

# **CNP Biannual Progress Report**

**June 18, 2024**

# Agenda - Planting Seeds

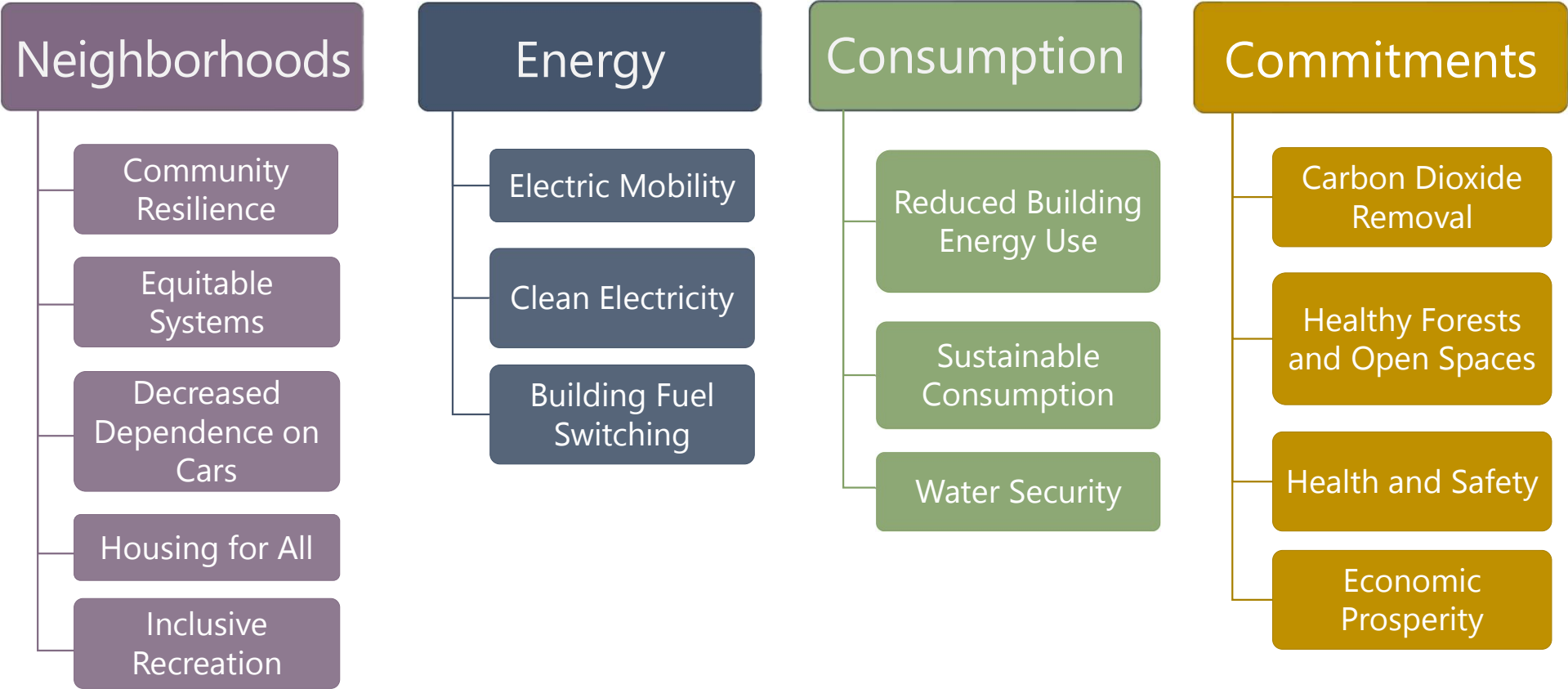
- Background: Building Blocks for Carbon Neutrality
- Foundations
- Community Greenhouse Gas Emissions
- Progress Updates by Sector
- Beyond GHG Emissions
- Next steps



# Background: Building Blocks of Carbon Neutrality



# Building Blocks of Carbon Neutrality: CNP Target Areas Impact All Sectors



# Building Blocks of Carbon Neutrality: Divvyng Up the CNP Among our Team



Jenna

- Community Engagement
- Resilience hubs
- Equitable climate action

Genevieve

- Land use
- Code updates and implementation
- Business engagement

Danae

- Electric vehicles
- Building electrification
- Reducing energy use

Jake  
3-year position,  
50% grant funded\*

- Residential energy use
- Residential retrofits
- Behavior change

Jenny

- Transportation planning support
- Overall CNP goals
- Team management

Nicole

- Carbon dioxide removal
- Statewide change
- Regional partnerships

# CNP Goal Review



# Building Blocks of Carbon Neutrality: Energy use in Buildings in 2030

## COF Buildings

Reduction in energy use	Reduction in natural gas use	Retrofits
28%	60%	100% of existing buildings

## Residential Sector

Reduction in energy use	Reduction in natural gas use	Retrofits
43%	62%	50% of homes

# Building Blocks of Carbon Neutrality: Energy use in Buildings in 2030

## Commercial Sector

Reduction in energy use	Reduction in natural gas use	Retrofits
11%	20%	15% of buildings

## Industrial Sector

Reduction in energy use	Reduction in natural gas use	Retrofits
No goals set.		

# Building Blocks of Carbon Neutrality: Energy use in Buildings in 2030

## COF Buildings

New Solar Capacity	% of electricity that is zero emissions	% of buildings electrified
100%	100%	100% of new buildings

## Residential Sector

New Solar Capacity	% of electricity that is zero emissions	% of buildings electrified
10 MW from 2,000 homes	72%	68%

# Building Blocks of Carbon Neutrality:

## Energy use in Buildings in 2030

### Commercial Sector

New Solar Capacity	% of electricity that is zero emissions	% of buildings electrified
10 MW	69%	25% of buildings

### Industrial Sector

New Solar Capacity	% of electricity that is zero emissions	% of buildings electrified
5 MW	68%	0

# Building Blocks of Carbon Neutrality:

## Transportation

Reduced VMT	2019 levels
Residential density	20% increase
Distance to transit	25% decrease
ATMP	Fully funded

