and stewardship. Long-term maintenance planning is essential to ensure the benefits are sustained.

Implementation Authority and Responsibilities

- State Government: State agencies including but not limited to the Departments of Natural Resources, Agriculture, and Transportation, the Pollution Control Agency and the Board of Soil and Water Resources play a role in supporting the Twin Cities' regional tree canopy.
- Regional Government: The Met Council manages technical assistance tools to inform tree canopy enhancement and preservation in the region. The Council also runs a Community Tree Planting Grant program that funds local governments to complete tree canopy improvement projects.
- Local Government: Cities, counties, townships, and tribal nations have relevant authorities in managing the tree canopy in public spaces and along transportation corridors. Local governments can also support private property canopy programs to increase tree canopy across their jurisdictions.
- Other Actors: Nonprofit organizations, such as Tree Trust and The Nature Conservancy, support local government efforts to increase and manage tree canopy.

Implementation Timelines and Milestones

This measure is a short- to medium-term measure as tree planting and maintenance efforts are ongoing and have regional and state funding sources. However, the impact of emerald ash borer and other pests and diseases will necessitate tree canopy health and resilience investment and action for the foreseeable future.

Metrics for Tracking Progress

Percent canopy coverage by community, percent canopy coverage increase in census block groups prioritized for the Community Tree Planting Grant, number of trees planted in census block groups prioritized for the Community Tree Planting Grant

Quantified GHG Emission Reduction

Table 26. Example table of Measure 16 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 16 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Cost is expected to be low to medium depending on the scope of future canopy impacts from disease, pests, and disasters. Met Council data from the Community Tree Planting Grant program indicates that costs including materials, labor, and maintenance average $500 per tree planted while tree removal due to pest or disease averages around $1,000.

Intersection with Other Funding Availability

Complementary funding sources include:

- Met Council Community Tree Planting Grants
- Minnesota Department of Natural Resources ReLeaf Community Forestry Grants Program
- Minnesota Department of Natural Resources Shade Tree Program Bonding Grants
- Minnesota Department of Natural Resources Community Tree Planting Grants Program

Measure 17: Restore and protect natural land and water

Description

Grasslands, forests, and wetlands are effective natural carbon sequestration and storage options and offer a multitude of co-benefits including protecting biodiversity, improving water quality, mitigating flooding, and providing public recreation opportunities. Restoration can happen at a variety of scales, ranging from transitioning large abandoned agricultural areas to grassland to converting urban lawns to pollinator habitats. While the action will look different depending on the context, restoration and protection has a role across all areas in the metro region. Some higher priority areas include:

- areas with limited natural areas

- ecologically significant areas: areas with high-functioning ecological systems that support biodiversity, habitat, connectivity, and rare and endangered species
- ecologically sensitive areas: ecosystems that are vulnerable to disturbances such as human activities, climate change, and invasive species

Community Benefits Analysis

"Nature preserves and local parks are part of what makes and builds a community."

"We should integrate nature in all spaces, maintain existing parks, and look at proximity to parks for all developments."

Restoration and protection of natural lands enhance biodiversity, improve air and water quality, and provide recreational and cultural benefits. Natural areas also offer critical climate resilience by managing stormwater and buffering against flooding. Equitable strategies should focus on increasing access to green space in communities with limited resources and integrate Indigenous and local ecological knowledge into restoration practices. Job creation in land management can provide additional local benefits.

Implementation Authority and Responsibilities

- State Government: Agencies including but not limited to the Departments of Natural Resources and Agriculture, the Board of Water and Soil Resources, and the Pollution Control Agency support this measure.
- Regional Government: The Met Council plays a role in supporting local governments through providing planning guidance and technical assistance for restoring and protecting natural systems. The Met Council also works with partners across the region to improve impacted waters and protect unimpaired waters including: reviewing local comprehensive plans, local water plans, and watershed management plans; providing technical and financial assistance to local governments and other partners on water issues and water management activities; facilitating discussions on regional water issues that transcend community or watershed organization boundaries. The Met Council also conducts water quality management studies for water bodies in the second-county region and maintains a regional water quality database for information collected.
- Local Government: cities, townships, and counties all play a role in conserving and restoring natural areas in their communities. Watershed and conservation districts also support the restoration and protection of natural land through implementing and funding projects protect or restore terrestrial and aquatic systems.
- Other Actors: Nonprofit conservation partners also play an important role across the spectrum of land acquisition, management, and educational programs.

Implementation Timelines and Milestones

This is a medium- to long-term measure land restoration and protection takes time and existing funding as does not meet the implementation need.

Metrics for Tracking Progress

Acres of protected land, GHG sequestration in natural systems

Quantified GHG Emission Reduction

Table 27. Example table of Measure 17 quantified emission reductions as compared to BAU emissions (MT CO_2e)

Measure 17 Emissions Reductions	2030	2050
Accelerated Policy Scenario		
Net Zero Scenario		

Measure Costs

Costs are expected to range from low to medium. Restoration efforts are relatively low cost, but land protection and restoration will increasingly face pressure from development.

Intersection with Other Funding Availability

Complementary funding sources include:

- Minnesota Board of Water and Soil Resources Lawns to Legumes
- Minnesota Board of Water and Soil Resources Habitat Friendly Utilities program
- Minnesota Department of Health Statewide Health Improvement Partnership (SHIP) initiatives
- U.S. Department of Agriculture Wetland Reserve Enhancement Partnerships
- U.S. Department of Agriculture Conservation Reserve Program

Co-pollutant Benefits Analysis

Coming in September: estimates of the co-pollutant reductions (i.e. PM2.5, NO_x, SO_2, VOCs) from the measures included in this plan.

