

MARIN COUNTY HAZARDOUS & SOLID WASTE MANAGEMENT
JOINT POWERS AUTHORITY (aka ZERO WASTE MARIN)

Board of Directors Meeting
Thursday, February 16, 2023, 9:00 am – 10:00 am

In-Person: 922 Machin Avenue, Womack Conferencie Room, 2nd Floor, Novato
Online: Participation Instructions - Next Page

AGENDA

Call to Order

1. Open Time for Public Comment (Information Only) 5 Minutes.

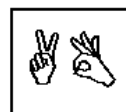
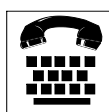
Consent Calendar 2 Minutes

2. Approve JPA Board Meeting Minutes from November 17, 2022 (Action).
3. Resolution No. 2022-01 AB 361 Regarding Virtual Meetings (Action).

Regular Agenda

4. Introduction of the new Executive Director (Information Only) 10 Minutes.
5. Updates from Interim Director (Information Only) 10 Minutes.
6. Update from Marin Biomass Group Liaison (Information Only) 10 Minutes.
7. Elect Board Chair and Vice Chair (Action) 5 Minutes.
8. Elect Southern Marin Cities & Ross Valley Cities Reps. to the Executive Committee (Action) 5 Minutes.
9. Appoint Budget Subcommittee Members and Approve a FY 23-24 Budget Development Process and Schedule (Action) 5 Minutes.
10. Adjournment

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All public meetings and events sponsored or conducted by the County of Marin are held in accessible sites. Requests for accommodations may be requested by calling (415) 473-4381 (voice) (415) 473-3232 (TTY) at least **four work days** in advance of the event. Copies of documents are available in alternative formats, upon written request.

Contact the County's Waste Management Division, at (415) 473-6530 for more information

Special Instructions on Public Participation

The public can participate in this Marin County Hazardous and Solid Waste Joint Powers Authority (Zero Waste Marin) Board Meeting via a Zoom webinar on February 16, 2023, from 9:00 am – 10:00 am.

Zoom Meeting:

Please click the link below to join the webinar:

**Thursday, February 16, 2023
9:00 A.M. – 10:00 A.M. Hybrid Format**

Virtual:

<https://us06web.zoom.us/j/87283048549?pwd=TXV3RENIQVF0R2VLYkNJUnFhL2E5Zz09>

Or One tap mobile:

+16694449171,,87283048549#,,,,*922410# US
+12532158782,,87283048549#,,,,*922410# US (Tacoma)

Or Telephone:

Dial (for higher quality, dial a number based on your current location):

+1 669 444 9171 US, +1 253 215 8782 US (Tacoma), +1 346 248 7799 US (Houston)
+1 719 359 4580 US, +1 720 707 2699 US (Denver), +1 253 205 0468 US
+1 564 217 2000 US, +1 646 558 8656 US (New York), +1 646 931 3860 US
+1 689 278 1000 US, +1 301 715 8592 US (Washington DC), +1 305 224 1968 US
+1 309 205 3325 US, +1 312 626 6799 US (Chicago), +1 360 209 5623 US
+1 386 347 5053 US, +1 507 473 4847 US

Webinar ID: 872 8304 8549

Passcode: 922410

International numbers available: <https://us06web.zoom.us/j/87283048549?pwd=TXV3RENIQVF0R2VLYkNJUnFhL2E5Zz09>

During the Meeting, select the Raise Hand icon during the public comment time, and you will be added to the queue and unmuted when it is your turn.

*If you are "Calling In," press *9 during the public comment time, and you will be added to the queue and unmuted when it is your turn. (Press *67 before dialing if you want to hide your phone number.)*

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

Date: February 16, 2023

Belvedere

To: JPA Board of Directors

Corte Madera

From: Berenice Davidson, Interim Executive Director

County of Marin

Re: Open Time for Public Comment

Fairfax

The public is welcome to address the Board of Directors on matters not on the agenda within its jurisdiction. Please be advised that pursuant to Government Code Section 54954.2, the Board is not permitted to discuss or act on any matter not on the agenda unless it determines that an emergency exists or that there is a need to take immediate action which arose following the posting of the agenda.

Larkspur

Mill Valley

Recommendation

Novato

Receive public comment. Information Only.

Ross

San Anselmo

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San Rafael

Sausalito

Tiburon

**MARIN COUNTY HAZARDOUS & SOLID WASTE
MANAGEMENT JOINT POWERS AUTHORITY**
(aka ZERO WASTE MARIN)

Board of Directors Meeting
Thursday, November 17, 2022
Meeting Online Only via Zoom
9:00 am – 9:45 am

MEMBERS PRESENT

Adam Wolff, Corte Madera
Heather Abrams, Fairfax
Dan Schwarz, Larkspur
Todd Cusimano, Mill Valley
Adam McGill, Novato
David Donery, San Anselmo
Cristine Alilovich, San Rafael (Alt.)
Chris Zapata, Sausalito

Berenice Davidson - Interim Executive
Director
Casey Poldino – Program Manager
Amy Kolnes – Senior Planner

OTHERS PRESENT

Vicki Nichols
Justin Wilcock
Ramin Khany
Amber Driscoll

MEMBERS ABSENT

Robert Zadnik, Belvedere
Matthew Hymel, County of Marin
Dan Eilerman, County of Marin (Alt.)
Christa Johnson, Ross
Greg Chanis, (Chair) Tiburon

STAFF PRESENT

1. Open Time for Public Comment
No public comments were tendered.

Consent Calendar

2. Approval of the JPA Board Meeting Minutes from October 22, 2022
Motion: by roll call vote to approve the JPA Board Meeting Minutes from October 22, 2022.
3. Resolution No. 2022-01 Making Findings and Determinations Under AB 361 Regarding Virtual Meetings (Action)
David Donery called for public comments and asked if any of those present would like to pull an item off the Consent Calendar for discussion. No comments or questions from the public or from those present were tendered. Donery called for a motion to approve the Consent Calendar. Motion by Todd Cusimano, Second by Dan Schwarz. Vote: Unanimous.

Regular Agenda

4. Update from Subcommittee on Executive Director Recruitment and Interview Panel Request

David Donery stated that the Subcommittee recently met to discuss the recruitment process for the next Executive Director and iterated that the action was to appoint two members from the JPA Board to sit on the interview panel. Berenice Davidson gave the recruitment update stating that interviews were slated for Monday, December 5, 2022. Christine Alilovich and Heather Abrams both volunteered to participate on the interview panel.

Todd Cusimano motioned that Christine Alilovich and Heather Abrams represent the Board on the interview panel. Dan Schwarz seconded the motion. A roll call vote was taken. The vote was unanimous.

5. Update on SB 1383 Membership Support Contract with R3 and Subcommittee Request

Berenice Davidson reported that the County of Marin was in the process of entering into a contract with R3 Consulting Group, Inc. (R3) for SB 1383 Membership Support. Staff was looking to the Board for recommendations for Subcommittee members on this project. Board discussed the possibility of including Jurisdiction Staff as part of the Subcommittee.

Heather Abrams motioned to keep the Subcommittee as it is and add the Staff from San Rafael, Fairfax, and San Anselmo as Technical Advisors. Todd Cusimano seconded. The vote is unanimous.

6. Update on engagement with Placeworks

Casey Poldino provided an update on the engagement with PlaceWorks, an Arc GIS based dashboard that provides jurisdictions the ability to understand their capacity and potential utilization of compost and mulch as a means to meet their procurement requirements associated with SB 1383. Poldino indicated that the price recently dropped a few thousand dollars as reflected in the revised scope of work that was pending finalization.

7. Set a schedule for 2023 Board of Directors Meetings

Casey Poldino recommended to the Board to hold Zero Waste Marin JPA meetings from 9 a.m. to 10 a.m. on the same days of the MMA monthly meetings. A schedule was suggested for January 2023 – May 2023.

Christine Alilovich expressed concerns regarding losing qualified Executive Director candidates due to holidays. Dan Schwarz suggested the possibility of a special meeting, if found necessary.

Adam Wolff motioned to approve the January-May 2023 JPA Board meeting schedule. Todd Cusimano seconded. The vote was unanimous. Dan Donery concluded the agenda.

Donery asked if there were any questions, none were tendered.

8. Adjournment

The next JPA Board Meeting was scheduled for January 19, 2023 at 9:00 a.m.

Board Chair: Please confirm the vote on this item by reading the following items out loud after the vote.

Motion: _____ Second: _____

Ayes _____

Noes: None _____

Abstentions: None _____

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

Belvedere

Date: February 16, 2023

Corte Madera

To: JPA Board of Directors

County of Marin

From: Staff

Fairfax

Re: Proposed Resolution No. 2022-01 Making Findings and
Determinations Under AB 361 Regarding Virtual Meetings

Larkspur

Executive Order N-29-20 suspends specific provisions of the Ralph M. Brown Act to allow local legislative bodies to conduct their meetings completely telephonically or by electronic means, including suspending requirements set forth in the Brown Act for teleconferencing contained in Government Code Section 54953(b)(3). This can allow meetings to be conducted via Zoom with Board members, staff, and the public, all joining from remote locations.

Mill Valley

Novato

Ross

The Governor extended the suspension of specific provisions of the Brown Act on June 11, 2021, by issuing Executive Order N-08-21, which continued to allow for complete virtual meetings until September 30, 2021.

San Anselmo

San Rafael

On September 16, 2021, the Governor signed AB 361, which allows legislative bodies to meet virtually provided the Governor declares a state of emergency, and either (1) state or local officials have imposed or recommended measures to promote social distancing; or (2) the legislative body determines by majority vote that it would present imminent risks to the health and safety of attendees. As a result, if the Authority desires to have virtual meetings in the future, it must do so consistent with AB 361.

Sausalito

Tiburon

AB 361 preserves many of the provisions of the earlier executive orders while also adding new requirements to the management of remote and teleconference public meetings to achieve better the levels of transparency that the Brown Act demands. Specifically, AB 361 imposes two new rules on remote public meetings:

1. Local governments and agencies hosting teleconference meetings in place of traditional in-person public meetings must permit direct public comment during the teleconference. They must leave open the opportunity for public comment until the comment period for a given item is closed during the ordinary course of the meeting. The opportunity to make public comments must be of sufficient duration to allow actual public participation. This agency already complies with this requirement, so it presents no change to our current practice.
2. Any action by the governing body during a public teleconference meeting must occur while the agency is actively and successfully broadcasting to members of the public through a call-in option or an internet-based service option. If a technical disruption within the agency's control prevents members of the public from either viewing the meeting of the public agency or prevents members of the public from offering public comment, the agency must cease all activity on the meeting agenda until the disruption ends and the broadcast is restored. Action taken during an agency-caused disruption may be challenged as a violation of the Brown Act.

To continue to qualify for AB 361's waiver of in-person meeting requirements, the Board must make findings that (a) state or local officials recommend measures to promote social distancing or that (b) an in-person meeting would constitute an imminent risk to the safety of attendees. State officials at Cal-OSHA have recommended measures to promote social distancing throughout the state through the adoption of certain regulations.

The attached proposed Resolution makes the necessary findings for the Board, which is subject to the Brown Act, to conduct virtual meetings for the time being. As the Board meets somewhat irregularly, it will need to adopt a similar resolution at each meeting if it desires to continue to have the flexibility to conduct virtual/hybrid meetings. Staff will return to the Board with a resolution every meeting to allow for the continuance of virtual meetings for so long as the Board and staff believe that virtual meetings are necessary.

It is important to note that AB 361 does not require the Authority to continue with virtual meetings but simply gives the Board that option. If at any time the Board desires to return to in-person meetings, the Board can agencies that topic for discussion and direct staff to initiate the transition back to in-person or hybrid arrangements. However, at this time, Board staff is recommending adopting the resolution to allow the Board to continue meetings to be held remotely to ensure social distancing consistent with the recommendations of state and local officials.

RECOMMENDATION

Adopt a Motion adopting Resolution No. 2022-01, making findings and determinations under AB 361 for the conduct of virtual meetings.

Attachment:
1. Proposed Resolution No. 2022-01

Motion: _____ Second: _____

Ayes: _____

Noes: _____

Abstentions: _____

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RESOLUTION # 2022-01

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE MARIN COUNTY HAZARDOUS AND SOLID WASTE MANAGEMENT JOINT POWERS AUTHORITY MAKING FINDINGS THAT THE PROCLAIMED STATE OF EMERGENCY CONTINUES TO IMPACT THE ABILITY TO MEET SAFELY IN PERSON AND DECLARING THAT THE BOARD OF DIRECTORS WILL CONTINUE TO MEET REMOTELY IN ORDER TO ENSURE THE HEALTH AND SAFETY OF THE PUBLIC

WHEREAS, the Marin County Hazardous and Solid Waste Management Joint Powers Authority (the "Authority") is committed to preserving and nurturing public access and participation in meetings of the Board of Directors, its Executive Committee and Local Task Force; and

WHEREAS, all meetings of the Authority's legislative bodies are open and public, as required by the Ralph M. Brown Act (Cal. Gov. Code 54950 – 54963), so that any member of the public may attend, participate, and watch the Authority's legislative bodies conduct their business; and

WHEREAS, the Brown Act, Government Code section 54953(e), makes provisions for remote teleconferencing participation in meetings by members of a legislative body, without compliance with the requirements of Government Code section 54953(b)(3), subject to the existence of certain conditions; and

WHEREAS, on March 4, 2020, Governor Newsom declared a State of Emergency to make additional resources available, formalize emergency actions already underway across multiple state agencies and departments, and help the State prepare for a broader spread of COVID-19; and

WHEREAS, on March 17, 2020, in response to the COVID-19 pandemic, Governor Newsom issued Executive Order N-29-20, which suspended certain provisions of the Ralph M. Brown Act in order to allow local legislative bodies to conduct meetings electronically without a physical meeting place; and

WHEREAS, as a result of Executive Order N-29-20, staff set up Zoom teleconference meetings for all Authority meetings; and

WHEREAS, on June 11, 2021, Governor Newsom issued Executive Order N-08-21, which specified that Executive Order N-29-20 would remain in effect through September 30, 2021, at which point it would expire; and

WHEREAS, on September 16, 2021, the Governor signed Assembly Bill 361 into law, as urgency legislation that goes into effect on October 1, 2021, amending Government Code

Section 54953 of the Brown Act to allow legislative bodies to continue to meet remotely during a proclaimed state of emergency, provided certain conditions are met and certain findings are made; and

WHEREAS, the continued local rates of transmission of the virus and variants causing COVID-19 are such that the Director of Health & Human Services has recommended that the County continue to emphasize social distancing in order to minimize the potential spread of COVID-19 during indoor, public meetings.

WHEREAS, the Authority cannot maintain adequate safe social distance between members of the public, Board members and staff in their respective meeting locations; and

WHEREAS, because of the continuing threat of COVID-19 to the community, the Authority is concerned about the health and safety of attendees, the Authority's Board of Directors desires to take the actions necessary to comply with AB 361 and to continue to hold its Board and committee meetings remotely.

NOW, THEREFORE, THE MARIN COUNTY HAZARDOUS AND SOLID WASTE MANAGEMENT JOINT POWERS AUTHORITY BOARD OF DIRECTORS RESOLVES AS FOLLOWS:

1. The Board has reconsidered the circumstances of the State of Emergency, and finds that:
 - a. The factors triggering the State of Emergency continue to directly impact the ability of the members of the Board of Directors and staff, and members of the public to meet safely in person; and
 - b. State and local officials continue to recommend measures to promote social distancing.
2. Authority Board of Directors meetings will continue to be conducted remotely for the next 30 days in compliance with AB 361 and Government Code Section 54953(e)(2), in order to ensure the health and safety of the public while providing access to public meetings.
3. The Board of Directors will reconsider the circumstances of the State of Emergency and revisit the need to conduct meetings remotely within 30 days of the adoption of this Resolution.

REGULARLY PASSED AND ADOPTED this 16th day of February 2023.

AYES: _____

NOES: _____

ABSENT: _____

Chair: Greg Chanis

Attest by : _____

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

Belvedere

Corte Madera

Date: February 16, 2023

County of Marin

To: JPA Board of Directors

Fairfax

From: Berenice Davidson, Interim Executive Director

Larkspur

Re: Introduce New Executive Director

Mill Valley

Welcome Kim Scheibly as your new Executive Director. Kim has worked in the Solid Waste industry for 13 years, most recently as the Franchise Contracts & Customer Relations Director for Upper Valley Disposal. Prior to her work there, she worked in Marin with Marin Sanitary Service as their Director of Contract Compliance & Customer Service and also served as their Communications Manager.

Novato

Ross

She has worked with processors, composters and buyers, and has collaborated with various haulers, elected officials, and municipal staff and partners throughout Marin County. She has also participated in public hearings regarding SB 1383 and was part of a team selected to work directly with CalRecycle on the conception all the way through the release of the formal regulations.

