US EPA Climate Pollution Reduction Grant Program (CPRG)

Priority Climate Action Plan

Salt River Pima-Maricopa Indian Community

April 1, 2024

Table of Contents

List of Tables

List of Figures

Key Definitions

AQP	Air Quality Program of SRPMIC
CCAP	Comprehensive Climate Action Plan
CDD	Community Development Department of SRPMIC
cfm	cubic feet per minute
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPRG	EPA's Climate Pollutant Reduction Grant Program
DOE	United States Department of Energy
eGRID	EPA's Emissions & Generation Resource Integrated Database
EI	emissions inventory
EPA	United States Environmental Protection Agency
EPNR	Environmental Protection & Natural Resources Division of SRPMIC
ERG	Eastern Research Group, Inc.
EV	electric vehicle
GHG	greenhouse gas
GWP	global warming potential
ICE	internal combustion engine
kW	kilowatt
kWh	kilowatt-hour
LFG	landfill gas
MDT	SPRMIC's PCAP Management & Development Team
MT	metric ton
$MTCO_2e$	metric ton of carbon dioxide equivalent
MW	megawatt
MWh	megawatt-hour
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standard
NEI	National Emissions Inventory
NO_x	nitrogen oxides
PCAP	Priority Climate Action Plan
$PM_{2.5}$	particulate matter with diameter less than 2.5 microns
PM_{10}	particulate matter with diameter less than 10 microns
PV	photovoltaic (solar panel)
QAPP	Quality Assurance Project Plan
RNG	renewable natural gas
SO_2	sulfur dioxide
SRP	Salt River Project (electric utility)
SRPMIC	Salt River Pima-Maricopa Indian Community
USDA	United States Department of Agriculture
VMT	vehicle miles traveled
VOCs	volatile organic compounds
ZEV	zero emission vehicle

1. INTRODUCTION

The Salt River Pima-Maricopa Indian Community (SRPMIC or Community) is a sovereign Tribe rooted in the vibrant metropolitan landscape of Phoenix, Arizona. Established by Executive Order on June 14, 1879, the SRPMIC encompasses 52,600 acres, with 19,000 acres dedicated to a natural preserve, embodying a unique blend of heritage and environmental significance. Bounded by the cities of Scottsdale, Tempe, Mesa, and Fountain Hills, the Community operates as a comprehensive government overseeing departments, programs, projects, and facilities. With a government democratically elected by Tribal members, including a President, Vice President, and a seven-member Tribal Council, the SRPMIC leadership exercises legal authority and responsibility to protect and enhance the welfare of its members within the Reservation's jurisdiction. This governance structure reflects a commitment to preserving both cultural heritage and the well-being of the Tribal community's 10,000+ members.

SRPMIC faces escalating challenges brought about by its proximity to the bustling Phoenix metropolitan region, which is home to over 4 million people. The rapid urban growth surrounding the Community, coupled with agricultural activities, mining operations, and unpaved roads, has given rise to critical air quality concerns. The relentless encroachment of major highways and thoroughfares like the Loop 101 Pima Freeway, Loop 202 Red Mountain Freeway, Beeline Highway, McDowell Road and McKellips Road, exacerbates the impact of mobile sources on air pollution within the Community.

Air pollution stemming from greenhouse gas (GHG) emissions poses a substantial challenge to the SRPMIC's overall wellbeing. Reductions in GHG emissions offer widespread benefits, including cost savings through decreased fuel, water, and electricity expenses. Furthermore, these reductions contribute to minimizing emissions of volatile organic compounds (VOCs) and nitrogen oxides (NO_X), both of which serve as precursors to ozone formation. Examples of this include the replacement of vehicles using fossil fuels and use of solar powered electricity generation. It is essential to note that SRPMIC currently falls short of meeting the National Ambient Air Quality Standard (NAAQS) for ozone. In the past three years alone, SRPMIC has experienced over 20 days annually where ozone levels exceeded the standard. By quantifying and actively reducing GHG emissions, ozone precursors can be addressed and ambient ozone levels lowered, significantly enhancing the health and well-being of the Community.

The Environmental Protection & Natural Resources Division (EPNR), which is housed under the Community Development Department (CDD), is responsible for safeguarding the Community's natural, biological, and archaeological resources. Within CDD-EPNR sits the Air Quality Program (AQP), which is charged with protecting the Community's airshed. From several air stations located throughout Tribal boundaries, AQP monitors for particulate matter and ozone; meets with local agencies to discuss air pollution status and strategies; and provides outreach to lessen pollution and the potential impacts to Community members' health. AQP has been in operation for over 20 years, and staff have a deep understanding of the Community's airshed, needs, and culture.

In pursuit of the SRPMIC's long-term development vision, balanced with a healthy ecosystem and elevating quality of life for Community members, AQP partnered with Eastern Research Group, Inc. (ERG) to formulate a Priority Climate Action Plan (PCAP). ERG provides a knowledgeable multidisciplinary team with expertise over an array of topics, including GHG emissions quantification, mitigation strategies, and climate action planning, with a 40-year track record of project-support success. Therefore, AQP and ERG are well-suited to lead in this collaborative effort.

This initiative aims to bolster investments in climate-efficient development, focusing on urgent near-term priorities that maximize community and environmental benefits, while reducing GHG emissions. The

PCAP represents the initial phase of a comprehensive climate action planning effort under the Climate Pollution Reduction Grant (CPRG) program, administered by the United States Environmental Protection Agency (EPA). By shaping the PCAP, the SRPMIC positions itself for CPRG Implementation Grant opportunities. Furthermore, the PCAP lays the foundation for a Comprehensive Climate Action Plan (CCAP), extending beyond immediate priorities to establish a framework for sustainable growth on the Reservation.

1.1 CPRG Overview

Securing funding under the CPRG program allowed the SRPMIC to be actively engaged in a two-phased approach to reduce GHG emissions and combat harmful air pollutants. In Phase 1, the Community is utilizing the granted funds to craft the PCAP, identifying near-term actions for subsequent implementation grants available in Phase 2. This initial step lays the groundwork for a more detailed CCAP, outlining long-term strategies for climate pollution reduction.

Recognizing the need for a PCAP and the importance of establishing baseline knowledge of the Community's current carbon footprint, the SRPMIC embarked on this process. This information has not been evaluated before and the development of the PCAP has not only enhanced the Tribe's understanding of current GHG emissions but has also identified priority measures for reducing GHG emissions. Additionally, it has facilitated the assessment of other potential benefits and engaged various stakeholders in a collaborative emissions reduction planning process, aligning with the Community's sustainable development goals.

After completing Phase 1, the CPRG program shifts to the Implementation Phase, offering competitive grants to participants from the Planning Phase. This implementation phase contains specific goals for Tribes (and other eligible applicants). These goals include:

1. Implementing ambitious measures that will achieve significant cumulative GHG reductions by 2030 and beyond;
2. Pursuing measures that will achieve significant community benefits (such as reduction of criteria air pollutants and hazardous air pollutants), particularly in low-income and disadvantaged communities;
3. Complementing other funding sources to maximize these GHG reductions and community benefits; and
4. Pursuing innovative policies and programs that are replicable and can be "scaled up" across multiple jurisdictions.

1.2 PCAP Overview

The SRPMIC's PCAP represents a proactive initiative aimed at defining the sources of climate pollutants impacting the SRPMIC and formulating robust measures for reducing climate pollution on the Reservation. The outcomes of this PCAP comprise an important first step in developing a CCAP that will ultimately bolster the Community's internal technical capacity, increase economic and climate resilience, and guide sustainable future development.

The SRPMIC PCAP includes the following required elements:

- A GHG Emissions Inventory (EI);
- Quantified GHG emission reductions for priority implementation measures;

- A benefits analysis for co-pollutants (such as criteria air pollutants and hazardous air pollutants); and
- A review of authority to implement the selected priority measures.

Developing the PCAP was a collaborative effort. AQP not only collaborated interdepartmentally, but also worked with other tribes, and external local, regional, and state agencies to discuss strategies and priority measures, and obtain data for the GHG EI. Additionally, the SRPMIC's internal capacity and expertise was expanded through contracting with ERG to aid in the analysis of priority measures and organization of the PCAP.

SRPMIC has regularly produced criteria pollutant EIs since 1998 but had not previously developed a GHG EI. After meeting with staff and consultants experienced with GHG EI development, 2022 was selected as the base year for the Community's first GHG EI. 2022 was chosen because it was after the COVID-19 virus restriction years (2020 and 2021) and is therefore a more accurate representation of "normal" conditions. The Community assessed the following emission categories in developing its GHG EI:

- Mobile Combustion;
- Stationary Combustion;
- Electricity Consumption;
- Solid Waste and Waste Generation;
- Agriculture & Land Management; and
- Urban Forestry.

The emissions data were gathered from direct contact with sources, the EPA NEI database, and State transportation data management systems. Emission calculation tools include standalone spreadsheets, EPA 2020 NEI Wagon Wheel Tool, and the EPA Tribal GHG Inventory Tool: Community Module.

SRPMIC faced several challenges in creating the GHG EI. The CPRG has very tight deliverable deadlines including those set for creating the Quality Assurance Project Plan (QAPP) and GHG EI. Since this was SRPMIC's first attempt at creating a GHG EI, staff did not have a blueprint for seeking the data needed to ensure its completion. Also, not having previously established relationships with certain data holders made it somewhat difficult to gather information from external sources.

EPA provided helpful tools and references in creating the GHG EI. The guidance documents, templates, webinars, and examples provided were essential in meeting the tight deadline for submitting the PCAP, which first required the completion of the GHG EI. Additionally, the online office hours, Q&A meetings, and having direct access to knowledgeable staff was beneficial.

The GHG EI, along with key input from engagement with stakeholders were used to identify ten priority GHG reduction measures for inclusion in this PCAP. SRPMIC worked closely with ERG to further develop these priority measures and collect additional information to serve as the basis of analyses to quantify GHG emission reductions. Due to the breadth of the scope and scale of the priority measures, ERG used a variety of approaches and tools to quantify both GHG emission reductions and other benefits, including criteria and hazardous air pollutant emission reductions. The specific approaches and tools used for each measure are described in Section 3.3.

1.3 Approach to Developing the PCAP

1.3.1 Stakeholder Engagement

Stakeholder engagement played a crucial role in shaping the development of the PCAP. The EPNR AQP fostered collaboration across departments, gathered input from Community members, and worked closely with other tribes and external local, regional, and state agencies to explore strategies and identify priority measures. Throughout the process, four stakeholder meetings were convened, providing a platform for valuable feedback and the dissemination of information gathering tools, such as the CPRG survey. Conceived by AQP, the CPRG survey addressed various topics, including climate change concerns, personal GHG reduction methods already employed, and additional recommendations for GHG reduction. The survey was distributed both electronically and in hardcopy format, ensuring accessibility to a broad audience.

The insights garnered from this survey played a pivotal role in shaping the PCAP and will continue to inform the forthcoming CCAP. The stakeholder meetings specifically engaged three major stakeholder groups: Community Farming Operations, Industrial & Landfill Operations, and Tribal members. Recognizing the importance of an inclusive approach, a more comprehensive stakeholder engagement process is planned for the development of the CCAP. The extended planning timeline for the CCAP allows ample opportunities to incorporate Tribal member goals and feedback, enriching the vision and ensuring a more inclusive and impactful plan.

1.3.2 GHG Emissions Inventory

The SRPMIC's PCAP was largely informed by the GHG EI for the SRPMIC and other near-term priorities for the Community. Prior to any GHG EI data collection, the EPNR AQP developed a QAPP which defines the handling of environmental information associated with the project. The QAPP for the SRPMIC GHG EI, approved September 19, 2023, describes the necessary quality assurance and quality control requirements and technical activities to ensure the baseline GHG inventory and emissions reduction calculations are reliable for the PCAP planning process.

The GHG EI developed for the PCAP covers the SRPMIC physical boundary and incorporates major GHG emission sectors and sources identified in the EPA's Tribal GHG Inventory Tool: Community Module Version 2023.4. This tool, developed by the EPA, aids tribes in assessing and estimating GHG emissions within their communities, allowing users to apply specific local data or default data provided by federal agencies and other sources. The default data includes emission factors and assumptions needed for calculating emissions according to the Global Protocol for Community-Scale GHG Emissions (GPC) version 1.1 (World Resources Institute 2021). The GPC is particularly well-suited for developing GHG EIs for jurisdictions with distinct geographical boundaries smaller than states or nations, making it relevant for many tribal governments. The GHG EI integrates data from tribal government operations and estimates of emissions sources not directly controlled by the Tribal government and is summarized in Section 3.1.

1.3.3 Priority GHG Reduction Measure Selection and Analysis

The priority GHG emission reduction measures in the SRPMIC PCAP lead to emissions reductions from infrastructure projects directly implementable by the SRPMIC Tribal government. In line with the Tribe's dedication to enhancing the quality of life through physical improvements, SRPMIC has outlined plans for ten various measures aimed at reducing GHG emissions. These measures include:

- Fleet vehicle electrification;
- Electric vehicle (EV) charging stations;

- Home energy assessments;
- Building retrofits;
- Electric/battery powered lawn and garden equipment voucher program;
- Solar photovoltaic (PV) parking canopy installations;
- Landfill gas reuse;
- Tree planting program;
- Land buy-back program; and
- Improved soil management.

The priority measures were selected based on their ability to mitigate GHG emissions and other pollutants, improving system efficiency, and better utilizing resources. Infrastructure projects such as those proposed in the PCAP provide significant benefit to SRPMIC by preserving essential natural resources and promoting public health. The EPNR AQP will develop, track, and report the progress of implementing each measure.

