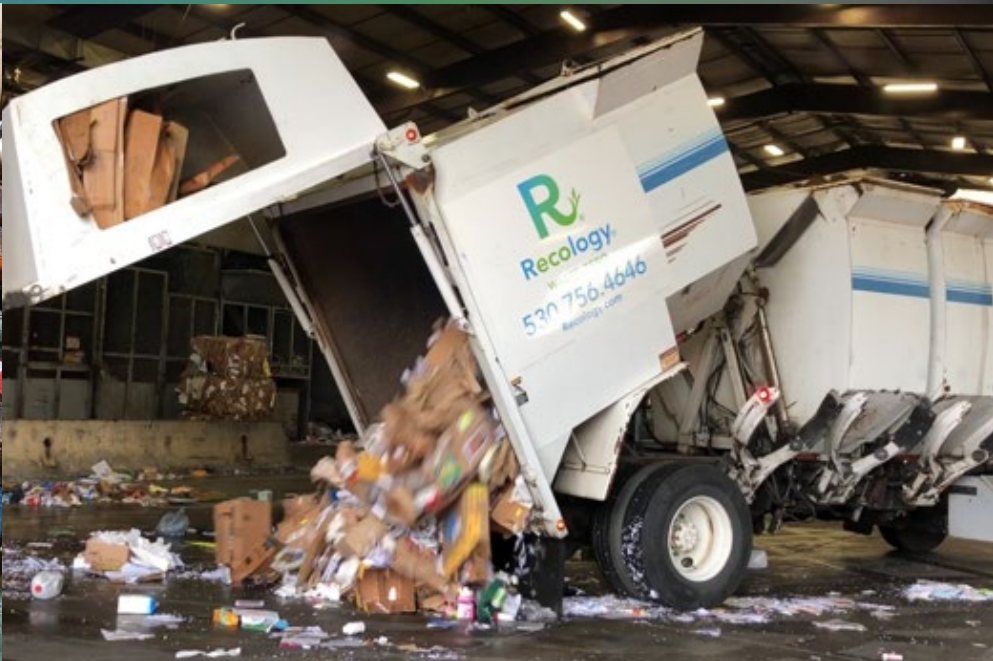




SOLID WASTE UTILITY 101



Public Works Utilities and Operations
DavisRecycling.org
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@GreenerDavis



What is Solid Waste?

Solid waste is an all-encompassing term that includes trash, recyclables, organics and all forms of non-liquid waste.

The Solid Waste Program

The City's solid waste program serves businesses, multi-family properties and single-family customers in Davis' 10.5 square mile service area and includes the collection of organics, recycling and trash. The collection of solid waste is carefully regulated by the State for human and environmental health and safety purposes. Managing waste is necessary in order to ensure healthy communities. Solid waste management has changed drastically over the past 30 years by viewing waste as a *resource* rather than just trash.

What Makes Davis Different: Dual-Stream Recycling

Davis has a dual-stream recycling system: paper is collected separately from "comingled" recyclables (glass, metals and plastic). This preserves the quality of the paper, as it does not get dirty from liquids often found in used containers. Recology's recycling trucks are all divided, so paper goes into one compartment of the truck, while the comingled recyclables go into a different compartment.



By the Tons

In an average year, Davis residents and businesses produce:

6,700 tons of paper, cardboard, glass, plastic and metal recyclables

12,500 tons of organics (yard waste, food scraps, etc.)

20,600 tons of trash

All combined, that's enough waste to fill **85 Olympic-sized swimming pools** each year.

Ahead of the Curve

Recycling in Davis started in April 1970, when a small group of environmentally-minded citizens began a newspaper drop-off recycling program. Curbside recycling of newspapers started just 4 years later, one of the first curbside recycling programs in the nation. In 2016, based on the City's Integrated Waste Management Plan, the City instituted a city-wide organics collection program for all solid waste customers, one of only a few jurisdictions in California to make the program mandatory.



Did You Know: In the past 20 years, Davis recycled more than 224,800 tons of paper, glass, aluminum and cardboard. That's about a quarter of the weight of the Golden Gate bridge!



Recology Davis

The City has an exclusive franchise waste agreement with Recology Davis to collect trash, recyclables, organics and on-street yard material piles and perform street sweeping within the city limits. The contract runs until the end of 2027.