Workforce Planning Analysis

Coming in September: a workforce analysis will look at jobs in the clean economy including expected job creation potential and workforce development needs across the clean economy. Further analysis breaking job types and job creation by sector will be included in the appendix. This analysis is conducted by the Minnesota Department of Employment and Economic Development.

Appendix A: Detailed Community Engagement Results

The engagement summaries in Appendix A detail results from each organizational cohort. Engagement results are divided into patterns and insights. Engagement data patterns are themes that came up repeatedly during workshops and interviews. Engagement data insights are powerful ideas and reflections that came out of workshops or interviews that are important to capture even if they were not mentioned repeatedly.

4H Engagement Summary

Organizational Summary

Minnesota 4-H is the largest youth development program in the state, offering out-of-school, hands-on learning programs for youth to explore a variety of interests.

Participant Description

The cohort participating in this workshop series was comprised of 13 students aged 13 to 18 years old. Participants represented a variety of racial and ethnic backgrounds and came from Anoka, Carver, Chisago, Hennepin, Ramsey, Scott, and Washington Counties. Workshop curriculum focused on energy, waste, agriculture, nature, and environmental justice sectors, with the cohort interviewing community members from across the region on energy, agriculture, and nature actions.

Engagement Data Patterns

Pattern 1: Climate actions are rooted in community culture.

"Climate change can feel overwhelming, so when there's a social value as well as a climate benefit, I think that's nice."

"It's harder to make a difference as one person versus a whole community."

This cohort expressed a preference for participating in climate actions that center collective behaviors or events rather than individual choices. The youth were motivated by what others around them were doing, and many expressed a desire for more awareness and shared responsibility within their communities. At the same time, stigma and fear of judgment from peers played a role in participants' willingness to pursue certain climate actions. This social lens shaped how people viewed their own ability to act and made clear that any change effort must be built from community culture, not just increased access to information.

Pattern 2: Strong connections to nature.

"The strain on the plants with the thawing but also the freezing often is probably very stressful."

"I feel like we need bigger areas of nature versus small, because animals can't thrive in one acre of land."

Participants displayed strong connections to nature, describing it as something they not only wanted to enjoy but protect, whether through caring for plants and animals or simply having access to green space. Some youth also voiced requests for natural spaces closer to where they live. These connections were a motivator for climate action especially when participants considered how climate change may impact the wildlife and natural areas they care about.

Pattern 3: Cultural norms, habits, and convenience are barriers to change.

"People don't want to change their lifestyle for convenience. My friends all use plastic water bottles and don't drink it all and then throw it out."

While many youth and community members showed interest in participating in climate actions, cultural norms, habits, and convenience often posed challenges. Many participants noted that they are conditioned to expect certain foods in their meals, products in stores, and routines in daily life, and breaking those patterns is difficult. There was a preference towards climate actions that didn't require lifestyle changes and fit into familiar routines. Within these discussions youth emphasized the importance of making sustainable choices feel easy and integrated into daily life.

Engagement Data Insights

Insight 1: Economic concerns limit focus on climate.

"People don't have resources or the choices to be environmentally friendly."

"It would be easier to do for most families if it cost less."

Some participants shared that climate change and the environmental impact of certain actions are hard to focus on when finances and cost-savings are a priority. When people are focused on saving money and paying bills, environmental concerns fall lower on their list of priorities. Climate actions that are affordable, save money, or directly improve daily life are preferred.

Insight 2: Lack of walkable and bikeable infrastructure limits sustainable transportation.

"I don't like to bike or walk as much even though the things that I want are in walking distance because I don't want to cross the highways/busy roads."

This cohort displayed interest in modes of sustainable transportation such as walking and biking yet expressed frustration over gaps in infrastructure. Several participants noted wanting sidewalks, trails, and safe routes, as well as having more amenities closer to their homes to allow for travel without a car. In many cases, youth were not opposed to changing their mode of transportation, but they require a built environment to support that change.

Insight 3: People want to act, yet don't always know how or where they have influence.

"People want to make change but don't know where or who to go to, [...] or what actions would be most effective."

Participants expressed a strong interest in taking action to address climate change, especially at a local level. However, many were uncertain which actions were most impactful, how to take action, or whether their individual efforts could even make a difference. In general, participants and interviewees gravitated towards actions that were tangible and within reach such as changing personal habits or partaking in individual actions rather than larger scale efforts may require clear direction and shared effort.

Insight 4: Desire for broader community understanding of climate change.

"Many people lack proper education on these topics. As a result, they often feel uncertain about how to address or navigate these conflicts due to their limited understanding."

Underlying cohort discussions was a sense that participants wished their communities understood more about climate change and climate actions. Several participants mentioned the desire to build this awareness through community events, offering an opportunity to build community relationships around climate action efforts.

Brooklyn Bridge Alliance for Youth Engagement Summary

Organizational Summary

The Brooklyn Bridge Alliance for Youth (BBAY) is an organization in the northwest suburbs of the Twin Cities region that focuses on increasing high school graduation rates, as well as creating pathways to college and careers, and youth safety and wellbeing.

Participant Description

This cohort group consisted of 15 youth of color aged 14 to 18 years old from Hennepin County. Workshop curriculum focused on energy, transportation, waste, and environmental justice sectors, with the cohort interviewing community members from across the region on energy and transportation actions.

Engagement Data Patterns

Pattern 1: Climate change in the broader context of caring for the environment.

"Pollution from our cars, factories, trash, and more all factor into why our environment is in danger. Putting an effort towards our planet would save our climate as well as improve the quality and sustainability in our own lives."