SRPMIC worked with ERG to define the basic premise and major assumptions for each measure. ERG then developed a list of more detailed information required to analyze each measure and worked with SRPMIC to collect that information and determine the following elements:

- Estimates of GHG and other pollutant emissions reductions;
- Implementing agency or agencies;
- Review of authority to implement;
- Implementation schedule and milestones;
- Geographic location;
- Funding sources;
- Metrics for tracking progress;
- Cost estimates (where available); and
- Benefits analysis.

Given the breadth of topics represented in the list of priority measures, ERG engaged multiple members of its staff of engineers and scientists with specific knowledge and expertise to analyze each measure. Based on their expertise and knowledge of sector specific tools and resources, a variety of tools and approaches were used to develop estimates of the GHG and other air pollutant emission reductions, as well as other benefits for each measure. More specific information on these analyses and the tools and approaches used for each measure are included in Section 3.3. With input from SRPMIC, ERG staff also made informed assumptions on key criteria for each measure to facilitate the analyses and researched and developed tailored information for the more qualitative elements included for each measure. These elements are also discussed and summarized in Section 3.3.

1.4 Scope of the PCAP

The scope of the PCAP includes the geographic boundary of the SRPMIC. The SRPMIC occupies approximately 53,000 acres within Maricopa County, AZ. Figure 1 shows a map of the SRPMIC boundaries.

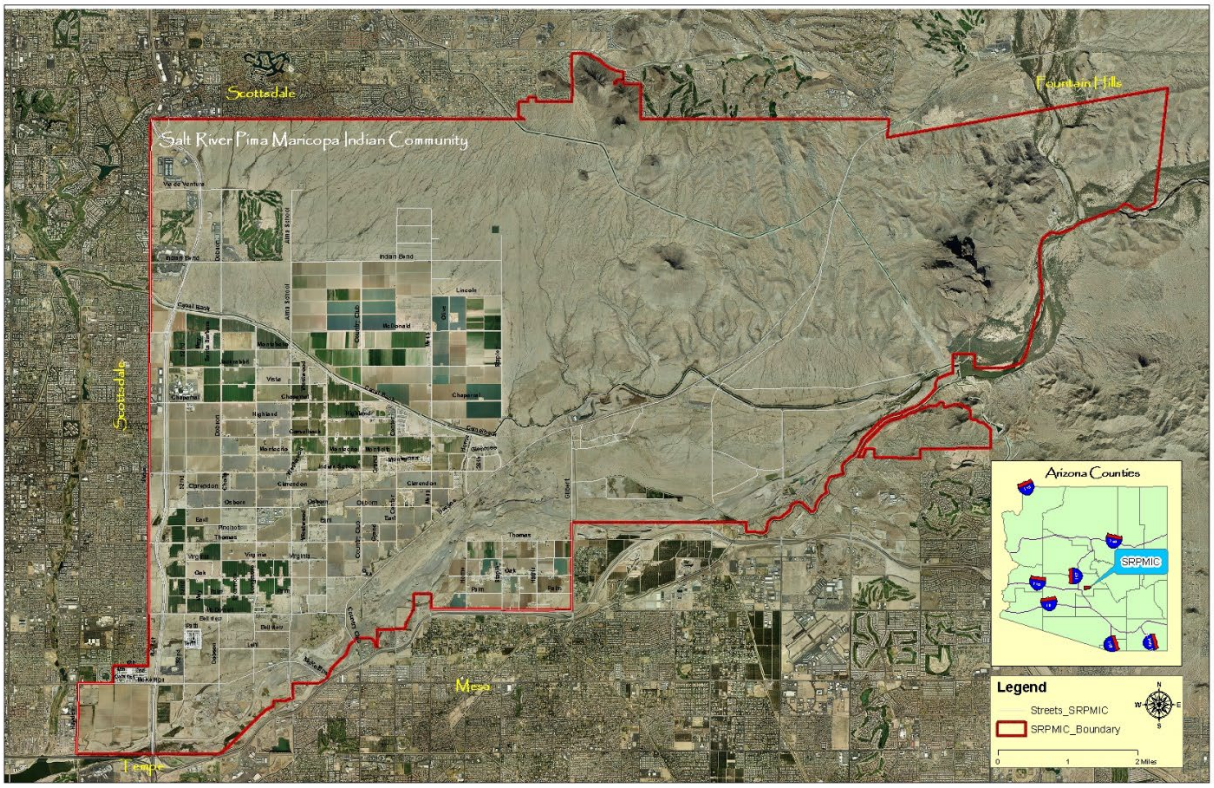

Figure 1. SRPMIC Boundaries

The SRPMIC oversees key infrastructure sectors, including water, solid waste, government buildings, and fleet vehicles. Within the SRPMIC, residences and businesses consume energy and water, generate waste, wastewater, and vehicle trips. Electricity and natural gas services are provided by Salt River Project (SRP). The Community's GHG EI covers the SRPMIC physical boundary as shown in Figure 1 and includes major GHG emission sectors to be prioritized in the PCAP. The PCAP prioritizes the following sectors for emission reduction efforts:

- Mobile Combustion;
- Stationary Combustion;
- Electricity Consumption;
- Solid Waste and Waste Generation;
- Agriculture & Land Management; and
- Urban Forestry.

All phases of implementing the priority GHG reduction measures will be overseen by the SRPMIC and their consultants. This focused approach aims to address emissions in key areas and underscores the Community's commitment to sustainable practices within its infrastructure management.

2. TRIBAL ORGANIZATION AND CONSIDERATIONS

Several groups played direct or indirect roles in developing the PCAP. Individuals and groups either fall under "PCAP Management & Development Team (MDT)" or "collaborators." The PCAP MDT played a direct role in the development of the PCAP, while the many collaborators played a more indirect role. The PCAP MDT consists of the CDD-EPNR AQP, CDD Management, and ERG. The PCAP MDT worked cohesively to determine objectives, develop measures, discuss special considerations, and concur on the PCAP framework.

Several entities are considered "collaborators" on this PCAP as their ideas, feedback, and various resources were valuable to the development of this document.

2.1 Tribal PCAP Management and Development Team

The table below highlights the members of the PCAP MDT. All members had a direct role in drafting the PCAP and their roles are highlighted in Table 1.

Table 1. PCAP Management and Development Team Members and Roles

SRPMIC CDD Staff	**Role**
Ben Davis	• PCAP development and review • Data gathering • Priority measures input • GHG EI development • Stakeholder facilitation
Chris Horan	• PCAP review and approval • Priority measures input • Data gathering
Gina Mason	• PCAP development and review • Data gathering • Priority measures input • Document review and approval • Stakeholder facilitation
Zonnie Olivas	• PCAP development and review • Data gathering • Stakeholder facilitation • Community outreach design
ERG	**Role**
Multiple Staff	• Priority GHG reduction measures research and analysis • Summaries of analyses for priority measures in Section 3.3 • PCAP development and review

Although the Tribal Council was not directly involved in drafting the PCAP, the Tribal Council and other Tribal Leadership staff were aware of CDD-EPNR staff intentions in developing the PCAP, and the desire to make a difference in climate pollution impacts within the Community. Staff will work collaboratively with the Tribal Council to implement measures brought forth in this document as the Tribal Council has ultimate authority over the implementation of any measures highlighted in the SRPMIC's PCAP.

2.2 Special Considerations for Tribal Entities

2.2.1 Tribal Council

As stated above, the SRPMIC Tribal Council is the ultimate authority on anything that is implemented through the guidance of the PCAP. Although changes in Tribal Council members can bring differing opinions and desires, the Tribal Council has a history of being able to prioritize the environment while still supporting development. In past years, Tribal Leadership has shown support for energy efficiency improvements, and renewable and sustainable energy projects within SRPMIC. When developing priority measures, the PCAP MDT strove to put forth measures the Tribal Council would support.

2.2.2 Authority/Control Over Land

Within the Reservation boundaries lie lands that are either Tribally-owned or allotted. Tribally-owned lands may be designated for use by the Tribal Government, held in preserve as natural land areas, or leased. Allotted land is land that is owned by one or more Community members. When considering what priority measures to implement, this was a key consideration. The PCAP MDT wanted to focus direct implementation measures solely on Tribally-owned land that is not leased. Although the Tribal Council has a certain amount of authority over all lands through ordinances and lease agreements, this type of land carries the path of least resistance for implementing priority measures.

Indirect implementation measures that are voluntary in nature, such as participation in the voucher program or residential tree planting, target allotted lands.

2.2.3 Community Member Input

The PCAP MDT garnered input through a survey aimed at understanding what climate pollution reduction measures are important to Community members and what energy efficient measures Community members are already doing. The survey was used to gauge the climate action priorities of Community members and give them a voice in the PCAP.

2.2.4 Overall Feasibility

The overall feasibility of implementing climate pollution reduction measures was a major consideration. When deciding upon priority measures the PCAP MDT had to determine whether or not the Tribe had the resources and/or capacity to properly execute each measure. The PCAP MDT also considered whether or not the implementation measure was cost-effective and most importantly, whether or not there would be buy-in from the Community to implement the measures proposed.

2.2.5 Sector-Specific Goals

The PCAP MDT first took a high-level approach and looked at where the Community sat from an air quality perspective, and how emissions impact the Community. Understanding the various pollution sources and analyzing the GHG emissions data helped to inform decisions regarding which implementation measures to put forth in the PCAP. In addition, certain measures were centered on goals from SRPMIC departments other than CDD. These departments are listed as collaborators within the document.

2.2.6 Cultural Restrictions

Cultural sensitivities were a key consideration for SRPMIC when selecting and evaluating priority GHG emission reduction measures for inclusion in the PCAP. For example, the Phoenix Metropolitan Area

receives an average of nearly 4,000 hours of sunshine per year, which would make solar farms an ideal way to reduce GHG and other pollutant emissions. Despite this, AQP thought solar farms to be a suboptimal choice for SRPMIC from a cultural perspective. Red Mountain is a sacred mountain that lies within Tribal boundaries, where Community members still conduct traditional practices. Due to its cultural relevance, Community members should always have sight of Red Mountain no matter where they live within the Reservation, and ordinances have been put in place to ensure this is adhered to. Given this, AQP chose not to propose solar farming for fear of hindering sightlines to Red Mountain in some fashion.

2.3 Collaborations

The development of the PCAP has been a collaborative effort. Through stakeholder engagement and connecting to key information holders, the PCAP MDT received valuable data and insight to assist in development of the PCAP. Collaborations involved representatives from different SRPMIC Government departments, identified stakeholders, local and state government, and EPA Region IX.

It is important to involve different Tribal Government departments with different expertise and knowledge, to have a common goal and be able to work to identify strategies to meet that goal. In order to address the Community's climate pollution challenges and identify measures that could be implemented to benefit the overall Community, several SRPMIC departments provided sector-specific data and guidance so that the PCAP would be a valuable tool for the Community. The PCAP MDT consulted with the following SRPMIC departments:

- Department of Transportation (DOT)
- Public Works (PW)
- Engineering & Construction Services (ECS)

CDD-EPNR conducted meaningful stakeholder engagement throughout the process of developing the PCAP. The PCAP MDT held meetings, conducted presentations, and disseminated written information and surveys. The stakeholders listed below provided much needed data, input, and resources that were helpful to the PCAP MDT in making informed decisions when prioritizing measures.

- Farming operations
- Salt River Landfill
- SRP
- Community members
- SRPMIC Land Management Board

Because the airshed does not have physical boundaries, it is important to discuss air quality issues and efforts statewide. The SRPMIC participated in biweekly interagency coordination meetings led by staff from the Arizona Governor's Office. Participating entities included SRPMIC, Maricopa Association of Governments, Pima County Department of Environmental Quality, Navajo Nation, Hopi Tribe, San Carlos Apache Tribe, Gila River Indian Community, Northern Arizona University, and Arizona State University. In these meetings, agencies were able to discuss airshed issues and strategies to control emissions through implementation ideas, share data, disseminate information related to additional climate pollution reduction funding sources, highlight planning progress, and assist entities with roadblocks hindering the progression of the PCAP being completed.

The EPA always serves as a partner alongside tribes to lend technical assistance and guidance to ensure a timely completion of any grant-related deliverables. The EPA provided many helpful tools to tribes to assist with the development of the PCAP. These tools include, but are not limited to:

- Informational Webinars
- Q&A sessions and Office Hours
- QAPP Template
- GHG Inventory Tool
- PCAP Outline

EPA Region IX staff were helpful in providing CDD-EPNR with links to all tools and the guidance needed to properly use them, ensuring CDD-EPNR was cognizant of all CPRG-related changes and timelines, and they were available to answer any questions.

3. PCAP ELEMENTS

3.1 Greenhouse Gas Emissions Inventory

The Community assessed the following emission categories in developing its GHG EI; Mobile Combustion, Stationary Combustion, Electricity Consumption, Solid Waste and Waste Generation, Agriculture & Land Management, and Urban Forestry. Since wastewater is not processed in the Community, it was not included in the GHG EI. After meeting with staff and consultants experienced with GHG EI development, 2022 was determined to be the base year for the Community's first GHG EI. 2022 was chosen because it was after the COVID-19 virus restriction years (2020 and 2021). The emission data was gathered by using direct surveying of sources, the EPA NEI database, and State transportation data management systems.

3.1.1 Total GHG Emissions

Table 2 presents a summary of total GHG emissions from the Community. Mobile sources represent the largest category of GHG emissions sources. Emissions from electricity consumption was the second largest category. The third largest source of emissions was from solid waste.