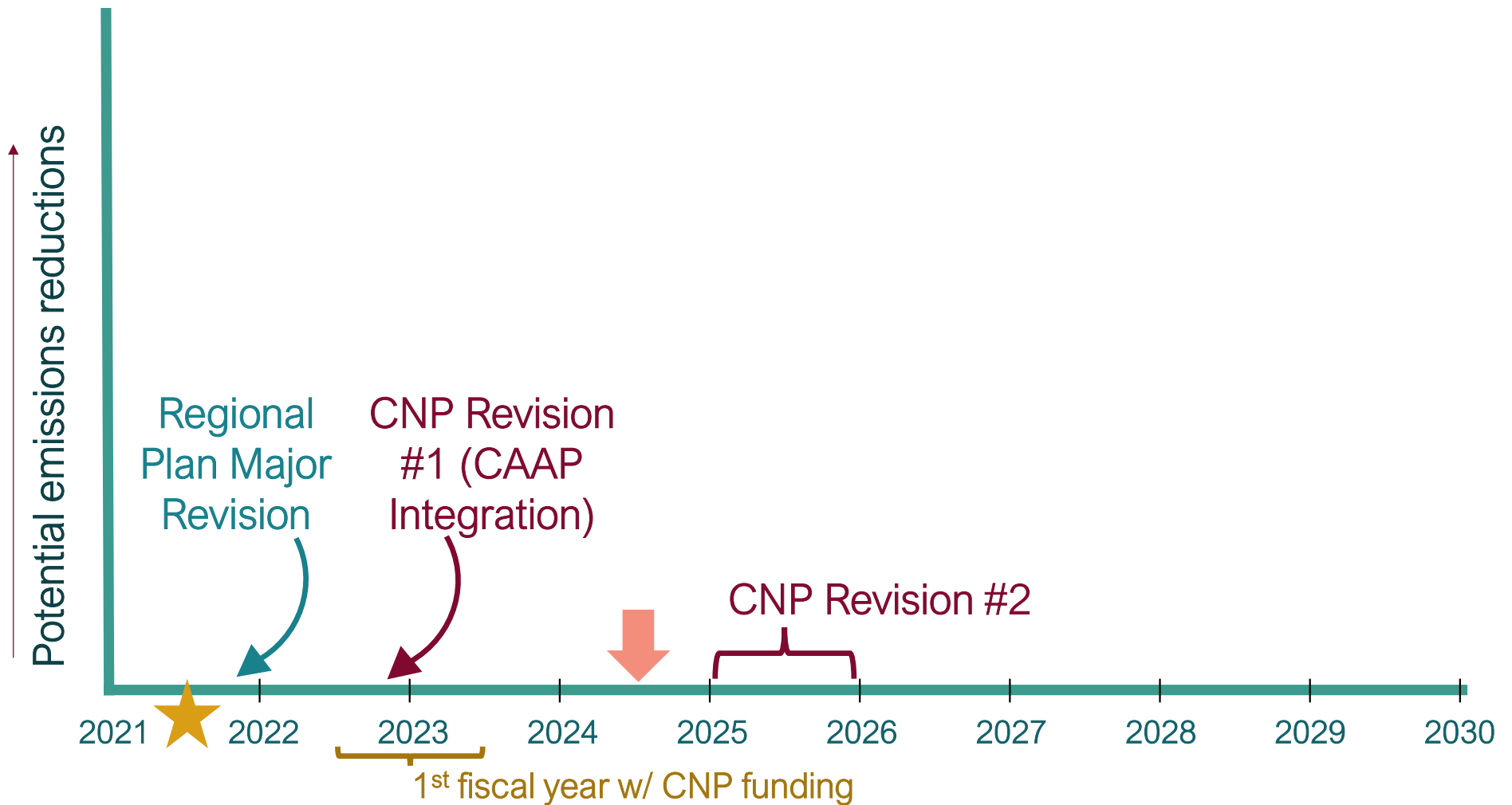
## Electric Vehicles

VMT from EVs	30%
% of new COF sedans and SUVs will be EVs (2022)	100%
Community EV charging stations	50

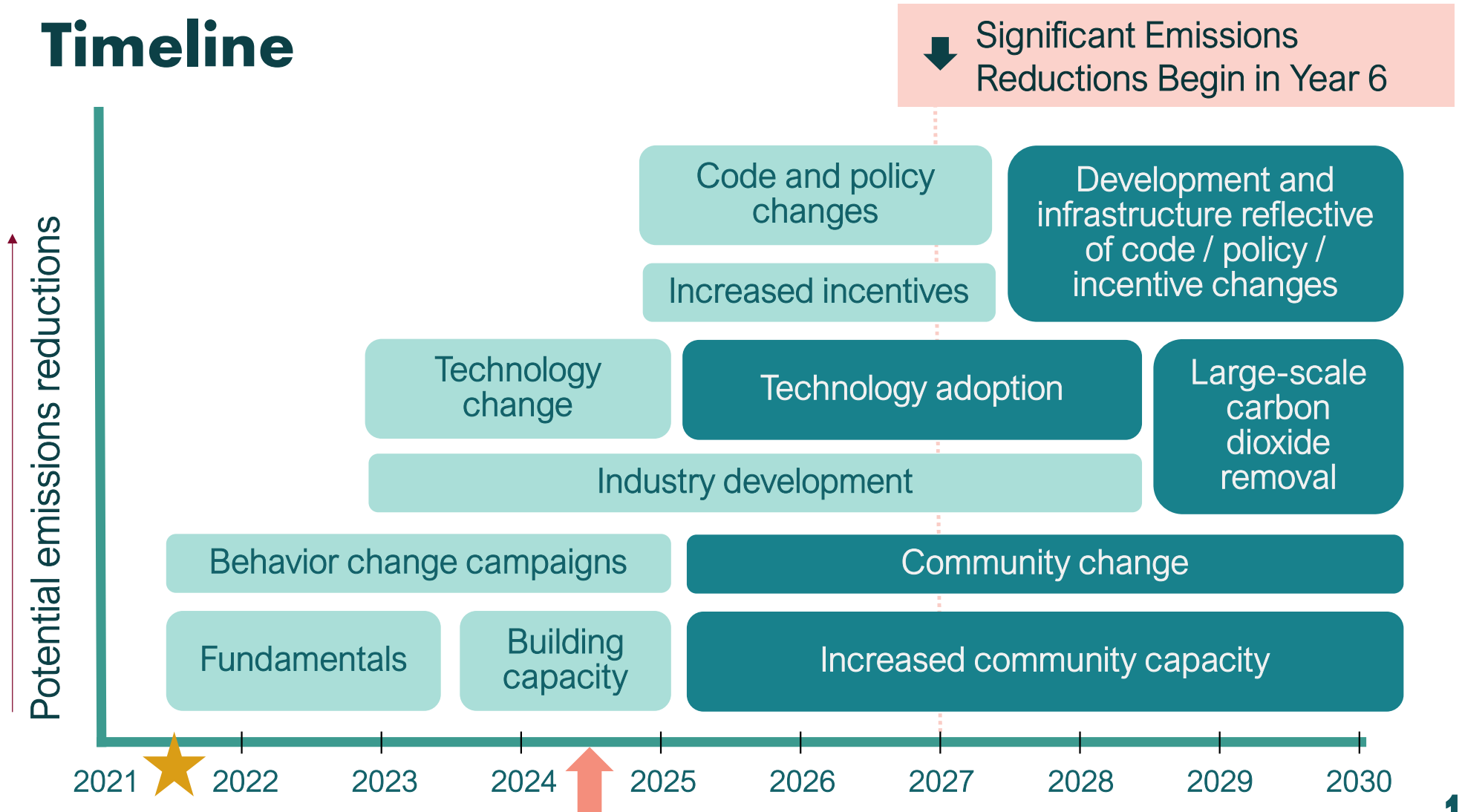
# Foundations



# Timeline



# Timeline



# Fundamentals

## *highlights*

- New post-CNP positions: Resilience Analyst, Energy Specialist
- Expanding existing programs: energy rebates, HEPA filter distribution, etc.
- Creating new offerings: flood proofing assistance, Climate Resilience Project, etc.
- Collecting data:
  - Investment grade energy audit for all COF buildings
  - Equity assessment



