



# Climate Action & Adaptation Plan

May 20, 2019

# Climate Action & Adaptation Plan (CAAP)

- 1 How we got here
- 2 What the CAAP plan proposes
- 3 Implementing the CAAP

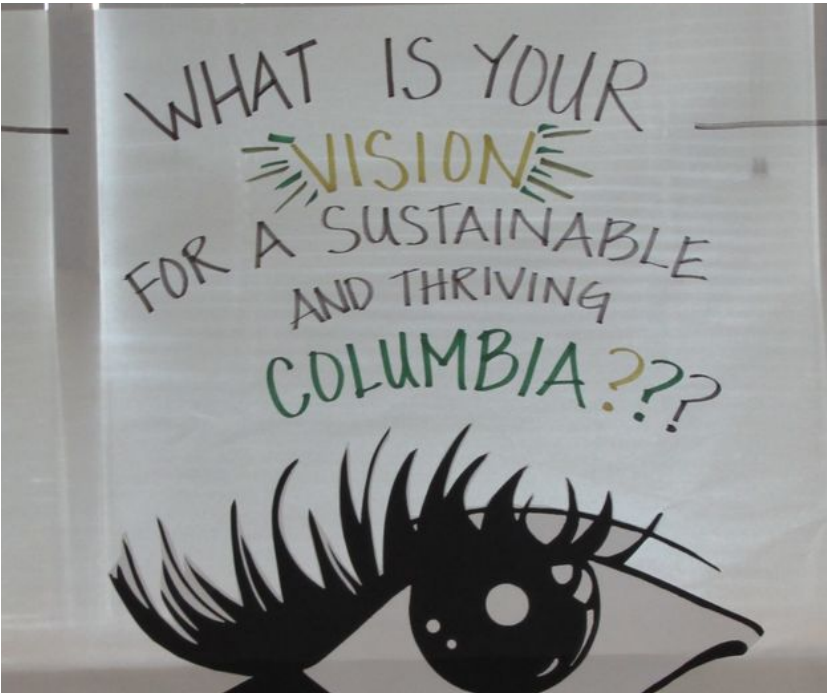
A vibrant mural on a wall featuring a large pink flower, a blue bird, and a sunset scene. A person is walking past the mural.

How we got here









# CLIMATE ACTION EMISSION REDUCTION GOALS



## Reduce Community Emissions

- 35% by 2035
- 80% by 2050
- 100% by 2060

## Reduce Municipal Emissions

- 50% by 2035
- 100% by 2050



# Criteria for evaluating actions

## Effectiveness

How likely is it the action will help the City mitigate or adapt to climate change?

## Affordability

What is the relative ease of covering the costs of the action with City Budget, grants, etc.?

How affordable is the action to residents/businesses?

## Feasibility

Is it possible to implement the action with current technical capacities within the City?

Or would we need further research, information, or outside expertise?

## Equity

Does the Action address the needs of vulnerable and historically marginalized populations?

Does the action reduce vulnerability for all populations?

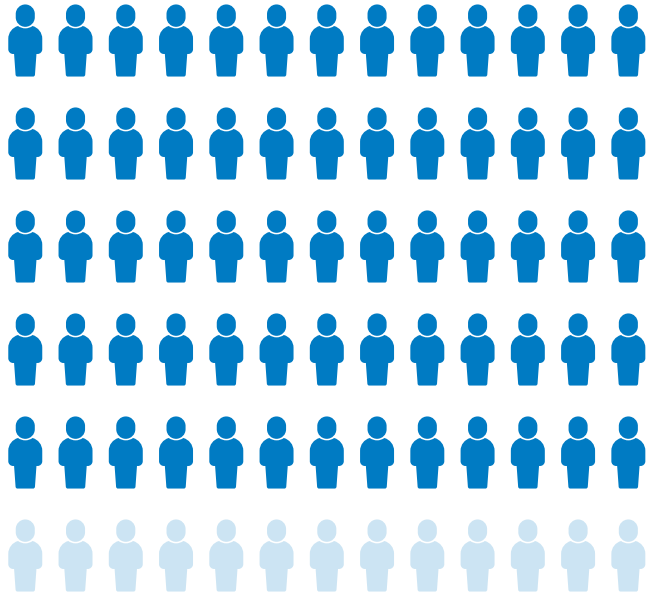
## Co-benefits

Does the action address multiple goals or other City/Community objectives?