San Anselmo

San Rafael

Sausalito

Her knowledge of the industry specific to Marin and vast knowledge of SB 1383 made her the ideal choice as our new Executive Director.

Tiburon

Attachment:

1. Kim Scheibly Cover Letter
2. Kim Scheibly Cover Resume

Recommendation

Receive report. Information only.

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Dear Hiring Manager,

I am very excited to apply for the position of Executive Director of Zero Waste Marin. My past work history is diverse and the skills I have acquired have allowed me to directly affect change in a variety of populations and settings.

In 2010, I volunteered to start a green team at my son's elementary school, and immediately realized how many different groups there were in Marin with overlapping goals but with no coordination of efforts. This led me to my second career. Since then, I have demonstrated not only competence but leadership in the waste management field, and have made a measurable impact on local environmental policies, programs and diversion strategies. In my various positions over the past 12 years, I have worked with customer service and billing, crafted education materials and outreach programs and built websites. I started the food to energy program, a collaboration with Marin Sanitary Service and Central Marin Sanitation Agency. I created and managed the hiring process for a new HHW Program Coordinator position and rebranded the program. I have written contracts, attended city council meetings to discuss them, and helped staff and haulers meet their deliverables. I have designed the metrics and reporting necessary to meet franchise contract obligations as well as regulatory standards for AB 341, AB 1826 and SB 1383. I have worked with processors, composters, and the people who buy recycled materials, and built relationships with various haulers, elected officials and municipal staff, and partners throughout the County including Zero Waste Marin. In short, I have tried to learn every step of the processes entailed in managing waste and how best to keep communities invested as partners in the process.

I am passionate about all aspects of franchise contracts, policy, and regulatory/legislative processes. I actively participated in public hearings on AB 341, AB 1826 and SB 1383 before they became law by speaking at public meetings in Sacramento. With SB 1383, I have had the unique experience of being part of a team selected to give direct feedback to CalRecycle from conception in early 2015 to release of the formal regulations in 2021. I am perfectly poised to lead the implementation of this law as well as the many other regulatory and legislative challenges that our future holds.

As a Clinical Nurse Specialist, I worked collaboratively and independently to provide evidence based, safe, and comprehensive patient care. My nursing career laid the foundation for my future success in the waste industry. Whether advocating for climate change policy, collaborating with industry experts, developing strategic programs, or tracking and analyzing key operational indicators, the result of the process is the same—the satisfaction of doing something meaningful and of being a part of a team dedicated to creating long term meaningful solutions for my community. If selected for this position, I will bring strengths I have acquired throughout my career—primarily the creativity and motivation of a self-starter with the ability to bring groups together to solve challenges. I am a collaborator and networker who can convene, listen, facilitate and gain consensus. I can lead with confidence, humility, and purpose and create a work climate that celebrates teamwork, diversity, and inclusivity. I look forward to speaking with you further about this position and the skills I could bring to Zero Waste Marin.

Sincerely,

A handwritten signature in black ink that reads "Kimberly Scheibly". The signature is written in a cursive, flowing style.

Kimberly Scheibly

Strategic Management | Leadership | Program Management | Sustainable Practices

With over 25 years of leadership and management experience, I am a passionate and dedicated professional well versed in contract management and negotiations, public relations, project management, and staff development. My skills, education and experience have allowed me to successfully transition from a nationally known expert in arrhythmia and cardiac devices to a sought-after professional in the waste industry. Through strategic goal setting, strong analytical skills, and attention to detail, I have been able to design and implement successful programs and projects while adhering to a budget to deliver high quality work products. Whether working in advanced practice nursing or waste management, the key strength that I bring is my ability to draw diverse groups together to create a high-performance work culture by providing strong direction and oversight.

SKILLS AND AREAS OF EXPERTISE

- Contract negotiations
- Project Management and administration
- Budget Development and oversight
- Proven ability to build, grow and foster a team
- Contract, facility permits and waste industry regulatory compliance
- Public and customer relations
- 10+ years communications strategy knowledge
- 15+ years strategic program development
- 20+ years leadership & managerial practice
- Background in grant writing & research protocol development, data analysis
- Public speaking and publication in professional journals

PROFESSIONAL EXPERIENCE

Upper Valley Disposal & Recycling/ South Lake Refuse & Recycling

Feb. 2022 - Present

Franchise Contracts & Customer Relations, Director

- Oversee operation of Customer Relations' Call Center, Outreach Team, and Accounts Receivable Staff.
- Established internal quality control metrics & monitoring procedures to ensure the company fulfills all obligations and conditions of contracts and state & local laws.
- Developed reporting structure for franchise contract compliance, hauler compliance with AB 341, AB 1826, and SB 1383, and SB 1383 compliance for route reviews and organics sampling protocols.
- Developed and implement policies, standards, performance criteria and metrics driven solutions.
- Create a customer centered culture focused on meeting and exceeding standards and productivity.
- Work with COO to develop and implement an annual Public Outreach & Education Plan.

Private Consultant, Waste Industry

Feb. 2020 - March 2022

- Program Development
- Public Education & Outreach Strategies
- Communications & Marketing Strategies
- Website and Outreach Material Development
- Systems Set-up for Reporting Compliance
- Operations Assessments & Improvement Plans
- SB 1383 Implementation Assessments & Plans

Marin Sanitary Service

May 2015 - February 2020

Director of Contract Compliance & Customer Relations

Promoted to oversee the Customer Relations Call Center and Outreach Team of 16 full-time employees, as well as compliance with departmental policies and procedures, franchise agreements, ordinances, State and Federal regulatory requirements.

- Developed training programs for staff members focused on contract compliance and technical comprehension of industry best practices.
- Created a customer centered culture focused on meeting and exceeding company goals.
- Prepared proposals, negotiated contracts and ensured that the company fulfilled all obligations and conditions of franchise contracts, permits, local and state mandates.
- Developed, implemented and monitored policies, standards, performance criteria and metrics to continuously improve productivity, service quality and employee retention.
- Researched trends in waste management and developed comprehensive outreach and education strategies for residential, commercial and multifamily customers.
- Effectively collaborated with the General Manager to develop, coordinate and support long term planning implementation of diversion program strategies, while interfacing with internal/external stakeholders.
- Served as primary contact for city/town staff on issues of contract and regulatory compliance.
- Served as company representative on various committees and non-profit boards for the County of Marin and the cities and towns in MSS jurisdiction.
- Supported the President at city, town, county and local community meetings by creating visual presentations and drafting speeches.
- Prepared monthly, quarterly and annual reports, and assisted with the overall analysis of program metrics to better understand performance, including the preparation of internal reports on service and budgetary metrics.
- Wrote and presented annual reports for jurisdictions to show compliance with Franchise contracts including compliance with AB 341 and AB 1826,

Marin Sanitary Service

April 2013 - May 2015

Municipal Contracts & Communications Manager

Responsible for ensuring compliance with municipal contracts and facilities permits; and for the auditing, monitoring and drafting of contract amendments and/or changes.

- Collaborated with Executive Board to ensure internal compliance with municipal franchise contracts and ordinances as well as State and Federal laws and regulations regarding solid waste management and greenhouse gas emission reductions.
- Developed, implemented and monitored diversion programs including the commercial Food-to-Energy (F2E), Enhanced Commercial Recycling, and the Household Hazardous Waste Curbside Collection programs.
- Lead effort to design, implement, and evaluate integrated marketing/communications and outreach strategies.
- Directly supervised five outreach coordinators to ensure compliance with program and service obligations.

Marin Sanitary Service

February 2011 - April 2013

Outreach & Education Coordinator

Worked as the lead communications strategy developer for the commercial and residential services areas and served as the primary support for the customer service representatives.

- Built upon existing outreach media (print, web) and developed new medias (email communications, customized e-newsletters, on-line tools).
- Created Website and on-line Toolkits for Schools, Apartments, and Businesses to help them prepare for State and local diversion mandates. Wrote GHG greenhouse gas (GHG) emissions and Sustainability reports for compliance with local, state and federal mandates.
- Developed internal tracking and external reporting systems for compliance with AB 341.
- Direct supervision of Education Coordinator, and Household Hazardous Waste Coordinator.
- Gathered research and scientific information on best practices to ensure success of recycling programs and to support reports of GHG emissions and other sustainability issues.
- Drafted outreach materials including educational brochures, flyers, newsletters and company signage
- Worked closely with the Commercial Recycling Team, Education Coordinator, Household Hazardous Waste (HHW) Specialist and local area schools, apartments, homes and businesses to prepare them for the mandatory waste management ordinances.

Strategic Energy Innovations

June 2010 - May 2011

Program Coordinator

Developed energy auditing tools/training programs for K-5 and climate change educational plans for K-8 grade students.

- Helped grow a model for sustainable green teams for the Palo Alto Unified School District (USD)
- Implemented waste diversion strategies in conjunction with Green Waste, Inc. resulting in ~ \$200K in overall savings for the district.
- Co-produced the "Strive for 85%" waste diversion campaign at 11 San Francisco area schools.
- Provided hands-on training consultation services on the necessity of recycling, composting and building successful green teams.

Marin School of Environmental Leadership

June 2010 - June 2011

Deputy Director of Environmental Leadership

Worked with the Executive Director to create and set the overall strategic, operational, budget and fundraising goals for a new magnet program at Terra Linda High School called *The Sel*.

- Assisted with the development of the program's overall regulatory documents, which included the magnet's vision, mission and values, overall program structure, curriculum plan, student admission process and fundraising campaigns.
- Chaired the Communications Committee and lead the development of the program's website, e-newsletters, brochures and contact relation management system.

EDUCATION & CREDENTIALS

Certificate in Mgmt. & Leadership - California Refuse & Recycling Council

Certificate in Leadership - San Rafael Chamber of Commerce

Certificate in Sustainable Practices - Dominican University

Certificate in Zero Waste - California Resource Recovery Association

Master of Science in Nursing Critical Care Trauma CNS Program - Univ. of CA, SF

Bachelors of Science in Nursing - University of San Francisco

Bachelors of Science in Human Development - University of California Davis

PAST AND CURRENT BOARDS & COMMUNITY INVOLVEMENT

- Resilient Neighborhoods, Board of Directors (Current)
- California Organics recycling Council, Chair (Current)
- Local Task Force Organics Sub-Committee Chair
- Strategic Energy Innovations: Board Member
- Marin Builders Association: Treasurer of Executive Board
- Community Media Center of Marin: Board Member
- Sustainable San Rafael, Sustainable Fairfax, San Anselmo Quality of Life Commission
- San Rafael Climate Change Action Committee
- Miller Creek School District Green Team Chair
- Marin Academy Green Team Advisor

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

Belvedere

Date: February 16, 2023

Corte Madera

County of Marin

To: JPA Board of Directors

Fairfax

Re: Updates from Interim Director on Recent and Ongoing Activities

Larkspur

Provide an update on recent and ongoing activities.

Mill Valley

Novato

RECCOMENDATION

Receive oral report. Information Only

Ross

San Anselmo

San Rafael

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Sausalito

Tiburon

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

Belvedere

Date: February 16, 2023

Corte Madera

To: JPA Board Members

County of Marin

From: Andrew Shelton, Waste Management Specialist

Fairfax

Re: Marin Biomass Project

Larkspur

The Marin Biomass Project was developed to explore sustainable uses of biomass feedstocks being generated in Marin County.

Mill Valley

The Project addresses increasing flows of biomass materials generated by wildfire prevention activities and by landfill diversion efforts in the County overseen, respectively, by the [Marin Wildfire Prevention Authority \(MWPA\)](#) and by [Zero Waste Marin \(ZWM\)](#).

Novato

Ross

These materials include woody biomass generated by woodland thinning and landscape trimmings to source-separated and mixed organic streams generated by the collection of metropolitan wood debris, food scraps, yard materials, and agricultural biomass. Strategic coordination and capital investment are needed to turn these materials into ecologically sound, value-added products that could lead to economic opportunities in the County.

San Anselmo

San Rafael

Sausalito

The Project will ensure that biomass utilization pathways support wildfire prevention and landfill diversion, while also reducing greenhouse gas (GHG) emissions.

Tiburon

The Project has been developed to be collaborative and to foster cooperation among stakeholders in biomass utilization, particularly the public authorities who oversee and the private organizations that manage biomass management infrastructure and processes. Development of a forum, called the “Marin Biomass Collaborative,” is already underway and is intended to support rapid implementation of recommendations developed during the Study.

The Marin Biomass Project is one of five pilot projects selected in 2021 by the Governor’s Office of Planning and Research (OPR) and awarded a \$500,000 grant to identify solutions that overcome barriers to biomass feedstock utilization.

MARIN COUNTY HAZARDOUS AND SOLID WASTE MANAGEMENT JOINT POWERS AUTHORITY

During this reporting period the Marin Biomass Project contracted with a consulting team to carry out our countywide Biomass Utilization Study (Study) and integrated Greenhouse Gas Assessment. In addition, the first phase of this six-part Study was completed, which is the biomass feedstock confirmation.

Milestones:

- Successful hiring and onboarding of a Project Manager
- Successful hiring and onboarding of a Biomass Utilization Study Consultant
- Completed Part A of Biomass Utilization Study
- Held First meeting of Marin Biomass Collaborative

RECCOMENDATION

Receive oral report. Information Only.

BIOMASS FEEDSTOCK SUPPLY AVAILABILITY CONFIRMATION FOR MARIN COUNTY

Prepared for:



Prepared by:



and



January 10, 2023
Draft Final Report

TABLE OF CONTENTS

ACKNOWLEDGMENTS.....	5
INTRODUCTION.....	6
INVESTIGATION OBJECTIVES	6
Scope of Work.....	6
Outline of Tasks	6
FEEDSTOCK STUDY AREA	8
Vegetation Cover	9
Vegetation and Land Cover.....	9
Commercial Agriculture Crops	12
Urban Land Cover	15
Forest and Woodland	15
Land Ownership.....	15
BIOMASS MATERIAL	18
Forest and Woodland Biomass.....	18
Historic Fuels Reduction Activities	18
Planned Fuels Reduction Activities	18
Marin Wildfire Prevention Authority.....	19
Marin County Parks and Open Space	22
Marin Water	22
National Park Service.....	23
State Parks and Recreation.....	24
Pacific Gas and Electric	24
Fuels Reduction Residuals Forecast.....	25
Recent Fuels Reduction Projects.....	25
MWPA Greater Ross Valley Shaded Fuel Break.....	25
Marin Water District	28
Forest Biomass Material Processing and Transport.....	30
Forest Biomass Collection, Processing and Transport Costs.....	31
Summary of Forest and Woodland Biomass Supply Availability	32
Agricultural Biomass	33

Urban Biomass	33
Organic Waste Collection	34
Primary Waste Receiving Facilities in Marin County	35
Other Facilities Receiving Woody Biomass	39
Food Waste.....	40
Construction and Demolition Wood	40
Biosolids.....	40
Landfill Disposal	41
Summary of Urban Biomass Produced Within Marin County	41
BIOMASS FEEDSTOCK CHARACTERIZATION	41
Physical Properties	42
Enterprises Managing Biomass Feedstocks and Organics.....	42
Fuels Treatment Contractors	42
Wood Waste Receiving Yards	43
Contract Waste Haulers.....	43
Compost Operations.....	43
CURRENT BIOMASS FEEDSTOCK UTILIZATION	43
Biomass Power Plants	43
Compost Production.....	45
Anaerobic Digestion.....	45
BIOMASS FEEDSTOCK SUPPLY AVAILABILITY FORECAST	45
Five-Year Forecast	45
Ten-Year Forecast	46
Seasonal Availability of Feedstocks	47
OBSERVATIONS	47
Potential Biomass Utilization Facilities	47
Dynamic Marketplace	48
Potential Biomass Processing Operations	48
Forest and Woodland Biomass Removal Infrastructure	48
Green Waste Processing.....	48
Community Outreach	49

List of Tables

Table 1. Vegetation and Land Cover Acreage Within Marin County	11
Table 2. Commercial Crops Within Marin County	14
Table 3. Forest and Woodland Acreage by Ownership	17
Table 4. Historic Fuels Reduction Activities 2018-2022	18
Table 5. Estimated Fuels Reduction Activities 2023-2027	19
Table 6. Potentially Available Forest and Woodland Biomass Supply Forecast 2023-2027	32
Table 7. Practically Available Forest and Woodland Biomass Supply Forecast 2023-2027	33
Table 8. Urban Biomass Produced Within Marin County	41
Table 9. Physical Properties of Selected Feedstocks	42
Table 10. Biomass Power Generation Facilities Currently Sourcing Biomass Feedstock	44
Table 11. Compost Facilities Receiving Green Waste	45
Table 12. Biomass Feedstock Supply Availability Trends 2023 to 2027	46
Table 13. Biomass Feedstock Supply Availability Trends 2023 to 2032	46
Table 14. Seasonal Availability of Feedstocks	47

