

# MARIN COUNTY HAZARDOUS AND SOLID WASTE MANAGEMENT JOINT POWERS AUTHORITY

**Belvedere:**  
Craig Middleton

Date: April 26, 2018

**Corte Madera:**  
Todd Cusimano

To: JPA Executive Committee

**County of Marin:**  
Matthew Hymel

From: Steve Devine, Program Manager

**Fairfax:**  
Garrett Toy

Re: Material Flow and Capacity Analysis Report and Presentation

**Larkspur:**  
Dan Schwarz

Marin is required to report annually to the state on the capacity of landfills in Marin (Redwood Landfill in Novato) and organics capacity over a 15-year time horizon. Member Agencies of Zero Waste Marin, including Marin County and the eleven incorporated cities and towns are responsible for arranging for the collection, transfer, transport, and disposal or processing of garbage, organic material, and recyclables.

**Mill Valley:**  
Jim McCann

**Novato:**  
Regan Candelario

To help assess long term disposal and organics capacity in Marin the JPA Board authorized a Material Flow and Capacity Analysis in the FY 17-18 Budget. The most salient elements of the MFCA Study are included as a series of attachments to this Staff Report. R3 Consulting, the contractor selected to lead a team of industry experts to complete the Study will be providing an oral presentation and be available to answer questions.

**Ross:**  
Joe Chinn

**San Anselmo:**  
David Donery

**San Rafael:**  
Jim Schutz

## Recommendation

Information Only. Receive Material Flow and Capacity Analysis Presentation from R3 Consulting.

**Sausalito:**  
Adam Politzer

**Tiburon:**  
Greg Chanis

## Attachments:

1. Summary of MFCA Project Letter from R3 Dated 04/12/18
2. Organics Generation and Capacity Analysis Report Dated 04/02/18
3. Remaining Landfill Capacity Projections Memo Dated 03/30/18
4. DRS Tool and AB 901 Preparation Memo Dated 03/30/18.
5. Tonnage Scenario Tool Memo Dated XX/XX/18
6. Organics Processing Capacity and Landfill Capacity Infographic

*F:\Waste\JPA\JPA Agenda Items\ExCom 180426\Item 6 - MFCA SR.doc*

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April 12, 2018

Ms. Judith Silver, Senior Planner  
Marin County Hazardous and Solid Waste JPA  
1600 Los Gamos Drive, Suite 210  
San Rafael, CA 94903

**Subject: Summary of Material Flow and Capacity Analysis Project**

Dear Ms. Silver,

Marin County Hazardous and Solid Waste Management Joint Powers Authority (Zero Waste Marin) engaged R3 Consulting Group, Inc. (R3) to lead a team of industry experts including R3, Integrated Waste Management Consulting, LLC; Cascadia Consulting Group; and Debra Kaufman Consulting (collectively, Project Team) to assist the agency improve regulatory compliance, preparedness, and long-term planning for landfill and organics processing capacity county-wide. Significant changes in statewide requirements and an increased emphasis on the diversion of organics from landfill have led to a need for planning for organics infrastructure capacity, and for benchmarking organics diversion success over time. There are also several new regulations which affect diversion reporting, potentially changing the type of information that is available to Zero Waste Marin.

The Material Flow and Capacity Analysis Project Report is composed of the following sections:

- Organics Generation and Capacity Report
- DRS Tool and AB 901 Preparedness Memorandum
- Landfill Capacity Memorandum
- Tonnage Scenario Tool Memorandum

Each deliverable was designed to assist the agency report to the state and measure diversion over time, in alignment with the statewide requirements under several new regulations and to contemplate future capacity requirements for both organic materials and disposal.

## Background

Marin County is required to report annually to the state on the landfill capacity and organics capacity over a 15-year time horizon. Member Agencies of Zero Waste Marin, including Marin County and the 11 incorporated cities and towns within Marin County, are responsible for arranging for the collection, transfer, transport, and disposal or processing of garbage, organic material, and recyclables. Zero Waste Marin does not control flow of these materials, and has not contracted to provide for capacity for any of these materials at this time.

Sufficient disposal capacity for landfilled garbage exists over a 15-year time horizon, even with no diversion increases and if all disposal from Marin County is directed at Redwood Landfill (some of Marin's garbage is landfilled at Potrero Hills landfill in Solano County, and other landfills throughout the region).

However, capacity for processing organic materials (food waste, green material, landscape waste, wood waste, lumber, paper, cardboard, and biosolids/sludge/digestate) does not appear to be adequate, especially because we anticipate increased need for organics processing with increased program requirements from the State of California. Specifically, Senate Bill (SB) 1383 set ambitious targets for reduction of organics sent to landfill statewide, including (next page):

- A 50% reduction in statewide disposal of organic waste from 2014 levels by 2020
- A 75% reduction in statewide disposal of organic waste from 2014 levels by 2025
- A 20% reduction in edible food currently disposed, for recovery and human consumption, by 2025

These statewide organic disposal reduction targets are anticipated to be passed on to local jurisdictions in the form of significant programmatic requirements, though the regulatory language is not yet finalized. More detail on the anticipated programmatic requirements can be found in the "Organics Generation and Capacity" report, which is attached to this letter.

In order to assist Zero Waste Marin plan for organics processing capacity over the required 15-year planning horizon, the Project Team engaged in the following general activities:

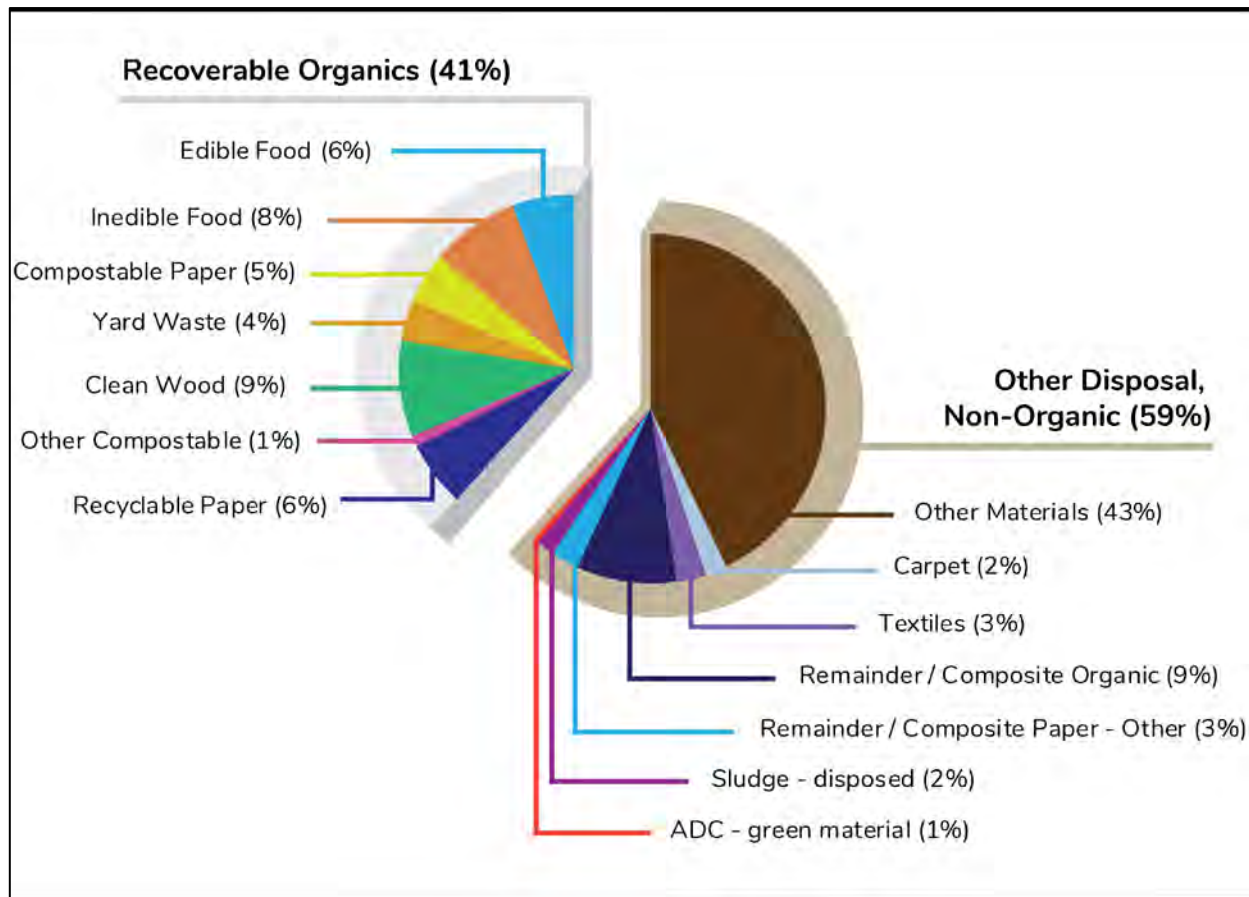
- 1) Developed a model characterizing organics disposal at landfill in 2014 and throughout a 15-year time horizon from the current year (2014 – 2033).
- 2) Provided a description of policies and programs that will be required, and those that are recommended by the Project Team to increase organics diversion.
- 3) Developed a model describing infrastructure capacity, including existing, additional, and future capacity.
- 4) Identified additional needs for organics processing infrastructure based on the models developed in 1) and 3), above.

Generally, organics (commingled green material composed of food scraps and food-soiled paper) are collected from residents by haulers in curbside programs. From commercial businesses, haulers collect either food scraps or food scraps mixed with food soiled paper and other green material. The anaerobic digestion process that absorbs the Marin Sanitary Services' "Food to Energy" Program's source separated food scraps has no tolerance for food soiled paper, limiting the usefulness of this processing option. EarthCare, the largest and only fully permitted compost facility in Marin County does accept compostable paper, however since it markets its finished soil as an organic product, there are severe limitations on potential contaminants including Biobags which can thwart commercial business participation.

The  Organics Generation and Capacity Report contemplates many different organics diversion programs and many processing options including source reduction, composting, anaerobic digestion, biomass, and land application. For the purpose of our analysis, we have considered each of these possible avenues as being desirable, with the understanding that a goal of Zero Waste Marin is to divert as much organic materials as possible.

## Findings

Figure 1, next page, shows a summary of the waste disposal characterization developed by the Project Team.



**Figure 1: Disposal Waste Characterization for 2014 with Detailed Organic Materials**

Clean wood represents a significant portion of the un-diverted organic material, and faces challenges because of the weakness of the biomass market.

Recyclable paper is best diverted to recycling markets, not organics processing options. Edible food is best diverted via food recovery (and SB 1383 goals are focused on edible food recovery for human consumption, not diversion generally). Therefore, these two material types are not included in the SB 1383 organics infrastructure model, which is shown in Figure 2, next page.

As shown in Figure 2, insufficient capacity exists within the county for processing organic material diverted in alignment with the statewide organics reduction goals. Processing capacity was determined by contacting the operators of the various processing facilities in Marin County, which include windrow composting, aerated static pile composting, and anaerobic digestion. The windrow composting facilities in Marin County accept green material but not food scraps. The aerated static pile composting facility (EarthCare) accepts green material with commingled food scraps and food-soiled paper. The anaerobic digester accepts food scraps only.

**Figure 2: Organics Generation and Processing Capacity Under Achievement of SB 1383 Goals  
All Materials**

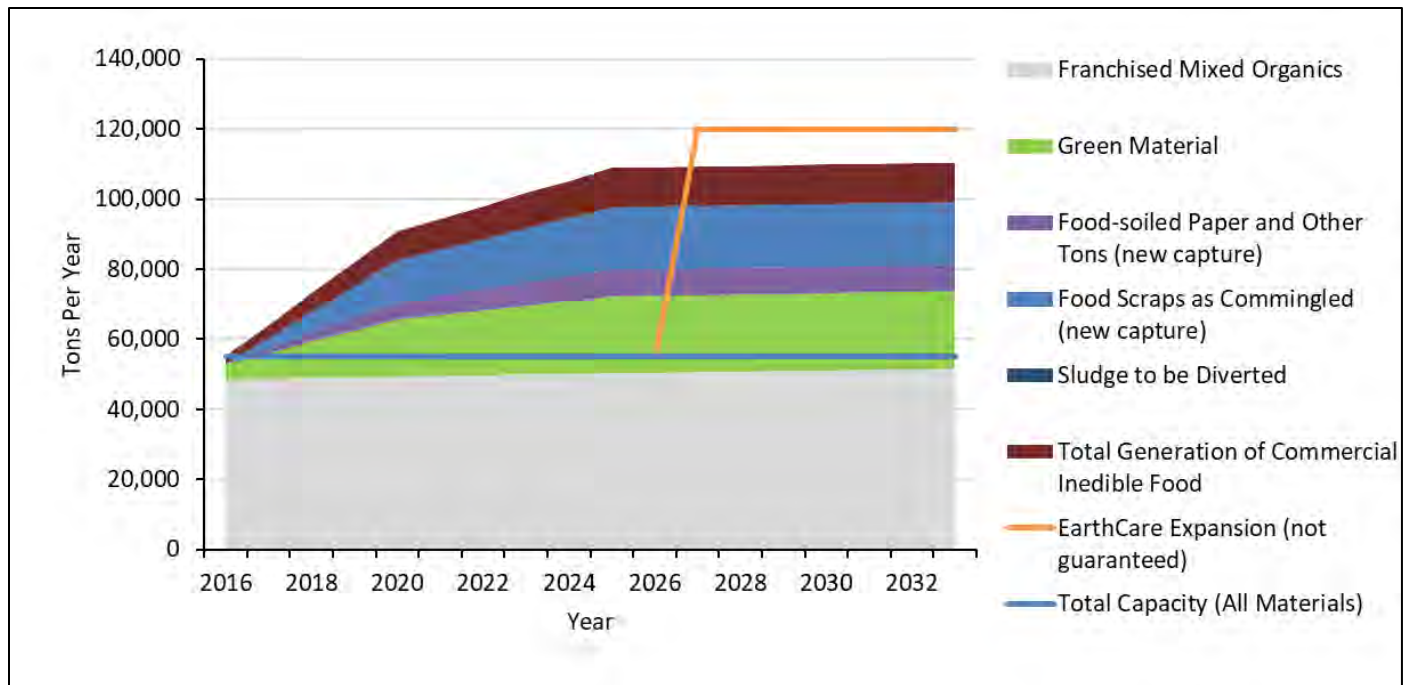


Figure 2 displays one possible scenario for organics tonnage change over time. The data used for this analysis (and the other two scenarios given in the “Organics Generation and Capacity” report) were both generated using a spreadsheet, which was provided to Zero Waste Marin staff and can be used by staff to input other data and display a number of other possible scenarios. These scenarios include the possibility that some organics currently processed in the county that originate in other counties, most notably Sonoma and Alameda, will, once new compost facilities in other locations come on line, cease to be delivered to Marin thereby opening up more capacity for Marin generated organic materials. This tool is described in more detail in the “Tonnage Scenario Tool” memorandum, attached to this letter.

Finally, the Project Team engaged in an extensive effort to improve the spreadsheet used by Marin County for reporting to the state on disposal tonnages. The Project Team also summarized diversion and disposal data in a similar format for the years 2014 through 2017 by quarter, allowing Zero Waste Marin to produce customizable charts displaying disposal and diversion data by Member Agency or by hauler service area over time.

## Recommendations

The Project Team recommends that Zero Waste Marin encourages local infrastructure expansion and development for organics processing. Additionally, Member Agencies are encouraged to secure organics processing capacity by pursuing one of the following options:

- Requiring haulers to secure agreements that secure adequate capacity for organics processing, with specific terms and review for adequacy by each agency. Additionally, agreements should explicitly reserve the right of the jurisdiction to direct flow such that the jurisdiction can separately procure for processing capacity outside of the collection contract.

- Establishing flow control to organics processing facilities via contracts between facilities and the jurisdiction.
- Request that Zero Waste Marin arrange for organics processing capacity on behalf of its Member Agencies.

If capacity is not secured, given the significant increases in anticipated organics diversion, Member Agencies' haulers may not be able to deliver organic material to local facilities, especially given that other entities may have contracts that secure processing capacity with facilities in Marin County.

This may result in the need to ship organic material to a more distant processing facility. Transfer and transport to facilities that are not local to Marin could mean higher costs, and greater environmental and greenhouse gas emission impacts.

Figure 3, below, is a map showing the locations of nearby organics processing facilities.

**Figure 3: Nearby Organics Processing Facilities**



### Landfill Capacity

Regarding landfill capacity, Member Agencies should be considering transfer and transport out of County in anticipation of the exhaustion of landfill capacity. It should be noted that flows from outside the county and disasters (such as the recent Sonoma fire disaster) can affect the time horizon for exhaustion of capacity. Zero Waste Marin should consider the impacts of future disasters similar to the

Ms. Judith Silver  
April 12, 2018  
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Sonoma fires, and begin disaster debris planning exercises on a countywide basis. More information is presented in the memorandum entitled, "Landfill Capacity," which is attached to this letter.

### **Assembly Bill 901 Preparedness**

Regarding Assembly Bill 901 preparedness, Zero Waste Marin should anticipate changes to statewide reporting requirements resulting from AB 901 which may limit access to disposal and diversion data, and should consider requiring ongoing reporting from haulers and facilities. More information on this topic can be found in the attached memorandum entitled, "DRS Tool and AB 901 Preparedness."