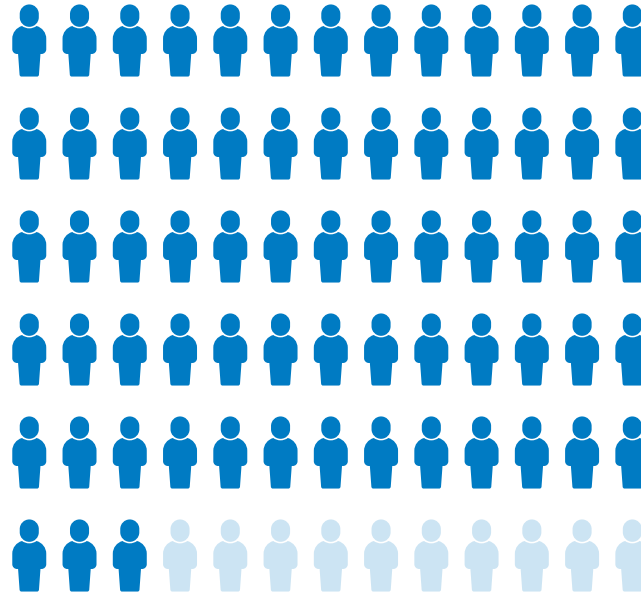
# Fall community survey

83%



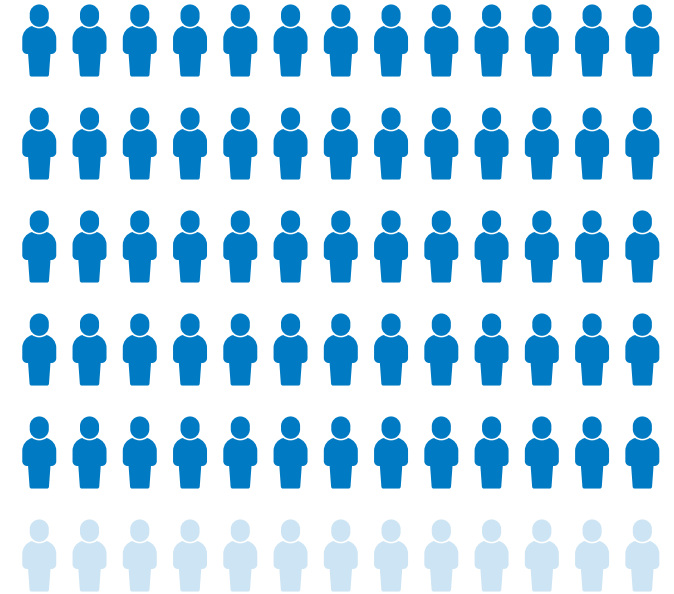
It is important for Columbia to take immediate action to reduce GHG emissions