Table 2. Total GHG Emissions by Source ($MTCO_2e$)

	CO_2	CH_4	N_2O	Total
Mobile Combustion	467,172.70	736.37	2,268.47	470,177.54
Stationary Combustion	1,356.02	3.33	0.74	1,360.08
Electricity Consumption	97,354.10	172.94	220.33	97,747.36
Solid Waste		51,557.00		51,557.00
Agriculture & Land Management			3,752.42	3,752.42
Urban Forestry	-928.91			-928.91
Total (Gross Emissions)	565,882.82	52,469.64	6,241.96	624,594.40
Total (Net Emissions)	564,953.91	52,469.64	6,241.96	623,665.49

3.1.2 Mobile Combustion

To estimate 2022 emissions from mobile combustion, SRPMIC first calculated total vehicle miles traveled (VMT) by measuring road lengths through the Community and using the 2022 average daily traffic (ADT) data for those road segments. This information was found at the Arizona Department of Transportation's (ADOT) Transportation Data Management System website.[1] To determine on-road GHG Mobile emissions SRPMIC developed a ratio of all Maricopa County 2020 Annual VMT for SRPMIC calculate 2022 Annual VMT.[2,3] The SRPMIC on-road emissions were then estimated by multiplying the Maricopa County

[1] ADOT Transportation Data Management System website (https://adot.public.ms2soft.com/tcds/tsearch.asp?loc=Adot&mod=TCDS).

[2] Note: The Maricopa County on-road emissions are from the 2020 NEI database and are reported in units of tons. This is the most recent on-road emissions data available.

[3] Source of 2020 Annual County VMT Data: EPA 2020 NEI Wagon Wheel Tool (https://gaftp.epa.gov/air/nei/2020/doc/supporting_data/nonpoint/Wagon%20Wheel%202020%20v7%20Final%20-%20SLT%20Inputs.zip

emissions by the SRPMIC ratio. Note that non-road emissions were not included in this version of SRPMIC's GHG EI. Table 3 presents a summary of GHG emissions from on-road mobile sources.

Table 3. On-road Mobile Greenhouse Gas Emissions ($MTCO_2e$)

	CO_2	CH_4	N_2O	Total
Maricopa County	19,216,584.23	30,289.64	93,310.69	19,340,184.56
SRPMIC	467,172.70	736.37	2,268.47	470,177.54

3.1.3 Stationary Combustion

SRPMIC gathered data from stationary combustion sources, which includes backup generators and boilers. The two types of fuels used by these sources were natural gas and diesel. SRPMIC was unable to collect any data related to residential or private commercial use of fossil fuels in stationary units. SRPMIC hopes to obtain this missing data as it works to improve its inventory in future iterations.

SRPMIC entered usage data into the Tribal GHG Inventory Tool: Community Module (version 2023.4) and the emissions are shown in Table 4.

Table 4. Stationary Combustion Emissions by Fuel Type ($MTCO_2e$)

Fuel Type	CO_2	CH_4	N_2O	Total
Natural Gas	1,320.98	3.29	0.66	1,324.93
Diesel	35.04	0.04	0.08	35.15
Total Emission Stationary Units	1,356.02	3.33	0.74	1,360.08

3.1.4 Electricity Consumption

SRP is the only electrical utility provider for the Community. SRP provided the total grid electricity data usage for 2022 shown in Table 5. SRP categorized the data into residential and non-residential. SRPMIC entered the usage data into the Tribal GHG Inventory Tool: Community (version 2023.4). Additionally, SRPMIC used the AZNM eGRID sub-region information to estimate location-based emissions as summarized in Table 6.

Table 5. SRPMIC Grid Electrical Usage 2022

	Usage AZNM eGRID Sub-region (kWh)
Residential	25,653,165
Non-residential	236,199,421
Total	261,852,586

Table 6. Electrical Grid Emissions by Sector ($MTCO_2e$)

	CO_2	CH_4	N_2O	Total
Residential	9,537.58	16.94	21.58	9,576.11
Commercial/Institutional	87,816.51	155.99	198.74	88,171.25
Industrial	-	-	-	-

	CO_2	CH_4	N_2O	Total
Energy Generation	-	-	-	-
Total Emissions from Electricity Use	97,354.10	172.94	20.33	97,747.36

3.1.5 Solid Waste

SRPMIC gathered solid waste data from the active Salt River Landfill. There are also two closed landfills with SRPMIC's boundaries (both closed since 1993) whose emissions fall below the threshold for EPA reporting. Emissions data for the closed landfills are not available. SRPMIC entered usage data into the Tribal GHG Inventory Tool: Community Module (version 2023.4). Landfill data and emissions are shown in Table 7.

Table 7. Landfill Data and Emissions

	LFG Collected (MMSCF/yr)	Fraction of CH_4 in LFG	LFG Collection Efficiency	MT CH_4	MT CH_4/ MMSCF	GWP	$MTCO_2e$
Salt River Landfill	757.50	41%	75%	19.13	1,841	28	51,557.00

3.1.6 Agriculture & Land Management

SRPMIC gathered data from all commercial farmers in the Community. SRPMIC entered usage data into the Tribal GHG Inventory Tool: Community Module (version 2023.4) and the output is show in Table 8.

Table 8. Fertilizer Application Emissions ($MTCO_2e$)

	Synthetic N_2O	Organic N_2O	Manure N_2O	TOTAL
Residential				
Commercial/Institutional	3,700.57	51.84	0	3,752.42
Industrial				
Energy Generation				
Total Emissions from Fertilizer Application (MTCO2e)	3,700.57	51.84	0	3,752.42

3.1.7 Urban Forestry

SRPMIC used mapping tools to determine tree cover within urban Community areas. SRPMIC entered usage data into the Tribal GHG Inventory Tool: Community Module (version 2023.4). Carbon sequestered by the existing tree cover is summarized in Table 9.

Table 9. Carbon Sequestered ($MTCO_2e$)

	Carbon Sequestration	TOTAL
Residential	777.15	777.15
Commercial/Institutional	148.48	148.48

	Carbon Sequestration	TOTAL
Industrial	3.29	3.29
Energy Generation	-	-
Total Sequestration from Urban Trees ($MTCO_2e$)	928.91	928.91

3.2 Non-GHG Emissions Inventory

In addition to developing a new inventory of GHG emissions, SRPMIC also utilized its 2016 inventory of other (non-GHG) air pollutants as the basis for assessing the co-benefits of the priority GHG reduction measures included in this PCAP. This non-GHG emissions inventory includes emissions of carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), and volatile organic compounds (VOCs) from point sources, non-point sources. Similar to the GHG EI, this inventory of other non-GHG pollutants includes emissions from sources both within the control of SRPMIC and outside of SRPMIC's control. A summary of SRPMIC's 2016 inventory of these pollutants is presented in Table 10.

Table 10. Summary of 2016 Non-GHG Emissions (metric tons*)

	Point Source Emissions	Non-Point Source Emissions	On-Road Emissions	Total Non-GHG Emissions
CO	135.01	0	5,295.88	**5,430.89**
NO_x	161.07	0	808.21	**969.28**
SO_2	13.23	0	2.70	**15.93**
VOCs	88.36	41.30	483.71	**613.37**
PM_{10}	101.35	0	58.70	**160.05**
$PM_{2.5}$	4.77	0	23.96	**28.73**

* Converted from short tons as reported in the original 2016 inventory summary.

3.3 GHG Reduction Measures

Based on the stakeholder engagement described in Section 1, the Tribal considerations described in Section 2, and informed by the GHG EI summarized in Section 3.1, SRPMIC selected the following priority GHG reduction measures for inclusion in this PCAP:

- Fleet vehicle electrification;
- EV charging stations;
- Home energy assessments;
- Building retrofits;
- Electric/battery powered lawn and garden equipment voucher program;
- PV parking canopy installations;
- Landfill gas reuse;
- Tree planting program;
- Land buy-back program; and
- Improved soil management.

Through a collaborative process of data requests and collection with SRPMIC, ERG analyzed a variety of key elements for each of these measures which are summarized in the following sections.

3.3.1 Fleet Vehicle Electrification

Sector

Mobile Combustion

Description

SRPMIC currently owns and operates 683 internal combustion engine (ICE) on-road vehicles ranging from light-duty pickup trucks and passenger cars to street sweepers and school buses. SRPMIC also owns 152 ICE non-road vehicles, including golf carts, all-terrain vehicles/utility terrain vehicles (ATVs/UTVs), backhoes, mowers, and forklifts. This measure aims to replace a portion of SRPMIC's on-road and non-road vehicle fleets with all-electric zero emission vehicle (ZEV) alternatives. In doing so, SRPMIC will eliminate GHG and other pollutant emissions produced by its fleet vehicles.

In a Fleet Electrification Assessment previously completed in 2022, SRPMIC identified 326 on-road vehicles and 85 non-road vehicles with potential ZEV replacements. Of these identified vehicles, SRPMIC intends to replace 64 of the eligible on-road vehicles with ZEVs and 26 of the eligible non-road vehicles with ZEVs over the next 15 years. The criteria used for determining the best vehicles for replacement were based on vehicle age and vehicle replacement cost-effectiveness. Details of the proposed vehicles for future replacement are provided in Table 11.

Table 11. Suggested Replacement Vehicle Types and Counts

Vehicle Type	Number of Vehicles
On-Road	
Passenger Cars	48
Passenger Trucks	16
Subtotal:	**64**
Non-Road	
Golf Cart	2
ATV/UTV	18
Forklift	1
Mower	3
Backhoe	2
Subtotal:	**26**
Total (On-Road and Non-Road):	**90**

SRPMIC utilized vehicle type, model year, body type, annual mileage, fuel efficiency, fuel type, and vehicle retirement criteria data as inputs into Argonne National Laboratory's Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) Tool[4] to determine the estimated reduction of GHG and other pollutant emissions resulting from the replacement of existing on-road and non-road vehicles with EVs. The AFLEET model outputs account for both decreased fossil fuel use and increased grid electricity use required for EV charging.

[4] https://afleet.es.anl.gov/home/

Estimate of Annual GHG and Other Pollutant Emissions Reductions Upon Full Implementation of Measure

Table 12 shows the total estimated annual GHG and other pollutant emissions reductions associated with transitioning 48 passenger cars and 16 passenger trucks from the SRPMIC on-road fleet at the completion of the 15-year transition period.

Table 12. Total Annual Emissions Reductions Resulting from Full Implementation of On-Road Fleet Vehicle Electrification

Pollutant	Estimated Annual Emission Reductions (metric tons)
GHGs[5]	
CO_2	N/A
CH_4	N/A
N_2O	N/A
CO_2e	138.45
Other Pollutants	
CO	2.42
NO_x	0.23
SO_2	<0.01
VOCs	0.05
PM_{10}	<0.01
$PM_{2.5}$	<0.01

Table 13 shows the total estimated annual GHG and other pollutant emissions reductions associated with transitioning selected non-road vehicles from the SRPMIC fleet at the completion of the 15-year transition period.

Table 13. Total Annual Emissions Reductions Resulting from Full Implementation of Non-Road Fleet Vehicle Electrification

Pollutant	Estimated Annual Emission Reductions (metric tons)
GHGs[6]	
CO_2	N/A
CH_4	N/A
N_2O	N/A
CO_2e	146.57

[5] The AFLEET tool used for these calculations does not provide a breakout of individual GHG emissions and instead presents total GHG emissions reductions in units of CO_2 equivalent.

[6] Ibid.

Pollutant	Estimated Annual Emission Reductions (metric tons)
Other Pollutants	
CO	14.14
NO_x	0.93
SO_2	<0.01
VOCs	0.76
PM_{10}	0.04
$PM_{2.5}$	0.05

Implementing Agency or Agencies

As owners of the on-road and non-road vehicles, this measure assumes that SRPMIC will be the implementing agency, mainly utilizing DOT staff. SRPMIC can procure electric vehicle alternatives through standard vehicle procurement practices or use third-party vendors to assist with procurement of ZEV alternatives.

Review of Authority to Implement

SRPMIC holds jurisdiction over all lands within the exterior boundaries of the Reservation for purposes of administering items set forth within the Community's Constitution and Code of Ordinances. In this role, SRPMIC has the authority to implement this measure to achieve both environmental and human health benefits.

Implementation Schedule and Milestones

For the 90 total vehicles included in this measure, SRPMIC intends to complete the transition to ZEVs for over a 15-year period. Table 14 below shows the suggested transition schedule for on-road and non-road vehicles.

Table 14. EV Transition Schedule for On-road and Non-Road Vehicles

Transition year	On-road vehicles	Non-road vehicles
1	4	2
2	4	2
3	4	2
4	4	2
5	4	2
6	4	2
7	4	2
8	4	2
9	4	2
10	4	2
11	4	2
12	4	1
13	4	1
14	6	1
15	6	1

To meet this goal, SRPMIC can procure three passenger cars and one passenger truck per year and an additional passenger car and passenger truck in years 14 and 15. For non-road vehicles, SRPMIC will prioritize vehicle types that have the highest emissions per vehicle. This prioritization status would place ATVs/UTVs as priority status one, followed by forklifts, backhoes, golf carts, and finally mowers.

Geographic Location

This measure assumes that EVs purchased to replace on-road and non-road vehicles will be owned by SRPMIC and operated primarily within SRPMIC boundaries.

Funding Sources

SRPMIC is seeking funding for this measure from EPA's Phase 2 CPRG implementation grants. To supplement this possible grant funding, there are several additional federal funding sources available to SPRMIC to alleviate some of the financial burden of purchasing EVs. Below is a list of available financial incentive programs and tax credits for EVs.

- Diesel Emissions Reduction Act (DERA) – The EPA DERA grant program is a program created to reduce the emissions of diesel fleets through upgrades, retrofits, and replacement. In the 2022-2023 DERA grant program, approximately $7 million in funds were allocated to tribal communities. At the time of writing this report, the 2023-2024 DERA grant application window has not been announced.
- Clean School Bus (CSB) Grant and Rebate Program – The Bipartisan Infrastructure Law has allocated $5 billion over five years beginning in 2022 towards the EPA CSB grant and rebate programs. These programs aim to replace ICE school buses with zero-emission school buses. The EPA CSB Grant program is a competitive program where tribal communities are prioritized; the EPA CSB rebate program is a non-competitive program. At the time of writing this report, the 2023 programs are closed, and USEPA has yet to announce information on the 2024 programs.
- Commercial Clean Vehicle Credit – In late 2023, the IRS announced the Commercial Clean Vehicle Credit worth up to $40,000 per qualified vehicle. The tax credit is based on the vehicle's gross vehicle weight rating (GVWR). The maximum credit for qualified vehicles under 14,000 GVWR is $7,500 and the maximum credit for vehicles greater than 14,000 GVWR is $40,000.

