

# Appendix D: Solid Waste Measures and Methodology

**South Bay Cities Climate Action Plans**  
December 2017

## **Appendix D: Solid Waste (SW) Measures and Methodology**

### **REFERENCE GUIDE - November 2017**

This document is a reference guide for Solid Waste (SW) measures that municipal governments may include and implement in their climate action plans. The South Bay Cities Council of Governments (SBCCOG) worked with member cities to identify specific measures and associated calculations to reduce Green House Gas (GHG) emissions using the baseline year of 2005. Reductions were estimated for both community and municipal operations. The 2005 inventory is established as a starting point against which other inventories are compared and targets are set.

#### **SOLID WASTE**

The decomposition of solid waste in landfills releases methane into the atmosphere. Decreasing the amount of waste going to the landfills will help reduce the greenhouse gas emissions produced from this sector. Recycling, composting, and source reduction are necessary to divert solid waste from the landfills.

Recycling provides greenhouse gas reductions in three ways: 1) offsetting a portion of “upstream” greenhouse gas emitted in raw material acquisition, manufacture and transport of virgin inputs and materials; 2) increasing the amount of carbon stored in forests, when wood and paper products are recycled; and 3) reducing emissions associated with landfilling of waste. Since the scope of the member city inventories only include the emissions released from landfilled waste, only the third benefit can be included in the reductions for these strategies. (ICLEI, Recycling and Composting Protocol, 2013)

Composting provides greenhouse gas reductions by reducing emissions associated with landfilling the waste as well. Other benefits of composting include reducing water use and associated energy emissions, reducing chemical fertilizer use and associated production emissions, reducing soil erosion, and reducing herbicide use and production. (ICLEI, Recycling and Composting Protocol, 2013)

#### **REDUCTION MEASURES**

##### **Goal: Increase Diversion and Reduction of Residential Waste**

Educating local communities about waste reduction is a key step for managing waste at the residential level. Better waste management practices lead to reduced energy consumption associated with waste removal and processing and associated GHG emissions.

##### **Measure: Education and Outreach to Residents**

Providing education and outreach to residents about opportunities to divert their waste away from the landfill will greatly support the goal to increase diversion and reduction of waste. These strategies will increase awareness of solid waste programs, encourage and increase waste-reducing behaviors, and inspire participation in further environmental activities.

##### **Actions:**

- Educate residents of waste reduction and diversion – Provide information to residents about recycling, composting, and source reduction opportunities on website and in newsletters or flyers

- Offer a waste audit for residents – Train staff to conduct residential waste audits, post worksheets and guide online for do-it-yourself audits, or work with trash hauler company to create a waste audit program
- Educate to discourage single-use bag use – Create public education outreach program to encourage use of reusable bags when making purchases
- Educate schools about recycling and waste reductions – Work with schools and/or community groups to help develop and distribute educational materials related to recycling and waste reduction for use in the classroom

**Measure: Implement Residential Collection Programs to Increase Diversion of Waste**

Implementing collection programs for residents will help divert waste from going to the landfill by increasing recycling, composting, and source reduction. These programs vary from changing the rates of services to collecting additional types of waste. (CAPCOA, 2010)

**Actions:**

- Implement a Pay-as-you-throw program – Provide economic incentive to decrease waste using the user-pay principle, such as increasing the rates for larger sized trash bins
- Implement a Food Scrap Diversion program for residents –Provide a food waste collection service for residents
- Implement collection of green waste for residents – Provide a green waste collection service for residents
- Implement a recyclables and food scrap collection at schools – Work with school districts and trash haulers to establish recyclables and food scrap collection programs at schools

**Measure: Increase Diversion of Residential Construction and Demolition Waste**

Diverting construction and demolition waste from the landfill will reduce the amount of solid waste being sent to the landfills.

**Actions:**

- Require residential projects to exceed the CalGreen standard of C&D diversion – Adopt a C&D Waste Recycling Ordinance to require more C&D waste to be diverted from the landfill

**Goal: Increase Diversion and Reduction of Commercial Waste**

Education and providing better waste management options and tools to the businesses can lead to reductions in GHG emissions associated with processing and disposing commercial wastes.

**Measure: Education and Outreach to Businesses**

Providing education and outreach to businesses about opportunities to divert their waste away from the landfill can greatly support the goal to increase diversion and reduction of waste. These strategies help to increase awareness of solid waste programs, encourage and increase waste-reducing behaviors, and inspire participation in further environmental activities.

**Actions:**

- Educate businesses of waste reduction and diversion – Provide information to businesses about recycling, composting, and source reduction opportunities on the website, newsletters, or flyers
- Offer a waste audit for businesses – Train staff or volunteers to conduct commercial waste audits, post worksheets and guide online for do-it-yourself audits, or work with trash hauler company to create a waste audit program
- Offer recognition for green businesses – Implement a program that rewards or recognizes local businesses with waste reduction programs

**Measure: Implement Commercial Collection Programs to Increase Diversion of Waste**

Implementing collection programs for businesses will help divert waste from going to the landfill by increasing recycling, composting, and source reduction. These programs vary from changing the rates of trash services to collecting additional types of waste. (CAPCOA, 2010)

**Actions:**

- Require haulers to implement Pay-As-You-Throw program – Provide economic incentive to decrease waste using the user-pay principle, such as increasing the rates for larger sized trash bins
- Implement a Food Scrap Diversion program for businesses – Provide a food waste collection service for businesses. Note the State of California passed AB1826 in 2014 to require businesses to recycle their organic waste on and after April 1, 2016 depending on the amount of waste disposed.

