

TOWN OF BROOKLINE, MASSACHUSETTS - PURCHASING DIVISION

333 WASHINGTON STREET, BROOKLINE, MA 02445

REQUEST FOR PROPOSALS

CLIMATE ACTION AND RESILIENCY PLAN
(To be submitted in Envelope A)

Marked as Follows: **TECHNICAL PROPOSAL**

CLIMATE ACTION AND RESILIENCY PLAN
Reference #P-25-04

Proposer's Name: Resource Recycling Systems, Inc.
Name of Individual or Company making Proposal

The following are to be attached to this Proposal form. (Responses should be detailed in accordance with the previous specific requests for information under "Technical Proposal" in the RFP document).

1. A synopsis of similar projects.
2. A synopsis of other significant contracts, with up to four examples, related to these types of services, preferably for municipal or other governmental agencies.
3. Résumés of key personnel.
4. A list with the name, address, telephone number, dates of service and a contact person's name and email address for a minimum of three comparable projects.
5. Number of consecutive years the proposer has been engaged in professional consulting services in the disciplines specified in this Request.
6. A completed Proposal Signature Form.

Note: Eight copies of the Proposal are to be submitted.

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333 WASHINGTON STREET, BROOKLINE, MA 02445

REQUEST FOR PROPOSALS

**CLIMATE ACTION AND RESILIENCY PLAN
TECHNICAL PROPOSAL**
(To be submitted in Envelope A)

PROPOSAL SIGNATURE FORM

The undersigned, hereafter called the Proposer, having fully familiarized him/herself with all of the Proposer documents, hereby agrees and declares:

1. That prices inserted cover all services, labor, materials, transportation, insurance, and all other necessary expenses to fulfill the conditions of the Contract within the time stated.
2. That if a substitute manufacturer's name or model number is not inserted by the Proposer in the appropriate location, it is understood that the Proposer will furnish only the specified item, and no substitute will be accepted.
3. Pursuant to M.G.L. Chapter 62C, Section 49A, the Proposer hereby certifies that the Proposer has filed all state tax returns and paid all state taxes required under law.
4. The undersigned certifies under penalties of perjury that this Proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

The following items are to be completed by the Proposer:

Title of Proposal RRS Climate Action and Resiliency Plan for Brookline Proposal

Guaranteed Date of Completion December 31, 2025

Company Name Resource Recycling Systems, Inc.

Company Address 416 Longshore Drive, Ann Arbor, Michigan 48105

Social Security or Federal Identification Number 38-2649280

Firm is: A Corporation X A Partnership _____ Individually Owned _____

Signature of Company Official Brianne H. Haven

Telephone Number 734.996.1361

Fax Number 734.996.5595

Email Address bhaven@recycle.com

Prompt Payment Discount (if applicable): N/A % N/A Days, Net N/A Days



TOWN OF BROOKLINE

Massachusetts

DEPARTMENT OF FINANCE

PURCHASING DIVISION

333 Washington Street
Brookline, MA 02445
617-730-2195
Fax: 617-264-6446

PROPOSAL SIGNATURE FORM

The undersigned, hereafter called the proposer, having fully familiarized himself with all of the proposer documents, hereby agrees and declares:

1. That prices inserted cover all services, labor, materials, transportation, insurance, and all other necessary expenses to fulfill the conditions of the contract within the time stated.
2. That if a substitute manufacturer's name or model number is not inserted by the proposer under the appropriate column, it is understood that the proposer will furnish only the specified item and no substitute will be accepted.
3. Pursuant to M.G.L. Ch. 62C, sec. 49A, the proposer hereby certifies that the proposer has filed all state tax returns and paid all state taxes required under law.
4. The undersigned certifies under penalties of perjury that this proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

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Email Address bhaven@recycle.com

Terms: N/A % N/A Days, Net N/A Days



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Massachusetts

DEPARTMENT OF FINANCE

PURCHASING DIVISION

333 Washington Street
Brookline, MA 02445
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Fax: 617-264-6446

CERTIFICATE OF NON – COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

Signature of individual submitting bid or proposal

Resource Recycling Systems, Inc.

Name of Business

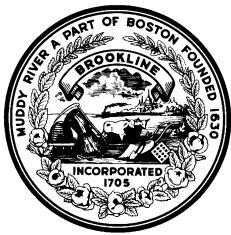
TAX COMPLIANCE CERTIFICATE

Pursuant to M.G.L. c. 62C, §49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Signature of individual submitting bid or proposal

Resource Recycling Systems, Inc.

Name of Business



TOWN OF BROOKLINE

Massachusetts

DEPARTMENT OF FINANCE

PURCHASING DIVISION

333 Washington Street
Brookline, MA 02445
617-730-2195
Fax: 617-264-6446

**Certificate of Compliance with Article 4.4
FAIR EMPLOYMENT PRACTICES WITH REGARD TO CONTRACTS
of the Town of Brookline By-Laws**

I, Brianne Haven (printed name of individual/employer contracting with the Town) hereby certify that I shall comply with the Fair Employment Practices in fulfilling the terms of the contract that I propose to enter into with the Town of Brookline, and to which this Certificate is appended. By its signature on this Certification, the undersigned indicates it has reviewed Article 4.4 of the General Bylaws of the Town of Brookline and agrees to incorporate into an Agreement the necessary provisions related to fair employment practices and non-discrimination.

Signed under the pains of penalties of perjury, on this 14 day of November, 2024;

Brianne Haven
Contractor

**Certificate of Compliance with Article 4.5
DISCRIMINATION PROHIBITION WITH REGARD TO CONTRACTS
of the Town of Brookline By-Laws**

I, Brianne Haven (printed name of individual/employer contracting with the Town) hereby certify that I shall not discriminate against any individual because of such individual's race, color, religious creed, national origin, sex, sexual orientation, age or ancestry in fulfilling the terms of the contract that I propose to enter into with the Town of Brookline, and to which this Certificate is appended. By its signature on this Certification, the undersigned indicates it has reviewed Article 4.5 of the General Bylaws of the Town of Brookline and agrees to incorporate into an Agreement the necessary provisions related to non-discrimination.

Signed under the pains of penalties of perjury, on this 14 day of November, 2024;

Brianne Haven
Contractor

**Certificate of Compliance with Article 4.8
LIVING WAGE
of the Town of Brookline By-Laws**

I, Brianne Haven (printed name of individual/employer contracting with the Town) hereby certify that I shall pay the Living Wage in fulfilling the terms of the contract that I propose to enter into with the Town of Brookline, and to which this Certificate is appended. By its signature on this Certification, the undersigned indicates it has reviewed Article 4.8 of the General Bylaws of the Town of Brookline and agrees to incorporate into an Agreement the necessary provisions related to Living Wage.

Signed under the pains of penalties of perjury, on this 14 day of November, 2024:



Contractor

Type text here

CERTIFICATE OF VOTE

I, Brianne Haven, Clerk of

Corporate Secretary of Resource Recycling Systems, Inc. _____, hereby certify that, at a meeting of the Board of Directors of said Corporation duly held on December 1, 2023, at which a quorum was present and voting (Date must be earlier than contract) throughout, the following vote was duly passed and is now in full force and effect:

"VOTED: That Brianne Haven
(NAME OF OFFICER AUTHORIZED TO SIGN FOR CORPORATION)

be and hereby is authorized, directed and empowered for, in the name and on behalf of this Corporation to sign seal with the corporate seal, execute, acknowledge and deliver all contracts, bonds and other obligations of this Corporation; the execution of any such contract, bond or obligation by such Brianne Haven to be valid and

(NAME OF OFFICER)
binding upon this Corporation for all purposes, and that a certificate of the Clerk of this Corporation setting forth this vote shall be delivered to the Town of Brookline; and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation is delivered to the Town of Brookline."

I further certify that Brianne Haven is the
(NAME OF OFFICER)

duly elected COO and CFO of said Corporation.
(TITLE)

Signed *Brianne Haven*
(CLERK-SECRETARY)

Place of Business: 416 Longshore Drive, Ann Arbor, Michigan 48105

Date of Contract: November 14, 2024

COUNTERSIGNATURE: *James Frey* CEO AFFIX CORPORATE SEAL
(NAME AND TITLE OF OFFICER)

In the event that the Clerk or Secretary is the same person as the Officer authorized to sign that contract or other instrument for the Corporation, this certificate must be countersigned by another officer of the Corporation.



CLIMATE ACTION AND RESILIENCY PLAN

PREPARED BY:

RRS  | recycle.com

PREPARED FOR:

BROOKLINE
MASSACHUSETTS



Resource Recycling Systems
416 Longshore Drive
Ann Arbor, MI 48105

Dear Brookline Evaluation Committee,

Resource Recycling Systems (RRS), in collaboration with Ricardo PLC (Ricardo), is excited to submit our proposal for the City of Brookline's Climate Action and Resiliency Plan (CARP). With nearly four decades of experience in sustainable resource management and, by extension, climate planning, RRS has partnered with municipalities nationwide to address complex climate and resilience goals. Ricardo brings more than 100 years of engineering excellence and offers leading-edge, innovative cross-sector solutions to help clients solve their most complex, strategic, and operational challenges. RRS and Ricardo (RRS Project Team) bring unparalleled experience and some of the brightest minds in the industry, providing experience-driven and creative solutions.

Since our founding in 1985, RRS has been a pioneer in environmental innovation, working across sectors to develop robust systems for waste reduction, material recovery, and circular economy practices. Our team includes experts in emissions modeling, climate policy, and sustainability communications—essential skills for developing Brookline's CARP to reduce emissions, enhance resilience, and improve the quality of life for all residents. Our history of leading equitable climate initiatives, like the Resilient Washtenaw Climate Action Plan and Hennepin County's Zero Waste Action Plan, demonstrates our ability to create data-informed, justice-centered strategies for real and lasting impact.

Ricardo's Climate Action Planning and Transparency (CAPT) team are at the forefront of international work on climate change, including national and sub-national climate action planning, and have been for several decades. Drawing on the experience of leading the UK's emissions work since the 1970s, they have supported the climate policy objectives of numerous governments – including greenhouse gas (GHG) target setting, planning of mitigation portfolios to achieve those targets, development of Nationally Appropriate Mitigation Actions (NAMAs), accessing climate finance, carbon pricing scenarios, and national cost/benefit calculations for actions related to climate change.

Together, RRS and Ricardo bring a powerful blend of technical and engagement expertise to this project. Our partnership will deliver a climate action and resiliency plan that is actionable, accessible, and aligned with Brookline's ambitious climate goals. We are inspired by Brookline's leadership in climate resilience and are eager to support the Town's path toward a carbon-free future through inclusive, community-centered, and justice-driven solutions.

Thank you for considering our proposal. We look forward to the opportunity to collaborate on this transformative initiative.

Sincerely,



Brianne Haven
RRS Chief Operating and Finance Officer
BHaven@recycle.com



TABLE OF CONTENTS

Project Background and Goals	4
Project Philosophy and Approach.....	6
Work Program.....	7
Work Schedule	16
Respondent Profile.....	17
Project Leadership, Organization, and Management	24
Appendix 1: Resumes	27
Appendix 2: Work Samples	39



PROJECT BACKGROUND AND GOALS

This section responds to RFP Minimum Evaluation Criteria A. and Comparative Evaluation Criteria 2. a.

project background

Brookline has a history of proactive climate actions and resilience planning, including its 2018 Climate Action Plan, the 2021 Urban Forest Climate Resiliency Master Plan, and the 2023 Hazard Mitigation Plan. While these initiatives laid an essential groundwork, the Town now recognizes a pressing need for an integrated, cohesive approach that will serve as a roadmap to guide its climate actions over the next decade and beyond. To this end, the CARP will not only emphasize GHG emissions reduction but also strengthen Brookline's resilience against increasing climate-related events such as severe windstorms, extreme heat, and flooding, which disproportionately impact vulnerable populations.

Brookline's vision is clear: a climate action and resilience plan that both reduces its carbon footprint and enhances the community's ability to withstand and adapt to climate impacts. This vision requires thoughtful prioritization of high-impact strategies that address both mitigation and adaptation goals, support Environmental Justice (EJ) communities, and mobilize the resources and partnerships necessary to achieve a sustainable future.

project goals

To achieve Brookline's ambitious climate and resilience objectives, this project's goals are structured around comprehensive, data-informed strategies that prioritize impact, inclusivity, and accountability. The primary goal is to realize **Net-Zero Emissions by 2040** through a suite of strategies targeting GHG emissions reductions from both Town-controlled and influenced sources. This goal will be approached with a focus on energy efficiency, renewable energy integration, and sustainable transportation solutions, with structured sub-goals aimed at tracking incremental progress across sectors.

Enhancing Climate Resilience represents the second critical objective, involving the assessment and reinforcement of Brookline's adaptive capacity to withstand climate-induced hazards, including severe wind events, flooding, and extreme temperatures. This includes developing robust, integrated mitigation and adaptation actions that will be systematically incorporated into Brookline's infrastructure, emergency preparedness, and community services.

Building on **Consolidated Plans and Research**, RRS will unify insights from previous plans – such as the 2018 Climate Action Plan, the 2021 Urban Forest Climate Resiliency Master Plan, and the 2023 Hazard Mitigation Plan – into a cohesive framework that aligns with the town's current net-zero and resilience objectives. This consolidation will eliminate redundancy and ensure that prior research and recommendations are leveraged effectively.

Inclusive Community Engagement is another cornerstone, designed to ensure that EJ communities and other key stakeholders actively participate in shaping the CARP. Through forums, feedback sessions, and digital engagement tools, this project will facilitate a planning process that is both accessible and inclusive, reflecting the diverse voices of Brookline.

Recognizing the need for effective action, the project will **Prioritize High-Impact Actions** with clearly defined implementation paths. Each recommended action will be accompanied by measurable outcomes and a specific SMART implementation plan with budget estimates, potential funding sources, and an equitable rollout plan, facilitating timely and cost-effective implementation across the town.



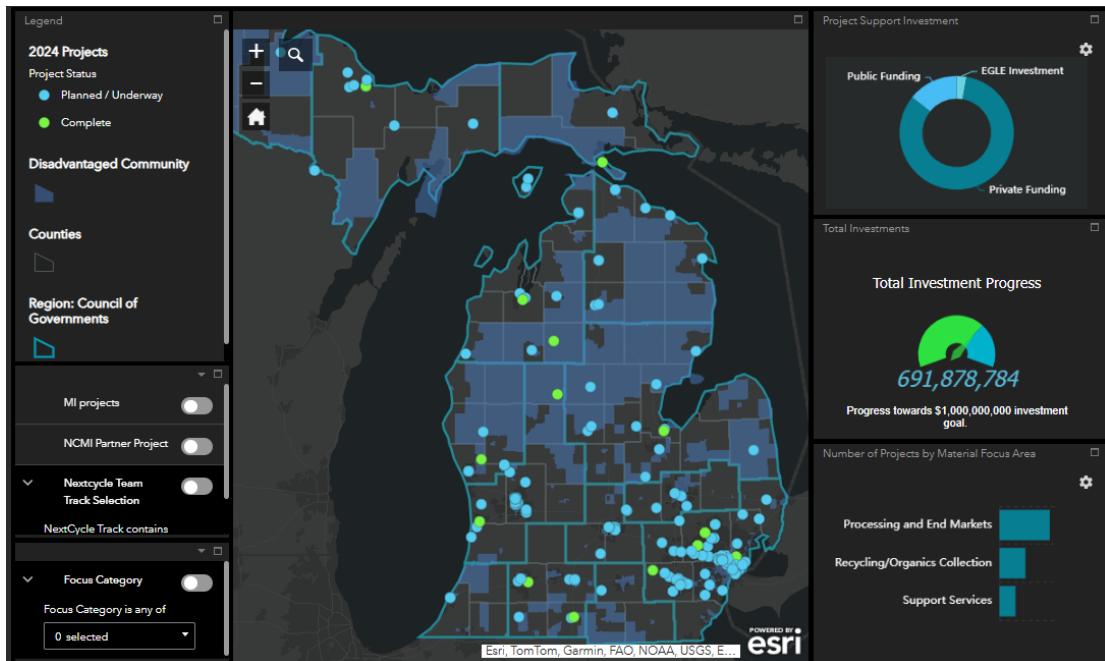
For transparency and progress tracking, a **Climate Action Dashboard** will be developed, serving as a dynamic monitoring and reporting tool. This dashboard will track the progress of each initiative, providing stakeholders and residents with real-time updates and ensuring accountability and adaptability as Brookline progresses toward its climate goals.

Finally, a commitment to **Equity and Environmental Justice** will guide each action, addressing the needs of Brookline's most vulnerable populations. This goal will ensure that the benefits of climate actions are equitably distributed across all sectors, enhancing quality of life, health, and climate resilience for all residents.

Project Example in Action: NextCycle Michigan

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), in collaboration with RRS, is deploying NextCycle Michigan and the Renew Partnership Portal to support the state's ambitious goal of achieving a 45% recycling rate. These platforms, part of a multi-year partnership extended through 2027, are designed to strengthen Michigan's recycling infrastructure and create end markets to drive a more resilient circular economy. The project uses a baseline data-driven gap analysis to target specific opportunities and resources, fostering partnerships that enhance material recovery and recycled-content businesses across Michigan.

A core component of this effort involves interactive web mapping applications developed using ArcGIS Online. These maps provide EGLE, NextCycle teams, and private investors with real-time data visualizations of state-wide recycling investments, facilities, and gaps in infrastructure. By integrating data from EGLE, the EPA, and RRS' internal network, the maps offer layered insights into disadvantaged communities and regions needing investment. This tool enables data-driven planning, transparency, and collaboration across public and private sectors, ultimately helping Michigan achieve its sustainability and recycling goals through informed and equitable resource allocation. To see the full representation of the dashboard, please visit nextcyclemichigan.com/data-visualizations



Screen grab of NextCycle Michigan's Project Investments Dashboard



PROJECT PHILOSOPHY AND APPROACH

This section responds to both RFP Minimum Evaluation Criteria B. and Comparative Evaluation Criteria 2. c.

The RRS Project Team's approach is grounded in a community-centric, data-driven, and outcome-focused framework, ensuring that the specific mitigation and adaptation needs of Brookline's diverse communities are addressed equitably and effectively. We are committed to delivering a CARP that combines innovative methodologies, best practices, and measurable results to help Brookline achieve its net-zero and resilience targets. We will work collaboratively with Brookline to achieve these objectives through a systematic approach that integrates evidence-based strategies, iterative community involvement, and transparent tracking methods.

project philosophy, methodology, and approach

Our philosophy centers on the following key principles to support Brookline's journey toward sustainability and resilience:

1. **Community-Centric Engagement and Equity:** RRS emphasizes the importance of community engagement in fostering a resilient Brookline. Outreach efforts will focus on Environmental Justice (EJ) populations and traditionally underrepresented voices, ensuring local climate challenges are addressed equitably. We may recommend tools such as coUrbanize, which have been successfully utilized in other municipalities to increase participation frequency and quality, especially among EJ communities. These tools offer interactive and accessible engagement methods that Brookline could adopt to enhance their outreach efforts and gather meaningful input.
2. **Leveraging and Integrating Previous Efforts:** Brookline has made significant strides with foundational initiatives such as the 2018 Climate Action Plan, the 2021 Urban Forest Plan, and the 2023 Hazard Mitigation Plan. RRS will consolidate and build upon these existing efforts, using data insights and recommendations from prior work to avoid duplication and maximize value. Ricardo will play an advisory role in identifying gaps and integrating these previous findings into a comprehensive and cohesive CARP.
3. **Practical and Innovative Solutions:** RRS employs a science-based approach, integrating technological advancements and proven climate strategies tailored to Brookline's unique challenges and opportunities. Ricardo will provide technical QA to ensure that all recommendations meet high standards of accuracy, practicality, and effectiveness. This collaborative process will deliver high-impact solutions aligned with Brookline's resources and goals.
4. **Transparency and Accountability:** Transparency is critical to fostering trust and engagement in climate action. The Climate Action Dashboard will be developed as a dynamic, web-based tool to provide stakeholders with real-time updates on CARP implementation. Ricardo will support the dashboard's quality assurance to ensure that progress metrics—including GHG reductions, energy efficiency, and equity outcomes—are accurate and accessible, enabling meaningful community interaction and accountability.



WORK PROGRAM

This section responds to RFP Minimum Evaluation Criteria D. Work Program and E. Deliverables, and Comparative Evaluation Criteria 2. Study Plan.

Our project approach follows a structured, phased process to deliver a CARP that is comprehensive, practical, and inclusive of all Brookline (Town) communities:

PHASE 1: PROJECT KICK-OFF AND MANAGEMENT

The project will begin with a collaborative two-hour kick-off meeting involving the Town staff, Zero Emissions Advisory Board (ZEAB), and key stakeholders to align objectives, communication protocols, and project timelines. Ricardo will support this phase by providing overarching technical QA and advising on data management and integration into the CARP. The project budget assumes a twice monthly, 30-minute check-in with key members of both the Town and RRS, held virtually. During the project kick-off or throughout the flow of the project, that time can be reallocated (i.e., combined to a one-hour monthly meeting) to fit the needs of check-in meetings. During project kick-off, time will be reserved to ensure both parties' agreement and alignment on the work plan.

DELIVERABLES

- Kickoff meeting scheduling, agenda, meeting notes, and next steps
- Twice monthly check-in meetings
- Project work plan

ASSUMPTIONS

- To honor the available budget, additional check-in meetings will require a change order.
- For all project deliverables, including interim milestones and final plan, one round of edits from Brookline staff is included in the budget. This assumes all comments, edits, and feedback will be consolidated by the client and returned within two weeks of RRS submission. RRS will assume no edits or changes are needed to a deliverable or milestone after the two weeks if no contact is received from the Town on the subject. Additional rounds of edits can be provided with a change order.

PHASE 2: TECHNICAL MEMORANDUM & MATRIX

The RRS Project Team will conduct a comprehensive review of the Town's existing plans, initiatives, available data and goals to develop a prioritized, high-impact list of climate mitigation and adaptation-related initiatives. While many of these initiatives may already be outlined in current Town documents, the team will consolidate them into a single matrix, facilitating prioritization based on factors such as Town resources, funding opportunities, effectiveness, and measurability. The results of this analysis will be summarized in a detailed technical memorandum, providing actionable insights and a clear roadmap to support the Town's climate resilience and sustainability efforts.

