



SMALL TOWN, BIG CLIMATE GOALS

City of Oxford

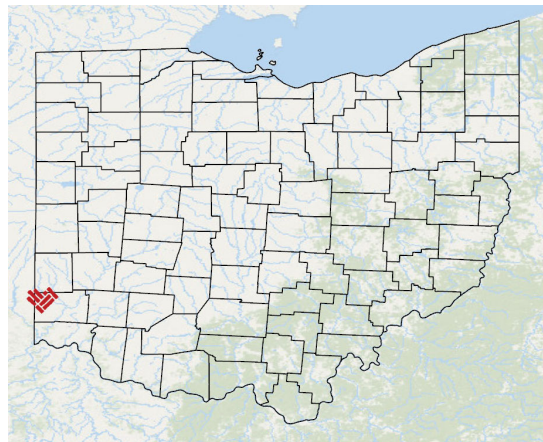
Jessica Greene | Assistant City Manager, JGreene@CityofOxford.org

Reena Murphy | Sustainability Coordinator, RMurphy@CityofOxford.org

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About Oxford

- 23,000 in Population
- University Community
 - Home to Miami University
 - ~16,000 Students
- Rural community with urban center
- Sustainably minded City Council and community



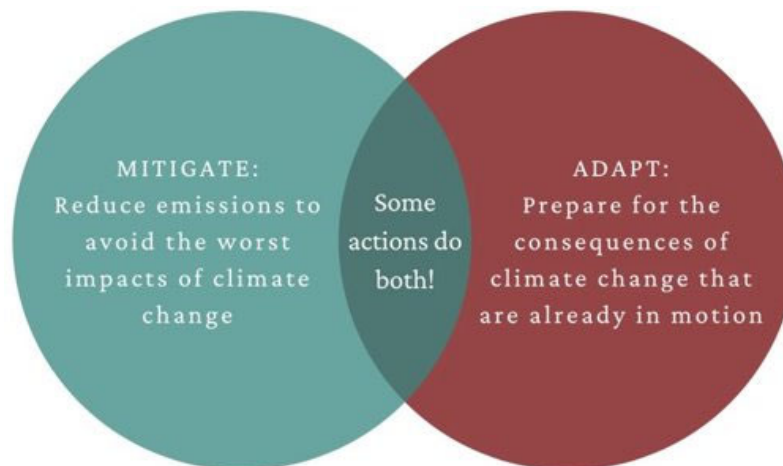
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Definitions and Acronyms

- GHG: Greenhouse Gas
- GCoM: Global Covenant of Mayors for Climate and Energy
- CO2e: Carbon Dioxide equivalent, used to compare the emissions from various GHGs based on their global warming potential

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Definitions and Acronyms



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Oxford's Sustainability History



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Global Covenant of Mayors for Climate and Energy and ICLEI

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Staffing

Permission from Council for a PT staff member.

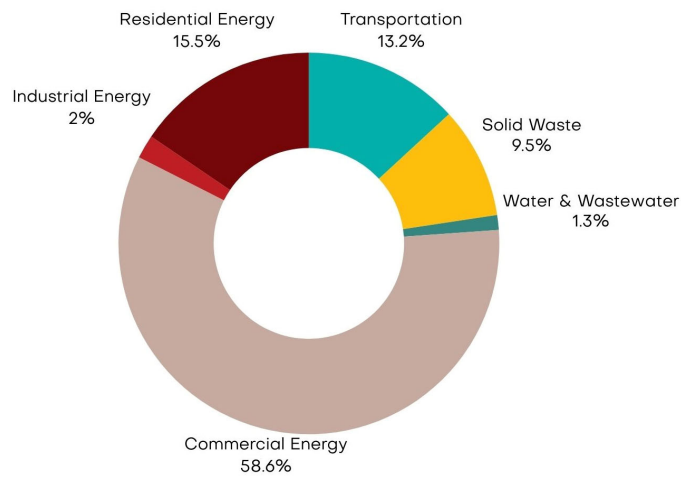
- A few applicants, but no takers

Pivoted to hiring a Graduate Intern in Environmental Science from Miami University

