
AB 2740 - Climate Action Plan Update

May 2024



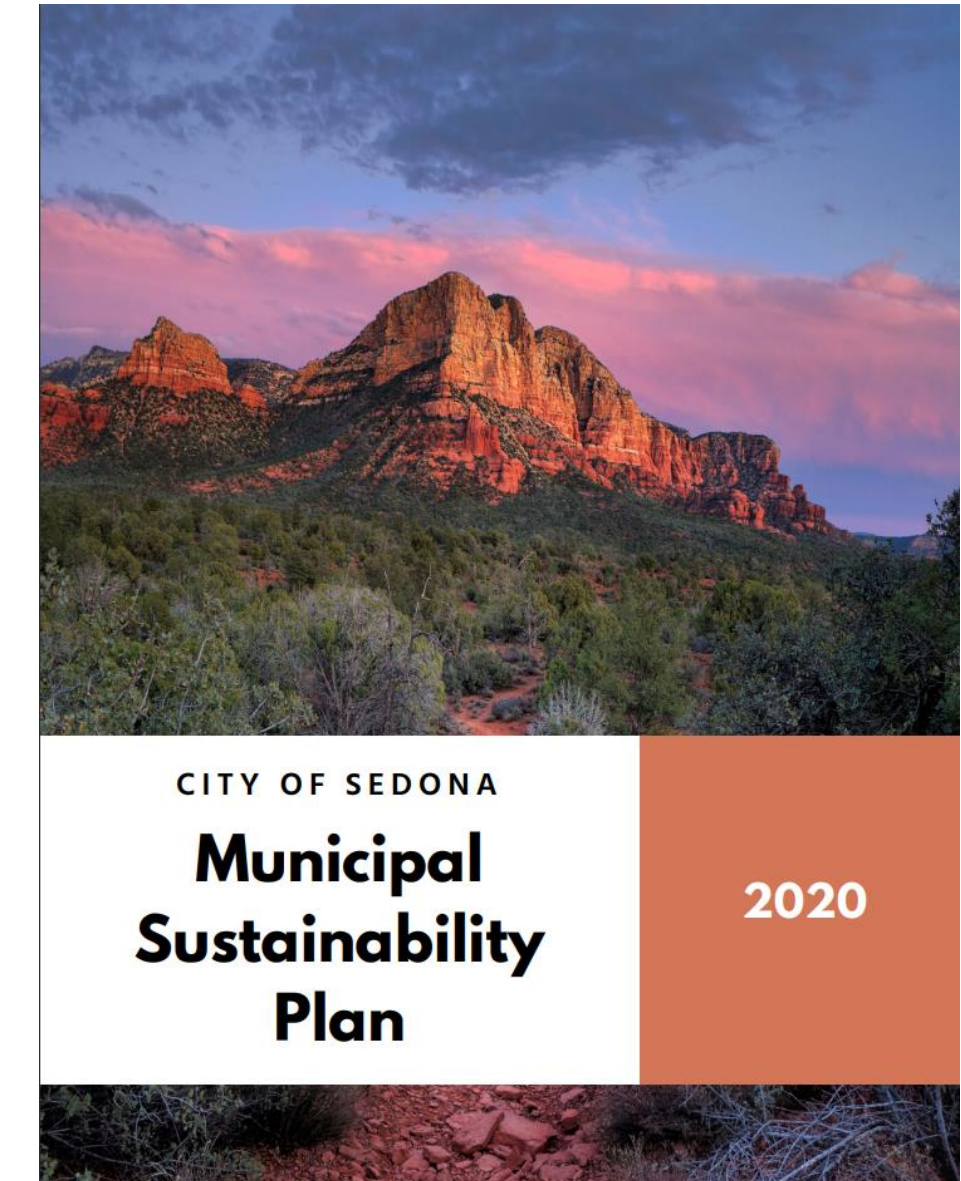
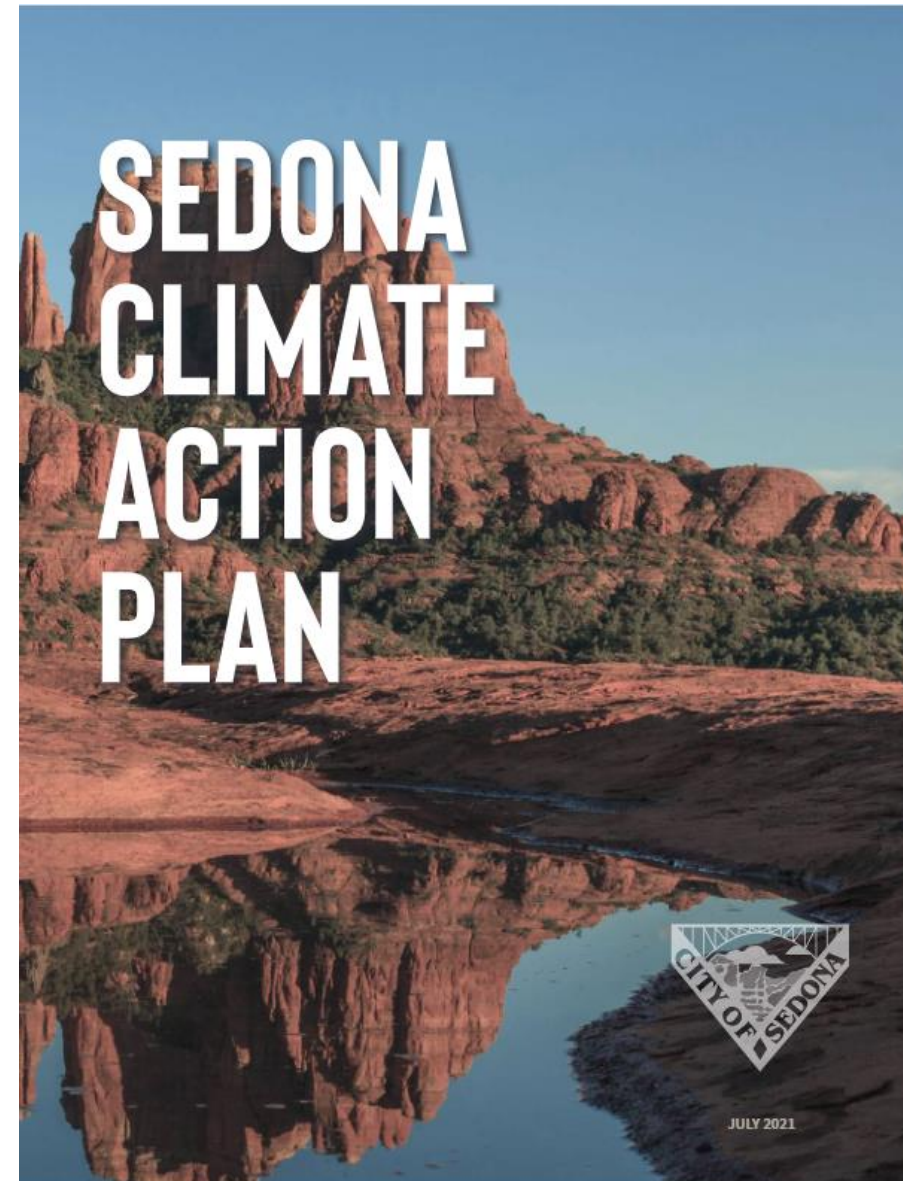
Sustainability Program Foundational Documents

Sedona Climate Action Plan

- ❑ Created in July of 2021
- ❑ Highlighted Goals and Objectives:
 - Reduce Community-wide Emissions 50% by 2030
 - Improve Community Resilience
 - Enhance Community Mobility
 - Increase Renewable Energy Sources
 - Increase Waste Diversion

Municipal Sustainability Plan

- ❑ Created in 2020
- ❑ Highlighted Goals and Objectives:
 - Be Resilient
 - Be Carbon Neutral
 - Be a Healthy Workplace



Electric Vehicles Overview



Arizona Electric Fleet Day

- ❑ Fleet Electrification is Ramping Up Across the State
- ❑ Utilities and Companies Have Significant EV and Infrastructure Investments
- ❑ Market and Model Availability is Adapting
- ❑ Beneficial to ‘Futureproof’ New Construction and Renovation Projects
- ❑ Keep EV Chargers Close to Available Power
- ❑ Long Lead Times on Switch Gears and Transformers
- ❑ EV Motors have 20 Moving Parts – ICE ~2,000



Overview of Electric Vehicles- Cost and Charging

Costs Differences

- ❑ Upfront Costs: Gasoline Vehicles Currently Cheaper
- ❑ Energy Costs: Gasoline Vehicles ~2X More on Average
- ❑ Maintenance Costs: EVs Typically Less

- ❑ Sedona's Fleet Transition:
 - Potential Savings of ~\$500,000 Over 10-year Period
 - Evaluating in Decarbonization Roadmap

Charging Infrastructure

- ❑ Public charging infrastructure continues to be built in Sedona and throughout the state.
- ❑ Recent Public Chargers Installed
 - 4 DC Fast Chargers (Posse Grounds Park)
 - 2 Level two chargers (Sunset Park)
- ❑ Upcoming DC Fast Chargers at Uptown Parking Garage
- ❑ All EVs and Chargers Transitioning to North America Charging Standard (NACS)
 - ❑ Opens Tesla chargers to non-Tesla owners.