DELIVERABLES

- Technical memo, consisting of a list of plans, initiatives, and goals reviewed and a priority matrix for use as an actionable roadmap.

ASSUMPTIONS

- Available data needed for analysis are readily available in a compatible format (e.g. Excel, FileMaker) from Brookline.
- Any additional data gathering from firms previously hired to conduct the 2018 and 2020 reports will be performed by Brookline.
- Data gathering needed from utility companies or other local entities will be conducted by Brookline.



PHASE 3: INTERVIEWS WITH TOWN OFFICIALS

The RRS Project Team will conduct interviews with key Town personnel and relevant stakeholders to gather valuable insights and ensure alignment with the Town's existing initiatives and goals. These discussions will provide a deeper understanding of local priorities, challenges, and opportunities, as well as data validation to identify any potential gaps, ensuring that the resulting recommendations are tailored to support the Town's overarching objectives effectively.

DELIVERABLES

- Stakeholder interviews and analysis memo

ASSUMPTIONS

- Budget assumes 10 interviews with key officials, including 10 total hours of scheduling time and preparation (assuming 15 minutes for preparation/note-taking and a 45 minute interview). RRS will make efforts to consolidate interviewees if possible, to maximize the budget.
- An established list of key Town personnel and relevant stakeholders for stakeholders to be interviewed will be provided to the RRS Project Team in electronic form. The list may need to be ranked/culled, and the team can conduct additional interviews if the budget allows.
- The Town will arrange scheduling of interviews.

PHASE 4: INCORPORATION OF BEST PRACTICES

The RRS Project Team will analyze successful strategies and innovative approaches from leading community climate action plans, adapting these proven methods to suit Brookline's unique context. Using our deep expertise in climate action and sustainability, we will deliver a customized assessment and actionable recommendations. This will include identifying Brookline's specific climate challenges, opportunities to reduce emissions, and pathways to achieve financial efficiencies and secure funding for implementation.

DELIVERABLES

- A summary of best practices, key insights, and strategies from leading community climate action plans, adapted to align with Brookline's context and goals.

ASSUMPTIONS

- In collaboration with Brookline, three community climate action plans will be selected for review.

PHASE 5: EVALUATION AND SELECTION CRITERIA

The RRS Project Team will lead the development of both quantitative and qualitative criteria to evaluate and prioritize climate mitigation and adaptation programs, policies, and projects. Drawing on our experience with other municipalities, we will design a clear, actionable framework tailored to Brookline's unique challenges and opportunities. The criteria will focus on key factors such as emissions reduction, resilience, cost, and equity, ensuring a balanced and effective approach to prioritization.

Using this framework, we will evaluate the strategies identified in Brookline's 2018 Climate Action Plan alongside new opportunities, providing guidance on their effectiveness and alignment with Town goals. The criteria will be well-defined and integrated into the plan to allow for consistent application in future prioritization efforts.

This process will include one iteration based on consolidated feedback from Town stakeholders, ensuring the framework is practical, measurable, and aligned with Brookline's priorities.



DELIVERABLES

- Evaluation Criteria: A clearly defined set of quantitative and qualitative criteria for evaluating and prioritizing climate mitigation and adaptation programs, policies, and projects. Criteria will be focused on emissions reduction, resilience, cost, and equity.
- Prioritization Matrix: A user-friendly matrix applying the criteria to Brookline's existing strategies from the 2018 Climate Action Plan, as well as any newly identified opportunities.
- Framework Integration: Documentation outlining how the criteria can be consistently applied for future prioritization efforts.

ASSUMPTIONS

- Town stakeholder feedback to come from key Town personnel interviews in Phase 3.
- The Town will provide all necessary background data, reports, and information on existing strategies, policies, and projects in a timely manner.
- Schedule delays caused by incomplete or unavailable data is not the RRS Project Team's responsibility.
- The scope is limited to developing the prioritization framework, applying it to existing strategies, and providing a single iteration of feedback incorporation. Any additional work, such as extended revisions, broader analyses, or additional iterations, will require a change order and additional budget.
- Stakeholder engagement is limited to Town personnel and key stakeholders as defined in the project scope. Broader public engagement is not included unless explicitly agreed upon and may require a change order.

PHASE 6: COMMUNITY OUTREACH, COMMUNICATION, AND MEANINGFUL ENGAGEMENT PLAN

The RRS Project Team will design a Community Engagement Plan that incorporates elements of Brookline's Community Engagement Plan, the Comprehensive Plan, and consider equity and inclusion, outreach tools, surveys, and focus groups. The plan will be designed with the following considerations to foster trust, collaboration, and participation:

- Purpose and Goals
 - Clearly defined objectives for the engagement process.
 - Connection to the CARP.
 - Measurable outcomes to track success.
- Stakeholder Identification
 - A detailed list of stakeholders, including residents, businesses, local organizations, and underserved communities.
 - A strategy for ensuring representation of diverse voices and perspectives.
 - Identification of key influencers or community leaders to act as advocates.
- Communication and Messaging
 - Clear, transparent, and consistent messaging tailored to the Brookline audience.
 - Multilingual materials and culturally sensitive communication strategies, as needed.
 - Use of various channels (e.g., social media, newsletters, public meetings) to reach different demographics.
- Engagement Activities
 - Public meetings, workshops, and focus groups to gather input.
 - Surveys or polls (online and offline) to capture broader opinions.
 - Interactive activities, such as community mapping or idea brainstorming sessions.
- Education and Awareness
 - Informative materials that explain the CARP and its benefits.
 - Opportunities for hands-on learning, such as demonstrations or site tours.
 - Visual aids like the dashboard, infographics, videos, and flyers to simplify complex concepts.



- Feedback Mechanisms
 - Multiple ways for community members to provide input (e.g., online forms, suggestion boxes, open forums).
 - Assurance that feedback will be reviewed and integrated into decision-making processes.
 - Regular updates on how input has influenced the project.
- Inclusivity and Accessibility
 - ADA-compliant meeting spaces and materials.
 - Flexible engagement options (e.g., virtual, in-person, and hybrid formats).
 - Consideration of community members' schedules, including evenings and weekends.
- Partnerships and Collaboration
 - Involvement of local organizations, schools, and businesses.
 - Collaboration with community groups to co-host events or disseminate information.
 - Leveraging existing networks to build trust and expand reach.
- Monitoring and Evaluation
 - Metrics to assess participation levels, diversity, and feedback quality.
 - Post-engagement surveys to evaluate community satisfaction with the process.
 - Regular reporting on progress and adjustments made based on feedback.
- Sustainability and Follow-up
 - Plans for ongoing communication and updates post-engagement.
 - Establishment of a feedback loop to maintain community trust and interest.
 - Creation of long-term partnerships or advisory groups for sustained collaboration.

In other community engagement plans, RRS has suggested or utilized coUrbanize, which offers community engagement through interactive website templates, language translations, moderated forums, letters of support, emails & text updates, and text & voicemail feedback to activate voices that typically go unheard. This outreach focuses on collecting insights from residents and businesses, especially in EJ areas, to inform a plan that resonates with community needs and values.

This valuable tool streamlines many processes for the client, all while collecting valuable data and insight from the community.

This structured approach ensures inclusivity, transparency, and alignment with community needs and expectations.

DELIVERABLES

- Community Engagement Plan: A comprehensive plan incorporating elements from Brookline's Community Engagement Plan and Comprehensive Plan, tailored to align with the Climate Action and Resiliency Plan. Includes objectives, strategies for stakeholder engagement, and tool options for effective outreach and communication. To additionally include:
 - Stakeholder Map and Engagement Strategy: A detailed stakeholder list with an engagement strategy to ensure the representation of diverse voices, including underserved communities and local leaders.
 - Engagement Activities Framework: A schedule and design for public meetings, workshops, focus groups, and interactive activities.
 - Feedback Mechanisms Report: A system for collecting and integrating community feedback into the decision-making process.
 - Monitoring and Evaluation Metrics: Key performance indicators (KPIs) to track engagement success, diversity of participation, and satisfaction levels.



- Sustainability and Follow-Up Plan: Strategies for maintaining ongoing communication, trust, and partnerships with the community beyond the engagement phase.

ASSUMPTIONS

- The RRS Project Team will seek to create the most robust community engagement plan possible; however, we acknowledge a restricted budget. The team will collaborate with the Town to ensure focus on areas of significant interest or concern, and stick to the overall Phase budget available. An abbreviated plan or plan sections may be developed for budget considerations.
- Recommendations on surveys, flyers, reporting templates, and/or social media will be given to the Town, but not created by the RRS Project Team.
- The RRS Project Team will develop the engagement plan and provide suggestions for tools and materials; but implementation (e.g., hosting meetings, and executing surveys) is outside this scope unless specified otherwise.

PHASE 7: PUBLIC FORUMS

The RRS Project Team will organize and facilitate two public forums to engage the Brookline community in the CARP development process. These forums will outline the plan's objectives, review key data sets and conclusions, and provide opportunities for public input. The team will collaborate with Town personnel to design and promote the forums, ensuring accessibility, inclusivity, and alignment with community needs. This includes preparing agendas, presentations, and outreach materials, as well as employing tools like live polling and Q&A sessions to encourage meaningful participation.

During the forums, the RRS Project Team will capture public feedback, document key themes, and summarize insights for integration into the CARP. Following each forum, the team will produce a detailed report highlighting attendance metrics, public input, and prioritized recommendations. The process will emphasize transparency, inclusivity, and actionable outcomes to ensure the forums effectively inform and shape the CARP while fostering community trust and collaboration.



Participants at an RRS-led event in Michigan

DELIVERABLES

- Forum Agendas and Materials: Detailed agendas, presentations, and outreach materials tailored to the forums' objectives, including accessible and culturally sensitive content.
- Facilitated Public Forums: Two organized public forums (a hybrid of virtual and in-person) focused on outlining the CARP development process, reviewing key data sets, and gathering public input.
- Public Feedback Documentation: Comprehensive notes and summaries of community input gathered during each forum, including key themes and actionable suggestions.
- Forum Summary Reports: Post-forum reports for each event, detailing attendance metrics, public feedback, and prioritized recommendations for the CARP.

ASSUMPTIONS

- Brookline will assist with outreach and promotion of the forums and provide existing data sets, reports, and other relevant materials for presentation.
- The Town will arrange ADA-compliant venues or virtual platforms for the forums and provide technical support if required.
- Community participation will be supported by the Town's outreach efforts, ensuring reasonable attendance and engagement.



- If multilingual materials are needed, the Town will provide or fund translation services..
- The project team's scope is limited to planning, facilitating, and documenting the forums. Additional community engagement activities or extended iterations will require a budget amendment.

PHASE 8: DRAFT AND FINAL PLANS DEVELOPMENT

The RRS Project Team will develop both a draft and final CARP that includes a prioritized list of high-impact actions tailored to Brookline's unique needs and challenges. Each recommended action will feature SMART goals and objectives, identify responsible parties, outline projected implementation costs, and include potential funding sources. The plan will also integrate best management practices (BMPs) and the latest technologies in climate mitigation and adaptation to ensure effectiveness and feasibility. Ricardo will perform technical QA on the draft plan, ensuring the final CARP meets high standards of accuracy and quality.

The Draft CARP will be presented virtually to the Zero Emissions Advisory Board and the Select Board for review and feedback. Following this review, the RRS Project Team will refine the draft and deliver (Phase 10) a Final CARP incorporating actionable recommendations that align with Brookline's goals, resources, and priorities. The plan will serve as a comprehensive roadmap for the Town's climate efforts, balancing innovation with practicality.

DELIVERABLES

- Draft CARP: A comprehensive draft plan with high-priority actions, including SMART goals, responsible parties, cost estimates, and potential funding sources. Integration of BMPs and advanced climate technologies tailored to Brookline's context.
- Presentation Materials: Clear, engaging PowerPoint presentation for delivering a presentation to the Draft CARP to the Zero Emissions Advisory Board and Select Board.
- Final CARP: Comprehensive plan with the ZEAB and Select Board's comments incorporated.

ASSUMPTIONS

- One round of edits from Brookline staff assumes all comments, edits, and feedback will be consolidated by the client and returned within two weeks of submission. The RRS Project Team will proceed with finalizing the document after two weeks of no contact on the subject. Additional rounds of edits can be provided with a change order.
- The RRS Project Team will make the efforts possible within budget to develop a visually appealing report, but this scope acknowledges the budget limitations which in turn put limitations on the level of graphic design that is possible.

PHASE 9: DASHBOARD TO TRACK IMPLEMENTATION STATUS

A user-friendly, web-based Climate Action Dashboard to enable the Town to monitor and track the implementation status of the actions outlined in the CARP will be developed as part of this Phase. The dashboard will integrate seamlessly with the Town's existing web platform and provide a clear, accessible interface for tracking progress. It will include key metrics, timelines, and statuses for each action, ensuring transparency and accountability while fostering community engagement.

The dashboard will be designed to meet the Town's technical specifications and accessibility standards, ensuring ease of use for both Town staff and the public. The RRS Project Team will provide documentation and a training session to equip the Town with the knowledge to update and maintain the dashboard over time.

DELIVERABLES

- Climate Action Dashboard: A fully functional, web-based dashboard integrated with the Town's existing web platform. Features include:
 - Status tracking for each CARP action (e.g., "Not Started," "In Progress," "Completed").
 - Key metrics, timelines, and responsible parties for each action.



- Customizable filters and visualization tools (e.g., graphs, progress bars).
- Technical Documentation: Comprehensive documentation outlining the dashboard's functionality, update procedures, and technical requirements.
- Training Session: A training session for Town staff to ensure they can effectively manage and update the dashboard.
- Support for Initial Launch: Assistance with testing and deploying the dashboard on the Town's web platform, ensuring it meets accessibility and usability standards.

ASSUMPTIONS

- The dashboard will be developed using Tableau, and designed to function on the Town's existing web platform. RRS assumes the platform supports standard web-based tools and technologies.
- Town IT or other web design personnel will be responsible for the integration on the Town website.
- The dashboard's functionality is limited to the features outlined in the deliverables. Additional customization or integration with other systems may require a change order.
- One round of revisions based on consolidated feedback from the Town will be provided prior to finalizing the dashboard.
- Town staff will attend the scheduled training session, and additional training requests will be billed separately.
- The RRS Project Team's role is limited to developing and initially deploying the dashboard. Ongoing maintenance and updates will be the Town's responsibility.

PHASE 10: FINAL REPORT AND PRESENTATION

The RRS Project Team will prepare a Final Report for the CARP that comprehensively documents the project process, community input, and implementation strategies for the priority actions identified. The report will serve as a clear and actionable roadmap for Brookline's climate goals, providing a summary of methodologies, stakeholder engagement outcomes, and detailed steps for implementing high-impact actions.

The Final Report will be presented to the ZEAB and the Select Board for review and approval. The RRS Project Team will deliver a presentation summarizing key findings and recommendations, ensuring alignment with Brookline's goals and providing an opportunity for discussion and feedback.

DELIVERABLES

- Final Report: A detailed, professionally formatted report that includes an overview of the CARP development process, a summary of stakeholder engagement and public input, and detailed implementation strategies for priority actions, including timelines, responsible parties, costs, and funding sources.
- Presentation Materials: Engaging PowerPoint slide deck for presentation to ZEAB and the Select Board, highlighting key findings, recommendations, and implementation strategies.
- Presentation: Two-hour in-person presentation to ZEAB and Select Board, the first hour being the presentation, the second reserved for discussion.

ASSUMPTIONS

- Additional rounds of feedback can be incorporated in the Final Report or arranged via change order.
- The RRS Project Team will conduct one presentation to the ZEAB and Select Board. Additional presentations or extended revisions beyond the initial feedback round will require a change order.
- The Final Report will document the CARP process and focus on priority actions as identified during the project. Additional or expanded analyses are outside the scope and will require a change order.
- The Town will coordinate meeting schedules and ensure participation from ZEAB and Select Board members.
- The Final Report will be delivered in digital format (PDF) and Word.



anticipated outcomes

The CARP's structured approach will provide Brookline with a **Clear, Actionable Path to Net-Zero Emissions by 2040**, detailing each phase in a practical, prioritized roadmap. This roadmap will specify high-impact actions with the greatest emissions reduction potential and will be presented in a phased format—focusing on near-term, mid-term, and long-term actions. Each action will be accompanied by technical specifications, emissions reduction estimates, timelines, and metrics for monitoring progress, allowing Brookline to measure its progress in real time as it advances towards net-zero.

The plan will also produce **Enhanced Community Resilience and Reduced Climate Risks** by implementing tailored, location-specific adaptations that directly address Brookline's unique vulnerabilities to climate hazards. Using geospatial mapping and climate risk analysis, the CARP will prioritize measures for areas and populations most affected by severe wind, flooding, and extreme heat. Residents, particularly in Environmental Justice (EJ) areas, will benefit from strategies that protect public health, reinforce critical infrastructure, and maintain environmental quality under future climate scenarios. This includes detailed adaptation strategies for infrastructure resilience, public health safety guidelines, and green space enhancement, each with measurable resilience metrics.

Through **Unified, Comprehensive Climate Strategy** integration, the CARP will act as a cohesive guide that consolidates Brookline's previous climate initiatives such as the 2018 Climate Action Plan and 2023 Hazard Mitigation Plan—into a single, actionable framework. This unified approach will provide clarity and direction, allowing Brookline to align future projects with an overarching climate strategy, reducing redundancy and maximizing the impact of town resources. Each objective will have cross-referenced deliverables to ensure seamless integration and minimize administrative burden.

An increased focus on **Community Engagement and Equity** will ensure the CARP reflects Brookline's diverse perspectives. By incorporating input from EJ communities and underrepresented groups throughout the planning process, Brookline will foster inclusivity and accountability. This outcome will be achieved through structured community forums, surveys, and workshops that encourage public feedback and shape plan priorities. The final CARP document will include an appendix on community input, demonstrating transparency and commitment to addressing the expressed needs and concerns of Brookline residents.

The CARP will deliver **Fiscal Responsibility and Optimized Resource Allocation** by evaluating each proposed action's cost-effectiveness. Cost-benefit analyses will accompany every action item, providing Brookline with detailed financial projections, funding opportunities, and budgetary guidance for implementation. These projections will enable decision-makers to weigh financial and environmental benefits effectively, supporting informed, fiscally sustainable choices that ensure each dollar spent yields maximum climate benefit.

Finally, **Transparency and Accountability through Monitoring** will be ensured by the Climate Action Dashboard, a web-based tool designed to track the CARP's implementation progress. This dashboard will report on KPIs such as emissions reductions, resilience milestones, and community participation rates, updating residents and stakeholders regularly on Brookline's climate journey. The dashboard will also feature interactive tracking capabilities, allowing users to explore project timelines, view real-time progress updates, and access detailed reports on completed and ongoing initiatives, ensuring that Brookline remains accountable and responsive to its climate goals.

With this comprehensive and community-centered CARP, RRS will help Brookline establish a benchmark for impactful municipal climate action.



CREATIVITY AND INNOVATION

RRS' take on innovation is that, at its core, innovation is about **renewal** rather than mere novelty. The term originates from the Latin word "innovare," meaning "to renew or change." This perspective emphasizes that innovation involves evolving or rethinking existing structures and ways of doing things. True innovation requires a willingness to change and a conscious effort to step beyond conventional choices. By reimaging processes, innovation pushes us to make decisions differently, introducing a sense of renewal and adaptability.

Anyone can innovate if they are willing to engage in self-awareness and actively work on shedding biases. Innovation benefits when a diversity of perspectives is involved in the process, as new insights emerge from varied backgrounds and experiences. Empathy is essential; by genuinely understanding others and avoiding self-deception, innovators can see beyond their own viewpoints and biases. Moreover, innovation must prioritize inclusivity, seeking to represent perspectives that are typically excluded. Designing with a diversity of viewpoints helps create solutions that address broader needs and prevent the unintentional reinforcement of existing barriers.

The **purpose of innovation** lies in our need to adapt to evolving desires, advances in knowledge, and technological progress. Through innovation, we strive to dismantle biases, foster inclusion, and uplift human dignity by ensuring that all voices are seen, heard, and valued. Innovation embodies a process of natural renewal, mirroring the growth and evolution seen in the cycles of the natural world. By rethinking exclusionary habits and designing with inclusivity in mind, innovation opens pathways for universal designs that resonate with a wider audience.

The **process of innovation** is iterative and requires ongoing reflection, action, and improvement. Technical steps highlight the need for designated roles, focused and distraction-free sessions, and structured brainstorming tools. These steps create a balanced framework, with roles like the neutral facilitator and decider allowing the team to focus on their mission without unnecessary hierarchy. **Testing and storytelling** play vital roles in validating and communicating the innovation. Testing ensures that the design meets practical needs, while storytelling fosters trust and inspires others by connecting the innovation to human values and relatable experiences of those impacted.

Building trust is fundamental in the innovation process, especially with communities or groups traditionally excluded from design conversations. Long-term, genuine engagement, rather than brief or surface-level interactions, helps innovators gain honest feedback and recognize areas ripe for improvement. Storytelling serves as a bridge from the status quo to the new possibilities innovation brings, creating compelling narratives that connect end users' values and experiences with the proposed solutions. Through humanizing and contextualizing these stories, innovators are able to communicate the broader impact of their designs, making innovation accessible and resonant to all.



WORK SCHEDULE

This section responds to RFP Minimum Evaluation Criteria F.

Upon project authorization, RRS and the client will identify a start date agreeable to both parties. The following preliminary project timeline will be discussed and confirmed at project authorization.

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV
Kick-off Meeting with Town Staff	X										
Review Existing Data and Plans		X									
Public Forum #1			X								
Meet with Community Stakeholders and Town Departments			X	X	X						
Identification and Prioritization of Mitigation and Adaptation Actions			X	X	X						
Public Forum #2							X				
Draft Implementation Strategies for Priority Actions							X	X	X		
Creation of Implementation Dashboard								X	X		
Draft Plan Presentation to ZEAB and Select Board										X	
Final Presentation to ZEAB and Select Board											X



RESPONDENT PROFILE

This section responds to RFP Minimum Evaluation Criteria C. and Comparative Evaluation Criteria 1.

