Pueblo of Santa Ana

PRIORITY CLIMATE ACTION PLAN

PLAN COMPLETED FOR:
PUEBLO OF SANTA ANA
02 DOVE RD
SANTA ANA PUEBLO, NM 87004

PLAN COMPLETED BY:
SADNR ENVIRONMENTAL DIVISION
02 DOVE RD
SANTA ANA PUEBLO, NM 87004

March 2024

TABLE OF CONTENTS

LIST OF ACRONYMNS, ABRREVIATIONS, AND UNITS

AR5	IPCC Fifth Assessment Report
CAA	Clean Air Act
CFR	Code of Federal Regulations
CH4	Methane
CPRG	Climate Pollution Reduction Grant
CO2	Carbon Dioxide
eGRID	Emissions & Generation Resource Integrated Database
EI	Emissions Inventory
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse Gas
GHGRP	Greenhouse Gas Reporting Program (40 CFR Part 98)
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
IECC	International Energy Conservation Code
IPCC	Intergovernmental Panel on Climate Change
ISWMP	Integrated Solid Waste Management Plan
MT CO2e	Metric Tons Carbon Dioxide equivalent
NEI	National Emissions Inventory
N2O	Nitrogen Oxide
OAR	EPA Office of Air and Radiation
PCAP	Priority Climate Action Plan
PFCs	Perfluorocarbons
PSA	Pueblo of Santa Ana
SADNR	Santa Ana Department of Natural Resources
SF6	Sulfur Hexafluoride
TGIT	Tribal- GHG Inventory Tool
VMT	Vehicle Miles Traveled

EXECUTIVE SUMMARY

The Priority Climate Action Plan (PCAP) was prepared by the Pueblo of Santa Ana Department of Natural Resources (SADNR) Environmental Division. The PCAP focuses on near-term, high priority, and implementation-ready measures to reduce greenhouse gas (GHG) pollution and an analysis of GHG emissions reductions that would be achieved through implementation. This document will guide the Pueblo to work toward implementation actions that will address climate pollution and a changing climate. This plan was drafted in accordance with requirements under the EPA Climate Pollution Reduction Grant (CPRG) for planning. The PCAP is a pre-requisite for competing in the second phase of the CPRG program, which will be competitively awarded for implementation. The priority climate actions in this plan are constrained to those that can be implemented by the Pueblo of Santa Ana on Pueblo of Santa Ana lands.

1.0 INTRODUCTION

1.1 Background of the Pueblo

The Pueblo of Santa Ana ("The Pueblo") is a federally recognized Tribe, located along the Rio Jemez and Rio Grande in southeastern Sandoval County, New Mexico, about 15 miles north of Albuquerque and 45 miles south of Santa Fe. Santa Ana Pueblo land encompasses over 138,000 acres (79,000 currently held in trust) including original land grants, trust lands, and land purchased by the Tribe. The people of Santa Ana have lived along the banks of the Rio Grande and Rio Jemez for over 400 years. The Pueblo has endured through the centuries, maintaining their traditional, cultural, and spiritual ways that are strongly influenced by their connection to the natural world. Currently, around 1,000 Tribal members live and maintain their traditional lifestyle on the Pueblo's 79,000 acres of trust lands, referred to as the "Pueblo Proper". Basalt-capped mesas supporting semi-arid grassland vegetation interspersed with piñon pine and juniper, dominate the land area.

Of this land base, roughly 1,700 acres is devoted to non-residential development, supporting various tribally owned businesses in hospitality, recreation, and gaming. Industrial material plants have operations on the border of tribal land, including a sand and gravel plant and a wallboard facility. Agriculture, hospitality, and recreation occur primarily in this southeast portion of the Pueblo. This is also where the people of Santa Ana reside. The Pueblo is located in a major transportation corridor. One major interstate highway (I-25) bisects the Pueblo, and another state highway (NM-550) runs along the southern boundary, close to residential areas on the Pueblo. A commuter rail runs alongside I-25 through a Pueblo residential area (New Mexico Rail Runner). The Town of Bernalillo, the Village of Placitas, and the City of Rio Rancho also border this portion of the Pueblo.

Maintaining the Pueblo's traditional lifestyle is becoming more difficult as natural resources are becoming more vulnerable to climate change impacts. According to the annual 2023 Global Carbon Budget report, fossil carbon dioxide emissions are increasing, with 36.8 billion tons estimated in 2023, up 1.1% from 2022 [1]. Actions drafted under this PCAP are an opportunity for the Pueblo to do their part in contributing to the collective effort needed to address these rising emissions.

1.2 CPRG Overview

The CPRG program provides funding through the EPA to develop and implement plans for reducing greenhouse gas (GHG) emissions and other harmful air pollution. The CPRG program includes two phases of funding: Planning and Implementation. As climate change increasingly becomes harmful and impacts our communities, it becomes necessary to address and identify the issues that we are facing so we can foster more equitable resilient communities.

1.3 PCAP Overview

The purpose of the PCAP is to improve the Pueblo's understanding of current and future greenhouse gas emissions from the Pueblo, identify priority strategies to reduce these emissions, analyze the potential benefits of these strategies, and engage a variety of stakeholders in the emissions reduction planning process. The PCAP will inform the Pueblo's Comprehensive Climate Action Plan (CCAP), which is due at the close of the grant period (FY 2025).

As part of the PCAP development, a GHG Emissions Inventory (EI) was prepared by SADNR Environmental Division. The report documents the amount of GHG emitted to, or removed from, the atmosphere from various sources on the Pueblo for the baseline year 2020 (Attachment 1). The GHG EI is discussed in more detail in Section 3.1.

1.4 Approach to Developing the PCAP

The development of the PCAP required the following:

Identifying and engaging key stakeholders

SADNR actively engaged with key stakeholders in developing the PCAP to help identify, access, and leverage information from SADNR programs, Pueblo utilities, online resources, and tools developed by other organizations. Feedback from Tribal

Administration, community members and other sectors including our gas stations, our transfer station, Agricultural Department, and other municipal operations were included. A community meeting was held in March 2024 and efforts to engage the community to gain feedback on priority measures are ongoing.