A Materials Recovery Facility (MRF) is a place where waste is sorted out by type for processing.

Recology Davis Recycling Center

Recology Davis administration office, material recovery facility and recycling center is located at 2727 2nd Street in Davis. The recycling center offers 24/7 drop-off recycling for:

- Paper
- Plastics
- Cardboard
- Aluminum
- Metal Cans
- Scrap metal
- Used motor oil
- Motor oil filters

Recology Davis operates a Buy Back Center onsite as well, where customers can redeem their CRV containers. Recology accepts mattresses and box springs for free recycling and used sharps for free and safe disposal during buyback hours.

Bulky Items Voucher

Recology offers a Bulky Items Landfill Voucher each year for residents to get rid of bulky items for free. This program ensures that all possible materials are recycled or reused.



Material Recovery Facility

At the material recovery facility (MRF), all the recyclables collected by Recology Davis are hand sorted by material type, then baled for sale to recycling brokers.



Did You Know:

California banned sharps waste, such as used needles and lancets, from the trash in order to protect workers from accidental needle sticks. Unfortunately, Recology staff still regularly find needles in the recyclables they hand sort.

Carts, Collection, and Containers... oh my!

Single-Family Collection Service

Curbside collection occurs once a week and includes:

- Trash cart
- Split-recycling cart
- Organic waste cart
- Loose cardboard pick-up

Trash and organic waste carts come in small (32 to 35-gallon size), medium (64-65-gallon) and large (95-96-gallon) sizes. Recycling carts only come in 64-gallon size.



The Colors, They Are a-Changing!

All new carts and bins purchased by Recology match the colors required by statewide law under SB 1383:

- paper recycling = dark blue
- organics = green
- comingle recycling = light blue
- trash = grey

New commercial and multi-family carts are solid-colored to make identification and waste sorting as easy as possible.



All new single-family carts are grey with lid in either dark blue, light blue, green or grey.

While all new carts will match the State-required color scheme, existing carts may still be used until replacement is necessary.



Kitchen Food Scrap Pails

Kitchen food scrap pails were delivered to the front door of each single-family home in Davis in 2016 and were given to multi-family property managers that requested them for their tenants. The City continues to give out pails upon request.

Commercial and Multi-Family Collection Service

Apartments, condos and other multi-family properties receive communal waste collection service. Along with other commercial customers, they have at least one organics cart and two different kinds of recycling carts: one for mixed paper and one for plastic, glass and metal containers. Cardboard is flattened and stacked on the ground for pick-up next to the recycling carts. Some businesses have a bin for cardboard. Either large carts or dumpsters are used for trash.



On-Street Yard Material Collection And Street Sweeping

On-Street Yard Material Collection

In addition to the weekly collection opportunities in the organics cart, seasonal on-street yard material pile collection is offered in most areas of Davis for excess yard materials that do not fit in the organics carts. During the seasonal collection, Recology will collect piles of leaves and tree prunings with a rear-loader truck and "the Claw."

Seasonal collection includes 10 scheduled fall/winter collections that occur every other week (from mid-October to February) and one spring collection.

There are challenges to collecting material loose on the street. Storms can impact yard material collection by increasing the amount of materials placed in on-street yard material piles or by wind and rain moving piles, leaves and debris around streets and sidewalks. In recent years, the City has experienced more frequent storm events, contributing to an unpredictable level of material being placed in the street during the winter months.



"The Claw"

On-street yard material pile collection is intended for excess leaves and tree prunings that do not fit in the organics cart. But even the Claw has its limitations! Piles should never be more than 5 feet in any direction. Why? That's the max amount that the loader can collect at one time.



CNN US Crime + Justice Energy + Environment Extreme Weather Space + Science

California city hit by series of weird weather events, including tornado and hail

[CNN.com: September 29, 2019](https://www.cnn.com/2019/09/29/us/california-weather-tornado-hail/index.html)

Street Sweeping

Recology performs street sweeping once a month in most areas of town (the downtown area bordered by 5th Street, B Street, 1st Street and the railroad tracks, is swept every Friday).



Did You Know: In most areas of town, the City does not require cars to be moved out of the street when sweeping occurs. This can be a challenge for street sweeping effectiveness as the sweeper cannot access the curb and gutter where waste and debris tend to accumulate.