GENERAL CAPABILITIES

RRS is a consulting firm specializing in sustainability, resource management, and waste recovery. RRS has extensive expertise in all aspects of materials management, including solid waste assessments, zero waste program development and implementation, climate action and resiliency planning, closed-loop system design, zero waste policy development, and technical analyses. With experience spanning decades, RRS has developed robust data collection and modeling techniques, including GIS and infographic approaches for data presentation. This allows for comprehensive analysis and evaluation of solid waste management programs, infrastructure, and operational efficiencies.

RRS has partnered with Ricardo, a global strategic environmental and engineering consultancy at the intersection of transport, energy and global climate agendas, solving the most complex issues to help achieve a safe and sustainable world. Responding to complex global challenges, Ricardo delivers engineering consulting services and solutions built on sustainable technological innovation. With more than 100 years of engineering excellence their leading-edge, innovative cross-sector sustainable solutions help solve clients' most complex, strategic and operational challenges.



Ricardo has helped such governments to develop and report national GHG inventories; develop and implement MRV systems; build GHG emissions projections and baselines; strengthen institutional structures and reporting mechanisms; make high quality submissions to the United Nations Framework Convention on Climate Change (UNFCCC), such as Biennial Update Reports (BURs), National Communications (NCs) etc.

Most recently, we have provided extensive technical assistance and knowledge leadership on issues of transparency, climate change and the Paris Agreement, supporting countries to develop, update, and design implementation plans for their NDCs, drawing on our longstanding experience, and knowledge of technical work and procedures that underpin the NDC process. This has included work in relation to the inter-relationships between NDCs, National Adaptation Plans (NAPs) Long-Term Strategies (LTSs) and, more specifically, in relation to the mitigation-adaptation nexus. We have also supported countries to develop long-term low greenhouse gas emission development strategies in accordance with UNFCCC Decision 1/CP.21.

In addition to our work at national level, our CAPT team works at the forefront of city climate action planning. We have been a key technical delivery partner to the C40 Cities Climate Leadership Group over the last eight years, supporting the development and roll out of global, regional and local programmes to support city climate action. This has included:

- Developing ambitious Paris-compatible action plans, building capacity in cities to take ownership of the climate action planning process.
- GHG emission inventory training, inventory compilation, review and quality assurance, and development of guidance and best practice.
- Undertaking modelling of low emission scenarios and identification of long-term mitigation scenarios and actions with city stakeholders.
- Developing GHG accounting methodologies and MRV of city emissions and actions.



- Methodologies and guidance for climate planning, including best practices for reporting, ensuring Paris-aligned targets.
- Identification and prioritisation of climate vulnerabilities, impacts and climate adaptation options, including their nexus with climate mitigation.
- Capacity building and technical support, supporting cities and building capacity on data and methodologies, including working in data-sparse environments and overcoming data limitations.
- Supporting city climate governance via capacity building on institutional arrangements, mainstreaming climate action in plans and policies, and developing case studies of good governance.
- Developing investment plans for project implementation and supporting city applications to project preparation facilities.
- Advising global partners and networks such as the Global Covenant of Mayors for Climate and Energy (GCoM), C40 and CDP on climate action planning and data strategies

YEARS IN BUSINESS; EXPERIENCE OF TEAM DEVELOPING AND IMPLEMENTING CLIMATE ACTION PLANS AND/OR CLIMATE RESILIENCY PLANS

RRS was founded in 1985 and incorporated in 1986, giving us nearly 40 years of experience in sustainability and resource management consulting services. Our proposed team for this work comprises professionals skilled in developing and implementing climate action and resiliency plans. This includes strategic planning, data-driven analysis, stakeholder engagement, and tailored recommendations that align with climate-focused goals. Our experience spans working with government entities, private sector clients, and community organizations to create actionable and sustainable solutions. RRS has partnered with Ricardo, who brings more than 100 years of experience, bringing together professionals from a variety of disciplines and backgrounds with deep experience in climate science and resiliency planning. Each individual's past and present project work will help inform a thoughtful and holistic CARP development process for Brookline.

COMPLEXITIES AND SIZE OF SIMILAR STUDIES

RRS has substantial experience managing complex climate action and resiliency planning projects that involve multi-layered analysis, diverse stakeholder engagement, and alignment with rigorous regulatory standards. Our work has included comprehensive climate impact assessments, long-term resiliency strategies, and sustainability initiatives for large regions and urban centers. These projects often involve cross-sector collaboration, data integration across various sources, and the development of scalable and actionable plans. Our capabilities also extend to facilitating collaborative processes among stakeholders to ensure broad support and the successful implementation of climate-focused solutions. A selection of representative projects is below.

WASHTENAW COUNTY | RESILIENT WASHTENAW PLAN – GHG INVENTORY, VULNERABILITY ASSESSMENT, CLIMATE RESILIENCE, PUBLIC ENGAGEMENT, GOALS, STRATEGIES, ACTIONS, AND RECOMMENDATIONS | RRS

RRS developed Michigan's first county climate action plan using the theme of equity and resilience. RRS acted as the prime contractor with subject matter expert consultants to support specific plan elements. The Resilient Washtenaw Plan is 141 pages and includes an Executive Summary, and separate sections discussing Climate Change in Washtenaw County, Public Engagement, GHG Inventory and Current Conditions, Plan Framework, Vulnerability Assessment and Actions. The plan's 51 actions are organized around eight Strategy areas including Implementation, Energy Transition, Housing, Mobility and Access, Health, Preserving Working lands and Natural Areas, Infrastructure, and Circular Economy. A wedge analysis shows the combined benefits of these actions and a strategy for the County to reach carbon neutrality in County Operations and County-wide. RRS hosted 17 public events including targeted



listening sessions for each of the nine county commissioner districts (175 registrants for initial outreach meetings) and one focused solely on the agriculture community. The team used the CoUrbanize platform to host the Resilient Washtenaw engagement website averaging 54 unique visitors per week over the 10-month planning process. A new climate 101 video was created to share the most recent climate science with the community. The Resilient Washtenaw site gathered 228 pieces of community feedback and responses. The RRS Team met monthly with the Washtenaw Environmental Council and internal staff Steering committee. Direct work with staff identified 445 actions recommended for review and inclusion in the plan. Draft Resilient Washtenaw plan was presented and reviewed by the Washtenaw Environmental Council and Steering Committee. The Final Washtenaw County Board of Commissioners approved the plan unanimously on December 7, 2022. RRS also developed a set of Recommendations (27 pages) for Staffing, Reporting, Funding and Financing, Governance and Partnerships. Washtenaw County recently hired a Resilience Director – based on plan recommendations – to implement the plan.

Resilient Washtenaw's Executive Summary has been included as a project sample in Appendix 2.

GREAT LAKES CLIMATE ADAPTATION NETWORK | ONGOING SUPPORT | RRS

RRS provides ongoing support to the Great Lakes Climate Adaptation Network (GLCAN) for a variety of initiatives. Matthew Naud helped to found and continues to support GLCAN for the University of Michigan Great Lakes Integrated Sciences and Assessment (GLISA). RRS' work with GLCAN, led by Matthew, has included developing work plans to guide the network's strategy; grant application and proposal writing for a variety of funding opportunities; and technical support in the development of vulnerability assessment templates and other tools for municipalities to use in climate resiliency planning.

ANN ARBOR TOWNSHIP | CLIMATE ACTION PLAN | RRS

RRS led the development of a comprehensive climate action plan tailored to Ann Arbor Township, building on a collaborative framework with Washtenaw County's broader Resilient Washtenaw Plan. This project aimed to create an adaptable model for regional climate planning that integrates township-specific needs with county-wide efforts. RRS's approach included detailed data collection, targeted public engagement, and GHG emissions analysis to set practical emission reduction goals. Public input was solicited through community meetings, workshops, and feedback sessions to guide the plan's strategies and ensure community involvement.

The resulting plan not only aligns with Washtenaw County's climate objectives but also incorporates resilience strategies tailored to the township's unique vulnerabilities, such as severe weather and environmental pressures. Additionally, RRS provided structured recommendations for actionable implementation, covering aspects such as staffing, financial planning, and governance to support the township's climate goals and foster long-term sustainability.

Ann Arbor Township's Climate Action Plan Executive Summary has been included as a project sample in Appendix 2.

CITY OF ANN ARBOR, MI | CLIMATE ACTION PLAN | MATTHEW NAUD, PRIOR TO RRS

The Ann Arbor Climate Action Plan (CAP) provides a comprehensive strategy to significantly reduce greenhouse gas emissions and adapt to climate impacts within Ann Arbor and the Great Lakes region. The CAP outlines key actions across four main categories—Energy & Buildings, Land Use & Access, Resource Management, and Community & Health—to achieve targeted reductions from a 2000 baseline: 8% by 2015, 25% by 2025, and 90% by 2050. The plan prioritizes local actions to improve energy efficiency, increase renewable energy use, expand sustainable land use, and enhance community resilience. The CAP emphasizes cross-sector collaboration, engaging the University of Michigan as a major stakeholder, and integrates scientific projections on regional climate risks. The adaptive strategies aim to protect public health, prevent economic loss, and safeguard natural resources. The City of Ann



Arbor's CAP serves as a model for regional and municipal climate action plans, demonstrating scalable, actionable goals aligned with global climate targets.

The City of Ann Arbor's Climate Action Plan Executive Summary is included as a project sample in Appendix 2.

GREAT LAKES INTEGRATED SCIENCES & ASSESSMENTS | VULNERABILITY ASSESSMENT TEMPLATE | MATTHEW NAUD, PRIOR TO RRS

This project focused on the collaborative development of a Vulnerability Assessment (VA) template aimed at equipping Great Lakes cities with a practical tool to assess and address climate-related risks. Supported by the Urban Sustainability Directors Network Innovation grant, the project brought together Great Lakes Integrated Sciences & Assessment (GLISA), the Huron River Watershed Council, and practitioners from five cities (Ann Arbor, Dearborn, Indianapolis, Cleveland, and Evanston) to co-design an adaptable VA template. The two-day workshop in Ann Arbor fostered cross-city dialogue on the selection and presentation of localized climate and socioeconomic data, ensuring that the template would provide actionable insights at the neighborhood level.

The VA template integrates real-time climate projections with equity-focused demographic data, facilitating the identification of vulnerable populations and infrastructure through the Neighborhoods at Risk tool developed by Headwaters Economics. Cities used this data to inform specific projects, including stormwater management updates, emergency cooling centers, and green infrastructure planning. For instance, Indianapolis leveraged VA data to justify resizing stormwater infrastructure to reflect current climate conditions, while Evanston's community workshops used the template's localized data to plan adaptive measures for heat and flooding. Designed for adaptability, the VA template has since been applied to stormwater planning across 12 Great Lakes cities and expanded to 60 cities in the Gulf of Mexico region. This model has enabled cities to integrate climate-smart and equity-centered planning cost-effectively into existing processes, underscoring the potential for widespread application across sectors like health and infrastructure.

An overview of the impact of the GLISA VA Template has been included as a project sample in Appendix 2.

THE WORLD BANK | OPERATIONALIZING EXISTING CLIMATE ACTION PLAN IN NAIROBI CITY COUNTY | RICARDO

The City Climate Finance Gap Fund is supporting Nairobi in the operationalization of city-level climate change strategies and plans, towards localizing national climate change frameworks (laws, policies, and plans) at the city level. Ricardo was selected to give technical support to Nairobi in updating its GHG emissions inventories and drafting its Climate Change Policy and Bill. The key activities include:

1. Undertake a baseline and needs assessments on city-wide climate-change mitigation and adaptation readiness, documenting existing and planned city-wide interventions, infrastructure investments and enabling environments, documenting lessons and areas of potential upscaling.
2. Support the drafting of the Nairobi Climate Change Policy and Nairobi Climate Change Bill for stakeholder engagement and adoption towards operationalization of the existing Nairobi City Climate Action Plan.
3. Support the updating of the Nairobi City GHG inventory and support its operationalization through training and capacity development.

Plan stakeholder engagements and workshops to build capacity on the GHG inventory development and for contributions to the policy and bill development.

C40 CITIES CLIMATE LEADERSHIP GROUP | CAPACITY BUILDING IN SUB-SAHARAN AFRICAN MEGACITIES FOR TRANSFORMATIONAL CLIMATE CHANGE MITIGATION | RICARDO



This project worked with nine cities in six countries in sub-Saharan Africa to build capacity within local government and develop common tools and frameworks to enable action planning for long-term transformational low carbon development in all sectors consistent with the Paris Agreement goal of limiting global temperature rise to 1.5 degrees and achieving sustainable development goals.

Key to the project's success was engaging individuals and departments across all levels of government, to identify opportunities for city-based actions to further enhance ambition in NDCs, achieve sustainable development goals, and accelerate action on the ground. Identifying ways to improve "vertical integration" of local and national government, to better support and align city and country objectives was a key part of the project, including the alignment of data, actions and tools and policies for greater consistency, comparability, and realise efficiencies and ambition. Key services included:

- Technical assistance on GHG emissions inventories and projections
- Mitigation action and policy identification
- Mitigation scenario modelling and projections
- Capacity building and technical assistance on MRV and climate governance
- Action plan development including implementation planning
- Development of common tools and frameworks to enable mitigation action identification, prioritisation and quantification
- Supporting 'vertical integration' of local and national government climate change targets and policies, to align city and country objectives

REFERENCES

Client	Contact	Title	Email	Phone
Washtenaw County	Andrew DeLeeuw	Deputy County Administrator	deleeuwa@washtenaw.org	734-222-6741
C40 Cities Climate Leadership Group	Zarina Moolla	Head of Implementation (Africa)	zmoolla@c40.org	N/A
Great Lakes Integrated Sciences & Assessment	Jenna Jorns	Co-Director	ijiorns@umich.edu	734-764-3198

PUBLIC ENGAGEMENT APPROACH AND EXPERIENCE ENGAGING DIVERSE POPULATIONS IN PLAN DEVELOPMENT

This section responds to RFP Comparative Evaluation Criteria 2. e.

In the development of Washtenaw County's Resilient Washtenaw Climate Action Plan, public engagement was a central and ongoing component. The approach was designed to ensure broad and inclusive participation from across the county, including engagement with diverse populations and local organizations. Over the course of the planning, the project team held 17 public events, including targeted listening sessions for each of the nine County Board of Commissioners districts, as well as two sessions specifically for youth. Due to COVID-19, many of these sessions were held virtually, allowing a wider array of residents to participate, including those from marginalized communities. To



increase accessibility, the project relied on various digital engagement tools, including social media, a project website, and the coUrbanize platform, which facilitated ongoing public comment, feedback, and updates.

Washtenaw County also involved key community groups and organizations to foster trust and expand outreach to underrepresented groups, including the faith-based community, environmental justice advocates, and community leaders from diverse backgrounds. The plan's public engagement strategy emphasized the inclusion of community voices directly impacted by climate change, such as those facing heightened risks of heat, flooding, and energy burden. This inclusive engagement model aimed to build a broad coalition for climate action while grounding the plan in the specific needs and challenges of Washtenaw County's diverse communities, ultimately providing a template for sustained community involvement as the plan transitions to implementation.

Hennepin County's Zero Waste Plan prioritized engaging diverse populations through a structured and intentional community-centered approach, especially focusing on voices historically underrepresented in waste management decision-making. Acknowledging the existing burden of the waste system on Black, Indigenous, low-income, and other communities affected by proximity to waste facilities, illegal dumping, and limited waste services, the county developed an inclusive strategy that positioned these communities at the forefront of the engagement process. By contracting with 18 local community organizations representing various racial, cultural, and economic backgrounds, the county established a network of trusted voices that could host listening sessions, facilitate discussions, and communicate updates back to their communities.

These efforts culminated in a community group cohort that provided continuous feedback throughout the planning process, directly shaping the plan's goals and strategies. The cohort participated in listening sessions to further explore who bears the burden of current waste systems and collaborated with county staff to identify solutions focused on equity. This groundwork informed the subsequent action planning phase, ensuring the plan's implementation strategies resonated with the specific needs and challenges of the affected communities. The Zero Waste Plan's final recommendations reflect input from both community listening sessions and feedback channels, ensuring that marginalized communities have equitable access to resources, decision-making, and waste reduction initiatives moving forward.

The RRS Project Team will lean heavily on the success of these projects to inform public engagement across diverse populations. RRS will implement a robust Community Engagement Plan for Brookline's CARP, using surveys, public forums, and digital platforms like coUrbanize to gather meaningful input from residents, businesses, and EJ communities. The outreach will assess public awareness of current initiatives, gather feedback on their perceived effectiveness, identify areas for improvement, and understand community priorities for new actions. RRS will host at least two public forums during the Action Selection phase, integrating iterative feedback to ensure the CARP reflects community needs and values. This approach will foster transparency, accountability, and inclusivity, ensuring Brookline's climate actions are both impactful and resonant with its residents.

EXPERIENCE IN MEETING DEADLINES

This section responds to RFP Comparative Evaluation Criteria 2. f.

RRS only takes on work for which it has the capacity to fully meet client and project expectations and deadlines. RRS utilizes project- and data-management software to manage project task and resource allocation, timesheets, expenses, and budgets to manage our client's projects efficiently and effectively. The use of this project- and data-management software allows staff to be allocated and scheduled to projects as well as identifying where potential scheduling challenges may occur. Project Managers have access to not only their project's staff planning and allocation, but they can also view the entire company's staff allocation to ensure project schedules maintain their



schedule timeliness. Project Managers assign project hours to staff on their project and staff can subsequently see what project hours have been assigned to them. Project Managers next communicate task assignments after staff hours are allocated to the project. Project Managers and our Managing Principals receive automated notifications from our project management system at project budget trigger points – which create an opportunity to evaluate the execution of the project work plan against budget.

Our company's Managing Principals and the Chief Operating Officer review weekly reports to ensure staff are being appropriately utilized on projects and projects are being executed within project work plan parameters including project schedule and budget. If an area of concern is raised on any project, the Managing Principal works with the Project Manager to help resolve the challenge so that the project can resume on its scheduled work plan, schedule, and budget. The Chief Operating Officer reviews the total number of projects and contracted 'backlog' of work that the company is slated to complete weekly. Management decisions are executed to ensure our client's receive quality services and deliverables.



PROJECT LEADERSHIP, ORGANIZATION AND MANAGEMENT

This section responds to RFP Minimum Evaluation Criteria C.

PROJECT MANAGER AND PROJECT TEAM

An overview of the project team is below, along with truncated descriptions of each team member's experience. Full resumes have been included as Appendix 1 to this proposal.

STAFF MEMBER	PROJECT ROLE & TASK ASSIGNMENTS	YEARS OF EXPERIENCE
Coco Freling	Project Manager	9
Jacqueline (Jackie) Ebner	Climate Lead	20
Matthew Naud	Project Director	34
JD Lindeberg	Project Advisor	39
Rose Bailey	Climate Lead (Ricardo)	15
Sabina Shaikh	Project Support (Ricardo)	6



Coco Freling | Consultant | Project Manager

Coco brings exceptional leadership capabilities underpinned by her expertise in sustainability development, urban science, and data analytics. With a Master of Public Policy from the University of Chicago and specialized certifications, Coco has directed key projects involving policy research, community engagement, and strategic planning. While in Chicago, Coco helped reform the city's TIF funding platform through the use of community input. Her work on equity-focused studies for King County's Circular Economy Innovation Platform and comprehensive research initiatives for the Carton Council highlights her ability to lead complex projects, manage stakeholders, and conduct detailed data analysis effectively.

As Project Manager, Coco's skills in integrating best practices and guiding teams to develop actionable, inclusive climate strategies make her an ideal fit to lead this project. Her strong analytical capabilities, demonstrated in cost-benefit modeling and innovative policy design, ensure that project milestones will be met with precision and impact. Coco's leadership will facilitate a comprehensive plan that aligns with Brookline's net-zero emissions goal for 2040, balancing sustainability objectives, community engagement, and fiscal responsibility.

**Jacqueline Ebner, Ph.D. | Senior Consultant | Climate Lead**

Jackie is a sustainability expert with 20 years of experience across industry, academia, and municipal projects. Prior to joining RRS, she was the principal of Elucidativ LLC, where she leveraged data-driven insights to align client operations with sustainability goals. As co-founder of Rochester Area Interfaith Climate Action (RAICA), Jackie created practical decarbonization and waste reduction frameworks for faith-based organizations. She serves on the faculty at Bard College's Sustainable MBA program and Rochester Institute of Technology (RIT), teaching and advising on Life Cycle Assessment (LCA) and GHG accounting.

Jackie's extensive background in lifecycle assessment and data modeling will be integral to Brookline's CARP, particularly in leading Task 1 involving technical modeling and emissions analysis to inform the plan's design and implementation. With a Ph.D. in Sustainability from RIT, an MBA from the University of Rochester, and a BSME from the University at Buffalo, she brings an essential understanding of the technical, environmental, and economic factors that impact climate strategies. Jackie is also a certified LCA practitioner and a TRUE Zero Waste Advisor, enhancing her ability to guide Brookline's efforts toward effective, data-backed climate solutions.

**Matthew Naud | Senior Consultant | Project Director**

A senior consultant at Resource Recycling Systems (RRS), Matthew brings 34 years of experience in public sector sustainability, climate adaptation, and emergency management, uniquely position him to direct the development of Brookline's CARP. As Ann Arbor's first Environmental Coordinator, he supported the city's first GHG inventory in 2003, and in 2013 developed and implemented the city's [Sustainability Framework](#), aligning over 30 city plans and 225 goals into a unified 16 goal strategy adopted into the City Master Plan. His leadership extends to founding roles in national networks, such as the Urban Sustainability Directors Network, [Great Lakes Climate Adaptation Network](#), Michigan Green Communities, and serving 6 years as an appointed member of the [EPA Board of Scientific Counselors](#) – serving on the Executive Committee and the Sustainable and Healthy Communities Subcommittee.