Understanding the GHG EI

The GHG EI accounts for human-caused emissions of the most prominent and typical GHG emissions for the community: carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). The GHG EI report documents the amount of GHG emitted to, or removed from, the atmosphere from various sources on the Pueblo for the baseline year 2020.

The following sectors were included in the GHG inventory:

- Mobile Combustion
- Stationary Combustion
- Electricity Consumption
- Agricultural & Land Management
- Waste Generation
- Wastewater Treatment

Establishing GHG reduction goals

As we begin to develop our goals and take action to reduce GHG emissions and expand on our GHG inventories, this will serve as a tool for tracking progress and making improvements. Understanding how every sector plays a key role in reduction and setting goals that are realistic and achievable based on the Pueblos operations is important. Feedback and support from Tribal Leadership and the community are essential to setting and executing reduction goals. As we begin to develop our CCAP next fiscal year, community-based approaches that are culturally appropriate will provide a framework to build on. This offers the opportunity for creating integrative, cost-effective, and resource-efficient measures.

Prioritizing and selecting GHG reduction measures

Determining our selection process of GHG reduction measures was based on feedback from Tribal Leadership and the community, funding mechanisms for implementation, staff time, cost, and project feasibility. This is discussed in more detail in Section 3.2 below.

Estimating potential GHG reduction measure impacts

GHG reductions were made based on scaled ratios suitable to the Pueblo. Once potential GHG measures in the CCAP are more defined, co-pollutant changes resulting from GHG reduction measures will be identified. Until scenarios based off of action impacts are implemented, estimates were identified based off of tools that were readily available. Once a comprehensive decarbonization strategy is identified and scenario planning is implemented, a decarbonation roadmap will be implemented based on realistic measures and funding mechanisms for the Pueblo.

Establishing an administrative process for measure implementation

SADNR has requested to be placed on the Tribal Council agenda to present a climate action resolution. Tribal Leadership is well aware of the impact climate change is having on the Pueblo so it is anticipated the main barrier to having the resolution pass will be scheduling with Council. Until the resolution is passed, this PCAP will be considered a draft document.

1.5 Scope of the PCAP

The scope of this PCAP relied on readily available information as a tool for outlining specific actions that the Pueblo could undertake to reduce GHG emissions and for adaptation strategies the community will implement to counter the negative effects of climate change. SADNR focused on the resources within the Pueblo's reservation boundary. As we begin to develop our CCAP in FY25, this will be a more comprehensive approach that includes a 10-mile buffer outside the Pueblo's boundary. Although we do not have regulatory authority over facilities outside of the reservation boundary, we can obtain and evaluate this information for potential impacts here on the Pueblo. Our timeline for planning, execution of plans, and decision-making methods are dependent upon funding and feedback from the community and Tribal Leadership.

The PCAP has provided an understanding of some of the major GHG contributors and threats we are experiencing (such as drought). Adapting to extreme drought is essential to sustain healthy and resilient watersheds that support the plants and animals that are critical to maintaining the Pueblo's culture and land uses. The desert southwest is an area where climate is particularly vulnerable to an increase in GHG in the atmosphere [2]. The Pueblo is experiencing unpredictable weather patterns such as shifts in the seasons, drought, heat waves, wildfires, and precipitation that can be attributed to a changing climate.

2.0 TRIBAL ORGANIZATION AND CONSIDERATIONS

The Pueblo of Santa Ana is a federally recognized Indian nation, possessing inherent sovereign powers of self-government. The Tribal Council of the Pueblo of Santa Ana is the duly authorized government of the Pueblo in regard to decision making.

2.1 Tribal PCAP Management

Our PCAP was developed by SADNR and information was obtained through collaboration between Pueblo departments, programs, and readily available information.

The organizations involved in drafting the PCAP, include but are not limited to the following:

- Tribal Administration and Council (decision-making authority)
- Pueblo community members
- Tribal programs (SADNR, Public Works, Transfer Station, Utilities, Tamaya Ventures)

2.2 Special Considerations for Tribal Entities

Special consideration for this PCAP was based on data gathered by SADNR and input received by our decision-making authorities (Tribal Administration, Tribal Council) and community members.

These considerations may include, but are not limited to the following:

- Realistic goals and funding mechanisms
- Presence of sector-specific goals
- Existing GHG inventories or similar assessments
- Benefits quantifications
- Existing emissions reduction plans, other DNR programs, or strategies (2019 BIA Tribal Resilience Report, SADNR 2021 Level 2 Emissions Inventory)
- Other authority, accountability structures or systems associated with emission reduction plans, programs, or strategies (this will be looked at more in depth when developing our CCAP)
- Funding mechanisms available for Tribes