\* \* \* \*

We appreciate the opportunity to assist Zero Waste Marin in this very exciting and ground-breaking analysis. Should you have any questions regarding this Report, or need any additional information, please contact me by phone at (510) 292-0853 or by email at [gschultz@r3cgi.com](mailto:gschultz@r3cgi.com).

Sincerely,

### **R3 CONSULTING GROUP**



Garth Schultz | Principal

### **Attachments**

- Organics Generation and Capacity Report
- DRS Tool and AB 901 Preparedness Memorandum
- Landfill Capacity Memorandum
- Tonnage Scenario Tool Memorandum



CONSULTING GROUP, INC.  
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## FINAL REPORT

# Organics Generation and Capacity Analysis



## CLIENT:

**Zero Waste Marin**

April 2, 2018



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# 1 Executive Summary

The next few years present a significant paradigm shift in solid waste management in the State of California (State): resource recovery has been identified as an important means of greenhouse gas emission reduction, and is no longer considered merely a resource conservation measure. This shift is illustrated in a number of new State laws with ambitious targets for organic waste reduction, and requirements on local jurisdictions and commercial businesses statewide.

The Marin County Hazardous and Solid Waste Management Joint Powers Authority (JPA, also known as Zero Waste Marin) represents Marin County and the 11 incorporated cities and towns within Marin County (collectively, Member Agencies). Among other duties, Zero Waste Marin reports to the Department of Resources Recycling and Recovery (CalRecycle) on compliance with State solid waste management and planning requirements.

Zero Waste Marin engaged R3 Consulting Group, Inc. (R3) to lead a team of industry experts including R3, Integrated Waste Management Consulting, LLC; Cascadia Consulting Group; and Debra Kaufman Consulting (collectively, the Project Team) in assisting the agency to improve regulatory compliance, preparedness, and long-term planning for landfill and organics processing capacity county-wide. The following Report presents the Project Team’s findings related to legislative and regulatory compliance and organics management planning over a 15-year time period in the County of Marin.

## Methodology

In order to fully describe and assess organics infrastructure needs, as well as address regulatory requirements under SB 1383, the Project Team:

- 1) Developed a model characterizing organics disposal at landfill in 2014 and throughout a 15-year time horizon from the current year (2014 – 2033) (Section 3 of this Report).
- 2) Provided a description of policies and programs that will be required, and those that are recommended by the Project Team to increase organics diversion (Section 4 of this Report).
- 3) Developed a model describing infrastructure capacity, including existing, additional, and future capacity (Section 5 of this Report).
- 4) Identified additional needs for organics processing infrastructure based on the models developed in 1) and 3), above (Section 6 of this Report).

Each of these actions is further described below and organized into the following subsections:

- Objective
- Regulatory Context
- Methodology
- Findings
- Recommendations

The Project Team is aware that Marin Sanitary Service commissioned a study on SB 1383 and organics planning entitled “2017 Organic Waste Recycling Plan.”

## Section 1

Executive  
Summary

This Report was informed by the MSS Plan; however, this Report is more specifically tailored to the reporting responsibilities of the JPA. The model of disposed organics found in Section 3 is based on a 2014 waste characterization for Marin County, rather than the statewide waste characterization which was used in the MSS Plan. Section 4 of this Report provides policies and program recommendations for all service areas of Marin County, not just the MSS service area. Furthermore, the capacity estimates presented in Section 5 of this Report were developed in conversation with all the organics processing facilities in the County.

It should also be noted that this Report contemplates many different organics diversion programs with various means of diverting organics from landfill, including source reduction, composting, anaerobic digestion, biomass, and land application. For the purpose of our analysis, we have considered each of these possible avenues as being equally desirable, with the understanding that a goal of Zero Waste Marin is to divert as much organic materials as possible.

## Significant Findings and Recommendations

### Organics Processing Capacity

The Project Team has found that:

- Ambitious targets have been set for the reduction of organic waste disposal statewide. The individual Cities, Towns, County and Zero Waste Marin will be required to implement dramatic programmatic changes and ongoing organics processing planning as a part of the statewide effort to reduce organics sent to landfill. For more information, please see Section 4 of this report.
- Marin County already had a robust suite of programs for organics diversion in 2014, the SB 1383 baseline year, which means that the targets set for 50% and 75% reduction from that baseline are more ambitious than for other counties which may have had weaker programs in 2014.
- SB 1383 requires 20% recovery of edible food for human consumption by 2025 (on a statewide basis). This is an ambitious target that will require creative problem-solving and innovative new programs.
- Insufficient capacity exists within the County or within reasonable hauling distance for processing organic materials under all scenarios modeled, including “Business as Usual,” “Achievement of SB 1383 Goals,” and “Increasing Diversion,” starting in 2018. Zero Waste Marin may be required to plan for organics infrastructure expansion over the required time span of 15 years. For more information, please see Section 6 of this Report.
- It may be difficult to subscribe a significant number of commercial businesses that can separate food scraps from compostable paper, both due to limitations from the hauler’s perspective (staff to solicit, train, and monitor businesses and operational capacity to collect and deliver source separated food scraps) and because capacity for processing this material stream is limited. The only facility in Marin County that accepts commercial source-separated food (Central Marin Sanitation Agency) does not accept food-soiled paper and other materials that are not source-separated food scraps, and the one in-County composting facility that accepts food scraps only accepts that material commingled with yard waste (EarthCare). For more information, please see Section 6 of this Report.

- Zero Waste Marin may consider additional programs to target wood diversion, as wood has been identified as a significant portion of the disposed organics in Marin County. Currently, the biomass market is weak and facility operators often have difficulty finding outlets for wood. Support for these markets should also be pursued in tandem with programs targeting wood diversion, and should be considered as an area for further study.
- Zero Waste Marin should consider undertaking a study on alternative “end uses” of biosolids/sludge outside of landfilling or use as Alternative Daily Cover at all sources of sludge in the County, and especially at the anaerobic digester used for food scraps processing. For more information, please see Section 4 of this Report.
- Zero Waste Marin may also consider working with Redwood Landfill on diversion-friendly pricing and sorting programs to assist in the diversion of organics delivered to that facility.
- Member Agencies should anticipate the potential future need to secure organics processing capacity by:
  - Including the requirement that haulers secure agreements with commercial food scraps processors in collections agreements.
  - Reserving the right of the jurisdiction to direct material flow such that the jurisdiction can procure for processing capacity outside of the collection contract if needed.
  - Establishing flow control agreements to encourage future infrastructure expansion and development.

More information about potential policies to encourage infrastructure expansion and development can be found in Section 6 of this Report.

- Zero Waste Marin can support expansion and development of organics processing infrastructure by means which are described more fully in Section 6 of this Report.

#### Other Market Forces

The Project Team has found that:

- Though outside the scope of this Report, Zero Waste Marin should consider the effects of the “National Sword,” which is a ban on importing recyclable materials in China that exceed a certain level of contamination. The full effects of the “National Sword” are not well-known, but recycling export markets are already showing signs of weakening. Zero Waste Marin should consider additional study on this topic.

Section 1

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Executive  
Summary

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## 2 Background

Recent state legislation reflects an increasing emphasis on diverting organic material from landfill. Key provisions of Senate Bill (SB) 1383 go into effect in 2022, with a target of a 50% statewide reduction of organic waste from the 2014 level by 2020 and a 75% reduction by 2025, along with a goal to recover for human consumption no less than 20% of currently disposed edible food. Assembly Bill (AB) 1826 will require businesses and multi-family dwellings with 5+ units that generate four (4) cubic yards of solid waste per week or more to receive organic waste collection service in 2019 (and may lower the threshold to 2 cubic yards of solid waste per week in 2020, to be determined by CalRecycle). AB 1594 will prohibit green material used as alternative daily cover (ADC) from qualifying as diversion credit beginning in 2020.

Marin County is fortunate to be a frontrunner in organics diversion, with ambitious and successful organics diversion programs in place which are fostered by forward-thinking haulers, public-private partnerships, and social and political support for zero waste goals. For example, Marin Sanitary Service (MSS) and Central Marin Sanitation Agency (CMSA) cooperated to establish an anaerobic digestion program for food scraps (the F2E Program) beginning in 2014. Redwood Landfill is host to Waste Management's EarthCare Compost Facility, a large-volume processing facility permitted to accept food scraps and green material. Approximately 37% of the organics inbound to this facility are from Marin County; 100% of the food scraps inbound to CMSA are from Marin County.

Moreover, many of the programmatic elements that would normally be recommended to increase organics diversion are already in place in Marin County. These elements include:

- Nearly universal roll-out of food scraps collection commingled with green material in the residential sector.
- Aggressive implementation of AB 1826 requirements.
- The application of biosolids as ADC at landfill.
- Co-digestion of food scraps with biosolids at an anaerobic digester.
- Lower tipping fees for green material at the landfill and transfer station in the County.

Even given the existing diversion programs, Zero Waste Marin is aware of the stringent and extensive requirements for organics diversion under State law that are anticipated to come into effect on a rolling basis through 2022, and beyond. This legislation has in large part been motivated by the State of California's climate action goals, which have been aggressively supported by State legislation under SB 1383.



Section 2

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Background

## 3 Model of Disposed Organics

### Objective

SB 1383 sets statewide targets for reduced landfilling of organic materials based on 2014 organic waste disposal levels. The Project Team estimated the tons of organic waste from Marin County that were disposed in 2014, then calculated the organic waste tons that need to be diverted by 2020 and 2025 to comply with SB 1383.

### Regulatory Context

#### SB 1383 – Short-Lived Climate Pollutants

The State of California passed SB 1383, Short-Lived Climate Pollutants: Organic Waste Methane Emissions Reductions, in September 2016. Key provisions of the law become effective on January 1, 2022. The State is currently in the process of developing draft regulatory language, which is anticipated to be finalized in summer 2018.

Under the provisions of the draft regulatory language of SB 1383, the State has set the following diversion goals statewide:

- A 50% reduction in the level of statewide disposal of organic waste from 2014 levels by the year 2020.
- A 75% reduction in the level of statewide disposal of organic waste from 2014 levels by the year 2025.
- A 20% reduction in edible food currently disposed, for recovery and human consumption, by the year 2025.

These targets support the overarching goal of reducing methane emissions by 40% from 1990 levels by 2020 under SB 32. The State recognizes that in order to achieve these goals between 50 to 100 organic processing facilities will need to be built to handle and divert the organic waste identified in the legislation.

Specific regulatory language was released by CalRecycle in October of 2017. The Project Team has compiled additional information about anticipated requirements of local jurisdictions under SB 1383, which are described in more detail in the following pages. The timeline of the regulations is provided as Appendix 1 of this Report.

Notably, nothing in the draft regulations or written in any presentations by CalRecycle describing SB 1383 specifically state that jurisdictions will be required to reduce organics generation in alignment with the statewide targets. The bill text<sup>1</sup> states, “It is intent of the Legislature that the disposal reduction targets established pursuant to Section 39730.6 of the Health and Safety Code shall serve as a statewide average target and not as a minimum requirement for each jurisdiction.” Therefore, it is not clear that Zero Waste Marin or its Member Agencies will be required to actually divert more organic materials in support of the statewide goals. However, it is also clearly stated that every jurisdiction will be required to plan for organics infrastructure under the statewide organics diversion targets and that jurisdictions

<sup>1</sup> SB 1383 bill text is available at the following web page:  
[https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160SB1383](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB1383)

## Section 3

Model of  
Disposed  
Organics

may be required to implement different types of programs depending upon their progress in meeting organic waste reduction goals (Section 42652.5. (a) (4) of SB 1383).

SB 1383 draft regulations distributed by CalRecycle in October 2017 include a requirement for counties to (bold added for emphasis):

Section xxxx99.1 (a)(1): *Estimate, using CalRecycle tools or alternative methods, the amount of all **organic waste in tons** that will be disposed by the county and cities in 2025 and every year thereafter for a 15-year period.*

Section xxxx99.1 (b)(2): *Estimate using CalRecycle tools or alternative methods the amount of **edible food that will be disposed by all of the large and medium regulated generators** located in the county and its cities in 2025 and every year thereafter for a 15-year period.*

The Project Team’s model as described in this Report (Methodology, below) utilized an alternative method to the CalRecycle tools, as the tools described in the draft regulations are not yet available.

The Project Team’s model includes disposed edible food. However, identification of large and medium generators of edible food is anticipated to be required on an annual basis beginning January 1, 2022 under CalRecycle’s draft regulations. It is not clear at this point in time whether disposed edible food targets will need to be established via a different study. SB 1383 also contains infrastructure planning requirements which are discussed in more detail in Sections 3, 5, and 6 of this Report.

### **AB 876 – Organics Management Infrastructure Planning**

AB 876 was enacted to address long-term planning for organics infrastructure by requiring counties and regional agencies to report the following information to CalRecycle on an annual basis:<sup>2</sup>

- 1) An estimate of the amount of organic waste in cubic yards that will be disposed by the County or region over a 15-year period.
- 2) An estimate of the additional organic waste recycling facility capacity in cubic yards that will be needed to process the amount of organic waste pursuant to paragraph (1) above.
- 3) Areas identified by the County or regional agency as locations for new or expanded organic waste recycling facilities capable of safely meeting the additional organic waste recycling facility capacity need identified pursuant to paragraph (2).

The first reporting cycle for AB 876 was in 2017 (for the 2016 reporting year) via the Electronic Annual Report process submitted by jurisdictions, including Zero Waste Marin, to CalRecycle. The Project Team anticipates, based on information made publicly available by CalRecycle (see Appendix 2), that the guidance provided to counties and regional agencies will change in the next reporting year to increase consistency in approach and the usefulness of the information gathered by the state. It appears that the State intends to use information collected from counties and regional agencies in longer-term planning statewide, and to inform the SB 1383 rulemaking process.

<sup>2</sup> Text of requirement is taken directly from bill text as found on the following web page: [https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160AB876](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB876)

It should also be noted that the SB 1383 draft regulations distributed by CalRecycle in October 2017 contain specific requirements for planning by counties, which are anticipated to take effect on January 1, 2022. Until that point in time, requirements for reporting under AB 876 are anticipated to adjust such that by 2022, reporting on organics capacity under AB 876 will likely be fully aligned with SB 1383's requirements.

## Methodology

To estimate the tons of organic waste Marin County needs to divert by 2020 and 2025 in alignment with the requirements set by SB 1383, the Project Team followed the steps outlined below:

- 1) Allocated 2014 reported disposal tons for the County to five generator sectors (name them here).
- 2) Modeled disposal composition for each of the sectors using data from other communities that have similar organics service offerings and similar generation behavior, as well as waste characterizations undertaken in Marin County communities.
- 3) Calculated a 2014 baseline organic disposal by applying the modeled compositions to the tons by sector to estimate the quantity of organics disposed in 2014.
- 4) Developed disposal projections for 2020, 2025, and 2033 and calculated the tons that correspond to a 50% and 75% reduction in organics disposal from the 2014 baseline.

The Project Team modeled organics disposal using reasonable assumptions and the best available data sources, including local waste characterizations and reports. We identified material categories on the basis of information distributed by CalRecycle as well as professional judgment. Materials were identified as recoverable or non-recoverable based on the material definitions and recoverability classifications established in the 2014 CalRecycle composition studies. See Appendix 3 for detailed material definitions and classifications.

We modeled disposal composition for nine recoverable organics material types: edible food, inedible food, compostable paper, yard waste, clean wood, other compostable material, recyclable paper, ADC (green material), and sludge.

We also modeled disposal composition for five other material types: remainder/composite paper – other, remainder/composite organic, textiles, carpet, and other materials.

Significant assumptions include:

- Remainder/Composite Organic, Remainder/Composite Paper – Other, Carpet,<sup>3</sup> and Textile material categories were not included in the model of organic tons, as insufficient data exists to characterize the proportion of organics in these material categories. Tonnages under the 2014 disposal baseline for these materials are:
  - Remainder/Composite Organic: 16,450 tons

<sup>3</sup> The carpet stewardship program is intended to be strengthened via a bill that passed in 2017. AB 1158 (Chu) – Carpet Recycling is anticipated to increase carpet recycling by 50% in two years by requiring a carpet stewardship plan to achieve a 24% recycling rate for post consumer carpet by January 1, 2020; the bill would authorize CalRecycle to set future recycling benchmarks.

