# Priority Climate Action Plan

Austin - Round Rock - Georgetown Metropolitan
Statistical Area

Climate Pollution Reduction Grant
March 1, 2024

## Lead Agency

This project is led by the City of Austin's Office of Sustainability. For more information about the Office and its programs, visit www.austintexas.gov/department/sustainability. For more information about the CPRG process in the Austin-Round Rock-Georgetown MSA, visit www.austintexas.gov/cprg.

## Acknowledgments

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## Disclaimer

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# ACRONYMS AND ABBREVIATIONS

| Acronym or Abbreviation | Definition |
| --- | --- |
| AVERT | Avoided Emissions and Generation Tool |
| CAA | Clean Air Act |
| CCAP | Comprehensive Climate Action Plan |
| CFR | Code of Federal Regulations |
| CIRIS | Community Inventory Reporting and Information System |
| CPRG | Climate Pollution Reduction Grant |
| COA | City of Austin |
| DOE | Department of Energy |
| ECHO | Enforcement and Compliance History Online |
| EIE | Environmental Insights Explorer |
| EPA | U.S. Environmental Protection Agency |
| ERCOT | Electric Reliability Council of Texas |
| FLIGHT | Facility Level Information on GHG Tool |
| GHG | Greenhouse Gas |
| GGRP | Greenhouse Gas Reporting Program (40 CFR Part 98) |
| GPC | Global Protocol for Community |
| IQR | Inter Quartile Range |
| IRA | Inflation Reduction Act |
| LIDAC | Low-Income and Disadvantaged Community |
| MSA | Metropolitan Statistical Area |
| MOVES | Motor Vehicle Simulator |
| NEI | EPA's National Emissions Inventory |
| OAR | EPA Office of Air and Regulation |
| OOS | Office of Sustainability |
| PCAP | Priority Climate Action Plan |
| PM | Project Manager |
| PO | EPA Project Officer for Grant |
| POP | Period of Performance |
| POR | EPA Project Officer's Representative |
| QA | Quality Assurance |
| QAM | Quality Assurance Manager |
| QAMD | Quality Assurance Manager Delegate |
| QAPP | Quality Assurance Project Plan |
| QC | Quality Control |
| QCC | Quality Control Coordinator |
| SLOPE | State and Local Planning for Energy |
| TL | Task Leader |

# INTRODUCTION

The City of Austin has partnered with cities, counties, regional organizations, and utilities in the Austin-Round Rock-Georgetown MSA to produce this priority climate action plan (PCAP) to support investment in policies, practices, and technologies that reduce Greenhouse Gas (GHG) emissions, provide other environmental benefits, create high-quality jobs, spur economic growth, and enhance the quality of life in the Austin-Round Rock-Georgetown MSA.

This plan aims to highlight priority measures for regional greenhouse gas reductions, addressing the dispersed authority across water, housing, transportation, and resource conservation through planning at the regional level. The Austin region is one of the fastest-growing metropolitan statistical areas[1] in the country, and this plan represents an innovative approach to fostering collaboration in climate planning. Several participating municipalities have already undertaken steps to mitigate climate change and reduce GHG emissions, including climate-focused strategies and initiatives in their comprehensive, strategic, and vision plans. Notably, the City of Austin and Travis County have directed plans exclusive to climate planning — the City of Austin Climate Equity Plan and the Travis County Climate Action Plan. This PCAP represents an opportunity to work across municipalities, building on the alignment across plans that pertain to greenhouse gas reduction and leveraging the implementation authority across each of the participating cities, counties, and regional planning organizations. These GHG reduction and climate goals are also reflected at the federal level. Measures developed from the PCAP will support Objective 1.1 of EPA's Strategic Plan, "Reduce Emissions that Cause Climate Change," and support compliance with the National Ambient Air Quality Standards outlined in the Austin MSA Regional Air Quality Plan.

## Climate Pollution Reduction Grants

The City of Austin received a $1 million grant from the EPA, funded through the federal Inflation Reduction Act (IRA). This grant, part of the $5 billion allocated to the Climate Pollution Reduction Grants (CPRG) program, is designed to support states, local governments, tribes, and territories in developing and implementing robust plans to reduce greenhouse gas emissions and harmful air pollution. Our city is using these funds to collaborate with regional partners and neighboring cities, extending our climate planning and action beyond Austin's borders.

Austin's Office of Sustainability is leading this initiative for our region and has engaged a community and stakeholder advisory group to help along the way. This Priority Climate Action Plan is the first deliverable due as part of the Climate Pollution Reduction Grant regional climate planning process. This plan will create the first-ever GHG emissions inventory for the Austin-Round Rock-Georgetown MSA and help identify high-priority,

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[1] Austin was the fastest-growing metropolitan area in the U.S. for 12 years in a row in 2023. City of Austin. Austin Population Growth and Demographic Trends City Council Work Session December 12, 2023. December 2023. https://www.statesman.com/story/news/local/2023/12/13/austin-population-metro-growth-georgetown-round-rock/71905598007/

ready-to-implement measures to lower emissions at a regional level, which could be included in grant applications for implementation.

## Priority Climate Action Plan Development

To develop the PCAP, five key steps were taken per EPA guidance. During the PCAP development process, the project management team (PM team) at the City of Austin's Office of Sustainability completed the required elements under the PCAP guidance as well as the encouraged elements such as the GHG Emissions Projections, Benefits Analysis, Intersection with Other Funding Availability, and Workforce Planning Analysis. The following steps were taken in the completion of the required PCAP deliverables.

1. **Review of existing plans from coordinating entities[2]:** The PM team reviewed existing climate action plans and regional plans to identify implementation-ready measures and ask for project nominations from participating jurisdictions to develop an initial list of PCAP measures. While the review's primary focus is to select near-term, high-priority measures, the PM team also explored potential long-term projects and partnerships for the Comprehensive Climate Action Plan (CCAP) development.

2. **Develop initial list of PCAP measures:** To tailor the list of PCAP measures, the PM team developed screening criteria reinforcing the goals of reducing emissions and promoting climate equity, supporting Objective 1.1 of EPA's Strategic Plan "Reduce Emissions That Cause Climate Change." The screening criteria guided the initial project development phase of the PCAP by excluding actions that were not aligned with regional and CPRG program goals and highlighting eligible actions that are near-term, high-priority, and ready for implementation. The output from this step was a preliminary list of measures that were subjected to further analyses. These screening criteria included support by the Community and Stakeholder Advisory Group and MSA partners, thematic support from the community survey, and interest by an implementation partner.

3. **Identify Low-Income and Disadvantaged Communities (LIDACs) to develop stakeholder engagement strategies:** The PM team used the Climate and Economic Justice Screening Tool (CEJST) developed by the federal Council on Environmental Quality, as well as the Environmental Justice Screening and Mapping Tool (EJScreen) developed by the EPA to identify disadvantaged communities. This step helped guide the development of stakeholder engagement strategies, which prioritized LIDACs while also reaching the entire community. More information can be found in the Coordination and Outreach section.

4. **Assess benefits and prioritize PCAP measures:** The PM team conducted benefits analysis, LIDAC benefits analysis, reviewed authority to implement, funding availability analysis, and workforce planning analysis, as outlined by EPA guidance, to further prioritize the potential PCAP measures. These five technical

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[2] Plans reviewed include: Austin Energy Resource Plan, Opportunity Bastrop County, the CAMPO 2045 Regional Active Transportation Plan, the CAPCOG Air Quality Plan, Austin Climate Equity Plan, 2023 Austin Resource Recovery Comprehensive Plan, Our Buda Our Future 2024 Comprehensive Plan, Kyle 2030 Transportation master Plan and Comprehensive Plan, City of Lakeway 2020 Comprehensive Plan, Aspire Pflugerville 2040 Comprehensive Plan, VisionSMTX Draft plan, the Current Texas SIP-Approved Air Quality Implementation Plan, and the Travis County Climate Action Plan.

analyses also informed the development of new actions that were not included in previous climate action plans.

5. **Identify implementation next steps:** The PM team summarized the notable results and insights from the GHG and other technical analyses to finalize the list of measures for inclusion in the PCAP. The measures included are being used to inform the development of two CPRG implementation grant applications.

## PCAP Organization and Scope

This PCAP is organized into 12 sections:

1. Introduction
2. Greenhouse Gas (GHG) Emissions Inventory
3. Emissions Projections
4. Priority GHG Reduction Measures
5. Benefits Analysis
6. Low-Income and Disadvantaged Community Benefits Analysis
7. Review of Authority to Implement
8. Intersection with Other Funding Availability
9. Workforce Planning Analysis
10. Coordination and Outreach
11. Conclusion
12. Appendices

The PCAP's geographic scope features the following counties

**Table 1:** Geographic Scope of PCAP

| County | Population | County Seat |
|--------|-----------|-------------|
| Travis | 1,326,436 | Austin |
| Williamson | 671,418 | Georgetown |
| Hays | 269,225 | San Marcos |
| Bastrop | 106,188 | Bastrop |
| Caldwell | 47,848 | Lockhart |

Source: US Census Bureau, 2022 Estimates

**Map 1:** A map showing the geographic scope of this PCAP, the Austin-Round Rock-Georgetown MSA.
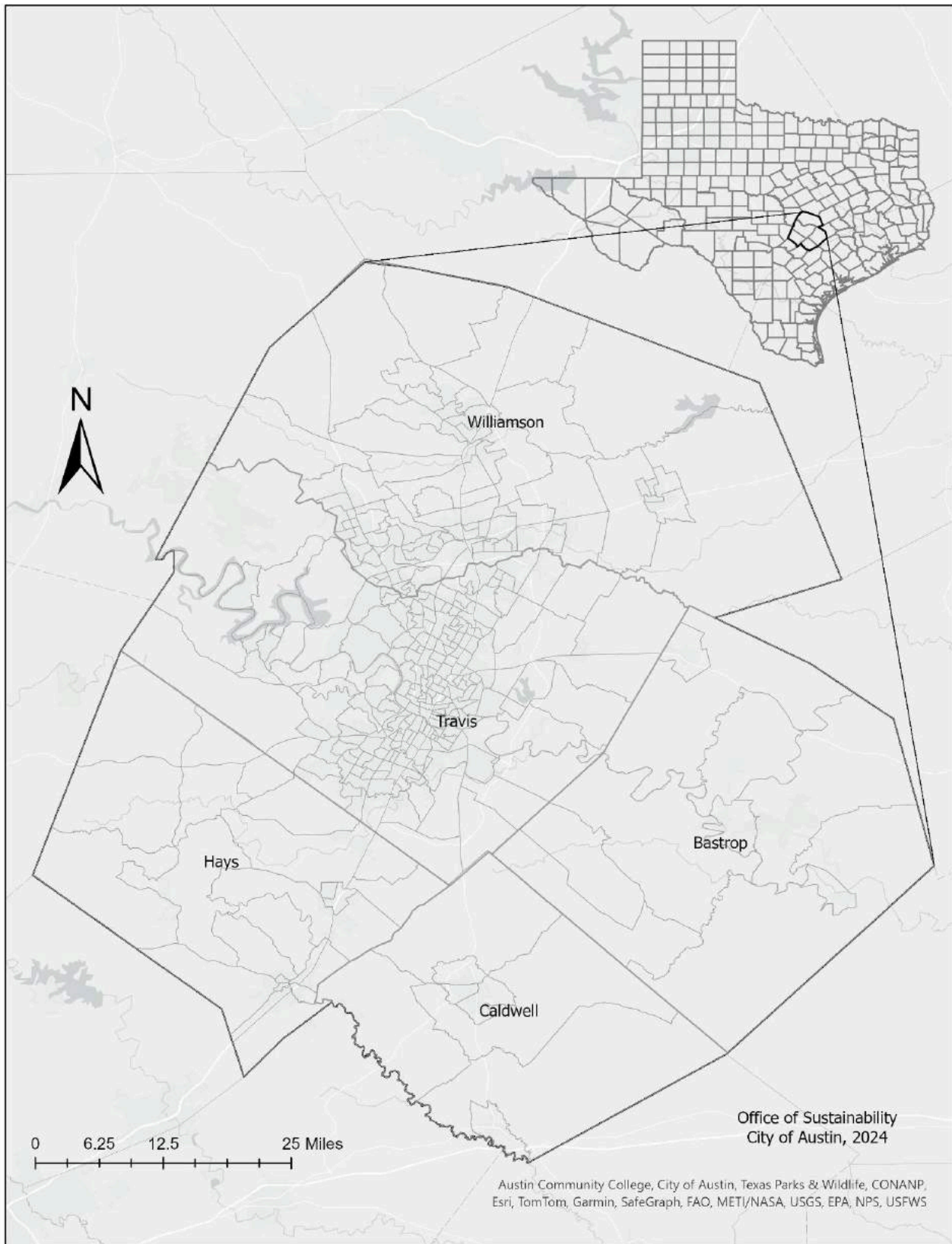
**Map 2:** A map showing the population density of the Austin-Round Rock-Georgetown MSA.
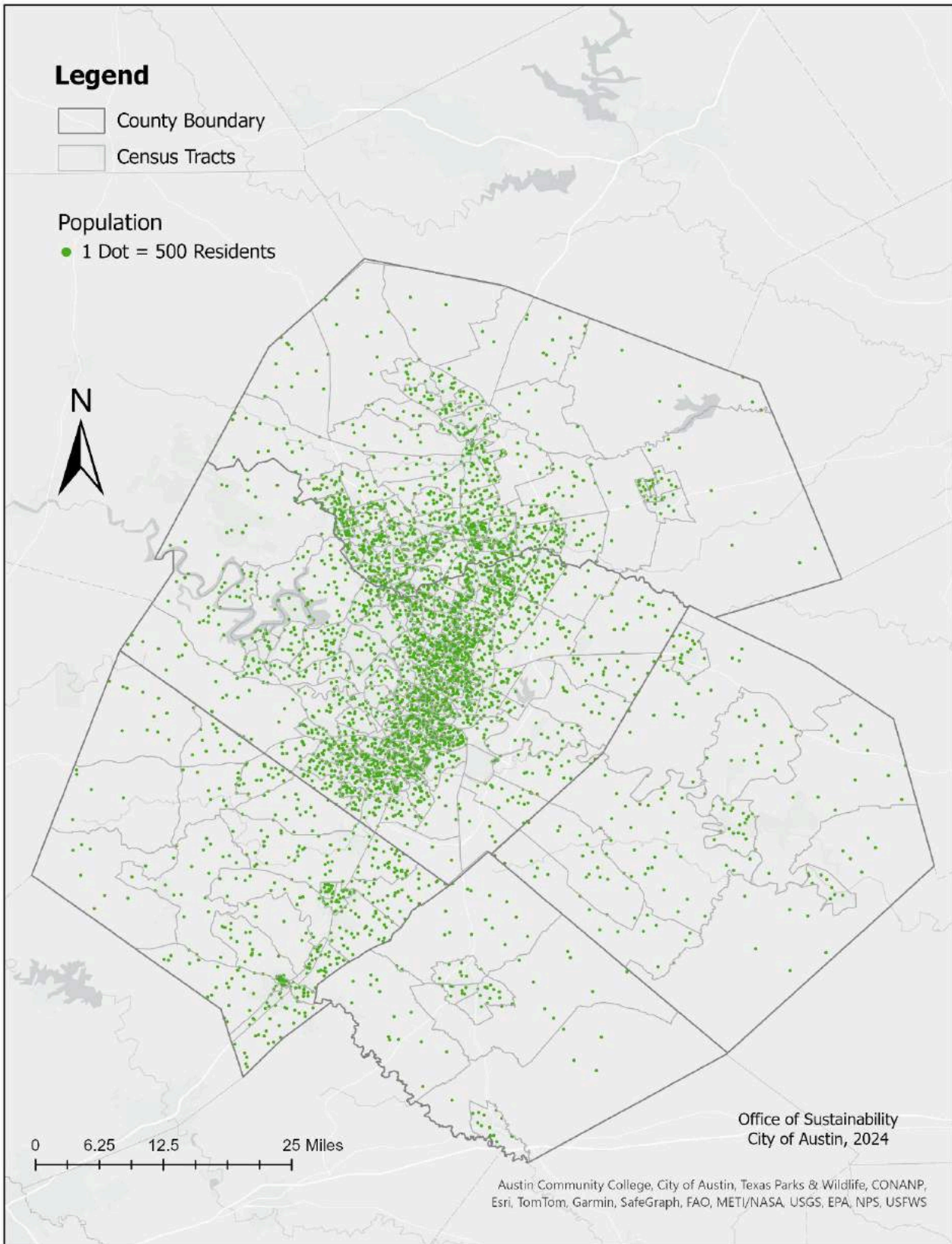
# GREENHOUSE GAS EMISSIONS INVENTORY

The City of Austin has developed an inventory of priority sources of GHG emissions within the Austin-Round Rock-Georgetown MSA. The CCAP will build on the PCAP methods and findings and include an in-depth GHG analysis to develop additional quantified GHG reduction measures by evaluating the sector-level emissions and projecting near-term (2030) and long-term (2050) GHG emissions. The City of Austin used the City Inventory Reporting and Information System (CIRIS) tool to compile data and estimate GHG emissions from the following sources:

- **Transportation**
  - Regional on-road activity from Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC)-compliant Google Environmental Insight Explorer portal
  - Mobile emissions factors localized through collaboration with C40 Cities
  - Fuel consumption attributed to CapMetro's regional transit rail lines
  - In-boundary emissions related to air travel provided by Austin Airport
  - Off-road activity fuel consumption estimates based on existing Austin area GHG inventories

- **Energy**
  - Electricity and natural gas consumption estimates from the National Renewable Energy Lab's State and Local Planning for Energy (SLOPE) Platform
  - Emission factors for ERCOT and Austin Energy's service territory, provided by the EPA and Austin Energy, respectively
  - Large point source energy activity available through the EPA's Greenhouse Gas Reporting Program (GGRP)
  - Natural gas distribution leakage estimates based on regional consumption derived from NREL's SLOPE Platform

- **Industrial**
  - Large point source industrial emissions available through the EPA's GGRP

- **Waste and Wastewater Management**
  - Municipal solid waste tonnage available through the Texas Environmental Quality Commission's Municipal Solid Waste Annual Reporting Program
  - Landfill gas flare activity available through the EPA's GGRP
  - Regional nitrogen content of treated wastewater available through the EPA's Enforcement and Compliance History Online (ECHO) portal

- **Agriculture and Lands**
  - Statewide agriculture-related emission estimates available through the State Greenhouse Gas Inventory Tool
  - Regional livestock headcounts available through the United States Department of Agriculture (USDA) National Agricultural Statistics Service (NASS)

Detailed methodology and quality assurance procedures for the preparation of this inventory are included in the approved Quality Assurance Project Plan as an attachment to this document.

