Sustainable Initiative & Emission Reduction Research for the City of Bexley, Ohio:

Commercial & Institutional Sectors

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Acknowledgments

Thank you to the city and citizens of Bexley, Ohio for your unwavering commitment towards achieving carbon neutrality. Thank you to Bexley's Sustainability Coordinator, Elizabeth Ellman, for your guidance as our primary contact, and thanks to Mayor Ben Kessler for backing our project with your support: may Bexley serve as a model of sustainability for other cities across Ohio and across the country.

Thanks to Rhianna Bergman, Stevie Damon, Will Sullivan, and Braeden Whaley of the Spring 2022 EEDS Capstone for creating a strong foundation for this important project. We appreciate the thoughtful feedback we received from Scott Semroc, Christine Symington, and our peers in the EEDS Capstone class for your insightful recommendations and support of our research. Finally, words cannot express our gratitude for our professors, Dr. Greg Hitzhusen and Bruce Braine: your knowledge, counsel, and encouragement have been invaluable throughout this process.

Executive Summary

Our objective in conducting this project was to help Bexley create a Climate Action Plan, known as a CAP, to further embed sustainability within the city's decision making. We sought to offer actionable recommendations to reduce the city's greenhouse gas (GHG) emissions while incorporating best practices of justice, equity, diversity, and inclusion (JEDI). The scope of our research includes the commercial and industrial (non-residential) sectors. Our principal research method consisted of a comprehensive literature review of CAPs and sustainability initiatives undertaken by cities across the country while prioritizing those with demographic, economic, geographic, infrastructural, and/or socio-political similarities to Bexley. Zero Energy Project's

database (n.d) streamlined our research by directly connecting us to a compendium of all currently known municipalities committed to building CAPs of their own. We extracted, analyzed, and tabulated this data in our CAP Matrix, located in Appendix D. The matrix also includes further recommendations, pertinent case studies, and other sustainability resources that offer further actionable steps towards realizing our recommendations. Financial constraints, scheduling variability, data deficiencies, and the brevity of our timeline served as limitations to this project.

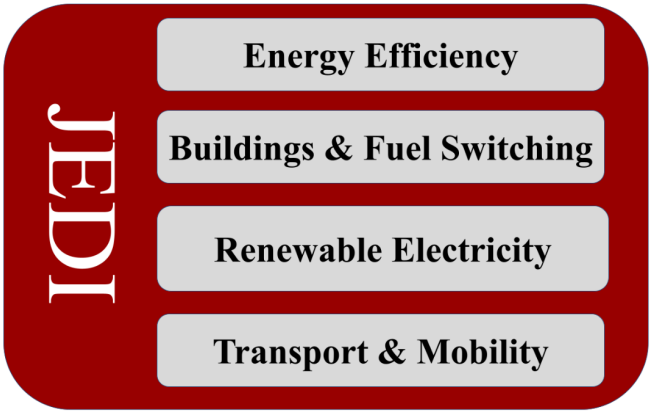

Figure 1: *Research focus and objectives. JEDI was the lens through which all recommendations were evaluated.*

As displayed in ***Figure 1***, our recommendations are sorted into four categories: Energy Efficiency, Buildings/Fuel Switching, Renewable Electricity, and Transportation & Mobility. Our final recommendations advise Bexley to champion bulk purchasing for renewable energy and infrastructure improvements; incentivize energy efficient equipment and appliances; create and implement a Complete Streets Framework that prioritizes pedestrians; join the Green Columbus Energy Plan; promote and expand public transit access; and improve accountability measures for

JEDI initiatives. We also urge Bexley to continue engaging with future EEDS Capstone groups and other climate-driven organizations as the city furthers its CAP implementation process.

