MUNICIPAL CLIMATE ACTION STRATEGIES

El Cerrito's Municipal Operations

Leadership and Fiscal Responsibility

The City has the greatest control and therefore the most direct capacity to significantly reduce GHG emissions produced by municipal operations. It is committed to providing tangible results and visible leadership in its efforts to reduce such emissions.

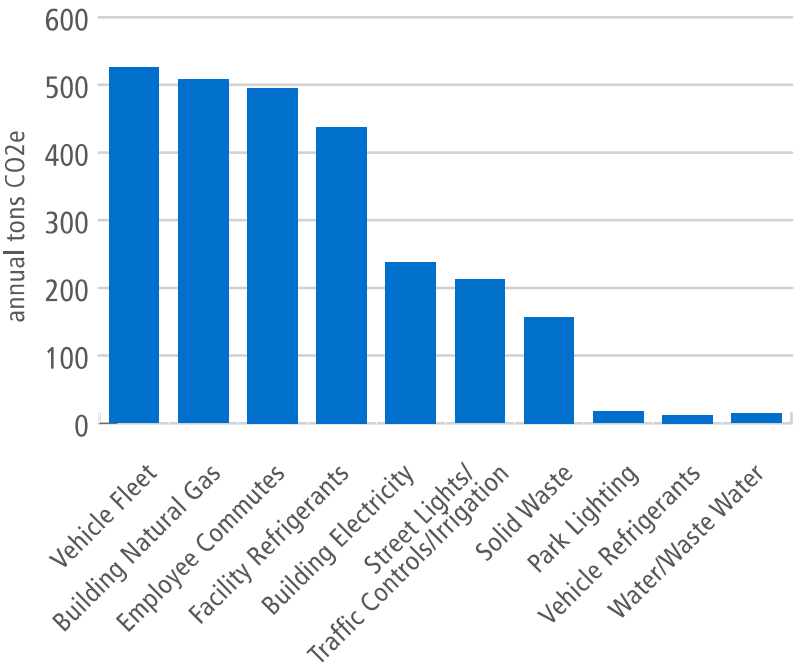
Implementation of projects, programs, and policies that reduce municipal emissions not only benefits the climate, but also has other important benefits. By addressing inefficiencies in fuel, energy and water use, the City can lower costs and gain greater control over its energy and water future. By greening its buildings, landscapes, and the products and materials it uses, the City can improve employee and user comfort, health and satisfaction, and help restore natural processes and biodiversity. And finally, by implementing strategies similar to those proposed for other businesses and institutions, their effective implementation can provide positive examples for the El Cerrito community.

Municipal GHG Emissions

Baseline Inventory

Emissions from the City's municipal operations are contained as a subset of the community-wide inventory discussed in *Chapter 2, El Cerrito's Greenhouse Gas Emissions*. In 2005, municipal operations produced 2,617 tons of CO2e, accounting for 1.8% of emissions in El Cerrito. *Figure 4.1, Municipal GHG Emissions Inventory,* and *Appendix E, Municipal Inventory,* provide detailed breakdowns of the sources of the emissions associated with City operations in the baseline year of 2005. Similar to the community-wide inventory, the greatest percentage of emissions came from transportation-related activities and natural gas use to heat City facilities--primarily the City's Swim Center.

Fig. 4.1: Municipal GHG Emissions Inventory 2005 (2,617 tons CO2e)



Fugitive emissions from refrigerants leaked from facility and vehicle air conditioning equipment is also counted in the municipal inventory, even though

it is not counted from community sources. In municipal operations, they account for more CO2e than building electricity use. This is due to the very high global warming potential* of refrigerants, which ranges from 500 to 2,000 times that of CO2, making it a significant contributor to climate change.