## Section 3

Model of  
Disposed  
Organics

- Remainder/Composite Paper – Other: 4,620 tons
- Carpet: 3,520 tons
- Textile: 4,920 tons
- Recyclable paper categories (including Other Miscellaneous Paper - Other, Uncoated Corrugated Cardboard, Newspaper, Magazines and Catalogs, White Ledger Paper, Remainder/Composite Paper - Rigid Food & Beverage Cartons, Other Office Paper, Paper Bags, Phone Books and Directories) were modeled as a part of the 2014 baseline. However, these material categories are not readily compostable and would be best diverted from landfill through recycling programs. Recyclable material processing capacity was not modeled as a part of this project, but is a subject area that Zero Waste Marin should consider analyzing as a part of a separate review. Tonnages under the 2014 baseline are:
  - Recyclable paper categories: 10,810 tons
- Due to AB 1594, beginning in 2020, green material used as ADC will be required to count as disposal; therefore, we modeled the 930 tons of green material used as ADC in 2014 as a part of the 2014 baseline organics tons.
- Based on the explanation of AB 1594 in Section 4, below, we excluded sludge used as ADC from the 2014 baseline tons; sludge disposed is included in the 2014 baseline. Tonnages in 2014 are:
  - Sludge used as ADC: 3,844 tons
  - Sludge disposed: 2,960 tons

The Project Team reviewed the 2017 Marin Sanitary Services County Organic Waste Recycling Plan prepared independently to assess SB 1383 targets. These targets were calculated on the basis of the proportion of organic waste to landfill statewide in 2014; thus the targets which were calculated in that report are higher than the targets calculated by the Project Team and described above.

In addition to calculating SB 1383 targets, the Project Team modeled actual organics diversion and calculated the organics “capture” rate for 2014, 2016, 2020, 2025, and 2033 to establish planning-level organics diversion estimates for Marin County. The reasons for selecting these modeling years are:

- 2014 is the baseline year for calculating the 50% and 75% statewide organics diversion targets under SB 1383.
- 2016 is the most recent available year of data for projecting accurate diversion and disposal.
- 2020 is the goal year of 50% statewide organics disposal reduction under SB 1383.
- 2025 is the goal year of 75% statewide organics disposal reduction under SB 1383.
- 2033 is the 15-year planning horizon required under SB 1383.

A detailed methodology is provided as Appendix 4 to this Report.

## Findings

The total recoverable organics baseline, including recyclable paper (which is not expected to be composted), was calculated at **72,000 tons**. This results in the following targets:

- 36,100 tons of additional organics diverted from landfill by 2020 (50% of 2014 baseline)
- 54,100 tons of additional organics diverted from landfill by 2025 (75% of 2014 baseline)

Of the 72,000 tons in the 2014 disposal baseline, edible food tons were modeled at 10,000 tons, and inedible food at 14,500 tons. More detail on the various material categories modeled, the sectors (commercial, single family, multifamily, self-haul) for which each of these material types were modeled, and the model results can be found in Appendix 5.

The material categories in our model that are considered “Recoverable Organics” are:

- Edible Food
- Inedible Food
- Compostable Paper
- Yard Waste
- Clean Wood
- Other Compostable
- Recyclable Paper
- ADC (green material)
- Sludge (disposed)

The material categories in our model that are considered “Other Disposal, Non-Organic” are:

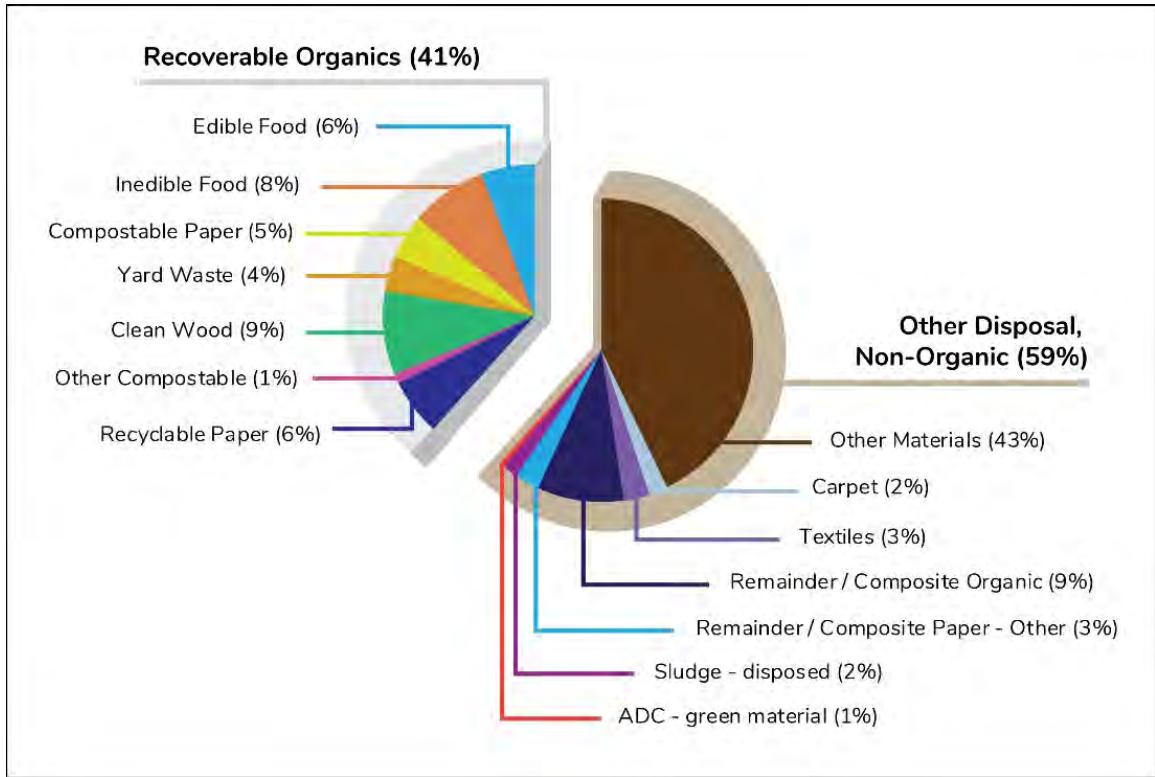
- Remainder/Composite Paper - Other
- Remainder/Composite Organic
- Textiles
- Carpet

**Figure A**, next page, shows the total proportion of 2014 baseline disposal tons accounted for by the main modeled categories for the County as a whole, as well as which material categories fall under “Recoverable Organics” and “Other Disposal, Non-Organic”.

Section 3

Model of Disposed Organics

Figure A: Material Categories Modeled Under 2014 Disposal Baseline



The basis of these figures is a complex sector-specific analysis described further in the Methodology section, above. The sector-specific results are displayed as **Table 1**, below.

Table 1: 2014 Sector-Specific Tons of Compostable Organics and Recyclable Paper

Generator	Compostable Organics Tons	Compostable Organics %	Recyclable Paper Tons	Recyclable Paper %
Single Family	18,000	29%	2,700	25%
Multi-family	6,600	11%	1,800	17%
Commercial	15,000	25%	3,200	30%
Self-haul	17,600	29%	2,500	23%
Other Disposal	4,100	7%	600	5%
<b>Total</b>	<b>61,300</b>	<b>100%</b>	<b>10,800</b>	<b>100%</b>

More detail with sector-specific findings is provided as Appendix 5 to this Report.

The Project Team was also able to model the current recovery of organics Countywide. For the 2014 baseline, approximately 37,700 tons of organics were diverted from landfill, and approximately 72,100 additional tons of organics were disposed at landfill; another 105,800 tons of non-organic material was disposed at landfill as well. This translates into a 34% organics capture rate.

Model of Disposed Organics

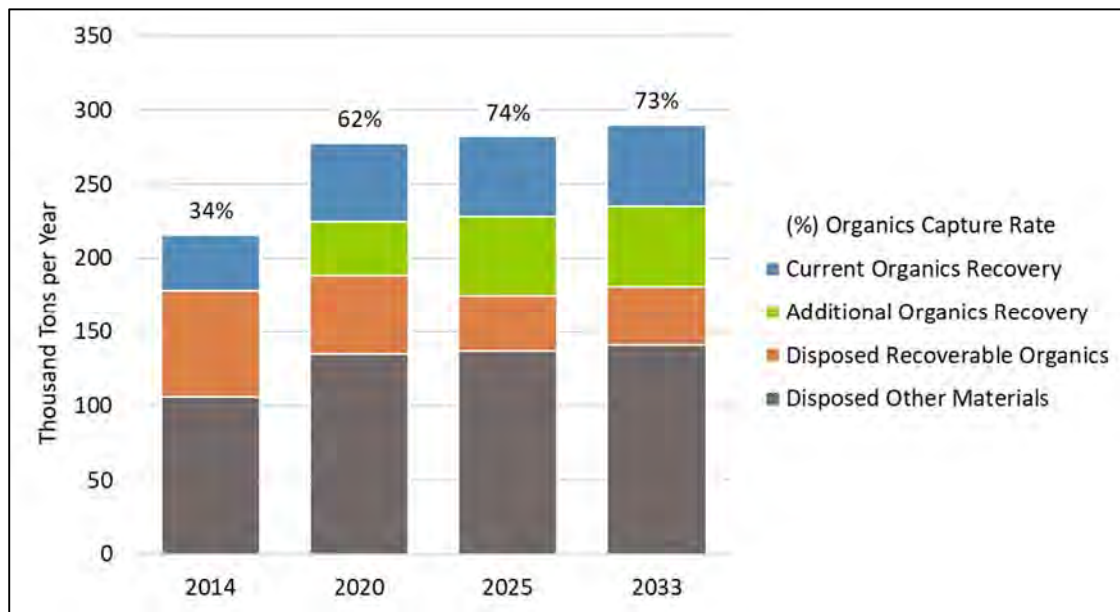
The Project Team modeled current recovery, recoverable organics, and disposal of all other materials for the 2014 baseline, and used the 2016 tonnages to project 2020, 2025, and 2033 figures using the methodology described in the next section of this Report.

Our findings are displayed as **Table 2** and **Figure B**, below.

**Table 2: Projection of Organic Material Diverted and Disposed if SB 1383 Targets are Met**

Recoverable Organics	2014	2020	2025	2033
		109,800	143,000	145,400
Disposed	72,100	54,200	37,600	40,100
Diverted from Disposal	-	36,100	54,100	54,100
<i>Food for Consumption</i>	-	1,400	2,000	2,000
Currently Recovered	37,700	52,800	53,600	55,000
<i>Mixed Organics</i>	36,500	50,800	51,600	53,000
<i>Food to Energy</i>	1,200	2,000	2,000	2,100
<b>Other Materials</b>	<b>105,800</b>	<b>134,400</b>	<b>136,800</b>	<b>140,800</b>
<b>Total</b>	<b>215,600</b>	<b>277,400</b>	<b>282,200</b>	<b>290,100</b>
<b>Organics Capture Rate</b>	<b>34%</b>	<b>62%</b>	<b>74%</b>	<b>73%</b>

**Figure B: Projection of Organic Material Diverted and Disposed if SB 1383 Targets are Met**



As noted previously, Marin County already had a robust suite of programs for organics diversion in 2014, which means that the targets set for 50% and 75% reduction from that baseline are more ambitious than for other counties which may have had weaker programs in 2014. That said, it is not anticipated that the State will require every reporting jurisdiction to



Section 3

Model of  
Disposed  
Organics

meet the 50% and 75% reduction requirements, which is a benefit to Marin County as organics in the County is not the statewide “low hanging fruit.”

## Recommendations

The Project Team recommends that Zero Waste Marin utilize the detailed waste characterization of disposed waste that is provided in this report to:

- Estimate needed organics capacity for AB 876 planning purposes and as a part of future Electronic Annual Reports.
- Benchmark progress made toward the statewide 2014 targets of 50% and 75% reduction in disposed organics. CalRecycle may request more detailed 2014 disposal baselines from jurisdictions as a part of the Electronic Annual Report in future years.

Zero Waste Marin should be aware of and plan for additional effort in the 2017 reporting year Electronic Annual Report (due August 1, 2018) related to changes in AB 876 guidelines and reporting requirements by CalRecycle. While the Project Team believes the information gathered by Zero Waste Marin from its facilities is sufficient to meet reporting requirements and inform infrastructure planning efforts, without knowing exactly what CalRecycle will ask for in the 2017 reporting year, it is not possible to predict whether additional effort will be required.

## 4 Policies and Programs to Increase Organics Diversion

### Objective

To identify policy drivers and local zero waste programs that Zero Waste Marin must consider in order to develop programs that increase diversion of organics from landfill.

### Regulatory Context

#### SB 1383 - Short-Lived Climate Pollutants

Based on information collected by the Project Team on the draft regulations, local jurisdictions may be required to implement the following tasks and responsibilities under SB 1383:

- Secure organic waste capacity at accessible facilities (contractual agreements, discussion of rate increases, necessary RFPs, etc.).<sup>4</sup>
- Impose diversion requirements and associated penalties on generators (beginning around January 1, 2024).<sup>5</sup>
- Establish communication with all generators by February 1, 2022 and within six months of contact, follow-up if non-compliant.<sup>6</sup>
- Adopt an inspection and enforcement plan with specific requirements for outreach frequency and targets.<sup>7</sup>
- Charge and collect fees to recover costs incurred through the implementation and enforcement of the new requirements.<sup>8</sup>
- Mandatory subscription to organic waste collection services for organics generators.<sup>9</sup>
- Develop a method for addressing contamination and reducing its presence in the organic waste stream.<sup>10</sup>
- Include details on purchasing and procurement of end-use organic waste products internally and/or as a requirement on generators.<sup>11</sup>

<sup>4</sup> CalRecycle SB 1383 Workshop Presentation February 2017, page 4.

<sup>5</sup> SB 1383 Proposed Regulation Text October 24, 2017, page 16.

<sup>6</sup> SB 1383 Proposed Regulation Text October 24, 2017, page 9.

<sup>7</sup> SB 1383 Proposed Regulation Text October 24, 2017, page 16.

<sup>8</sup> CalRecycle SB 1383 Workshop Presentation February 2017, page 7.

<sup>9</sup> SB 1383 Proposed Regulation Text October 24, 2017, page 6.

<sup>10</sup> SB 1383 Proposed Regulation Text October 24, 2017, page 7.

<sup>11</sup> CalRecycle SB 1383 Workshop Presentation February 2017, page 15.

## Section 4

## Policies and Programs to Increase Organics Diversion

- Provide generators with consistent collection containers and signage in alignment with CalRecycle criteria.<sup>12</sup>
- Provide consistently labeled organic waste containers adjacent to public refuse bins.<sup>13</sup>
- Keep an inventory of all food recovery organizations that can be engaged.<sup>14</sup>
- Consult with the Local Task Force.<sup>15</sup>
- Engage disadvantaged communities in siting new organics processing infrastructure.<sup>16</sup>

SB 1383 also contains infrastructure planning requirements which are discussed in more detail in Sections 3, 5, and 6 of this Report.

**Who is a “generator”?**

Any entity that generates any amount of organic waste is considered a “generator” under SB 1383. This includes, but is not limited to:

- Residents (both single-family and multi-family)
- Businesses
- Schools
- Government agencies
- Institutions

**AB 1826 – Mandatory Commercial Organics Recycling**

Signed by Governor Brown in 2014, AB 1826 requires commercial businesses and multi-family properties<sup>17</sup> to implement organics recycling programs for the diversion of organic waste<sup>18</sup> from landfills.

Under AB 1826, local jurisdictions are required to implement an organics recycling program designed specifically to divert commercial organic waste. AB 1826 implementation includes the following four local jurisdiction requirements:

- Identify Covered Generators – Identify commercial businesses and multi-family properties (collectively, “covered generators”) that must comply with the regulations of AB 1826.
- Organics Recycling Service – Ensure that organics recycling services are available to all covered generators.
- Education and Outreach – Conduct education and outreach to covered generators about the State law and how to comply.
- Compliance Monitoring – Identify covered generators that are not in compliance and inform them of their requirements and how they can comply.

<sup>12</sup> SB 1383 Proposed Regulation Text October 24, 2017, page 7.

<sup>13</sup> SB 1383 Proposed Regulation Text October 24, 2017, page 7.

<sup>14</sup> SB 1383 Proposed Regulation Text October 24, 2017, page 9.

<sup>15</sup> SB 1383 Informal Rulemaking Presentation October 30 and November 2, 2017, page 76.

<sup>16</sup> SB 1383 Proposed Regulation Text October 24, 2017Text, page 15.

<sup>17</sup> For the purposes of AB 1826 compliance, a “multi-family property” is defined as a multi-family dwelling that consists of five or more units. Multi-family dwellings that consist of four units or fewer are exempt from all provisions of the law.

<sup>18</sup> The definition of organic waste under AB 1826 is food waste, green material, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste. Multi-family properties are not required to have a food waste diversion program.

AB 1826 also requires jurisdictions to report to CalRecycle on the availability, or lack thereof, of sufficient organic waste processing infrastructure and markets, and the extent to which the jurisdiction has taken steps to remove barriers to siting and expanding organic waste recycling facilities. These questions are compatible and similar to the additional questions included in the yearly report to CalRecycle now required under AB 876, which is described above.