86%



It is important for Columbia to take action to prepare for Climate Change

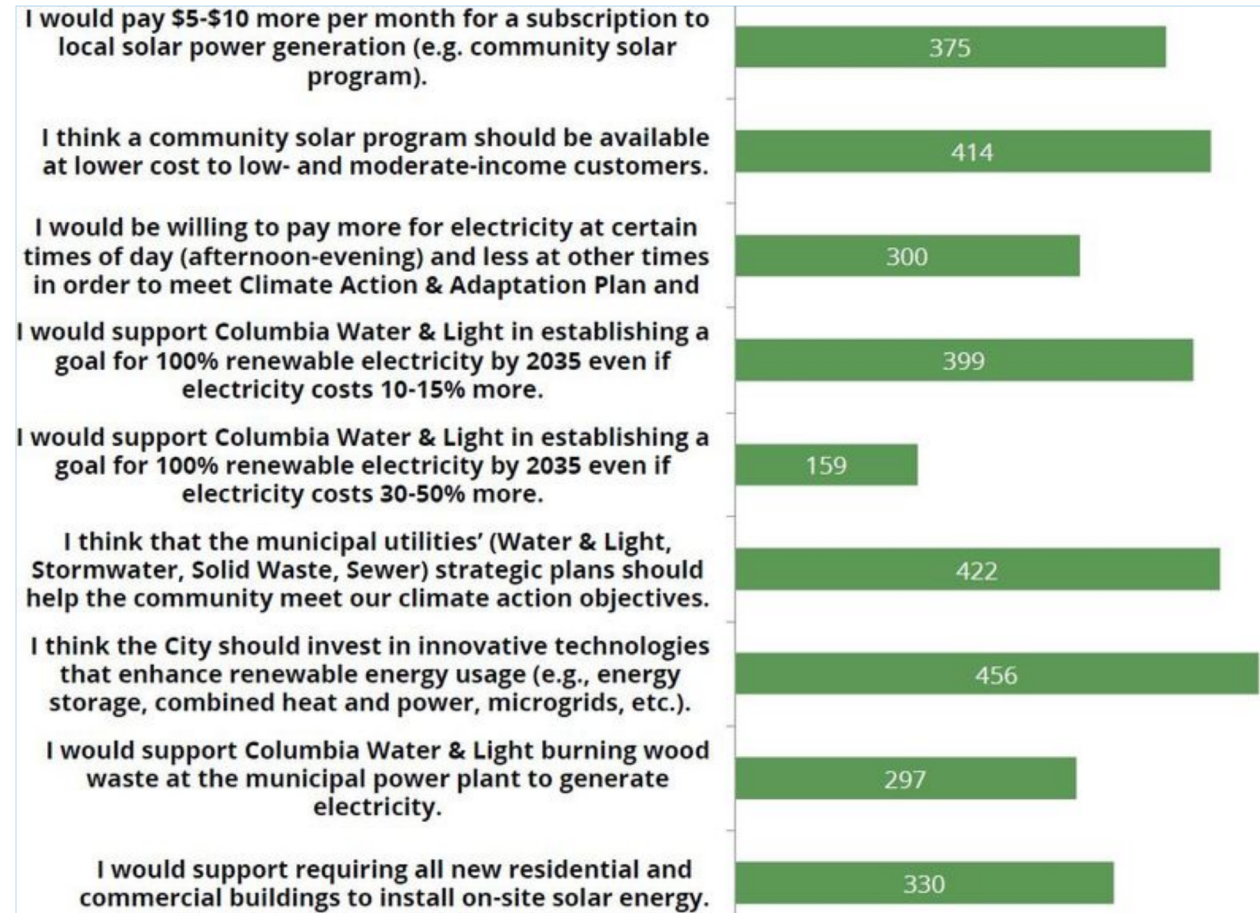
83%



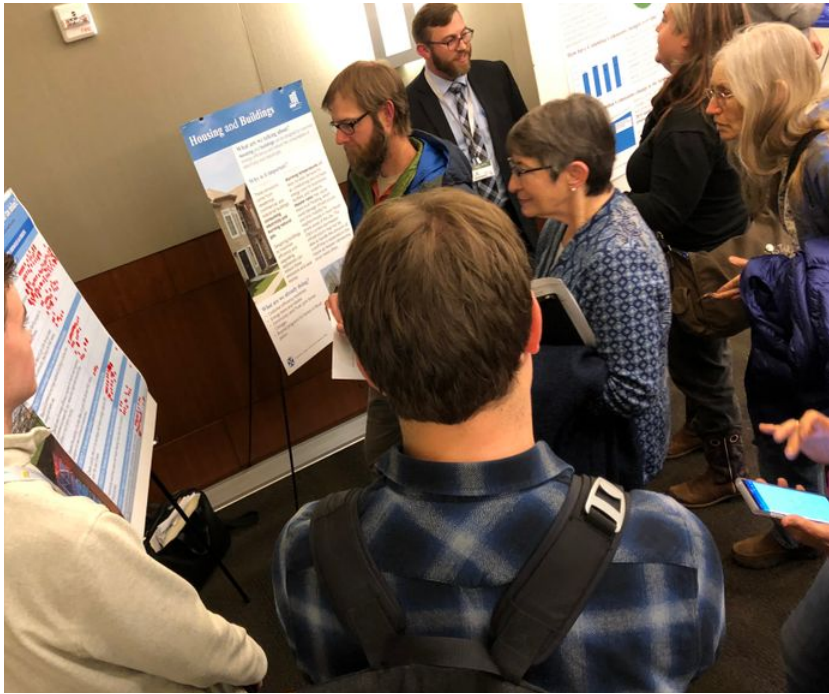
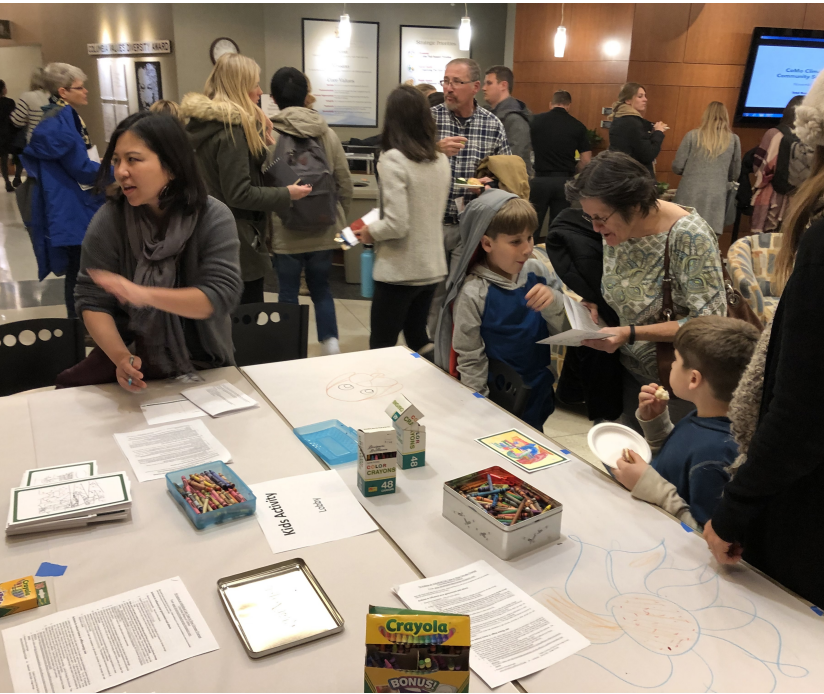
Columbia should be a leader in proactively addressing climate change