Participants tended to view climate change not as an isolated issue but as part of a broader concern for caring for the environment and protecting community health. Many connected climate impacts to concepts they had experienced or already understood such as local pollution, air quality, or extreme weather. This lens of connection and motivation provides a more accessible entry point for building awareness around climate actions especially when climate education is linked to tangible and local examples.

Pattern 2: Desire for climate education and actionable steps.

"The issue is not having enough information or not enough people to caring about climate change. Education matters because if others are well informed, they'll take actions towards bettering our community and world - they'd put a more active role in helping."

There was a strong desire among the cohort for actionable and accessible climate education. Many participants cited misconceptions and a lack of data literacy and knowledge as community barriers to climate action. The youth were interested in learning practical tips that made change feel possible, such as information on home energy, sustainable transportation, and reducing waste.

Pattern 3: Expanding and improving transit systems.

"Implementing more accessible and safe transit for the people of the Brooklyns would help our community feel more comfortable taking the public transit."

Participants shared a wide range of ideas and concerns surrounding public transit. Stigma, safety, efficiency, and unreliable schedules came up as barriers to regular public transit usage.

Improving information access, route availability in the suburbs, ease of use, and overall safety could help normalize transit use and build trust in the system. There was also strong enthusiasm for micro-transit options, including on-demand vans and community shuttles.

Pattern 4: Prioritize short trips and walkability in local climate strategies.

"There are no sidewalks, so I'm just walking on the road hoping the car doesn't hit me."

There was notable interest in shifting more short trips to biking or walking yet also recognition that infrastructure needs to improve for that to be an effective long-term change. Missing or unsafe sidewalks and trails, lack of destinations in walking distance, and the cost of transit were all seen as barriers to low-carbon travel. Participants expressed that the suburban landscape makes a car feel like a necessity, but infrastructure scaled accordingly would be met with community interest.

Engagement Data Insights

Insight 1: Framing walking and biking as a right, not a privilege.

"Invest in better infrastructure to support safe, sustainable well-designed streets and pathways to make communities stronger, healthier, and more connected."

"Everyone who lives in the Brooklyn area deserves the right to be able to walk or bike in their own city."

Many participants believed public infrastructure like sidewalks, bike lanes, and safe crossings should be treated as basic rights not extras. Framing walking and biking as part of a shared public good rather than an individual lifestyle choice may be more successful messaging for this cohort. Participants used this framing to connect personal mobility to broader goals like equity, safety, and environmental justice.

Insight 2: Interest in immediate, accessible actions.

"I love learning hacks to make life easier."

This cohort displayed strong interest in "tips" and climate actions people could take immediately such as driving less, avoiding fast fashion, reducing waste at home, and home energy saving mechanisms. This highlights how community members reach for climate actions that feel tangible, understandable, and accessible. Making more climate actions visible, simple, and concrete could lead to stronger community involvement.

Insight 3: Support for government funding in solar energy.

"If price was not such a determining factor, citizens in Brooklyn Park and Brooklyn Center would be more likely to install solar panels."

Many participants and interviewed community members voiced interest in solar panels as both a cost-saving and climate-friendly energy source; however, financial barriers are preventing many households from accessing them. There was widespread support for public government funding and incentive programs to make solar energy more accessible, affordable, and equitable.

Insight 4: More community recycling and composting programs.

"More communities should offer recycling and composting."

For many participants, recycling and composting were seen as accessible entry points into climate action. However, many communities lack infrastructure and visibility around these waste-reduction programs. Whether through neighborhood drop-off points, city-wide waste pickup systems, or public education, there was a strong sense that local governments could do more to support recycling and composting efforts.

Insight 5: Important to discuss fast-fashion and thrifting.

"We should avoid fast fashion, buy quality clothes, and thrift."

Some participants, mainly young women, expressed an interest in education and discussion surrounding the environmental impacts of fast fashion. Thrifting, an action many youth already participate in, was viewed not just as a trend, but as a climate action tied to creativity, affordability, and reducing waste. Including this topic in outreach or education efforts could help make climate conversations more personal and relevant, especially for young people.

COPAL Engagement Summary

Organizational Summary

COPAL is a Minnesota member-based organization whose mission is to lead social impact initiatives to improve the quality of life for Latine families.

Participant Description

This workshop series was attended by 9 Latine individuals of all ages. Participants lived in Minneapolis, Saint Paul, and inner ring suburbs. Workshop curriculum focused on energy, transportation, waste, nature, and environmental justice sectors, with the cohort interviewing community members from across the region on energy, and transportation actions.

Engagement Data Patterns

Pattern 1: Low-income families disproportionately affected by climate change.

"La gente con menos recursos contribuyen menos [al cambio climático]. Tenemos que hablar del mundo, y la gente pobre que resulta más afectados porque sus casas se pueden inundar o incendiar." (People with fewer resources contribute less [to climate change]. We have to talk about the whole world, and poor people end up more affected because their houses can flood or burn down.)

"I used to work for 211. One of the most common calls was families with children struggling to pay their light bills and not getting light. I think about the increasing costs, especially in the winter. We have the cold weather rule where they can't shut off the heat, but families still have to pay it."

Participants expressed awareness of how climate change deepens existing inequities. Low-income families, people with disabilities, and historically marginalized communities were seen as bearing the brunt of the impacts of climate change while having the fewest resources to respond. The high cost of energy, unaffordable solar programs, and inaccessible electric vehicles left many community members and participants feeling that climate solutions are inaccessible for low-income communities. Some highlighted that climate action efforts must be designed with a focus on equity, recognizing both financial and structural barriers to participation.

Pattern 2: Desire for stronger government action, regulation, and incentives.

"Hay que tener una regla del gobierno que las compañías de alquilar hacen [estrategias de ahorro de energía]." (There needs to be a governmental rule that the rental companies [use energy-saving strategies.])