### **AB 1594 – Green Material Used as ADC is Disposal**

AB 1594 prohibits the use of green material used as alternative daily cover (ADC) for diversion credit. Currently, franchised organic material delivered by haulers in Marin County to Redwood Landfill is largely green material commingled with food scraps, which is composted and not used as ADC. However, some non-franchised material delivered to Redwood by residents and businesses in Marin County is not commingled, and is chipped and used as ADC. Moreover, non-franchised green material delivered to other landfills and declared as originating in Marin County may also be chipped and used as ADC, which contributes to the total of 565 tons of green material used as ADC and attributed to Marin County in 2016.<sup>19</sup>

As of January 1, 2020, green material used as ADC will need to be reported as disposal, and will begin to contribute to the pounds per person per day diversion rate equivalent, which is used by the State to assess AB 939 compliance. Under the law, “green material” includes:<sup>20</sup>

- Plant material
- Green material
- Untreated wood wastes
- Paper products
- Natural fiber products
- Sludge

Notably, and importantly, the definition of “green material” under this law quite clearly excludes a number of material categories that might include some organics. These material categories are anticipated to continue to be considered “diverted” and will not contribute to disposal tonnages, even after 2020. Categories that include organic material and are specifically excluded under the definition include:

- Overs from composting
- C&D fines left over after processing
- Treated wood
- Manure and plant waste from food processing

Another organic material type currently used as ADC is sludge/biosolids, which is also anticipated to continue to be excluded from the “disposal” tons allocated to jurisdictions. As

<sup>19</sup> The report is available on the CalRecycle website as Alternative Daily Cover (ADC) by Jurisdiction of Origin and Material Type, at the following web address:

<http://www.calrecycle.ca.gov/lgcentral/Reports/DRS/Origin/ADCMatType.aspx>

<sup>20</sup> The definition of “green material” under AB 1594 is intended to align with the definition of “processed green material,” as described on the CalRecycle website at the following web address: <http://www.calrecycle.ca.gov/lgcentral/basics/ADCGreen/default.htm>. It is specifically stated that, “The term does not include materials left over from the composting process, materials left over after the material recovery process (commonly referred to as “fines”), or processed construction and demolition waste materials.”

## Section 4

## Policies and Programs to Increase Organics Diversion

such, sludge, green material overs, and C&D fines used as ADC have been excluded from the 2014 SB 1383 baseline calculated by the Project Team and described in more detail in Section 3 of this Report.

It should be noted that sludge/biosolids make up a significant portion of the ADC used at Redwood, especially during the rainy season when Bay Area municipalities have a hard time accessing land application sites. Biosolids are clearly included in the definition of organics under SB 1383, and release methane once landfilled. It is less clear whether biosolids *used as ADC* were contemplated under SB 1383.

Regardless, the Project Team recommends that Zero Waste Marin consider alternative management practices to help divert biosolids from the landfill, including both biosolids that are landfilled, and biosolids used as ADC. This would require a comprehensive planning effort which should be undertaken soon, such that Zero Waste Marin is able to consider alternative sludge diversion options.

If not diverted from landfill, biosolids that are generated through the anaerobic digestion of food scraps will continue to contribute to Zero Waste Marin disposal tons as described by SB 1383 (note that biosolids will likely continue to be a Class II Special Waste eligible for a Disposal Modification through the Electronic Annual Report process). As such, the appropriate diversion of biosolids from landfill should be considered, particularly at the anaerobic digester used for food scraps.

AB 1594 has the potential to affect the County in the following ways:

- Moderately increasing disposal as measured under AB 939, as the amount of green material used as ADC is low.
- Increasing organic waste material feedstock to local organic waste facilities (anticipated regardless of the effects of AB 1594 within Marin County).
- If use of green material as ADC is restricted, AB 1594 may result in increased customer rates for delivery of green material for composting rather than ADC (composting is more expensive than use of material as ADC).

#### **AB 1219 – Expansion of Good Samaritan Law**

AB 1219 strengthens and expands a 1977 California law that protects food donors from legal liability in order to encourage food donations. Currently many businesses, retailers, and restaurants are either not aware of laws which protect food donors, or are confused by them. Under this law, protection is expanded to persons and gleaners who donate food. Furthermore, the bill requires health inspectors to promote food donation and educate restaurants and grocery stores about donation liability protections.

The bill states in section 114435, "In implementing this article, enforcement officers (usually County health inspectors) shall promote the recovery of food fit for human consumption during their normal, routine inspections. Promotion shall include, but not be limited to, newsletters, bulletins, and handouts that inform retail food facility operators about the protections from civil and criminal liability when donating food."

We understand that Zero Waste Marin provides the County health department a relevant summary for health inspectors to use when inspecting facilities such as groceries, caterers and restaurants to promote food donation and provide information on the protection from liability.

## SB 557 – School Food Donations

This bill allows public school cafeterias to donate unopened prepackaged food, uncut produce like apples, and milk kept at appropriate temperature to food banks or charitable non-profits, and makes surplus food available to students during meal time through share tables in the cafeteria. Zero Waste Marin should consider providing a relevant summary of food donation law to identified large- and medium-size generators of edible food waste, including schools, in order to assist in implementation of edible food recovery efforts. Zero Waste Marin should also consider encouraging the schools that it works with, or that its contractor(s) works with on zero waste initiatives, to establish share tables and donate surplus food.

## Methodology

In addition to attending stakeholder workshops, the Project Team analyzed the draft regulations and the bill text in order to determine anticipated policy and program needs under SB 1383.

## Findings

There are five franchised haulers in Marin County:

- 1) **Marin Sanitary Service (MSS)**, the hauler for San Rafael, Ross, San Anselmo, Las Gallinas Sanitary District, Fairfax, Larkspur, and some parts of Unincorporated Marin County. MSS also owns and operates the only transfer station in the County. The MSS transfer station has pre-processing equipment used to clean and grind food scraps for transfer to the Central Marin Sanitation Agency anaerobic digester, where the food scraps are used to generate energy. MSS has approximately 192 customers subscribed to this program.
- 2) **Mill Valley Refuse Service (MVRS)**, the hauler for Belvedere, Mill Valley, Tiburon, Corte Madera, and parts of Unincorporated Marin County. MVRS collects some source-separated food and delivers it to the MSS transfer station for anaerobic digestion. MVRS has approximately six customers subscribed to this program.
- 3) **Bay Cities Refuse Service (BCRS)**, the hauler for Sausalito and parts of Unincorporated Marin County.
- 4) **Tamalpais Community Services District (Tam CSD)**, the municipal hauler for Tamalpais Valley in Unincorporated Marin County.
- 5) **Recology Sonoma Marin** (formerly Redwood Empire Disposal, Shoreline Disposal, and Novato Disposal), the hauler for Novato and parts of Unincorporated Marin County.

These haulers have varying levels of education, outreach, customer subscription, and participation in organics collection programs. The Project Team did not have access to subscription data for the haulers, which would assist in gauging infiltration of the commercial organics program. However, Marin County does have information on the diversion performance of each of the haulers by tonnage. High-performing diversion programs generally divert between 20-40% of total material collected as organics (with an additional 20-40% of material collected being diverted as recycling). We consider any franchised diversion at or above 50% to be high-performing.

All of the franchised haulers in Marin County are either close to the 50% threshold, or exceeding it; therefore, we would consider Marin County to be a high diversion-achieving County.

## Section 4

## Policies and Programs to Increase Organics Diversion

## Recommendations

The Project Team recommends that Zero Waste Marin consider additional programs to target organic waste diversion in supporting the State’s ambitious targets set under SB 1383, and other requirements which may be imposed by CalRecycle starting on January 1, 2022. Potential programs and policies include:

- Offer residential collection programs that include all organic waste material types (including food waste). This program already exists in nearly every residential collection service area in the County, with the exception of Stinson and Bolinas.
- Increase participation in residential organics programs, especially for food, through ongoing promotion of the value and ease of participation. Almost all residential food scraps collection programs have room for improved participation, as some households consider putting food waste into their organics cart to have an “ick factor”.
- Discuss with member agencies whether in future collection contracts they want to require the hauler to allow commercial customers to use clear bags to contain organic waste (bags that will be sorted out at processing facilities) and allow residential customers to use compostable bags. Both of these strategies have helped to increase participation in other jurisdictions and are included in certain collection contracts.
- Promote food waste reduction efforts to residential customers. Consider partnering with the EPA’s “Food Too Good to Waste” program for residential outreach on food waste reduction.
- Offer additional organics containers to residential customers at a reduced cost.
- Offer organics collection to commercial customers at a cost incentive. This program is in place in every commercial collection program in Marin County, although we were unable to confirm that commercial organics collection is offered to customers serviced by Recology in Unincorporated Marin County.
- Expand technical assistance and outreach programs to multi-family and commercial customers to increase subscription and decrease contamination, with the target of subscribing additional customers to the commercial organics collection programs for composting or anaerobic digestion. Engage haulers in providing indoor composting pails and containers as well as clear, multi-lingual signage for use by customers.
- Use available means to require Redwood Landfill to cease using green material as ADC starting in 2020, or earlier if feasible.
- Undertake a study on alternative “end uses” of biosolids/sludge outside of landfilling or use as ADC, especially at the anaerobic digester used for food scraps processing.
- Encourage EarthCare to install a “bag breaker” and/or other equipment to increase effectiveness of pre-processing organic waste at the composting facility.
- Encourage Member Agencies to require haulers to provide washing service for organics carts used to collect food scraps.
- Recovery of organics from material collected as garbage via “Wet MRF,” Organics Extruder (OREX) press, or another technology for composting or anaerobic digestion.
- Encourage the development of additional composting processing facilities for commercial organics, such as Covered Aerated Static Pile composting, to ensure that a broader range of commercial organics can be composted than can be handled via anaerobic digestion.

- Restrict the use of processed green material as ADC (see section on AB 1594, above).
- Consider adopting an ordinance prohibiting disposal of specified organics such as clean green material at landfill, such as that passed by StopWaste.
- Develop local end-uses for compost and mulch and ensure that new and renovated landscapes of a certain size are using the required amount of compost and mulch via the state Water Efficient Landscape Ordinance requirements (WELO). Promote the compost and mulch requirements contained within the WELO.
- Promote the use of compost and mulch to County and member agency landscaping staff and contractors for its role in water conservation, improved soil quality and reduced need for fertilizer and pesticides. Promote sources to obtain high quality compost and mulch.
- Continue to implement CALGreen building code requirements by directing C&D materials that may have clean wood waste to processing rather than disposal.
- The model developed by the Project Team and described in Section 3 of this Report shows a significant amount of clean wood being landfilled (at 9% of total disposal, or 15,800 tons), which may include C&D wood and pallets disposed at landfill. The Project Team recommends that Zero Waste Marin consider targeting this material for diversion programs. Finding markets for clean wood is a significant challenge in diversion programs, which may be considered a target for future diversion program efforts.
  - The Project Team recommends targeting Redwood Landfill in particular, which has a higher tipping fee for C&D processing than for landfill disposal. Zero Waste Marin could leverage through the Solid Waste Facility Permit process regulated by County Environmental Health, or via another avenue to impose changes to the pricing structure.
  - Staff may consider the possibility of supporting the pricing at Redwood landfill for targeted material types such as mixed C&D, yard waste, and clean, source-separated wood. Such a program would have the potential of directly adjusting rates for targeted materials; however, the program would present a large uncertainty in actual budget needed year-to-year as well as significant overhead required to audit Redwood’s “actual” prices for targeted material types.
  - Currently, the biomass market is weak and facility operators often have difficulty finding outlets for wood. Support for these markets should also be pursued in tandem with programs targeting wood diversion, and should be considered as an area for further study.
- Begin to plan for SB 1383 edible food recovery requirements, including considering the hauler’s potential role in assisting in edible food recovery as a part of future procurement processes.<sup>21</sup>

<sup>21</sup> Los Angeles commercial franchise agreements require haulers to utilize and fund food recovery organizations to collect edible food and educate residents and customers on edible food recovery. More information is available on page 22 of the staff report entitled, “Authority to Award Contracts for the Zero Waste LA Exclusive Franchise System for Commercial and Multifamily Solid Waste Collection and Handling,” found at web address below:

[http://boe.lacity.org/docs/dpw/agendas/2016/201609/20160926/bos/20160926\\_ag\\_br\\_bos\\_bca\\_1.pdf#page=22](http://boe.lacity.org/docs/dpw/agendas/2016/201609/20160926/bos/20160926_ag_br_bos_bca_1.pdf#page=22)



Section 4

Policies and  
Programs to  
Increase  
Organics  
Diversion

- Encourage the beneficial use of compost and mulch in public agencies and by residents of the County.<sup>22</sup>

R3

<sup>22</sup> CalRecycle recently released an “Organics Toolbox” with helpful links and tips, located at the following web address: <http://www.calrecycle.ca.gov/Organics/RoadMap08/ToolBox.htm>

# 5 Existing Organics Processing Capacity

## Objective

To assess existing organics processing capacity in Marin County.

## Regulatory Context

AB 876 and SB 1383 both require an assessment of existing organics processing capacity to be completed by the County (or, in the case of AB 876, the county or regional agency). The draft regulations proposed by CalRecycle for SB 1338 are provided below.

*Section xxxx99.1 Planning by Cities and Counties*

- (a) *Commencing January 1, 2022, every county, in coordination with the Cities and Regional Agencies in the county, shall annually:*
  - 2) *Identify existing available infrastructure capacity, that is verifiably available for all organic waste, including paper and wood generated in the county.*
    - (A) *Use the Department's database or equivalent methods to identify potentially available capacity.*
    - (B) *To verify this available capacity, using one of the following methods:*
      - 1) *Consult with nearby counties to determine whether they are also counting this same identified available capacity as available.*
      - 2) *Contact facilities to determine if capacity is available pursuant to (b)(2).*
      - 3) *Use alternative methods to demonstrate verifiable available capacity.*

As stated in our recommendations for AB 876, we anticipate that the requirements for assessing remaining organics capacity under AB 876 will be similar to the requirements under SB 1383, which will begin on January 1, 2022. For this reason, we have primarily oriented our analysis toward the SB 1383 draft regulations, rather than the current AB 876 reporting requirements, as the AB 876 requirements are anticipated to change.

## Methodology

In order to estimate existing organics processing capacity in the County, the Project Team asked the organics processing facility representatives the following questions:

- 1) How much material are you receiving now?
- 2) Do you accept material from anyone/anywhere else?
- 3) Are you at capacity with what you are receiving already?
- 4) If not, how much more (in gallons or cubic yards) could you take?
- 5) Are you planning for an expansion of your capacity at any time in the near or intermediate future?

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Existing  
Organics  
Processing  
Capacity

In addition, we also reviewed the Solid Waste Information System<sup>23</sup> for permitted capacity. We calculated permitted capacity using a conversion factor of 0.18 tons per cubic yard, and assuming 260 operating days per year.

## Findings

There are four composting facilities in Marin County:

- 1) **Waste Management "Earth Care" Compost**
- 2) **West Marin Compost**
- 3) **Bolinas Resource Recovery**
- 4) **Pt. Reyes Compost Co.**

There is one out-of-County facility that receives organics generated in Marin, the West Contra Costa Sanitary Landfill Organic Material Processing Facility (WCCSL OMPF) in Richmond, which is used by Bay Cities Refuse and by Recology Sonoma Marin (for some communities and in some cases).

There is also one anaerobic digestion processing facility, owned and operated by CMSA, which accepts source-separated food scraps not commingled with paper or any other materials. These facilities are further described in **Table 3** (next page).

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<sup>23</sup> The Solid Waste Information System is an online tool maintained by CalRecycle, which can be found at the following web address:  
<http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx>

**Table 3: Organics Processing Facility Summary**

Existing Organics Processing Capacity

Facility	County	Accepted Materials	Approximate Current Processing Volume (tons)	Permitted tons per year
Waste Management "Earth Care" Compost	Marin	Green material, landscaping and food scraps with food-soiled paper	121,000	133,640
West Marin Compost	Marin	Green material	2,500	52,000
Bolinas Resource Recovery	Marin	Green material	750	5,664
Pt. Reyes Compost Co.	Marin	Green material	500	566
WCCSL OMPF	Contra Costa	Green material, food scraps with food-soiled paper	Unknown	413,910*
Central Marin Sanitation Agency	Marin	Food scraps only	2,200	2,600

\* West Contra Costa is modeled at permitted capacity, not according to throughput currently allowed under permit, which is lower than permitted capacity.

The franchised organic materials that are not delivered to CMSA, the WCCSL OMPF, or to biomass conversion are delivered to the Waste Management EarthCare Composting Facility, which is located at the Redwood Landfill site. Recology and MVRS deliver residential and commercial organics directly to EarthCare; the remaining franchised organic material is transferred through the MSS transfer station to EarthCare.

Members of the public can deliver green material and wood to the MSS transfer station, Redwood Landfill, West Marin Compost and Bolinas Resource Recovery (communities of Bolinas and Stinson only). Green material delivered by the public:

- To the MSS transfer station are commingled with franchised material and transferred to EarthCare.
- To Redwood Landfill are ground and incorporated as compost feedstock or used as Alternative Daily Cover (ADC).
- To West Marin Compost and Bolinas Resource Recovery are processed and then sold to the public as compost.