- Reena hired as paid graduate intern February 2022.
- Started FT June 2023

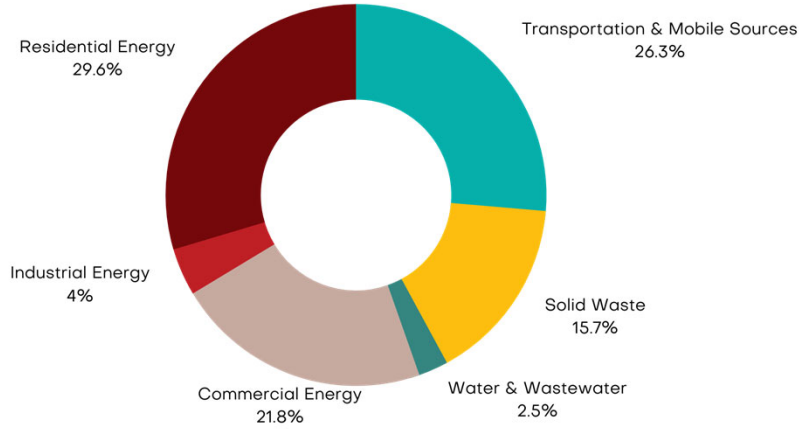
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Greenhouse Gas Inventory (Community Wide, with Miami)



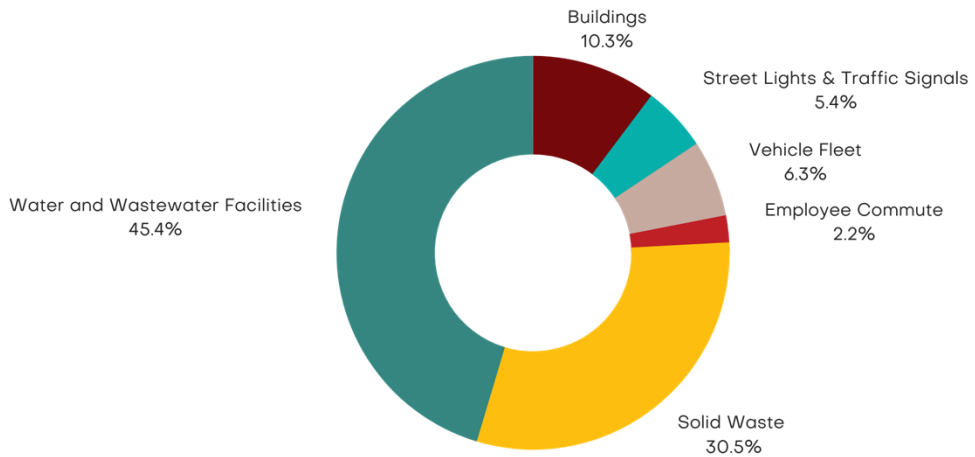
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Greenhouse Gas Inventory (Community Wide, w/o Miami)



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Greenhouse Gas Inventory (Local Government Operations)



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Vulnerability Assessment Results

INCREASING TEMPERATURES

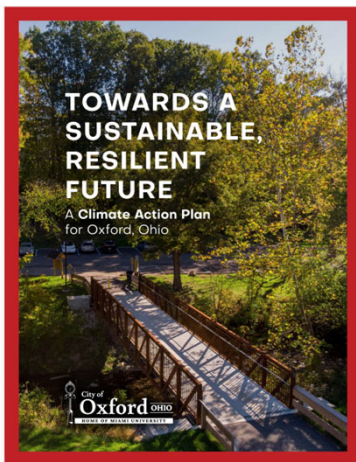
EXTREME STORM EVENTS

PRECIPITATION CHANGES

CHANGING ECOSYSTEMS

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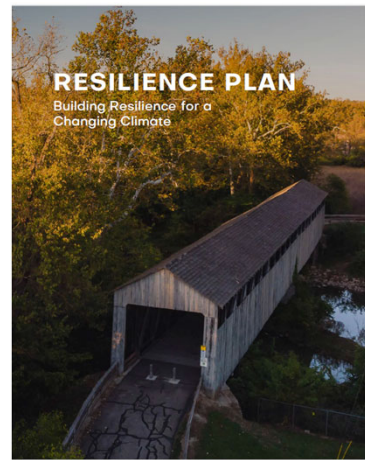
Our Climate Action Plan



