

City of Santa Ana



# Climate Action Plan: Greenhouse Gas Emissions Inventory and Forecasts

March 19, 2012



# Overview



# Santa Ana has already made progress!

- Per capita emissions lower than most
  - Higher transit ridership than most of OC
  - More walking and biking than most of S. California
  - Lower water usage per capita compared to California
- Lower emissions in the future will require new programs and policies
- Ongoing activities are interrelated
  - Circulation Element Update
  - Climate Action Plan
  - Orange County Sustainable Communities Strategy



# Emissions Reduction Progress since 2008

- Analysis will identify actions that have been taken since the baseline year 2008 to the present
  - Allows successes to be showcased
  - Existing measures can provide foundation for more aggressive and expanded actions.
- Methodology is consistent with the baseline inventory
- Analysis is ongoing but initial results are available



# Community Highlights since 2008

- Significant reductions have been achieved through -
  - Transportation
  - SCE Small Business Energy Efficiency Retrofit Program
  - Recycling Program
- Santa Ana achieved a 67% waste diversion rate, well in excess of State mandates.
  - Green waste diversion is a major component of the reductions achieved
- Transportation measures are still being analyzed, but significant reductions are expected



# Government Operations

## Highlights since 2008

- Significant reductions achieved through system upgrades
  - LED streetlights and traffic lights
- Through American Recovery and Investment Act (ARRA) the City made energy efficient improvements to municipal facilities and community parks.
  - Lighting and heating / air conditioning retrofits in City buildings
  - Lighting upgrades in community parks
- Water measures achieved impressive results in the past
  - Water\$mart Rebates for high-efficiency plumbing fixtures
  - Energy efficiency upgrades to water pumping facilities



# GHG Emissions Inventory - Approach

- Based on a calendar year (2008)
- Provides a reference point of emissions by sector:
  - Transportation
  - Building Design and Energy Use Patterns
  - Water Consumption
  - Solid Waste and Wastewater Generation
  - Other
- Emissions = Activity data X GHG intensity  
(kWh) (CO<sub>2</sub> per kWh)