# Building Community Capacity

## *highlights*

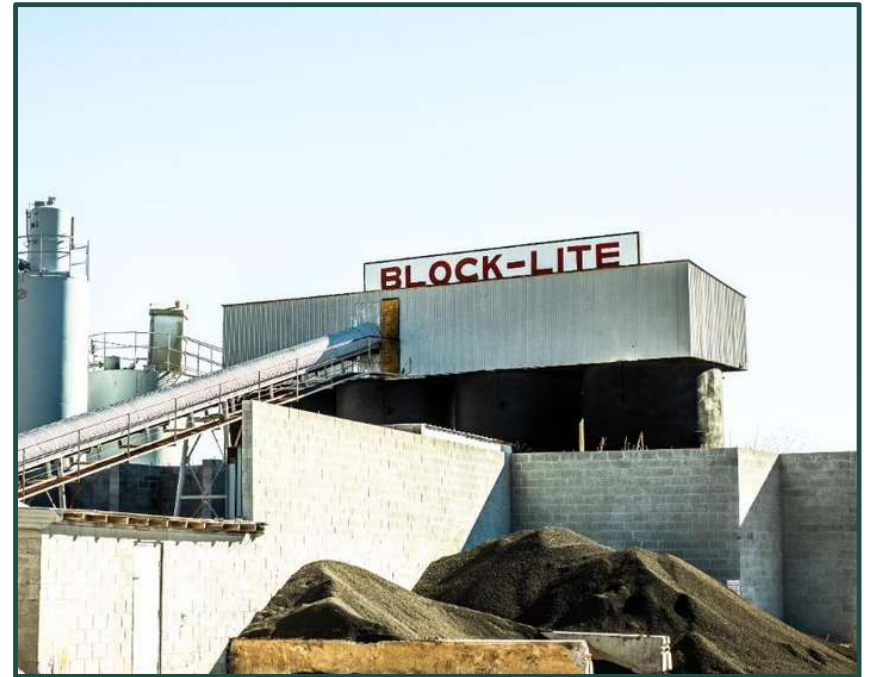
- Ongoing support for our partners:
  - NAU - Climate Action Plan and carbon neutrality goal
  - FUSD – Climate action planning
  - CCC - Sustainable workforce development collaborations
- Climate Advisory Groups
- Youth climate action support
- Arizona's Solar for All grant will build solar across Arizona, benefitting 11,000 residents



# Industry Development

## *highlights*

- Carbon dioxide removal:
  - Launched the Four Corners Carbon Coalition, which is now sponsoring Flagstaff-based carbon removal projects
- Contractor collaborations:
  - Cold climate heat pump trainings for HVAC contractors
- EV sales tax rebates: local (2020-2023) and federal (current)



# Increased Incentives

## *highlights*

- Home Weatherization and Energy Rebates – increased funding and incentives
  - Electrification focus
  - Increased incentives for low-income households
- Residential Sustainable Building Incentive



# Code and Policy Changes

## *highlights*

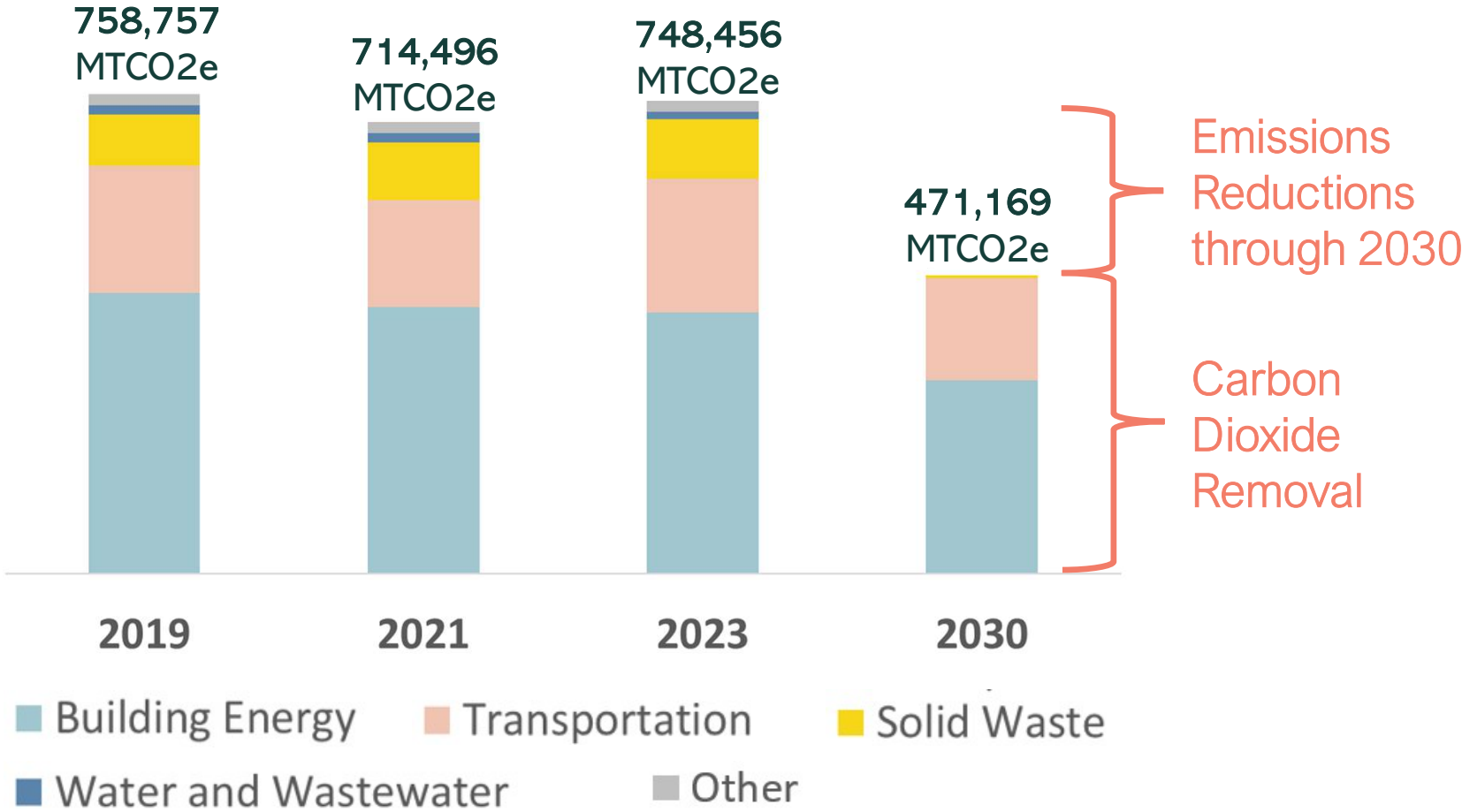
- Land Availability and Suitability Assessment / Code Analysis Project (LASS/CAP)
- Regional Plan update
- ATMP Engineering Standards revisions
- Building code updates



