



Waste and Resource Management Briefing

September 2018

Contents

Introduction	4
<hr/>	
Governance Context	4
Materials Use and Production Within the County	7
<hr/>	
Current Waste Generation Status and Trends	9
<hr/>	
Recyclables.....	10
Organics and Food Waste	11
Transfer Stations and Material Recycling Facilities.....	12
Landfills and Treatment.....	14
Construction and Demolition Waste.....	15
Hazardous Waste and E-Waste.....	15
Illegal Dumping.....	18
Key Strategies for Waste and Resource Reduction	20
<hr/>	
Product and Disposal Bans	20
Facilitating Businesses' Use of Recycled Content.....	20
Organics.....	21
Collection and Transfer of Reusable or Recyclable Materials.....	22
Disposal and Treatment.....	23
Construction and Demolition Waste.....	23
Household Hazardous and E-Waste.....	23
Product Stewardship.....	24
Draft Goals, Potential Strategies and Indicators	26
<hr/>	
Definition of Key Terms.....	26
Draft Goals and Potential Strategies	27
Potential Indicators.....	29
Cross-Cutting Themes.....	30
<hr/>	
Economy & Workforce Development.....	30

Air Quality, Public Health & Safety.....	30
Land Use and Housing.....	30
Water.....	31
Transportation.....	31
Climate.....	31

Local/Regional, State, National and International Targets33

Local and Regional.....	33
State.....	34
National and International Targets.....	35

Endnotes.....37



Introduction

The L.A. County Chief Sustainability Office in partnership with BuroHappold Engineering, UCLA and Liberty Hill Foundation is hosting a series of workshops to inform Our County, the countywide sustainability plan. Our County is an effort to outline a bold, inclusive vision for the future that balances the co-equal values of environment, equity, and economy.

At this workshop, we will discuss a broad range of topics relating to resource management and waste issues and opportunities for the region, and will take a deep dive into where and how waste and resource management intersects with equity, public health, labor, housing, and other issues. This document is provided as background information to inform those workshops and presents draft goals and strategies as a starting point for discussion. Note that wastewater is covered under the Water category and is not included in this briefing, but management of solids from wastewater is included.

L.A. County is the largest manufacturing hub in the United States, providing jobs for county residents and creating products for use locally and around the world. When combined with a growing population and economy, the resulting waste stream is large and complex, and management is challenged by the number of governing jurisdictions. The ability of L.A. County to effectively manage its waste and material resources into the future will depend on its ability to promote integrative and collaborative solutions, at the local and regional scale, that address how products are made, how much is consumed, and how materials are recovered and recycled.

Governance Context

The California Department of Resources Recycling and Recovery (known as CalRecycle) is the main governing body for recycling and waste management in California. They are responsible for implementation of state waste management laws, for developing and tracking waste targets, and coordinating waste management with counties and municipalities.

The County Department of Public Works (DPW) fulfills a number of waste management roles in L.A. County including advising the Board of Supervisors on waste management issues,

- preparing and administering the Countywide Siting Element by evaluating disposal and the Countywide Waste Summary Plan,



- coordinating and implementing Countywide waste reduction and public education programs, as well as, implementing waste reduction and public education programs specific to the unincorporated County areas,
- staffing the L.A. County Integrated Waste Management Task Force,
- assisting the County Department of Regional Planning in drafting conditional use permit conditions for solid waste facilities,
- providing engineering services to the County Department of Public Health (as the Local Enforcement Agency for the County and most cities) related to the permitting and oversight of solid waste facilities,
- administering the State Disposal Reporting System for L.A. County (reporting by each jurisdiction) as part of Assembly Bill 901 requirements, and
- serving as chair of L.A. County Integrated Waste Management Task Force's Alternative Technology Advisory Subcommittee.

The majority L.A. County unincorporated area residents (with the exception of the Antelope Valley) and businesses receive trash collection from a **franchise system** of contracted waste haulers and **Garbage Disposal Districts (GDDs)** managed by DPW. In the exclusive residential franchise agreements, a private hauler is awarded trash collection and recycling services for a specific unincorporated community. Each resident within a residential franchise area pays the same rate for the equivalent level of service. There are 20 exclusive residential franchise areas in the unincorporated areas, in which waste collection, recycling and green waste services are provided to 650,000 residents and customers.ⁱ Residents in residential franchise areas are billed directly by the waste hauler. In a GDD, private waste haulers are awarded trash collection and recycling services to all residential and commercial properties in designated unincorporated communities that have been recognized as GDDs. There are seven GDDs that serve 300,000 customers. Fees for collection of waste in the GDDs come from property tax bills. Businesses outside of GDDs but throughout the rest of the County receive trash collection services through a non-exclusive commercial franchise. There are currently 37 waste haulers that provide service through the non-exclusive commercial franchise. These haulers have agreed to provide certain levels of service, but independently determine the charges for customers. The only residential areas of the Unincorporated County that are not included in an exclusive residential franchise or GDD are in the Antelope Valley where waste is collected through an open market system or is self-hauled.

The Sanitation Districts of L.A. County are a public agency tasked with the regional management of wastewater and solid waste, consisting of 24 independent special districts. The Sanitation Districts operate 2 landfills within L.A. County, 2 large material recovery facilities, and one transfer station. They serve their member cities by accepting solid waste to be processed or transferred from the waste haulers that serve various communities throughout the County. ⁱⁱ

Some individual jurisdictions in L.A. County collect their own residential waste such as the Cities of Los Angeles, Long Beach and Santa Monica.



Hazardous waste is regulated by the California **Department of Toxic Substance Control (DTSC)**, who is responsible for hazardous generators, transporters, and Treatment, Storage, and Disposal Facilities (TSDFs). DPW and the Sanitation Districts operate a countywide household hazardous waste (HHW) program which consists of permanent collection centers and mobile events. This program helps collect millions of pounds each year of HHW such as paint, cleaners, oil, and other toxic products that should not be disposed of in landfills. L.A. County **Department of Public Health's Toxics Epidemiology Program** identifies, controls and prevents the health effects associated with toxic agents in the L.A. County population and **L.A. County Fire Department's Health Hazardous Materials Division (HHMD)** manages the Hazardous Waste Generator Program, the Hazardous Materials Release Response Plans and Inventory Program, the California Accidental Release Prevention Program (Cal-ARP), the Aboveground Storage Tank Program and the Underground Storage Tank Program.

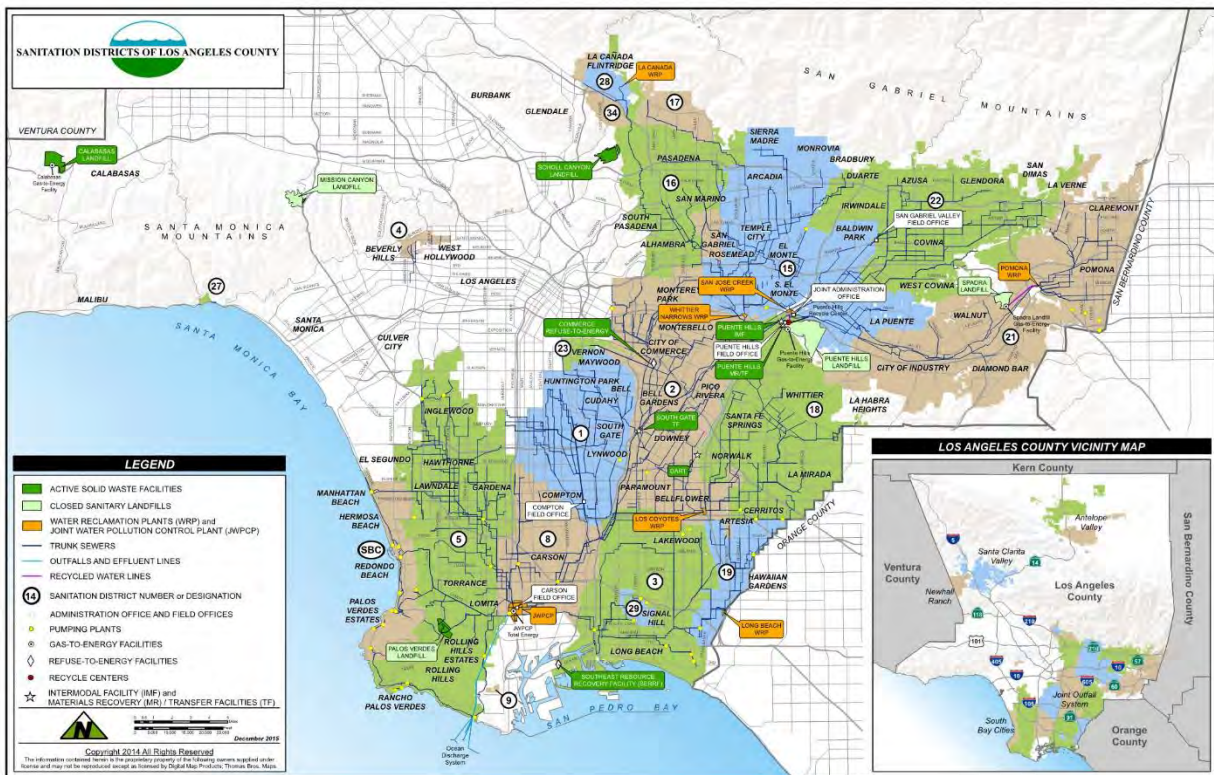


Figure 1: Sanitation Districts in L.A. County.

Materials Use and Production Within the County

L.A. County is the largest manufacturing hub in the United States with approximately 13,000 manufacturers and over 350,000 jobs (Figure 2).ⁱⁱⁱ Computers and electronics, chemicals, and petroleum products are among the highest value products produced.^{iv} The reduction, recycling, or reuse of wastes from L.A. County manufacturing industries represent a tremendous opportunity to reduce the greenhouse gas and toxic air emissions associated with transport and disposal, as well as to reduce associated costs. Figure 3 illustrates the production (in millions of dollars) of materials by sector in L.A. County.

