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Warming Up for the Fight Against Climate Change

Council members Jeff Baron and Carrie Theis

Presentation to the Carmel Rotary Club

July 15, 2020

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Today's Presentation

- Origins and Organization of the Carmel Climate Change Committee
- Accomplishments to date
- Where we are now
- Future goals and objectives

Underlying everything: COVID-19

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Origins and Organization of the Carmel Climate Change Committee

- Project money allocated in 2019/2020 Budget
  - (De-allocated this past June. ☹)
- City Council resolution in August 2019
- 2 Council members – Jeff Baron and Carrie Theis
- 4 members of the public
  - John Hill, Michael LePage, Scott Lonergan, LaNette Zimmerman
- 2 staff members
  - Agnes Martelet, Evan Kort

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The two halves of Carmel's Climate Plan

- Adaptation – Make plans to best adapt to the changing climate
  - … protect assets (natural and man made) from the effects of climate change
- Action – Reduce Greenhouse gases
  - … from the generation of electricity
  - … from the usage of natural gas
  - … from transportation

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Mission Statement

- We will assess the threats and challenges of climate change as they relate to our community by seeking input from experts and local constituents. We will use these inputs to develop actionable plans to mitigate those threats and educate the community.

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Accomplishments to Date

- Hazards and Assets
- Greenhouse Gas Inventories (Data)

Hazards and Assets

Priority Assets at Risk	Priority Hazards				
	Sea Level Rise	Wildfires	Stronger Storms & Higher Windspeeds	More Variable Rainfall	Increased Temperature
Natural Assets					
Mission Trail Nature Preserve		X	X	X	X
North Dunes	X			X	X
Urban Forest		X	X	X	X
Marine Sanctuary			X	X	X
Carmel Beach	X		X		
Community					
Persons with disabilities		X	X	X	X
Elderly Population		X	X	X	X
Visitors	X	X	X		
Local Businesses	X	X	X		X
Utilities					
Water Supply (Drought Tolerance)		X		X	X
Electrical Energy Transmission (Electric Vehicles, safety power shutoffs, outages)		X	X		X
Sanitary Sewer System	X			X	
PG&E underground infrastructure	X	X			
Storm drainage system	X		X	X	

Hazards and Assets

Priority Assets at Risk	Priority Hazards				
	Sea Level Rise	Wildfires	Stronger Storms & Higher Windspeeds	More Variable Rainfall	Increased Temperature
Regional Infrastructure					
Wastewater Treatment Facility	X		X	X	X
Transportation Infrastructure	X	X	X	X	
Hospital and emergency medical care facilities		X	X		X
Landfill & Waste Management			X	X	
Local Infrastructure					
Scenic coastal trail, public restrooms and beach access infrastructure	X	X	X	X	X
Coastal roadways and parking	X		X	X	X
Seawalls and revetments	X		X	X	
Other city streets			X	X	
Private property (including many second homes)	X	X	X	X	X

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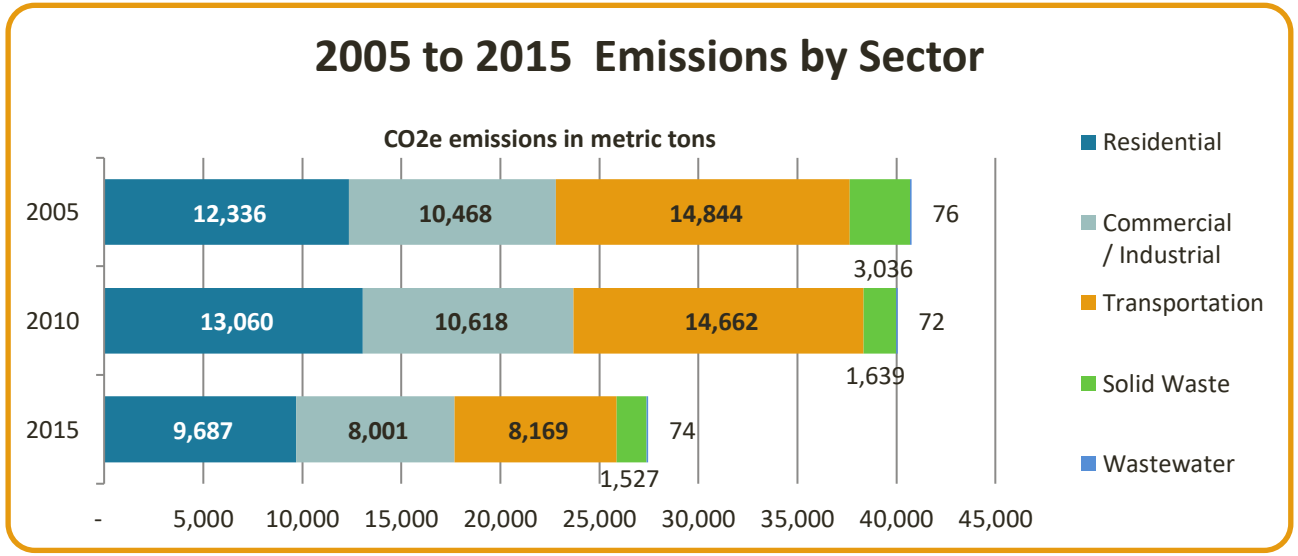
Carmel Greenhouse Gas Inventories