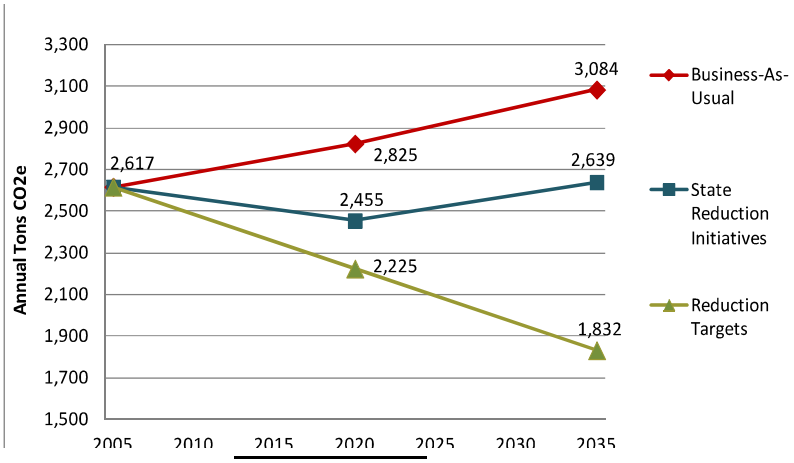
Growth in Municipal Emissions: Business-As-Usual

The growth of municipal GHG emissions under a Business-As-Usual (BAU) scenario was projected for the years 2020 and 2035. Similar to the methodology for projecting growth in community-wide emissions, we assume that existing growth rates can be applied to the City's future emissions. The methodology for projecting growth in municipal emissions can be found in *Appendix F, Municipal Forecast*. Projections show an increase, absent any measures to curb emissions, of nearly 10% by 2020 and an additional 8% by 2035, as shown in *Figure 4.2, Municipal Emissions Growth Projections and Reduction Targets*.

Fig. 4.2: Municipal Emissions Growth Projections and Reduction Targets

	2005	2020	2035
Reduction Targets Below 2005	Baseline	15%	30%
Reduction Targets in Tons Co2e		2,225	1,832
Business-As-Usual (BAU) Tons CO2e	2,617	2,825	3,084
Tons CO2e to Reduce from BAU Resulting from State Initiatives		- 370	- 444
Tons CO2e to Reduce from BAU Resulting from City Initiatives		- 230	- 808
Total Emissions After Reductions (Tons CO2e)	**2,617**	**2,225**	**1,832**

Fig. 4.3: Municipal GHG Emissions Scenarios (2005-2035)



Municipal Reduction Targets

The City Council adopted the same reduction targets for the City's municipal operations as it did for community-wide emissions: a 15% reduction from the 2005 baseline by 2020 and a 30% reduction from 2005 by 2035. The 2020 target is consistent with the recommendation for local government operations in the AB 32 *Scoping Plan*. Assuming municipal operations will grow at the rates predicted by the BAU scenario, the City will need to reduce its overall emissions by 600 tons by 2020 and 1,252 tons by 2035. Reductions attributable to State Initiatives (the Renewable Portfolio, Vehicle Efficiency, and Low-Carbon Fuel Standards) are projected to shave 370 and 444 tons of CO2e off the BAU curve by 2020 and 2035 respectively. The City will then need to reduce municipal emissions by an additional 230 tons by 2020 and 808 tons by 2035.

* The global warming potential of a greenhouse gas represents the amount of heat trapped by a certain mass of gas compared to heat trapped by that same mass of carbon dioxide.

MUNICIPAL GOAL #1:
Reduce transportation-related GHG emissions associated with the City's operations and workforce by 15% by 2020 and 30% by 2035.

The City owns and operates a number of vehicles that serve important functions throughout El Cerrito, including passenger vehicles, vans, police vehicles, and light- and heavy-duty trucks. While this municipal fleet provides critical services to the community, the resultant emissions contribute the largest source of CO_2e within municipal operations. In addition, City employee commutes to and from work, resulting in a significant amount of vehicle miles traveled (VMT), are the 3rd largest source of GHG emissions associated with municipal operations. The City can aim to reduce these transportation-related emissions by improving the fuel efficiency of their vehicles, implementing routing-efficiency strategies and providing incentives for alternative transportation to City employees.

Objective M-1.1:

Reduce annual vehicle miles traveled (VMT) associated with employee commutes and work in the field.