Matthew helped lead the city of Ann Arbor Hazard Mitigation Plan update in 2017 with a strong focus on integrating climate risk. Matthew began working on climate adaptation in 2010 and is currently a Practitioner in Residence with the NOAA funded [GLISA Climate Adaptation Partnership](#). He continues to support the Great Lakes Climate Adaptation Network. Matthew recently participated in the Southeast Michigan Council of Governments (SEMCOG) [Priority Climate Action Plan](#) (PCAP) task force.

Matthew's extensive project management history includes leading climate action plans, vulnerability assessments, and waste reduction strategies for municipal clients like Washtenaw County ([Resilient Washtenaw](#)), Ann Arbor Charter Township and the City of Ferndale. His expertise in stakeholder engagement, policy integration, and technical modeling will support Brookline's goals for impactful climate planning. With dual master's degrees in public policy and biology from the University of Michigan and a proven ability to drive sustainability within municipal frameworks, Matthew is well-equipped to guide the CARP's design and execution.

**JD Lindeberg | President | Project Advisor**

JD Lindeberg, President of RRS, brings 38 years of experience in corporate sustainability systems, material recovery, and climate action planning. He has led transformative projects in waste diversion, such as developing organics recovery plans for Hillsborough County, FL, and overseeing significant MRF (Materials Recovery Facility) upgrades in Marquette County, MI. JD's expertise in business planning, project financing, and capital project execution will ensure that Brookline's climate strategies will align with both sustainability goals and financial feasibility.



With extensive experience presenting at national forums on sustainability and waste reduction, JD brings insights into market-driven strategies that can enhance Brookline's approach to emissions reduction and climate resilience. His academic credentials, including a Master of Public Affairs with an Environmental Certificate from Princeton University and a Master's in Civil Engineering from Stanford University, provide a strong foundation for integrating technical, policy, and economic perspectives into the CARP's development and implementation.

**Sabina Shaikh | Consultant (Ricardo) | Stakeholder Engagement Lead**

Sabina is a Consultant at Ricardo Energy & Environment in the Circular Economy and Sustainability practice area, predominately deployed on the Zero Waste Scotland Energy Efficiency Support Service as a Business Advisor. This experience provided her with a key insight into low-carbon energy solutions and an in-depth understanding of energy efficiency within buildings. In December 2020, Sabina joined the Climate Action Planning and Transparency team, based in Glasgow. Sabina has provided technical assistance to local authorities, cities, and countries to design, develop, update, and implement integrated urban plans and climate change strategies. She understands the technical requirements and challenges cities face in measuring, reporting, and verifying their GHG emissions and mitigation activities. Alongside this experience, she has supported local authorities in developing net-zero tools and Climate Emergency Action Plans at the local authority level. Sabina is experienced in stakeholder engagement and capacity-building events both in-person and remotely; her experience spans from co-delivery a series of workshops on the role communities play in achieving net-zero, data for mitigation action reporting, MRV for GHG inventories, and how to develop climate action plans and policies.

**Rose Bailey | Associate Director, Climate Action Planning & Transparency (Ricardo) | Climate Action Planning SME**

Rose Bailey is an international expert in climate change action planning and transparency, with a particular focus on cities. She has 15 years' international experience, providing technical assistance, training and capacity building, and developing guidance, tools and training materials on climate change. Rose's knowledge and experience spans the technical challenges of compiling data to measure, track and report GHG emissions, targets and actions, and the design and implementation of climate change actions and plans. This includes the technical, financial, policy, and governance needs. Rose's work spans both domestic climate policy purposes, including city Climate Action Plans, and UNFCCC reporting requirements, with particular experience in the Africa and Asia regions.

Rose provides technical leadership on much of Ricardo's work on city climate action planning and is the main focal point for technical assistance to the C40 Cities Climate Leadership Group, and other international city climate change projects. She has supported nearly 40 C40 member cities, and numerous non-C40 cities, states and regions, on all aspects of climate action planning and implementation. Rose has worked with C40's teams for 10 years, co-developing tools, guidance and training materials used extensively with cities. These include templates and workbooks on GPC inventories, climate action planning training materials, and delivering multiple in-city training workshops. Rose also has extensive practical experience working with cities and countries in local context and well understands capacity needs and constraints. She has led over 30 international missions across all regions, to train and support local stakeholders on climate issues. She was the technical lead on a large program of work, led by C40 and funded by the BMUB's IKI fund, to support 9 cities in sub-Saharan Africa to develop ambitious climate action plans compatible with the goals of the Paris Agreement and country NDC commitments. Through this work Rose led the development of several key resources, including workbooks, templates and training materials for cities.



APPENDIX 1: RESUMES



COCO FRELING consultant

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OPERATES OUT OF DALLAS, TEXAS

Coco Freling is a consultant at RRS with expertise in urban science, sustainability development, and data analytics. With a Master of Public Policy from the University of Chicago, Coco has developed circular economy policy recommendations and led innovative projects in waste management and energy. Her experience includes conducting qualitative research, gap analysis, and policy research related to recycling, equity, and access. Coco has also contributed to the design of circular economy strategies, developed comprehensive questionnaires for producer responsibility organizations, and provided critical insights through stakeholder engagement. She brings a unique blend of creative thinking and systematic analysis to complex sustainability challenges.

project highlights

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Recycling System Analysis Study; Project Team

The Signalfire Group, a policy-focused subsidiary of RRS, is working with the Vermont Department of Environmental Conservation (DEC) on an ongoing assessment of Vermont's beverage container redemption system under the state's Bottle Bill (BB). This study seeks to explore options for enhancing system efficiency and minimizing environmental impacts, particularly regarding GHG emissions. Coco is actively supporting the development of a GHG emissions model, assisting in the adaptation of WARM data to Vermont's context and contributing to discussions on consumer behavior and program structure. Her contributions in model review and coordination with team members and DEC stakeholders are helping to ensure accurate and relevant GHG projections that will inform future recommendations for Vermont's recycling system.

CARTON COUNCIL NORTH AMERICA

Engagement 2023 – 2024; Project Team

Focuses on interview analysis, qualitative software preparation, and collaborative planning. Conducted an in-depth review of various qualitative analysis software, testing different platforms to ensure their suitability for the project's needs and working with team members to select appropriate tools for analyzing qualitative data. Involved in every stage of the interview process, from scheduling to analysis, reviewing and coding interviews to ensure the data was processed systematically.

KING COUNTY, WASHINGTON

Circular Economy Innovation Platform; Project Team

Contributed to data discussions, research, and gap analysis. Researched the relationship between recycling and community well-being. Work centered on equity research, which involved conducting in-depth studies and findings write ups, as well as additional policy research related to recycling rates, equity, and access.



NORTHWEST PRODUCT STEWARDSHIP COUNCIL

Policy Research, Project Team

Conducted an extensive literature review, analyzed articles and citations, and reviewed key data points, ensuring that the information was relevant and accurate. The literature review also extended to reviewing the Washington State Waste Composition Report to inform the policy development process. Worked on pricing and weight variation, setting up a workbook to model these variations, and conducted detailed price variation modeling. Performed thorough pricing analyses and calculations, ensuring that all financial data was accurately assessed and incorporated into the project.

CIRCULAR ACTION ALLIANCE

Producer Responsibility Organization Plan Support; Project Team

Developed and refined the initial questionnaire for statewide distribution. Conducted extensive editing of the questionnaire, reviewed and developed the project's methodology, ensuring that both the questionnaire and program approach were well-aligned with project goals.

past experience

ENERGY POLICY INSTITUTE AT THE UNIVERSITY OF CHICAGO

September 2021 – August 2022: Graduate Research Assistant

Achieved rare RA authorship on study by serving as “conduit for systematic and technical alignment across study’s three components.” Qualified and designed qualitative interviews, correlational survey, and conjoint choice model in DOE funded study, informing policy recommendations on increasing co-adoption of EVs and RPVs equitably. Propelled and wrote supplementary NLP sentiment analysis and LDA (python) to advance team’s qualitative research and understanding of market segments.

HARRIS SCHOOL OF PUBLIC POLICY - UNIVERSITY OF CHICAGO

September 2021 - June 2022: Practicum Participant

Led interviews, discovery, and prototyping iterations to redesign Chicago’s TIF program and success metrics for Office of Equity and Racial Justice. Engaged in energy market regulation evaluations with, among others, NRG’s Travis Kavulla, VP of Regulatory Affairs. Provided pro-bono consulting for Sunshine Enterprises, helping shape growth and KPIs for company and underserved Chicago entrepreneurs. Invited to publish commentary article in Chicago Policy Review, titled: *How to get consumers in on closed-loop systems: make it convenient.*

MANSUETO INSTITUTE FOR URBAN INNOVATION

May 2021 - September 2021: Development Planning Intern

Formed institutional partnerships and directed a landscape analysis, resulting in directory of like-organizations, potential donors, and industry trends. Crafted Mansueto’s primary funder brief template, securing a second round of funding for two key Urban Justice projects. Advanced funding for Mansueto’s Million Neighborhoods, a visual tool to map and inform infrastructure projects in informal settlements globally.

FAMILY INDEPENDENCE INITIATIVE (NOW UPTOGETHER)

April 2020 - December 2020: Data Strategist

Collocated system and data needs with concerns of executives, senior management, mid-management, and contract employees to set forth opportunities for improved workplace operations for employees and data visibility for funders. Developed workflow methodologies with ZenDesk API to improve efficiencies for FII’s COVID-19 relief fund application, review, support, and distribution system of nearly 130 million dollars and 600,000 applicants.

**LRW**

September 2015 - September 2020: Senior Research Manager

Managed a team and led clients through all stages of the research process and consulted on findings; for one, analysis and recommendations led to establishment of Disney+, a decision resulting in \$16.5+ billion revenue for the client. Ran discrete choice models and pricing models to optimize client offerings. Spearheaded the reorganization of a \$750,000, ongoing, 15-country tracking study after identifying a leverage point within the reporting process. Served as lead for LRW sustainability team, initiating best practices to reduce climate impact, including composting and resource sharing across California offices.

CENTER FOR URBAN RESILIENCE

September 2012 - May 2016: Sustainability Manager and Research Associate

Assisted with research and advocacy on green space, food access, and restorative justice within broader LA community; partnered with Kiss The Ground, SOLA, and The Lexicon. Conducted LMU's AASHE STARS report to bring transparency to the university's sustainability performance. Designed and piloted LMU's campus-wide composting program and tracked campus organic waste diversion.

education/certification**HARRIS SCHOOL OF PUBLIC POLICY, UNIVERSITY OF CHICAGO, CHICAGO, IL**

Master of Public Policy; Urban Sciences and Sustainability Development certificate, Data Analytics certificate

UNIVERSITAT AUTÒNOMA DE BARCELONA

Certificate: Sustainability of Social-Ecological Systems: the Nexus between Water, Energy, and Food

LOYOLA MARYMOUNT UNIVERSITY, LOS ANGELES, CA

B.S. Economics; B.B.A. Marketing; Honors, cum laude



JACKIE EBNER

senior consultant

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OPERATES OUT OF PITTSFORD, NEW YORK

Jackie is a sustainability expert with 20 years of experience serving industry, academia, and municipalities. Prior to joining RRS, she was the principal of Elucidativ LLC where her focus was on aligning client operations with sustainability goals through data-driven insights. As co-founder of Rochester Area Interfaith Climate Action (RAICA), Jackie empowered organizations of faith with practical frameworks to decarbonize and reduce waste. Jackie serves on the faculty of Bard College's Sustainable MBA program and the Rochester Institute of Technology (RIT), teaching and advising on topics such as Life Cycle Assessment (LCA) and Greenhouse Gas (GHG) accounting. Her extensive experience with lifecycle assessment and data modeling is integral to Task 1, as she will oversee technical modeling and emissions analysis to guide the CAP's design and implementation. She holds a Ph.D. in Sustainability from RIT, an MBA from University of Rochester and BSME from University at Buffalo, bringing an essential understanding of the technical, environmental and economic factors that impact climate strategies. Jackie is a certified LCA practitioner and TRUE Zero Waste Advisor.

project highlights

STATE UNIVERSITY OF NEW YORK AT BUFFALO

Zero Waste Plan; Project Team

RRS supported the State University of New York at Buffalo to develop a zero-waste plan that will help implement a system where materials are collected efficiently and in a manner to become resources for others to use, to systematically avoid and eliminate the volume and toxicity of waste and materials, develop a campus-wide culture of zero waste that will be carried on after graduation, and conserve university resources. Rachel supported modeling and data collection efforts, and also helped design the sort methodology used for the campus-wide waste audit.

GREENHOUSE GAS INVENTORIES, TOWN OF PITTSFORD

Elucidativ LLC/Bard College (completed prior to joining RRS)

Prepared a Greenhouse Gas (GHG) for Municipal Operations and a Community Level GHG inventory for the Town of Pittsford. Worked with the Town staff to gather and evaluate activity data and identified credible supplementary data sources to fill data gaps. Compiled GHG Inventories compliant with the GHG Protocol. Analyzed results to provide recommendations. Prepared reports for use by disclosure to the public and for use by Town officials in preparing Climate Action Plans.

GREENHOUSE GAS INVENTORY, RE:DISH

Elucidativ LLC (completed prior to joining RRS)

Prepared a Corporate Greenhouse Gas (GHG) for re:dish, a company that provides reusable food serviceware and industrial warewashing in the New York City and Philadelphia region. Worked with company operations staff to gather and evaluate activity data and identified credible supplementary data sources to fill data gaps. Compiled GHG Inventories compliant with the GHG Protocol. Analyzed results to provide recommendations to support corporate sustainability goals.



JCC ROCHESTER, NY

RAICA (*completed prior to joining RRS*)

Advised CEO and Sustainability task force on areas of environmental impact and development of a plan to mitigate climate impacts. Coordinated quotes for rooftop and ground based renewable energy project. Participated in ideation for sustainable highest use of 60 acres of undeveloped land adjacent to facility.

relevant experience

RICOCHET REUSABLES, ROCHESTER, NY

CEO, 2021 – Present

Founder of a start-up social enterprise providing reusable food service container services to restaurants and venues. Defined the business model and developed a business plan while engaging with incubators and funders. Recruited and developed the team, developed technology, and planned the pilot rollout.

ROCHESTER AREA INTERFAITH CLIMATE ACTION (RAICA), ROCHESTER, NY

Co-Founder and President, 2018 – Present

Developed the vision and provided strategy and leadership for a non-profit organization working with faith-based institutions and organizations to drive climate change action. Built a platform solution to support Rochester faith-based institutions and organizations with over 300 member subscribers. Engaged local vendors and agencies to achieve collaborative outcomes and launched campaigns in renewable energy, energy efficiency, waste management, and climate action education. Enrolled over 30 faith institutions and nearly 60 households in community solar programs, conducted the 2020/21 Energy Efficiency Challenge to reduce household energy consumption, and coordinated commercial and residential food waste composting programs at multiple Houses of Worship.

ELUCIDATIV/JACQUELINE EBNER, ROCHESTER, NY

Sustainability Consultant, 2016 – Present

Consulted with companies, institutions, and municipalities on lifecycle assessment, circular economy, food waste management, energy efficiency, and renewable energy. Served as Senior Advisor on Sustainability for Evtek, conducted environmental impact analysis of Harmonized Reuse vs. Single-use plastics for PR3/RESOLV, developed a Food Waste Prevention, Donation, and Organics Recycling Education and Outreach Program for the City of Rochester, and assessed the Bio-Based Materials Sector in the Finger Lakes Region of NY State for EDA/Kodak Business Park.

BARD COLLEGE, ANNANDALE-ON-HUDSON, NY/BARD NYC

Visiting Lecturer, MBA Program in Sustainability, 2019 – Present

Prepared and delivered Sustainable Operations and Supply Chain and Sustainable Business Strategy courses, achieving 100% highly effective student evaluations.

ROCHESTER INSTITUTE OF TECHNOLOGY, ROCHESTER, NY

Adjunct Faculty, Golisano Institute for Technology, 2016 – 2018

Developed and delivered Sustainability Practices, Energy Policy, Ethics, Values and Public Policy, Corporate Social Responsibility, Business Ethics, and Fundamentals of Industrial Ecology courses for undergraduate and graduate students, receiving 100% effective or highly effective student evaluations.

Golisano Institute for Sustainability, Research Assistant, 2011 – 2016



Applied research and analysis methods including lifecycle assessment and material flow analysis. Prepared and defended the dissertation "Sustainable management of food supply chain resources: A case study for New York State." Developed and published an online geographic information system, "The Organic Resource Locator," and published several peer-reviewed journal articles and numerous scholarly presentations.

XEROX CORPORATION, ROCHESTER, NY AND PALO ALTO, CA

Marketing Strategy Manager, Color Systems Business Unit, 1999 – 2000

Engaged in strategic and annual R&D planning for color multifunction devices and printers, delivering collaterals and product messaging, and building relationships with customers.

Operations Manager, Strategic Programs, 1997 – 1999

Managed product design-for-reliability and design-for-serviceability strategies, achieving landmark "Zero to Landfill™" sustainability goals.

Post Sale Business Manager/Field Support Manager, Color Business Unit, 1992 – 1997

Managed a \$1.8B post-sale business, achieving a 25% improvement in post-sale profit margin through sustainable supply chain management and remanufacturing.

Mechanical Design Engineer, Mid Volume Business Unit, 1988 – 1992

Received US Patent.

education/certifications

ROCHESTER INSTITUTE OF TECHNOLOGY, ROCHESTER, NEW YORK

Ph.D., Sustainability

UNIVERSITY OF ROCHESTER, SIMON SCHOOL OF BUSINESS, ROCHESTER, NEW YORK

M.B.A.

STATE UNIVERSITY OF NEW YORK AT BUFFALO, BUFFALO, NEW YORK

B.S., Mechanical Engineering

LCA Professional Certification (LCAC)



MATTHEW NAUD

senior consultant

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OPERATES OUT OF SUTTONS BAY, MICHIGAN
DUAL US AND CANADA CITIZENSHIP

Matthew Naud is a senior consultant with RRS. Matthew was the first Environmental Coordinator for the city of Ann Arbor in 2001 and has 30 years of public sector sustainability, climate adaptation, and emergency management consulting experience as well as four years of academic and industry molecular biology research experience. He developed the city Sustainability Framework - 16 Sustainability Goals for the City of Ann Arbor – adopted as an element of the City Master Plan. He has direct experience building sustainability into the culture of an organization and working with universities to identify policy relevant data for city planning efforts. For example, he supported city staff with the development of the Waste Less: City of Ann Arbor Solid Waste Resource Plan in 2013 and organized the plan goals, targets, and actions around the Sustainability Framework. He has played a formative and leadership role in several national networks of city sustainability staff including the Urban Sustainability Director's Network. He was recently reappointed to a three-year term on the USEPA Board of Scientific Counselors Sustainable and Healthy Communities Subcommittee. He holds master's degrees in biology and public policy from the University of Michigan and an undergraduate degree from Boston College. He is a member of the Washtenaw County Brownfield Redevelopment Authority and on the board of the Michigan Municipal Association for Utility Issues (MI-MAUI). Matthew has international experience working for clients or as an invited speaker in Saudi Arabia, Kuwait, Bahrain, Switzerland, India, Indonesia, Denmark, and Nepal.

project highlights

WASHTENAW COUNTY, MICHIGAN

Resilient Washtenaw Climate Action Plan; Project Manager

Developed the first county climate and resilience plan in Michigan. Assessed climate risk and vulnerabilities, and provided strategies for Washtenaw County to prepare for anticipated impacts from climate change. Collected municipal and community GHG emissions data, recommended GHG emission reduction targets, and developed a county governance and community engagement strategy. Participated in Resilience Committee meetings to develop scope and strategy, and deliver draft plan. Washtenaw County has a history of playing a leadership role in many environmental initiatives (e.g., land preservation, Gelman site advocacy) among the county governments and among townships across the state. This climate plan is the first developed on the county scale. The plan is centered on 8 Strategies. Implementation recommendations are focused on Staffing, Reporting, Funding and Financing, Governance, and Partnerships.

ANN ARBOR CHARTER TOWNSHIP

Climate Action Plan; Project Manager

Assessed climate risk and vulnerabilities, and provided strategies for Ann Arbor township to prepare for anticipated impacts from climate change. Collected municipal and community GHG emissions data, recommended GHG emission reduction targets, and developed a township governance and community engagement strategy for the township. Participated in Resilience Committee meetings to develop scope and strategy, and deliver draft plan.



CITY OF FERNDALE

Waste Reduction & Recycling Master Plan for Ferndale Downtown; Project Manager

Developed succinct, effective, and resonating plan to organize and implement a comprehensive sustainable waste management plan for the downtown/central business district in heart of the City of Ferndale. Conducted a waste characterization study and inventory of facilities in the region and modeled waste stream changes based on growth in the downtown and achievement of strong (40%) and stretch (54%) diversion goals. Reviewed best practices in peer communities and other emerging technologies, facility designs, and management practices; projected future waste stream; and identified and analyzed feasibility of addressing unmet needs, planning, and recommendations.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

State of Michigan Materials Management Infrastructure Project; Project Team

Large, statewide project to collect information on the current status of materials management systems in all municipalities within Michigan's 83 counties for the development of future materials management plans to include details on existing infrastructure and capacity, materials collection, waste diversion, hauling, processing, education programs, access and availability, and end-use markets as well as complete details on local ordinances, related host community agreements, data collection efforts, and local funding mechanisms.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Partnership and Innovation Project; Project Team

Developed and implemented a platform to establish partnerships to grow recycling in Michigan and develop a challenge competition to overcome barriers associated with the use of recycled materials. Work will attract investment in Michigan recycling and grow local programs and businesses by building partnerships, collecting and interpreting data, innovating through economic development, relationship management, materials marketing, and best management practices dissemination. This work targets the necessary improvements to recycling infrastructure and end markets required to create a more robust circular economy, and is guided by a baseline data-driven gap analysis that identifies specific areas of opportunity within the state and the necessary resources to direct to those opportunities. Provided mentoring to accelerator participants, and facilitated strategy calls, pitch sessions, and other key activities within the Renew program.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ)

Recycling End Use Market Analysis and Recycling Market Development; Project Team

Conducted an in-depth analysis of the end-use markets for recycled commodities and developed a strategy for future activities. The project included a material flow analysis and market survey for specific commodities as well as a macro-level economic analysis of recycling's impact in the state and estimated the degree of economic benefits of recycling to local economies including direct, indirect, and induced impacts on jobs and economic output. Concluded with recommendations on demand/supply processing balance, activities for additional market development, and a strategy for improving markets in the state.

past experience

CITY OF ANN ARBOR

2001 – 2018: Environmental Coordinator

Lead and developed innovative programs to further urban sustainability goals in Ann Arbor including environmental remediation, municipal and community energy efficiency, solid waste, recycling, organics management, composting, river management, emergency management, equity, climate mitigation and adaptation.