# GHG Emissions Inventory – Methodology

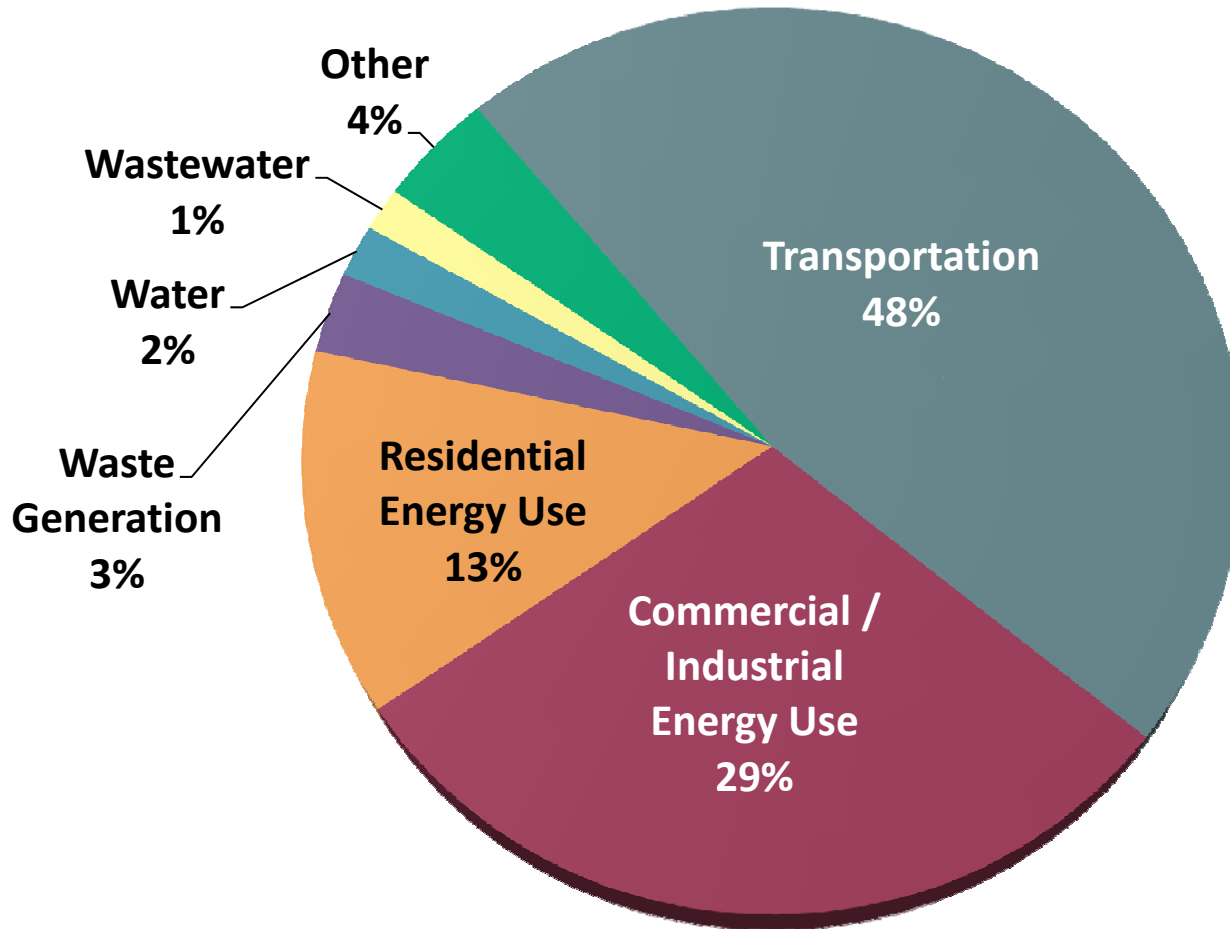
## Data Sources

- Electricity & Natural Gas – Local Utilities
- Transportation – Fehr & Peers – Community Vehicle Miles Travel (OCTA Travel Demand Model) and municipal employee commute (employee survey)
- Water – City staff
- Wastewater – Orange County Sanitation District
- Solid Waste – Waste Management and City staff





# GHG Emissions Inventory – Community (2008)



# GHG Emissions Inventory – Community (2008)

Sector	MT CO <sub>2</sub> e	% of Total CO <sub>2</sub> e
Transportation	943,033	48%
Commercial / Industrial Energy Use	565,681	29%
Residential Energy Use	249,834	13%
Waste Generation	55,193	3%
Water	36,231	2%
Wastewater	30,223	1%
Other	79,236	4%
<b>Total</b>	<b>1,959,431</b>	<b>100%</b>