# Fall community survey

## Example from Energy section

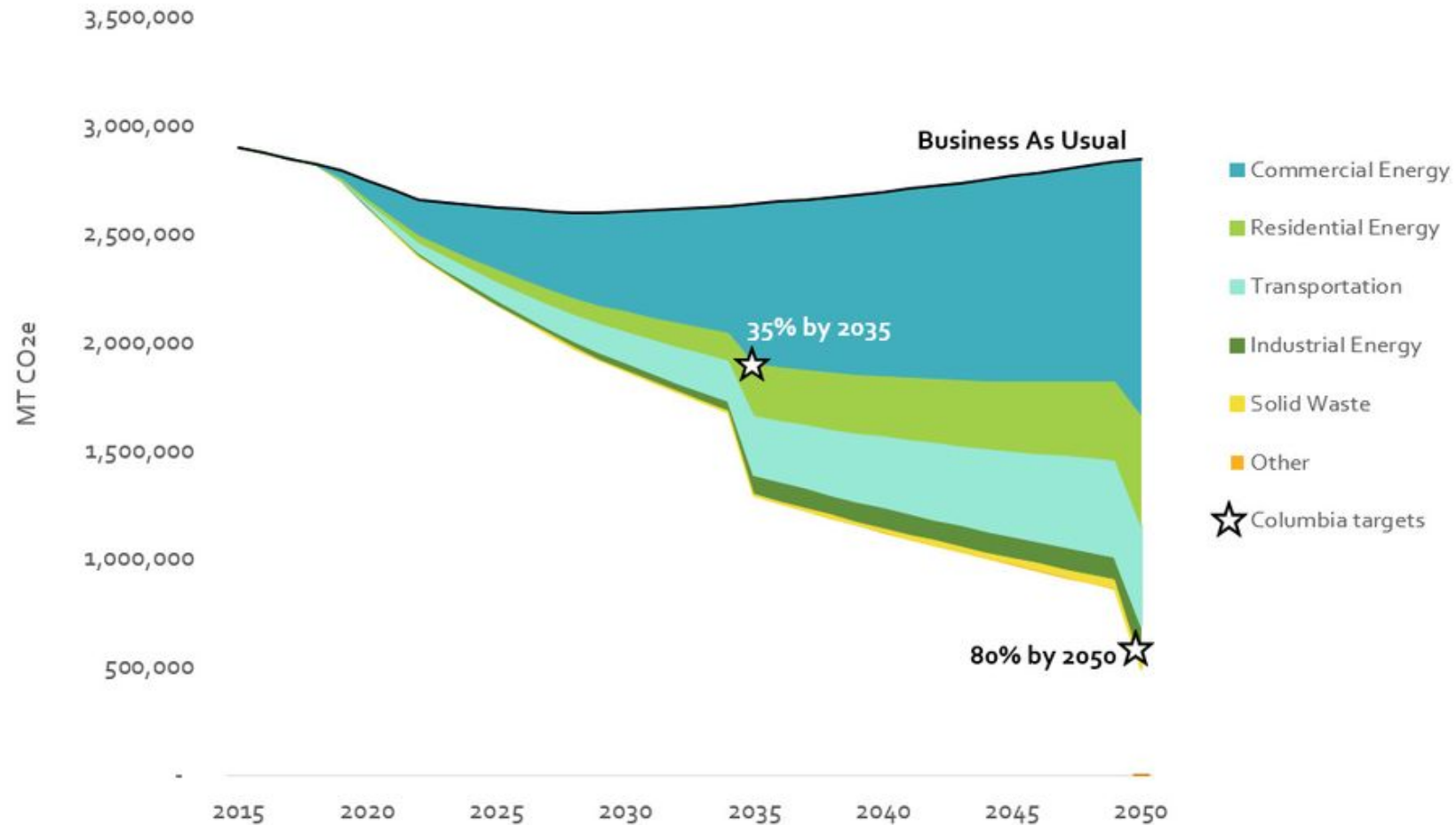








# Modeling impact: Wedge analysis







# Spring community survey



- Additional 9% of respondents said they would support it with revisions made

- Respondents requested guidance and motivation for individual actions

- (e.g. do not believe climate change is an issue)



# Spring community survey

## Feedback themes example

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### Energy

Theme	Feedback	Recommended Action
<b>Costs</b>	Concern about costs of implementation and to citizens (especially low-income).	Add section in Implementation Strategy discussing cost implications.
<b>Local Renewables</b>	Strong support for local production of renewables, rather than purchased from elsewhere.	
<b>Mixed on Wind</b>	Concern about industrial wind power.	
<b>Solar</b>	High support for solar and related incentives.	None needed.

### Housing, Buildings, and Development

Theme	Feedback	Recommended Action
<b>Costs</b>	Concern about costs of implementation and to citizens (especially low-income).	Add section in Implementation Strategy discussing cost implications.
<b>Incentives</b>	Interest in offering incentives to homeowners for upgrades (for new and existing development).	None required—already in plan.
<b>Building Code and Ordinances</b>	Interest in seeing more actions related to updating building code and ordinances.	Consider changing H-1.1.5 to “Priority.”
<b>New Development</b>	Interest in adding actions that guide future development/land use (e.g., concern about building new development on natural lands)	Part of this is implied in Transportation and Natural resources sections.

# Tension points



Balancing  
funding needs &  
community  
priorities



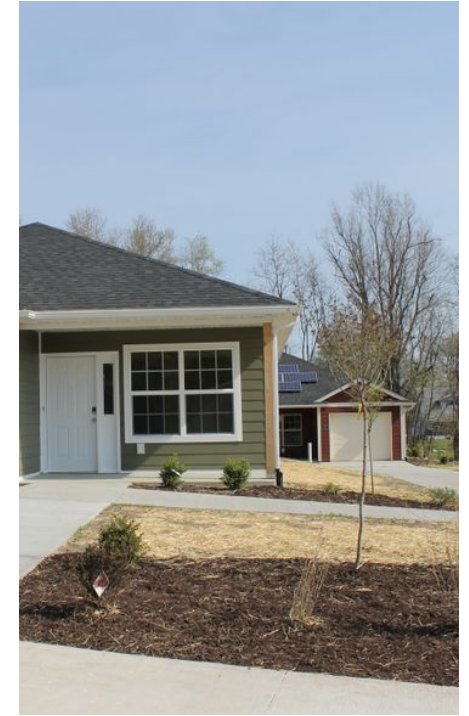
Is it good for all?