**INDEPENDENT CONSULTANT**

1999 – 2001

Two years of independent consulting experience working on or managing large quantitative or qualitative analytical projects for federal, state, or private sector clients.

ICF KAISER CONSULTING GROUP

1990 – 1999: *Project Manager*

Nine years of consulting experience managing large quantitative or qualitative analytical projects for public, non-profit, or private sector clients.

education

UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN

Master of Science, Public Policy

Master of Science, Biology

BOSTON COLLEGE, BOSTON, MASSACHUSETTS

Bachelor of Arts, Psychology



JD LINDEBERG, LEED AP president

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OPERATES OUT OF ANN ARBOR, MICHIGAN

JD is a Principal and President of RRS bringing over 39 years of experience developing corporate sustainability systems, material recovery and processing systems, biomass energy and organics recovery, business planning and plan development, project due diligence and risk management, capital project planning, and project financing. His training and experience as a professional engineer give an added dimension to his business background and provide insight into the development of award-winning projects. Recently his efforts have focused on increasing recovery through the innovative development and application of recovery technologies to increase overall recovery in response to both public and private demand for higher recycling rates. He is a well-known speaker on the national level, where he has delivered numerous speeches on the topic. He has also had the opportunity to pursue the development of environmental and sustainable technology through his involvement in the non-profit Environmental Capital Network and his own ventures into “green” home and resort construction.

project highlights

RESILIENT WASHTENAW

Climate Action Plan; Project Team

RRS worked closely with Washtenaw County to develop a strategic framework to address climate risks and implement mitigation strategies at the county level. This comprehensive plan identifies climate vulnerabilities, sets GHG reduction targets, and outlines governance and community engagement strategies essential for building local resilience. JD made key contributions to the plan’s development, particularly through the final document writeup and critical review of GHG reduction recommendations. His insights and collaboration with county stakeholders helped shape the actionable recommendations, focusing on staffing, governance, and funding mechanisms. JD helped to ensure that the CAP aligned with the County’s environmental leadership legacy and supports effective implementation across municipal and community sectors.

AECOM - NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION

Energy Carbon Neutrality Plan; Project Director

Researching generation of clean and/or renewable energy on-site including co-digestion of high-strength organic waste and food waste to vet the viability of co-digestion of high-strength organics and/or food waste given they are dependent upon the sources of such waste streams, transportation concerns, and policy requirements. JD developed the waste generation model, participating in strategic meetings with NYC DEP and other stakeholders to align the model with city-wide waste management goals. In-depth discussions on waste stream sourcing and transportation logistics informed the policy recommendations for food waste collection and management. JD’s input on policy and technical considerations was instrumental in ensuring that the plan addressed practical implementation challenges while aligning with NYC DEP’s carbon neutrality objectives.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

***State of Michigan Materials Management Infrastructure Project; Project Team***

Large, statewide project to collect information on the current status of materials management systems in all municipalities within Michigan's 83 counties. Researching existing infrastructure and capacity, materials collection, waste diversion, hauling, processing, education programs, access and availability, and end-use markets as well as complete details on local ordinances, related host community agreements, data collection efforts, and local funding mechanisms.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY***Partnership and Innovation Project; Project Team***

Supporting state-wide, multi-year contract to create a platform to establish partnerships to grow recycling in Michigan and develop a challenge competition to overcome barriers associated with the use of recycled materials. Work will attract investment in Michigan recycling and grow local programs and businesses by building partnerships, collecting and interpreting data, innovating through economic development, relationship management, materials marketing, and best management practices dissemination.

BOULDER COUNTY, COLORADO***C&D/Compost Site Analysis & Comparison Study; Project Manager***

Conducting due diligence and fatal flaw analysis to help the county improve the long term financial and environmental sustainability of site locations for compost and construction and demolition materials. Study includes stakeholder engagement and greenhouse gas emission modeling.

WASHTENAW COUNTY***Solid Waste Management Plan Amendment; Project Team***

Facilitated the county's solid waste management plan amendment process over a two-year period including data analysis, stakeholder engagement, goal setting, and drafting of the plan document while conducting monthly meetings with the planning committee, and every other week meetings with County staff.

RETHINK FOOD WASTE THROUGH ECONOMICS AND DATA (REFED)***Roadmap to Reduce U.S. Food Waste; Project Director***

Guided the team on the technical consulting services portion of this project, worked specifically on the infrastructure development portion of the report, and contributed to the soil amendment and market portion of the study. ReFED was formed to highlight food waste prevention as an untapped strategy that can save resources, create jobs, alleviate hunger, save water, and limit greenhouse gas emissions – all while stimulating a new billion-dollar growth sector.

EUREKA RECYCLING***Triple Bottom Line Assessment of Organics Technologies; Project Director***

Developed capital and operating models for a wide range of compost processing options including backyard composting, windrow, aerated static pile (ASP), covered ASP, and wet and dry anaerobic digestion to evaluate the economic, environmental, and social impacts of handling organics waste through landfilling, waste-to-energy, or composting. This study also incorporated multi-dimensional sustainability findings ranging from carbon emission to surface water eutrophication. Full cost accounting analysis of entire composting system yielded clear, best practice recommendations for Eureka Recycling and their customer, St. Paul, Minnesota.

CITY OF DEARBORN, MICHIGAN***Energy from Organics Waste Feasibility Study; Project Director***



Directed the project team efforts including developing cost models, using proprietary mapping and database information, developing GIS-based organics waste maps, and compiling a detailed study on the economic justification of water and wastewater services that was utilized to develop a viable option for the city to reduce the organic waste stream and generate a local source of energy and revenue.

DISTRICT OF COLUMBIA

Recycling Advisory Services; Project Team

Supported the District of Columbia's Department of Public Works Office of Waste Diversion in the finalization and roll out of the Mayor's List of Recyclables and Compostables, which expanded the types of materials accepted under DPW's recycling program. Provided strategic guidance on waste diversion programs and operations, developed the District's recycling processing services RFP; conducted annual recycling audits at District transfer stations and the Waste Management Elkridge Material Recovery Facility; evaluated the District's solid waste mass balances and conducted an in-depth review of transfer station weight and cost tracking; developed a customized facilities and infrastructure recommendations plan.

DISTRICT OF COLUMBIA

Organics Advisory Services; Project Team

Provided advisory services on the implementation of the Compost Feasibility Report's project recommendations; development of cost estimates for building a compost site; compost site layout recommendations and identification of beneficial attributes; facilitation of DPW leadership and multi-agency meetings related to the siting and development of an in-District compost facility. Analyzed considerations for curbside compost collections and commercial drop-off program, developed models to determine program viability, and provided strategic recommendations for management of potential programs.

education

PRINCETON UNIVERSITY, WOODROW WILSON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS, PRINCETON, NEW JERSEY

Master in Public Affairs, Concentration in Domestic Policy Analysis with Environmental Certificate

STANFORD UNIVERSITY, STANFORD, CALIFORNIA

Master in Civil Engineering, concentration in Geotechnical Engineering

Honors: Civil Engineering Fellowship

DARTMOUTH COLLEGE, HANOVER, NEW HAMPSHIRE

Bachelor of Arts, Engineering Sciences

certification

- Leadership in Energy and Environmental Design Accredited Professional (LEED AP)



Rose Bailey

Associate Director, Climate Action Planning & Transparency
Ricardo Energy & Environment

Qualification(s)	PhD 'Carbon Management at the City Scale', University of the West of England, Bristol. 2012 MSc Environment and International Development, University of East Anglia, Norwich. 2007 MA Human Sciences, St Hilda's College, University of Oxford. 2006
Nationality	British
Language(s)	English (Mother Tongue) Spanish (A1)

PROFILE

Rose Bailey is an international expert in climate change action planning and transparency, with a particular focus on cities. She has 15 years' international experience, providing technical assistance, training and capacity building, and developing guidance, tools and training materials on climate change. Rose's knowledge and experience spans the technical challenges of compiling data to measure, track and report GHG emissions, targets and actions, and the design and implementation of climate change actions and plans. This includes the technical, financial, policy, and governance needs. Rose's work spans both domestic climate policy purposes, including city Climate Action Plans, and UNFCCC reporting requirements, with particular experience in the Africa and Asia regions.

Rose provides technical leadership on much of Ricardo's work on city climate action planning and is the main focal point for technical assistance to the C40 Cities Climate Leadership Group, and other international city climate change projects. She has supported nearly 40 C40 member cities, and numerous non-C40 cities, states and regions, on all aspects of climate action planning and implementation. Rose has worked with C40's teams for 10 years, co-developing tools, guidance and training materials used extensively with cities. These include templates and workbooks on GPC inventories, climate action planning training materials, and delivering multiple in-city training workshops. Rose also has extensive practical experience working with cities and countries in local context and well understands capacity needs and constraints. She has led over 30 international missions across all regions, to train and support local stakeholders on climate issues. She was the technical lead on a large programme of work, led by C40 and funded by the BMUB's IKI fund, to support 9 cities in sub-Saharan Africa to develop ambitious climate action plans compatible with the goals of the Paris Agreement and country NDC commitments. Through this work Rose led the development of several key resources, including workbooks, templates and training materials for cities.

Rose also provides extensive international capacity building and training at national level and is a UNFCCC accredited expert on reporting under the Paris Agreement, training countries and providing guidance on meeting UNFCCC requirements. Projects usually entail a blend of technical knowledge sharing, capacity building and problem solving, and Rose is very familiar with the need to be flexible and adaptable in response to different country contexts and local needs, working alongside stakeholders and focal points to build sustainable knowledge and embed solutions.

Rose has also produced a range of guidance, resources and training materials on climate action. She is currently leading the development of the NDC Partnership and UNFCCC 'NDC 3.0 Navigator', a high-profile web-based guidance and tool to support countries to strengthen their 2025 NDC submissions (to be launched in June). She

Rose Bailey

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led the instructional design of the World Bank's 'City Climate Planner Certificate program' and developed the training course, including the in-person workshop design, and technical oversight of its translation into an e-learning course. She has also designed and led train-the-trainers programmes, for CDP, Bloomberg Philanthropies, C40 and ICLEI. She has sat in numerous technical working groups and panels, representing organisations such as the World Bank in COP side events, and was nominated by the UK for the current IPCC Special Report on Cities.

KEY SKILLS

- Deep knowledge and practical experience on design and implementation of climate action in cities, including data for action and implementation, and financing opportunities
- Experienced in the design and delivery of interactive knowledge and training materials, curricula, and resources on climate action for cities and national governments
- Technical leader on GHG emissions inventories, scenario modelling/projections and mitigation actions planning at city, regional and national levels
- Skilled in facilitation of and coordination with public sector stakeholders and officials in developing country contexts, including sensitivity to different cultural contexts and capacities
- Experienced in understanding needs and overcoming challenges on city and national institutional arrangements and climate governance
- Deep understanding of UNFCCC and Paris Agreement reporting requirements, including Nationally Determined Contributions (NDCs) and NDC implementation planning

KEY PROJECT EXPERIENCE

- **March 2023 – May 2023, Development of an NDC Enhancement Reference Guide, the “NDC 3.0 Navigator” (NDC Partnership, UNFCCC, WRI, UNDP):** Project Director and technical lead on the development of a high-profile toolkit to support ambitious and implementable 2025 NDCs. This project aims to build on existing resources and support offerings to collaboratively develop a “Reference Guidance for NDC Enhancement”. The aim of this is to help countries better understand how they can raise their ambition in the highest and most meaningful ways while also preparing for their NDCs’ implementation.
- **May 2023 – December 2023, Landscape assessment and recommendations on city-scale climate related data and tools (C40, GCoM, CDP):** Addressed key knowledge gaps on climate data and tools in transparency processes, including developing a new guidance for subnational / nonstate actor climate action and transparency reporting at different levels of capacity, including defining ‘bare minimum’ requirements. *Technical lead and project director.*
- **September 2022 – June 2023, Supporting the operationalization of climate action plans in Nairobi and Mombasa Cities (World Bank, City Climate Finance Gap Fund):** Support to Mombasa to develop a climate action plan (CAP), and Nairobi city county to operationalise the existing CAP through the drafting of a Climate Change Policy and Bill, as well as development of a set of bankable projects and their investment needs. Capacity building and stakeholder engagement were core parts of the delivery. *Project Director.*
- **June 2021 – 2022, Technical advisory services for the third phase of the GIZ project “Support Project for the Implementation of the Paris Agreement (SPA)” (GIZ):** Part of the Ricardo team strengthening the capacities of partner countries to achieve the long-term objective of the Paris Agreement. Technical lead on subnational governments with, including designing and delivering a training webinar for Asia LEDS/ICLEI.
- **March 2022 – October 2022, Under2 Coalition: MRV in developing and newly industrializing countries (“Climate Footprint Helpdesk”) (The Climate Group – BMU IKI):** Tailored technical assistance to states and regions on MRV issues via short- and long-term packages of support. Country lead for KwaZulu-Natal and Gauteng Provinces, South Africa. Delivered webinars on climate finance and an in-person workshop on MRV of mitigation actions for KwaZulu-Natal province and stakeholders from local and national government, and developed guidance to estimate AFOLU sector emissions. *South Africa technical lead.*
- **May 2021 – March 2022, Enabling Integration and Implementation of Urban Climate Action in NDCs and LTSs (World Bank):** Prepared a set of technical notes, decision support tool and guidance documents to support the World Bank and partner countries identify and implement opportunities better integrate NDCs, LTSs, and urban climate strategies. *Technical lead and project director.*

Rose Bailey

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- **June 2020 – September 2020, Additional guidelines and/or templates for NDC update processes in the IKI partner countries (GIZ):** Supported an NDC update guidance document ("Impulse Paper"). Undertook country interviews to understand needs and experiences. *Technical team.*
- **June 2019 – May 2020, Good City Governance on Climate Change Case Studies (C40 Cities Climate Leadership Group):** Publication consisting of Good Climate Governance Case Studies, featuring examples of climate governance from across C40 cities. Support was provided to the C40 working group in refining their approach to governance, organisational framing, and response and support. *Project Director.*
- **July 2019 – October 2020, Technical Assistance for Climate Action Planning (C40 Cities Climate Leadership Group):** Ad hoc technical assistance to C40 cities, including technical assistance and training workshops. Ricardo designed the workshop agenda and liaised with local partners and subcontractors to build capacity, coordinate local activity, and arrange the workshop. In addition, Ricardo also supported the production of tools and resources, such as reporting templates and workbooks for GHG inventories and modelling outputs, and standardised training workshop content. *Technical lead and project manager.*
- **December 2017 – 2021, Cities Matter: Capacity building in sub-Saharan African mega cities for transformational climate change mitigation (C40 Cities Climate Leadership Group):** Tailored technical assistance and practical support to Accra, Cape Town, Addis Ababa, Dar es Salaam, Durban, Johannesburg, Lagos, Nairobi and Tshwane, to develop transformational, robust and evidence-based long-term climate action plans. Delivered a series of in-city workshops, complemented by regional workshops, webinars and remote technical assistance, to build capacity and enable peer interaction. Tools and training resources – underpinned by existing city practices and international GHG and MRV approaches – were developed in collaboration with the cities and shared across the parallel C40 regional programmes. *Technical lead.*
- **July 2016 Training for CDP Global Cities team on city-level GHG and MRV (CDP):** Contracted as an expert instructor for a 2-day interactive GHG inventory and MRV training for the CDP Global Cities team, responsible for international city-level GHG reporting. Responsibilities included development of the training curriculum, materials, delivery of the training workshop, coordinating with the team to understand training needs, building interactive exercises, and running a 'FAQ workshop' to provide the team with appropriate responses to common questions and challenges.
- **March 2016 – July 2016 GHG Inventory Training Instruction and Training Program Design, for the City Climate Planner Certificate Program (World Bank Group):** Contracted as an expert instructor for a 3-day GHG inventory training being held in Washington DC for representatives of c.20 global megacities. Responsibilities include delivery of the training workshop, coordinating with external learning specialist consultants, contributing guidance on building interactive exercises, leading the updates to the training curriculum based and materials on post-training feedback; developing a 'trainers handbook'.
- **April 2016, Instruction of 2-day 'Train the Trainers' workshop for Compact of Mayors delivery partners (Bloomberg Philanthropies):** Delivery of a two-day training event in New York, for key Compact of Mayors delivery staff at C40, ICLEI, CDP and Bloomberg Philanthropies. Responsibilities involved developing a 2-day programme of training content, revising and updating training materials, producing interactive 'case study' exercises and providing feedback and expert input into development and delivery of the training programme.
- **May 2015 - January 2016, Supporting the roll-out of the GPC to C40 Cities (C40 Cities Climate Leadership Group):** Supported C40 Cities to improve the greenhouse gas (GHG) inventories of 17 city members in order to achieve compliance with the Global Protocol on Community Scale Emission Inventories (GPC), and meet the requirements of the Compact of Mayors. Specifically included designing and running in person workshops, helping cities to report their data using the approved GPC reporting tools, providing tailored technical support and conducting a final audit to verify that GPC-compliance had been achieved. The project also involved input into the development of reporting and calculation tools.

CAREER HISTORY

- **January 2022 – Present, Associate Director, Climate Action Planning & Transparency, Ricardo PLC.**
- **July 2016 – December 2021, Principal Consultant - Technical, Ricardo PLC.**
- **February 2014 – June 2016, Senior Consultant - Technical, Ricardo PLC.**
- **May 2008 (PT) / March 2012 (FT) - January 2014, Research Fellow - Carbon Management, University of the West of England, Bristol**
- **July 2007 - May 2008, Projects Officer, Oxfordshire County Council**

CURRICULUM VITAE

Sabina Shaikh – Climate Action Planning and Transparency



Sabina Shaikh (she/her)

Consultant (Climate Action Planning and Transparency)
Ricardo Energy & Environment

Qualification(s)	MSc Environmental Management (Energy), University of Stirling, 2018 BSc (Hons) Environmental Science, University of Stirling, 2017
Nationality	British
Language(s)	English (Mother Tongue)

PROFILE

Sabina is a Consultant at Ricardo Energy & Environment who started in April 2019 in the Circular Economy and Sustainability practice area, predominately deployed on the Zero Waste Scotland Energy Efficiency Support Service as a Business Advisor. This experience provided her with a key insight into low-carbon energy solutions and an in-depth understanding of energy efficiency within buildings. In December 2020, Sabina joined the Climate Action Planning and Transparency team, based in Glasgow. Sabina has provided technical assistance to local authorities, cities, and countries to design, develop, update, and implement integrated urban plans and climate change strategies. She understands the technical requirements and challenges cities face in measuring, reporting, and verifying their GHG emissions and mitigation activities. Alongside this experience, she has supported local authorities in developing net-zero tools and Climate Emergency Action Plans at the local authority level.

Sabina is experienced in stakeholder engagement and capacity-building events both in-person and remotely; her experience spans from co-delivery a series of workshops on the role communities play in achieving net-zero, data for mitigation action reporting, MRV for GHG inventories, and how to develop climate action plans and policies. Alongside her technical delivery on projects, Sabina is well-versed in project management. She is an experienced project manager who has worked with various clients being responsible for the day-to-day management and delivery of the project varying with different clients in the private sector, NGOs, national governments and academia. She is proficient in building client relations and delivering project outputs on time and of high quality.

