

# EXISTING GREENHOUSE GAS

## CLIMATE ACTION PLAN



# CHAPTER 3



# 3

## Existing Greenhouse Gas Emissions Inventory

### 2005 GREENHOUSE GAS EMISSIONS INVENTORY

The City of Walnut Creek completed a greenhouse gas emissions inventory for all municipal and community-wide activities for the baseline year of 2005. The year 2005 was selected as the baseline year for the inventory because of the availability of reliable data and consistency with other cities in the Bay Area. The State of California uses 1990 as a reference year to remain consistent with the Kyoto Protocol and because it has well-kept records of transportation trends and energy consumption in that year. However, cities and counties throughout California typically elect to use 2005 or 2006 as a baseline year because of the more reliable recordkeeping from those years and because of the large amount of growth that has occurred since 1990.



The inventory is an important first step for the City in its climate change efforts to create a baseline against which to measure future progress and to understand the most significant sources of emissions in order to find best opportunities for reductions.

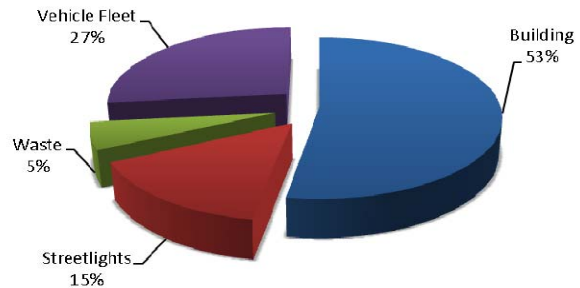
For the baseline year of 2005, municipal operations emitted approximately 4,396 metric tons of carbon dioxide equivalent (CO<sub>2</sub>e).<sup>1</sup> As shown in **Figure 3-1** and **Table 3-1**, City buildings and facilities were the largest emitter, producing 53% of all municipal emissions. As shown in **Figure 3-2** and **Table 3-2**, community-wide activities (including municipal operations) emitted approximately 643,596 metric tons of CO<sub>2</sub>e. The transportation sector generated the most emissions, creating approximately 377,305 metric tons of CO<sub>2</sub>e, or 59% of total emissions. Transportation sector emissions are the result of diesel and gasoline combustion in vehicles traveling on local roads (Ygnacio Valley Road and Treat Boulevard) and state highways (Interstate 680 and State Highway 24) that pass through the jurisdictional boundaries of Walnut Creek.

---

<sup>1</sup> This number includes all Scope 1 emissions from the on-site combustion of fuels in facilities and vehicles, Scope 2 emissions from the purchase of electricity, and Scope 3 emissions from waste generated by local government operations and emissions associated with employee commute patterns.

**The transportation sector was the largest contributor to community emissions, creating approximately 59% of total emissions.**

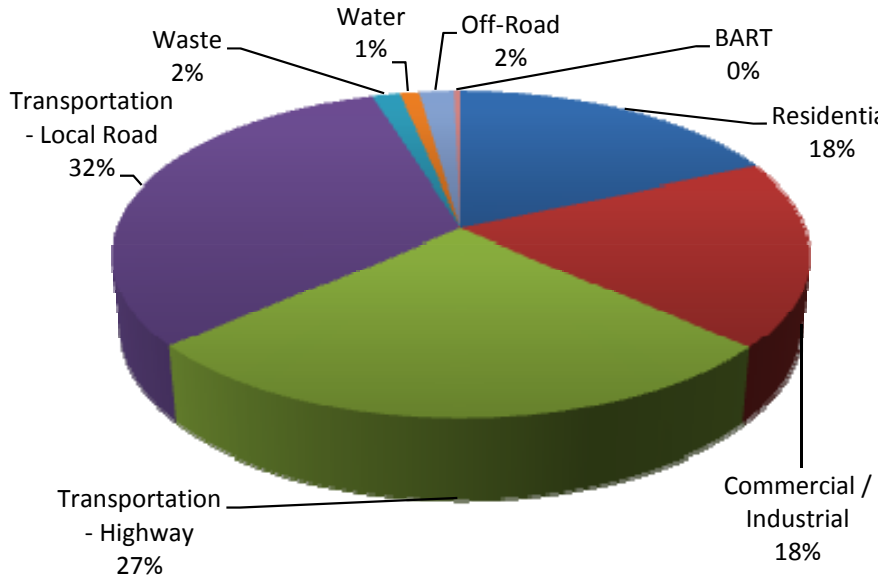
**Figure 3-1.** 2005 Greenhouse Gas Emissions (CO<sub>2</sub>e) from City Operations



**Table 3-1.** 2005 Greenhouse Gas Emissions from City Operations

Sector	Greenhouse Gas Emissions (metric tons CO <sub>2</sub> e)	Greenhouse Gas Emissions (% CO <sub>2</sub> e)	Cost (\$)	Percentage of Total Cost
Buildings	2,311	53%	\$1,023,965	53.9%
Vehicle Fleet	1,178	27%	\$267,533	14.1%
Lighting	669	15%	\$608,408	32.0%
Waste	238	5%	–	–
<b>TOTAL</b>	<b>4,396</b>	<b>100.0%</b>	<b>\$1,899,906</b>	<b>100.0%</b>