Metrics for Tracking Progress

For this measure, the metrics used for tracking progress will include the number of EVs purchased each year and the number of ICE vehicles decommissioned or removed from the SRPMIC fleet each year.

Cost Estimates

The AFLEET model provides estimates for the average cost of on-road and non-road vehicles. SRPMIC expects to replace the existing ICE fleet vehicles at the end of their useful life so the true cost of upgrading to EVs is the incremental cost estimates between an EV and ICE vehicle of the same type. Based on the assumed distribution of vehicle types, the total estimated incremental costs for purchasing on-road and non-road EVs are $1,236,000 and $189,700, respectively, over the 15-year transition period. See Table 15 for a breakout of incremental costs per vehicle, by vehicle type.

Table 15. Incremental Cost Estimates per EV, by Vehicle Type

Vehicle Type	Estimated Incremental Cost per EV
Sedan (Passenger Car)	$10,000
Van (Passenger Car)	$30,000

Vehicle Type	Estimated Incremental Cost per EV
Light-Duty Pickup (Passenger Truck)	$33,000
SUV (Passenger Truck)	$10,000
Golf Cart	$100
ATV/UTV	$5,000
Forklift	$45,000
Mower	$1,500
Backhoe	$25,000

Benefits Analysis

In addition to the estimated annual emission reductions noted above, SRPMIC also anticipates the following potential benefits associated with the full implementation of this measure:

- **Cost Savings** – EVs are less expensive to operate than traditional ICE vehicles and have fewer maintenance requirements. EVs are more fuel-efficient than conventional gasoline- and diesel-powered vehicles on a miles-per-gallon equivalent basis and have fewer moving parts, which leads to less wear-and-tear and scheduled maintenance.
- **Health Impacts** – Replacing fossil fuel-based ICEs with EVs produces an immediate impact on the local air quality where the vehicles are used as there are no tailpipe emissions from EVs. This leads to immediate health benefits as drivers and Community members will no longer be exposed to tailpipe emissions.

3.3.2 Electric Vehicle (EV) Charging Stations

Sector

Mobile Combustion

Description

For this measure, SRPMIC intends to expand the network of publicly-available Level 2 EV chargers through the installation of eight additional Level 2 dual-port EV chargers at eight different locations. SPRMIC has 10 existing Level 2 chargers available with 19 total charge ports. Although the installation of additional Level 2 dual-port EV chargers does not directly reduce emissions, SRPMIC hopes that the increased availability of EV chargers will further promote the adoption and use of EVs across the Community.

Estimate of Annual GHG and Other Pollutant Emissions Reductions Upon Full Implementation of Measure

The GHG and other pollutant emissions reductions associated with installing publicly available Level 2 dual-port EV chargers assume that members of the Community will replace their fossil-fueled vehicles with EVs that utilize the new Level 2 dual-port chargers. The estimated benefits of this measure were calculated based on the number of EVs that newly installed chargers can support and the emission reductions from those EVs. Based on state-specific EV charging data from 2021, SRPMIC's analysis assumes an EV-to-charging port ratio of approximately 22 EVs.[7] SRPMIC identified eight proposed locations for the installation of new publicly-available Level 2 dual-port EV chargers. SRPMIC expects each location to have one Level 2 dual-port charger. Based on these assumptions, SRPMIC will have 16 charging ports available to support 352 EVs. For this analysis, the distribution of passenger cars, light-

[7] https://evadoption.com/ev-charging-stations-statistics/charging-stations-by-state/

duty pickup trucks, and SUVs was assumed to align with Arizona's current distribution of registered vehicles of these body types.

SRPMIC calculated annual GHG and other pollutants emission reductions using assumptions from the AFLEET tool and vehicle registration information in Arizona. These assumptions included annual mileage, fuel economy for gasoline and electric vehicles, and vehicle registration counts by body type. SRPMIC performed calculations to determine the total amount of gasoline consumed by the 352 vehicles the new Level 2 dual-port chargers can support, the emissions associated with that fuel use, and the additional emissions from increased grid electricity use for charging the new EVs. See Table 16 for the GHG and other pollutant reductions for this measure.

Table 16. Total Annual Emissions Reductions Resulting from Full Implementation of Level 2 EV Charger Installation

Pollutant	Estimated Annual Emission Reductions (metric tons)
GHGs[8]	
CO_2	N/A
CH_4	N/A
N_2O	N/A
CO_2e	2,035.40
Other Pollutants	
CO	6.8
NO_x	0.1
SO_2	0.01
VOCs	0.68
PM_{10}	0.17
$PM_{2.5}$	0.03

Implementing Agency or Agencies

This measure assumes that SRPMIC will be the implementing agency. SRPMIC can procure and install Level 2 dual-port EV chargers through standard procurement practices or use third-party vendors to procure and install Level 2 dual-port EV chargers.

Review of Authority to Implement

SRPMIC holds jurisdiction over all lands within the exterior boundaries of the Reservation for purposes of administering items set forth within the Community's Constitution and Code of Ordinances. In this role, SRPMIC has the authority to implement this measure to achieve both environmental and human health benefits.

[8] The AFLEET tool used for these calculations does not provide a breakout of individual GHG emissions and instead presents total GHG emissions reductions in units of CO_2 equivalent.

Implementation Schedule and Milestones

SRPMIC intends to install two Level 2 dual-port EV chargers (four total charging ports) per year over a four-year period. This proposed schedule will support the additional adoption and use of 88 new EVs per year.

There are several important milestones to consider when planning for EV charger installation. Typical projects can be broken out into five major milestones and can last several weeks to several months depending on the complexity of the project. The five phases for EV installation are: planning and site selection; permitting and approvals; equipment procurement and installation; testing and commissioning; and deployment and maintenance.

Geographic Location

All EV chargers will be installed on SRPMIC-owned land and will be accessible to the public. See Table 17 below for the proposed Level 2 dual-port EV charger installation locations.

Table 17. Locations of Proposed EV Chargers

Location Name	Location Address
Journey to Recovery Residential Treatment Facility	10869 E. McDowell Rd, Scottsdale 85256
Two Waters Complex Judicial Center/N. Parking Lot	10040 E. Osborn Rd., Scottsdale 85256
Salt River Community Building	1880 N. Longmore Rd, Scottsdale 85256
Lehi Community Building	1231 E. Oak St, Mesa 85203
Talking Stick Resort & Casino	9800 E. Talking Stick Way, Scottsdale 85256
Salt River Fields	7555 N. Pima Rd, Scottsdale 85258
Talking Stick Golf	9998 E. Talking Stick Way, Scottsdale 85256
Way of Life Facility	11725 E. Indian School Rd, Scottsdale 85256

Funding Sources

SRPMIC is seeking funding for this measure from EPA's Phase 2 CPRG implementation grants. To supplement this possible grant funding, there are several other potential funding sources available to SRPMIC that can mitigate the upfront costs associated with EV charger installation. The Joint Office of Energy and Transportation provides a complete list of EV charging incentive programs for tribal communities provided by the federal government. These programs include education and financial support ranging from technical assistance and workforce development training programs to direct financial assistance in the form of grants, rebates, and tax incentives.

Additionally, the White House Council on Native American Affairs developed the National Electric Vehicle (EV) Initiative for Tribal Nations to ensure that tribal communities are included in future development considerations for the buildout of a nationwide EV network. The ten federal agencies participating in this initiative will work with tribal communities and can assist SRPMIC in financial, design, and implementation capacities.

Metrics for Tracking Progress

SRPMIC will use the following metrics to track progress relative to this measure:

- Number of EV chargers installed each year;

- Total number of unique vehicles utilizing each EV charger on an annual basis;
- Annual kWh consumption for each installed EV charger;
- Annual utilization rate (percentage of total annual hours in use) for each installed EV charger; and
- Expected remaining life of each EV charger.

Cost Estimates

Procurement and installation of a single curbside Level 2 dual-port charger costs approximately $11,400, including $4,400 associated with the hardware and $7,000 for installation. Installing eight curbside Level 2 dual-port chargers will cost approximately $91,200.

Benefits Analysis

In addition to the estimated annual emission reductions noted above, SRPMIC also anticipates the following potential benefits associated with the full implementation of this measure:

- **Health impacts** – Replacing fossil fuel-based ICEs with EVs has an immediate impact on the local air quality where the vehicles are used as there are no tailpipe emissions from EVs. This leads to immediate health benefits as drivers and Community members will no longer be exposed to tailpipe emissions.
- **Workforce and economic development** – Level 2 dual-port chargers located at Community buildings, resorts, and casinos can incentivize and encourage EV users to visit those locations more frequently, driving additional economic activity and participation in Community-driven activities. Chargers available for use by the public (for a fee) could also provide a source of revenue for the Community.

3.3.3 Home Energy Assessments

Sector

Stationary Combustion

Description

Since late 2011, SRPMIC's electric utility provider, SRP, has offered home energy assessments to customers. Currently, SRP's Home Energy Assessment program offers personalized energy-saving advice to customers through virtual or in-home assessments. As part of the assessment, an SRP Energy Ambassador reviews appliances, lighting, and heating and cooling equipment; develops a customized assessment report; and provides access to rebates for appliance upgrades and other energy efficiency measures. Customers receive free energy-saving products including LED bulbs, efficient-flow showerheads, and faucet aerators, with installation provided for in-home assessments. The program does not assess insulation or building envelope, as is characteristic of a full energy audit.

In-home assessments are free for income-qualified customers who are eligible for the following programs: Economy Price Plan (EPP); Low-Income Home Energy Assistance Program (LIHEAP); Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); and Supplemental Nutrition Assistance Program (SNAP). For customers who are not eligible for these programs, the cost of the in-home assessment is $49.This measure seeks to facilitate free home energy assessments for SRPMIC residents. Since SRP, already has an existing program offering home energy assessments, this measure would seek to increase participation in the current SRP program through the following two strategies:

1. Establish an outreach campaign to educate residents about the program and coordinate logistics. As part of this strategy, SRPMIC would act as a liaison between residents and the electric utility to raise awareness and trust among the Community. SRPMIC staff might even be present (or offer to be present) during the home energy assessment. This would require hiring a new SRPMIC staff member or dedicating a fraction of an existing staff member's effort to the strategy.
2. Reimbursing participants who are not income-qualified for a free assessment.

SRPMIC estimates that no more than 5 percent of housing units in the Community have already received home energy assessments since the existing program's inception, corresponding to roughly 9 housing units per year. The goal of this measure is to double the annual participation in the program over a period of 5 years, resulting in an additional 45 home energy assessments relative to the status quo.

This measure only includes outreach and funding for the energy assessment itself; it does not cover the implementation of the energy conservation measures recommended by the Energy Ambassador (beyond the installation of the free energy-saving products listed above). The emissions reduction estimates included in Table 18 below are based on the assumption that homeowners will implement at least some of the measures recommended by the Energy Ambassador, resulting in an energy savings of approximately 5 percent per housing unit. The implementation timeline assumes that any energy conservation measures that the homeowner implements beyond the installation of the free energy-saving products would be completed within one year of the energy assessment.

Estimate of Annual GHG and Other Pollutant Emissions Reductions Upon Full Implementation of Measure

Table 18. Total Annual Emissions Reductions Resulting from Full Implementation of Home Energy Audits

Pollutant	Estimated Annual Emission Reductions (metric tons)
GHGs	
CO_2	16.45
CH_4	<0.01
N_2O	<0.01
CO_2e	16.51
Other Pollutants	
CO	<0.01
NO_x	0.01
SO_2	<0.01
VOCs	<0.01
PM_{10}	<0.01
$PM_{2.5}$	<0.01

Implementing Agency or Agencies

This measure would be implemented by SRPMIC staff within EPNR in collaboration with SRP.

Review of Authority to Implement

SRPMIC holds jurisdiction over all lands within the exterior boundaries of the Reservation for purposes of administering items set forth within the Community's Constitution and Code of Ordinances. In this

role, SRPMIC has the authority to implement this measure to achieve both environmental and human health benefits.

Implementation Schedule and Milestones

Table 19. Implementation Timeline for Home Energy Assessments

Year	Assessment Goal	Implementation Goal
2025	Assess 18 housing units (9 above the status quo).	• Install free energy-saving products in 18 housing units.
2026	Assess 18 housing units (9 above the status quo).	• Finalize the implementation of additional energy conservation measures in 18 housing units. • Install free energy-saving products in an additional 18 units.
2027	Assess 18 housing units (9 above the status quo).	• Finalize the implementation of additional energy conservation measures in 18 housing units. • Install free energy-saving products in an additional 18 units.
2028	Assess 18 housing units (9 above the status quo).	• Finalize the implementation of additional energy conservation measures in 18 housing units. • Install free energy-saving products in an additional 18 units.
2029	Assess 18 housing units (9 above the status quo).	• Finalize the implementation of additional energy conservation measures in 18 housing units. • Install free energy-saving products in an additional 18 units.
2030	—	• Finalize the implementation of additional energy conservation measures in 18 housing units.
Overall	Assess 90 housing units (45 above the status quo).	Install free energy-saving products and implement additional energy conservation measures in 90 total housing units (45 above the status quo).

Geographic Location

This measure would be implemented in occupied homes located within the boundaries of the 53,600-acre SRPMIC. According to the latest census data, SRPMIC contains roughly 2,100 housing units, 85 percent of which are owner-occupied. The vast majority of housing units are located in the southwest portion of the Community south of East McDonald Drive and west of North Mesa Drive. This measure does not identify specific housing units for assessment, but rather allows all homeowners the opportunity to choose whether to participate or not.