Density and  
Community  
Character



Scope 3  
emissions, not  
included



Does affordable  
housing conflict  
with land  
preservation?



A vibrant, colorful mural depicting a tropical scene. It features palm trees, birds in flight, and large, stylized flowers. In the foreground, a person is walking on a sidewalk, partially obscured by the mural. The overall atmosphere is bright and artistic.

# What the Climate Action & Adaptation Plan proposes



A photograph of a large field of solar panels under a blue sky with scattered white clouds. The panels are mounted on a grassy area, and a stone border is visible in the foreground.

energy

A photograph of a residential house with a grey roof and blue siding. A large tree with vibrant pink blossoms stands in the front yard. A white text box is overlaid on the image.

housing,  
buildings, &  
development

A photograph of a busy road with several cars, including a prominent red hatchback in the foreground. A yellow school bus is visible in the background. A white text box is overlaid on the image.

transportation

A photograph of large, rectangular bales of compressed waste, primarily plastic bottles, stacked in a pile. A white text box is overlaid on the image.

waste

A photograph of a shallow stream flowing over rocks. Several people are standing in the water, possibly participating in a cleanup or recreational activity. A white text box is overlaid on the image.

health

A photograph of a garden area with a small, circular stone well in the foreground. The garden is surrounded by trees and a fence. A white text box is overlaid on the image.

natural  
resources



# ENERGY Goal E-1

**Increase local renewable energy generation and procure renewable electricity.**

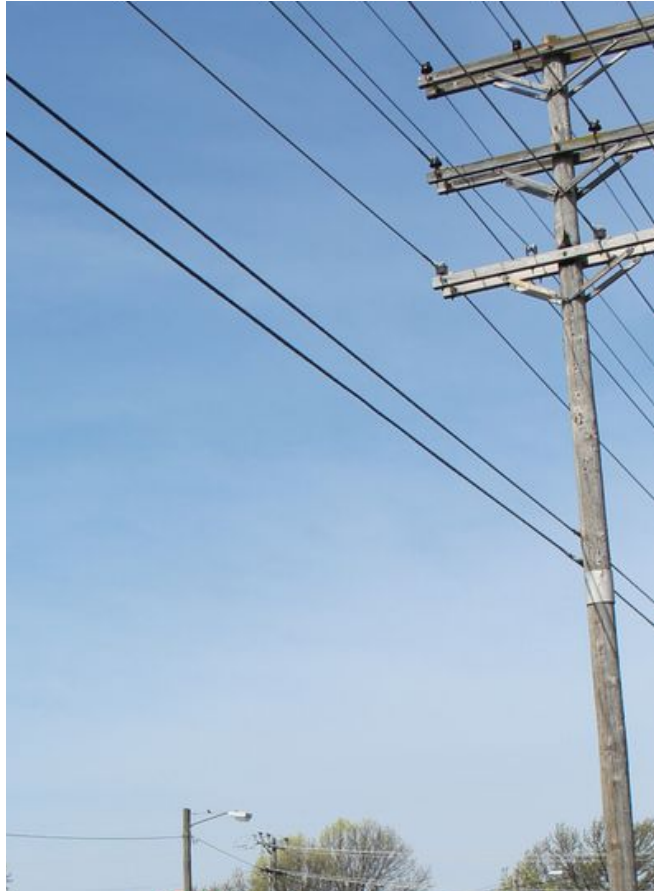


- STRATEGIES

- E-1.1: Increase on-site renewable energy installations in new and existing buildings.
- E-1.2: Maximize Columbia Water and Light's renewable energy purchasing and production.
- E-1.3 Revisit and adjust Columbia's Renewable Energy Ordinance to meet climate goals.

# ENERGY Goal E-2

**Maintain reliability of local energy supply and local distribution.**



- STRATEGIES

- E-2.1: Create a resilient grid.
- E-2.2: Manage energy demand to reduce peak energy use.



# HOUSING, BUILDINGS, DEVELOPMENT Goal 1

**Reduce housing-, building-, and development-related energy consumption and improve resiliency.**



- STRATEGIES

- H-1.1: Increase energy efficiency in residential buildings.
- H-1.2: Increase energy efficiency in commercial buildings.
- H-1.3: Increase energy efficiency in municipal and school buildings.

# HOUSING, BUILDINGS, DEVELOPMENT Goal 1

**Reduce housing-, building-, and development-related energy consumption and improve resiliency.**



- STRATEGIES

- H-1.4: Decrease the impact of building stock on local air pollution and greenhouse gas emissions.
- H-1.5: Decrease use of fossil fuels in housing and other buildings.
- H-1.6: Support development of buildings that are resilient to anticipated future conditions



# TRANSPORTATION Goal T-1

## Reduce travel by car.



- STRATEGIES

- T-1.1: Prioritize safety and convenience of walking, biking, and riding transit.
- T-1.2: Build a thriving public transit system.
- T-1.3: Create a bikeable community.
- T-1.4: Create a walkable community.
- T-1.5: Shift land use patterns to shorten trips and reduce the need to drive.