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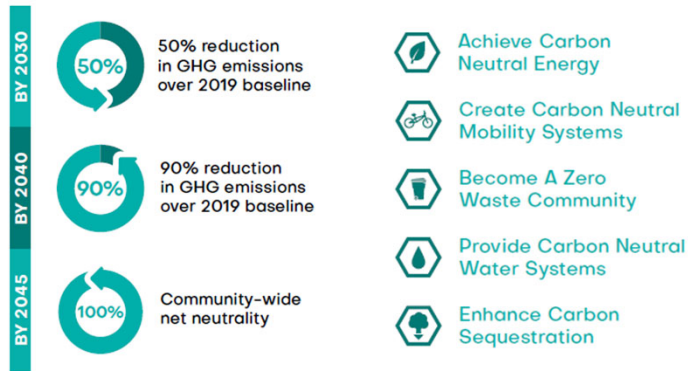


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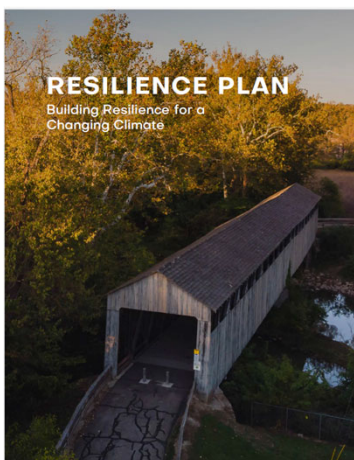
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Our Climate Action Plan



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Our Climate Action Plan



- Decrease Risks of Increasing Temperatures
- Build Resilience to Precipitation Changes like Flooding and Drought
- Prepare for Increased Severe Storm Events
- Strengthen Ecosystems and Urban Forests

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You can't please everyone

- Tailor your plan to the scale and needs of your community
- Determine which metrics are most necessary for high-level planning
- Look to other cities for inspiration, but don't get intimidated

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Miami University

- The Institute for Environmental Science (IES) provided the foundation for our climate work:
 - GHG Inventory
 - Resilience Assessment
 - Evaluation of GCoM Membership
 - Multi-family Recycling



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Miami's IES Master's Program is looking for future projects and internship placements. If you are interested, please contact:

Amanda Bentley Brymer, Ph.D. *Assistant Director*
 bentleal@MiamiOH.edu | O: 513-529-5845

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Miami University

- The Geography and Urban Planning Dept. has provided:
 - GIS Assistance, particularly for our trails
 - Intersection Studies
 - Naturalization Studies for public lands



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Commissions

- Two committees:
 - Environmental Commission
 - Established in 1992
 - Primary committee for sustainability implementation
 - Climate Action Steering Committee
 - Established in 2020
 - Primary committee for the Climate Action Plan

Lesson Learned: Consider having two boards, one for climate action plan creation and another for implementation, with the planning board dissolving after plan adoption. This is because different skills and perspectives are needed for planning vs implementation.

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Regional Organizations

- Reach out to regional planning organizations and regional climate collaboratives, especially if they have received Climate Pollution Reduction Grant Planning funding



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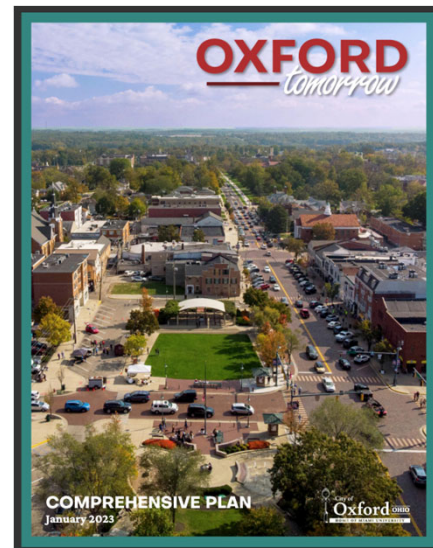
Integration with the 2023 Comp Plan

- Happened organically, though timing and sustainability emerging as a community value
- Allowed us to "double dip" with public engagement
 - Comp Plan engagement opportunities were better received/attended than climate specific ones
- More specific climate goals included in the comp plan
- Gave climate goals more weight

Lesson Learned: If possible, overlap or closely time Comprehensive and Climate Action planning process.