Trash

Where does it all go?

Davis, West Sacramento, Woodland and Winters have waste flow agreements with Yolo County. Under the terms of these agreements, all trash collected by the cities' waste haulers must go to the **Yolo County Central Landfill** to be buried. These agreements give the cities a discounted per ton rate for trash as well as a free household hazardous waste drop-off program at the landfill for their residents.

Yolo County Central Landfill: So Much More than a "Dump"

Operated by the County Integrated Waste Management Division, the Yolo County Central Landfill is more than a dumping ground for trash. It's a multi-use resource recovery facility. Not only does the landfill have carefully engineered landfill cells to safely bury trash and ensure the protection of groundwater, they also have a state of the art organics processing facility, a mixed construction and demolition debris recycling facility, a hazardous waste facility, a reuse thrift store, wood reuse program, recycling programs for a multitude of items from electrics to cardboard and more.



Recycling

Where does it all go?

The Materials Recovery Facility

All the recyclables that are collected by Recology are brought to their materials recovery facility (MRF) on Second Street in Davis for sorting. When the trucks get to the MRF, the comingled recyclables are emptied into one pile outside the sorting building, while the paper is emptied into a large pile inside the building. Tractors move the recyclables onto conveyor belts for sorting.



Hand Sorting

There are two sorting lines at the MRF—one for paper and one for comingled recyclables. Recology workers sort out recyclables by hand while also pulling out trash.

93-95% of all the material received at the MRF is recyclable. There is only 5-7% trash, which is a huge testament to how well residents and businesses in Davis sort their waste!



Baled Recyclables

Once the recyclables are sorted by type, they are run through a baler to compress them into easily transportable bales (except for the glass, which is kept in large bins). The bales are then sold to recycling brokers.



Did You Know: While most MRFs use a combination of hand-sorting and mechanical equipment that can include air blowers, sieves, magnets and optical sorting machinery, the Recology MRF in Davis uses only magnets and a line of workers that hand-sort recyclables into separate bunkers.



Organics

Where does it all go?

All the materials collected from the organics carts and the on-street yard material piles are collected by Recology and brought to a composting facility at the Yolo County Central Landfill where they are turned into compost. An audit performed in 2024 showed that organics collected in Davis contained 99.65% organic waste materials with only 0.45% non-organic materials (by weight). That's very clean material by industry standards!



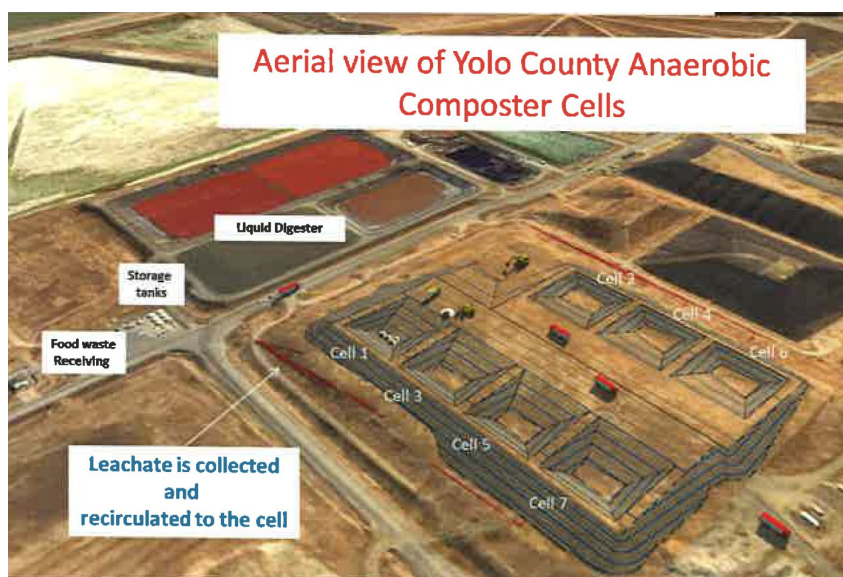
What are organics?

When talking about solid waste, organics are not only what you find in the organic produce section of a grocery store. The term *organic waste* also refers to anything that comes from plants or animals, including food waste, food-soiled paper and yard material that can be composted.



