

# Composting Organic Waste in Santa Cruz County: Time for a Regional Solution

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## Summary

Santa Cruz County is running out of landfill space.<sup>[1]</sup> Despite residents' commendable efforts to divert waste from the landfills by reducing, reusing, and recycling,<sup>[Appendix.B]</sup> the county's current landfills are finite and there is no room for expansion.<sup>[Appendix.F]</sup>

The final component of the solid waste stream that remains to be diverted is organic waste, especially food waste.<sup>[Appendix.D]</sup> In recent years, the State Legislature has passed laws, with requirements phasing in over time, that require organic waste to be diverted from the landfills.<sup>[Appendix.E]</sup>

The Grand Jury found that the cities and county of Santa Cruz are in compliance with current state laws requiring diversion of recyclable material from the landfills.<sup>[Appendix.H]</sup> However, new laws mandating the recycling of organic waste will require significant investment in a large-scale composting infrastructure and outreach to residential and commercial customers. These new laws are beginning to force changes to solid waste policies at the city and county level.

While the county currently uses the Monterey Regional Waste Management District facility in Marina for its pilot composting project, dependence on an out-of-county facility with limited capacity is not a viable long-term solution. The county and the city of Santa Cruz are making plans to build composting facilities for organics that may or may not serve the local municipalities. Successful implementation of an organic waste recycling infrastructure will require regional cooperation among all the county public works agencies.

The Grand Jury recommends that:

- The cities and county of Santa Cruz form a regional agency to develop and use a large-scale organic waste composting system in the county.
- The current pilot programs for commercial composting be expanded to serve businesses within all county jurisdictions.
- The cities and county of Santa Cruz inform the public about the regional organics initiative and its impact on businesses and residents.

This report will inform citizens of the county's progress toward the management of organic waste, and encourage them to engage in discussions with their local governments on the creation and implementation of effective and sustainable organic waste management practices.

## Background

A 2003/2004 Grand Jury investigation of the agencies that manage recycling in Santa Cruz County recommended efforts to promote recycling.<sup>[1]</sup> That report expressed concern (and the county agreed) that the remaining life of the county's Buena Vista Landfill was then about 15 years, requiring a new landfill to be built. It also recommended more regional cooperation among the cities, county and other agencies involved in recycling.

Since then, the county and cities have adopted "Zero Waste" resolutions,<sup>[2]</sup> banned many common recyclables from the landfills,<sup>[3][4]</sup> and hired consultants to research and propose appropriate steps toward "Zero Waste".<sup>[2][5]</sup> Recycling is now common practice in Santa Cruz County, and progress has been made on extending the remaining life of the landfills. However, compostable food waste is not yet allowed as part of "green cart" organic recycling.

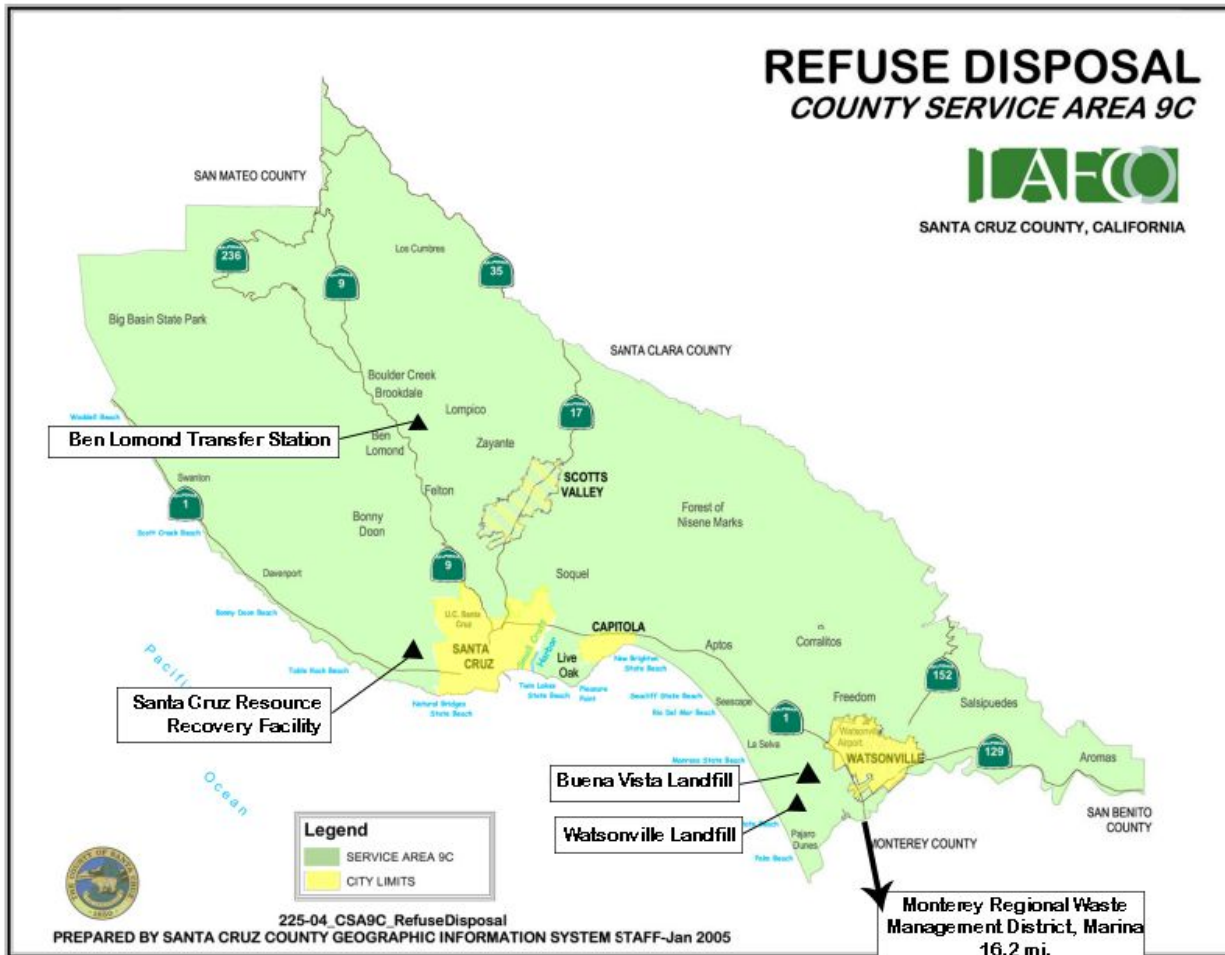
The Grand Jury chose to focus on **organic solid waste** (food waste, green waste, landscape and pruning waste, non-hazardous wood waste, and food-soiled paper, often referred to as "**organics**") because it is a large component – over one-third – of the county's waste stream.<sup>[6]</sup> Diversion of organic waste, especially food waste, is being actively investigated by city and county agencies in an effort to meet state mandates.

### *A Fragmented System*

At 445 square miles, Santa Cruz is the second-smallest county in California.<sup>[7]</sup> But even such a small county has a surprising number of waste disposal jurisdictions (the county and all four cities, plus the University of California Santa Cruz). All of these jurisdictions operate independently, while sharing resources in a complex manner. Each entity chooses a combination of waste management solutions and haulers that they decide best meets their needs and values.

There is no regional solid waste district that includes all Santa Cruz County jurisdictions. By contrast, many other counties have formed regional waste disposal authorities. Monterey County, for example, has two joint powers agencies (Monterey Regional Waste Management District and Salinas Valley Solid Waste Authority), each made up of several local governments, to address a common service need.

A 2005 report by the Santa Cruz Local Agency Formation Commission (LAFCO) recommended creating a countywide Waste Management Authority, suggesting that this could provide the coordinated structure for Santa Cruz County to achieve its solid waste goals and to avoid the need to export waste to other counties. However, the report noted that the costs and benefits of such a structure would vary across the agencies, and that the cost to create and fund the authority could be a disadvantage at a time when three of the agencies were faced with high costs of landfill operation.<sup>[8]</sup> No action has been taken toward developing such a regional agency.



Source: Santa Cruz County LAFCO. <sup>[8]</sup> Call-outs for landfill facilities added by the Grand Jury.

### ***Jurisdictions, Facilities, and Service Providers***

**Santa Cruz County** operates a landfill on Buena Vista Drive off Highway 1 in the south county, and the Ben Lomond Transfer Station on Newell Creek Road in the San Lorenzo Valley. The county contracts with its main franchise hauler, GreenWaste Recovery, Inc. of San Jose, to handle commercial and residential curbside collection in the unincorporated areas of the county. Yard waste is processed at Buena Vista or Ben Lomond by Vision Recycling, a subcontractor of GreenWaste.

The Buena Vista Landfill is estimated to have between 15 and 20 years of capacity left.

**The city of Santa Cruz** Department of Public Works has its own Resource Recovery Division, which manages garbage collection, street sweeping, and the Resource Recovery Facility on Dimeo Lane off Highway 1 north of the city. All garbage, yard waste, and recycling materials are taken to the Resource Recovery Facility.

The City of Santa Cruz Resource Recovery landfill is estimated to have at least 47 years of capacity left, and possibly as much as 60 years.

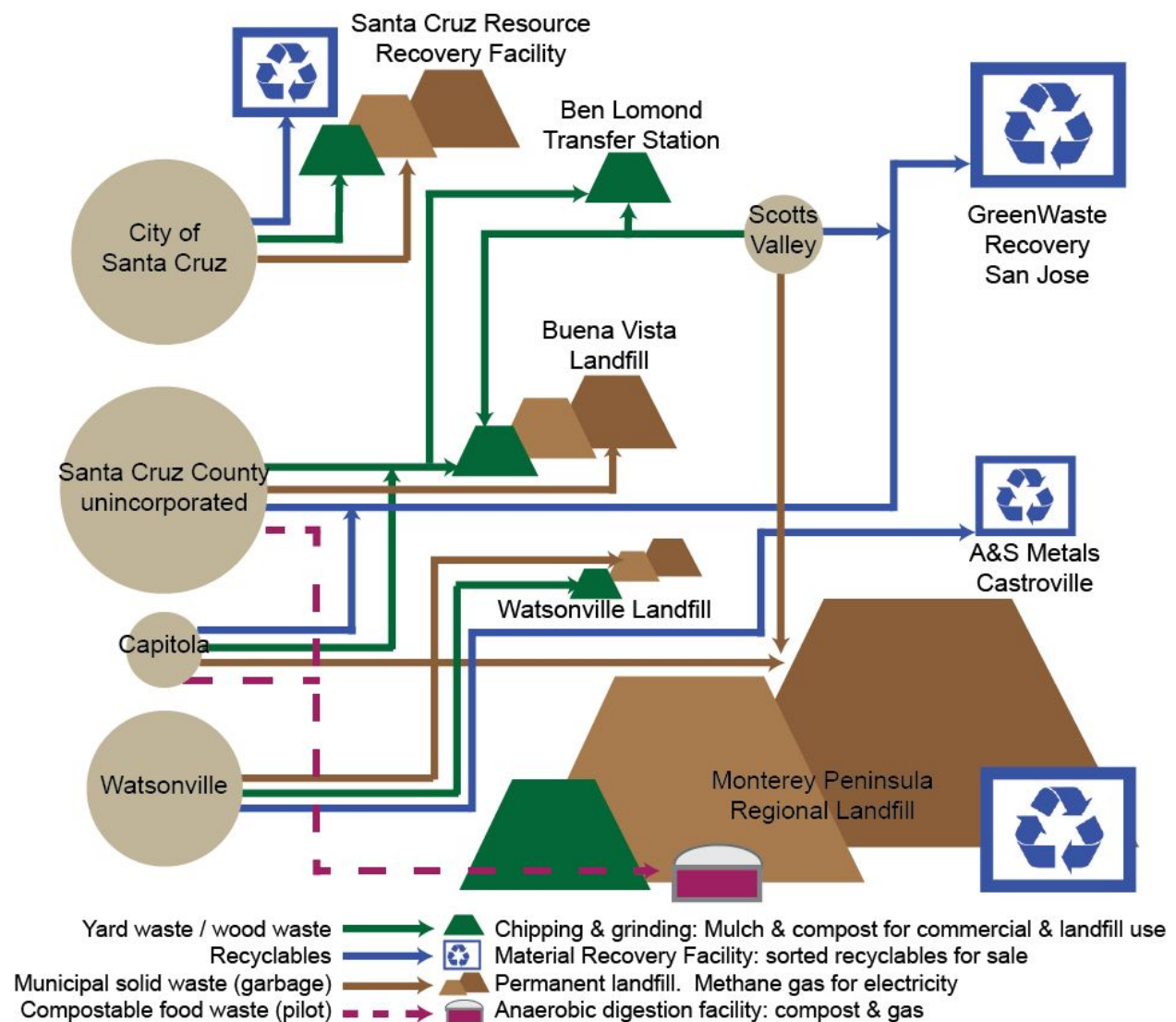
**The cities of Capitola and Scotts Valley** have separate contracts with GreenWaste

Recovery for curbside collection. In both cities, garbage is hauled to the Monterey Regional Waste Management District landfill in Marina. Yard waste is processed at Buena Vista or Ben Lomond by Vision Recycling.

**The city of Watsonville** provides garbage collection through its Public Works and Utilities Department. It has its own landfill on San Andreas Road, adjacent to the Buena Vista Landfill. The city operates a separate drop-off facility for the public on Harvest Drive.

The City of Watsonville Landfill is nearing capacity, with an estimated 5 to 8 years left.

The diagram below summarizes the waste streams and facilities used by waste disposal agencies in the County.



Source: Grand Jury interviews.

All the jurisdictions provide residential curbside customers with containers for yard waste and recyclables at no extra charge.