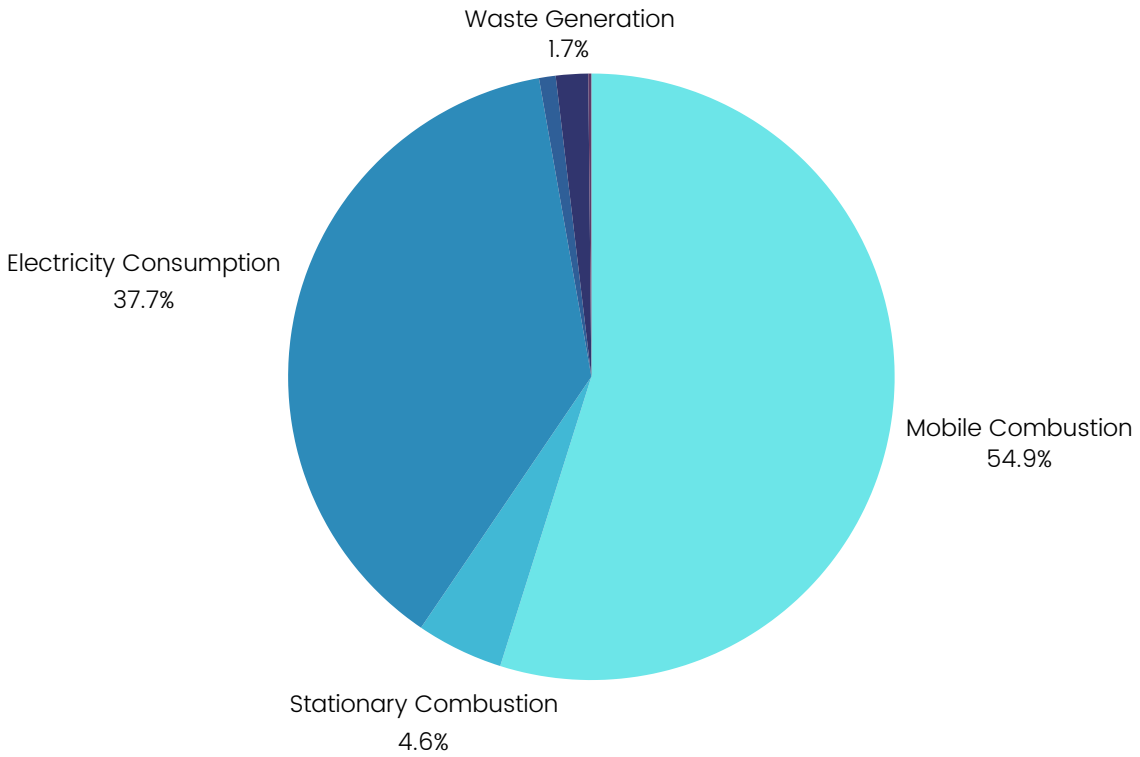
3.0 PCAP ELEMENTS

3.1 Greenhouse Gas Inventory

A GHG EI was prepared by the Pueblo of SADNR Environmental Division. This report documented the amount of GHG emitted to, or removed from, the atmosphere from various sources on the Pueblo of Santa for the baseline year 2020.

Data was compiled from the EPA's 2020 National Emissions Inventory (NEI)[3], EPA's Tribal GHG Inventory Tool (TGIT)[4], EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021 [5], the Pueblo's 2021 Level 2 EI, and other various secondary sources (state, local, and federal). This GHG EI is for sources within the boundary of the Pueblo and did not use a buffer.

Overall, on-road mobile combustion represented the largest contributing sector of GHG emissions in 2020. Electricity use was the second largest contributor of GHG emissions on the Pueblo, with the third highest contributor coming from the stationary combustion of natural gas.



Sector	MT CO2e
Mobile Combustion	12,890.69
Stationary Combustion (natural gas)	1,089
Electricity Consumption	8,867.5
Agricultural & Land Management	208.07
Waste Generation	404
Wastewater Generation	38.15
PSA TOTAL	**23,497.41**

3.2 GHG Reduction Measures

For all proposed GHG reduction measures, they will be on the Pueblo Proper. All listed prices are estimates based on average values for each action and are subject to change with market price at time of implementation, contractor pricing, staff time needed, and other variable factors.

Strategy 1: Renewable Energy
An estimated 8,867.5 MT CO2e comes from electricity consumption and is the second largest contributor of GHG emissions on the Pueblo. This can be addressed by transitioning the Pueblo to renewable, clean energy, such as solar, reducing the reliance on fossil fuel supplied electricity. Currently, the Public Service of New Mexico (PNM), the Pueblo's electricity provider, sources over 40% of their electricity from non-renewable sources.

Action 1.1: Solar Development- 5 MW Community Solar Project	
Applicable sectors	Electricity Consumption
Estimated GHG Reduction	5,896.7 MT CO2 (13 million pounds CO2) per year
Implementation Agency	SADNR, Tribal Council, Utilities Department, Land Planning Office, Bureau of Indian Affairs (BIA)
Implementation Schedule & Milestones	Immediate- completion within the next 1-2 years; community scale solar project is constructed and supplying power to Pueblo residences and buildings.
Metrics for tracking progress	All homes and buildings on the Pueblo Proper are powered by the community scale solar project.
Cost Estimate	$10-12 million
Co-benefits	Improve air quality, job creation, financial savings for Pueblo and Pueblo members, energy resilience, potential revenue

Strategy 2: Sustainable Structures
Combined electricity consumption and stationary combustion (natural gas) accounts for 42% of the Pueblo's GHG emissions, contributing 9,956.5 MT CO2e. By making Pueblo buildings and homes more climate change conscious in their resource consumption, we can reduce the emissions of these sectors.

Action 2.1 Energy Efficiency Audits	
Applicable sectors	Electricity Consumption; Stationary Combustion (natural gas)
Estimated GHG Reduction	Indirect- this is an informative action that will give homeowners and building managers an idea of their energy use and where efficiency measures can be implemented and the benefit of these measures.
Implementation Agency	SADNR with contractor support, Tribal Housing, Public Works
Implementation Schedule & Milestones	Immediate; contractor is selected, audits are completed
Metrics for tracking progress	A number of homes have had energy efficiency audits conducted; A number of Pueblo buildings have had energy efficiency audits conducted
Cost Estimate	$400 per home; $2,300 per building [6]
Co-benefits	Improved energy efficiency of Pueblo homes and buildings; increased education of mitigation measures

