EDGAR & ASSOCIATES TECHNICAL PROPOSAL



Humboldt County SB 1383:

Organics Regional Compliance Services

October 1, 2021



Humboldt Waste Management Authority



October 1, 2021

Jill Duffy, HWMA Executive Director 1059 W. Hawthorne Street Eureka, CA 95501

RE: Humboldt County SB 1383 & Organics Regional Compliance Services

Dear Jill Duffy:

Edgar & Associates is excited to propose on this important project at a critical time, as the State prepares to respond to the Short-Lived Climate Regulations (SB 1383). We feel that our diverse experience, tightknit team, and unique qualifications will ensure that Humboldt County is provided a commonsense, strategic Roadmap to compliance. We are honored to participate in programs that feed hungry people, feed the soil, and feed the grid, and do not feed the landfills. We look forward to expanding our relationship with Abound Food Care, as our sub-consultant, on edible food recovery programs to raise the bar on the most important aspect of this RFP, which is to reverse food insecurity in California, and in Humboldt County. We have several awarded grants for both edible food recovery and organic processing development throughout California, in which we hope to bring this, and many other skills sets, to Humboldt County next year.

Edgar & Associates is a boutique consulting firm, unburdened by corporate process, and is instead focused on providing personalized client services and timely deliverables. We are action driven without the canned feasibility studies, and instead tailor our programs to the individual needs of the clients we serve. We are proud of our low overhead expenses and flexible scopes of work, and we are driven to put our customers' needs first.

This Proposal shall remain valid for a period of not less than ninety (90) days from the date of submittal. Evan W.R. Edgar is authorized to bind Edgar & Associates, Inc. contractually. Edgar & Associates is a California 'S' Corporation, located at 1822 21st Street in Sacramento, California with Evan W.R. Edgar as the President.

Please phone me at (916) 444-5345 should you have any questions.

Best Regards,

Waw MK YR

Evan WR Edgar, Principal



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Description of Consulting Firm and Subcontractor

Primary Contractor

Our firm, Edgar & Associates, Inc. (Edgar), is an environmental engineering company and lobbying firm founded in 1997 and based in Sacramento specializing in solid waste management, recycling, composting, and renewable energy issues. Edgar also has an office location in Southern California, where the team readily travels for necessary meetings. Edgar acts as technical advisors and consultants to the solid waste industry, including privately held companies and local jurisdictions, involved with all aspects of materials management services including collection, hauling, processing, recycling, composting, and landfilling. We have a reputation of deploying technologies and obtaining grant funding to commercialize low carbon systems and meet



necessary diversion requirements for local jurisdictions. Since our inception, we have assisted companies and their franchise cities and jurisdictions prepare for greater levels of waste diversion and the lowest carbon footprint possible. Our success comes from our knowledge of and involvement in a wide range of California waste industry regulations and policy drivers. Our firm works in all avenues of the solid waste industry and are experts in anticipating the needs of local jurisdictions, to haulers, facility operators, regulators, and state. Our firm will provide the Humboldt Waste Management Authority (Humboldt) with tried and tested solutions that we have refined during our development of successful diversion solutions across the State. Our operational and collection know-how comes from long-term, personal, and trusted business relationships with haulers, recycling processors and composters.

Our team of eight professionals are experts in engineering, composting, sustainability, technology, and greenhouse gas reductions. We provide turnkey service for numerous private independent business owners and local governments in the materials management world. We specialize in preparing SB 1383 Organic Recycling Plans, Edible Food Recovery programs, Climate Action Planning coupled with Master Facility Planning, and Zero Waste Planning. Our reports and strategic plans prepare Jurisdictions and facilities for meeting diversion requirements and greenhouse gas reduction goals. These reports include an evaluation of current operational practices, projected community waste generation, available technologies, permitting requirements and operational goal setting while integrating scientifically supported greenhouse gas emission reductions strategies.

We have over three decades of engineering and advocacy experience analyzing and projecting waste diversion scenarios against disposal targets and goals. We pioneered disposal goal setting



in the waste industry and our firm was the first to calculate the greenhouse gas impacts of recycling compared to solid waste collection operations, piloting the concept of "Net-Zero" greenhouse gas operations. More recently, a range of regulations have been passed to push California towards higher levels of diversion and greenhouse gas reductions. In response to these mandates, we have been assisting our clients with reports that prepare jurisdictions for meeting those requirements.

Subcontractor

Abound Food Care was founded as Waste Not OC Coalition in 2012 by the Public Health Officer for the county of Orange as a collaborative effort to reduce the effects of food insecurity through the recovery of excess edible food. The Waste Not OC Model was designed to mitigate the gaps in the food supply chain that led to food waste and the gaps in the healthcare industry that failed to identify insecure individuals and provide them with access to nutritious food. By 2017, Waste Not OC was





recognized as the

most effective and advanced food recovery model in the nation. Re-branded as Abound Food Care in 2021, Waste Not OC has recovered over 90 million pounds of excess edible food for distribution to those suffering from food insecurity.

Abound works collaboratively with the public, private, and nonprofit sectors to facilitate the

recovery of excess edible food effectively and efficiently. Abound provides innovative and highly effective solutions to optimize the food chain, build capacity, bring stakeholders and resources together that optimizes food systems nationally reducing food waste and food insecurity. Abound Food Care is a fiscally sponsored project of OneOC and is transitioning to independent 501c3 status

to be completed within the next year.

We provide consulting services and food recovery program development and/or oversight utilizing our decades long relationships in the food, healthcare, and waste management industries. Our accomplished and engaged Advisory Board works on our behalf to leverage



longstanding partnerships that result in an effective regional solution to a national problem using local resources. The Abound Food Care national headquarters is located in Orange, California and currently employs 16 staff members. The staff works regularly in the areas of outreach, logistics, data collection/analytics and strategic development. Abound has been actively engaged with CalRecycle on the development of SB 1383 Edible Food Requirements, their Model Tools, and through the implementation of the regulation in several Counties throughout the State. Further Abound staff are Board Members of the Edible Food Recovery Technical Advisory Committee that regularly provides education and guidance on how to effectively build edible food recovery programs in California.

Name	Title	Organization	Availability	Proposed Position
Evan Edgar	Principal Engineer, and President	Edgar & Associates	Full-Time Employee 5-20 hours a week as needed.	Project Manager & Primary Point of Contact
Neil Edgar	Senior Project Manager	Edgar & Associates	Full-Time Employee 5-20 hours a week as needed.	Organics Infrastructure Program Planning Lead
Monica White	Sustainability Manager	Edgar & Associates	Full-Time Employee 8 - 30 hours a week as needed	SB 1383 Compliance Strategist and Program Lead for Edible Food Recovery Planning
Grant Readle	Resource Economist	Edgar & Associates	Full-Time Employee 8 - 30 hours a week as needed	Data Analyst and SB 1383 Compliance Support
Omar Al- Shafie	Associate Engineer	Edgar & Associates	Full-Time Employee 8 - 30 hours a week as needed	Organics Infrastructure Planning Support
Julie Arenz	Graphic Design and Marketing Specialist	Edgar & Associates	Full-Time Employee 8 - 30 hours a week as needed	Education and Communications Program Lead
Mike Learakos	Executive Director	Abound Food Care	Full-Time Employee 5-20 hours a week as needed.	Edible Food Recovery Technical Consultant

Staff Availability

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Edgar & Associates has abundant resources to bring to a partnership with Humboldt on this project. We are prepared to conduct digital meetings on any modern platforms in addition to providing in-person assistance at critical meetings and the quarterly Local Task Force. Below is a summary of our proposed staff (please see resumes in Section 3) and their availability.

In addition to these positions, both Edgar & Associates and Abound have additional supporting staff that can be brought in as needed for specific tasks.

Facilities

Edgar & Associates and the subconsultant, Abound Food Care, current work across California bringing their expertise to a range of urban and rural communities. Our team understands the specific needs of the communities we work in and look for tailored programs specific to the nuances of the jurisdictions. The Edgar & Associates team is located at The Edgar Institute, which is an eco-think tank based in Sacramento, California, which combines the "Art of Politics and Science". Our team is highly mobile, and we will be available as needed for in-person meetings, as well as making use of available remote technologies to ensure consistent communication.

The Edgar Institute: Cultivating the Art of Politics and Science



The Queen Anne Victorian home was built in 1893 by Manuel Nevis, who came to the U.S. from the Azores and started the California and Pioneer wineries located on 21st and R Streets. In 1907 the house was moved to its present location at the corner of 21st and S Streets. With Prohibition in the early 1920s, the wineries fell into demise and the Nevis Mansion was sold to house offices of doctors and lawyers for decades, with a gap in the 1970s when a guru communed, and a transformation began.

The 18-month restoration project respected the rich vintner's lore of the past Portuguese heritage, paying homage to the family roots of Ernest Domingo Luiz from the Azores, the father of the mother of the Edgar boys: Neil, Eric, Evan, and Sean. The building was dedicated to the boys' father, the late H.R. Edgar III (1933 – 2004) and he was

honored with a sign ceremony recognizing his endless pursuit of education, a great book, and a good game of chess. This is where Edgar & Associates set up shop to address global warming solutions of AB 32 by promoting recycling, composting, bioenergy, clean fleets, and producer responsibility. Today at The Edgar Institute, Doug Kobold of the California Product Stewardship Council and Heidi Sanborn of the Nation Stewardship Action Council, , along with the California Compost Coalition, CleanFleets.Net, Biogenic Energy Development are collaborating on greenhouse gas reduction programs and setting goals to 2030 and beyond.



Additional Resources

The Edgar & Associates team has cultivated an effective network through our day-to-day interactions with varying state agencies, technical committees, nationwide groups, and Sacramento-based organizations. These relationships bring an array of resources to each and every client we work with, and we are proud to declare our various partners below:







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Edgar & Associates represents the California Compost Coalition (CCC). CCC is a Lobbying Coalition, created in 2002 by a group of compost operators in response to demands for increased recycling of organic materials & production of clean compost, bioenergy, anaerobic digestion, renewable natural gas, and biochar to reduce methane generation at landfills and address climate change concerns. The CCC represents member organic material recyclers and compost operators with a unified statewide voice on many issues: environmental compliance with land, air and water quality issues, product safety and standards, environmental planning, trade, and market development.

The CCC works closely with state and national organizations to promote and encourage circular solutions by managing organic materials in a responsible manner, promoting the highest and best use of resources, while minimizing impacts on the environment and the neighboring communities our members serve.

Project Experience

Our team of policy experts, data scientists, and engineers are deeply engaged in the organic waste management sector in California. Our experience extends from the ground level solutions that scale the statewide policy initiatives. At the ground level, our team is involved in permitting



individual operations, managing solid waste facilities, and implementing new technologies at recycling and composting centers. Similarly, at the state level we are proficient in analyzing statewide recycling markets, organic waste product procurement, interpreting and assessing legislation, and researching economic and environmental impacts of major policy drivers at the California level. This well-rounded expertise

has enabled us to craft well-informed and unparalleled SB 1383 Organic Waste Recycling Plans for cities and their franchised haulers alike.

Our reports address the following requirements:

- ✓ Evaluate compliance with AB 939; 50% jurisdictional diversion requirement
- ✓ AB 341 and progress toward the 75% State recycling goal
- ✓ AB 1826 Mandatory
 Commercial Organics Recycling
 Programs
- ✓ AB 1594 to discontinue diversion credit for organics as Alternative Daily Cover
- ✓ SB 1383, the Short-Lived Climate Pollutants Strategy, with the 50% organic waste reduction requirement by 2020, and the 75% organics waste reduction by 2025, and 20% edible food recovery by 2025





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- ✓ AB 876 which requires jurisdictions to plan for 15 years of organics processing capacity
- ✓ Regional development of edible food recovery programs and building community resilience
- ✓ An overview of viable technology options which provide the necessary infrastructure and operations capacity to manage the required tonnage

Notably, our team has directly permitted over 35 composting and anaerobic digestion facilities since 1997. Edgar represents clients in all five permitting tiers, including the "full" tier which provides the greatest level of CalRecycle review and oversight. Permit tiers include, Full, Standardized, Registration, Notification, and Excluded. Edgar has assisted a multitude of clients in selecting and permitting the proper technology for its location, waste stream, and diversion needs.

Edgar has an intimate understanding of compliance with the California Environmental Quality Act (CEQA) associated with new or revised solid waste facility permitting which is of particular importance to jurisdictions looking for solutions for SB1383. There are a number of pathways to CEQA compliance, including an Environmental Impact Report (EIR), as the required reports are tailored to different situations and intended uses.

In addition, Edgar provides a range of other services offerings including development of greenhouse gas emissions inventories, consulting for franchise agreement responses and contract negotiations, Climate Action Planning, Sustainability Program development, Sustainability Reporting and Edible Food Recovery programs. We understand that the Waste Sector in California is at the nexus of many environmental policy goals ranging from Greenhouse Gas Reduction, Water Conservation, Sustainable Agriculture and Economic Development. We use our technical expertise to assist clients to navigate these sectors and plan sustainably for the future.

California Compost Coalition Executive Committee



Edgar & Associates looks forward to bringing our unique skills to Humboldt County, and we will work collaboratively with the region to find the best solutions for SB 1383 Compliance. This includes leveraging our strong relationships with industry members, vendors, and the State to ensure Humboldt has the best possible compliance options for SB 1383.

Business References

Kevin Miller | Materials Diversion Administrator (Recycling Manager) City of Napa | Utilities Department – 1700 2nd Street, Suite 100 | Napa, CA 94559 Mailing Address | P.O. Box 660 | Napa, CA 94559-0660 O 707.257.9291 | D 707.257.9522 | kmiller@cityofnapa.org

Roman Dowling, PE Public Works Director

1015 Eleventh Avenue, Delano, CA 93216 O 661-720-2219 | D 661-721-2135 | rdowling@cityofdelano.org

Amy Hammes | Recycling Coordinator Public Works Department | City of Burbank | 500 South Flower Street, Burbank, CA 91502 O (818) 238-3900 |D KHampel@burbankca.gov

Work Samples for Review

The following work samples can be found on our website (<u>http://edgarinc.org/related-projects-for-humboldt-county-sb-1383-organic-regional-compliance-services/</u>) and are also included on our USB provided with the hardcopy submittal.

- City of Burbank Compliance Plan Roadmap and Procurement SB 1383/AB 1826 Organic Waste Management Plan This document was prepared for the city of Burbank. Evan Edgar was the Principal on this strategic plan.
- Yolo County Our team, with Abound Food Care, was hired by Yolo County to assist with the evaluating Edible Food Recovery Capacity for Yolo County, including the assessment of Tier 1 and 2 generators, surveying local non-profits, and working with the Yolo Food Bank to determine how the region could meet the infrastructure capacity needs of SB 1383.





Scan the QR code for work samples!



Since this report has been published CalRecycle is calling it "The Model Report" for edible food recovery compliance. The Sustainability Manager, Monica White, has been the practicing leader on all edible food recovery projects.

 City of Napa – Organic Processing and Collection and Waste Management Structure - Solid Waste Facility Permit and Report of Facility Information for the Napa Material Diversion Facility for 44,000 TPY anaerobic digestion and 78,000 TPY covered aerated static pile, food waste processing and biomass gasification which led to the \$3.0 million CEC grant for anaerobic digestion, \$600,000 CalRecycle grant for food waste processing into slurry, and \$1.5 million for composting equipment. Evan Edgar has been the Principal on the project for 10 years.

Work History

As described in Section 1, Project Experience, Edgar & Associates has detailed and technical understanding of State regulations and actual implementation of solid waste collection programs. We look forward to bringing our unique skill set to Humboldt County, where more information can be provided on any of the following work products.

