



Climate Change Update

Monterey City Council
October 26, 2022



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Objectives

- Latest Climate Change data – United Nations
- Mitigation actions taken by the City
 - Reduce impacts, greenhouse gas (GHG) emissions
- Adaptation actions taken by the City
 - Adjusting to current and future effects
- Areas of Future Focus



Background

- ❖ Intergovernmental Panel on Climate Change (IPCC)
 - ❖ Established in 1988 by the United Nations
 - ❖ 195 countries participate as members
 - ❖ 1st Assessment Report (AR) completed in 1990
 - ❖ 6th AR release in 2021-2022



IPCC AR6: Working Group I Findings

- ❖ “Unequivocal” that human influence warmed the atmosphere/ ocean/ land
- ❖ Smallest summer arctic ice coverage –1,000 years
- ❖ Last 50 years: fastest surface temp inc. - 2,000 years
- ❖ Last century: fastest sea level rise - 3,000 years
- ❖ Highest ocean acidification - 26,000 years
- ❖ Warmest decade - 125,000 years
- ❖ Fastest ocean warming - last ice age
- ❖ Highest CO2 concentrations - 2 million years



IPCC Projections

- ❖ 1.5°C of warming - significant climate impacts but potentially avoids the worst
- ❖ The world will likely (50%+) reach 1.5°C of warming within the next 20 years
- ❖ If aggressive corrective action is taken: 1.6°C by 2050 and reduce to 1.4°C increase by 2100
- ❖ If significant emissions continue: 2.4°C increase by 2050 and increase 4.4°C by 2100



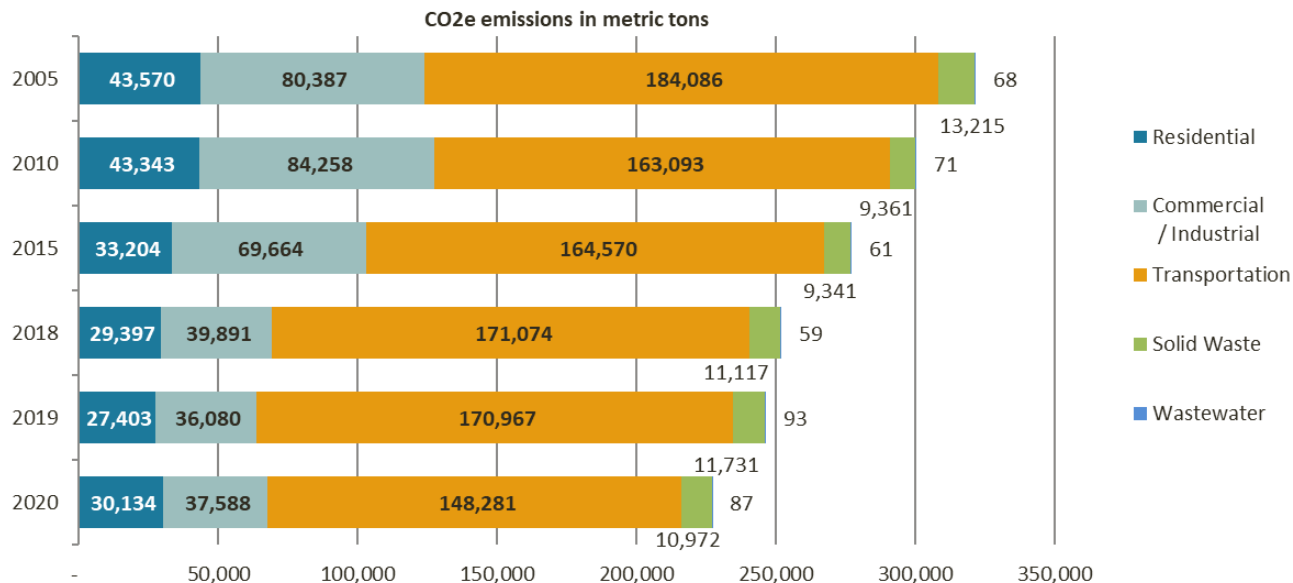
**1.5°C****2°C****IMPACT of 2°C
compared to 1.5°C****LOSS OF
PLANT SPECIES****8%**of plants will lose
1/2 their habitable
area**16%**of plants will lose
1/2 their habitable
area**> 2x
worse****LOSS OF
INSECT SPECIES****6%**of insects will lose
1/2 their habitable
area**18%**of insects will lose
1/2 their habitable
area**> 3x
worse****FURTHER DECLINE
IN CORAL REEFS****70%
to 90%****99%****> up to
29%
worse****EXTREME HEAT****14%**of the global
population exposed
to severe heat every
1 in 5 years**37%**of the global
population exposed
to severe heat every
1 in 5 years**> 2.6x
worse****SEA-ICE-FREE
SUMMERS IN THE
ARCTIC****At least once
every 100
years****At least once
every 10
years****> 10x
worse****CLIMATECOUNCIL.ORG.AU**