Community Emissions by Sector	Residential	Commercial / Industrial	Transportation	Solid Waste	Wastewater	Total
2005	12,336	10,468	14,844	3,036	76	40,760
2010	13,060	10,618	14,662	1,639	72	40,051
2015	9,687	8,001	8,169	1,527	74	27,458
% change 2005- 2015	-21%	-24%	-45%	-50%	-3%	-33%

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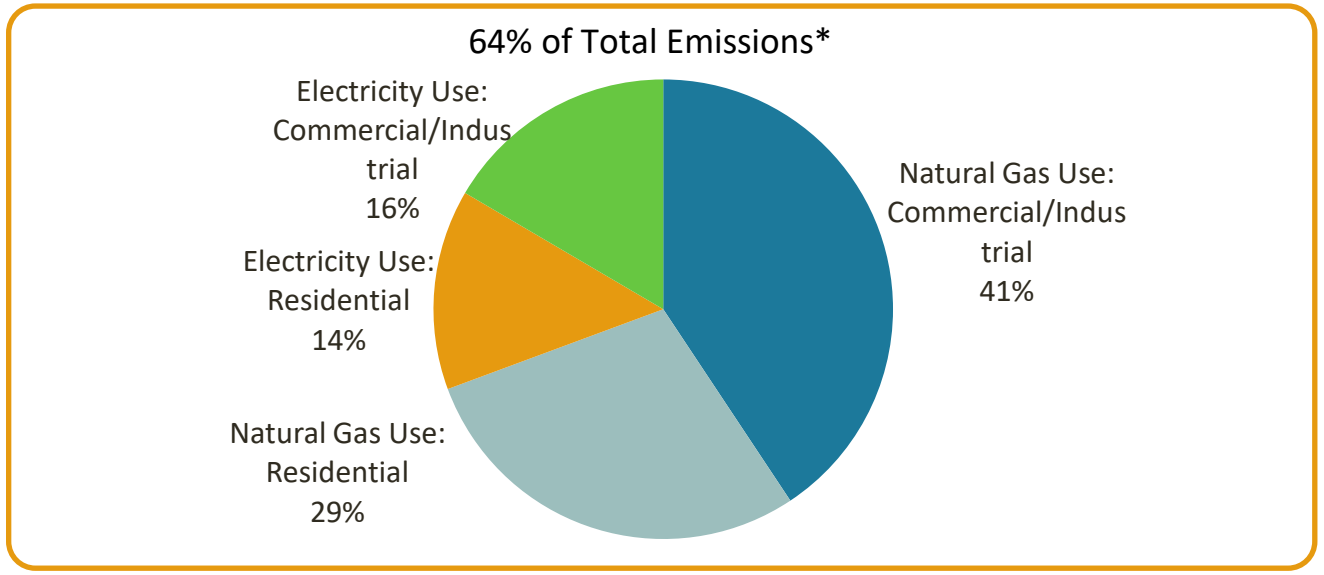
Energy Use Emissions (2015)



Emissions Source	Natural Gas Use:		Electricity Use:		Combined
Sector	Commercial/Industrial	Residential	Commercial/Industrial	Residential	Across Sectors
CO_2e (metric tons)	7,194	5,073	2,493	2,928	17,688
% of Total Energy Use	41%	29%	16%	14%	100%

*The transportation, solid waste and wastewater sector are excluded from this analysis

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Where we are right now (or where were we back in March?)