**Approximately 5.5 MT CO<sub>2</sub>e per capita**

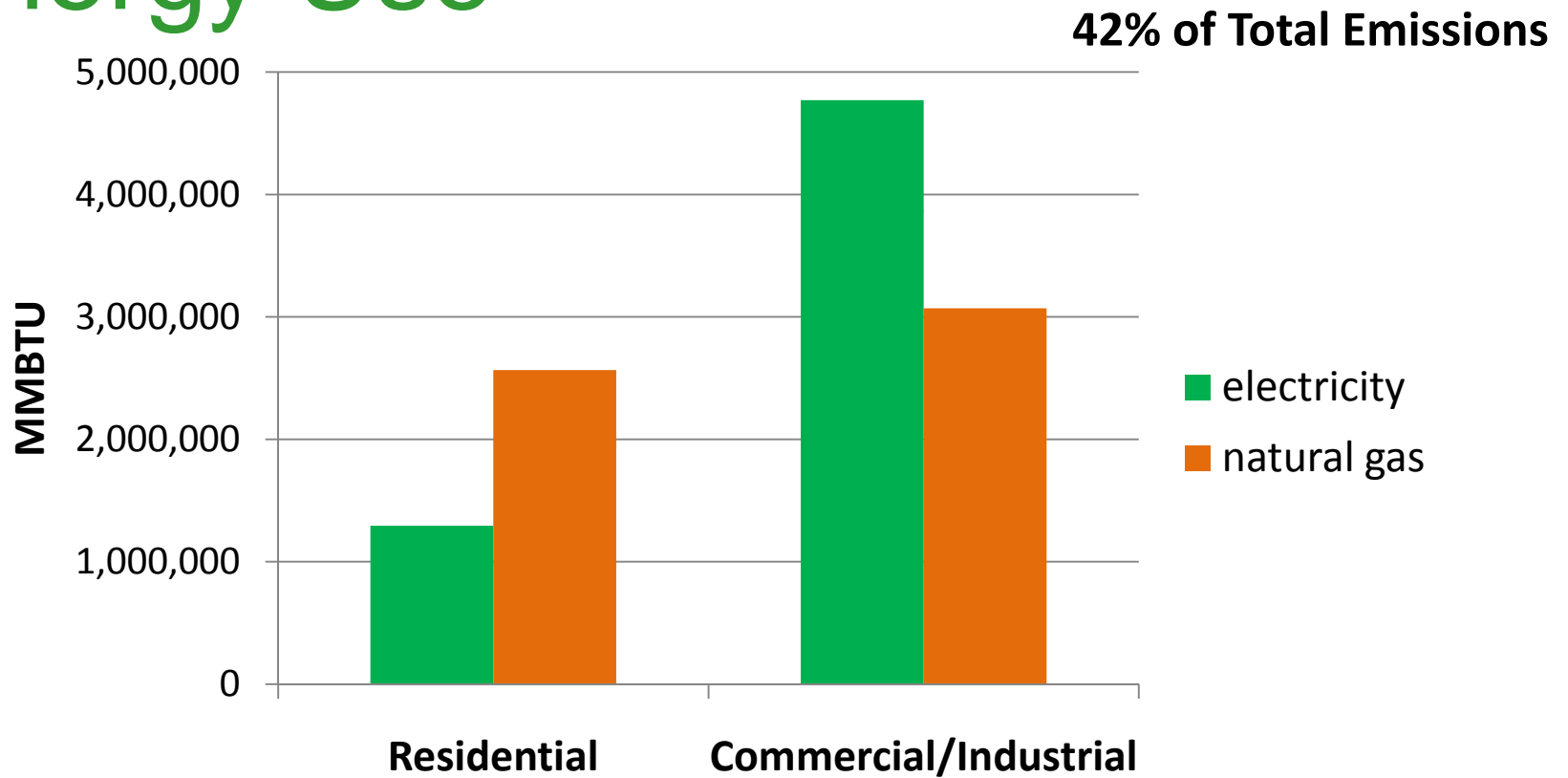


# GHG Emissions Comparison

Jurisdiction	Year	Population	Per Capita Emissions (CO <sub>2</sub> e/resident)
<b>Santa Ana</b>	<b>2008</b>	<b>361,591</b>	<b>5.47</b>
Monterey Park	2009	67,784	6.18
San Diego	2008	1,337,926	9.37
Mission Viejo	2008	93,483	7.25
Union City	2005	69,516	4.92
Denver	2005	579,744	21.5
Davis	2006	61,262	4.8
Berkeley	2005	104,400	6.3
Los Angeles	2004	3,906,603	13.5

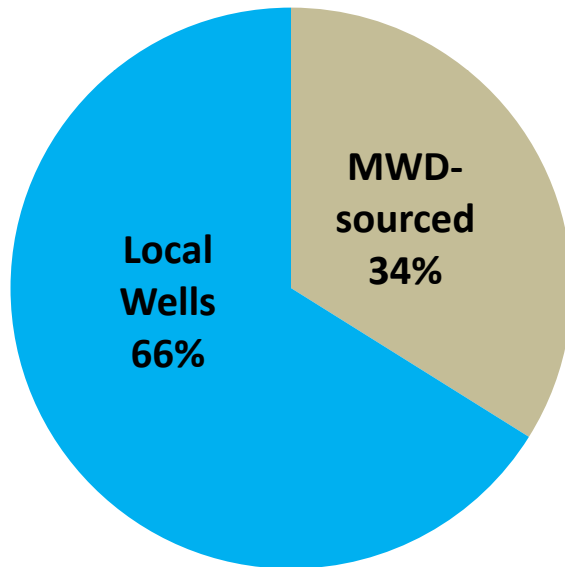


# GHG Emissions Inventory – Community (2008): Building Energy Use



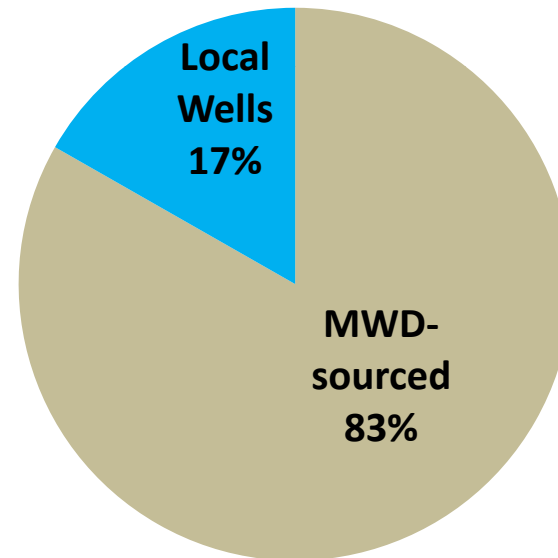
# GHG Emissions Inventory – Community (2008): **Water**