Arizona National Electric Vehicle Infrastructure (NEVI) Planning

Average EV Range (Miles) by Class

Truck: 360
 SUV: 284
 Sedan: 316

Average Vehicle Miles Traveled/Day

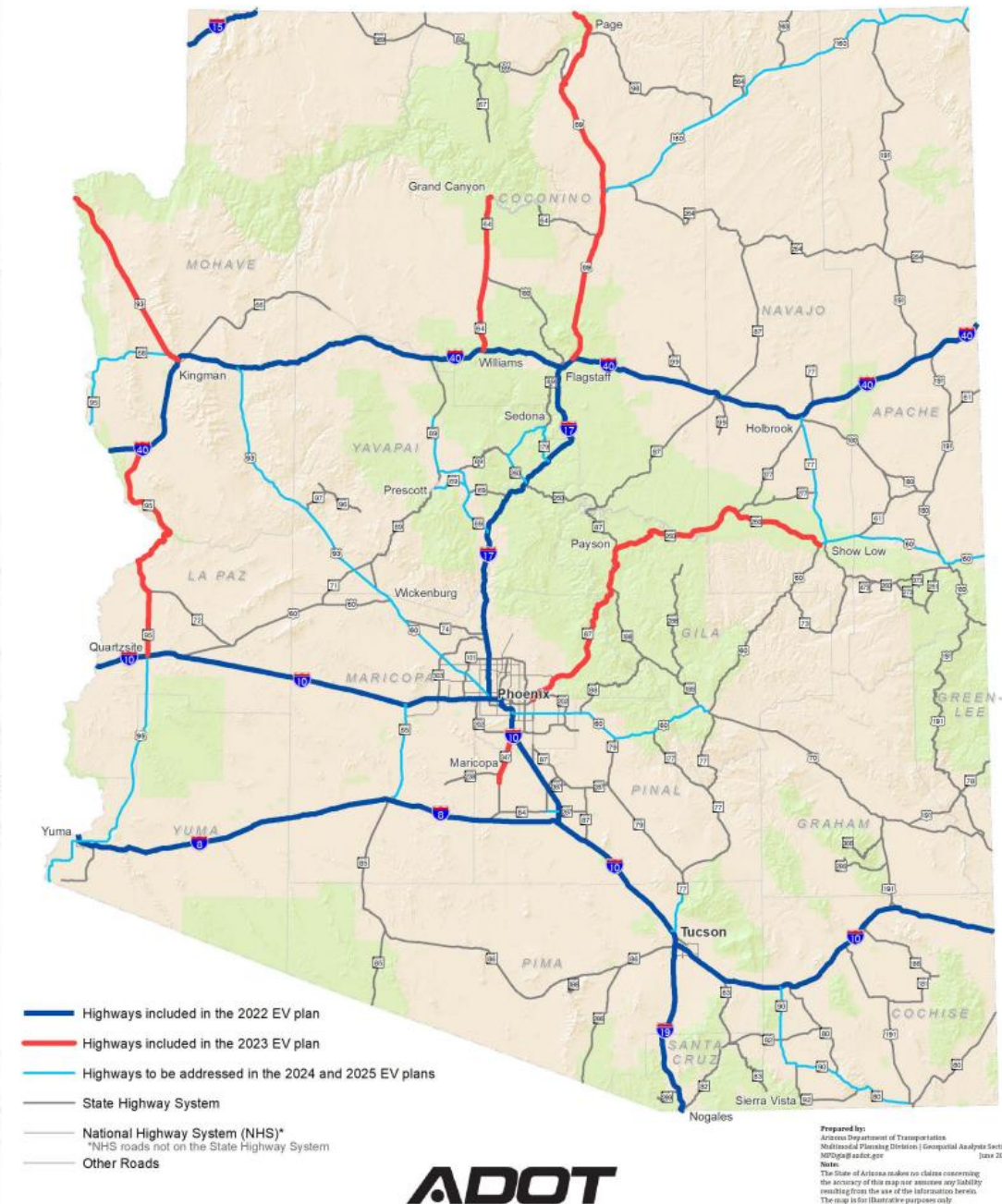
- ❑ Police: 35 miles (including travel home)
- ❑ Public Works Trucks: 44 miles

Max miles traveled/day

- ❑ Police Vehicle: 147 Miles Highest Day in last 3 months
- ❑ EV range can be impacted by external temperatures.
 - Best range expected when temperatures reach above 80°F
 - Lowest range expected in sub freezing temperatures (20°F)



Arizona Alternative Fuel Corridors (AFC)



Overview of Electric Vehicles- Police and Snow Removal

Police Department Electrification Approach

- ❑ Phased Transition Over Five-Year period
- ❑ Continued and Increased Collaboration with Departments, Upfitters, Car Manufacturers

- ❑ Current Pursued Approach:
 - Pair with Police Dedicated Charging
 - Start Small – Procure 2-4 EVs for Piloting and Data Collection
 - Pair with Police Dedicated Charging
 - Facilitate EV Driver Training
 - Utilize Green Fleet Policy for Reimbursement for Home Charging
 - Expand and Adapt Program, Charging Infrastructure, and Number of EVs Over Time



Snow Removal and Heavy-Duty Vehicle Electrification

- ❑ Transition Further Off
 - Currently few, if any, readily available EV options for weight class and use type
 - Options will likely increase over time.



