



Photo credit: Namaste Solar

From Climate Data to Climate Action

EXPERIENCES FROM THE CITY OF BOULDER



History of Data Informed Action in Boulder



CAP Tax: nation's first voter-approved tax dedicated to addressing climate change in 2006

7

7%: The original GHG Emissions target (Kyoto) that CAP Tax was designed to fund



Climate Commitment: Adopted 2016 spelling out core goals and their related sub-milestones



IPCC Report: 2018 report revealed goals were not aligned with climate science



Climate Emergency: declared by Boulder City Council July 2019



CMAP: City launches Climate Mobilization Action Plan September 2019



Boulder releases new science-based goals and targets in mid 2021

How is data tracked &
managed?



Energy Use Community and City wide

- **Collection:** Community Energy Report supplied by Xcel Energy, Electronic Data Interchange (EDI) for city buildings
- **Storage:** SQL database and Annual Excel files



Waste Hauler Reporting

- **Collection:** Haulers operating within the City of Boulder
- **Storage:** Online ReTrac system (software designed to manage and measure waste and recycling programs)



Carbon Sequestration

- **Collection:** National Land Cover Database, Google Earth, iTree Canopy, LEARN tool
- **Storage:** Excel spreadsheets and ArcGIS



Community Inventory

- **Community Energy use:** Stationary Energy Use, Fugitive Emissions,
- **Transportation:** On-Road vehicles, Transit, Railways, Aviation
- **Waste:** Solid Waste generation, Wastewater Treatment Facilities

Energy Data

Building Performance Ordinance

- **Collection:** Energy Star Portfolio Manager
- **Storage:** Salesforce

Marijuana Cultivation Energy Use

- **Collection:** Energy Star Portfolio Manager
- **Storage:** Salesforce

Voluntary programs

- **Collection & Storage:** Salesforce database, permit databases

Waste Data

Construction & Demolition Waste Diversion Reporting

- **Collection:** Reports submitted through permit process
- **Storage:** Permit database and excel spreadsheets

Ecosystems Data

Ecosystem Services

- **Collection:** Local GIS data layers, LiDAR, NLCD
- **Storage:** development of online tool

GHG Data

Municipal Inventory

- Stationary Energy, Mobile Energy, Solid Waste Facilities, Waste and Wastewater Treatment Facilities, Process and Fugitive Emissions, Materials

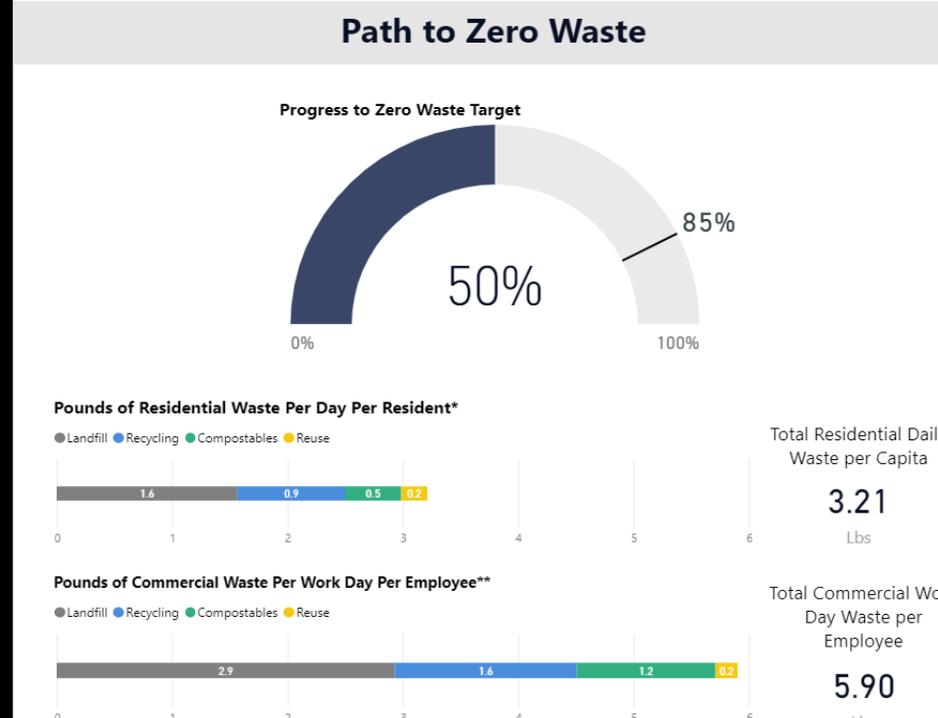
How is data communicated to our community?

BOULDER MEASURES:

dashboards related to city programs and community indicators

OPEN DATA:

the City of Boulder government shares 100+ datasets



Boulder Notable Tree Tour

A Story Map highlighting Boulder's Notable Trees.