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SUSTAINABILITY				
Goal: A Sustainable Oxford				
S1 Reduce emissions towards neutrality by 2045				
		City Role	Time Frame	Potential Partners
S1-A1	Develop an energy plan to meet Oxford's demand with renewables generated locally/regionally	●	⏸	CASC, EC
S1-A2	Promote incentives for on-site solar, geothermal, and wind for residential and commercial properties	●	🔄	CASC, EC
S1-A3	Develop regulations and incentives to ensure electrification of new construction with high-efficiency space and water heating	●	⏸	CASC, EC
S1-A4	Promote retrofitting of existing buildings with energy conservation and electrification	●	🔄	CASC, EC
S1-A5	Adopt EV charging infrastructure requirements for new multi-family and commercial developments	●	⏸	CASC, EC, PC
S1-A6	Install EV charging stations in places available for public use	●	🔄	CASC, EC
S1-A7	Convert the city vehicle fleet to hybrid and/or electric vehicles	●	⏸	CASC, EC
S1-A8	Coordinate with community partners in climate action planning	●	🔄	MU
S2 Build resilience for a changing climate				
		City Role	Time Frame	Potential Partners
S2-A1	Ensure community cooling and warming shelter adequate to public need	●	🔄	FRC
S2-A2	Adopt climate responsive and resilient building and zoning codes	●	🔄	CASC, EC
S2-A3	Work with utilities to transition local electricity distribution to below-ground	●	🔄	Duke Energy
S2-A4	Manage adequate water supplies and demand for projected future conditions	●	🔄	



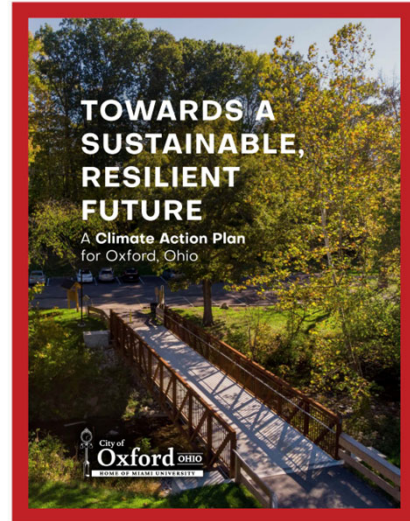
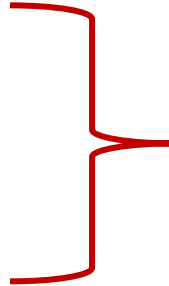
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Our Climate Action Plan