Introduction

The City of Bexley is a first-ring suburb of Columbus, Ohio known for its highly ranked schools, historic neighborhoods, and bustling Main Street district; it is also home to Capital University, one of the state's predominant private universities. On October 12, 2021, Mayor Ben Kessler formally confirmed Bexley's participation in Cities Race to Zero, joining a global coalition of cities and businesses pledging to reach net zero carbon emissions by the year 2040 (Green Bexley, n.d). The city is already making strides towards realizing this ambitious goal; Bexley created a Sustainability Department in 2022 to monitor the environmental impact of present and future municipal decision making. Elizabeth Ellman, the Department's Programs Coordinator, is determined that Bexley becomes globally competitive in the race towards carbon neutrality, serving as a lasting inspiration to other cities as they lower emissions in the future.

Bexley's latest GHG inventory was conducted in 2019, documenting a total of 109,389 net metric tons of carbon dioxide equivalent (CO2e) emissions (Appendix A). The inventory shows that stationary combustion, mobile combustion, and electricity usage were the primary causes of emissions: the residential sector accounted for 63% of these emissions while the commercial and institutional sector accounted for 37% as shown below in ***Figure 2***.

2019 Gross Emissions by Sector	Total MT CO_2e	Percent of Total
Residential	70,828	63%
Commercial/Institutional	41,032	37%
Industrial	468	<1%
Energy Generation[5]	0	0%

Figure 2: *"Gross Emissions by Sector" in Bexley (2019 numbers).*

Our research goal was to develop recommendations for the City of Bexley to achieve carbon neutrality, and eventually carbon negativity, while incorporating JEDI best practices. The project began with a meeting with Elizabeth Ellman and Mayor Kessler to align our project goals, finalize objectives, establish communication expectations, and devise a preliminary timeline shown below in ***Figure 3***.

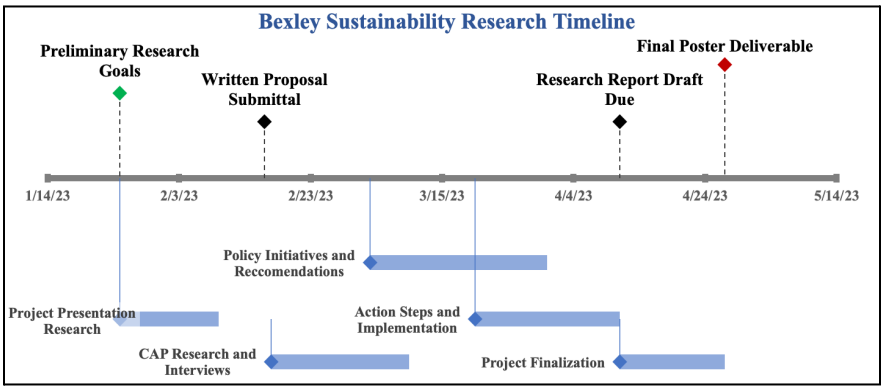

Figure 3: *Research Timeline submitted alongside Written Proposal.*

This meeting with Bexley officials catalyzed our literature review — analyzing CAPs, sustainability reports, and topical environmental policy initiatives from other US cities. We then conducted two question-and-answer style interviews with external sustainability coordinators to

better understand the realities of carrying out these budding recommendations. The categories shown in ***Figure 1*** guided our research, and our leading recommendations are as follows:

- Encourage bulk purchasing agreements and community choice energy aggregation;
- Incentivize the retrofitting of buildings with energy efficient equipment including LED lighting and electric appliances;
- Begin energy consumption benchmarking for all non-residential buildings using the EPA Energy Star Portfolio Manager Tool;
- Integrate Bexley into the Sustainable Columbus Energy Plan;
- Work towards the creation of a whole building decarbonization policy;
- Create a Green Stimulus Fund and Revenue Bond for the city;
- Adopt a Complete Streets Framework to improve walking, cycling, and integrated transit access and improve user experience and convenience of public transit;
- Foster Bexley's existing partnership with the Climate Mayors EV Purchasing Collaborative to convert municipal vehicles to electric vehicles (EVs);
- Educate building owners on the benefits of energy efficiency and IRC 179D through an update to the "Green Bexley" website ;
- Form an "Equity and Engagement Task Force" within Bexley's Sustainability Department; and create an "Equity Tool" to guide evaluations made by the Task Force.