Consumption in Gallons



**13.3 Billion Gallons**

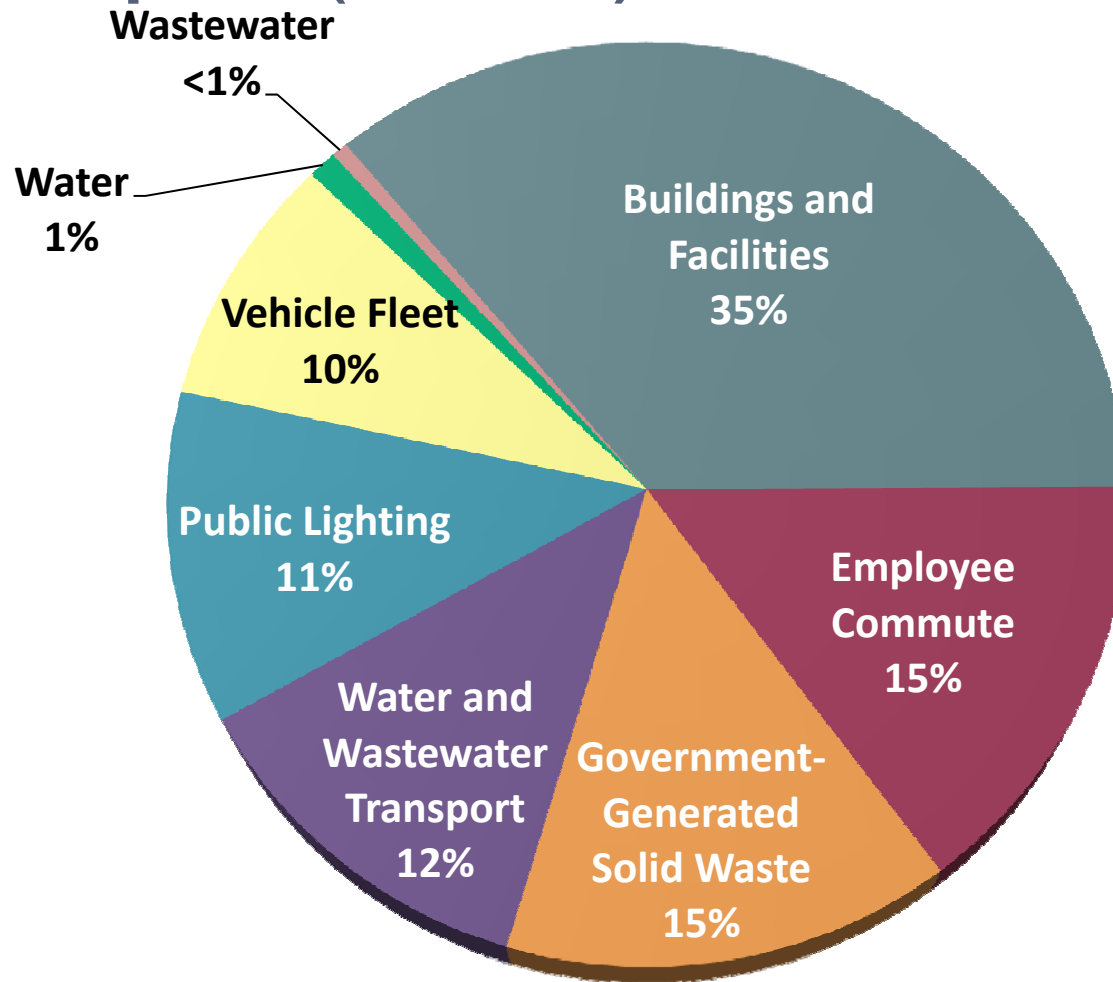
Emissions in MT CO<sub>2</sub>e



**2% of Total Emissions**



# GHG Emissions Inventory – Municipal (2008)



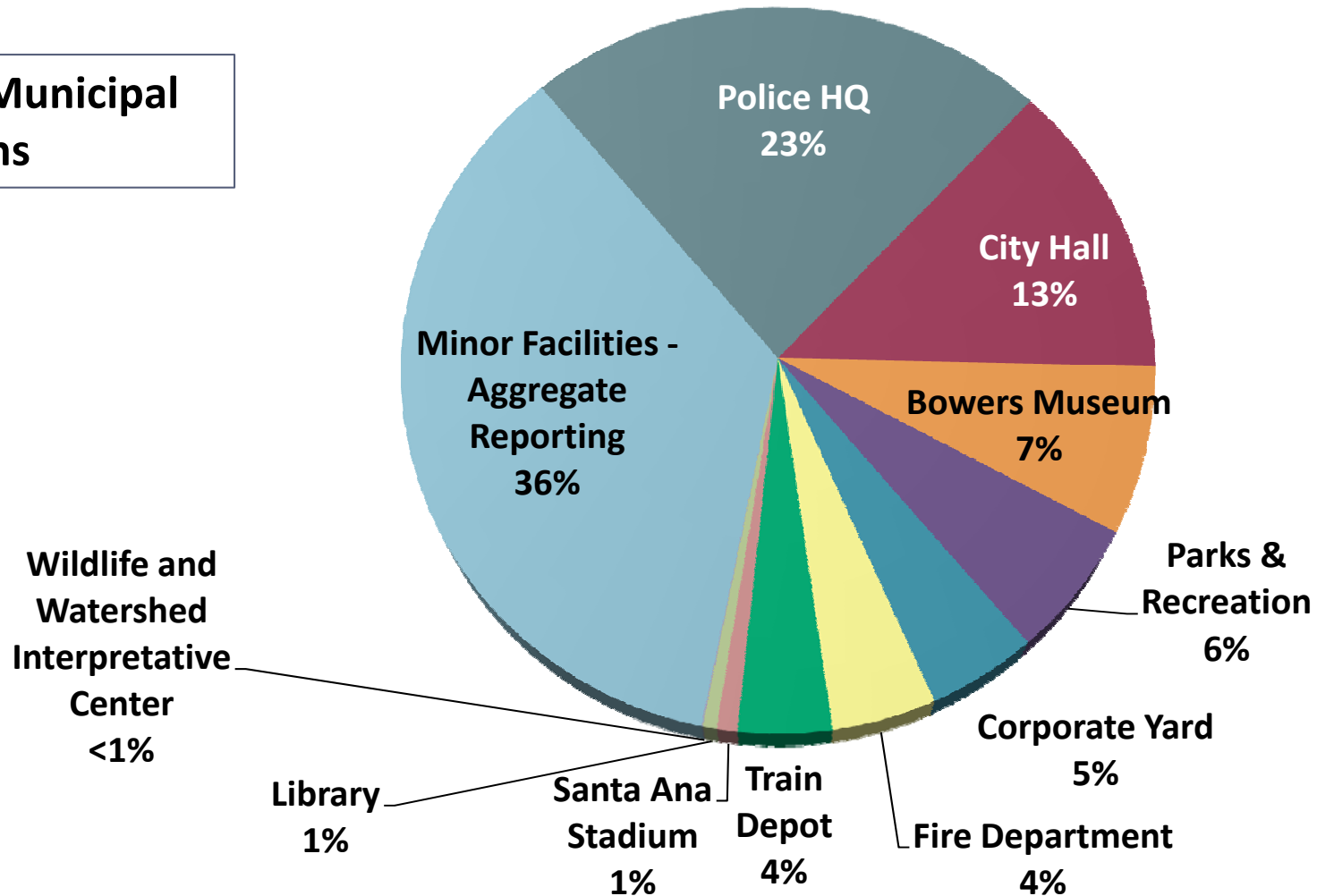
# GHG Emissions Inventory – Municipal (2008)

Sector	MT CO <sub>2</sub> e	% of Total CO <sub>2</sub> e
Buildings and Facilities	9,830	35%
Employee Commute	4,280	15%
Government-Generated Solid Waste	4,012	15%
Water and Wastewater	3,351	12%
Transport	3,160	11%
Public Lighting	2,730	10%
Vehicle Fleet	274	1%
Water	156	1%
Wastewater		
<b>Totals</b>	<b>27,793</b>	<b>100%</b>



# GHG Emissions Inventory – Municipal: Buildings/Departments

**35% of Municipal Emissions**





# GHG Emissions Forecast

- Estimate of emissions if no CAP is implemented
- Starting point for reduction measures and target setting
- Set at years 2020 and 2035 (trajectory toward 2050/ Governor's Executive Order S-3-05)
- Based on indicators