Strategies include:

- (P) Work with individual departments with fleets to develop fuel saving policies and programs. Potential policies and programs include route logistics planning, using fleet management software to monitor fleet use and performance, anti-idling policies, training in fuel-efficient driving.
- (E) Hold an annual or semi-annual Green Commute Challenge for City employees to encourage all City staff to find alternatives to driving alone to work.
- (E) Work with Contra Costa 511.org to offer employee incentives to use alternatives to driving alone.
- (E) Purchase and install electric vehicle (EV) charging stations at City facilities where employees and/or customers park for more than 1 hour to facilitate use of electric vehicles.
- (P) Identify and mitigate barriers to employees commuting by transit to work.

(E) Existing Policies, Programs, or Projects

(P) Potential Policies, Programs, or Projects

Objective M-1.2:

Green the municipal fleet by improving vehicle fuel efficiency and switching to cleaner fuel vehicles.

Strategies include:

- (P) Update the City's Environmentally Preferable Purchasing Policy (EPP) to encourage purchasing of low- and zero-emissions vehicles when replacing vehicles in the municipal fleet, whenever possible.
- (E) Participate in regional EV readiness activities, as appropriate.
- (E) Continue to use the Police Bike Patrol to increase police contact with the community and criminal apprehension rates, as well as promoting employee physical fitness and lower fuel costs,
- (P) Create a municipal bicycle fleet for use by City Staff and train staff in bicycle safety. Consider compatibility of City bicycle fleet with bike-sharing facilities being installed throughout the BART system.

Objective M-1.3:

Reduce car travel associated with large City-sponsored events, such as the July 4th festival.

Strategies include:

- (P) Provide and expand free or low-cost shuttles and/or bike-valet parking for City event participants.
- (P) Promote walking and biking to these events through marketing and making links to public health campaigns such as Healthy Living/Active Living.

El Cerrito Police Department Bike Patrol

(E) Existing Policies, Programs, or Projects

(P) Potential Policies, Programs, or Projects

MUNICIPAL GOAL #2:
Reduce reliance on utility provided energy and water in municipal operations by 15% by 2020 and 30% by 2035.

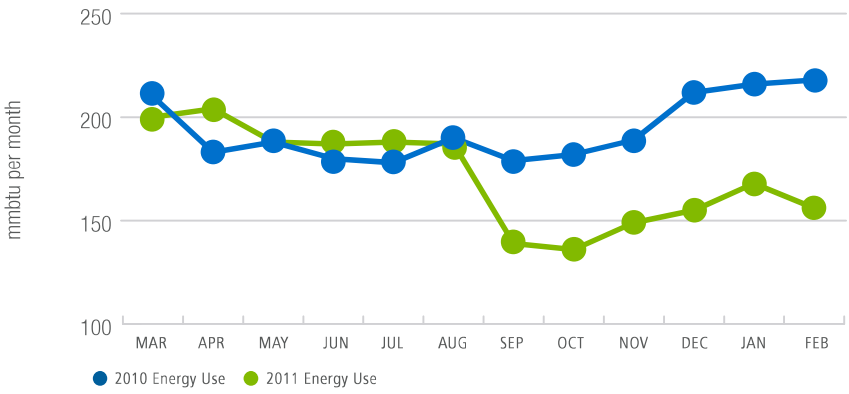
The City spends approximately $500,000 per year to light its streets, power and heat its facilities, and irrigate its public spaces. By conserving energy and water and finding more renewable, decentralized sources of energy and water, the City will not only save money and reduce GHG emissions, but will also become more resilient to rate hikes and shortages.

Objective M-2.1:

Reduce overall energy and water use in municipal operations.

Since 2005 the City has taken many steps to improve the efficiency of its facilities, resulting not only in lower GHG emissions, but also in avoided energy and water costs and upgraded equipment. Due to favorable rebates and project cost-effectiveness, most of these projects, such as lighting retrofits, have been focused on saving electricity. Finding cost-effective projects to save natural gas will be more challenging. Such savings will arise more from optimal maintenance of heating, ventilation, and air conditioning (HVAC) equipment, weatherization improvements, and procurement standards that specify high efficiency models as older HVAC equipment is retired. Similarly, water savings will come primarily from a combination of changes in landscaping practices and irrigation technology.