We maintain that these recommendations will help Bexley pave the way towards net zero emissions as the city develops its CAP. Further recommendations, sustainability resources, and potential funding opportunities are included within the CAP Matrix.

Methods & Research Activities

Our primary research method was a wide-ranging literature review.Specifically, we reviewed CAPs and sustainability initiatives from across the country in search of the most effective programs relevant to the city of Bexley to reduce its GHG emissions. Case studies also offered a significant portion of our findings:[1] Notable examples include the Ithaca Efficiency Retrofit and Thermal Load Electrification Program, the electrification case study in Sustainable Westchester, and the 2016 Active Transportation Plan from the Mid-Ohio Regional Planning Commission (MORPC).

Figure 4: *Research methods.*

We also conducted interviews with coordinators from communities with preeminent sustainability programs to gain greater insight and professional advice on the creation and execution of these initiatives. We spoke via Zoom with Christine Symington of Sustainable Princeton and Scott Semroc of Sun Prairie, Wisconsin. Additional CAPs, case studies, and interview notes are housed in our matrix.

[1] For this project, case studies refer to any project or initiative that was found to be relevant to Bexley, Ohio and reducing carbon emissions, but was not necessarily included within a CAP.

Recommendations

Based on our research of other communities and a continuous evaluation of Bexley's unique characteristics, we offer the following recommendations to the city. We have taken into account the projects' noted successes elsewhere, their prospective ease of implementation, and the balance between capital demand and magnitude of emission reduction.

Recommendations for Energy Efficiency

Electricity usage within Bexley's numerous storefronts, restaurants, businesses, government buildings, and office spaces accounts for a significant portion (49%) of the city's commercial and institutional GHG emissions (City of Bexley, 2019). Retrofitting these buildings with energy efficient equipment will have a profound impact on the city's overall footprint. Thus, our first recommendation is to educate and encourage businesses and institutions to participate in a bulk purchasing agreement of energy efficient equipment.

Scott Semroc shared with us his experience in Sun Prairie, noting that promoting wholesale purchasing of equipment (e.g., LED lighting) is a viable, attractive first step for businesses to operate more sustainably while having a profound impact on their emission profile. By lowering the barrier to entry via cheaper upfront pricing, purchasing wholesale LED lighting can lower costs up to 20% (LED Light Expert, 2022). Bexley could facilitate this by organizing a joint procurement program for local businesses, enabling them to pool their purchasing power as they benefit from economies of scale. Therefore, we recommend that the city incentivize the retrofitting of buildings with energy efficient equipment through participation in the procurement program, creating a city-wide grant for businesses under 20 employees to help cover the equipment cost. Once preliminary iterations of this initiative prove successful, Bexley could

expand beyond city limits to other first-ring suburbs through Sustainable Columbus to expand the joint procurement program — collaboration with nearby cities is something Semroc assured had been successful for Sun Prairie. The wholesale purchasing agreement could be implemented within 18 months to two years, yielding immense benefits visible within just two years upon installation.

Our second recommendation is that Bexley begins energy consumption benchmarking for all non-residential buildings. This can be done via the EPA Energy Star Portfolio Manager, which is a "free, online, interactive energy management tool that allows [developers and business owners] to measure and track their building's [energy] consumption, identify investment priorities, and verify improvements over time" (Energy Star, n.d). Benchmarking "helps identify underperforming buildings" to devise appropriate emission reduction efforts, and begins with what Energy Star refers to as an "Energy Treasure Hunt." This is a way to spot low- or no-cost quick fixes like operations and maintenance best practices. The Treasure Hunt is a great start to begin benchmarking and has worked for hundreds of organizations nationwide to reduce their facilities' energy use by 15 at least percent (Energy Star, n.d). Bexley can then employ this data to strive towards city-wide policies that target outdated building codes and provide increased transparency to residents (C4O Cities, 2015).