# TRANSPORTATION Goal T-2

**Reduce greenhouse gas emissions from vehicles.**



- STRATEGIES

- T-2.1: Encourage use of low- to zero-emissions vehicles.
- T-2.2: Reduce use and ownership of personal vehicles.
- T-2.3: Improve efficiency of vehicle traffic.



# WASTE Goal W-1

**Reduce waste generation.**



- STRATEGIES
  - W-1.1: Encourage reuse.

# WASTE Goal W-2

## **Increase diversion.**



- STRATEGIES

- W-2.1: Reduce landfill waste through customer education, rate structures and increasing City recycling programs.
- W-2.2: Expand composting participation and operation.
- W-2.3: Divert construction and demolition waste.
- W-2.4: Require and incentivize recycling.



# WASTE Goal W-3

## Improve waste system management.



- STRATEGIES

- W-3.1: Encourage proper disposal of products containing high Global Warming Potential (GWP) gases.
- W-3.2: Upgrade solid waste facilities.
- W-3.3L Track waste diversion

# HEALTH, SAFETY, AND WELL-BEING Goal HS-1

**Prepare the community, public safety and health services for anticipated climate change impacts.**



- STRATEGIES

- HS-1.1: Include vulnerability assessments in planning efforts and enhance communication tools to prepare the community for anticipated climate change impacts.
- HS-1.2 Reduce incidences of heat-related illness and death
- HS-1.3: Prevent and prepare for increased incidence of vector borne diseases and illness or injury due to air and water quality issues
- HS-1.4: Plan for a potential increase in demand for mental health care



# HEALTH, SAFETY, AND WELL-BEING Goal HS-2

## Reduce emissions associated with the food system.



- STRATEGIES

- HS-2.1: Increase production of local food.
- HS-2.2: Assure food security, particularly among the most vulnerable populations.

# NATURAL RESOURCES Goal NR-1

**Increase climate resilience and carbon sequestration potential of public and private lands.**



- STRATEGIES

- NR-1.1: Increase the accessibility and quality of habitat for native plants and animals.



# NATURAL RESOURCES Goal NR-2

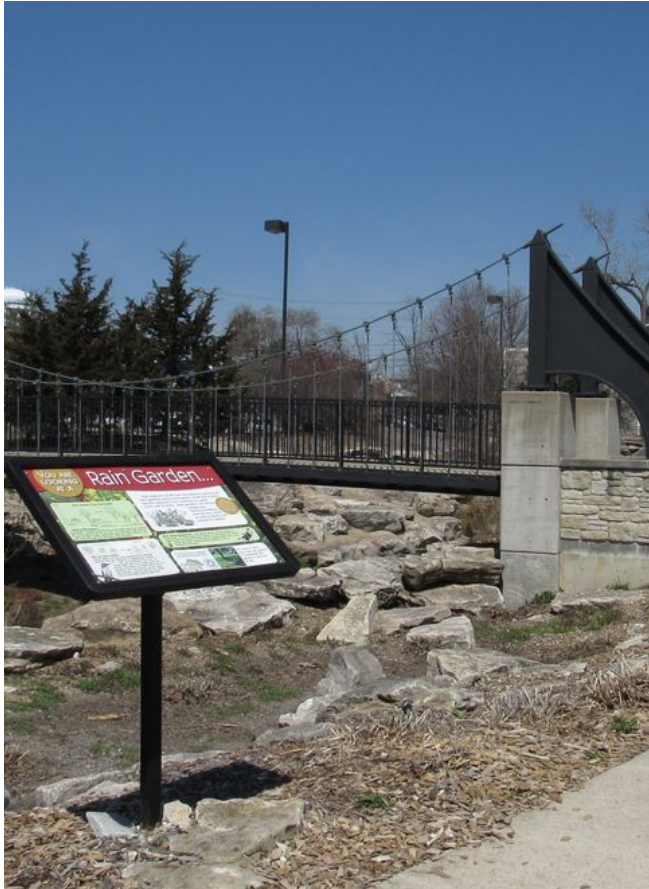
**Reduce per capita water usage.**



- STRATEGIES
  - NR-2.1: Encourage water conservation.

# NATURAL RESOURCES Goal NR-3

**Reduce negative impacts from stormwater runoff and flooding.**



- STRATEGIES
  - NR-3.1: Improve stormwater management.
  - NR-3.2: Minimize risks to flood-prone areas.

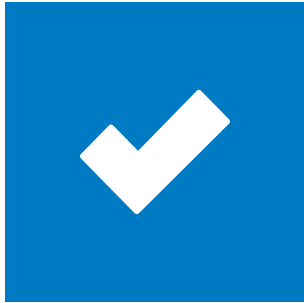


A vibrant mural on a wall depicts a tropical scene with a sunset in shades of orange and yellow, palm trees in blue and purple, and large pink and white flowers. In the foreground, a person is walking on a sidewalk, their legs visible. The overall image has a soft, artistic feel.