Funding Sources

SRPMIC is seeking funding for this measure from EPA's Phase 2 CPRG implementation grants to cover SRPMIC's costs for program administration and subsidies to homeowners who are not eligible for free assessments. For homeowners looking to implement additional energy conservation measures recommended by the SRP Energy Ambassador, the following funding programs are available:

- **Federal Tax Credits for Energy Efficiency:** The Inflation Reduction Act of 2022 provides federal tax credits and deductions to help homeowners reduce energy consumption and costs. Up to $3,200 can be saved on taxes annually through qualified energy-efficient home upgrades such as energy-efficient appliances (e.g., central air conditioners, water heaters, boilers), electric heat

pumps, and renovations that reduce energy use (e.g., improving insulation, sealing air leaks, replacing doors and windows). https://www.energystar.gov/about/federal-tax-credits.

- **U.S. Department of Energy (DOE) Weatherization Assistance Program:** This program uses DOE funds to reduce energy costs for low-income households through weatherization improvements and upgrades. https://www.energy.gov/scep/wap/weatherization-assistance-program.
- **Home Energy Rebates:** The Inflation Reduction Act of 2022 includes $8.8 billion for Home Energy Rebates, including Home Efficiency Rebates and Home Electrification and Appliance Rebates. This program will soon allow homeowners to get discounts on ENERGY STAR appliances, insulation, and other household upgrades. https://www.energy.gov/scep/home-energy-rebates-programs.

Metrics for Tracking Progress

This measure will be evaluated by tracking the number of households that receive home energy assessments annually, with the goal of doubling the current annual rate of assessments from 9 housing units per year to 18.

Cost Estimates

Costs associated with this measure include:

- The cost of reimbursing homeowners who are not income-qualified for a home energy assessment. The total cost would not exceed $4,410 ($49 per housing unit times 90 housing units).
- The cost for an SRPMIC staff person to lead the outreach program and act as a liaison between residents and the electric utility.

Benefits Analysis

In addition to the estimated annual emission reductions noted above, SRPMIC also anticipates the following potential benefits associated with the full implementation of this measure:

- **Cost savings:** Identifying inefficiencies allows homeowners to make targeted improvements, leading to cost savings on utility bills. By implementing recommendations from the assessment, households can reduce energy consumption and lower their monthly expenses.
- **Increased comfort:** Energy assessments can pinpoint inefficiencies or faults in heating and cooling systems and appliances. Addressing these issues enhances comfort levels by maintaining consistent temperatures throughout the house, leading to a more pleasant living environment.
- **Environmental impact:** Energy assessments contribute to reducing a household's carbon footprint and air quality impact by promoting energy efficiency. By using less energy, homeowners decrease their reliance on fossil fuels, thus lowering GHG emissions and other air pollutants.
- **Improved property values:** Energy-efficient homes are increasingly valued in the real estate market. By conducting an energy assessment and implementing recommended improvements, homeowners can potentially increase the resale value of their property.
- **Health and safety:** Assessments can uncover health and safety issues such as poor indoor air quality, faulty ventilation systems, or carbon monoxide leaks. Addressing these issues not only

improves indoor air quality, but also ensures the safety and well-being of occupants, reducing the risk of respiratory problems and other health issues.

3.3.4 Building Retrofits

Sector

Electricity Consumption

Description

For this measure SRPMIC intends to systematically evaluate the current energy performance of 25 SRPMIC-owned and operated buildings to identify and implement cost-effective energy conservation measures (ECMs) that will contribute to reduced GHG and other pollutant emissions and annual operating cost savings. This measure will consist of two components:

1. **Building energy audits:** SRPMIC intends to procure professional services to perform comprehensive building energy audits at 25 SRPMIC-owned and operated buildings, including municipal office/administrative buildings, police buildings, a fire station, correctional facilities, a museum, a data center, a warehouse, and a cafe. These buildings range in size from approximately 1,500 to nearly 95,000 square feet with an average size of 19,319 square feet. In total, these 25 buildings encompass nearly 483,000 square feet.
2. **Deep energy retrofits:** Pending the results from the comprehensive energy audits, SRPMIC intends to implement deep energy retrofits to the maximum extent possible across all 25 buildings. Rather than focusing on discrete and disparate ECMs, by using a deep energy retrofit approach, SRPMIC intends to apply a whole-systems approach that aggregates inter-related bundles of ECMs to maximize energy and cost savings. The specific collection of ECMs for implementation will depend on the result of the individual energy audits. The scope of deep energy retrofits can vary based on many factors, including the year of building construction; current and expected future building use; the type, age, and condition of the building's core mechanical systems (including the heating, ventilation and air conditioning [HVAC] system components); the potential need for improved energy resilience (e.g., through the installation of onsite renewable energy to reduce reliance on grid power); availability of financial incentives (e.g., tax credits, utility rebates); and the extent to which the building has already recently implemented ECMs. SRPMIC anticipates potential ECMs could include LED lighting upgrades, optimizing daylighting and shading, HVAC/mechanical equipment replacement and/or upgrades, optimized building controls, building envelope improvements, cool roofs, and retro/re-commissioning or ongoing commissioning. SRPMIC anticipates the completion of deep energy retrofits will help reduce annual energy consumption in these buildings by approximately 40 percent.

Additionally, this measure could include funding for workforce training to educate SRPMIC building operations personnel on the efficient operation of any new equipment and systems.

Estimate of Annual GHG and Other Pollutant Emissions Reductions Upon Full Implementation of Measure

Table 20. Total Annual Emissions Reductions Resulting from Full Implementation of Deep Energy Retrofits[9]

Pollutant	Estimated Annual Emission Reductions (metric tons)
GHGs	
CO_2	1,134.00
CH_4	0.06
N_2O	<0.01
CO_2e	N/A
Other Pollutants	
CO	N/A
NO_x	0.15
SO_2	0.64
VOCs	N/A
PM_{10}	N/A
$PM_{2.5}$	N/A

Implementing Agency or Agencies

This measure would be implemented by SRPMIC staff within EPNR, PW and ECS. SRP may be utilized for rebate opportunities.

Review of Authority to Implement

SRPMIC holds jurisdiction over all lands within the exterior boundaries of the Reservation for purposes of administering items set forth within the Community's Constitution and Code of Ordinances. In this role, SRPMIC has the authority to implement this measure to achieve both environmental and human health benefits.

Implementation Schedule and Milestones

Deep energy retrofits for the 25 municipal SRPMIC buildings are anticipated to take 15 years to implement. The building energy audits are anticipated to be completed in one year. Table 21 outlines the implementation timeline for the 15-year implementation period.

Table 21. Implementation Timeline for Energy Audits and Deep Energy Retrofits

Timeline	Milestones
Year 1	• Complete building energy audits
Year 6	• Complete retrofitting approximately 160,000 square feet of building space.

[9] The emission reductions presented are limited to those associated with the reduction of building electricity consumption. Actual emission reductions could be higher since there is likely additional fossil fuel-based building energy that will be reduced as a result of the completed deep energy retrofits that is not accounted for due to lack of current data for these energy types.

Timeline	Milestones
Year 10	• Complete retrofitting approximately 160,000 square feet of building space.
Year 15	• Complete retrofitting approximately 160,000 square feet of building.

Geographic Location

This project seeks to retrofit 25 municipal buildings concentrated in the southwest portion of SRPMIC.

Funding Sources

SRPMIC is seeking funding for this measure from EPA's Phase 2 CPRG implementation grants. To supplement this possible grant funding, there are several additional tax credits, grants, and rebates available to SPRMIC to alleviate some of the financial burden associated with this measure, including the following:

- IRA Clean Energy Tax Credit – Tax Incentives.
    - The IRA improves three main tax incentives for making buildings more energy efficient and covers new construction and existing building retrofits. These can be found in sections 25C, 45L, and 179D of the Internal Revenue Code (IRC).
- IRA Tax Credits – Commercial Buildings Energy Efficiency Tax Deduction (179D).
    - Provides a deduction for new or retrofitted commercial buildings and properties that reduce energy use intensity over existing performance standards.
- DOE – Buildings Upgrade Prize (Buildings UP).
    - Provides more than $22 million in cash prizes and technical assistance to support the transformation of existing U.S. buildings into more energy-efficient commercial spaces and communities.
- Salt River Project (SRP) – Energy-Efficient Rebates.
    - As a customer of SRP, SRPMIC may qualify for rebates for the purchase and installation of energy-efficient equipment, including HVAC, lighting, and other equipment.

Metrics for Tracking Progress

SRPMIC will use the following metrics to track progress relative to this measure:

- Number of SRPMIC-owned and operated buildings in which deep energy retrofit projects have been completed;
- Square footage of SRPMIC-owned and operated buildings in which deep energy retrofit projects have been completed;
- Annual energy reductions (in million British thermal units) attributable to the completion of deep energy retrofit projects in SRPMIC-owned and operated buildings;
- Annual energy cost savings attributable to the completion of deep energy retrofit projects in SRPMIC-owned and operated buildings; and
- Average energy cost savings per dollar invested in deep energy retrofit projects.

Cost Estimates

Building energy audits cost an estimated $0.15 per square foot. Deep energy retrofit costs are variable and can range from $25 to $160 per square foot, with a mid-point average cost of $93 per square foot. For example, a lighting retrofit ranges from $3 to $5 per square foot whereas retrofits to cooling systems can range from $10 to $75 per square foot. None of the SRPMIC municipal buildings have historical significance, thus lowering the cost of these retrofits. Table 22 provides a summary of the estimated costs for the completion of energy audits and deep energy retrofits.

Table 22. Summary of Estimated Costs for Energy Audits and Deep Energy Retrofits

Cost Component	Estimate Implementation Cost
(1) Building energy audit for all buildings	$72,448
(2) Deep energy retrofit for all (applicable) buildings	$44,917,698
Total:	**$44,990,146**

Benefits Analysis

In addition to the estimated emission reductions previously noted, the following potential benefits could be achieved if SRPMIC implements building retrofits across the portfolio of 25 municipal buildings:

- **Energy cost savings:** Building retrofits, such as lighting and HVAC retrofits, increase energy efficiency and provide energy cost savings through the reduction in energy consumption.
- **Reduced maintenance costs:** Poorly functioning systems and equipment oftentimes require expensive and recurring maintenance, therefore improving these systems through deep energy retrofits can reduce maintenance costs.
- **Improved indoor air quality:** Deep energy retrofits can optimize the performance of ventilation systems and air infiltration, which reduces ambient levels of pollutants, allergens, and microbes in the building, along with better controlling the indoor building temperature.
- **Improved health:** In addition to improving indoor air quality (which has obvious human health benefits), optimized energy efficiency resulting from deep energy retrofits will also reduce both onsite fossil fuel combustion and the purchase of electricity from the grid, contributing to a reduction of criteria and precursor air pollutants, such as nitrogen oxide (NO_x) and sulfur dioxide. Building envelope and roof retrofits can reduce the presence of mold caused by water leaks and may reduce asthma symptoms. Additionally, the replacement of mercury containing CFL lightbulbs with LED fixtures may reduce the potentially harmful exposure to mercury.
- **Enhanced comfort:** Improved ventilation systems and retrofit options, such as cool roofs, help to reduce excess heat and provide more comfortable indoor temperatures. Especially in warm climates, such as Maricopa County, cool roofs are effective retrofitting strategies that absorb and transfer less solar heat compared to a conventional roof.
- **Additional benefits through complementary retrofit strategies:** Upgrades to lighting systems not only reduce energy consumption by being more energy efficient themselves, but also reduce the heat being generated in the building, and this reduces the need for HVAC usage to cool the space, thus further lowering energy consumption.

- **Local employment opportunities:** Building retrofits require skilled labor and offer an opportunity to create local jobs. According to a study by the Economic Policy Institute, every $1 million invested in energy-efficient retrofits can generate seven to ten local jobs.[10] Workforce training to educate personnel on the efficient operation of any new equipment and systems is also an important implementation step.

3.3.5 Electric/Battery Powered Lawn and Garden Equipment Voucher Program

Sector

Stationary Combustion

Description

Since 2018, in partnership with the Arizona Department of Environmental Quality, the Maricopa County Air Quality Department (MCAQD) has operated the Mowing Down Pollution Program, which provides financial incentives to residential and commercial entities within Maricopa County to exchange operating gas-powered lawn and garden equipment for electric or battery-powered alternatives to reduce year-round air pollution. Historically, there have been no entities within SRPMIC to participate in this program.

This measure will consist of two components:

1. SRPMIC will develop and implement a new stand-alone voucher program within SRPMIC that provides financial incentives to residents located in SRPMIC to exchange existing operational gas-powered lawn mowers and handheld lawn and garden equipment for electric or battery-powered alternatives. As part of the measure, SRPMIC will execute a focused public outreach and education initiative to increase awareness of and encourage residential entities within SRPMIC to participate in the new SRPMIC gas-powered lawn and garden equipment exchange voucher program.
2. SRPMIC will exchange its inventory of owned gas-powered pieces of handheld lawn and garden equipment (28 devices) operated by PWD as part of SRPMIC's newly established gas-powered lawn and garden equipment exchange voucher program.

SRPMIC anticipates this measure will have a five-year implementation schedule between 2025-2029.

Estimate of Annual GHG and Other Pollutant Emissions Reductions Upon Full Implementation of Measure

Table 23. Total Annual Emissions Reductions Resulting from Full Implementation of Voucher Program and Exchange of SRPMIC-owned Gas-Powered Lawn and Garden Equipment

Pollutant	Estimated Annual Emission Reductions (metric tons)
GHGs	
CO_2	43.21
CH_4	0.04
N_2O	N/A
CO_2e	44.23

[10] https://utilitiesone.com/the-role-of-building-retrofits-in-stimulating-local-economies-and-job-creation

Pollutant	Estimated Annual Emission Reductions (metric tons)
Other Pollutants	
CO	9.81
NO_x	0.08
SO_2	N/A
VOCs	0.77
PM_{10}	0.07
$PM_{2.5}$	0.06

Implementing Agency or Agencies

As envisioned, this project would be administered by SRPMIC staff within EPNR and PW.