List of Figures

Figure 1. Feedstock Study Area	9
Figure 2. Vegetation and Land Cover Types Within Marin County	10
Figure 3. Vegetation and Land Cover Distribution Within Marin County Graphic	11
Figure 4. Commercial Crops Within Marin County	13
Figure 5. Commercial Crops in Marin County Distribution	14
Figure 6. Land Ownership Within Marin County	16
Figure 7. Forest and Woodland Acreage Within Marin County Distribution	17
Figure 8. Planned Shaded Fuel Breaks Sponsored by Marin Wildfire Prevention Authority	21
Figure 9. Pre-Treatment Image – Terra Linda/Sleepy Hollow	27
Figure 10. Post-Treatment Image – Terra Linda/Sleepy Hollow	27
Figure 11. Pre-Treatment and Post-Treatment Images – Baywood Canyon, Fairfax	28
Figure 12. Post-treatment Image – Marin Water	29
Figure 13. Post-treatment Image – Marin Water	29
Figure 14. Post-treatment Image – Marin Water	30
Figure 15. Box Truck Used for Chip Transport	31
Figure 16. Biomass Power Facility Locations	44

List of Appendices

Appendix A. Marin County Parks and Open Space Fuel Reduction Prescription

ACKNOWLEDGMENTS

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- Chad White, PhD, Project Manager, Marin Resource Conservation District
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- Anne Crealock, Planning and Program Manager, Marin Wildfire Prevention Authority
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- Ramin Khany, District Manager, Waste Management, Redwood Landfill
- Dave Baggio, Principal, Mill Valley Refuse
- Deborah Williams, Recology Sonoma Marin
- Nikki Burke, Recology Sonoma Marin
- Nancy Scolari, Executive Director, Marin Resource Conservation District
- Mike St. John, Shaded Fuel Break Project Manager, Marin Wildfire Prevention Authority
- Brian McCarthy, Marin Wildfire Prevention Authority
- Carl Sanders, Natural Resources Manager, Marin Water
- Loren Jenkins, Project Coordinator, Marin Water
- Mike Swezy, Vegetation Management Program Manager, Novato Fire Protection District
- Greg Jones, Fire Management Officer, National Parks
- Bree Hardcastle, Environmental Scientist, California State Parks
- Karou Cruz, Cal Recycle
- Andrew Ludwig, Arborist and Vegetation Program Manager, PG&E
- Jeff Creque, PhD, Director of Rangeland and Agroecosystem Management, Carbon Cycle
- Mike Aitken, Site Manager, Bolinas Compost
- Greg Christie, Manager, Bay Cities Refuse
- Andrew Shelton, Zero Waste Marin

The TSS/SIG team includes:

- Tad Mason, Forester, TSS
- Thomas Buchholz, PhD, Senior Scientist, SIG
- Ian Moore, GIS Specialist, SIG

INTRODUCTION

This investigation represents Part A Biomass Supply Confirmation of the multi-year Biomass Utilization Study. This study is a key component of the Marin Biomass Project which was developed to explore sustainable uses of biomass feedstocks being generated within Marin County. The project was developed in response to increasing flows of biomass materials generated by wildfire prevention activities and by landfill diversion efforts in the county. Biomass materials range from woody biomass generated by woodland and forestland thinning, landscape trimmings, to source-separated and mixed organic waste streams generated by the collection of metropolitan and agricultural biomass.

The Marin Biomass Project is one of five pilot projects selected in 2021 by the Governor’s Office of Planning and Research.

Marin stakeholders are concerned that increasing biomass flows may exceed the handling capacity of existing infrastructure and that strategic coordination and capital investment are needed to build an integrated system that turns excess biomass into ecologically sound, value-added products. The purpose of the project is to support nimble and sustainable development of new biomass utilization infrastructure and economic opportunities within the county. The goal is to ensure that biomass utilization pathways support wildfire prevention and landfill diversion, while mitigating GHG emissions.

Part A of the Biomass Utilization Study involves an evaluation of the potentially recoverable biomass feedstocks generated within Marin County.

INVESTIGATION OBJECTIVES

Summarized below are the tasks that guided this investigation. Note that TSS is serving as a subcontractor to Spatial Informatics Group (SIG).

Scope of Work

At the conclusion of Part A, SIG and TSS will deliver to Marin Resource Conservation District (MRCDD), as a draft and as a revised chapter of the final study, a Biomass Feedstock Confirmation for Marin County.

Outline of Tasks

SIG/TSS will assess the amounts, types, and characteristics of biomass feedstocks, both current and projected in the next ten years, to be collected, processed, or otherwise handled within Marin County. These feedstocks include (i) forest biomass included in Marin Wildfire Prevention Authority plans as needing management to reduce wildfire risk, (ii) agricultural biomass identified by MRCDD as of potential interest, and (iii) urban/metropolitan biomass defined under SB 1383 as “organic waste.” Under Part A, SIG is expected to complete the following tasks:

Task A-1 Estimate the amounts of biomass material being collected, processed, or otherwise handled in the county. At a minimum, completing this objective will involve the following:

Reviewing and, as needed, augmenting the information provided in Zero Waste Marin’s 2018 Organics Generation and Capacity Analysis, the 2020 Marin Community Wildfire Prevention Plan, and the Marin Climate Action Plan 2030;

Contacting and compiling biomass flow data from material recovery vendors serving Marin County, from the Marin Wildfire Prevention Authority and Firesafe Marin’s wildfire prevention operations and, to the extent possible, from Pacific Gas and Electric’s land management activities and from the reporting systems required under Cal Recycle regulations for organic waste; and

Providing an equally robust assessment of urban/metropolitan, agricultural, and forest biomass that requires diversion from landfill to mitigate greenhouse gases, removal from land to prevent wildfire, or that MRCDD, as representative of Marin County, otherwise believes to be necessary to assess biomass utilization in Marin County for its economic opportunity and environmental responsibility.

Task A-2 Characterize the biomass feedstocks confirmed under Task A-1. At a minimum, completing this objective will mean characterizing the following:

Volume, moisture content, heat content, seasonal availability, carbon content, contamination, and other factors affecting the suitability of biomass feedstocks for processing and recovery; primary geographic origins (e.g., working lands, parks/open space, municipal material recovery systems, food processors, etc.); and

Parties primarily responsible for generating, hauling, collecting, or otherwise initially handling the material (e.g., franchised material recovery operators, wildfire fuel reduction managers, public land managers, landscape workers, self-haulers).

Task A-3 Estimate how the biomass feedstocks confirmed under Task A-1 are projected to increase, decrease, or otherwise change during the next five-year and the next ten-year periods. At a minimum, completing this objective will involve:

Reviewing plans from the Marin Wildfire Prevention Authority’s 2021-2030 Work Plans, Marin Municipal Water District’s Three-Year Work Plan, One Tam’s Regional Forest Health Strategy for Public Lands, and other large public and private landowners; and

Reviewing plans from franchised material recovery operators, wildfire fuel reduction managers, public land managers, landscape workers, and self-haulers.

Task A-4 Drawing on management plans and (as practicable) GIS analysis, estimate the “steady state” flow of biomass feedstocks confirmed under Task A-1. At a minimum, completing this task will include the following:

Estimating forest-sourced feedstocks to be expected, and when they may be expected, if wildfire fuel reduction treatments achieve and maintain the fuel loads to which Marin’s natural environments

are ecologically adapted based on at least the following data sources as part of this effort: Marin Wildfire Prevention Authority 2021-2030 Work Plan; Marin Municipal Water District 3-Year Work Plan; and One Tam’s Regional Priority Plan and Annual Work Plans; and

Estimating metropolitan/urban biomass feedstocks expected annually based on the definition of organic waste in CalRecycle regulations under SB 1383 and data available (e.g., waste characterization reports for Marin County) and interviews with subject matter experts; and

Estimating agricultural biomass feedstocks expected annually using interviews and the Marin County Crop and Livestock annual report.

Task A-5 Identify or confirm the following details about biomass feedstock processing in Marin County:

Facilities currently processing the biomass feedstocks confirmed under Task A-1, the types and annual flow rates of those feedstocks, the processing capacity of these facilities in terms of flow rates, and any readily available data about the cost of biomass feedstock collection, processing, and transport; and

Any difference between the estimated steady state flow rate for biomass under Task A-4 and summation of the processing capacity of facilities currently processing biomass feedstocks; end products from biomass processing from these facilities, their primary markets and locations, and the transport and transport cost associated with the sale and distribution of these products.

FEEDSTOCK STUDY AREA

The feedstock study area (FSA) is defined as that region from which economic and sustainable biomass feedstocks can be sourced on a long-term basis. For this investigation, the FSA is Marin County (see Figure 1).

Figure 1. Feedstock Study Area



Vegetation Cover

Marin County is located just north of San Francisco Bay within the Coast Range. Marin is the smallest of the Bay Area counties both in geographic size and population. The county is known for its unique natural beauty with scenic areas including Muir Woods, Marin Headlands, Stinson Beach, Point Reyes National Seashore and Mount Tamalpais. Largely rural, Marin is notable for its well-developed organic farming sector. Located primarily in West Marin, farms and ranches produce a range of products (e.g., organic greens, produce, cheese, and meat) for both local and regional markets.

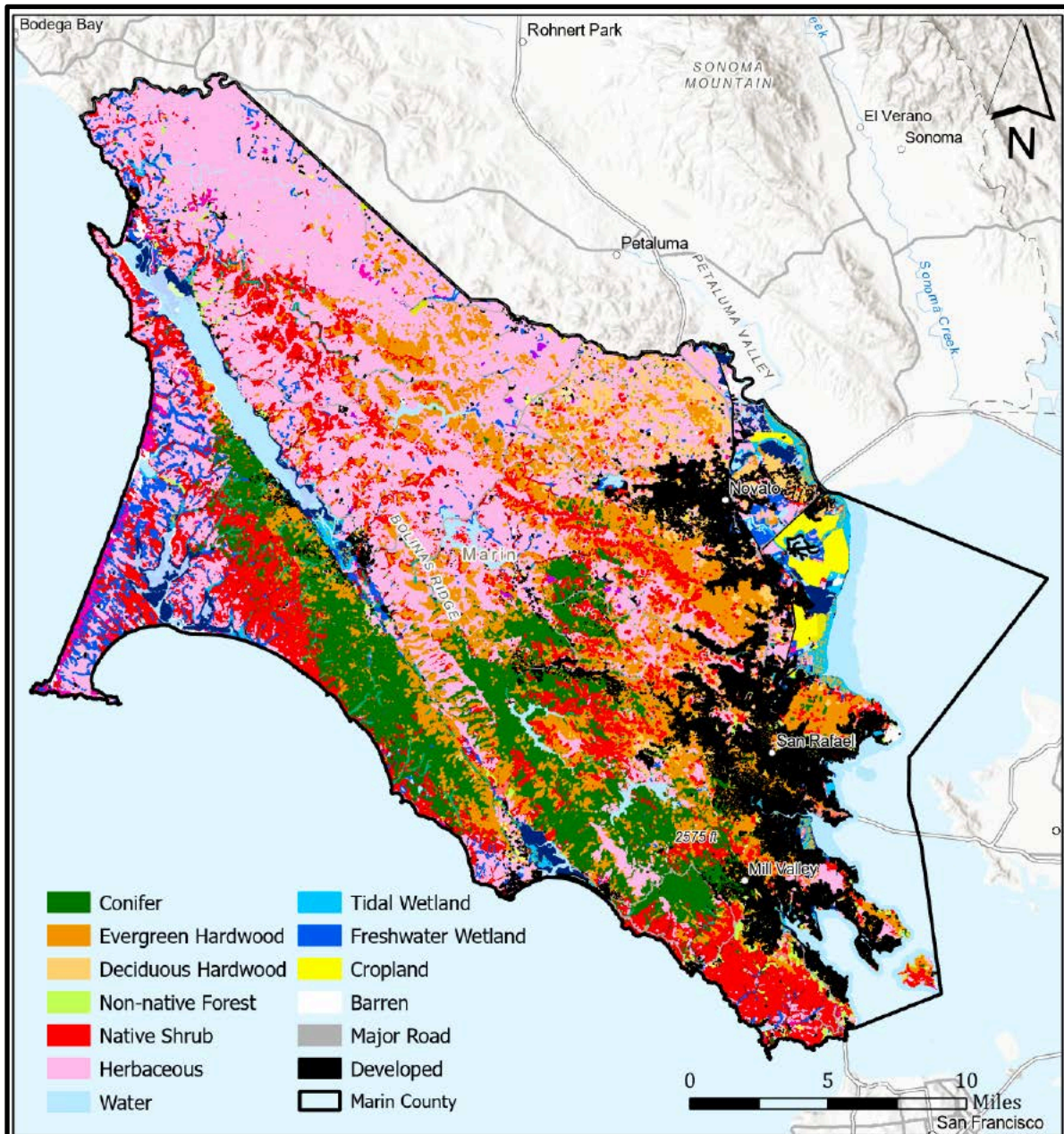
Vegetation and Land Cover

Using geographic information system (GIS) data provided by the Golden Gate National Parks Conservancy¹ and the U.S. Department of Agriculture,² Spatial Informatics Group (SIG) conducted an analysis of vegetation and land cover. Figure 2 is a map highlighting vegetation and land cover by type within the FSA.

¹ Marin County Fine Scale Vegetation Analysis.

² USDA, National Agricultural Statistics Service.

Figure 2. Vegetation and Land Cover Types Within Marin County



Marin County Biomass Utilization Study Vegetation & Land Cover

Spatial Informatics Group
 Coordinate System: NAD83 California (Teale) Albers (Meters)

Map Date: 11-08-22
 Source Data: Marin County Fine Scale Vegetation Map

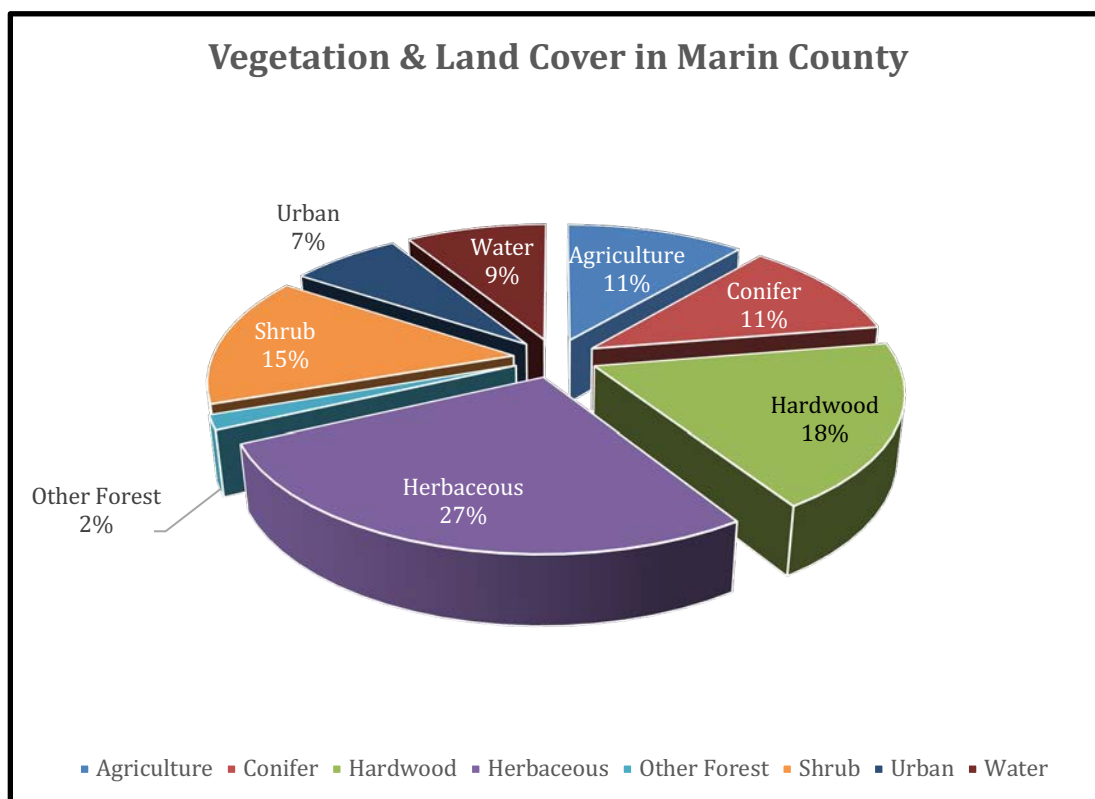
Table 1 is a summary of vegetation and cover acreage by type.

Table 1. Vegetation and Land Cover Acreage Within Marin County

Vegetation and Land Cover	Marin County	
	Acres	Percent
Agriculture	44,293	11%
Barren	1,355	0%
Conifer	44,006	11%
Hardwood	72,775	18%
Herbaceous	107,201	27%
Other Forest	6,243	2%
Shrub	57,517	15%
Urban	27,254	7%
Water	34,777	9%
Total	395,421	100%

Figure 3 provides a graphic representation of vegetation and land cover within the county.