| crowd-funded science information

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2020 AMBAG GHG Report

City of Monterey 2005 to 2020 GHG Emissions by Sector



How does the City compare?

AMBAG Cities GHG emissions percent change by sector from 2005 to 2020

Jurisdiction	Residential	Commercial / Industrial	Transportation	Solid Waste	Wastewater	Total
Capitola	-29%	-60%	-19%	-28%	3%	-30%
Carmel	-25%	-52%	-36%	-8%	4%	-35%
Del Rey Oaks	-30%	-28%	-19%	5%	59%	-21%
Gonzales	-25%	-56%	-9%	10%	1%	-19%
Greenfield	-2%	-38%	25%	111%	38%	21%
Hollister	-20%	-73%	-6%	77%	10%	-15%
King City	-7%	-16%	9%	32%	27%	3%
Marina	-24%	-31%	-9%	-7%	63%	-13%
Monterey	-31%	-53%	-19%	-17%	27%	-29%
Pacific Grove	-30%	-44%	-23%	-9%	43%	-26%
Salinas	-29%	-52%	-12%	13%	46%	-21%
San Juan Bautista	-21%	-68%	3%	100%	24%	-4%
Santa Cruz	-29%	-52%	-16%	-5%	-10%	-24%
Sand City	-25%	-51%	25%	-40%	9%	-29%
Scotts Valley	-28%	-64%	-19%	-23%	1%	-33%
Seaside	-36%	-51%	-18%	3%	28%	-23%
Soledad	-11%	-38%	11%	99%	21%	7%
Watsonville	-27%	-56%	-15%	7%	-32%	-26%
Average	-24%	-49%	-8%	18%	20%	-18%

AMBAG Counties GHG emissions percent change by sector from 2005 to 2020

Jurisdiction	Residential	Commercial / Industrial	Transportation	Solid Waste	Agriculture	Wastewater	Total
Unincorporated Monterey	-33%	-21%	-17%	162%	2%	-24%	-8%
Unincorporated San Benito	-35%	-40%	-10%	264%	5%	23%	14%
Unincorporated Santa Cruz	-37%	-37%	-18%	-7%	0%	27%	-23%
Average	-35%	-33%	-15%	140%	2%	9%	-6%



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Mitigation Actions taken by the City

- ❖ Adopted Climate Action Plan (2016)
- ❖ GHG Reduction Programs
 - ❖ Residential / Commercial / Industrial (RCI) Energy
 - ❖ Transportation
 - ❖ Solid Waste



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Climate Action Plan (2016)

- GHG Inventories
 - Government and Community
 - RCI, transportation, waste
- Set Reduction Targets
 - AB 32: 1990 levels by 2020 (15% below 2005)
 - Urban Environmental Accords: 40% below 1990 levels by 2030 (25% below 2005)
 - Executive Order: 80% below 1990 levels by 2050
- Provide Recommendations
 - Community Choice Aggregate
 - Regional public transportation project