KEY SKILLS

- Stakeholder and Client Engagement
- Project Management and Leadership
- City-scale Climate Action Plans
- Technical report writing
- Data collection and analysis

KEY PROJECT EXPERIENCE

- **March 2024 – Present, Prepare and disseminate Climate Action Plans (CAPs) for Bo City, Kenema, and Makeni in Sierra Leone:** This project aims to create city-level climate action plans for Bo City, Kenema, and Makeni. The process includes conducting city-wide climate-smart readiness assessments in key sectors, integrating financing and implementation plans, and prioritising adaptation and mitigation infrastructure investments. It also involves facilitating a consultative process to prioritise bankable investments based on city priorities. Sabina is the project manager, liaising with the local partner and client, and delivering technical outputs, such as developing the evidence base for the CAPs.
- **Jul 2023 – Dec 2023, C40/CDP/GCoM City-level Data and Tools Landscape Assessment:** Sabina fulfilled the role of Project Management on this project which required continuous review of multiple tasks and deliverables, the associated tight deadlines and managing a team of 20 plus technical team members. Sabina also led on the bi-monthly client calls C40/CDP/GCoM, articulating progress, flagging key questions and ensure the client's priorities are considered at all points in the project lifespan. In addition, Sabina supported and lead the report write up on key parameters and recommendations city teams to consider when drafting Climate Action Plans, this demonstrated Sabina's technical knowledge on city level CAPs, key challenges, and solutions as well as her experience on alternative routes cities can adopt in certain contexts. Lastly, Sabina also supported the technical QA of outputs which shows her attention to detail and understanding of the client's needs and expectations to ensure the delivery of high-quality outputs on time.
- **May 2023 – Present, European Commission, Climate Pact Consortium:** Sabina acted as the project manager on this 2-year project. Key responsibilities included harmonizing tasks across the two primary workstreams led by Ricardo and liaising with the consortium of five partner entities. This entailed participating in weekly calls with DG CLIMA, ensuring that the client's requisites were adequately reflected in deliverables, and managing budgets to ensure that all work was completed on time, within budget, and within the scope of work. In addition, to Sabina's leadership role, Sabina is a technical task lead under Task 3, she provided overarching technical direction and vision by establishing the framework for the Pact Partnership and spearheading the open call to partners as well as onboarding presentations. Sabina's role within the Climate Pact particularly underscores her proficiency in technically leading the team, her sound commercial acumen, and her focus on customer needs. This was demonstrated by her leadership in internal budget reviews and negotiations, and by providing the senior team with guidance on preparing for budget client meetings.
- **Feb 2023 – June 2023 CFA:** Sabina fulfilled the country lead for Nigeria, Sabina collaboratively worked with the country counterparts through the CFA journey to identify, shortlist and provide capacity building support to bankable projects to attract investment at scale from the private sector. Key tasks Sabina led on include selecting potential projects by assessing the mitigation potential and wider impacts, led stakeholder consultations session with the Nigerian country team and provided capacity building support.
- **Feb 2022 – May 2022, ClimateXChange Scoping Emission Reduction Activities on Scottish and International Islands**
Ricardo undertook research on GHG accounting exercises, GHG reduction projects, and climate finance to help inform the Scottish Government's Carbon Neutral Island (CNI) programme, which aims to support at least six Scottish islands to become carbon neutral by 2040. As the project manager of the project, Sabina led weekly client meetings, and lead the technical team on different workstreams all within a tight timescale. In addition, Sabina was also the technical lead on Task 3, researching climate finance within the Scottish Island context. Sabina facilitated and presented in the stakeholder consultation showcasing the key findings. The virtual session presented to a range of stakeholders within the Scottish Government, thus, expanding Sabina's stakeholder engagement skills.
- **Jan 2022 – Oct 2023, Under2 Coalition MRV in states and regions of developing and newly industrialising countries (The Climate Group – BMU IKI):** The Under2 Coalition international project helps states and regional governments to improve their monitoring, reporting and verification (MRV) of GHG emissions and mitigation actions across their territories. Sabina has co-written two knowledge products,

Sabina Shaikh

Energy & Environment – Climate Action Planning & Transparency

including ‘Demystifying the AFOLU sector’ and ‘Vertical integration: GHG data alignment principles and practices for states and regions. In addition, she has developed several pre-recorded webinars on MRV basic principles and an overview of improvement planning as part of the GHG compilation cycle. Alongside Sabina’s technical contributions, she has fulfilled the role of project manager this has expanded Sabina’s experience in client relations, management of six different sub-contractors, and understanding and responding to clients’ priorities and needs.

- **Jan 2022 – Apr 2022, Shetland Islands Climate Community Conversations:** Sabina co-delivered a series of stakeholder engagement workshops with individuals, communities and organisations from across the Shetland Islands. A total of fifteen workshops were delivered to a wide range of stakeholder groups. Sabina played a key role in developing workshop material, presenting within these workshops, and facilitating discussions with different stakeholders. Key skills which Sabina has further developed is her ability to chair a workshop session, listen to key points from stakeholders, build/question further, and her communication skills when engaging with stakeholders on technical topics.
- **July 2021 – Mar 2022, World Bank, Enabling Vertical Integration and Implementation of Urban Climate Action:** Sabina holds experience in supporting national and sub-national governments in incorporating mitigation efforts into NDCs and LTSs. By leading the design and development of a sub-task under this project, Sabina identified gaps and proposed a set of recommendations tailored to different cities in their MRV journey.
- **June 2020 – Dec 2021, Cities Matter: Capacity building in sub-Saharan African megacities for transformational climate change mitigation (C40 Cities Climate Leadership Group):** Sabina was part of the technical team who supported Accra, Cape Town, Addis Ababa, Dar es Salaam, Durban, Johannesburg, Lagos, Abidjan, Nairobi and Tshwane, working with them to develop evidence-based long-term climate action plans that align with national climate strategies. Sabina supported cities through a series of city workshops to build capacity and facilitate vertical and horizontal integration. Sabina led the use of action planning frameworks and emission projection tools. She has co-led the development of the Dar es Salaam Climate Action Plan (CAP) and supported the development of Lagos State and Nairobi’s CAPs.
- **Jan 2020 – March 2020 Zero Waste Scotland Circular Monitoring Programme:** Sabina has experience in carbon emission accounting and reporting through her role as a Monitoring Officer, part of the Zero Waste Scotland Circular Monitoring Programme. The project aims to monitor the impacts of investment made through the Circular Investment Fund. As a project monitor Sabina has carried out site inspections, this included a detailed assessment of the project and a review of the associated carbon savings for the project. This highlights Sabina’s attention to detail and commitment to producing high-quality reports. In addition, Sabina’s role within this project has strengthened her skills in auditing.
- **April 2019 – November 2020, Zero Waste Scotland Energy Efficiency Support Service:** Sabina has assisted a diverse range of SMEs’ including charities, businesses’ & community organisations, to implement low carbon solutions within the energy, water, and waste sector. Sabina advised and highlighted economic savings associated with improved asset management and use.

CAREER HISTORY

- **January 2022 – Present, Consultant, Ricardo Energy and Environment:** As a Consultant on the Climate Action Planning and Transparency team, Sabina provides technical assistance on a wide range of projects and has gained considerable experience as task lead or project manager. Sabina has managed a number of projects, providing her with extensive experience with managing projects for different clients, such as, private sector, NGO and national governments and academia. Sabina is well-versed in communicating to the team on outputs and tasks as well as liaising with the clients on progress updates and the delivery of high-quality deliverables on time and in budget. As well as broaden her project managing skills Sabina is also well-versed in stakeholder consultation and delivering capacity building sessions.
- **October 2020 – January 2022, Analyst Consultant, Ricardo Energy and Environment:** As an Analyst Consultant on the Climate Action Planning and Transparency team, Sabina provided technical assistance on a wide range of projects spanning city-level action planning, GHG inventory compilation and calculating emissions reduction potentials for mitigation actions across different sectors.



APPENDIX 2

[Project examples](#)



Ann Arbor Township Climate Action Plan

November 20, 2023



Table of Contents

Foreword and Vision	5
Project Overview	5
Executive Summary	6
Recommended Climate Actions.....	8
Community Profile.....	11
Household and Population Characteristics	12
Land Use.....	15
Township Natural Lands and Ecosystem Services	16
What Are Ecosystem Services?.....	19
Transportation	20
Community Engagement Summary.....	23
Resilient Washtenaw – Township Specific Input.....	23
Agricultural Interests Meeting	24
Township Government Participation	26
Priorities and Strategies Workshop Summary – February 13, 2023.....	26
Climate Change and Ann Arbor Township: Overview and Vulnerability/Opportunity Analysis	30
RISKS AND VULNERABILITIES SPECIFIC TO ANN ARBOR TOWNSHIP.....	33
Community and Population Vulnerability.....	33
Climate Migration	34
Resilience Hub	34
Heat Island Resilience	34
Infrastructure Vulnerability	34
Roads	34
Electrical Grid	35
Water and Sewer	35
Stormwater	35
Water Availability and Water Quality Vulnerability	38
Agriculture Vulnerability.....	39
Natural Systems Vulnerability.....	39
Renewable Energy Resilience	40
Greenhouse Gas (GHG) Emissions.....	42
GHG Inventory.....	42
Methodology – Township Operations	42
Township Operations GHG Emissions Inventory.....	42



Methodology – Township-Wide Emissions	43
GHG Reduction Targets	45
Ann Arbor Township GHG and Net Zero Analysis Methodology	46
Township Operations.....	46
Community-wide Emissions.....	47
Climate Action Plan For a Net Zero Township	53
Recommended Climate Actions.....	53
Metrics	55
Climate Adaptation Recommendations	57
Utility and Grid Reliability	57
Transportation Infrastructure Resilience	57
Drinking Water and Sewer Infrastructure Resilience	57
Stormwater Infrastructure Resilience	58
Natural and Working Lands Resilience	58
Renewable Energy Resilience	58
Appendix A – Township Fleet Data.....	60
Appendix B – Township Operations Energy Data.....	61
Appendix C – EV Replacement Analysis	62

ACKNOWLEDGEMENTS

ANN ARBOR TOWNSHIP BOARD OF TRUSTEES

- Diane O'Connell – Supervisor
- Rena Basch – Clerk
- Carlene Colvin-Garcia – Treasurer
- John Allison – Trustee
- Michael Moran – Trustee
- Kris Olsson – Trustee
- Rodney Smith – Trustee

ANN ARBOR TOWNSHIP CLIMATE RESILIENCE COMMITTEE

- Diane O'Connell (Township Supervisor)
- Kris Olsson (Township Trustee)
- Rodney Smith (Township Trustee)
- Benjamin VanGessel, Chair
- Rick Bunch
- Gary Kade
- Armgard Ruckert
- Carla Smith (Barton Hills Village representative)

FARMERS

- Ken Judkins
- Lee Maulbetsch
- David Cavanaugh
- John Meadows
- Brad Tanner
- Ken Koch
- Nick Koch
- David Billie

FOREWORD AND VISION

The Ann Arbor Township Climate Action Plan will guide and integrate with Township operations, services, planning, policies, ordinances, and investments to ensure the most sustainable, inclusive, greenhouse gas (GHG) emission reduction options are implemented. The CAP will foster regional cooperation and community engagement in meeting climate and sustainability goals. Ann Arbor Township will specifically collaborate on the implementation of Resilient Washtenaw the county's Climate Action Plan, along with other cities, townships, and villages in Washtenaw County.¹

PROJECT OVERVIEW

The Ann Arbor Township Climate Action Plan identifies mitigation, adaptation, and supporting actions needed to reduce carbon emissions and/or adapt to a changing climate in the Township.

Washtenaw County (County) recently developed and adopted *Resilient Washtenaw* – the first county-wide climate action plan in Michigan that sets aggressive and ambitious goals to reduce carbon emissions from County operations to zero by 2030 and county-wide emissions to zero by 2035. *Resilient Washtenaw* sets a course that all of the county's municipalities can follow to reduce and eliminate carbon emissions.

It's important to note that many actions recommended in *Resilient Washtenaw* are not included in the Ann Arbor Township plan, largely because the Township either lacks jurisdiction/legal authority to undertake those actions, or because they are not applicable to the Township.

What the Ann Arbor Township Climate Action Plan does provide is:

- A target for emission reductions that aligns with the Washtenaw County carbon neutrality goals of carbon neutrality by 2035.
- A baseline estimate of current emissions broken down by residential and non-residential sectors.
- A baseline estimate of current emissions generated by Township operations.
- A baseline estimate of emissions per square foot of residential buildings.
- An analysis that identifies how much each recommended action will reduce carbon emissions from across the Township and for Township operations.
- A set of recommended actions to reduce emissions in Township operations.
- A set of recommended actions to reduce emissions and adapt to the impacts of climate change for the entire Township.
- Recommended metrics to evaluate the progress the Township is making on its goals.

This Ann Arbor Township Climate Action Plan has a strong focus on implementation – those areas under Township control where the Township community can focus limited resources to effect the change they are seeking.

¹ For more information on *Resilient Washtenaw*, please visit <https://www.washtenaw.org/DocumentCenter/View/29331/Resilient-Washtenaw---Final>.

EXECUTIVE SUMMARY

In June of 2021, the Ann Arbor Township Board of Trustees adopted Resolution Declaring The Ann Arbor Township Policy to Mitigate Climate Change. This policy resolves that:

- Ann Arbor Township acknowledges that climate change imminently threatens our Township, region, state, nation, civilization, humanity and the natural world;
- Ann Arbor Township commits to an urgent effort, which, with appropriate financial, technical, and regulatory assistance from State and Federal authorities, seeks to end Township-wide greenhouse gas emissions as quickly as possible;
- Ann Arbor Township will evaluate Township buildings, vehicles, utilities, and other municipal operations to plan for the most cost effective and rapid conversion of those operations to be carbon neutral;
- Ann Arbor Township commits to accelerating strategies to adapt to intensifying climate impacts and improve the Township's resilience to climate change;
- Ann Arbor Township commits to educating our residents about the need for urgent climate change actions and mobilizing in concert with regional, state, and national entities to provide maximum protection for our residents and natural environment; and
- The Ann Arbor Township Climate Resilience Committee is charged with developing plans and priorities for these above urgent actions and making recommendations to the Township Board of Trustees.

To reach its climate goals, the Township needs an all of the above approach. While the Township's GHG emissions make up a small proportion of the Washtenaw County emissions inventory, the Township is taking a leadership role in exploring climate action at the Township scale.

The Project Team estimated the various sources of carbon emissions across the Township. The Project Team used known data for Township operations including electricity and natural gas bills and vehicle fuel purchases. For Township wide estimates – many of these data are estimated from county level data provided by utilities and downscaled to the Township population (Residential Building Energy Use) or jobs (Office Building Energy Use). The Investor-Owned Utilities (i.e., DTE and Consumers Energy) will not provide local Township level data. We anticipate this will change in the future. Transportation data are measured in Vehicle Miles Traveled (VMT) and these estimates include Township resident trip estimates, commuter estimates for commuters driving into the Township, and the VMT of commuters passing through on M14 and US23. Each inventory sector is listed below and ordered by each sectors' proportion of overall Township emissions.

Inventory Sector	Estimate	Unit	MTCO2e	%
On-road Transportation: Gasoline & Diesel	114,074,264	vehicle miles traveled	50,079	37.6%
Commercial & Industrial Electricity Use in Buildings	80,120,411	kWh	43,493	32.7%
Commercial & Industrial Natural Gas Use in Buildings	3,985,409	ccf	21,719	16.3%

Residential Natural Gas Use in Buildings	1,356,607	ccf	7,393	5.5%
Residential Electricity Use in Buildings	12,477,664	kWh	6,774	5.1%
Solid Waste Disposal: All Waste Generated in the Township	7,073	Tons	2,418	1.8%
Propane Use	87,842	gallons	504	0.4%
Transit Buses	54,392	gallons fuel	223	0.2%
Building Electricity Use - Township Operations			127	0.1%
Wastewater Generated in the Township			118	0.1%
Off-road Transportation			110	0.1%
Fugitive Emissions Associated with Natural Gas Use			87	0.1%
Fuel Oil & Kerosene Use	6,968	gallons	71	0.1%
Building Natural Gas Use- Township Operations			48	0.0%
<i>Fleet- Township Operations</i>			43	0.0%
Biological Treatment of Waste: All Waste Generated in the Township	201	Tons	1	0.0%
Total			133,208	100.0%

This Plan recommends 29 Climate Actions that either 1) reduce greenhouse gas (GHG) emissions at the Township Wide (TW) or Township Operations (TO) scope, 2) support other recommended GHG reduction actions, and/or 3) support climate adaptation or carbon sequestration. These climate actions are developed in more detail at the end of the document. Some of these actions are lower in priority because the likely emission reductions are low or - while the emission reduction potential may be high - the Township has little direct influence over the recommended action. Each Climate Action highlights whether the cost of the action is part of existing Township or Community Investments, a new Township Government Investment (e.g., Joining the Resilience Authority), or an Investment by the Community (e.g., residents investing in new electric heat pumps) with no cost to the Township Government. Several of the recommended actions can be implemented by creating a strong education and outreach program for residents and businesses that connects them quickly to existing programs and new opportunities.

Emissions from Transportation and Commercial Building energy use are the largest contributors to GHG emissions in the Township. Transportation emissions are high in Ann Arbor Township because the Township is bordered by two major freeways and emissions from these trips accrue to the Township. The Township has no control over most of these emissions. The emissions from Commercial and Residential Building energy use are also not in the direct control of the Township. However, the Township can play a strong role in leading by example and building an education and outreach program to increase awareness and support the community investments in energy efficiency and renewable energy. Most of these recommended Climate Actions will be funded by members of the community without direct Township Government investment. The Plan recommends that the Township Government invest in a local partnership to ensure that members of the Township community have access to the best available information before and when they make investments in energy efficiency and renewables. Several of the recommended actions rely on advocacy in Lansing to support new legislation or amend existing law to allow the Township to develop stronger climate-friendly programs.

Recommended Climate Actions

Recommended Climate Actions are listed below by Township Priority. The scope of the action is denoted by TW for Township-Wide Actions or TO for Township Operations Actions. The GHG benefit column highlights the estimated GHG reduction in MTCO₂e for each action. Township Government Investment highlights the estimated costs of recommended actions and whether the investment will be made by the Township Government, Grants, or the Community.

Township Priority	Scope	Climate Action	GHG Benefit (MTCO ₂ e)	Township Government Investment
1	TW	On-going Climate Education and Public Engagement	High (9,866)	\$150,000/yr
2	TW	Home Energy Advisor Program		
3	TW	Residential & Commercial Weatherization and Energy Efficiency		
4	TW	Community Bulk Buy for Solar and Building Electrification		
5	TW	Join the Regional Resilience Authority	Support	TBD
6	TW	Carbon Pricing in Decision Making	Support	
7	TW	100% Renewable Energy Options for Everyone	High (44,648)	Lobbyist
8	TW	Enabling Legislation for Township Energy Programs		Lobbyist
9	TW	Improve Transit Access in the Township	Low (201)	TBD
10	TW	Expand the Active Transportation Network	Medium (1,250)	TBD
11	TW	Update Stormwater Regulations	Adaptation	Existing Investment
12	TW	Natural Area Preservation	Adaptation/Sequestration	Existing Investment
13	TW	Farmland Preservation	Adaptation/Sequestration	Existing Investment
14	TW	Provide Comment on Infrastructure	Adaptation	Existing Investment

Township Priority	Scope	Climate Action	GHG Benefit (MTCO2e)	Township Government Investment
		Agency Planning Projects		
15	TW	Time of Marketing Energy Rating Disclosure	Support	Adopt Model Ordinance
16	TW	Expand Rain Garden Program	Adaptation	Existing Investment
17	TW	Expand Electric Mobility Options	High (18,308)	Community Investment
18	TW	Emissions Accounting Mechanism	Support	TBD
19	TW	Prioritize Capital Projects that Reduce Emissions and Prepare for Extreme Weather	Adaptation	Existing Investment
20	TW	Develop a Township Organics/Compost Program	Low (342)	Community Investment
21	TW	Reduce Vehicle Miles Traveled (VMTs)		Community/Grant/Township Investment
22	TW	Support and Grow the Washtenaw Regional Resource Management Authority (WRRMA)	Support	Existing Investment
23	TO	100% Renewable Energy for Township Operations	Low (83)	Township Investment
24	TW	Create Resilience Hub	Adaptation	Township Investment/Grant Opportunity
25	TW	Maintain and Expand Township Tree Canopy	Adaptation/Sequestration	Community Investment
26	TW	Stormwater Basin Inspection and Retrofit	Adaptation	Existing Investment
27	TW	Materials Management Program	Low (838)	Community Investment
28	TW	Incentivize Local Food Production	Support	Existing Investment
29	TO	Township Fleet Electrification	Low (25)	TBD

Implementing these actions will be more efficient with partnerships among Washtenaw County governments. To expedite implementation, the Township should invest in key areas including education and mechanisms to share funding and incentive opportunities with residents and businesses. While the



overall cost of implementing these actions is expensive, most of these expenses will be borne by residents and businesses and most of these actions also return significant economic and other co-benefits to the community.

This plan also makes recommendations on making the Township more resilient. The Township can build on its strong track record of preserving working and natural lands that also contributes to the Township's ecosystem services. It is imperative that the Township build climate adaptation into its capital planning to ensure that these investments recognize the threats that a changing climate poses to roads, grid reliability, drinking water systems and private wells, and public and environmental health of the Township community.

City of Ann Arbor

CLIMATE

ACTION

PLAN

2012



The City of Ann Arbor Climate Action Plan

Climate change is not a future problem: it is happening now. Unprecedented disruptions are happening locally and globally, and immediate, impactful action is needed to mitigate emissions of greenhouse gases (GHGs) contributing to this global challenge.

This Climate Action Plan is community focused, meaning it is not limited to addressing municipal government emissions, which in Ann Arbor make up less than two percent of the entire community's emissions inventory. The actions found in the Plan may not all be feasible immediately; some may never be possible. There also may be emerging or unexplored ideas not discussed in these pages that will be identified in the future. As with any large-scale project or endeavor, actions that the municipality ultimately implements that require upfront investments will be brought before decision makers for consideration.

Underlying this Plan is the belief that the consequences to society and natural systems from continued inaction far outweigh the costs and challenges associated with the implementation of the proposed actions.

The Climate Action Plan recognizes the substantial scientific evidence that predicts a changing climate and the real role of cities in evaluating and managing the risks threatening city residents and municipal systems.

This executive summary provides an overview of:

- The likely effects of climate change to Ann Arbor and the Great Lakes Region;
- The inventory of City GHG emissions in 2000 and 2010 and the relative contributions from the Commercial, Residential, Transportation, Waste Management, and University of Michigan sectors; and
- Recommended GHG targets and categories of actions to mitigate and adapt to a changing climate.

This Climate Action Plan also recognizes the important role of the University of Michigan (UM) as not only a large generator of community GHG emissions, but also a leader in developing a GHG reduction plan that is underway and making progress. Opportunities for collaboration between the City and University are ongoing on several fronts and should continue in the years ahead.

Climate change, as discussed in this report, refers to the rapid climate shifts observed in recent years attributed to persistent anthropogenic (human-caused) changes in the composition of the atmosphere. Man-made GHGs in the Earth's atmosphere are changing the heat balance of the planet causing overall global temperature increases, which, in turn, threaten global public health, economies, and food and water supplies.

The City of Ann Arbor is actively working with local universities and their research centers, such as the Great Lakes Integrated Sciences and Assessments Center (GLISA), to assemble the best available scientific forecasts on the effects of climate change.

The predicted effects of accelerating warming in the Great Lakes region include:

- Decreased winter ice cover;
- Increased extreme weather events;
- Changing rainfall patterns disruptive to crop productivity;
- Shifts in distribution and composition of animal, insect, and floral species which may radically disrupt existing ecosystems; and
- Risk of new diseases in the region traditionally found in warmer climates.



The Likely Effects of Climate Change



The Inventory — Comparing GHGs 2000 to 2010

Total GHG emissions across the Ann Arbor community in 2010, with UM included, were over 2.2 million metric tons of CO₂e. This is up slightly from 2.19 million metric tons in 2000. Ann Arbor is largely built out to its geographic boundary, but a decline in commercial/industrial emissions during this time and a concurrent uptick in activity and emissions at UM nearly leveled off the appearance of a significant change in emissions. The GHG inventory attempts to only track emissions within the city limits.