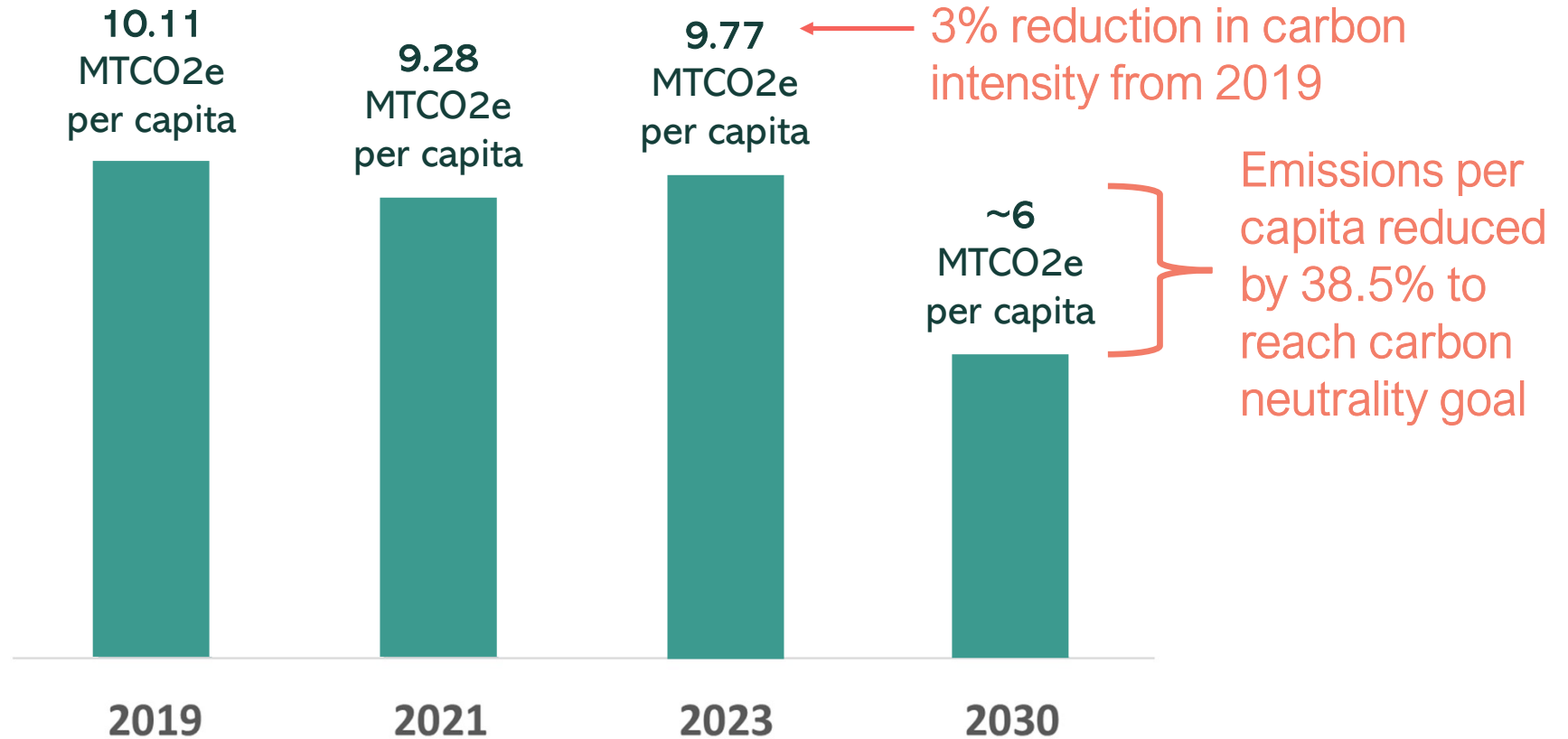
# Community Emissions



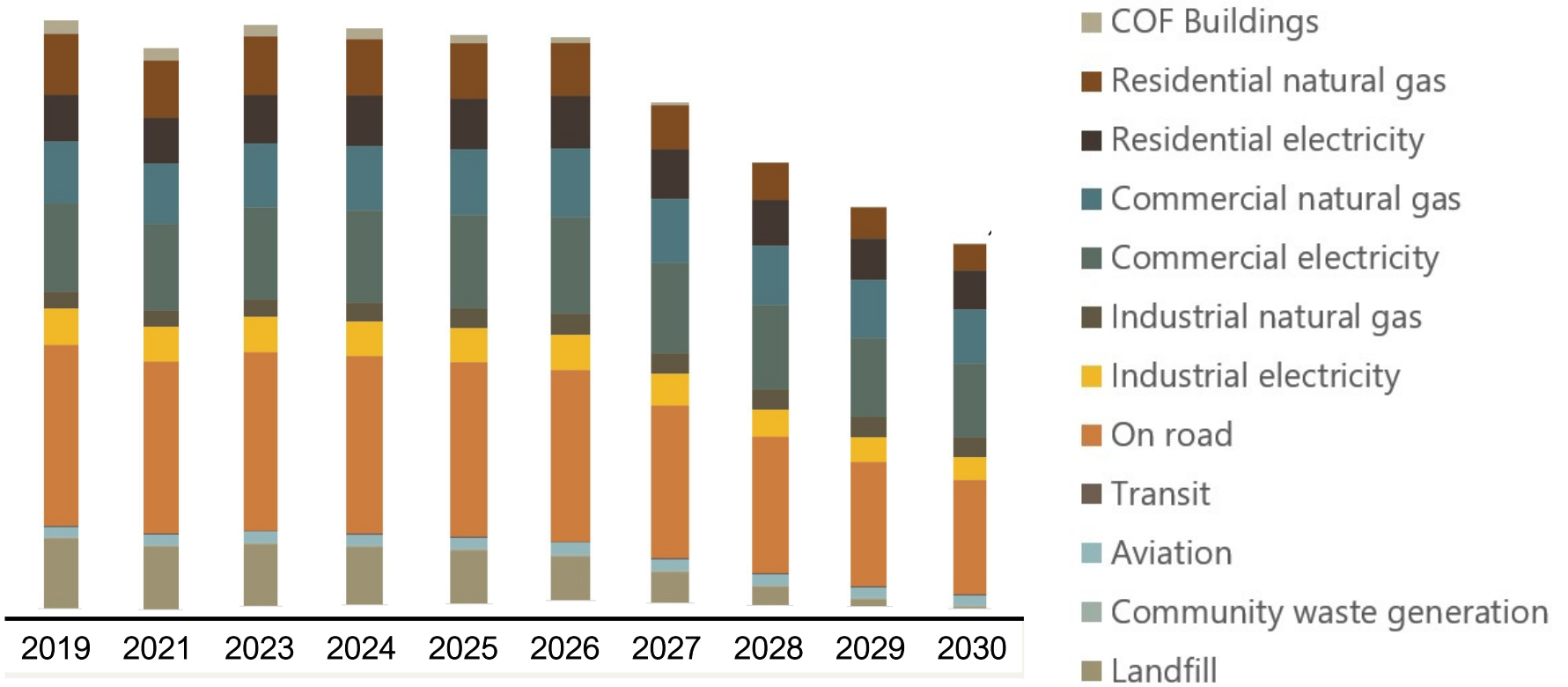
# Community Emissions



## Community Emissions Per Capita



# Community Emissions: Significant reductions will begin in year six

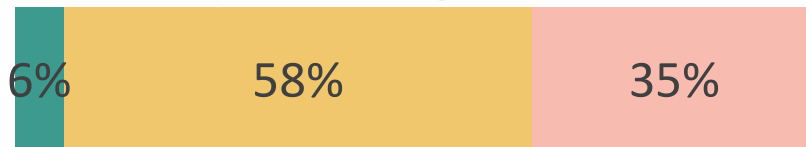


# Progress Update



# CNP Actions Update - % completed

## Priority 1: Neighborhoods



## Priority 2: Energy



## Priority 3: Consumption



## Priority 4: Commitments



■ Done    ■ In Progress    ■ Not started

# **BUILDING ENERGY**



**RENEWABLE ENERGY**



**ENERGY EFFICIENCY +  
ELECTRIFICATION**

# **WHERE:**

**CITY-OWNED BUILDINGS**

**COMMUNITY  
BUILDINGS**

# Renewable Energy: **Why and What**

Flagstaff seeks to utilize renewable and clean sources of energy

## **Why?**

- Reduced air pollution -> Improved health
- Cost savings
- Lower emissions.

## **What?**

- Solar systems on new and existing homes
- Solar on commercial and industrial buildings
- City-built solar or power purchase agreements



# Renewable Energy: **Who and How**

## Actors

- Residents, businesses, institutions
- Solar installers
- Cooperative organizations (i.e., solar united neighbors)
- APS, our electric utility
- Arizona Corporation Commission
- City of Flagstaff

## Key Performance Indicators (KPIs)

- City-owned solar
- Renewable energy purchased
- Private solar systems installed
- APS grid information

# Renewable Energy: Progress

Sector	Goal	Progress
Residential solar systems	2,000 systems 10 MW	<u>61% complete</u> 986 systems added 6.1 MW added