Compliance Plan Roadmap, Procurement and Waste Management Structure

Edgar & Associates has prepared SB 1383 Program Planning Documents for the following clients that have been well received by CalRecycle staff when under complaintive orders:

- City of Delano, SB 1383 Implementation Plan, ongoing
- City of Burbank, SB 1383 Implementation Plan, ongoing
- Agromin for the City and County of Sacramento, SB 1383 Organic Processing Capacity, 2021
- American Refuse for City of Shafter, SB 1383 Collection and Processing Plan, 2021
- Harrison Industries for City of Thousand Oaks, SB 1383 Collection and Processing Plan, 2021
- Peña's Disposal for City of Reedley, SB 1383 Collection and Processing Plan, 2021
- Upper Valley Disposal Service for the Upper Valley Waste Management Agency, SB 1383 Organic Waste Processing Capacity, 2020
- Specialty Services for the City of Sunnyvale, SB 1383 Collection and Processing Plan, 2020
- Westside Waste Management for the City of Taft SB 1383/AB 1826 Organic Waste Management Plan, November 2019.
- Tracy Delta Solid Waste Management Company for the City of Tracy SB1383/AB 1826 Organic Waste Management Plan, November 2018
- American Refuse for North Kern County SB 1383/AB 1826 Organic Waste Recycling Plan, October 2018



- Tulare County SB 1383/AB 1826 Organic Waste Management Plan, June 2018
- Mt. Diablo Resource Recovery for the City of San Ramon SB 1383/AB 1826 Organic Waste Recycling Plan, May 2018
- City of Delano AB 1826 Organic Waste Recycling Plan Recycling, February 2018
- Mt. Diablo Resource Recovery for the City of Concord SB 1383/AB 1826 Organic Waste Recycling Plan, October 2017
- Agromin for the City of Oxnard SB 1383/AB 1826 Organic Waste Management Plan, June 2017
- Pleasanton Garbage Service for the City of Pleasanton, SB 1383/AB 1826 Organic Waste Management Plan, June 2017
- Mt. Diablo Resource Recovery for the City of Pittsburg SB 1383/AB 1826 Organic Waste Recycling Plan, May 2017
- American Refuse for the City of Shafter AB 1826 Organic Waste Recycling Plan, February 2017
- Agromin OC for City of Chino SB 1383/AB 1826 Organic Waste Management Plan, January 2017
- Marin Sanitary Service for the Zero Waste Marin JPA SB 1383 Organic Waste Management Plan, June 2016
- City of Burbank AB 1826 Organic Waste Recycling Plan, November 2017
- Westside Waste Management for the City of Maricopa AB 1826 Organic Waste Management Plan, March 2016
- CARTS for the City of Fresno AB 1826 Organic Waste Management Plan, January 2016
- South San Francisco Scavengers for the City of South San Francisco AB 1826 Organic Waste Recycling Plan, December 2015
- Harrison industries for the City of Ventura Zero Waste Plan, November 2015

Organic Processing and Collection

Edgar & Associates has conducted land use and environmental project management for over 20 years. During this time, we have successfully obtained permits at many facilities, while adding programs and technologies to meet constantly evolving state mandates. Edgar has robust experience in obtaining permits specific to the pre-processing of organics, composting, and anaerobic digestion. Further, Edgar has backed up these improved operations with fiscal backing by securing millions of dollars of grant funding.

 Napa Material Diversion Facility – CUP/CEQA project management and documentation, Report of Compost Site Information (RCSI), Solid Waste Facility Permit (SWFP) Application package for 44,000 tons per year (TPY) anaerobic digester (AD) and 78,000 TPY covered aerated static pile (CASP), food waste processing and biomass gasification. Grant writing and management of \$3.0 million California Energy Commission (CEC) grant for anaerobic

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digestion (AD) and \$600,000 CalRecycle grant for food waste processing into slurry. 2010 to present.

- Upper Valley Disposal Service, St. Helena CUP/CEQA project management and documentation, Report of Compost Site Information (RCSI), Solid Waste Facility Permit (SWFP) Application package for 34,000 TPY covered aerated static pile (CASP) and food waste demonstration projects. Grant writing and management of \$1.25 million CalRecycle grant for food waste processing building. 1997 to present.
- South Lake Refuse and Recycling, Clear Lake CUP/CEQA project management and documentation, Report of Compost Site Information (RCSI), Solid Waste Facility Permit (SWFP) Application package for 460 tons per day (TPD) composting and C&D facility. Grant writing and management of \$1.25 million CalRecycle grant for compost pad expansion and grinder. 1997 to present.
- Tracy Material Recovery Facility CUP/CEQA project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 1,800 TPD with windrow composting, CASP composting, organic waste processing and biomass gasification. 1997 to present.
- Z-Best Compost Facility, Gilroy CUP/CEQA project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 1,500 TPD with in-vessel composting mixed waste composting and green waste windrows. 1997 to present.
- Zamora Compost Facility, Yolo County CUP/CEQA project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 300 TPD with windrow composting and food waste demonstration projects. 2008 to present.
- Clover Flat Resource Recovery Park, St. Helena CUP/CEQA project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 600 TPD with CASP food waste composting on top of a landfill and biomass gasification. 1997 to present.
- Northern Recycling, Yolo County WDR Project Management, SWFP Application package for the development of a 200,000 CYD mixed waste compost, and CalReycle Grant application. 2008 to present.
- City of Burbank Compost Facility Development Plan for siting on an active landfill. 2015 to present
- EBA for Tulare County Compost Feasibility Report for 200,000 tons per year (TPY) covered aerated static pile (CASP) compost facility co-located at a County Landfill. 2018 to present.
- Independent Haulers of Kern County SB 1383 Facility Development at County Landfill, 2018.
- Agromin Organics Recycling, Oxnard CUP/CEQA project management and documentation, Enforcement Agency (Edgar) Notification Application package for 200 TPD with windrow composting and CASP composting and food waste demonstration projects. 1998 to present.

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- Agromin Orange-County, Chino CUP/CEQA project management and documentation, Enforcement Agency (Edgar) Notification Application package for 200 TPD with windrow composting and CASP composting. 2012 to present.
- GreenWaste Recovery MRF, San Jose CUP/CEQA project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 2,000 TPD with organic waste processing and transfer. 1997 to present.
- Blue Line Biogenic Fueling Facility CUP/CEQA project management and documentation, Report of Compost Site Information (RCSI and TPR), Solid Waste Facility Permit (SWFP) Application package for 12,500 TPY AD Facility. Grant writing and management of \$2.60 million CEC grant for AD and permitted food waste processing equipment. 1997 to present
- Marin Resource Recovery Center CUP/CEQA project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 2,640 TPD, 12,500 TPY AD, food waste processing into slurry, and biomass gasification. 1997 to present.
- Mt. Diablo Resource Recovery Park, Pittsburg CUP/EIR project management and documentation, draft Solid Waste Facility Permit (SWFP) Application package for 5,100 TPD with 800 TPD organic processing and biomass gasification. 2005 to present.
- Peña's Material Recovery Facility CUP/EIR project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 2,000 TPD with organic waste processing and biomass gasification. 1995 to present.
- CARTS Transfer Station, Fresno CUP/CEQA project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 3,100 TPD with organic waste processing into slurry. 1997 to present.
- Agromin Limoneira Biogenic Energy Park CUP/CEQA Project Description for 120,000 TPY facility with CASP, anaerobic digestion (AD) and biomass gasification. 2010 to present.
- Mt. View Food Waste Processing Facility, Oxnard CUP/CEQA project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 300 TPD organic waste processing and animal feed option, 2017 to present.
- ACI Material Recovery Facility, San Leandro CUP/CEQA project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 620 TPD, and organic waste transfer. 1997 to present.
- Mission Trails Transfer Station, Santa Clara CUP/CEQA project management and documentation, Solid Waste Facility Permit (SWFP) Application package for 375 TPD organic waste processing and animal feed option. 1997 to present.
- S.A.F.E., Santa Clara CEQA project management and documentation, Solid Waste Facility Permit exclusion for animal feed facility. 2014 to present.
- STRR Recycling Facility, Tulare County CUP/CEQA project management and documentation, Registration Solid Waste Facility Permit (SWFP) Application package for 100 TPD, and organic waste processing to slurry. 2017 to present.

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Edible Food Recovery Strategic Development

Edgar & Associates has prepared grant applications and SB 1383 edible food recovery plans and pioneered the metrics and programs with local government and NGOs:

- CalRecycle Grant Application (FW1/FW2) Waste Not Orange County (WNOC) July 2017, awarded
- CalRecycle Grant Application (FW2), Ventura County/Waste Free VC July 2017, awarded
- Sustainable Funding Modelling for WNOC all Orange County Jurisdictions April 2017, several jurisdictions now provide continual funding to WNOC
- Orange County Waste & Recycling Regional Grant Application, WNOC May 2017, awarded
- CalRecycle Grant Application (FW3), FoodShare/Waste Free VC January 2019, awarded
- CalRecycle Grant Application (FW3), WNOC January 2019, awarded
- Coalition for Food Recovery Strategic Development Yolo County, current and on-going
- Coalition for Food Recovery Strategic Development Ventura County Public Health, current and on-going
- Coalition for Food Recovery Strategic Development Community Environmental Council, Santa Barbara, initial Capacity Assessment.
- Model Food Recovery Agreement Resource Group Model Review Partner, current and on-going

Net-Zero Greenhouse Gas Studies – Waste Sector

- Net-Zero GHG for Washington State for CY 2017. Retained by the Washington Refuse & Recycling Association to prepare the carbon footprint for the Waste Sector, and was determined that Waste sector has avoided 2.7 times more GHGs than emitted, 2021
- Net-Zero GHG for California for CY 2018. Retained by the California Compost Coalition to prepare the carbon footprint for the Waste Sector, and determined that Waste sector has avoided 3.7 times more GHGs than were emitted and projected that with SB 1383 and AB 341, that the Waste Sector could avoid 9.9 times GHG than emitted, 2021
- Carbon footprints prepared over 70 calendar years for eight solid waste and recycling companies that have been verified by a third-party, The Climate Registry, since 2006. These companies have Net-Zero GHG ratios ranging from 10 times to 20 times more avoided emissions than operational emissions.



The Ability of the Consulting Firm to Perform

Edgar and Associates is uniquely positioned to assist Humboldt County in developing an effective compliance plan to meet the needs of SB 1383. Our firm has decades of experience as an environmental engineering company, solid waste management consultant, and advocate for recycling, composting, and renewable energy best practices. Edgar & Associates, Inc. is a technical adviser and consultant to companies involved with all aspects of materials management services including collection, hauling, processing, recycling, composting, and landfilling. We are experts on the deployment of technologies and in obtaining grant funding to commercialize systems with the ultimate goal of reducing greenhouse gases.

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Since our inception, we have assisted companies and their franchise cities and jurisdictions prepare for greater levels of waste diversion and the lowest carbon footprint possible.

Our success comes from our firsthand knowledge of every level of the solid waste system. Edgar and Associates has worked on everything from outreach programs to inform individuals on where to put their kitchen trash to international studies on markets for recycled materials.

Operational Level

Edgar and Associates works most closely with the solid waste haulers, recycling facilities, outreach coordinators, and other individuals who work directly with waste and are on the front lines of the circular economy. We believe this experience to be essential to informing good decision making with respect to solid waste. We know what is actionable and have well-established relationships with the people who can make effective change. Our team is adept at realizing visions at the operational level thanks to our regular involvement in permitting individual operations, managing solid waste facilities, and implementing new technologies at recycling and composting centers.



State Level

Our team is exceptionally proficient at understanding a wide range of California waste industry regulations and policy drivers. We examine and inform policy by analyzing statewide and regional recycling and composting markets, interpreting and assessing legislation, and researching economic and environmental impacts of major policy drivers. This well-rounded expertise has enabled us to craft clear-sighted and comprehensive organic waste recycling plans for cities and their franchised haulers alike.

Looking Ahead

Edgar & Associates, Inc. has decades of experience analyzing and projecting waste diversion scenarios against disposal targets and goals. This knowledge is proving useful as a range of regulations have been passed to push California towards higher levels of diversion. In response to these mandates, we have been assisting our clients with reports that prepare jurisdictions for meeting those requirements. Chief among these new goals is the revolutionary SB 1383 methane reduction goals, which focus on the diversion of organic waste from our landfills.

Communication and Technology Experience

Edgar & Associates represents clients across California with a major office hub in Sacramento and an office location in Southern California. The team utilizes a wide range of communication tools, each catered to the needs of the client and the project. Communication between parties must be immediate, responsive, and clear. To ensure this, our staff is comfortable with the full Microsoft Office suite of products, have email available on personal cell phones and tablets, and servers that are available on-line. Each Associate is provided a work cell phone where they can be available as needed for urgent items after traditional working hours. We host many digital meetings on all of the major platforms such as ZOOM, GoTo Meeting, and Microsoft Meetings. These digital meetings will be key in implementing this project and save travel time to the remote north coast.

Version Control and File Sharing

On projects where document sharing is key, online platforms such as Dropbox and Google Docs are used to ensure that all parties are provided the necessary documents, opportunity for review and work products exceed the expectations of the clients. Our team regularly and effectively communicates and has protocol in place to assure work is neither duplicated or overwritten and practices effective document control strategies.

Presenting Results

Additionally, our office is equipped with the appropriate technology to ensure site plans can be drafted, graphics can be created and manipulated, and documents can be presented in a professional format. Not only is our team prepared to complete detailed data analysis, but these findings can be presented in a multitude of ways; from a step-by-step tutorial through Microsoft excel, to presenting overall results in graphic-rich and easy to understand presentations.



Printed on 100% Recycled Paper

Further, thanks to our many years of lobbying and representing key solid waste issues to the public, Edgar and Associates have become master presenters. Our Associates are considered key industry experts in their fields and are often invited to speak on all solid waste management, recycling, and composting issues at conventions. These conventions include national, statewide and regional conventions held by Waste Expo, BioCycle, SWANA, California Resources Recovery Association, Point-Carbon, Renewable Waste intelligence, NGV America, California Refuse Recycling Council, local solid waste technical meetings, and



American Biogas Council. Our team have been notably involved in the development of SB 1383, where we have gained attention for our key insights into the development of regulations. Our Associates have conducted workshops on anaerobic digestion, carbon credits, environmental attribute transparency, climate action plans, mandatory commercial collection, composting, permitting, greenhouse gas reduction strategies, edible food recovery and SB 1383 compliance and can communicate technical concepts into common sense applications and actionable steps for communities. Edgar & Associates has decades of experience making presentations to County Board of Supervisors, JPAs, WMAs, City Council, technical councils, and local community groups. Edgar & Associates publishes a monthly newsletter for the California Compost that communicates the state of composting, as well as other hot-button issues to ensure all our clients are kept aware of important issues facing the solid waste industry. All newsletters and select white papers can be found on our website: http://californiacompostcoalition.org/

Tracking and Reporting Software

Through our State-wide experience we are familiar with the several leading outreach tracking software systems that can comply with SB 1383 requirements, in addition to other local tracking requirements that may be necessary. Our Associates understand that many communities in California require additional staffing to meet the needs of SB 1383 and appropriate software can significantly assist in reducing the burden of reporting and tracking. Edgar & Associates is prepared to thoughtfully assess Humboldt's current staffing concerns and suggest the best possible options and avenues for meeting reporting and compliance needs in a cost-effective manner for Humboldt, using lessons learned and best practices from across the State.

Further, our team is well versed in official CalRecycle reporting programs. We actively work with CalRecycle annual reports, RDRS, grant management reporting, and the upcoming SB 1383 recordkeeping requirements.



Research and Document Production Software

In addition to the software described above, Edgar and Associates utilizes the below tools to find and present the important answers to the pressing solid waste questions our clients ask.

Office:	Geospatial
* Microsoft Excel	* ARC GIS
* Microsoft Word	* Google Earth
* Microsoft Powerpoint	* AutoCAD
Publishing:	Social Media
* Indesign	* LinkedIn
* Microsoft Publisher	* Facebook / Instagram
* Adobe	* Twitter
File Sharing	Reporting
* DropBox	* CalRecycle Grant Reporting System
* Google Drive	* Climate Registry Reporting System
	(CRIS)
Meetings	* CalRecycle Recycling and Disposal
* Microsoft Teams	Reporting System (RDRS)
* Zoom	* CalRecycle SB 1383 – Model
* GoTo Meeting	Implementation Record Too

The Edgar Team

Edgar & Associates is made up of a team of passionate individuals who care deeply about solving environmental challenges through common sense solutions, in lockstep with our clients' vision. Our team are dedicated to the working with public, private, local and state governments in a collaborative way to move waste diversion solutions forward that are viable for the communities and their specific needs. Unlike other consulting firms, we look outside the box, focused on building partnerships, advocate for solutions that are catered to local needs and are focused on long-term successes for each client we service.

Please find resumes of our key staff in the following section.





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evan@edgarinc.org

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EDUCATION

Bachelor of Science in Civil Engineering, California State University, Chico, 1984

WORK EXPERIENCE

- Edgar & Associates, Inc. Principal Engineer, 1997-Present
- Hazardous Materials Management, University of California, Davis
- Registered Lobbyist, Office of the Secretary of the State, California
- Manager of Landfill Operations, SWANA

Evan Edgar

Evan Edgar is the Principal Engineer and President of Edgar & Associates, Inc. since 1997. Mr. Edgar has over thirty years of experience in all aspects of solid waste management as a registered civil engineer who has advocated on for green energy incentives, compost market development, greenhouse gas reductions policies, and practical regulations in front of legislative committees, regulatory agencies, and local commissions involving the collection, hauling, processing, and composting of urban green and yard wastes.

Mr. Edgar was co-founder of the California Compost Quality Council in 1994 and the California Compost Coalition in 2001, a statewide compost market development project and Lobbying Coalition, respectively. Mr. Edgar is a requested speaker on all solid waste management and recycling issues at national, statewide, and regional conventions held by Waste Expo for the Plenary panel, BioCycle, SWANA, California Resource Recovery Association, Point-Carbon, Renewable Waste Intelligence as Chairman, and American Biogas Council. Mr. Edgar has conducted workshops on anaerobic digestion, carbon credits, climate action plans, mandatory commercial collection, composting, permitting, and greenhouse gas reduction strategies.

- Project Manager on sustainable funding strategies and coalition development for Waste not Our Communities (WNOC).
- Key Team Member on several projects including transforming food scraps to hydrogen using wet anaerobic digestion, treating produced wastewater from oil and gas operations with ecological treatments, building and permitting composting operations and programs to enhance biochar production throughout the State.
- Published Sustainability Reports for South San Francisco Scavenger, Rainbow Environmental, Greenwaste Recovery, etc.
- Assisted South San Francisco Scavenger with application and successful reception of the GEELA Award 2015, California's highest environmental honor, the California Governor's Environmental and Economic Leadership Award.

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── Neil@edgarinc.org

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EDUCATION

B.S., Business Administration, John F. Kennedy University,

WORK EXPERIENCE

Edgar & Associates, Inc. | 2001-Present

California Compost Coalition | 2001- Present

Alpha Beta, Lucky Stores, Albertsons | 1978-2001



Neil Edgar

Neil Edgar is a Senior Project Manager with Edgar & Associates in Sacramento, California. Edgar & Associates, Inc. is a governmental affairs, regulatory compliance and environmental engineering firm specializing in solid waste management, recycling, composting, renewable energy, and climate change issues.

Mr. Edgar has more than 20 years of experience in all aspects of solid waste management regulatory compliance and facility permitting, joining Edgar & Associates in 2001. Prior to 2001, Mr. Edgar spent over 20 years as a Grocery Manager for Albertson's, Lucky Stores, and Alpha Beta, involved in all aspects of store operations, merchandising and personnel supervision, including implementation and oversight of solid waste recycling and energy efficiency programs at multiple locations throughout Northern California.

Mr. Edgar has consulted on over three dozen projects for client companies – specializing in recovery of recyclable containers and packaging, green and food materials – working on issues including regulatory compliance, technical and financial feasibility, collection options, land use compatibility, site design, operations, grant and loan funding, tipping fee pricing, and market development.

- 40-hour Compost Operators Training Course, U.S. Composting Council, Davis, 2010
- Registered Lobbyist, Office of the Secretary of the State, California, 2009 present
- Next Generation Management and Leadership Program, California Refuse Recycling Council, CSU Sacramento Certificate, 2009
- Certified Composting Systems Technical Associate, SWANA, 2005-2014
- Executive Director and Co-founder of California Compost Coalition,
- Chair of the US Composting Council's Legislative and Environmental Affiairs Committee
- Serves as a policy liason for the California Organics Recycling
 Council

Meil Star







(916) 739 - 1200 Ext. 105 monica@edgarinc.org

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EDUCATION

Bachelor of Science in Environmental Biology, Saint Mary's College, 2006

WORK EXPERIENCE

Edgar & Associates, Inc. Sustainability Manager 2010-Present

Cameron Cole, LLC GHG Emissions Verifier 2006-2010



Monica White

Monica White is the Sustainability Manager at Edgar and Associates. Monica has over 10 years of experience working in the sustainability arena where she has led teams in developing sustainability programs for a range of companies including waste haulers and processors, aerospace and manufacturing. Monica has played a leadership role in assisting companies to develop strong sustainability and environmental programs, securing grant funding and strategically achieve desired goals, including how to incorporate carbon projects into their businesses to meet their carbon reduction targets. Notably she is assisting the development of zero waste programs, SB 1383 compliance plans, and cutting-edge approaches to the management of edible food.

She is proficient in leading multi-company and multi-disciplinary teams through projects, ensuring schedules and budgets are maintained, tasks are completed resulting in exemplary work products. In addition, Monica has advocated for zero waste initiatives, compost market development, greenhouse gas reductions policies, and the integration of sustainable programs at local jurisdictions with waste management franchise procurement programs and aligning local and state policies around sustainability. Monica has advised local government, advocacy groups and private enterprise on issues relating to greenhouse gas management, sustainability, climate adaptation strategies, and zero waste programs.

HIGHLIGHTS

- Project Manager on sustainable funding strategies and coalition development for Waste not Our Communities (WNOC).
- Key Team Member on several projects including transforming food scraps to hydrogen using wet anaerobic digestion, building and permitting composting operations and programs to enhance biochar production throughout the State.
- Published Sustainability Reports for South San Francisco Scavenger, Rainbow Environmental, Greenwaste Recovery, etc.
- Assisted South San Francisco Scavenger with application and successful reception of the GEELA Award 2015, California's highest environmental honor, the California Governor's Environmental and Economic Leadership Award
- Executive Member of the Edible Food Recovery Technical Committee, California Resource Recycling Association

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EDUCATION

M.S., Environmental Resources Engineering, Humboldt State University, 2014 B.S., Civil Engineering, CSU Chico, 2008

WORK EXPERIENCE

Rural Community Assistance Corporation | 2018- Present

Office of Water Programs | 2015-2018

Total Compliance MGMT | 2016-2018



Omar Al-Shafie

Omar is the newest member at Edgar & Associates and adds a comprehensive and expansive knowledge of wastewater treatment and beyond to the team.

While attending Humboldt State University, Omar worked as a lab research associate at the Arcata Marsh Research Center where he presented his research findings to AMRI research staff and treatment plant operators. It regarded in-situ nutrient reduction in constructed wetland wastewater treatment system in which he designed, constructed, and implemented ammonia treatment systems. He was also an engineering intern for the US Forest Service in Eureka, California where he developed mine waste remediation process for Horse Mountain Mine. He also researched their wetland delineation, design, restoration, and implementation.

Omar was also a Laboratory Instructor at both Humboldt State University and CSU Sacramento. While at Sac State he also worked as a Research Engineer at the Office of Water Programs and some duties included maintaining State compliance with permit timelines for client operations and facilities.

His volunteer work includes being a student officer for Engineers without Borders in Chico, California in which his duties included presenting project proposals to possible donors and traveled to Honduras to survey an existing lagoon system that he co-authored the final report. He also worked on the Riverine Ecosystem Restoration Engineering Support where he summarized environmental impact reports, damn deconstruction research, and fish passage regulations as well as construction plans.

- · Currently a Registered Engineer in Training
- Passed NCEES Professional Engineer (PE)- Water resources/ environmental examination
- Interpreting and adhering to Comprehensive Environmental Response Compensation and Liability (CERCLA) regulatory protocol and requirements
- Consulted with CalRecycle and the Local Enforcement Agency to define the operations with regulatory State oversight.
- Awarded a National Science Foundation (NSF) Fellowship, 2012
- Awarded Environmental Resources Management (ERM) grant, 2011





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EDUCATION

- Master of Science in Agriculture and Resource Economics, University of California, Davis, 2014.
- Bachelor of Arts in International Studies- Political Science, University of California San Diego, 2008.

WORK EXPERIENCE

Edgar & Associates, Inc. Resource Economist 2015-Present

Grant Readle

Grant Readle is an economist who has worked for Edgar & Associates for over 5 years and specializes in solid waste management, greenhouse gases, and materials forecasting. Mr. Readle holds a Master of Science degree in agriculture and resource economics from University of California, Davis. His data-driven approach to modelling uses well documented, peer-reviewed, and government endorsed methodologies to approach complex waste diversion issues. Mr. Readle has been a primary author on CEC Grant Final Project Reports for experimental facilities, Solid Waste Facility Permits, Hazardous Materials Business Plans, economic white papers on statewide waste Policy, research pilot projects for experimental compost facilities, greenhouse gas analyses of multiple companies, and a myriad of other research and permitting documents. Mr. Readle's most recent work and research centers on California's various organics diversion mandates, and modelling the waste stream implications of full implementation of these programs.

- Experience using California Air Resources Board methodologies to evaluate greenhouse gas emissions from waste collection fleets.
- Developed multiple models to project organic waste generation and processing capacity for AB 1826, AB 876, and SB 1383 regulations.
- Calculated annual third party verified voluntary greenhouse gas emissions inventories according to the Climate Registry's General Reporting Protocol.
- Authored market analyses for wood wastes and anaerobic digestion technology, including marginal abatement cost analysis.
- Brought waste facilities into compliance by composing a variety of permitting documents.

Thomas Dar Veale





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EDUCATION

BA in Environmental Studies and BA in Politics, University of California Santa Cruz, 2013

WORK EXPERIENCE

Edgar & Associates, Inc. Graphics and Marketing Specialist 2017 – Present

CleanFleets.net Graphics and Marketing Intern 2013 – 2017



Julie Arenz

Julie Arenz is the Graphics Design and Marketing Specialist at Edgar and Associates. Julie has over 8 years of experience working in graphic design relating to sustainability, GHG mitigation, recycling, and edible food recovery. Julie not only possesses the technical skills to operate and utilize design programs, but also understands how to relay information and market specifically relating to the solid waste industry. Julie is a dedicated, versatile, and technically adept business professional with a diverse skill set developed through experience in communications, outreach, marketing, graphic design, and video design. Julie was trained one-on-one with Rita Athenacio, Co-Owner of R&R Designs.

She is proficient in the full Adobe Suite, including InDesign, PhotoShop, Illustrator, Acrobat, and PremierePro. Julie is also proficient in the Microsoft Suite, including Word and Excel. Her duties include meeting with clients to establish their needs, using design software to complete projects, and revising projects based on client feedback. Julie works on developing concepts, graphics and layouts for product illustrations, company logos and websites, determining size and arrangement of copy and illustrative material, as well as font style and size. Additionally, Julie has worked on multiple education and outreach campaigns with marketing strategy and designing outreach materials.

- Graphic design for multiple response to proposals. The work includes strategizing document themes, designing cover pages, organizing information, designing material flow diagrams, and design of resumes and organization charts.
- Rebranding and logo design for American Refuse and Tule Trash. Marketing materials include design of refuse truck signs, brochures, facility fact sheets.
- Design of Cart and bin labels, required by SB 1383, for E.J. Harrison and Sons
- Website design for California Compost Coalition. The new website will launch this year.
- Video editing for the CRRC Edible Food Technical Council's Open Discussing Series.
- Producing and editing and designing the California Compost Coalition Newsletter each month.
- Developing and editing the CRRC Edible Food Technical Council's Guidance Document on Food Recovery Funding Models

Juli & Aron







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1774 N. Greengrove St., Orange, CA 92865

EDUCATION

Fullerton College (9/80 - 12/82) Fullerton, California

WORK EXPERIENCE

Abound Food Care | 2013 – Present TJM, INC. | 1993 - Present Zacky Foods, Inc. | 1989 - 1993



MIKE LEARAKOS

Mike is currently the Executive Director of Abound Food Care, formerly Waste Not OC, and developed the nationally recognized Waste Not OC Model for Food Recovery, that optimizes the food supply chain in support of public, private and non-profit organizations working to reduce food waste and food insecurity through innovative solutions. He is also the chair of the CRRA's Edible Food Recovery Technical Council. Mark also implemented and developed the Food Repurposing Kitchen Network to further reduce waste and food insecurity utilizing decades of food industry experience. Led the implementation of logistics solutions in communities, activating existing resources to optimize the food supply chain across the state of California. Mark also developed and implemented a strategic plan for operational procedures including all TJM, Inc., Katella Grill and Catering, and KG Angel Stadium concessions. In 2001, he was City of Orange's Citizen of the Year.

- TJM Facility design
- Assisted in the development of the world's first fully sustainable solar powered freezer container.
- Led the transition of the WasteNot OC Food Recovery Model from a regional program to a national model.
- Full-line foodservice Distributor supply chain specialist for Keeler Foods, Inc.





Our staff proposals are as follows:

- Evan Edgar will be Project Manager and attend all critical in-person meeting in Humboldt County and conduct the rest of the meeting on a digital meeting platform. Mr. Edgar will be lead on the following Scope of Services - Compliance Plan Roadmap, Organics Processing and Collection, Procurement and Waste Management Structure.
- Monica White will Project Manager the Edible Food Recovery program and will be deeply involved with the SB 1383 Compliance Plan Roadmap, Education and Outreach, and Franchise review. Abound Food Care staff will report directly to Monica White.
- Neil Edgar and Omar Al-Shafie will assist in providing services for Organics Processing and Collection and the Waste Management Structure.
- Grant Readle will be key on Ordinance development having just finished ordinances in both Burbank and Delano.
- Julie Arenz and Alana Edgar will assist Ms. White on the Edible Food Recovery Program, provide administrative management and expertise on outreach and education program development.

The organization chart of the Edgar & Associates Team is provided below:

Edgar & Associates Meet the Team

Primary Contact Evan Edgar | Principal Engineer 916-444-5345 | 916-739-1216 evan@edgarinc.org



Evan Edgar Principal Engineer

Scope of Services

Compliance Plan Roadmap Organic Processing and Collection Procurement Waste Management Structure

Scope of Services Organic Processing and Collection Procurement Waste Management Structure



Neil Edgar Sr. Project Manager

Omar Al-Shafie Associate Engineer

Scope of Services Organic Processing and Collection Waste Management Structure



Rick Moore Principal Engineer

Scope of Services



Grant Readle Resource Economist

Scope of Services Compliance Plan Roadmap Organic Processing and Collection



Julie Arenz Sustainability Associate

Scope of Services Edible Food Recovery Education and Outreach



Scope of Services

Compliance Plan Roadmap Organic Processing and Collection Edible Food Recovery

Monica White Sustainability Manager



Mike Learakos Executive Director of Abound Food Care

Scope of Services Edible Food Recovery



Work Plan

Edgar & Associates is an experienced boutique consulting firm that is highly responsive to clients with a personalized approach. We are currently assisting several jurisdictions with SB 1383 compliance, as well as representing haulers across the state to work collaboratively with their jurisdictions on SB 1383 compliance. We are not leveraged with a host of cities, where other contractors may have to rely on inexperienced staff and subcontractors to complete key analysis. We have worked directly with smaller cities and private independent haulers, and we are prepared to deliver real solutions that can be executed promptly for compliance without delay. Edgar & Associates has a dedicated team with the tools and resources to be responsive and accessible to Humboldt staff. We put our partners first, and our staff is ready to operate 24/7 for our clients at critical times.

Task 1 - Compliance Roadmap

We have been involved in long-term projects, working with the same clients for decades on permitting compost facilities, finding solutions for land use permitting challenges and the 'not in my back yard' mentality. By working on state laws, regulations, grant funding, and policies, we understand that California law is dynamic and could alter the course of a project. We know the challenges that can occur while developing SB 1383 plans and programs when up against deadlines. SB 1383 regulations are already underway, forcing Humboldt to achieve timely compliance, where Edgar can offer surgical advice. Advocating at CalRecycle on SB 1383 issues since the passage of the law, we understand their expectations of program development and what Humboldt can do to achieve 'Substantial Compliance' with SB 1383.

Edgar looks forward to assisting Humboldt in establishing diversion programs for member agencies that target organic materials currently being landfilled. Program and plan development will address both short-term programs and long-term capacity that will be comprehensive, efficient, and cost-effective, keeping Humboldt's specific needs and goals central throughout. Edgar will provide an approach that will ensure Humboldt will meet future mandates and deadlines and avoid possible monetary fines imposed by the State under SB 1383.

Task 1a SB 1383 Waivers for 5-year Extension

A jurisdiction (city or special district providing solid waste collection services) may apply to CalRecycle for a waiver for some or all of its generators for some or all of the requirements. To qualify for a low population waiver, the following must apply to the jurisdiction:

- The jurisdiction disposed less than 5,000 tons of solid waste in 2014 as reported in the CalRecycle Disposal Reporting System.
- The jurisdiction has a total population of less than 7,500 people.

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Unincorporated counties (or special districts providing solid waste collection services that are located in unincorporated counties) may apply to CalRecycle for a waiver for some or all of the generators within the unincorporated county from some or all of the requirements. To qualify for a low population waiver, the following must apply:

• The identified census tracts have a population density of less than 75 people per square mile within the jurisdiction and be located in unincorporated portions of the County.

CalRecycle-approved waivers are valid for a period of up to five years. A jurisdiction may apply to renew a waiver at any time up to 180 days prior to the expiration of an existing approved waiver. An approved waiver does not waive a jurisdiction from its obligation to comply with the other requirements of the SB 1383 regulations including, but not limited to, promoting, and providing information to generators about waste prevention, community composting, managing organic waste on-site, and other means of recovering organic waste.

The cities of Eureka, Fortuna, and Arcata, and the portions of the unincorporated County of more than 75 people in a census tract are expected to have SB 1383 programs starting in 2022, where the rest of the County and the cities will need to start SB 1383 programs by 2027, as shown in the table below.

The Compliance Roadmap will focus on starting in 2022 with near-term organic waste export programs for a term of up to 5 years. Building local organic waste capacity (with food waste) on a regional approach will take over 5 years and may be ready as soon as 2027, when the waiver expires, where the entire County could demonstrate 15-years of organic processing capacity within the County.

Jurisdiction	Area (sq miles)	2019 Population	2014 Disposal Tons	People/Square Mile	Exemption/ 5-Year Waiver	Start Date SB 1383
Eureka	9.4	26,278	25,053	2,796	None	2022
Fortuna	4.9	12,195	12,140	2,489	None	2022
Arcata	9.1	18,579	7,318	2,042	None	2022
Unincorporated	4,020	71,444	33,570	> 75 people/mile	None	2022
Humboldt		TBD	TBD	< 75 people/mile	Low Density	2027
Rio Dell	2.3	3,325	767	1,446	Population/Disposal	2027
Ferndale	1.0	1,339	602	1,339	Population/Disposal	2027
Blue Lake	0.6	1,233	535	2,055	Population/Disposal	2027
Trinidad	0.5	347	349	694	Population/Disposal	2027

Edgar will file the Waivers within weeks of signing the Agreement.





Task 1b SB 1383 Targeted Tonnage Analysis

Edgar & Associates has determined the targeted tons that Humboldt may divert for SB 1383, using the 2018 CalRecycle Waste Characterization Study and disposal records from 2014-2019, reported to CalRecycle for Humboldt. These tons are modeled to 2025 and 2030 using projected population growth for the jurisdictions in Humboldt. We also note that the SB 1383 75% organic waste diversion mandate is not required for a specific jurisdiction or landfill but is a statewide mandate that will be analyzed after 2025. With the standard 3-cart/bin system in place, CalRecycle will focus on program design and implementation with reasonable outreach, education, and monitoring. Targeted tonnage and program design are key to developing a budgeted work plan, but SB 1383 does not require the exact details.

We understand that Cascadia prepared a Waste Characterization Study in 2012 and it is planned to be updated, which may have skewed data due to the COVID impacts on waste migration from commercial to residential for CY 2020. Humboldt can move forward with the data in hand to develop programs and need not wait for a new Waste Characterization Study to make decisions.

The 2018 Statewide Characterization will be modified for local characteristics based on 2012 data or any other available data provided. This approach has several advantages: 1) It ensures the Humboldt is using a consistent baseline and, 2) it provides reasonable estimates of organics that must be recovered. This model analysis assumes that the Humboldt and the cities provide programs to divert their fair share of organics sent to landfill, 75% organics diversion in 2025, compared to 2014 baseline disposal.

This modelling shows that Humboldt will need to provide new organic processing capacity for about 25,000 tons by 2025 for the cities of Eureka, Fortuna, and Arcata, as well as portions of the unincorporated County. Of the 25,000 tons, it is estimated that there are 10,500 tons of commercial organics, 6,000 tons of residential organics, 1,000 tons of multi-family organics and 7,500 tons of self-haul organics. See Attachment A for the tonnage model.

When the 2021 Final Report for the Waste Characterization Study is available, this model can easily be adjusted to target the new projected organic waste tons. This quick analysis provides a target amount by organic waste type and source to assess current capacity to determine if there is local processing capacity to accept food waste, and how much material will need to be exported for a 5-year period, as local capacity is being permitted and developed.

Task 1c SB 619 Notice of Intent Filing

SB 619 (Laird) passed the Legislature and is on the Governor's desk for signing. SB 619 would authorize a local jurisdiction facing possible violations that commence during the 2022 calendar year of those regulations to submit to CalRecycle no later than March 1, 2022, a notification of intent (NOI) to comply, as prescribed. For violations of the regulations that are disclosed in a notification that is approved by CalRecycle, the bill would require CalRecycle to waive



administrative civil penalties for the violations if the local jurisdiction implements the actions proposed in the notification to remedy the violations. The bill would authorize CalRecycle, notwithstanding those regulations, to establish any maximum compliance deadline in a corrective action plan that it determines to be necessary and appropriate under the circumstances for the correction of a violation of the regulations. If a local jurisdiction fails to adhere to the proposed actions and schedule described in a notification of intent to comply, CalRecycle may revoke its approval of the notification of intent to comply and impose administrative civil penalties for violations occurring during the 2022 calendar year retroactive to the date of violation.

Edgar & Associates would prepare the NOI for the jurisdictions during February 2022. Not having a co-collected residential program on January 1, 2022, would be considered a violation. Whereas the Compliance Road Map plans to have residential organic waste collection programs come online during 2022, NOIs should be filed once it is determined when a start date is most likely. Other SB 1383 compliance issues such as procurement and edible food recovery programs should also be part of the NOI.

Task 1d Initial Jurisdiction Compliance Report

Jurisdictions are required to produce an "Initial Jurisdictional Compliance Report" by April 1 2022. This report outlines how the jurisdiction proposes accomplishing organics diversion, as well as the quantity of the generators present. This document lays the foundation for SB 1383 programs and declares the various caveats of an individual jurisdictions program. This is the document that would state whether a high-diversion facility is required, whether plastic bags are permissible in the organics stream, as well as if 'compostable' plastics are acceptable. Edgar can assist the Jurisdictions directly in filing the Initial Jurisdiction Compliance Report as an additional service as it is critical to make a substantial effort to comply and there is critical information here that needs to be complied.

Task 1e Ordinance Development

SB 1383 falls upon each jurisdiction, where the cities are responsible for their own ordinance adoption and franchise update. Due to the unique characteristics of each city, Humboldt could offer the use of a generic but comprehensive SB 1383 Ordinance that each city could opt into or seek their own specific ordinance should they opt out. Edgar will follow the StopWaste.Org methodology and prepare and Ordinance that each city could use, where there will be a consistent message on types of organic waste collection based upon the processing and technology of the permitted compost facility that will receive the organic waste. This Ordinance will also address AB 341 mandatory commercial recycling programs with a focus on the fiber products. Cities that opt out will need to develop their own specific ordinance under a separate scope of work.

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For the cities that do not choose to opt in, those cities will need to pass their own ordinance and/or modify their municipal code. Edgar is available to assist those cities on an individual basis outside this Scope of Work, as with any ordinance process, it is very site specific

Task 1f SB 1383 Requirements

The description of SB 1383 requirements and CalRecycle rulemaking is presented on the next few pages in a graphic format of the SB 1383 Compliance Checklist. The Compliance Roadmap will also review climate action plans and zero waste plans, with a greenhouse gas calculation to determine the GHG reduction impacts of each program.

By January 2022, CalRecycle has the expectation that qualifying jurisdictions will have waivers for their requirements and by 2027 jurisdictions will need to have SB 1383 programs in place. CalRecycle also has an expectation that jurisdictions offer the residential sector food waste collection with their green waste, and that the jurisdictions build on their AB 1826 programs for the commercial sector.

Humboldt and the cities will not meet the SB 1383 regulatory deadlines listed below but must show that a substantial effort is being made to avoid potential state enforcement penalties after 2024. There is a CalRecycle policy in place on what constitutes a 'Substantial Effort' and how fines can be deferred for years as due progress is made. Because SB 1383 is already underway, Humboldt and the cities need to use their resources strategically and act surgically to provide collection programs and export organic processing.

For cities of Eureka, Fortuna, and Arcata, and the portions of the unincorporated County, the Roadmap will demonstrate compliance during 2022 as shown on the Project Schedule and will not set programs to start during later 2022. With SB 1383 programs, ordinances, and franchise updates underway in 2022, and on a parallel track, organic waste processing capacity can be analyzed within Humboldt County, and have that capacity ready by 2027, when the rest of the County needs to begin SB 1383 programs after their wavier expires.





-		3 10000.2	7 agust 1, 2022
	Initial Jurisdiction Compliance Report	§ 18994.1	April 1, 2022
	Jurisdictional Annual Report	§ 18994.2	August 1, 2022



Three Container System

Provide a three container system tons capacity	§ 18984.1	January 1, 2022	Hauler
Match gray, blue, green system when replacing container	§ 18984.7	December 1, 2022	Hauler
Properly label the cart	§ 18984.8	August 1, 2022	Hauler
Haulers: Identify facilities where they transfer organics waste and provide documentation	§ 18988.1	April 1, 2022	Hauler
Recordkeeping: Geographic area, type of service, used facilities, recovery rates, etc.	§ 18984.4	August 1, 2022	Jurisdiction



Outreach and Education

Provide generators relevant information annually. Includes sorting instructions, sorting outreach materials, community compost, approved haulers, source reduction, etc.	§ 18985.1	February 1, 2022	Jurisdiction
Edible food recovery outreach: List organizations and how to access them	§ 18985.2	February 1, 2022	Jurisdiction
Recordkeeping: Track outreach efforts	§ 18985.3	February 1, 2022	Jurisdiction



from Jurisdiction

Jurisdiction

Jurisdiction
MULCI	Procurement			
. CONTRACTOR		Regulation	Due Date	Responsible Party
	Must procure (population x 0.08 tons) of organic waste product equivalent annually	§ 18993.1	January 1, 2022	Jurisdiction
	Must meet procured paper standards	§ 18993.3	January 1, 2022	Jurisdiction
	Recordkeeping: Records of both	§ 18985.3	Ongoing	Jurisdiction
E	Ordinance(s) or Similar En	nforceable N	lechanisms	
	Jurisdiction adopts and keeps a record of a three container collection system	§ 18981.2	January 1, 2022	Jurisdiction
	Reportable ordinance or other enforceable mechanisms to CalRecycle	§ 18994.1	January 1, 2022	Jurisdiction
	Designate an enforcement lead	§ 18994.1	January 1, 2022	Jurisdiction
	Generators to have three containers, wherever trash containers are located	§ 18995.1	January 1, 2022	Jurisdiction
	Perform a waste composition	§ 18995.1	January 1, 2022	Jurisdiction
	Inspections to be performed at Tier 1 and Tier 2	§ 18995.1	January 1, 2022 January 1, 2024	Jurisdiction
	Issue Notice of Violation within 60 days of offense, follow up within another 90 days, issue penalties within 150	§ 18995.4	January 1, 2024	Jurisdiction
	Annual review of generators	§ 18995.1	January 1, 2022	Jurisdiction
	Provide tenants information within 14 days of move in	§ 18984.1	Ongoing	Jurisdiction
	Adopt an ordinance requiring compliance with CALGreen Building Code	§ 18989.1	January 1, 2022	Jurisdiction
	Venues and large events must require vendors meet 3 container requirements	§ 18991.1	Ongoing	Jurisdiction
	Recordkeeping: Enforcement actions	§ 18995.2	Ongoing	Jurisdiction
Sec.				



Waste Composition Study

	Perform waste composition studies consistent with Section to verify commercial businesses and residential generators are meeting requirements	§ 18984.5	April 1, 2022	Jurisdiction
	Facility Quarterly Waste Characterizations of Gray Container Stream	§ 17409.5.7	July 1, 2022	Facility
	OPTIONAL in lieu of Route Review: Sample all hauler routes, with a minimum of 25-40 samples depending on size. 25% limit on contamination, otherwise additional outreach is required.	§ 18984.5	April 1, 2022	Hauler
	Recordkeeping: Waste characterization documentation	§ 18984.6	Ongoing	Hauler

Task 2 Organic Processing and Collection

Edgar & Associates is uniquely prepared to assist Humboldt in meeting the SB 1383 objectives. Our tasks include developing and implementing new programs related to SB 1383; including but not limited to, residential curbside organics (including food waste) collection programs, sourceseparated commercial food waste programs, and other organic materials as identified through discussions with Humboldt and the cities:

- Completing the required capacity and infrastructure assessment of organic waste.
- Identifying additional export organics capacity opportunities regionally, including an evaluation of their permit readiness, cost, and feedstock requirements.
- Expanding organics ordinances and modelling their impacts, where compost and mulch may be backhauled from the export facilities to fulfill procurement requirements.
- Establishing a procurement plan for each city for organic waste products made from local organics collection, measuring procurement requirements for Humboldt and the positive environmental impacts of the use.

When analyzing programs and facilities to fulfill the organic processing capacity needs, it is the intent to fully optimize the current in-County organic waste processing capacity. The Wes Green Company Compost Facility can only process clean green material up to 12,500 cubic yards on-site under an Enforcement Agency Notification Tier accepting approximately 18,000 tons per year. There are several other smaller community composters in the County. Self-haul green waste from commercial landscapers and residencies can continue to deliver clean green materials to these facilities. Should these facilities accept franchised hauler green waste in packer trucks, the Compliance Road Map will need to develop plans to allow these facilities to have access to clean green materials.

CalRecycle has expectations that starting January 1, 2022, most all jurisdictions have a co-collected residential green waste and food waste program, and it is the goal of the Roadmap to have that occur later in 2022. When co-collection happens, these existing compost operations will not have the ability to process this co-collected residential stream since these operations are not permitted to accept food waste. Should HWMA want to facilitate supply of clean green materials for these local green material compost operations, the HWMA Hawthorne Street Transfer Station may want to consider a TPR Amendment to remove the residential food waste from the green waste in a floor sort, to remove the bagged or loose food waste, and have the clean green remain and be available locally. There is no reason to export clean green material out-of-county. Only food waste and co-collected green waste and food waste should be exported until such time as there is local capacity in place.



Task 2a Organics Processing and Collection

Edgar looks forward to meeting with Humboldt to discuss all necessary updates and clarifications of the proposed Work Plan. The initial meetings could take place in person, as appropriate. Ahead of in-person meetings, Edgar may request additional documentation to ensure the meeting will maximize productivity. In preparation of the response, Edgar conducted extensive research and review of the existing assets available to Humboldt, as discussed in the sections below. The meetings will result in actionable next steps for the team, to ensure the pre-plan development is comprehensive and accurate.

Edgar Associates has been intimately involved with all revisions and updates to SB 1383 regulations and Title 14 State minimum standards for compostable materials handling with a focus on contamination issues at the point of generation, processing, and market specification. We have represented haulers and franchise collectors in developing curbside organic education, auditing, and collection programs to limit contamination when designing and adding food waste to collection streams. With multiple haulers in several cities, there needs to be a common message on the types of organic waste that can be collected. This harmonized program will be necessary for the facility to meet the processing capacities, residual limitations, and market expectations of the compost product (CDFA/OMRI organic certified, and USCC STA certified). It is highly likely that the franchise agreements managed by the County and the cities will need to be modified to accommodate SB 1383 requirements.

Due to the unique characteristics of each city, Humboldt could offer the use of a generic but comprehensive SB 1383 Ordinance that each City could opt into or seek their own specific ordinance should they opt out. Edgar will follow the StopWaste.Org methodology and prepare and Ordinance that each city could use, where there will be a consistent message on types of organic waste collection based upon the processing and technology of the permitted compost facility that will receive the organic waste.

Edgar has completed some initial assessments and calculations of Humboldt's targeted tons. These will be updated and expanded per the information collected in Task 1. Edgar has completed dozens of comprehensive SB 1383 Organic Waste Recycling Plans prepared on behalf of franchise haulers and several jurisdictions. These plans provide a pathway for compliance, based on data analysis, best practices in the industry, and regulatory requirements. Edgar will audit the Annual Reports and the AB 1826 information for each jurisdiction and Humboldt, which will need to be updated to support the commercial organics collection requirements in the SB 1383 regulations. With SB 1383 regulations not becoming effective until January 1, 2022, we must rely upon AB 1826 implementation and enforcement to address the commercial sector first. If available, each jurisdiction will need to provide a Commercial Organic Generator List, or Edgar will prepare that list, based on NAICS codes and other publicly available information. This information will be needed for the Initial Jurisdiction Compliance Report due on April 1, 2022.



Edgar & Associates, Inc. worked with multiple haulers and several cities to create regional plans. Each city and franchise agreement is unique, but with a regional compost facility, there needs to be a common message on feedstock types and expected contamination limits, especially with the emerging trends on state-mandated compostability requirements. On behalf of the compost industry, CCC sponsored AB 1201 (Ting) regarding compostability standards for packaging and weighed in heavily on the SB 1335 regulatory process for public food service facilities.

Edgar will visit Humboldt's Hawthorne Street Transfer Station and the Eel River Transfer Station, with the goal of using our experience of co-locating and permitting organic waste transfer facilities to understand fully the opportunities at these facilities, and review operations plans and procedures. Additionally, Edgar will meet with each city and hauler separately to survey their current operations, future plans and expectations, and understand the best approach to common messaging for organics collection. Meetings will encourage open dialog, where it is our experience that there are many common challenges faced by cities and haulers throughout the State, and where Edgar will encourage collaboration, transparency and working together in good faith. Edgar will work with each party to ensure there is clear understanding of the goals and objectives of these meetings and next steps.

Edgar is uniquely positioned to integrate the concerns of franchised haulers, the feedstock requirements of facility operators and the compliance needs for the jurisdictions. Where there may be conflict, each group must be heard and understood. Over the years, Edgar has resolved and integrated these needs into the operations plan of regional compost or anaerobic digestion facilities that have specific feedstock requirements for certain technology types. While Edgar is facility and technology driven, Edgar also represented local haulers and their communities, while understanding the cost concerns of implementation and the need to address the concerns of any potentially impacted disadvantaged community.

Task 2b Short-Term Collection and Processing

Local capacity for SB 1383 organic waste streams of green and food waste will take at least five years to get permitted and operational. In the meantime, short-term processing capacity for the next five years needs to be procured with an RFP process to find permitted food waste compost capacity where the organic waste needs to be transferred out of County. For cities of Eureka, Fortuna, and Arcata, and the portions of the unincorporated County with applicable population density, the following is anticipated in 2022:

- Provide the opt-in universal Mandatory Collection Program following the StopWaste.Org model.
- Evaluate and make recommendations to current franchise hauler agreements.
- Develop an Education and Outreach program utilizing the work of the franchise haulers.
- Develop a regional special event organics recycling diversion program.

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- Assist with the development of necessary recordkeeping and reporting documents relating to monthly, quarterly, and/or annual legislative reporting requirements.
- Modify the Humboldt Hawthorne Street Transfer Station and/or the Eel River Transfer Station with a Transfer/Processing Report (TPR) Amendment to transfer out co-collected residential organic wastes and source-separated commercial organic wastes.
- Prepare a mini-RFP for out-of-county compost facilities to receive and process organic waste from Humboldt County for a 5-year period (from 2022 to 2027);
- Analyze the response to the RFP and make recommendations on the use of the compost facility based on organic waste types accepted, pricing, compliance record, logistics, available compost and mulches on a back-haul program for procurement.
- Based on an analysis and results, develop a funding plan to implement collection services which will likely result in a rate increase. Based on Edgar's internal studies of SB 1383 rate impacts, we observe the average rate increase is approximately \$9 per household, per month, phased in until 2025.
- Start organic waste collection during 2022, transferred from Hawthorne Transfer Station, and processed at selected compost facility.

Task 2c In-County Organic Waste Processing Capacity

We understand the County does not currently have collection and commercial processing of food waste materials, although there are green waste collection and self-haul services in some communities. Edgar will provide the County with an analysis and implementation timeline to establish a compost and/or an anaerobic digestion facility. The evaluation will show the site location and infrastructure options for organics processing facilities, including evaluation of existing wastewater treatment plants, evaluation and recommendation of potential composting technologies, and will compare and analyze collection options. This task will kick off in parallel with Task 2a, where it is noted that this will be a multiyear process with plans to open County facilities by 2027, when the waivers expire for the smaller cities, when the short-term 5-year out-of-county compost capacity contracts expire, and when the Dry Creek Landfill disposal contract ends.

Once Task 2b is well underway, the focus will be on Task 2c, where Edgar has decades of experience in siting and permitting compost and anaerobic digestion (AD) facilities. Based on the analysis and results, Edgar will develop a finance plan to implement in County composting and AD services, such as grant funding and rate optimization. Recommendations will consider future waste generation over the next 20 years. On behalf of clients, Edgar has applied for and been awarded over \$20 million in CalRecycle and CEC grant funding in the last few years. With \$270 million budgeted for SB 1383 infrastructure at CalRecycle and further sustainable funding in the future, Edgar could additionally assist Humboldt in securing grant dollars under a separate scope of work.



Task 2d Long-Term Collection and Processing:

Task 2d will start in 2023 for all of Humboldt County to analyze collection services starting in 2027 when the short-term contract expires and the new in-County facilities are permitted and operational.

- Review the opt-in universal Mandatory Collection Program results after one year of implementation and suggest changes for the smaller cities under the 5-year waiver.
- Evaluate and make recommendations to franchise hauler agreements for the smaller cities.
- Anticipate a range of cost increases for in-County facilities compare to export costs and suggest any possible rate increases
- Start organic waste collection during 2027 for all cities and haul to in-County facilities.

Task 3 - Edible Food Recovery

Our team of experienced professionals works towards a shared purpose and vision of capturing edible food. We have existing experience developing edible food recovery programs that result in feeding hungry people, safely and with dignity. Our programs look to create new jobs and training opportunities, relationship build across food donors and food recovery organizations and foster trust and brand protection between parties. We are pioneering sustainable funding models and developing innovative programs that significantly enhance community resiliency. Our team members are exceptionally knowledgeable on SB 1383 edible food recovery requirements, are key members of the Edible Food Recovery Technical Advisory Committee (EFR TC) through the California Resource and Recovery Association (CRRA), developing guidance documents and resources for the entire State.

Task 3a Develop an Edible Food Recovery Program

Our team is ready to execute all required tasks for the development of an edible food recovery program in Humboldt that will meet the requirements of SB 1383 and look to activate a long-term, responsible program that will efficiently and effectively bring partners together under the singular goal of capturing food to assist with reducing food insecurity for the residents of the County.

We will work with each jurisdiction to fully define their expectations, the goal, and objectives of the program long-term, and their definitions of success beyond these regulatory requirements. In our experience, jurisdictions recognize how important a collaborative solution to regional food recovery results in measurable success for a community across health, economic, social, and environmental metrics.

Importantly, our team will conduct the following tasks described below that will define a regionally-tailored program for Edible Food Recovery.



Task 3b Tier 1 and Tier 2 Edible Food Waste Generators Compliance Assessment

The team will verify the Tier 1 and 2 generators and will assess which generators have a current relationship with a food recovery agency and if that relationship has a contract or written agreement for food recovery in place. Abound will also identify if generators may be able to expand their current food donations and by how much. Specific notes regarding collection requirements, types of food and other important characteristics will be noted during the assessment.

The team will provide a detailed report identifying participating cities' Tier 1 and Tier 2 edible food waste generators, their statuses on participation in edible food donation programs, and their SB 1383 food recovery compliance statuses of such edible food donation programs. The report will be compiled in the form of one regional document, with the information on each participating city formatted by sections.

Task 3c Food Recovery Agencies and Organizations Capacity Assessment

The team will identify food recovery agencies and organizations in the participating cities. Once the food recovery organizations are identified, we will conduct outreach to call and engage with those organizations. Abound has the skill set and experience to conduct this task as many of the food recovery agencies are uneasy about the discussion of their operations to avoid any negative feedback. We have developed a methodology to encourage effective communication with the food recovery organizations. We utilize our existing partnerships with nonprofit organizations throughout California that can attest to our collaborative and supportive practices as needed to foster trust with the regional non-profits. The team will complete this task by making phone calls, working with existing partners and engaging in roundtable discussions and meetings. Our experience will assist in guiding food recovery agencies in identifying their potential needs to expand infrastructure and understand the current landscape of the organizations.

The team will evaluate the existing throughput and capacity of existing food recovery organizations and the needs required to effectively recovery and distribute excess edible food. We will identify which food recovery organizations hold existing agreements to service Tier 1 and Tier 2 food generators. This will include details on the current capacity by participating cities.

The team will provide a detailed report including a list of the edible food recovery organizations in and around the participating cities' limits. We will also provide participating cities with a list of edible food waste generators that comply with SB 1383 and requirements associated with expanded recovery for those generators not compliant with SB 1383. Additionally, the report should include information on the recovery capacity of the food recovery organizations in and around the participating cities' city limits. We will detail whether these organizations have existing contracts or written agreements with the participating cities' Tier 1 and Tier 2 food waste



generators. The report will also include details on whether additional capacity is needed for participating cities to accommodate the increase in edible food, the infrastructure needed to operate a successful edible food recovery program in Humboldt County and opportunities for participating cities to fund such infrastructure. The report will be compiled in the form of one regional document, with the information on each participating city formatted by sections.

Task 3d Develop and Advise on Policies, Funding, Contracts, Ordinances

The Edgar and Abound team are leading the discussion on funding strategies for edible food recovery, developing guidance that is being distributed through the State via the Edible Food Recovery Technical Committee. This guidance document has been included on our website available at this address, (http://edgarinc.org/related-projects-for-humboldt-county-sb-1383-organic-regional-compliance-services/) or via the QR Code on page 6, for reference to this proposal. We will bring our knowledge and expertise to Humboldt County to provide guidance for potential funding sources for the edible food recovery program that are compliant with Proposition 218 requirements for rate setting. Of primary concern is transparency, equity and maximizing efficiency of funding, which will be guided by the information gathered through Compliance and Capacity Assessments. Additionally, using best practices across the edible food recovery sector a user-friendly contract would be developed that could be utilized across the region between generators and food recovery agencies.

Building on the ordinance development described in Task 1e, we will provide recommendations for language that will capture the requirements for Tier 1 and 2 generators including, contracts, recordkeeping and reporting requirements of SB 1383. This will include a discussion of potential penalties that could be assessed by jurisdictions against non-compliance generators to ensure full compliance with SB 1383.

The County could consider contracting a third-party service to monitor compliance with generators, where our team would assist with all elements of this to include looking for options within existing programs such as County Public Health, waste hauling services, or other scoping services for a third-party contractor and aiding with soliciting bids for this compliance activity locally.

These specific elements would be used to inform the Edible Food Recovery Program final report and next steps for the region.

Task 3e Develop Monitoring, Reporting, Recordkeeping and Compliance Programs

The team will provide a model, utilizing existing local infrastructure and advising on the most efficient way to close any identified gaps, that will effectively monitor, aggregate reporting infrastructure, contracts between generators and non-profits, donation programs and track all required outreach to ensure full compliance with SB 1383. This could include utilizing technology software, partnering with local entities (Waste Haulers, County Public Health, or other), that will





result in a long-standing program that transparently provides information to the jurisdictions. This program will also outline additional requirements which could be considered, for example program effectiveness metrics, food safety tracking and other informational items which could be used to measure program results from funding, should the County move forward with a funding program.

Task 3f Develop Outreach and Education Plan

Abound Food Care has been passionate in explaining over the years that there is a difference between conducting outreach and conducting effective outreach. This is especially true when conducting outreach to the food industry with its vast diversity in size, scope and cultural makeup of the various segments. From processors and manufacturers to distributors to retail grocery and a rapidly evolving food service landscape all of which have a presence in the Humboldt County, effective outreach requires the depth of knowledge and understanding of these segments that only comes with the extensive experience Abound Food Care's Outreach team possesses.

To further illustrate, our staff of foodservice experienced outreach associates understand the nuances associated with reaching out to operators. They understand that dropping off an outreach document with a high school aged staff member may check off a box but the likelihood of a decision maker (GM, Owner or corporate officer) receiving that piece and acting on it is slim at best. Foodservice operators require multiple touchpoints and ultimately a peer-to-peer outreach component to secure real participation. Our staff understands and has the ability to reach out to decision makers in multiple ways using multiple tools some of which have been identified by CalRecycle with our input and some identified by the county but most developed by Abound Food Care and our food industry partners.

The team will develop an annual outreach program, which will include multilingual outreach and education materials and a detailed plan to provide comprehensive outreach and education efforts for participating cities' Tier 1 and Tier 2 edible food waste generators and stakeholder groups using tools available through CalRecycle, the County and those developed through our previous outreach campaigns.

Task 3g Strategic Plan for Edible Food Recovery

The results of the Capacity Assessments and Program Recommendations will be summarized in a Strategic Plan for Humboldt County. We will provide a detail analysis highlighting outreach efforts that were conducted, the surveys and assessments that were performed, the food recovery needs and operations of participating cities' Tier 1 and Tier 2 waste generators, the food recovery needs and operations of food recovery organizations in and around Humboldt County. Based on our experience and expertise, Abound will provide analysis and a strategic plan complete with best use of funds needed to cover capacity gaps, methods to encourage collaborative participation and





recommendations on the necessary steps that participating cities should consider to ensure SB 1383 compliance. This will further discuss funding requirements and opportunities. Our work in other regions of the State are being lauded by CalRecycle as the suggested model framework for jurisdictions to meet the intentions of edible food recovery regulations under SB 1383.

Task 4 - Procurement

Edgar will review each jurisdiction's current use of recovered organic waste products (compost, renewable natural gas, mulch, etc.), compared to the amount required to be used annually, as well as the required use of recycled paper products and postconsumer fiber, and provide an analysis and recommendation on what each jurisdiction will address to achieve SB 1383 compliance. The analysis will include an estimate of potential compost/mulch quantities that could be applied to parks, open space, rights-of-way, and other jurisdiction-owned properties as well as provide potential multi-jurisdictional partnership alternatives that will meet the SB 1383 requirements.

Edgar will recommend policy updates to each jurisdiction, including updates to existing Environmental Preferred Purchasing Policies to ensure SB 1383 compliance, and will assist with the development of recordkeeping and reporting process, including annual checklist and guidance document.

Edgar & Associates was deeply involved with the development of SB 1383 procurement requirements to provide the jurisdictions with a flexible portfolio of options that include compost mulch, bioenergy, and renewable natural gas. The organic products procurement target amounts are based upon population of the jurisdiction and is summarized in the following chart.





City/Town/County	Compost Use (tons) (Up to)	Mulch Use (tons) (Up to)	Bioenergy (MW) (Up to)	Renewable Natural Gas (DGE) (Up to)
Arcata	839	1,446	0.107	30,371
Eureka	1,252	2,158	0.160	45,321
Fortuna	561	967	0.072	20,301
Unincorporated Humboldt County	3,338	5,754	0.427	120,842
Total	5,990	10,325	0.766	216,835



The most likely options for procurement from 2022 to 2027 is to procure as much local compost and mulch from in-county facilities for use on jurisdictional parks, golf course, schools, roadways, and public works projects. As part of the work plan, the acreage of available land will be determined as to where compost and mulch could be applied. The jurisdictions above will need to procure up to 5,990 tons of compost and/or up to 10,325 tons of wood mulch per year to comply with SB 1383 and could use a blended portfolio of both. Bioenergy and RNG are options but are not realistic at this time since the majority of the local refuse fleets are not on the compressed natural gas (CNG) platform to drop in RNG fuel, and there are no biomass energy projects being proposed in the region. To meet the tonnage requirements, compost and mulch may need to be back-hauled from the selected out-of-county compost facility which could be a requested in the RFP when HWMA issues the proposed RFP for out-of-county organic waste processing capacity.

Starting in 2027, the smaller cities that had received SB 1383 waivers will need to comply with procurement requirements. The amount of additional procurement is incremental where the



program can be expanded to accommodate these new tons of up to 291 compost tons and/or up to 501 tons of wood mulch.

City/Town/County	Compost Use (tons) (Up to)	Mulch Use (tons) (Up to)	Bioenergy (MW) (Up to)	Renewable Natural Gas (DGE) (Up to)
Blue Lake	58	99	0.007	2,088
Ferndale	62	107	0.008	2,243
Trinidad	17	29	0.002	605
Rio Dell	154	266	0.02	5,588
Total	291	501	0.037	10,524



Also starting in 2027, a local compost facility should be permitted and operational. The procurement tons for compost and mulch could be sourced from that facility.

Task 5 – Waste Management Structure

The regional Compliance Plan Roadmap will provide a comprehensive analysis, including evaluation of compliance obligations, assessment of resource gaps and staffing needs, an analysis and recommendation of rates and fees to future HWMA's Waste Management Fee along with anticipated curbside customer rate impacts and recommendations for regional monitoring, enforcement, reporting and record keeping activities.

Edgar & Associates will be on-call to assist in the Waste Management Structure analysis on a time and material basis following our standard rate schedule as directed by HWMA.



Schedule

Edgar will work with Humboldt to ensure all tasks are completed within a timeframe that is suitable to the County. The following tables describe the schedule for completion of each task.

	Quarter 1 By Feb. 16, 2022	Quarter 2 By May 16, 2022	Quarter 3 By August 16, 2022	Quarter 4 By November 16, 2022	Years 2-4
	١	Fask 1 – Compliance	Road Map		
1a – SB 1383 Waivers for Extension	Submit Waiver Requests by December 1, 2022				
1b - Targeted Tonnage Analysis	Determine Targeted Tons		_		
1c - SB 619 Notice of Intent to File		Submit NOI on March 1, 2022			
1d – Initial Jurisdictional Report		Submit Initial Jurisdictional Report on April 1, 2022,			
1e – Ordinance	Draft Model Ordinance and review Franchise Agreements	Cities opt-in and adopt Ordinance	Cities that opt-out and adopt own Ordinance		
1f – SB 1383	Draft Compliance Plan Roadmap	Final Compliance Plan Roadmap			Update Roadmap annually

	Quarter 1 By Feb. 16, 2022	Quarter 2 By May 16, 2022	Quarter 3 By August 16, 2022	Quarter 4 By November 16, 2022	Years 2-4				
	Task 2	– Organic Processing	g and Collection						
Task 2a – Organic Processing and Collection	Review franchises and local facilities and make recommendations.	Prioritize green waste to local compost facilities. Outreach & education for collections to transfer organics out of county	Possible start dates to start SB 1383 collection programs after selection of out-of- County compost facility		SB 1383 collection programs after selection of out-of-		SB 1383 collection programs after selection of out-of-		
Task 2b – Short-Term Collection and Processing	Recommend that RFP be issued for 5-year export agreement for SB 1383 organics.	Issue RFP to permitted out-of- County food waste compost facility. Select export compost facility		Export for up to 5 years until in-County compost facility can be permitted					
Task 2c – In- County Organic Waste Processing	Visit possible locations of regional compost facility	Review past reports and studies on siting a regional compost facility	Meet with community	Prepare Report on possible locations and funding plan	Permit selected facilities that could take up to 5 years				
Task 2d – Long-Term Collection and Processing	File waivers to defer collection to 2027 for the smaller cities				Cease out of County transfer in 2027, and bring on smaller cities				





	Quarter 1 By Feb. 16, 2022	Quarter 2 By May 16, 2022	Quarter 3 By August 16, 2022	Quarter 4 By November 16, 2022	Years 2-4			
	•	Task 3 – Edible Food Recove	ery					
Task 3a - Develop and Edible Food Recovery Program	Provide oversight, gu	uidance and management of Edik and project ch		overy Program	n, including meetings			
Task 3b - Tier 1 and Tier 2 Generator Compliance	Finalize list, conduct surveys and assessments.							
Task 3c - Food Recovery Agency Capacity Assessment	Recovery Agency Capacity Conduct surveys and full infrastructure assessments							
Task 3d - Develop and Advise on Policies, etc.	Complete standard contract for generator and non- profits. Draft Ordinance and Program elements.	Cities opt-in and adopt Ordinance Complete final Program development elements.	Cities that opt-out and adopt own Ordinance		Additional programs, such as tracking and enhancing food safety auding programs, can be provided in subsequent years.			
Task 3e - Develop Monitoring and Reporting, etc.	Draft monitoring, reporting and compliance program elements.	Determine if third-party contractor will assist with compliance. Finalize monitoring, recordkeeping, and compliance program elements.						
Task 3f - Develop Outreach and Education Plan	Develop and Finalize Outreach and Education Plan.				Assistance with implementation of outreach and education can be provided in subsequent years.			
Task 3g - Strategic Plan for Edible Food Recovery	rategic Plan for Edible Food development will be finalized in a formal Strategic Plan for			Additional assistance on implementation of the strategic plan can be provided in subsequent years.				



	Quarter 1 By Feb. 16, 2022	Quarter 2 By May 16, 2022	Quarter 3 By August 16, 2022	Quarter 4 By November 16, 2022	Years 2-4		
		Task 4 – Procur	ement				
Task 4 – Procurement	Determine amount of organic waste products to be procured	Adopt opt-in Ordinance with Procurement policies	Work with local compost facilities first to procure compost. With selection of out-of-County compost facility, bundle the RFP to include the back-haul and compost and mulch from the facility to meet procurement requirements		facilities first to procure compost. With selection of A out-of-County compost p facility, bundle the RFP to include the back-haul and a compost and mulch from the facility to meet		After 2027, procure all compost and mulch locally
	Tas	k 5 – Waste Manage	ment Structure				
Task 5 – Waste Management Structure	WasteFinal ComplianceManagementPlan Roadmap		Assess rate im make recomm	Update in 2024 with in-county facility			





Per HWMA Request for Proposals for Humboldt County SB 1383 & Organics Regional Compliance Services Addendum No. 1, Question 3, the Cover letter has been moved to the top of the Proposal.



Edgar & Associates anticipates that the cost for the initial year will not exceed \$156,000 based upon the Work Plan and the Scope of Services. Edgar bills on a time and materials basis according to our Standard Rate Schedule, and not a lump sum for the tasks. We are deploying resources to complete each task, where we are flexible to adjust, move and shuffle resources as the Roadmap evolves and needs change.

The cost proposal is provided in the tables below identifies the key project team members proposed for each task and subtask, the number of hours for management, drafting, support personnel hours, sub-consultants and costs envisioned for each task. These costs are presented in a way that tasks and their associated costs are easily recognizable so jurisdictions may pick and choose what services they wish to have provided as a menu approach, but with allowance to shift resources to higher priority task as needed.

The initial term shall be for a one-year period from the effective date of the agreement. This agreement may be renewed annually for up to three consecutive years after the initial agreement period, at the discretion and approval of HWMA. HWMA will notify the Edgar in writing of the intent to extend the agreement, 30 days prior to the expiration of the term. Edgar proposes to have HWMA not to exceed budget \$100,000 per year for years 2 and 3, where 90 days before the end of each year of services, Edgar & Associates and HWMA may negotiate an updated Scope of Work to implement the necessary items.

Standard Rate Schedule	2022 Rates
Evan Edgar, Project Manager	\$250.00
Neil Edgar, Senior Project Manager	\$195.00
Monica White, Sustainability Manager	\$165.00
Omar Al-Shafie, Associate Engineer	\$155.00
Grant Readle, Resource Economist	\$155.00
Julie Arenz, Sustainability Associate and Graphics Specialist	\$140.00
Mike Learakos, Executive Director of Abound Food Care	\$195.00
Support Staff	\$120.00

Task	Total Budget
Task 1 – Compliance Road Map	\$ 43,195.00
Task 2 – Organic Processing and Collection	\$ 40,680.00
Task 3 – Edible Food Recovery	\$ 51,710.00
Task 4 – Procurement	\$ 8,500.00
Task 5 – Waste Management Structure	\$ 11,950.00
Total Budget	\$ 156,035.00

Task 1 – Compliance Road Map	Key Staff	Hours	Esti	mated Cost	S	ub-Totals
1a – SB 1383 Waivers for Extension	Grant Readle	6	\$	930.00		
	Monica White	2	\$	330.00	\$	1,260.00
1b - Targeted Tonnage Analysis	Evan Edgar	2	\$	500.00		
	Grant Readle	6	\$	930.00	\$	1,430.00
1c - SB 619 Notice of Intent to File	Evan Edgar	1	\$	250.00		
	Grant Readle	10	\$	1,550.00	\$	1,800.00
1d - Initial Jurisdictional Report	Monica White	18	\$	2,970.00		
	Evan Edgar	8	\$	2,000.00		
	Grant Readle	12	\$	1,860.00	\$	6,830.00
1e – Ordinance/Franchise Review	Grant Readle	35	\$	5,425.00		
	Evan Edgar	30	\$	7,500.00		
	Monica White	8	\$	1,320.00	\$	14,245.00
1f – SB 1383 requirements	Monica White	20	\$	3,300.00		
	Evan Edgar	35	\$	8,750.00		
	Grant Readle	36	\$	5,580.00	\$	17,630.00
Task One Total					\$	43,195.00

Task 2 – Organic Processing and Collection	Key Staff	Hours	Esti	mated Cost	S	ub-Totals
Task 2a – Organic Processing and Collection	Evan Edgar	30	\$	7,500.00		
	Neil Edgar	10	\$	1,950.00		
	Omar Al-Shafie	10	\$	1,550.00		
	Julie Arenz	12	\$	1,680.00	\$	12,680.00
Task 2b – Short-Term Collection and Processing	Evan Edgar	30	\$	7,500.00		
	Neil Edgar	10	\$	1,950.00		
	Omar Al-Shafie	10	\$	1,550.00	\$	11,000.00
Task 2c – In-County Organic Waste Processing	Evan Edgar	20	\$	5,000.00		
	Neil Edgar	10	\$	1,950.00		
	Omar Al-Shafie	10	\$	1,550.00	\$	8,500.00
Task 2d – Long-Term Collection and Processing	Evan Edgar	20	\$	5,000.00		
	Neil Edgar	10	\$	1,950.00		
	Omar Al-Shafie	10	\$	1,550.00	\$	8,500.00
Task Two Total					\$	40,680.00





Task 3 – Edible Food Recovery	Key Staff	Hours	Esti	mated Cost	S	ub-Totals
Task 3a - Develop and Edible Food Recovery Program	Monica White	12	\$	1,980.00		
	Mike Learakos	12	\$	2,340.00	\$	4,320.00
Task 3b - Tier 1 and Tier 2 Generator Compliance	Monica White	10	\$	1,650.00		
	Grant Readle	6	\$	930.00		
	Support Staff	60	\$	7,200.00	\$	9,780.00
Task 3c - Food Recovery Agency Capacity Assessment	Monica White	12	\$	1,980.00		
	Mike Learakos	10	\$	1,950.00		
	Grant Readle	6	\$	930.00		
	Support Staff	40	\$	4,800.00	\$	9,660.00
Task 3d - Develop and Advise on Policies, etc.	Monica White	10	\$	1,650.00		
	Mike Learakos	12	\$	2,340.00		
	Grant Readle	6	\$	930.00		
	Support Staff	12	\$	1,440.00	\$	6,360.00
Task 3e - Develop Monitoring and Reporting, etc.	Monica White	10	\$	1,650.00		
	Mike Learakos	10	\$	1,950.00		
	Grant Readle	4	\$	620.00		
	Support Staff	8	\$	960.00	\$	5,180.00
Task 3f - Develop Outreach and Education Plan	Monica White	10	\$	1,650.00		
	Mike Learakos	8	\$	1,560.00		
	Julie Arenz	16	\$	2,240.00		
	Support Staff	12	\$	1,440.00	\$	6,890.00
Task 3g - Strategic Plan for Edible Food Recovery	Monica White	18	\$	2,970.00		
	Mike Learakos	18	\$	3,510.00		
	Julie Arenz	8	\$	1,120.00		
	Support Staff	16	\$	1,920.00	\$	9,520.00
Task Three Total					\$	51,710.00

Task 4 – Procurement	Key Staff	Hours	Esti	imated Cost	Si	ub-Totals
	Evan Edgar	20	\$	5,000.00		
	Neil Edgar	10	\$	1,950.00		
	Grant Readle	10	\$	1,550.00	\$	8,500.00
Task Four Total					\$	8,500.00
Task 5 – Waste Management Structure	Key Staff	Hours	Esti	imated Cost	Si	ub-Totals
	Evan Edgar	40	\$	10,000.00		
	Neil Edgar	10	\$	1,950.00	\$	11,950.00
Task Five Total	<u>.</u>	-	-		\$	11,950.00





This RFP issued by HWMA focused on a regional approach on harmonizing the collection system and securing organic waste processing capacity. SB 1383 requires each jurisdiction to comply with specific requirements that an Authority to Regional Agency cannot execute for each city. In those cases, optional services are needed. The following suggestions are noted for additional services:

- Edgar can assist the Jurisdictions directly in filing the Initial Jurisdiction Compliance Report as an additional service as it is critical to make a substantial effort to comply and there is critical information here that needs to be complied.
- For the cities that choose not to opt into the model ordinance, those cities will need to pass their own ordinance and/or modify their municipal code. Edgar is available to assist those cities on an individual basis outside this Scope of Work. As with any ordinance process, it is very specific to the jurisdiction.
- Edgar has applied for and been awarded over \$20 million in CalRecycle and CEC grant funding over the years. With \$270 million budgeted for SB 1383 infrastructure at CalRecycle and further sustainable funding in the future, Edgar could assist Humboldt in securing grant dollars under a separate scope of work.



Edgar takes no exceptions to the Agreement.

Attachment A

SB 1383 Tonnages - Arcata + Eureka + Fortuna + Humboldt County Unincorporated

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	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Population	128,332	128,034	129,064	130,066	129,773	129,069	127,793	127,047	126,365	125,818	125,377	125,016	124,655	124,244	123,721	123,173	122,639	122,148	121,630	121,115	120,616	120,088
Disposal	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Commercial	38,710	42,939	44,218	47,498	43,640	42,854	42,430	42,183	41,956	41,775	41,628	41,508	41,389	41,252	41,078	40,896	40,719	40,556	40,384	40,213	40,047	39,872
Residential	16,854	19,986	22,021	25,338	24,967	24,518	24,275	24,134	24,004	23,900	23,816	23,748	23,679	23,601	23,502	23,398	23,296	23,203	23,104	23,007	22,912	22,812
Multifamily	6,557	6,712	6,286	6,021	4,799	4,712	4,666	4,639	4,614	4,594	4,578	4,564	4,551	4,536	4,517	4,497	4,478	4,460	4,441	4,422	4,404	4,385
Self-Haul	15,960	20,463	24,153	29,543	30,752	30,199	29,900	29,726	29,566	29,438	29,335	29,250	29,166	29,070	28,947	28,819	28,694	28,579	28,458	28,338	28,221	28,097
Disposal Tons	78,082	90,101	96,678	108,401	104,158	102,283	101,271	100,681	100,140	99,706	99,357	99,070	98,785	98,459	98,045	97,610	97,187	96,798	96,387	95,979	95,584	95,165
Green Waste ADC																						

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2
18,145	19,498	19,430	20,176	17,897	17,575	17,401	17,300	17,207	17,132	17,072	17,023	16,974	16,918	16,847	16,772	16
7,961	8,977	9,380	10,205	9,477	9,306	9,214	9,160	9,111	9,072	9,040	9,014	8,988	8,958	8,920	8,881	8,
2,651	2,619	2,363	2,178	1,668	1,638	1,622	1,612	1,603	1,597	1,591	1,586	1,582	1,577	1,570	1,563	1,
6,301	7,156	7,357	7,666	6,593	6,474	6,410	6,373	6,339	6,311	6,289	6,271	6,253	6,232	6,206	6,179	6,
35,058	38,249	38,530	40,225	35,635	34,993	34,647	34,445	34,260	34,112	33,992	33,894	33,797	33,685	33,543	33,395	33
						17,118	18,721	20,323	21,925	23,528	25,130	25,032	24,921	24,779	24,630	24
	18,145 7,961 2,651 6,301	18,145 19,498 7,961 8,977 2,651 2,619 6,301 7,156	18,14519,49819,4307,9618,9779,3802,6512,6192,3636,3017,1567,357	18,14519,49819,43020,1767,9618,9779,38010,2052,6512,6192,3632,1786,3017,1567,3577,666	18,14519,49819,43020,17617,8977,9618,9779,38010,2059,4772,6512,6192,3632,1781,6686,3017,1567,3577,6666,593	18,14519,49819,43020,17617,89717,5757,9618,9779,38010,2059,4779,3062,6512,6192,3632,1781,6681,6386,3017,1567,3577,6666,5936,474	18,14519,49819,43020,17617,89717,57517,4017,9618,9779,38010,2059,4779,3069,2142,6512,6192,3632,1781,6681,6381,6226,3017,1567,3577,6666,5936,4746,41035,05838,24938,53040,22535,63534,99334,647	18,14519,49819,43020,17617,89717,57517,40117,3007,9618,9779,38010,2059,4779,3069,2149,1602,6512,6192,3632,1781,6681,6381,6221,6126,3017,1567,3577,6666,5936,4746,4106,37335,05838,24938,53040,22535,63534,99334,64734,445	18,14519,49819,43020,17617,89717,57517,40117,30017,2077,9618,9779,38010,2059,4779,3069,2149,1609,1112,6512,6192,3632,1781,6681,6381,6221,6121,6036,3017,1567,3577,6666,5936,4746,4106,3736,33935,05838,24938,53040,22535,63534,99334,64734,44534,260	18,145 19,498 19,430 20,176 17,897 17,575 17,401 17,300 17,207 17,132 7,961 8,977 9,380 10,205 9,477 9,306 9,214 9,160 9,111 9,072 2,651 2,619 2,363 2,178 1,668 1,638 1,622 1,612 1,603 1,597 6,301 7,156 7,357 7,666 6,593 6,474 6,410 6,373 6,339 6,311 35,058 38,249 38,530 40,225 35,635 34,993 34,647 34,445 34,260 34,112	18,14519,49819,43020,17617,89717,57517,40117,30017,20717,13217,0727,9618,9779,38010,2059,4779,3069,2149,1609,1119,0729,0402,6512,6192,3632,1781,6681,6381,6221,6121,6031,5971,5916,3017,1567,3577,6666,5936,4746,4106,3736,3396,3116,28935,05838,24938,53040,22535,63534,99334,64734,44534,26034,11233,992	18,145 19,498 19,430 20,176 17,897 17,575 17,401 17,300 17,207 17,132 17,072 17,023 7,961 8,977 9,380 10,205 9,477 9,306 9,214 9,160 9,111 9,072 9,040 9,014 2,651 2,619 2,363 2,178 1,668 1,638 1,622 1,612 1,603 1,597 1,591 1,586 6,301 7,156 7,357 7,666 6,593 6,474 6,410 6,373 6,339 6,311 6,289 6,271 35,058 38,249 38,530 40,225 35,635 34,993 34,647 34,445 34,260 34,112 33,992 33,894	18,14519,49819,43020,17617,89717,57517,40117,30017,20717,13217,07217,02316,9747,9618,9779,38010,2059,4779,3069,2149,1609,1119,0729,0409,0148,9882,6512,6192,3632,1781,6681,6381,6221,6121,6031,5971,5911,5861,5826,3017,1567,3577,6666,5936,4746,4106,3736,3396,3116,2896,2716,25335,05838,24938,53040,22535,63534,99334,64734,45534,26034,11233,99233,89433,797	18,14519,49819,43020,17617,89717,57517,40117,30017,20717,13217,07217,02316,97416,9187,9618,9779,38010,2059,4779,3069,2149,1609,1119,0729,0409,0148,9888,9582,6512,6192,3632,1781,6681,6381,6221,6121,6031,5971,5911,5861,5821,5776,3017,1567,3577,6666,5936,4746,4106,3736,3396,3116,2896,2716,2536,23235,05838,24938,53040,22535,63534,99334,64734,44534,26034,11233,99233,89433,79733,685	18,145 19,498 19,430 20,176 17,897 17,575 17,401 17,300 17,207 17,132 17,072 17,023 16,974 16,918 16,847 7,961 8,977 9,380 10,205 9,477 9,306 9,214 9,160 9,111 9,072 9,040 9,014 8,988 8,958 8,920 2,651 2,619 2,363 2,178 1,668 1,638 1,622 1,612 1,603 1,597 1,586 1,582 1,577 1,570 6,301 7,156 7,357 7,666 6,593 6,474 6,410 6,373 6,339 6,311 6,289 6,271 6,253 6,232 6,206 35,058 38,249 38,530 40,225 35,635 34,993 34,647 34,455 34,260 34,112 33,992 33,894 33,797 33,685 33,543	18,14519,49819,43020,17617,89717,57517,40117,30017,20717,13217,07217,02316,97416,91816,84716,7727,9618,9779,38010,2059,4779,3069,2149,1609,1119,0729,0409,0148,9888,9588,9208,8812,6512,6192,3632,1781,6681,6381,6221,6121,6031,5971,5911,5861,5821,5771,5701,5636,3017,1567,3577,6666,5936,4746,4106,3736,3396,3116,2896,2716,2536,2326,2066,17935,05838,24938,53040,22535,63534,99334,64734,44534,26034,11233,99233,89433,79733,68533,54333,395

8,764 SB 1383 Target

2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
5 17,897	17,575		17,300	17,207	17,132	17,072	17,023	16,974		16,847	16,772	16,700	16,633	16,562			
5 <u>17,897</u> 5 9,477	9,306	17,401 9,214	9,160	-	9,072	9,040		-	16,918 8,958	· · ·		· · ·	· ·		16,492 8,732	16,424 8,696	16,352 8,658
1,668	1,638	1,622	1,612	9,111 1,603	1,597	9,040 1,591	9,014 1,586	8,988 1,582	1,577	8,920 1,570	8,881 1,563	8,842 1,556	8,807 1,550	8,770 1,543	1,537	1,531	1,524
6,593	6,474	6,410	6,373	6,339	6,311	6,289	6,271	6,253	6,232	6,206	6,179	6,152	6,127	6,101	6,075	6,050	6,024
35,635	,	,	,	,	,	,	,		,	33,543	,	,	,	,	,		32,558
55,035	34,993	34,647	34,445	34,260	34,112	33,992	33,894	33,797	33,685	33,543	33,395	33,250	33,117	32,976	32,837	32,701	32,338
		17,118	18,721	20,323	21,925	23,528	25,130	25,032	24,921	24,779	24,630	24,485	24,352	24,212	24,072	23,937	23,794
		17,110	10,721	20,323	21,925	23,320	23,130	23,032	24,921	24,775	24,030	24,405	24,332	24,212	24,072	23,937	23,734
								New	Tons								
	Food	3,500	3,828	4,156	4,483	4,811	5,139	5,119	5,096	5,067	5,037	5,007	4,980	4,951	4,922	4,895	4,865
G		797	872	946	1,021	1,095	1,170	1,165	1,160	1,154	1,147	1,140	1,134	1,127	1,121	1,114	1,108
Commercial	Wood	1,449	1,585	1,721	1,857	1,992	2,128	2,120	2,110	2,098	2,086	2,073	2,062	2,050	2,038	2,027	2,015
ercia	Paper	1,250	1,367	1,484	1,601	1,718	1,835	1,828	1,820	1,810	1,799	1,788	1,779	1,768	1,758	1,748	1,738
~/	Manure	175	191	208	224	240	257	256	255	253	252	250	249	247	246	245	243
	Total	7,172	7,843	8,515	9,186	9,857	10,529	10,488	10,441	10,382	10,319	10,259	10,203	10,144	10,086	10,029	9,969
		,															· · ·
	Food	2,157	2,359	2,561	2,763	2,965	3,167	3,154	3,140	3,122	3,104	3,085	3,069	3,051	3,033	3,016	2,998
Po	Green	678	741	804	868	931	995	991	986	981	975	969	964	958	953	947	942
Side	Wood	300	328	357	385	413	441	439	437	435	432	430	427	425	422	420	417
Residential	Paper	866	947	1,028	1,109	1,190	1,271	1,266	1,261	1,253	1,246	1,239	1,232	1,225	1,218	1,211	1,204
	Manure	103	112	122	131	141	151	150	149	148	148	147	146	145	144	143	143
	Total	4,103	4,487	4,871	5,256	5,640	6,024	6,000	5,974	5,940	5,904	5,869	5,837	5,804	5,770	5,738	5,703
	Total	4,103	4,487		5,256	5,640	6,024	6,000	5,974	5,940	5,904	5,869	5,837	5,804	5,770	5,738	5,703
	Food	4,103 557	4,487 609		5,256 714	5,640 766	6,024 818	6,000 815	5,974 811	5,940 807	5,904 802	5,869 797	5,837 793	5,804 788	5,770 784	5,738 779	5,703 774
17	Food	1	1 -	4,871				· ·	· ·				-	1 -		-	
Multifac	Food	557	609	4,871 661	714	766	818	815	811	807	802	797	793	788	784	779	774
Multifernity	Food	557 91	609 100	4,871 661 108	714 117	766 125	818 134	815 133	811 133	807 132	802 131	797 131	793 130	788 129	784 128	779	774 127
Anutific Phily	Food	557 91 5	609 100 6	4,871 661 108 6	714 117 7	766 125 7	818 134 8	815 133 8	811 133 8	807 132 8	802 131 8	797 131 8	793 130 7	788 129 7	784 128 7	779 128 7	774 127 7
MultiRenity	Food Green Wood Paper	557 91 5 135	609 100 6 148	4,871 661 108 6 160	714 117 7 173	766 125 7 185	818 134 8 198	815 133 8 197	811 133 8 196	807 132 8 195	802 131 8 194	797 131 8 193	793 130 7 192	788 129 7 191	784 128 7 190	779 128 7 189	774 127 7 188
Multifernity	Food Green Wood Paper Manure Total	557 91 5 135 0 789	609 100 6 148 0 863	4,871 661 108 6 160 0 936	714 117 7 173 0 1,010	766 125 7 185 0 1,084	818 134 8 198 0 1,158	815 133 8 197 0 1,153	811 133 8 196 0 1,148	807 132 8 195 0 1,142	802 131 8 194 0 1,135	797 131 8 193 0 1,128	793 130 7 192 0 1,122	788 129 7 191 0 1,116	784 128 7 190 0 1,109	779 128 7 189 0 1,103	774 127 7 188 0 1,096
	Food Green Wood Paper Manure Total Food	557 91 5 135 0 789 2,202	609 100 6 148 0 863 2,408	4,871 661 108 6 160 0 936 2,615	714 117 7 173 0 1,010 2,821	766 125 7 185 0 1,084 3,027	818 134 8 198 0 1,158 3,233	815 133 8 197 0 1,153 3,220	811 133 8 196 0 1,148 3,206	807 132 8 195 0 1,142 3,188	802 131 8 194 0 1,135 3,169	797 131 8 193 0 1,128 3,150	793 130 7 192 0 1,122 3,133	788 129 7 191 0 1,116 3,115	784 128 7 190 0 1,109 3,097	779 128 7 189 0 1,103 3,080	774 127 7 188 0 1,096 3,061
	Food Green Wood Paper Manure Total Food Green	557 91 5 135 0 789 2,202 800	609 100 6 148 0 863 2,408 875	4,871 661 108 6 160 0 936 2,615 949	714 117 7 173 0 1,010 2,821 1,024	766 125 7 185 0 1,084 3,027 1,099	818 134 8 198 0 1,158 3,233 1,174	815 133 8 197 0 1,153 3,220 1,169	811 133 8 196 0 1,148 3,206 1,164	807 132 8 195 0 1,142 3,188 1,158	802 131 8 194 0 1,135 3,169 1,151	797 131 8 193 0 1,128 3,150 1,144	793 130 7 192 0 1,122 3,133 1,138	788 129 7 191 0 1,116 3,115 1,131	784 128 7 190 0 1,109 3,097 1,125	779 128 7 189 0 1,103 3,080 1,118	774 127 7 188 0 1,096 3,061 1,112
	Food Green Wood Paper Manure Total Food Green Wood	557 91 5 135 0 789 2,202 800 1,187	609 100 6 148 0 863 2,408 875 1,298	4,871 661 108 6 160 0 936 2,615 949 1,410	714 117 7 173 0 1,010 2,821 1,024 1,521	766 125 7 185 0 1,084 3,027 1,099 1,632	818 134 8 198 0 1,158 3,233 1,174 1,743	815 133 8 197 0 1,153 3,220 1,169 1,736	811 133 8 196 0 1,148 3,206 1,164 1,728	807 132 8 195 0 1,142 3,188 1,158 1,719	802 131 8 194 0 1,135 3,169 1,151 1,708	797 131 8 193 0 1,128 3,150 1,144 1,698	793 130 7 192 0 1,122 3,133 1,138 1,689	788 129 7 191 0 1,116 3,115 1,131 1,679	784 128 7 190 0 1,109 3,097 1,125 1,670	779 128 7 189 0 1,103 3,080 1,118 1,660	774 127 7 188 0 1,096 3,061 1,112 1,650
Multigenity Self Hau	Food Green Wood Paper Manure Total Food Green Wood Paper	557 91 5 135 0 789 2,202 800 1,187 769	609 100 6 148 0 863 2,408 875 1,298 841	4,871 661 108 6 160 0 936 2,615 949 1,410 913	714 117 7 173 0 1,010 2,821 1,024 1,521 985	766 125 7 185 0 1,084 3,027 1,099 1,632 1,057	818 134 8 198 0 1,158 3,233 1,174 1,743 1,129	815 133 8 197 0 1,153 3,220 1,169 1,736 1,125	811 133 8 196 0 1,148 3,206 1,164 1,728 1,120	807 132 8 195 0 1,142 3,188 1,158 1,719 1,114	802 131 8 194 0 1,135 3,169 1,151 1,708 1,107	797 131 8 193 0 1,128 3,150 1,144 1,698 1,100	793 130 7 192 0 1,122 3,133 1,138 1,689 1,094	788 129 7 191 0 1,116 3,115 1,131 1,679 1,088	784 128 7 190 0 1,109 3,097 1,125 1,670 1,082	779 128 7 189 0 1,103 3,080 1,118 1,660 1,076	774 127 7 188 0 1,096 3,061 1,112 1,650 1,069
	Food Green Wood Paper Manure Total Food Green Wood Paper Manure	557 91 5 135 0 789 2,202 800 1,187 769 96	609 100 6 148 0 863 2,408 875 1,298 841 104	4,871 661 108 6 160 0 936 2,615 949 1,410 913 113	714 117 7 173 0 1,010 2,821 1,024 1,521 985 122	766 125 7 185 0 1,084 3,027 1,099 1,632 1,057 131	818 134 8 198 0 1,158 3,233 1,174 1,743 1,129 140	815 133 8 197 0 1,153 3,220 1,169 1,736 1,125 140	811 133 8 196 0 1,148 3,206 1,164 1,728 1,120 139	807 132 8 195 0 1,142 3,188 1,158 1,719 1,114 138	802 131 8 194 0 1,135 3,169 1,151 1,708 1,107 137	797 131 8 193 0 1,128 3,150 1,144 1,698 1,100 137	793 130 7 192 0 1,122 3,133 1,138 1,689 1,094 136	788 129 7 191 0 1,116 3,115 1,131 1,679 1,088 135	784 128 7 190 0 1,109 3,097 1,125 1,670 1,082 134	779 128 7 189 0 1,103 3,080 1,118 1,660 1,076 134	774 127 7 188 0 1,096 3,061 1,112 1,650 1,069 133
	Food Green Wood Paper Manure Total Food Green Wood Paper	557 91 5 135 0 789 2,202 800 1,187 769	609 100 6 148 0 863 2,408 875 1,298 841	4,871 661 108 6 160 0 936 2,615 949 1,410 913	714 117 7 173 0 1,010 2,821 1,024 1,521 985	766 125 7 185 0 1,084 3,027 1,099 1,632 1,057	818 134 8 198 0 1,158 3,233 1,174 1,743 1,129	815 133 8 197 0 1,153 3,220 1,169 1,736 1,125	811 133 8 196 0 1,148 3,206 1,164 1,728 1,120	807 132 8 195 0 1,142 3,188 1,158 1,719 1,114	802 131 8 194 0 1,135 3,169 1,151 1,708 1,107	797 131 8 193 0 1,128 3,150 1,144 1,698 1,100	793 130 7 192 0 1,122 3,133 1,138 1,689 1,094	788 129 7 191 0 1,116 3,115 1,131 1,679 1,088	784 128 7 190 0 1,109 3,097 1,125 1,670 1,082	779 128 7 189 0 1,103 3,080 1,118 1,660 1,076	774 127 7 188 0 1,096 3,061 1,112 1,650 1,069
	Food Green Wood Paper Manure Total Food Green Wood Paper Manure Total	557 91 5 135 0 789 2,202 800 1,187 769 96 5,054	609 100 6 148 0 863 2,408 875 1,298 841 104 5,527	4,871 661 108 6 160 0 936 2,615 949 1,410 913 113 6,000	714 117 7 173 0 1,010 2,821 1,024 1,521 985 122 6,473	766 125 7 185 0 1,084 3,027 1,099 1,632 1,057 131 6,946	818 134 8 198 0 1,158 3,233 1,174 1,743 1,129 140 7,420	815 133 8 197 0 1,153 3,220 1,169 1,736 1,125 140 7,391	811 133 8 196 0 1,148 3,206 1,164 1,728 1,120 139 7,358	807 132 8 195 0 1,142 3,188 1,158 1,719 1,114 138 7,316	802 131 8 194 0 1,135 3,169 1,151 1,708 1,107 137 7,272	797 131 8 193 0 1,128 3,150 1,144 1,698 1,100 137 7,229	793 130 7 192 0 1,122 3,133 1,138 1,689 1,094 136 7,190	788 129 7 191 0 1,116 3,115 1,131 1,679 1,088 135 7,148	784 128 7 190 0 1,109 3,097 1,125 1,670 1,082 134 7,107	779 128 7 189 0 1,103 3,080 1,118 1,660 1,076 134 7,067	774 127 7 188 0 1,096 3,061 1,112 1,650 1,069 133 7,025
	Food Green Wood Paper Manure Total Food Green Wood Paper Manure Total	557 91 5 135 0 789 2,202 800 1,187 769 96 5,054 8,417	609 100 6 148 0 863 2,408 875 1,298 841 104 5,527 9,205	4,871 661 108 6 160 0 936 2,615 949 1,410 913 113 6,000 9,993	714 117 7 173 0 1,010 2,821 1,024 1,521 985 122 6,473 10,781	766 125 7 185 0 1,084 3,027 1,099 1,632 1,057 131 6,946 11,568	818 134 8 198 0 1,158 3,233 1,174 1,743 1,129 140 7,420 12,356	815 133 8 197 0 1,153 3,220 1,169 1,736 1,125 140 7,391 12,308	811 133 8 196 0 1,148 3,206 1,164 1,728 1,120 139 7,358 12,253	807 132 8 195 0 1,142 3,188 1,158 1,719 1,114 138 7,316 12,184	802 131 8 194 0 1,135 3,169 1,151 1,708 1,107 137 7,272 12,111	797 131 8 193 0 1,128 3,150 1,144 1,698 1,100 137 7,229 12,039	793 130 7 192 0 1,122 3,133 1,138 1,689 1,094 136 7,190 11,974	788 129 7 191 0 1,116 3,115 1,131 1,679 1,088 135 7,148 11,905	784 128 7 190 0 1,109 3,097 1,125 1,670 1,082 134 7,107 11,836	779 128 7 189 0 1,103 3,080 1,118 1,660 1,076 134 7,067 11,770	774 127 7 188 0 1,096 3,061 1,112 1,650 1,069 133 7,025 11,699
Self Hay	Food Green Wood Paper Manure Total Food Green Wood Paper Manure Total Food Green	557 91 5 135 0 789 2,202 800 1,187 769 96 5,054 8,417 2,366	609 100 6 148 0 863 2,408 875 1,298 841 104 5,527 9,205 2,587	4,871 661 108 6 160 0 936 2,615 949 1,410 913 113 6,000 9,993 2,808	714 117 7 173 0 1,010 2,821 1,024 1,521 985 122 6,473 10,781 3,030	766 125 7 185 0 1,084 3,027 1,099 1,632 1,057 131 6,946 11,568 3,251	818 134 8 198 0 1,158 3,233 1,174 1,743 1,129 140 7,420 12,356 3,473	815 133 8 197 0 1,153 3,220 1,169 1,736 1,125 140 7,391 12,308 3,459	811 133 8 196 0 1,148 3,206 1,164 1,728 1,120 139 7,358 12,253 3,444	807 132 8 195 0 1,142 3,188 1,158 1,719 1,114 138 7,316 12,184 3,424	802 131 8 194 0 1,135 3,169 1,151 1,708 1,107 137 7,272 12,111 3,404	797 131 8 193 0 1,128 3,150 1,144 1,698 1,100 137 7,229 12,039 3,384	793 130 7 192 0 1,122 3,133 1,138 1,689 1,094 136 7,190 11,974 3,365	788 129 7 191 0 1,116 3,115 1,131 1,679 1,088 135 7,148 11,905 3,346	784 128 7 190 0 1,109 3,097 1,125 1,670 1,082 134 7,107 11,836 3,327	779 128 7 189 0 1,103 3,080 1,118 1,660 1,076 134 7,067 11,770 3,308	774 127 7 188 0 1,096 3,061 1,112 1,650 1,069 133 7,025 11,699 3,288
	Food Green Wood Paper Manure Total Food Green Wood Paper Manure Total Food Green Wood	557 91 5 135 0 789 2,202 800 1,187 769 96 5,054 8,417 2,366 2,942	609 100 6 148 0 863 2,408 875 1,298 841 104 5,527 9,205 2,587 3,218	4,871 661 108 6 160 0 936 2,615 949 1,410 913 113 6,000 9,993 2,808 3,493	714 117 7 173 0 1,010 2,821 1,024 1,521 985 122 6,473 10,781 3,030 3,769	766 125 7 185 0 1,084 3,027 1,099 1,632 1,057 131 6,946 11,568 3,251 4,044	818 134 8 198 0 1,158 3,233 1,174 1,743 1,129 140 7,420 12,356 3,473 4,319	815 133 8 197 0 1,153 3,220 1,169 1,736 1,125 140 7,391 12,308 3,459 4,303	811 133 8 196 0 1,148 3,206 1,164 1,728 1,120 139 7,358 12,253 3,444 4,283	807 132 8 195 0 1,142 3,188 1,158 1,719 1,114 138 7,316 12,184 3,424 4,259	802 131 8 194 0 1,135 3,169 1,151 1,708 1,107 137 7,272 12,111 3,404 4,233	797 131 8 193 0 1,128 3,150 1,144 1,698 1,100 137 7,229 12,039 3,384 4,209	793 130 7 192 0 1,122 3,133 1,138 1,689 1,094 136 7,190 11,974 3,365 4,186	788 129 7 191 0 1,116 3,115 1,131 1,679 1,088 135 7,148 11,905 3,346 4,162	784 128 7 190 0 1,109 3,097 1,125 1,670 1,082 134 7,107 11,836 3,327 4,138	779 128 7 189 0 1,103 3,080 1,118 1,660 1,076 134 7,067 11,770 3,308 4,114	774 127 7 188 0 1,096 3,061 1,112 1,650 1,069 133 7,025 11,699 3,288 4,090
Self Hay	Food Green Wood Paper Manure Total Food Green Wood Paper Manure Total	557 91 5 135 0 789 2,202 800 1,187 769 96 5,054 8,417 2,366 2,942 3,020	609 100 6 148 0 863 2,408 875 1,298 841 104 5,527 9,205 2,587 3,218 3,303	4,871 661 108 6 160 0 936 2,615 949 1,410 913 113 6,000 9,993 2,808 3,493 3,586	714 117 7 173 0 1,010 2,821 1,024 1,521 985 122 6,473 10,781 3,030 3,769 3,869	766 125 7 185 0 1,084 3,027 1,099 1,632 1,057 131 6,946 11,568 3,251 4,044 4,151	818 134 8 198 0 1,158 3,233 1,174 1,743 1,129 140 7,420 12,356 3,473 4,319 4,434	815 133 8 197 0 1,153 3,220 1,169 1,736 1,125 140 7,391 12,308 3,459 4,303 4,417	811 133 8 196 0 1,148 3,206 1,164 1,728 1,120 139 7,358 12,253 3,444 4,283 4,397	807 132 8 195 0 1,142 3,188 1,158 1,719 1,114 138 7,316 12,184 3,424 4,259 4,372	802 131 8 194 0 1,135 3,169 1,151 1,708 1,107 137 7,272 12,111 3,404 4,233 4,346	797 131 8 193 0 1,128 3,150 1,144 1,698 1,100 137 7,229 12,039 3,384 4,209 4,320	793 130 7 192 0 1,122 3,133 1,138 1,689 1,094 136 7,190 11,974 3,365 4,186 4,297	788 129 7 191 0 1,116 3,115 1,131 1,679 1,088 135 7,148 11,905 3,346 4,162 4,272	784 128 7 190 0 1,109 3,097 1,125 1,670 1,082 134 7,107 11,836 3,327 4,138 4,247	779 128 7 189 0 1,103 3,080 1,118 1,660 1,076 134 7,067 11,770 3,308 4,114 4,224	774 127 7 188 0 1,096 3,061 1,112 1,650 1,069 133 7,025 11,699 3,288 4,090 4,198
Seff Hay	Food Green Wood Paper Manure Total Food Green Wood Paper Manure Total Food Green Wood	557 91 5 135 0 789 2,202 800 1,187 769 96 5,054 8,417 2,366 2,942	609 100 6 148 0 863 2,408 875 1,298 841 104 5,527 9,205 2,587 3,218	4,871 661 108 6 160 0 936 2,615 949 1,410 913 113 6,000 9,993 2,808 3,493	714 117 7 173 0 1,010 2,821 1,024 1,521 985 122 6,473 10,781 3,030 3,769	766 125 7 185 0 1,084 3,027 1,099 1,632 1,057 131 6,946 11,568 3,251 4,044	818 134 8 198 0 1,158 3,233 1,174 1,743 1,129 140 7,420 12,356 3,473 4,319	815 133 8 197 0 1,153 3,220 1,169 1,736 1,125 140 7,391 12,308 3,459 4,303	811 133 8 196 0 1,148 3,206 1,164 1,728 1,120 139 7,358 12,253 3,444 4,283	807 132 8 195 0 1,142 3,188 1,158 1,719 1,114 138 7,316 12,184 3,424 4,259	802 131 8 194 0 1,135 3,169 1,151 1,708 1,107 137 7,272 12,111 3,404 4,233	797 131 8 193 0 1,128 3,150 1,144 1,698 1,100 137 7,229 12,039 3,384 4,209	793 130 7 192 0 1,122 3,133 1,138 1,689 1,094 136 7,190 11,974 3,365 4,186	788 129 7 191 0 1,116 3,115 1,131 1,679 1,088 135 7,148 11,905 3,346 4,162	784 128 7 190 0 1,109 3,097 1,125 1,670 1,082 134 7,107 11,836 3,327 4,138	779 128 7 189 0 1,103 3,080 1,118 1,660 1,076 134 7,067 11,770 3,308 4,114	774 127 7 188 0 1,096 3,061 1,112 1,650 1,069 133 7,025 11,699 3,288 4,090

								Greenhouse	Gas Impacts								
								МТ	CO ₂ e								
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	Food	2,415	2,641	2,867	3,094	3,320	3,546	3,532	3,516	3,496	3,475	3,455	3,436	3,416	3,396	3,377	3,357
S	Green	406	445	483	521	559	597	594	592	588	585	581	578	575	572	568	565
mm	Wood	304	333	361	390	418	447	445	443	441	438	435	433	431	428	426	423
Commercial	Paper	638	697	757	817	876	936	932	928	923	917	912	907	902	897	892	886
,	Manure	89	98	106	114	123	131	130	130	129	128	128	127	126	125	125	124
-	Total	3,853	4,214	4,574	4,935	5,296	5,656	5,634	5,609	5,577	5,544	5,511	5,481	5,450	5,418	5 <i>,</i> 388	5,356
	Food	1,488	1,628	1,767	1,906	2,046	2,185	2,176	2,167	2,154	2,141	2,129	2,117	2,105	2,093	2,081	2,069
Re	Green	346	378	410	443	475	507	505	503	500	497	494	492	489	486	483	480
SIde D.	Wood	63	69	75	81	87	93	92	92	91	91	90	90	89	89	88	88
Residential	Paper	442	483	524	566	607	648	646	643	639	635	632	628	625	621	618	614
	Manure	52	57	62	67	72	77	76	76	76	75	75	74	74	74	73	73
	Total	2,391	2,615	2,838	3,062	3,286	3,510	3,496	3,481	3,461	3,440	3,420	3,401	3,382	3,362	3,343	3,323
																	.
	Food	384	420	456	492	528	564	562	560	556	553	550	547	544	541	538	534
Multismily	Green	47	51	55	60	64	68	68	68	67	67	67	66	66	65	65	65
(if an	Wood	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
1112	Paper	69	75	82	88	95	101	101	100	100	99	98	98	97	97	96	96
	Manure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	501	548	595	642	688	735	733	729	725	721	717	713	709	704	700	696
		4 5 3 0	4.660	4.004	1.016	2 000	2.224	2 2 2 2	2.242	2 2 2 2	2.400	0.474	2.4.62	2.4.40	0.407	0.405	
	Food	1,520	1,662	1,804	1,946	2,089	2,231	2,222	2,212	2,200	2,186	2,174	2,162	2,149	2,137	2,125	2,112
SelfHauj	Green Wood	408 249	446 273	484 296	522 319	561 343	599 366	596 365	594 363	590 361	587 359	583 357	580 355	577 353	574 351	570 349	567 347
Hau		392	429	466	502	539	576	574	571	568	564	561	558	555	552	549	545
~	Paper Manure	49	53	58	62	67	72	71	71	71	70	70	69	69	68	68	68
	Total	2,618	2,863	3,108	3,353	3,598	3,843	3,828	3,811	3,789	3,767	3,744	3,724	3,703	3,681	3,661	3,639
	TULAI	2,010	2,805	5,108	3,333	3,390	3,043	3,020	3,011	3,703	5,707	3,744	3,724	5,705	5,001	5,001	3,039
	Food	5,808	6,351	6,895	7,439	7,982	8,526	8,493	8,455	8,407	8,356	8,307	8,262	8,214	8,167	8,121	8,073
	Green	1,206	1,319	1,432	1,545	1,658	1,771	1,764	1,756	1,746	1,736	1,726	1,716	1,706	1,697	1,687	1,677
rotal.	Wood	618	676	734	791	849	907	904	900	894	889	884	879	874	869	864	859
·9/	Paper	1,540	1,685	1,829	1,973	2,117	2,261	2,253	2,243	2,230	2,216	2,203	2,191	2,179	2,166	2,154	2,141
	Manure	190	208	226	244	261	279	278	277	275	274	272	271	269	267	266	264
	Total	9,363	10,239	11,115	11,992	12,868	13,745	13,691	13,630	13,553	13,471	13,392	13,319	13,242	13,166	13,092	13,014

Factors (MTCO₂e/ton)

Food	0.69	CARB - Food Composting - Including Avoided Landfill
Green	0.51	CARB - Green Composting
Wood	0.21	WARM - Combustion - Including Avoided Landfill
Paper	0.51	CARB - Green Composting - Including Avoided Landfill
Manure	0.51	CARB - Green Composting - Including Avoided Landfill