<table>
<tr><th colspan="2">Action 2.2 Energy Efficiency Upgrades</th></tr>
<tr><td>Applicable sectors</td><td>Electricity Consumption</td></tr>
<tr><td>Estimated GHG Reduction</td><td>From decreasing electricity consumption by 5-30% by installing efficiency upgrades, GHG emissions (MT CO2e) would be reduced by the following:
<table>
<tr><th></th><th>CO2</th><th>N2O</th><th>CH4</th><th>Total</th></tr>
<tr><td>Residential</td><td>92.2-553</td><td>0.2-1.2</td><td>0.17-0.99</td><td>92.53-555.18</td></tr>
<tr><td>Commericial</td><td>349.46-2096.73</td><td>0.77-4.59</td><td>0.63-3.75</td><td>350.85-2105.07</td></tr>
</table></td></tr>
<tr><td>Implementation Agency</td><td>SADNR with contractor support, Tribal Housing, Public Works</td></tr>
<tr><td>Implementation Schedule & Milestones</td><td>Within 1-2 years</td></tr>
<tr><td>Metrics for tracking progress</td><td>Number of homes and buildings have upgraded appliances, lighting, and heating/cooling units</td></tr>
<tr><td>Cost Estimate</td><td>ENERGY STAR appliance package $2,100-5,400; Electrical panel $850-2,500; HVAC zoning system $1,700- 4,500; tankless water heater $1,400- 5,600</td></tr>
<tr><td>Co-benefits</td><td>Electricity consumption is decreased, improved quality of life; improved air quality from lower energy use; financial savings of 5 to 30% on energy bills when efficiency upgrades have been made [7]</td></tr>
</table>

<table>
<tr><th colspan="2">Action 2.3 Weatherization</th></tr>
<tr><td>Applicable sectors</td><td>Electricity Consumption; Stationary Combustion (natural gas)</td></tr>
<tr><td>Estimated GHG Reduction</td><td>From decreasing electricity consumption and stationary combustion (natural gas) by weatherizing homes and buildings by 10%, GHG emissions (MT CO2e) would be reduced by the following:
<table>
<tr><th></th><th>CO2</th><th>N2O</th><th>CH4</th><th>Total</th></tr>
<tr><td>Residential</td><td>249.63</td><td>0.4</td><td>0.53</td><td>250.56</td></tr>
<tr><td>Commericial</td><td>742.21</td><td>1.53</td><td>1.35</td><td>745.09</td></tr>
</table></td></tr>
<tr><td>Implementation Agency</td><td>SADNR with contractor support, Tribal Housing, Public Works</td></tr>
<tr><td>Implementation Schedule & Milestones</td><td>2-3 years
Compile and prioritize housing needs list, site visits/inventory, Request for Proposal (RFP) for installation contractor</td></tr>
<tr><td>Metrics for tracking progress</td><td>A number of homes have been weatherized; a number of Pueblo buildings have been weatherized</td></tr>
<tr><td>Cost Estimate</td><td>Insulation $1,600-$8,000; Weather stripping installation cost $130-470; Exterior door cost $300-$1,900; Window replacement cost $450-$1,500 per window</td></tr>
<tr><td>Co-benefits</td><td>Improves the health and safety of residents (reduces reliance on portable heating units and/or wood/pellet stoves); improved air quality from lower energy use, financial savings for Pueblo and homeowners (annual average savings of $210-250 on utility expenses for each home [8])</td></tr>
</table>

Action 2.4 Compliance with International Energy Conservation Code (IECC)	
Applicable sectors	Electricity Consumption; Stationary Combustion (natural gas)
Estimated GHG Reduction	Indirect- this action can help to ensure new buildings and homes on the Pueblo meet energy efficiency standards
Implementation Agency	Pueblo of Santa Ana Chief Building Official, SADNR, Tribal Council, Tribal lawyer
Implementation Schedule & Milestones	Year 1- Administrative Code is updated by Building Safety Permitting Committee, year 2- code is reviewed, year 3- code is presented and approved by Tribal Council
Metrics for tracking progress	Code is written and approved by Tribal Council, Pueblo of Santa Ana Chief Building Official will report deficiencies and ensure compliance
Cost Estimate	$5,000 staff time, $1,000 for legal review; This action can be budgeted into staff time within other funding mechanisms, however there will be financial fees for legal review and collaboration
Co-benefits	Financial savings for future homes and Pueblo businesses, improved quality of homes and buildings

Strategy 3: Waste Diversion and Reduction
404 MT CO2e was contributed by the waste generation sector in baseline year 2020. The proposed actions under this strategy can be integrated into existing infrastructure, improving efficiency.

Action 3.1 Waste Stream Analysis	
Applicable sectors	Waste Generation
Estimated GHG Reduction	Potential of reducing waste generation by 8% for year 1 resulting in GHG emissions (MT CO2e) being reduced by the following:

N2O	CH4	Total
0.16	32.16	32.32

Implementation Agency	SADNR with support of a contractor or partnering coalition
Implementation Schedule & Milestones	Within a year, hire contractor, assess data and implement education and outreach
Metrics for tracking progress	The data received from the waste stream analysis will provide an understanding of diversion need to be implemented (food waste, plastic, aluminum etc).
Cost Estimate	$10,000 for contractor / SADNR staff time
Co-benefits	Achieve a minimum of 50% waste reduction, assess the waste stream and the potential to reduce overall waste disposal through recycling

<table>
<tr><th colspan="2">Action 3.2 Access to Recycling</th></tr>
<tr><td>Applicable sectors</td><td>Waste Generation</td></tr>
<tr><td>Estimated GHG Reduction</td><td>If 5% of municipal solid waste that is recyclable is diverted from the landfill, the Pueblo can potentially reduce their GHG emissions (MT CO2e) by the following:

<table><tr><th>N2O</th><th>CH4</th><th>Total</th></tr><tr><td>0.1</td><td>20.1</td><td>20.2</td></tr></table></td></tr>
<tr><td>Implementation Agency</td><td>SADNR</td></tr>
<tr><td>Implementation Schedule & Milestones</td><td>Immediate
Inventory of recycling bins for each office; purchase bins; distribute bins and educational flyer</td></tr>
<tr><td>Metrics for tracking progress</td><td>Each Pueblo building has recycling bins, education and outreach is on-going</td></tr>
<tr><td>Cost Estimate</td><td>100 bins for paper, plastics and aluminum -$1,000-$50,000</td></tr>
<tr><td>Co-benefits</td><td>Financial benefit for Pueblo on tipping fees- reduced amount of municipal solid waste being transported from the Pueblo to the Sandoval County Landfill</td></tr>
</table>