Figure 4.4: Building Energy Use after Energy Efficiency Retrofits in 2011



Strategies include:

- **E** Develop a municipal energy and water efficiency plan, which creates a baseline for the City's energy and water use, identifies energy and water inefficiencies in operations, and develops a rolling 3-year investment strategy for retrofitting or upgrading equipment.
- **P** Regularly assess and maintain City facilities to ensure that City buildings and irrigation operate at optimal efficiencies.
- **E** Create an energy and water efficiency revolving fund that directs utility rebates and a portion of dollar savings from past efficiency projects to be reinvested back into new efficiency projects.

E Existing Policies, Programs, or Projects

P Potential Policies, Programs, or Projects

- (P) As the utility phases in "time-variant pricing" and starts charging premium rates for energy use during peak hours (normal business hours), investigate ways to shift non-essential energy use to off-peak hours.
- (E) Use an energy and water bill monitoring database to help monitor energy and water use and alerts users to anomalies in energy and water use.
- (P) Develop outreach materials and training to encourage operational and behavior changes to minimize wasteful uses of energy and water.
- (E) Pursue funding and technical resources to implement energy and water efficiency projects.

Objective M-2.2:

To lead by example, develop and implement a municipal solar energy strategy to locate solar energy projects at city facilities.

Solar electric panels at the new Recycling + Environmental Resource Center

Both solar electric and domestic hot water systems can be powerful strategies to curb the City's greenhouse gas emissions and stabilize the cost of electricity for the City for decades. El Cerrito recently contracted to install solar photovoltaic systems at some of its larger facilities, which is projected to replace about 25% of the City's electricity use with clean, renewable energy, while netting the City nearly $3 million in avoided energy costs over the next 25 years. As the market for solar continues to improve, there is still potential for many of the other City facilities to use solar to meet a large majority of their electricity and/or hot water needs.

Strategies include:

- (E) Assess all city facilities for the technical and economic feasibility of using solar photovoltaic systems to offset municipal electricity use. Develop a similar solar hot water assessment for city facilities.
- (E) Investigate procurement methods, incentives and financing strategies to lower up-front and long-term costs to procuring solar energy.
- (P) Monitor the solar market, incentives, and financing opportunities to procure renewable energy for municipal facilities where feasible and affordable.

(E) Existing Policies, Programs, or Projects

(P) Potential Policies, Programs, or Projects

Objective M-2.3:

Use Bay-Friendly* and Water Smart irrigation practices and technologies to maintain the City's landscaped facilities, parks, medians, and streetscapes, and to become more resilient to water shortages.

The majority of the City's water use is for park and landscape irrigation. By adopting Bay- Friendly landscaping practices, native plant pallets, and weather-station enabled, centrally controlled irrigation systems, the City will be able to conserve millions of gallons of water per year and be more likely to maintain healthy and resilient landscapes, even in a time of drought. In addition, when feasible, installation of rainwater catchment or gray water systems in new projects can help offset use of potable water for non-potable uses such as irrigation and toilet flushing.

This 11,000 gallon rainwater cistern at the Recycling + Environmental Resource Center offsets use of potable water by using rainwater for toilet flushing and irrigation.

Strategies include:

- **P** Procure and install weather-station enabled, centrally controlled irrigation systems for all irrigated city landscapes.
- **E** Use Bay-Friendly landscaping techniques that use less water and energy and produce less waste.
- **E** Monitor all water accounts for leaks and excessive use on a regular basis.
- **P** Identify preventative maintenance measures to proactively address water leakage in City facilities.
- **P** Where feasible, install gray water and rainwater catchment systems in new construction and major retrofit projects.

As part of improving San Pablo Avenue's streetscape, the City converted the turfed areas in the medians to a Bay-Friendly landscape, saving about 1 million gallons of water per year.