Review of Authority to Implement

SRPMIC holds jurisdiction over all lands within the exterior boundaries of the Reservation for purposes of administering items set forth within the Community's Constitution and Code of Ordinances. In this role, SRPMIC has the authority to implement this measure to achieve both environmental and human health benefits.

Implementation Schedule and Milestones

Table 24. Implementation Timeline for Key Milestones and the Exchange of Existing Gas-Powered Lawn and Garden Equipment

Year	Milestones	Target Number of Gas-Powered Devices Exchanged for Electric/Battery-Powered Alternatives		
		Residential Push Mowers	Residential Handheld Devices	SRPMIC-Owned Handheld Devices
2025	• Develop and implement SRPMIC gas-powered lawn and garden equipment exchange voucher program, including public education and outreach campaign • Begin exchanging SRPMIC Department of Public Works-owned and operated equipment as part of MCAQD's Mowing Down Pollution Program	26	26	10
2026	• Continue implementation of SRPMIC gas-powered lawn and garden equipment exchange voucher program, including public education and outreach campaign • Continue exchanging SRPMIC Department of Public Works-owned and operated equipment as part of MCAQD's Mowing Down Pollution Program	26	26	10

Year	Milestones	Target Number of Gas-Powered Devices Exchanged for Electric/Battery-Powered Alternatives		
		Residential Push Mowers	Residential Handheld Devices	SRPMIC-Owned Handheld Devices
2027	• Continue implementation of SRPMIC gas-powered lawn and garden equipment exchange voucher program, including public education and outreach campaign • Continue exchanging SRPMIC Department of Public Works-owned and operated equipment as part of MCAQD's Mowing Down Pollution Program	26	26	8
2028	• Continue implementation of SRPMIC gas-powered lawn and garden equipment exchange voucher program, including public education and outreach campaign • Continue exchanging SRPMIC Department of Public Works-owned and operated equipment as part of MCAQD's Mowing Down Pollution Program	25	25	0
2029	• Continue implementation of SRPMIC gas-powered lawn and garden equipment exchange voucher program, including public education and outreach campaign • Continue exchanging SRPMIC Department of Public Works-owned and operated equipment as part of MCAQD's Mowing Down Pollution Program	25	25	0
	Total:	**128**	**128**	**28**

Geographic Location

This project seeks to increase the exchange of gas-powered lawn and garden equipment for electric/battery-powered alternatives throughout SRPMIC.

Funding Sources

SRPMIC has not yet identified any confirmed sources of funding for this measure. To pursue implementation, SRPMIC is seeking implementation grant funding associated with Phase 2 of EPA's CPRG Program, and—where available—will also pursue other funding mechanisms, if necessary.

Metrics for Tracking Progress

SRPMIC will use the following metrics to track progress relative to this measure:

- Number of vouchers SRPMIC EPNR issues to SRPMIC PW for the exchange of SRPMIC-owned gas-powered handheld lawn and garden equipment for electric/battery-powered alternatives;
- Number of vouchers SRPMIC EPNR issues to residential entities within SRPMIC for the exchange of eligible gas-powered lawn mowers for electric/battery-powered alternatives; and
- Number of vouchers SRPMIC EPNR issues to residential entities within SRPMIC for the exchange of eligible gas-powered handheld lawn and garden equipment for electric/battery-powered alternatives.

Cost Estimates

Table 25 provides a summary of the estimated costs for the implementation of the Lawn and Garden Equipment Voucher Program measure.

Table 25. Summary of Estimated Costs for the Implementation of the Lawn and Garden Equipment Voucher Program Measure

Cost Component	Estimated Implementation Cost
(1) Staff labor to create and administer voucher program and associated logistics	$54,400
(2) Value of vouchers for SRPMIC residents	$38,400
(3) Remaining cost to SRPMIC to replace SRPMIC-owned gas-powered handheld lawn and garden equipment	$11,200
Total:	**$104,000**

Benefits Analysis

In addition to the estimated annual emission reductions noted above, SRPMIC also anticipates the following potential benefits associated with the full implementation of this measure:

- Reduced noise pollution;
- Reduced operating and maintenance costs;
- Reduced ground-level ozone formation, resulting in a reduction in morbidity and mortality related to respiratory effects and reduced harm to plants, people, and animals; and
- Reduced risk of accidental fuel spills and possible contamination of drinking water.

3.3.6 Solar Photovoltaic (PV) Parking Canopy Installations

Sector

Electricity Consumption

Description

As part of the recent completion of construction of the River People Health Center in SRPMIC in 2022, SRPMIC's newest Community health center includes 16 separate solar PV parking canopies that provide a total of 714 kilowatts (kW) of installed solar generating capacity and shaded parking for 175 vehicles (see Figure 2).

Figure 2. Solar parking canopies at SRPMIC's River People Health Center (*photo credit: Smith Group*)

For this measure SRPMIC intends to build off the success of the constructed solar parking canopies at its River People Health Center and construct approximately 353 kW of additional solar PV capacity via newly constructed solar parking canopies at four SRPMIC-owned and operated facilities, as summarized in Table 26.

Table 26. Summary of Proposed Locations for Additional Solar PV Parking Canopies

Proposed Site #	Site Name	Address	Proposed Number of Covered Parking Spots	Proposed Installed Capacity (kW)	Estimated Annual Generation (kWh)
1	SRPMIC Tribal Government Complex	10040 E. Osborn Rd., Scottsdale 85256	20	66.9	117,350
2	Journey to Recovery Residential Treatment Facility (Under Construction)	10869 E. McDowell Rd, Scottsdale 85256	40	133.9	233,482
3	The Lehi Community Building	1231 E. Oak St, Mesa 85203	29	87.7	153,610
4	Salt River Community Building	1880 N Longmore Rd, Scottsdale, AZ 85256	17	64.1	111,771
		Total:	**106**	**352.6**	**616,213**

SRPMIC utilized the National Renewable Energy Laboratory's PVWatts online tool[11] to generate estimates for annual electricity generation for each of the proposed sites.

Estimate of Annual GHG and Other Pollutant Emissions Reductions Upon Full Implementation of Measure

Table 27. Total Annual Emissions Reductions Resulting from Full Implementation of Solar PV Parking Canopy Installations

Pollutant	Estimated Annual Emission Reductions (metric tons)
GHGs	
CO_2	336.87
CH_4	0.02
N_2O	<0.01
CO_2e	338.05
Other Pollutants	
CO	N/A
NO_x	0.19
SO_2	0.05
VOCs	N/A
PM_{10}	N/A
$PM_{2.5}$	N/A

Implementing Agency or Agencies

As envisioned, this project would be administered by SRPMIC staff within EPNR, PW, and ECS.

Review of Authority to Implement

SRPMIC holds jurisdiction over all lands within the exterior boundaries of the Reservation for purposes of administering items set forth within the Community's Constitution and Code of Ordinances. In this role, SRPMIC has the authority to implement this measure to achieve both environmental and human health benefits.

Implementation Schedule and Milestones

Table 28. Implementation Timeline for the Completion of the Solar PV Parking Canopy Installation Measure

Year	Milestone
2025	• Complete design for solar PV parking canopy project #1
2026	• Complete construction for solar PV parking canopy project #1 • Complete design for solar PV parking canopy project #2
2027	• Complete construction for solar PV parking canopy project #2 • Complete design for solar PV parking canopy project #3
2028	• Complete construction for solar PV parking canopy project #3 • Complete design for solar PV parking canopy project #4
2029	• Complete construction for solar PV parking canopy project #4

[11] https://pvwatts.nrel.gov/index.php

Geographic Location

Figure 3 provides a visualization of the locations of the proposed sites for the construction of additional solar PV parking canopies, concentrated in the southwest portion of the Community.

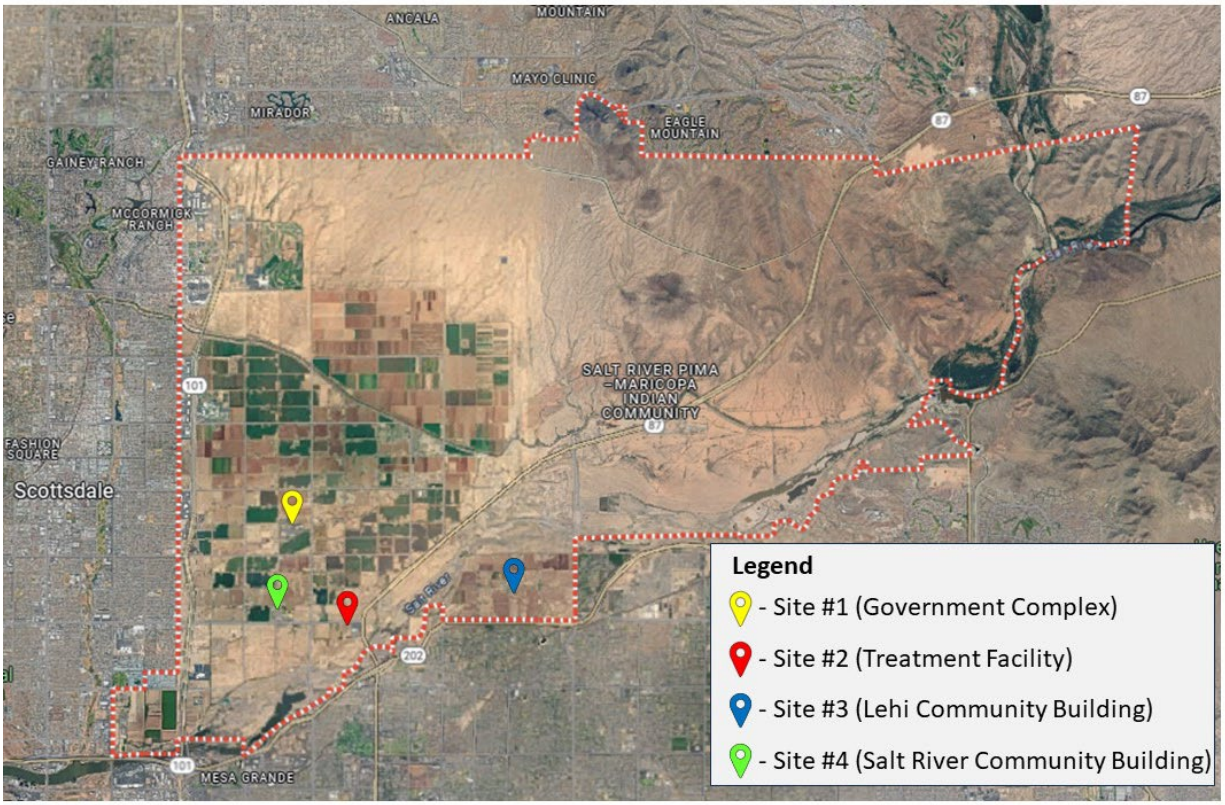

Figure 3. Locations of Proposed Construction of Additional Solar PV Parking Canopies

Funding Sources

SRPMIC has not yet identified any confirmed sources of funding for this measure. To pursue implementation, SRPMIC is seeking implementation grant funding associated with Phase 2 of EPA's CPRG Program, and—where available—will also pursue other funding mechanisms, if necessary.

Metrics for Tracking Progress

SRPMIC will use the following metrics to track progress relative to this measure:

- Number of installed solar PV parking canopies;
- Number of parking spaces covered by installed solar PV parking canopies;
- Cumulative installed generating capacity (kW) of installed solar PV parking canopies; and
- Annual total electricity generation (kWh) resulting from the installed solar PV parking canopies.

Cost Estimate

SRPMIC estimates the total implementation cost for this measure will be approximately $2.23 million.

Benefits Analysis

In addition to the estimated annual emission reductions noted above, SRPMIC also anticipates the following potential benefits associated with the full implementation of this measure:

- Reduced operating costs resulting from the reduced demand for grid power;
- Improved energy resilience since a portion of the four facilities' electricity will be generated onsite and will not be reliant on the operation of the electric grid;
- Improved comfort and convenience for employees and visitors traveling to and parking at the four facilities; and
- Integration with existing and/or future EV charging infrastructure to provide a clean and reliable source of electricity for charging EVs.

3.3.7 Landfill Gas Reuse

Sector

Solid Waste and Waste Generation

Description

Landfill gas (LFG) is produced and emitted from landfills as organic waste degrades in anaerobic conditions. LFG contains approximately 50 percent CO_2 and 50 percent CH_4, with trace amounts (less than 1 percent) of non-methane organic compounds.

There are three landfills located within the boundaries of SRPMIC. The North Center Street Landfill (30 acres) and the Tri-Cities Landfill (230 acres) both closed in 1993, and the Salt River Landfill (currently 144 acres) opened in their place. Although two of the landfills within SRPMIC boundaries have been closed for 30 years, they are still producing LFG, which is currently collected from all three sites and flared to combust the CH_4 and effectively convert it to CO_2, thereby reducing its global warming potential (GWP). The North Center Street Landfill only produces about 100 cubic feet per minute (cfm) of LFG, which is collected and flared intermittently due to the low flow. The Tri-Cities Landfill produces 500-600 cfm of LFG (which is declining due to the landfill being closed) and the Salt River Landfill produces about 1,500 cfm of LFG (increasing as the landfill accepts more waste). Since the methane from the landfills is already being collected and destroyed, the environmental benefits (e.g., GHG reduction) are not attributable to this measure and have not been included in this analysis.