Santa Cruz County operates a pilot project in which food waste from selected businesses and institutions is hauled to the Monterey Regional Waste Management District in Marina for composting.<sup>[9]</sup> The city of Capitola participates in this project.<sup>[10]</sup>

None of the jurisdictions allow food waste in residential green carts. They all encourage home composting and provide discounts or rebates on home composting bins.<sup>[11][12][13]</sup>

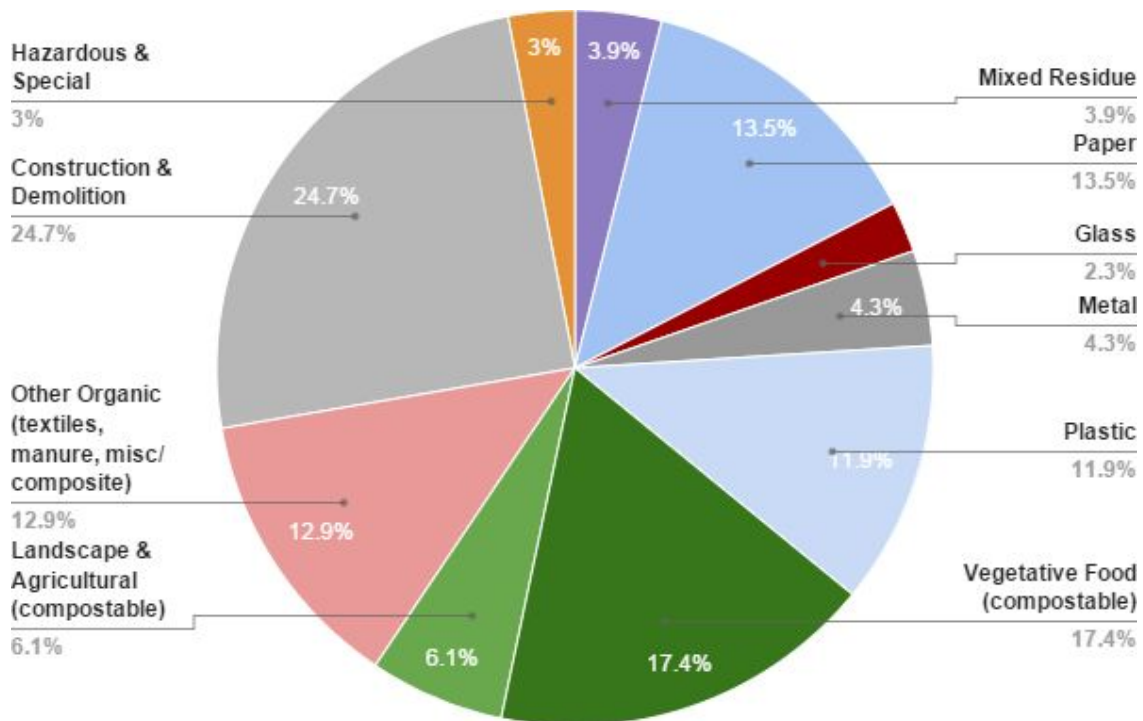
However, the county has suspended funding for its home composting program due to budget cutbacks,<sup>[14]</sup> as has the city of Watsonville. Workshops and training events, such as those connected with Earth Day, are still being held by volunteer groups.

More detail on the jurisdictions, facilities, and service providers are in [Appendix A](#). Estimates of the remaining life of the landfills are in [Appendix B](#). Disposal tonnages for these jurisdictions (historical and for the most recent years available) are in [Appendix C](#).

### **What Goes into the Landfill**

In 2009, four Santa Cruz County jurisdictions (all except Capitola) commissioned a consulting firm to do waste characterization studies. Loads of solid waste entering the three landfills were statistically sampled and spread out on a grid. Volunteers then examined the waste and recorded the items they found. The sampled loads of waste came from three major sectors (commercial, residential, and self-hauled), in the wet season and dry season.

**Waste Composition for the County of Santa Cruz (2009)**



Source: see [Appendix D](#)

The studies found that, depending on jurisdiction, between 23.5% and 37.2% of all municipal solid waste coming into the landfills of Santa Cruz County was compostable vegetative food or yard waste. This was *in addition* to what residents were already placing into their green carts. With appropriate technology, other organics like food-contaminated paper can also be composted. Links to the individual studies are in [Appendix D](#).

The Grand Jury learned that agricultural waste is not a major component at any of the landfills, as most farms and large food processing operations already have their own methods of composting or recycling their organic waste. Agricultural waste disposal is regulated by the California Department of Resources Recycling and Recovery (CalRecycle), the California Department of Food and Agriculture, regional water quality control boards, and other agencies. CalRecycle's role in regulating agricultural waste is primarily to ensure that agricultural operations do not create public health hazards.<sup>[15]</sup>

### ***Laws Governing Solid Waste and Organics***

A multitude of state laws and regulations govern solid waste management, landfills, and recycling in California. Most of these laws regulate the safe and economical collection of solid waste and the management of landfills and garbage disposal districts.

Since 1989, state laws have also required California cities and counties to divert solid waste from their landfills by reducing disposal or increasing recycling and composting. In recent years several laws have specifically targeted organic waste. Key state mandates intended to prolong landfill life and/or divert organic waste include:

- **AB 939** (1989): Created the California Integrated Waste Management Plan (recycling) and county-level Integrated Waste Management Local Task Forces, and mandated a 50% diversion rate by the year 2000
- **SB 1016** (2008): Changed the state's 50% diversion mandate to a measurement system based on a per capita disposal rate and successful implementation of diversion programs
- **AB 341** (2012): Modified AB 939 to require commercial recycling and set a statewide diversion goal of 75% by 2020
- **AB 1596** (2014): Requires green waste used to cap or cover landfills to be counted as disposal, not as diversion, after 2020
- **AB 1826** (2014): Requires businesses meeting specific thresholds to arrange for recycling of organic waste, and requires local jurisdictions to develop organic waste recycling programs by January 1, 2016

Each solid waste management agency in the county is required to comply with the laws mentioned above, depending on the facilities in its area. See [Appendix E](#) for links to each law.

### ***Local Resolutions and Ordinances***

In 2005 Santa Cruz County adopted a resolution setting a long-term goal of "Zero Waste" (called "a philosophy and visionary goal") with a specific target of 75% landfill

diversion by the year 2010.<sup>[2]</sup> The Board of Supervisors' resolution listed four components that their efforts to reach "Zero Waste" should include:

1. A regional compost facility
2. Construction and demolition waste recycling
3. Increased commercial recycling
4. Landfill bans of easily recyclable materials

The cities of Capitola, Scotts Valley and Watsonville adopted similarly-worded resolutions around the same time, with the same four components.<sup>[16]</sup> The city of Santa Cruz had already adopted "Zero Waste" as a long-term goal in 2000.<sup>[17]</sup>

The county began operating a sorting system for construction/demolition materials (item 2 above) at the Buena Vista site in 2005.<sup>[8]</sup> In 2007, the county passed an ordinance banning the most common recyclable materials from the landfills (item 4).<sup>[4]</sup>

The county's plans to develop a regional "Zero Waste" facility for composting (item 1) were abandoned in 2012 due to environmental concerns and lack of funding (see [Appendix F](#)).

### ***Regional Cooperation***

The primary forum for cooperation among jurisdictions in Santa Cruz County is the **Integrated Waste Management Local Task Force**, a coordinating committee referred to as the Local Task Force.<sup>[18]</sup> Mandated by AB 939, the Local Task Force includes representatives of all jurisdictions and meets quarterly. The Local Task Force agencies have collaborated on numerous projects in the past and are currently exploring options for large-scale organics recycling programs.

All of the Santa Cruz County jurisdictions participate in the **Central Coast Recycling Media Coalition**, in partnership with Monterey and San Benito County jurisdictions, to fund public service TV announcements, signage, and cleanup events.<sup>[19]</sup> The Local Task Force acts as a liaison to this nonprofit coalition.

### ***Food Waste Composting Programs in Other Areas***

A 2014 article in *Good Times* pointed out that, like recycling, separating food scraps is simply part of the routine in progressive west coast cities like San Francisco, Seattle, and Portland, and that visitors from these places are surprised that Santa Cruz is not collecting food waste for composting.<sup>[20]</sup>

In addition to San Francisco,<sup>[21]</sup> the following Bay Area jurisdictions offer food scrap recycling as part of their green cart services:

- All cities in Alameda County<sup>[22]</sup>
- Areas of Marin County served by Marin Sanitary Service<sup>[23]</sup> and Mill Valley Refuse<sup>[24]</sup>
- Areas of San Mateo County served by the South Bayside Waste Management Authority (all cities from Burlingame to East Palo Alto)<sup>[25]</sup>

- Santa Clara County cities of Cupertino, Los Altos, Gilroy, and Morgan Hill, as well as Stanford University<sup>[26]</sup>

The Monterey Regional Waste Management District offers food-scrap composting for commercial customers,<sup>[27]</sup> as do many other jurisdictions in the Bay Area.

Alameda County estimates that 50%-60% of food scraps and non-recyclable food-contaminated paper going into the landfill could be captured in an effective organics collection program.<sup>[28]</sup> Portland,<sup>[29]</sup> Vancouver,<sup>[30]</sup> and Calgary<sup>[31]</sup> have achieved dramatic reductions in garbage added to landfills (as much as 40%) when garbage is picked up every other week while organics carts are serviced weekly. This could only happen in Santa Cruz County if county code 7.20.110, which requires weekly garbage pickup, were amended.

In addition to the environmental benefits from food waste recycling (conserving landfill space and reducing greenhouse gas emissions), jurisdictions outside our county are seeing financial benefits. The city of Cupertino estimates that by 2017 the city's organics recycling program will save their city over \$164,000 per year.<sup>[32]</sup>

## Scope

The Grand Jury identified the actions the cities and county of Santa Cruz have taken, or need to take, in order to comply with state laws and county ordinances directed at organic waste reduction and diversion. Compliance with AB 1826, the organic waste recycling law, is the primary focus of this report.

We interviewed key personnel in the Department of Public Works (DPW) agencies of Santa Cruz County and the cities of Santa Cruz, Scotts Valley, Capitola, and Watsonville, and members of the Local Task Force.

We toured the Buena Vista Landfill, the Santa Cruz Resource Recovery Facility, and the Monterey Regional Waste Management District Landfill in Marina. We attended public meetings held by the Local Task Force, and reviewed their consultants' reports. We reviewed articles in the local media and minutes from City Council and County Board of Supervisors meetings.

We reviewed reports published on the California Department of Resources Recycling and Recovery (CalRecycle) website for the data needed to confirm whether the jurisdictions were complying with state laws. Waste management jurisdictions are required to report to CalRecycle on a regular basis, and their raw data forms the basis of CalRecycle's compliance measurements. CalRecycle inspects landfills monthly, and we reviewed their inspection reports, available online.<sup>[33]</sup>

We communicated with directors of environmental services in Alameda County and the city of Cupertino to obtain their input on organics issues and best practices.

The University of California Santa Cruz is also developing its own large-scale organics composting facility, but we did not include UCSC in our investigation, as it is a state agency and not within our purview.<sup>[34]</sup>



## Investigation

### **Current Compliance with Diversion Laws in Santa Cruz County**

#### *Diversion and Disposal: AB 939 and SB 1016*

Using data available on the CalRecycle website, the Grand Jury verified that all jurisdictions within Santa Cruz County are meeting the 50% solid waste diversion goal first mandated in 1989 by AB 939 (see [Appendix G](#)) and later updated by SB 1016 (see [Appendix H](#)).

#### *AB 341: Commercial Recycling and 75% Diversion*

All jurisdictions in Santa Cruz County comply with AB 341 by providing recycling programs for businesses.

AB 341 sets a 75% *statewide* goal and does not require local jurisdictions to enforce mandatory recycling.<sup>[35]</sup> However, the Grand Jury learned in interviews that Santa Cruz County and the cities of Scotts Valley and Watsonville are already meeting the 75% diversion goal.

The city of Santa Cruz's diversion rate is around 64%, which exceeds the City Council's goal. Capitola's diversion rate is between 60% and 65%. Because diversion rates are no longer reported on CalRecycle, we could not confirm these numbers independently.

#### *Recycling Organics: AB 1826*

AB 1826 requires each jurisdiction in the state, with some exceptions, to implement an organic waste recycling program by January 1, 2016. It provides for a gradual phase-in of its provisions as follows:

<b>Tier</b>	<b>Effective date</b>	<b>Businesses must arrange for recycling services for organic waste, if they generate more than:</b>	
1	April 1, 2016	8 cubic yards per week	of organic waste
2	January 1, 2017	4 cubic yards per week	of organic waste
3	January 1, 2019	4 cubic yards per week	of commercial solid waste
4*	January 1, 2020	2 cubic yards per week	of commercial solid waste

*\*The 2020 provision only takes effect if CalRecycle determines that statewide organics disposal has not been reduced to 50% of 2014 levels.*

Source: see [Appendix E](#).

AB 1826 exempts jurisdictions from having to implement a new or expanded program if they already have an organic waste recycling program that is "appropriate for that jurisdiction," and meets the other requirements of AB 1826. The pilot food waste

composting projects implemented by Santa Cruz County<sup>[36]</sup> and the city of Capitola<sup>[37]</sup> count toward compliance with AB 1826. The original pilot projects, managed by Vision Recycling at the Buena Vista Landfill, ran from 2008 to 2011. We were told that the projects were popular with the businesses (approximately 60 schools, restaurants, and other large food service businesses) which participated in them.<sup>[38]</sup>

The original projects were cancelled when the county was unable to renew the permits required by the State Water Resources Control Board to continue operating as a pilot study. The county continues the projects under a new contract with the Monterey Regional Waste Management District, in which the commercial food waste is hauled to the Marina facility for composting.