<table>
<tr><th colspan="2">Action 3.3 Community Composting</th></tr>
<tr><td>Applicable sectors</td><td>Waste Generation; Agricultural & Land Management</td></tr>
<tr><td>Estimated GHG Reduction</td><td>Focusing on food and organic materials waste produced on the Pueblo being composted (waste generation adverted and fertilizer use reduced by 2% in year 1), GHG emissions (MT CO2e) could be reduced by the following:
<table>
<tr><th>N2O</th><th>CH4</th><th>Total</th></tr>
<tr><td>0.91</td><td>8.04</td><td>8.95</td></tr>
</table>
</td></tr>
<tr><td>Implementation Agency</td><td>SADNR, Agricultural Department</td></tr>
<tr><td>Implementation Schedule & Milestones</td><td>Within the next year</td></tr>
<tr><td>Metrics for tracking progress</td><td>50% of food and organic materials are diverted from the landfill</td></tr>
<tr><td>Cost Estimate</td><td>Staff time, operations cost, equipment-$50,000-$100,000</td></tr>
<tr><td>Co-benefits</td><td>Soil health of local fields, the Pueblo's golf course, and the Pueblo vineyard; reduces the need for chemical fertilizers; financial benefit of producing compost on-site; job creation opportunity; improved air quality-less food waste rotting in landfills (methane reduction) [9]</td></tr>
</table>

Action 3.4 Community Education and Outreach- Intentional Buying/Food Waste Prevention/Recycling	
Applicable sectors	Waste Generation
Estimated GHG Reduction	Indirect- this will depend on community members changing personal habits to reduce waste
Implementation Agency	SADNR
Implementation Schedule & Milestones	Immediate, ongoing; informational packets are published and distributed to the community; analysis sought to identify the volume of recyclable materials currently being disposed of
Metrics for tracking progress	Behavior change, cost benefit analysis
Cost Estimate	$25,000 staff time; current staff can dedicate time to researching and publishing an advisory document for Pueblo community members
Co-benefits	Reduce the volume of solid waste generated and reduce the associated expenditures for solid waste management. The Pueblo will strive for maximum participation in the reuse and recycling program such that revenue generated from the latter may become available to help support the program.

Strategy 4: Clean Transportation **Mobile combustion was the top contributor of GHG emissions on the Pueblo, producing an estimated 12,890.69 MT CO2e for the baseline year 2020. However, after meeting with the public, purposed actions were determined to be a lower ranking priority.**	
Action 4.1 Electric Vehicle (EV) Charging Stations	
Applicable sectors	Mobile Combustion
Estimated GHG Reduction	Indirect; By installing publicly accessible charging stations, encouraging the transition to EVs by Pueblo departments and community
Implementation Agency	SADNR with support from a contractor, Public Works, Tribal Council
Implementation Schedule & Milestones	Within 1-2 years; secure funding, electrical hookup, RFP for install
Metrics for tracking progress	5 charging stations are available at the Tribal Administration complex
Cost Estimate	Level 2 (240V) charging station: $1,200- $3,000 Installation (wiring, disconnects, trenching) and operation and maintenance: $2,000-$35,000 [10]
Co-benefits	Air quality improvement with increase in EVs on Pueblo; cost savings for community members and tribal employees who are able to utilize the charging station

<table>
<tr><th colspan="2">Action 4.2 Electric Fleet</th></tr>
<tr><td>Applicable sectors</td><td>Mobile Combustion</td></tr>
<tr><td>Estimated GHG Reduction</td><td>If a number of government vehicles are replaced by EVs, each vehicle reduces emissions by up to 30% [11] potentially decreasing the mobile on-road emissions by 0.1%, GHG emissions (MT CO2e) could be reduced by the following:
<table>
<tr><th>CO2</th><th>N2O</th><th>CH4</th><th>Total</th></tr>
<tr><td>12.82</td><td>0.05</td><td>0.02</td><td>12.89</td></tr>
</table>
</td></tr>
<tr><td>Implementation Agency</td><td>SADNR, Tribal Administration</td></tr>
<tr><td>Implementation Schedule & Milestones</td><td>Within 1-2 years dependent on current vehicle lease obligations</td></tr>
<tr><td>Metrics for tracking progress</td><td>A number of gasoline or diesel-fueled government vehicles are replaced with electric or hybrid vehicles</td></tr>
<tr><td>Cost Estimate</td><td>$56,437 average EV cost</td></tr>
<tr><td>Co-benefits</td><td>Improved air quality from vehicle emissions reduction; tax credits</td></tr>
</table>

Action 4.3 EV Purchase Support	
Applicable sectors	Mobile Combustion
Estimated GHG Reduction	Indirect, this will depend on the number of community members who chose to switch to an electric vehicle.
Implementation Agency	SADNR
Implementation Schedule & Milestones	Within the year; informational packets are published and distributed to the community, quotes obtained
Metrics for tracking progress	A number of community members switch to an EV as their primary mode of private transportation
Cost Estimate	$1,000 staff time; current staff can dedicate time to researching and publishing an advisory document for Pueblo community members
Co-benefits	Potential financial savings for community members; improved air quality with the reduction of vehicle emissions

3.3 Benefits Analysis

Overall, understanding co-benefits of climate action in regard to the requirements, concerns, and potential deficiencies will help the Pueblo prioritize decarbonization options that have support and the mechanisms needed for change. Co-benefits are described in Section 3.2 above.

3.4 Review of Authority to Implement

The Pueblo of Santa Ana Tribal Leadership has the authority to implement various GHG reduction measures. A Tribal Resolution has been drafted and will be presented to Tribal Council pending getting on the Council schedule. SADNR will work with Tribal Leadership to establish authority in proceeding with the implementation of the priority actions identified to reduce GHG emissions including a Resolution aimed at climate pollution reduction planning to reduce the Pueblo's GHG Emissions by a percentage by 2030. The Implementation schedule for each measure is outlined as described in Section 3.2 above.