# 2022 Greenhouse Gas Emissions

## Austin-Round Rock-Georgetown MSA

Travis, Williamson, Bastrop, Caldwell, and Hays Counties

**24.3 million metric tons of CO₂e**



- Transportation: 34%
- Electricity: 30%
- Natural Gas: 16%
- Industrial: 9%
- Waste & Water: 7%
- Agriculture & Lands: 5%
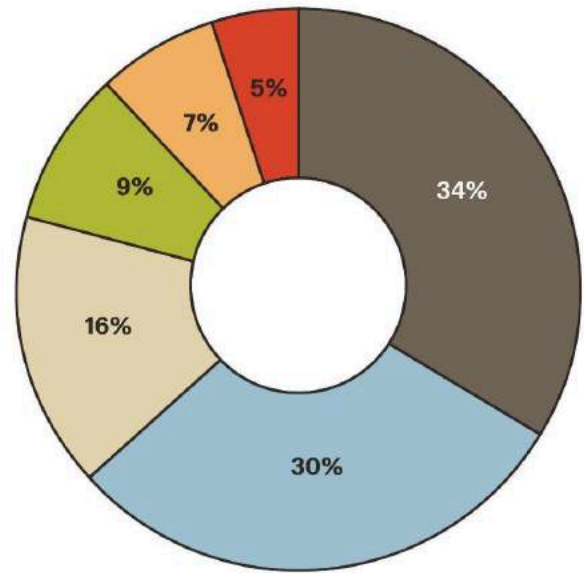
**Table 2:** Austin-Round Rock-Georgetown MSA GHG Inventory Sectors and Gases

| Sectors | Greenhouse Gases (metric tons CO$_2$e) |
|---|---|
| Transportation | 8,171,344 |
| Energy | 11,018,635 |
| *Electricity* | *7,248,084* |
| *Natural Gas* | *3,770,551* |
| Industrial | 2,082,361 |
| Waste and Wastewater Management | 1,816,290 |
| Agriculture and Lands | 1,214,614 |
| **Total** | **24,303,244** |

# GHG EMISSIONS PROJECTIONS

The City of Austin has developed near-term (2030) and long-term (2050) projections of GHG emissions that would occur in a "business-as-usual" (BAU) scenario where the PCAP measures are not implemented. Detailed methodology and quality assurance procedures for the preparation of these projections are contained in the attached Quality Assurance Project Plan. Table 3 lists base-year GHG emissions and near-term and long-term GHG emissions projections by sector for the Austin-Round Rock-Georgetown MSA under the BAU scenario.

**Table 3:** BAU Scenario MSA GHG Baseline and Projected Emissions in metric tons $CO_2$e by Sector

| Sector | Base Year | BAU | |
|---|---|---|---|
| | 2022 | 2030 | 2050 |
| Transportation | 8,171,344 | 7,445,296 | 4,060,410 |
| Energy | 11,018,635 | 9,484,863 | 8,118,728 |
| *Electricity* | *7,248,084* | *5,061,157* | *2,062,130* |
| *Natural Gas* | *3,770,551* | *4,423,707* | *6,056,597* |
| Industrial | 2,082,361 | 3,095,707 | 3,777,350 |
| Waste and Wastewater Management | 1,816,290 | 2,130,917 | 2,917,487 |
| Agriculture and Lands | 1,214,614 | 1,035,277 | 756,161 |
| **Total** | **24,303,244** | **23,192,061** | **19,630,137** |

# PRIORITY GHG REDUCTION MEASURES

The GHG reduction measures in this section have been identified as "priority measures" to pursue funding through CPRG implementation grants. This list is not exhaustive of the Austin-Round Rock-Georgetown MSA's priorities. Instead, the selected priority measures included in this PCAP meet the following criteria:

- The measure is implementation-ready, meaning that the design work for the policy, program, or project is complete enough that a full scope of work and budget can be included in a CPRG implementation grant application.
- The measure can be completed in the near term, meaning that all funds will be spent and the project completed within the five-year performance period for the CPRG implementation grants.
- The measure has support from community members within the region.
- The measure will provide benefits to LIDACs.

For each priority measure, Appendix A to this PCAP provides additional details about the following information:

- Co-Benefits
- LIDAC Benefits
- Review of Authority to Implement
- Workforce Planning Analysis
- Intersection with Other Funding Availability



Table 4 outlines the GHG reduction potential of each GHG Reduction Priority Measure. The measures are:

## Measure 1: Implement Transportation Demand Management programs

Expand existing Transportation Demand Management programs and implement new ones across the region to shift transportation behavior to low-emission modes (like walking, biking, and transit), reduce vehicle miles traveled, and shift commutes to off-peak periods. This measure would also include a dedicated strategy to manage transportation demand during the multi-year disruptions that will be caused by major construction projects, including the development of eight mobility hubs and other supportive infrastructure. A large-scale multilingual grassroots outreach and communications campaign would help inform community members about low-GHG emissions mobility options.

## Measure 2: Encourage and subsidize R99 availability

Provide financial incentives to suppliers and retailers to cover the extra costs associated with offering Renewable Diesel (R99) fuel, making it more competitively priced and accessible to consumers. This would likely be achieved

through a combination of government or private subsidies aimed at offsetting the incremental costs incurred by fuel stations and suppliers for handling and selling R99. A regional coalition purchasing cooperative of large fuel users would be formed to demonstrate a willing market of buyers and support buying R99 in bulk. Renewable Diesel (R99) fuel is derived from biomass sources such as vegetable oils (e.g., canola, soybean), animal fats, and waste cooking oils, which are processed to produce a fuel that is chemically similar to petroleum diesel but with a significantly lower carbon footprint, as it utilizes carbon that is part of the current carbon cycle. R99 also has a cleaner combustion profile than conventional diesel, significantly reducing co-pollutant emissions and improving air quality.



**Measure 3: Install community solar and battery storage**

Install up to 35 MW of community solar at grade and on roofs, focused on LIDACs. Community solar is a solar power project shared by multiple participants who receive credits on their electricity bills for the energy produced, enabling access to solar energy without requiring personal solar panel installations. The community solar project would be co-located with 34 MWh of battery storage, which reduces GHG emissions by storing excess renewable energy for use when production is low, decreasing reliance on fossil fuel power plants. Battery storage provides grid stability, voltage support, and load shaping, reducing the need for high-emitting peaker plants during high demand, further lowering GHG emissions. It also supports infrastructure and building resilience, and re-energizing support during power outages — reducing the reliance on fossil fuel-powered generators.

**Measure 4: Implement holistic building-wide upgrades to municipal buildings**

Establish a funding program for public-facing municipal facilities in the MSA to support retrofits that decrease greenhouse gas emissions by increasing building efficiency and weatherization. Buildings that serve communities identified as low-income, climate-vulnerable, or under-resourced may be considered for full project cost coverage, while others may receive either a fixed price or a percentage of their total project cost. Eligible

initiatives include heat pumps, onsite battery storage, solar PV installations, district energy systems, lighting system retrofits, outside airflow controls, refrigerant replacement, and electrification of appliances and kitchens. These initiatives aim to yield measurable reductions in GHG emissions from participating buildings, with applicants required to provide baseline data and projections of reductions and savings. This measure will also support climate resilience through onsite battery storage and heat resilience plans for swimming pools.

## Measure 5: Implement water conservation programs



Expand and regionalize existing water conservation programs, including rebates and incentives for water-saving fixtures, rainwater harvesting, water-efficient landscaping, education and outreach, tools and resources to help reduce water use, water benchmarking and audits, Artificial Intelligence (AI) strategies for leak detection, and support for on-site water capture and reuse. Because water consumption is energy and carbon-intensive to pump and treat, conserving water and reducing water consumption will mitigate GHG emissions from these processes. Co-benefits associated with reduced water consumption include increased resilience to drought conditions and affordability for consumers.

## Measure 6: Implement community-driven tree planting and forest restoration programs

Support and expand existing programs for tree planting and forest restoration, which could be accomplished through a combination of funding, capacity-building activities, data collection, and regional collaboration. Various activities contribute to the support of tree planting and health, including raising saplings, planting trees, conducting monitoring and data collection, and implementing practices like tree watering, mulching, and soil enhancement. Mature, climate-smart trees play a crucial role in removing carbon dioxide from the atmosphere through sequestration. Within the Austin-Round Rock-Georgetown MSA, many community-based organizations (CBOs) are dedicated to promoting tree health and conducting planting activities.

**Table 4:** The Austin-Round Rock-Georgetown MSA PCAP Priority Measures

| Priority Measure | Additional Context | Cumulative GHG emission reductions (metric tons $CO_2$e) | | Implementing Agency or Agencies | Geographic Scope |
|---|---|---|---|---|---|
| | | 2025–2030 | 2031–2050 | | |
| Implement Transportation Demand Management programs | Transportation demand management has been analyzed relative to near-term major construction and broader regional efforts. | 860,806 | 725,426 | Municipal governments, CAMPO, CAPCOG | MSA, focus on major construction and region |
| Encourage and subsidize R99 availability | Diesel consumption by public fleets in the region is estimated to be 11,838,704 gallons in 2025. | 705,137 | 1,127,532 | Government, CapMetro, ISD fleets | MSA |
| Install community solar and battery storage<br>*Solar*<br>*Battery storage* | Analysis assumes installation of 35MW of solar and 34MWh battery storage and that batteries are operated to maximize GHG emission reductions. | 50,357<br><br>*46,866*<br>*3,491* | 132,429<br><br>*123,807*<br>*8,622* | Electric utilities | MSA, focus on LIDACs |
| Implement holistic building-wide upgrades to municipal buildings<br>*Energy efficiency*<br>*Electrification*<br>*Solar*<br>*Battery storage* | Analysis assumes energy efficiency upgrades and installation of solar (1MW), and battery storage (2MWh) are performed at 10 municipal facilities. | 27,214<br><br><br>*2,443*<br>*573*<br>*20,956*<br>*3,242* | 47,236<br><br><br>*4,683*<br>*2,108*<br>*35,373*<br>*5,072* | Municipal governments, electric utilities | MSA, focus on LIDACs |
| Implement water conservation programs<br>*Conservation programs*<br>*Once-per-week watering rule* | Analysis assumes that, where not already implemented, once-per-week watering rules would be effective relative to the success Austin Water has observed. | 34,224<br><br>*640*<br>*33,584* | 99,379<br><br>*1,338*<br>*98,040* | Water utilities | MSA |
| Implement community-driven tree planting and forest restoration programs | Analysis assumes that 463,000 adolescent trees are planted at regular intervals over a five-year program, with a 75% survival rate. | 41,068 | 115,854[3] | Municipal governments, CBO partners | MSA, focus on LIDACs |

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[3] Once fully mature in 2051, additional GHG emission reductions of the cooling effects from tree plantings of this scale are estimated to be up to 2752 MT $CO_2$e per year, conserving up to 27,546 MWh of electricity.

# BENEFITS ANALYSIS

Implementing the measures included in this PCAP is anticipated to have a broad range of benefits. This section details the anticipated co-pollutant reductions associated with implementing the priority measures identified in this PCAP, including air quality improvements, improved public health outcomes, economic benefits, increased climate resilience, and other environmental benefits. In addition, this section identifies mechanisms to track, minimize, and mitigate, to the extent possible, any potential disbenefits resulting from implementing the priority measures.

## Co-pollutants Emission Changes from Priority Measures

Table 5 lists anticipated annual changes in co-pollutants, where available, for each measure. Unless shown below in Table 6, co-pollutant emission reductions are expected to follow a similar trend as corresponding GHG emission reductions for the 2025-2030 and 2031-2050 timeframes. Additional details about assumptions and methods for quantification of emissions changes are included in Appendix A.

**Table 5:** Co-pollutant Emissions Reductions Anticipated from Implementation of PCAP Priority Measures

| Priority Measure | $NO_x$ (kg) | $PM_{2.5}$ (kg) | $SO_2$ (kg) | VOC (kg) | $NH_3$ (kg) | $O_3$ (kg) |
|---|---|---|---|---|---|---|
| Implement Transportation Demand Management programs | 28,854 | 863 | - | 20,363 | - | - |
| Encourage and subsidize R99 availability[4] | - | - | - | - | - | - |
| Install community solar (battery storage not included in estimate) | 21,228 | 1,996 | 13,163 | 730 | 953 | - |
| Implement holistic building-wide upgrades to municipal buildings, including solar (batter storage not included in estimate) | 6,427 | 612 | 4,042 | 222 | 290 | - |
| Implement water conservation programs (including once-per-week watering rule) | 6,028 | 649 | 4,654 | 213 | 313 | - |
| Implement community-driven tree planting and forest restoration programs | 8,283 | 20,484 [$PM_{10}$] | - | (133,456)[5] | - | 19,704 |

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[4] R99 diesel is expected to reduce co-pollutants compared to regular diesel, but quantification of those benefits is not currently available.

[5] Trees emit VOCs, so this measure would increase emissions of VOCs.

# Other Projected Benefits

In addition to and resulting from GHG emission reductions, numerous environmental, social, financial, and public health benefits will be promoted through the completion of each priority measure. These benefits, in tandem with workforce development opportunities, will provide additional benefits to LIDACs, as described in the section on Low-Income and Disadvantaged Community Benefits.

