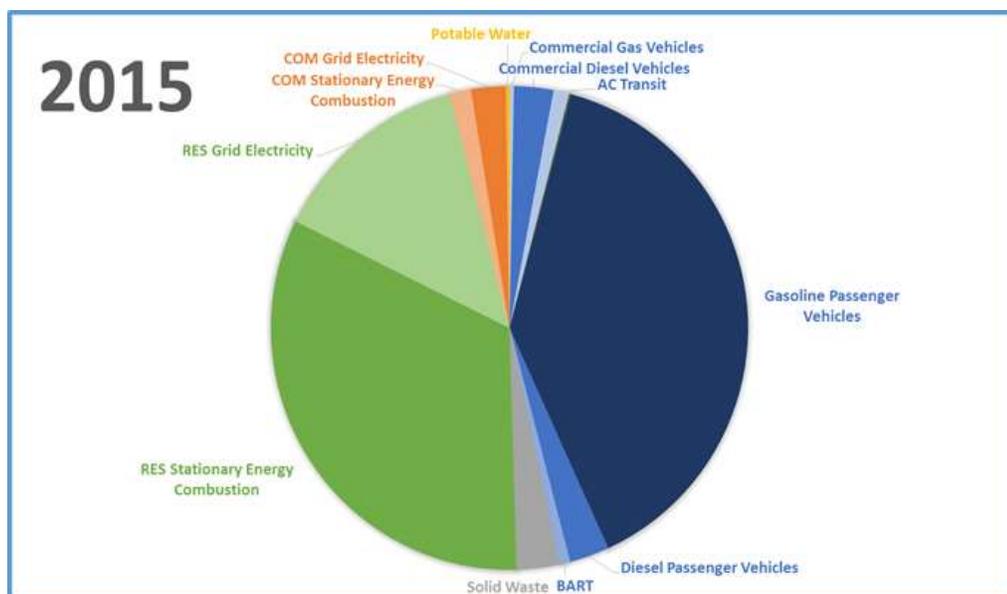


Piedmont Climate Action Plan Task Force
Meeting #6 - Tuesday, August 22, 2017
Water, Municipal, and Adaptation Sectors



1. Background: Water and Wastewater

The treatment and delivery of potable water requires substantial energy input, as well as the transportation and treatment of wastewater. Piedmont consumed roughly 370 million gallons of potable water in 2015. This contributed roughly 90 MTCO₂e to Piedmont's greenhouse gas (GHG) emissions inventory, less than 1% of total community emissions. The minimal emissions related to water is largely because the East Bay Municipal Utility District (EBMUD) is a highly energy efficient water distributor. They estimate they use 1,250 kWh per one million gallons of water delivered, roughly 82% less than the state average. The treatment of wastewater generates greenhouse gas emissions and requires energy to process. Treating wastewater releases methane, but EBMUD is putting this fuel to good use rather than releasing it into the atmosphere. EBMUD has led the country in producing electricity through the anaerobic digestion of wastewater. As a result, the emissions associated with Piedmont's wastewater are minimal; they come from fugitive methane and nitrous oxide.

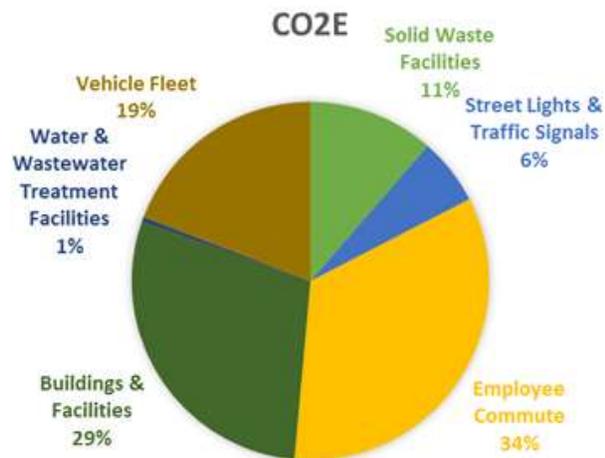
2. Objectives and Measures: Water and Wastewater

Water conservation measures protect the region's limited water resources, conserve energy, and reduce GHG emissions. A considerable amount of energy is used every day to pump, treat, transport, heat, and cool the water we consume. Treating wastewater requires energy inputs and the breakdown of waste releases greenhouse gas emissions. Similar to the solid waste sector, key objectives in water and wastewater relate to consuming less water, increasing water efficiency, and capturing and reusing greywater

and storm water. Replacing key appliances like toilets and shower heads with high efficiency appliances can reduce total water consumption. Drought-tolerant landscaping reduces the need for potable water for irrigation. Climate change will result in more frequent droughts in California; conserving water will be a necessary adaptation measure.