Figure 3. Vegetation and Land Cover Distribution Within Marin County Graphic



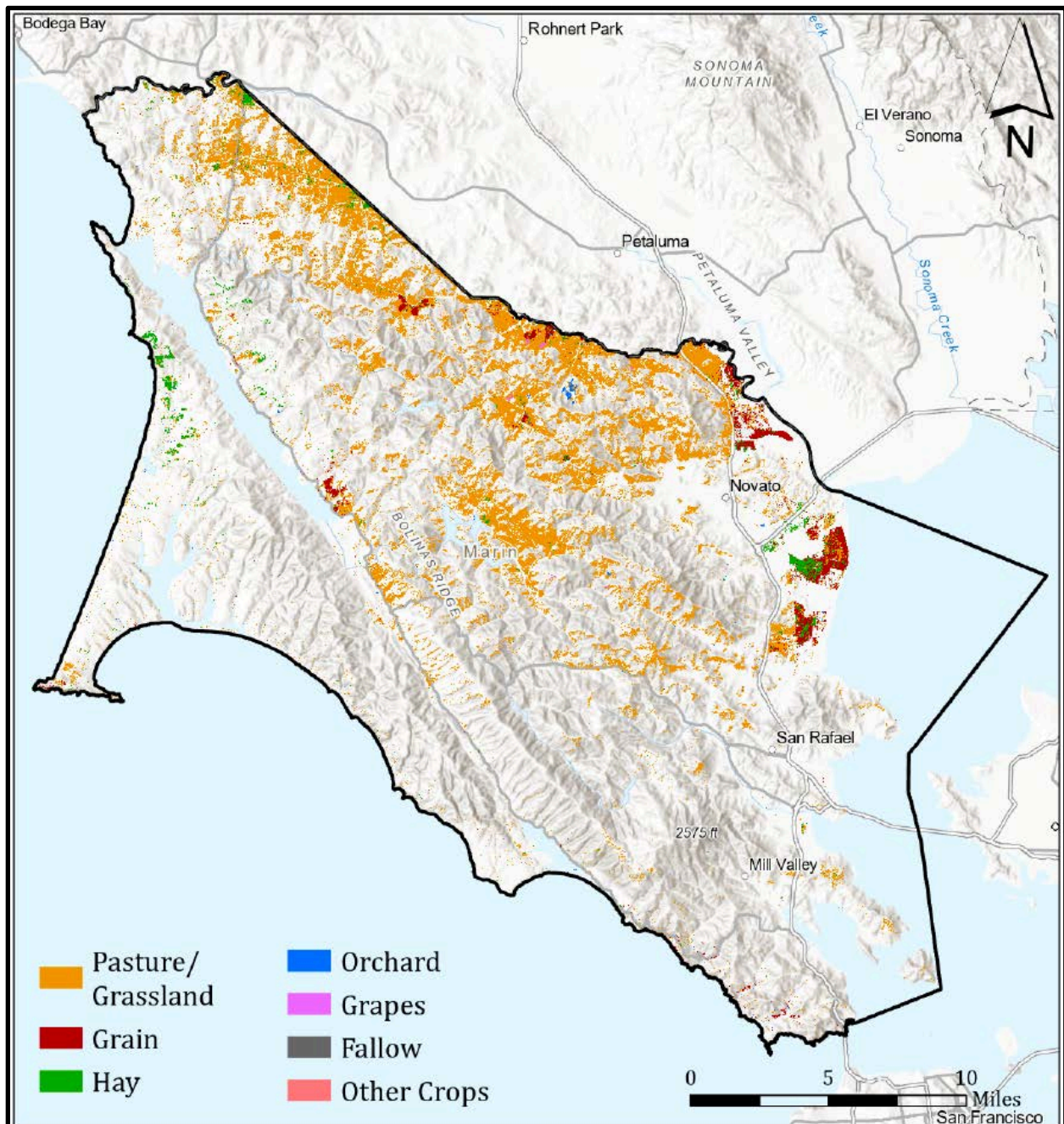
Woody biomass availability within a region is typically dependent upon land management activities within forestland and woodlands dominated by conifer and hardwood vegetation cover. Within Marin County, total conifer forest type amounts to 44,006 acres with redwood, Douglas fir,

monterey pine and bishop pine the dominant conifer species. Woodland dominated by hardwoods amounts to 72,775 acres with California bay, tan oak, live oak, sycamore and eucalyptus (primarily blue gum) the dominant hardwood species.

Commercial Agriculture Crops

In many parts of California, commercial agricultural operations produce significant volumes of agricultural byproducts including woody biomass (e.g., orchard prunings, orchard removals, nutshells, olive pits, peach pits). Commercial crop data is available from the US Department of Agriculture database known as the National Agricultural Statistics Service (NASS). The NASS database provides location, commercial crop type and acreage, and is updated annually. NASS reports that 44,293 acres within the Marin County are now supporting commercial crops. Figure 4 is a map showing the location of various orchard crops now in production within the FSA based on current NASS data.

Figure 4. Commercial Crops Within Marin County



Marin County Biomass Utilization Study Commercial Crops


Spatial Informatics Group
Coordinate System: NAD83 California (Teale) Albers (Meters)

Map Date: 11-08-22
Source Data: 2021 USDA NASS Program

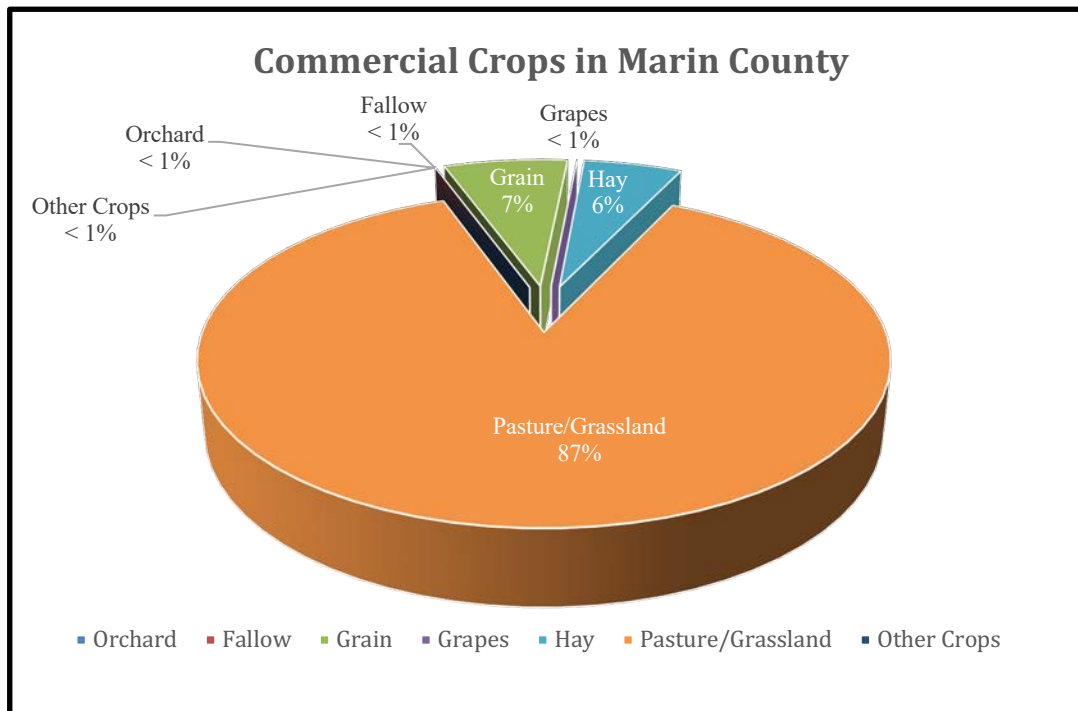
Table 2 is the commercial crop acreage data by type.

Table 2. Commercial Crops Within Marin County

Commercial Crops	Marin County	
	Acres	Percent
Orchard	268	< 1%
Fallow	93	< 1%
Grain	3,093	7%
Grapes	69	< 1%
Hay	2,461	6%
Pasture/Grassland	38,271	87%
Other Crops	38	< 1%
Total	44,293	100%

Figure 5 provides a graphic representation of commercial crops now under cultivation within the county.

Figure 5. Commercial Crops in Marin County Distribution



Marin County supports approximately 44,293 acres dedicated to commercial agriculture. Approximately 99% of the commercial crops (43,825 acres) are pasture/grassland, grain and hay crops. None of the commercial crops within the county produce significant volumes of woody biomass material. The 268 acres of orchards will produce prunings and the occasional crop tree removal, but these are likely to be utilized locally as firewood. Commercial crops make up 11% of the total landbase within the county.

Urban Land Cover

Significant volumes of tree trimmings, construction/demolition wood and food waste are generated within urban centers. Marin County includes urban communities including, but not limited to San Rafael, Novato, Corte Madera, Sausalito and Tiburon. A total of about 27,254 acres falls within the urban land cover designation making up 7% of the county.

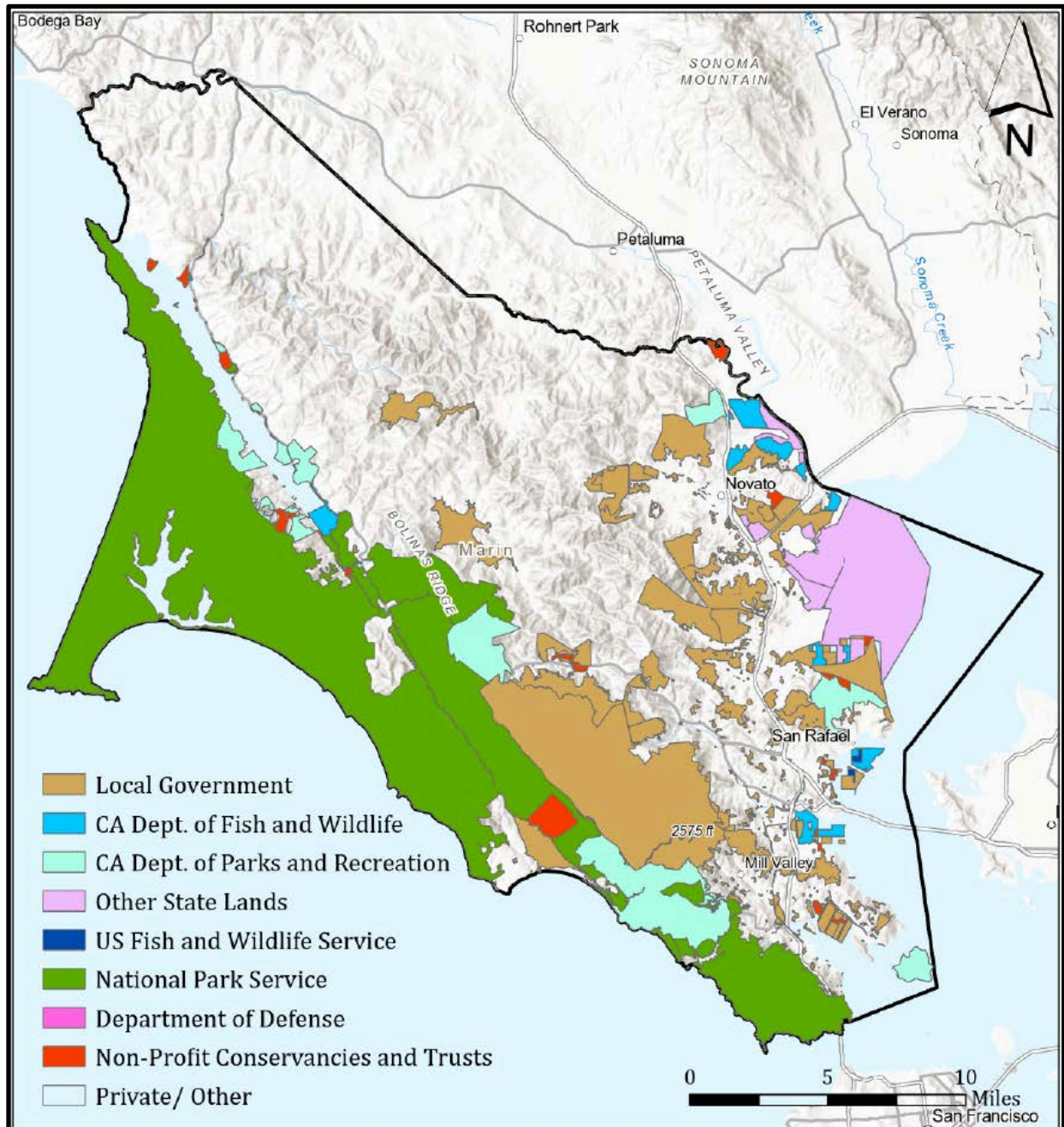
Forest and Woodland

Approximately 33% (116,781 acres) of Marin County is forested (conifer and hardwood dominated ecosystems). These represent vegetation cover types most likely to be the focus of fuels reduction activities. With successful wildfire suppression techniques deployed over the past century, much of the forest and woodland landscapes are severely overcrowded and dense. This accumulation of excess woody biomass (overcrowded conditions) creates forest/woodland densities outside of historic norms; contributing to significant risk for high-severity wildfire. As land managers and communities consider effective strategies to mitigate wildfire behavior, vegetation management (reducing overstocked conditions) is a preferred mitigation technique. Reducing forest and woodland stand density, coupled with reduction of ladder fuels (limbs/small stems) are proven methodologies deployed to create defensible space.

Land Ownership

Land ownership is critical to understand potential woody biomass feedstock availability within a region as management objectives of the landowner will drive feedstock availability. For example, about 17% of the forest and woodland acreage (conifer and hardwood) within the county is managed as parks or preserves. This limits the potential opportunity to remove forest material produced as a byproduct of wildfire behavior mitigation, as recreation is the primary land management objective (not active forest and woodland management). Figure 6 is a map highlighting land ownership within the county.

Figure 6. Land Ownership Within Marin County



Marin County Biomass Utilization Study Land Ownership


Spatial Informatics Group
 Coordinate System: NAD83 California (Teale) Albers (Meters)

Map Date: 11-08-22
 Source Data: CA Multi-Source Land Ownership

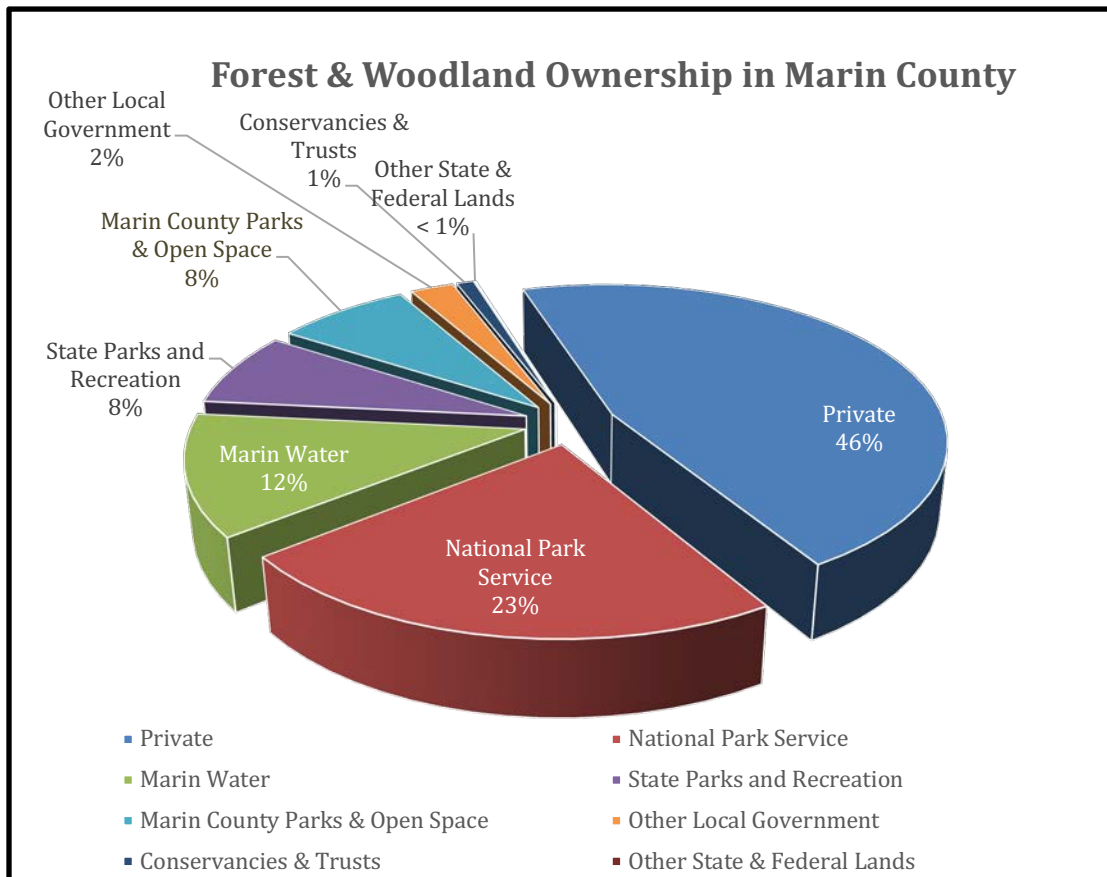
Forest and woodland ownership within Marin County is summarized in Table 3.

Table 3. Forest and Woodland Acreage by Ownership

Ownership	Forest		Woodland		Total	
	Acres	Percent	Acres	Percent	Acres	Percent
Private	9,706	22%	44,070	61%	53,776	46%
National Park Service	18,059	41%	8,752	12%	26,811	23%
Marin Water	8,482	19%	5,869	8%	14,351	12%
State Parks and Recreation	4,984	11%	3,850	5%	8,834	8%
Marin Co Parks & Open Space	1,863	4%	7,026	10%	8,889	8%
Other Local Government	179	<1%	2,708	4%	2,887	2%
Conservancies & Trusts	727	2%	413	1%	1,140	1%
Other State & Federal Lands	6	<1%	87	<1%	93	<1%
Totals	44,006	100%	72,775	100%	116,781	100%

Figure 7 provides a graphic representation of forest and woodlands within the county.

Figure 7. Forest and Woodland Acreage Within Marin County Distribution



As noted in Table 3 and Figure 6, the prevalent forest and woodland ownership is private at 46% (53,776 acres) followed by National Park Service at 23% (26,811 acres), Marin Water at 12% (14,351 acres), Marin County Parks at 8% (8,889 acres) and State Parks at 8% (8,834 acres).

Private forest and woodland ownership is made up of small ownerships (typically family owned) that appear to be mostly residential properties.

BIOMASS MATERIAL

Forest and Woodland Biomass

This analysis focused on the volumes of woody biomass material produced as a byproduct of fuels reduction activities conducted on conifer dominated landscape (forestland) and hardwood dominated landscape (woodland) within Marin County. Shrub and grassland dominated landscapes produce minimal amounts of biomass that can be collected and utilized.

Historic Fuels Reduction Activities

TSS conducted interviews with land managers responsible for vegetation management within Marin County. These interviews confirmed that fuels reduction activities have been a key wildfire behavior mitigation tool for a number of years. Most land managers have been utilizing chip and scatter or pile and burn as the primary disposal techniques for excess woody biomass. Very little biomass is currently chipped and transported off site for disposal at a collection yard, transfer station, resource recovery yard or landfill. Table 4 provides a summary of fuels reduction activity accomplishments (acres treated per year) by jurisdiction from 2018 through 2022.

Table 4. Historic Fuels Reduction Activities 2018-2022

Jurisdiction	Historic Fuels Reduction Acres/Year					Acres/Year Average
	2018	2019	2020	2021	2022	
Marin County Parks	33	33	0	30	30	25
Marin Water	0	56	109	161	213	108
MWPA – GRVSFB*	0	0	0	0	200	40
MWPA – Other	0	0	0	788	650	288
National Parks	25	25	25	25	25	25
State Parks	15	15	15	15	20	16
Miscellaneous Private	20	20	20	20	20	20
Miscellaneous Public	20	20	20	20	20	20
Totals	113	169	189	1,059	1,203	542

*Marin Wildfire Prevention Authority – Greater Ross Valley Shaded Fuel Break

Planned Fuels Reduction Activities

Table 5 summarizes estimated fuels reduction activities by jurisdiction from 2023 through 2027.

Table 5. Estimated Fuels Reduction Activities 2023-2027

Jurisdiction	Fuels Reduction Estimates Acres/Year					Acres/Year
	2023	2024	2025	2026	2027	Average
Marin County Parks	28	28	28	28	28	28
Marin Water	220	316	316	316	316	297
MWPA – GNSFB*	425	425	425	425	425	425
MWPA – GRVSFB**	200	200	100	0	0	120
MWPA – Other***	600	400	300	200	100	320
MWPA – Maintenance	100	300	500	600	700	440
National Parks	35	50	75	100	100	72
State Parks	30	30	40	40	40	36
Miscellaneous Private	20	30	50	50	50	40
Miscellaneous Public	20	20	20	20	20	20
Totals	1,678	1,799	1,854	1,779	1,779	1,778

* Marin Wildfire Prevention Authority – Greater Novato Shaded Fuel Break

**Marin Wildfire Prevention Authority – Greater Ross Valley Shaded Fuel Break

***MWPA – Other includes shaded fuel breaks, roadside treatments, general fuels treatment and excludes grazing or mowing.

Planned fuels reduction activities have increased significantly in recent years due to the March 2020 passage of Ballot Measure C. Measure C allocates \$20 million annually to support a joint powers authority entity known as Marin Wildfire Prevention Authority.

Marin Wildfire Prevention Authority

The Marin Wildfire Prevention Authority (MWPA) is a 17 agency joint powers authority with a 10 year voter-approved charter. Funded through the Measure C parcel tax, MWPA commenced work in 2021 and has a 2030 sunset date. Annual funding is generally allocated as follows.

- 60% - vegetation management (fuel break installation, grazing, prescribed fire)
- 20% - local projects (working with member agencies)
- 20% - residential defensible space and home hardening

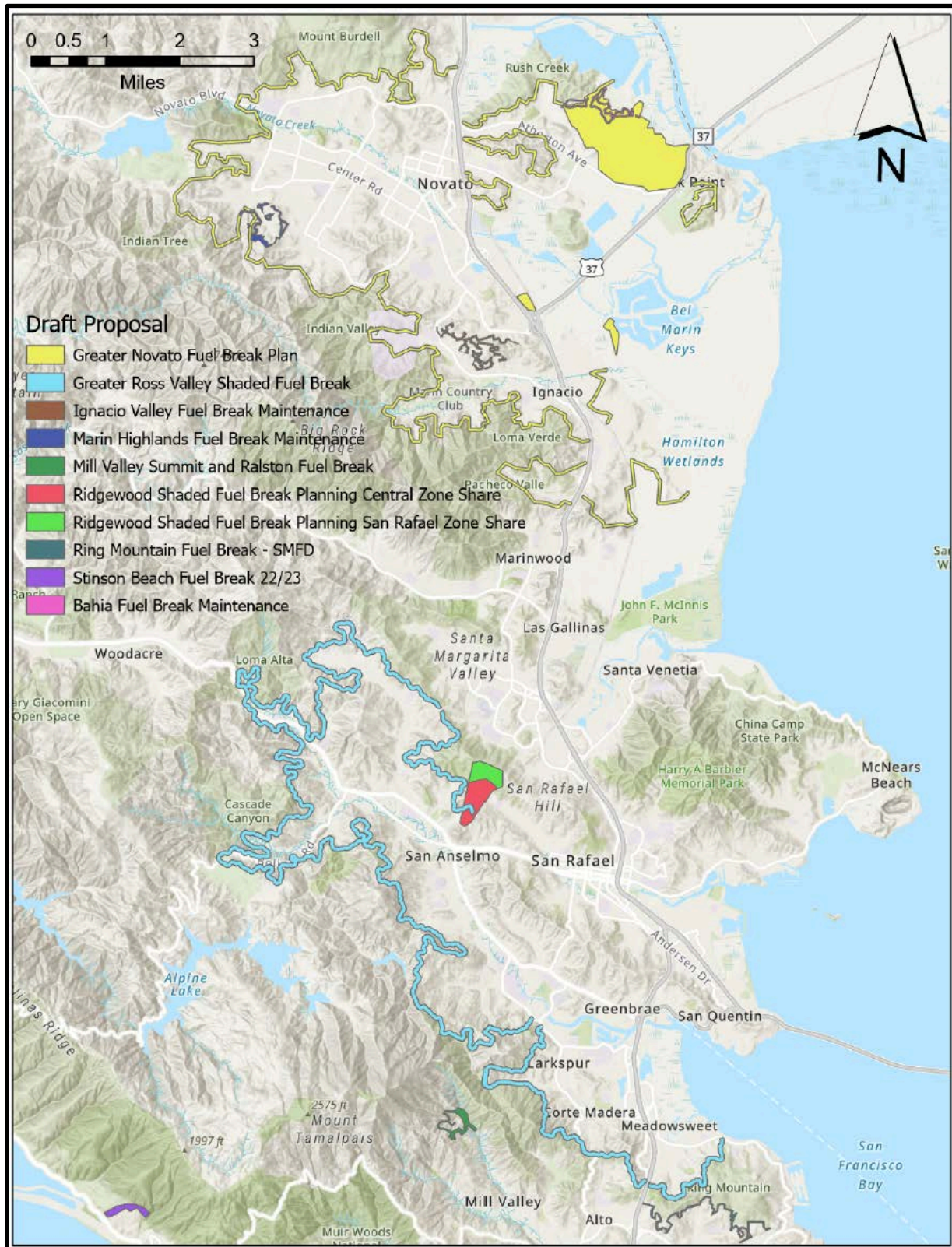
A guiding document for the MWPA (used to select strategic areas for fuel break installation) is the Marin County Community Wildfire Protection Plan (CWPP). Initially published in 2016, the CWPP was updated in 2020. Focus of the CWPP is creation of defensible space within the Wildland Urban Interface (WUI). As noted in the CWPP, approximately 65% of living units within the Marin County are located in the WUI.

Major fuels reduction projects sponsored and managed by the MWPA include the 38-mile Greater Ross Valley Shaded Fuel Break (GRVSFB) and the 60-mile Greater Novato Shaded Fuel Break (GNSFB). The GRVSFB is currently in year one of implementation and will likely be completed in 2026. The GNSFB will likely be implemented commencing 2023 with completion scheduled for

2027. Most fuels reduction activities have a six-month limited operating period of August 1 through January 31 to avoid nesting season for birds.

In addition, MWPA is supporting fuels reduction activities throughout the county including fuel break installations at Stinson Beach, Mill Valley, Ridgecrest, Ignacio Valley and Marin Highlands. Figure 8 is a map highlighting the location of planned fuel breaks sponsored by the MWPA.

Figure 8. Planned Shaded Fuel Breaks Sponsored by Marin Wildfire Prevention Authority



Other agencies involved in fuels reduction activities within the county are described below.

Marin County Parks and Open Space

Marin County Parks and Open Space (MCP) staff³ confirmed that the agency is tasked with managing approximately 16,000 acres of open space. A key issue for MCP are neighboring homeowners, totaling about 3,600 properties, and the creation of defensible space adjacent to these holdings – typically 100’ to 150’ treatment zones.

All fuels reduction work is carried out by hand crews including the Mount Tam Crew (skilled workforce that understands fuels and vegetation management) and the Foundry Crew (mostly inner-city youth in training). Most woody vegetation is piled and burned or chipped and scattered due to very limited access for woody vegetation removal. In addition, MCP is concerned about high disposal fees at the landfill or transfer station. MCP also utilizes goats from time to time (as gazers) and conducts mastication (primarily mowing) where appropriate. There was no new woody vegetation management work in 2020 due to covid protocols. Historic acres treated and future treatment acres estimated in Tables 4 and 5 reflect only acres with woody vegetation.

Vegetation management is funded primarily through Measure A. Approved by voters in 2012, Measure A allocated ¼ cent sales tax to support MCP. Funding amounts to about \$1.8 million/year. Key objective of vegetation management is defensible space near communities and removal of invasive plant species (e.g., Spanish and French broom, eucalyptus, acacia). Additional fiscal support is provided by MWPA. CEQA analysis services for MWPA sponsored projects are provided by Panorama Environmental with help from MCP natural resources and planning staff with about one-year lead time required to complete. CEQA analysis for non-MWPA projects (e.g., Measure A funded projects) is carried out by MCP natural resources and planning staff.

Once shaded fuel breaks are installed, there will be followup vegetation management conducted as maintenance. MCP is still working through what the maintenance treatment prescriptions will include.

Marin Water

Marin Water (MW) manages approximately 22,000 acres with seven water storage reservoirs serving 191,000 customers. A guiding document for MW is the October 2019 Biodiversity, Fire and Fuels Integration Plan that provides a work plan, which MW staff are currently implementing.

Additionally, the March 2022 Marin Municipal Water District Hazard Mitigation Plan addresses a multitude of hazards, included wildfire. MW prepares an annual Vegetation Management Report, which summarizes accomplishments and plans for each year.

MW staff⁴ confirmed that fuels reduction techniques deployed within the watershed include mastication, pile and burn, lop and scatter, chip and scatter. Staff would like to remove excess vegetation (to offset treatment costs and minimize need to burn), but steep terrain and road systems

³ Jim Chayka, Superintendent and Nate Clark, Biodiversity Monitor.

⁴ Carl Sanders, Natural Resources Manager, Loren Jenkins, Project Coordinator.

that do not support commercial-scale trucks (e.g., chip trucks) provide little opportunity. There are also concerns regarding movement of potentially infected woody material (e.g., phytophthora ramorum and cinnamomi).

A significant challenge is finding opportunities to burn piles. MW staff confirmed that approximately 10,000 piles have been accumulated within the watershed. MW is currently in the process of burning many of these piles. Pile burning typically commences after rains in the fall, but there is some push back from neighbors due to air emissions. MW staff estimate that average pile size is five cubic yards, which TSS experience confirms amounts to about 1.2 tons/pile of vegetative material, for a total of about 12,000 tons.⁵ Fiscal cost to burn piles is significant with staff⁶ providing a burn cost estimate of \$106/pile. Assuming 29 piles/acre (MW staff estimate), total burn cost comes to about \$3,074/acre. At 29 piles/acre, this equates to about 30 to 35 tons/acre of woody biomass material treated.

Initial treatments should average about 30 tons/acre of woody biomass treated. Maintenance treatments will be conducted at three to five year intervals with less than 1 ton/acre treated. These maintenance treatments will utilize lop and scatter as the primary biomass treatment technique.

Treatment prescriptions include removal of ladder fuels (small stems and lower limbs), tree spacing, and removal of invasive species (e.g., French broom). In addition there is heavy removal of small Doug Fir and tanoak stems to meet tree spacing specifications. Some snags are left standing as habitat. Occasionally new snags are being created by girdling small Doug fir trees.

There is a heavy presence of northern spotted owls (NSO) within the watershed. Due to presence of NSO and other migratory nesting birds, most vegetation treatment activities are conducted between August and January. Treatments between February and July that could impact migratory bird nesting activities are supported by third-party biologists who survey specific mapped areas in advance of vegetation work.

MW is now targeting a total of 2,079 acres for fuels reduction treatment. Treatment acreage limit is tied to existing CEQA documents. Hope to complete treatment in 7 to 10 years (depending on funding), then transition to fuel maintenance treatments. Target completion date is 2029. Fuel break maintenance treatment options are now under review. Funding to support fuels reduction activities is 50% MW allocations and 50% other.

MW is working with Wildland Resources Management on a wildfire behavior modelling analysis. Findings are expected in the first quarter of 2023 and will be used to update the Biodiversity, Fire and Fuels Integration Plan.

National Park Service

The National Park Service (NPS) manages more forest (18,059 acres) and woodlands (8,752 acres) than any other public agency within Marin County. Land management jurisdictions includes Golden

⁵ Note that the preferred unit of measure is tons (2,000 pounds), not adjusted for moisture content. Also known as green tons.

⁶ Loren Jenkins, Project Coordinator, Marin Water.

Gate National Recreation Area (which includes Muir Woods National Monument) and Point Reyes National Seashore. NPS staff⁷ confirmed that the 2005 Fire Management Plan Final Environmental Impact Statement guides fuels management.

Current focus is on creating defensible space near communities and roadside treatments to provide safe evacuation corridors. Emphasis is fuels reduction within 100' to 200' of the NPS boundary adjacent to private residential properties. No landscape-level mechanical treatments are planned. A major limiting factor is available NPS staff to plan, design, and implement fuels reduction projects. Individual project funding and community support are generally not an issue.

Currently, 90% of fuels reduction is accomplished using hand crews while 10% is with mastication. Primary focus is on treating ladder fuels (removal of small stems <12" diameter at breast height) along with brush/shrub removal (mosaic pattern). Material is chipped and scattered on site (< 6" chip depth) or occasionally chipped and removed (using 10 cubic yard box trucks). Sometimes pile and burn is used but neighbors are generally not supportive due to air emissions issues. There is some invasive species (e.g., eucalyptus, acacia) removal of small stems.

State Parks and Recreation

California State Parks (CSP) is managing about 4,984 acres of forest and 3,850 acres of woodland within Marin County. CSP staff⁸ confirmed that most of the fuels reduction focused vegetation management conducted is ladder fuels reduction with pile burning as the primary disposal technique. Other techniques include chipping (with material transported off site or broadcast to specified depths) and lop-scatter. These efforts additionally make use of a portable burn unit (air curtain burner) that helps mitigate air emissions.

CSP allows homeowners to treat fuels on park lands within 130' of residential structures following the CSP defensible space treatments prescriptions and through the issuance of a Boundary Vegetation Modification Right of Entry permit. Some invasive species removals are conducted as part of ongoing maintenance of historic fuel reduction projects and vegetation management zones (e.g., eucalyptus, French broom, acacia). Plans are in place to conduct more prescribed fire projects, working closely with Marin County Fire.

Pacific Gas and Electric

Pacific Gas and Electric (PG&E) provides electricity and natural gas delivery services throughout Marin County. Hundreds of miles of distribution and transmission powerlines are managed by this utility. Foresters and arborists deployed by PG&E monitor these powerlines to ensure regulatory compliance and to prevent potential contact with vegetation. Public safety and wildfire mitigation are key objectives that guide PG&E's Vegetation Management Program (VMP).

Tree service contractors are regularly dispatched to trim trees and/or remove dead/dying trees that pose a potential hazard to PG&E powerlines. Wood material (e.g., limbs, trees) removed as a byproduct of the VMP is often transported as feedstock for value-added uses (e.g., compost,

⁷ Greg Jones, Fire Management Officer.

⁸ Bree Hardcastle, Environmental Scientist.

firewood, biomass power). Ownership of wood waste removed is typically conveyed to the tree service companies once the material is removed. Due to relatively high tipping fees at landfills and transfer stations, tree service companies seek out value-added uses for this waste material. Interviews with PG&E staff⁹ confirmed that approximately 1,250 tons/year of wood waste is removed as part of the VMP process within Marin County .

Fuels Reduction Residuals Forecast

Due to successful fire suppression activities in the past 120+ years, many of the forest and woodland ecosystems in Marin County have unnaturally high stocking (stems per acre) and brush/shrub densities. As noted in the previous report section, numerous land managers are planning to proactively treat excess biomass and achieve a desired future condition that is more fire resilient. Some of the more remote landscapes may even be ready for introduction of prescribed fire following fuels reduction activities.

Recent Fuels Reduction Projects

Interviews and field time with land managers provided observations regarding fuels treatment activities within Marin County.

- The primary focus is wildfire behavior mitigation in support of defensible communities. In addition, improving forest and woodland conditions within the upland watersheds is a top priority.
- Topography within targeted locations for fuels reduction work is generally too steep to allow for mechanical treatments (e.g., mastication). Deployment of hand crews is the prevailing technique.
- Road systems adjacent to forest and woodland ecosystems were not designed to allow for commercial vehicle access. Woody biomass removal will require use of small commercial vehicles (e.g., 10 to 40 yard capacity) that can navigate tight radius turns and steep roads.
- Initial shaded fuel break installations will yield between 2.8 (MWPA) and 35 (Marin Water) tons/acre of vegetative material (as noted by various land managers).
- Fuel break maintenance conducted at three- to five-year intervals will generate significantly less woody biomass material than initial installation of shaded fuel breaks.

Recent fuels treatment projects initiated by MWPA and the Marin Water District are summarized below.

MWPA Greater Ross Valley Shaded Fuel Break

A major shaded fuel break installation in Ross Valley is currently underway and provides an indicative representation of fuel breaks planned for Marin County. Sponsored by the MWPA, the

⁹ Joel Smith, Manager, Wood Management and Kevin O'Brien, Principal, Wood Management.
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TSS Consultants

Greater Ross Valley Shaded Fuel Break (GRVSFB) covers about 38 miles (see Figure 8) of wildland urban interface (WUI) bordering the communities of Corte Madera, Larkspur, San Anselmo and Fairfax. Started in 2022, the initial 12 miles of fuel break will be installed by February 1, 2023.¹⁰ Current plans are to complete the GRVSFB installation phase by 2025. Pre and post-treatment images taken by Grizzly Corp staff are shown in Figures 9 through 11.

A second major shaded fuel break is planned for north Marin County. Sponsored by MWPA and Novato Fire Protection District, the Greater Novato Shaded Fuel Break (GNSFB) covers about 60 miles (see Figure 8) of WUI bordering Ignacio, Loma Verde, Pacheco Valle, Marinwood and Novato. Scheduled to start in August 2023, the GNSFB will require about five years to complete.

¹⁰ Per discussions with Mike St. John, Shaded Fuel Break Project Manager, MWPA.
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TSS Consultants

Figure 9. Pre-Treatment Image – Terra Linda/Sleepy Hollow



Figure 10. Post-Treatment Image – Terra Linda/Sleepy Hollow



Figure 11. Pre-Treatment and Post-Treatment Images – Baywood Canyon, Fairfax



These images confirm that the fuels treatment deployed is focused on removal of small stems (primarily < 5 inches diameter) and brush making up the understory. This treatment prescription is clearly focused on addressing ladder fuels while maintaining current stocking levels (stems/acre) of larger trees. The treatment prescription implemented by Marin County Parks and Open Space reflects this technique (see Appendix A). Volume of material removed from the GRVSFB has amounted to about 2.8 tons/per acre of woody biomass as confirmed by MWPA staff.¹¹ A review of figures 9 through 11 confirm the relatively low woody biomass tonnage targeted for removal.

Marin Water District

Since 2018, Marin Water has been averaging about 108 acres/year of fuels treatments (see Table 4). By 2029, most of the shaded fuel breaks planned for the watershed will be completed.¹² Figures 12, 13 and 14 are post-treatment images.

¹¹ Brian McCarthy, MWPA.

¹² Per discussions with Loren Jenkins, Project Coordinator, Marin Water.

Figure 12. Post-treatment Image – Marin Water



Figure 13. Post-treatment Image – Marin Water



Figure 14. Post-treatment Image – Marin Water



Most of the fuels treatment activities within the MW watershed are conducted near road systems. As noted in the Marin Water section of this report, MW staff¹³ would like to remove excess vegetation (to offset treatment costs and minimize pile and burn disposal), but steep terrain and road systems that do not support commercial-scale trucks (e.g., chip trucks) provide little opportunity. Calculation of cubic yardage of fuels reduction piles confirms about 35 tons/acre of woody biomass treated. Volume per acre of vegetation treated is clearly driven by agency goals/objectives and treatment implementation guidelines.

Forest Biomass Material Processing and Transport

Many of the fuels reduction projects (ongoing and planned) are located adjacent to road systems that will support conventional tree service chippers and box trucks. Capable of transporting 10 to 40 cubic yards (2.5 to 10 tons) of chipped vegetative biomass material, these box trucks can be deployed behind mobile chippers. Deployment of box trucks similar to the image shown in Figure 15 is an option that land managers would likely consider should a local market exist for processed (chipped) biomass.

¹³ Carl Sanders, Natural Resources Manager, Loren Jenkins, Project Coordinator.
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Figure 15. Box Truck Used for Chip Transport



These box trucks have the ability to navigate most of the road systems adjacent to planned fuels reduction projects. For land managers, the opportunity to remove excess woody biomass will mitigate the need to chip and scatter or pile and burn vegetative material. Alternatives to pile burning are attractive due to reduced air emissions (especially a concern near residential communities), less chance for pile fires to escape and reduced cost. Cost to burn piles can amount to \$3,074/acre (see Marin Water discussion). Many of the fuels reduction projects are located near residential communities. Mitigating smoke from pile burning will be well received by neighboring communities.

For the purposes of this forest and woodland biomass supply availability forecast, TSS assumes that a ready, local market exists and land managers are motivated to remove, process and transport biomass material. Hand crews are currently deployed to treat fuels and will be available to remove excess vegetation to the roadside for chipping and removal.

Forest Biomass Collection, Processing and Transport Costs

Interviews with foresters and land managers implementing fuel break installation projects in Marin County confirmed that hand crews currently deployed are compensated at prevailing wage rates. Current cost estimates for collection, processing, and transport of forest biomass material amount to between \$2,500 and \$3,200/day for a three-person chipping crew (with chipper and box truck). Taking the mid-point cost of \$2,850/day and assuming five tons/day removed results in a \$570/ton delivered cost for processing and transporting forest biomass. This assumes that approximately two 10-yard box trucks of material are transported to a close-in facility (within economic transport distance) for value-added utilization. TSS experience with collection, processing and transport

suggests that there are opportunities here for increased efficiencies resulting in a lower delivered cost.

Summary of Forest and Woodland Biomass Supply Availability

Table 6 provides a summary of woody biomass supply availability considered potentially available by jurisdiction within Marin County. Note that tonnage estimates were calculated based on figures provided by land managers conducting fuels treatment projects within the county. TSS assumed 5 tons/acre for all jurisdictions except Marin Water, which assumes 30 tons/acre.

Table 6. Potentially Available Forest and Woodland Biomass Supply Forecast 2023-2027

Jurisdiction	Fuels Reduction Estimates Tons/Year					Tons/Year Average
	2023	2024	2025	2026	2027	
Marin County Parks	140	140	140	140	140	140
Marin Water	6,600	9,480	9,480	9,480	9,480	8,904
MWPA –GNSFB*	1,190	1,190	1,190	1,190	1,190	1,190
MWPA – GRVSFB**	560	560	280	0	0	280
MWPA – Other***	1,680	1,120	840	560	280	896
MWPA – Maintenance	100	300	500	600	700	440
National Parks	175	250	375	500	500	360
State Parks	150	150	200	200	200	180
Miscellaneous Private	100	150	250	250	250	200
Miscellaneous Public	100	100	100	100	100	100
Totals	10,795	13,440	13,355	13,020	12,840	12,690

Not all woody biomass material is readily available. Steep slopes, challenging road systems and general accessibility will impact availability. Using observations and data provided by land managers, TSS calculated practically available woody biomass tonnage by jurisdiction and year (2023 through 2027). For example, discussions with land managers confirmed a range of road system and topography challenges. TSS settled on an indicative figure for all jurisdictions (except Marin Water) assuming that 50% of the landscape would support biomass removals. Discussions with Marin Water staff confirmed that about 20% of the MW landscape and road system would allow biomass removals. Table 7 summarizes findings.

Table 7. Practically Available Forest and Woodland Biomass Supply Forecast 2023-2027

Jurisdiction	Fuels Reduction Estimates Tons/Year					Tons/Year Average
	2023	2024	2025	2026	2027	
Marin County Parks	70	70	70	70	70	70
Marin Water	1,320	1,896	1,896	1,896	1,896	1,781
MWPA – GNSFB	797	797	797	797	797	797
MWPA – GRVSFB	336	336	168	0	0	168
MWPA – Other	1,008	672	504	336	168	538
MWPA – Maintenance	60	180	300	360	420	264
National Parks	88	125	188	250	250	180
State Parks	75	75	100	100	100	90
Miscellaneous Private	50	75	125	125	125	100
Miscellaneous Public	50	50	50	50	50	50
Totals	3,854	4,276	4,198	3,984	3,876	4,038

Agricultural Biomass

In many parts of California, byproducts from commercial agricultural operations are available as potential feedstock. Nutshell, pits, and orchard removals are examples of woody biomass produced regularly by agricultural enterprises throughout California’s Central Valley. GIS analysis confirmed that approximately 44,293 acres within Marin County are dedicated to cultivation of commercial crops. This represents 11% of the county’s land base. Approximately 99% of the commercial crops (43,825 acres) are pasture/grassland, grain and hay crops (as noted in Table 2).

A review of the 2021 Marin County Crop and Livestock report confirmed that the primary agricultural outputs produced within the county include livestock, livestock products, field crops, aquaculture (e.g., oysters, mussels, and clams), fruit, vegetable and nursery crops. None of the commercial crops within the county produce significant volumes of biomass material that could be utilized as biomass feedstock. The 268 acres of orchards will produce prunings and the occasional tree removal, but these byproducts are likely to be utilized locally as firewood.

Urban Biomass

TSS analyzed biomass material produced within urban communities with a focus on organic waste. As defined by Senate Bill 1383 (see below for more on SB 1383), organic waste includes a wide range of solid wastes originating from living organisms. This analysis focused on food waste, green waste (yard trimmings, tree trimmings), lumber, fuels reduction residuals (addressed in the forest and woodland biomass report section), and biosolids.

Urban biomass produced within communities is typically available year round and is increasingly regulated due to State of California legislative mandates:

- Assembly Bill 939 – Signed into law in 1989, this legislation created the California Integrated Waste Management Board (now Cal Recycle). A disposal reporting system was

created with CIWMB having oversight. AB 939 mandates a reduction of waste destined for landfills with jurisdictions required to meet diversion goals of 25% by 1995 and 50% by 2000.

- Assembly Bill 1594 – Signed into law in 2014, this legislation eliminates the waste diversion credit for landfills to use organics (including wood waste, tree trimmings) as alternative daily cover (ADC) effective 2020. Federal law requires landfills to be covered at the end of each workday to prevent odors, vermin, and insects. While landfills have traditionally utilized soil as ADC, many states allow the use of alternative materials (including organics such as wood waste) for cover. Commencing in 2020, landfills are utilizing other techniques to cover landfills (such as tarps) on a daily basis.
- Assembly Bill 1826 – Signed into law in 2014, this legislation requires commercial businesses to recycle their organic waste commencing in 2016. In addition, this law requires local jurisdictions to implement local organic recycling programs to divert organic waste away from landfills.
- Assembly Bill 876 – Signed into law in 2015, this legislation was designed to complement AB 1826, requiring that counties and regional agencies forecast the amount of organic material that will be generated over a 15-year period. This estimate is to be included in annual reporting to Cal Recycle. In addition, reporting must include estimates of the additional organic waste processing capacity needed to address the 15-year forecast, including potential locations for organics processing facilities.
- Senate Bill 1383 – Signed into law in 2016, this legislation seeks to mitigate short-lived climate pollutants (e.g., methane) by diverting organic wastes (including wood) away from landfills. It requires a 50% reduction in organic waste disposal from 2014 levels by 2020 and a 75% reduction by 2025.

Due to these legislative mandates and an increased level of interest to reduce greenhouse gases and extend the service life of landfills, urban biomass (including organics) is being diverted away from landfill disposal in ever increasing volumes.

Organic Waste Collection

SB 1383 requires that jurisdictions (counties, cities, special districts) provide organic waste collection services to all residents and businesses. This legislation also requires residents and businesses to sort out their organic waste and divert it from landfill disposal by participating in collection programs or hauling the organic waste to an appropriate processing facility. By implementing organic collection services at scale, the state hopes to meet the SB 1383 goal of reducing organic disposal (in landfills) 75% by 2025.

In Marin County organic waste collection is achieved through the use of curbside collection of residential (single family and multiple family residents/complexes) food waste using the green waste bin. In this manner, both green waste (yard clippings, tree trimming material) and food waste are co-mingled curbside and collected weekly by area waste haulers. Once collected, commercial waste haulers are delivering the green waste/food waste to either transfer stations (e.g., Marin Resource Recovery Center, or Recology, Richmond transfer station) or landfills (e.g., Redwood Landfill). Commercial food waste collection is achieved using dedicated bins that are serviced regularly by

commercial waste haulers and delivered to transfer stations or landfills. The commercial food waste collection program is still in the early implementation phase and is expected to grow.

A variety of value-added utilization facilities are receiving organic waste from Marin county sources. There is a well-developed utilization infrastructure in place, including compost operations, biomass power plants and an anaerobic digestion facility.

Primary Waste Receiving Facilities in Marin County

Urban biomass volumes generated by a community or region are directly proportional to population. The higher the population within a given area, the more urban biomass is produced. Interviews were conducted with waste haulers and facilities that are currently receiving urban biomass produced in Marin County. The two facilities receiving most of the urban biomass produced within the county are Marin Sanitary Service and Redwood Landfill.

Marin Sanitary Service

Founded in 1948, Marin Sanitary Service (MSS) is a privately-owned solid waste and recycling company focused on collection and processing of residential and commercial solid waste and recoverable materials. Located on 103 acres in east San Rafael, MSS provides weekly collection services to approximately one-third of Marin County's residents estimated at 30,000 single family residential and 3,000 multi-family and/or commercial customers. Communities served by the MSS franchise agreement waste collection enterprise (curbside service) include San Rafael, San Anselmo, Ross, Kentfield, Kent Woodlands, Fairfax, Greenbrae, Larkspur and unincorporated areas of Marin County. In addition, Mill Valley Refuse Service delivers recyclables and commercial food waste to MSS. MSS operations include an onsite materials recovery facility (Marin Resource Recovery Center), recycling facility (Marin Recycling Center) and household hazardous waste facility. MSS is staffed by approximately 250 employees.

The transfer station receives unsorted waste that is loaded into commercial trucks for transport to Redwood Landfill. This amounts to approximately 150 tons/day of unsorted waste.

MSS franchised communities commissioned a waste characterization study in August 2022 to better understand the physical composition of residential and commercial waste destined for disposal.¹⁴ Key findings from the residential waste characterization study include:

- Food waste made up 16.3% by weight.
- Other compostable organics (e.g., yard waste, compostable paper and wood) made up 18.7% by weight.

Clearly, there are opportunities for source-separated (residential and commercial) waste management to minimize waste diversion to landfills.

¹⁴ Marin Sanitary Services Waste Characterization Study, SCS Engineers, August 2022.
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TSS Consultants

Green waste (yard trimmings with residential food waste) and wood waste (construction & demolition, tree trimmings) are received at the Marin Resource Recovery Center where material is sorted and processed for two destinations:

- Compostable green waste to WM EarthCare (collocated with Redwood Landfill) – approximately 25,000 tons/year.
- Biomass fuel to DTE Energy facilities (Woodland and Stockton) – approximately 34,000 tons/year.

In addition, MSS supports an active firewood program with logs processed into firewood for local residential use. Note that demand for firewood has dropped in recent years as more homes convert fireplaces to natural gas for ease of use and reduced air emissions.

MSS recently installed an advanced pre-consumer commercial food waste processing system. Using a centrifugal system, food packaging (e.g., plastic, cardboard) is separated from food waste and processed for delivery as feedstock. Approximately 7 to 10 tons/day of pre-consumer commercial food waste¹⁵ is received at MSS. Some food waste is diverted to an onsite hog farm, but most is sorted and processed for delivery to Central Marin Sanitary Agency (CMSA). CMSA and MSS formed a Food2Energy (F2E) program in 2014 with MSS providing processed pre-consumer commercial food waste as feedstock and CMSA operating and maintaining an anaerobic digester for production of renewable power. As noted earlier, residential food waste is typically comingled (by homeowners) with green waste in curbside containers for pickup by MSS.

Discussion's with MSS staff¹⁶ confirmed recent waste production trends within Marin County with some trends attributed to the Covid pandemic.

- Increase in curbside green waste as more residents are working from home. Landscape maintenance is more of a focus due to extended periods working at home. Some green waste increase is likely tied to homeowners trimming trees and shrubs to reduce wildfire threat.
- Increase in construction and demolition wood waste as homeowners invest in home offices or home improvements now that they are working from home. This trend has not been sustained, likely due to increased cost of construction materials. In addition, higher mortgage rates are impacting home values, thus reducing motivation for home improvement.
- More cardboard generated due to increased e-commerce activity.
- Pre-consumer commercial food waste volume was initially down at the start of the pandemic as residents were reluctant to dine out. However, restaurants are now producing more food waste above pre-pandemic levels.
- MSS is receiving more tree trimmings and green waste from fuels reduction activities as self-haulers (e.g., homeowners, tree service companies) deliver material to MSS.

MSS is actively planning to convert the MSS waste haul truck fleet to a zero-emission fleet. In order to meet the California Air Resources Board (CARB) goal of achieving zero-emission truck and bus fleet conversion by 2045, MSS plans to commence purchase of zero-emissions trucks in

¹⁵ Restaurants, hospitals and grocery stores.

¹⁶ Justin Wilcock, Director of General Operations, Marin Sanitary Service.

2024. As a possible opportunity to support this fleet with onsite power, MSS is researching the feasibility of developing a small bioenergy production facility (aka biomass conversion). Current plans are to collocate a community-scale two megawatt power generation facility at the MSS site. Utilizing approximately 25,000 tons/year of woody biomass feedstock, the facility would provide renewable baseload power (24/7) for onsite use (which could include waste haul truck fleet charging stations) with any excess power sent back to the grid through a partnership with Marin Clean Energy (MCE).

Concerns expressed by MSS staff regarding future markets for organics diverted from the Marin County waste stream include:

- Biomass power plants (Woodland and Stockton) are inconsistent customers for processed wood waste.
- Green waste deliveries to WM EarthCare are at capacity due to limited end-use markets for compost produced.

Redwood Landfill

Redwood Landfill and Recycling Center (RL) is owned and operated by Waste Management (WM). The facility was first opened in 1958 on 600 acres of land, just off Hwy 101 in northern Novato. Currently, the facility utilizes 200 acres for commercial compost production, recycling and reuse operations and 222 acres for waste disposal. In addition, in 2006, approximately 180 acres of the facility property was transferred to the Audubon Society for tidal wetlands restoration and permanently designated as protected wildlife habitat.

RL receives about 615,000 tons of waste per year from three Marin County waste haulers, southern Sonoma County, and the public.¹⁷ That waste includes soil, concrete, asphalt, paper, cardboard, glass, aluminum, appliances, food waste, yard waste, and wood waste.

The waste is distributed to the landfill's various operations to ensure the best reuse of materials. For example, in 2021 the landfill received about 218,000 tons of municipal solid waste, 137,000 tons of source separated organic waste (yard trimmings containing approximately 5% food waste) and 210,000 tons of wood waste (construction and demolition and large tree trimmings).

In 2014, WM commissioned the WM EarthCare™ compost production facility at RL which is permitted to process approximately 160,000 tons/year of source separated green waste, food scraps and food-soiled paper waste. The facility utilizes the CASP (covered, aerated, static pile) technology to expedite production of compost which is sold at the WM EarthCare Landscape Center(s) to residential, commercial, and municipal customers.

WM did operate a clean lumber processing facility that colorized chipped wood waste for use as landscape cover. While local markets did not support this product and landscape cover production was curtailed, the upcoming SB 1383 procurement requirements for local jurisdictions are anticipated to increase demand for these products in the future.

¹⁷ Marin Sanitary Service, Mill Valley Refuse Service, Recology Sonoma Marin.
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TSS Consultants

Having multiple operations at RL allows WM to ensure the best use for materials collected. For example, RL processes the following materials:

- Compost production at the WM EarthCare operation – currently at approximately 140,000 tons/year. Permitted to process 160,000 tons/year (514 tons/day). Sold at the onsite landscape center. Some compost is sold back through jurisdictional contract to provide back to communities (consistent with SB 1383 procurement requirements) using vouchers.
- Clean lumber processed into alternative daily cover¹⁸ for onsite use – approximately 31,000 tons/year. Permitted to process 124,000 tons/year (400 tons/day).
- Construction and demolition wood is collected and transported to Marin Resource Recovery Center (MSS) and Windsor Material Recovery Facility (Pacific Sanitation) – approximately 31,000 tons/year. Some processed C & D waste is returned to RL from the Windsor operation for use as alternative daily cover.

WM is currently in the process of commissioning a construction and demolition material recovery facility at Redwood that will process 125,000 tons a year of cardboard, pallets, concrete, asphalt and wood waste. The new facility is scheduled to be fully operational in January 2023.

A landfill gas (primarily methane) recovery bioenergy production facility located onsite at RL was commissioned in 2017. Scaled at 3.9 megawatts of power generation, the facility provides baseload (24/7) renewable power to Marin Clean Energy under a long-term power purchase agreement. WM is considering development of a small community-scale bioenergy production facility utilizing processed tree trimming material and construction and demolition wood as primary feedstocks.

RL is currently phasing in plans for expanded operations:

- Phase I expand landfill disposal capacity 8.5 M cubic yards (securing 30 to 40 years of landfill service life).
- Phase II increase organics processing capacity to meet SB 1383 requiring organic diversion from disposal. Considering onsite anaerobic digestion system or additional food waste to compost operation.

Concerns expressed by RL staff¹⁹ regarding future markets for organics diverted from the Marin County waste stream are noted below.

- Biomass power plants (Woodland and Stockton) are inconsistent customers for processed wood waste. In addition, delivered prices for biomass fuel do not address the full costs of processing and transport.
- Compost production is outpacing market demand. This market imbalance is a major concern but will continue to improve through procurement requirements under SB 1383 (see Compost Production discussion below).

¹⁸ Federal law requires landfills to be covered at the end of each workday to prevent odors, vermin, and insects. While landfills have traditionally utilized soil as ADC, many states allow the use of alternative materials (including organics such as wood waste) for cover.

¹⁹ Ramin Khany, District Manager, Waste Management.

Other Facilities Receiving Woody Biomass

Redwood Landfill and Marin Sanitary Service receive most of the woody biomass produced in Marin County. Other destinations include Republic Services (Richmond), Green Waste Recycling, West Marin Compost, and Bolinas Compost.

Republic Services Transfer Station

Bay Cities Refuse Service (serving southern Marin County including Sausalito and Marin City) transports curbside collected organics (residential green waste and food waste) to Republic Services, Richmond transfer station. Compostable co-mingled green waste and food waste is processed into compost. Additional value-added utilization is planned at the Republic Services, Richmond site with Raven SR providing technology to process woody biomass into green hydrogen.²⁰

Green Waste Recycling

Professional Tree Care Company developed the Green Waste Recycling facility in Richmond to process wood waste from local tree service companies into a variety of value-added uses. Discussions with Green Waste staff confirmed that the Richmond yard regularly receives tree trimmings, logs and stumps from Marin County operations (as well as other Bay Area counties). Approximately 20,000 tons per year were received in 2021. Mulch and biomass feedstock for biomass power plants are the primary products produced onsite. Power plants receiving biomass feedstock from Green Waste include:

- Sustainable Resource Management, Anderson
- DTE Energy Services, Woodland
- Ultrapower Chinese Station, Jamestown

West Marin Compost

Located just outside Nicasio, this facility commenced commercial operation in 2011. Founded by the Lunny family, this facility accepts logs, green waste, tree trimmings and stumps from homeowners, landscapers, ranches, and tree service companies operating in the area. Several of the tree service companies are contractors conducting powerline corridor vegetation management. Over the past five years, the facility has accepted an average of 10,000 tons/year. Incoming material is sorted and processed into compost and mulch products for a variety of markets, including local ranches and vineyards. Manure from nearby dairies is also utilized as feedstock for compost production. Much of the woody material is processed into biomass feedstock for delivery to the DTE Woodland biomass power facility. A small sawmill was added to the operation in 2021, with plans to process select logs received into niche markets (e.g., table tops, architectural pieces, custom milling).

²⁰ <https://ravensr.com/howden-signs-hydrogen-compressor-contract-for-raven-sr-waste-to-hydrogen-plant-in-richmond-california/>

Bolinas Compost

The community of Bolinas has supported the Bolinas Compost operation for about 25 years. Staffed by volunteers, this yard accepts green waste from mostly local homeowners and landscapers. Approximately 920 tons/year of green waste and tree trimmings are accepted and processed into compost. A local tree service provides a chipper to process green waste and logs. Compost is given away to local homeowners.

Food Waste

Food waste generated within Marin County is categorized as either residential (e.g., single family or multi-family units) or commercial (e.g., grocery stores, restaurants, hospitals). Currently all residential food waste is collected curbside in the green waste bin. Commencing January 1, 2022, SB 1383 requires that commercial enterprises commence diversion of food waste. Commercial food waste is collected by waste haulers using bins or dumpsters. Marin Sanitary is collecting and receiving about 3,120 tons/year of commercial food waste with some utilized on site (hog farm). Most of the commercial food waste received is processed (de-packaged and sized) and delivered to Central Marin Sanitary Agency for use as feedstock in the Food2Energy anaerobic digester. Recology Sonoma Marin is also collecting commercial food waste averaging about 820 tons/year with all being transported to Napa Recycling & Waste for use as feedstock for compost production.

Construction and Demolition Wood

Construction and demolition wood (C&D) is received, sorted and processed at Marin Resource Recovery Center (MRRC),²¹ with about 34,000 tons/year transported to bioenergy facilities managed by DTE Energy Services at Woodland and Stockton (see biomass power plant discussion for more information). C&D material at about 31,000 tons/year, received by Redwood Landfill, is sorted and delivered to MRRC and Pacific Sanitation for processing. Clean lumber is sorted and processed at Redwood Landfill for onsite use as alternative daily cover (about 31,000 tons/year). As noted above, MRRC processes incoming C&D for delivery to biomass power plants. Pacific Sanitation, located at Windsor, processes C&D for a variety of end uses including alternative daily cover material for the Redwood Landfill.

As noted in the Redwood Landfill report section above, Waste Management (WM) is considering development of an onsite C&D sorting and processing operation. WM is considering a range of value-added uses for the processed C&D including an onsite bioenergy production facility. Likewise, MRRC is considering development of an onsite bioenergy production facility. However, power produced at MRRC would be used to support onsite power demand and provide power for a fleet of electric commercial waste hauling trucks.

Biosolids

Marin County is home to six waste water treatment districts. These districts provide waste water treatment services resulting in byproducts including sewage sludge/biosolids. Sludge and biosolids are synonymous terms and are considered an organic waste. As such, the water treatment districts

²¹ MRRC is affiliated with Marin Sanitary Services.

are held to SB 1383 regulatory standards requiring diversion of biosolids away from traditional landfill disposal practices. TSS interviewed staff from all six districts and found that a variety of diversion techniques are utilized to divert biosolids away from landfill disposal including:

- Soil amendment in commercial agricultural operations.
- Alternative daily cover at local landfills.
- Land applied (typically sub-surface injection).

Most of the districts used anaerobic digestion to capture methane for onsite energy production (e.g., thermal energy and/or cogeneration). Novato Sanitary District expressed interest in expanding onsite energy production by utilizing woody biomass as a feedstock.²² Approximately 3,263 dry tons²³ of biosolids are produced annually within Marin County by all six water treatment facilities.

Landfill Disposal

Municipal solid waste (MSW) produced in Marin County in 2021 (that was not recycled or diverted) was landfilled at just over 20 different landfills. The Cal Recycle sponsored Recycling and Disposal Reporting System (begun in 2019) reports that in 2021, Marin County produced 226,982 tons of MSW disposed in landfills. Just over 99% of MSW produced in Marin County went to three landfills:

- Redwood Landfill – 115,436 tons (51% of Marin MSW)
- Potrero Hills Landfill – 101,607 tons (45% of Marin MSW)
- Keller Canyon Landfill – 9,056 tons (4% of Marin MSW)

Summary of Urban Biomass Produced Within Marin County

Table 8 provides a summary of key urban biomass waste streams produced within Marin County.

Table 8. Urban Biomass Produced Within Marin County

Source	Green Waste* Tons/Year	Commercial Food Waste Tons/Year	C & D Wood Tons/Year	Biosolids Dry Tons/Year
Practically Available	60,145	3,940	65,000	3,263

*Includes approximately 5% residential food waste (by weight).

BIOMASS FEEDSTOCK CHARACTERIZATION

TSS archives have results of feedstock sample testing which are generally applicable and representative of organic material practically available in Marin County. In addition, recent publications provide indicative descriptions of organic feedstock physical properties.

²² Per discussions with Sandeep Karkal, General Manager, Novato Sanitary District.

²³ Dry tons is the standard unit of measure for biosolids.

Physical Properties

Table 9 summarizes physical properties of selected organic feedstocks tested as part of previous assessments conducted by TSS. Additionally, physical property data was sourced from the 2015 Assessment of Biomass Resources in California report as generated by the California Biomass Collaborative.²⁴

Table 9. Physical Properties of Selected Feedstocks

Feedstock Type	Physical Properties		
	Moisture Content (Wet Basis)	Ash Content (Percent)	High Heat Value (Btu/Dry Pound)
Biosolids (sewage waste)	20	45	6,620
Chaparral	40	3	8,000
Dairy Cow Manure	70	40	7,308
Food	70	5	6,019
Forest Thinning and Slash	50	3	9,027
Leaves and Grass	60	4	6,449
Paper/Cardboard	10	5.3	7,653
Pruning and Tree Trimming	40	3.6	8,169

Table 9 provides indicative figures for key feedstock physical properties. If more localized and current data is needed, TSS recommends feedstock sampling and testing (e.g., ultimate and proximate analysis) of practically available feedstocks specific to Marin County.

Enterprises Managing Biomass Feedstocks and Organics

There are a number of enterprises currently managing woody biomass feedstocks and organics within Marin County. Summarized below by group, is the list of enterprises, many of whom were interviewed by TSS as part of this investigation.

Fuels Treatment Contractors

Clements Tree Service
 Community Tree Service
 Conservation Corp North Bay
 Fahey Tree Service
 Fire Foundry
 Forster & Kroeger Landscape Maintenance
 Great Tree Tenders
 Mount Tam Crew
 Small World Tree Company
 The Tree Man
 Wilhelm Tree Service

²⁴ An assessment of Biomass Resources in California, California Biomass Collaborative, 2015.
Biomass Feedstock Supply Availability Confirmation for Marin County
 TSS Consultants

Wrights Tree Service

Wood Waste Receiving Yards

Bolinas Compost
Green Waste Recycling
Marin Resource Recovery
Redwood Landfill
West Marin Compost

Contract Waste Haulers

Bay Cities Refuse Service
Green Hauling
Marin Sanitary Service
Mill Valley Refuse Service
Recology Sonoma Marin
Tamalpais Community Service District

Compost Operations

Bolinas Compost
West Marin Compost
WM EarthCare

CURRENT BIOMASS FEEDSTOCK UTILIZATION

Biomass produced within Marin County has a range of commercial enterprises serving as ready markets. These markets are mature and have been in place (in some cases) for decades.

Biomass Power Plants

A key utilization market for biomass feedstock produced within Marin County are existing biomass power plants. These facilities, all located outside of Marin County, were developed in the late 1980s and early 1990s in response to state and federal regulatory mandates and incentives for renewable power generation. There are currently four biomass power generation facilities procuring feedstock from operations accepting and processing woody biomass generated within Marin County, including Marin Sanitary Services, West Marin Compost, and Green Waste Recycling. Table 10 lists all four power plants and their historic wood fuel procurement trends.

Table 10. Biomass Power Generation Facilities Currently Sourcing Biomass Feedstock

Facility	Power Generation MW (Net)	Total Wood Fuel Consumption Tons ²⁵ /Year	Feedstock Sourced from Marin County		
			Urban Wood and Tree Trimmings* Tons/Year	Forest Feedstock Tons/Year	Totals Tons/Year
DTE Woodland	24	320,000	30,000	6,000	36,000
DTE Stockton	44	587,667	4,000	0	4,000
Ultrapower Chinese Station	18	240,000	0	6,000	6,000
Sustainable Resource Management	35	466,667	0	6,000	6,000
Totals	121	1,613,333	34,000	18,000	52,000

*Primarily processed construction and demolition wood.

Figure 16 highlights the location of all four facilities.

Figure 16. Biomass Power Facility Locations



²⁵ Note that the preferred unit of measure is tons (2,000 pounds), not adjusted for moisture content. Also known as green tons.

Compost Production

Marin County is home to three active compost production facilities. In addition, Republic Services is operating a compost production facility in Richmond (just southeast of Marin County). All are primarily receiving green waste (tree trimmings, yard clippings) and minor amounts of logs and stumps. Table 11 summarizes incoming green waste for each of the compost facilities.

Table 11. Compost Facilities Receiving Green Waste

Compost Facility	Location	2021 Green Waste Received from Marin County (Tons)
Bolinas Compost	Bolinas	918
Republic Services	Richmond	2,350
West Marin Compost	Nicasio	1,962
WM EarthCare	Novato	54,915
	Total	60,145

All of the compost facilities appear to have ready markets for compost produced. WM EarthCare noted that compost supply produced is currently outpacing compost demand. However, this imbalance is expected to be addressed as jurisdictions (cities and counties) meet SB 1383 compost procurement requirements. Using a compost procurement calculator (provided by R3 Consulting), it appears that jurisdictions within Marin County will be required to procure about 12,000 tons/year of compost produced from green waste generated within the county.

Anaerobic Digestion

Central Marin Sanitation Agency is operating a one megawatt power generation facility onsite at its San Rafael facility. Since 2014, the Food4Energy facility has utilized anaerobic digestion to convert food waste and biosolids into methane for power production. The facility is currently receiving about 7 to 10 tons/day of processed pre-consumer commercial food waste from Marin Sanitary Services. The Food4Energy facility has capacity to utilize up to 40 tons/day of food waste.

BIOMASS FEEDSTOCK SUPPLY AVAILABILITY FORECAST

Outlined below are the five-year and ten-year biomass feedstock supply availability forecasts. Note that these forecasts are focused on practically available biomass feedstocks produced in Marin County.

Five-Year Forecast

Most of the biomass feedstock volumes produced/year in Marin County are forecast to increase within the next five years. Table 12 summarizes, by feedstock type, how practically available volumes (tons/year) are likely to change over the next five years. Note that average tons/year estimates are rounded to reflect the indicative figures that they represent.

Table 12. Biomass Feedstock Supply Availability Trends 2023 to 2027

Feedstock Type	Average Tons/Year	Trend Observations
Forest & Woodland Biomass	4,000	Increasing slightly then leveling off as shaded fuel break initial installations are completed and vegetation maintenance techniques are deployed every three to five years (following installation).
Green Waste*	60,100	Increasing as homeowners continue to create defensible space near structures.
Pre-Consumer Commercial Food Waste	3,900	Increasing as more commercial enterprises meet SB 1383 organics diversion requirements.
Construction & Demolition Wood	70,000	Increase slightly as SB 1383 diversion requirements are implemented and Redwood Landfill commissions C&D MRF.
Biosolids	3,300	Steady state to slight increase based on population trends.
Total	141,300	

*Note that green waste includes about 5% residential food waste (by weight).

Ten-Year Forecast

Most of the biomass feedstock volumes produced/year in Marin County are forecast to increase within the next ten years. Table 13 summarizes, by feedstock type, how practically available volumes (tons/year) are likely to change over the next ten years.

Table 13. Biomass Feedstock Supply Availability Trends 2023 to 2032

Feedstock Type	Average Tons/Year	Trend Observations
Forest & Woodland Biomass	2,500	Initial fuel break installations are completed and vegetation maintenance techniques are deployed. Steady state of about 2,500 tons/year is realized by 2030.
Green Waste*	70,000	Increasing as homeowners continue to create defensible space near structures. Steady state of about 70,000 tons/year is realized by 2030.
Pre-Consumer Commercial Food Waste	15,000	Increasing as more commercial enterprises meet SB 1383 organics diversion requirements. Steady state of 15,000 tons/year is realized by 2030.
Construction & Demolition Wood	80,000	Increase slightly as SB 1383 diversion requirements are implemented and Redwood Landfill commissions C&D MRF. Dependent upon housing market. Can be highly variable.
Biosolids	3,300	Steady state to slight increase based on population trends.
Total	170,800	

*Note that green waste includes about 5% residential food waste (by weight).

Seasonal Availability of Feedstocks

Table 14 summarizes seasonal availability of feedstocks (by type) produced within Marin County.

Table 14. Seasonal Availability of Feedstocks

Feedstock Type	Availability	Comments
Forest and Woodland Biomass	August through January	Forest fuels reduction activities are conducted between August and January to accommodate northern spotted owls and other nesting birds. In addition, wet weather or windy conditions will cause operations to pause.
Food Waste, Green Waste and Tree Trimmings	Year Round	Communities produce food waste and tree trimmings on a year-round basis. Some slowdown over the Thanksgiving and Christmas/New Year holiday period.
Construction and Demolition Wood	Year Round	Construction is typically conducted year round. Some slowdown over the Thanksgiving and Christmas/New Year holiday period.
PG&E Powerline Vegetation Management	Year Round	Tree service contractors working for PG&E conducting hazard tree removal and tree trimming operations typically work year round. Some slowdown over the Thanksgiving and Christmas/New Year holiday period.
Biosolids	Year Round	Stable all year round. Some increase during summer months due to uptick in visitors to Marin.
Commercial Food Waste	Year Round	Stable all year round. Some increase during summer months due to uptick in visitors to Marin.

OBSERVATIONS

Summarized below are TSS observations regarding status of biomass management trends within Marin County.

Potential Biomass Utilization Facilities

In the course of this investigation, TSS interviewed several entities (three private, one public) that expressed interest in development of onsite bioenergy production facilities utilizing biomass feedstocks sourced from Marin County.

- Marin Sanitary Service – two megawatt bioenergy production facility utilizing C&D and tree trimmings processed onsite.
- Redwood Landfill – small-scale bioenergy production facility utilizing C&D and tree trimmings processed onsite. Also plan to investigate potential for anaerobic digestion bioenergy facility utilizing biosolids and commercial food waste as primary feedstocks.
- Novato Sanitary District – plan to investigate feasibility of installing an anaerobic digestion bioenergy facility utilizing biosolids and commercial food waste as primary feedstocks.

- Republic Services, Richmond – developing an advanced biofuels (green hydrogen) production facility (in conjunction with Raven SR) to be collocated at the Republic Services Richmond site.

Dynamic Marketplace

Marin County is home to a mature biomass feedstock utilization marketplace with a variety of factors impacting feedstock supply and demand. The existing biomass power plant infrastructure is aging and as power purchase agreements (PPA) terminate, these facilities may be re-purposed or closed. In most cases, the PPA will likely be extended, but this is difficult to forecast. The compost production facilities are adding significant value with some (WM EarthCare) operating at close to regulatory capacity.

Potential Biomass Processing Operations

Redwood Landfill is planning to install a C&D waste processing operation in 2023. This will likely reduce RL's need to send C&D waste to MSS and Pacific Sanitation for processing. Woody material from the C&D processing operation could be utilized as feedstock for an onsite bioenergy facility.

Forest and Woodland Biomass Removal Infrastructure

Historically, fuels reduction treatment techniques have focused on chip and scatter, pile and burn, mastication and livestock grazing. Very little woody biomass from fuels treatment projects is currently collected, processed, and transported off-site. Consideration should be made to conduct trial collection, processing and transport operations. Considering the risks of pile and burn (e.g., pile fire escape) and air impacts (e.g., smoke, greenhouse gases), there may be a cost-effective removal methodology worth investigating. Coupling this with the cost to burn piles (up to \$3,074/acre)²⁶ and potential market value of woody biomass feedstock delivered to a bioenergy facility,²⁷ financial analysis may demonstrate that biomass collection, processing and transport is a viable alternative to current techniques. Further investigation in the form of a demonstration or trial should be considered.

Green Waste Processing

Considering the apparent oversupply of processed compost produced within Marin County²⁸ there may be an opportunity to sort the woody fraction of green waste for value-added use as feedstock for bioenergy production. The compost supply/demand market imbalance is likely to continue as forest and woodland fuels reduction activities increase over time, producing additional volumes of green waste.

²⁶ Per Marin Water experience.

²⁷ Currently ranging from \$35 to \$50 per dry ton.

²⁸ Per discussions with Redwood Landfill staff.

Community Outreach

Marin County is home to a number of stakeholder groups²⁹ that are actively engaged in supporting fire defensible communities, sustainable practices, organics waste reduction, and local value-added utilization of biomass. This provides implementing entities such as Marin Resource Conservation District, Marin Wildfire Prevention Authority, Fire Safe Marin and numerous fire protection districts with significant community outreach opportunities. Regular contact with stakeholder groups is critical and will (from TSS experience) result in community support for fuels reduction project implementation and local biomass utilization.

²⁹ Ecologically Sound Practices, Marin Conservation League, OFA Marin, Sustainable San Rafael, Carbon Cycle Institute.

APPENDIX A

MARIN COUNTY PARKS AND OPEN SPACE FIRE FUEL REDUCTION PRESCRIPTION KING MOUNTAIN, Millard Road

Contacts:

Nate Clark	Biodiversity Monitor	415-328-1644
Jim Chayka	Superintendent	415-473-3639

Objectives:

- Create and maintain defensible space for habitable structures
- Reduce fuel load by eliminating ladder fuels, removing large fuel caches, and promoting native biodiverse habitat
- Remove woody invasive vegetation

Work Items:

- Within 150 feet of habitable structures:
 - Remove all dead and dying/decaying vegetation
 - Clear all dead debris on ground surface (branches, rounds, dead and down, etc.)
 - Fell dead trees under 10" DBH
 - Remove all invasive shrubs/young trees, including:
 - French broom and Scotch broom (*Genista monspessulana*, *Cytisus scoparius*)
 - Monterey pine and Bishop pine (*Pinus radiata*, *Pinus muricata*)
 - Blue gum (*Eucalyptus globulus*)
 - Create horizontal spacing between desirable vegetation (native oaks, toyon, bays, etc.)
 - Thin out dense stands of native vegetation by removing dying or dead limbs
 - Limb trees up to 8 feet off the ground surface (or 1/3 the of the height of the tree)
 - Increase spacing of native vegetation by removing young trees (<6" DBH) where appropriate for fire safety
- Beyond 150 feet of habitable structures:
 - Remove invasive shrubs/young trees where instructed by MCP staff.

- Chip material on-site and broadcast chips into work area where appropriate. Stash fuel in burn piles for later burning where chipper access unfeasible

Work Restrictions

- Mechanized equipment (chainsaws, hedge trimmers, mowers, chippers, etc.) cannot be used within or adjacent to the project area between February 1st and July 31st.
- All work must occur on Marin County Open Space. Do not cross boundaries such as fences or stake lines unless access is explicitly granted by the private property owner.

MARIN COUNTY HAZARDOUS AND SOLID WASTE MANAGEMENT JOINT POWERS AUTHORITY

Belvedere Date: February 16, 2023

Corte Madera To: JPA Board of Directors

 From: Berenice Davidson, Interim Executive Director

County of Marin Re: Elect Board Chair and Vice Chair

Fairfax

Larkspur

Mill Valley

Section 7.2(d) of the Joint Powers Agreement specifies that the Board shall elect its Chair and Vice Chair by Majority Vote. The Chair shall represent the Authority and execute contracts and other documents when required by the Rules of Procedure and/or By-Laws. The Vice-Chair shall serve in the absence of the Chair.

Novato

The two-year term of the Chair and Vice-Chair shall commence at the adjournment of this meeting.

Ross

If not reappointed, the current Chair, Greg Chanis and current Vice-Chair, Adam McGill terms will terminate at the adjournment of this meeting.

San Anselmo

San Rafael **Recommendation**

- Sausalito**
1. Adopt a Motion appointing a Chair.
 2. Adopt a Motion appointing a Vice-Chair.

Tiburon

Board Chair: Please confirm the vote on this item by reading the following items out loud after the vote.

Motion: _____ Second: _____

Ayes: _____

Noes: _____

Abstentions: _____

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

Belvedere

Date: February 16, 2023

Corte Madera

To: JPA Board of Directors

From: Berenice Davidson, Interim Executive Director

County of Marin

Re: Elect Southern Marin Cities and Ross Valley Cities
Representatives to the Executive Committee

Fairfax

Larkspur

Section 7.3 (b) of the Joint Powers Agreement specifies that the Executive Committee shall be composed of the Chair and Vice-Chair plus three other members of the Governing Board elected by the Board. Three of the committee members must be from the County, San Rafael, and Novato. The Executive Committee Members shall serve two-year terms (Section 7.3(d)) and may be reappointed. The remaining two members are from:

Mill Valley

Novato

Ross

1. The Southern Marin Cities (Sausalito, Tiburon, Belvedere, and Mill Valley). This seat is currently held by Greg Chanis from Tiburon.

San Anselmo

2. The Ross Valley Cities (Ross, San Anselmo, Fairfax, Larkspur, and Corte Madera). This seat is currently held by Todd Cusimano from Mill Valley (formerly of Corte Madera).

San Rafael

Sausalito

Note – this composition may have changed via the Board’s action on Item No.7 immediately before this Item. Both the Chair and Vice-Chair can be any member of the Executive Committee.

Tiburon

Recommendation

1. Adopt a Motion appointing or reappointing a Southern Marin City Board Member to the Executive Committee, and:
2. Adopt a Motion appointing or reappointing a Ross Valley City Board Member to the Executive Committee.

Board Chair: Please confirm the vote on this item by reading the following items out loud after the vote.

Motion: _____ Second: _____

Ayes: _____

Noes: _____

Abstentions: _____

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MARIN COUNTY HAZARDOUS AND SOLID WASTE MANAGEMENT JOINT POWERS AUTHORITY

Belvedere

Date: February 16, 2023

Corte Madera

To: JPA Board Members

County of Marin

From: Berenice Davidson, Interim Executive Director

Fairfax

Re: Appoint Budget Subcommittee Members and Approve a FY 2023-24 Budget Development Process and Schedule

Larkspur

To help develop the proposed FY 23-24 JPA Budget, the Board should appoint a Budget Subcommittee from the Executive Committee.

Mill Valley

Novato

Past practice in selecting the annual Budget Subcommittee has been for the Board to appoint the Chair or Vice-Chair and the representative from the County.

Ross

San Anselmo

San Rafael

Sausalito

Tiburon

It is proposed that the Subcommittee meet with Staff to review the draft FY 23-24 budget that would then be reviewed as a Proposed Draft by the Full Board at the Board of Directors meeting in April. Final adoption of the budget with any proposed modifications is slated to be included on the agenda for the May Board of Directors meeting.

<i>JPA Board Executive Committee</i>	
Ross Valley Cities	Appointed in Item 8
San Rafael	Schutz (Alt. Alilovich)
So. Marin Cities	Appointed in Item 8
Novato	Adam McGill
County	Hymel (Alt. Eilerman)

MARIN COUNTY HAZARDOUS AND SOLID WASTE MANAGEMENT JOINT POWERS AUTHORITY

The recommended schedule is as follows:

1. February 17, 2023, JPA receives the HHW Facility Budget request.
2. Week of March 20, 2023, JPA Staff submits a draft budget request and associated fee resolution to Budget Subcommittee.
3. Week of March 27, 2023, and as needed, Budget Subcommittee meets with Staff for review of draft budget and fee resolution.
4. April 20, 2023, Full JPA Board or Executive Committee reviews the Subcommittee’s recommended, proposed Draft Budget and provides direction on any changes.
5. May 18, 2023, budget and fee resolution adopted by full JPA Board.

Recommendation

Adopt a Motion appointing Budget Subcommittee Members and approve a FY 2023-24 budget development process and schedule.

Board Chair: Please confirm the vote on this item by reading the following items out loud after the vote.

Motion: _____ Second: _____

Ayes: _____

Noes: _____

Abstentions: _____

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