Yolo County Landfill Composting Facilities

The landfill staff and their contractor run the County's multiple composting facilities. When organic materials arrive at the composting facilities, they go through a screening process where workers sort through them by hand to remove non-compostable materials. Then the organic waste is placed through a grinder and moved into composting systems. The County has an **anaerobic digester**, where anerobic bacteria break down the organics to create biogas and compost. The biogas is fed into an energy generation facility onsite and the compost is dug out of the cell after 6 months and sent to the **aerobic composting facility** for further processing. In addition to taking the material that comes out of the digester, the aerobic composting facility also takes other organic materials. The County Landfill also has a **liquid digester** and **depackager** onsite so that they can accept canned and packaged food wastes for digestion.



What's Next For Organics?

Since January 2022, the City has focused on improving the organics collection program due to State regulations (see page 13 for details). As part of these regulations, the City is looking into short and long term plans for what more we could be doing with our organics.



Hazardous Wastes

Under California state law, certain materials, known as **hazardous waste** are not allowed to be thrown out in everyday garbage. Types of HHW include: motor oil, latex or oil based paints, solvents, household cleaners, pesticides, herbicides and poisons.

Household Hazardous Waste

Yolo County provides free household hazardous waste (HHW) disposal to Yolo County residents every Friday and Saturday from 7:30 a.m. to 3:30 p.m. at the Permanent Household Hazardous Waste Facility at the Yolo County Central Landfill. **The University of California, Davis** separately funds their own HHW collection program, so residents of the University can't bring their HHW materials to the county HHW facility. **Business hazardous waste** is accepted for a fee at the Yolo Landfill hazardous waste facility by appointment.

Universal Waste

California state law defines products that contain mercury, lead, cadmium and other toxic substances as "**universal waste**". These items also can't be thrown in the household trash or disposed of in landfills. Examples of universal waste include batteries, fluorescent tubes and many electronic devices. Universal wastes are accepted at the County Household Hazardous Waste facility and local options for safe disposal in Davis are also available.

Batteries

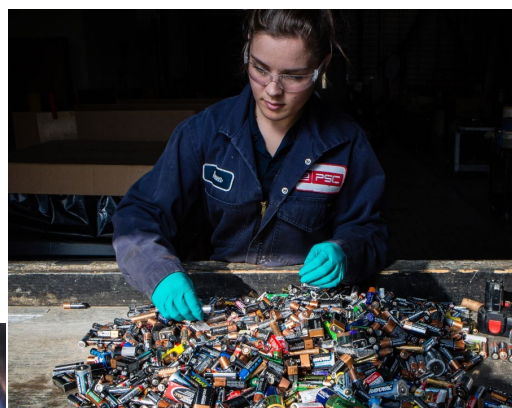
Yolo County cities have an agreement with the County to host collection sites for household batteries at various locations. A number of retail stores have collection buckets for household batteries. These sites are visited once per month by County staff to collect the wastes for safe disposal through their hazardous waste facility.

Electronics

The Yolo landfill offers free electronic waste recycling for residents (businesses can recycle them for a fee) during their normal operating hours.

Fluorescent Bulbs and Tubes

In addition to the free disposal at the County Household Hazardous Waste facility, some large retail stores in Yolo County also collect fluorescents from the public for free.



Did You Know:

Medications are not banned from the trash in California, but concerns over water quality and public health and safety (drug abuse and accidental poisoning) has prompted the State to require the pharmaceutical industry to create a safe take-back program for medications and used sharps (which are banned from the trash). See Med-Project.org for details.



Solid Waste Diversion Programs

Education and Outreach

The City of Davis Solid Waste Diversion programs focus on outreach and education for the City's residential, multi-family and commercial solid waste customers, in addition to regulatory reporting and program implementation.

Education and outreach programs engaged by the solid waste program includes the following:

- Online video games to increase knowledge of waste sorting
- Videos on waste sorting and composting
- Staff-led classes on composting
- Annual outreach to multi-family residents
- Annual summer move-out waste reduction program for multi-family properties
- Community presentations
- Wide variety of fliers, bin labels, posters and other resources, available in hard copy and/or electronic forms on DavisRecycling.org



Solid Waste Program Staffing

Unlike the City's other utilities, the Solid Waste program is not it's own division, rather the program and management of the franchise contract is within the Environmental Resources Division of the Public Works Utilities and Operations Department.