**Figure 3-2.** 2005 Greenhouse Gas Emissions (CO<sub>2</sub>e) from Community-Wide Sources



**Table 3-2.** 2005 Community-Wide Greenhouse Gas Emissions by Sector

Sector	Greenhouse Gas Emissions (metric tons CO <sub>2</sub> e)	Greenhouse Gas Emissions (% CO <sub>2</sub> e)
Residential	117,868	18%
Commercial/Industrial	117,312	18%
Transportation – Highway	174,369	27%
Transportation – Local Road	202,936	32%
Waste	9,892	2%
Water	6,736	1%
Off-Road	12,293	2%
BART	2,191	<1%
<b>TOTAL</b>	<b>643,596</b>	<b>100.00%</b>

## 2020 AND 2030 FORECAST FOR GREENHOUSE GAS EMISSIONS

To illustrate the potential emissions growth based on projected trends in energy use, driving habits, job growth, and population growth from the baseline year going forward, the inventory provides an emissions forecast for the years 2020 and 2030. Forecasts also allow for the assessment of the effectiveness of various reduction strategies. Forecast years provide a snapshot of where annual emissions levels could be under various scenarios. Forecasting is completed by adjusting baseline levels of emissions consistent with household, population, commercial square footage, and transportation growth.

The basis for all growth scenarios is a “business-as-usual” projection. A business-as-usual projection predicts how greenhouse gas emissions will increase if behaviors and efficiencies do not change from baseline levels, yet population, households, and vehicle miles traveled continue to increase. Under a business-as-usual scenario, the City of Walnut Creek’s emissions will grow by approximately 21% by the year 2020, from 643,596 to 779,117 metric tons CO<sub>2</sub>e. **Table 3-3** and **Figure 3-3** show the results of the forecast. Forecasts are based on 2009 projections from the Association of Bay Area Governments (ABAG).



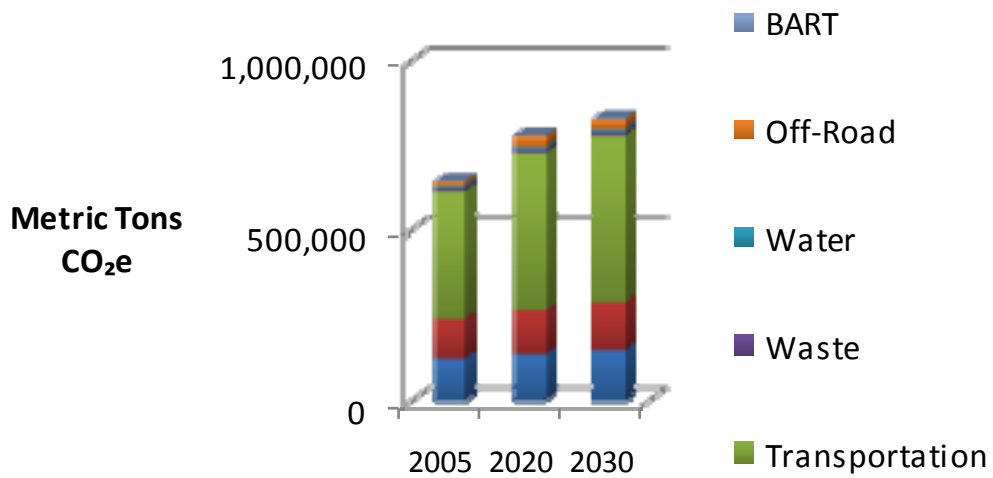
### WHY 2020 AND 2030 FORECAST YEARS?

The year 2020 was chosen to create consistency with AB 32, the Global Warming Solutions Act of 2006, which recommends a local goal of 15 percent below current levels by 2020. The 2030 year was chosen to create consistency with the General Plan Update and ABAG projections for population, jobs, and housing growth.

**Table 3-3. Business-as-Usual (BAU) Emission Forecast by Sector – 2020 and 2030**

GHG BAU Forecast	Metric Tons CO <sub>2</sub> e		
	2005	2020	2030
Residential	117,868	130,626	142,037
Commercial/Industrial	117,312	131,716	141,474
Transportation – Highway	174,369	234,722	249,978
Transportation – Local Road	202,936	229,468	244,418
Waste	9,892	10,759	11,610
Water	6,736	7,780	8,396
Off-Road	12,293	31,626	29,016
BART	2,191	2,420	2,606
<b>Total</b>	<b>643,596</b>	<b>779,117</b>	<b>829,535</b>

**Figure 3-3. Business-as-Usual (BAU) Greenhouse Gas Emissions Forecast – 2020 and 2030**



## GREENHOUSE GAS EMISSIONS REDUCTION TARGET

The City of Walnut Creek has set an emissions reduction target of 15% below 2005 levels by 2020, which is consistent with the State’s direction to local governments in the AB 32 Scoping Plan. **Figure 3-4** provides a comparison of the business-as-usual forecasts for 2020 and 2030 to the 2005 baseline year and the 15% reduction target. **Figure 3-4** is also a depiction of the challenge that Walnut Creek will face in attempting to meet its reduction target. Emissions will

continue to increase along the business-as-usual scenario while reduction efforts are initiated. Achieving the target is therefore more than a 15% decrease—rather, it is a 29.7% reduction from 2020 emissions levels, or business as usual, in Walnut Creek. In 2030, the gap between future growth and target reduction levels increases to 54.8%. In **Figure 3-4**, this gap is depicted by the difference between the red line and the purple line, both of which show projected increases or desired decreases relative to the green-colored baseline.

**Figure 3-4.** Comparison of Business-as-Usual Forecast to Baseline and Reduction Target