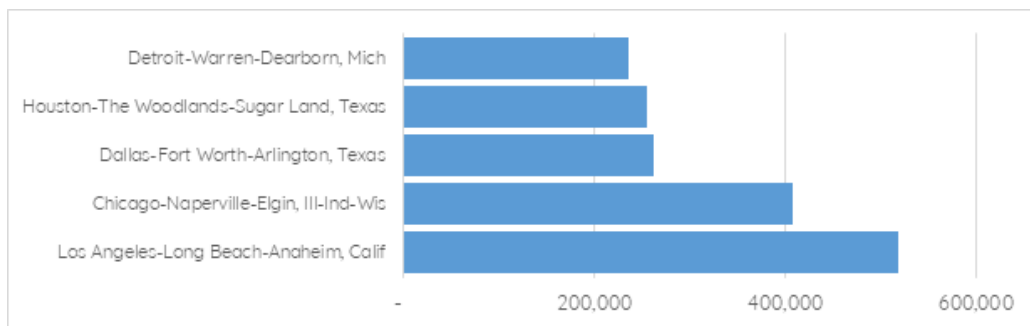


Figure 2: Manufacturing Jobs by Metropolitan Area in the United States (2014).^v

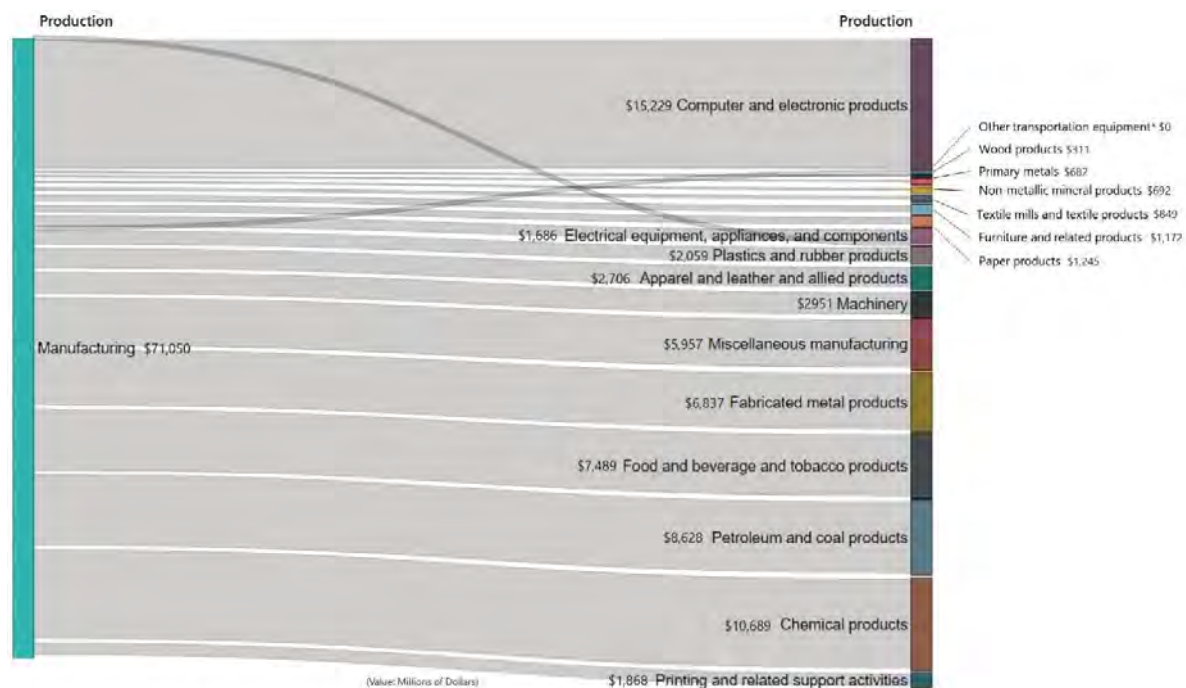


Figure 3: Manufacturing production by manufacturing sector and value (\$M) in L.A. County (2015).^{vi}



Almost \$1 Trillion of primary (before processing) and secondary products (after processing) were produced in L.A. County in 2015 with approximately \$404 Billion worth of products consumed in L.A. County.^{vi}

Current Waste Generation Status and Trends

The current data collection and reporting system includes disposal data for MSW,¹ but does not include up-to-date generation or waste characteristics, and does not provide information on the actual amount of waste “diverted” from landfills. CalRecycle information on status and trends of specific waste stream recycling programs are provided at the state-level only. That means there are no publicly available centralized data for the quantities of bottles, cans, plastics by recycling code, or the weight of paper, metals, used motor oil, batteries, paint, green waste/composting streams and other materials recycled annually by county or city.^{vii} Data of quantities of some HHW materials collected through countywide programs is available.

Based on actual disposal data, the amount of waste disposed by L.A. County residents and businesses has declined more than 15% compared to 2005 but has increased slightly since 2014 (Figure 4).^{viii}

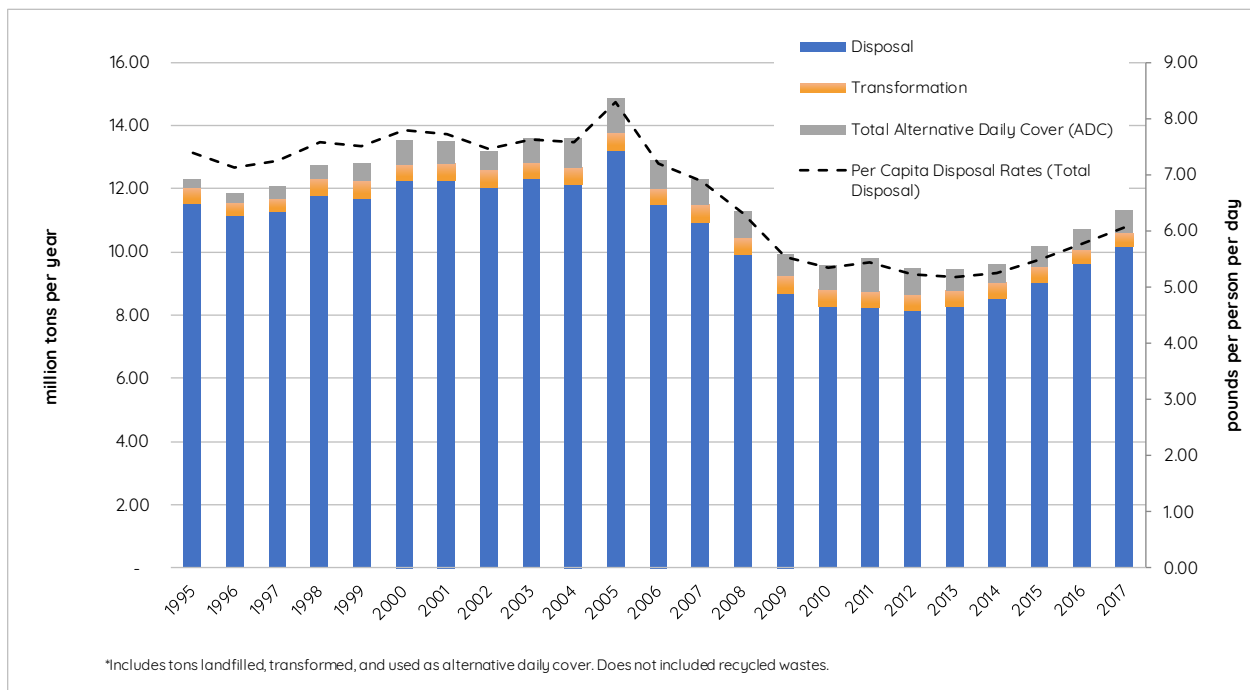


Figure 4: L.A. County (unincorporated and incorporated) Waste Disposal and Per Capital Disposal from 1995 to 2017^{viii}

¹ MSW includes residential, commercial, and institutional wastes, which consists of materials such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, and appliances (bulky or white goods).



The last waste generation study in the unincorporated areas was in 2005-2006.^{ix} The study found that approximately 2.9 million tons of waste was generated annually (14.8 pounds per resident per day) in the unincorporated areas, of which 50% (1.45 tons or 7.4 pounds per resident per day) was diverted. Currently the per capita disposal rate is approximately 3.76 pounds per person per day for the unincorporated areas (6.05 across the entire county), resulting in a 70% diversion rate from landfills using 2005-2006 generation values.^x The per capital disposal rates from 1995 to 2017 are in Figure 4.

Recyclables

Recycling is the process of collecting, sorting, cleaning, treating, restoring, and then changing materials that would otherwise become solid waste, into raw material for new, reused, or restored products. Currently L.A. County unincorporated areas collect and separate (not necessarily recycle) aluminum cans and containers, plastic bottles and jugs (soda, water, detergent, milk), 1# through #7, glass bottles, dry paper (office paper, newspaper, mixed paper), dry cardboard, scrap metal and plastic toys.^{xi,xii} The collection and separation of materials in incorporated areas vary by municipality.

One of the biggest drivers for recycling and waste diversion in L.A. County is AB 939 (Sher, Statutes of 1989), the California Integrated Waste Management Act. This law required a diversion of 50% or greater from landfills using 1995 generation levels by January 2000 (L.A. County unincorporated areas use an updated generation baseline of 2005). The unincorporated diversion rate is approximately 75%.^{xiii} State law AB 901, effective as of January 1, 2016, established requirements for jurisdictions and disposal facilities to report tonnages of waste to CalRecycle. This includes reporting data on waste handled by exporters, brokers and transporters of recyclables or compost, and will aid in tracking accurate recyclables data. AB 901 also gives CalRecycle the authority to audit, inspect, enforce, and assess monetary penalties on jurisdictions and disposal facilities.