The city of Santa Cruz plans to set up its own pilot project for digesting organic food waste at its Wastewater Treatment Facility in order to meet the AB 1826 requirements. About 20 city businesses would fall in the AB 1826 “second tier” (generating more than 4 cubic yards of organic waste per week) requiring organics to be composted by 2017.

Neither Watsonville nor Scotts Valley have organics composting programs, and are waiting to evaluate the County’s long-term solution. Unless they develop organics recycling programs of their own or join another jurisdiction’s program, neither city will be in compliance with AB 1826 by January 1, 2016.

The California Compost Coalition, an industry group of organics recyclers and compost operators,<sup>[39]</sup> has complained that AB 1826 sets threshold amounts so high that they only apply to the largest businesses, in effect deferring food waste collection from most businesses until 2019.<sup>[40]</sup> This opinion is consistent with what the Grand Jury heard from our interviewees, who stated that only a few of the very largest businesses and institutions in their jurisdictions would be affected, at least initially. Nevertheless, the law provides an impetus for county jurisdictions to start reducing the waste stream by developing an organics waste recycling program.

#### *AB 1594: Alternative Daily Cover*

AB 1594 (2014) is intended to discourage the use of green waste as alternative daily cover (ADC), the material which landfill operators are required to place over landfills each evening to control vermin, blowing litter, etc. Beginning in 2020, landfills must count green waste used as ADC as disposal (undesirable) rather than diversion (desirable).

The Grand Jury was told that AB 1594 is not an issue for Santa Cruz County landfills. Green waste is too valuable to put into the landfill, since it can be sold as mulch or similar products.

#### ***Beyond Compliance: Planning for a Regional Organics Infrastructure***

The Grand Jury learned that in order to comply with AB 341, AB 1826, and their own “Zero Waste” goals, all local jurisdictions will need to phase in programs to recycle organic waste, including food waste.

The Local Task Force has been in talks with county jurisdictions to come up with a plan to develop a regional organics infrastructure. In September 2014 the participating agencies (county of Santa Cruz, cities of Santa Cruz, Capitola, Scotts Valley and Watsonville, and the University of California at Santa Cruz), working with the solid-waste consulting firm HF&H Consultants, issued a request for confidential Statements of Interest from firms interested in providing organics processing services.<sup>[41]</sup> The Statements of Interest were to include:

- Identification of potential sites for pre-processing, composting, and/or anaerobic digestion operations
- Identification of appropriate technologies for processing various organic materials
- Design, permitting, and construction of the facilities required to implement the selected technologies
- Processing and marketing of residential organic materials (yard trimmings and food scraps) collected by the participating agencies
- Processing and marketing of commercial organic materials (food waste) collected by the participating agencies
- Phase-in of food waste collection in the following order:
  - restaurants and fast-food locations
  - single-family residences
  - multi-family residences

#### *Responses from Potential Bidders: January 2015*

In January 2015, HF&H Consultants presented an update on the progress of the Evaluation Committee, a subcommittee consisting of Local Task Force members from each jurisdiction, with HF&H acting in an advisory role.<sup>[42]</sup>

The Evaluation Committee received six Statements of Interest from local operators: GreenWaste/Zanker (the parent company of the current franchise hauler), Vision Recycling (the subcontractor processing the county's green waste), two companies with experience in other regions (Harvest Power, WeCare Organics); and two new companies with no current sites (CH4 Energy, Synergy Composting).

Proposals varied in technology, feedstocks (raw materials to be composted), and cost, as follows:

- **Covered composting**, in which compost piles are covered with breathable fabric, but without additional aeration
- **Aerated static pile composting**, in which air is pushed or pulled through the covered piles for faster, controlled composting. This process was used in the county's original pilot project<sup>[43]</sup>
- **“Dry” anaerobic digestion** in air-tight fermentation containers. Bacteria are introduced to break down the waste into solid compost and methane. The Marina landfill uses a “dry fermentation” anaerobic digester, the first in California<sup>[44]</sup>
- **“Wet” anaerobic digestion**, in which compostable waste is mixed into a wet slurry and processed at a public sewage treatment plant, producing methane, solids and wastewater, which may require further treatment<sup>[45]</sup>

**Composting Technologies Proposed and Feedstocks Accepted**

	<b>Covered Composting</b>	<b>Aerated Static Pile Composting</b>	<b>Dry Anaerobic Digestion</b>	<b>Wet Anaerobic Digestion</b>
Residential yard waste	Yes	Yes	Limited	No
Residential food scraps	Yes	Yes	Yes	Yes
Self-haul yard waste	Yes	Yes	Limited	No
Commercial food scraps	Yes	Yes	Yes	Yes
Compostable serviceware*	Yes	Yes	Yes	No

*\* All proposers expressed concern about compostability of certain products, regardless of technology used.*

Source: HF&H presentation to the Local Task Force, January 29, 2015

The end products of the composting processes would include compost, mulch, and methane gas, which could be used to generate electric power or further processed into fuel on-site. The consultants' research indicates that the demand for these end products exceeds what can be produced in the county.

HF&H noted that the processing cost will be higher than the revenue that can be generated, and the increased cost will have to be passed on to ratepayers. Residential customers are likely to see an increase in the range of 25 cents to 75 cents per month; commercial customers will see a larger increase.

**Non-Binding Cost Estimates**

	<b>Covered Composting</b>	<b>Aerated Static Pile Composting</b>	<b>Dry Anaerobic Digestion</b>	<b>Wet Anaerobic Digestion</b>
Tipping fee	\$30-\$60/ton	\$60-\$95/ton	\$65-\$120/ton	\$50-\$100/ton
Capital expense	Low	High	High	Moderate
Operating cost	Moderate	Low	Moderate	Moderate

Source: HF&H presentation to the Local Task Force, January 29, 2015

Each jurisdiction will have to factor the new tipping fees (the fee charged per load) for

organics into their own rates. Some jurisdictions may see a decrease in the fees they are paying now, but for those operating their own landfills, the calculation is more complex because the new composting program will cannibalize the revenue from their current sale of compost, mulch, and gas. If a jurisdiction wants a contract that lets them share in the revenue from the sale of compost under the new system, the contractor will charge a higher tipping fee.

The Evaluation Committee had hoped that the respondents would offer turn-key solutions on sites other than the three in-county landfills, but none were offered. Respondents indicated that regulatory issues, especially Coastal Commission regulations, would require using sites already approved to receive solid waste.

Other insights from the respondents:

- **Economy of scale is critical**, with an ideal project size of 30,000 to 70,000 tons per year.
- A **phased approach** and a **multi-site system** are important to manage collection costs paid by customers.
- **Implementation will take at least a year**, largely due to the time required to obtain permits.
- **Technology must match the site**
  - Wet anaerobic digestion is only feasible at the city of Santa Cruz landfill with its proximity to the city's wastewater treatment plant.
  - Aerated static pile and dry anaerobic digestion facilities are 30-year assets which should not be located on areas designated for future landfill use, where they would eventually have to be torn down. We were told that Buena Vista is the only site with adequate open space for these technologies.
- **Processing areas should be kept separate** to maintain different markets for different end products. For example, compost made from self-hauled agricultural waste might be certified as organic, but not compost made from food waste.

The Evaluation Committee recommended:

- Proceeding into a formal Request for Proposal (RFP) process with GreenWaste/Zanker, Harvest Power, and Vision Recycling
- Establishing a two-site system (the city of Santa Cruz Resource Recovery Facility and the county's Buena Vista Landfill) to allow for balancing of rates and tonnages, and to reduce collection costs and environmental impact
- Accepting all the materials shown in the "Feedstocks Accepted" table above, with co-collected residential food scraps and yard trimmings
- Pursuing a technological solution with low capital cost and a short-term (5-10 year) contract
- Contractor agreements with each host agency (the landfills)
- Each host agency establishing a Memorandum of Understanding (a formal, non-binding agreement) with partner agencies (the other jurisdictions) for material delivery.

### *Current Status of the County's Plan*

The Evaluation Committee is currently drafting an RFP to be issued to the selected firms in early summer of 2015, with a contract to be awarded in mid-2016.

***The process for awarding the organics processing contract will be kept completely separate from the county's upcoming waste hauler franchise contract.***

HF&H has begun making presentations to the elected bodies of each jurisdiction, encouraging them to participate in the RFP process. Each jurisdiction will have to negotiate its own contract with the composting contractor.

Preliminary design and permitting is underway for an organics processing facility at Buena Vista. County DPW staff informed the Grand Jury that they hope all jurisdictions will participate, however they will proceed on their own if necessary. A recent report to the Board of Supervisors stated:

*While a regional approach, including the local Cities, would present opportunities for greater efficiency, we will also include in our planning options for a County run program if necessary.*<sup>[46]</sup>

Given the time required to conduct the RFP process, get authorization from the elected bodies, obtain permits, prepare the sites and construct the facilities, the Evaluation Committee expects that actual organics processing will not begin until late 2017 or early 2018.

### *Planning for Organics in Santa Cruz County's Next Franchise Contract*

Santa Cruz County's contract with its current franchise hauler, GreenWaste Recovery, will expire December 31, 2017.<sup>[47]</sup> The county has already begun the process of designing the "next generation" franchise agreement for exclusive curbside waste hauling and recycling, and has begun soliciting input from the public.<sup>[48]</sup>

A recent presentation on the franchise agreement to the County Board of Supervisors<sup>[49]</sup> listed several changes related to the organics infrastructure that should be included in the next contract:

- Updated collection services, focusing on increased recycling to reach "Zero Waste"
- Services for all accounts including most rural areas, with "universal" (mandatory) curbside collection in specified areas
- Purchase of "green" and "clean" collection vehicles with minimal impact on roads and the environment
- Single family residential customers: Food scraps collection with yard waste (now called "organics")
- Multi-family residential customers: Food scraps collection with yard waste, for a fee

- Commercial customers:
  - Pick up recycling and organics up to 6 days per week
  - No charge for organics up to 64 gallons per week. Additional organics service at a 20% discount vs. garbage
- Other services:
  - Large events to be “Zero Waste” events. Recyclables/food scraps collection at 15 large events at no charge, if the organizer pays for solid waste services
  - Contractor funded education and outreach programs
  - Unlimited recycling pick-up for public and private schools
  - Public education and outreach
  - \$30,000 per year (with Consumer Price Index increases) to the county’s Green Schools program
  - Educational signage on trucks

The plan is for the Board of Supervisors to award the next waste hauler franchise contract in the fall of 2016, with transition planning taking place in 2017.

*Planning for Organics in the Cities of Santa Cruz. Capitola, Scotts Valley and Watsonville*

In 2012 the city of Santa Cruz commissioned the consulting firm of Kennedy/Jenks to study the use of wet anaerobic digestion at the city’s Wastewater Treatment Facility to convert food waste to energy.<sup>[50]</sup> The study showed that even doing a pilot project with a minimal amount of tonnage would require a significant financial investment in upgrades to the wastewater treatment plant. A subsequent opinion by a different consultant (Brown & Caldwell) suggested that the city might be able to start a pilot project at a minimal cost and then look at gradually upgrading the facility as the tonnage of food waste scaled up over time.

The Grand Jury was informed that the Resource Recovery Facility, located in a canyon, will not have enough flat space for large-scale composting using any of the other methods until future landfill cells are filled and can be built upon. We were also told that the county wants to include all the city’s organic material (including yard waste) in order to be cost-effective. If the city pursues wet anaerobic digestion, it will be difficult to find the space to handle the bio-solids at the treatment plant. Solids will have to be pre-mixed at the landfill and then hauled in septic-tank trucks to the treatment plant.

At this point, the city’s choices are limited and costly:

- Upgrade the wet anaerobic digestion system at the city’s wastewater plant to handle food waste, at a significant investment
- Haul the organics (including yard waste) to the county processing site at Buena Vista. This would cost more than the city’s current yard waste process and eliminate the relationship with the farming operation which buys the processed yard waste now
- Haul food waste to Marina for composting at additional cost

The Grand Jury learned that the city has decided to develop a pilot project for food waste using wet anaerobic digestion at the Wastewater Treatment Facility, as described above. The city has budgeted for upgrades to existing digester equipment and a used transport truck, and has already been approached by some interested restaurants about the project. It plans to start slowly, as each business must be trained to separate food waste in order to avoid contamination.

Scotts Valley and Capitola currently contract with GreenWaste Recovery to process their yard waste at the Buena Vista facility and haul their garbage to Marina. With no landfills of their own, their options are limited to going along with the County's plan or using Marina, which is near capacity, for composting.

Given the issues surrounding the Watsonville landfill (impending closure, difficulty of getting additional permits), it is unlikely that any in-county composting facilities can be located there. Watsonville, which plans to use the Marina landfill after its own landfill closes, may find that having a nearby facility at Buena Vista for composting is more cost-effective than hauling organics to Marina, but this will depend on the rates that the city can negotiate.

The Grand Jury learned that while all the cities participate in the Local Task Force and follow its studies with interest, they are not bound to accept its recommendations and will act in the best interest of their own jurisdiction. Cost is the primary consideration in their decisions whether to participate in any county organics project. The cost considerations are complex and each jurisdiction will need to analyze the specifics with the help of outside consultants before making its decision.

### *Can We Depend on the Monterey Regional Waste Management District?*

The Grand Jury also learned that Santa Cruz County jurisdictions may not be able to rely on the Monterey Regional Waste Management District to do their composting for them. The anaerobic digestion facility at Marina is a pilot demonstration project with a capacity of only 5,000 tons per year.<sup>[44]</sup> As cities in Monterey County come online with their own AB 1826-mandated composting projects over the next few years, the District will need to give them priority and may have to turn away out-of-county agencies.