* Bay-Friendly landscaping is a holistic approach to gardening and landscaping that fosters soil health, conserves water, minimizes maintenance requirements, and uses a plant pallet that is well suited for the natural conditions of the San Francisco Bay Area.

Objective M-2.4:

Convert City landscaped areas to drought-tolerant, Bay-Friendly landscapes, whenever possible.

Strategies include:

(P) Adopt a City policy that requires the specification of Bay-Friendly, drought-tolerant landscapes in any new City project or private project receiving City funds that include landscaped areas as a project element.

(P) Where feasible, and as funding allows, replace non-active turf areas maintained by the City with Bay-Friendly landscaping.

Municipal Climate Action since 2005

Sustainable Buildings

Since 2005, the City has accomplished the following to lower energy and water costs and make its building and landscapes more sustainable:

- Built the new Leadership in Energy and Environmental Design (LEED) Certified City Hall
- Created the Energy and Water Efficiency Program, which reinvents savings from previous energy and water efficiency to fund efficiency projects
- Completed the following energy efficiency projects to save $63,000 in annual energy costs
  - *Retrofitted all municipally operated buildings with energy efficient lighting*
  - *Installed LED street lights along San Pablo Avenue and LED area lights along the Ohlone Greenway*
  - *Retro-commissioned several HVAC systems*
  - *Installed efficiency measures to control the Swim Center Pool Pumps*
- Built the new LEED Platinum Recycling and Environmental Resource Center
- Contracted to install 235 kW of solar energy on municipal facilities, offsetting an projected 25% of electricity used by the City.

(E) Existing Policies, Programs, or Projects

(P) Potential Policies, Programs, or Projects

MUNICIPAL GOAL #3:
Update the City's project development and procurement practices to ensure the specification, development, and purchase of cost-effective environmentally preferable equipment and products.

As outlined in *Chapter 2, El Cerrito's Greenhouse Gas Emissions,* the greenhouse gas inventory does not include emissions associated with the production, transport and use of products; however, developing strategies to increase demand for products that take less fossil fuels to produce and bring to market will also be critical in curbing GHG emissions. By considering the entire life cycle of a product from raw material extraction and production to disposal, an Environmentally Preferable Procurement policy can proactively reduce the environmental impacts, including to the climate, arising from our purchasing and project design decisions

Objective M-3.1:

Update the City's Environmentally Preferable Procurement (EPP) policy and develop tools to better facilitate the procurement of resource-efficient and climate-friendly equipment and products.

Through an EPP policy, the City can make informed decisions about a product's environmental impact on air, water, mineral, climate, and landfill resources. The City adopted an EPP in 2006* and will work to update the policy and provide adequate tools and specification to aid staff in making procurement decisions.

Strategies include:

P Adopt an updated policy that includes protocols, tools, and trainings to aid staff in specifying and purchasing items, such as:

- Energy Star rated equipment;
- Clean fuel vehicles and landscaping equipment;
- Office equipment and furniture made of recycled content;
- Products from manufacturers that minimize packaging waste and that offer take-back programs for products at the end of their useful life; and
- Non-toxic janitorial and grounds maintenance products.

E Existing Policies, Programs, or Projects

P Potential Policies, Programs, or Projects

* El Cerrito City Council Resolution 2006-20.

Objective M-3.2:

Develop a Green Building Ordinance that stipulates a minimum level of environmental and energy performance for municipal and City-funded construction projects.

In 2008, the City built the new LEED† certified City Hall. In 2012, the City followed it up with the design and construction of the new LEED-Platinum Recycling and Environmental Resource Center. While these projects illustrate the City's commitment to water and energy efficient design, there is no formal policy in place requiring a minimum level of environmental performance for capital improvement and/or private projects receiving City funds.

A Green Building Ordinance would help institutionalize green building practices within City government and demonstrate leadership for private projects. An important green building strategy with large GHG reduction benefits is "zero-net energy" design, whereby a building's energy use is met through a combination of energy efficient design and on-site generation of renewable power. As zero-net energy buildings become more affordable and practical, the City should consciously design new municipal buildings with this strategy in mind.