Using existing data, it is difficult to determine the actual destination of recyclables generated in L.A. County. CalRecycle estimates that approximately two-thirds of curbside recyclables are sent to foreign markets. China has been a main importer of California's (and the world's) recyclables for over two decades. In 2017, approximately 55% of the exported recyclables were sent to China. Recent laws such as China's National Sword Policy, enacted in March 2018, puts restrictions on recyclables and bans the imports of 24 types of recyclables. There is also legislation in place to ban the import of all recovered materials by 2020.^{xiv} The National Sword Policy will have a major impact on the future of recyclables for L.A. County, where there are already programs to facilitate use of these materials in local manufacturing.^{xv}

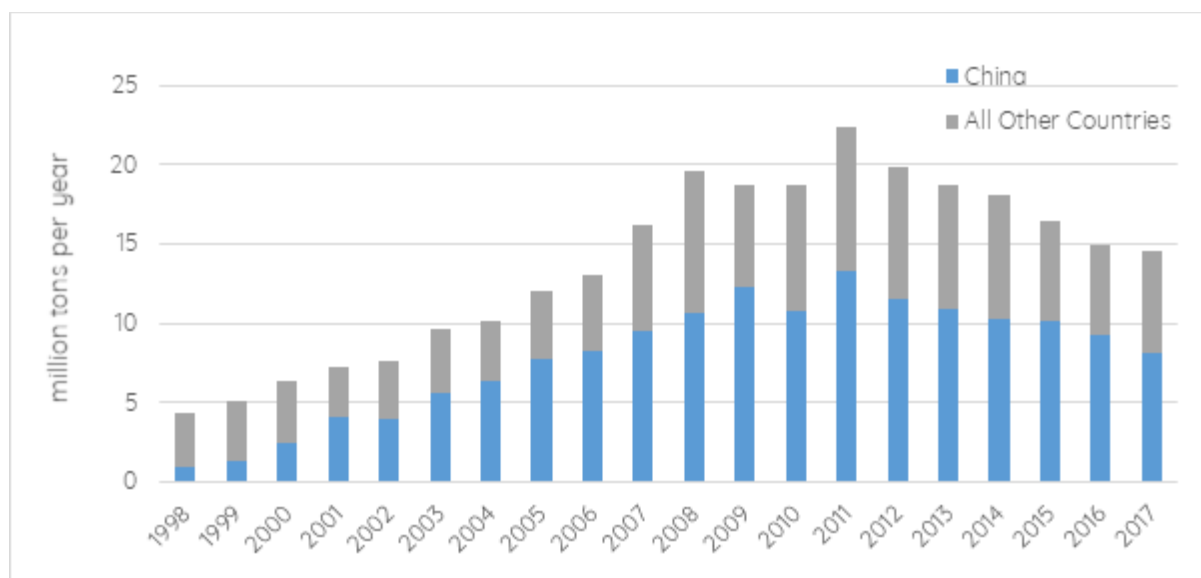


Figure 5: California recyclables exports outside the United States (2015).^{xvi}

Organics and Food Waste

Organic waste includes food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.^{xvii} All organics data is currently not being tracked at an incorporated or unincorporated level (organics used for Alternative Daily Cover, or ADC, is tracked). Based on data received by CalRecycle, organics generated in California make up approximately 41% of the waste disposed of in landfills, where food makes up approximately 17 to 18% of the total waste disposed. In the L.A. County unincorporated areas this is approximately 128,000 tons of food waste sent to the landfill annually.^{xviii}

State law's AB 1826 and SB 1383 are important state laws that will impact organic waste in L.A. County. AB 1826, the Mandatory Organics Recycling Law, requires businesses that generate four cubic yards or more of organic waste per year to arrange for organics recycling service (January 2017), and will require businesses that generate four cubic yards or more of MSW (not just organics) to arrange for organics recycling service (starting January 2019).

State law SB 1383, the Short-Lived Climate Pollutants (SLCP) Law, was created to reduce methane emissions resulting from organics disposal in landfills. SB 1383 has targets for the State to reduce organics disposal in landfills by 50% from 2014 levels by 2020 and 75% from 2014 levels by 2025 (Figure 6). The specific requirements for jurisdictions have not been fully developed and adopted by CalRecycle but it is expected that organics will need to be separated at all residential, commercial, and institutional entities and this information will be tracked by jurisdictions and facilities across L.A. County. SB 1383 also requires that not less than 20% of edible food that is currently disposed of in the State is recovered for human consumption by 2025. Once this policy is enacted and reported better organics data will be available.

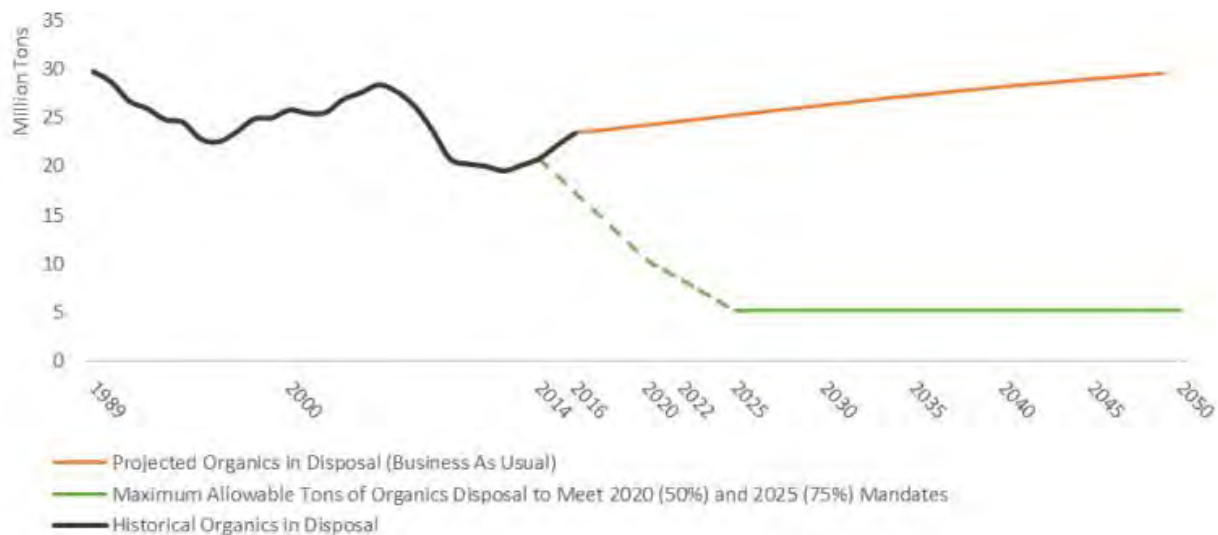


Figure 6: Allowable Disposal of Organics Statewide (2017).^{xix}

Transfer Stations and Material Recycling Facilities

Once MSW is collected by private haulers and municipalities, it is either sorted and processed at materials recycling facilities (MRFs), or consolidated at transfer stations, or sent directly to a landfill. There are approximately 37 MSW transfer stations/MRFs, 19 chipping and grinding facilities for yard waste, 10 composting sites and two anaerobic digestion treatment facilities exist across L.A. County.^{viii} Figure 7 identifies the locations of L.A. County landfills, transfer stations/MRFs and composting sites.

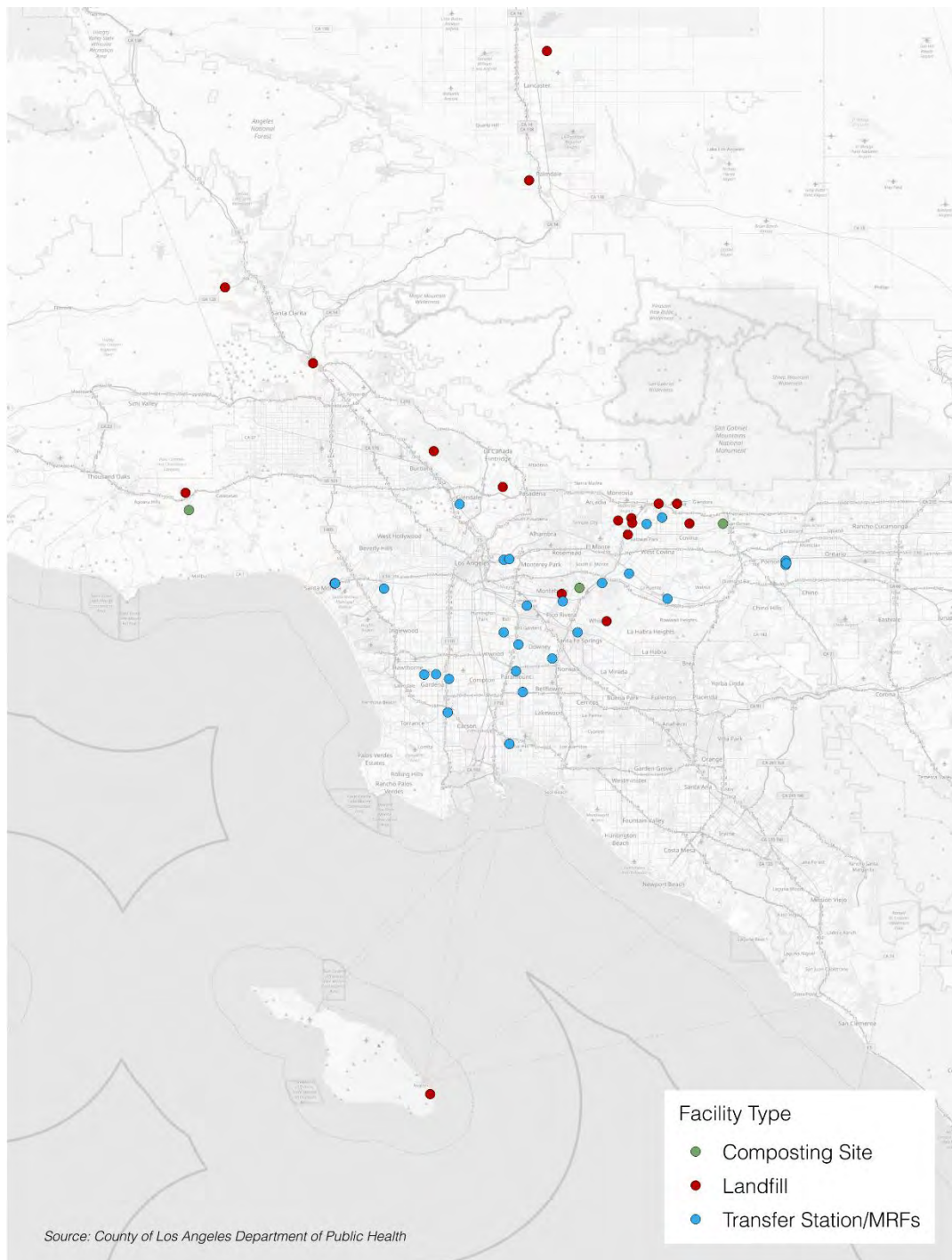


Figure 7: Solid Waste Management Facilities inside and outside L.A. County

Landfills and Treatment

Data on waste generation and characterization in L.A. County is incomplete. Waste generated in L.A. County (both unincorporated and incorporated areas) is disposed of at either in-county or out-of-county facilities. The amount of MSW exported out of L.A. County has increased annually over the last eight years (Figure 8). In 2017, approximately half of disposed waste was sent out-of-county. Although the unincorporated areas are responsible for only 8% of the total landfilled waste, more than half (six of the ten) of the landfills used for countywide disposal are in the unincorporated areas (with approximately 75% of the permitted disposal capacity for L.A. County).^{xx}