Recommendations for Buildings-Fuel Switching

Fuel switching, typically by retrofitting buildings from traditional natural gas heating to electric heat pumps, can substantially reduce a building's GHG emissions, especially high-occupancy buildings outside the residential sector (DOE, 2023). Thus, we recommend that Bexley provides business owners with educational resources regarding the benefits and annual

cost savings associated with electric heat pumps. Since reducing stationary combustion accounts for such an immense portion of emissions in commercial buildings, ensuring that best practices are implemented is crucial. An example of a successful transition is Alameda, California, which now mandates that buildings perform a "fuel switch" from natural gas to electricity (Alameda CAP, 2019). Further, a compilation of case studies provided by Sustainable Westchester in New York (2020) offers comprehensive data supporting a fuel switch through heat pump installations in commercial buildings.This compilation can be found in our matrix.

If Bexley does not choose to mandate this transition, emphasizing the annual savings to building owners would be a reliable way to encourage heat pump installation. We thus recommend that the city updates "Green Bexley" website to include detailed, user-friendly resources for building owners to increase their energy efficiency. Including the case studies compiled by Sustainable Westchester would offer building owners real-life data on the potential reduction of annual costs and emissions. We also suggest adding information on potential tax credits for heat pump installation via the Inflation Reduction Act of 2022 as well as IRC 179D, the Energy Efficient Commercial Buildings Deduction provided by the Internal Revenue Service. Enacted to encourage installation of energy-efficient commercial building property (EECBP), IRC 179D "allows a taxpayer who owns or leases a commercial building to deduct the costs" of certain specific EECBP including heating, cooling, ventilation, and hot-water systems (IRS, 2022).

Looking beyond fuel switching, we recommend that Bexley promotes whole building decarbonization for commercial buildings in alignment with their goal of achieving net-zero emissions by 2040. This has been exemplified by Ithaca's Efficiency Retrofitting and Thermal Load Electrification Program.Ithaca's goal is to fully decarbonize every commercial building in

the city by 2030, while also requiring all new buildings meet net-zero energy standards by 2026. The program brings competitive financing that leverages bulk buying of equipment, State incentives, and low-interest rates to make decarbonization affordable and accessible (City of Ithaca, n.d). Ithaca was able to achieve this through the help of their climate technology partner, BlocPower, and their collective acquisition of over $100 million in private equity funds. The early success has since helped Ithaca secure nationwide recognition, additional funding, and the bronze certification in the Climate Smart Community Program (City of Ithaca, n.d). This has been the flagship success for Ithaca and a major driver of this development has been joining efforts with third-party contractors and installers like BlocPower which can be a spotlight for the efficacy of Bexley's buildings switch to renewable energy.

Recommendations for Renewable Electricity

Our team recommends that Bexley implements the Sustainable Columbus Plan to increase renewable energy use. Green Columbus provides a schematic for clean energy aggregation for a combination of Renewable Energy Credits and the Purchase Power agreement of solar and wind farms in Ohio (Sustainable Columbus Plan, n.d.). By implementing the methods mentioned in the Columbus agreement, Bexley can access affordable and competitive prices for renewable energy.

One case study which exemplifies the execution of developing renewable energy is the city of Burlington, Vermont, which has been providing effective incentives to accelerate decarbonization technologies (Burlington Electric Department, n.d.). Burlington was able to create a Green Stimulus of $16.4 million which provided rebates to advance technologies such as cold climate heat pumps, weatherization upgrades, and other technologies that enhance the energy transition (Burlington Electric Department, n.d.). The key success factor to the green

stimulus was the important partnerships with credit unions and creating a task force that oversaw the proposal, timeline, and completion of each project (Burlington Electric Department, n.d.).

Secondly, Burlington established a Revenue Bond to fund renewable energy projects (Burlington Electric Department, n.d.). The Revenue Bond allowed new EV charging stations, maintenance of renewable generation plants, and conversion of their peaking plant to run on renewable biodiesel (Burlington Electric Department, n.d.).Furthermore, in 2020, the Burlington Electric Department tripled its state requirement for electrification and fossil fuel use reduction under Tier 3 of Vermont's Renewable Energy Standard (Vermont Business Magazine, 2021).