"The government has to be involved in making big industries and companies to [design products sustainably]. They only care about profit, and they are damaging the planet. That primarily affects low-income people. The government has to change."

Some participants called for the government to make more climate progress through stronger action, regulations, and incentives. There was a strong support for public investment in tree planting and community gardens and for regulations on landlords, delivery services, businesses, and industry polluters. Participants saw the government as an important actor in ensuring that private entities are not taking advantage of individuals, especially low-income residents and undocumented residents.

Pattern 3: Trusted messengers and culturally relevant framing are important.

"Para los cristianos en la biblia dice no se debe dañar la creación de dios." (For Christians, the bible says we shouldn't harm God's creation.)

Through cohort discussions, it was expressed that climate messaging will resonate more with communities when it connects to cultural and spiritual values. For Christian participants, framing caring for the earth as an act of faith resonated. Similarly, for others, Indigenous cultural belief systems provided a meaningful framing for climate action. Messaging that focuses on addressing the benefits and interests of different groups such as youth and elderly, while using accessible language and emphasizing cost savings (especially framing as more money to care for your family) was also seen as effective.

Pattern 4: Lack of trust in government acts as a barrier to engagement.

"[Escucho sobre un programa.] Pero recuerda, soy Latina." ([I hear about a program.] But remember, I'm Latina.)

Participants, especially immigrants and non-English speakers, expressed significant distrust in government institutions. Some doubted their eligibility for programs because of immigration status or cultural background, while others shared that immigration concerns shaped decisions such as avoiding public transit systems. Some highlighted that climate programs need to work through community leaders and trusted organizations to reach those left out of traditional outreach.

Engagement Data Insights

Insight 1: Car sharing is a frequently used and more realistic climate-friendly transportation action.

"I usually share a car with someone; I don't have a car of my own. I used to take more public transit when I lived in California, but I feel like the transit system here is not super great."

Some community members shared that carsharing and carpooling is a climate-friendly action that already feels practical and accessible. For those juggling financial constraints and infrastructure challenges, sharing a vehicle through informal community arrangements is a realistic solution.

Insight 2: Prioritize nature when making choices.

"Deseo que podamos tener la obligación que tenemos para cuidar y dar a los que todavía ni han nacido." (I wish we could fulfill the obligation we have to care for and give to those who still haven't been born.)

Participants framed protection of nature as the ethical and practical priority when asked to weigh trade-offs of everyday choices and various climate actions. Whether developing new infrastructure or making choices at the grocery store, many emphasized that actions benefiting ecosystems, trees, wildlife, and natural landscapes should come first.

Insight 3: Climate solutions must address disability-specific needs and impacts.

"For me, thinking about disability and transportation, I've only seen 2 vehicles that are hybrids that are accessible or adaptable. Other than that, there's vans which use more fuel. What would make it easier would be to have things be less expensive, accessible transportation like access to own an electric vehicle."

Participants highlighted that people with disabilities experience unique barriers both from climate impacts and from solutions that aren't designed with accessibility in mind. Some cohort members called for incentives, programs, and infrastructure adaptations that included and addressed the needs of disabled community members, so that climate action doesn't reinforce exclusionary practices.

Insight 4: Solar panels represent freedom from corporations and foreign energy, yet renters face accessibility issues.

"Solar panels sometimes come up. I wish I could have some solar panels to create my own energy, see if that reduces the bill."

For many community members, solar energy represents freedom from corporate utilities, high energy costs, and instability in global supply chains. However, participants who rent their homes voiced frustration that they're unable to benefit from most solar programs, reinforcing the sense that clean energy is designed for homeowners, excluding many low-income households.

Insight 5: Inadequate HVAC systems lead to space heater use, leading to unaffordable energy bills.

"Sometimes my kids have a heater in the room because one is colder than the other, and the bill goes up. It's more money in the electric bill. But it's cold, so you have to keep it on sometimes."

Some participants described struggling with inadequate HVAC systems, which leads many to rely on electric space heaters in winter, which is both an expensive and inefficient solution. This cycle drives up already high energy bills, leaving some community members feeling trapped to balance comfort and financial strain. Weatherization and energy efficiency improvements were seen as immediate, basic needs.

Insight 6: Electric Vehicles (EVs) are not a priority -- too expensive and unrealistic for many people.

""Teslas and EVs are really expensive. How can they expect a low-income person to buy one?"

While the use of electric vehicles can be an impactful climate strategy, some participants expressed little interest in them as a realistic solution. High upfront costs, limited charging infrastructure, and daily financial pressures made EVs feel inaccessible and impractical for most families, especially those renting or living on lower incomes.

GrowUs Engagement Summary

Content coming

Hmong American Farmers Association Engagement Summary

Organizational Summary

The Hmong American Farmers Association (HAFA) is a West Saint Paul-based organization aiming to advance the prosperity of Hmong farmers through cooperative endeavors, capacity building and advocacy.

Participant Description

This workshop series was attended by 15 Hmong individuals of all ages from across the region, many of whom are farmers or connected to Minnesota food systems. Workshop curriculum focused on energy, transportation, agriculture, and nature sectors, with the cohort interviewing community members from across the region on agriculture and nature actions.

Engagement Data Patterns

Pattern 1: Interconnectedness of climate change, economics, community, and health.

"Everything boils down to money. If we don't have the money. We can't take care of ourselves and others."

Participants described climate change as not simply a standalone issue, but as an issue deeply connected to community, family well-being, personal health, and financial stability. Cohort discussions reflected a holistic worldview, viewing nature's health and humanity's health as interconnected. Furthermore, some expressed concerns over the economic impact of climate change on the ability of people to care for each other. While caring for the environment and climate is valued, economic stress directly impacts participants' ability to take action.