Some organics, mainly yard waste, are sent to 18 composting and chipping facilities and a small amount of diverted food waste is sent to two anaerobic digestion facilities for managing organic waste. Based on estimates by L.A. County DPW, there is enough disposal capacity for the next 15 years under current disposal conditions for the unincorporated areas.^{viii}

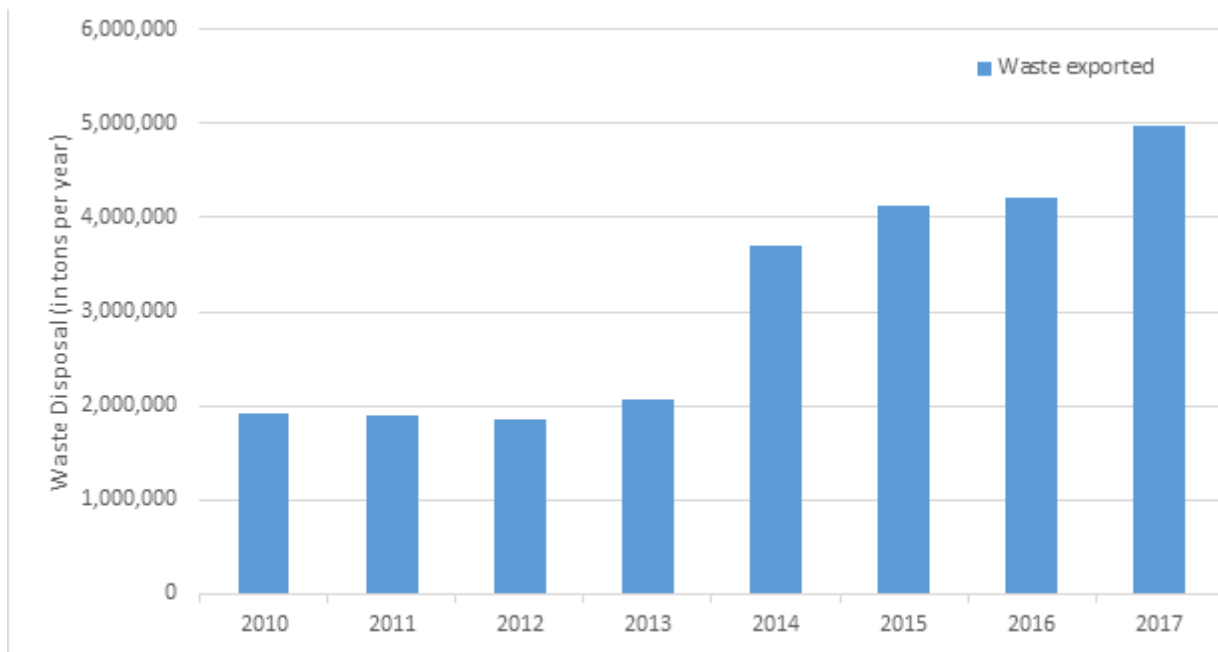


Figure 8: Waste Exported Out of L.A. County

The County Sanitation Districts also have a waste-by-rail system that starts at a transfer station in City of Industry and ends at the Mesquite Regional Landfill located in Imperial County.

Construction and Demolition Waste

Construction and Demolition (C&D) waste is generated during construction, renovation and demolition projects such as buildings, roads, and bridges. Typical materials include lumber, drywall, metals, masonry (brick, concrete, etc.), carpet, plastic, pipe, rocks, dirt, paper, cardboard, or green waste related to land development. Many of these materials can be reused or recycled through “green” construction practices.

There are approximately 31 public and private C&D recycling facilities across L.A. County (in Antelope Valley, Santa Clarita Valley, Western Los Angeles County, San Fernando Valley, San Gabriel Valley, Central Los Angeles County and Southern Los Angeles County) ranging in recycling and recovery rates from 65% to 100%.^{xxi}

Hazardous Waste and E-Waste

While MSW reduction programs are readily understood by residents, who generate these wastes daily, hazardous waste is less understood and mostly invisible to the average person. By law, wastes must be handled as hazardous when they meet flammable, corrosive, reactive or toxic “characteristics”, or when they are generated through specific regulated processes.^{vii} The amount of hazardous waste generated annually in L.A. County is estimated to be as much as 20% of the total annual MSW.^{vii} It is estimated that there are on the order of 26,000 hazardous waste generators in L.A. County, although this information is not publicly accessible from the DTSC. In 2013 there were approximately 2.2 million tons of hazardous waste generated in L.A. County, although this number may “double count” wastes that were sent to a transfer station before being transported again to final treatment or disposal. The largest amount of hazardous waste generated is typically contaminated soil from contaminated sites and waste oil from the petroleum industry.^{xxii}

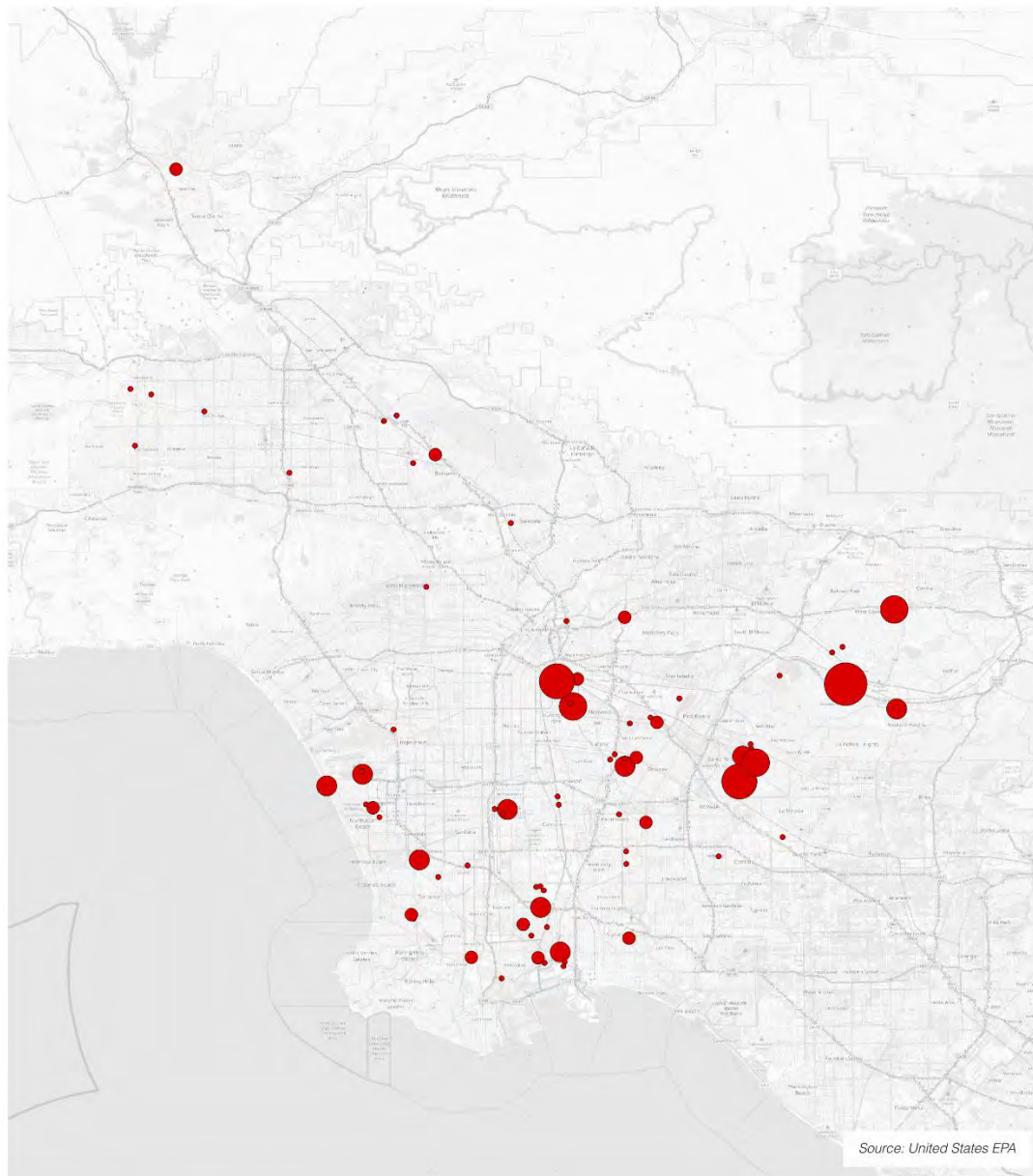
State law requires industry to implement programmatic efforts toward hazardous waste reduction, but there are no quantitative targets.^{vii} In 2006, universal waste (such as fluorescent lights and batteries) was banned from California landfills, and in 2008 household sharps (such as needles) were also banned.