The Residential Sector

The Residential sector created **approximately 22 percent** of total community emissions. The Residential sector experienced a modest increase of 3.4 percent between 2000 and 2010.

Climate change contributes to overall warmer temperatures and increased high-heat intensity days in the summer. This means there will likely be an increase in electricity-related emissions (e.g., to power air conditioners) and a reduction in natural gas emissions (e.g., to provide home heating in winter). Without substantial increases in the amount of renewably generated electricity in the DTE grid, the Residential sector will remain a major source of GHG emissions as the grid is currently dominated by coal-fired power.

The Commercial/Industrial Sector

The Commercial/Industrial sector made up **approximately 25 percent** of 2010 community emissions. While this was the largest sector in 2000, after an estimated 23 percent decrease in 2010, it became the second-largest sector. Approximately 25 percent of the decline since 2000 in Commercial/Industrial emissions is explained by UM purchasing the 2 million-square-foot former Pfizer world headquarters campus that was re-opened as the North Campus Research Complex in 2010, thereby transferring emissions from this property to the UM sector. Remaining emissions reductions are possibly attributable to economic factors less easily pinpointed and spread out across a number of properties and businesses. While there was a decline in the total emissions in this sector, as more businesses reactivate underutilized building space in the future, Commercial/Industrial emissions could climb again. Price fluctuations for fuels, natural gas in particular, are also anticipated to impact this sector's emissions. Measures such as those identified in this Plan will need to be taken to mitigate consumption or improve building energy efficiency.

The Transportation Sector

The Transportation sector emissions made up **approximately 22 percent** of total 2010 emissions. This sector experienced a slight decrease in 2010 from 2000 levels. While total vehicle miles traveled have increased over this period, improvements in fuel efficiency are the **likely** reason emissions from this sector have decreased.

As in the building sectors, there are and will be technological advances that improve the "greenness" of the community's fleet of vehicles. Many residents are already taking it upon themselves to drive hybrid and more fuel-efficient cars. Even with these advances, continually improving options for walking, biking, busing, and better integrating land uses to reduce travel distances are essential to reducing GHG emissions in this sector.

An important limitation to this inventory is the lack of information on emissions resulting from the production of items we purchase, use, and discard. A few communities are beginning to factor these emissions into their inventories, and future City GHG inventories and Plan updates would likely find that materials consumption in the community is a major source of GHG emissions that are caused by city consumption but occur outside of the City. This is similar to the use of electricity that is consumed locally, but produced by fossil fuels like coal outside city limits.

The Waste Sector

The Waste sector decreased more than 25 percent from 2000 to 2010 because of increased recycling rates and a decrease in waste collection volumes throughout the City.

While the Waste sector includes annual solid waste collection and the embedded future emissions from landfilling, annual methane released from the closed Ann Arbor landfill, and annual process emissions from wastewater treatment, total emissions still make up **less than 1 percent** of total community GHG emissions.

Since implementing single-stream recycling in 2010, trash tonnages have decreased by 10 percent and recycling rates have increased by 24 percent. The City should continue to look for ways to reduce waste and increase the amount of material that is recycled or reused.

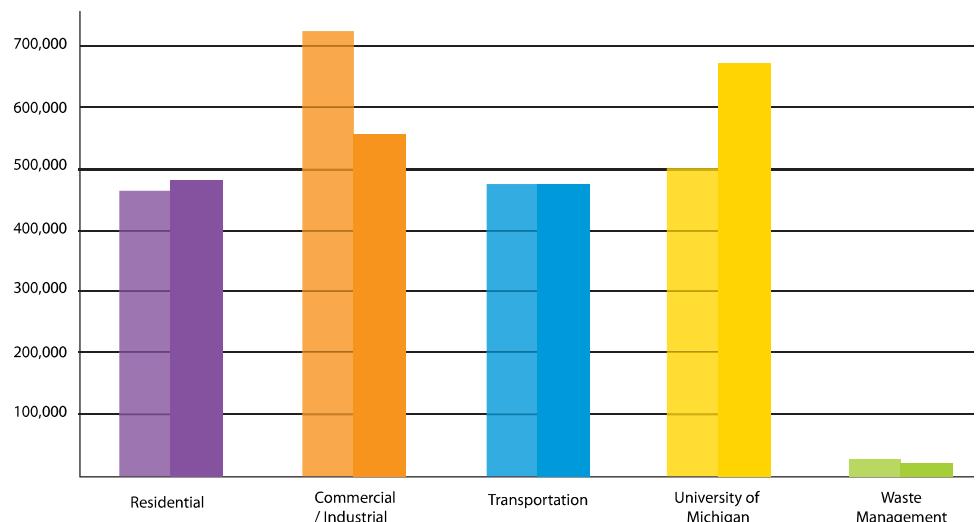


Figure 1: Total 2000 GHG emissions (left) compared to total 2010 GHG emissions (right)

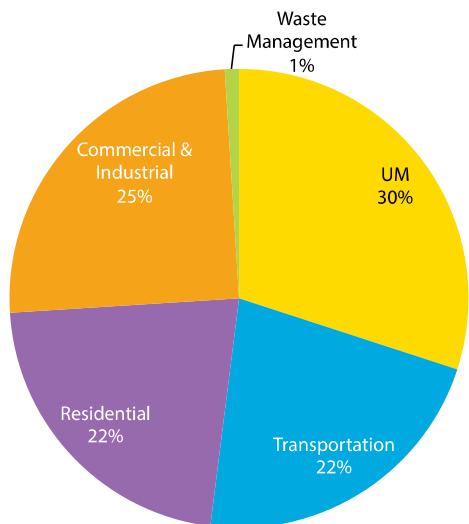


Figure 2: 2010 GHG inventory

The University of Michigan

UM is treated as its own sector given that its own GHG reduction plan is underway and detailed emissions data are available.¹ **Approximately 30 percent** of community emissions in 2010 derive from UM. Ann Arbor's Climate Action Plan represents a continued partnership with UM and its facilities staff, and the Plan incorporates UM's commitments as a vital part of reducing future GHG emissions.

Between 2000 and 2010, UM activities and building square footage grew significantly. As stated in the Planet Blue Sustainability 2011 Annual Report: "[UM] is currently in the midst of an unprecedented period of growth." While emissions have increased at UM since 2000, the energy intensity (as measured by BTUs/person/square foot) has dropped annually in recent years as a result of energy efficiency improvements and emissions reductions strategies.

Recommended Targets and Actions

The Climate Action Task Force has identified the discontinuation of the use of fossil fuels as critical to the successful reduction of GHGs. By taking strong action, Ann Arbor would be able to not only move the City to zero use of fossil fuels by 2050 but also provide the leadership and a path for other communities to follow.

Ann Arbor would not be alone in calling for major reductions by mid-century, and a major shift in energy sources, over the coming decades. In fact, Ann Arbor would be aligning its goals with the best available climate science and would be joining the ranks of other leading governmental entities. For instance, the State of Maryland Climate Action Plan calls for a 90 percent reduction by 2050 (from 2006 levels), and other city climate action plans from across the country aspire to an 80 percent or more reduction by 2050 (e.g., Michigan's Climate Action Plan). Of course, for this to happen, larger moves toward renewable energy will be essential over the next 30 to 40 years. These changes will affect more than just Ann Arbor and will require structural shifts that are more fundamental and widespread than the actions or ideas laid out in this Plan. Whether by state or national regulations, such as a stronger renewable energy portfolio standard, or by other economic forces and societal will, the 2050 GHG reductions targeted here are only possible through a massive rethinking of the country's electricity, heating, and transportation fuel source system and supporting infrastructure.

The Climate Action Plan recommends three targets for community-wide GHG emissions reductions, all of which are relative to the year 2000 baseline.

- Short-term target (2011 Energy Challenge, City Council resolution R-11-142, April 19, 2011):

Reduce CO₂e emissions 8 percent by 2015

- Mid-term target (aligns with University of Michigan 2025 target):

Reduce CO₂e emissions 25 percent by 2025

- Long-term target: (meet optimal climate scenario^{2,3}):

Reduce CO₂e emissions 90 percent by 2050

For purposes of presentation in the report, and to align with the City of Ann Arbor's Sustainability Framework that will direct future City plans, goals, and priorities, actions detailed in this Plan have been grouped into four main categories: Energy and Buildings, Land Use and Access, Resource Management, and Community and Health.



**Energy and
Buildings**



**Resource
Management**



**Land Use
and Access**



**Community
and Health**



Table 1 breaks down the climate action categories and subcategories, number of recommended actions, and cumulative GHG reduction estimates outlined in this report. Not every action identified could be modeled for its GHG emission impact, so emission reductions shown by category, if all actions are implemented, would have a larger impact than is reflected in the estimates shown.

Many recommended actions depend not only on City Council approval but also participation from members of the community and local businesses or other entities. Thus, future collaboration among residents, businesses, local organizations, city government, UM, and other stakeholders is essential to design and implement solutions that achieve the recommended GHG reductions.

While this plan recommends many specific actions, the implementation details will be developed separately. Each of the recommended actions with any significant financial costs to the municipality will be brought before City Council for discussion, public comment, and decisions.

Action Categories	Action Subcategories	# of Actions	Estimated GHG Emissions Reduction (MTCO ₂ e)
Energy and Buildings	Higher Performing Buildings		
	Energy Source	25	381,607
	Renewable Energy		
Land Use and Access	Integrated Land Use		
	Transportation Options	21	44,102
	Sustainable Systems		
Resource Management	Responsible Resource Use		
	Local Food	25	35,522
	Healthy Ecosystems		
Community and Health	Engaged Community	13	18,577
	Safe Community		

Table 1: Climate action categories and subcategories



In order to reach the 2025 GHG reduction target of 25 percent below year 2000 levels, almost all of the actions proposed in the Plan would need to be implemented. Figure 2a shows the predicted effects from the four action categories proposed in the Plan. If fully implemented, assuming no large increase in incremental consumption over 15 years, community emissions would be gradually reduced to 28 percent of 2000 levels by 2025.

Some actions will have an immediate impact when implemented, while others will take a decade or more to see full effect. Since UM has begun its own effort to reduce emissions 25 percent by 2025, the projection curve omits UM emissions, and assumes they are on pace with planned reductions.

To achieve the long-term target, a 90 percent GHG reduction by 2050, major shifts in energy sources must occur — changes that most likely eliminate reliance on fossil fuels by the building and transportation sectors. This Plan cannot predict what actions should occur during that distant timeframe, but it will likely require a significant shift from fossil fuels to a broad set of renewable energy sources. Implementing the identified actions from now to 2025 will better position Ann Arbor to enact policies or influence decisions affecting the source and course of fuel and energy supplies in the longer 38-year horizon, out to 2050.

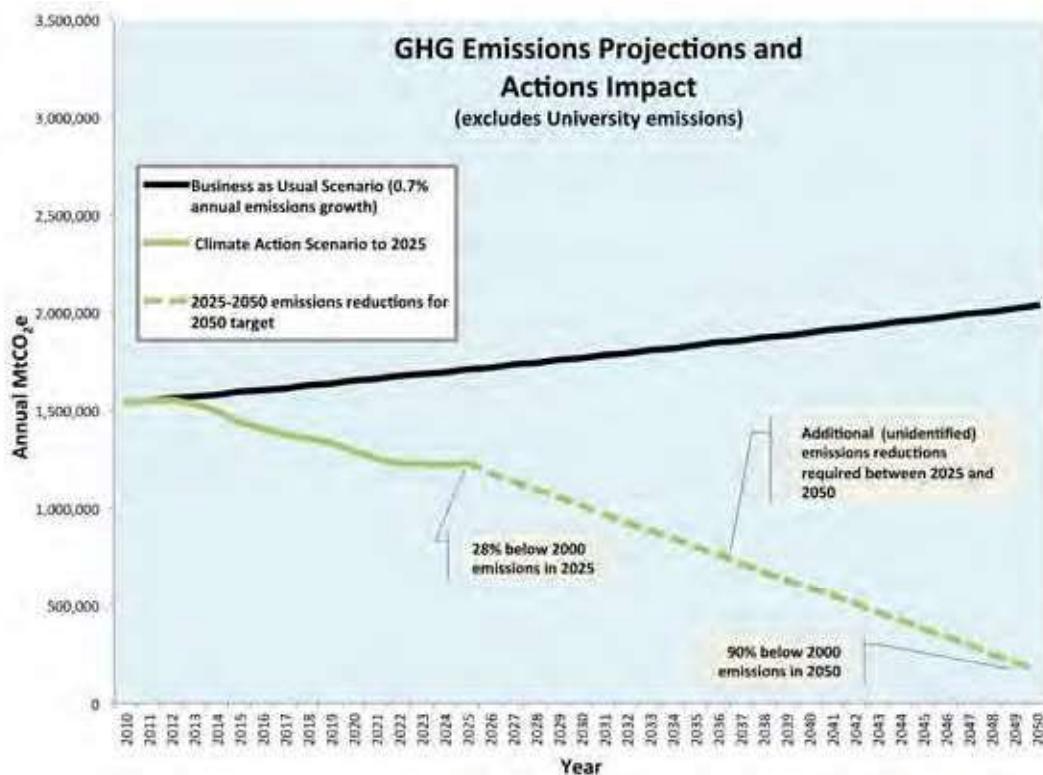


Figure 3: GHG Emissions Projections and Actions Impact



Ann Arbor must also begin to plan for and attempt to adapt to the effects of climate change across the community and within municipal systems. Adaptation and mitigation efforts combined will produce the greatest results and should be treated as a set of actions, not as alternatives to each other. Even the best mitigation efforts cannot eliminate the expected impacts of climate change over the first half of the century and beyond. This Plan recommends five specific strategies that the City of Ann Arbor and its residents can use to react effectively and efficiently to climate-related challenges:

- Implement “no regrets” adaptation actions now
- Ensure an integrated systems planning approach to the building and natural infrastructure for all climate change planning scenarios
- Protect citizens from health and safety hazards
- Integrate climate projections into all City planning across all systems
- Update and maintain technology and plans to support emergency management responses to extreme climate events

These strategies are intended to build resilience, prepare for extreme events, and prevent future negative outcomes. However, since this Plan predominantly focuses on detailing climate mitigation strategies, the City should pursue additional ways to outline a more detailed, thorough, and specific climate adaptation strategy that encompasses the over-arching strategies above. As more research and policy tools emerge to help cities understand the impending and current local impacts of climate change, Ann Arbor will be positioned to effectively respond to one of the most pressing issues we face.

Adaptation

For a copy of the full Climate Action Plan, visit www.a2energy.org/climate

- Executive Summary Endnotes:
- 1 <http://www.ocs.umich.edu/greenhouse.html>
 - 2 <http://www.planning.org/pas/memo/open/jan2009/>
 - 3 http://pubs.giss.nasa.gov/docs/2008/2008_Hansen_etal.pdf

Overview

- **Purpose:** To co-develop a Vulnerability Assessment template that mainstreams the adaptation planning process by integrating climate-smart and equity-focused information into all types of city planning.
- **Partner:** Great Lakes Climate Adaptation Network (GLCAN), Huron River Watershed Council (HRWC), Headwaters Economics, Urban Sustainability Directors Network
- **People:** Practitioners from Ann Arbor and Dearborn (MI), Indianapolis (IN), Cleveland (OH), and Evanston (IL)
- **Impact:** The five pilot cities took immediate action by incorporating information from the assessment into existing city planning projects. The template has already been adapted to stormwater management with 12 cities and is being scaled-up to 60 cities in the Gulf of Mexico.

In 2017, the Great Lakes Integrated Sciences & Assessments (GLISA) partnered with the Great Lakes Climate Adaptation Network (GLCAN), the Huron River Watershed Council (HRWC), Headwaters Economics, and five Great Lakes cities (see “People,” left) to co-develop a tool to help cities assess their vulnerability to climate change. With support from an Urban Sustainability Directors Network Innovation grant, the goal was to create a comprehensive Vulnerability Assessment (VA) template that could be used by cities across the region to consider climate and socioeconomic information as part of existing planning processes.

Through a collaborative process, GLISA, HRWC, and the cities actively engaged in a series of discussions, culminating in a 2-day workshop to decide what climate information to include, how to present it, and how to structure the assessment. The final version of the template provided each city with localized socioeconomic data, a summary of the observed climate changes, and projected impacts. This information was also displayed visually at the neighborhood-scale with the new Neighborhoods at Risk tool developed by Headwaters Economics to help cities identify vulnerable populations and infrastructure.

For GLCAN’s member cities, the impacts of the VA template were immediate. Cleveland (OH) updated its city-wide Climate Action Plan using the information from the assessment. In Evanston (IL), City Sustainability Coordinator shared the template with the newly-formed Climate Action and Resilience Plan working group so it could deploy the template and launch its work. In community workshops, the working group then used the climate projections to steer dialogue about expected changes, how to prepare for them, and vulnerable physical, natural, and social infrastructure. In the working group’s final report, it recommended specific actions to improve Evanston’s resilience, such as targeted green infrastructure and planting shade trees to reduce temperatures.

Practitioners and the project team develop the VA template at a 2017 workshop in Ann Arbor (MI).



By design, the information included within the VA template is both specific to communities and easily digestible, and the template allows cities to self-identify specific projects or plans to assess. In Evanston's community climate planning meetings, staff noticed that participants, accustomed to hearing global or national projections, re-engaged with the process after they realized the temperature and precipitation data were specific to Evanston and their neighborhoods.

In Indianapolis, the Office of Sustainability Project Manager used the template differently. They drew on the climate projections in the VA to argue for incorporating a climate adaptation and resilience strategy into the development of the city's Sustainability Plan. The city also used the precipitation and temperature data to provide a rationale for adaptation decisions such as changing the size of the city's stormwater pipes—previously based on 1970s rain and flood data—or deciding which neighborhoods needed cooling centers for heat waves.

The long-term goal of the VA template is to mainstream the climate adaptation planning process by integrating climate-smart and equity-focused information into all types of city planning, including infrastructure, water management, and health. Adaptable to new locations and sectors, the template is intended to reduce costs for cities with constrained budgets and limited staff time. This has already been realized in 2018 and 2019, when GLISA and the same partners worked with 12 Great Lakes cities to adapt the template for stormwater management with funding from NOAA's Sectoral and Applications Research Program (SARP). And in 2020, GLISA launched a greatly expanded deployment of the template across more than 60 cities in the U.S. Gulf of Mexico region with funding from the National Academy of Sciences Gulf Research Program.

“ [The Vulnerability Assessment template] really provided the information in a way that a lot of people were able to digest it, which was really helpful. **”**

—Kumar Jensen, Sustainability Coordinator, City of Evanston

About GLISA

Advancing Climate Knowledge for Adaptation and Resilience with Great Lakes Communities

Established in 2010, GLISA is a collaboration between the University of Michigan and Michigan State University, supported by the National Oceanic and Atmospheric Administration (NOAA). As one of 11 NOAA Regional Integrated Sciences and Assessments (RISA) teams, GLISA works at the boundary between climate science and decision-makers, striving to enhance Great Lakes communities' capacity to understand, plan for, and respond to climate impacts now and in the future. Our team of social and physical scientists collaborates to:

- Develop usable climate information tailored to stakeholder needs;
- Develop, implement, and evaluate resources and tools to apply climate information to decision-making;
- Facilitate collaborative activities, education, and training and support stakeholder networks; and,
- Investigate emerging climate issues and synthesize findings for practitioners.



Great Lakes Integrated Sciences + Assessments (GLISA)
Learn more at: glisa.umich.edu
Contact us: glisa-info@umich.edu
440 Church Street, Dana Building
University of Michigan
School for Environment and Sustainability
Ann Arbor, MI 48109

Example of GLISA's boundary chain model of stakeholder engagement for the Great Lakes Climate Adaptation Network (GLCAN). Climate information is tailored and moves through different boundary organizations (links in the chain) to connect science to users. Adapted from Lemos et al. 2014.



December 7, 2022 as Approved by the County Board of Commissioners



RESILIENT WASHTEENAW



RESILIENT WASHTEAW

Climate change is among the defining issues of our time and is already impacting Washtenaw County through more intense rain events, more frequent days with very high temperatures, and changes in plant growing cycles and wildlife populations.

Recognizing the need to act, in 2019 the County Board of Commissioners declared a climate emergency for Washtenaw County and set a goal of carbon neutrality for all of the County by 2035. In 2020, the board accelerated the goal from 2035 to 2030. These actions were supported through the incorporation of climate action in the County's organizational priorities for 2019, 2020, and 2021.

Last fall, after extensive planning, the board approved a project to develop a plan to achieve these carbon neutrality goals, which would look to prepare the people, infrastructure, and systems of the County to be resilient to the already changing climate.

Today, it is my great honor to present Resilient Washtenaw, a climate action plan for Washtenaw County. This plan provides a path to carbon neutrality for both the County as an organization and for the broader community. It boldly outlines the steps we need to take to prepare for climate change. This plan, should it be adapted by the Board of Commissioners, would be the first County-based Climate Action Plan in the State of Michigan.

Resilient Washtenaw is a significant milestone for Washtenaw County. We have a long history of work that comes with climate benefits. These include administering the voter approved natural areas preservation program (NAPP); our efforts to improve the comfort, safety and efficiency of the homes in low-income neighborhoods through the weatherization program; our ongoing work to electrify County buildings improve their efficiency; and developmental support of regional efforts to coordinate and improve recycling efforts. There is much the County is already doing which has climate benefits. Resilient Washtenaw highlights these efforts and seeks to reconsider many such programs as tools of climate action.

The County's climate goals are ambitious. Our planning efforts alone will not be sufficient to achieve them. To successfully meet our climate goals, the County will need to do more. We will need to work differently, and we will need to

coordinate and work closely with others. For this reason, our planning thinks broadly about the tremendous resources of the County and involves them in these efforts every step of the way.