Both the Revenue Bond and Green Stimulus have JEDI practices at its focus. The Revenue Bond provided affordable housing units with 100 percent efficiency work and supported weatherization projects with 75 percent of the cost (Burlington Electric Department, n.d.). Consequently, 17 percent of the heat pump installations have been received by low to moderate-income households (Burlington Electric Department, n.d.), with key partnerships promoting this sustainable development.

Beyond the community aggregation program, we recommend that Bexley accelerates its community-driven solar initiatives. One model is Solarize Portland, created and implemented by the city's Bureau of Planning and Sustainability in collaboration with local nonprofit organizations, community groups, and solar contractors (Leaders in Energy, n.d.). Notable factors to this project's success are negotiating the lowest cost and easiest deal possible, pre-selection of a contractor, and the benefits of bulk purchasing. Through this case study, it is evident that wielding a sense of urgency among residents and businesses with a cohesive program offers a strong avenue towards renewable electricity.

Recommendations for Transportation & Mobility

Bexley must take creative and robust action to address the 32 percent of city-wide GHG emissions resulting from mobile combustion. As such, we recommend that Bexley begin transitioning its currently gas-powered municipal fleet to EVs. Though it may seem to be a formidable undertaking, resources exist in plethora to aid in this changeover. Created in 2014, Climate Mayors is a bipartisan, peer-to-peer network that represents 48 states and nearly 60 million Americans to promote climate action at the local level, and Bexley's Mayor Kessler is already among the group's 750 members (Climate Mayors, n.d.).

Due to increasing municipal demand for EVs, Climate Mayors partnered with the non-profit Electrification Coalition to create an EV Purchasing Collaborative in September of 2018 as a one-stop-shop to support this transition. In addition to leveraging group purchasing power to reduce costs, the program also offers training, best practices, educational resources and analysis support for the transition (Climate Mayors, n.d). The program offers access to a tool called DRVE which generates a comprehensive analysis based on the existing fleet composition and city's characteristics to conduct a Life Cycle Assessment and side-by-side comparison of EVs to gas-powered vehicles to ensure that the selections are appropriate. The Coalition allowed Cincinnati to acquire its first electric fleet: in doing so, the city reduced its operational cost by nearly $150,000, reduced cost of vehicle ownership by 17 percent, and reduced GHG emissions by 1,450,000 metric tons of GHG emissions (Electrification Coalition, 2020). We encourage Bexley to expand its existing partnership with Climate Mayors to utilize this invaluable resource as the city reduces its mobile combustion emissions.

Though Bexley is home to an energetic metropolitan area teeming with pedestrians and commuters, the present infrastructure is largely centered around automobiles. Expanding upon

research from the 2022 Capstone, we recommend that Bexley creates and adopts a Complete Streets Framework (CSF) to expand and improve walking, cycling, and integrated transit, prioritizing pedestrians and enabling safe access for all users. As noted by Smart Growth America (n.d), this "[framework] also emphasizes the needs of those who have experienced systemic underinvestment or those whose needs have not been met through a traditional transportation approach." Potential components of the plan may include the implementation of low-car or car-free days on certain roads, protected bicycle lanes, curb extensions, roundabouts, comfortable and accessible public transit stops, and improved wayfinding (Smart Growth America, n.d).

To create a CSF, the city would identify a diverse coalition of community partners: this could consist of the Bexley Environmental and Sustainability Advisory Council (ESAC), Green Bexley, Bexley School District's PTA, the city's Service Department, MORPC, Central Ohio Transit Authority (COTA), and representatives from advocacy groups and vulnerable populations. Together, this coalition, nicknamed Bexley Complete Streets Team (BCST) would create an inclusive community engagement plan that emphasizes solid and continuous communication with residents and business owners, especially regarding reconfiguration of intersections and other traffic-dependent projects. We encourage BCST to include in their CSF the ten elements created by the National Complete Streets Coalition; these elements offer a "framework for designing the strongest possible policy, specific ideas on what to prioritize, and suggestions on how to make the policy binding" (Smart Growth America, n.d).