The Exide Technologies facility in Vernon and the Quemetco facility in the City of Industry (both lead acid battery recyclers) are among the top generators of toxic releases. Quemetco alone generated approximately half of the hazardous waste in 2013, as reported through the Federal Toxics Release Inventory (TRI). Locations and tonnage of TRI reported location are shown in Figure 9. Hazardous waste facilities and generators in proximity to residential neighborhoods is illustrated in the EPA EJScreen analysis in Figure 10.

Some hazardous materials can be reclaimed and recovered such as solvents (e.g., recovery of acetone) or metals (e.g., recovery of precious metals, lead, zinc, etc.) but most hazardous waste is transported to transfer stations and then taken to out-of-county/in-state landfills or out-of-county facilities as far as Texas.



The category of e-waste refers to consumer electronic equipment that is no longer wanted and includes computers, printers, televisions, VCRs, cell phones, fax machines, stereos and electronic games. Electronics may contain lead, copper, and other heavy metals or potentially toxic substances.^{xxiii} The California Electronic Waste Recycling Act of 2003 prohibits e-waste from landfill disposal, creating opportunities for reuse and recycling of e-waste.



Los Angeles Facility Locations

Marker Size Indicative of Lead or Lead Compounds (lb)

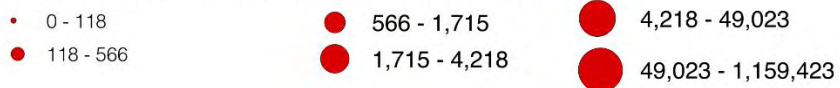


Figure 9: Location of Industries Generating Hazardous Wastes Containing Lead or Lead Compounds (Off-site Disposal) as Reported Under TRI (2016).^{xiv}

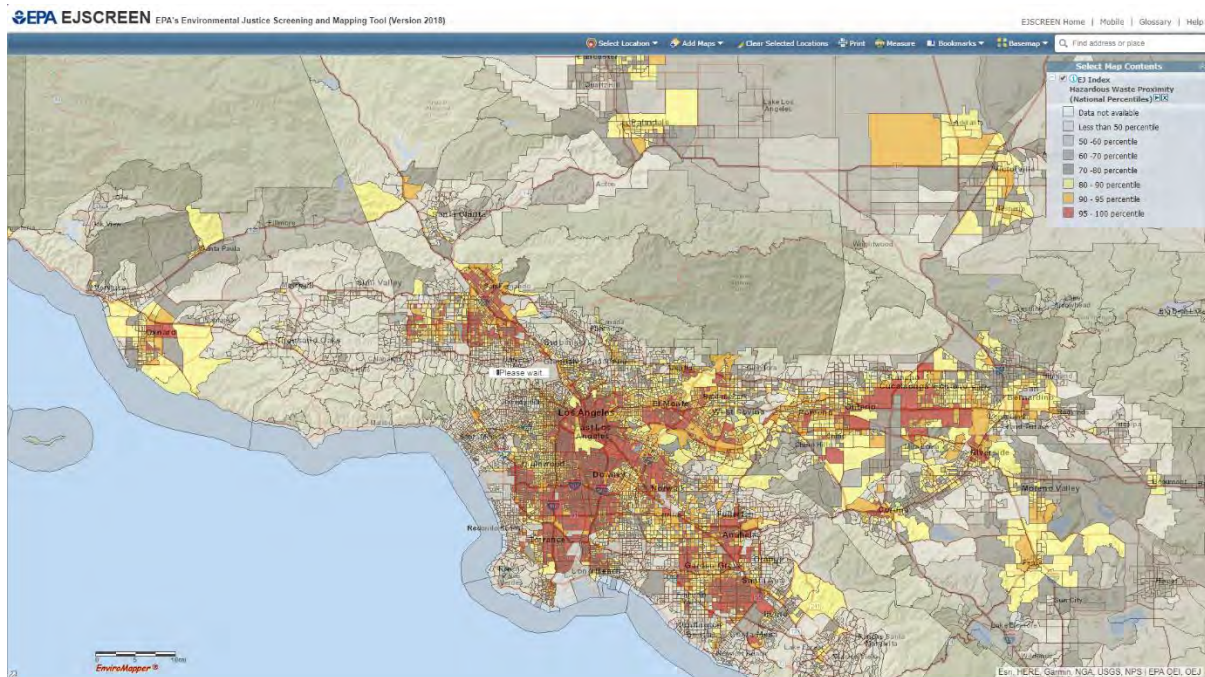


Figure 10: EJScreen Analysis – Hazardous Waste Facilities and Generators in Proximity to Residential Neighborhoods

Illegal Dumping

Illegal dumping of MSW, C&D and Hazardous waste is a major issue across L.A. County. Illegal dumping is any unauthorized disposal of waste on any public or private property. Approximately 14,000 tons of waste is illegally dumped per year in the unincorporated areas alone.^{xxv} This waste is a major health and safety hazard, decreases property values, impacts taxpayers due to clean up costs, and negatively impacts habitats, soils, surface water and groundwater. DPW has a complaint and reporting system for residents and a number of programs to manage illegal dumping, with a focus on the waste typically dumped, such as tire collection events, bulky material events (mattresses, appliances, etc.) and hazardous waste/e-waste drop-off sites.

Illegal dumping is a major concern in disadvantaged communities, where response for clean-up is observed to be slower than more affluent areas.^{xxvi,xxvii} For example, the issue of illegal dumping complaints and response times were documented in the City of Los Angeles from 2010 to 2015 (Figure 11). In response, the City took 10 measures such as the development of a Street Conditions Observation Unit (SCOUT), a Cleanliness Rating Index, a Trash Receptacle Program, additional clean-up programs, a public engagement plan and an enforcement and compliance plan.^{xxviii}

Illegal dumping is also an issue in the Antelope Valley, where trash is illegally dumped in the desert areas. L.A. County passed Trash Responsibility Ordinance that will require Antelope Valley property owners to properly manage waste through permitted waste haulers or apply for a permit for self-hauling.

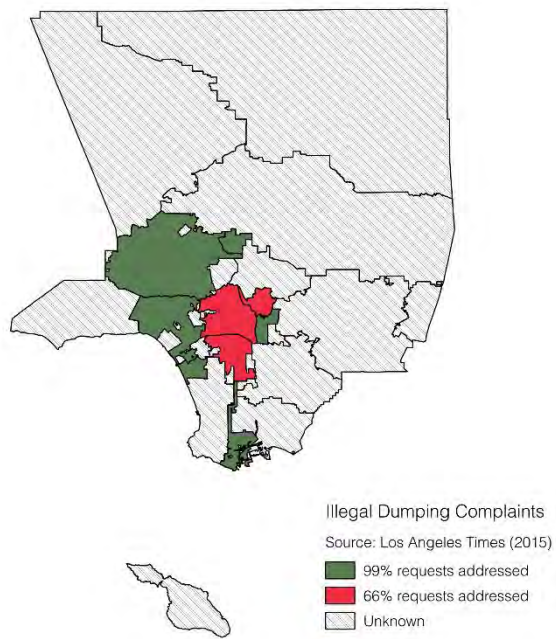


Figure 11: Illegal Dumping Complaints in City of L.A. (left) and Illegal Dumping in Antelope Valley (right)



Key Strategies for Waste and Resource Reduction

The L.A. County has adopted a Roadmap to a Sustainable Waste Management Future that covers the unincorporated areas. The waste diversion targets in the Roadmap include 80% diversion of waste from landfills from unincorporated County areas by 2025, 90% by 2035 and 95%+ by 2045. Achieving these targets will require programs to manage waste sustainably. There are some financial resources available for source reduction, recycling and waste treatment through the taxes on products, tipping fees at landfills, state and federal entities and the air quality board. A list of the number of programs by type within each jurisdiction is shown in Figure 12. There are also a number of state programs in L.A. County schools (Green Ribbon Schools Award, California Recycling Challenge, Green Schools Initiative and Go Green Initiative) to educate teachers and students about waste reduction and diversion.

Product and Disposal Bans

A useful mechanism for preventing waste generation and improving sustainability within many municipalities has been product bans and disposal bans. In 2009, L.A. County adopted the Plastic Bag Ban, an ordinance banning single-use plastic carryout bags at supermarkets, pharmacies and other stores.^{xxix} Other bans include Santa Monica's non-recyclable food service container ban (2008), Manhattan Beach's plastic straws and plastic utensils ban, Long Beach's single-use Styrofoam ban and Malibu's plastic straws, stirrers, and plastic utensils ban.

Product bans may be an important component of the County's response to China's National Sword Policy (discussed earlier in this document), which includes restrictions and bans on the import of certain recyclables.