- Getting Back on Track!
  - Revamping the project plan – Time delay and Money shortage
- Community Outreach
  - Carmel Rotary!
  - Schools
  - Community events (Farmers' markets, fairs, etc.)
  - City Meetings
- Bring Greenhouse Gas Inventories up to date

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What's in the Future?

- Prioritization of Hazards and Assets
- Set Emissions (Greenhouse Gas) Targets
- Then… Define strategies for determined goals
- Then… Develop workplan to implement strategies to achieve goals, measuring objectives along the way

Prioritizing Hazards and Assets

Priority Assets at Risk	Priority Hazards				
	Sea Level Rise	Wildfires	Stronger Storms & Higher Windspeeds	More Variable Rainfall	Increased Temperature
Natural Assets					
Mission Trail Nature Preserve		X	X	X	X
North Dunes	X			X	X
Urban Forest		X	X	X	X
Marine Sanctuary			X	X	X
Carmel Beach	X		X		

Fire fuel reduction
- Minimal effort, volunteers
- But… Need to keep on top of it!
- Timeframe: short

Tree species palette
- Inexpensive, but…
- 50 year time horizon but must start soon!
- Timeframe: Medium

Seawall armoring?
- Politically Difficult
- Expensive
- 50 year time horizon
- Timeframe: Long

Prioritizing Hazards and Assets (Continued)

Priority Assets at Risk	Priority Hazards				
	Sea Level Rise	Wildfires	Stronger Storms & Higher Windspeeds	More Variable Rainfall	Increased Temperature
Utilities					
Water Supply (Drought Tolerance)		X		X	X
Electrical Energy Transmission (Electric Vehicles, safety power shutoffs, outages)		X	X		X
Sanitary Sewer System	X			X	
PG&E underground infrastructure	X	X			
Storm drainage system	X		X	X	

Sanitary Sewer
- Expensive, significant planning
- Long time horizon.
- Very important, but not our jurisdiction!
- Timeframe: Long

Water Supply
- Can we have a more resilient and flexible water supply?
- Politically charged regional issue
- Timeframe: Moderate

Electrical Transmission (planned outages due to fire danger)
- May get worse in the future
- Generally, not within our control… **but can we mitigate locally?**
- Timeframe: Moderate

PG&E Undergrounding
- Expensive, but not… maybe not… necessary?
- 30 year time horizon once we start
- Timeframe: Short to Never

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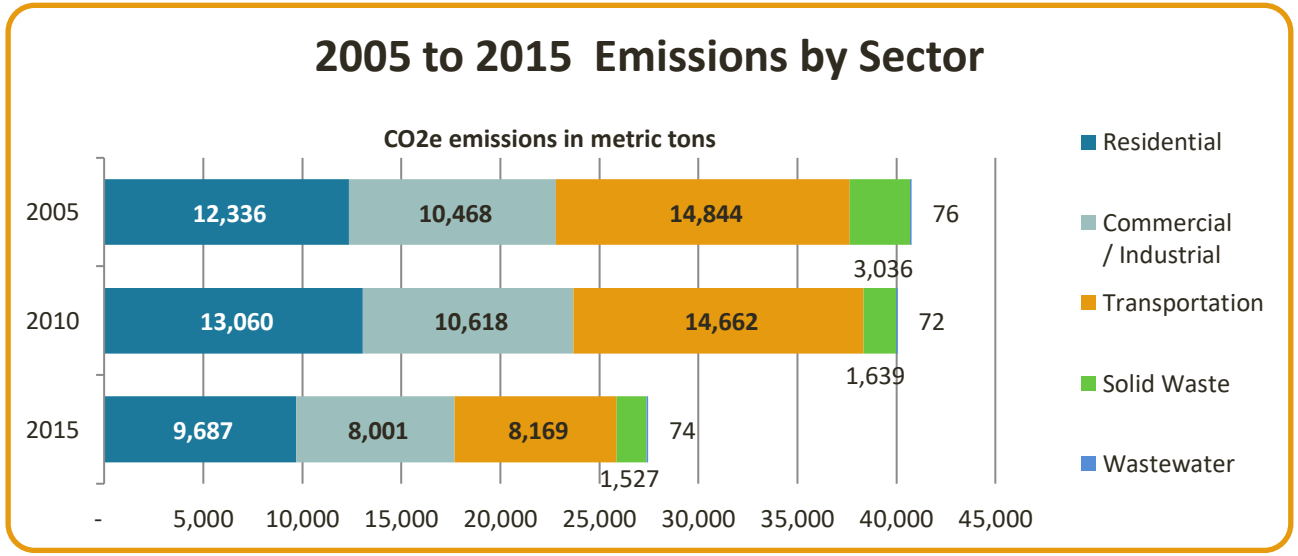
Carmel Greenhouse Gas Inventories