Staffing for the City's Solid Waste Program consists of:

- A full time Conservation Coordinator focused on solid waste program development, implementation, outreach and coordination with Recology staff
- PW Deputy Director who manages the contract with the City's franchise waste hauler
- Environmental Resources Manager who oversees enforcement
- Environmental Program Specialist who enforces the solid waste portions (Chapter 32) of the Davis Municipal Code



Solid Waste Rates

Current Rate Structure

All properties within the City are required to subscribe to the solid waste services provided by Recology. The City collects solid waste service fees from customers and uses the revenues to pay Recology for the solid waste services provided, to fund outreach programs and cover the operational and administrative costs of providing these services, including billing and collection of the service fees.

Solid Waste Utility Billing

The solid waste service charges to customers are divided into two categories: Single-Family Residential and Commercial/Multi-Family Residential.

Solid waste service charges include the following:

- 1) Weekly pick-up of garbage, recycling and organic waste
- 2) Seasonal on-street collection of yard material piles
- 3) Street sweeping
- 4) Bulky items program for residents
- 5) Residential hazardous waste disposal programs
- 6) Various other waste reduction and recycling outreach and programs



Service Changes : Who to Call

Single-Family Accounts:

Property owners should contact the City's Finance Department at 530-57-5651 to request a different sized trash cart. If they want to change their organics cart size, they need to contact Recology Davis at 530-756-4646.

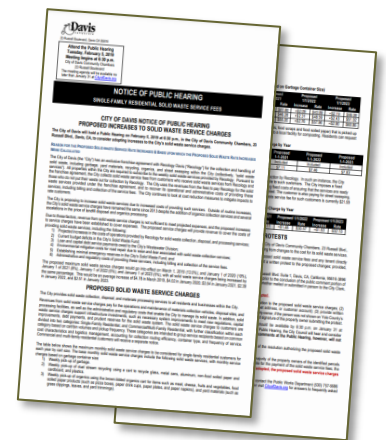
Commercial and Multi-Family Accounts:

Property owners/managers need to contact Recology Davis to make any changes to their solid waste collection services.

Rate Studies and Proposition 218

The City aims to perform solid waste rate studies every 5 years to ensure the continued fiscal sustainability of the Solid Waste utility. Solid waste rates are subject to the rules of Proposition 218 (passed by California voters in 1996) and therefore must follow a very strict and thorough public process prior to approval.

The studies are conducted by third-party consultants, in collaboration with staff and City commissions. In addition to the rate studies, each year there is a review of the state of the Solid Waste fund and upcoming regulatory changes that may impact the cost of providing services.



Incentivizing Waste Diversion

Solid waste service fees are based on the size of the garbage service. Recycling service is unlimited and available at no additional cost. Basic organics service (one organics cart) is available at no additional cost. Additional organics carts or more frequent pick-ups are available for an additional cost. Customers can pay lower garbage service rates if they downsize their garbage service and recycle more.



Waste Diversion Requirements

There are a number of State laws that govern solid waste collection and diversion programs. Some of the key waste diversion regulations are listed below and detailed on the following page.

AB 939: Integrated Waste Management Act

This landmark 1989 law set forth aggressive solid waste diversion requirements: each city and county must divert a minimum of 25% of its waste from the landfill by 1995 and 50% by 2000.

AB 341: Mandatory Commercial Recycling

Requires all businesses that generate 4 or more cubic yards of waste each week and all multi-family properties with 5 or more units to have recycling service.

AB 1826: Mandatory Commercial Organics Recycling

Requires businesses that generate 2 cubic yards or more of waste per week to recycle their organic waste.

AB 872: Customer Access to Recycling

Applies only to businesses that are subject to the requirements of AB 341 and AB 1826 *and* provide or sell products meant for immediate consumption. These businesses must provide organics and recycling containers that are visible, easily accessible and clearly marked, at the front-of-house to collect waste generated from products purchased and consumed on the premises.