**Table 6:** Other Projected Benefits

| Priority Measure | Projected Social, Environmental, and Health Benefits | Projected Long-Term Cost Saving Benefits |
|---|---|---|
| Implement Transportation Demand Management programs | • Improved health resulting from increased use of active transportation like walking and biking.<br>• Improved air quality and health resulting from a decrease in on-road vehicle emissions.<br>• Increased sense of community through social interaction among commuters.<br>• Reduced land requirements for parking and car infrastructure. | • Reduced fuel consumption and vehicle maintenance costs associated with reducing vehicle miles traveled.<br>• Reduced costs associated with building and maintaining parking and car infrastructure.<br>• Increased viability of lower-cost sustainable transportation options through increased commute planning resources. |
| Encourage and subsidize R99 availability | • Decreased air pollution from associated vehicles. | |
| Install community solar and battery storage | • Increased energy resilience through backup power during emergencies.<br>• Opportunities for solar in low-income and disadvantaged communities, where rooftop solar is unaffordable or unfeasible. | • Reduced energy costs and/or lower volatility in energy costs associated with reduced natural gas and coal consumption.<br>• Improved feasibility of solar.<br>• Opportunities for benefits to flow directly to ratepayers through reduced utility bills. |
| Implement holistic building-wide upgrades to municipal buildings | • Increased resilience during extreme weather events in the forms of one or more of the following: building temperature control, backup power, on-site power generation, building air quality, and energy efficiency.<br>• Potential synergies with 'Resilience Hubs' and emergency management functions. | • Reduced energy costs for municipal governments through more efficient buildings. |
| Implement water conservation programs | • Enhanced water security and protection of aquatic ecosystems through water conservation.<br>• Increased community health and recreation by protecting water-based activities such as fishing, water sports, and swimming.<br>• Increased drought resilience through more efficient water resource expenditure. | • Reduced consumer water costs due to conservation.<br>• Reduced costs of building and maintaining water infrastructure. |

| | | |
|---|---|---|
| | ● Conservation of safe drinking water. | |
| Implement community-driven tree planting and forest restoration programs | ● Reduced urban heat island through increased shade, improving outdoor thermal comfort and reducing heat-related health risks.<br>● Increased social and psychological benefits associated with increased access to nature.<br>● Improved biodiversity and ecosystem function.<br>● Improved stormwater management.<br>● Reduced flood risk due to trees planted in floodplains. | ● Potential for decreased costs associated with land management due to increased shade, soil health, and water management.<br>● Potential for reduced neighborhood-wide energy savings through lower cooling costs. |

# LOW-INCOME AND DISADVANTAGED COMMUNITIES ANALYSIS

This section identifies each Low-Income and Disadvantaged Community (LIDAC) within the jurisdiction covered by this PCAP, how the Austin-Round Rock-Georgetown MSA meaningfully engaged with LIDACs in developing this PCAP, and how the Austin-Round Rock-Georgetown MSA will continue to engage and prioritize LIDACs during measure development and implementation.

Throughout the development of this PCAP, climate inequities were considered in the planning, measure scoping, and engagement actions undertaken. Climate change does not affect everyone equally. The EPA employs the term low-income and disadvantaged communities or LIDAC to identify disadvantaged communities. The City of Austin PM team recognizes that LIDACs face the most vulnerabilities in the face of climate change despite often having a lesser role in contributing to it. Additionally, the whitewashing of environmental movements often leaves out the longstanding history of Black, Indigenous, and People of Color-led advocacy. Given these unjust circumstances, it was integral to the development of the PCAP to prioritize engagement with LIDACs through outreach to community groups — especially those representing disadvantaged communities —  and to consider benefits and potential disbenefits to each measure, as outlined below.

The primary method of LIDAC engagement was through a Community and Stakeholder Advisory Group (CSAG), which met monthly to review the progress and direction of the PCAP, emphasizing the LIDAC analysis. Community members not involved in the CSAG were encouraged to share concerns and support for the PCAP direction in a survey and to attend an education open house event about the PCAP. Despite efforts to prioritize LIDACs, the five-month timeframe for developing this PCAP did not allow for deep and thorough community engagement, as was able to occur for the Austin Climate Equity Plan. The PM team anticipates broadened engagement with LIDACs, CBOs, and community members across the region in planning for the CCAP.

The City of Austin created an engagement plan for seeking feedback on community priorities during the development of this PCAP. See this document's Coordination and Outreach section for a summary of engagement and outreach plans and activities, and Appendix C for a summary of input received during the engagement process and Community and Stakeholder Advisory Group members. Strategies for engagement with LIDACs included:
- Community and Stakeholder Advisory Group
- Community survey (in English and Spanish)
- Open House event (English and Spanish-speaking staff available)
- Austin-Round Rock-Georgetown MSA CPRG web page
- Social media

Another method employed to address the challenging timeline was to follow community priorities identified in the Austin Climate Equity Plan, which incorporated feedback from an extensive community and multilingual engagement process and by recruiting paid Community Climate Ambassadors. This review of community priorities in the Climate Equity Plan occurred in tandem with engagement specific to this PCAP.

# Identification of and Engagement with LIDACs

The City of Austin identified LIDACs using the Climate and Economic Justice Screening Tool (CEJST) developed by the Council on Environmental Quality, as well as the Environmental Justice Screening and Mapping Tool (EJScreen) developed by the EPA. The CEJST was used as the primary tool and the EJScreen tool was used to further identify communities on block level (noted as 'Additional Census Blocks' in Table 7) that were not on CEJST. The combined results provided a more comprehensive and complete list of LIDACs across the MSA and were used for LIDAC benefits analysis for this PCAP. Overall, 19.34% of the MSA's total population resides within the LIDAC census tracts and blocks.

**Table 7:** LIDAC Census Tracts

| County | Census Tract | Additional Census Blocks | Total Population | % in County Population |
|---|---|---|---|---|
| Bastrop | 950801, 950802, 950501 | 503011, 503033, 503034, 504013 | 32,322 | 30.44% |
| Caldwell | 960101, 960102, 960200, 960300, 960400, 960500, 960700 | None | 39,649 | 82.86% |
| Hays | 9010302, 9010304, 9010500, 9010907 | 101001, 102002, 102003, 103052, 104013, 104022, 104023, 106011, 106012, 107021, 107034, 109163, 109231, 109252 | 55,804 | 20.73% |
| Travis | 802, 804, 902, 1606, 1804, 1805, 1806, 1811, 1812, 1813, 1818, 1819, 1820, 1822, 1823, 1833, 1835, 1839, 1842, 1860, 1863, 2003, 2105, 2111, 2112, 2202, 2207, 2208, 2307, 2310, 2312, 2313, 2315, 2316, 2319, 2411, 2413, 2419, 2427, 2429, 2430, 2432, 2434, 2435, 2436 | 3022, 4013, 4022, 5003, 6011, 6012, 6051, 10005, 11011, 13073, 19201, 20062, 21074, 22011, 22181, 22193, 23141, 23142, 23143, 23222, 23231, 23233, 23241, 23243, 23254, 23271, 24102, 24122, 24123, 24443, 24533, 323003, 408001, 408003, 418001, 418002, 421003, 436003, 455001, 458001, | 318,103 | 24% |
| Williamson | 20701, 21000, 21203, 21402 | 203471, 203492, 205112, 205122, 206022, 211001, 214071 | 22,362 | 3.33% |

**Map 3:** A map of LIDACs in the Austin-Round Rock-Georgetown MSA
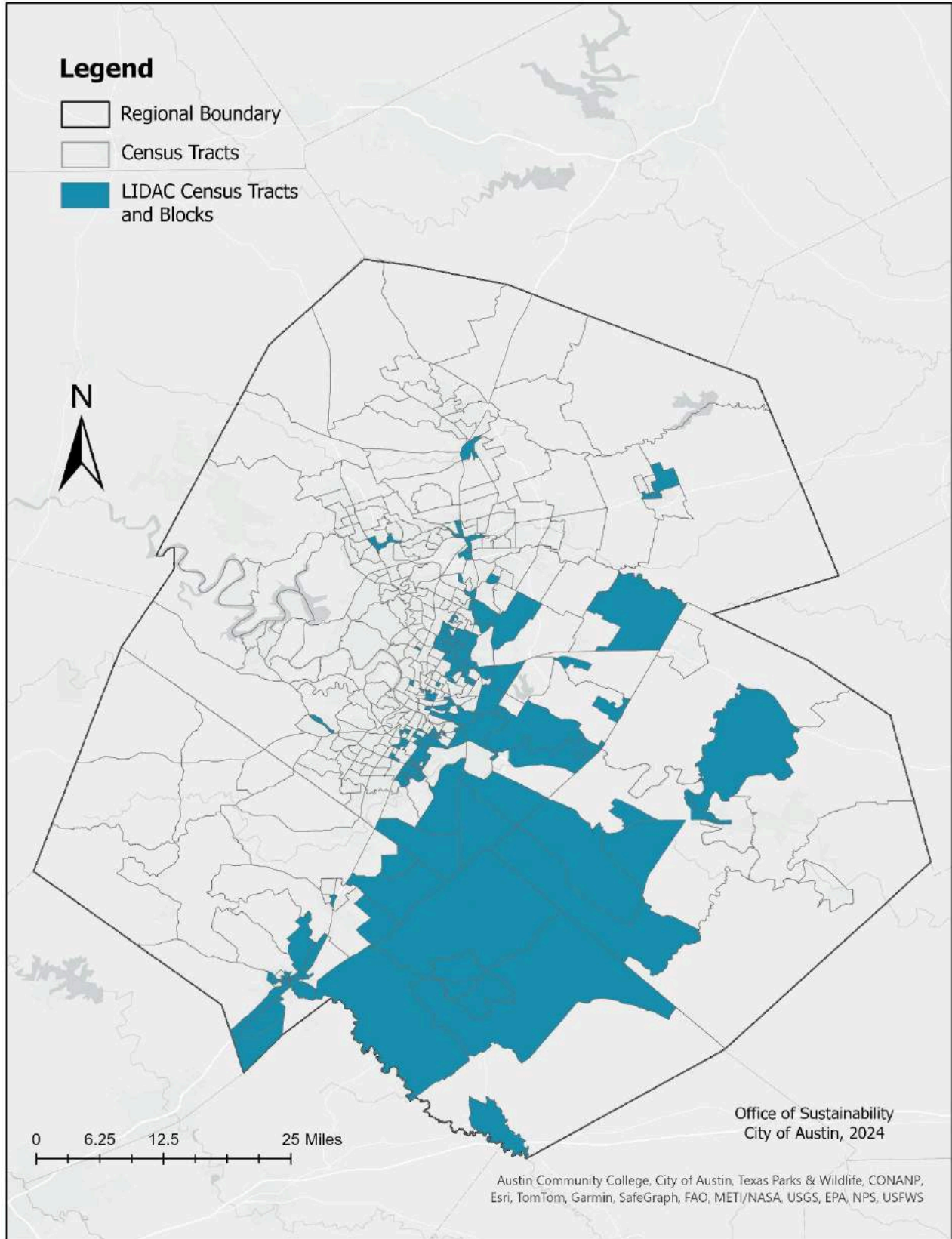
**Map 4:** A map showing LIDACs in the central part of the Austin-Round Rock-Georgetown MSA
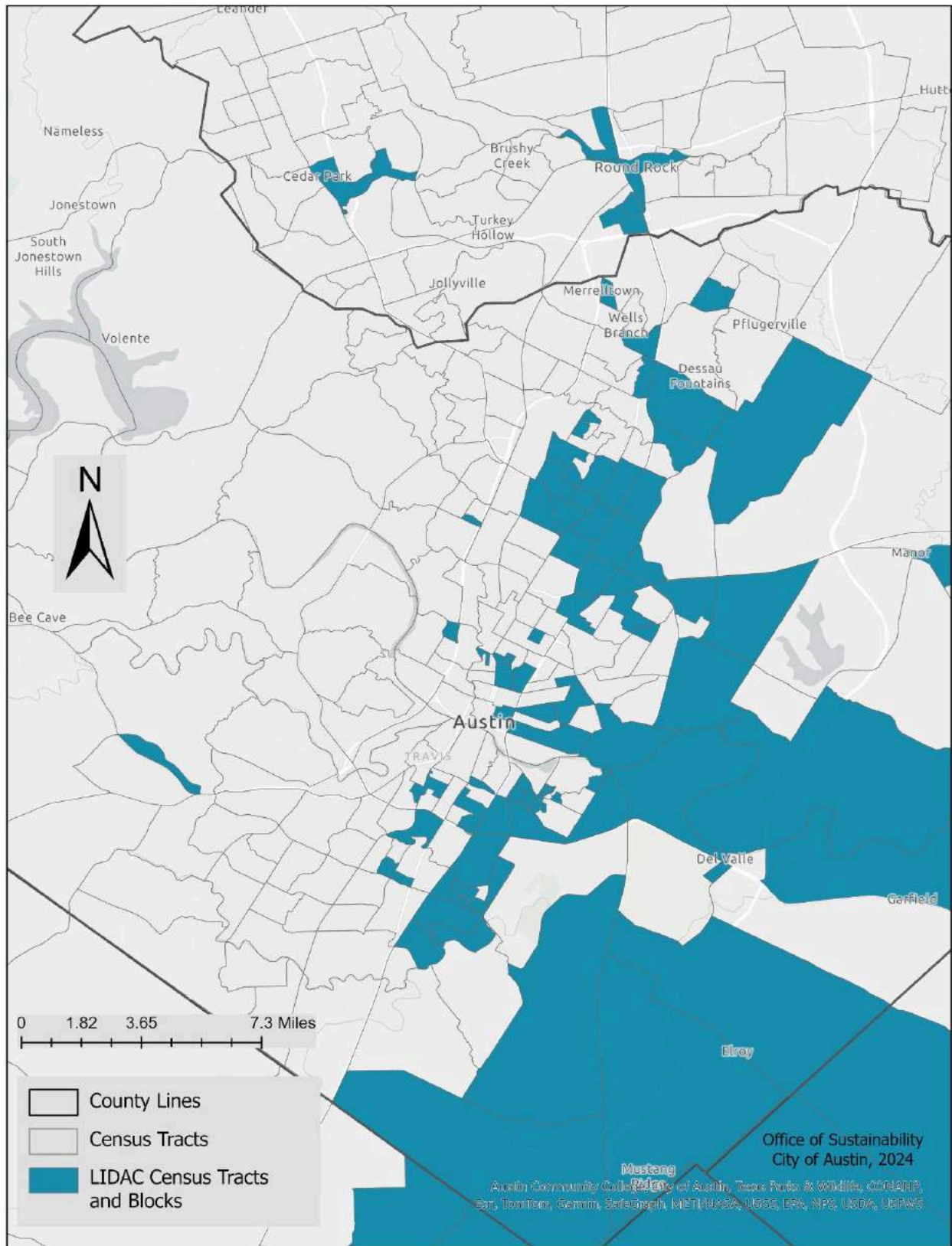
## Stakeholder and Community Engagement

To increase equity and ensure that community priorities were incorporated in the CPRG planning process, the PM team conducted community and stakeholder engagement. The goals of meaningful engagement, as outlined by the EPA in PCAP guidance, are to:

- Foster a spirit of mutual trust and collaboration
- Ensure accurate and transparent information sharing
- Create processes for feedback and early risk mitigation
- Anticipate conflict and engage in early conflict resolution
- Identify the existing needs and desired outcomes of LIDACs

To achieve these goals, three avenues for engagement were adopted — a Community and Stakeholder Advisory Group (CSAG), a public open house event, and a community survey. Strategies for engagement followed the IAP2 Spectrum of Public Participation[6], seeking to inform, involve, and collaborate with community members and CBOs. The CSAG provided guidance throughout the development of the PCAP, reviewing measures and helping to scope them to maximize benefits to LIDACs. The CSAG also helped share information to encourage public engagement in the community survey and the open house. More information about community engagement and feedback for the PCAP can be found in the Coordination and Outreach section.



*Open House, January 2024*

## Impact of PCAP Implementation on LIDACs

Table 8 lists the LIDACs anticipated to be affected by implementing each priority measure included in this PCAP. Anticipated benefits or potential disbenefits associated with measure implementation are summarized in this section. Specific methods and assumptions for quantitative assessment of benefits are described in Appendix A.

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[6] International Association for Public Participation. (n.d.). IAP2 spectrum of public participation. Retrieved from https://organizingengagement.org/models/spectrum-of-public-participation/

**Table 8:** LIDACs Affected by Priority Measures

| Priority Measure | Affected Areas | Benefits | Disbenefits |
|---|---|---|---|
| Implement Transportation Demand Management programs | Impact across MSA, especially in areas adjacent to major transportation and construction corridors. | <ul><li>Improved air quality near major transportation corridors, often home to LIDACs.</li><li>Incentives and tools can lower the cost of transportation.</li><li>Improved health associated with using active transportation.</li></ul> | <ul><li>Reluctance to change behavior.</li><li>Less impactful in areas with low density or few destinations, home to many LIDACs.</li><li>Potential for funding to disproportionately flow to those with transportation choices.</li></ul> |
| Encourage and subsidize R99 availability | No direct impacts | <ul><li>Improved air quality compared to conventional diesel, which benefits LIDACs adjacent to transportation routes.</li></ul> | <ul><li>No direct impact to LIDACs.</li></ul> |
| Install community solar and battery storage | Impact across MSA | <ul><li>Opportunities to access benefits of renewable energy, including potential bill savings.</li><li>Increased resilience to power outages.</li><li>Potential for workforce education and training.</li></ul> | <ul><li>Could contribute to displacement without a complementary strategy.</li></ul> |
| Implement holistic building-wide upgrades to municipal buildings | Impact across MSA | <ul><li>Improved community facilities like libraries, recreation centers, and health centers.</li><li>Support for resilience hubs in LIDACs.</li><li>Potential for workforce education and training.</li></ul> | <ul><li>Could contribute to displacement without a complementary strategy.</li></ul> |
| Implement water conservation programs | Impact across MSA | <ul><li>Potential for water cost savings.</li><li>Increased water security.</li></ul> | <ul><li>Potential for subsidies and incentives to flow to the highest water users, which tend to be wealthier.</li></ul> |
| Implement community-driven tree planting and forest restoration programs | Siting to be selected based on LIDAC census tracts | <ul><li>Reduced urban heat island.</li><li>Reduced impervious surface and flood risk.</li><li>Improved air quality.</li><li>Increased quality of green spaces.</li><li>Increased soil quality and viability for future agricultural initiatives.</li><li>Potential for workforce education and training.</li></ul> | <ul><li>Could contribute to displacement without a complementary strategy.</li><li>Potential for increased allergens.</li></ul> |

## Anticipated Benefits and Disbenefits in LIDACs

Each priority measure is linked to positive impacts across social, environmental, economic, and health categories. By strategically considering siting, workforce development, and enhanced environmental quality, priority measures aim to maximize benefits for LIDACs. Measures involving physical infrastructure will prioritize locations serving LIDAC communities. For instance, implementing Transportation Demand Management (TDM) mobility hubs will expand transportation options and support census tracts within LIDACs. Additionally, situating holistic upgrades to public-serving municipal buildings located within LIDACs will enhance community resources, energy security, and resilience.