RCI Energy Mitigations

- Retrofits (2007-2017)
 - AMBAG Energy Watch, PG&E programs, ARRA
 - 33 Locations: Traffic Signals, Rec Trail lights, streetlights, tunnel, parking garages, Sports Center
 - Approx. 2 million kwh in energy savings
- Direct Access Program (2011)
 - Allow choice of 3rd party energy vendor
 - City was one of the first in the region to obtain renewable energy for majority of operations
- Solar Power
 - 735 Pacific, Conference Center
 - Proposed: East/West garage, Ryan Ranch



RCI Energy Mitigations (cont'd)

- Central Coast Community Energy (3CE)
 - City was one of the original members that formed new government agency for power procurement
 - Formed in 2018
 - Provides local control of energy procurement
 - Includes 33 member agencies serving more than 430,000 customers
 - Targeting 100% renewable energy by 2030
 - More than \$28 million in energy program rebates and incentives
- City of Monterey 3CE
 - 96% enrollment
 - 14,649 customers
 - EV funding – 75 applications over 3 years
 - \$76,000 funded in 21/22



Transportation Mitigations

- Fleet Vehicle Electrification
 - 50% of City passenger vehicles are EV/hybrid
 - First hybrid in 2007, first EV in 2016
- EV Charging
 - Calle Principal (2 spaces)
 - East/West garage (2 spaces)
 - Wharf 1 – Proposal to add 17 spaces
- Statewide Initiatives
 - Low Carbon Fuel Standard (LCFS) provided incentives for fuels with lower GHG emission, targeted 10% reduction in fuel carbon content by 2020



Solid Waste Mitigations

- ❖ 1st City on peninsula to create green building ordinance (2008)
- ❖ 1st City in tri-county area to ban the use of polystyrene for takeout (2009)
- ❖ 1st City in tri-county area to ban plastic bags (2011)
- ❖ Adopted Single Use Disposables ordinance (2018)

State Regulations:

- ❖ AB 341: Mandatory Commercial Recycling (2011)
- ❖ AB 1826: Mandatory Organics Diversion (2014)
- ❖ SB 1383: Short Term Climate Pollutants (2016)
 - Expand food waste recovery to residents, begin edible food recovery

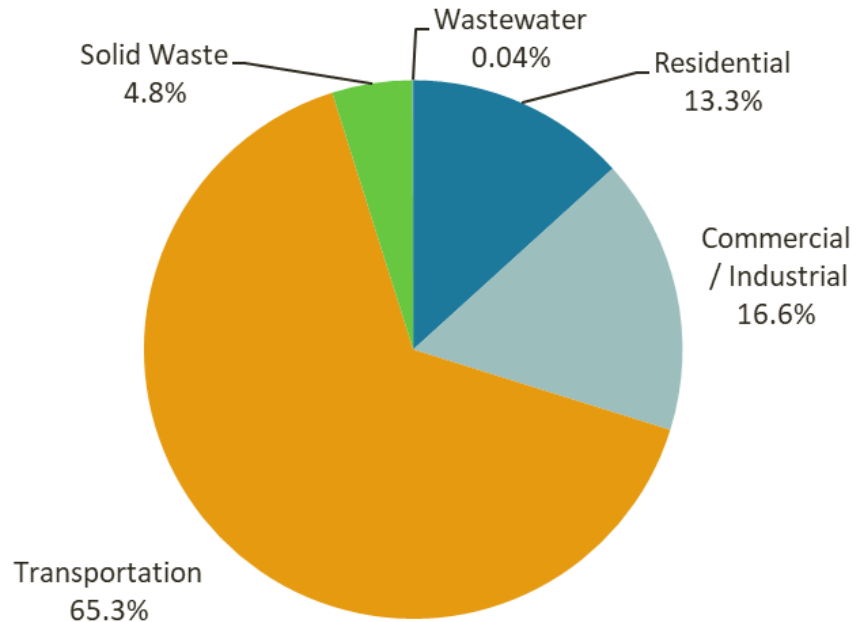


Largest Current City GHG Impacts

- ❖ 2020 AMBAG GHG study: City GHG emissions are predominantly coming from two sources:
 - ❖ Transportation (65.3%)
 - ❖ Residential and Commercial Energy Use (30%)