**Measure: Increase Diversion of Commercial Construction and Demolition Waste**

Diverting construction and demolition waste from the landfill can reduce the amount of solid waste being sent to the landfills. Recycling the wood from the C&D waste will result in a net reduction in GHG emissions because it is less carbon intensive to recycle the wood than sending it to the landfill to decompose. Recycling the wood also increases the amount of carbon stored in forests since recycling means less raw material needs to be acquired. (CAPCOA, 2010)

**Actions:**

- Require commercial projects to exceed the CalGreen standard of C&D diversion – Adopt a C&D Waste Recycling Ordinance to require more C&D waste to be diverted from the landfill

**Measure: Require Commercial Sector to Further Increase Diversion of Waste from Landfills**

Setting additional requirements for the commercial waste sector can support further reductions in greenhouse gas emissions.

**Actions:**

- Consider distance of the designated material recovery facilities (MRFs) and recycling facilities – When awarding franchise contracts, take the distance of the facilities into consideration
- Ban plastic bags – Adopt an ordinance to eliminate plastic bags, which will decrease waste going to the landfill and may increase the use of reusable bags

- Require food waste and recycling at special events – CA law AB 2176 requires special events to develop solid waste management plans, so the municipality can require food waste collection and recycling to be included in these plans before approving permits

**Goal: Increase Diversion and Reduction of Overall Community Waste**

To maximize the benefits of waste reduction, it is important for the community to work together. Comprehensive waste management practices at the community level will help further contribute towards the City’s goals of achieving GHG reductions associated with solid waste.

**Measure: Set a Community Goal to Divert Waste from Landfills**

Setting a goal to divert a specified percentage of waste can show the municipal’s commitment to reducing the greenhouse gases emitted from the landfill.

**Actions:**

- Set a Zero Waste goal in a Zero Waste Strategic Plan or set a percentage goal of diverting waste from the landfill – Develop a comprehensive Zero Waste Plan to achieve 90% diversion of waste from landfills, including strategies to divert waste and tools to track progress; Develop a comprehensive Waste Plan to achieve X% diversion of waste from landfills, including strategies to divert waste and tools to track progress

**Goal: Reduce and Divert Municipal Waste**

Increasing awareness through implementing education strategies are key to achieving waste reductions and diversion. Like residential and commercial sectors, the municipal sector can also benefit from implementing capacity building programs to educate employees about benefits and methods of waste reducing behaviors.

**Measure: Education and Programs for Municipal Employees/Facilities**

Education to employees may increase awareness of solid waste programs, encourage waste-reducing behaviors, and inspire participation in further environmental activities. Some of these strategies are also very visible and will set an example for the community to follow. Reducing municipal waste will help the City lead by example and demonstrate to the community that the City is committed to diverting waste from landfills.

**Actions:**

- Implement a Recycle at Work program – Develop a program, Recycle at Work, to educate employees about the benefits of recycling and waste reduction in the work place
- Reduce paper in municipal facilities – Adopt a policy or implement as a best practice to encourage paper reduction through various activities such as: Reduce margins and logos on templates, letterheads, and memos; Upload bid documents using online resources instead of printing for contractors; Require fewer or smaller-sized copies of project plans; Use electronic devices for meetings; Require double sided printing when feasible
- Reuse materials at municipal facilities – Adopt policy or implement as a best practice to reuse, repair, or refurbish office furniture, equipment, and supplies at a cost savings compared to

purchasing new materials; If not cost saving, reuse or redistribute to community non-profit groups office items in order to divert from landfill

- Provide additional recycling in public places – Install additional recycling containers in public places such as parks and streets
- Adopt a Municipal Purchasing Policy – Create a purchasing policy or implement as a best practice for municipal facilities to reduce purchase of disposable items, and require environmentally preferable products to be purchased when possible and reasonable
- Demonstrate composting at a municipal facility – Compost at city facilities and possibly use the compost in environmentally friendly landscaping at facilities or community gardens

#### **Measure: Implement Municipal Collection Programs to Increase Diversion of Waste**

Collecting food waste from municipal facilities will divert it from the landfills by increasing composting. The municipal food scrap collection program can be an example for the residential and commercial programs to follow.

##### **Actions:**

- Implement a Food Scrap Diversion program for municipal facilities – Provide a food waste collection service for municipal facilities

#### **Measure: Set a Municipal Goal to Divert Waste from Landfills**

Setting a goal to divert a specified percentage of waste will show the City's commitment to reducing the greenhouse gases emitted from the landfill.

##### **Actions:**

- Set a Zero Waste goal in a Zero Waste Strategic Plan or set a percentage goal of diverting waste from the landfill for municipal operations – Develop a comprehensive Zero Waste Plan to achieve 90% diversion of municipal waste from landfills or a plan to achieve X% diversion of municipal waste from landfills, including strategies to divert waste and tools to track progress

## **Works Cited**

CAPCOA. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

ICLEI. (2013). *Recycling and Composting Protocol*.