Among the priority measures, two will positively impact natural resources by supporting soil and water regulation in LIDACs. Four measures will bolster resilience efforts, particularly impactful in LIDACs, encompassing the scaling up of community solar and battery co-location installations, tree planting initiatives, water conservation strategies, and municipal building enhancements. Given the vital role of public-facing municipal buildings during extreme weather events, upgrading such facilities within LIDACs will further augment community resilience.

The primary disbenefit to LIDACs arises from the potential increase in displacement due to rising property values. Tree planting is the measure with the greatest risk of triggering environmental displacement. However, tree canopy cover is one of many factors associated with higher property values. Another challenge of the TDM measure is potential barriers to participation in transportation behavior change in LIDACs, such as lack of access to public transportation. To address this, the deployment of TDM strategies will be paired with outreach strategies. Thorough community engagement during the implementation of each measure will enable community members to vocalize concerns and shape these climate solutions. Further action or policy considerations will be necessary to continue analyzing potential risks and disbenefits.

# REVIEW OF AUTHORITY TO IMPLEMENT

The City of Austin has reviewed existing statutory and regulatory authority to implement each priority measure in this PCAP. The PM team leveraged interagency meetings and stakeholder engagement activities to review which entity has existing statutory or regulatory authority to implement each identified measure. The PM team has identified key partnerships necessary for implementing measures outside of the implementing entities' direct authority.

As home rule cities, many cities in the region (almost every city with a population over 5,000, including Austin) may establish any law or ordinance unless it is expressly forbidden by state or federal law. Cities have the authority to allocate municipal funds, apply for state and federal grants, and offer incentives. Each measure pursued falls within local authority, which eases potential political barriers involved with approval at higher levels of government. Municipalities are empowered to implement, or collaborate on implementation for, four of the above measures. However, implementing solar installation and water conservation measures may pose challenges as they involve collaboration between public and private utilities and utility cooperatives. The City of Austin's public utilities, Austin Energy and Austin Water, support these initiatives and can move measure implementation forward locally while supporting other utilities in the region.

**Table 9:** Authority to Implement Priority GHG Reduction Measures

| Priority Measure | Implementing Entity | Authority Exists at Local Level | Considerations |
|---|---|---|---|
| Implement Transportation Demand Management programs | Municipalities, CAMPO, CAPCOG, partner companies and CBOs | Yes - coordination is required with CBOs. | |
| Encourage and subsidize R99 availability | Municipalities, CapMetro, partner fleets, fuel service companies | Yes - coordination is required with external partners. | Additional partnerships with private fuel processors and transporters will be needed. |
| Install community solar and battery storage | Public electric utilities, electric cooperatives, private electric utilities | Yes - coordination is required with utilities. | Need to consider factors associated with the deregulated electricity marketplace in Texas, administered by ERCOT. |
| Implement holistic building-wide upgrades to municipal buildings | Municipalities | Yes | |
| Implement water conservation programs | Public and private water utilities | Yes - coordination is required with private utilities. | Need to ensure that water conservation programs are aligned with plans created by water boards, which cut across the region. |
| Implement community-driven tree planting and forest restoration programs | Municipalities, partner CBOs | Yes - coordination is required with CBOs. | Additional coordination is needed with landowners for plantings on private lands. |

# INTERSECTION WITH OTHER FUNDING

Many of the priority measures included in this PCAP expand upon or complement existing programs. The City of Austin has explored federal and non-federal funding sources to determine whether these sources could fund each priority measure and whether such funding is sufficient to implement the measure fully. This section describes the results of this analysis for each priority measure. While most measures have one or more associated potential funding streams, other programs will continue to be explored. While many potential funding streams are available, they are insufficient to fully implement the proposed GHG reduction measures, especially rapidly.

**Table 10**: Funding Availability for Priority GHG Reduction Measures

| Priority Measure | Potential Funding Stream | Description |
|---|---|---|
| Implement Transportation Demand Management programs | Congestion Mitigation and Air Quality Improvement (CMAQ) Program | Transportation projects are designed to reduce traffic congestion and improve air quality, particularly in areas of the country that do not attain national air quality standards. |
| | Transportation Alternatives Set-Aside Program | Funding to plan for and construct a variety of alternative transportation projects that improve safety and mobility for non-motorized travelers and mitigate congestion. |
| | SMART Grants | Grants to eligible public sector agencies to conduct demonstration projects focused on advanced smart community technologies and systems to improve transportation efficiency and safety. |
| Encourage and subsidize R99 availability | Biodiesel Production and Blending Tax Credit | Qualified biodiesel producers or blenders are eligible for an income tax credit of $1.00 per gallon of renewable diesel produced or used in the blending process. |
| Install community solar and battery storage | Clean Energy Production Tax Credit (§ 13701) and Clean Electricity Investment Tax Credit (§ 13702) | The IRA extends and modifies tax credits for producing and investing in clean electricity and also creates a mechanism for non-tax-paying entities to receive the financial benefit of the tax credits if they meet requirements for domestically produced construction materials. |
| Implement holistic building-wide upgrades to municipal buildings | Energy Efficient Commercial Buildings Deduction (179d) | Provides tax credits to commercial buildings (including municipally owned) that reduce energy use intensity by at least 25%, with five times the credit if the project meets prevailing wage/apprenticeship requirements. |
| Implement water conservation programs | Clean Water State Revolving Fund | Loans for planning, design, acquisition, and construction of:<br>● Non-potable reuse<br>● Wastewater collection systems<br>● Existing wastewater facilities<br>● Stormwater control<br>● Nonpoint source pollution control projects |

| Implement community-driven tree planting and forest restoration programs | Community Forestry Tree Planting and Climate Resilience Grants | Grants from Texas A&M University for projects that enhance the adaptability of urban ecosystems to create more climate-resilient and sustainable Texas communities and that help communities develop sustainable programs for healthy trees. |
| --- | --- | --- |
| | Tree City USA Growth Grant | This grant funding supports small projects to help a city meet the standards for designation as a TCUSA and reach the next level by implementing activities leading to Growth Awards. |
| | Urban and Community Forestry Grant | Tree planting projects that prioritize underserved populations. |

# WORKFORCE PLANNING ANALYSIS

The priority measures included in this PCAP are invested in creating high-quality jobs in the Austin-Round Rock-Georgetown MSA. This section details strategies and commitments to ensure job quality, strong labor standards, and a diverse, highly skilled workforce to implement the priority measures.



Workforce development for each measure will leverage existing city and regional partnerships, focusing on providing good jobs and training to LIDACs. The Austin Civilian Conservation Corps (ACCC), Austin Youth Development, and the Youth Initiatives Office all work with youth to support job location, career advancement, and skill development. ACCC specifically focuses on environmental and climate-ready workforces in LIDACs, specifically within Austin's Eastern Crescent. Additionally, Workforce Solutions Capital Area works regionally to connect community members of all ages to local jobs by providing training, apprenticeship placements, search assistance, and other resources.

Industry-specific labor agencies, local workforce development boards, and institutions such as local community colleges will be engaged when relevant to the measure's scope. The 2022 report "Expanding Pathways to Quality Jobs in Austin's Growing Green Economy"[7] further analyzes green workforce development opportunities and best practices. In the table below, potential workforce partners are outlined. These partners represent

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[7] Oden, Michael, et al. "Expanding Pathways to Quality Jobs in Austin's Growing Green Economy." Community and Regional Planning Program The University of Texas at Austin, vol. Produced for the City of Austin, 2022, https://www.austintexas.gov/sites/default/files/files/Parks/ACCC/Green%20Pathways%20FinalReport-OnlineCopy_2022-1%207%2022.pdf. Accessed 23 2 2024.

organizations and institutions that are leaders in the regional workforce development field or that the City of Austin has a previous workforce relationship with. We recognize that there are many other potential partners and that not every potential partner listed may be interested in collaborating on this PCAP.

Considering investments anticipated because of PCAP implementation, careers in the fields of solar and tree planting may be expanded. There are entry-level positions in both fields, as outlined in the Office of Energy Efficiency and Renewable Energy's Map a Career in Clean Energy tools[8]. The measures pertaining to solar and battery installation, holistic building upgrades, and tree planting all provide opportunities for workforce development and skills training. Additional effort to recruit from and provide training to LIDACs will be prioritized through partnerships with institutions representing LIDACs and promoted through digital marketing. Other measures have the potential for expanded workforce needs. There is no risk of job loss in pursuing the implementation of the priority measures.

**Table 11:** Workforce Planning Analysis

| Priority Measure | Potential Positions Needed | Potential Sector-Specific Workforce Placement Partnerships |
|---|---|---|
| Implement Transportation Demand Management programs | Security Guards, Community Ambassadors, Program Coordinators, Outreach Coordinators | ● EarthShare Texas - Green Fellows<br>● Austin Transportation and Public Works<br>● Movability Texas<br>● Austin Resource Recovery<br>● Yellow Bike<br>● Ghisallo Cycling Initiative |
| Encourage and subsidize R99 availability | Distribution Specialists | |
| Install community solar and battery storage | Community Outreach Specialists, Solar Technicians, Permitting Specialists, Electricians, Solar Engineers, Land Surveyors, Project Managers and Coordinators | ● Solar Austin Pathways Program<br>● Austin Community College<br>● Texas Solar Energy Society<br>● International Brotherhood of Electrical Workers<br>● Austin Independent School District (AISD)<br>● Del Valle Independent School District - Solar Training<br>● Austin Energy<br>● EcoRise |
| Implement holistic building-wide upgrades to municipal buildings | Program Managers and Coordinators, Civil and Mechanical Engineers, Construction Managers, Construction Contractors | ● International Brotherhood of Electrical Workers<br>● Austin Community College<br>● American Youthworks<br>● Austin Independent School District (AISD)<br>● Austin Resource Recovery |

[8] "Map a Career in Clean Energy." Department of Energy, https://www.energy.gov/eere/jobs/map-career-clean-energy. Accessed 23 February 2024.

| | | |
|---|---|---|
| | | ● EcoRise |
| Implement water conservation programs | Outreach Coordinators, Environmental Scientists, Water Efficiency Auditors, Plumbing Contractors, Environmental Educators, Water Operators, Green Stormwater Infrastructure Technicians | ● Austin Civilian Conservation Corps.<br>● American YouthWorks<br>● Austin Watershed Protection Department<br>● Austin Water<br>● Austin Youth Riverwatch<br>● Great Springs Project<br>● Hill Country Alliance<br>● Lower Colorado River Authority (LCRA)<br>● Texas Parks and Wildlife<br>● Ecology Action of Texas<br>● EarthShare Texas<br>● Texas Children in Nature<br>● Explore Austin<br>● Hungry Hills Foundation |
| Implement community-driven tree planting and forest restoration programs | Program Managers, Outreach and Volunteer Coordinators, Community Ambassadors, Arborists, Foresters, Land Surveyors, Forestry Technicians, Environmental Educators | ● American YouthWorks -Texas Conservation Corps.<br>● Texas Parks and Wildlife<br>● Austin Parks and Recreation Department<br>● Austin Civilian Conservation Corps.<br>● Austin Development Services Department - Youth Forest Council<br>● Treefolks<br>● Fruitful Commons - Festival Beach Food Forest<br>● Explore Austin<br>● Hungry Hills Foundation<br>● Central Texas Arbol Equity Collective |

## Workforce Development Impacts

Greenlink Analytics developed a Clean Energy Jobs Report for Austin designed to analyze the local economic impact of clean energy investments. The report includes state-level changes in employment that spill over beyond local boundaries to the larger region and state, with certain jobs typically being more likely to be local than others. Job losses are also estimated. To reflect the current economic situation and supply chain of the energy industry, Greenlink Analytics used publicly available data from the Bureau of Economic Analysis' Regional Economic Accounts (BEA REA) and the Bureau of Labor Statistics' Census of Employment and Wages (BLS CEW), as well as proprietary data from IMPLAN.

In the table below, the Greenlink Analytics Clean Energy Jobs Report for Austin is correlated with PCAP measures, where applicable, and accompanied by a corresponding clean energy investment. Investment amounts are derived from the Clean Energy Jobs Report and are included for demonstrative purposes. See the PCAP submission attachments for more details.

# Job creation

**Table 12:** Workforce Development Impacts

| Priority Measure | Investment Focus | Investment Amount | Net Jobs Gained | Net Annual Income Gained | Top Gaining Industries |
|---|---|---|---|---|---|
| Implement Transportation Demand Management programs | - | - | - | - | - |
| Encourage and subsidize R99 availability | - | - | - | - | - |
| Install community solar and battery storage | Residential and commercial Solar | $20 million | 98 | $6.6 million | Construction, manufacturing, and professional, scientific, and technical services |
| Implement holistic building-wide upgrades to municipal buildings | Commercial solar, electrification, and energy efficiency | $30 million | 152 | $9.9 million | Construction, manufacturing, and professional, scientific, and technical services; finance and insurance; federal, state, and local government |
| Implement water conservation programs | - | - | - | - | - |
| Implement community-driven tree planting and forest restoration programs | Green space infrastructure | $34 million | 210[9] | - | Forestry, land management, education, community engagement |

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[9] Unpublished US Forest Service Urban and Community Forestry grant application prepared by the Central Texas Arbol Equity Collective (CTAEC), June 2023.

# COORDINATION AND OUTREACH

The City of Austin conducted extensive intergovernmental coordination and outreach over five months in developing this PCAP. This section describes the framework the City of Austin used to support meaningful engagement strategies to ensure comprehensive stakeholder representation and overcome obstacles to engagement.

## Interagency and Intergovernmental Coordination

The City of Austin prioritized coordination efforts with various regional entities, utilizing existing relationships with municipal staff at other entities, state agencies, regional organizations, and utilities. An intergovernmental working group was created and met every two weeks. This group offered an opportunity for staff from across the region to provide input and guidance regarding the PCAP development process.

Staff or officials that attended one or more meetings of this group included representatives from:
- Counties: Hays, Bastrop, Travis, Williamson
- Cities: Austin, Kyle, Buda, San Marcos, Lakeway, Round Rock, Pflugerville, Cedar Park, Georgetown
- Regional Entities: CAPCOG, CAMPO
- Utilities: Austin Energy, Bluebonnet Electric Cooperative, Pedernales Electric Cooperative
- Transit Agencies: CapMetro, Capital Area Rural Transportation System (CARTS)

### MSA Staff Workshops

Four workshops were held with MSA staff partners to collaboratively develop and refine measures for inclusion in the PCAP. An in-person staff workshop was held on December 4, 2023. The purpose was to identify promising PCAP or CCAP projects categorized by sector. The workshop was attended by 39 participants representing 20 organizations or municipalities. Following the workshop, a template was developed and distributed for MSA Partners to propose measures for PCAP inclusion. To refine the selection process further, three sector-specific virtual workshops were held to scrutinize measures earmarked for incorporation into the PCAP. These sector-specific workshops were held the week of January 22, 2024, and were attended by 69 participants.



*MSA staff workshop, December 2023.*

# Outreach and Engagement

While the five-month timeline for the PCAP was an impediment to the kind of deep and meaningful engagement the City of Austin conducted during the development of the Austin Climate Equity Plan, stakeholder and LIDAC engagement was considered and prioritized throughout the CPRG process.