City of Monterey 2020 GHG Emissions by Sector



City of Monterey 2020 Energy Use GHG Emissions

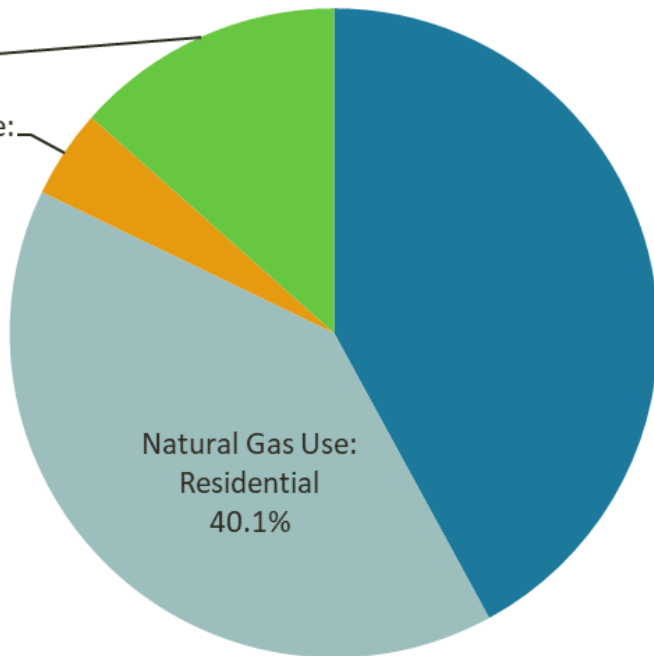
29.9% of Total Emissions

Electricity Use:

Commercial
/ Industrial
13.4%

Electricity Use:

Residential
4.4%



Natural Gas Use:

Commercial
/ Industrial
42.1%

Natural Gas Use:
Residential
40.1%



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Areas of Future Focus

- Transportation
 - Advanced Clean Cars II Regulations from CARB
 - New cars: 35% ZEVs by 2026, 68% by 2030 and 100% by 2035
 - Expanding EV charging
 - Convert all fleet vehicles to ZEV
 - Support regional projects
- Residential / Commercial
 - Building Electrification Reach Codes
 - Passive House
- Inflation Reduction Act
 - Improves the financial benefits of renewable energy projects
- Support Regional, State, Federal Mitigation Efforts