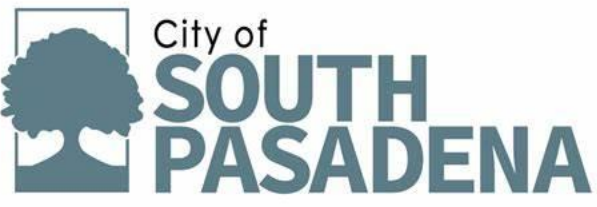
Cities Pursuing Fleet Electrification

Examples of Police Departments Electrifying



Arizona Governments

City of South Pasadena, California



- Converting Entire PD Fleet
- Estimated Savings \$312,000 over 10 Years



City of Leawood, Kansas



- Tesla Model Y Upfitted
- Estimated to save ~\$3,500/Yr in Energy Costs



City of Austin, Texas



- Chevy Blazer EVs Ordered
- APD Pilot Program



City of Cambridge, Massachusetts



- Deployed Ford Mach-E
- Maintenance Costs Expected to Drop by \$1,500 per year



City of Fort Bragg, California



- Ford F-150 Lightning Patrol Trucks
- Saving \$8,000 in first 5 months

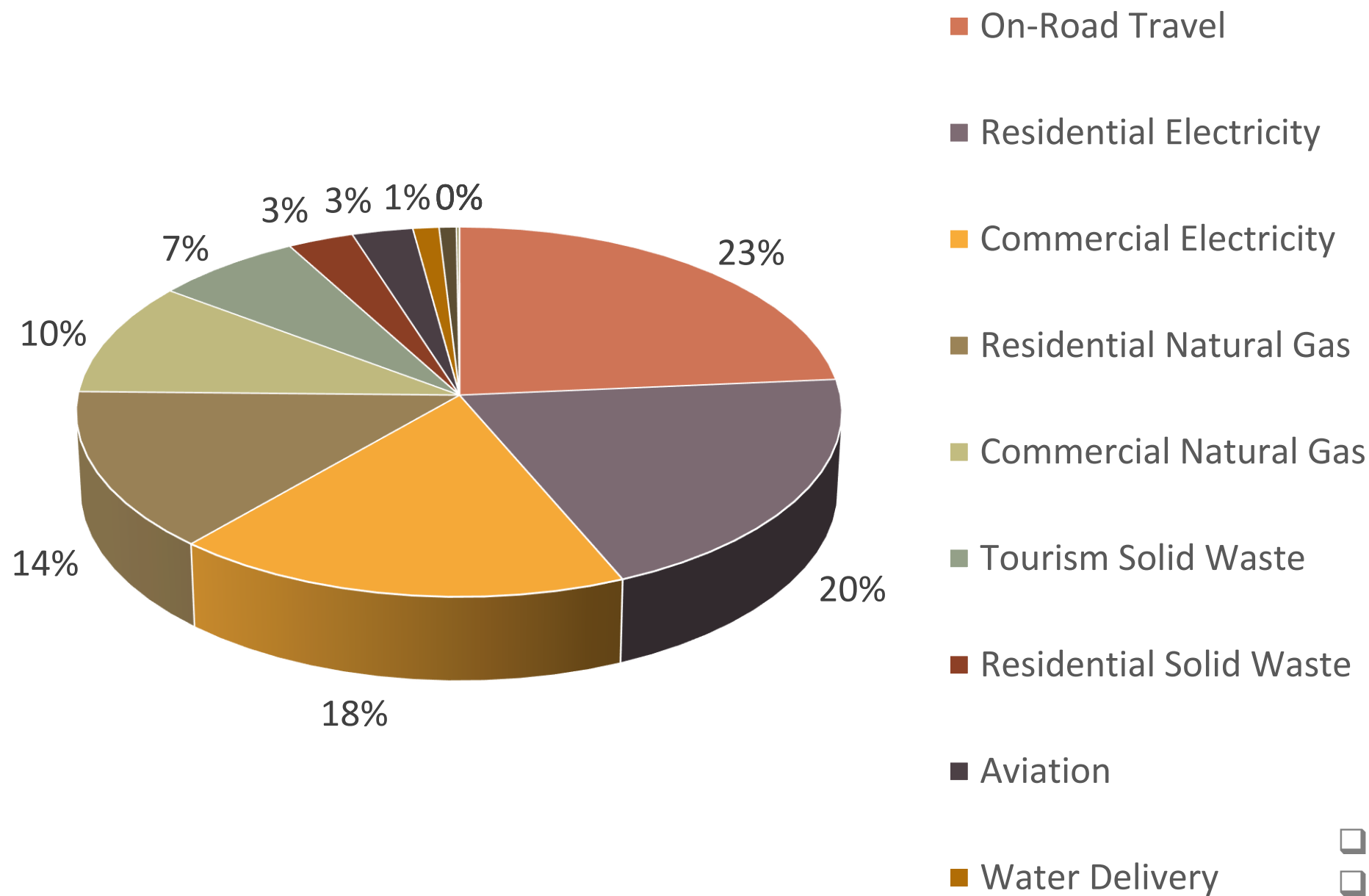


Community GHG Inventories

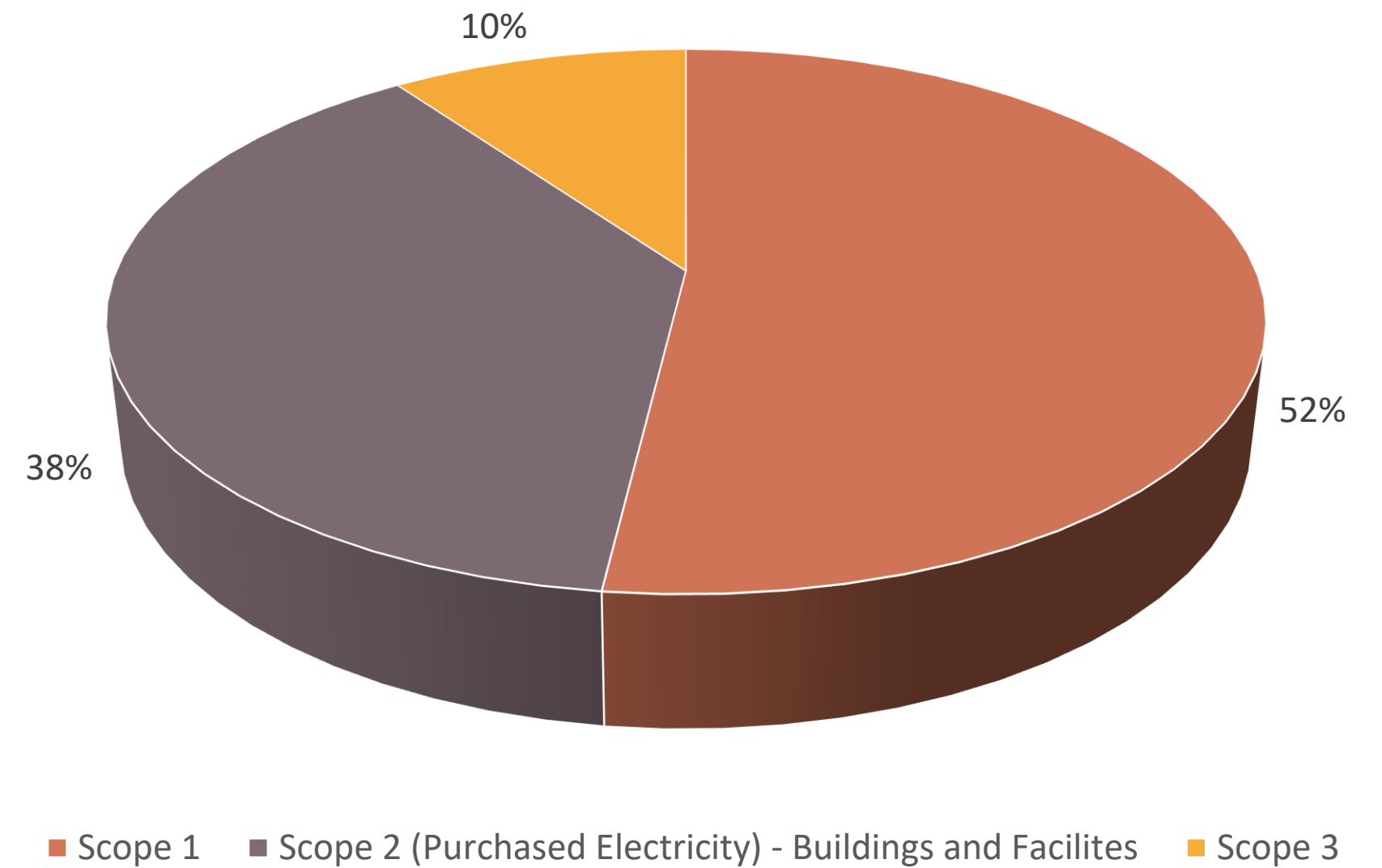


2023 Community Emissions Estimates: 150,163 MT CO₂e

Estimated 2023 Community Emissions



Estimated 2023 Community Emissions

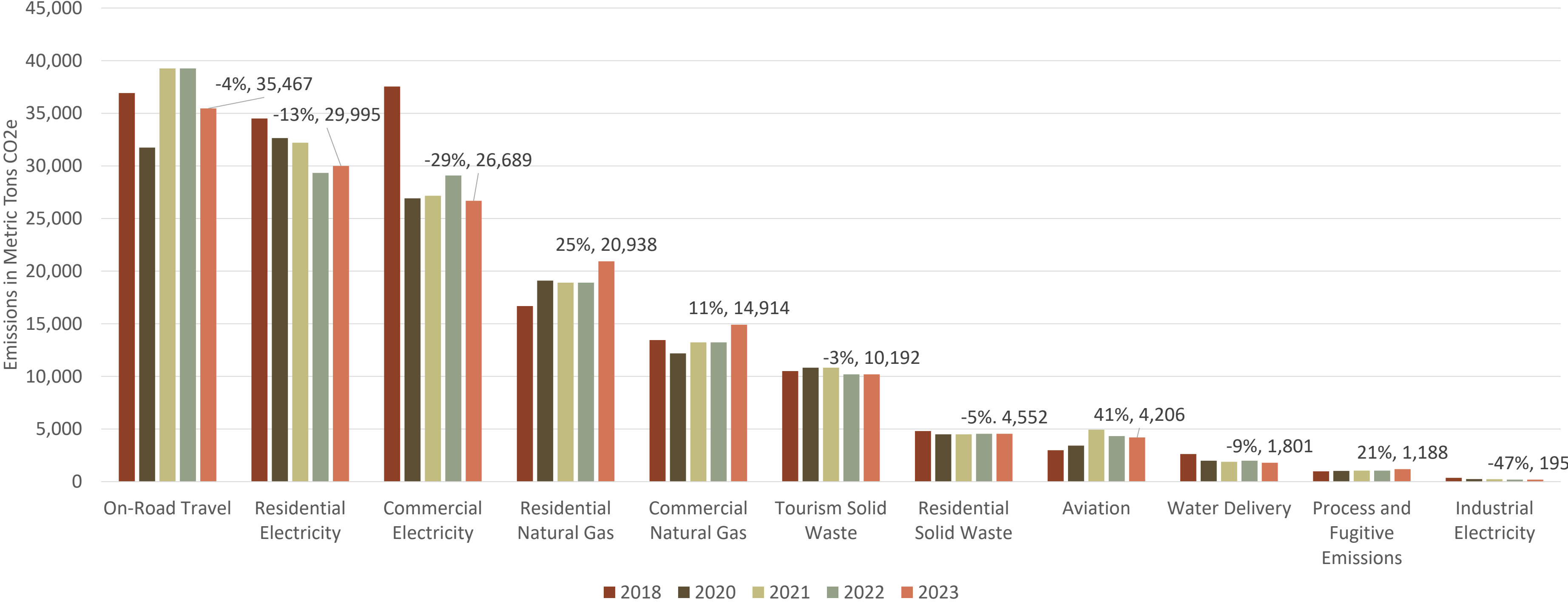


- ☐ **Scope 1** – GHG emissions from sources located within the city boundary
- ☐ **Scope 2** – Emissions from grid-supplied electricity within city
- ☐ **Scope 3** – All other emissions that occur outside of the city as a result of activities within the city