**EarthCare** is a large-volume composting facility in Novato permitted to accept 514 tons per day (which is 133,500 tons per year at 260 operating days per year). The facility’s throughput is reported to Marin County via DRS reports. In 2016, EarthCare accepted approximately 121,000 tons of organic material (next page):



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- About 44,000 tons reported originated in Marin County. Of that figure, 19,000 tons were delivered by MSS to WM Earth Care. We project that the 2017 tonnages will be approximately 50,000 tons, with 22,000 tons originating from the MSS transfer station.
- About 10,000 tons reported originated in Petaluma, in Sonoma County. We have used the default assumption that these tonnages will not change over the modeled timespan of 15 years, reflecting the type of planning we suggest is appropriate for facilities serving multiple jurisdictions. With each agency assuming no change in the other agencies' use of the facility, the planning models do not conflict with each other. In the Tonnage Scenario Tool (described in the R3 report entitled, "Tonnage Scenario Tool and AB 876 Infrastructure Planning Tool"), Zero Waste Marin staff will have the opportunity to adjust this assumption in order to model other possible scenarios.
- About 33,000 tons reported originated from the Sonoma County Waste Management Agency. We have assumed that these tonnages will not change over the modeled timespan of 15 years, under the rationale described above.
- About 32,000 tons reported originated from the Davis Street Transfer Station in Alameda County. In 2017, we project that this tonnage will have increased to approximately 57,000 tons. We have assumed that these tonnages will not change over the modeled timespan of 15 years, under the rationale described above.

WM Earth Care reported to Zero Waste Marin that they are not accepting any additional organic material at the facility at this time. The operator has also expressed that it plans to seek a permit to expand its operations by 250 tons per day. This future expansion of permitted capacity is added at "year 10" of the model.

**West Marin Compost** is a medium-volume composting facility located in Nicasio and permitted to accept 200 tons per day of green material and dairy manure, this equates to 52,000 tons per year at 260 operating days per year. West Marin reported processing 14,000 cubic yards of dairy manure and plant debris from the public in 2017, which at a conversion of 0.18 tons per cubic yard is the equivalent of approximately 2,500 tons per year. The operator estimated that 20% of their total material was franchised organic material. That material originates in the Unincorporated County communities of Stinson and Bolinas. Total capacity and throughput are calculated at approximately 3,200 tons. The operator reported to Zero Waste Marin that they are not accepting any additional material at this time.

**Bolinas Resource Recovery** is a small composting operation that was started in 1997 to offer the Bolinas and Stinson Beach communities green material composting. Located in Bolinas, it is permitted to accept 120 cubic yards per day of green material only, which R3 estimates to be the equivalent of approximately 6,000 tons per year. This facility was accepting material delivered by the franchised hauler (now Recology) from the communities of Stinson and Bolinas. Beginning in mid-2017, residential material from Stinson began to be routed to EarthCare. The Bolinas facility reports accepting the equivalent of approximately 250 tons of franchised material and about 500 tons of self-haul material from the public. We have modeled 650 tons of composting throughput over the modeled timespan of 15 years. While there may be capacity for processing additional material, the facility only accepts material from the communities of Stinson and Bolinas.

**Pt. Reyes Compost Company** is a small composting operation permitted to accept up to 12 cubic yards per day. We have assumed that this facility does not have capacity to accept any additional material, and have therefore disregarded the current throughput of this facility.

**WCCSL OMPF** is a large-volume composting facility in Contra Costa County which accepts approximately 4,000 tons of mixed organics (green material and food scraps) originating in Marin County (hailed by BCR, and Recology operating in Novato). We understand that this facility does not have additional capacity to accept new material at this time, but have assumed for the purposes of the capacity model that the facility continues to accept the 4,000 tons of throughput from Marin County over the modeled timespan of 15 years.

**CMSA** is a medium-volume anaerobic digester in San Rafael near the MSS transfer station, currently accepting approximately 2,200 tons per year of source-separated, processed food waste from the MSS transfer station. The public-private partnership began in 2013. The food waste, sourced from the MSS and MVRs service areas, is preprocessed at MSS. CMSA has reported to Zero Waste Marin that they are not at capacity and would be receptive to more material if the quality meets their standards. The exact amount they could absorb will be determined through a Master Plan update that is currently underway for the CMSA.

**Capacity Modeling: Permitted Versus Actual**

Permitted capacity is not actual capacity. We understand, based on CalRecycle’s review of the 2017 submittals by counties and regional agencies (Appendix 2) for AB 876, that despite instructions to utilize the facility database available online (FacIT), the methods generally used by counties and regional agencies to calculate organics capacity were not adequate. This conclusion is further supported by the fact that most facilities included in this analysis communicated to Zero Waste Marin that they did not have capacity to accept additional material, although they were frequently operating at significantly below their permitted throughput. For example, EarthCare’s permitted throughput is 133,500 tons per year. While they accepted approximately 121,000 tons in 2016, Waste Management stated in 2018 that they were unable to accept additional material. Moreover, organics processing facilities are permitted on the basis of throughput per day. It is reasonable to assume that a facility would not accept 100% of its permitted throughput on each operating day of the year.

For these reasons, the Project Team has modeled existing organics processing capacity on the *basis of operator statements about current and future capacity availability*, and not on the basis of actual permitted capacity.

**Modeling Out-of-County and Non-Franchised Tons**

Capacity modeling is further complicated by the need to understand and correctly model tonnages that originate from outside of the franchised system (and therefore are not necessarily reported to the county, and certainly not on a continuous basis), and outside of the County (tons for which the contractual relationships may not be clear, and planning for which is challenging). In fact, the inbound tonnages to the EarthCare facility from Alameda and Sonoma Counties (at 32,000 and 43,000 tons, respectively) are significantly greater than the total amount of material originating from within Marin County (44,000 tons) that is processed by all other facilities (at approximately 10,000 total Marin tons processed by all facilities that are not EarthCare).

Waste Management has recently opened a composting facility in Alameda County at Altamont Landfill. Given the very large portion of the material inbound to EarthCare is transferred through Davis Street transfer station in Alameda County, that there is a possibility that some or all of that material will be redirected over time away from EarthCare and to the Altamont site.

Finally, we understand that Sonoma County is undertaking a procurement process for organics processing capacity. There is a possibility that this procurement process may result in the siting



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of an organics processing facility within reasonable hauling distance of Marin County, or, result in the redirection of material originating in Sonoma County away from EarthCare. Both scenarios may result in a significant shift in the processing capacity available to Marin County for organics material; therefore, we have recommended that Zero Waste Marin engage in ongoing conversation with Sonoma County as well as the facility operators within Marin County in order to refine organics processing capacity estimates on an ongoing basis. This will also be required on an annual basis as part of the EAR. For the purposes of the capacity model, we have assumed that there is no change in out-of-County and non-franchised ton throughput. We have also assumed a “null” scenario of no additional facility capacity (outside of the planned EarthCare expansion) and no additional infrastructure development.

Regarding food scraps processing, as a part of the MSS 2017 Organic Waste Recycling Plan, MSS stated that it would consider transferring food waste to an alternative facility (such as East Bay Municipal Utility District) if CMSA is not able to accept additional material. This may come at increased costs, including transfer and tipping fees; however, MSS does have additional capacity to pre-process food scraps at its transfer station which is not currently being utilized. It is possible that at the time that MSS requires additional capacity, candidate facilities may not have additional capacity available. Because of the range of possible outcomes, we have chosen not to model additional food scraps processing capacity outside of CMSA.

## Recommendations

The Project Team recommends that Zero Waste Marin annually:

- Engage in conversation with Sonoma County on infrastructure usage.
- Request data from facility operators in Marin County.
- Adjust organics processing capacity estimates.

# 6 Additional Organics Processing Capacity Needed

Additional Organics Processing Capacity Needed

## Objective

To determine the amount of additional organics processing capacity that is needed in Marin County.

## Regulatory Context

SB 1383 draft regulations distributed by CalRecycle in October 2017 include a requirement for counties to (bold added for emphasis):

Section xxxx99.1 (a)(3): *Based on the amount that is projected for disposal in (1) and the existing capacity identified in (2), identify the **amount of additional organics recycling capacity that would be needed** to ensure that the regulated generators' organic waste is recycled.*

Section xxxx99.1 (a)(4): *Identify the amount of **existing** (existing capacity that is additional to what was identified in (2) above), **new or expanded organic waste recycling capacity** that will be available to the county and its cities by 2025 and every year thereafter.*

SB 1383 draft regulations also require counties to plan for additional capacity if need is identified, per Section xxxx99.1 and starting on January 1, 2022:

*(e) Based on the capacity estimates required in (a) and (b), if a county or a city does not have access to adequate existing, new, or expanded facilities to meet the capacity need identified in (a)(4) and (b)(5), then the city or county lacking this access must:*

*(1) Submit an implementation schedule to CalRecycle, within 60 days of the Annual Report submitted by the county pursuant to section (d), that demonstrates how it will secure access to existing, new or expanded capacity by 2025 and annually thereafter for the organic materials and recovered edible food collected from within the jurisdiction.*

*(2) The implementation schedule shall include timelines and milestones for planning efforts to identify and secure access to sufficient capacity, including but not limited to:*

*(A) Obtaining funding, if applicable, to fund organics recycling and edible food recovery infrastructure.*

*(B) Identifying how additional capacity will be secured, e.g., designated areas that have appropriate zoning for additional facilities, information on the status of identifying zones as potential areas for zoning facilities, etc.*



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## Methodology

The Project Team modeled additional needed capacity for organics processing against existing capacity under a number of scenarios, including:

- “Business as Usual” with no increase of organics diversion;
- “Achievement of SB 1383 Goals,” described in Section 3 (including moderate increases of organics diversion and disposal based on population growth);
- “Increasing Diversion” with diversion continuing to increase as it did from 2014-2016.

Although modeling organics capacity is helpful, we recognize that there are challenges to matching the type of organics generated with a facility that is permitted and able to process this feedstock – this is specifically true for commercial source separated organics. The Food to Energy program accepts food scraps only, without commingled food-soiled paper and other materials. Zero Waste Marin should consider the significant need for an outlet for commercial source separated organics that is commingled with food soiled paper and cardboard.

In order to fully understand the challenges in securing appropriate capacity, we have separately modeled the flows of the following materials through Marin County under each of the three scenarios described above:

- Commercial “inedible” source-separated food scraps (not commingled with food-soiled paper, cardboard, or compostable plastics).
- Green material including landscaping debris and not including food scraps.
- Mixed organics including landscaping debris, food scraps, food-soiled paper, cardboard, and compostable plastics. Increases in this stream are modeled by population and also inedible food attributed to all sectors *except* for commercial (which is modeled separately and listed above). Projections of future tons are broken into the component material types as sufficient data exists to characterize this material; insufficient data exists to break down the existing and historical mixed organics stream in such detail.
- Food-soiled paper and other tons, which are a potentially challenging group of materials to divert.
- Sludge.

Insufficient data exists to model chipped wood, although this is also a material type that may be subject to alternative options for processing and diversion. Recyclable paper (food wrappings and pizza boxes that are not food-soiled, for example) is another material stream which has alternative options for diversion, and may also exhibit “leakage” between diversion alternatives.<sup>24</sup> While these details are important, they are difficult to model, and thus have not been accommodated in the current model.

Edible food recovery of 20% of the baseline has been modeled as occurring separately from the diversion infrastructure and thus not included as “Needed Capacity.”

<sup>24</sup> As discussed in Section 3 of this Report, recyclable paper categories were included in the 2014 baseline. However, they are not included in the “capacity needed” estimates as they are more appropriately diverted through recycling programs. Recyclable material processing capacity was not modeled as a part of this project, but is a subject area that Zero Waste Marin should consider analyzing as a part of a separate review.

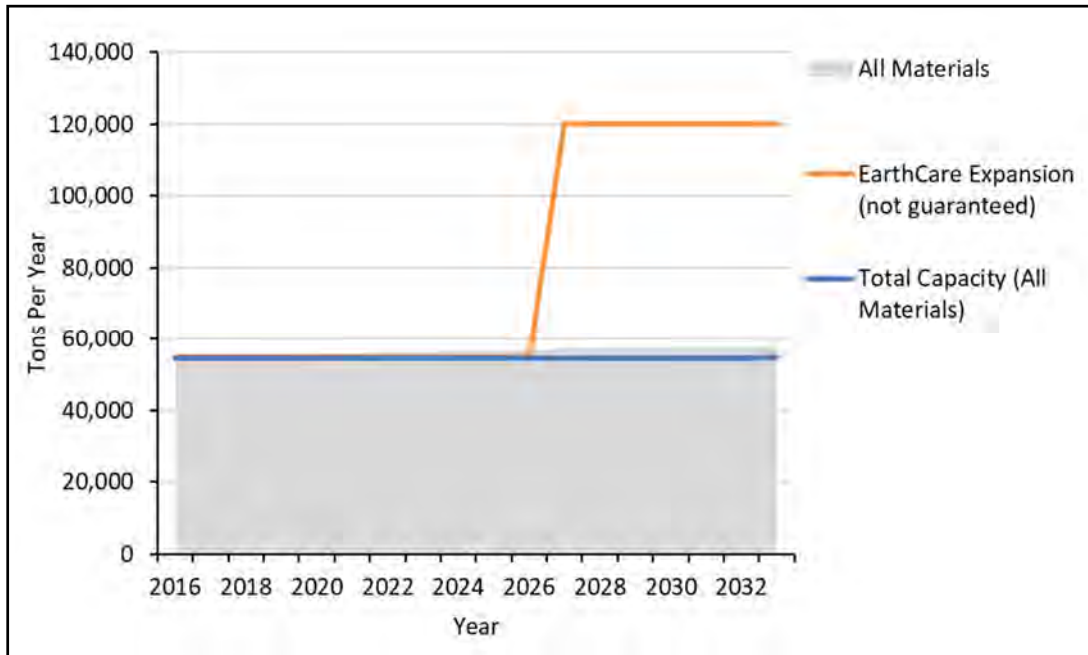
The MSS 2017 Organic Waste Recycling Plan states that the transfer station utilized (and owned and operated) by the company has capacity to grind mixed organics at 20 tons per hour, and pre-process commercial food waste at 20 tons per hour; and that they are permitted up to 140,400 tons per year of organics, which exceeds the anticipated organics generation countywide through 2033. While sufficient *transfer* capacity appears to exist, the Project Team recommends that Zero Waste Marin continue to plan for organics *processing* capacity with the understanding that MSS would still need to deliver the material to another facility for final processing (either composting or anaerobic digestion).

### Findings

The Project Team’s capacity model indicates that insufficient capacity exists to accommodate nearly any increase in organics diversion at this time. At year 10 of the model, assuming that 100% of the new permitted capacity at EarthCare is available to Marin County, there is sufficient capacity for processing additional tons under all scenarios except for “Increasing Diversion.” “Increasing Diversion” shows insufficient capacity for all years.

**Under the “Business As Usual” scenario,** we accommodated very moderate increases in mixed organics (as defined on page 30 of this report), diversion by population (as described in Appendix 4, Detailed 2014 Model Methodology), and the additional capacity modeled for Bolinas. As shown in **Figure C**, below, our results indicate insufficient capacity for processing mixed organics.

**Figure C: Business As Usual Scenario, Moderate Increases in Mixed Organics by Population**



**Under the “Achievement of SB 1383 Goals” scenario,** we have assumed increases in organics materials types such that Marin County would achieve the statewide goals of organics tonnage reduction by 2020 and 2025. Our findings are displayed in more detail in **Figure D**, below. Food scraps diversion from the single family and multi-family sectors are shown in **Figure D**; food scraps from the commercial sector only are separately displayed in **Figure E**.

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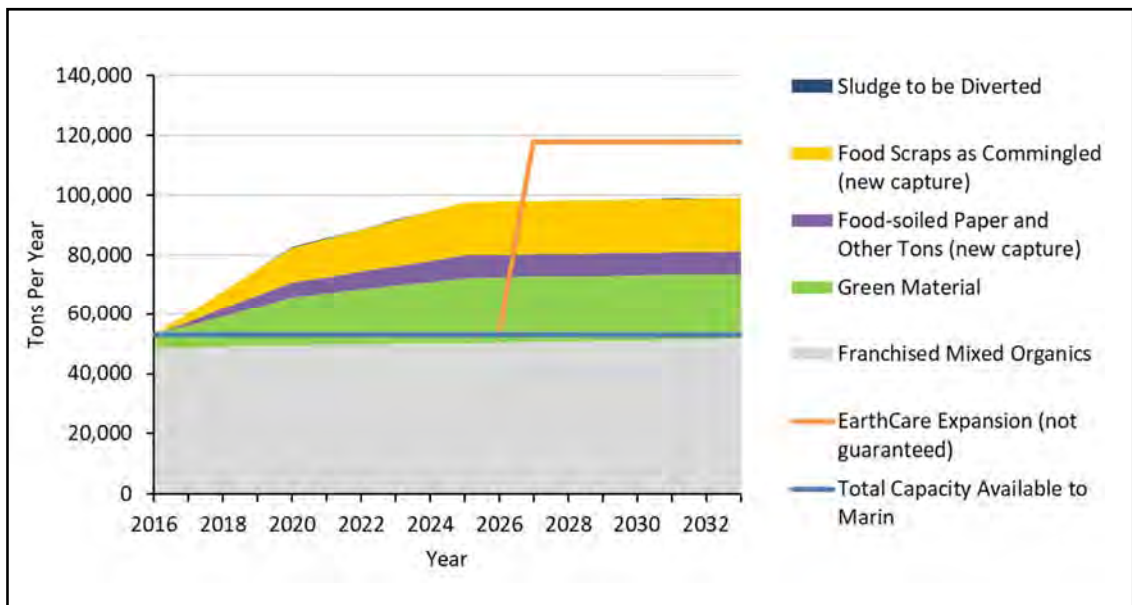
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Franchised mixed organics are modeled at 2016 levels (with moderate increases for population). Additional capture was modeled as separate material streams: Sludge diverted, Food Scraps as Commingled with other compostables, Food-soiled Paper and Other Tons, and Green Material. Note that processing capacity is displayed as a total capacity for composting (not as total capacity for organics processing, which would include the commercial-source separated food scraps).