Strategies include:

- **P** Require newly constructed or renovated city buildings to achieve a minimum Silver or higher certification under LEED.
- **P** Require newly constructed city buildings to strive towards zero-net energy design.
- **P** Require private projects receiving City funds to achieve a minimum rating under LEED.
- **P** Develop green construction/infrastructure standards for other municipal projects such as minor building renovations, playgrounds, parking lots, and streetscape improvements.

El Cerrito's LEED Certified City Hall

E Existing Policies, Programs, or Projects

P Potential Policies, Programs, or Projects

† LEED (Leadership in Energy and Environmental Design) certification provides independent, 3rd-party verification that a building project, including its landscapes, meets a high performance standard. Awards range from Certified, Silver, Gold, and Platinum.

Objective M-3.3:

Continue to maintain an active pavement preservation and management program to both improve vehicle fuel economy of road users and to avoid major reconstruction of roads due to deferred maintenance.

According to a 2009 California Department of Transportation (CalTrans) report,‡ pavement preservation and maintenance can be an important GHG emissions reduction strategy. Reconstructing roads "requires large amounts of energy to acquire and process raw materials, transport materials to the construction site, apply, remove, haul and recycle old materials. Over a 20-year period, these processes produce an estimated 212,000 pounds of GHG emissions per lane mile of roadway. Pavement preservation treatments, by contrast, would emit about 30,100 pounds of GHGs over this time, even when done more frequently. And because preservation treatments keep the roadway in better condition, motorists are able to travel steady speeds, thus promoting better fuel economy and even lower GHG emissions."§

In 2008, El Cerrito voters approved the El Cerrito Pothole Repair, Local Street Improvement and Maintenance Measure (Measure A). This funding made it possible for the City to repair and resurface a majority of its streets, raising its Pavement Condition Index (PCI) to an average of 85 out of 100, going from having some of the worst streets to having some of the best in the Bay Area. Continuing to maintain the roads to a high standard not only protects El Cerrito's investments, but drastically reduces the environmental impact of road repair.

Road reconstruction (top photo) due to deferred maintenance is more energy intensive than slurry seal applications (bottom photo) and other pavement preservation techniques.

Strategies include:

E By using pavement preservation and maintenance techniques to the extent feasible, maintain El Cerrito's roads at a Pavement Condition Index (PCI) average of 85 out of 100, as made possible Measure A.

E Existing Policies, Programs, or Projects

P Potential Policies, Programs, or Projects

‡ California Department of Transportation. "Prioritization of Transportation Projects for Economic Stimulus with Respect to Greenhouse Gases." 2009.

§ Metropolitan Transportation Commission. *The Pothole Report. Can the Bay Area Have Better Roads.* June, 2011.

- (P) Investigate other cost-effective technologies, materials, and practices that further decrease the environmental impact of road repair and maintenance.

Objective M-3.4:

Develop a policy to reduce refrigerant emissions into the atmosphere to the lowest achievable and practical levels.

Refrigerants can be found in vehicles, air conditioning units and appliances and are a significant source of greenhouse gases. In the City they account for more CO2e than building electricity usage. This is due to the very high global warming potential of refrigerant. The global warming potential of refrigerants, depending on type, range from five hundred to two thousand times that of CO2, making it a significant contributor to climate change.

Emissions from leaks and recharging of air-conditioning units in City buildings and vehicles ranks as one of the top four sources in El Cerrito. By retiring older air conditioning units, purchasing more climate-friendly units, and ensuring their proper maintenance, this source of emissions can be significantly reduced. Indeed, by retiring some older air-conditioning units in 2009, the City has already cut CO2e from refrigerants by nearly 50%.

Strategies include:

- (P) As part of the Environmentally Preferable Procurement policy update, create a climate-friendly refrigerant specification for such common products as refrigerants, vehicles, and air conditioning units.
- (P) Adopt an equipment maintenance standard to use best practices for refrigerant charge, leak detection, and disposal.
- (P) Retire older equipment using refrigerants with a high global warming potential, such as R-408A.

MUNICIPAL GOAL #4:
Make City operations and facilities models of "reduce, reuse, recycle, and compost."

Since 2005, the City has instituted organics, recycling, and universal waste collection at most City facilities. As Environmental Services expands the types of materials it can recycle, the quantity and type of recyclables collected at City facilities and during City-sponsored events has increased. The next steps are to ensure greater ease for both employees and visitors in using our waste diversion services, and, more importantly, to facilitate ways to reduce the amount of waste produced in the first place.

Objective M-4.1:

Institute robust recycling and food waste composting programs in all City facilities and provide on-going education to decrease contamination of recycling and composting streams.

Strategies include:

- (E) Make recycling, food waste compost, and universal waste* collection services available at all city facilities.
- (E) Educate city employees on how to use these services.
- (P) Have City facilities participate in the overall community Waste Characterization study mentioned in W-1.1 in order to determine where greater waste diversion, reduction and education potential can be achieved within municipal operations.

Objective M-4.2:

As part of an updated the City's EPP policy, create protocols, tools, and trainings to aid staff in specifying and purchasing recycled-content and low-waste products, equipment and materials.

Strategies include:

- (P) Purchase recycled paint from paint manufacturers that have shown a commitment to formulating and marketing high quality recycled paint.
- (P) Use recycled materials in capital improvement projects, such as in building construction and renovations, street paving and concrete treatments.
- (P) Procure products from companies that minimize packaging waste and offer take-back programs.

(E) Existing Policies, Programs, or Projects

(P) Potential Policies, Programs, or Projects

* "Universal waste" is a category of very common waste items that contain materials that are designated as hazardous, such as batteries, electronics, and mercury containing equipment like fluorescent lamps and thermometers.

Objective M-4.3

Institute waste reduction policies and projects in City facilities.

Strategies include:

P Work with City staff in all departments to determine strategies to eliminate avoidable waste of materials, for example, enabling all computers and printers to use double-sided printing as their default setting, and upgrading permit processes to be online and/or paperless, where feasible and affordable.

Goal #	Fig, 4.5: Municipal Operations Summary of Goals and Objectives	Annual Tons CO2e Reduced	
		by 2020	by 2035
M-1	**Reduce municipal transportation related GHG emissions by 15% by 2020 and 30% by 2035**		
M-1.1	Reduce annual VMT associated with employee commutes and field work	100	134
M-1.2	Green the municipal fleet	12	20
M-1.3	Reduce car travel associated with large City-sponsored events	0.63	1
M-2	**Reduce reliance on utility provided energy and water in municipal operations by 15% by 2020 and 30% by 2035**		
M-2.1	Reduce overall energy and water use in municipal operations	200	334
M-2.2	Install solar energy projects on city buildings	112	140
M-2.3	Use Bay Friendly and Water Smart Irrigation practices and technologies	2	2.4
M-2.4	Convert City landscaped areas to "Bay-Friendly," drought-tolerant landscapes (includes water, waste to landfill, and fuel savings)	82	113
M-3	**Update the City's project development and procurement practices to ensure the purchase of environmentally preferable projects, equipment, and products**		
M-3.1	Update the City's Environmentally Preferable Purchasing policy and tools	embedded energy, not measured	
M-3.2	Develop a green building ordinance for municipal buildings and projects	embedded energy, not measured	
M-3.3	Maintain an active pavement preservation and management program	embedded energy, not measured	
M-3.4	Reduce refrigerant emissions from City-owned AC units, vehicles, and refrigerators	295	322
SC-4	**Make City operations a model of "reduce, reuse, recycle, and compost"**		
M-4.1	Institute robust recycling and food waste composting programs in all City facilities	counted in community waste reductions	
M-4.2	Create protocols, tools, and trainings to aid staff in specifying and purchasing recycled-content equipment and materials	embedded energy, not measured	
M-4.3	Institute waste reduction policies and projects for City facilities.	embedded energy, not measured	
State	**State Renewable Portfolio and Vehicle Fuel Efficiency Standards**	**counted in Community Strategy**	
	Total Municipal Reductions Identified (Tons CO2e)	**803**	**1,066**