Climate Action Key Terms

Carbon dioxide equivalent (CO2e): a way of converting the global warming potential of other greenhouse gases in terms of the global warming potential of carbon dioxide, so that greenhouse gas emissions can be measured using a single unit.

Carbon Footprint: the total emissions caused by an individual, event, organization, entity, location or product, expressed as a carbon dioxide equivalent. Calculate yours here.

Carbon Neutral: describes the circumstance where the amount of carbon released is the same amount of carbon sequestered, resulting in zero emissions. When referring to buildings, it is interchangeable with **net-zero.** When referring to energy sources, **carbon neutral electricity** comes from hydroelectric plants, wind, solar, geothermal, and landfill gas.

Circular Economy: an economic model in which all materials are recycled to a purpose at least as high in value as their original use. In contrast to the current linear economic system, which follows a model of extract, make, use, and dispose, in a circular economy materials are continually refashioned and reused, and additional extraction is not necessary.

Climate Change: a result of the mass consumption of natural resources and the burning of fossil fuels which release **greenhouse gases** in the air. As a result, communities around the world experience severe drought, crop failure, intense storms and weather patterns and toxic air among many other things. These risks jeopardize our health and well-being, threaten our homes, places of work and play, limit our access to transportation and pose devastating impacts for both people and natural habitats.

Climate Change Adaptation: refers to the adjustments that societies, cities or ecosystems make to limit the negative impacts of climate change. Adaptation can range from farmers planting more drought-resistant crops to coastal communities evaluating how best to protect themselves from sea level rise.

Co-Benefits: Actions that have multiple benefits. For the Climate Plan, adaptation strategies that will also reduce greenhouse gases or vice versa are co-benefits. This term can also be used to describe the additional economic and public health benefits of an action.

Electric Vehicle (EV): a substitute for gas-powered vehicles that run on motors powered by electricity. Electric vehicles do not release emissions but can contribute to greenhouse gas emissions if the electricity they use does not come from carbon neutral sources.

Environmental Justice (EJ): an understanding that climate change and environmental hazards have the greatest impact on marginalized communities such as people of color, low-income people, and immigrants. Environmental justice advocates for solutions and strategies that benefit all people, and urges leaders to consider the social and political nature of climate change.

Fossil Fuel: a form of energy buried in the Earth. This includes coal, oil and natural gas. Fossil fuels make up 82% of the world's energy supply and when used or burned, are the largest source of greenhouse gas emissions. They are also non-renewable meaning once they run out they cannot be replenished.

Greenhouse Gas (GHG): a gas that traps heat in the air is called a greenhouse gas. Greenhouse gases include Carbon Dioxide (CO2), Methane (CH4), Nitrous Oxide (NO2) and other fluorinated gases. They are called greenhouse gases because they produce a **greenhouse effect**, where the heat trapped at Earth's surface causes Earth to become warmer than normal. The release of greenhouse gases by refineries, cars, and other sources, are referred to as **greenhouse gas emissions**. These emissions are typically calculated in metric tons of carbon dioxide equivalent ($MTCO_2e$).

Green Infrastructure: a set of techniques for reducing flooding and the amount of polluted water entering the Bay during rainstorms. Green infrastructure uses vegetation, soils, and other elements that soak up and store water, restoring some of the natural processes of the landscape and providing habitat, flood protection, cleaner air, and cleaner water.

Groundwater: water held underground, beneath the soil or in crevices of rocks. As sea level rises, so does groundwater, which can damage underground infrastructure or push up contaminants in the soil.

Mixed-Use Development: development that includes a mix of shops, businesses, and residential units of varying prices all within close proximity/walking distance or in the same building. This encourages biking, bussing and walking around town rather than driving. Local examples include Alameda Landing and the planned North End Park Street development.

Renewable Energy: a form of energy that can be replenished and used over and over. They also tend to be much cleaner for people and safer for the environment. Renewables include hydroelectric (water-powered), geothermal (thermal energy from heat of Earth), solar (sun-powered), wind-powered, Hydrogen in the form of Hydrogen fuel cells, and biomass (burned waste material from plants or animals).

Resiliency: the capacity of individuals, businesses, and/or systems within a city to respond, adapt, and thrive when experiencing shock or challenging events like fire damage, major earthquakes, or toxic spills. One's ability to be resilient in the face of climate change can be impacted by factors like income, transportation access, age, and whether one has a disability. Strong community networks and climate-ready infrastructure can help individuals and cities be more resilient.

Sea Level Rise (SLR): Sea level is primarily measured using tide gauges. The tide gauge at the San Francisco Presidio has continuously measured tide elevations since 1890. Global sea level has been rising over the past century, and the rate has increased in recent decades. The two major causes of global sea level rise are thermal expansion caused by warming of the ocean (since water expands as it warms) and increased melting of land-based ice, such as glaciers and ice sheets.

Sequestration: the process of removing carbon from the atmosphere and storing it in soils, rocks, oceans or plants. In Alameda, sequestration occurs in our wetlands, trees, and soils. Higher sequestration rates can partially take away from the amount of greenhouse gas emissions Alameda releases into the atmosphere, but are not a substitute for reducing emissions at the source.

Single Occupancy Vehicle (SOV): Most trips in Alameda are in SOVs - one car, one occupant. This is the transportation option that produces the most congestion, and contributes most to global warming and local air pollution. Alternatives include carpooling, taking transit, walking, and biking.

Sustainability: meeting the needs of the present without compromising the needs of the future. Sustainability has a triple bottom line of healthy natural environments, social equity, and robust economy.

Vehicle Miles Traveled (VMT): VMT is a measure of the total distance traveled by cars in Alameda, usually measured on an annual basis. Reducing VMT means reducing traffic and benefitting the environment. Alameda's Transportation Choices Plan seeks to reduce VMT by making alternatives to driving easier, faster, and more convenient.

Vulnerability: a term used in climate adaptation and resiliency. Vulnerability is the result of a combination of factors: whether you are *exposed* to a hazardous event (does the water in a flood reach your home?), *sensitivity* to the hazard (how much damage will 2 inches of water do?), your *capacity to adapt* (can you lay down sandbags to stop the water from entering?), and the consequence of the event (would the damage from your flood require you to move out of your home, or is it only a minor inconvenience?).

Zero Waste: the sustainable practice of designing and managing products that eliminate the volume and toxicity of waste sent to landfills, water and air. It is in an effort to ensure all products are reused rather than burned, buried or discarded.

More definitions and background on climate change and climate change:

- UC Davis: https://climatechange.ucdavis.edu/science/climate-change-definitions/
- University of Michigan: http://css.umich.edu/factsheets/climate-change-science-and-impacts-factsheet
- State of California http://www.arb.ca.gov/cc/localaction/meetings/030909/lg_ghg_reduction_actions.pdf
- US EPA: https://19january2017snapshot.epa.gov/climatechange_.html