City of Boulder Open Space and Mountain Parks (OSMP) Trails

Current trail information for trails managed by OSMP department. Includes trail alignments and closures.

Hike Through History: Virtually Visit OSMP's Cultural Resources

This interactive Cultural Resources Story Map allows you to virtually hike OSMP's cultural resources.

City of Boulder Snow Removal

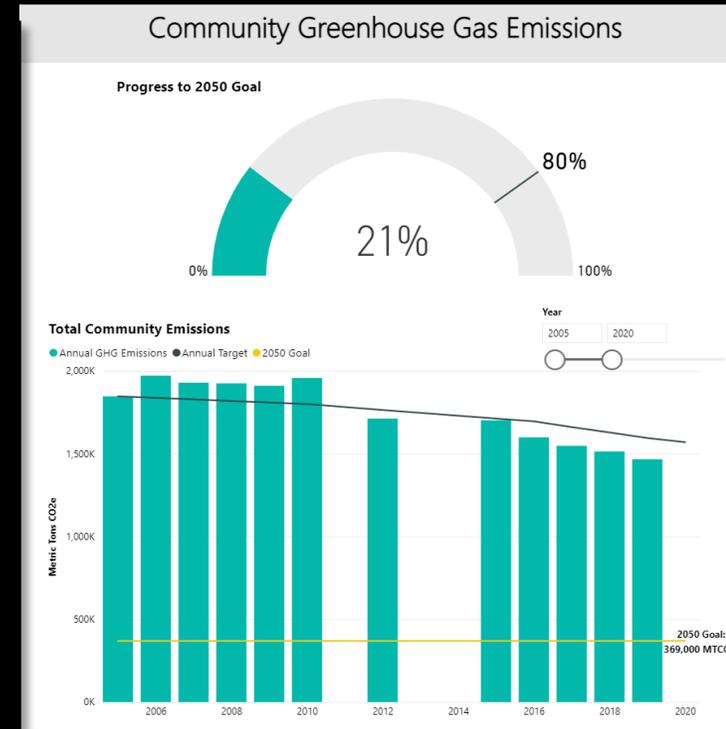
View the City's snow removal routes

5 years later: OSMP's Recovery from the 2013 Flood

OSMP Forest and Fire Management

City of Boulder Zoning Districts

City of Boulder Rental Licenses



Using data to inform
decision making

Climate data interpretation, monitoring and decision making



GHG emissions tracking to set science-based targets



Prioritize climate action efforts using emissions inventory results

In baseline inventory, electricity made up 55% of total emissions, becoming our earliest and most prominent area of action.



Climate Commitment Tool

Excel based tool using trending data to analyze community-based emissions under varying scenarios to inform program adjustments and achieve science-based targets.