Comp Plan Feedback

Public Engagement Session

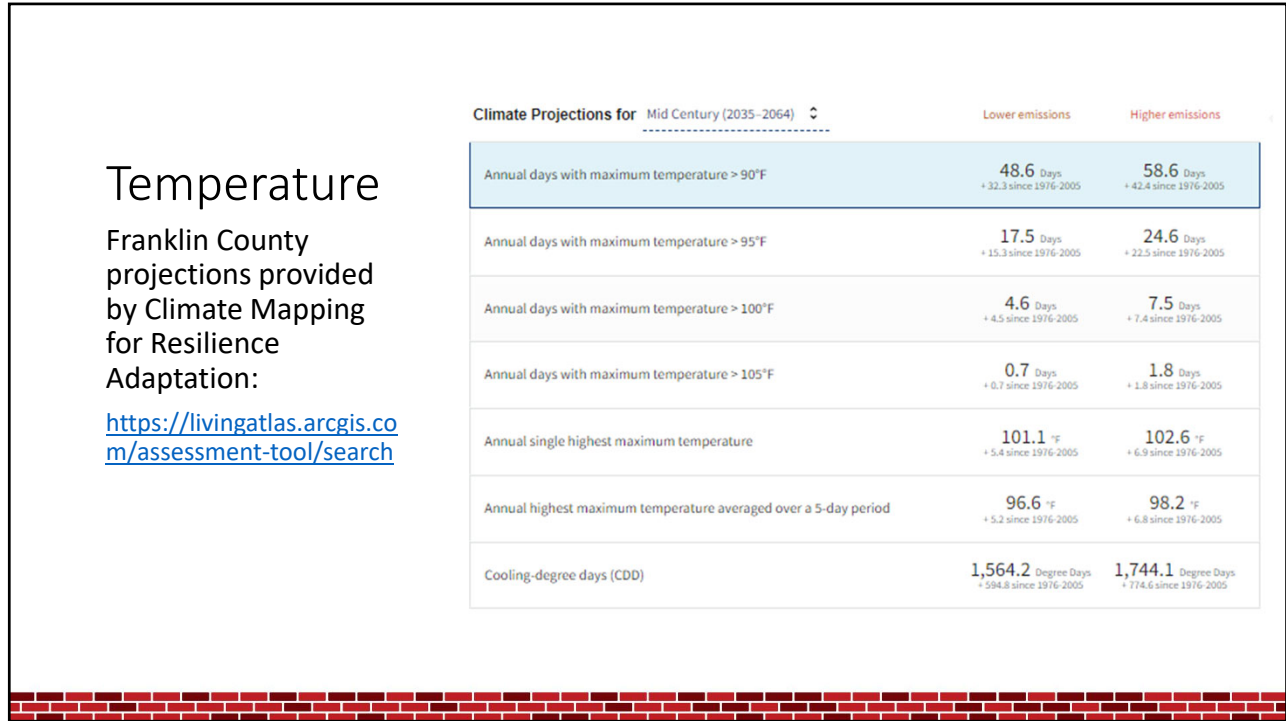
Peer Learning



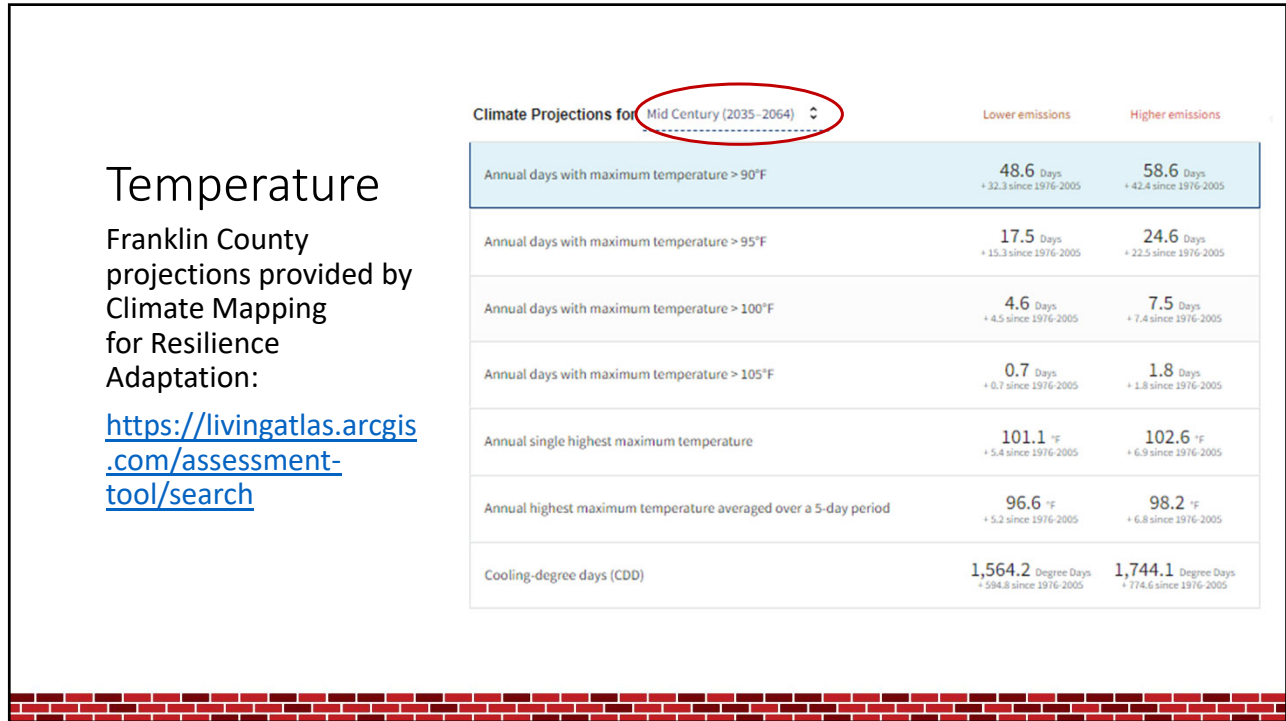
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Precipitation