Pattern 2: Time as a primary constraint.

"By the time I'm done with work there's not a lot of time to do anything."

"Convenience drives what we do. [...] People preach about saving the environment but there is a disconnect between their everyday life."

Many community and cohort members discussed the difficulty of balancing and prioritizing where their time and funds go. Cost of living and life and work demands impact people's ability to engage with climate solutions, pushing people to choose between taking climate-friendly actions and day-to-day survival. Many participants shared that climate actions that aren't time consuming and can fit into their current routines are preferable.

Pattern 3: Emphasis on collective action rooted in culture and community education.

"One person doing something doesn't make that much of a difference, it's a collective effort."

"How can we address this as a community?"

Across cohort discussion, collective action was viewed as more powerful and more culturally aligned than isolated individual efforts. There was strong support for community education, yet participants noted that for education to be most effective, it must be culturally relevant - in their native language(s), addressing generational differences, publicly accessible, and shared through familiar community spaces or trusted leaders. Participants discussed the need for a broader culture shift, not just changing behaviors, but reshaping norms and expectations across generations. Elders were seen as holders of knowledge and values, and youth as critical to carrying those values forward.

Pattern 4: Desire for meaningful government investments.

"Investments now for future success. Making sure resources are available for the next generations."

Participants voiced the desire for more significant government investment of time and money in climate actions that benefit both current and future generations. Some key priorities included building out transportation systems that work for suburban communities, supporting farmers and land stewards through incentives for sustainable practices (like cover cropping, polyculture, and green technology), and investing in infrastructure to manage pollution and runoff.

Engagement Data Insights

Insight 1: Connection to global indigenous practices.

"Learning from indigenous communities here is key to learning the land."

"[Farming] has been an indigenous practice of ours and when we found refuge here, a way to connect back to our roots from a home that we will never return back to. This is what we consider home – protecting the land that we live on and that we live off of, making sure that we don't take all of it, that we have enough for our future generations."

Some participants expressed a desire to learn from local indigenous stewardship practices while maintaining their own indigenous and cultural practices. Among the cohort, there was a recognition of the importance of understanding global indigenous practices when learning how to care for the environment. It creates an opportunity for cross-cultural learning and solidarity, especially when framed as returning to principles many communities have long held.

Insight 2: Growing food can support health and community connection but faces barriers.

"People need greenspace in the urban matrix to come together as community to create their own food."

"Allowing people to own small pieces of land to make their own food would help with health issues. It feels like we are chained to this way of life of mass production… We need to take a step back and educate people to do it for themselves."

Participants shared a vision of more people growing their own food as a way to support health and community building. They also identified existing challenges including access to land and

a lack of education around how to grow food. They saw a role for government to lower these barriers and support farmers in accessing markets.

Insight 3: Farmers interested in sustainable practices but need incentives and training

With things like cover crops, there is a willingness from farmers, but a huge gap of knowledge of how to get here. The key is lowering that barrier of knowledge as much as possible."

Participants and interviewees expressed that among Hmong farmers, there is a broad interest in sustainable practices, but cost and knowledge limit adoption. Farmers default to crops they know how to grow and know they can sell without outside help. At the HAFA farm, many farmers use cover cropping because the organization provides seeds and technical guidance.

Hope for Earth Engagement Summary

Organizational Summary

Hope for Earth is an organization based in River Falls, Wisconsin that focuses on creating a hopeful, ecologically sustainable future through collaboration, education, partnerships, advocacy, and action.

Participant Description

The Hope for Earth cohort consisted of 18 participants of all ages. A majority or participants were white, and they represented River Falls from both Pierce and St. Croix Counties. Workshop curriculum focused on energy, waste, transportation, and agriculture sectors, with the cohort interviewing River Falls community members on energy and waste actions.

Engagement Data Patterns

Pattern 1: Education to correct misconceptions and shift culture.

"People just don't know this information and aren't seeing the connection between this and real-life impacts."

Participants highlighted the need for more widespread climate education to target misinformation and lack of understanding surrounding climate change causes, impacts, and strategies. Some noticed a gap in their communities' understanding about how climate change impacts them, and more education is required to clarify how climate change manifests locally. Misconceptions and a culture that prioritized consumerism and convenience were highlighted as barriers to community participation in climate actions, barriers that could be remedied through effective climate education.

Pattern 2: Reluctance to act publicly, but openness to act individually.

"There's a small town factor; it discourages advocacy in the community."

Participants and interviewed community members expressed concerns about taking public action in their community to support climate strategies. The climate change actions that were most popular among participants and interviewed community members were those that individuals could implement within their own households, such as using smart thermostats, composting, recycling, and thrifting. The interest in strategies targeting individual households stemmed from potential economic savings but also a reluctance to publicly engage in climate

conversations due to lack of community support and a lack of structural support from local and state governments. As participants reflected on their interview data, they identified this dynamic as a sign of living in a small community and saw an opportunity to use their platforms to build a sense of broad support for community-scale climate action.

Pattern 3: Strong commuter connection to Twin Cities, struggles with sustainable transportation as a rural city.

"I would love to be able to take public transit back to where I live but there are no direct options. I wish I didn't have to use a car, but I don't really have an option. It's either that or I don't go home."

The River Falls community's strong commuting relationship to the Twin Cities, paired with its rural character positions sustainable transportation as both a challenge and area for growth. Participants emphasized the city's lack of public transit and bike-ability as limitations to reducing climate impacts from transportation. Participants expressed strong interest in commuter vanpools, shuttles, or regional buses to nearby hubs and safer biking infrastructure.