SB 1383: Short-lived Climate Pollutants

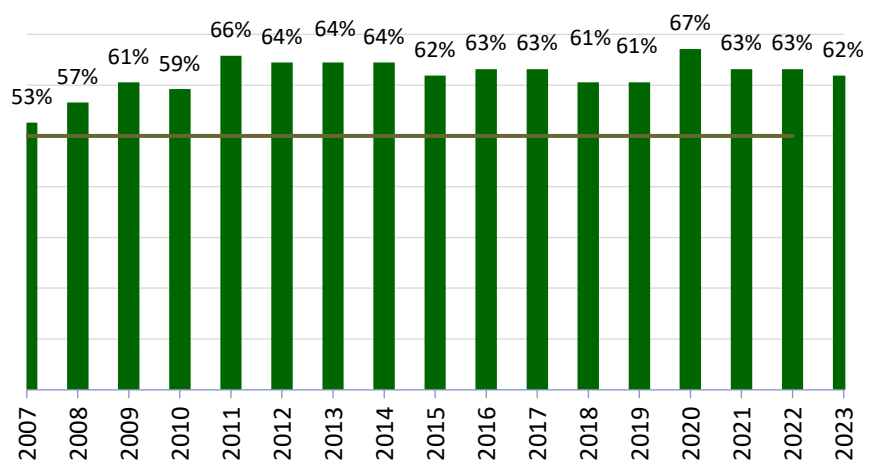
This groundbreaking legislation has led to the most extensive changes to the solid waste industry in California since AB 939. Details are included on the next page.

Free Signs & Posters



The City provides free indoor recycling bins, waste bin signage and other supplies to businesses to help make it easier for them to sort their waste and meet the State requirements.

City of Davis Diversion Rate



Did You Know: Davis Municipal Code 32.01.065 requires that recyclables and organic materials be separated from the trash and placed into the correct bins for collection.

SB 1383

Short-Lived Climate Pollutants

CalRecycle Organics Regulations

The California Department of Resources, Recycling and Recovery (CalRecycle) has the responsibility for enforcing Senate Bill 1383 Short-Lived Climate Pollutants (a.k.a. SB 1383), a methane-emission reduction law. Since studies have shown that 20% of the State's methane emissions come from organic waste decomposing in landfills, the laws enacted under SB 1383 create rules to keep organic waste out of landfills, aiming to slow climate change by reducing methane emissions. These extensive regulations went into effect January 2022 and mean significant changes in Davis and throughout California. SB 1383 establishes targets to achieve a 75 percent statewide reduction in the disposal of organic waste to landfills by 2025. It also establishes an additional target that (at minimum) 20 percent of currently disposed edible food be recovered for human consumption by 2025.

SB 1383 regulations include specific requirements for:

- Collection and processing of organics materials
- Outreach specifications
- Waste bin color, labeling and placement requirements
- Waste bin contamination monitoring for businesses and of all hauler collection routes
- Enforcement penalties for businesses and jurisdictions
- Edible food recovery programs
- Procurement of organic waste products
- Long-term planning for organic waste processing and edible food recovery capacity
- Education and outreach requirements for businesses and jurisdictions
- Detailed recordkeeping of required activities



The City of Davis and SB 1383

There are many aspects of the regulations that the City already had in place prior to the SB 1383 regulations, such as a mandatory organics program and compliant ordinance language for construction and demolition debris.

In December 2021, a SB 1383 Implementation Plan was reviewed and approved by City Council, along with updates to the City's Municipal Code to ensure compliance with the regulations. Staff continue to work on various program updates as outlined in the Implementation Plan and are working with representatives from the County and other jurisdictions on edible food recovery programs.



Recycling Market Challenges



Recyclables From Davis Are Not Landfilled

The export of recyclable materials is a key component of California's recycling infrastructure. California exports about a third of the recyclable material it collects. Most of that material used to go China for processing and manufacturing into new products, but China's recent strict contamination limits and import bans have led to the stockpiling of some recyclable materials at California solid waste and recycling facilities due to the declining global market value for certain recyclables.

Despite the challenges in the global recycling market, recyclables collected in Davis are still able to make it to recycling processors. While securing markets for recyclables has become more difficult for the industry as a whole, this difficulty has mostly been due to contamination in recyclable materials.

In Davis specifically, the dual-stream collection system that keeps materials clean during the collection process, an environmentally minded community that sorts their waste properly and hand sorting of recyclables at the MRF results in pristine bales of recyclables (no trash or other contaminants within). As a result, the Recology corporate sales team has recovered recycling markets that were lost when China exited the market.