Solar on commercial and industrial buildings	15 MW	<u>2.6% complete</u> 0.4 MW added
City solar	100% of City electricity from City solar or power purchase agreements	Goal met!

## Highlight: Solar installations in Flagstaff

### Northern Arizona Solar Co-op with Solar United Neighbors

- 129 Flagstaff residents installed solar over two rounds of the NAZ co-op
- 981 kW of solar added to the grid
- \$4.7M in energy savings over life of solar systems
- 13,213 tons of CO<sub>2</sub> avoided
- Round three currently underway; working to expand outreach to small businesses



# Renewable Energy: Recap

## Foundations

- Building code – solar readiness
- Northern Arizona Solar-co-op
- Rebates for energy service upgrades

## Upcoming Actions

- Solar for All Arizonans grant: \$156M to install solar energy systems throughout the state.
- Building code revisions
- More solar co-ops
- Engaging businesses to encourage commercial installations

# Building Energy Use: **Why and How**

Flagstaff seeks to reduce energy used in homes, businesses, and other buildings.

## **Why?**

- Improved health
- Monthly cost savings
- Lower emissions.

## **How?**

- Retrofits for existing homes, to reduce energy use and electrify homes
- Deep energy efficiency retrofits for commercial buildings
- Electrification of commercial buildings



# Building Energy Use: **Who and What**

## Actors

- Residents, businesses, institutions
- Contractors
- APS, our electric utility
- Arizona Corporation Commission (ACC)
- City of Flagstaff