We also advise that BCST create a checklist so that agencies can review and update all existing procedures, plans, regulations, and processes to accommodate users on every project in

alignment with the CSF. An oversight committee should also monitor the CSF's implementation to ensure it is moving forward in alignment with the identified best practices.

We also recommend that Bexley improves user experience, convenience, and frequency of public transit and rideshare options to lessen dependence on personal automobiles. Specifically, we believe the city can ensure transit ridership by instituting an intensive and continuous transit information and education campaign that includes elements such as public wayfinding signs, enabling Wi-Fi, and real-time information about transportation options. This can be done by creating a "Transit Hub" within the Green Bexley website where residents can easily find a user-friendly list of pertinent transit-related resources available to them. MORPC has already assembled numerous alternative transportation options relevant to Bexley residents in their Gohio Commute database. This existing database can be included in Bexley's Transit Hub for easy access.

Recommendations for Justice, Equity, Diversity, & Inclusion (JEDI)

We recognize that JEDI factors are an inextricable component of sustainability and should thus be integrated into all of the city's decision making. As such, we recommend that Bexley form an Equity and Engagement Task Force within their Sustainability Department. The task force's purpose would be to evaluate the equity of all proposed sustainability policies, programs, or initiatives, and it should be composed of experts from various JEDI-based advocacy groups already partnered with Bexley (City of Bexley, 2023). Potential partners include the Bexley Anti-Racism Project (BARP), Bexley LGBTQIA, and Bexley Residents Against Institutional Racism (BRAIR) (City of Bexley, 2023). These partnerships will be crucial for the success of the task force, as those advocacy groups are experts in JEDI, and can provide

valuable insights that may be otherwise missing from Bexley's sustainability planning. This recommendation was created based on the success of an equity and engagement subcommittee created to oversee the City of Cleveland's CAP development process (City of Cleveland, 2019). The subcommittee used an Equity Tool (Appendix B) to assess every CAP objective for its capacity to improve racial equity in Cleveland (City of Cleveland, 2019).

Secondly, we recommend that Bexley create an Equity Tool to guide evaluations made by the Task Force.[2] In a study of 58 cities with CAPs, every city that integrated Equity Tools into their sustainability planning noted that they were successful (Diezmartínez & Gianotti, 2022). The idea is relatively new but is emerging as a powerful tool to fairly evaluate sustainability policies, programs, or initiatives (Diezmartínez & Gianotti, 2022). Portland, Oregon utilizes an Equity tool in their sustainability planning (City of Portland, n.d). The Equity Tool is comprised of six components, each with their own respective goals (1) Equity Analysis (2) Stakeholder Mapping, Analysis, and Engagement Planning (3) Equity Action Feasibility (4) Budgeting (5) Data Collection & Evaluation Plan and (6) Ongoing Decision Making Tool (Appendix C). These existing Equity Tools can serve as models for Bexley as they further their JEDI efforts.

Limitations

We initially sought out data from cities comparable to Bexley in terms of factors including size, geography, median income, and demographics to guide our research. However, Bexley is a small community with unique characteristics, making it difficult to find comparable cities with well-developed sustainability initiatives. Consequently, we did not limit our research and resulting recommendations just to cities comparable to Bexley. We considered all types of

[2] An Equity Tool is a set of guiding questions or checklist that provide a basis for equity evaluations.

cities with CAPs and sustainability initiatives as inspiration for our recommendations, and curated those that would best serve Bexley.

We felt it imperative to expand our research as broadly as possible, but time constraints restricted the scope of our research. These detailed documents require considerable time to review; we collected as much data as we could, but it remains possible that some relevant sustainability initiatives were overlooked. Thus, it is important that Bexley continues its partnership with future EEDS Capstone groups to further research sustainability-related work of other cities to draw inspiration as they continue to develop their CAP.

Cities incorporating sustainability in their planning remains a relatively new endeavor. Thus, the long-term outcomes of most of these programs remain unknown. As sustainability in city planning continues to expand and new data emerges, best practices will inevitably evolve.