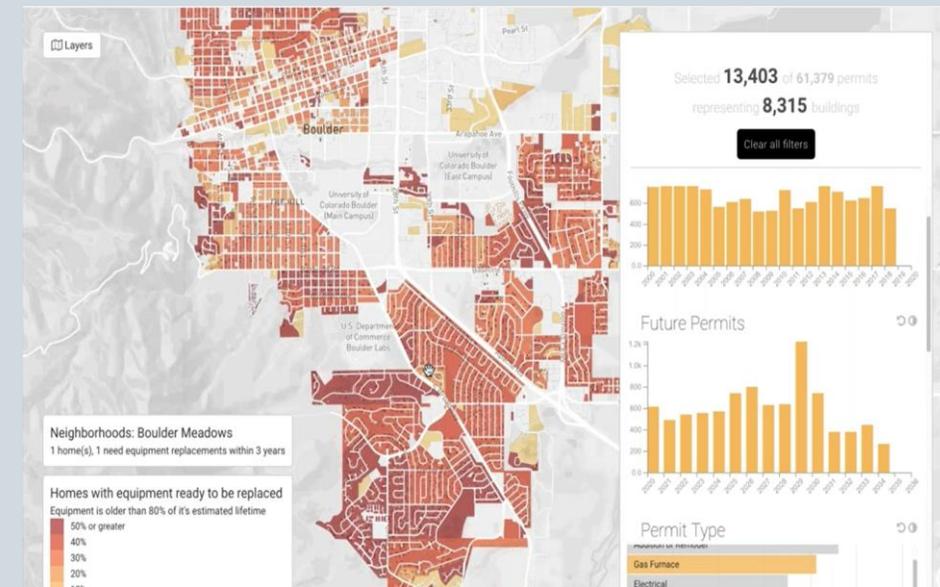
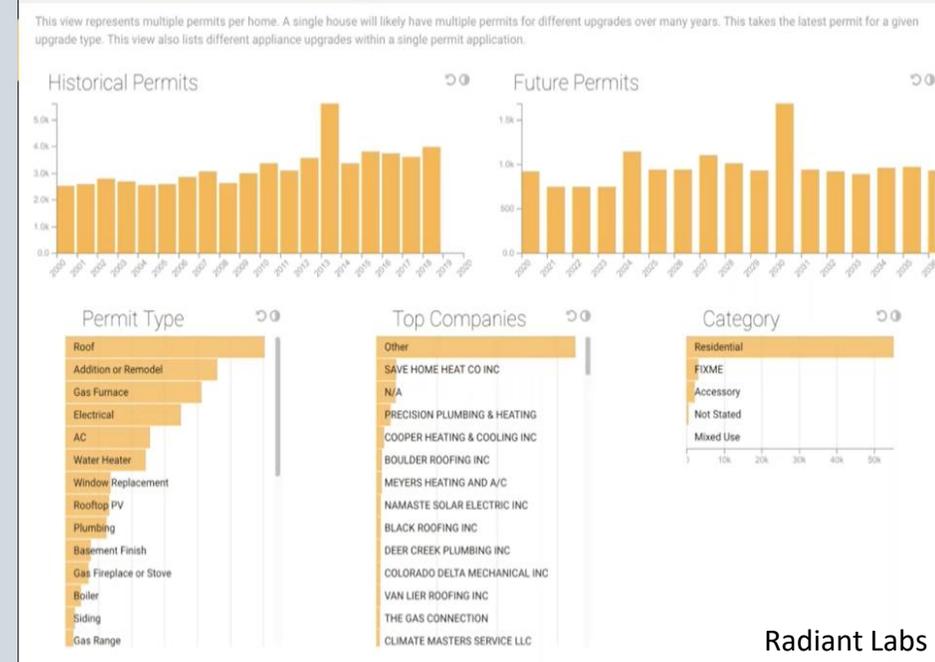


Measure equity and resilience (intersectional benefits) as indicators of success

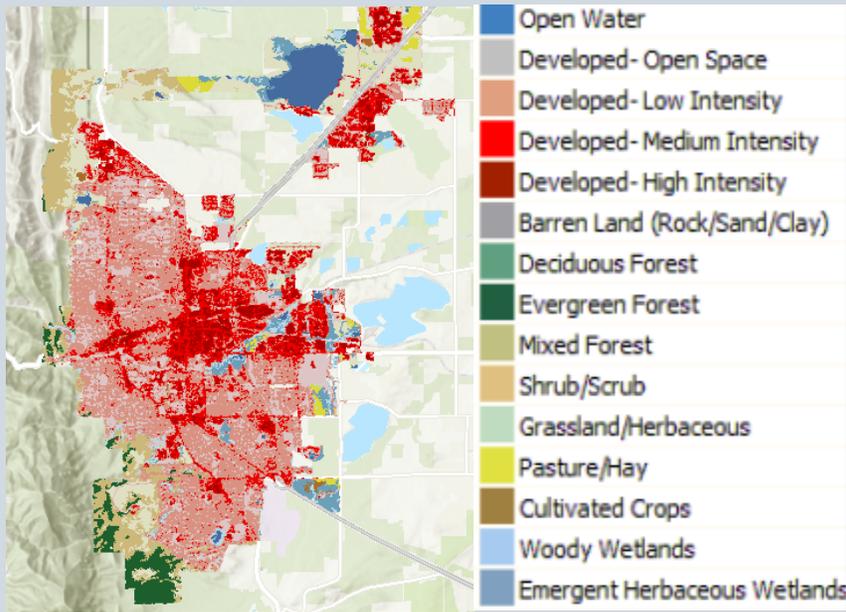
GHG emissions reduction is an outcome of addressing social equity and resilience in Boulder's community. It is not the exclusive driving force of climate action.

Examples of Data Informed Investment Opportunities

- Using permit data to target candidates for fuel switching, energy upgrades, and renewable energy opportunities.
- Acting as testing grounds for many technologies and innovations to inform development: Google EIE, etc.
- Partnering with 350.org to learn to use data for future financial strategies and decisions.
- Partnering with NREL and Mapdwell to evaluate solar potential on city rooftops
 - o Using LiDAR to map rooftop space by slope orientation, and architectural and tree shading.
 - o Product was precursor to similar tools now offered by Google, displaying a real-time interactive map on possibilities of household and community power generation.