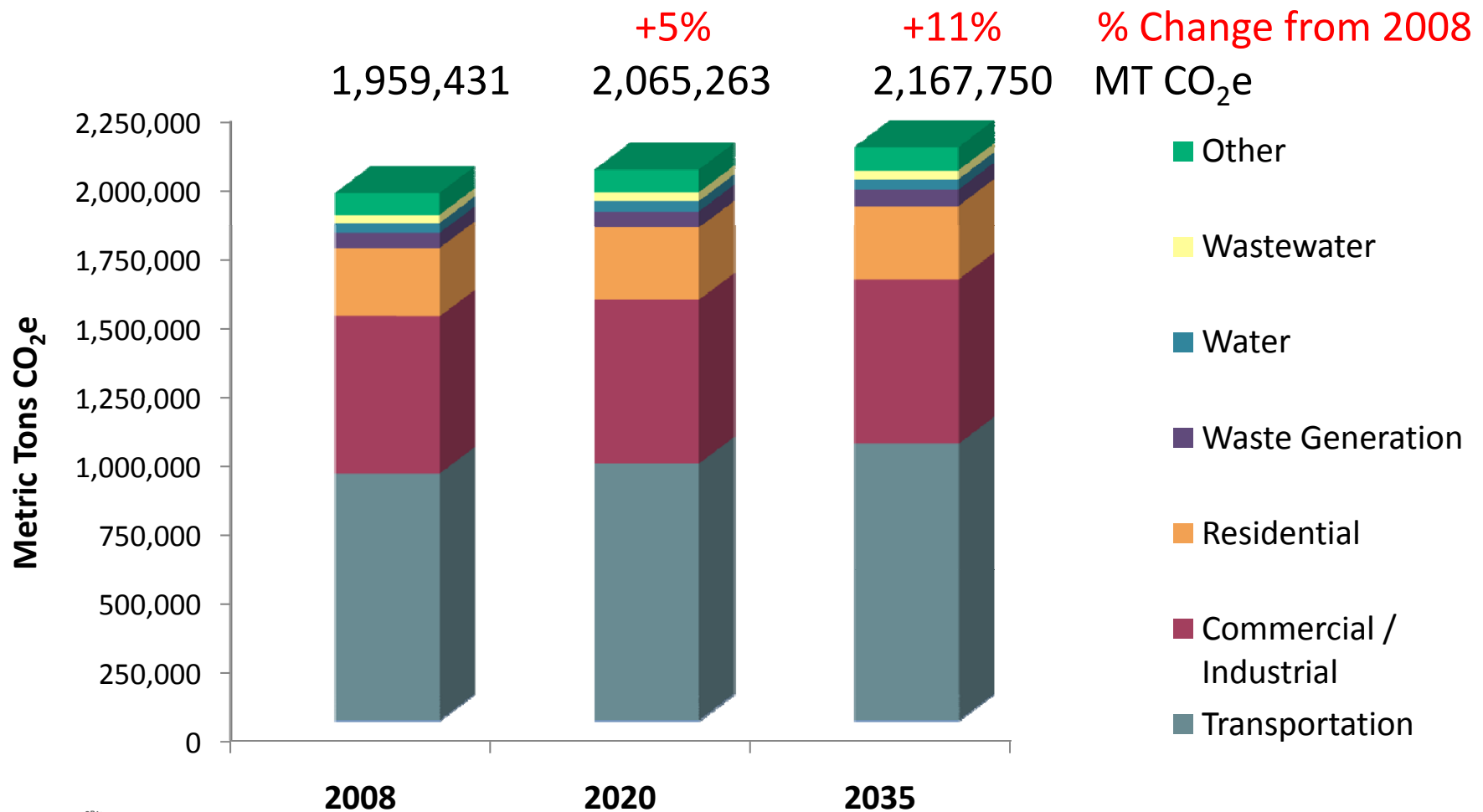
# GHG Emissions Forecast

Sector	Forecast Indicator
Transportation	OCTA Transportation Demand Model
Commercial / Industrial	Total number of Jobs
Residential	Total population
Waste	
Wastewater	
Water	Residential: households and commercial: jobs
Other	Off road fuel usage: number of households, number of jobs and population

Zero growth assumed for municipal operations



# GHG Emissions Forecast – Community (2020 and 2035)



# Next Steps

- Set preliminary reduction targets
- Create GHG reduction measures
- Refine targets
- Stakeholder input
- CAP preparation and EIR
- Implementation and monitoring