Public participation was encouraged through a community survey of potential GHG reduction measures to be included in the PCAP and through an Open House held on January 31, 2024. Ongoing participation by a Community and Stakeholder Advisory Group (CSAG) supported project-level oversight and LIDAC and community representation throughout the process.

## Community and Stakeholder Advisory Group (CSAG)

Given the quick timeline for developing the PCAP, 'grasstops' engagement became especially important. Through the development of the Austin Climate Equity Plan and the formation of an informal City-CBO federal grants collaborative formed in 2023, the City of Austin already had relationships with several CBOs and community leaders active in the climate and environmental sector. These CBOs and community leaders included both those that represented a defined community (e.g., a neighborhood or geographic area, a demographic or linguistic group) or had sector-specific expertise (e.g., clean energy or transportation).

A call for CSAG members was issued in October 2023. Personalized outreach was conducted to help identify candidates for the group, and demographic diversity and LIDAC representation in the group were prioritized. CBOs and community leaders reached out to include both those that represented a defined community (e.g. a neighborhood or geographic area, a demographic or linguistic group), or had sector-specific expertise (e.g. clean energy or transportation).

The CSAG began meeting monthly in November 2024. A member roster is provided in Appendix B. The multifaceted purposes of the group were to:
- Provide guidance, input, and ideas for the direction of PCAP measures
- Critically review work and identify oversights
- Provide guidance on how to engage LIDAC communities
- Be invested in achieving a positive outcome and final product
- Talk with outside groups about the project and share feedback from them
- Help highlight community-specific concerns, aspirations, and goals
- Identify measures aligned with community goals, and support LIDACs benefits analysis
- Identify and invite people/communities who are missing (especially those working outside Austin in the five-county region)

Stipends were offered to CSAG members to support their participation in this process and help them overcome economic barriers to participation. The City of Austin worked directly and in some cases partnered with this group to inform PCAP decisions, transparently following the "Involve" and "Collaborate" categories within the IAP2 Spectrum for Public Engagement framework.

## Community Survey

A survey of initial GHG reduction measures for inclusion in the PCAP was published online to determine public support and collect feedback. This survey falls under the "Consult" category of the IAP2 Spectrum of Public Engagement. The survey was published on the Austin-Round Rock-Georgetown MSA CPRG webpage, shared via social media, and provided to CSAG and MSA Partner staff for further distribution. Survey results were also collected in person during the CPRG Open House. The survey was offered in English and Spanish. In total, 146 responses were collected, with 25 different organizations represented. For a summary of survey results, see Appendix C.

## Public Open House

An Open House was held on January 31, 2024. In the IAP2 Spectrum of Public Participation framework, this event falls under the "Inform" category. Community members were encouraged to learn, share, and engage in the CPRG process at the event. The event was held in drop-in style to increase scheduling accessibility for community members across the region, and Spanish-speaking staff were present. Staff working on the project displayed information on poster boards and answered questions. Computers were provided to fill out the public participation survey. Snacks and nature-based children's activities were also made available to make the event more accessible and encourage a welcoming and inclusive event. The open house featured 26 participants, with 12 organizations represented.

## Outreach and Coordination Documentation

Table 13 provides a log of interagency, intergovernmental coordination, and stakeholder and public engagement efforts associated with developing this PCAP.

**Table 13:** Outreach and Coordination Log

| Date | Topic | Organizations Involved | Coordination/ Outreach Method | Outcome(s) and Next Steps |
|------|-------|------------------------|-------------------------------|---------------------------|
| 10/27 | Project kickoff | MSA staff | virtual meeting | Invite staff and partners, identify data needs, develop project ideas, set up CSAG |
| 11/3 | GHG reduction measures | City of Austin, CapMetro | virtual workshop | Identify potential City of Austin projects that could form basis of GHG reduction measures |
| 11/9 | Review Work Plan | MSA staff | virtual meeting | Invite staff and partners, identify data needs, develop project ideas, set up CSAG |
| 11/17 | Project kickoff | CSAG | virtual meeting | Review feedback, expand CSAG membership |
| 12/4 | Workshop for GHG reduction measure ideation | MSA staff | in-person workshop | Develop and share list of measures from the workshop output |
| 12/8 | Review and submit measures | MSA staff | virtual meeting | Review measure list, monitor measure intake form |
| 12/14 | Intake Form launch for PCAP/CCAP measures | MSA staff | email | |
| 12/11 | Measure review | CSAG | virtual meeting | Review and integrate outputs |
| 12/20 | Measure scoping | MSA staff | virtual meeting | Continue to scope measures |
| 1/12 | Measure scoping | CSAG | virtual meeting | Review and integrate outputs |
| 1/15 | Intake Form close for PCAP/CCAP measures | MSA staff | | Review submissions and identify potential for implementation grant application |
| 1/14 | Community survey opens | Public | web, social media, email | |
| 1/24 | Scoping- WWSM, Land Use sectors | MSA staff | virtual workshop | Provide feedback on project feasibility, leadership capabilities, and interest |
| 1/26 | Scoping- Electric Power and Buildings sectors | MSA staff | virtual workshop | Provide feedback on project feasibility, leadership capabilities, and interest |
| 1/26 | Scoping- Transportation sector | MSA staff | virtual workshop | Provide feedback on project feasibility and leadership interest |
| 1/31 | Open House | Public | in-person event | Document and review event outcomes |
| 2/4 | Community survey closes | Public | | Review responses and identify community priorities |
| 2/9 | Measure selection, GHG inventory presentation | MSA staff | virtual meeting | Identify projects for implementation grant applications |
| 2/15 | Measure selection, GHG inventory presentation | CSAG | virtual meeting | Discuss and identify the role of CSAG in CCAP |

# CONCLUSION

This PCAP is the first deliverable under the CPRG planning grant awarded to the City of Austin. Through the PCAP, the first regional GHG emissions inventory was conducted, community members, municipal staff and leadership were engaged, and priority measures were developed to lower the region's GHG emissions and air pollution. The associated benefits represent the advancement of climate equity and resilience goals shared across the region.

The City of Austin and its partners will continue developing and implementing measures for GHG reduction in the Austin-Round Rock-Georgetown MSA. The next deliverable under the CPRG planning grant is a comprehensive climate action plan (CCAP), due in 2025, that establishes equitable and sustainable economic development strategies that reduce emissions across all sectors. The CCAP will include near- and long-term emissions projections, a suite of emission reduction measures, a robust analysis of measure benefits, plans to leverage federal funding, and a workforce planning analysis. Throughout the development of the PCAP, many measures were proposed but did not meet the criteria to be considered 'priority measures.' These measures will be explored further in the development of the CCAP.

In 2027, the City of Austin will publish a status report detailing implementation progress for measures included in the PCAP and CCAP, any relevant updates to PCAP and CCAP analyses, and next steps and future budget and staffing needs to continue implementing CCAP measures.

If you have questions about this PCAP or suggestions for the upcoming CCAP and status report, contact Rohan Lilauwala at rohan.lilauwala@austintexas.gov.

# APPENDIX A: GHG REDUCTION MEASURES

This appendix explains the methodology and assumptions used to develop the estimated GHG emissions and co-pollutant emissions reduced for the measures included in the Austin-Round Rock-Georgetown MSA Priority Climate Action Plan. See the GHG Emission Reduction Calculation folder attachment for emission reduction calculations.

## Implement Transportation Demand Management Programs

**Sector: Transportation**

This measure would expand existing Transportation Demand Management programs and implement new ones across the region, taking several forms:

- Commute tools that include trip and route planning, carpool matching, emergency rides home
- Subsidies, incentives, and rewards for commuters to:
    - Take transit (discounted transit passes, especially for LIDACs)
    - Ride bikes or walk (discounted bike share)
    - Carpool (preferred parking locations, subsidized vanpools)
    - Choose not to drive (transportation wallets, parking cash outs)
- Partnerships with employers to support flexible scheduling and remote work, especially on poor air quality days or when construction activity is highest

This measure also includes a dedicated strategy to manage transportation demand during the multi-year disruptions that will be caused by the construction of I-35, Project Connect, and other major mobility corridors. This will be implemented by the Construction Project Partnership, composed of regional stakeholders including the City of Austin Transportation and Public Works Department, Texas Department of Transportation (TxDOT), Central Texas Regional Mobility Authority (CTRMA), Capital Area Metropolitan Planning Organization (CAMPO), and others. This includes the development of eight mobility hubs and other supportive infrastructure for people to access transit, private shuttles, bike share, micro-mobility, and carpool/vanpool meetup points.

This measure will also include a large-scale multilingual marketing and communications campaign informing communities (especially those impacted by major construction projects) of their low-GHG mobility alternatives. This campaign would also include grassroots, multilingual, community-based outreach and partnerships with

local community-based organizations to develop personalized low-GHG travel planning for hard-to-reach communities, such as LIDACs.

## GHG Emissions Reduction Analysis

When fully implemented, this measure is anticipated to reduce approximately 140,000 metric tons of carbon dioxide equivalents ($mtCO_2e$) per year, with 860,806 cumulative $mtCO_2e$ for the period between 2025 – 2030 and 725,426 cumulative $mtCO_2e$ for the period between 2031 – 2050.

## Emission Reductions Estimate Method:

Emissions from the transportation sector depend primarily on the number of single occupancy vehicle trips taken each year, the total vehicle miles traveled across the region, and the carbon intensity associated with those vehicle miles. This analysis uses GPC-compliant regional activity data from Google Environmental Insights Explorer (EIE) and a composite automobile emissions factor developed in collaboration with C40 Cities[10] to create a baseline. Local and regional population forecasts developed by the City of Austin Demographer's Office[11] were used as an indicator of how transportation activity is expected to grow in the MSA through 2050. Electrification of cars on the road, emissions associated with producing the electricity to power them, forecast grid decarbonization, and increased fuel efficiency of internal combustion engine vehicles were all accounted for in developing future projections.

## Models and Tools Used:

Datasets and tools leveraged in this Microsoft Excel-based analysis include GPC-compliant regional activity data from Google Environmental Insights Explorer, US Department of Transportation Daily Travel and average emission estimates, EPA's AVERT model, EPA's MOVES model, carbon intensity for ERCOT, and population projections from the City of Austin Demographer's Office.

## Measure Implementation Assumptions:

The following key assumptions about measure implementation were used to quantify emissions reductions for this measure. Find more details in the attached analysis workbooks:

- Analysis for this measure occurred on two scales: (1) trips impacted by major roadway construction in the region over the next five years [estimated by City of Austin Transportation and Public Works to be approximately 600,000 annual average daily trips in year 1] and (2) trips across the region not impacted by major construction.
- Overall, 10% of trips are considered to be inflexible (interregional trips, business activity, freight, etc.) and not susceptible to Transportation Demand Management (TDM) programmatic efforts.
- As TDM Programs come online, they are expected to have half of their full impact in year 1. In years 2 through 5, TDM programs are expected to be 10% effective at reducing eligible trips affected by major construction and 5% effective in the greater region.

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[10] "Transportation data from mobile devices for climate action planning: a look at Google's Environmental Insights Explorer." November 2021. https://www.c40knowledgehub.org/s/article/Transportation-data-from-mobile-devices-for-climate-action-planning-a-look-at-Google-s-Environmental-Insights-Explorer?language=en_US

[11] Austin Demographics. https://demographics-austin.hub.arcgis.com/

- Using variable growth rates informed by historical adoption,[12] EVs are expected to account for approximately one-third of all regional vehicles by 2050.
- If funded, these TDM programs would operate for five years, after which estimated continuing effectiveness is 70% in year 6, 50% in year 7, and 30% from year 8 onward due to persistent behavior change.

## Emission Reduction Estimate Assumptions:

The following key assumptions about emission reductions were used to quantify emission reductions for this measure:

- The composite emission factor of all vehicles on the road in the region is assumed to be 0.2 kg $CO_2$e per mile in 2025, consistent with City of Austin and C40 Cities collaboration. This rate decreases over time, commensurate with regional vehicle electrification and increasing efficiency of internal combustion engine vehicles.
- Internal combustion engine vehicles are assumed to be 50% more fuel efficient by 2050 than in 2025.
- Total regional trips are estimated to be 2 trillion in 2022 and increase proportionally to population forecasts.
- Average trip distance for trips affected by major construction in Travis County is assumed to be 7.1 miles, and average trip distance for trips throughout the rest of the MSA is assumed to be 9.5 miles, based on Google EIE and US DOT Daily Travel data.

## Reference Case Scenario:

Absent implementation of this measure, emissions associated with transportation activity are expected to progress as described in Table 3.

## Benefits Analysis

Co-pollutant emissions reductions for this measure are described in Table 5 of this document and were produced using VMT reduction estimates paired with US DOT average emission factors for co-pollutants. Other benefits include improved health for active transportation users, improved air quality, and cost-saving for participating individuals. Increases in active and shared transportation contribute to improved air quality and better health outcomes due to reduced on-road vehicle emissions. Additionally, there's an increase in the sense of community fostered by social interactions among commuters. The shift towards active transportation reduces fuel consumption and lowers vehicle maintenance costs associated with decreasing VMT, resulting in substantial savings over time. Further cost savings associated with this measure include reduced costs for parking infrastructure and maintenance and support to make lower-cost forms of transportation more feasible for all commuters.

## LIDAC Analysis

The benefits of reduced transportation-related emissions will disproportionately accrue to LIDACs, who are more likely to be exposed to transportation-related air pollution. Incentives and tools included in this measure will have the potential to lower the cost of travel. Additionally, increased transportation options can make it more viable to complete trips without a car, which can be an expensive and inaccessible mode of transportation for low-income and undocumented individuals.

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[12] EVs in Texas. https://www.dfwcleancities.org/evsintexas

Some potential challenges include reluctance to change behavior patterns in transportation and funding potentially flowing to community members with greater transportation choices. To address these issues, the proposed grassroots multilingual community-based outreach would support engagement with LIDACs — surfacing concerns, identifying best methods for engagement, and ensuring awareness of the ways to benefit from this measure's implementation.

## Review of Authority

As home rule cities, many cities in the region (almost every city with a population over 5,000, including Austin) may establish any law or ordinance unless it is expressly forbidden by state or federal law. This includes the ability to pass ordinances, resolutions, and regulations regarding transportation, land use, and environmental sustainability, which are all critical components of TDM. Cities have the authority to allocate municipal funds, apply for state and federal grants, and offer incentives to support TDM initiatives.

Additionally, regional organizations like CAPCOG and CAMPO have the authority to implement TDM programs:
- Under the Texas Regional Planning Act (Chapter 391 of the Texas Local Government Code), CAPCOG has the authority to conduct regional planning, coordinate with local governments, and implement programs that address regional issues, including transportation and air quality.
- As an MPO, CAMPO is required by federal law (notably, the Moving Ahead for Progress in the 21st Century Act (MAP-21) and its successors) to develop a Metropolitan Transportation Plan (MTP) and a Transportation Improvement Program (TIP). These plans can incorporate TDM strategies as part of the region's efforts to improve transportation efficiency and reduce congestion.

## Intersection with Other Funding Availability

The transportation sector has abundant funding, though few opportunities directly target comprehensive TDM initiatives. An additional challenge is the recurrence and reliability of grants. Of opportunities reviewed, grants for TDM are often smaller allocations that could fund portions of this measure. These include the TxDOT-managed Transportation Alternatives Set-Aside Program, The DOT Congestion Mitigation and Air Quality Improvement (CMAQ) Program, and the Department of Transportation and the Department of Transportation's SMART Grants program. State entities for Clean Air Act attainment distribute CMAQ funding. As the Austin-Round Rock-Georgetown region was in attainment with Clean Air Act standards until 2024, there does not yet appear to be a mechanism for the region to receive CMAQ funding.

SMART Grants could support portions of this measure pertaining to behavior changes that decrease SOV and increase active and public transportation usage. This program contains $100 million appropriated annually through 2026 for projects across the United States. The local opportunity most aligned with TDM is the TxDOT-managed Transportation Alternatives Set-Aside Program. This program has three funding avenues that are aligned with TDM measures, with the largest award in 2023 being $25 million for large-scale active transportation infrastructure. These awards are distributed on an irregular basis, with five instances in the past nine years. The region has already successfully secured funds from this program for complementary activities, such as an expansion of the MetroBike bike share system.

## Workforce Planning Analysis

This measure may require that contract or stipend-based opportunities be pursued to partner with community-based organizations to develop personalized low-GHG travel planning for LIDACs. These opportunities would prioritize hiring experts from within communities targeted for outreach. Positions may also be created to provide security for mobility hubs or park-and-ride sites.