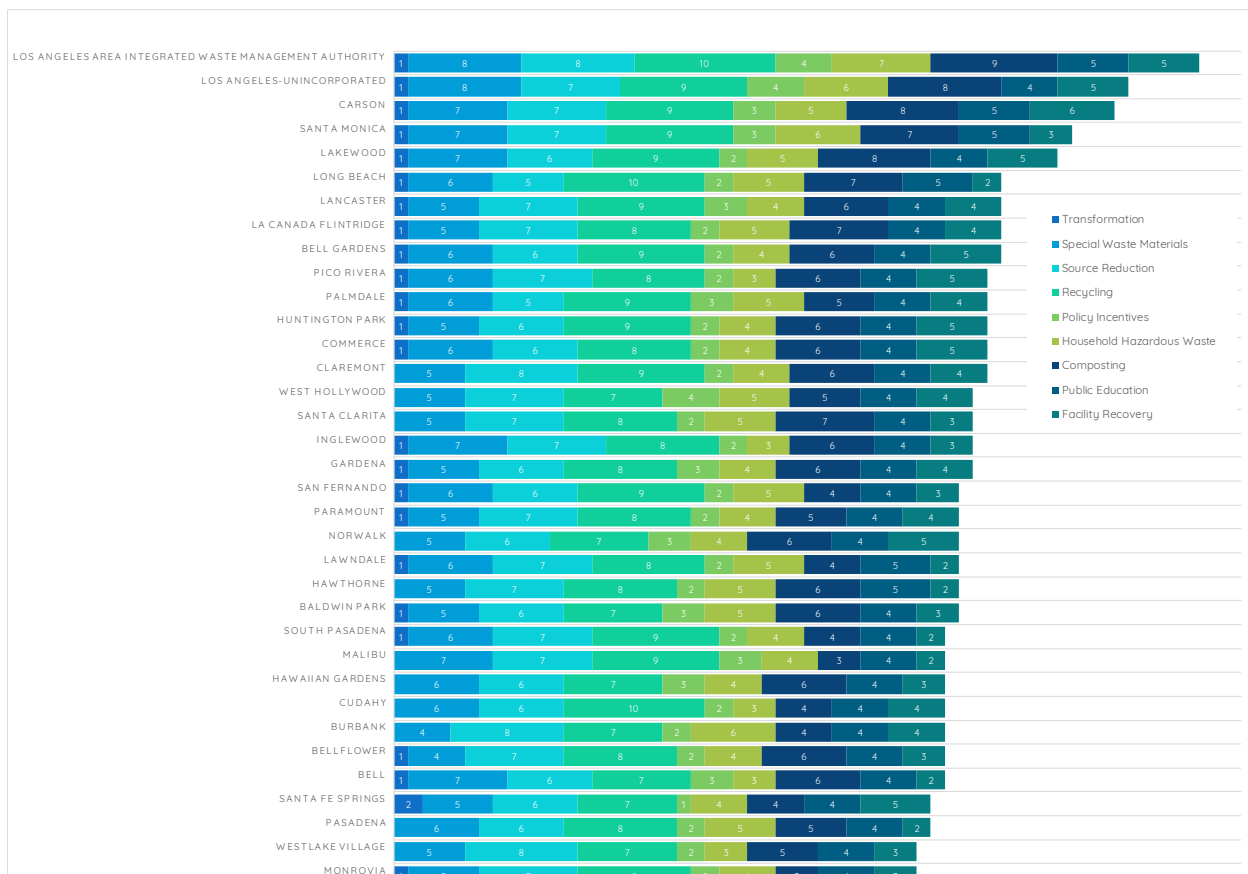
Facilitating Businesses' Use of Recycled Content

The Recycling Market Development Zone (RMDZ) program combines recycling with economic development to create and boost businesses and divert waste from landfills through technical and financial assistance and marketing to businesses of recycled content products or recycling business within the RMDZ. The program was developed by the CalRecycle as part of an ongoing effort to increase the diversion of waste going to landfills. It is a partnership between CalRecycle and local jurisdictions. This program provides business and technical assistance, product marketing, and financial assistance to businesses that manufacture a recycled-content product or process materials for recycling. Manufacturing or processing must occur within the RMDZ.

The L.A. County Materials Exchange (LACoMAX), focuses on exchange of materials between businesses and the County's Smart Business program, which aids businesses, multi-family residents and schools in trash reduction and disposal with free advice.

Organics

Many public and non-profit organizations facilitate food donation programs across L.A. County while also providing benefits to farmers, workforce development opportunities, and food for the hungry. DPW and the L.A. County Department of Public Health (DPH) (along with other stakeholders) have developed a safe donation and distribution of excess edible food program as a means to reduce food waste in the unincorporated areas, as well as help feed the hungry.^{xxx} This program will focus on food establishments in the unincorporated areas and will offer businesses education about organics recycling under AB 1826; free consultative services for safe food donation; a recognition program for participants; and a grant program to help fund food recovery infrastructure in the County.^{xxx} Additional programs such as Los Angeles County Food Redistribution Initiative (LACFRI) and LA Food Bank, provide the public with resources regarding prevention, donation and recycling of excess food, as well as supporting policies which divert food waste from landfills.^{xxxi}



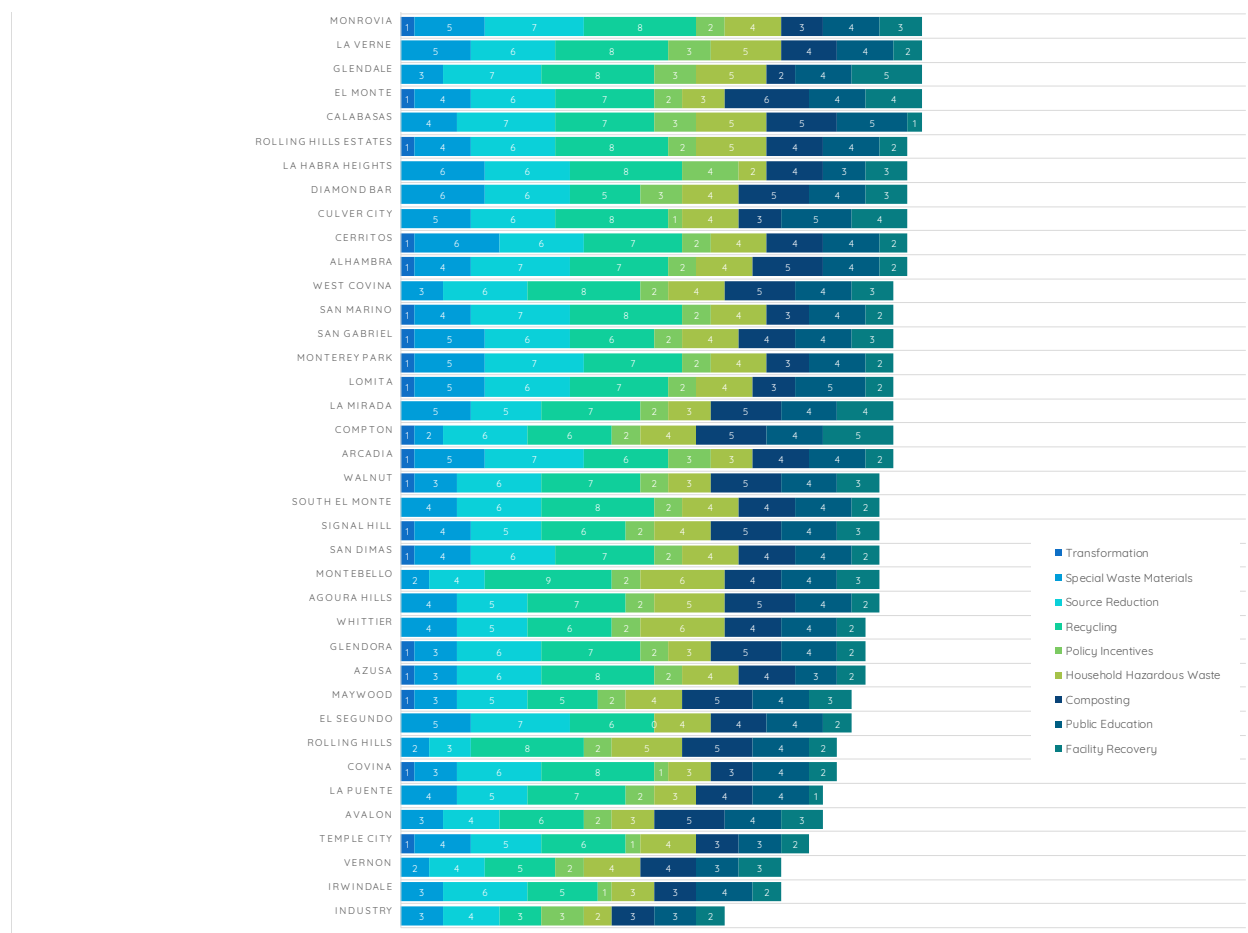


Figure 12: Number of L.A. County Diversion Programs by Jurisdiction. Bars and values signify the number of programs in place in each jurisdiction within the various categories of diversion programs shown in the legend.

Collection and Transfer of Reusable or Recyclable Materials

L.A. County has Recovery Parks or Centers where materials are dropped off for donation or buyback. These facilities allow for colocation of diversion related activities such as reusing, recycling, composting, processing, manufacturing and distribution.^{xxix} These facilities also help residents and businesses divert bulky items such as mattresses and appliances, as well as other recyclables that are not allowed on the curb. Puente Hills Material Recovery Facility operated with the intent to recover and diverts recyclables and combustible material.^{xxxii} Re-stores are also available in Bellflower, Los Angeles, and Torrance for businesses that sell used or donated surplus building materials.



Disposal and Treatment

There are a few advanced waste conversion sites located throughout L.A. County and the surrounding region to manage organic and residual waste in a more sustainable manner (compared to landfilling). CR&R Waste and Recycling Services is currently operating and expanding an Anaerobic Digestion Facility at the MRF and Transfer Station in Perris CA (Out-of-County). This facility is scaling up in four equal phases that can each process 230 tons per day of food and green waste (the first two phases are currently operating). The Joint Water Pollution Control Plant (JWPCP) in Carson, the Sanitation District's largest wastewater treatment plant, is in collaboration between the Sanitation Districts and Waste Management, a private waste management corporation. This facility is expanding from a pilot-scale to a commercial-scale facility to process 550 tons per day of food waste. The Sanitation Districts operate a DODA bio-separator at the Puente Hills Material Recovery Facility to separate contaminants from food waste and process it into a slurry to transport to JWPCP for co-digestion. The Sanitation Districts are sending biosolids to a composting facility in Barstow. . There is a significant shortage of organic waste treatment facilities in L.A. County.