# Implementing the Climate Action & Adaptation Plan

# MOVING THE PLAN FORWARD

Cross-cutting and implementation strategies



**Goal I-1:** Establish climate action as a priority for the City Council and the community



**Goal I-2:** Establish CAAP goals as priorities in the activities of the City of Columbia as an organization



**Goal I-3:** Strengthen City capacity to support community climate action



# Priority Action Matrix - DRAFT Example

Energy								
#	Action	Lever	Timeframe	Lead entity	Potential partners	Cost	Potential funding strategies	Key next steps
1.1.1	Offer community solar program through W&L.	Policy, Infrastructure	Short	W&L/Utility Services Division (USD)	Housing developers, Solar contractors, Sustainability	\$\$	Utility Fees, Revenue Bond, Rates Utility fees for maintenance and staffing support of the project. The debt service payments can be met through energy payments.	Integrate into billing software, test billing process, define community and utility solar goals.  Measure: subscription rate, renewable % met and GHG reduced, progress to local solar goals.
1.1.4	Install solar panels on all City buildings and sites where feasible.	Policy, Infrastructure	Ongoing	City (Public Works)	3rd Party Lessor W&L, Sustainability, building occupant	\$\$/yr \$\$\$\$ total project	Green Bonds Utility Fees if W&L owns/installs Energy Services Company	Formalize Council directive to Complete suitability analysis, establish "feasibility" criteria. Evaluate funding options  Measure: renewable energy offset achieved, % of suitable sites developed, progress to local solar goals.
1.1.5	Streamline and offer expedited permitting for renewable energy installations.	Policy, Management Practice	Short	BSD	EEC, contractors, advocates Fire/USD	\$	General Fund, permit fees	Complete staff review of current process Propose improvements from internal BSD/W&L staff analysis, verify if GIS modelling can replace onsite shade analysis.  Measure: Time to process/approve applications. Time for rebate check/loan closing.
1.1.7	Make it easier for large commercial and industrial customers to maximize the benefit of using their space for photovoltaics (e.g., feed in tariff, third party lease agreements, roof space rental).	Policy	Short	W&L	Industrial and Large General Service Customers; Environmental Groups; 3 <sup>rd</sup> party installers, Sustainability	\$	Program: Rates/Fees Private Capital	Develop/modify policy and ordinance as needed. Establish local solar goal using IERMP guidance Evaluate and identify large commercial and industrial customers.  Measure: increase in the rate of non-residential PV installs and number of PV deals with new structure.

# Key Performance Indicator - DRAFT Example

Key Performance Indicator	Baseline	Current Value	2035 Target	2050 Target	Trend
Overarching Goals:					
Building energy GHG emissions (MTCO <sub>2</sub> e)	2,154,358 (2015)		601,886 (72% reduction)	119,231 (94% reduction)	
Goal: Increase local renewable energy generation and procure renewable electricity.					
Renewable electricity (% of total)	15.67%		71%	100%	
Community/ on-site solar capacity (MW)	2.55 (2018)		20	40	
Proportion of municipal electricity supplied by onsite solar (%)	0.02%		TBD	100%	