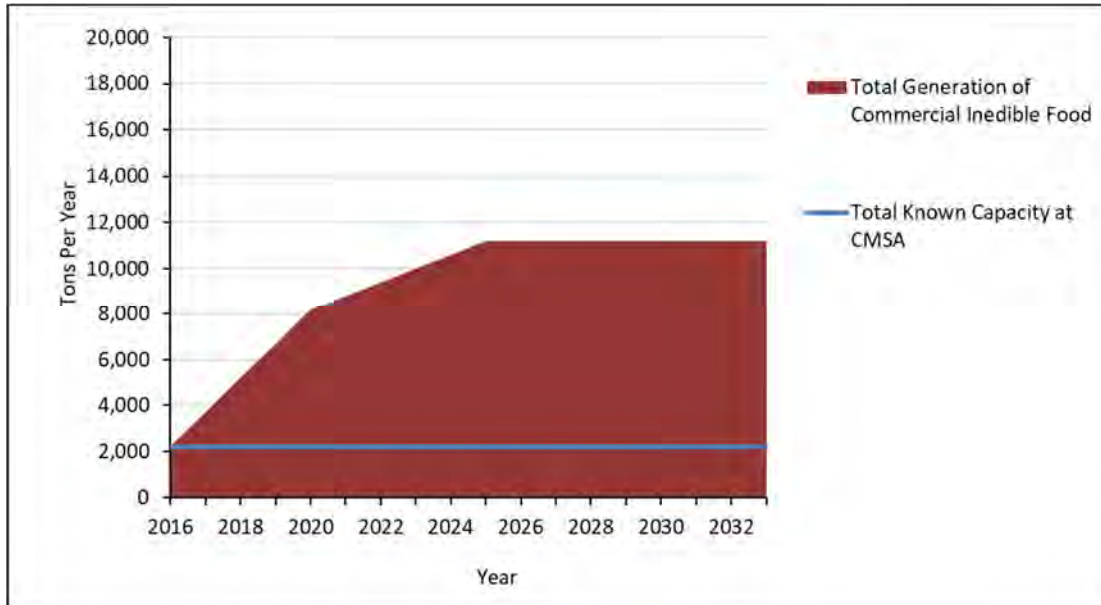
For capacity, we have modeled “no additional capacity” for any material streams except for green material. As we saw under the “Business As Usual” scenario, even with moderate increases in organics diversion by population, insufficient capacity exists. However, if the EarthCare facility’s expansion is approved, and assuming that 100% of the additional capacity of EarthCare is available to Marin County, or if some or all organics from Sonoma or Alameda are diverted to other facilities, there is sufficient capacity for processing all additional tons.

Please note that we have also accommodated this scenario in the landfill model, which is described in the R3 report entitled, “Landfill Capacity Model.”

**Figure D: Processing Capacity versus Needed Capacity under Achievement of SB 1383 Goals All Materials Except Commercial Inedible Food**



**Figure E: Processing Capacity versus Needed Capacity under Achievement of SB 1383 Goals Commercial Inedible Food Only**



Additional Organics Processing Capacity Needed

Note that **Figure E** includes only inedible food calculated by the Project Team as being generated by the commercial sector. The remainder of the inedible food (generated by the single family and multi-family sectors) is modeled in **Figure D** as “Food Scraps as Commingled.” In reality, the commercial food scraps will likely be collected commingled with yard trimmings in some cases, and it is not expected that 100% of the commercial food scraps will be collected as source-separated feedstock for anaerobic digestion.

Approximately 12% of the recoverable organic material in the Project Team’s model is compostable “food-soiled” paper, and an additional 3% of the recoverable organic material is other compostable paper and similar materials. This material is not accepted for anaerobic digestion, which may make it challenging to subscribe commercial businesses that are unable to separate food-soiled paper from food scraps. This “dirtier” commercial organics waste stream may be better handled by compost processing. Ideally, both processing solutions would be available to handle Marin’s organic stream; however, EarthCare does not currently accept commercial source-separated organics. We have included the food-soiled paper and compostable material streams separately in **Figure D**, previous page.

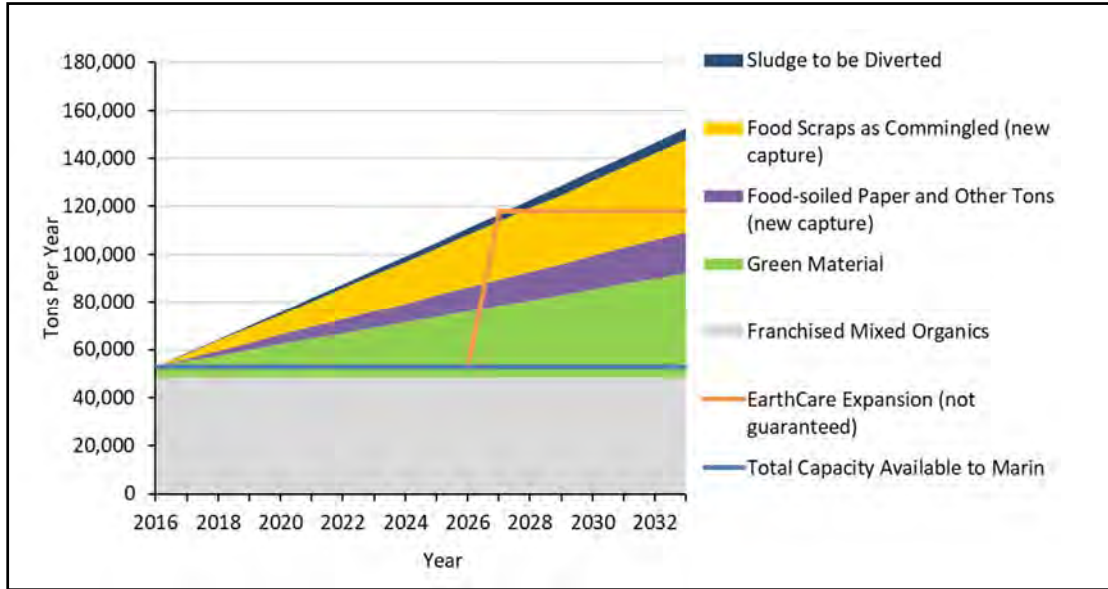
**Under the “Increasing Diversion” scenario**, we have maintained capacity assumptions and the modeled organics materials types, but modeled increases according to the increase seen between 2014 and 2016 in organics diversion. This can be seen as a “Best Case Scenario,” and is unlikely to occur. The increase in diversion between 2014 and 2016 is likely due to additional programs being implemented which resulted in great increases in diversion over that period. We chose to model this scenario to represent the very highest increases in diversion that may be seen in Marin County.

Our findings are displayed in more detail in **Figure F**, on the following page, showing all materials except for commercial source-separated food scraps, which are modeled separately in **Figure G**.

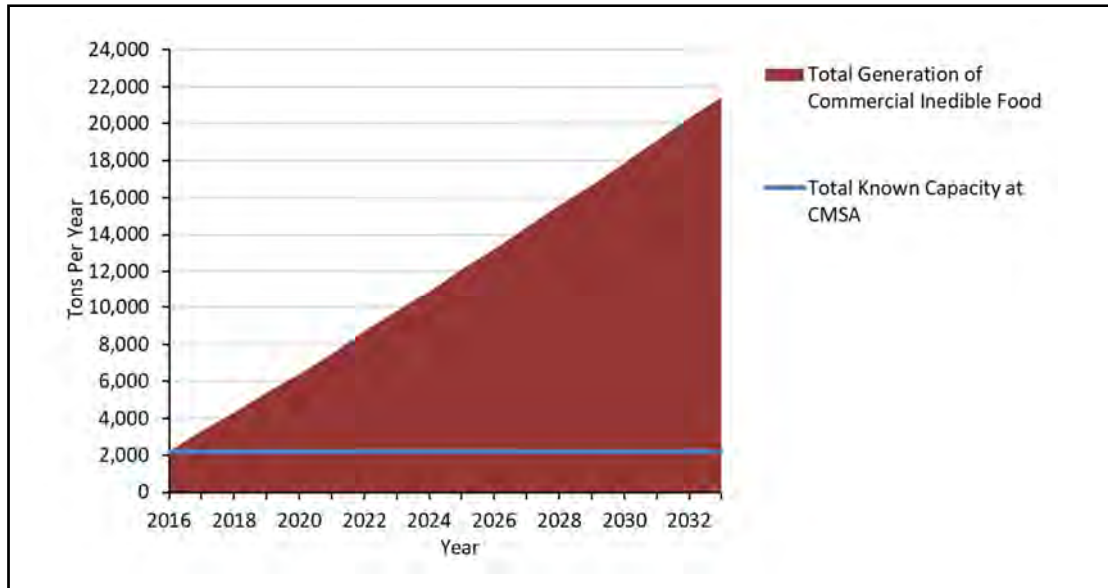
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**Figure F: Processing Capacity versus Needed Capacity under Increasing Diversion Scenario All Materials Except Commercial Inedible Food**



**Figure G: Processing Capacity versus Needed Capacity under Achievement of SB 1383 Goals Commercial Inedible Food Only**



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## Recommendations

### Policy Options to Encourage Infrastructure Expansion and Development

Possible policy alternatives that can be considered by Zero Waste Marin include:

- Recommend to Member Agencies that collection service contracts explicitly require the hauler to have an agreement with a commercial food scraps processor. These agreements should also explicitly reserve the right of the jurisdiction to direct flow such that the jurisdiction can separately procure for processing capacity outside of the collection contract, if it so chooses.
- Recommend that Member Agencies consider establishing flow control agreements to support future infrastructure expansion and development. Such agreements should be designed without a minimum guarantee and could be established via a procurement process.
- Support the expansion of permitted capacity at EarthCare, and any other composting facilities that are able to expand.<sup>25</sup>
- Procure for organic material processing capacity as a JPA. Two solid waste JPAs known to the Project Team have procured for processing capacity:
  - Sonoma County Waste Management Agency, which controls organic material flow due to ownership of an organics processing facility that recently closed.
  - South Bayside Waste Management Agency, which owns a transfer station used by its Member Agencies to transfer material including organics.
- Support infrastructure via competitive grant process.
- Fund, own, and contract for the operations of an organics processing facility for the use of Marin County residents via the issuance of bonds or another funding mechanism. If Zero Waste Marin chooses to pursue this option, the JPA would have more direct control over the desired outcome (additional capacity), but would be exposed to potential liability and significant overhead for management of the facility. For these reasons, the Project Team does not recommend this alternative.

### Future Planning Efforts

The Project Team recommends that Zero Waste Marin encourage its Member Agencies to consider individual needs for organics processing capacity by engaging in ongoing conversation with their haulers. Contractual relationships between individual Member Agencies, haulers, and disposal/processing facilities were not evaluated on an individual basis as a part of this analysis.

Zero Waste Marin should anticipate that if insufficient capacity is anticipated to be available over the planning horizon (which it is), Zero Waste Marin may be required to submit a schedule with steps necessary to acquire needed capacity to CalRecycle. This may require an intensive planning effort, which this Report may help inform, but does not represent.

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<sup>25</sup> West Marin Compost, one of the smaller composting facilities in Marin County, was established by a coalition comprised by Marin County Conservation District, the County Board of Supervisors, and the U.S. Department of Agriculture, and remains a case study in the use of compost for greenhouse gas emission reduction.

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Other elements that may be considered by Zero Waste Marin as a part of this planning effort include (as summarized and interpreted based on CalRecycle’s guidance provided as Appendix 2 to this Report):

- 1) Conduct outreach with citizens in the form of community meetings and surveys in order to solicit input on the benefits and impacts of facilities.
- 2) Conduct a formalized process of consultation with the Local Enforcement Agencies (LEA) to gather information on planned expansions or new facilities and provide an opportunity to seek input and collaboration.
- 3) Collaborate with haulers and owners of existing facilities to gather information about impacts on existing facilities, as well as any plans by private industry to expand or build new infrastructure.

Regarding items 2 and 3 above, as a part of the process of compiling this Report, Zero Waste Marin staff has already begun conversations with facilities and County staff; staff is also involved in ongoing discussions on accepted materials at the existing organics processing facilities, which is an important part of planning for organics infrastructure. The Project Team recommends that the process should be repeated on a yearly basis, and could also include ongoing conversation with Sonoma County Waste Management Agency on anticipated infrastructure in Sonoma County and jurisdiction representatives in Alameda County for capacity updates at the Altamont Compost Facility.

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**To:** Judith Silver, Senior Planner, Zero Waste Marin  
**From:** Emily Ginsburg, Senior Project Analyst, R3 Consulting Group  
**Date:** March 30, 2018  
**Subject:** Remaining Landfill Capacity Projections

**Introduction**

This memo presents R3 Consulting Group’s (R3) assessment and findings regarding projections of long-term disposal capacity at Redwood Landfill (Redwood). R3 reviewed the 2012 Environmental Science Associates (ESA) projections to verify their accuracy and updated these landfill capacity projections based on accrued disposal since 2012, as well as other changes in conditions.

The updated modeling results indicate that the County has sufficient remaining landfill capacity for at least the next 15 years. **Table 1** below displays a summary of the updated disposal capacity scenario modeling results, and scenario descriptions.

**Table 1: Summary of Redwood Landfill Capacity Projections**

Scenario	Landfill Capacity Depletion Date	Years of Remaining Capacity
Zero Waste Achievement	2050	32
SB 1383 Achievement	2044	26
Business As Usual	2040	22
Worst Case Scenario #1	2034	16
Worst Case Scenario #2	2030	12
Worst Case Scenario #3	2024	6

Scenario Descriptions:

- **Zero Waste Achievement:** Achievement of 94% waste diversion by 2025.
- **SB 1383 Achievement:** Achievement of 50% reduction from 2014 baseline in organic waste sent to landfill by 2020, and achievement of 75% reduction by 2025.
- **Business As Usual:** No diversion increases and continue existing material flow.
- **Worst Case Scenario #1:** No diversion increases and all of Marin’s disposal is directed to Redwood;
- **Worst Case Scenario #2:** Redwood receives its maximum annual disposal, year after year.
- **Worst Case Scenario #3:** Remaining capacity is estimated with a more conservative density factor and Redwood receives its maximum annual disposal, year after year.



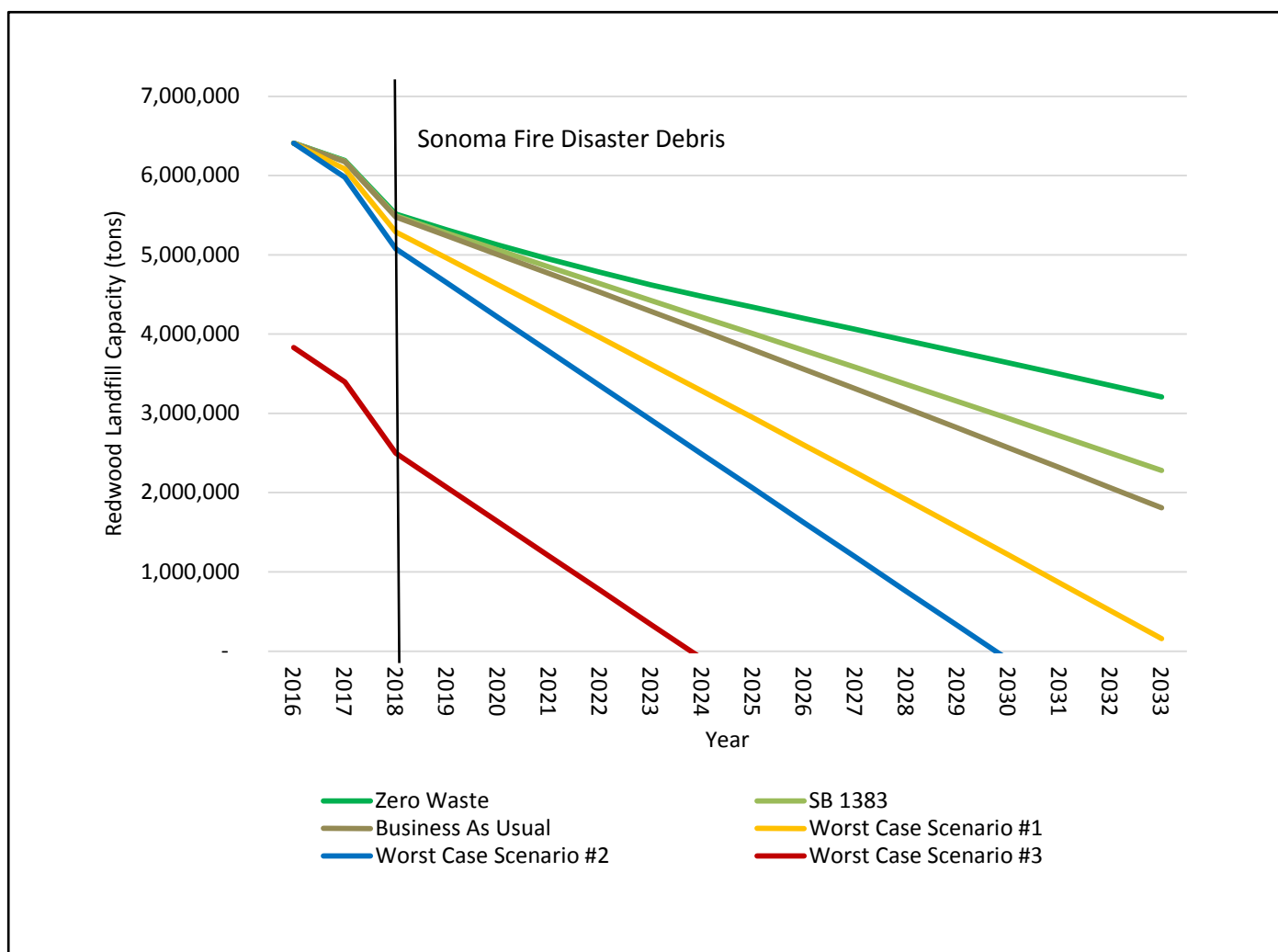
**Zero Waste Achievement** represents an aspirational diversion scenario. Based on Marin’s disposal trends in recent years (i.e. ~73% diversion reported in the last 5 years), and the increased difficulty in reducing materials sent to landfill with each additional ton diverted towards zero waste, this scenario is unlikely to occur by the 2025 goal date. The **SB 1383 Achievement** scenario is provided as a benchmark for comparison with organic generation estimates which are described more fully in the R3 report, “Organics Generation and Capacity Analysis.”