Pattern 4: Community leaders drive climate action, but structural change is needed.

"[One participant] started a powerful choices program that got people from various businesses together to talk about these sort of energy issues. Having awareness to think about where you can make the changes is important too."

Due to a lack of structural and institutional support, committed individuals, community leaders, and volunteers are the drivers of climate action progress in River Falls. They shared examples of building informal or semi-formal networks around specific efforts often without ample funding or policy backing. Many participants emphasized the difficulty of promoting or maintaining climate-friendly behaviors without system-level changes that make sustainable choices easier. This cohort noted the challenge of shifting society and their community away from consumeristic mindsets, which they felt hindered the advancement of long-term cultural shifts towards more sustainable lifestyle practices.

Engagement Data Insights

Insight 1: Strong connections to and value in natural areas.

"Lack of snowfall impacts the river levels, which could impact the trout populations and other parts of the river ecosystem. The Kinnikinic is a big draw to the area which would experience a big impact from a lack of rainfall."

This cohort displayed strong connections to local ecology and natural areas, including the Kinnikinnic River. The local ecology not only shapes the identity of the area, frequently identified as places of community pride, but also serves as a motivating force for environmental protection. Participant discussions illustrated how stewardship of natural areas could be a unifying entry point for climate action work.

Insight 2: Barriers to access for recycling and composting.

"We don't have any [composting facility] options in River Falls, and it's too expensive to haul it to Eau Claire but there it is in Washington County. [...] There's not enough options in Northern WI, nowhere to go with it."

Many participants noted a lack of access to official recycling and composting systems due to infrastructure gaps. The lack of nearby composting facilities makes it logistically and economically challenging for many River Falls residents to participate, limiting access to community-level waste reduction strategies.

Insight 3: Many interview respondents had already done climate actions.

"We purposefully bought a house in the middle of town, because we have a lot of kids that could then walk. 4 years ago, I bought an electric car. How do we make doing that affordable to everybody? Payback on our solar is probably 15 years."

Many cohort participants and interviewees expressed eagerness to participate in climate actions, with numerous individuals having already completed certain actions including home energy audits, solar panel installation, smart thermostat use, and moving to walkable locations. These examples suggest a relatively high level of baseline knowledge and enthusiasm among participants and interviewees that can be organized to support systemic or collective climate action.

Islamic Center of Minnesota

Organizational Summary

The Islamic Center of Minnesota (ICM) is a Fridley-based organization that provides community-members with avenues for spiritual, social, and civic engagement. In addition, ICM hosts a full time Islamic school, a monthly food shelf, a health clinic, and provides programs on topics such as education, religion, mental health, and convert support.

Participant Description

This cohort group was comprised of 10 Muslim high school and college students, a majority from Anoka County. Workshop curriculum focused on energy, waste, transportation, nature, and environmental justice sectors, with the cohort interviewing mostly Anoka County community members on energy and transportation actions.

Engagement Data Patterns

Pattern 1: Climate action woven into cultural and lifestyle practices.

"In the Quran, Allah refers to the Earth and its resources as a trust given to humanity. Muslims are instructed to protect and preserve what has been given to them. The environment, including air, water, and land, is considered a divine gift that should not be wasted or harmed."

Participants described how climate actions and the concept of caring for the environment are not separate from their everyday life but are already woven into their cultural and religious practices. For example, carpooling was viewed by many participants as an extension of attending community events or religious services. In addition, discussions surrounding the intersections of sustainability and access to culturally relevant and halal foods highlighted the importance of food systems that are both culturally appropriate and climate friendly. Participants also reflected on the Earth as a trust or responsibility from Allah, reiterating the concept of environmental stewardship as a spiritual practice. These discussions raised how planning efforts need to make space for the cultural, religious, and gender identities of communities.

Pattern 2: Home energy actions are driven by cost and comfort.

"The energy costs are a lot. Even though nobody's inside the house, we still have to pay a lot."

In regard to home energy use, most participants and community members were motivated by household comfort and cost savings. Concerns surrounding the impact of extreme temperatures on comfort in homes were also prevalent. Actions such as home energy audits or the installation of a smart thermostat were of interest but often viewed through the lens of everyday comfort and cost savings on utility bills, not necessarily environmental impact.

Pattern 3: Barriers to multi-modal transportation.

"There is a freeway which separates the route to Walmart, so walking is difficult."

Participants shared that while they are interested in alternative modes of transportation such as walking and biking, the built environment poses challenges. For example, many emphasized the lack of sidewalks and trails and key amenities being far apart and not accessible without a car. Participants also displayed low enthusiasm for public transit, with highlighting safety, accessibility, and inefficiency as key concerns. This cohort noted the need for more suburban specific solutions that address current barriers in multi-modal transportation.

Pattern 4: Comfort and education as prerequisites for action.

"I don't really want to tell people what to do. I'd rather do actions on my own home."

"If they understand, they'll advocate."

Comfort and perceived lack of education came up repeatedly as barriers to climate action. Some participants and community members felt uncomfortable talking to others about climate topics if they felt they didn't know enough or feared disagreement. Despite community misinformation about various climate actions, participants still displayed an interest in learning more, especially about home-based or individual actions.

Engagement Data Insights

Insight 1: Electric vehicle concerns

"I don't like electric cars at all. I much prefer gas vehicles compared to electric vehicles, I like the "vroom" of the car, and I think that electric cars are controlled by the government and are 'girl cars'."

Many participants expressed hesitation and concern regarding the adoption of electric vehicles (EVs). Some cohort members highlighted that car culture, often associated with social connection and personal identity especially among men, is tied to gas-powered vehicles. Some feared government EV mandates or unpredictability and risks with new technology, such as battery explosions or government control. A lack of charging infrastructure only further discouraged interest in EVs.