Construction and Demolition Waste

The California Standards Building Code and the County Green Building Standards Code requires a minimum of 65 percent diversion for construction projects. The County Ordinance will be updated and is anticipated to require a 70 percent recycling and reuse rate, which exceeds the California Standards Building Code minimum required recycling rate of 65 percent.^{xxx}

Household Hazardous and E-Waste

L.A. County has a number of programs to reduce the amount of Hazardous and E-Waste. The Household Hazardous Waste (HHW) and Electronic Waste Collection Program, sponsored by DPW and the Sanitation Districts, provides residents a cost-free way to dispose of unwanted household chemicals such as paints, solvents, chemicals, computers, batteries, cell phones and fluorescent lights, that cannot be disposed of in the regular trash. All of the e-waste from these events is sent to facilities within California and “de-manufactured” and recycled within the country.^{xxxiii} Permanent drop-off locations include Antelope Valley Environmental Collection Center (AVECC) and EDCO Recycling and Transfer Center (EDCO). The City of Los Angeles also has a number of S.A.F.E (Solvents/Automotive/Flammables/Electronics) Centers where these materials can be dropped off.

Using strategic partnerships, the County oversees approximately 60 mobile household hazardous waste and electronic waste collection events annually engaging over 47,000 households, funds the operation of nine permanent collection centers, and provides convenient additional drop-off locations for batteries, sharps and pharmaceuticals.^{xxix}

The California Electronic Waste Recycling Act of 2003, requires a fee to be attached to electronic products. This fee pays for recycling events throughout the state. As L.A. County residents are generating more e-waste due to the number of products purchased, creating more opportunities to manage the e-waste within L.A. County. Organizations such as Homeboy Recycling, a women-business enterprise (WBE) and an employer for formerly incarcerated men and women, currently collects and recycles e-waste from some waste-haulers around L.A. County, as well as other municipalities, universities, and corporations. There are also electronic waste disposal facilities in L.A. County.

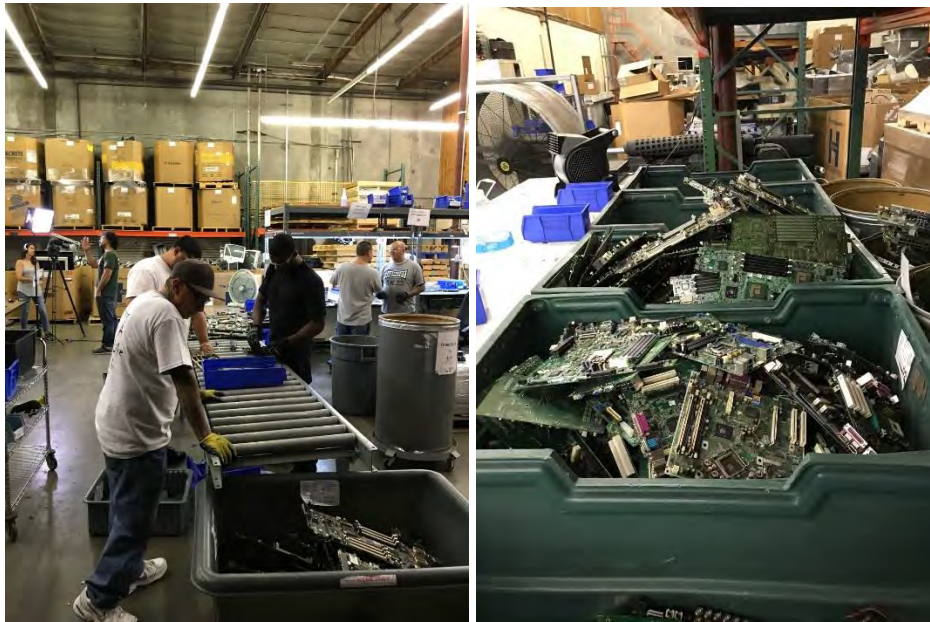


Figure 13: E-waste recycling at Homeboy Recycling in the City of Los Angeles

Product Stewardship

Manufacturers have a role to play as partners with local government to educate consumers and other businesses on alternative packaging options and to provide convenient collection options.^{xxix} Fees are already applied to specific products as part of CalRecycle's Extended Producer Responsibility (EPR) program, such as carpets, mattresses and paints.



Eliminating the disposal of unwanted **pharmaceuticals** is a major initiative across L.A. County and globally. Unwanted pharmaceuticals are often flushed or disposed in the trash bin and may enter the aquatic environment, impacting aquatic life and water sources. DPW's HHW program, "No Drugs Down the Drain", provides for the proper collection and disposal of unused, unwanted and expired medications. Medication Collection Centers including Walgreens Pharmacies, as well as unaffiliated Medication Collection Locations are located across L.A. County.^{xxxiv}

Proper management of **sharps waste** is also a major concern, due to the danger posed to custodial and sanitation workers who may come into contact with discarded needles. Manufacturers of sharps will be required to implement take-back and education programs in L.A. County as per S.B. 212 (if signed by Governor Brown).

Draft Goals, Potential Strategies and Indicators

The following are the major goals and some of the potential strategies in support of resource management and waste. While there are hundreds of possible strategies, we have focused on those that will benefit most from collaborative planning and implementation across the County. We also intend for each goal to have a focus on equity, so as to reduce disparate outcomes experienced by disadvantaged communities, particularly low-income communities of color, with respect to benefits, resources, and impacts. Additionally, waste and resource management goals and strategies must take resilience into consideration, including but not limited to the impacts of a changing climate. Economic benefits and risks are also key concerns. Please note that these goals and strategies are presented as a basis for discussion at the Waste and Resource Management workshop; we anticipate that they will be edited (including potentially removing or adding items) as a result of stakeholder input.

Definition of Key Terms

Term	Definition	Example
Organizing Principle	A core value at the heart of the plan - the “why”	Nurturing Healthy Communities
Goals	Broad, aspirational statement of what we want to achieve	Eliminate the use of and exposure to toxic substances
Strategies	Approach or approaches that we take to achieve a goal	Maximize diversion of household hazardous waste (HHW) and electronic waste (e-waste) at a regional/countywide level
Actions	Specific policy, program, or tool we take to achieve a strategy	Increase the number of
Indicators	Quantitative and qualitative measures used to assess performance	Amount of hazardous waste generated by type, by disposal method and by facility
Targets	Levels of performance that are sustainable	100% reduction from baseline year



Draft Goals and Potential Strategies

Goal A: Pave the way toward a circular economy that encourages reuse, repair, and regeneration, while minimizing waste and pollution.

Potential Strategies:

- Expand and support existing county-level programs that encourage recycling markets, and lead by expanding County operations' participation in such programs.
- Contract with local organizations that create jobs in disadvantaged communities and collect and reuse/recycle e-waste.
- Adopt producer and manufacturer responsibility requirements, and advocate for same (e.g., packaging takeback programs).
- Support local green business and marketing development.

Goal B: Eliminate the use of and exposure to toxic substances.

Potential Strategies:

- Lead a regional collaboration to create a green chemistry incubator to design products and processes that minimize the use and generation of hazardous substances, and to develop markets for such products.
- Maximize diversion of household hazardous waste (HHW) and electronic waste (e-waste) at a regional/countywide level.
- Develop more advanced waste management facilities and infrastructure in a fiscally, socially, and environmentally responsible manner.
- Develop a countywide public engagement, enforcement and compliance plan for illegal dumping.
- Advocate for additional fees for electronics and other products that may create hazardous waste or illegal dumping.

Goal C: Reduce organic waste generated across L.A. County with the target of 75% diversion of organics by 2025.

Potential Strategies:

- Require waste haulers to collect and divert organics for single and multi-family residences, commercial businesses, institutions and County facilities.
- Promote and communicate countywide food waste programs.
- Evaluate options to develop local organics diversion facilities, including neighborhood and regional composting, anaerobic digestion, chipping/grinding operations and biomass conversion facilities, to help businesses comply with AB 1826 and SB 1383.
- Site organic processing infrastructure equitably.



- Establish guidelines to ensure large-quantity food waste or green waste generators to do their own on-site composting, mulching or anaerobic digestion, where feasible.

Goal D: Accelerate a waste free future by targeting the highest priority waste streams in a comprehensive approach that includes reduction, reuse, and resource recovery.

Potential Strategies:

- Conduct regular Waste Characterization Studies (all sectors) at 5- to 10-year intervals as part of an adaptive management process, in which progress is assessed and opportunities for improved management are identified.
- Use benchmarking, goal setting, monitoring, and evaluation to measure the effectiveness of programs and services, facilities and infrastructure, and outreach and education in order to strive for continuous improvement and encourage innovation.
- Develop zero emission Conversion Technologies (CT) and Integrated Materials Recovery Facilities.
- Ensure sustainable funding and alignment of incentives with program goals.
- Develop an outline for a broad communication plan focused at the community level, based on demographics, resources, and commercial and industrial businesses in the target areas.

Goal E: Address special waste streams with broad impact on county residents and ecosystems.

Potential Strategies:

- Develop a task force to develop strategies around safe recycling practices for lead batteries.
- Develop a strategy to eliminate single use plastics
- Work with regional and state groups to develop cross-sectoral management approaches for sediment from reservoirs and debris dams.
- Revise the County's Construction & Demolition debris ordinance to increase diversion requirements.

Potential Indicators

Waste Generation Status and Trends	Total volume or tons of municipal waste disposed from in LA County (88 cities + County unincorporated)
	Annual quantity of municipal waste treated within and outside of L.A. County (tons)
	Amount of hazardous wastes generated by type, by disposal method and by facility
Special Distribution of Waste Management	Geographic distribution of recycling facilities, e-waste drop-offs, HHW drop-offs, etc.
	Locations of newly permitted waste management facilities with respect to disadvantaged communities
	Location, number, and time to resolution, of illegal dumping complaints
Regulatory Compliance	Compliance at waste management facilities with Federal and State Regulations (number and type of waste violations)
	Achievement of waste diversion goals by cities and County unincorporated areas
Waste Reduction Programs	Number and Type of Waste Programs (by cities and County unincorporated)
	Number of cities and businesses in RMDZ

Cross-Cutting Themes

Economy & Workforce Development

- In 2015, there were approximately 411,000 jobs in waste management and remediation services.^{xxxv}
- Efforts to reduce, reuse and recycle/compost waste—which can all be categorized as waste diversion efforts—can generate jobs and boost industries ranging from materials recovery, compost production and fuel/electricity production.^{xxxvi} In some of these waste management industries, such as recycling, unsafe working conditions and low wages have been reported by workers across the U.S.^{xxxvii}
- The transition to more sustainable materials and practices may foster new, innovative businesses but may have a cost premium to manufacturers in the near term.