## KPIs:

- Energy usage
- Home retrofit statistics



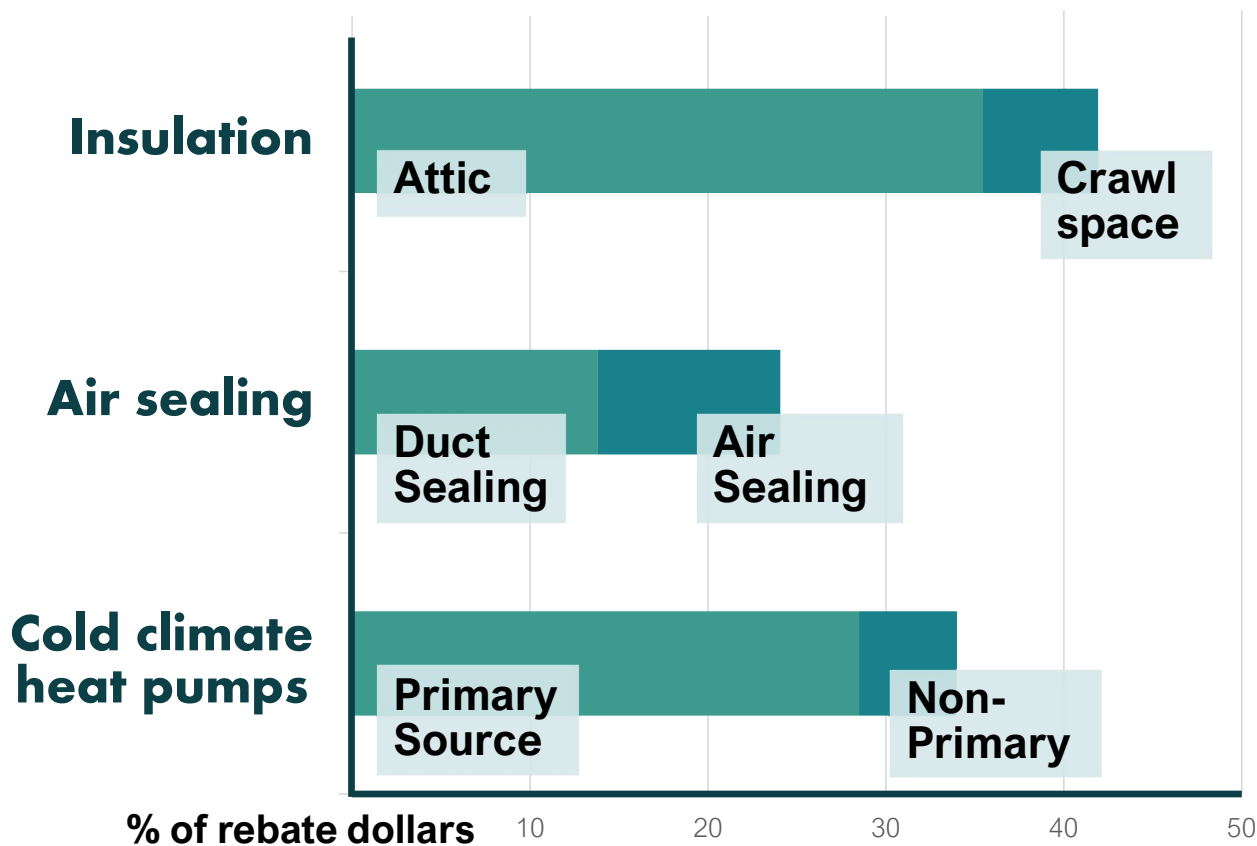
# Building Energy Use: Progress

Sector	Goal	Progress
Residential Buildings	Retrofit 50% of existing homes (12,500)	<ul style="list-style-type: none"><li>• 288 homes supported through City Energy Rebates</li><li>• Community-wide data not available</li></ul>
Commercial Buildings	Deep energy efficiency retrofits for 25% of existing buildings	Data not yet available
	15% of commercial buildings fully electrify	Data not yet available



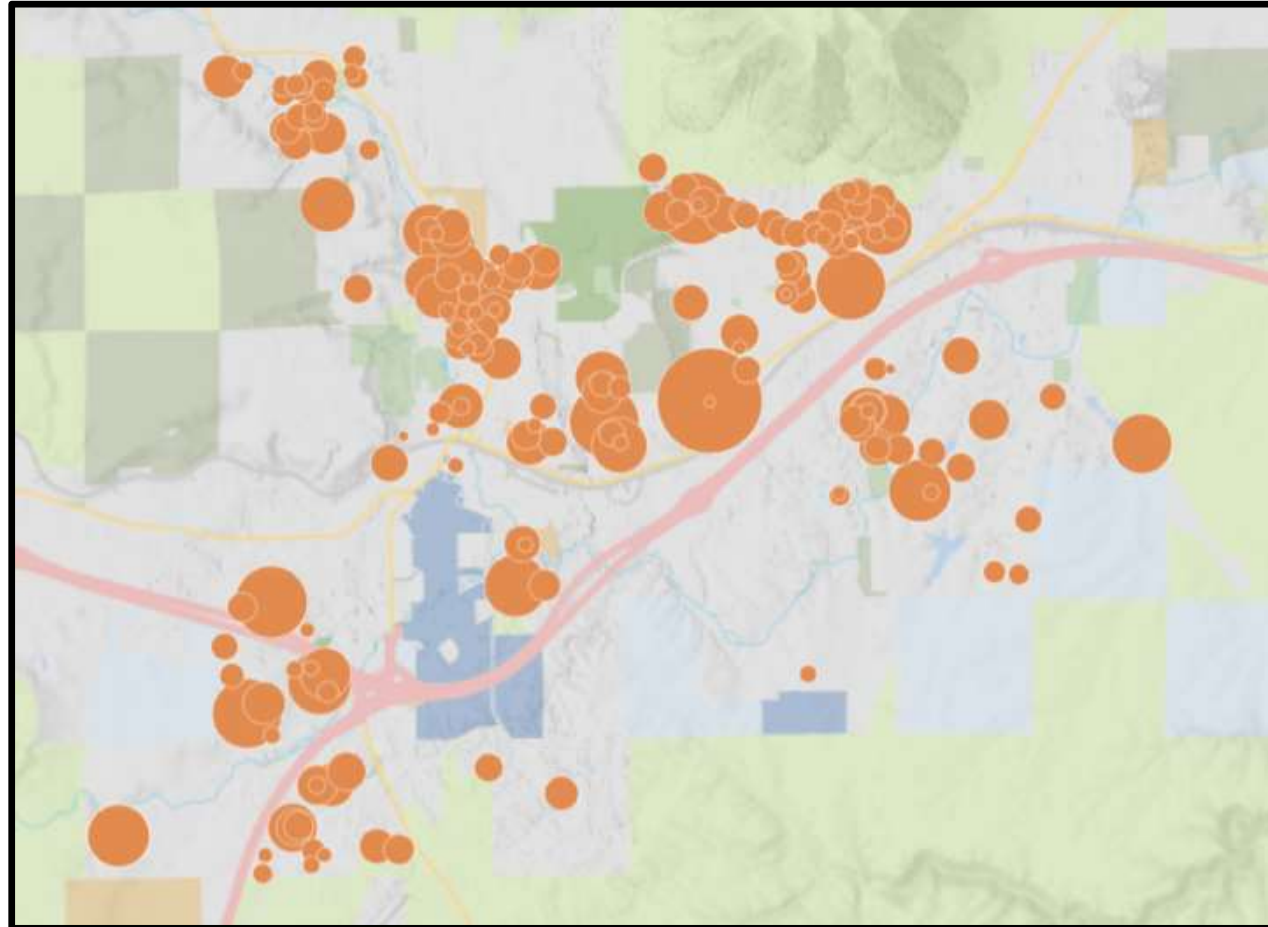
# Highlight: Home Energy and Weatherization Rebate Program

## FY24 Rebate Distribution



- 288 homes have benefitted from City rebates in the last three years.
- Low-income households can receive up to double the standard rebate.

# Energy Rebate Distribution



# Building Energy Use: Recap

## Foundations

- Weatherization and Energy Rebates
- Community engagement and education on building electrification
- Green Business Bootcamps
- Residential Sustainable Building Incentive

## Upcoming Actions

- Energy Upgrades for Healthy Homes (HUD-funded retrofits)
- Contractor outreach
- Inflation Reduction Act Rebates
- State rebates
- Commercial heat pump advancement

**TRANSPORTATION**



**VEHICLE  
ELECTRIFICATION**



**DECREASING CAR  
DEPENDENCY**

**WHERE:**

**CITY TRAVEL**

**COMMUNITY TRAVEL**

# Electric Mobility: **Why and How**

Flagstaff seeks to increase the use of electric mobility, to account for 30% of vehicle miles traveled.

## Why?

- Reduced air pollution -> Improved health
- Cost savings over the life of the vehicle
- Lower emissions.