Insight 2: Tensions around affordable housing, density, and equitable decarbonization.

"Will affordable housing affect property costs of others?"

Concerns about affordable housing and density came up when participants discussed climate-related planning. While some youth prioritized affordability of solutions and the need to make

decarbonization available to low-income households, some felt that affordable housing would reduce quality of housing and lower property values and that higher levels of density would pose safety and traffic issues.

Insight 3: Support for micro-mobility programs.

"I was thinking taxis could be a main form of transportation and we could combine routes with other people that we don't know. We could do that, it would be like a minibus sort of thing. I feel like that's way better than just using like cars and SUVs."

Some participants expressed interest in micro-mobility transportation options, such as city-wide shuttles, and the development of more biking and walking infrastructure. Participants saw these tools as potentially easier to use, less stigmatized, more suited to short trips or errands, and more adaptable to suburban life.

Insight 4: Suburban context requires different climate solutions.

"Downtown Minnesota is a walkable city, but the suburbs aren't. It's a bit dangerous because cars aren't used to people walking. There aren't enough sidewalks. Everything is way too spread out."

Some participants reflected on the different realities within suburban communities that must be accounted for in climate planning. Many climate strategies are designed with urban contexts in mind and don't easily translate to suburban life including public transit, dense housing, and walkable cities and neighborhoods. Many people in suburban communities travel longer distances for school, work and daily errands, making car ownership feel necessary. Overall, climate efforts need to consider the distinctions within suburban communities in order to be successful.

Insight 5: Gendered interest in thrifting, and recycling.

"In our apartment, we threw everything away. Now we have a recycling habit."

Participants, mostly women, showed an interest in waste-reduction practices such as thrifting and recycling. Many saw it as a habit that needed more reinforcement and education, with some voicing concern about how recycling behaviors may be perceived by others, reflecting a subtle social stigma around waste sorting.

Karen Organization of Minnesota Engagement Summary

Organizational Summary

The Karen Organization of Minnesota (KOM) is a Roseville-based social service provider, offering a variety of programs to help refugee and immigrant communities transition to life in a new country and remove barriers to achieving economic, social, and cultural wellbeing.

Participant Description

This workshop series was attended by 14 Karen high school students from Ramsey County. Workshop curriculum focused on energy, waste, transportation, nature, and environmental justice sectors, with the cohort interviewing Ramsey County community members on energy and nature actions.

Engagement Data Patterns

Pattern 1: Home country roots and nature.

"Nature is a very big part of my life. I grew up in camp. The houses are made from bamboo, and we eat food straight from the ground, it's very organic. So, I would love to be a part of this."

Participants emphasized a deep cultural connection to nature, in many cases reminiscent of ideology and lifestyle practices in their home countries. Activities such as gardening, seed saving, foraging, and cooking were cited as sustainable practices linked to family traditions. Participants also highlighted Karen cultural beliefs of nature as a living entity and a source of spiritual and physical health. The concept of caring for the environment was met with enthusiasm from this cohort, especially when framed as a community project.

Pattern 2: Culturally specific messages, outreach, and solutions.

"I find it really interesting that so much of this is happening, but the only sad part is that not a lot of it is being shared with a lot of communities. As students, we understand English. But when it comes to our parents, they don't understand English. I find it surprising that we have all this data and it's hard to get it to our elders."

Many participants highlighted the lack of accessible and culturally relevant climate action outreach. Especially with large, multi-generational communities, one-size-fits-all messaging isn't effective. Participants suggested climate action messaging strategies that are rooted in their community's own organizing structure, including culturally relevant examples and materials in their native language, and working with trusted sources such as local faith-based venues, elders, and community experts.

Pattern 3: Survival comes first; cost is a barrier to participating in climate actions.

"We got other things to worry about like surviving in this economy and helping earth is not on our mind."

For many, the cost of living makes more costly climate actions feel inaccessible. Many participants mentioned the inability for themselves or their families to prioritize longer-term or seemingly abstract goals due to a focus on meeting basic needs. While many saw value in climate actions such as installing solar panels, they also recognized the up-front expense posed a large barrier and called for more financial support.

Engagement Data Insights

Insight 2: Desire for a community fix-it center (for technology, clothing, and more).

"Create centers to repurpose old electronic parts – a fix-it center for phones, clothes, and technology."

Participants identified the need for a local fix-it center where community members could reduce waste and push back against fast fashion and consumerist tendencies by repairing clothes, electronics, and household items. While recycling programs had relatively low enthusiasm among the cohort, a fix-it center felt like an empowering, hands-on, communal way to reduce waste that aligned with many participants values.

Insight 3: Use culturally-relevant examples to make connections to actions.

"In Japan, the transportation is mostly bus, trains, biking and walking. It seems like they have cleaner air. I would like that."

Some participants noted the power of drawing from global examples, particularly East Asian models of sustainability. Referencing cultural traditions or current practices from these regions may help to bridge ideas between lived experience and new action and develop a system of peer-based learning.

Insight 4: Accountability for Government.

"Government should be better about trash and waste cleanup and hold polluters and government accountable."

Within this cohort, there was an undertone of frustration with government systems that are perceived as polluting or underprioritizing the environment. Participants wanted to see real accountability, visible action, subsidies for climate actions, climate policies, and community-informed spending.

Insight 5: Safety as barrier to alternative transportation modes.

"I would never take a bus. A friend of mine had a really bad experience and it affected her a lot. I hear stories about it a lot, and I wouldn't want that to happen to me or future generations."