3.5 Identification of Other Funding Mechanisms

SADNR continuously seeks alternative funding mechanisms to leverage toward the advancement of Santa Ana reaching their climate resiliency goals. This includes funding identified from other federal agencies such as the Bureau of Indian Affairs (BIA) Tribal Electrification Program (community solar project), the BIA Tribal Youth Initiative, collaboration with GRID Alternatives National Tribal Program for workforce development, the Department of the Energy, USDA Composting and Food Waste Reduction, and local or state grants for recycling and composting through the New Mexico Recycling and Illegal Dumping (RAID) grant.

3.6 Workforce Planning Analysis

SADNR intends to hire a Sustainability Program Manager to implement priority measures included in the PCAP. The Environmental Division Manager and Environmental Program Manager collaborate to discuss how funding opportunities can support workforce development activities needed. With the proposed priority actions there is need to hire additional staff to implement these measures in multiple tribal programs including planning, housing, solid waste, along with contractors needed for weatherization, energy audits, and EV stations.

4.0 NEXT STEPS

The next steps to successfully develop a CCAP will require:

1

Tribal Resolution

SADNR will work with Tribal Leadership to establish authority in proceeding with the implementation of priority actions identified to reduce GHG emissions aimed at climate pollution reduction planning.

2

Sound Projections

Reduction measures to Pueblo buildings, residences, and businesses are identified. Analyze quantified GHG emissions being produced by the Pueblo and how these levels are projected to fluctuate, with or without climate action, bother near-term and long-term.

3

GHG Reduction Targets

Reduction targets have been quantified with near-term and long-term target dates assigned.

4

GHG Reduction Measures

Tons of GHG emissions amounts are quantified and used to calculate the potential effectiveness of identified reduction measures for near-term and long-term.

5

Benefits Analysis

GHG pollutants produced by the Pueblo are reduced; ambient air quality is improved; economic benefits of implementing actions are achieved; Pueblo is making active progress toward addressing climate pollution.

6

Intersection with Other Funding

Other funding sources are awarded to continue to grow the capacity of the SADNR Environmental Division, Sustainability Program.

7

Workforce Planning Analysis

Additional positions are identified to expand the capabilities of the SADNR Sustainability Program; a number of trainings are attended.

8

Stakeholder Engagement Activities

Enhanced community engagement; increased public awareness of climate actions and comprehensive plan.

To achieve the above goals, this will require continuous research, regular collaboration with other Tribes, climate scientists, other professionals working in academic, governmental, and nongovernmental organizations, and the utilization of local climate information and tools that are readily available. Self-governance including capacity building, and engagement with the community in order to collaboratively assess, monitor and adapt to concerns will be on-going and a priority for the Pueblo of Santa Ana.

REFERENCES

1 https://globalcarbonbudget.org/fossil-co2-emissions-at-record-high-in-2023/

2 https://www.nps.gov/articles/climate-change-in-the-southwest-potential-impacts.htm

3 https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei

4 https://www.epa.gov/statelocalenergy/tribal-greenhouse-gas-inventory-tool

5 https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals

6 https://homeguide.com/costs/home-energy-audit-cost

7 https://www.energy.gov/energysaver/articles/energy-saver-101-infographic-home-energy-audits

8 https://housingnm.org/home-rehabilitation-and-weatherization/energymart-weatherization-assistance#:~:text=From%202010%20through%20the%20present%2C%20MFA%20has%20managed,savings%20of%20%24210-%24250%20on%20utility%20expenses%20per%20home

9 https://www.epa.gov/sustainable-management-food/composting

10 https://finmodelslab.com/blogs/startup-costs/ev-charging-station-startup-costs

11 https://www.forbes.com/sites/petercohan/2022/05/26/compared-to-gas-powered-electric-vehicles-cut-greenhouse-emissions-over-30/?sh=6f442de96069

ATTACHMENT 1: GHG EI

PUEBLO OF SANTA ANA GREENHOUSE GAS EMISSIONS INVENTORY

BASELINE YEAR 2020

Plan completed for:
Pueblo of Santa Ana
02 Dove Rd
Santa Ana Pueblo, NM 87004

Plan completed by:
Tara Weston
02 Dove Rd
Santa Ana Pueblo, NM 87004

JANUARY 2024

TABLE OF CONTENTS

LIST OF ACRONYMNS, ABBREVIATIONS, AND UNITS

AR5	IPCC Fifth Assessment Report
CAA	Clean Air Act
CFR	Code of Federal Regulations
CH4	Methane
CPRG	Climate Pollution Reduction Grant
CO_2	Carbon Dioxide
eGRID	Emissions & Generation Resource Integrated Database
ED	Environmental Division
EI	Emissions Inventory
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse Gas
GHGRP	Greenhouse Gas Reporting Program (40 CFR Part 98)
GWP	Global Warming Potential
HFCs	Hydrofluorcarbons
IPCC	Intergovernmental Panel on Climate Change
MT CO_2e	Metric Tons Carbon Dioxide equivalent
NEI	National Emissions Inventory
N_2O	Nitrous Oxide
OAR	EPA Office of Air and Radiation
PCAP	Priority Climate Action Plan
PFCs	Perfluorocarbons
PSA	Pueblo of Santa Ana
SADNR	Santa Ana Department of Natural Resources
SF_6	Sulfur Hexafluoride
TGIT	Tribal - GHG Inventory Tool (provided by the EPA)
VMT	Vehicle Miles Traveled

EXECUTIVE SUMMARY

This greenhouse gas (GHG) emissions inventory (EI) was prepared by the Pueblo of Santa Ana Department of Natural Resources (SADNR) Environmental Division. This report documents the amount of GHG emitted to, or removed from, the atmosphere from various sources on the Pueblo of Santa (PSA or "the Pueblo") for the baseline year 2020. This inventory was completed as a part of the United States Environmental Protection Agency (EPA) Climate Pollution Reduction Grant (CPRG) for planning. The results are intended to inform the Pueblo's Priority Climate Action Plan (PCAP).