The premise of this new LFG reuse measure is to utilize the LFG currently being collected and flared to produce renewable natural gas (RNG) for injection into an existing natural gas pipeline owned and operated by the City of Mesa, AZ. LFG collected from the Salt River Landfill will be chilled to remove condensate and piped to Tri-Cities Landfill via an existing pipeline connection (constructed as part of a previous, but no longer operational, electricity generation project) where the RNG plant will be located. LFG collected from Tri-Cities will be included as additional input to the RNG plant for as long as it is available. The RNG produced by the plant will be delivered to the Mesa natural gas system via a new pipeline constructed as part of this project. As of February 2024, the likely location of the pipeline injection point will be near the intersection of Rt. 202 and N. Country Club Road in Mesa – about 3 miles southwest of the Tri-Cities Landfill where the RNG plant will be located (see Figure 4).

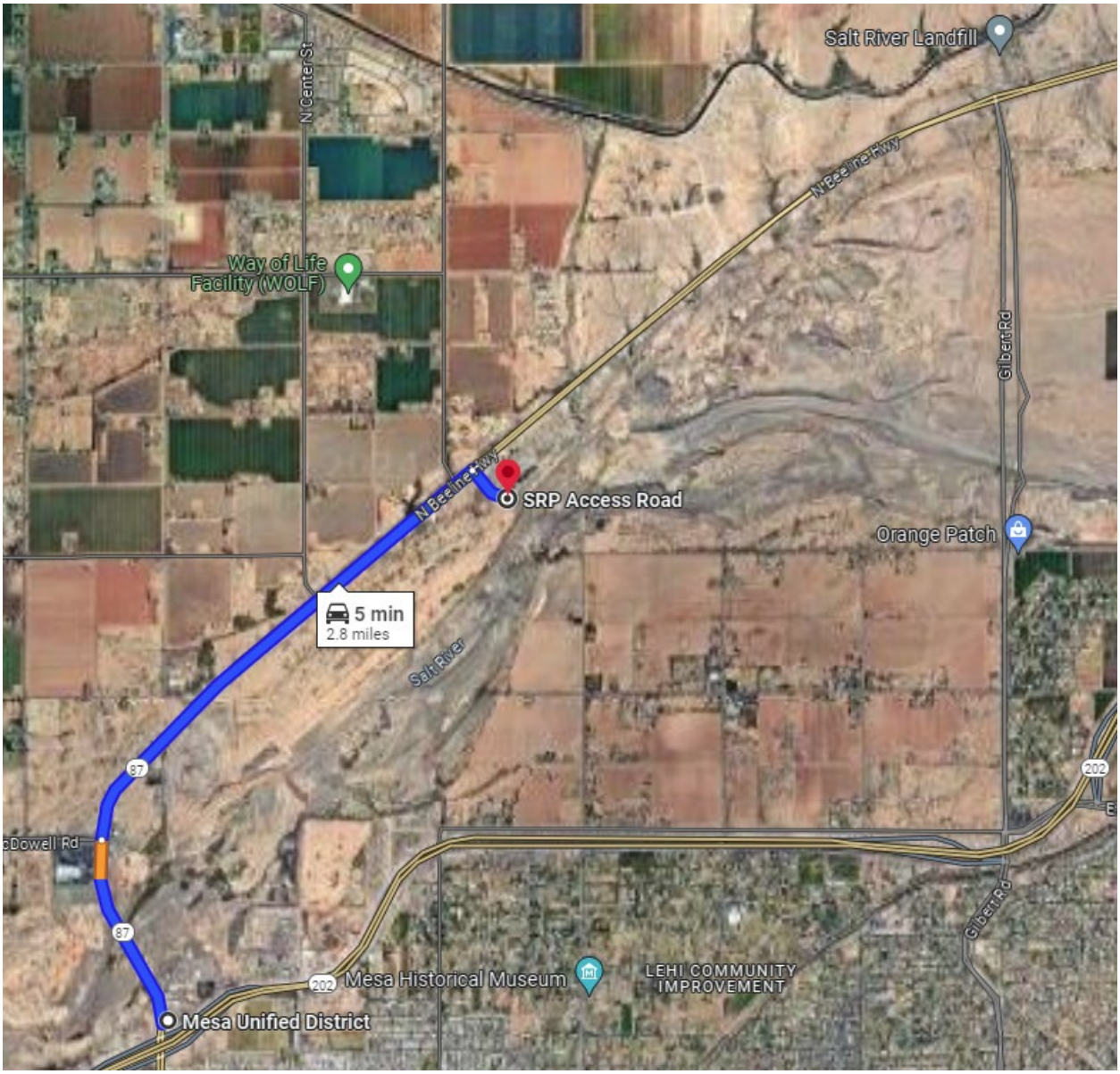

Figure 4. Possible Alignment of New LFG Pipeline Between RNG Plant and Injection Point in Mesa, AZ

Estimate of Annual GHG and Other Pollutant Emissions Reductions Upon Full Implementation of Measure

For the purposes of this analysis, SRPMIC used EPA's LFGcost-Web model (v3.6) to estimate the potential inputs (amount of LFG available from the Salt River Landfill in the future), likely output (amount of RNG produced by the plant based on the potential input), and the GHG reduction potential of the project based on the intended use of the RNG (pipeline injection). Based on the information available for the Salt River Landfill, including the year it opened (1993), the expected year of closure (currently 2032), and the amount of waste accepted (about 514,000 tons per year based on EPA's Landfill Methane Outreach Program landfill database), the LFGcost model estimated the plant would be designed for a capacity of about 2,500 cfm of LFG. While this is more than is currently being produced by the landfills, it is less than the expected peak LFG production from Salt River Landfill over the course of its expected life. As a result, the RNG plant will not use all of the gas produced by the landfill at its peak production but will have

enough LFG to operate for at least 25 years. As modeled, the plant will produce about 473,000 million British thermal units of RNG each year.

Based on this output and the intended use of the RNG for injection in the Mesa natural gas system (essentially displacing fossil-based natural gas), the model estimates an annual GHG emissions reduction from the project of 27,900 $MTCO_2e$. As stated previously, this does not include the GHG benefit from destroying the methane in the LFG since that is already being done with the existing flare systems. The LFGcost model estimate also does not include the GHG impact from the additional electricity consumption needed to operate the RNG plant. Based on the estimated capacity and electricity use requirements from LFGcost and the analysis of that electricity usage with eGRID emission factors, SRPMIC estimates about 4,028 $MTCO_2e$ of additional GHG emissions from electricity consumed by the RNG plant. Accounting for these additional emissions and differences in emissions between the existing flare and the RNG plant operation results in a net GHG emission reduction of about 21,800 $MTCO_2e$ per year associated with this measure.

To assess changes in other air pollutants, SRPMIC evaluated the change from the current practice of flaring the LFG collected from the Landfills and the intended use of RNG production for pipeline injection. The analysis also includes additional pollutant generation from the use of electricity required for RNG plant operation. The results of all emission reduction analyses are summarized in Table 29.

Table 29. Total Annual Emissions Reductions Resulting from Full Implementation of LFG Reuse in RNG Plant

Pollutant	Estimated Annual Emission Reductions (metric tons)
GHGs	
CO_2	(4,011.23)
CH_4	917.71
N_2O	0.44
CO_2e	21,800.75
Other Pollutants	
CO	9.22
NO_x	8.97
SO_2	7.25
VOCs	1.20
PM_{10}*	N/A
$PM_{2.5}$*	2.41

*Emissions were only calculated for "PM," however all PM emissions from these sources are expected to be <2.5 microns.

Implementing Agency or Agencies

All three landfills are owned and operated by SRPMIC under a Community enterprise with a board of directors and CEO. Any proposed project work would be administered by an entity designated by the SRPMIC Council and/or landfill CEO.

Review of Authority to Implement

SRPMIC holds jurisdiction over all lands within the exterior boundaries of the Reservation for purposes of administering items set forth within the Community's Constitution and Code of Ordinances. In this

role, SRPMIC has the authority to implement this measure to achieve both environmental and human health benefits. Permission to construct and operate the RNG transmission pipeline into the City of Mesa's boundaries for injection into their natural gas distribution system will require additional agreements and permitting based on the details of the pipeline alignment and point of connection.

Implementation Schedule and Milestones

SRPMIC believes that while the details of the project are still under development, they may be close to final. For the purpose of modeling this measure, SRPMIC assumes plant design will occur in 2025, followed by 2 years of construction with startup in 2027. The project will operate through 2041 (25 years).

Geographic Location

LFG from the Salt River Landfill (4660 North Beeline Highway) will be piped through an existing pipeline to the RNG plant for processing and refinement. The RNG plant will likely be located at the Tri-Cities Landfill site (11630 North Beeline Highway) where there is ample space for such a facility. From there, the refined RNG will be piped through a new pipeline constructed as part of this project approximately 3 miles southwest to a location within the City of Mesa, AZ, where it will be injected into Mesa's natural gas distribution system.

Funding Sources

SRPMIC is seeking funding from EPA's Phase 2 CPRG implementation grants to reduce costs necessary to implement this project.

Metrics for Tracking Progress

- RNG project designed (estimated 2025);
- RNG project constructed and operational (estimated 2027);
- Track LFG delivery to the RNG plant to ensure it is operating at its designed capacity; and
- Track RNG delivered for pipeline injection to verify GHG emission reduction and royalty payments.

Cost Estimates

Based on the inputs to LFGcost described previously and the estimated capacity of the RNG plant calculated by LFGcost, the model estimates the capital cost of the plant to be about $28 million in the year of construction (2027). LFGcost qualifies its cost estimates with a disclaimer that "Individual project costs may vary +/- 30-50 percent due to situational factors."

Benefits Analysis

In addition to the GHG and other air pollutant benefits outlined above, this measure has the potential to provide the following additional benefits:

- Reduce odors from incomplete flaring of LFG.
- Provide a positive revenue stream for SRPMIC with very little financial risk to the Community.
- Job creation: The LFGcost model estimates the plant could create about 97 jobs during the construction phase of the project and about 21 permanent new jobs for the ongoing operation of the plant.

3.3.8 Tree Planting Program

Sector

Urban Forestry

Description

Scottsdale Community College is located on Tribal land, which offers unique opportunities for collaborations between SRPMIC and the College. SRPMIC has an existing native plant propagation partnership with Scottsdale Community College's Center for Native and Urban Wildlife and Biology Department that has been active for the past 10 years. This partnership provides SRPMIC with discounted native saplings grown by the students in the department upon request. For this measure, SRPMIC intends to continue planting trees on public and residential lands within the Community to improve air quality and sequester carbon. This measure aims to plant up to 600 trees per year over a 10-year period (see Table 30 for additional details). SRPMIC evaluated benefits over a 25-year period, to capture the cumulative benefits of fully mature trees.

Table 30. Annual Plantings by Species

Species	Number Planted (annually)	Estimated Residential Trees Planted	Estimated Trees Planted in Open Spaces
Palo Verde	100	27	73
Ironwood	50	13	37
Mesquite	400	108	292
Willow	15	4	11
Cottonwood	35	9	26
Total:	**600**	**161**	**439**

Estimate of Total Cumulative GHG and Other Pollutant Emissions Reductions Upon Full Implementation of Measure

Estimates of GHG and other air pollutant reductions were determined using the U.S. Forest Service i-Tree Planting Tool based on SRPMIC planting estimations. Total annual plantings were grouped into residential and open space plantings. Residential trees were further evenly split into trees planted on the North, South, East, or West of residential buildings to model the varied effects of shading on buildings and associated changes in building energy use. All residential trees were assumed to be planted 0-19 ft from the nearest building while open space trees were assumed to be planted greater than 60 feet from the nearest building.

SRPMIC calculated emission reductions for a project time span of 25 years with trees being planted annually for 10 years. Table 31 details the estimated cumulative emission reductions across the 25-year project time frame and is based on pollutant sequestration and removal by the new trees and the anticipated changes to electricity use for heating and cooling due to tree shading on residential buildings.[12]

[12] https://www.fs.usda.gov/psw/publications/documents/psw_gtr171/psw_gtr171.pdf

Table 31. Total Cumulative Emissions Reductions Resulting from Tree Planting Program Over 25-Year Analysis Period

Pollutant	Estimated Total Emission Reductions (metric tons)
GHGs	
CO_2	10,626.65
CH_4	0.18
N_2O	0.02
CO_2e	10,638.08
Other Pollutants	
CO	N/A
NO_x	2.67
SO_2	0.68
VOCs*	0.04
PM_{10}	N/A
$PM_{2.5}$*	0.30

Reductions were calculated using 2022 eGRID values unless noted.
*Denotes i-Tree calculated reductions

Implementing Agency or Agencies

This program will be implemented by SRPMIC and Scottsdale Community College, as an extension of the established, ongoing collaboration with the College.

Review of Authority to Implement

SRPMIC holds jurisdiction over all lands within the exterior boundaries of the Reservation for purposes of administering items set forth within the Community's Constitution and Code of Ordinances. In this role, SRPMIC has the authority to implement this measure to achieve both environmental and human health benefits.

Implementation Schedule and Milestones

SRPMIC will plant 600 trees per year for the duration of the measure, assuming a 10-year tree planting program with accumulating benefits. No planting will occur the initial first year of the program; SRPMIC will request the growth of the first class of saplings by Scottsdale Community College in this first year. It is anticipated that Scottsdale Community College will require this first year to organize the growth of the saplings.

Geographic Location

This project would be implemented across SRPMIC on residential property and in public open spaces where vegetation is sparse.

Funding Sources

SRPMIC is seeking funding for this measure from EPA's Phase 2 CPRG implementation grants. To supplement this possible grant funding, SRPMIC may also seek funding for this measure through

Arizona's Department of Forestry and Fire Management, or the U.S. Department of Agriculture's (USDA's) Urban and Community Forestry Program.

Metrics for Tracking Progress

SRPMIC will use the following metrics to track progress relative to this measure:

- The number, types and locations of trees planted each year;
- Health indicators of the trees (e.g. crown condition, growth indicators, tree mortality); and
- Years standing (age of trees).