We have reasons to be hopeful despite the magnitude of the challenge. Should the Board of Commissioners adopt this plan, the County would join the list of others who are working diligently on this issue and who also are already acting. Last spring the state of Michigan released the MI healthy climate plan, the cities of Ann Arbor and Ypsilanti have adopted and are underway with their own plans to address climate change, numerous townships and villages are planning and acting to prepare their communities, and our universities. I am proud of this plan in that it adds the County to the list of those who are acting, and it commits our resources and talents to addressing this threat in partnership with others.

Finally, I am proud of the process by which this plan was developed, and the values incorporated within. Everyday Washtenaw County employees and our partners help residents with matters both routine and extraordinary; from recording births and weddings to providing health care during a global pandemic. This existing work is critically important, and so too, is addressing climate change. The County can and must do both, though it will be difficult. We know that the consequence of inaction means that families and communities will suffer unnecessarily. Accordingly, this plan very intentionally puts equity, and a focus on avoiding harm to those most likely to be hurt by climate change, at the center of our planning and future efforts.

Resilient Washtenaw is a milestone, and milestones are markers on long paths – they are not the destination. This plan and our efforts will need to be revisited and improved in the coming years as we work towards our goals of carbon neutrality and a resilient community. We expect to have successes and failures in this important work. For the County, each action in this plan will require time, focus, commitment, and resources to successfully deploy. We will need your support, partnership, and ongoing commitment to be successful.

Gregory Dill, County Administrator



RESILIENT WASHTENAW ACKNOWLEDGEMENTS

Washtenaw County Environmental Council

The Washtenaw County Environmental Council is an appointed subcommittee of the Washtenaw County Board of Commissioners, and advises the Board on emissions, climate change, environmental protection, and environmental justice.

Kris Olsson, Chair - Community Groups
Gay MacGregor, Vice Chair - Vehicle Emission Reduction Issues
Michelle Deatrick, Chair Emeritus - Land Use and Preservation
Anne Brown - Racial Equity & Environmental Issues
Andrew Comai - Labor
Hallie Fox - Water Protection
Virginia He - Youth
Tim Redmond - Sustainable Agriculture
Joet Reoma - Infrastructure Energy Reduction Issues
Theresa Tupacz - Sustainable Energy Producers
Lisa Wozniak - Community Groups
Sue Shink - County Commissioner
Jason Morgan - County Commissioner

Staff Steering Committee

The Steering Committee was convened to provide knowledge and guidance into the actions called for in the plan, and to consider the efforts and resources necessary to implement the plan.

Theo Eggemont, Director of Public Works
Coy Vaughn, Director of Washtenaw County Parks and Recreation Commission
Jason Fee, Director of Facilities Management
April Avigne, Energy Coordinator
Ben Pinette, Emergency Operations Manager
Kristen Schweighofer, Environmental Health Director
Cindra James, Emergency Preparedness Administrator
Teresa Gillotti, Director of the Office of Community and Economic Development
Crystal Campbell, Public Information Officer
Lisa Fusik, District Court Administrator
Katie Snavy, CMH Director of Recipient Rights
Terrance Williams, Racial Equity Office Communication and Program Manager
Ruth Kraut, Deputy Health Officer

Washtenaw County

Andrew DeLeeuw, Director of Strategic Planning

Resilient Washtenaw Consultants

Resource Recycling Systems, Wade Trim, Elevate Energy, EcoWorks, Beth Gibbons, Center for Neighborhood Technology



Table of Contents

EXECUTIVE SUMMARY	5
CLIMATE CHANGE AND WASHTEENAW COUNTY	16
PUBLIC ENGAGEMENT	23
INVENTORY AND CURRENT CONDITIONS	34
PLAN FRAMEWORK	46
VULNERABILITY ASSESSMENT	55
ACTIONS	64
· IMPLEMENTATION	78
· ENERGY TRANSITION	86
· HOUSING	96
· MOBILITY AND ACCESS	100
· HEALTH	110
· PRESERVE WORKING LANDS AND NATURAL AREAS	118
· INFRASTRUCTURE	121
· CIRCULAR ECONOMY	128



EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Local Impacts of Climate Change

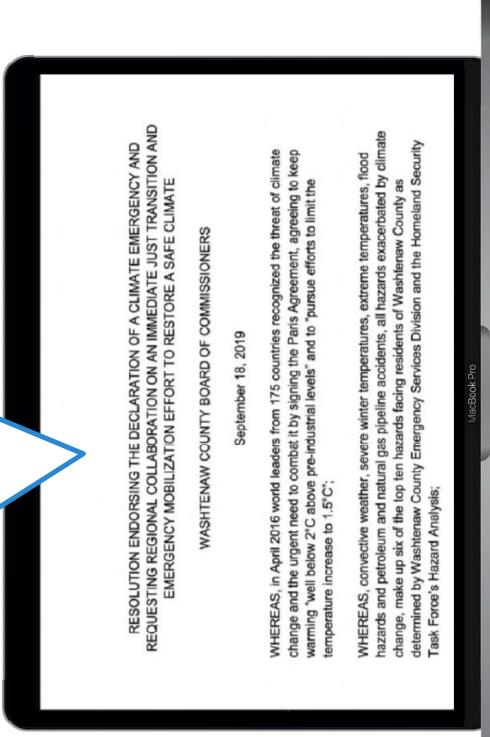
Climate change is already impacting quality of life and the way we live in Washtenaw County. In the last 50 years, the County has seen a marked increase in the number of extreme precipitation events, the overall amount of precipitation, and the number of days with a heat index over 90 degrees. Native flora and fauna species are migrating, or otherwise threatened, and native ecosystems are changing as a direct result of a warming planet.

Climate vulnerability is defined as *the propensity or predisposition to be adversely affected by climate change*. By the end of the 21st century, Southeast Michigan is expected to have more extreme weather events caused by climate change, and this will position the most vulnerable communities being at risk of extreme heat, flooding, and poor air quality.

Greenhouse gas emissions must be cut globally to prevent the planet from reaching the tipping point of a 1.5-degree Celsius increase in temperature. Climate change demands that we fundamentally reimagine our actions and how we live.

Local action is the first step in reducing global emissions. The Washtenaw County Board of Commissioners passed a resolution in 2019 acknowledging the climate emergency and set a goal to achieve carbon neutrality for County operations by 2030 and Countywide carbon neutrality by 2035.

NOW BE IT THEREFORE RESOLVED, Washtenaw County acknowledges that a climate emergency threatens our city, region, state, nation, civilization, humanity and the natural world;



WHEREAS, in April 2016 world leaders from 175 countries recognized the threat of climate change and the urgent need to combat it by signing the Paris Agreement, agreeing to keep warming "well below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C";
WHEREAS, convective weather, severe winter temperatures, extreme temperatures, flood hazards and petroleum and natural gas pipeline accidents, all hazards exacerbated by climate change, make up six of the top ten hazards facing residents of Washtenaw County as determined by Washtenaw County Emergency Services Division and the Homeland Security Task Force's Hazard Analysis;

MacBook Pro

Source: Climate Emergency Declaration R19-165 – September 18, 2019



EXECUTIVE SUMMARY

The Problem: County Emissions

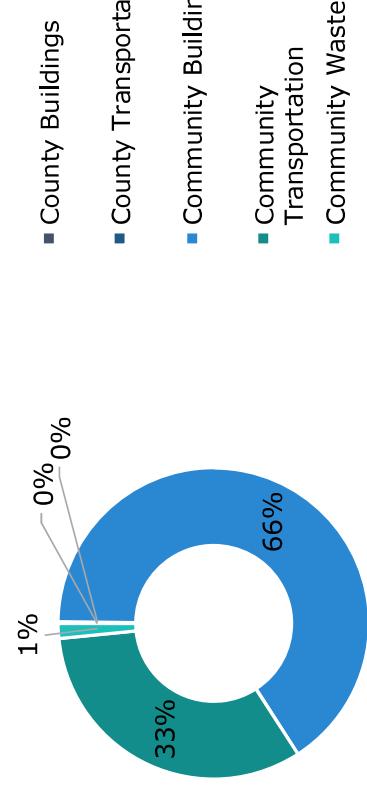
In 2019, Washtenaw County emitted 4,490,000 metric tons of carbon dioxide. Of these 4.49 million metric tons, Washtenaw County operations contributed 8,452 metric tons of carbon dioxide emissions in 2019 or 0.17% of total Countywide emissions.

Forecasting future emissions using business as usual assumptions, Countywide emissions would drop to approximately 4.25 million metric tons by 2030 and to 4 million metric tons by 2035. These reductions are largely the result of advances in technology and efforts underway within several municipalities and organizations. The data in this report show us how much work must be done quickly in the next 12 years to achieve carbon neutrality.

Climate change work requires us to reduce emissions, mitigate emissions through actions that either empower emission reduction or offset emissions by reducing them in other sectors, and to adapt to cope with the unavoidable impacts of climate change and become more resilient. The actions in this plan are designed to reduce emissions, increase our community adaptation, and to build resiliency with the County.

Where our Emissions Originate

COUNTY AND COMMUNITY EMISSIONS



- Existing Buildings are the largest source of community CO₂ emissions (66%).
- Transportation accounts for one third of community CO₂ emissions.
- Community Buildings
 - This information informs Resilient Washtenaw to target actions to reduce these emissions.

EXECUTIVE SUMMARY

What is Resilient Washtenaw?

A WAY TO GET TO NET ZERO EMISSIONS AND PLAN FOR PROVIDING SERVICE AND INFRASTRUCTURE IN A CHANGING CLIMATE.

GOALS:

- Net Zero - County Operations by 2030
- Net Zero - County by 2035

THIS PLAN INCLUDES:

1. Climate Information of the County: history, current conditions, evolving trends, future projections
2. Greenhouse Gas Inventory: the sources and causes of the emissions from the County, and projections of future emissions
3. Vulnerability Analysis: identification of the people and places most at risk from climate change in our County
4. Strategies and Actions: the specific things that will be done to reach net zero emissions and to adapt to the changing climate

NEXT STEPS:

- Implementation Recommendations: *Detailed staffing, financing, reporting, and governance recommendations will be proposed after plan approval and brought to the Board of Commissioners for action*



EXECUTIVE SUMMARY

Public Collaboration

From February 1, 2022, through October 20, 2022, the Resilient Washtenaw team hosted 17 public events, including targeted listening sessions for each of the nine County Board of Commissioners districts, two open sessions, and two youth sessions. Additionally, formal County meetings, open to the public, were held to discuss plan progress, outcomes and for the community to provide feedback on the Draft Action Plan. Public events targeted key community leaders and used partner networks to reach as many people as possible. Lastly, the County used the project website, social media and partner networks to notify residents about engagement sessions, provide feedback opportunities and share general information about the climate plan. A public comment period was provided to give stakeholders a means of reviewing the draft actions.

A crucial aspect of Resilient Washtenaw was reaching out to all communities in the County to learn directly from residents about their concerns, how climate change has impacted their personal life and the communities in which they live, and how to bridge the gap between the government, businesses, and the people in order to create net zero emissions by 2035.

In addition to working with the public, the project team also established a County Steering Committee comprised of key County staff to provide review and counsel to the Resilient Washtenaw Team about County organization issues. The Resilient Washtenaw Team also worked closely with the Washtenaw County Environmental Council – an appointed body including two County Commissioners who provided valuable insight and direction to the Community-wide issues of the plan.

The Resilient Washtenaw team worked with the County staff Steering Committee and a broader cohort of County staff across multiple departments for 6 facilitated Strategy Sessions that identified 445 potential actions that the County explored to support climate mitigation and adaptation. These actions were sorted across each strategy area and used to inform the actions outlined in the Resilient Washtenaw Plan. As Resilient Washtenaw is implemented, it is critical that the County continues to build relationships and improve engagement with community-based organizations, individuals, non-profit organizations, businesses, and neighborhoods throughout the County. Further, the County needs to deliver a consistent and ongoing message to help shift behaviors, emphasizing the relationship between the environment, health, quality of life, community well-being, and economic strength.

Success of the endeavor will be dependent on County leadership's ability to establish clear, consistently communicated, broadly understood goals—for overall County-wide change and transparent metrics to show progress.



EXECUTIVE SUMMARY

What is Resilient Washtenaw

RESILIENT WASHTENAW ADDRESSES BOTH THE ORGANIZATION AND COMMUNITY

- Organization – County Government itself: everything it takes to run the organization
- Community – who the County serves: everything inside of County borders

RESILIENT WASHTENAW ADDRESSES BOTH MITIGATION AND ADAPTATION

- Mitigation - taking action to minimize and stop climate change
- Adaptation - preparing for the existing and future impacts of climate change

RESILIENT WASHTENAW ALIGNS WITH EXISTING PLANS, SERVICES, AND PRIORITIES OF AND WITHIN THE COUNTY

- Builds on existing County plans and initiatives from multiple departments including Health, Community and Economic Development, Parks and Recreation, and Facilities.
- Reinforces priorities and recommendations from area plans including A2Zero and the City of Ypsilanti's Sustainability Plan.

RESILIENT WASHTENAW IS EQUITY BASED

- Prioritizes mitigation strategies that create new economic opportunities through workforce development, circular economy, and reduced energy and transportation costs.
- Focuses adaptation efforts on areas that have been historically disinvested in or harmed by public policy and infrastructure initiatives.

RESILIENT WASHTENAW IS COLLABORATIVE

- Built through in-person/virtual meetings with over 30 local organizations and invitations to every County-wide municipality.
- Reached beyond meetings to hear from residents across the County via online surveys and engagement tools.

What Resilient Washtenaw is *not*:

- A complete assessment of climate vulnerability for Washtenaw County
- An implementation plan for climate action in Washtenaw County
- A final statement or recommendation on resource allocation



EXECUTIVE SUMMARY

Resilient Washtenaw Framework

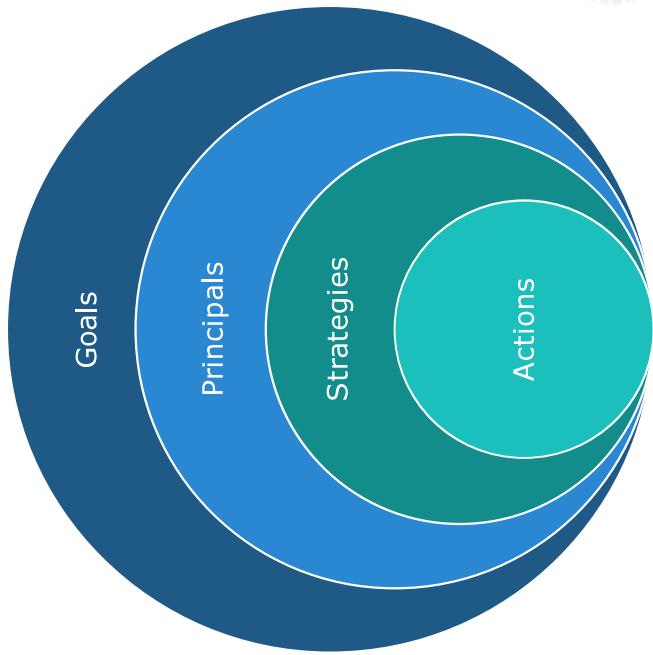
STRATEGIES

Focus areas of climate action plan
Do impact carbon levels

PRINCIPLES

Other County priorities
Do not impact carbon levels

GOALS
Zero net CO₂ emissions for County Operations by 2030
Zero net CO₂ emissions for all of Washtenaw County by 2035



1. Implementation
2. Energy Transition
3. Housing
4. Mobility and Access
5. Health
6. Preserve Working Lands & Natural Areas
7. Infrastructure
8. Circular Economy
1. Racial Equity and Environmental Justice
2. Support Public Health
3. Just Transition
4. Resilient Economy
5. Community Support & Partnership
6. High Communication & Engagement

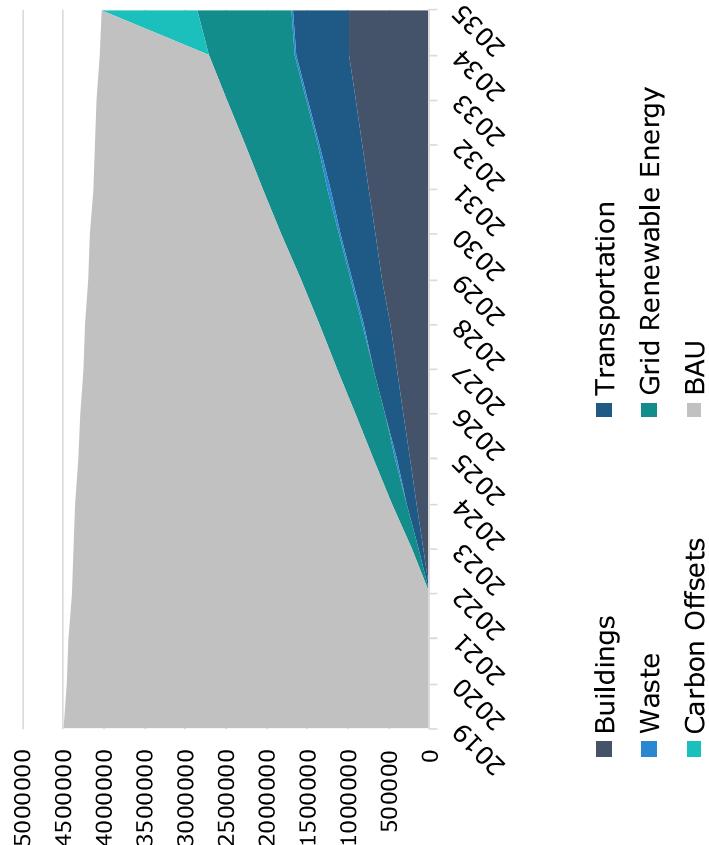
ACTIONS: 5-10 per strategy, each of which connect to the plan principles, and which cumulatively would achieve the carbon neutrality goals



EXECUTIVE SUMMARY

Strategies and Actions

COMMUNITYWIDE EMISSIONS WEDGE REDUCTIONS TO ACHIEVE CARBON NEUTRALITY BY 2035 (MTCO₂E)



- There are 45 actions spread across the eight strategy categories (list on following page).

- As noted previously, some of the actions are mitigation actions, designed to reduce or eliminate CO₂ emissions and others are adaptation actions which will help the community adapt to the changing climate.
- Each action includes an analysis of implementation difficulty, return on public investment, the required implementation actors, and emission reductions (where applicable).
- The actions indicate which of the six principles or co-benefits may be realized with each action.
- Even with more aggressive adoption of building weatherization, electrification, and conversion to renewable energy sources than anticipated in the model, these actions alone will not achieve carbon neutrality for Washtenaw County.
- Based on the analysis of proposed actions, current emissions, and anticipated reductions, Washtenaw County will still need to address approximately 2.3 million metric tons of carbon dioxide in 2035, to get to carbon neutrality.

- Offsets are not a long-term solution for carbon neutrality. They are, however, a necessary short and near-term requirement to meet the goals set by the Board of Commissioners.

- Buildings
- Transportation
- Waste
- Grid Renewable Energy
- Carbon Offsets
- BAU



ACTION #	STRATEGY	ACTION TITLE
1.01	Implementation	On-going Climate Education and Public Engagement
1.02	Implementation	Create a Regional Resilience Authority
1.03	Implementation	Carbon Pricing in Decision Making
1.04	Implementation	Create a County-Based Carbon Offset Program
2.01	Energy Transition	100% Renewable Energy Options for Everyone
2.02	Energy Transition	Create Countywide Energy Concierge
2.03	Energy Transition	Expand Bulk Purchase Programs
2.04	Energy Transition	Expand Weatherization Programs
2.05	Energy Transition	Update Building Codes
2.06	Energy Transition	Time of Marketing Energy Rating Disclosure
2.07	Energy Transition	100% Renewable Energy and Energy Efficiency Upgrades for All County Operations
3.01	Housing	Infill Housing and Increased Density
3.02	Housing	Model Zoning Ordinances and Policies
3.03	Housing	Emissions Accounting Mechanism
4.01	Mobility and Access	Electric Mobility Options Hub
4.02	Mobility and Access	Improve Transit County-wide
4.03	Mobility and Access	Build All Season County-wide Non-Motorized Transportation Network
4.04	Mobility and Access	Support Regional Transportation Options (RTA)
4.05	Mobility and Access	Reduce VMTs
4.06	Mobility and Access	Improve MPG and MPGE throughout Community-wide Fleet
4.07	Mobility and Access	Expand on Work from Home and Remote Service Access for County Operations
4.08	Mobility and Access	Provide Financial Incentives to Employees to Walk, Bike, or Use Transit
4.09	Mobility and Access	Support More Efficient School Transportation
5.01	Health	Update the County's Hazard Mitigation Plan
5.02	Health	Create Resilience Hubs Network
5.03	Health	Reduce Heat Islands
5.04	Health	Expand and Maintain County Tree Canopy
5.05	Health	Expand County Education and Outreach Programs
5.06	Health	Create Opportunities for Local Food Production on County Properties
5.07	Health	Prepare Health System for Climate Emergencies
6.01	Preserve Working Lands and Natural Areas	Natural Area Preservation
6.02	Preserve Working Lands and Natural Areas	Farmland Preservation
7.01	Infrastructure	Provide Comment on Infrastructure Agency Planning Projects
7.02	Infrastructure	Prioritize Public Projects that Reduce Fossil Fuel Use and Prepare for More Extreme Weather
7.03	Infrastructure	Urbanized Area Storm Vulnerability Assessment and Prioritization
7.04	Infrastructure	County-wide Stormwater Basin Inspection and Retrofit
7.05	Infrastructure	Expand Rain Garden Program
7.06	Infrastructure	Update Stormwater Regulations
8.01	Circular Economy	Build an Equitable, Low-carbon, and Resilient Circular Economy
8.02	Circular Economy	Develop a County Wide Organics/Compost Program
8.03	Circular Economy	Support and Grow the Washtenaw Regional Resource Management Authority (WRRMA)
8.04	Circular Economy	Build a Multi-dimensional Public Education and Promotion Plan for the Circular Economy
8.05	Circular Economy	Diversify Funding for Circular Economy Work
8.06	Circular Economy	Policy Initiatives to Expand Circular Economy Scope and Infrastructure
8.07	Circular Economy	Incentivize Local Food Production