A recent report to the Board of Supervisors stated that Marina should be able to meet the needs of the pilot program until the county gets its own organics program up and running (no later than January 2018), but that Marina does not have the capacity to accept all of the county's organic waste.<sup>[46]</sup> Marina's limited capacity presents a potential bottleneck and is another reason to implement a local program as soon as possible.

### *Participation and Cost Effectiveness*

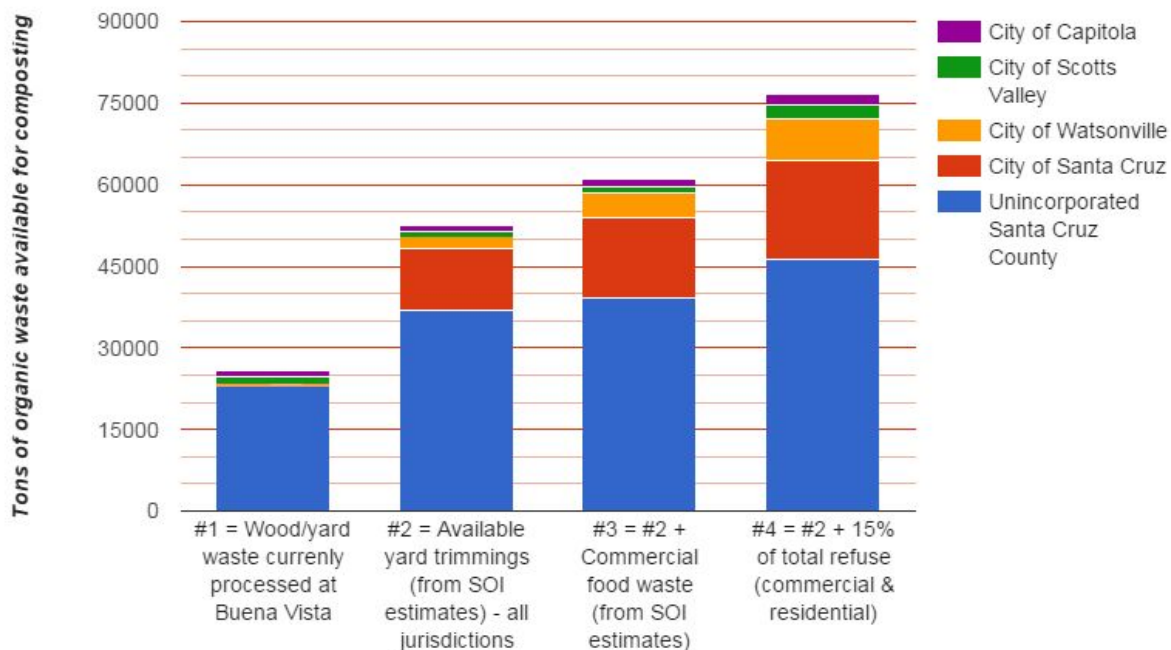
Respondents to the county Requests for Statements of Interest (SOI) considered economies of scale to be crucial to project success, with an ideal project size between 30,000 and 70,000 tons per year. The Grand Jury therefore considered four scenarios for organics processing in which different jurisdictions participated in a regional solution,



providing different amounts of compostable organic waste for processing.

- **Scenario #1:** Only the wood waste/yard waste currently processed at the Buena Vista landfill. This is a baseline scenario without food waste composting.
- **Scenario #2:** The yard waste identified by all county jurisdictions as available for composting in the Evaluation Committee’s 2014 Request for Statements of Interest. This includes all yard waste now being processed at Buena Vista, Ben Lomond (which was not recommended for a composting facility), the Santa Cruz Resource Recovery Facility, and the Watsonville landfill.
- **Scenario #3:** Scenario #2, plus the commercial food waste from all jurisdictions, identified as available for composting in the Request for Statements of Interest.
- **Scenario #4:** Scenario #2, plus 15% of municipal solid waste produced by all jurisdictions. Fifteen percent is approximately what businesses and residents of the city of Cupertino are currently diverting from landfill to organics processing.<sup>[51]</sup> Based on Cupertino’s experience, this is the Grand Jury’s conservative estimate of what Santa Cruz County could achieve by composting both residential and commercial food waste, along with yard waste.

### Four Scenarios: Organics feeds from Santa Cruz County jurisdictions



Source: Jurisdiction disposal and wood waste/yard waste numbers in [Appendix C](#). Local Task Force’s estimates of available yard waste and commercial food waste in [Appendix I](#).

Our conclusions from these scenarios:

- Without waste from other jurisdictions, the county’s volume would be on the low end of what the respondents identified as an ideal project size (30,000 - 70,000 tons per year). Achieving even this volume would require hauling yard waste

currently processed at Ben Lomond (over a quarter of the county’s total yard waste) to Buena Vista for composting

- Only with the addition of Watsonville and Santa Cruz organics do we start to see an annual volume in the range that bidders identified as economical
- A composting system that accepts yard trimmings and commercial food waste (but not residential food waste) is in the viable range
- Once residential food waste is added, the volume will exceed the capacity of a single site, and a scaleable two-site system will be necessary.

### Confusion at the Can

During our interviews, the Grand Jury asked each interviewee, “Is food waste accepted in the green cart?” The answers we received indicated that not only were the interviewees themselves often vague on the specifics of what food waste can currently be recycled, they admitted that the rules were somewhat arbitrary and widely ignored. An apple that falls from a tree in one’s backyard is yard waste and should go in the green cart; an apple from the store that goes bad in one’s kitchen is food waste and should be disposed of in the trash. The only thing that everyone agreed on was that meat scraps, bones, grease and the like should not go in the residential green cart.

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**GARBAGE** Please place all NON-reusable NON-recyclable, NON-compostable and NON-hazardous items in your garbage container. All items must fit inside the garbage container with the lid closed. Extra items may be set out in a 32-gallon container or 32-gallon bag.

**FOOD SCRAPS**

- Bones
- Bread
- Coffee grounds
- Compostable plastic bags
- Compostable plastics
- Corks
- Dairy products (e.g., cheese)
- Dough
- Eggs
- Filters (e.g., coffee, tea)
- Fish
- Fruits
- Grains (e.g., rice)
- Meat
- Poultry (e.g., chicken, turkey)
- Shellfish
- Tea bags
- Vegetables

**YARD WASTE** Items must fit inside the yard waste container. Items may not exceed 3 feet in length. Extras may be set out in a 32-gallon container or 32-gallon bag.

- Ashes (hot ashes prohibited)
- Bamboo
- Burlap
- Construction lumber\*\*
- Crates - wood\*\*
- Branches - cut to fit loosely in container
- Cactus
- Christmas trees - (stand/decorations removed)
- Flax
- Flowers
- Grass clippings
- Hay
- Ivy
- Ice plant
- Landscape vegetation
- Leaves
- Lumber (unpainted, untreated)
- Plant trimmings
- Raw fruits and vegetables
- Sawdust
- Shrubs
- Small prunings
- Sod (remove as much soil as possible)
- Stumps - see size limitations above
- Succulents
- Tree trimmings - see size limitations above
- Yucca

3 Scotts Valley

Source: GreenWaste recycling guide for Scotts Valley.<sup>[52]</sup> Guides for Capitola and the unincorporated county contain the same information. Highlights added by the Grand Jury.

The county’s commercial food scrap composting pilot project accepts all food scraps, food-soiled paper, and much more.<sup>[53]</sup> The future residential organics composting program should also accept all these materials.

As large-scale organic composting is implemented in the county, there is likely to be a period of uncertainty over what food waste and “compostable serviceware” can or

cannot be recycled without contaminating the organics stream.<sup>[54]</sup> The Local Task Force is recommending that composting programs be phased in first to restaurants, hospitals, schools, and other large institutions, both for cost effectiveness and because these institutions can exercise more control over what they purchase, and can train their staff in proper disposal practices.

### **Public Outreach and Communication**

Studies have shown that well-designed outreach campaigns are effective in promoting recycling.<sup>[55][56]</sup> As new organics policies are rolled out to businesses and then to residents, effective coverage and a consistent message in signage, print, TV, radio and social media will be needed for public understanding and acceptance of curbside composting, as they were for recycling. Public service announcements cannot be targeted to individual small waste management districts, and a flyer inserted in the garbage bill is not adequate public outreach.

Other cities and counties that offer food scrap recycling have funded media campaigns with incentives and games to encourage residents and businesses to recycle food waste.<sup>[57][58]</sup>

Alameda County, where curbside food scrap composting began in 2008, conducts spot-checks of residents' green carts to gauge compliance with recycling goals.<sup>[59]</sup> A recent study showed that Alameda County residents have reverted to throwing more food waste into their garbage and less into their green carts, possibly due to "food waste fatigue" or newcomers' unfamiliarity with the rules.<sup>[60]</sup> This suggests that both outreach and compliance monitoring need to be funded on an ongoing basis in order for organics composting programs to remain successful.



Billboard promoting food waste composting in Alameda County.

Source: [www.stopwaste.org](http://www.stopwaste.org), the waste reduction agency of Alameda County.

Budget cutbacks have forced most Santa Cruz County jurisdictions to reduce the amount they spend on consumer education and outreach, with much of the work left to

nonprofits. As food scrap recycling rolls out in Santa Cruz County, nonprofits like the Central Coast Recycling Media Coalition will need funding and guidance from Santa Cruz County jurisdictions and franchise haulers in order to construct a clear, consistent and persuasive message as to “what goes in which can” across jurisdictional lines. Having a consolidated composting program will make it easier to provide consistent rules for food-scrap recycling, especially at the residential level. Ideally, funding for measuring the ongoing effectiveness of media campaigns in accordance with industry best practices should be factored into residential and consumer rates.<sup>[61]</sup>

School programs like the county’s Green Schools program<sup>[62]</sup> and Watsonville’s award-winning Public Works Conservation Program<sup>[63]</sup> will play an important role in promoting environmental awareness. The curricula and learning materials of these school programs will need to be updated as new organics policies are rolled out. The county plans to require funding for outreach and education (including \$30,000 for the county’s Green Schools program) in the next franchise hauler contract, as in the current contract.

### ***Conclusion***

The Grand Jury concludes that Santa Cruz County jurisdictions are currently in compliance with state laws mandating diversion of organics from the landfill, but will no longer be in compliance with AB 1826 by the year 2020 or sooner, unless a large-scale organics composting program is implemented. Given the uncertainty over the continued availability of the Monterey Regional Waste Management District’s pilot composting facility, an in-county composting facility is essential.

The County Department of Public Works is taking appropriate steps to create this facility and include food waste recycling in its next franchise hauler contract, but needs the participation of other local jurisdictions to gain the necessary economies of scale. The city of Santa Cruz is on a parallel path to develop its own solution. The cities of Scotts Valley, Capitola, and Watsonville are waiting to evaluate the County’s plan.

Municipal budgets are under tremendous pressure from many fronts, but unless AB 1826 is modified, each jurisdiction must find a way to comply with this composting mandate, regardless of cost.

Public acceptance and changes in behavior, combined with creative and assertive political leadership, will be critical to the success of the program, and will require outreach, education, and an awareness of residents’ needs.

## **Findings**

- F1.** Compostable organic waste, which makes up approximately one third of municipal solid waste, must be diverted in order to extend the life of Santa Cruz County landfills and meet state mandates, specifically AB 1826.
- F2.** Unless Santa Cruz County and the cities of Santa Cruz, Capitola, Scotts Valley and Watsonville invest politically and financially in large-scale organics recycling systems, they will be out of compliance with AB 1826 by the year 2020 or sooner.
- F3.** Santa Cruz County and the cities of Capitola, Scotts Valley, and Watsonville all passed resolutions in 2005 recommending a regional composting facility, but as of 2015, no facility has been constructed, nor is there a completed plan to do so.
- F4.** Rather than building a permanent local infrastructure for organics composting, Santa Cruz County and the city of Capitola opted to continue their commercial composting pilot programs by hauling food waste out of the county to the Monterey Bay Regional Waste Management District's composting facility, at considerable cost in time and fuel.
- F5.** Unless the Monterey Regional Waste Management District decides to expand its current organic composting facility, Santa Cruz County jurisdictions cannot rely on it as a long-term solution for their organic waste recycling needs.
- F6.** Unless the cities of Watsonville and Scotts Valley develop organic waste recycling programs, neither city will be in compliance with AB 1826 by January 1, 2016.
- F7.** Rules about what can be put in the "green cart" are inconsistent and not well understood by the general public.

## **Recommendations**

- R1.** In order to comply with AB 1826 mandates, the cities of Capitola, Santa Cruz, Scotts Valley, and Watsonville should join with Santa Cruz County to form a regional agency to develop a large-scale organics recycling system located in Santa Cruz County. (F1, F2, F3, F4, F5, F6)
- R2.** The current pilot program for composting food waste from restaurants and other large institutions in Capitola and Santa Cruz County should be expanded to serve other businesses in the AB 1826 first and second tiers throughout Santa Cruz County, including Scotts Valley and Watsonville, until a regional facility can be developed. (F1, F2, F4)
- R3.** After selection of a composting contractor and technology by the Local Task Force, Santa Cruz County and the cities of Capitola, Santa Cruz, Scotts Valley and Watsonville should create a coordinated outreach program to inform businesses and the public about the benefits and requirements of the new organics recycling program. (F7)

**R4.** Curbside “green carts” and bins should be clearly labeled to instruct residential and commercial customers specifying what materials are acceptable. (F7)

## Commendations

**C1.** The Grand Jury commends Santa Cruz County and the cities of Capitola, Santa Cruz, Scotts Valley, and Watsonville on meeting or exceeding diversion goals set forth by the State in AB 939, SB 1016, AB 341, and AB 1594, in many cases well before the target dates.

**C2.** The Grand Jury commends Santa Cruz County and the city of Capitola for initiating pilot programs in composting food waste, and for continuing them despite the loss of permits to operate the programs at the Buena Vista Landfill.

## Responses Required

<i>Respondent</i>	<i>Findings</i>	<i>Recommendations</i>	<i>Respond Within/ Respond By</i>
Santa Cruz County Board of Supervisors	F1-F5, F7	R1-R4	90 Days 9/24/2015
Capitola City Council	F1-F3, F5, F7	R1-R4	90 Days 9/24/2015
Santa Cruz City Council	F1, F2, F5, F7	R1-R4	90 Days 9/24/2015
Scotts Valley City Council	F1-F3, F5-F7	R1-R4	90 Days 9/24/2015
Watsonville City Council	F1-F3, F5-F7	R1-R4	90 Days 9/24/2015

## Definitions

- **Anaerobic Digestion:** The process of biologically decomposing organic matter with little or no oxygen in a fully enclosed structure (in-vessel digestion) to produce biogas, liquid fertilizer and compost. Often used at wastewater treatment facilities or dairies.
- **Alternative Daily Cover (ADC)/Alternative Intermediate Cover(AIC):** The use of CalRecycle approved materials (e.g. green waste) to cover disposed waste in a landfill cell at the end of the landfill operating day (daily cover) or at some other interval (intermediate cover) to control odors, fire, vectors, litter, and scavenging. Traditionally, earthen materials, such as soil, are used for cover. Alternative cover materials include tire shreds and low-grade wood chips. In California, proper use of ADC/AIC allows the material to be classified as “diverted through recycling,” and does not “count” as disposal.

- **Chipping and Grinding:** The process that separates, grades and resizes woody green wastes or used lumber to be sent to a composting facility, used at a landfill for Alternative Daily Cover (ADC) or sent to miscellaneous end markets such as feedstock at biomass-to-energy plants.
- **Composting:** The process of taking organic materials such as green waste, manure, food waste and other organics and transforming them through controlled biological decomposition for sale as an end product, usually in the form of home or farm soil amendments.
- **Compostable Organics:** Organic materials that are accepted and managed by typical composting activity operations. This usually includes green waste, food waste, and manure, but excludes wood, lumber, and manmade organics such as carpet.
- **Construction and Demolition Materials (C&D):** Includes, but is not limited to, concrete, wood, and drywall, usually found as a mixed material.
- **Digestion:** *See Anaerobic digestion*
- **Disposal:** The process of collecting municipal solid waste and transferring it to a transfer station, landfill, or transformation facility.
- **Diversions:** The process of managing waste in some way other than disposal at a landfill or transformation (incineration) facility, so that it is reused or recycled to create new products. Calculated diversion does not include residual material from processing that is sent to disposal.
- **Facility:** The physical location where a recycling or waste management activity occurs. More than one activity may be conducted at a single facility.
- **Landfill (solid waste disposal):** A permitted facility that provides a legal site for final disposal of materials including mixed solid waste, beneficial materials used for landfill construction, ADC, and specialized materials such as C&D and waste tires.
- **Municipal (or Mixed) Solid Waste:** Garbage. Refuse that may be mixed with or contain nonorganic, processed industrial materials, plastics, or other recyclables with the potential for recovery. It includes residential, commercial, and institutional wastes.
- **Municipal Solid Waste (MSW) Materials Recovery Facility (MRF):** Also known as mixed-waste processing facilities, these are facilities that systematically sort incoming mixed waste loads segregating and salvaging select loads and/or employing sorting lines with manual and automated sorting technologies.
- **Organic Waste:** food waste, green waste, landscape and pruning waste, non-hazardous wood waste, and food-soiled paper waste that is mixed in with food waste. Also known as “organics.”
- **Per Capita Disposal:** A numeric indicator of reported disposal divided by the population (residents) specific to a county, region, or statewide.
- **Tipping Fee:** A fee paid to dispose of solid waste at a landfill. May be charged by weight or volume.
- **Transfer Station:** Receives, temporarily stores, and ships unprocessed waste/recyclables.

- **Zero Waste:** an environmental concept with numerous definitions. Today, a 90 percent reduction of waste being sent to landfills and incinerators is considered an achievable goal by such groups as the Zero Waste International Alliance and the U.S. Zero Waste Business Council.

Sources: Definitions are from CalRecycle Glossary of Terms/Definitions<sup>[64]</sup> except:

Organic Waste: AB 1826<sup>[71]</sup>

Zero Waste: CalRecycle Zero Waste Home Page.<sup>[65]</sup>

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## Appendix A

### ***Jurisdictions, Facilities, and Service Providers: Additional Detail***

	<b>Santa Cruz County<sup>[66]</sup></b>	<b>City of Capitola<sup>[66]</sup></b>	<b>City of Santa Cruz<sup>[66]</sup></b>	<b>City of Scotts Valley<sup>[66]</sup></b>	<b>City of Watsonville<sup>[66]</sup></b>
Population	271,804	10,093	62,864	11,755	52,477
Area (sq. mi.)	445.17	1.59	12.74	4.6	6.69
Population per sq.mi.	589.4	6,226.0	4,705.3	2,520.1	7,656.5
Landfill facility	Buena Vista Drive Landfill	-	Santa Cruz Resource Recovery Facility	-	Watsonville Landfill
Open to the public?	Yes	-	Yes	-	No
Remaining life ( <a href="#">Appendix B</a> )	15-20 years	-	47-60 years	-	5-8 years
Other facilities	Ben Lomond Transfer Station	-	-	-	Harvest Lane drop-off facility
Curbside service provider	GreenWaste Recovery, San Jose	GreenWaste Recovery, San Jose	City of Santa Cruz	GreenWaste Recovery, San Jose	City of Watsonville
Universal curbside pickup?	No	Yes	Yes	Yes	Yes
Weekly yard waste pickup?	Yes	Yes	Yes	Yes	Every other week (began 2012)
Yard waste processor	Vision Recycling, Fremont	Vision Recycling, Fremont	City of Santa Cruz	Vision Recycling, Fremont	City of Watsonville
Weekly recyclables pickup?	Yes	Yes	Yes	Yes	Every other week
Recycling processor	GreenWaste Recovery, San Jose	GreenWaste Recovery, San Jose	City of Santa Cruz	GreenWaste Recovery, San Jose	A&S Metals, Castroville

	<b>Santa Cruz County</b> <sup>[66]</sup>	<b>City of Capitola</b> <sup>[66]</sup>	<b>City of Santa Cruz</b> <sup>[66]</sup>	<b>City of Scotts Valley</b> <sup>[66]</sup>	<b>City of Watsonville</b> <sup>[66]</sup>
Sources of funding for jurisdiction waste operations	Tipping fees (GWR, other franchisees, self-haulers)  Property tax assessments (CSA 9C)	-	Curbside collection fees  Tipping fees (self-haulers)  Sale of recycled materials	-	Curbside collection fees  Tipping fees (self-haulers)  Sale of recycled materials
Other revenue sources to jurisdiction, not targeted to fund waste operations	Franchise fees (GWR & other franchisees) go into the county General Fund	Franchise fees (GWR)	-	Franchise fees (GWR)  Property tax assessments (CSA 9C)	-

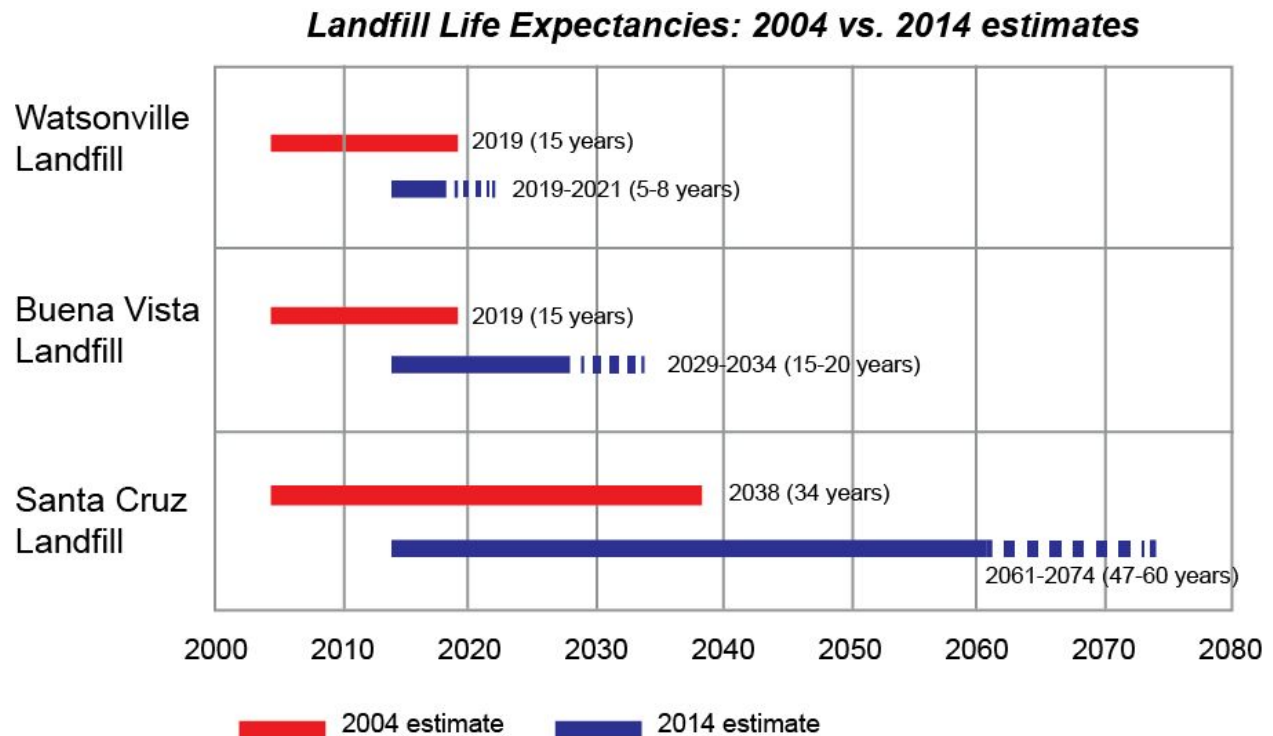
Source: Population, area, and population per square miles: United States Census Bureau.<sup>[66]</sup>



## Appendix B

### *Extending the Life of the Landfills*

The chart below shows that progress has been made on increasing the remaining life of the county's landfills in the past 10 years. The 2004 estimates were provided in the 2003/2004 Grand Jury report.<sup>[1]</sup> The 2014 estimates are from our interviews.



The city of Santa Cruz provided estimates ranging from 47 to 60 more years for the landfill at the Resource Recovery Facility. The city is constructing a new landfill cell there this year, and two or three more cells can be built. After that, no more expansion is possible.

Santa Cruz County estimates that the Buena Vista Landfill has 15 to 20 years of capacity remaining. Repeated attempts to find new landfill sites to replace Buena Vista have been unsuccessful (see [Appendix F](#)). Construction on the landfill's last cell started in the summer of 2014.<sup>[67]</sup>

The city of Watsonville estimates that their landfill has only five to eight years left, with a closure date somewhere between 2019 and 2021. The city has a contract with the Monterey Regional Waste Management District and is currently hauling small amounts of waste to the Marina landfill to keep the contract active in anticipation of the closure of the landfill, after which all solid waste will go to Marina.

The Ben Lomond landfill closed in 1994 and now operates as a transfer station.

By contrast, the life of the Marina landfill is estimated at somewhere between 100 and 150 years; the expected closure date listed on its facility permit is July 2161.<sup>[68]</sup>

The economic downturn in the late 2000s, especially the decline in new construction, was the primary reason for the drop in the tonnage of solid waste going into the landfills. Now that the economy is turning around, they expect the fill rate to increase. As one interviewee put it, "What's good for the economy isn't necessarily good for the landfill."

Other factors mentioned as contributing to extending the life of the landfills were the success of waste reduction, diversion and recycling programs; and improved waste compaction and operating procedures that save landfill space.

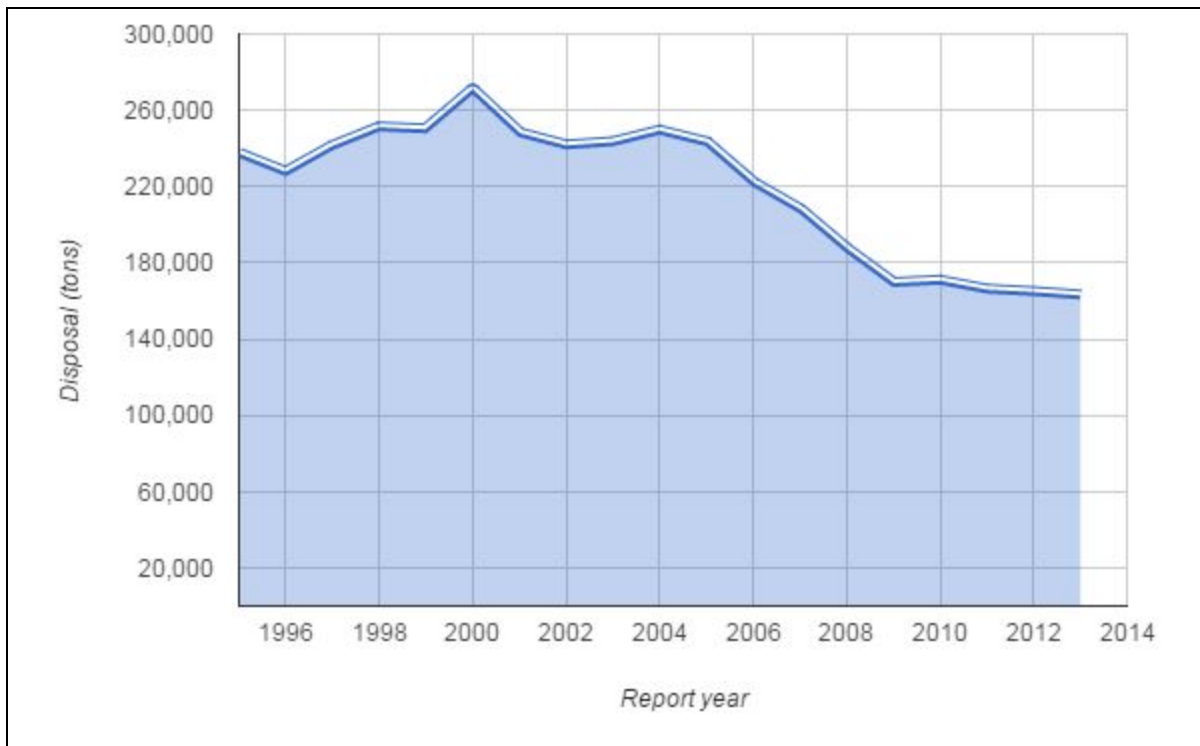
Once at capacity, landfills still require effort and funding to close and maintain. The county, the city of Santa Cruz, and the city of Watsonville all have funds budgeted for landfill closure and post-closure maintenance.

## Appendix C

### ***Waste Disposal in Santa Cruz County***

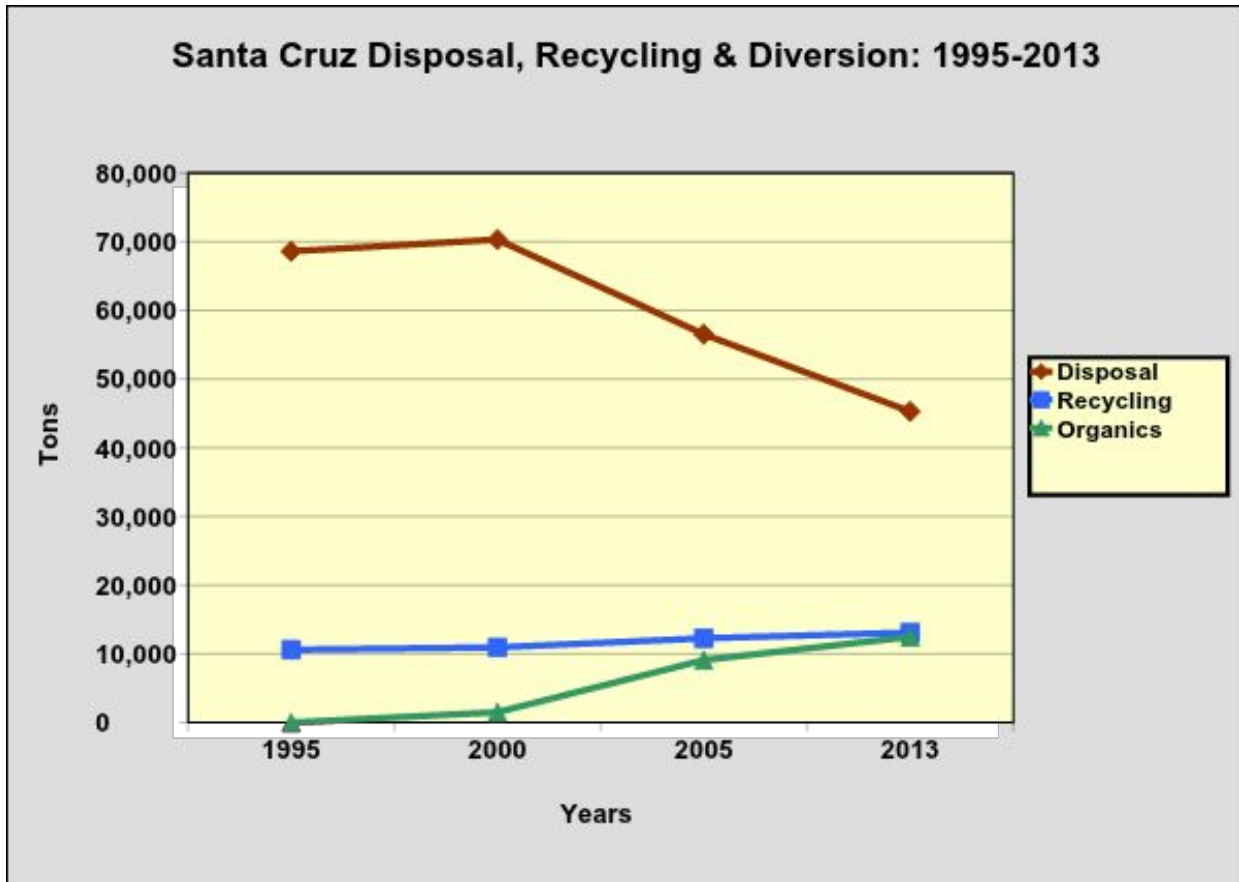
The following chart shows CalRecycle data on total solid waste disposal for the entire county between 1995 and 2013. The steep drop in disposal in the mid-to-late 2000's - a 32.2% decline between 2004 and 2009 - coincides with the general recession in the United States. This has leveled off in recent years, with only a 3.9% decline between 2009 and 2013.

### ***Annual Solid Waste Disposal (in Tons) for the County of Santa Cruz 1995-2013***



Source: CalRecycle Multi-Year County of Origin Summary for the County of Santa Cruz. [\[69\]](#)

The chart below shows the tonnages of municipal solid waste (disposal), recycling, and organics (yard waste) in recent years for the city of Santa Cruz.



Source: City of Santa Cruz Department of Public Works

***Jurisdiction Waste Disposal (in Tons) for Santa Cruz County in 2013***

The table below shows the amounts of municipal solid waste produced by each county jurisdiction in 2013 and the facilities where it was sent.

These numbers are for municipal solid waste only. They do not include material that is sent for recycling (blue cart) or wood waste/yard waste (green cart). CalRecycle does not provide statistics for either recycling or wood waste/yard waste.

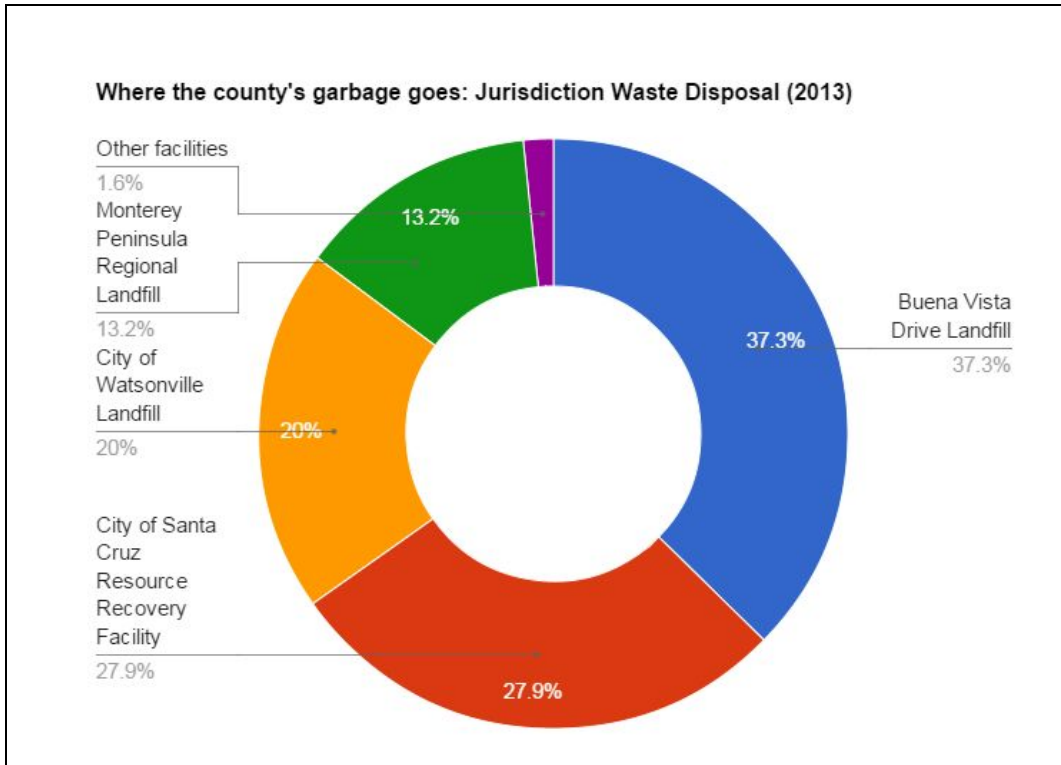
<b>Destination Facility</b>	<b>Source Jurisdiction</b>					
	<b>Unincorp. Santa Cruz County</b>	<b>City of Capitola</b>	<b>City of Santa Cruz</b>	<b>City of Scotts Valley</b>	<b>City of Watsonville</b>	<b>Outside Santa Cruz County</b>
Buena Vista Drive Landfill	59,252	148	152	660	190	497
City of Santa Cruz Resource Recovery Facility	67	0	45,068	0	0	0
City of Watsonville Landfill	0	0	0	0	32,284	0
Monterey Peninsula Regional Landfill	1,865	7,635	2,492	7,745	1,591	357,799
Other facilities	243	6	1,958	29	424	
<b>Total waste disposal (tons)</b>	<b>61,427</b>	<b>7,789</b>	<b>49,670</b>	<b>8,434</b>	<b>34,489</b>	

Source: CalRecycle reports:

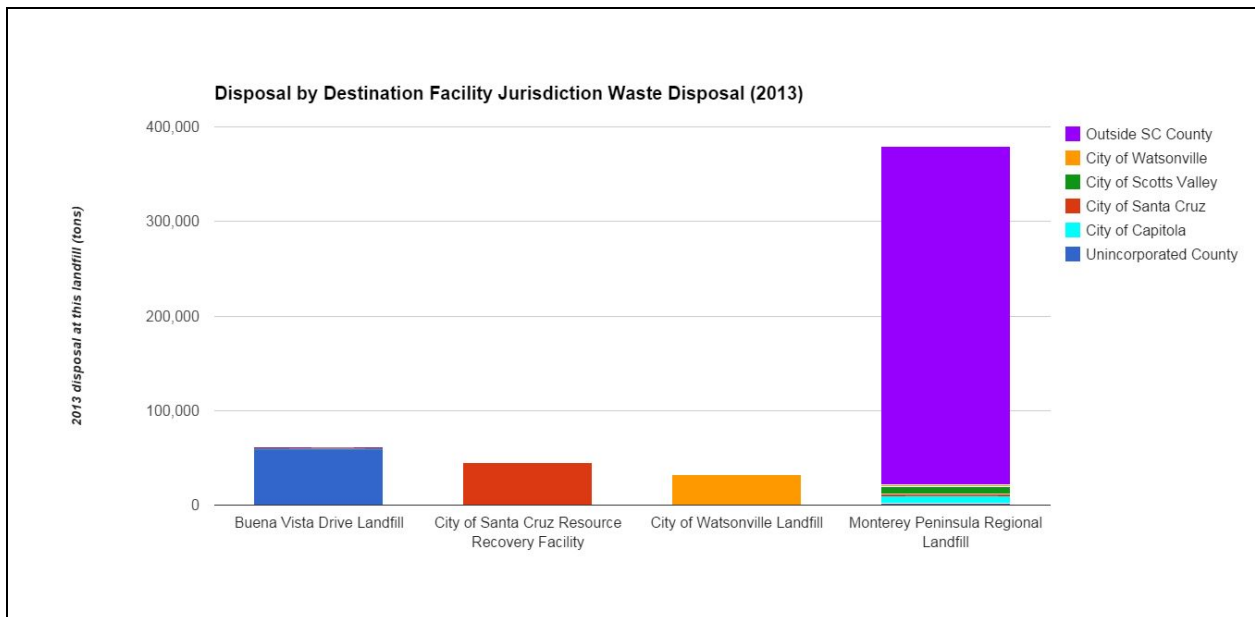
1. Jurisdiction of Origin Waste Disposal by Facility<sup>[70]</sup>
2. Jurisdiction and Alternative Daily Cover (ADC) Tons by Facility<sup>[71]</sup>

The graphs below show two different views of the disposal numbers in the table above.

## Where the County's Garbage Goes



## Where the Landfills Get Their Garbage



All Santa Cruz County jurisdictions send some solid waste to the Monterey Peninsula Regional landfill at Marina, but generate only a small fraction of the waste that the Marina landfill receives.

**Wood Waste/Yard Waste Processed (in Tons) in 2013-2014**

The table below shows the amounts of wood waste/yard waste produced by each county jurisdiction and the facilities where it is sent for processing.

**Wood/Yard Waste Processed**

<b>Destination Facility</b>	<b>Santa Cruz County</b>	<b>City of Capitola</b>	<b>City of Santa Cruz</b>	<b>City of Scotts Valley</b>	<b>City of Watsonville</b>
Buena Vista Drive Landfill	23,065	941	107	1371	212
Ben Lomond Transfer Station	9,397	9	12	881	0
City of Santa Cruz RRF	0	0	11,500	0	0
City of Watsonville landfill	0	0	0	0	1900
<b>Total wood / yard waste processed (tons)</b>	<b>32,462</b>	<b>950</b>	<b>11,619</b>	<b>2252</b>	<b>2112</b>

Does not include out-of-county wood waste processed at Buena Vista (142 tons) and Ben Lomond (10 tons)

**Sources:**

1. Buena Vista and Ben Lomond data: Santa Cruz County Department of Public Works. Data is for the calendar year 2014.
2. City of Santa Cruz RRF data: City of Santa Cruz Department of Public Works. Data is for July 2013 through June 2014.
3. Watsonville landfill data: City of Watsonville Department of Public Works. Data is for the calendar year 2014

## Appendix D

### **Waste Composition Findings for Jurisdictions within Santa Cruz (2009)**

This table presents the estimated composition of disposed Municipal Solid Waste for each of the jurisdictions that commissioned the study. Compostable organic waste is shown in green. Note that in 2009, Watsonville did not yet provide “green cart” service for yard waste.

<b>Material</b>	<b>County of Santa Cruz<sup>[41]</sup></b>	<b>City of Santa Cruz<sup>[41]</sup></b>	<b>City of Watsonville<sup>[41]</sup></b>	<b>City of Scotts Valley<sup>[41]</sup></b>
Paper	13.5%	15.5%	13.1%	20.1%
Glass	2.3%	1.7%	1.5%	2.5%
Metal	4.3%	5.7%	3.4%	5.2%
Plastic	11.9%	10.3%	11.4%	12.4%
Organic	36.5%	37.0%	49.6%	39.0%
Vegetative Food	17.4%	17.3%	23.4%	18.4%
Other Food	3.4%	5.2%	3.2%	3.2%
Landscape & Agricultural Waste	6.1%	6.8%	13.8%	6.5%
Textiles	5.3%	5.1%	5.0%	5.6%
Manures	0.5%	0.2%	0.3%	0.5%
Miscellaneous Organic	0.5%	0.2%	0.3%	0.7%
Remainder / Composite Organics	3.2%	2.3%	3.5%	4.1%
Construction & Demolition	24.7%	24.5%	15.2%	14.3%
Hazardous	0.3%	0.1%	0.3%	0.1%
Special	2.7%	3.2%	2.8%	2.3%
Mixed Residue	3.9%	1.9%	2.7%	4.1%

*Source:* Cascadia Consulting Group, Inc. and Midatlantic Solid Waste Consultants, May 2010. “City of Watsonville Characterization of Disposed Waste for the Year 2009” Table 22.

Studies reprinted in: Santa Cruz County, the Cities of Santa Cruz, Watsonville, Capitola, and Scotts Valley, and UC Santa Cruz. September 30, 2014. “Request for Qualifications and Non-Binding Statement of Interest for Organics Processing Services.” Attachment B. <sup>[41]</sup>



## Appendix E

### **Key State Laws Intended to Prolong Landfill Life and/or Divert Organic Waste**

<p><b>AB 939</b> (1989)<sup>[72]</sup></p>	<p>The Integrated Waste Management Act. Among many other provisions, it established the California Integrated Waste Management Board, required each county to establish an <b>Integrated Waste Management Local Task Force</b>, and required each city and county to develop a plan for diverting 50% of all solid waste from the landfill by the year 2000, through source reduction, recycling, and composting.</p>
<p><b>SB 1016</b> (2008)<sup>[73]</sup></p>	<p>Changed the state’s 50% diversion mandate to a measurement system based on a per capita disposal rate and successful implementation of diversion programs.</p>
<p><b>AB 341</b> (2011)<sup>[74]</sup></p>	<p>Required businesses generating more than four cubic yards of waste per week to arrange for recycling services</p> <p>Required each local government to implement a commercial recycling program</p> <p>Set a new statewide goal, requiring that at least 75% of solid waste generated be diverted (by recycling, composting, or source reduction) by the year 2020.</p> <p>Required CalRecycle to report to the Legislature on how this 75% goal was to be achieved. The CalRecycle report identified ten focus areas, the first of which was moving organics out of the landfill:<sup>[75]</sup> CalRecycle further stated:</p> <p style="text-align: center;"><i>The 75 percent goal cannot be reached unless a significant amount of organics now being landfilled is instead used in new composting/anaerobic digestion (AD) facilities.</i><sup>[76]</sup></p>
<p><b>AB 1594</b> (2014)<sup>[77]</sup></p>	<p>Required green waste used as alternative daily cover in landfills to be counted as disposal, not as diversion, after 2020.</p>
<p><b>AB 1826</b> (2014)<sup>[78]</sup></p>	<p>Required businesses generating specified amounts of organic waste to arrange for recycling services for that organic waste.</p> <p>Also required every jurisdiction (with some exceptions) to implement an organics recycling program for the businesses subject to this act, starting in 2016.</p>

Source: CalRecycle. “History of California Solid Waste Law.”<sup>[71]</sup>

## Appendix F

### ***Not in Our Backyard***

If the county needs more landfill space, why not just build a new landfill? The Grand Jury learned that repeated attempts to locate sites for new landfills have failed due to Santa Cruz County's dense population, high cost of land, and close proximity to the ocean and ecologically sensitive wetlands.

In 1993 the county began a siting study, identifying six possible sites for a Materials Recovery Facility (MRF) and composting facility. Due to acquisition and facility development costs, these sites were not pursued further.

In 2000 the Local Task Force, through a Citizens' Advisory Group, began another study to search for a regional composting facility and solid waste disposal site. The study was completed in 2004 and identified 24 possible sites. After two lengthy public hearings and overwhelming public opposition, the Local Task Force voted to terminate the study and focus resources solely on alternatives to new landfills.<sup>[79]</sup>

In 2006 the county began to focus on solid waste resource recovery and transfer facilities in anticipation of Buena Vista Landfill closing. Consultants were hired to develop plans for a "Zero Waste Eco-Park." This ambitious project was intended to create a state-of-the-art facility which would have included:

- A transfer station for municipal solid waste and curbside recyclables
- A Materials Recovery Facility (MRF) for construction and demolition processing
- A second-hand materials exchange
- Green waste processing and composting operations

The county began yet another search for sites for the Eco-Park components, identifying 14 sites in the south county. This study concluded that the Buena Vista Landfill was the preferred location for the Eco-Park, specifically Module 5, the last undeveloped cell of the Buena Vista Landfill (approximately 7 acres).<sup>[80]</sup> A series of siting reports and cost studies followed.<sup>[81]</sup>

In 2009 the Board of Supervisors accepted the County Department of Public Works' project description and directed them to submit it to the Planning Department for a permit application and California Environmental Quality Act review. Two significant areas of concern were identified: the sensitive location of the project within the Coastal Zone, and the cost of the project during the economic downturn, at a time of reduced county revenues.<sup>[82]</sup> These two concerns essentially killed the Eco-Park.

Subsequently, the project was scaled down in favor of a smaller, less costly alternative:

- Module 5 would be used as a landfill, possibly relocating some recycling facilities to a new plateau on top of the landfill when the cell is filled
- A transfer station would be built nearby on Rountree Lane, with planning to be delayed for several years until the need is more pressing and funding more available<sup>[83]</sup>

Construction of the Module 5 landfill began in the summer of 2014.<sup>[66]</sup> It was supposed to be finished by the end of the year, but due to rains and the discovery of unexpected groundwater sources, work was halted and was not resumed until March 2015. It is now expected to be finished by mid-June 2015. In the meantime, the County is routing some of its solid waste to the Watsonville landfill (in return for Watsonville using Buena Vista at a later date) and to the Marina landfill, until Module 5 is ready.

## Appendix G

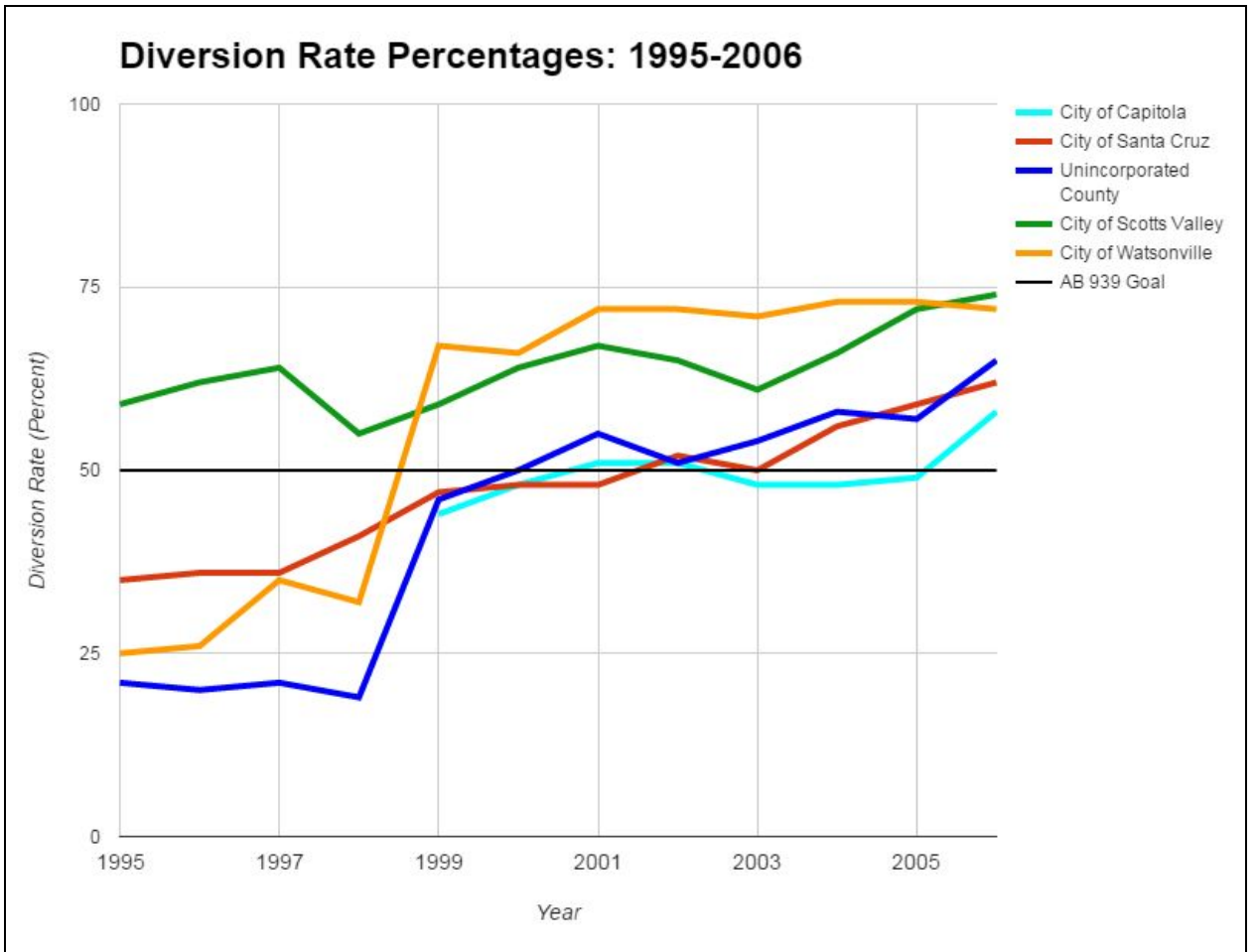
### ***Compliance with AB 939 (1995-2006)***

The Integrated Waste Management Act of 1989 (AB 939) made major changes to the California’s waste management infrastructure. In addition to repealing many earlier laws regulating waste management and creating the Integrated Waste Management Board and Local Task Forces, AB 939 required each county’s Local Task Force to develop a **Countywide Integrated Waste Management Plan**. Each plan was to include a schedule for reaching the goal of diverting 50% of all solid waste from the landfills by the year 2000, through source reduction, recycling, and composting. This was the first time individual jurisdictions in California had been mandated to divert solid waste from landfills and report their progress to a state agency.

### ***Diversion Rate Percentages 1995-2006***

<b><i>Year</i></b>	<b><i>City of Capitola</i></b>	<b><i>City of Santa Cruz</i></b>	<b><i>Santa Cruz County unincorp.</i></b>	<b><i>City of Scotts Valley</i></b>	<b><i>City of Watsonville</i></b>
1995	n.a.	35%	21%	59%	25%
1996	n.a.	36%	20%	62%	26%
1997	n.a.	36%	21%	64%	35%
1998	n.a.	41%	19%	55%	32%
1999	44%	47%	46%	59%	67%
2000	48%	48%	50%	64%	66%
2001	51%	48%	55%	67%	72%
2002	51%	52%	51%	65%	72%
2003	48%	50%	54%	61%	71%
2004	48%	56%	58%	66%	73%
2005	49%	59%	57%	72%	73%
2006	58%	62%	65%	74%	72%

Source: CalRecycle Countywide, Regionwide, and Statewide Jurisdiction Diversion/Disposal Progress Report.<sup>[84]</sup>



Source: CalRecycle Countywide, Regionwide, and Statewide Jurisdiction Diversion/Disposal Progress Report.<sup>[84]</sup>

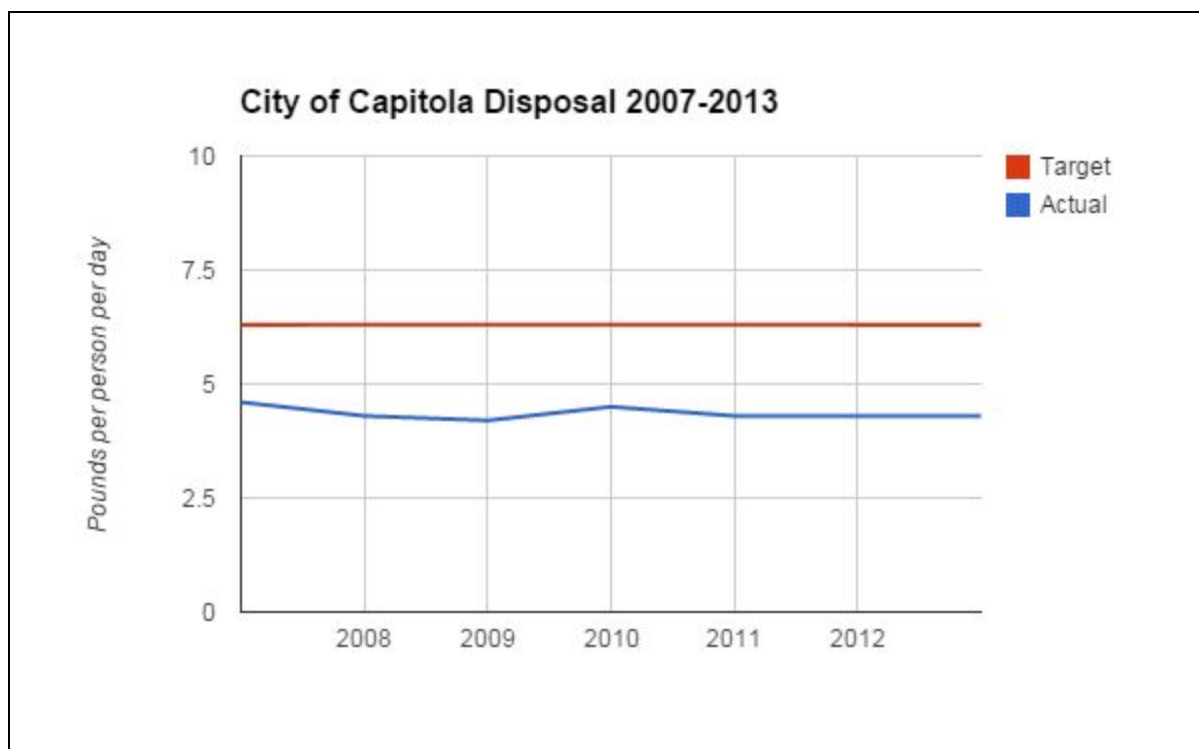
## Appendix H

### Compliance With SB 1016 (2007-2013)

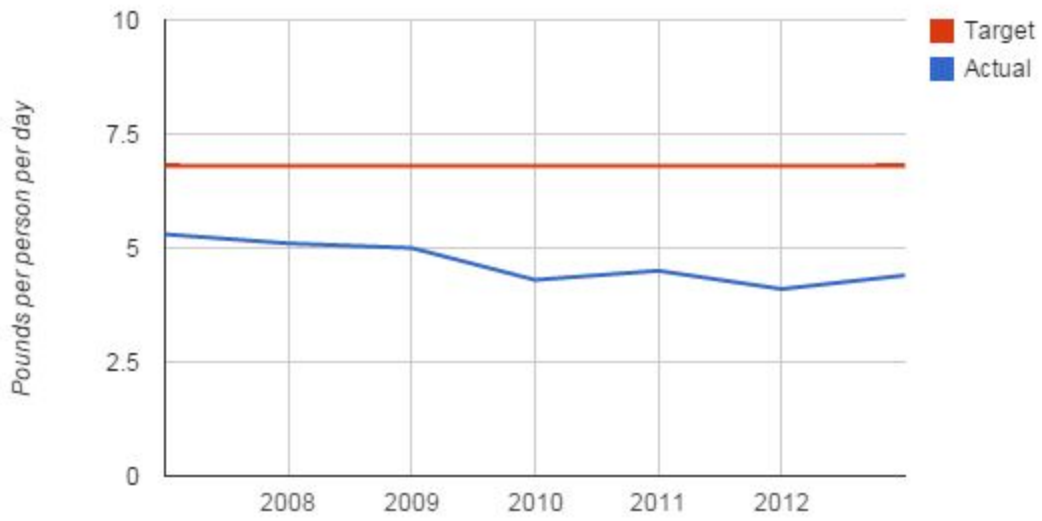
In 2008 the Legislature passed SB 1016, which simplified the way jurisdictions measured their waste streams and put more emphasis on recycling and diversion program implementation. Jurisdictions no longer had to estimate diversion percentages through a complex formula. Instead, they report **per capita disposal**: waste disposal in pounds per person per year. Each jurisdiction was assigned a disposal target that was the equivalent of 50% diversion, expressed on a per capita basis.

If a jurisdiction disposes *less* than its target *and* is implementing its recycling and related programs, it has met the mandate. The 50% requirement was not changed, just measured differently.<sup>[85]</sup>

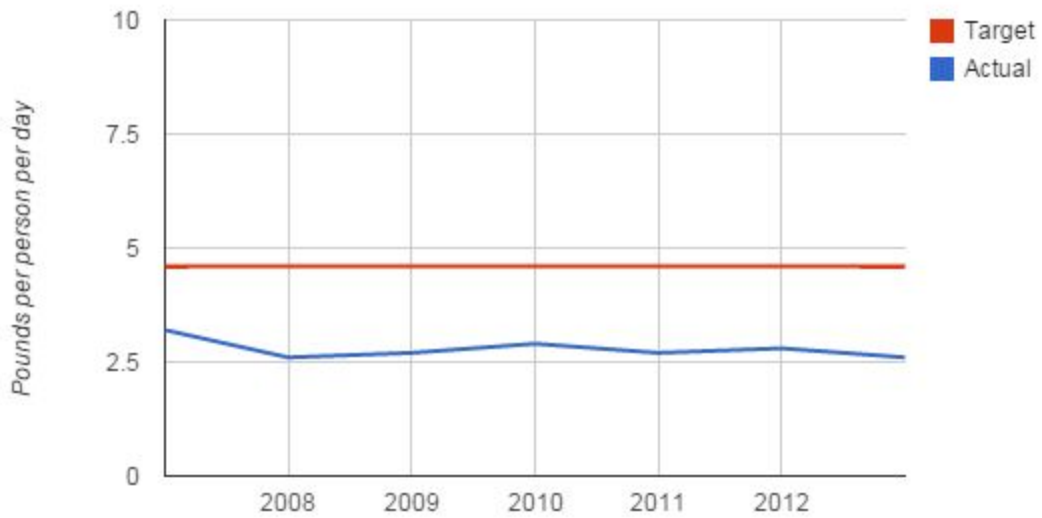
Using data on CalRecycle, the Grand Jury developed the charts below. The charts show that the per capita disposal rates for the cities and county of Santa Cruz have been consistently below their assigned targets. The *lower* the actual disposal rate, the less waste the jurisdiction is generating per person.

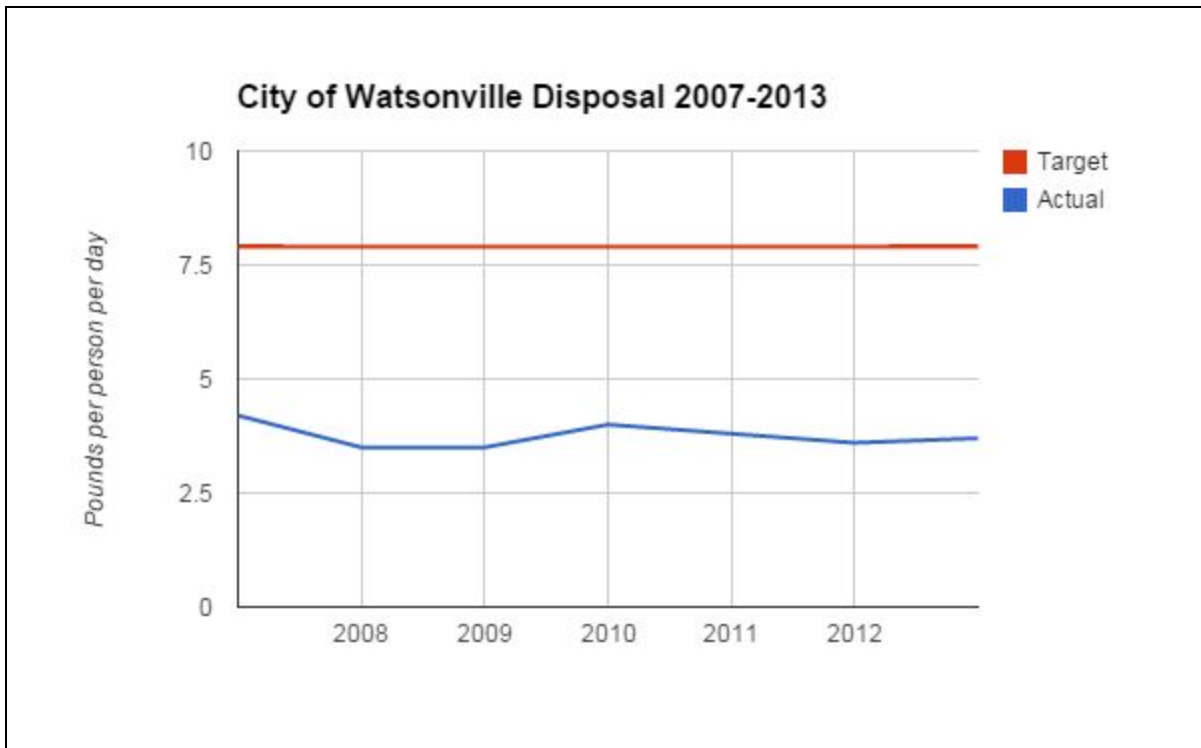
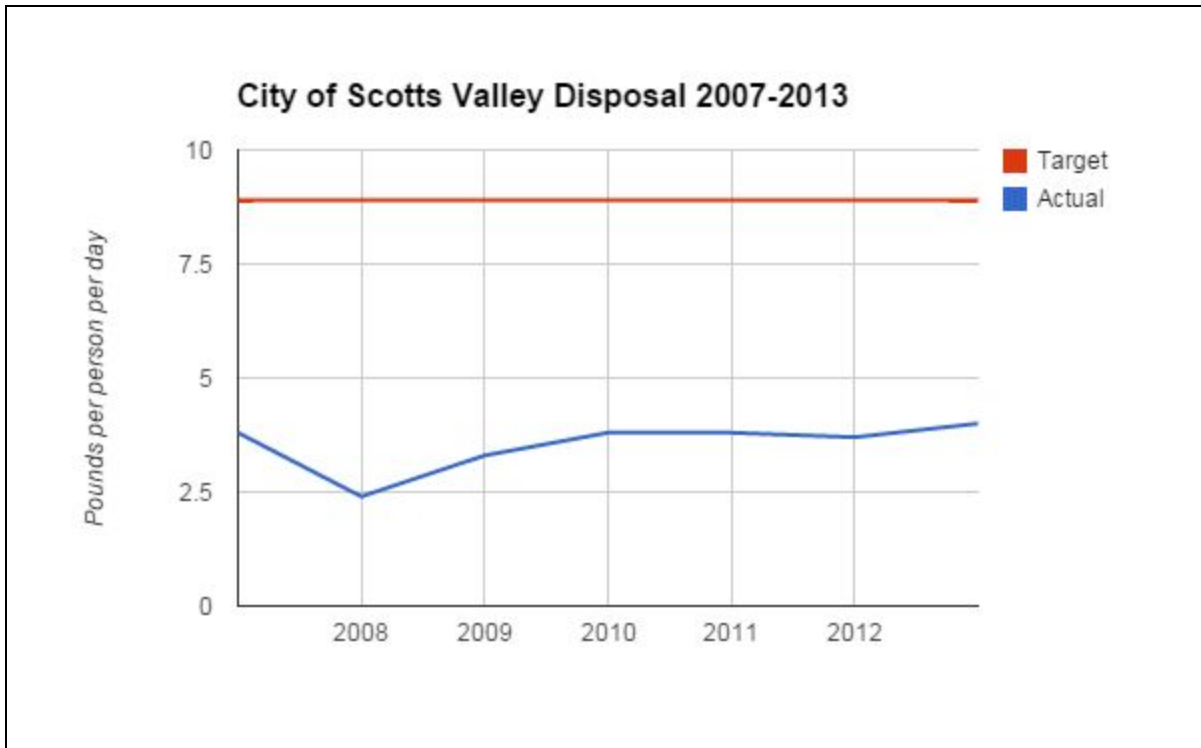


**City of Santa Cruz Disposal 2007-2013**



**Unincorporated Santa Cruz County Disposal 2007-2013**





Source: CalRecycle Countywide, Regionwide, and Statewide Jurisdiction Diversion/Disposal Progress Report. <sup>[84]</sup> Data for 2014 was not yet available.



## Appendix I

### ***Estimated Tonnage of Available Targeted Organic Materials***

This table from the 2014 Request for Statements of Interest gives the participating agencies' best estimates of the available tonnage of each type of targeted organic material that could be available for processing under this project. Additional volumes of residential food scraps may be available depending on the timing, nature, and cost of the project.

<b>Agency</b>	<b>Yard Trimmings</b>	<b>Commercial Food Waste*</b>
City of Capitola	917	550
City of Santa Cruz	11,350	3,328
County of Santa Cruz	37,000	2,259
City of Scotts Valley	1,108	N/A
City of Watsonville	2,058	2,610
UC Santa Cruz	424	600
<b>Total All Agencies</b>	<b>52,857</b>	<b>9,347</b>
<p><i>* Estimates provided by Participating Agencies and/or based on data from Waste Characterization Study</i></p>		

Source: Santa Cruz County, the Cities of Santa Cruz, Watsonville, Capitola, and Scotts Valley, and UC Santa Cruz. September 30, 2014. "Request for Qualifications and Non-Binding Statement of Interest for Organics Processing Services."<sup>41</sup>