What About Plastics?

Some plastics from the Recology MRF stay in the US while others go to South East Asia to be recycled.

In response to concerns voiced in the media about the recycling markets in South East Asia, a Recology team representative visited all of the plastic processing facilities used by Recology in June 2019, to verify that the material Recology sent to them was recycled responsibly. They came back with a wealth of information about the recycling process in Indonesia, Malaysia, Hong Kong and Vietnam and confirmed that all of the processors are recycling every possible material they can and are doing so without polluting the communities in which they operate.

The Davis City Council passed a resolution in 2019 to support statewide efforts to address single-use plastics and the lack of recycling markets. The Corporate head of Recology has also been an active proponent of reforming the plastics industry and finding comprehensive solutions to getting single-use plastics out of the landfill.



Did You Know: The only modification to recycling practices in Davis in recent years was the request that customers rinse their containers before recycling, in case baled materials sit in the warehouse longer than usual before they ship out.



Building a Resilient Utility

Waste and Climate Change

Municipal solid waste (MSW) landfills are the third-largest source of human-related methane emissions in the United States, accounting for approximately 15.1 percent of these emissions in 2018.

Recycling helps reduce greenhouse gas emissions by reducing energy consumption. Using recycled materials to make new products reduces the need for virgin materials, avoiding greenhouse gas emissions from extracting or mining virgin materials. In addition, manufacturing products from recycled materials typically requires less energy than making products from virgin materials.

Waste prevention and smart shopping are effective at reducing greenhouse gas emissions that result from energy consumption. When we buy less, reuse products and purchase recycled-content products, less energy is needed to extract, transport and process materials to manufacture products. For example, purchasing recycled-content paper, reduces energy consumption and allows more trees to remain standing, where they can continue to remove carbon dioxide from the atmosphere.



Did You Know: Recology produces an annual sustainability report and posts it to their website every January. The City's agreement with Recology specifies that all front line vehicles must be CNG by 2025.

Reduce  then Recycle 

You hold the power to enact the necessary change.

Yes, you! While work is being done to address what happens with trash, organics or recycling processing, so much of the work in addressing the climate and environmental impacts of these materials lies in the actions of all of us. Preventing waste from reaching disposal by purchasing reusable products and recycling and composting as much as possible can have a huge impact.



Adapted from U.S. EPA (www.epa.gov/wastes/nonhaz/municipal/pubs/ghg/cl/mfold.pdf)



Building a Resilient Utility

Several on-going efforts are underway at the City, as staff are working to address current and potential impacts on services and infrastructure necessary for solid waste programs.

Development Reviews

Anytime a there is a proposal for a new building, a new development, or significant renovations to existing buildings are planned for a new business, City staff carefully review the plans for congruency with the City’s General Plan, Municipal Code and other potential impacts before the plans are approved. Part of that review process includes a close look to ensure that the proposal has sufficient space allotted for enough recycling and organics bins to divert at least 75% of their waste. This is an essential component of planning for the future to ensure that all new businesses, apartments and homes have enough space set aside for recycling and organics bins instead of just trash.

Construction and Demolition Waste

The City of Davis has adopted Tier 1 of the California Green Building Standards Code (CALGreen), which encompasses a number of measures intended to conserve resources and reduce greenhouse gas emissions. Through CalGreen, the City requires construction and demolition projects to divert 100% of their land-clearing debris (soil, dirt, rock, concrete, yard materials, trees, etc.) and at least 65% of all other waste debris (including metals, gypsum, wallboard, lumber, etc.) for recycling or reuse. To ensure that all building projects are meeting these diversion targets, the City requires Waste Diversion Plans to be filled out by customers when they apply for a building permit and a Waste Diversion Report must be completed before a building permit is finalized.



Looking to the Future

Solid Waste Program staff watch for new and developing solid waste legislation changes, industry standards and issues of concern and track their development. The waste industry as a whole is constantly changing to adapt and adjust to the changing economy, product trends and environmental regulations. One example of this is the shift in recent years to online purchasing. This has created a significant increase of cardboard in the waste stream—2,400 tons of cardboard was collected in 2019 compared to only 900 tons in 1991. These changes alter the way that the solid waste program communicates to customers about recycling.



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