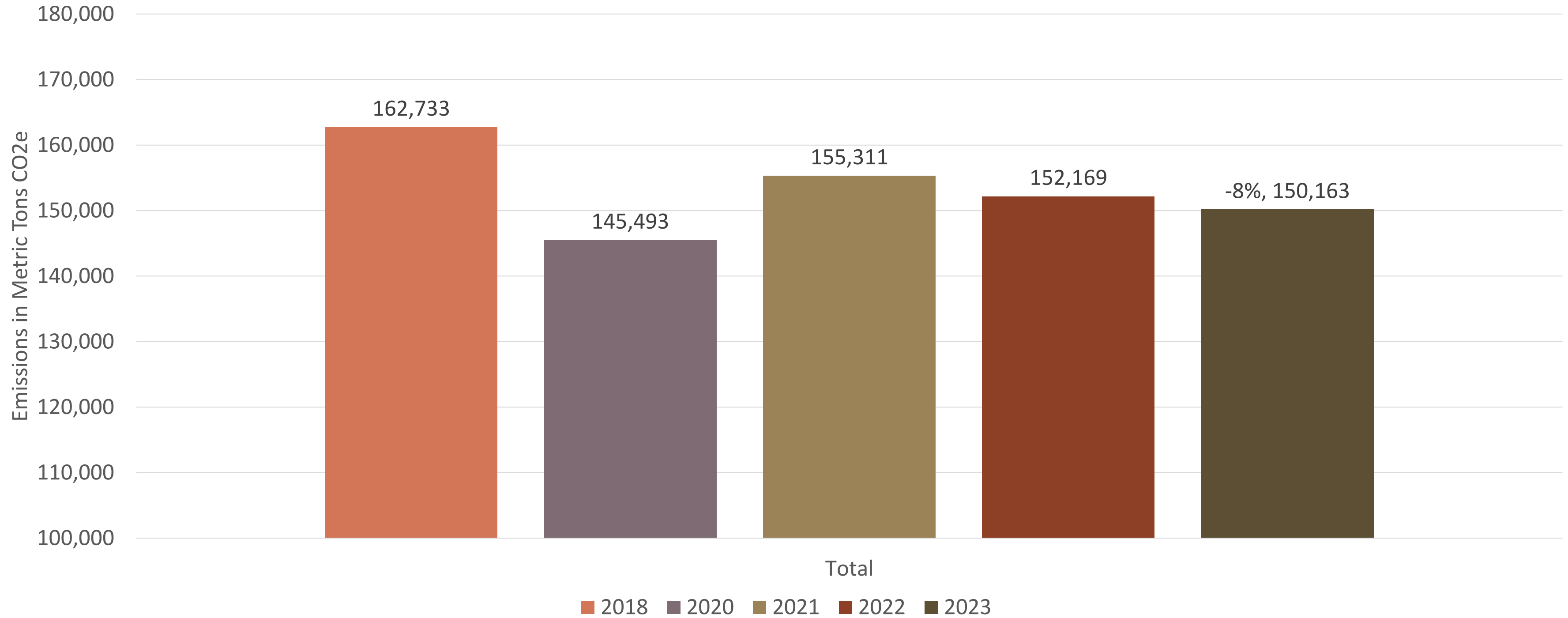
2023 Community Emissions Estimates by Category

2023 Community Emissions Estimates by Category



2023 Community Emissions Estimate: 150,163 MT CO₂e

Estimated Community Emissions



Takeaways From Community GHG Inventory



Insights:

- Continued improvements in AZNM eGRID Emission Factor
 - Improvements Offset by Increased Electricity Usage
- Increase in Natural Gas Consumption from Strong 2023 Winter
- Decrease in VMT of On-Road Data
 - Lag in On-Road Data
- Solid Waste Emissions Remain Broad Estimates

- Public Trailhead Shuttle Impacts:**
 - 334,481 Passenger Boardings in 2023
 - Traveling 122,548 Miles
 - Estimated Over 1.3 Million Miles if Covered by Passenger Vehicles
 - Avoided an Estimated 383 MT

- Recycling in Community Potentially Avoided ~1,800+ MT



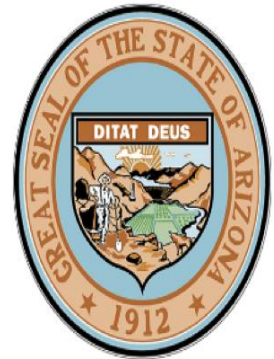
State Climate Action Planning and CPRG Efforts

State Climate Action Planning

- ❑ State Began Creation of a Priority Climate Action Plan Last Fall
 - March 1st Deadline to the EPA
- ❑ Sustainability Staff Helped Facilitate Regional Workshops in Coconino County
- ❑ City of Sedona CAP and GHG Inventories Shared with the State, NAU, and ASU Teams
- ❑ Priority Climate Action Plan Needed for Implementation Grants

Sedona Climate Polluting Reduction Grant (CPRG) Applications

- ❑ Applications were due April 1st
- ❑ Co-Applicant on City of Flagstaff's Application:
 - Applied for Expansion of Community Composting Program
 - Learning Partner on Flagstaff's Proposed Biochar Facility
- ❑ Sedona Application Submitted for:
 - Expansion of Home Energy Retrofit Project
 - Creation of a Solar Rebate Program
 - Procurement of Electric Fleet Vehicles
 - EV Charging Infrastructure
 - Local Mechanic Training Program



Decarbonization Roadmap Update

Facility Audits

5

Wastewater Treatment Plant
Posse Grounds Park
Brewer Road
Contractor's Road
City Hall Complex



Key Department Interviews

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Sustainability
Public Works
Wastewater
Police Dept.
Financial Services
City Manager Office
Community Development

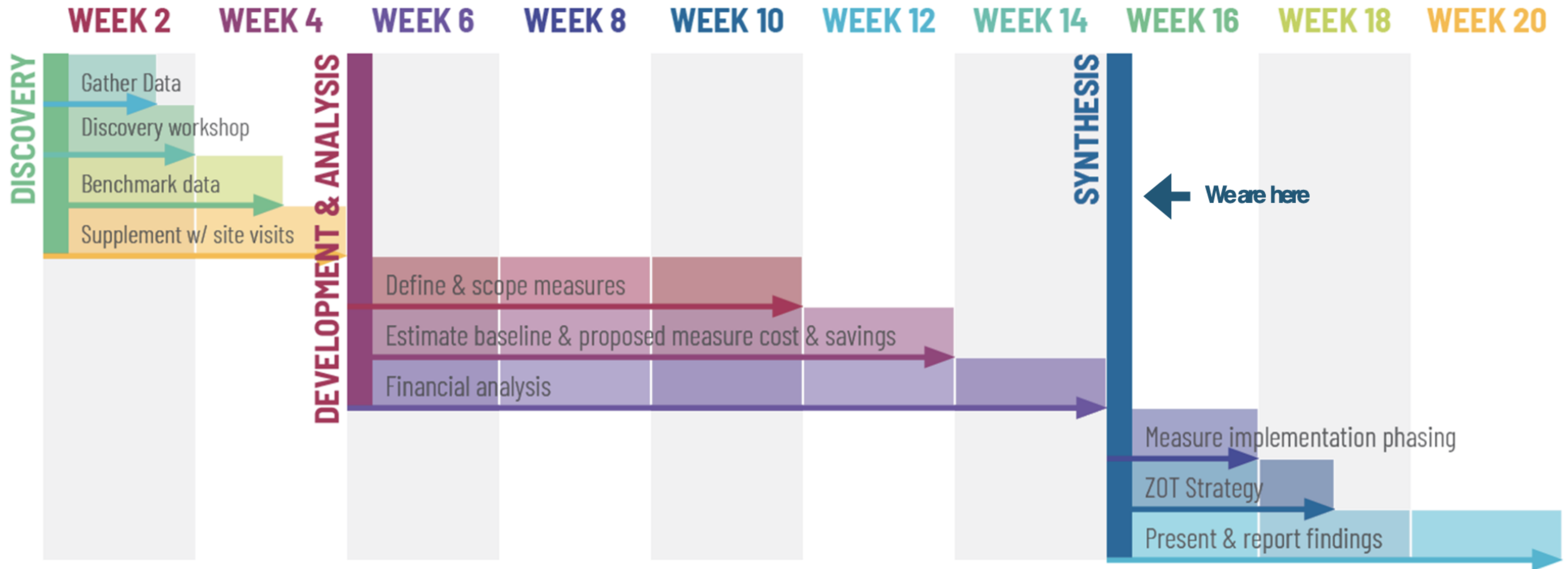


Energy / Decarbonization Measures

12+

HVAC Electrification
Hot Water Electrification
Solar PV
Battery Storage
Misc. Load Reduction