Example of data translated into climate action



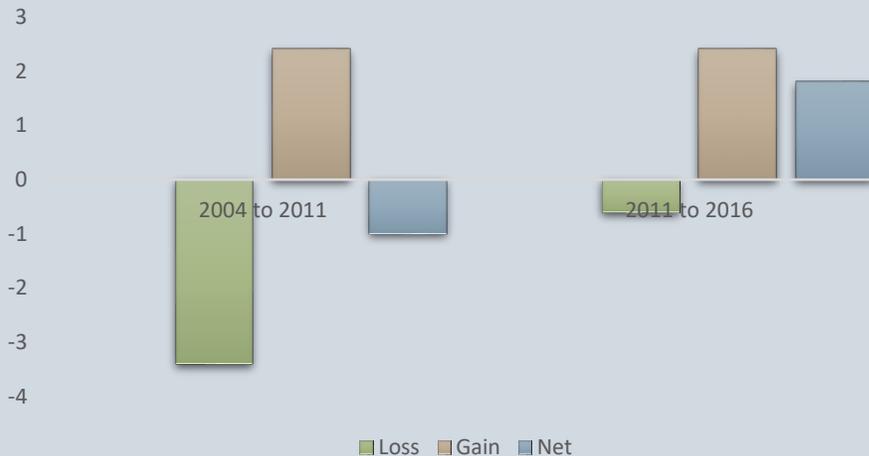
Urban Drawdown Initiative: Help cities draw down carbon across the globe. Flips the conventional view of the climate problem on its head, treating carbon as a resource rather than a problem.

To implement, we are using geospatial information and data to calculate the carbon sequestration potential of Boulder's trees and regional forests.

This work is imperative as:

- The science shows we can't achieve global climate goals with mitigation alone. Need sequestration to supplement.
- Carbon drawdown allows for intersectional measurable action.
- Data plays a key role, quantifying how carbon sinks change over time due to land use decisions, estimating the potential for carbon sequestration under varying scenarios, displaying how ecosystem services support communities.

Trees Outside Forests Percent Change



Lessons Learned



The importance of engagement.



GHG emissions are not the only measure of success.



Use data to generate buy-in from relevant stakeholders and identify economic opportunities.



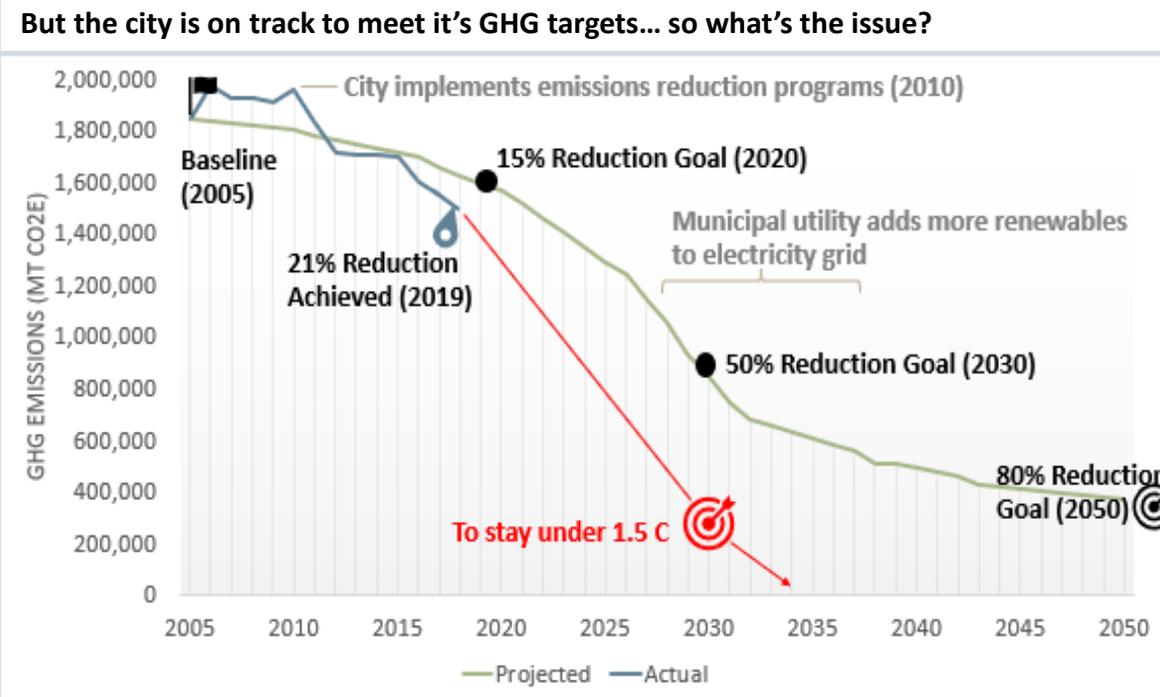
Accept constant change and adapt to it.



Organized data infrastructure enables data driven decision making.



Seek new collaborations with private and public companies



Thank You

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