Air Quality, Public Health & Safety

- The processes of waste management affect air pollution and public health in several ways. Landfills emit air pollutants such as hydrogen sulfide, which have been shown to cause respiratory issues such as throat and lung irritation, nausea, headaches and other ill health effects. They also emit methane, which is a precursor to ozone air pollution and a greenhouse gas. Landfills also generate SO₂ and NO_x (when flared), which contributes to the formation of acid rain, as well as trace amount of volatile organic compounds (VOCs), which contribute to ozone formation. The process of collecting, transporting, and processing waste also generates air pollutants from vehicle and industrial emissions.
- Landfills and waste management facilities tend to be concentrated in communities of color and lower income communities.^{xxxviii} Continuing to reduce waste and reliance on landfills, and ensuring that waste processing facilities operate with as minimal impacts as possible, can help reduce the disproportionate environmental impacts already borne by disadvantaged communities.^{xxxviii}

Land Use and Housing

- Landfills can adversely impact groundwater, soil quality, and the biodiversity of a region. They can also affect property values of nearby homes. Continuing to limit the expansion of landfills within the County and supporting the safe operation of existing ones can minimize the environmental and socioeconomic impacts of these sites.

Water

- Littering, such as dropping trash on the ground or out of a car window, and illegal dumping have major impacts on county surface waters. L.A. County maintains two trash nets, located at Ballona Creek and the Los Angeles River that capture approximately 200 tons of litter each year to prevent it flowing into the ocean with stormwater, yet this is just a small part of the amount that flows to beaches every year.^{xxxix}
- The Los Angeles County Flood Control District (FCD) manages a system of 162 debris basins, 36 sediment placement sites and other drainage infrastructure, which reduces the risk of floods and debris flows for downstream communities. Build-up of sediment and debris in these facilities, which is worsened by the region's wildfires, can impact the flood control system and water supply by: 1) diminishing a dam's ability to manage water flow from severe storms, potentially affecting downstream communities, 2) taking up space in a reservoir that would otherwise be used to store water, and 3) reducing the capacity of debris basins to store sediment caused by future storms.^{xi}

Transportation

- Since some residential neighborhoods and commercial areas hire private waste haulers there are instances where multiple trucks by different haulers may be on the same block at the same time.
- Diesel and natural gas solid waste collection vehicles travelled approximately 172,000 miles per day across L.A. County in 2017 generating approximately 940 tons of CO2 equivalent per day.^{xli}
- There is a growing goods movement throughout the County. Regional truck vehicle miles traveled (VMT) are estimated to increase by over 80% by 2035, relative to a 2008 baseline, growing from 6.8% of total VMT in 2008 to 10% by 2035.^{xlii} This is driven by growth in container shipping and threatens to worsen congestion on the region's highways and railways, as well as worsening the freight system's impacts on health and quality of life unless there is significant improvement in pollution control strategies.
- Many of the trucks, ships, and locomotives that are used for goods movement are powered by diesel engines which generate pollutants that affect adjacent communities, which are predominantly low-income communities of color.

Climate

- Consumption-based accounting allocates GHG emissions to the consumers of goods and services in a jurisdiction rather than the original producers. Consumption based GHG emissions therefore include emissions within and beyond a jurisdictional boundary i.e. Consumption = Production + Imports – Exports. In recent years there has been an interest and shift to focus on consumption based emissions, since high GDP nations are also the largest consumption-based GHG emission generators.



- Solid waste related emissions are predominantly from the decomposition of organics at landfills, producing methane gas (CH₄), which is either released to the atmosphere, or flared (creating CO₂ and other gases such as SO₂) and converted to energy. Reducing and managing the amount of organics, such as food, will reduce the amount of emissions generated from solid waste.
- An increase in temperatures and hot days will create a potential health risk to waste management workers, specifically those working in facilities without air conditioning and or at landfills.

Local/Regional, State, National and International Targets

Local, state and regional plans and policies have established strategies and set targets around waste and resource management. These include:

Local and Regional

L.A. County Board of Supervisors	Set goals in 2014 to divert solid waste generated in the unincorporated areas from landfills. The goals are 80% diversion by 2025; 90% by 2035; and 95% or more by 2045.
L.A. County Construction and Demolition (C&D) Debris Recycling and Reuse Ordinance	Required construction and demolition projects in unincorporated areas to requires projects in the unincorporated areas to recycle or reuse 50 percent of the debris generated.
Los Angeles Sustainable City pLAn	Increase landfill diversion rate to 90% by 2025 and to 95% by 2035. Between 2013 and 2014, L.A. diverted 76.4% of waste from landfills.
Los Angeles Sustainable City pLAn	By 2035, reuse or recycle over 50% of waste within L.A. County, with an emphasis on organic waste and key recyclables. Target for 2025 is 25%.
Los Angeles Sustainable City pLAn	Increase construction and demolition waste recycling requirements beyond current 65%.
San Francisco Commission on the Environment	In 2003, the Commission set the goal of zero waste by 2020.
City of Santa Monica	The Zero Waste Strategic Operations Plan provides a roadmap for achieving 95% diversion by 2030.
The City of Pasadena	In 2014, the city outlined a plan to accomplish a minimum of 87% diversion by 2040. ^{xliii}

State

AB 939 (Sher, 1989)	The California Integrated Waste Management Act. Requires each jurisdiction in California to divert at least 50% of its waste away from landfills, whether through waste reduction, recycling or other means.
AB 341 (Chesbro, 2011)	Sets a policy that no less than 75% of solid waste generated be source reduced, recycled, or composted by the year 2020.
Greenhouse Gas Reduction Fund (Cal. PRC § 42999)	Requires the Department of Resources Recycling and Recovery to administer a grant program to provide financial assistance to reduce the emissions of greenhouse gases by promoting in-state development of infrastructure, food waste prevention, or other projects to reduce organic waste or process organic and other recyclable materials into new, value-added products.
AB 845 (Ma, 2012)	Prohibits city or county ordinances from restricting or limiting the importation of solid waste into a privately owned solid waste facility in that city or county based on place of origin.
AB 1826 (Chesbro, 2014)	Requires businesses to recycle their organic waste based on the amount and type of waste the business produces on a weekly basis. It went into effect in April 2016 and full implementation will be realized in 2019. Dates and requirements are below: <ul style="list-style-type: none"> 4/1/2016: Businesses that generate 8 cubic yards of organic waste per week shall arrange for organic waste recycling services. 1/1/2017: Businesses that generate 4 cubic yards of organic waste per week shall arrange for organic waste recycling services. 1/1/2019: Businesses that generate 4 cubic yards or more of commercial solid waste per week shall arrange for organic waste recycling services.
AB 1594 (Williams, 2014)	Existing law requires the source reduction and recycling element of integrated waste management plans to divert from disposal 50% of all solid waste subject through source reduction, recycling, and composting activities. This bill specifies that green material (i.e., yard trimmings and untreated wood wastes) used as alternative daily cover (ADC) at a landfill does not constitute diversion and shall instead be considered disposal beginning in 2020.
AB 876 (McCarty, 2015)	<ul style="list-style-type: none"> Requires local governments to include organic waste recycling facilities in existing planning requirements for countywide solid waste management.
AB 901 (Gordon, 2015)	New Reporting Requirements for Recyclers, Composters, and Solid Waste

	Facilities. Facilitates the State’s 75% Recycling Goal by identifying and supporting recycling market trends and infrastructure; Update and Streamline Procedures by leveraging technology to improve efficiency and accuracy and requiring direct, online reporting to CalRecycle, not to Counties; and improvement of data quality by expanding reporting facilities including recyclers, composters, exporters, brokers, and increasing enforcement actions
Executive Order B-32-15	Directed State departments to create the California Sustainable Freight Action Plan, “that establishes clear targets to improve freight efficiency, transition to zero-emission technologies, and increase competitiveness of California’s freight system.
SB 1383 (Lara, Chapter 395, Statutes of 2016)	Short-Lived Climate Pollutants (SLCP): Organic Waste Methane Emissions Reductions. State methane emissions reduction goals shall include the following targets to reduce the landfill disposal of organics: a 50% reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020; and a 75%percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2025. Also requires, that not less than 20 percent of edible food that is currently disposed of is recovered for human consumption by 2025.

National and International Targets

C40 Zero Waste Declaration	A number of C40 Cities (Auckland, Catalonia, Copenhagen, Dubai, London, Milan, Montreal, Navarra, New York City, Newburyport, Paris, Philadelphia, Portland, Rotterdam, San Jose, Santa Monica, Sydney, Tel Aviv, Tokyo, Toronto, Vancouver and Washington D.C) have made a commitment to reduce municipal solid waste generation per capita by at least 15% by 2030 compared to 2015; and reduce the municipal solid waste disposed to landfill and incineration by at least 50% by 2030 compared to 2015, and increase the diversion rate away from landfill and incineration to at least 70% by 2030. ^{xliv}
U.S. Plastics Resin Producers Circular Economy Goals	U.S. Plastics Resin Producers Set Circular Economy Goals to Recycle or Recover 100% of Plastic Packaging by 2040, this includes: <ul style="list-style-type: none"> • 100% of plastics packaging is re-used, recycled or recovered by 2040. • 100% of plastics packaging is recyclable or recoverable by 2030. • 100% of the U.S. manufacturing sites operated by ACC’s Plastics Division members will participate in Operation Clean Sweep-blue by 2020, with all of their manufacturing sites across North America involved by 2022. ^{xlv}

2020 Circular Fashion System Commitment

The signatories have set their individual targets for 2020 with the minimum requirement of setting a target within one or more of the four action points. Signatories have set 206 targets, distributed between the four action points: circular design, collection, reuse and recycling.^{xlvi}

Endnotes

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