Adaptation Actions by the City Ponderosa Site

Ponderosa Site -

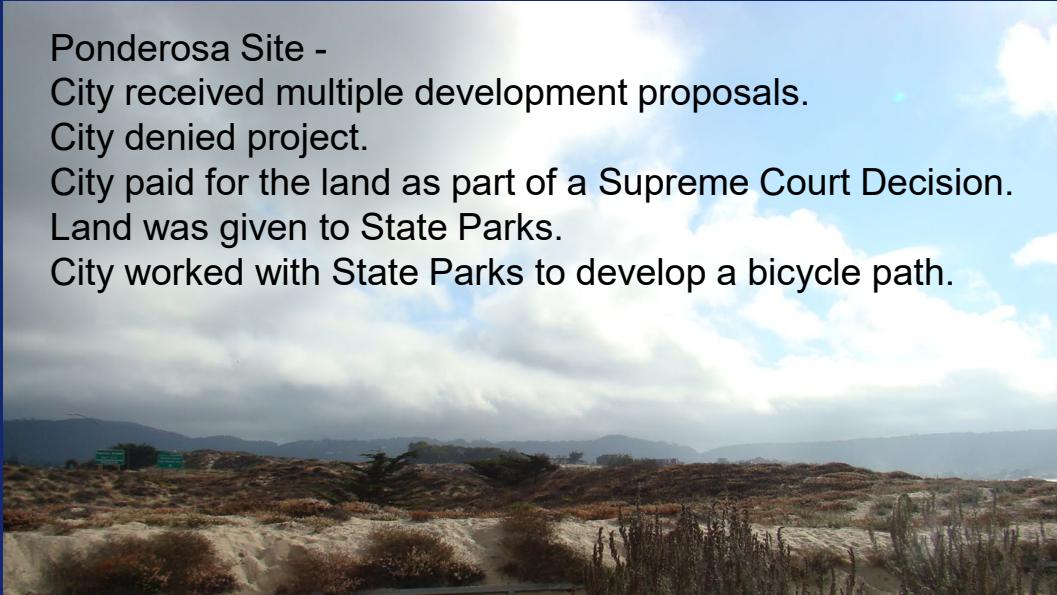
City received multiple development proposals.

City denied project.

City paid for the land as part of a Supreme Court Decision.

Land was given to State Parks.

City worked with State Parks to develop a bicycle path.



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Adaptation Actions by the City Del Monte Beach Re-Subdivision



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Adaptation Actions by the City Window on the Bay



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Adaptation Actions by the City Old Capitol Site



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Adaptation Actions by the City

Adaptive Traffic Signal System

- The City's Adaptive Traffic Signal System Implemented has been implemented on five of the seven signalized arterial corridors.
- Estimated yearly reduction of 20 tons of vehicle criteria pollutant (PM, NO_x, CO, HCs) emissions.



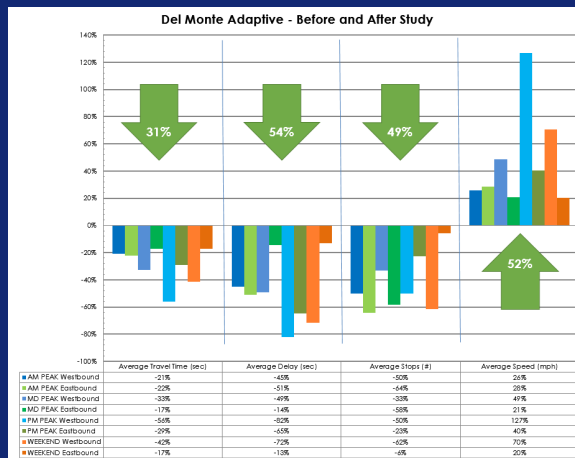
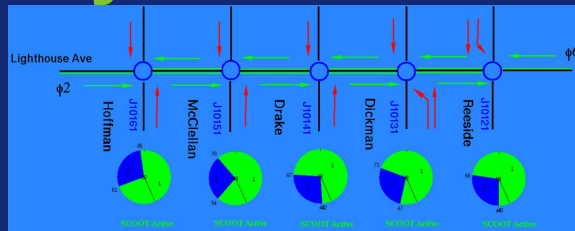
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Adaptive Traffic Signal System

- SCOOT, the City's Adaptive Traffic Signal System, uses algorithms and machine learning to optimize a cycle length, splits and offsets to:

- Reduce Stopping and Delay
- Reducing Travel Time
- Delaying the onset of Congestion

By reducing stops, delay, and congestion we can reduce greenhouse gas emissions



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Adaptation Future Decisions

- Pursue Window on the Bay Phase II
- Plan for Sea Level Rise Impacts to Coastline and Low-lying Areas Susceptible to Flooding
- Accomplishment – Completion of Transportation Adaptation Study

City of Monterey Received California Association of Environmental Professionals Award for the Transportation Adaptation Study



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Questions and Comments



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Adaptation Future Decisions

Flood Barriers



New Shoreline



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