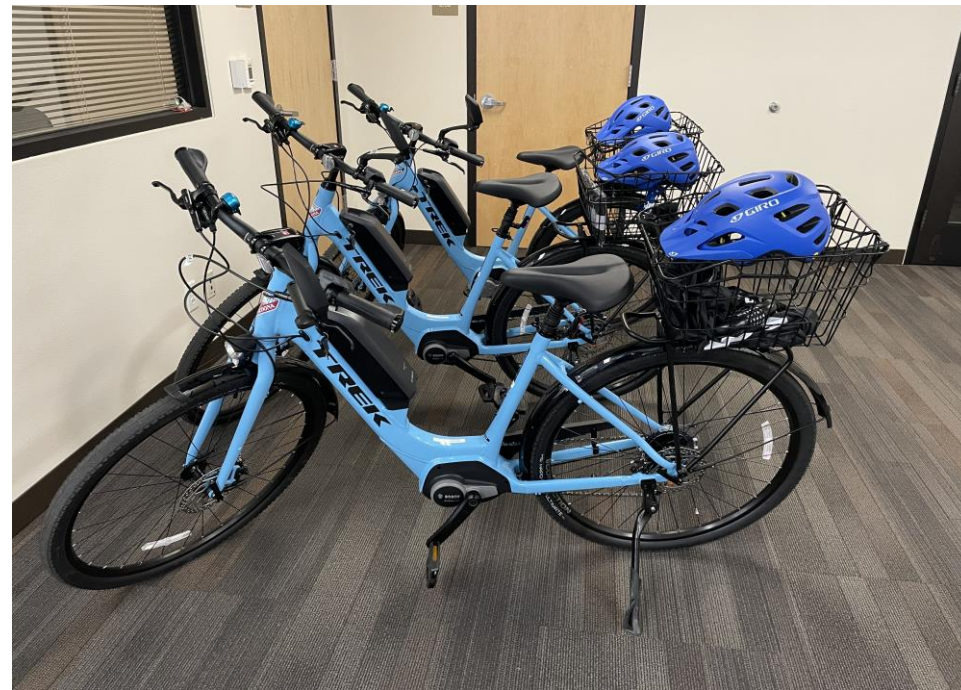




Municipal Projects



Municipal e-Bikes and Bike Racks



- ❑ 6 Municipal e-Bike Fleet
 - 180 miles of travel after training.
- ❑ Safety Training Program Created
 - e-Bike program has supported two Sedona bike companies.
 - 32 staff members have been trained.
- ❑ We have installed 18 high-capacity bike racks across Sedona's parks and government buildings.

Waste Diversion at Special Events & Internal Recycling Efforts

Waste Diversion at Special Events

- Coordination Between Sustainability and Parks and Recreation

Waste Diverted From Landfill:

- 296 LBS, or 69.5%, of Waste from Food Truck Festival (Nov 2023)
- 32.5% of Waste from Celebration of Spring (March 2024)
- 300+ Utensils & Plates from Breakfast With Santa (Dec 2023)
- Next Steps: Expand Efforts to Increase Waste Diversion (i.e., Water Bottle Refill Station for Events)



Internal Recycling Efforts

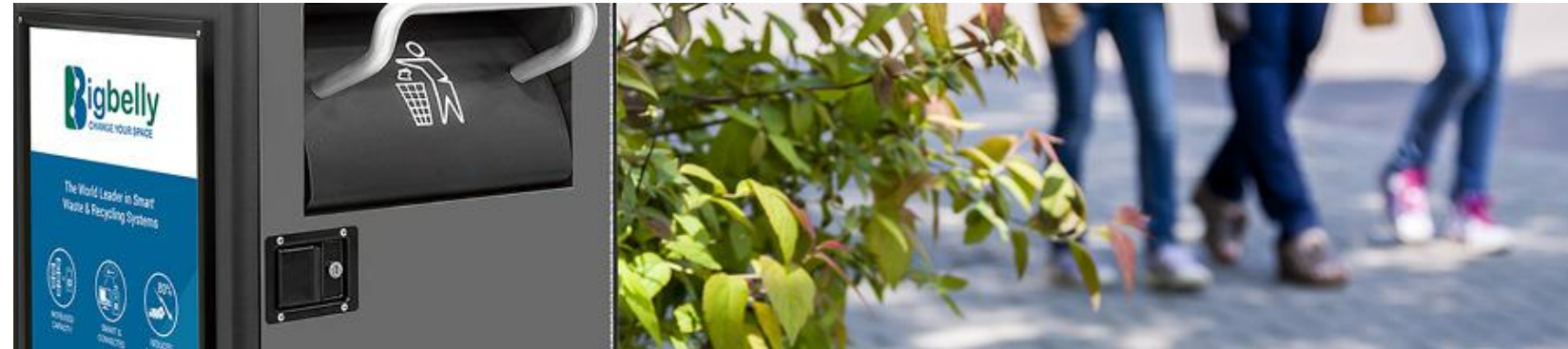
- Coordination Between Sustainability and Public Works

Action Taken:

- Recycling Program Implemented at City Hall Bldgs., Brewer Bldgs., and Wastewater to Streamline Recycling to Sedona Recycles
- 1 Staff Member Designated As “Recycling Champion” For Each Bldg.
- Next Steps: Implement System To Collect Recycling Data



Waste Management Pilot Project



Implementation of BigBelly Waste Receptacles

- 10 Receptacles Installed Fall 2023
- Utilizing Clean Software to:
 - Collect Waste Data
 - Provide Notifications to Staff to Improve Collection Efficiency

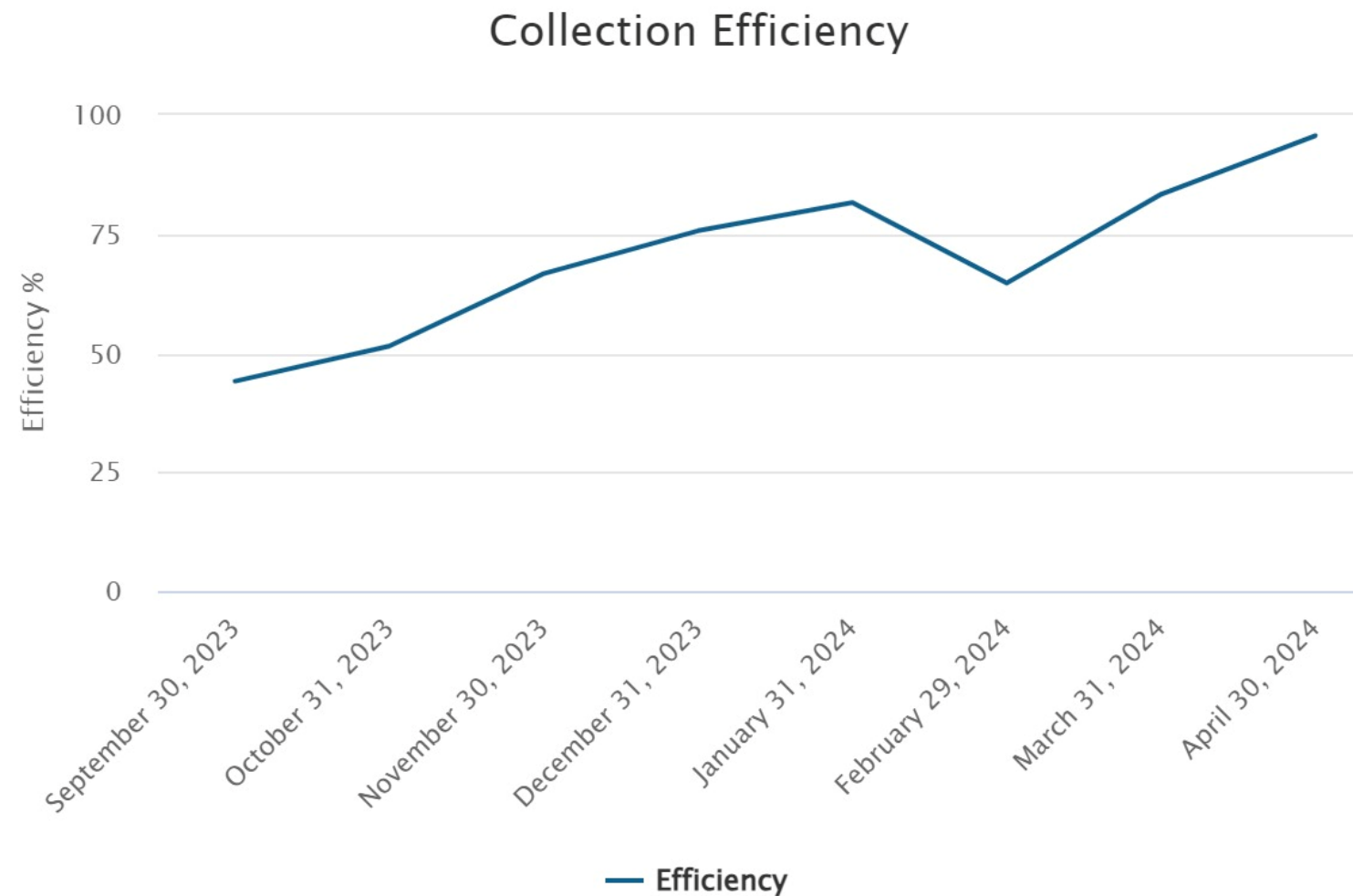
Continued Goals for the Project

- Improve Waste Management Collection and Data Retrieval
- Redirect Labor Hours to Other Tasks
- Reduce Number of Waste Receptacles Needed
- Increase City Communication Points
- Map Waste Collection Trends
- Provide Timely Notifications to Staff

Waste Management Pilot Project – Waste Data

Collection Efficiency Has Improved: 51.6% Increase in Collection Efficiency Since Start of Project

- ❑ Month 1 (Oct 2023) Collection Efficiency: 44.1% (READY) 55.9% (NOT READY)
- ❑ Month 8 (May 2024) Collection Efficiency: 95.7% (READY) 4.3% (NOT READY)
- ❑ Total Project's Average Collection Efficiency: 66.3% (READY) 33.7% (NOT READY)



Average Total Waste Collected:

- ❑ Using the 10 BigBelly Receptacles as a Proxy Point for Surrounding Receptacles
- ❑ 140 Total Waste Receptacles (Parks, Trailheads, Bus Stops, etc.)
- ❑ Average of 4.65 TONS Collected Per BigBelly Receptacles Per Year
- ❑ **Approximately 650 TONS** of Waste Collected from All Waste Receptacles Per Year



ADEQ Recycling Grant

Awarded Grant from Arizona Department of Environmental Quality:

- Amount Awarded: \$53,650
- Procure 10 BigBelly Recycling Receptacles by June 30

Goals for Project

- Recycling Data Retrieval
- Improve Waste Diversion Efforts
- Additional Collaboration with Community Partners
- Greenhouse Gas Reductions in Waste Management
- Community Educational Opportunities with Side Panel Messaging



Community Projects & Regional Collaborations



Home Energy Retrofit Project

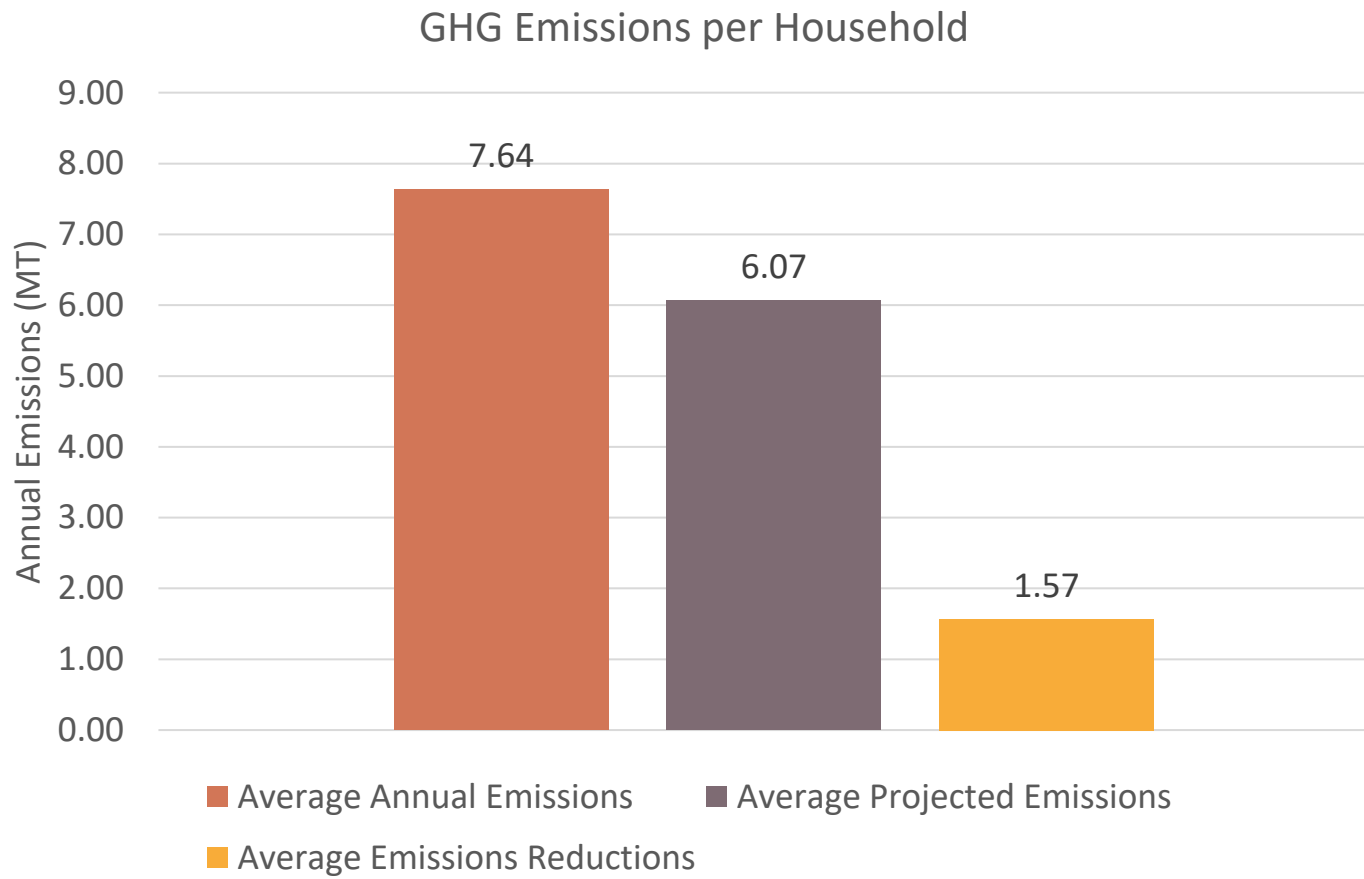
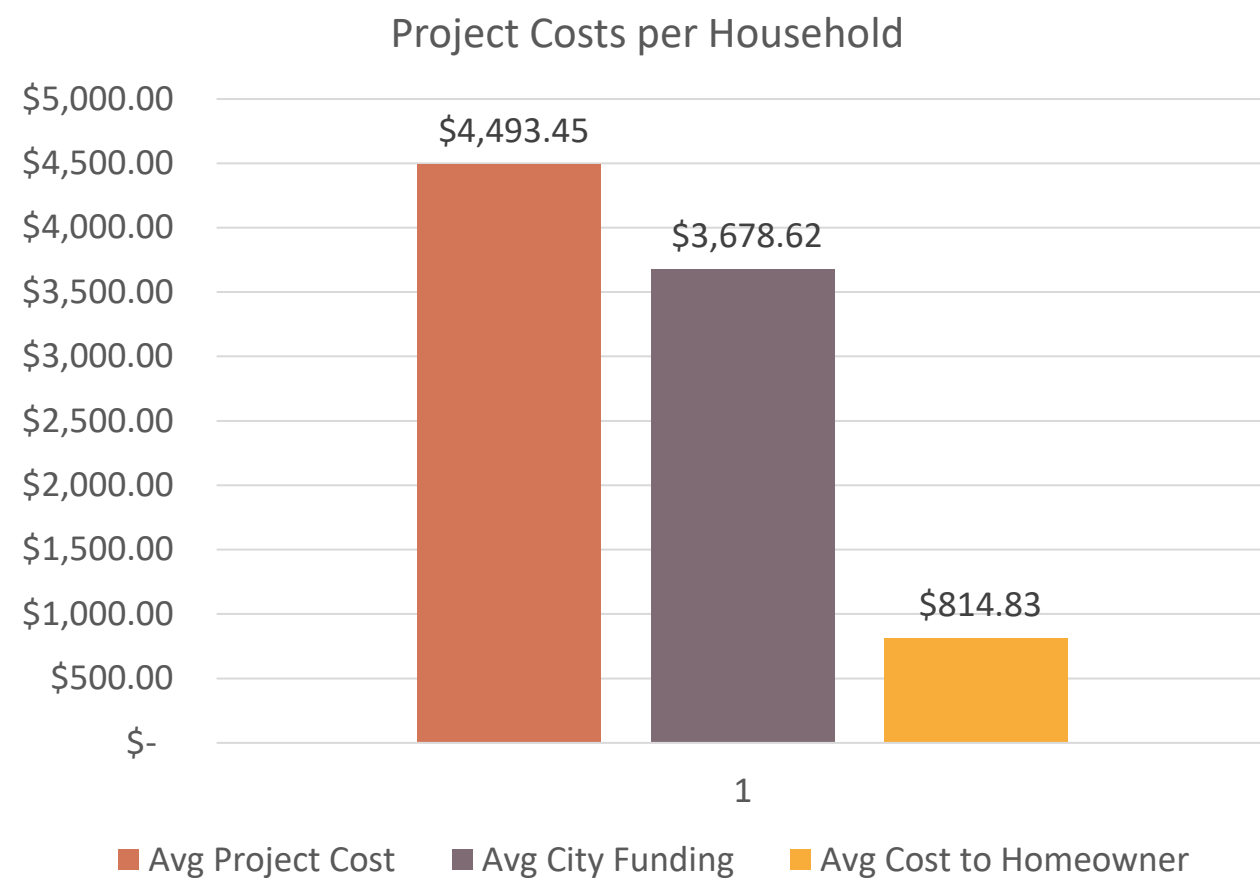
Home Energy Retrofit Project – FY24

- ❑ 19 Households
 - 2 of the 19 Were Home Energy Audits
 - 14 Households at Full Funding Level

- Project to Date:
 - ❑ 61 Homes Through Project (6 more in June)
 - ❑ \$22,082 in Estimated Cumulative Annual Utility Savings (Average of \$362 per Residence)
 - ❑ Average ROI for Homeowner Around 2.5 Years
 - ❑ 65% Single-Family Homes
 - ❑ 35% Mobile Homes
 - ❑ 68% of Household Members Over 55 Years Old
 - ❑ 65% of Households below 80% of AMI



Home Energy Retrofit Project - Results to Date



- Homeowners go above allotted funding
- Average cost to homeowners was \$814.83
- 66% of Participating Homes Below 80% of Area Median Income