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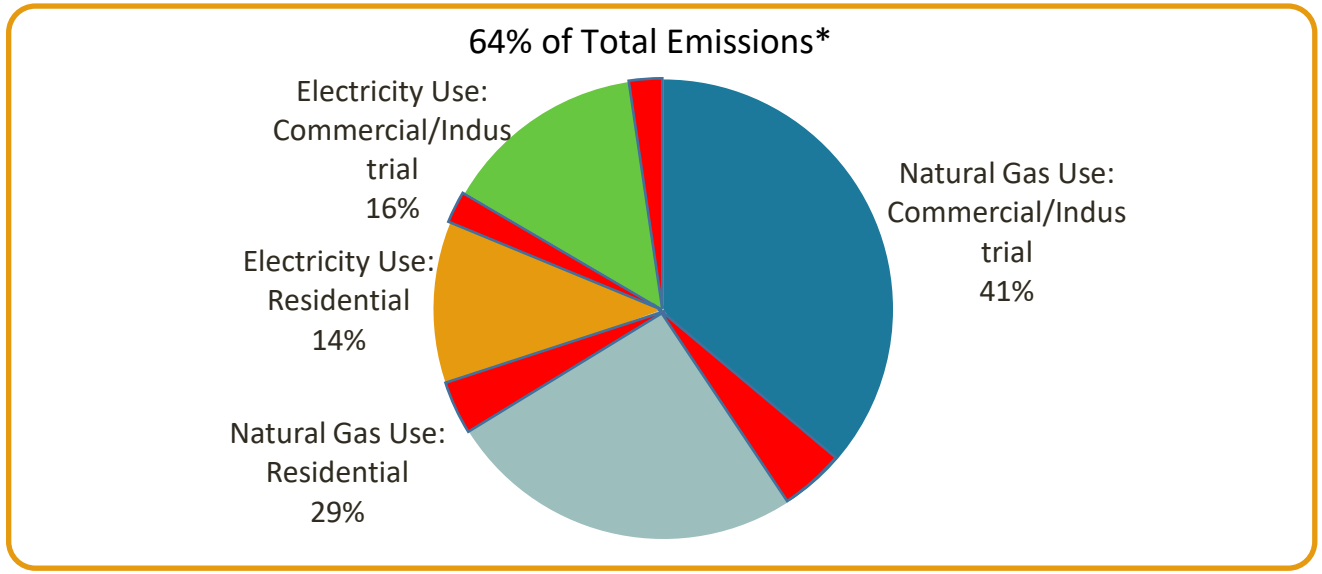
Reaching Emissions Targets



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Define Strategies for determined goals

- Look to other jurisdictions for work already completed
  - Understanding seawall conversations
  - Planning for electrical grid resiliency
  - Sanitary sewer
  - Building code adaptations
    - Limits on usage of natural gas

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Define Strategies for determined goals (continued)

- Develop strategies that are unique to Carmel
  - Urban forest species selection
  - Stormwater runoff
  - Effects on tourism

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Finally! Put it all together into a workplan

- Important to:
  - Set objectives to measure progress towards a goal
    - Eg: Come to agreement with CAWD regarding rerouting sewer lines
    - Eg: In 10 years, show progress on tree selection
  - Continue public outreach
  - Revisit the plan on a recurring basis. Re-evaluate hazards and assets. This is a task that will be with us forever!
  - **Get City Council Blessing. Make it a priority.**

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Questions?