The following sectors are included in this inventory:

- Mobile Combustion
- Stationary Combustion
- Electricity Consumption
- Agricultural & Land Management
- Waste Generation
- Wastewater Treatment

This GHG EI is limited to the following pollutants[1]:

- Carbon Dioxide (CO_2)
- Methane (CH_4)
- Nitrous Oxide (N_2O)

Data was compiled from the EPA's 2020 National Emissions Inventory (NEI)[2], EPA's Tribal – GHG Inventory Tool (TGIT)[3], EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021[4], the Pueblo's 2021 Level 2 EI, and other various secondary sources (state, local, and federal). This GHG EI is for sources within the boundary of the Pueblo and did not use a buffer.

The results of the internal inventory estimated the following from sources of GHG pollution on the Pueblo:

Table 1: GHG Emissions Totals (MT CO_2e) for 2020

	MT CO_2e
PSA Total	23,497.41

[1] Fluorinated gases (F-gases) including hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6), generally associated with industrial processes, were not included in this baseline study.
[2] https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei
[3] https://www.epa.gov/statelocalenergy/tribal-greenhouse-gas-inventory-tool
[4] https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals

INTRODUCTION

This greenhouse gas emissions inventory was made possible through the EPA Climate Pollution Reduction Grant for planning. One of the goals of this grant agreement is to quantify sources of GHG emissions to inform the drafting of a Priority Climate Action Plan for the Pueblo. This GHG EI is a preliminary EI and is composed entirely of existing data[5]. This inventory is intended to provide critical information on what sources on PSA emit what pollutants, and the relative magnitudes of these pollutants. This is a recommended first step toward understanding what is in our air and where it came from, and in preparing an EI that includes emissions calculated by the Pueblo with activity data the tribe has gathered from specific sources on Pueblo land.

The following sectors are included in this inventory:

- Mobile Combustion
- Stationary Combustion
- Electricity Consumption
- Agricultural & Land Management
- Waste Generation
- Wastewater Treatment

This GHG EI is limited to the following pollutants:

- carbon dioxide (CO_2)
- methane (CH_4)
- nitrous oxide (N_2O)

Several sources were used to compile the data included in this EI. County level data from the EPA's 2020 National Emissions Inventory (NEI) scaled down to the Pueblo level, EPA's Tribal – GHG Inventory Tool (TGIT), state level data from the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021 scaled down to the Pueblo level, the Pueblo's 2021 Level 2 EI, and other various secondary sources (state, local, and federal) were used for emission calculations. Due to the height of the COVID-19 pandemic in 2020 drastically altering a number of activities, data from 2020 may not be representative for certain sectors, in which case more current data was relied on to calculate emissions.

Emissions values from the NEI were converted from unit of tons to units of metric tons CO_2 equivalent (MT CO_2e) by first dividing by the conversion factor of 1.10231. Then, the values in

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

metric tons were multiplied by the global warming potential (GWP) of the gas. The GWP values of 28 for methane and 265 for nitrous oxide are from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5).

ABOUT THE PUEBLO

The Pueblo of Santa Ana ("The Pueblo") is located along the Rio Jemez and Rio Grande in southeastern Sandoval County, New Mexico, about 15 miles north of Albuquerque and 45 miles south of Santa Fe. Santa Ana land encompasses over 138,000 acres (79,000 currently held in trust) including original land grants, trust lands, and land purchased by the Tribe. Basalt-capped mesas supporting semi-arid grassland vegetation interspersed with piñon pine and juniper, dominate the land area. Of this land base, roughly 1,700 acres is devoted to non-residential development, supporting various tribally owned businesses in hospitality, recreation, and gaming. Industrial materials plants have operations on the border of tribal land, including a sand and gravel plant and a wallboard facility. Agriculture, hospitality, and recreation occur primarily in this southeast portion of the Pueblo. This is also where the people of Santa Ana reside. The Town of Bernalillo, the Village of Placitas, and the City of Rio Rancho also border this portion of the Pueblo.

Figure 1: Santa Ana Pueblo Land in Trust

The Pueblo is located in a major transportation corridor. One major interstate highway (I-25) bisects the Pueblo, and another state highway (NM-550) runs along the southern boundary, close to residential areas on the Pueblo. A commuter rail runs alongside I-25 through a Pueblo residential area (New Mexico Rail Runner). According to the Tribal Enrollment Office, there are currently around 1,000 enrolled members of the Pueblo. The trust land of the reservation, which is also the area of this inventory, is shown in *Figure 1*.

EMISSIONS INVENTORY AREA

For the purposes of this initial inventory, only emissions within the reservation boundaries held in trust were included. Since this EI is meant to identify the top GHG emissions sources and the climate actions that may be prioritized, implementation can more easily take place on Pueblo lands who is the regulatory authority. Therefore, a buffer was not used for this inventory but may be used in future inventories.

2020 ON-PUEBLO EMISSIONS

MOBILE COMBUSTION

On-Road Vehicle Travel

We calculated on-road vehicle automobile emissions on the Pueblo roads as a portion of the 2020 NEI on-road emissions for Sandoval County based on a vehicle miles traveled (VMT) ratio. This ratio was calculated by dividing the VMT on local Pueblo roads (paved and unpaved roads) of 20,666,125 by the county VMT[6]. The county VMT value of 1,562,870,900 is from the 2020 NEI Wagon Wheel tool. We multiplied the VMT ratio of 1.32% by the 2020 NEI on-road data for Sandoval County to calculate the on-road vehicle emissions for local roads on the Pueblo. Table 2 shows the Pueblo 2020 emissions, in metric tons CO_2 equivalent, from on-road mobile sources traveling on local roads.

Table 2: GHG Emissions (MT CO_2e) from On-Road Vehicle Travel on Local Roads

CO_2	N_2O	CH_4	Total
12,822.44	46.06	20.56	12,889.06

Portions of Interstate 25 and Highway 550 run through the Pueblo. The VMT value for these segments of the roads was estimated as 134,517,611 using traffic count data from the New Mexico Department of Transportation online application. The VMT ratio of 8.61% was used to calculate on-road vehicle emissions for the portions of these roads that intersect the Pueblo. Since the majority of the vehicles traveling on these roads are driving through the Pueblo and since the Pueblo is not the regulatory authority of these roads, it would not be possible to develop strategies to control the emissions from vehicles traveling on these roads. Therefore, the emissions in the following table were not included in the total GHG emissions value calculated in this EI and are presented to provide additional information on the impact of on-road vehicle emissions, rather than to inform any mitigation efforts.