Transportation is deeply tied to feelings of safety, especially for women and families. Many participants voiced concerns about unsafe biking and walking infrastructure and gendered fears surrounding public transit use and reliability. These concerns highlight that making sustainable transportation more viable means not only addressing infrastructure, but emotional and physical safety as well.

Park Plaza Engagement Summary

Organizational Summary

Park Plaza Cooperative is a resident-owned 90-home manufactured home community located in Fridley.

Participant Description

This cohort group consisted of 10 Park Plaza residents of all ages and of Hispanic and white backgrounds. Workshop curriculum focused on energy, transportation, waste, agriculture, and environmental justice sectors, with the cohort interviewing community members from across the region on energy and transportation actions.

Engagement Data Patterns

Pattern 1: Communal and intergenerational actions and practices.

"One idea I have is for all of us to come together to clean because there are areas in the parks that are really dirty, and there are many kids that come and go and who knows what they are going to pick up or put in their mouths."

Participants described a strong interest in environmental work and climate actions done within community. Actions such as community gardening, neighborhood cleanups, and tree planting events were seen as ways to care for both people and the environment. There was a strong emphasis on making sure community climate actions were accommodating and accessible to all generations including elders, youth and more. Some participants expressed a desire for the community to manage resources themselves, to ensure that benefits reach their whole community, not just those with more power or proximity to decision-making.

Pattern 2: Trust with the government.

"We want to feel secure and comfortable in who is working with us. In the past, the community was misled with a program that made us lose trust. Not having trust could lead to hesitation from people in our community and we might lose out on opportunities."

Some cohort members voiced skepticism or distrust towards government programs, in many cases rooted in negative past experiences or current federal administration actions. This distrust creates a barrier to a community's comfort in engaging with government-prompted climate actions. Building trust may require governments to alter traditional outreach approaches and work through community-led structures.

Pattern 3: Affordability and access are major barriers to climate action.

"An Xcel Energy audit resulted in a meter reading that looked higher than peer homes due to the draftiness and low insulation of trailers."

"Access is really important to us because if we have the right resources, it could help struggling families, elders, and those in the lower income communities."

The high cost of energy to keep poorly insulated homes comfortable, challenges accessing healthy food, and health and transportation costs culminated in a feeling that climate action is inaccessible for lower income communities. Participants noted that many climate actions and home energy programs aren't designed for or compatible with manufactured homes. Participants voiced that effective climate actions will need to address barriers to access and affordability within low-income and marginalized communities, meeting them with more relevant messaging, resources, and program design.

Pattern 4: Transportation safety and accessibility limit mobility options.

"Create changes to the environment like adding more streetlights so that people can walk more and feel safe."

Many cohort and community members expressed a desire to use more sustainable modes of transportation but felt blocked by safety and infrastructure issues. Busy roads without safe crosswalks, unreliable or infrequent buses, and even negative experiences with school bus service contributed to a general preference for cars. Carpooling was seen as one of the most frequently used and accessible alternatives, though participants expressed interest in seeing it normalized and supported further within their community.

Engagement Data Insights

Insight 1: Compounding burdens.

"Todo está muy caro – la comida cada día cuesta más." (*Everything is very expensive – every day food costs more.)*

Some participants described how compounding burdens such as financial strain, health challenges, immigration stress, and environmental issues shape their daily life, and thus their ability to participate in climate actions. Climate change is just one of the many challenges communities feel they must juggle and often cannot be prioritized over addressing more immediate needs for themselves and their families.

Insight 2: Desire for community independence, empowerment, and self-reliance.

"Tal vez algún día se puede ir la luz y eso nos ayuda tenar energía propia aquí." (*Maybe one day the power will go out and that will help us have our own energy here.)*

The desire to build solutions within their communities rather than rely on external systems was expressed by some participants. Many saw independence as a path to power, community stability, and control over who benefits from resources. It also addressed longstanding concerns over finding trustworthy partners in the private or public sector.

Insight 3: Cultural perspectives and strategies in countries of origin shape expectations for climate action.

"We could have days only certain cars can drive to reduce carbon emissions. If cars still to drive on no drive days, have them pay a fine. For reference Mexico City does something similar to reduce the country's pollution and carbon emissions."

Participants' ideas of what climate actions are possible are shaped by their experiences in countries of origin, such as Mexico. Familiarity with different policies or infrastructures abroad influenced what felt logical or frustrating in their current U.S. communities. This global perspective offers opportunities to build on existing knowledge, expand the scope of what feels possible, and adapt solutions with which residents are already familiar.

Insight 4: Frustration with government and utility inaction.

"Sometimes the cold freezes our water. Our toilet was frozen. We have two toilets in our house. I don't know what happened but sewage came up. It was like that for like 2 weeks."

"Last year there was a power outage. It just exploded. [...] .It was so dark. It took forever for it to get fixed and it was really big and there was a burn mark somewhere. That's something I won't forget."

Some participants raised frustrations about basic services such as water quality and public maintenance that go unaddressed or are fixed only after long delays. This disillusionment and frustration with the current system makes it harder to trust new initiatives. Participants expressed feeling like they'd first like to see basic issues addressed before larger actions feel feasible and believable.

Insight 5: High value placed on ecology and high-quality community spaces.

"Planting more trees can improve air quality, provide more shade, reduce energy use and support wildlife."

Many cohort and community members emphasized the importance of trees, plants, and clean, well-kept parks and public spaces in their neighborhoods. These spaces were seen as both an environmental benefit and a community asset. There was also concern about how climate change might harm these valued areas, signaling that investments in urban greening and nature access resonates strongly.

Appendix B: Sectoral Workforce Analysis

Coming in September

Appendix C: GHG Inventory and Projections Methodology

Coming in September

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