Franklin County projections provided by Climate Mapping for Resilience Adaptation:

<https://livingatlas.arcgis.com/assessment-tool/search>

Climate Projections for Mid Century (2035-2064)

	Lower emissions	Higher emissions
Average annual total precipitation	39.1 Inches + 1.8 since 1976-2005	39.4 Inches + 2.1 since 1976-2005
Days per year with precipitation (wet days)	187.1 Days - 3.0 since 1976-2005	186.0 Days - 4.1 since 1976-2005
Days per year with no precipitation (dry days)	178.1 Days + 3.0 since 1976-2005	179.2 Days + 4.1 since 1976-2005
Maximum number of consecutive dry days	12.5 Days + 0.6 since 1976-2005	12.7 Days + 0.8 since 1976-2005
Annual days with maximum temperature > 90°F	48.6 Days + 32.3 since 1976-2005	58.6 Days + 42.4 since 1976-2005
Annual days with maximum temperature > 100°F	4.6 Days + 4.5 since 1976-2005	7.5 Days + 7.4 since 1976-2005

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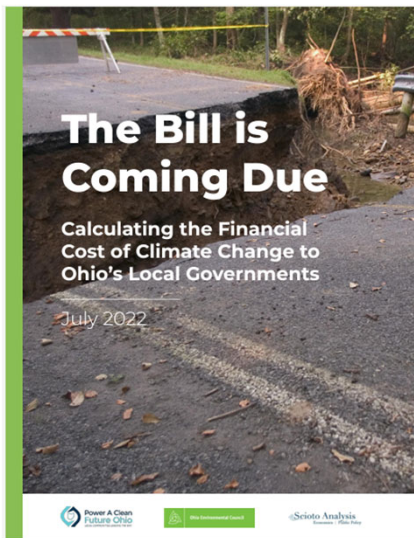


Table 8. Estimated statewide annual costs by 2050 associated with an increase in severe weather events

Event	Low-End Estimate	High-End Estimate
Flooding	\$1.3 million	\$3 million
Drought	\$21 million	\$44 million
Hurricane Winds	\$11 million	\$28 million
Severe Storm	\$1.5 million	\$3.4 million
Total	\$35 million	\$78 million

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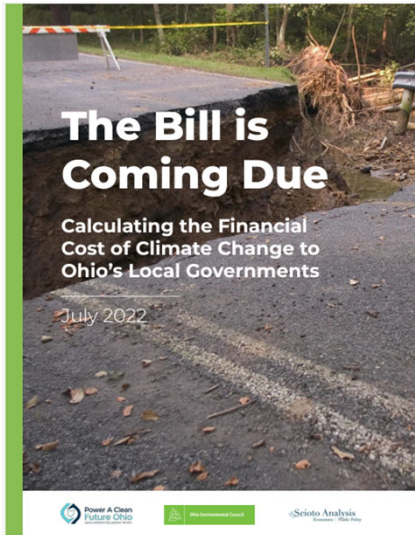


Table 1. Annual costs of climate change for major impacts on local governments expected by midcentury