## How?

- Vehicle electrification at the community, City, and regional institutional levels.
  - Institutions: purchasing policies and electric busses
  - Private vehicle purchases
- EV charging infrastructure: Public and private providers



# Electric Mobility: **Who and What**

## Actors

- Residents, businesses
- Institutions: Mountain Line, NAU, FUSD, County
- Car manufacturers – local and not
- Auto repair shops
- Electric charging providers
- APS, our electric utility
- Arizona Corporation Commission
- ADOT
- City of Flagstaff

## KPIs:

- # of EVs
  - City
  - Community
- % of vehicle miles traveled that are electric
- Charging infrastructure

# Electric Mobility: Progress

Topic	Goal	Progress
Portion of our travel that is electric	30% of vehicle miles traveled will come from electric vehicles	<ul style="list-style-type: none"> <li>• 766 EVs registered in Flagstaff</li> <li>• Continuing to work with partners on VMT composition data</li> </ul>
COF fleet	All new COF sedans and SUVs will be EVs (2022)	EV-first policy – electrification considered for every vehicle
Charging Stations	Provide 50 community charging stations	<b>36% complete</b> 18 EV charging stations installed
	The City will provide additional EV charging stations for fleet as needed	14 COF facilities have EV charging; more coming soon



## Highlight: NAU's Vehicle Electrification Efforts

- NAU has secured funding for their first 40' electric shuttle busses and associated charging infrastructure.
- NAU has 12 EVs today - around 4% of NAU's fleet
  - EV purchasing policy adopted in fall 2023
  - 8 EVs purchased since then.
  - Goal: increase the share of EV's by 10% annually by:
    - Reducing the number of total vehicles
    - New EV purchases

# Electric Mobility: **Recap**

## Foundations

- APS-sponsored community EV charging stations
- COF fleet chargers
- EV sales tax rebates

## Upcoming Actions

- ADOT and federal investments in EV charging infrastructure
- Expanded EV infrastructure at COF facilities

# Active Transportation: **Why and How**

Flagstaff seeks to increase the use of active transportation, and reduce the community's dependence on transportation by private vehicle.

## **Why?**

- Reduced air pollution
- Improved health
- Cost savings and greater equity
- Lower emissions

## **How?**

- Maintain 2019 vehicle miles traveled (VMT) levels
- 20% increase in residential density
- 25% decrease in distance to transit
- Full funding and rapid implementation of the Active Transportation Master Plan (ATMP)

# Active Transportation: **Who and What**

## Actors

- City of Flagstaff
- ADOT
- Institutions: Mountain Line, NAU, FUSD, County
- Businesses
- Residents

## KPIs:

- Vehicle miles traveled
- Mode share

# Active Transportation: Progress

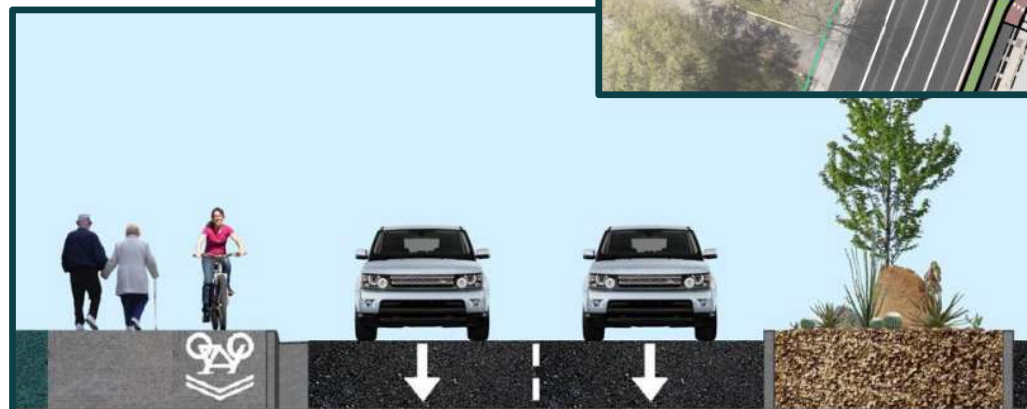
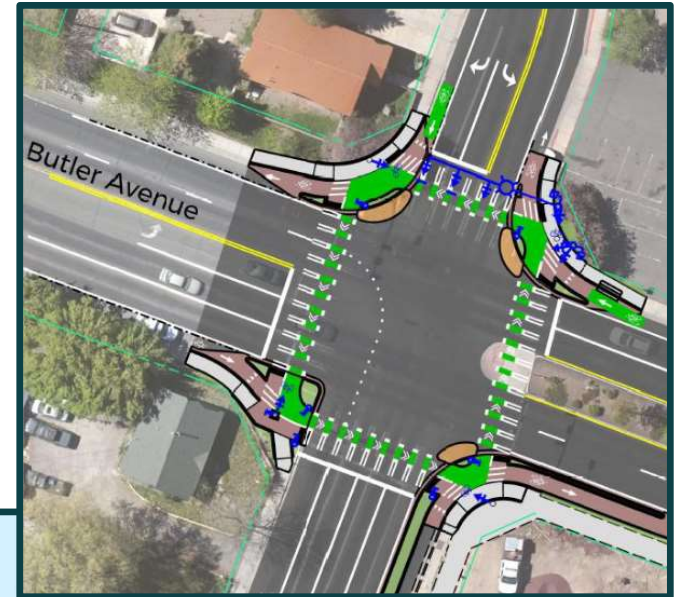
Topic	Goal	Progress
Vehicle Miles Traveled (VMT)	Maintain 2019 VMT levels	7.6% increase in VMT from 2019 to 2023
Density and Access to Transit	20% increase in residential density	<ul style="list-style-type: none"> <li>• LASS-CAP will bring forward analysis</li> <li>• Regional Plan will introduce new density</li> </ul>
	25% decrease in distance to transit	
Active Transportation Master Plan	Full funding and rapid implementation	Significant funding achieved for Butler Avenue, Downtown mile pedestrian and bike connections.



# Highlight: Butler Avenue Improvements

Continued, incremental improvements to move towards a safe systems approach:

- City's first protected bike lanes
- \$9.6 Million Safe Streets and Roads for All (SS4A) Grant
- Speed limit reductions



# Active Transportation: **Recap**

## Foundations

- Active Transportation Master Plan
- Butler Avenue iterations
- Road right-sizing

## Upcoming Actions

- Grant-funded projects: Downtown Mile, Butler Avenue
- E-bike initiative
- Transportation Master Plan (led by Transportation Engineering and Planning teams)

# Beyond GHG Emissions



**BUILDING  
RESILIENCE**



**IMPROVING  
EQUITY**



## **OUTCOMES**

- **Improved health**
- **Connected neighborhoods**
- **Prepared communities**
- **Reduced living costs**

# Community Equity

## Foundations

- Equity Climate Advisory Group
- Sustained engagement via social media
- Youth Climate Advisory Group
- HEPA filter distribution

## Upcoming Actions

- Wood stove rebates
- Energy Upgrades for Healthy Homes (HUD-funded)
- Equity assessments for all Sustainability programs



# HEPA Air Purifier Program

## Grant-funded program

- Spanning four years and multiple small grants
- 200 filters distributed since 2021

## Targeted outreach

- Residents with pre-existing conditions
- Households with members over 65 years and under 15 years
- Households with 4+ members
- Household income under AMI