Table 3: GHG Emissions (MT CO_2e) from On-Road Vehicle Travel on Portions of I-25 and NM-550 Intersecting the Pueblo

CO_2	N_2O	CH_4	Total
83,462.38	299.79	133.85	83,896.02

Non-Road Mobile Sources

Agricultural Equipment

The most recent available data from Sandoval County show that there are 783,724 acres of farmland in the county in 2017[7]. There was a total of 1,188.67 acres of agricultural lands

[6] VMT for the Pueblo was calculated in the Pueblo 2021 Level 2 Emissions Inventory

[7] USADA, 2017 Census of Agriculture County Profile: Sandoval County New Mexico, https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/New_Mexico/cp35043.pdf

recorded for the Pueblo in 2020[8]. Santa Ana's proportional representation in acres is therefore 0.15%. The below emissions estimates are 0.15% of the Sandoval County Emissions reported in the 2020 NEI.

Table 4: GHG Emissions (MT CO_2e) from Agricultural Equipment

CO_2	CH_4	Total
1.63	0.002659	1.63

STATIONARY COMBUSTION

Commercial Natural Gas

There are 81 commercial buildings that use natural gas on the Pueblo that used 81,117 therms or 7.95 $MMft^3$ in 2021[9]. Using the TGIT, the below emissions were estimated.

Table 5: GHG Emissions (MT CO_2e) from Commercial Natural Gas

CO_2	CH_4	Total
433	1	434

Residential Natural Gas

There are 201 homes on the Pueblo that use natural gas. The residential use of natural gas in 2021 was 122,320 therms or 11.99 $MMft^3$ in 2021[10]. Using the TGIT, the below emissions were estimated.

Table 6: GHG Emissions (MT CO_2e) from Residential Natural Gas

CO_2	CH_4	Total
653	2	655

ELECTRICITY CONSUMPTION

Electricity consumption was calculated using the TGIT that utilizes the Emissions & Generation Resource Integrated Database (eGRID)[11] subregion data AZNM for the 2020 Pueblo population of 1,006. For commercial and Pueblo administrative buildings, electricity consumed was estimated as 18,200,000 kWh and 4,800,000 kWh for Pueblo homes.

[8] Provided by the SADNR GIS Division
[9] Information obtained via email from Ted L. Garcia, Director for Native American Governmental Relations, NM Gas Co.
[10] Id.
[11] https://www.epa.gov/egrid

Table 7: GHG Emissions (MT CO_2e) from Electricity Use

	CO_2	N_2O	CH_4	Total
Residential	1,843.3	4.0	3.3	1,850.6
Commercial	6,989.1	15.3	12.5	7,016.9

AGRICULTURAL & LAND MANAGEMENT

Fertilizer Application

An estimated 6 short tons of synthetic fertilizer was applied by the Agricultural Department in 2021[12]. Below are the emissions, calculated using the TGIT, based off this amount.

Table 8: GHG Emissions (MT CO_2e) from Fertilizer Application

N_2O	Total
43.07	43.07

Livestock

The Range Program Manager provided SADNR with the 2021 annual numbers of cattle and calves and horses via email. There were 54 heads of cattle and 109 horses. Emissions were calculated of the combined enteric fermentation and manure management using methodology from the Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2021,2023.[13]

Table 9: GHG Emissions (MT CO_2e) from Livestock

CH_4		Total
Enteric Fermentation	Manure Management	
161	4	165

WASTE GENERATION

The Pueblo analyzed 2020 GHG emissions data from the Waste inventory sector for New Mexico from the EPA's Inventory of US Greenhouse Gas Emissions and Sinks by State. The ratio of 0.05% for PSA's population of 1,006 to New Mexico's population of 2,117,522 in 2020 was used to allocate the emissions estimates for this sector[14]. The state-level wastewater treatment emissions were subtracted from the total Waste sector before this allocation was

[12] Provided via email from Agricultural Department Director, Ryan Garcia
[13] https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Annex-3-Additional-Source-or-Sink-Categories-Part-B.pdf
[14] United States Census Bureau, 2020 Decennial Census

performed to prevent double-counting the emissions estimated from the aerobic wastewater treatment facility operated by the Pueblo that are included in the next section.

Table 10: GHG Emissions (MT CO_2e) from Waste and Materials Management

N_2O	CH_4	Total
2	402	404

The Pueblo does collect recycling at the Transfer Station, however there is no data available to calculate the metric tons of CO_2e that are avoided for mixed waste that was recycled instead of landfilled.

WASTEWATER TREATMENT

The Pueblo operates an aerobic wastewater treatment facility that has an average total nitrogen discharge of 2.35 kg N/day[15]. Using the TGIT, the following emissions were estimated.

Table 11: GHG Emissions (MT CO_2e) from Wastewater Treatment

N_2O	CH_4	Total
26.55	11.60	38.15

SUMMARY

On-road mobile combustion represented the largest contributing sector of GHG emissions in 2020. Electricity use was the second largest contributor of GHG emissions on the Pueblo, with the third highest contributor coming from the stationary combustion of natural gas.

Table 12: 2020 Baseline Summary of MT CO_2e Emissions on the Pueblo of Santa Ana

	MT CO_2e
Mobile Combustion	12,890.69
Stationary Combustion (Natural Gas)	1,089
Electricity Consumption	8,867.5
Agricultural & Land Management	208.07
Waste Generation	404
Wastewater Treatment	38.15
PSA TOTAL	**23,497.41**

[15] Provided by the Utilities Department; data used for calculations were from 2023 as 2020 numbers would have been skewed due to COVID-19 shut-downs