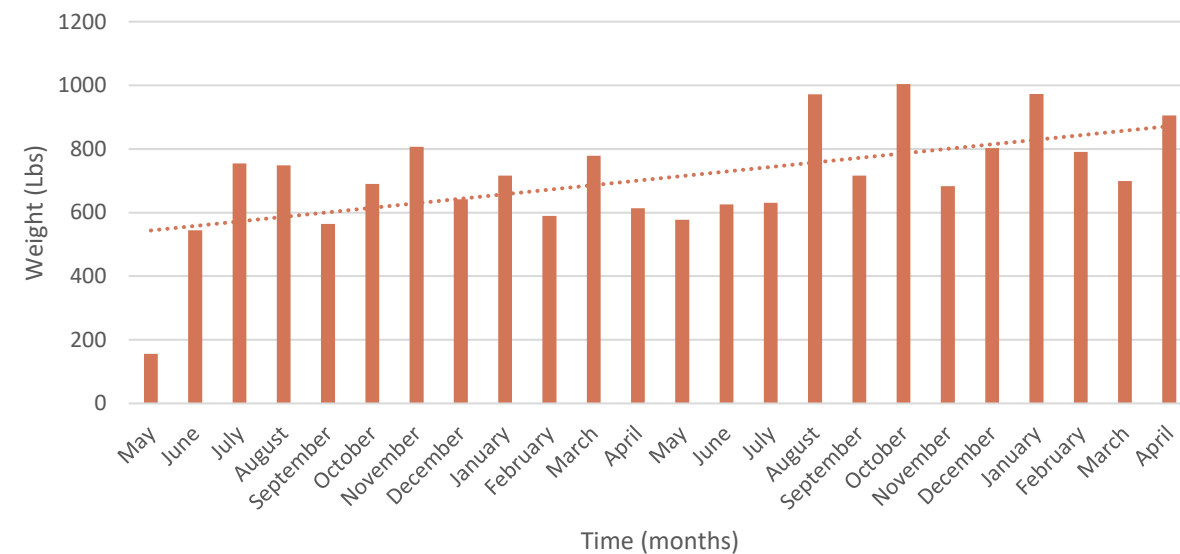
- Estimated Total Annual Reduction of 84 MT
 - 21% Average Reduction per Household
 - 1.57 Mt CO₂e per Household
- Approximately 1,500 Homes Over 20 Years (1988-2004)
 - Potential for ~2,400 Mt in Reductions from Building Envelope Improvements



Community Composting Program



Composting Collection Weight's by Month



- ❑ Currently 186 Sedona residents are participating across 92 households.
- ❑ Program expanded by 50 households at the beginning of FY24.
- ❑ Since the program started, 17,000lbs of food scraps have been diverted from the landfill, 9,000lbs in the last 12 months.
- ❑ Lock/Gate Upgraded to Improve Access and Reduce Wildlife Impacts

Outreach Efforts Green Business Bootcamp and Solar Co-ops



Northern Arizona 2023 Solar Co-op

Arizona / 2023



Solar United Neighbors

- 3rd Round of the Co-ops
- Free for Northern Arizona Residents and Businesses to Participate
 - No Obligation for Participants to Install
- In Partnership with Solar United Neighbors, City of Flagstaff, and Coconino County
- 533 Total Signups Over 3 Rounds:
 - 127 from Sedona
 - 24 Sedona Residents (148 Total) - Installed 171.18kW*
 - Over 130 MT CO₂e Reduced

Green Business Bootcamp

- Partnered with Local First Arizona
- Facilitator for Energy Sessions
- For Verde Valley Locally-owned and Operated Businesses and Nonprofits
- 7-Week Bootcamp
 - Covers Water, Energy, Waste, Transportation, Social Impacts
- Local First Arizona Incorporates Education, Planning, Financing, Benchmarking, and Implementation

Ripple Effect and Oak Creek Efforts



Ripple Effect

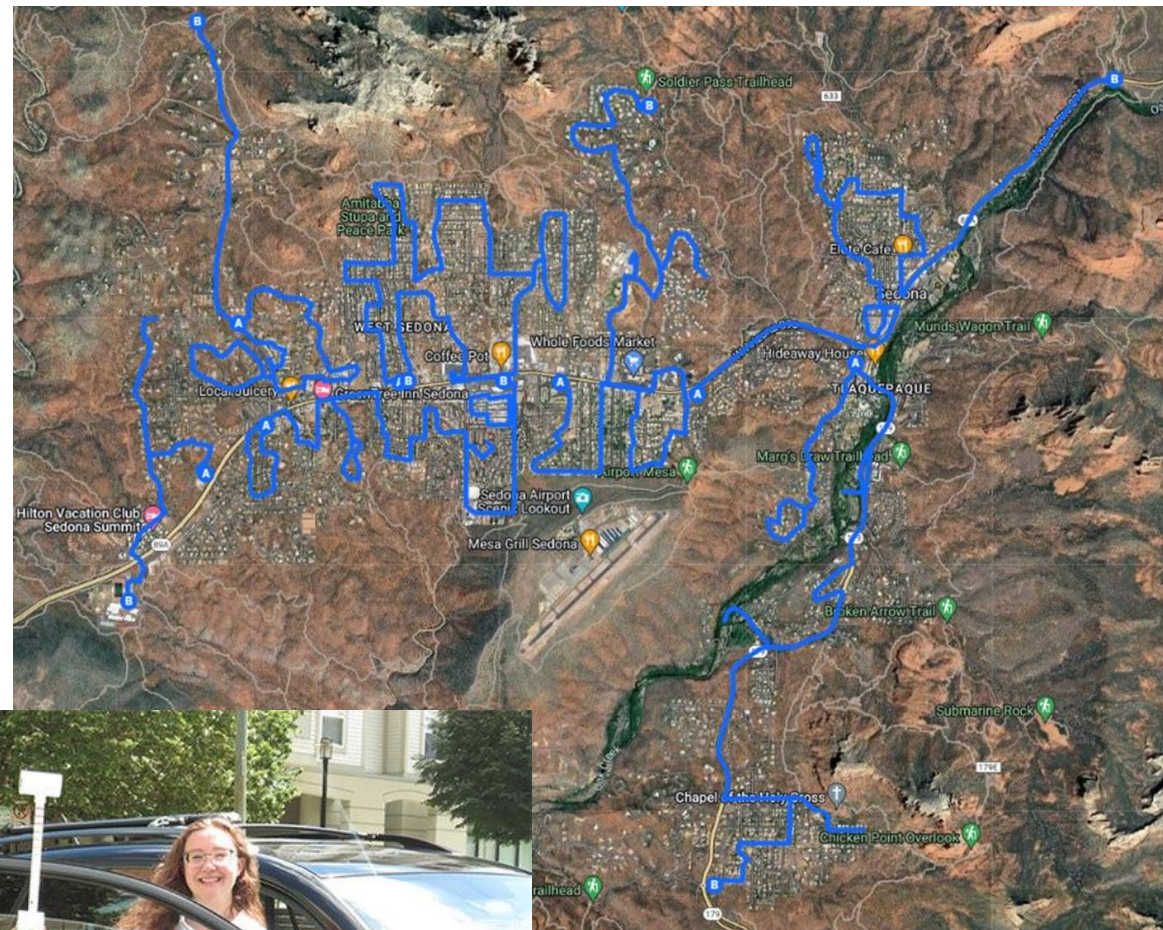
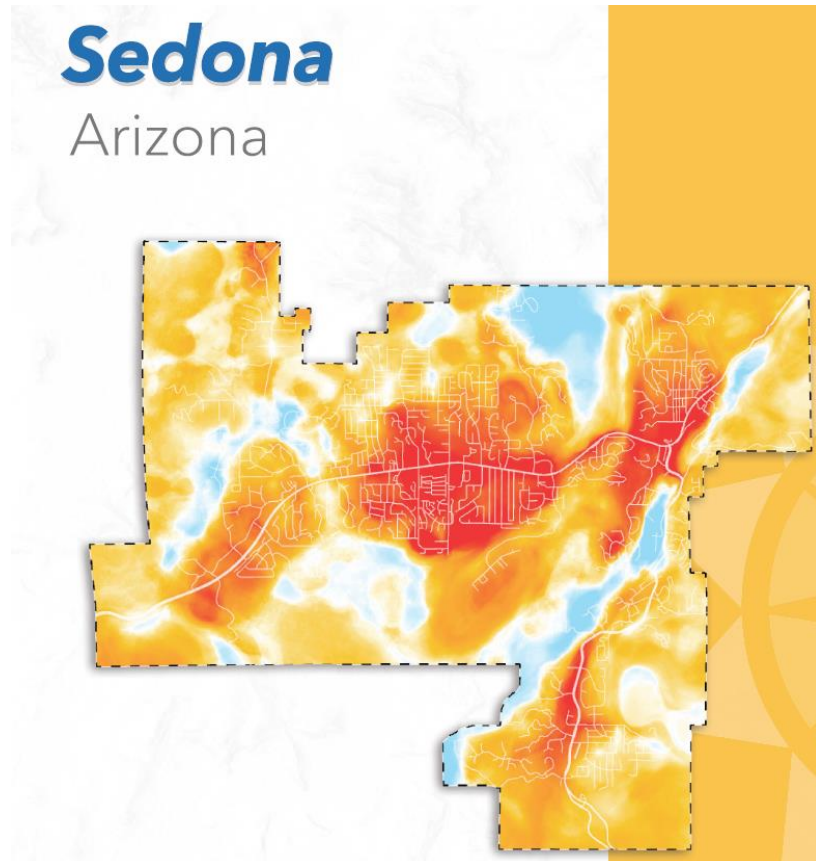
- Partnered with Arizona Water Company, Yavapai County and Big Park Water Company to create Ripple Effect
- Integrated Demand Management Program
- Free in-person water audits to Businesses, HOAs, Schools, and Municipal Properties
- Launched October 7th
- Water Tips Videos
- Community Outreach