Future Work

Our team's recommendations embody a significant benchmark in Bexley's overall efforts to reach net-zero carbon emissions by 2040. However, this project also demonstrates the need for continued effort towards achieving Bexley's climate goals. Thus, Bexley will need to allocate the necessary financial and human resources to support the implementation of these recommendations as they work towards creating a CAP. This will involve working with the City Council to develop a budget and secure funding from grants, state-sponsored initiatives, private donors, etc. The wide variety and scope of the proposed recommendations also indicates the need for the future in-depth research by future Capstone groups as Bexley works toward implementation.

Conclusion

Our team has outlined five pathways of sustainable development for the city of Bexley. This report has been constructed in alignment with Bexley's goal to achieve carbon neutrality, and eventually carbon negativity, while incorporating JEDI best practices. Our leading recommendations are as follows:

1. Buildings: Energy Efficiency:
    a. Educate and encourage businesses and institutions to participate in a bulk purchasing agreement of energy efficient equipment.
    b. Incentivize the retrofitting of buildings with energy efficient equipment through participation in the procurement program.
    c. Begin energy consumption benchmarking for all non-residential buildings.
2. Buildings: Fuel Switching:
    a. Provide business owners with educational resources regarding the benefits and annual cost savings associated with electric heat pumps.
    b. Update “Green Bexley” website to include detailed, user-friendly resources for building owners to increase their energy efficiency.
    c. Promote whole building decarbonization.
3. Renewable Electricity:
    a. Integrate into the Sustainable Columbus Plan to increase renewable energy.
    b. To accelerate its community-driven solar initiatives.
4. Transportation & Mobility:

a. Create and adopt a CSF to expand and improve walking, cycling, and integrated transit, prioritizing pedestrians and enabling safe access for all users.
b. Transition its current gas-powered municipal fleet to EVs.
c. Improve user experience, convenience, and frequency of public transit and rideshare options to lessen dependence on personal automobiles.

5. JEDI:
    a. Form an Equity and Engagement Task Force within their Sustainability Department.
    b. Create an Equity Tool to guide evaluations made by the Task Force.

Ultimately, our team's recommendations serve not only as a comprehensive list of actionable steps for The City of Bexley to achieve its climate action goals, but an iterative space for collaboration between future capstone groups and Bexley's stakeholders. With the implementation of the specified recommendations presented, Bexley can take steps to become a leader in sustainability while nurturing a growing network of people, resources, and organizations that are contributing to this shared mission.

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Appendices

Appendix A: Bexley's 2019 Greenhouse Gas Inventory

https://drive.google.com/drive/u/0/folders/1H4fvoh84gbthpE8ZL-OLlBPo5HjIIBbU

Description: This is a Greenhouse Gas Inventory run in 2019 funded by Power a Clean Ohio and developed by UNPREDICTABLEcity. It displays the emissions from Bexley, OH from various sectors such as residential, commercial/institutional, and industrial. It also covers different sources of emissions such as various types of combustion, electricity usage, wastewater, etc.

Appendix B: Cleveland Climate Action Plan: Racial Equity Tool

https://d3n8a8pro7vhmx.cloudfront.net/sustainablecleveland/pages/34656/attachments/original/1604691325/CAP_2018_Appendix_A_Racial_Equity_Tool.pdf?1604691325

Description: Step by step guide of the toolkit Cleveland utilizes to evaluate the equity of any sustainability policies, programs or initiatives.

Appendix C: City of Portland, Oregon Equity Toolkit

https://www.portland.gov/bps/documents/portland-bureau-planning-and-sustainability-equity-toolkit-2022/download

Description: Step by step guide of the toolkit Portland utilizes to evaluate the equity of any sustainability policies, programs or initiatives.

Appendix D: CAP/Sustainable Initiatives Matrix

https://docs.google.com/spreadsheets/d/1Mf1-CfxtzPHqIV9_zw2cOTBkfpijEbppMsL6HnfeJn4/edit?usp=sharing

Description: An ongoing database where all research resources are compiled. This contains CAPs and standalone case studies of sustainable initiatives.