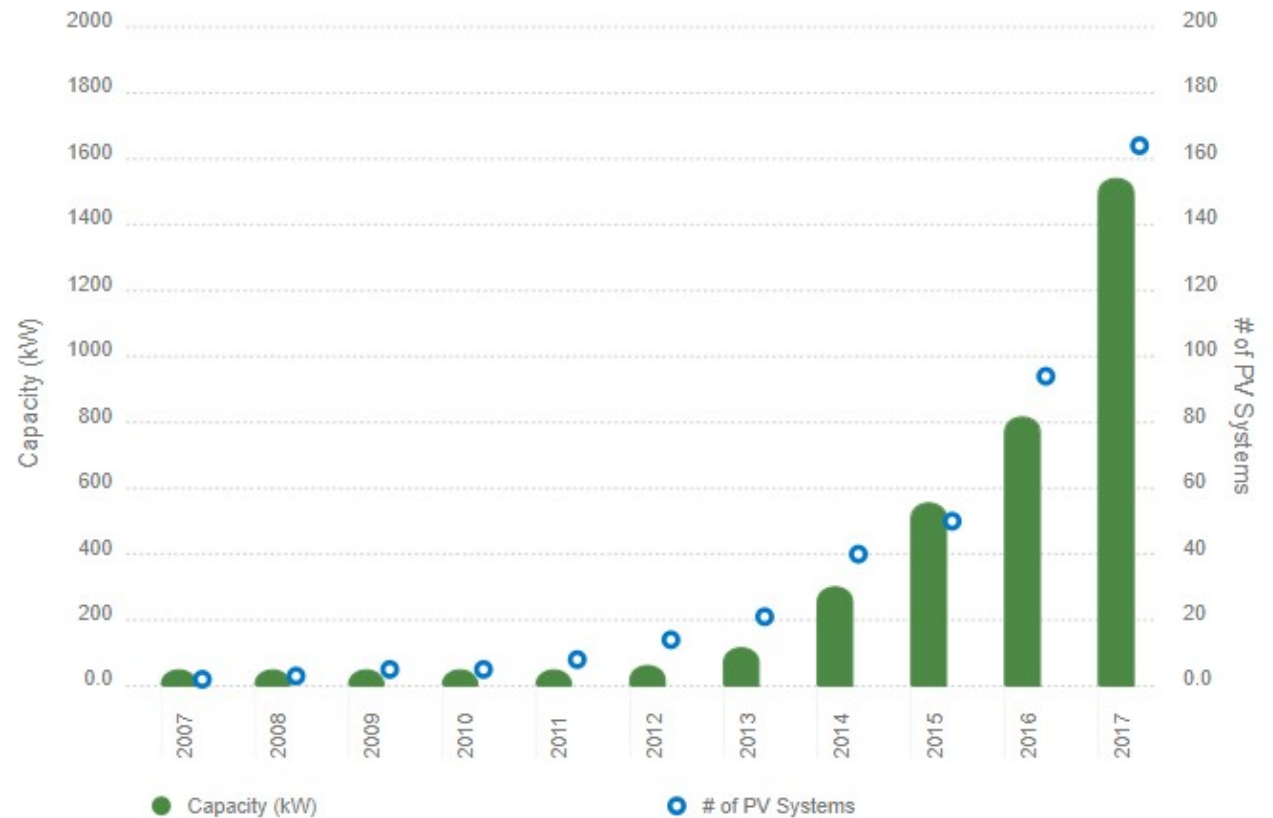
# Dashboard - DRAFT Example

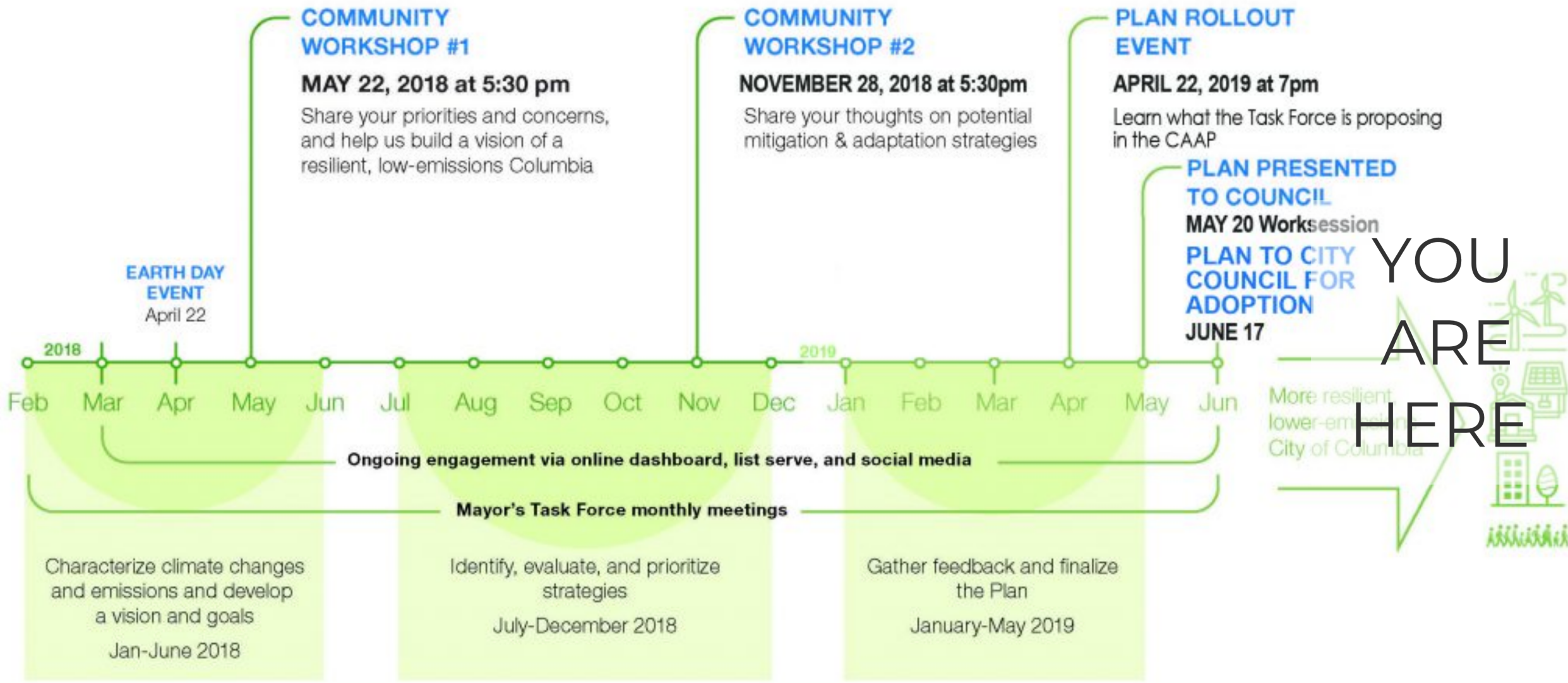


Energy - Renewable Energy

## Columbia's Commercial and Residential PV Systems

In 2007, Columbia had one solar PV system installed that was capable of providing 4kW of power, in 2017 we had 164 systems installed that could provide over 1500kW. This is a 384% increase in the amount of electricity we can generate (also known as capacity). The [Columbia Water and Light's Solar Program](#) has been a primary driver in this increase. [Review the detailed PV Data.](#)







# Thank you!

Mayor's Task Force on Climate Action &  
Adaptation Planning  
City of Columbia Office of Sustainability



[CoMo.Gov/Sustainability/climate-action/](https://CoMo.Gov/Sustainability/climate-action/)



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