Oak Creek Watershed Council

- World Water Day Partner
- Over 220lbs Collected from Cleanup Events
- Macroinvertebrate Demonstration for Schools
- Sedona Food Truck Festival Partner
- Additional Outreach at Farmer's Markets and on Social Media



Urban Heat Island Initiative



Importance

- ❑ Last summer Sedona experienced 76 days above 90°F, 18 of those days were above 100°F.
- ❑ For the last three decades, extreme heat has been the leading cause of weather-related death in the US, surpassing flooding and hurricanes combined.
- ❑ We must consider extreme heat and our urban heat island as we continue to develop.
- ❑ Extreme heat doesn't impact the population equally.

Actions Taken

- ❑ Urban Heat Island Map Created for Sedona
 - 26 residents Volunteered.
- ❑ Created an Extreme Heat Intervention Guidebook.

Next Steps

- ❑ Coordinate with Departments, Residents and Community Groups for Implementation
- ❑ Mitigating extreme heat is a long game
 - It will take many years of sustained effort.

Sustainable Neighborhoods Program



Building a More Sustainable and Resilient City

- Nationally Recognized Program
- Encourages neighbors to come together to work on their own sustainability projects that focus on five key areas:
 - Energy, Air, Water, Land, People

- Launched this year.

- Les Springs First Participating Neighborhood.

- Their neighborhood Kickoff event is Saturday, June 8th!

- Over 100 households in their neighborhood.

- Already started exploring options to build their first community garden; a big first step.

Household Hazardous Waste Collection Events

5th Annual HHW Event Conducted in 2023

- Partnered with Yavapai County, Veolia, and Westtech Recyclers
- Accepted Pesticides, Paints, Electronics, Prescription Pills, Acids, Cleaners, Various Oils, Batteries, and Other Household Chemicals/Cleaners
- Largest Number of Participants and Largest Number of LBS of Waste Collected at Single Event

2023 had 375 Participants

- Up From 177 in 2022
- Expanded Social Media Marketing
- 12,193LBS of Electronics
- 18,603LBS of Household Waste

Over Past 5 Years:

- 59,986LBS of Electronics
- 58,993LBS of Household Hazardous Waste



- New Limited Collection Event 2024
- April 2024 at West Sedona Elementary School Parking Lot
- Partnered with Westtech Recyclers, Assured Document Destruction and Purchased Mail-back Battery Recycling Kits through Veolia
 - Accepted Small Household Batteries, Electronics, and Paper for Shredding
 - Sedona Police Volunteers and Volunteer Park Rangers
 - Collected over **9,000LBS** of Waste
 - Approx. 200 Participants
 - Similar Marketing as HHW 2023

School Sustainability Education Efforts

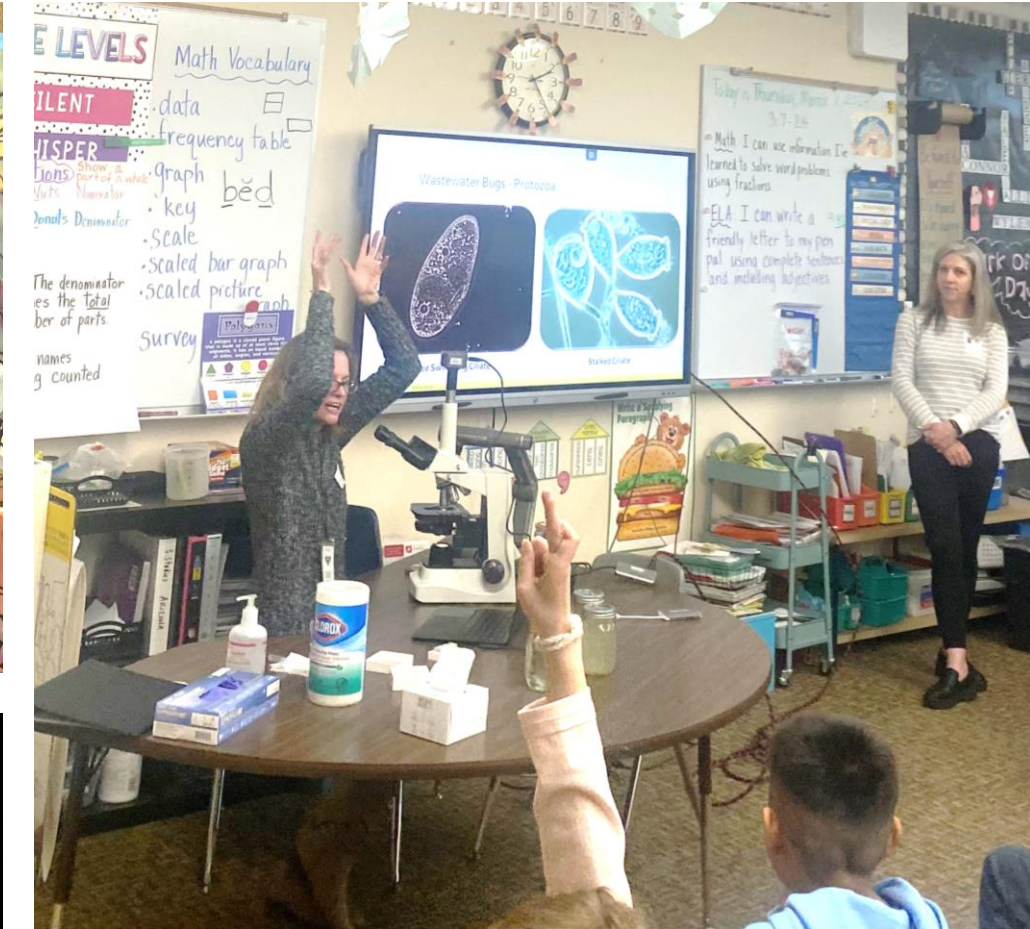
A newly developed effort to assist educators with teaching students about sustainability-related topics.

Goals for the Project

- ❑ Projects, Presentations, Fieldtrips, Community Connection
 - Tie Into STEM Curriculum
- ❑ Connect School Leadership/Faculty to Community Partners

Actions Taken

- ❑ Feb. 2024 – May 2024 **Climate Action Artwork Project** with West Sedona Elementary School
- ❑ March 2024 Wastewater Presentation for 3rd Grade
- ❑ May 2024 Community Development Leads Dark Sky Symposium for 5th Grade
- ❑ Sustainability Connects School to Community Partners (i.e., Oak Creek Watershed Council, Sedona Fire Dept.)



Sustainability Across Departments



Sustainability Across Departments

❑ Growing Water Smart Workshop in January of 2024

- Hosted by Sonoran Institute
- Community Development, Public Works, Sustainability, Wastewater,
- Exploring Code Updates, Effluent Uses, Low-Impact Development
- Wastewater Applied for Technical Assistance Grant
- Expands Collaboration with Arizona Water Company

❑ Uptown Parking Garage

- Additional DC Fast Chargers in Partnerships with Electrify America
- Connection to Public Transit
- Traffic Congestion Improvements
- Solar Installation

➤ Villas on Shelby

- Improved Housing Inventory
- Community Connections
- Reduce Vehicle Miles Traveled in Region



Sustainability Across Departments



❑ Ranger Station Park

- Decomposed Granite Parking Spaces Reduce Heat Retention and Improve Water Infiltration
- Native Vegetation and Stormwater Management Improvements
- Shared Use Paths
- Wood-based Playground

❑ Community Yard Waste Collection

- Integrated Zones from Emergency Planning
- Diverted over 500,000 lbs. of Yard Waste
- Reduces Community Fire Risks
- Avoided ~40 MT of Emissions

❑ Community Development

- Completed Update to Sedona Community Plan

Sustainability Across Departments

❑ Public Works Pet Waste Stations

- Over 5,200 lbs. of Pet Waste Collected in 2023
- Helps Mitigate Potential E. Coli Contamination

❑ Parks and Recreation Programming

- Builds Community Connections
- Improves Resiliency
- Waste Diversion Efforts

❑ Local Gravel and Rock Savings

- Approximately 42,000 Cubic Yards of Material
- Saving Approximately \$1.3 Million
- Avoided GHG Emissions

➤ Finance Department Contract Management

- Estimated Over 2,200 Pages of Paper Saved
- Working on Digital Processing Systems



Thank You!

City of Sedona Sustainability Program

www.sedonaaz.gov/sustainability

sustainability@sedonaaz.gov