# Encourage and Subsidize R99 Availability

**Sector: Transportation**

This measure would involve providing financial incentives to suppliers and retailers to cover the extra costs associated with offering R99 diesel, making it more competitively priced and accessible to public fleet operators and consumers. This would likely be achieved through a combination of government or private subsidies aimed at offsetting the incremental costs associated with the procurement of R99.

A regional coalition purchasing cooperative would be formed, featuring large fuel users like the City of Austin's Fleet Services Department, CapMetro (regional metro service), Independent School Districts, and other municipal fleet services. This cooperative would demonstrate a willing market of buyers and support buying R99 in bulk, thus reducing the per-unit cost and fostering a supply market within Central Texas. This cooperative effort would enhance the fuel's market penetration and promote environmental benefits associated with using cleaner-burning fuels, aligning with broader sustainability goals.



## GHG Emissions Reduction Analysis

Full implementation of this measure is anticipated to reduce around 115,000 metric tons of carbon dioxide equivalents (mtCO2e) per year, with 705,137 cumulative mtCO$_2$e for the period between 2025 − 2030 and 1,127,532 cumulative mtCO$_2$e for the period between 2031 − 2050.

## Emission Reductions Estimate Method:

The emission reduction achieved through this measure is highly dependent on the availability of cost incentives for R99 distribution to public fleets across the entire MSA and to effectively replace (either fully or partially) current diesel usage. Assuming there is sufficient funds for the short-term (2025-2030) implementation of this measure, tailpipe emissions were assumed to be reduced by 99% over the do-nothing scenario. For the longer term (2031-2050), with the termination of the funds, some public fleets (City of Austin, CapMetro, Travis County) are assumed to continue use of R99 fuel, while the rest of the MSA is assumed to reduce their R99 usage due to residual incremental costs. Fleet electrification, replacing diesel-consuming vehicles, is accounted for in this analysis.

## Models and Tools Used:

Datasets and tools leveraged in this Microsoft Excel-based analysis include local and regional fuel purchase data from the City of Austin, CapMetro, Austin Independent School District, and Travis County's fleet services, and population projections from the City of Austin's Demographer's Office. Additionally, EPA's GHG Emission Factors Hub was used to calculate emissions from different diesel types.

## Measure Implementation Assumptions:

The following key assumptions about measure implementation were used to quantify emissions reductions for this measure. Find more details in the attached analysis workbook:

- Analysis for this measure occurred on two scales: (1) diesel consumption and GHG emission reductions by City of Austin, CapMetro, and Travis County and (2) other public fleets in the MSA.
- As 100% of the available funds are considered to be used to offset the incremental cost of R99 over regular diesel, uptake of this measure is assumed to be 100% as well.
- With the available funds, the program is assumed to run for 5 years (2025-2030) with a possible continuation after 2030.
- This analysis assumes that 50% of all public fleet vehicles will become electric by the end of 2050, while some heavier vehicle applications will be difficult to electrify.
- After programmatic funding ends, this analysis assumes that City of Austin, CapMetro, and Travis County public fleets will continue to purchase R99, as it contributes to their climate goals. However, this analysis assumes that other public fleets in the MSA will reduce procurement of R99. This is based on the underlying assumption that, if fully implemented, this measure would increase regional supply and bring the overall cost of R99 fuel down, making it more competitive with higher emitting alternatives.
- The incremental cost of R99 over other forms of diesel is assumed to be $2/gal based on an estimate local transit officials received from an R99 vendor. Scaled to regional diesel consumption estimates (11,838,704 gallons in 2025), this measure would be expected to cost around $24 million dollars annually to fully implement across all public fleets in the region.

## Emission Reduction Estimate Assumptions:

The following key assumptions about emission reductions were used to quantify emission reductions for this measure:

- Emission factors are assumed to remain unchanged through 2050: 10.15 kg $CO_2$e/gal for regular diesel and 8.12 kg $CO_2$e/gal for B20. R99 is assumed to lead to a 99% reduction of associated emissions.

## Reference Case Scenario:

Absent implementation of this measure, emissions associated with transportation activity are expected to progress as described in Table 3.

## Benefits Analysis

R99 diesel is expected to reduce co-pollutants compared to regular diesel, but quantification of those benefits is not currently available. This co-pollutant reduction will positively influence public health by potentially alleviating air quality-related conditions such as respiratory illnesses, cardiovascular diseases, and allergies.

## LIDAC Analysis

This measure has a limited direct impact on LIDAC communities but will contribute to a broader regional improvement in air quality. Due to redlining and continued zoning harms, LIDACs are often situated in areas with lower air quality or near high-traffic roadways. Improvements in air quality and reductions in vehicle emissions will have long-term impacts on air quality and public health.

## Review of Authority

As home rule cities, many cities in the region (almost every city with a population over 5,000, including Austin) may establish any law or ordinance they want unless it is expressly forbidden by state or federal law. This autonomy includes the ability to enact ordinances and resolutions that promote the city's welfare, including environmental sustainability and energy policies that could encompass the promotion of alternative fuels like R99. Under the Texas Local Government Code, cities can establish economic development programs to attract or retain businesses. The City of Austin can use this authority to incentivize fuel retailers to offer R99 or to support infrastructure development for alternative fuels in the region.

## Intersection with Other Funding Availability

No grant programs were found to support regional purchase of Renewable Diesel. The Biodiesel Production and Blending Tax Credit makes qualified biodiesel producers or blenders eligible for an income tax credit of $1.00 per gallon of renewable diesel produced or used in the blending process.

## Workforce Planning Analysis

This measure does not impact the regional workforce.

# Install Community Solar And Battery Storage

## Sector: Electric Power

Community solar is a solar power project shared by multiple participants who receive credits on their electricity bills for the energy produced, enabling access to solar energy without necessarily requiring personal solar panel installations. This model allows broader community involvement and benefits from renewable energy, regardless of individual property constraints.

This measure would call for installing up to 35 MW of community solar at grade and on roofs and 34MWh of battery storage across the region, focusing on LIDACs. Community solar would be co-located with battery storage, which reduces GHGs by storing excess renewable energy for use when production is low, decreasing reliance on fossil fuel power plants. Battery storage provides grid stability, voltage support, and load shaping, reducing the need for high-emitting peaker plants during high demand, further cutting GHG emissions. It also supports infrastructure,

building resilience, and re-energizing support during power outages, reducing reliance on fossil fuel-powered generators. If operated with GHG mitigation as a priority, our analysis shows that batteries can significantly reduce emissions.

This measure could include many other components, including training and workforce development programs and exploring growing shade crops under solar panels when implemented at grade.

## GHG Emissions Reduction Analysis

As implementation of this measure scales up, it is anticipated to reduce between 3,000 and 11,000 metric tons of carbon dioxide equivalents ($mtCO_2e$) per year for the first five years, accumulating up to 50,357 $mtCO_2e$ for the period between 2025 – 2030 and 132,429 $mtCO_2e$ for the period between 2031 – 2050. This is contingent on the battery storage being operated with GHG mitigation as a priority.

## Emission Reductions Estimate Method:

Large amounts of solar installations have the potential to significantly reduce GHG emissions as they displace the need for fossil fuel electricity generation in the grid. This analysis used conservative annual generation assumptions for solar installations and battery discharge cycles, paired with forecast ERCOT carbon intensity for both normal and peak demand periods to estimate GHG emission reductions. Both solar and battery storage installations are modeled to degrade at industry standard rates (1% per year) over the 25-year study period.

## Models and Tools Used:

Datasets and tools used for this Microsoft Excel-based analysis include solar production projections from local utility Austin Energy, hardware degradation rates based on manufacturer-provided information, carbon intensity for ERCOT for both normal and peak demand periods, and the EPA's AVERT model.

## Measure Implementation Assumptions:

The following key assumptions about measure implementation were used to quantify emissions reductions for this measure:

- Solar and battery storage installations are assumed to be distributed across the MSA relative to population densities.
- All solar and battery storage installations are assumed to be completed within the first five years of the program.
- A program of this type and scale is expected to cost approximately $54 million and pay for its operation and maintenance through energy service fees and other revenue generation.

## Emission Reduction Estimate Assumptions:

The following key assumptions about emission reductions were used to quantify emission reductions for this measure:

- See attached datasets for a detailed forecast of ERCOT's carbon intensity for both normal and peak demand periods.
- Annual production from 1 kW of installed community solar is assumed to be 1,300 KWh.
- Battery storage installations are assumed to discharge energy equal to their capacity about once every three days.
- Battery storage installations are assumed to discharge temporally with GHG mitigation as a priority.

- Solar and battery storage hardware degradation is assumed to occur at 1% annually.

## Reference Case Scenario:

Absent implementation of this measure, emissions associated with the energy sector are expected to progress as described in Table 3.

## Benefits Analysis

Co-pollutant emissions reductions for this measure are described in Table 5 of this document and were produced using the EPA's AVERT model simulating the installation of 35 MW of solar in ERCOT. Community solar initiatives offer many environmental, health, and economic benefits. By promoting the adoption of renewable energy sources and reducing reliance on fossil fuels, these projects significantly lower greenhouse gas emissions and enhance local air quality. Co-locating community solar with battery storage further stabilizes the grid, reduces the need for high-emission power plants, and bolsters infrastructure resilience, particularly during power outages. This has cost-saving implications during volatile spikes associated with extreme weather events and corresponding changes in energy demand from natural gas and coal consumption.

## LIDAC Analysis

Between 2000 and 2012, Texas experienced 180 major power outages where over 50,000 customers were out of service[13]. During extreme weather and major power outage events, LIDACs experience disproportionate harm. The reliability offered by the co-location of batteries alongside community solar in LIDACs will support grid resilience and could decrease the length and likelihood of power outages. Decreases in electricity bill volatility associated with major power outage events will also greatly benefit LIDACs. Additionally, community solar initiatives increase equitable access to solar energy by distributing the benefits of solar panels beyond the specific site on which they are located. This enables renters and low-income individuals to reap the benefits without the financial barriers.

## Review of Authority

As a municipally-owned electric utility, Austin Energy is able to develop, promote, and implement renewable energy projects, including community solar and battery storage. This is underpinned by:

- Local Government Code: This provides the legal framework for municipalities in Texas to own and operate electric utilities. As such, Austin Energy can undertake projects that enhance its renewable energy portfolio and improve grid reliability and resilience.
- Public Utility Regulatory Act: While primarily state-regulated, this act allows municipally-owned utilities certain flexibility in setting rates and developing programs that can include renewable energy initiatives.

Parts of the Austin-Round Rock-Georgetown MSA are served by different utilities, including investor-owned utilities, rural electric cooperatives, and other municipal utilities. These entities have their own governing structures and regulatory frameworks but can collaborate with or be influenced by initiatives like those of Austin Energy. The Capital Area Council of Governments (CAPCOG) could play a role in coordinating initiatives across the MSA. Any implementation of community solar would need to consider factors associated with the deregulated electricity marketplace in Texas, administered by ERCOT.

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[13] Climate Central. "Surging Weather-related Power Outages." Climate Central, 13 September 2022, https://www.climatecentral.org/climate-matters/surging-weather-related-power-outages. Accessed 23 February 2024.

## Intersection with Other Funding Availability

The Inflation Reduction Act extends and modifies tax credits for producing (Clean Energy Production Tax Credit, § 13701) and investing (Clean Electricity Investment Tax Credit, § 13702) in solar energy and battery storage, and also creates a mechanism for non-tax-paying entities like municipalities to receive the financial benefit of the tax credits if they meet requirements for domestically produced construction materials. Though these tax credits can significantly improve the financial case for installing community solar and battery storage, other grant programs, such as the Grid Resilience and Innovation Partnership (GRIP) program and Solar for All, have closed. The State of Texas and each of the counties named in this PCAP have adopted legislation for Property Assessed Clean Energy (PACE) to provide low-cost, long-term financing solutions for commercial, multifamily, and industrial properties to adopt reliance, distributed generation, and energy efficiency projects. This funding could support individual renewable projects on a medium scale.

## Workforce Planning Analysis

Considering investments anticipated because of PCAP implementation, careers in the fields of solar and battery may be expanded. See the Workforce Planning Analysis section and Table 11 for more information. There are entry-level positions in both fields, as outlined in the Office of Energy Efficiency and Renewable Energy's Map a Career in Clean Energy tools[14]. The measures on solar and battery installation, holistic building upgrades, and tree planting all provide opportunities for workforce development and skills training. Additional efforts to recruit from and provide training to LIDACs will be prioritized through in-person outreach, partnerships with organizations representing LIDACs, and digital and social media campaigns.

Positions that may be needed to complete this measure or following the completion of this measure include community outreach specialists, solar technicians, permitting specialists, electricians, solar engineers, land surveyors, project managers and coordinators, and manufacturing. Several programs are serving the Austin-Round Rock-Georgetown MSA that offer skill-building, education, internships, and professional development in the solar field. Potential partner organizations reviewed for this PCAP include the Solar Austin Pathways Program, Austin Community College, the Texas Solar Energy Society, and the International Brotherhood of Electrical Workers. The Office of Energy Efficiency and Renewable Energy's Map a Career in Clean Energy tool outlines job pathways in solar energy and can guide workforce development in this field. This is a growing field, and according to SEIA's Solar Market Insight Report[15], the solar industry saw a record-breaking growth of 43% in 2020.

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[14] "Map a Career in Clean Energy." Department of Energy, https://www.energy.gov/eere/jobs/map-career-clean-energy. Accessed 23 February 2024.

[15] SEIA. "U.S. Solar Market Insight | SEIA." Solar Energy Industries Association, 7 December 2023, https://www.seia.org/us-solar-market-insight. Accessed 23 February 2024.
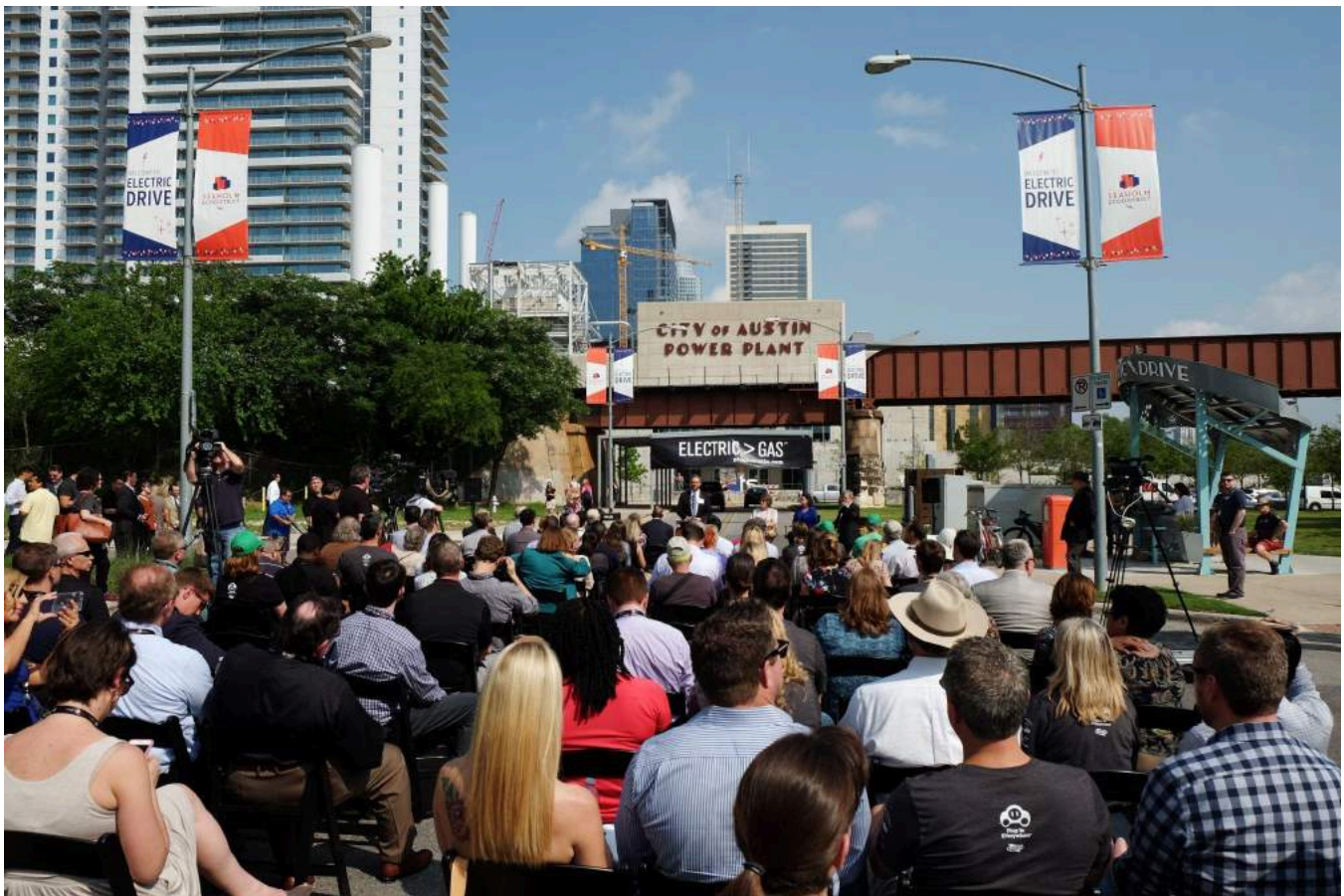
# Implement Holistic Building-Wide Upgrades To Municipal Buildings

**Sector: Buildings**

This measure would be developed as a funding program for public-facing municipal facilities in the Austin-Round Rock-Georgetown MSA to receive funding support for small and large-scale retrofits that decrease greenhouse gas emissions by increasing building efficiency and weatherization. Eligibility for funding under this program will be contingent upon the type of community served and its level of resources. Communities identified as low-income, climate-vulnerable, or under-resourced may be considered for full project cost coverage, while others may receive either a fixed price or a percentage of their total project cost. Eligible initiatives include outside airflow controls, heat pumps, onsite battery storage, solar PV installations, district energy systems, lighting system retrofits, and electrification of appliances and kitchens, among others. These initiatives aim to yield measurable reductions in greenhouse gas emissions from participating buildings, with applicants required to provide baseline data and projections of reductions and savings.