## Slide 52

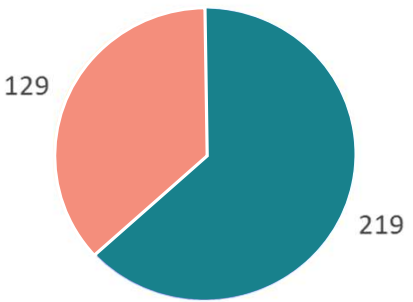
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**NAO** [[@Brady Henderson](#)] [[@Jacob Raatz](#)] please add the total number of filters distributed to date  
Nicole Antonopoulos, 2024-06-05T03:32:40.582

# HEPA Air Purifier Program

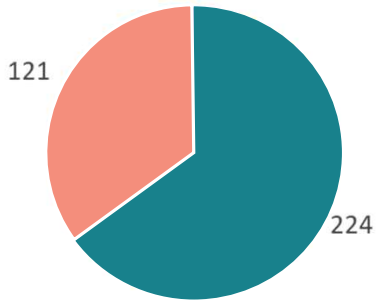
Targeted and sustained outreach led to 345 applications

### Applicant Income Range



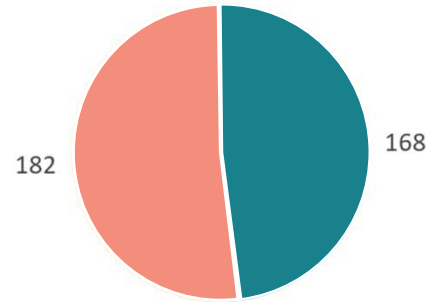
- Below AMI
- Above AMI

### Applicants with Medical Conditions



- Have a medical condition
- No medical condition

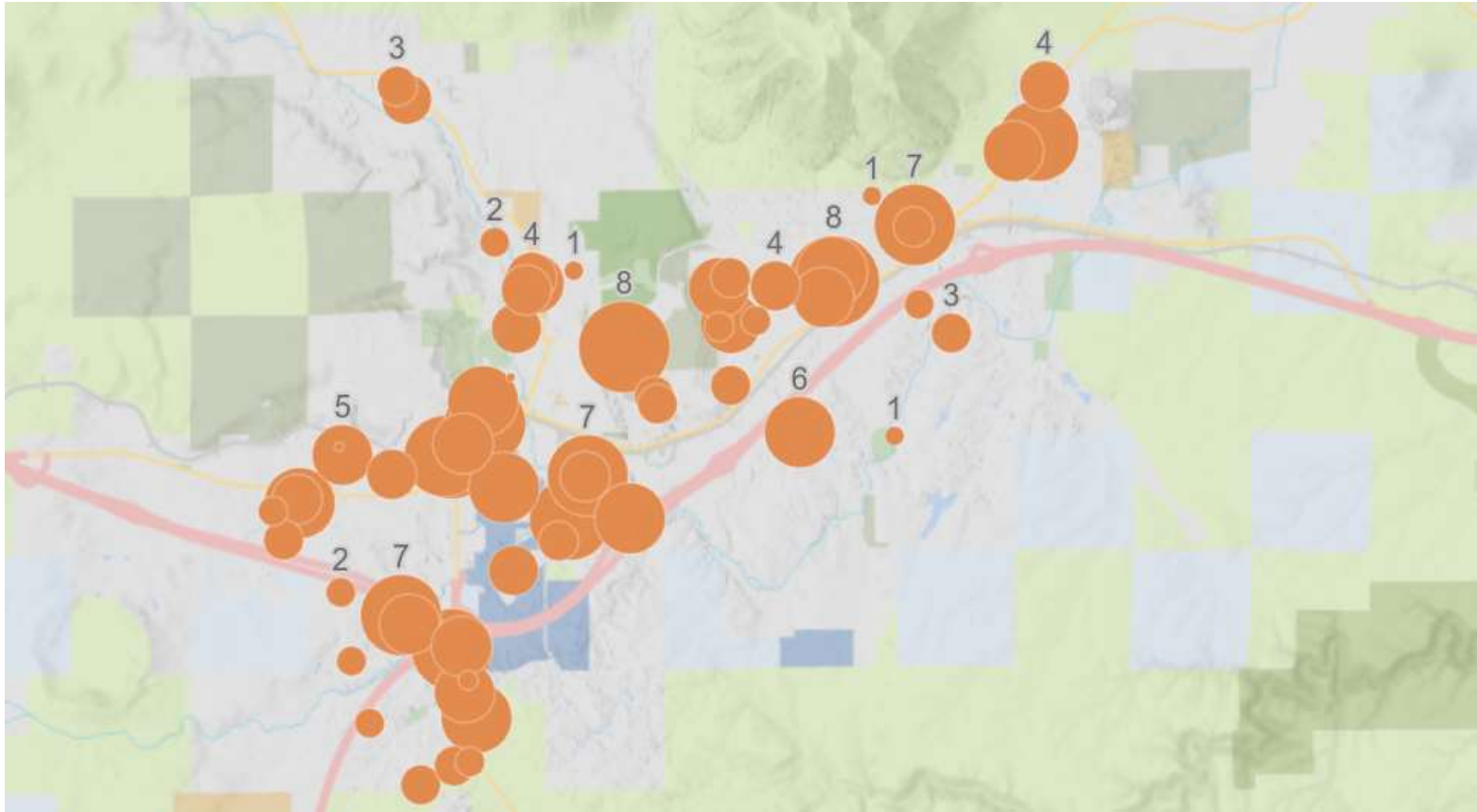
### Applicant Household Size



- 1-2 members
- 3+ members

# HEPA Air Purifier Program

## Distribution across Flagstaff





# HEPA Air Purifier Program 2024

## Results and Next Steps

### Impact

- 45 Flagstaff residents received a free HEPA filter
- Improved awareness of wildfire smoke impacts
- Increased capacity to create DIY air filters

### Next Steps

- Continue HEPA distributions using grant funding
- Build upon established demand for filters
- Increase community education and partnerships

# Community Resilience

## Foundations

- Flood prevention grants
- Neighborhood Sustainability Grants
- Stream Stewards
- Neighborhood Engagement and Volunteer Services
- Climate Resilience Leaders Trainings

## Upcoming Actions

- Three Resilience Hubs across the community
- Biomass partnerships and grant applications
- New wildland fire, climate, and health coordinator



# Next steps





## **NEXT UPDATE:**

- **CARBON DIOXIDE REMOVAL**
- **FOOD**
- **WASTE**



# Continued Capacity Building

## Seeking grant funding

- Climate Pollution Reduction Grant (biomass hub)
- ADEQ Recycling Grant
- EPA Community Change Grant
- EVs – Heavy and Medium Duty Vehicle Grant

## Planning and policy change

- LASS/CAP
- Regional Plan
- Building code update



# Continued Capacity Building

## Large infrastructure needs

- Landfill gas capture
- Community-wide composting
- Transportation planning policy change

## New staff capacity

- Grant-writing part time, 3-year position
- Fire-climate-health communications (grant funded)
- Resilience Hubs Specialist (grant funded, 3 years)



**Thank You!**