3. Background: Municipal

This section is entirely separate from the community GHG inventory. It is an inventory within an inventory, completed so the City can take action to reduce the emissions associated with municipal activity. Municipal facilities, transportation, and waste account for approximately 964 metric tons of CO₂e. While not a major source of emissions within Piedmont, reducing emissions from municipal actions can decrease the City's environmental impact while leading by example for Piedmont residents.



4. Objectives and Measures: Municipal

Emissions from municipal buildings decreased between 2014 and 2015 despite a cooler winter requiring increased heating. By enhancing the energy efficiency of existing buildings and building highly efficient new buildings, the City can reduce the energy use of its facilities. Streetlight energy use declined by 13% in 2015 as the result of efforts to convert to LED streetlights.

The vehicle fleet, made up of police, fire, public works, and recreation vehicles, continued to contribute a substantial portion to municipal GHG emissions. Combined, these vehicles account for 19% of total municipal emissions. While there are not currently many options for transitioning the municipal vehicle fleet to ZEVs, bigger cities and states are starting to investigate using electric vehicles in public fleets. Once available, the City could prioritize purchasing electric vehicles for the municipal fleet. To reduce commute emissions of City employees, amenities could be provided that enable biking and walking to work and electric vehicle charging.

Municipal actions created an estimated 261 tons of waste in the year 2015. This is based on the size of trash receptacles and rates of pick-up which likely over represents the quantity of waste created. The City as a whole continued to achieve a high diversion rate of 74% in 2015. Reducing waste, such as reusable or compostable dinnerware, going paperless, or purchasing environmentally preferable products, and continuing to practice

waste diversion best practices will keep municipal government in line with community goals.

5. Background: Adaptation

This section, adapted from a report created by Four Twenty Seven, a consultant hired by StopWaste to perform adaptation reports for several Alameda County cities including Piedmont, provides an overview of Piedmont's assets at risk to climate change and ways to mitigate climate change hazards.

6. Objectives and Measures: Adaptation

Average temperatures in Piedmont are projected to increase 2-4 degrees by mid-century as a result of global warming. By 2100, average temperatures could increase between 4.1 and 8.7 °F if no action is taken to mitigate climate change. The frequency of very hot days will rise substantially, changing the experience of living in Piedmont as well as increasing the necessity of insulation and cooling.

Sea levels are rising as a result of higher atmospheric and oceanic temperatures across the globe. Seas have been rising in the SF Bay 0.9 inches per decade since the 1930s and extreme tides have increased 20-fold. The rate of sea level rise is expected to accelerate throughout the century, but projections are complicated by the potential for a substantial acceleration of glacial ice melt resulting in rapid sea level rise, which is not currently accounted for in many global scenarios. While sea level will not reach the City of Piedmont in the near-term, sea level rise will impact the Bay Area economy, resources, and infrastructure that Piedmont depends upon. The Bay Area is particularly exposed to the impacts of sea level rise because of the large number of assets located along the coast. For Piedmont, the assets most at risk from sea level rise are those outside the city, including the East Bay Municipal Utility District (EBMUD) Wastewater Treatment Plant, the Bay Bridge and the I-880 freeway.

Models indicate there will be little to no change in Piedmont's annual average precipitation. Projections indicate that while extreme rainfall events will occur less frequently, rainfall events may be more intense, resulting in a greater volume of rain within a shorter timeframe. As high-intensity rainfall events increase in frequency the risk of inland flooding increases. Impacts associated with flooding include landslides, subsidence, slippage, creep, or sinkholes. The entire city of Piedmont is in a zone identified as experiencing "few landslides" and therefore is at a mid-level risk for landslides.

Extreme temperatures and increased variability in rainfall will likely cause dry conditions in California, exacerbating the risk of wildfire throughout the state. Piedmont has large areas that are at risk of high hazard severity in the event of a wildfire, with increased exposure in the southeast where part of the city is in a very high hazard severity zone. The most significant implication of fire hazard severity levels in Piedmont is the exposure of the City's residential housing stock. Over a third of the residential area in the city is

located in a moderate to very high hazard severity zone. In addition, community assets at risk of wildfire damage include the Renaissance International School and Church and Corpus Christi School and Church.

Climate Hazard Summary from Four Twenty Seven:

Climate Hazard	Exposure	Summary
Rainfall-Induced Landslides	High	All city property at mid-level risk for landslide
Wildfire	High	Significant residential property located in moderate to very high fire severity zones
Temperature Change	Medium	Increase in the number of extreme heat days
Inland Flooding	Low	No city property in a designated floodplain
Sea Level Rise	Low	No exposure to city assets likely by end of century
Precipitation Change	Low	Likely increase in intensity of events, limited change in overall rainfall

7. Enclosures:

- Proposed Water and Municipal Sector Measures, Objectives, and Actions
- Adaptation Sector measures suggested by Four Twenty Seven