This measure will also support the resilience through onsite battery storage and heat resilience plans for pools. Additionally, initiatives like refrigerant replacement and appliance electrification contribute to reducing carbon emissions and improving overall environmental quality.

## GHG Emissions Reduction Analysis

Full and rapid implementation of this measure in 10 large public-facing facilities is anticipated to reduce 27,214 cumulative mtCO$_2$e for the period between 2025 – 2030 and 47,236 cumulative mtCO$_2$e for the period between 2031 – 2050.

## Emission Reductions Estimate Method:

Emission reductions from retrofits, upgrades, and solar and battery installations will vary significantly by the type and amount of upgrades performed as well as facility type, size, age, and primary function. This analysis used average Energy Star Portfolio energy use intensity calculations and mean square footage of large, City of Austin-owned, public-facing facilities performing less efficiently than the median to estimate the impact of inexpensive, low-risk energy efficiency upgrades. Solar and battery storage installation impact estimations are consistent with the above descriptions related to the Community Solar and Battery Storage measure. Emission reductions from energy saved and offset by the implementation of this measure are calculated using ERCOT carbon intensity for both normal and peak demand periods.

## Models and Tools Used:

Datasets and tools used for this Microsoft Excel-based analysis include Energy Star Portfolio energy use intensity calculations for large, public-facing City of Austin facilities, solar production projections from local utility Austin Energy, hardware degradation rates based on manufacturer-provided information, carbon intensity for ERCOT for both normal and peak demand periods, and the EPA's AVERT model.

## Measure Implementation Assumptions:

The following key assumptions about measure implementation were used to quantify emissions reductions for this measure:
- This analysis is assumed to be applicable across the MSA, and emission reduction estimates are assumed to scale by the number of facilities receiving upgrades.
- For simplicity, all upgrades are assumed to occur within the first two years of the program. In practice, this is unrealistic, and upgrades are likely to occur for the duration of such a program (5+ years).
- A program of this type and scale is expected to cost approximately $30 million and could be paid for through grants, bonds, capital program funds, and future energy savings.

## Emission Reduction Estimate Assumptions:

The following key assumptions about emission reductions were used to quantify emission reductions for this measure:
- Inexpensive, low-risk energy efficiency upgrades are assumed to be 20% effective at reducing energy use intensity.
- In dual fuel facilities, natural gas is assumed to account for 30% of energy use intensity.
- Electrification of natural gas-consuming hardware is assumed to lead to a doubling in efficiency for eligible energy use.
- See attached datasets for a detailed forecast of ERCOT's carbon intensity for both normal and peak demand periods.
- Annual production from 1 kW of installed solar is assumed to be 1,300 KWh.
- Battery storage installations are assumed to discharge energy equal to their capacity about once every three days.

- Battery storage installations are assumed to discharge temporally with GHG mitigation as a priority.
- Solar and battery storage hardware degradation is assumed to occur at a rate of 1% annually.

## Reference Case Scenario:

Absent implementation of this measure, emissions associated with transportation activity are expected to progress as described in Table 3.

## Benefits Analysis

Co-pollutant emissions reductions for this measure are described in Table 5 of this document and were produced using the EPA's AVERT model simulating the installation of 10 MW of solar in ERCOT. Additionally, upgrades to municipal buildings will enhance resilience during extreme weather events by addressing key areas such as building temperature control, backup power systems, on-site power generation, building air quality, and energy efficiency. Buildings will also see increased air quality, which is especially impactful in facilities that serve health-impaired community members. In addition to resilience benefits, these upgrades will lead to reduced energy costs for municipal governments by optimizing building efficiency.

## LIDAC Analysis

This measure would prioritize project funding needed for municipal buildings that primarily serve and are located within LIDACs. During extreme weather and major power outage events, many municipal facilities offer essential services to LIDACs, which are often disproportionately harmed. Bolstering the ability of these facilities to provide resources, energy security, and refuge during emergencies will greatly benefit LIDACs.

## Review of Authority

As home rule cities within the Austin-Round Rock-Georgetown MSA, many municipalities in the region, including Austin and others with populations over 5,000, possess extensive statutory authority to implement building improvements. This authority empowers cities to allocate municipal funds toward building upgrades, apply for state and federal grants to support improvement initiatives, and offer incentives to encourage participation and compliance. With this broad authority, cities within the Austin-Round Rock-Georgetown MSA have the flexibility and resources necessary to enact meaningful changes that enhance building resilience, energy efficiency, and overall sustainability.

## Intersection with Other Funding Availability

During the funding review for this PCAP, no grants were identified to fund this measure. However, municipal buildings can take advantage of tax credits and financing programs to fund projects related to efficiency and sustainability. The Energy Efficient Commercial Buildings Deduction (179d) provides tax credits to commercial buildings (including municipally owned) that reduce energy use intensity by at least 25%, with five times the credit if the project meets prevailing wage/apprenticeship requirements. Another program, Property Assessed Clean Energy (TX-PACE), enables property owners to lower operating costs and use the savings to pay for eligible projects.

## Workforce Planning Analysis

Program management and development support will be needed to implement this measure. There is also a potential opportunity to include program coordinators, civil and mechanical engineers, construction managers,

and construction contractors. These positions can be filled through partnerships with Austin Community College and the International Brotherhood of Electrical Workers, among other workforce development groups.

# Implement Water Conservation Programs

**Sector: Waste, Water, and Sustainable Materials**

Water consumption is energy and carbon-intensive to treat and distribute. Conserving water and reducing water consumption will mitigate GHG emissions from these processes. Co-benefits associated with reduced water consumption include increased resilience to drought conditions and affordability for consumers.

This measure expands and regionalizes existing programs administered by Austin Water and other utilities in the region, including:

- Rebates and incentives for water-saving fixtures, rainwater harvesting, and water-efficient landscaping.
- Education, outreach, tools, and resources to help users in all sectors reduce water use.
- Water benchmarking and audits to identify customers with higher than usual water use and help them reduce water consumption.
- AI strategies for leak detection.
- Support for on-site water capture and reuse (condensate, greywater, laundry to landscape, etc.)

## GHG Emissions Reduction Analysis

Full implementation of this measure, including rules limiting landscape watering to once per week, is anticipated to reduce around 7,000 metric tons of carbon dioxide equivalents (mtCO$_2$e) per year with 34,224 cumulative mtCO$_2$e for the period between 2025 – 2030 and 99,379 cumulative mtCO$_2$e for the period between 2031 – 2050.

## Emission Reductions Estimate Method:

Water treatment and distribution is an energy-intensive process, meaning reductions in the consumption of potable water can lead to sizable GHG emission reductions. This analysis used water consumption totals from the Austin Water territory, scaled by the MSA population, as a reference case. Observed water conservation and energy savings efficacy per programmatic dollar spent paired with ERCOT carbon intensity were the basis for estimating GHG emissions reductions.

## Models and Tools Used:

Datasets and tools leveraged in this Microsoft Excel-based analysis include water conservation program costs, efficacy, energy savings, population projections from the City of Austin Demographer's Office, and carbon intensity for ERCOT.

## Measure Implementation Assumptions:

The following key assumptions about measure implementation were used to quantify emissions reductions for this measure:

- This analysis was performed at two geographical scales: (1) Austin Water's service territory where water conservation programs and once-per-week landscape watering measures are already in place and (2) the rest of the MSA where water conservation programs are in place, but once-per-week landscape watering rules are assumed to not be fully implemented.
- Water conservation program efficacy is assumed to be immediate in year 1, proportional to programmatic funding.
- For those areas where once-per-week landscape watering rules are not fully implemented, this measure is assumed to be fully effective starting in year 2. This portion of the analysis is meant to be demonstrative of the water conservation potential of such an action.
- This analysis assumes that water conservation program funding would last five years, leading to some but not total residual water savings thereafter due to behavior change. This is consistent with Austin Water observations following the 2011 statewide drought.
- If enacted, once-per-week landscape watering rules are assumed to persist through 2050.
- Effectiveness of this measure is scaled with the assumption of $15 million in program funding allocated throughout the region based on population and spread evenly over five years.

## Emission Reduction Estimate Assumptions:

The following key assumptions about emission reductions were used to quantify emission reductions for this measure:

- For water conservation programs, efficacy was assumed to be 81 gallons saved per dollar spent and about 0.002 KWh avoided per gallon saved.
- The once-per-week landscaping rule in areas where not already implemented was assumed to be similarly effective to Austin Water's observations, or about 16% reduction of total water consumption.

## Reference Case Scenario:

Absent implementation of this measure, emissions associated with transportation activity are expected to progress as described in Table 3.

## Benefits Analysis

In December 2023, the Barton Springs/Edwards Aquifer Conservation District declared Stage 4 Drought[16], reflecting patterns of water resource depletion seen across the region as climate change intensifies drought and the regional population expands. The implementation of water conservation programs supports the preservation of water resources and benefits local ecology, community resilience, and culture and recreation. This measure will bolster water security and protect aquatic ecosystems by mitigating the strain on water resources. By conserving water, communities contribute to the preservation of habitats and the sustenance of biodiversity, ensuring the long-term health of aquatic ecosystems. Additionally, water conservation efforts support community health and recreation by maintaining optimal water levels for activities such as fishing, water sports,

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[16] Barton Springs Edwards Aquifer Conservation District. "District Declares Stage IV Drought." Barton Springs/Edwards Aquifer Conservation District, 15 December 2023, https://bseacd.org/2023/12/stageivdrought/. Accessed 25 February 2024.

and swimming, thus enhancing critical recreation and cultural activities in the region. These programs enhance drought resilience by optimizing water resource allocation, enabling communities to better withstand periods of water scarcity. Water conservation measures also ensure the conservation of safe drinking water, protecting public health, and reducing the risk of waterborne illnesses. Finally, by reducing overall water consumption, such programs lead to lower water costs for consumers, providing financial relief for individuals and households while fostering responsible water management practices and environmental stewardship. The implementation of water conservation programs represents a strategic and multifaceted approach to promoting sustainability, protecting ecosystems, enhancing public health, and fostering economic resilience within communities.

In addition to the many benefits provided by healthy water systems, emission reductions from efficient water use will also result in energy-saving emission reductions. Co-pollutant emissions reductions for this measure are described in Table 5 of this document and were produced using the EPA's AVERT model, simulating a reduction in total electricity consumption of approximately 24 GWh in ERCOT.

## LIDAC Analysis

Water conservation programs offer tangible benefits to low-income and disadvantaged communities (LIDACs) by providing potential cost savings on water bills and ensuring increased water security. By reducing water consumption, these programs help alleviate financial burdens and safeguard against water shortages, thus improving the overall well-being of vulnerable populations.

## Review of Authority

Texas Local Government Code Chapter 52, Municipal Utility Systems gives municipalities the authority to own and operate water utilities and to adopt and enforce regulations to manage, conserve, and protect the municipality's water resources.

In Texas, water planning is organized into regional water planning groups (RWPGs) designated by the Texas Water Development Board (TWDB). These groups are responsible for developing regional water plans, which are then integrated into the state's comprehensive water plan. The authority and responsibilities of these regional water planning groups are established under Texas Water Code Chapter 16, which outlines the state's water planning and management processes. RWPGs have the authority to develop and update regional water plans, conduct water needs assessments, and recommend water management strategies. The Austin-Round Rock-Georgetown Metropolitan Statistical Area (MSA) falls primarily within the boundaries of three regional water planning areas:

- Region K (Lower Colorado Regional Water Planning Group)
- Region L (South Central Texas Regional Water Planning Group)
- Region G (Brazos G Regional Water Planning Area)

There is a need to ensure that any water conservation programs implemented or expanded across the region are aligned with the relevant plans created by water planning areas.

## Intersection with Other Funding Availability

As a non-structural measure that involves regionalizing rebates, incentives, and audits, the majority of funding will come directly from water planning agencies within the region. Funding opportunities may exist for educational or site-specific projects within this measure. One noteworthy opportunity is the Clean Water State Revolving Fund (CWSRF), dispersed by the EPA and managed by the Texas Water Development Board. While the

fund primarily provides loans for large water facilities, it may be able to provide funding for specific sites or educational programs within this measure.

## Workforce Planning Analysis

The water conservation programs may create workforce opportunities for Outreach Coordinators, Environmental Scientists, Water Efficiency Auditors, and Plumbing Contractors. Potential partnerships with organizations like the Austin Civilian Conservation Corps and American YouthWorks offer avenues for workforce development and training programs tailored to meet the specific technical needs of the measure, empowering individuals to contribute meaningfully to water conservation efforts while fostering economic resilience and sustainability.

# Implement Community-Driven Tree Planting And Forest Restoration Programs

### Sector: Agriculture and Land Management

Mature, climate-smart trees play a crucial role in removing carbon dioxide from the atmosphere through sequestration and can also lead to reduced energy consumption through a reduction of the heat island effect. Within the Austin-Round Rock-Georgetown MSA, numerous CBOs are dedicated to promoting tree health and conducting planting activities. This measure involves both supporting and expanding existing programs for tree planting and forest restoration, which could be accomplished through a combination of funding, capacity-building activities, data collection, and regional collaboration. Various activities support tree planting and health, including raising saplings, planting trees, conducting monitoring and data collection, and implementing practices like tree watering, mulching, and soil enhancement.

## GHG Emissions Reduction Analysis

Full implementation of this measure is anticipated to reduce 41,068 cumulative $mtCO_2e$ for the period between 2025 – 2030 and 115,854 cumulative $mtCO_2e$ for the period between 2031 – 2050.

## Emission Reductions Estimate Method:

Reducing emissions through carbon dioxide absorption by trees depends on multiple factors. To complete this analysis, the tree planting timelines were segmented to include a certain number of trees being planted each year for the first 5 years. A 20% mortality rate and an additional 5% risk buffer rate were applied to account for some tree attrition. An average annual absorption rate, based on observations at tree planting sites around the globe[17], was used to estimate carbon sequestration attributed to tree plantings.

## Models and Tools Used:

Datasets and tools leveraged in this Microsoft Excel-based analysis include data from multiple local and regional community and partnership-oriented tree planting projects (existing and future) involving the TreeFolks, Central Texas Arbol Equity Collective (CTAEC), and City Forest Credits carbon registry program.

## Measure Implementation Assumptions:

The following key assumptions about measure implementation were used to quantify emissions reductions for this measure:

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[17] How much CO2 can a tree absorb? https://onetreeplanted.org/blogs/stories/how-much-co2-does-tree-absorb

- The analysis of this measure occurred on a regional scale.
- The program funding is assumed to last for the first 10 years from the project start date, which includes planting trees for the first 5 years and providing maintenance and irrigation services in the following years until the trees reach a certain age to survive naturally.
- Although the carbon sequestration estimations were provided for 2025-2050, trees provide benefits throughout their lifetime that go beyond 2050.
- The cost to fully implement this measure is expected to be approximately $34 million.