Impact	Low-End Estimate	High-End Estimate
A/C Installation	\$1.4 million	\$6.8 million
Electrical Costs	\$5.4 million	\$79 million
Cool Roofing	\$0	\$4.6 million
Cooling Centers	\$52 million	\$590 million
Road Repair	\$170 million	\$1 billion
Drinking Water Treatment	\$580 million	\$2.2 billion
Storm Recovery	\$35 million	\$78 million
Power Lines	\$140,000	\$18 million
Stormwater Management	\$140 million	\$150 million
Elevating Roads	\$860 million	\$1.7 billion
Total	\$1.8 billion	\$5.9 billion

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Start small, do it well, and build momentum

- Find the advocates and experts in your community, defer to them where possible
- OEPA's Encouraging Environmental Excellence (E3) award has a great check list of initial ideas for environmental actions
- Look for the statewide and federal incentives
 - Inflation Reduction Act

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Consider your messaging

- Focus on shared goals and future realities, rather than altruism
 - For example: improved air quality, decreased flooding, cheaper energy bills
- Emphasize future cost saving
 - For example: smart stormwater infrastructure saves costs associated with flooding and wastewater treatment



Dayton's plan is a good example

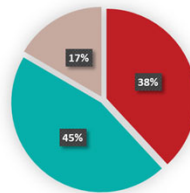
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Try and Try Again...

- Polystyrene Ban
- Curbside composting
- Commercial Recycling and Composting
- Fleet Electrification



Would your household be interested in weekly curbside food scrap collection for \$25/mo?



- No, I am not interested in curbside food scrap collection
- No, I am interested in curbside collection, but would not/cannot pay \$25/mo for it
- Yes, I would pay \$25/mo for curbside collection

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Electric Aggregation

- Established in 2015 due to community advocacy
- Opt-out system, with a renewable source as the default
- Savings vary by month and year

2022 Electric Aggregation Savings		
Customer Type	Savings Per Customer (Annual)	Savings Community Wide (Annual)
Residential	\$124	\$491,036
Non-Residential	\$329	\$92,967

Total community savings in 2022: \$584,003

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Residential Food Scrap Program

	Program Total	2023
Diverted from landfill	92.4 tons	17.7 tons
Weekly Average Collection	731 lbs	681 lbs
Cost per ton	\$656.98	\$719
Cost per pound	\$0.33	\$0.36

- Low, but not no, contamination
- Utilize the bins at community events
- Daily checks from Environmental Division
- ~11K per year



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Solar Flare at Closed Municipal Landfill



- 98% destruction of methane on one passive gas vent
- Reduced landfill emissions by 34.5% in 8 months in 2023
 - Installed May 22nd, 2023
- Preinstallation estimates anticipated a ~1/3 reduction in emissions
 - ~8.7% of our total emissions by government operations
- 15K not including city staff labor

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And more!

- Residential curbside recycling
- EV Charging
- DORA Cups
- Composting at events
- String light recycling
- Pollinator gardens
- Trails / Multimodal Paths

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Where we need to focus

- Energy
 - Solarizing city facilities
 - Solar array at closed municipal landfill
- Transportation
 - Multimodal paths and hubs
 - Amtrak expansion
 - EV infrastructure
 - Reimagining parking
- Education and behavior change
 - Engaging residents and businesses