Benefits Analysis

In addition to the estimated emission reductions and removals noted above, SRPMIC also anticipates the following potential benefits associated with this measure:[13]

- Reduced surface and air temperatures;
- Improved understanding of carbon sequestration throughout the Community;
- Reduced noise pollution; and
- Higher qualities of life through aesthetic value.

3.3.9 Land Buy-Back Program

Sector

Agriculture & Land Management

Description

For this measure, SRPMIC desires to purchase allotted land parcels (land that is currently owned by Community members) and then increase vegetation coverage across these parcels using native species to reduce GHG emissions through carbon sequestration. SRPMIC is currently considering two land areas for this measure, as outlined in Table 32 and shown in Figure 5.

Table 32. Land Areas Targeted for Land Buy-Back and Vegetation

Land Area #	Purchased Land Parcel Acreage	Acreage for Increased Vegetation	Current Zoning	Current Land Condition
1	115	115	Open space	Riparian with marginal existing vegetation
2	1,152	250	Agricultural/residential	Desert scrubland with very little vegetation

Over a 25-year period, SRPMIC plans to utilize a combination of volunteers and contractors to increase the coverage of both land areas with native tree species, including mesquite and palo verde. In land area #1, SRPMIC intends to use contractors to increase vegetative coverage by planting cottonwood,

[13] https://www.epa.gov/heatislands/using-trees-and-vegetation-reduce-heat-islands#:~:text=Trees%20and%20vegetation%20(e.g.%2C%20bushes,and%20transpiration%2C%20also%20called%20evapotranspiration.

ironwood, and willow trees over the full 115 acres. In landfill area #2, SRPMIC plans to increase vegetative coverage by relying on an annual volunteer planting program to install creosote, brittlebush, and other desert scrubland appropriate vegetation.

Estimate of Annual GHG and Other Pollutant Emissions Reductions Upon Full Implementation of Measure

According to the implementation schedule in the section below, land area #1 will be revegetated in 10 years and the benefits will be fully captured by 2050 when accounting for plant growth and maturation. For land area #2, revegetation may continue up to 25 years so some benefits from less mature plants may not be realized until after 2050. For the purpose of this analysis, the annual carbon sequestration benefits shown below in Table 33 are expected to be realized by 2050. The assumed annual sequestration benefits for land area #1 is 0.26 metric tons C/acre/year and 0.198 metric tons C/acre/year for land area #2.

Table 33. Total Annual Emissions Reductions Resulting from Full Implementation of Land Buy-Back Program

Pollutant	Estimated Annual Emission Reductions (metric tons)
GHGs	
CO_2	291.40
CH_4	N/A
N_2O	N/A
CO_2e	291.40
Other Pollutants	
CO	N/A
NO_x	N/A
SO_2	N/A
VOCs	N/A
PM_{10}	N/A
$PM_{2.5}$	N/A

Implementing Agency or Agencies

This measure would be implemented by EPNR and other Community Development Department staff.

Review of Authority to Implement

SRPMIC holds jurisdiction over all lands within the exterior boundaries of the Reservation for purposes of administering items set forth within the Community's Constitution and Code of Ordinances. In this role, SRPMIC has the authority to implement this measure to achieve both environmental and human health benefits.

Through this land buy-back measure, the purchased land would no longer be considered allotted land, giving SRPMIC control to implement these planned increased vegetation efforts.

Implementation Schedule and Milestones

In total, SRPMIC will add a total of 365 acres of new vegetative cover over a 25-year timeframe. For land area #1, SRPMIC will add vegetative cover to 115 acres over 10 years (11.5 acres per year) and for land area #2, SRPMIC will add vegetative cover to 250 acres over 25 years (10 acres per year).

Geographic Location

The two land areas identified for this measure are located in the central-eastern part of SRPMIC (see Figure 5). Land area #1 is on the eastern border of SRPMIC, on the north/west side of the Salt River between the Old Arizona Dam (to the north) and the Granite Reef Dam (to the south). Land area #2 runs along the north bank of the Arizona Canal and is bisected by N Beeline Highway.

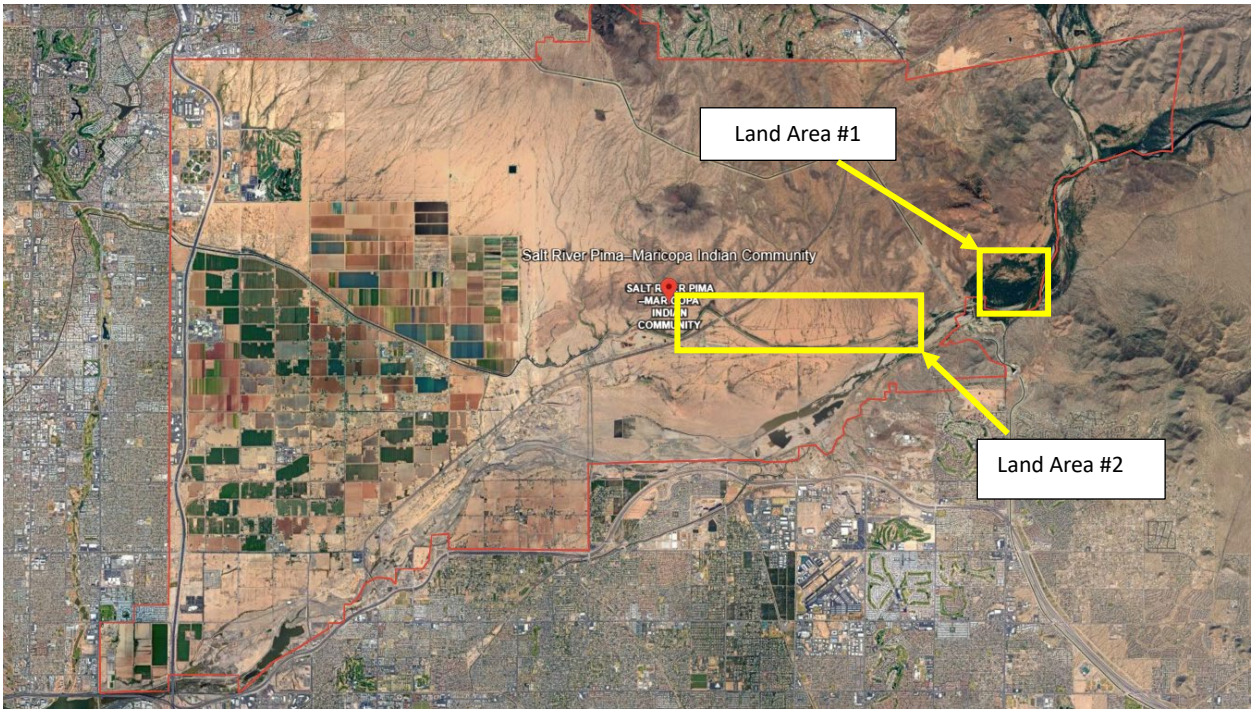

Figure 5. Geographical Locations of Proposed Land Areas for Buy-back and Increased Vegetation

Funding Sources

SRPMIC is seeking funding for this measure from EPA's Phase 2 CPRG implementation grants. To supplement this possible grant funding, there are several additional potential funding sources available, including the following:

- National Forest Foundation (Reforestation Beyond the Trees)- Grant Programs.
- Arizona Water Protection Fund- AWPF.
- USDA and Forest Service- Urban and Community Forestry Grants.
- Natural Resources Conservation Service, Department of Agriculture- Plant Materials for Conservation Grant.
- Natural Resources Conservation Service, Department of Agriculture- Environmental Quality Incentives Program.
- Arizona's Department of Forestry and Fire Management- Grant Opportunities.

Metrics for Tracking Progress

SRPMIC will use the following metrics to track progress relative to this measure:

- Number of acres vegetated by year and by land area;
- Number of plants (by plant species) added by year and by land area; and
- Years standing (ages of the plants).

Cost Estimates

The estimated funding required to implement this measure is as follows in Table 34:

Table 34. Estimated Cost to Implement the Land Buy-back Program

Cost Component	Estimate Implementation Cost
(1) Purchase of allotted land parcels	$12,000,000
(2) Plant costs	$40,000
(3) Contracted labor cost	$250,000
Total:	**$12,290,000**

Benefits Analysis

The following potential benefits could be achieved if SRPMIC vegetates land through the land buy-back program:

- **Increased stored and sequestered carbon.** Increased vegetation promotes carbon sequestration and thereby reduces atmospheric GHG concentrations. Like forests and oceans, deserts have a significant capacity to act as carbon sinks, meaning that desert plants and soil microbes work in tandem to capture and store carbon dioxide underground for centuries. Plants including creosote bushes, native to the SRPMIC area, have the potential to sequester carbon all year long.
- **Increased soil carbon sequestration.** Long-term vegetation restoration in a semi-arid desert increases the size of soil particles, resulting in increased carbon sequestration. Soil organic carbon (SOC) reserved on the earth plays an important role in regulating atmospheric CO_2 concentration. The estimated CO_2 sequestration analysis above does not account for this increased soil sequestration.
- **Ecological and aesthetic benefits.** Increased vegetation provides habitats and food sources to insects and animals, further supporting a rich ecosystem. The increased greenery can improve the quality of life for humans through enhanced aesthetics.

3.3.10 Improved Soil Management

Sector

Agriculture & Land Management

Description

SRMPIC has partnered with the local farming community on environmental initiatives since 2019 when SRPMIC received an EPA grant to educate farmers on modifications to agricultural activities to reduce dust during times of poor air quality. Section 18 Article VI of SRPMIC's Code of Ordinances established

regulatory measures aimed to prevent, reduce, or mitigate particulate matter emissions. Farms with more than five contiguous acres of land must complete an agricultural fugitive dust general plan which employs at least two dust control measures for each category of agricultural activity. This existing relationship and regulatory measure will influence this measure, which aims to improve the soil management on SRPMIC agricultural lands.

This measure would be comprised of three components:

1. SRPMIC and the local farming community will work with USDA's Natural Resources Conservation Service (NRCS) to develop nutrient management plans[14] to determine the best process for nutrient amendments to agricultural soils;
2. SRPMIC and the local farming community will work together to determine if reduced or no tillage practices are viable for SRPMIC's agricultural lands; and
3. SRPMIC will work to educate the local farming community on other practices such as tillage, nutrient amendments, cover crops, and composting. Some of these practices overlap with the dust control measures suggested in Section 18 Article VI of SRPMIC's Code of Ordinances.

SRPMIC anticipates this measure will reduce fertilizer use and update tillage methods across the 10,700 acres of agricultural land.

Estimate of Annual GHG and Other Pollutant Emissions Reductions Upon Full Implementation of Measure

SRPMIC used USDA's COMET-Planner to estimate emission reductions, assuming a 15 percent reduction in fertilizer use and a change from reduced tillage to no till or strip tillage. COMET-Planner is designed to provide generalized estimates of the GHG impacts of conservation practices and is intended for initial planning purposes. Table 35 presents the estimated annual reductions from these practices.

Table 35. Total Annual Emissions Reductions Resulting from Full Improvement of Improved Soil Management

Pollutant	Estimated Annual Emission Reductions (metric tons)
GHGs	
CO_2	977.00
CH_4	N/A
N_2O	0.35
CO_2e	1,070.00
Other Pollutants	
CO	N/A
NO_x	N/A
SO_2	N/A
VOCs	N/A

[14] Nutrient management plans are not federally mandated. States, including Arizona, require agricultural operators to engage in nutrient management planning in select situations, primarily animal feeding operations. According to the EPA, concentrated animal feeding operations that discharge are required to have a National Pollutant Discharge Elimination System (NPDES) permit and must implement a nutrient management plan. Additional details can be found here: https://nationalaglawcenter.org/wp-content/uploads//assets/articles/agnutrient_report.pdf

Pollutant	Estimated Annual Emission Reductions (metric tons)
PM_{10}	N/A
$PM_{2.5}$	N/A

Implementing Agency or Agencies

This measure will be implemented by the local farming community in collaboration with SRPMIC.

Review of Authority to Implement

SRPMIC holds jurisdiction over all lands within the exterior boundaries of the Reservation for purposes of administering items set forth within the Community's Constitution and Code of Ordinances. In this role, SRPMIC has the authority to implement this measure to achieve both environmental and human health benefits.

Section 18 Article VI of SRPMIC's Code of Ordinances established regulatory measures aimed to prevent, reduce, or mitigate particulate matter emissions. This ordinance established an agreement with the local farming community and is a precedent for future collaborations related to environmental and human health between SRPMIC and the local farming community.

Implementation Schedule and Milestones

This measure will be implemented across multiple years to allow SRPMIC and the farming community to become educated about improved soil management practices and the best practices for each farming community based on the current health of the soils. Table 36 presents the milestones across the implementation schedule for this measure.

Table 36. Proposed Implementation Schedule and Milestones for Improved Soil Management

Year	Milestones
2025	Complete educational outreach to the local farming community on practices to improve soil management.
2026	Develop nutrient management plans for all SRPMIC agricultural lands.
2027	Implement improved soil management practices

Geographic Location

This measure will be implemented by the local farming community in collaboration with SRPMIC across all SPRMIC agricultural lands.

Funding Sources

SRPMIC is seeking funding for this measure from EPA's Phase 2 CPRG implementation grants. To supplement this possible grant funding, SRPMIC will also seek funding and assistance through USDA's NRCS technical assistance programs available to develop and fund solutions for agricultural land.

Metrics for Tracking Progress

SRPMIC will use the following metrics to track progress relative to this measure:

- Number of acres using improved soil management practices;
- Percent reduction of fertilizer use; and
- Completed educational outreach to local farming community.

Benefits Analysis

In addition to the estimated annual emission reductions noted above, SRPMIC also anticipates the following potential benefits associated with the implementation of improved soil management:

- Reduction in energy use related to tillage or soil amendment application;
- Increased plant-available moisture;
- Improved crop yields;
- Cost savings; and
- Improved soil health.