## Emission Reduction Estimate Assumptions:

The following key assumptions about emission reductions were used to quantify emission reductions for this measure:

- The emission reduction estimates were calculated using City Forest Credits carbon credit issuance structure which provides 10% of the total credits in year 1, 30% in year 2 and another 30% in year 4, 10% in year 14 and the rest in year 26. However, the nature of carbon sequestration from trees is complicated and includes multiple factors to be considered.
- The total amount of carbon to be absorbed by one tree per year is estimated to be between 10-40 kg, and due to the wide range, this measure used the average, which was 25 kg/tree/year.

## Reference Case Scenario:

Absent implementation of this measure, emissions associated with agriculture and land activity are expected to progress as described in Table 3.

## Benefits Analysis

Air quality benefits and additional GHG emissions reduction from heating and cooling benefits of this measure are provided in Table 5 and Table 4, respectively. These estimates were produced by TreeFolks using the City Forest Credits co-benefits estimation tool. Implementing community-driven tree planting and forest restoration programs will yield benefits that extend beyond greenhouse gas reduction. Increasing shade mitigates the urban heat island effect, enhancing outdoor thermal comfort and reducing heat-related health risks for residents. Moreover, the presence of trees enhances access to nature, providing social and psychological benefits such as stress reduction and improved overall well-being. Additionally, tree planting improves biodiversity and ecosystem function, fostering healthier ecosystems and supporting wildlife habitats. Trees, especially those planted in floodplains, aid in stormwater management, reducing flood risk and enhancing overall resilience to extreme weather events. Finally, these programs offer the potential for decreased costs associated with land management by improving soil health and water management and providing natural shade, thereby promoting sustainable and cost-effective urban development.

## LIDAC Analysis

This measure will prioritize LIDACs when choosing where to plant trees to ensure equitable distribution of benefits. The City of Austin Community Tree Priority Map guides equitable tree planting in the City of Austin. This map could be expanded into the region to support tree planting prioritization in LIDACs, especially those with lower-than-average tree canopy cover. Tree planting and forest restoration efforts contain many benefits, from urban cooling to improved ecological health. By reducing the urban heat island effect, the program will mitigate heat-related health risks for LIDAC residents and improve overall comfort during hot weather. Additionally, tree planting decreases flood risk by targeting impervious surfaces. It enhances air quality, benefiting respiratory health in LIDACs, which are often inequitably burdened by heat and poor air quality due to racial segregation in zoning practices.

Moreover, the initiative creates higher-quality green spaces for recreation and social interaction while also improving soil quality for potential agricultural ventures, promoting food security and economic empowerment. However, there may be displacement risks without complementary strategies like affordable housing policies and community engagement. Furthermore, increased vegetation could lead to heightened allergens, requiring proactive management strategies.

## Review of Authority

Texas Local Government Code provides broad powers to municipalities for regulating land use, preserving public health and safety, and promoting environmental stewardship within their jurisdictions. The code grants cities the ability to enact ordinances and programs that further these goals. The City has enacted specific ordinances that support urban forestry, tree preservation, and planting initiatives. For example, the Tree and Natural Area Preservation ordinance outlines requirements for protecting trees during construction and encourages planting new trees as part of development processes. Programs for tree planting within the City of Austin must abide by the Land Development Code.

When considering a regional approach to tree planting and forest restoration, the city can engage in regional projects through interlocal agreements and partnerships that support programs within each jurisdiction. The Capital Area Council of Governments (CAPCOG) could support regional program expansion.

## Intersection with Other Funding Availability

Several programs for tree planting at the local, state, and federal levels could be leveraged to fund this measure. Grants applicable to this measure that are offered on an annual or regular basis include the US Forest Service's Urban and Community Forestry Grant, the Texas A&M University's Community Forestry Tree Planting and Climate Resilience Grants, and the Tree City USA Growth Grant. Grants from non-federal entities have an average ceiling of $27,000 per award. A challenge would be establishing consistent funding for one or more regional programs.

## Workforce Planning Analysis

Workforce development for this measure will prioritize capacity building and recruitment for existing CBOs and tree planting programs in the region. The City of Austin has well-established partnerships with CBOs in the tree planting and eco-restoration fields that can be leveraged in workforce planning initiatives for this measure. Job training and recruitment will target LIDACs and partner with LIDAC institutions and organizations to ensure equitable access to good jobs. Organizations such as American Youthworks and The City of Austin Youth Forest Council already prioritize recruiting youth from LIDACs for conservation jobs with competitive wages and robust training programs. Continuing to support these efforts and expanding them into the region will enable the growth of strong and equitable workforce development.

# GHG Reduction Measures Not Selected

Many GHG reduction measures were considered but not selected for inclusion in the PCAP. GHG reduction measures were identified from a number of sources:
- Existing plans in the region
- Community and Stakeholder Advisory Committee
- Community survey
- MSA staff workshop
- MSA staff intake form
- Internal City of Austin workshop

The PM team consolidated measures where they overlapped, regionalized them where appropriate, and identified measures to move forward based on several criteria:
- The measure is implementation-ready, meaning that the design work for the policy, program, or project is complete enough that a full scope of work and budget can be included in a CPRG implementation grant application.
- The measure can be completed in the near term, meaning that all funds will be spent and the project completed within the five-year performance period for the CPRG implementation grants.
- The measure has support from community members within the region.
- The measure will provide benefits to LIDACs.
- The measure has one or more willing implementing lead agencies.

Measures identified but not selected for the PCAP include:

## Transportation

1.  Build active transportation infrastructure, including sidewalks, bike lanes, and urban trails.
2.  Zone, build, and retrofit communities that are complete- where homes, workplaces, amenities, and services are close to each other and accessible without a car.
3.  Expand bike and e-bike share systems with free or discounted passes for low-income individuals.
4.  Electrify and expand first and last-mile services like shuttles, shared rides, and micromobility.
5.  Provide direct incentives for consumers to purchase EVs and/or install EV chargers.
6.  Develop educational tools and resources to support informed EV purchasing decisions.
7.  Support the transfer of used fleet EVs to LIDACs.
8.  Create programs for emissions testing in the five-county region and funds for emissions-related repairs or incentives towards EVs.
9.  Provide incentives for multifamily and commercial buildings to install EV chargers.
10. Support EV charging infrastructure for small to medium-size businesses in LIDACs.
11. Provide subsidies, direct incentives, and cooperative purchasing to improve purchasing power and electrify public and private sector fleets.
12. Provide incentives for alternate fuel heavy-duty vehicles and machinery.
13. Provide incentives for installing public, private, and non-profit fleet charging infrastructure, especially if chargers are also made available for public use.

## Electric Power

14. Provide incentives for rooftop residential and commercial solar.
15. Implement demand response technologies, like smart grids, virtual power plants, and demand response automation.

## Buildings

16. Develop programs and incentives to support electrification in new buildings.
17. Pilot programs for construction efficiency that go beyond the new international code (like Passive House).
18. Provide weatherization and efficiency retrofits and upgrades for existing buildings.
19. Provide subsidies and/or financing for electrification retrofits (including HVAC, space, and water heating) in existing buildings, especially in LIDACs.
20. Adopt and enforce updated international building and energy codes across the region.
21. Incentivize high-efficiency electric appliances in new residential buildings.
22. Develop programs that support facilities staff training, energy auditing, and improved operations for energy efficiency.
23. Develop programs to inventory, manage, and destroy high Global Warming Potential (GWP) refrigerants, beginning in City facilities and expanding to residents and businesses.

## Water, Waste, Materials

24. Capture methane at landfills, repurposing it for energy generation and alternative transportation fuel.
25. Improve processes at wastewater treatment facilities, including biodigesters to capture and repurpose methane, biosolids processing to reduce volume, and alternate uses for end products (like compost).

26. Create policies and programs to reduce construction and demolition waste through building reuse, deconstruction, and material diversion and reuse.
27. Develop water reuse programs to treat wastewater for use in non-potable applications.
28. Expand composting programs across the region.
29. Expand programs to reduce single-use plastics at restaurants, grocery stores, etc.

### Agriculture and Lands
30. Adopt land management and restoration best practices to increase carbon uptake and ecosystem resilience on public land. Expand these through partnerships with private landowners, including on agricultural land.
31. Incentivize anaerobic digesters to capture methane and generate renewable energy or produce renewable fuel.
32. Create programs to encourage regenerative agricultural practices and improved land management to increase natural systems carbon sequestration.

### Industry
33. Implement process gas abatement technology at semiconductor fabrication plants.
34. Build partnerships with industry and developers to support developing and using low-embodied carbon concrete.

In some cases, elements of proposed measures were incorporated into selected measures. In all cases, measures will be revisited and considered for inclusion in the Comprehensive Climate Action Plan (CCAP), due mid-2025.

# APPENDIX B: CSAG MEMBER ROSTER

| Name | Organization Represented |
|---|---|
| Larry Franklin | Black Lives Veggies |
| Eric Byrd | Black Professional Alliance |
| Michael Bueno | Environmental Defense Fund |
| Sydnee Landry | City of Austin Equity Office |
| Tyler Frost | City of Buda |
| Alex Vogt | City of San Marcos |
| Jée Willis | Environmental Defense Fund |
| Hayden Payne | Festival Beach Food Forest |
| Jodi Lane | Fruitful Commons |
| Alexandra Thompson | Hays County |
| Michelle Cohen | Hays County Commissioner Pct 2 |
| Lauren Woodward Stanley | JJ Seabrook NA, Stanley Studio |
| Lonny Stern | Movability |
| Cavan Merski | Pecan Street Inc. |
| Pedro Hernandez | PODER |
| Kaiba White | Public Citizen |
| Ben Thomas | Environmental Defense Fund |
| Cyrus Reed | Sierra Club, Lone Star Chapter |
| Tatianna Cannon | Solar Austin |
| Liz John | SPEER |
| Nicole Thompson | Sustainable Food Center |
| Andrew Robison | TEPRI |
| Patrice Parsons | Texas Solar Energy Society |
| Brandi Clark Burton | The Austin Common, EcoNetworking |
| Andrew Smiley | TreeFolks |
| Janis Bookout | TxETRA, Earth Day Austin, CRT |
| Dev Niyogi | University of Texas at Austin |
| Jim Walker | University of Texas at Austin |
| Peter Wall | Yellow Bike |
| Maia Draper | Environmental Defense Fund |
| Destiny Brown | Austin Area Urban League |
| Charlotte Davis | Joint Sustainability Committee |
| Elizabeth Munger | Lone Star Clean Fuels Alliance |
| Dr. Larry Wallace Jr. | Black Men's Health Clinic |
| Julie Gutierrez | Lone Star Clean Fuel Alliance |
| Tisha Hood | Americorps - Public Health Member |
| Phillip Martin | Environmental Defense Fund |
| Martin Luecke | Windsor Park NA Climate Committee |
| Kiounis Williams | Black Men's Health Clinic |

# APPENDIX C: COMMUNITY SURVEY SUMMARY

**Goals:**

Assess community priorities and gather data on public support for GHG reduction measures across sectors. This goal was achieved by reviewing and categorizing comments for each sector and analyzing the number of selections each measure received.

Indirect Goal: Educate regional community members on the CPRG process. This goal was achieved through the sharing of information throughout and accompanying the survey.

**Description:**

The community survey was available on the CPRG webpage for 21 days, from January 14 through February 4, 2024. The survey contained options for GHG reduction measures in the Austin-Round Rock-Georgetown region, organized into sectors, including Transportation Demand and Active Transportation, Electric Vehicles, Electric Power and Industry, Buildings, Waste Water and Sustainable Materials, and Agriculture and Carbon Removal. In each sector, participants were encouraged to select the top 2-3 measures and provide comments by sector or about the overall process.

**Engagement:**

The following strategies were pursued to increase project engagement, especially with LIDACs and in project areas outside of Austin. Strategies utilized digital and in-person methodologies to increase accessibility and honor diverse engagement style preferences.

- The public survey and open house event were promoted through four posts by the Office of Sustainability on social media and through the office's newsletter.
- Members of the Community and Stakeholder Advisory Group were encouraged to complete and share the survey. As non-municipal entities, this group of community members, organizations, and stakeholders have a unique position and following. Their sharing of the community survey supported engagement with LIDACs.
- Regional staff members collaborating on the CPRG process were encouraged to share the survey with relevant CBOs, staff members, and mailing lists in their areas.
- An open house was held to encourage public participation in the CPRG process. At this event, tablets and QR codes were provided to complete the survey.
- Flyers were distributed at recreation centers and coffee shops throughout the Austin area to promote the open house.

## Responses

In the 21 days the survey was active, 146 responses were received. Of these, seven responses from people who chose to include a zip code were from within the region but outside of Austin (4.7%). Four responses were recorded outside of the planning area (2.7%).

**Organizations Represented:**

Twenty-five organizations reported completing the survey:

- Travis County
- St Edward's University
- Black Lives Veggies
- City of Georgetown
- The Shyft Group
- Health Career Collaborative
- Central Texas Seed Savers
- Farm & City
- Movability
- Festival Beach Food Forest
- University of Texas
- Hays County
- Terra Lumina Consulting
- Ernst & Young

- Solar Austin, Citizens Climate Lobby
- Austin Energy
- Austin Cooperative Business Association
- Austin Regional Clinic
- George Washington Carver Museum
- PODER
- The Museum of Human Achievement
- Voltera
- TrueBlueGreen
- Center for Maximum Potential Building Systems
- City of Austin

## Survey Comment Analysis

Following survey close, comments and votes from each sector were reviewed. The responses were also analyzed for common and recurring themes using OpenAI's ChatGPT-4 Large Language Model. ChatGPT was prompted to score the measure 1-10 points based on the level of support it is likely to receive based on comments. Following the ChatGPT score, further qualitative analysis was applied to understand how comments from the community survey connected to each measure.

**Implement and fund Transportation Demand management programs: 7.5-8 points**
- The average level of support for this measure was graded 7.5 to 8 points, indicating strong community interest in improving transportation and reducing car dependency as part of the PCAP. One respondent stated, "While we need better planning to minimize sprawl and eliminate car dependency, those seem like long-term solutions that won't help with traffic-related problems in the short term. Incentivizing and promoting transportation demand management will help immediately, along with significantly increasing bus and shuttle service and SAFE walking and biking infrastructure." This highlights the desire for safer and more accessible biking and walking infrastructure to encourage active transportation modes while shifting away from carbon-intensive modes of transportation on broader timelines.

**Encourage and subsidize R99 availability in the Central Texas marketplace through subsidies to offset incremental costs and a regional coalition purchasing cooperative: 6 points**
- The level of support for encouraging and subsidizing R99 availability is moderate and varies based on individual perspectives and understanding of the technology. Many respondents prioritized aspects of transportation and air quality improvements, indicating thematic, though not direct support for this measure. The measure may need further evaluation and outreach to address concerns and build stronger support and understanding among community members.

**Install community solar and battery storage: 7 points**
- The overall level of support for the measure based on the comments provided is 7 out of 10. This score indicates a generally positive reception and support for the installation of community solar and battery

storage, focusing on renewable energy, grid resilience, and transitioning away from fossil fuels. Additional suggestions and concerns related to education, grid improvements, and the need for just transitions impacted the overall score and emphasized concerns to address in project implementation.

**Fund and implement holistic building-wide upgrades to municipal buildings, including solar + battery storage: 8 points**

- The overall level of support for the measure is 8 out of 10. Many comments highlight the importance of retrofitting existing buildings, promoting energy efficiency, and reducing carbon emissions in the built environment. Comments such as, "I think weatherized batteries would reduce a lot of anxiety during intense hot and cold periods of the year." indicate support for resilience efforts, which this measure would benefit. However, some concerns about funding sources and accessibility were also raised, which may impact the overall score.

**Fund and implement water conservation programs: 9 points**

- Support for the measure based on survey comments is 9 out of 10. The comments strongly emphasize the importance of water conservation and sustainability in Austin, with many supporting various initiatives to reduce water and plastic waste and promote reuse. There is a strong consensus in favor of this measure.

**Fund and implement community-driven tree planting and forest restoration programs on underutilized land: 9 points**

- The level of support for the measure is 9 out of 10 based on the provided comments. Most comments express strong support for these programs and highlight their environmental benefits.

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**Reviewed Plans**

Austin Energy Resource Plan

Opportunity Bastrop County

CAMPO 2045 Regional Active Transportation Plan

CAPCOG Air Quality Plan

Austin Climate Equity Plan

2023 Austin Resource Recovery Comprehensive Plan

Our Buda Our Future 2024 Comprehensive Plan

Kyle 2030 Transportation Master Plan and Comprehensive Plan

City of Lakeway 2020 Comprehensive Plan

Aspire Pflugerville 2040 Comprehensive Plan

VisionSMTX Draft plan

Texas SIP-Approved Regulations Air Quality Implementation Plan

Travis County Climate Action Plan