BCRTA to Break Ground on Chestnut Street Multimodal Station

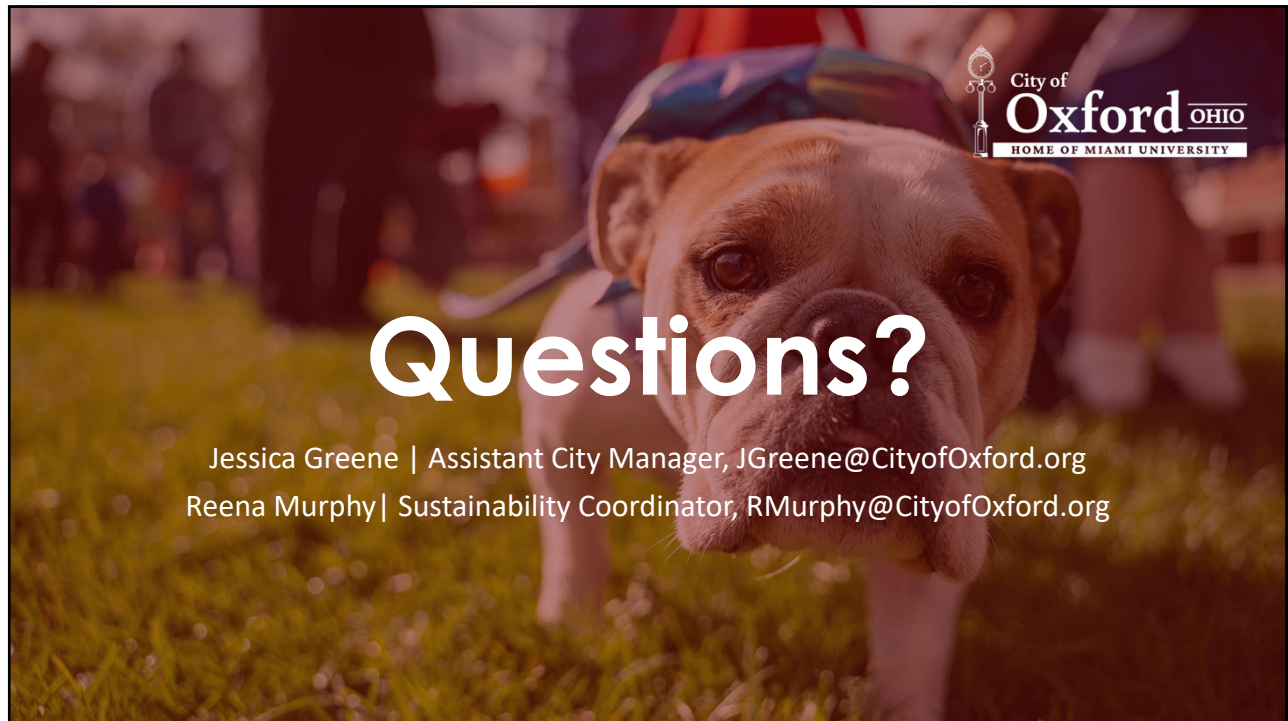
OXFORD, OHIO – Butler County Regional Transit Authority (BCRTA), in partnership with Miami University, will break ground on its long-awaited Chestnut Street Multimodal Station (97 W. Chestnut St., Oxford, OH...

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In summary...

- Start small, and do it well
- Lean on your community and seek opportunities to collaborate
- Know what best motivates your community

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Oxford's Documents

- Climate Action
Plan: https://www.cityofoxford.org/our_community/climate_efforts/climate_action_plan.php
- Comprehensive
Plan: https://www.cityofoxford.org/our_community/comprehensive_plan/2023_comprehensive_plan.php

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Data Resources

- Climate Mapping for Resilience
Adaptation: <https://livingatlas.arcgis.com/assessment-tool/search>
- Google Environmental
Insights Explorer: <https://insights.sustainability.google/>
- ICLEI Clearpath Tool: <https://icliusa.org/clearpath/>

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Organizational Resources

- ICLEI Local Governments for Sustainability: <https://iclei.org/>
- Power a Clean Future Ohio: <https://www.poweracleanfuture.org/>
- Global Covenant of Mayors for Climate and Energy: <https://www.globalcovenantofmayors.org/>

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Other Resources

- Miami University, Institute for the Environment and Sustainability: <https://miamioh.edu/cas/graduate-programs/environmental-science/past-ppp-projects.html> or Amanda Bentley Brymer, Ph.D, Assistant Director, bentleal@miamioh.edu
- Catalyzing Local Clean Energy: A Roadmap for Maximizing Inflation Reduction Act Opportunities and Community Benefits: <https://cityrenewables.org/resources/local-government-roadmap-for-maximizing-clean-energy-opportunities-in-the-inflation-reduction-act/>
- The Bill is Coming Due: <https://www.poweracleanfuture.org/oh-municipal-costs-of-climate-change>

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