**Worst Case Scenarios** represent more conservative estimates for strategic planning purposes. While more likely to occur than the Zero Waste Achievement scenario, R3 finds it unlikely that in the future that all Marin disposal (including self-haul) would be delivered to Redwood. Furthermore, DRS data from 1995 onward shows that Redwood has yet to hit its annual maximum permitted disposal capacity in one year.

To provide a middle ground between Zero Waste Achievement and Worst Case Scenarios, R3 has developed a **Business As Usual** scenario in which existing material flow continues with no diversion increase. This scenario represents a more realistic projection for disposal for landfill capacity planning.

**Figure A**, below, displays all modeled scenarios.

**Figure A: Redwood Landfill Capacity Projections to 15-Year Planning Horizon**



## **Review of Marin County Landfill Capacity Model**

R3 reviewed ESA's disposal capacity spreadsheet titled "Disposed Waste Projections for Marin County and Remaining Capacity Calculations for Redwood Landfill." The model is used to determine the need for additional disposal capacity for Marin County, and particularly whether such a need will arise within a 15-year period. Our review findings are detailed in **Attachment 1**, and summarized as follows:

- ESA's modeling assumptions are reasonable and projections of landfill capacity useful given the conditions and context existing at the time of its making;
- The calculation of population in the intervening years between 5-year increments provided by population growth projections is linear. Use of a logarithmic function would improve the model by providing a more accurate projection, which R3 incorporated as part of the update;
- The number of operating days per year at Redwood Landfill was entered as 312 by ESA; R3's review of the facility permit shows 311 operating days are allowed (closed Sundays, Christmas Day, and New Year's Day), and this change has been incorporated into the update;
- There is a minor formula error in the Projected Remaining Capacity, which subtracted a few months of disposal capacity (due to the timing of the capacity survey that year) when it should have been added to estimate January 1<sup>st</sup>, 2011. This had a minimal impact on projects, and the formula has been corrected for use in the update; and

The model presents a "Zero Waste Achievement" as the main disposal scenario for consideration. While modeling zero waste is helpful to planning efforts, R3 cautions against looking to an aspirational level of diversion as the primary scenario for landfill capacity projections and recommends using ESA's "Worst Case Scenarios" or R3's "Business As Usual" scenario as more conservative estimates.

## **Model Update Incorporating 2017 Conditions**

R3 updated key facts and figures to renew ESA's projections, and made changes to the model to improve projection accuracy and reflect current conditions. Please see Attachment 2, R3 Updated Disposed Waste Projections. Key factors and data sources utilized in this update include the following:

- Disposal Reporting System (DRS) landfilled tons for Zero Waste Marin from 2011 through 2016;
- DRS Disposal at Redwood Landfill reported by waste origin from 2011 through 2016;
- CalRecycle calculated PPD and Diversion Rates for Zero Waste Marin from 2011 through 2016;
- Redwood Landfill report of current remaining solid waste disposal capacity;
- Current density factor (i.e., airspace utilization factor or compaction ratio) reported by Redwood Landfill;
- 2014 Redwood Landfill Solid Waste Facility Permit and 2017 Emergency Waiver for Sonoma fires disaster debris (approval of temporary increase to accept an additional 3,000 TPD); and
- Association of Bay Area Governments (ABAG) and Department of Finance population growth projections.

2016 is the new base year for this update. Data for 2017 is limited due to a time lag in reporting disposal tonnage, and as such this year becomes the start of the new projections.

Modeling changes and assumptions R3 made in order to update the model are summarized below:

- The reported density factor reported by Redwood Landfill in 2017 is 0.95, a decrease from the previously reported density factor of 0.99 in 2011;
- R3 used ABAG data for all the population figures in Column C, as ABAG is expected to have the most accurate local projections; ESA's model used data from the California Department of Finance, Demographic Research Unit (Report E-2) as the base year (2010) population figure and ABAG growth rates to model changes in population;
- ABAG's projections of Marin County population growth are higher (e.g., rate of population change is 2.1% for the year 2025 in its most recent projections, compared to 1.3% in 2025 as previously projected and used in the 2012 modeling), and population growth in Sonoma County lower (3.5% vs 5.5% in 2025);
- R3 used a logarithmic function to more accurately project population figures between the 5-year interval figures provided by ABAG;
- Redwood Landfill is open 311 days per year, per its facility permit;
- Projections beyond 2033 continue to assume 2.0% growth for Marin County, and Out-of-County growth has been updated to assume 3.5% growth based on ABAG's updated projections for Sonoma County;
- Marin County's Out-of-County Disposal projections are based on a new three-year average (2014-2016) of 42% of its waste, an increase over the 2008 – 2010 average of 32%;
- Non-Marin County disposed waste at Redwood now represents 94% of Sonoma, a decrease from 97% in the previous projections;
- There is a noted drop in Non-Marin disposed waste at Redwood, a change of ~100,000 tons from 2010 to 2011. This large decrease in the tonnage accepted at Redwood occurred subsequent to ESA's submittal of its landfill capacity projections (i.e., in 2010, Redwood reported the acceptance of 292,949 total disposal tons, and in subsequent years, accepted an average of approximately 194,000 tons). ESA's projections use 2010 as the base year, and as a result, scenarios project less capacity than Redwood Landfill experienced. However, the 2018 acceptance of Sonoma disaster debris effectively negates this gain in landfill capacity;
- The Zero Waste Achievement scenario assumes Zero Waste Marin reaches its goal of 94% diversion by 2025. However, it should be noted that the plateau in diversion rate, and decrease in diversion in 2016, as seen in the historic data indicates that this projection is now more aggressive than it appeared in 2012, and should be considered highly aspirational; and
- SB 1383 organics diversion is estimated using 50% and 75% capture rates applied to estimates of organic waste in Marin County 2014 single family, multi-family, and commercial disposal, 2014 Marin County self-haul disposal at Redwood Landfill, and sludge. For the purposes of this analysis, all franchised disposal is considered to be delivered to Redwood Landfill, which is not fully in alignment with current conditions.

### Disaster Debris from Sonoma Fires

On November 28<sup>th</sup>, 2017, Redwood Landfill was granted an Emergency Waiver to accept Sonoma fire disaster debris. This waiver allows the facility to accept up to 3,000 TPD of waste for disposal in excess of their permitted 1,390 TPD, and pending the receipt and approval of the engineering consultant evaluation results regarding fill sequencing, effective December 5, 2017, Redwood Landfill may accept up to 5,000 TPD of waste for disposal in excess of their permitted 1,390 TPD so long as the permitted traffic volume of 662 total daily vehicles is not exceeded. The effective date of the waiver is November 28, 2017 through March 28, 2018; emergency waivers can only be approved for 120 days and may be extended if deemed necessary by the Local Solid Waste Enforcement Agency.

R3 conservatively estimates that disaster debris from the Sonoma fires will amount to 50% of the approved 3,000 increase in TPD (3,000 TPD x 50% received x 311 annual days of operation = 468,000 tons of disaster debris), and in the model this is incorporated as one year of increased disposal in 2018. This is equivalent to approximately two years of capacity at Redwood, and R3 recommends that Zero Waste Marin consider the impacts of future disasters on landfill capacity.

### **Marin County Landfill Capacity Model Walk-Through**

The following is a column-by-column description of the spreadsheet:

- **Column B** shows the base year for the projections, 2016. The table provides projections through 2033. Extended projections beyond 2033 are shown below the table.
- **Column C** uses information from ABAG to provide population figures for 2010 and the following 5-year intervals. Population growth in the intervening years is also based on ABAG projections (ABAG Projections, 2013).
- **Column D** displays the 5-year increments of population growth rates. See the ABAG Pop tab in the spreadsheet for source data.
- **Column E** shows estimated waste generation for the 2016 base year and future years (generation is the sum of all waste disposed plus diverted). The 2016 figure is back-calculated from the diversion rate reported to CalRecycle for 2016 and the reported disposal figure for that year. See the calculations in the Waste Gen Calcs tab in the spreadsheet. Projections are based on the projected population growth rate, as described above.
- **Column F** shows 2016 base year disposed waste, as reported to CalRecycle. Disposed waste projections are based on population growth rate, as described above.

### Zero Waste Achievement

- **Column G** provides projections of the County's diversion rate, expressed as a percentage of generated waste. The 2016 figure is calculated by CalRecycle using pounds per person per day (PPD) to estimate a "diversion rate equivalent." Projections are based on achievement of the JPA's long-term goal as expressed in the JPA's Feasibility Study: 94% by 2025. Diversion is assumed to level out at 94% after 2025.
- **Columns H and I** use the diversion rate projections in Column G and the waste generation projections in Column E to estimate future amounts diverted and disposed, respectively.
- **Column J** provides the year-to-year cumulative total of waste disposed, based on the disposed amounts in Column I.
- **Columns K and L** show the projected waste disposed out-of-County and in-County (at Redwood Landfill) respectively. The amount disposed out-of-County is set at 42% of the total disposed, based on the average for Marin for the years 2014 – 2016, as shown in the Disposal 1995 – 2016 tab in the spreadsheet.

- **Column M** provides the year-to-year cumulative total for projected disposal at Redwood from within Marin County.
- **Column N** shows ABAG's projections of Sonoma County population increase.
- **Column O** provides base year and projected waste amounts disposed at Redwood Landfill from outside Marin County. An analysis of waste coming to Redwood from outside the County in recent years indicates that about 94 percent was from Sonoma County (see the Disp at Redwood tab in the spreadsheet). Therefore, ABAG's projections of Sonoma County population increase, shown in Column N, were used as a basis for projecting future increases in waste disposed at Redwood Landfill originating from outside Marin County.
- **Column P** shows the projections for total amount of waste disposed at Redwood Landfill, combining Marin County and non-Marin County wastes.
- **Column Q** provides the year-to-year cumulative total disposed at Redwood Landfill, based on Column P.
- **Column R** provides our best estimate of the County's remaining landfill capacity. This column shows, for 2016, the estimated remaining capacity at Redwood Landfill, in tons, based on the landfill's report of their 2017 capacity survey. Projections show the year-to-year decrease in capacity, assuming the disposed amounts in Column P. As shown, Redwood Landfill would still have about 3.2 million tons of capacity remaining in 2033. The projection of remaining capacity continues below the table, and shows that under this scenario, landfill capacity runs out in 2050. The projections after 2033 use increases in disposal based on user-defined population growth rates (the highlighted cells in Columns L and O).

#### Worst Cast Scenarios

- **Columns T through Z** provide several "worst-case" scenarios, which use different assumptions to test whether Redwood Landfill might run out of capacity within 15 years.
- **Column U** shows remaining capacity based on the disposal amounts in Column T, which assumes no increase in the diversion rate above the 2016 level, and also assumes that all of Marin County's solid waste would be disposed at Redwood Landfill, along with continued import of waste from outside the County. Under this scenario (Worst Case Scenario #1), there would be about 158,000 tons of capacity remaining at Redwood Landfill in 2033—an insufficient amount for the 350,000+ tons of annual disposal projected for the following year under this scenario, which shows that the landfill runs out of capacity in 2034.
- **Column W** (Worst Case Scenario #2) shows remaining capacity assuming the maximum permitted annual rate of disposal (shown in **Column V**), assuming Redwood's reported density factor of 0.95 tons per cubic yard. **Column X** also assumes the maximum permitted annual rate of disposal, and uses a density factor of 0.57 tons per cubic yard, which represents an average density for conventional landfills (Worst Case Scenario #3).<sup>1</sup> Column W shows that, at the maximum permitted rate of disposal, the landfill runs out of capacity in 2030. Column X shows the landfill runs out of capacity in 2024.
- **Columns Y and Z** provide the opportunity for the user to conduct a sensitivity analysis to test different rates of disposal and their effects on remaining landfill capacity. The highlighted user-input field below the table indicates the percent of maximum permitted rate of disposal.

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<sup>1</sup> In 2015, R3 conducted a survey to collect specific density factor information from approximately 40 landfills in California, resulting in an average of 0.57 ton/yd<sup>3</sup>. The factor depends on several different variables, such as compaction technology, moisture content, amount of time the material has been buried, and type of alternative daily cover.

Column Z provides remaining capacity, using the in-place density factor of 0.57 tons per cubic yard.

### Business As Usual

Calculated separately from ESA's Zero Waste Achievement and Worst Case Scenarios, to the right of the spreadsheet, R3 has projected a more moderate scenario of waste disposal.

- **Column AB** shows the sum of Marin and non-Marin disposed waste, assuming no increase in diversion from current levels and disposal escalated at the same rate as population growth. It also maintains the current flow of materials by subtracting Marin's out-of-County disposal.
- **Column AC** shows the remaining capacity under the above scenario, with 1.8 million tons of landfill capacity remaining in 2033.

### SB 1383 Achievement

SB 1383 achievement is calculated using Marin's SB 1383 organics diversion targets: approximately 28,000 tons of additional organic material diversion in 2020 and 42,000 tons in 2025.

- **Column AE** shows business as usual disposal less the additional diversion of organic materials needed to meet SB 1383 goals; no additional diversion is modeled after goal achievement.
- **Column AF** shows the remaining capacity. Under this scenario, the landfill runs out of capacity in 2044.

### **Other Considerations**

Waste Management (the owner and operator of Redwood Landfill) has no obligation to continue to accept disposal, construction and demolition debris (C&D), and recycling for transfer and processing. If the landfill ceases operation, it is possible that Marin County will be in the position of needing to quickly plan for future transfer capacity for disposal, C&D and recyclable materials. Transfer capacity and recycling processing capacity (including C&D) was not specifically analyzed as a part of this project; however, a 15-year planning horizon for transfer capacity should be a minimum, and longer-term planning is recommended.

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**To:** Judith Silver, Senior Planner, Zero Waste Marin

**From:** Rosemarie Radford, Senior Project Analyst, R3 Consulting Group

**Date:** March 30, 2018

**Subject:** DRS Tool and AB 901 Preparedness

**Attachments:** Attachment 1: Reporting Ordinance Template

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Zero Waste Marin engaged R3 Consulting Group, Inc. (R3) to lead a team of industry experts including Integrated Waste Management Consulting, LLC, Cascadia Consulting Group, and Debra Kaufman Consulting (collectively, Project Team) to assist in improving the DRS spreadsheet used to report tonnages to the State, and to prepare for Assembly Bill (AB) 901. This memo presents the Project Team's activities, findings, and recommendation regarding the DRS Tool and AB 901 Preparedness under Tasks 1 and 2 of our scope for the Material Flow and Capacity Analysis.

### **Background and Regulatory Context**

AB 901 is a revision of the reporting requirements in the California Integrated Waste Management Act of 1989, which regulates the disposal, management, and recycling of solid waste. The main revision made by AB 901 is to require disposal facilities to send reports directly to CalRecycle rather than to the counties in which they operate. Additionally, disposal, compost, and recycling tonnage information will now be submitted directly to CalRecycle and counties upon request. The revision also removes the requirement for counties to submit reporting information to CalRecycle, cities, and regional agencies upon request.

The bill also requires exporters, brokers, and transporters of recyclables or compost to submit information to CalRecycle on the types, quantities, and destinations of materials that are disposed, sold, or transferred inside/outside of the state, and authorizes CalRecycle to provide that information on an aggregated basis to jurisdictions.

As a County with a landfill in its jurisdiction, Marin County (County) has been responsible for reporting landfill disposal to CalRecycle under the Disposal Reporting System (DRS). The County has also been receiving detailed reports on diversion tonnage from franchised haulers, including recycling marketed by material category. AB 901 would therefore mean that the County will no longer receive reporting information directly, potentially complicating the annual assessment of the JPA fees and the evaluation of diversion program performance over time.

AB 901 regulations have not been finalized, but we understand that the intention is to maintain transparent and complete access to reporting for jurisdictions. However, it is unclear whether information will be available in a timely manner to Zero Waste Marin, which is particularly relevant to

the assessment of JPA fees. JPA fees are assessed each spring based on the submission of disposal data for the previous calendar year.

## Methodology

The Project Team analyzed the draft regulations and the bill text, in addition to attending stakeholder workshops, in order to determine timeline and future regulatory changes under AB 901.

Additionally, as a part of building a detailed understanding of the flow of organic material through the County to assist in projections of organics generation and capacity for processing organics (described in the report entitled, "Organics Flow and Capacity"), the Project Team assisted Marin County by conducting a comprehensive overhaul of the existing spreadsheet used for reporting disposal tonnages for Redwood Landfill to the State. The Project Team also summarized diversion and disposal data in a similar format for the years 2014 through 2017 by quarter, allowing Zero Waste Marin to produce customizable charts displaying disposal and diversion data over time.

## Findings

Our understanding of the draft regulations for AB 901 has yielded the following:

- 1) Marin County can expect that it will be responsible for DRS reporting from haulers and facilities to the State through the end of calendar year 2018.
- 2) Reports sent to the State under AB 901 will differ from those provided from haulers to the County currently. Reports to the State will likely not include information about material recycled by category.
- 3) Most of the reporting will be provided by facilities (the landfill and transfer station) directly to CalRecycle.
- 4) In order to assess JPA fees, Zero Waste Marin needs disposal tonnage reported by all haulers and facilities. However, much of the additional data currently reported by the haulers to the County is valuable for planning purposes and to help the agency meet anticipated requests from CalRecycle under SB 1383 and other future regulations.

## Recommendation

Zero Waste Marin should consider requiring haulers and facilities to continue to report the same information that the County has been receiving under the auspices of DRS, and consider policy options such as the following in order to ensure that hauler and facility reports continue to be received:

- 1) An ordinance that requires reporting from the haulers and facilities under the powers granted to Zero Waste Marin under its JPA Agreement. Such an ordinance could be modeled on a similar ordinance passed by Alameda County Waste Management Authority (StopWaste) as Ordinance 2009-01: An Ordinance Establishing Procedures and Reporting Requirements for the Collection of the Countywide Solid Waste Facility Fee.<sup>1</sup> The Project Team has drafted the findings section and other key elements of an ordinance that could be used by Zero Waste Marin for such an ordinance. It is provided as Attachment 1 to this memorandum.

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<sup>1</sup> Additional information is available on the StopWaste website, at the following web address: <http://www.stopwaste.org/recycling/business/recycling-regulations-and-compliance/ordinance-2009-01>



Ms. Judith Silver  
March 30, 2018  
DRS Tool and AB 901 Preparedness  
Page 3 of 3

- 2) A formalized letter agreement between all franchised haulers and facilities, and their franchisors (Member Agencies).

Zero Waste Marin may also choose to do nothing, with the understanding that haulers and facilities are already in the habit of reporting to the County, though the content form and format of their reports under the AB 901 regulations may change. It is anticipated that the reports sent to the state by haulers and facilities will require less detail than what is currently reported to the County, and the information anticipated to be excluded via AB 901 is valuable for planning purposes.

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**To:** Judith Silver, Senior Planner, Zero Waste Marin  
**From:** Rosemarie Radford, Senior Project Analyst, R3 Consulting Group  
**Date:** March 30, 2018  
**Subject:** DRAFT Tonnage Scenario Tool and AB 876 Infrastructure Planning Tool

Zero Waste Marin engaged R3 Consulting Group, Inc. (R3) to lead a team of industry experts including Integrated Waste Management Consulting, LLC, Cascadia Consulting Group, and Debra Kaufman Consulting (collectively, Project Team) to develop a Tonnage Scenario Tool to explore various organic flow scenarios in order to determine capacity requirements over the next 15 – 20 years as required by AB 876. This memo presents the Project Team’s actions to develop this Tonnage Scenario Tool.

## **Background**

R3 completed the Organics Flow and Capacity Analysis, which presented our analysis of disposed organics in 2014 and organics processing capacity from 2016 to 2033. In Section 6 of the Report, we described three scenarios for organics generation. These three scenarios are:

- “Business as Usual” with no increase of organics diversion
- “Achievement of SB 1383 Goals” (including moderate increases of organics diversion and disposal according to population)
- “Increasing Diversion” with diversion continuing to increase as it did from 2014-2016

The three scenarios described above represent various adjustments to organics generation. Organics diversion and disposal tonnages increase by population under every scenario; the increase is moderate. We have provided JPA staff the calculations used to produce our results for these three models (in Excel format), with an additional data “input tab” that provides the flexibility to adjust modeled infrastructure capacity for the various material streams included in the model. The material streams are:

- Commercial “inedible” source-separated food scraps (not commingled with food-soiled paper, cardboard, or compostable plastics).
- Green material including landscaping debris and not including food scraps, food-soiled paper, cardboard, or compostable plastics. The majority of this material originates from the self-haul sector. Some of the material originates from residential routes in Stinson and Bolinas.
- Mixed organics including landscaping debris, food scraps, food-soiled paper, cardboard, and compostable plastics. Increases in this stream are modeled by population and also inedible food attributed to all sectors *except* for commercial (which is modeled separately and listed above).

Projections of future tons are broken into the component material types, because sufficient data exists to characterize this material; insufficient data exists to break down the existing and historical mixed organics stream in such detail.

- Food-soiled paper, cardboard, and other tons,<sup>1</sup> which are a potentially challenging group of materials to divert.
- Sludge.

It should be noted that two material streams included in the 2014 baseline year organics disposal characterization are not included in the scenario models. Those material streams are recyclable paper and disposed edible food, modeled as reduced by 20% by 2025. Recyclable paper is expected to be diverted by recycling and marketing as paper (not composted), and edible food is modeled as a reduction in disposed tons, and not an increase in needed organics processing capacity.

### **Model Scenarios**

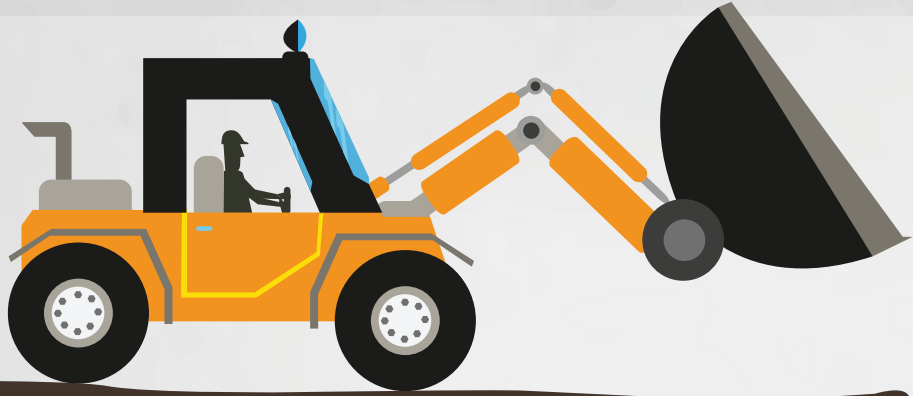
R3 has provided the following data inputs for the Organics Tonnage Scenario Tool:

1. Petaluma tons per year (10,000 in 2016)
2. Sonoma County Waste Management Agency tons per year (33,000 in 2016)
3. Davis St. tons per year (32,000 in 2016)
4. Additional compost facility opens (input tons per year as green material or mixed organics, including food scraps and food-soiled paper)
5. CMSA expands capacity (according to demand, or in tons per year), or reduces capacity in tons per year
6. West Marin Compost expands capacity (in tons per year), or reduces capacity (in tons per year)
7. EarthCare expands capacity (in tons per year)

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<sup>1</sup> The paper categories included are items made mostly of paper that could be composted, that do not fit into any of the other paper types. Paper may be combined with minor amounts of other materials such as wax or glues. Examples include pulp paper egg cartons, unused pulp paper plant pots, molded paper packing materials, some berry trays, some take-out food containers, and dirty molded paper plates. Also, items made mostly of paper but combined with large amounts of other materials. These are items that do not fit into any other categories, are not generally compostable or recyclable, and are not food and beverage cartons. Examples include blueprints, sepia, onion skin, carbon paper, photographs, paper frozen juice cans, sheets of paper stick-on labels, and paper mailing envelopes lined with bubble wrap or plastic.

# REDWOOD LANDFILL



# 15 years left...

**Sufficient capacity exists** under likely scenarios for a 15-year time horizon, even with projected population growth, no diversion increases, and if all disposal from Marin County is directed to Redwood Landfill.\*

**\*DID YOU KNOW?** Not all of Marin County's garbage ends up in Redwood Landfill—and not all of the garbage in Redwood Landfill originates in our county.



## What should you know?



**Member Agencies** are responsible for arranging adequate garbage collection, transfer, transport, and disposal.



**JPA** is responsible for reporting to the state on whether sufficient capacity exists.

## Local & Regional Landfills

- A) Redwood Landfill
- B) Central Disposal Site
- C) Ox Mountain
- D) Newby Island
- E) Guadalupe
- F) Kirby Canyon
- G) Vasco Road
- H) Altamont
- I) Keller Canyon
- J) Potrero Hills
- K) Recology Hay Road



## What should you do?



**Seek to arrange for transfer and transport out-of-County** in anticipation of the exhaustion of the landfill capacity after 15 years.



**Remain alert.** Flows from outside the County (such as the recent Sonoma fire disaster) can affect the time horizon for exhaustion of capacity.



**Continue to reduce** the volume of waste going to landfill.

# ZERO WASTE MARIN

For more information, visit Zero Waste Marin online at:

[zerowastemarin.org](http://zerowastemarin.org)

## GROW

your local organics program



See reverse side for details

## REFRESH

your local recycling program



Stay tuned for updates

# ORGANICS

Our green stream is about to grow...



## SB 1383

### a new State Law

Sets ambitious targets for reducing landfilled organics and related greenhouse gas emissions.

✓ Statewide diversion requirements

✓ Significant new program requirements

✓ Benchmarks in 2020 and 2025

## 2020 GOAL

50% Reduction in organics to landfill

+29,697 tons beyond current processing capacity

## 2025 GOALS

20% Recovery of edible food

75% Reduction in organics to landfill

+44,922 tons beyond current processing capacity

## WANTED: Additional Organics Processing Capacity

Current local processing capacity is not sufficient to meet projected needs.

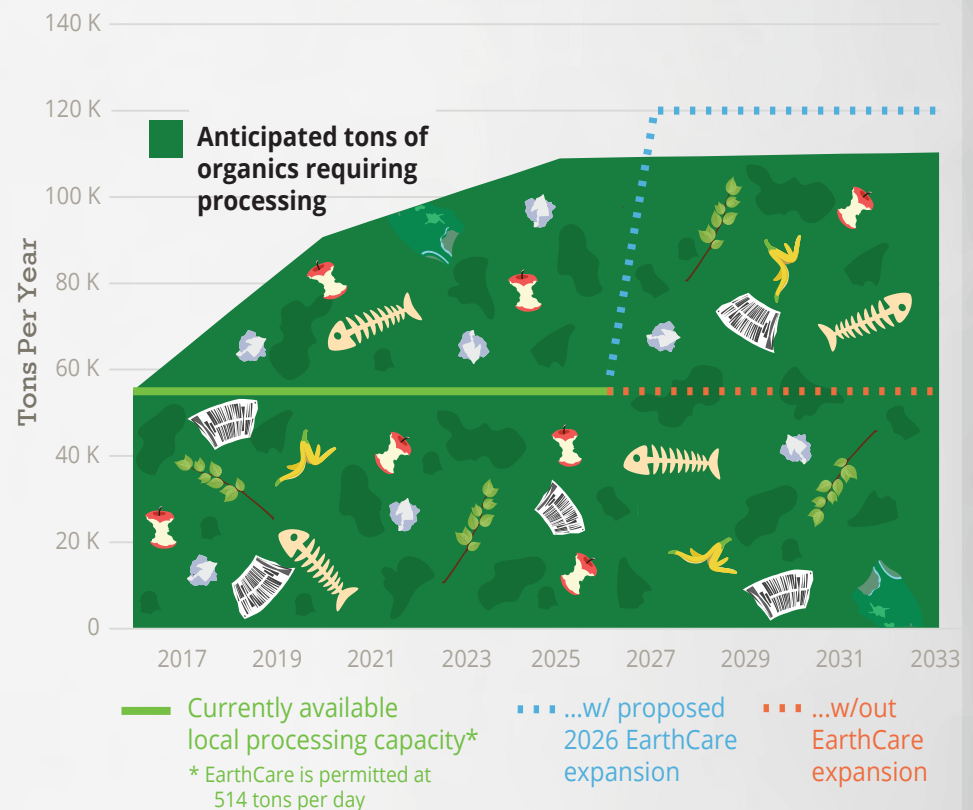
### Local & Regional Organics Processing Facilities

#### Local / Marin County

- A) West Marin Compost
- B) Bolinas-Stinson Resource Recovery
- C) Central Marin Sanitation Agency
- D) WM EarthCare of Marin

#### Regional / Bay Area

- E) WCCSLF Organic Materials Processing
- F) EBMUD Anaerobic Digester
- G) City of Napa Material Diversion Facility
- H) CCL Organics
- I) Potrero Hills Compost Facility
- J) Recology / Jepson Prairie Organics Composting
- K) Altamont Landfill and Resource Recovery
- L) Newby Island Compost Facility
- M) Zero Waste to Energy Development Co AD
- N) Forward Resource Recovery
- O) South Valley Organic Composting Facility
- P) Z-Best Composting Facility



## ORGANICS: More than Just Green Waste

SB 1383 defines the organic waste stream to include:

**Food waste**  
kitchen scraps and post-consumer food

**Green material**  
landscape and pruning waste

**Paper fibers**  
wet or soiled paper and cardboard

**Textiles**  
clothing, fabric and carpets

**Woody material**  
wood waste and lumber

**Biosolids**  
biosolids, sludge and digestate

## What should you know?

### ZERO WASTE MARIN

JPA is responsible for reporting to the state on whether sufficient capacity exists.



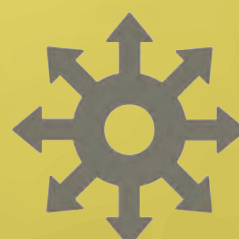
**Member Agencies** are responsible for arranging collection, transfer, transport, and processing for organics—usually through contracts with haulers.

## What should you do?

Encourage local infrastructure expansion and development with legislation and contracting.



Secure organics processing capacity with haulers, directly with processors, or with JPA.



**Act soon!** Inaction can result in limited or no access, if others secure local capacity first. This means higher costs for long-distance transport, and higher ghg impacts.

## **MARIN COUNTY HAZARDOUS AND SOLID WASTE MANAGEMENT JOINT POWERS AUTHORITY**

**Belvedere:**  
Craig Middleton

Date: April 26, 2018

**Corte Madera:**  
Todd Cusimano

To: JPA Executive Committee

**County of Marin:**  
Matthew Hymel

From: Steve Devine, Program Manager

**Fairfax:**  
Garrett Toy

Re: FY 18/19 JPA Budget and Related Hauler/Facility Assessments

**Larkspur:**  
Dan Schwarz

Attached is the proposed Marin County Hazardous and Solid Waste Management Joint Powers Authority FY 18/19 budget and associated hauler/facility fee assessments for the Marin County Hazardous and Solid Waste Management Joint Powers Authority (JPA).

**Mill Valley:**  
Jim McCann

Please recall that the JPA is not funded by County, City or Town general funds or any sort of assessment on those Member Agencies. The JPA is funded by lump-sum assessments on the franchised waste haulers in the County and the solid waste facilities (Redwood Landfill in Novato and Marin Resource Recovery Center/Transfer Station). In turn, these operators pass along these costs to their customers as they see fit. The budget proposed herein reflects a 9.5% increase in total year over year assessments.

**Novato:**  
Regan Candelario

**Ross:**  
Joe Chinn

**San Anselmo:**  
David Donery

**San Rafael:**  
Jim Schutz

With one exception, the Franchised Haulers would see reduced assessments based on this proposed budget. Redwood Landfill would see an approximate 35% increase and the Marin Resource Recovery Center a 17% increase. This situation is due to the biennial tonnage allocation methodology specified in the 1996 JPA Agreement. A variety of factors can explain shifting tonnages and include a strong economy (and so transfer stations and landfill tonnage are up all over the State as more people remodel, re-landscape, etc.) and the Sonoma fires. Assessments for the nine entities that pay JPA Assessments are noted in Column H of the first page of Attachment 1.

**Sausalito:**  
Adam Politzer

**Tiburon:**  
Greg Chanis

### **What is the Magnitude of the JPA Revenue Requirement as it is Translated to a Typical Customer?**

The JPA queries the haulers to obtain estimates of how the JPA assessments translate into a percentage of the monthly charge for a typical residential account. Last year, the haulers reported that their JPA assessments translated into less than 4% of the rate seen by a typical residential customer: