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City of Duluth

Climate Action Work Plan

2022 - 2027



Acknowledgements

The City of Duluth would like to express its gratitude to the community members and organizations that have led efforts to drive climate action in the community. This Climate Action Work Plan reflects those efforts and builds upon existing programs and policies executed by City staff.

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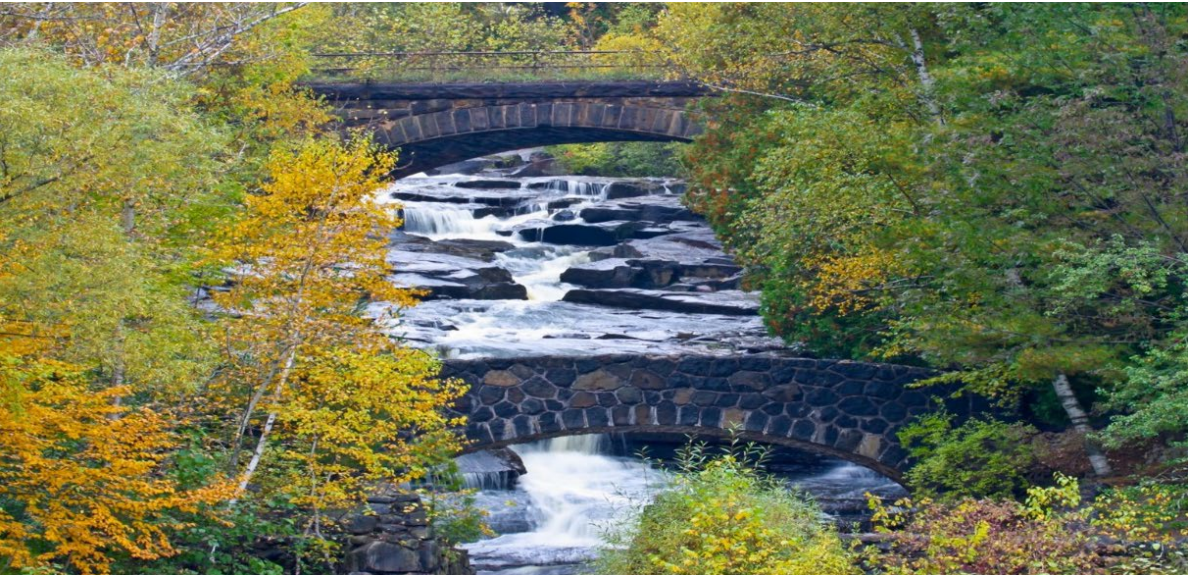
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Introduction

The City of Duluth is already seeing the impacts of a changing climate. In 2012, heavy rains led to unprecedented flooding that caused immediate and severe damage. In July of 2016, a derecho 250 miles in length uprooted trees and led to power outages for at least 75,000 Minnesota Power customers. In 2018, 60-mph winds caused a storm surge that inundated the streets of Canal Park and wrecked public infrastructure along the lakeshore in Duluth with an estimated \$18.4 million needed to recover and rebuild. Lake Superior is warming faster than any large lake in the world, altering the habitat for existing plant and animal life, and making the lake susceptible to invasive species.

Climate change will continue to test the resilience of built and natural infrastructure, and stress social and economic stability, particularly among those already vulnerable. Recognizing the scientific implications of climate change and its impact on Duluth, Mayor Larson called upon the City to reduce its carbon footprint in 2017, committing to achieving an 80% reduction in emissions from municipal operations by 2050.

The City has since created an internal energy plan to guide reductions and hired a Sustainability Officer to oversee the incorporation of sustainability into decision-making, and the improvement of City policies, programs, and initiatives. Imagine Duluth 2035 is the City's most recent comprehensive plan update, completed in 2018. The plan includes an [Energy and Conservation](#) chapter that outlines policies and strategies aimed at reducing energy and greenhouse gas emissions both among municipal operations and throughout the community. This chapter also addresses community resilience and adaptation strategies.

In spring of 2021, the Duluth City Council passed a resolution declaring a climate emergency ([21-0256R](#)). This resolution recognizes the effects of climate change that are already occurring in Duluth and Northeastern Minnesota and the urgent need to take more ambitious action. The Declaration expands the carbon reduction goal for municipal operations to cover the entire community. The City is also called upon to develop a Climate Action Work Plan that “identifies targeted strategies for decreasing greenhouse gas emissions and for becoming more resilient in preparation for a changing climate.”

The Climate Action Work Plan that follows, seeks to set the City on a path to achieve its climate goals and prepare for increasing climate hazards.



Existing conditions

Existing conditions provide a snapshot of current emissions, anticipated climate hazards, and vulnerabilities. This is not intended to be an exhaustive inventory of all relevant information. This section helps the community set a baseline that can be used to assess progress over time and inform decisions that prioritize municipal and community-wide climate actions going forward.

Municipal greenhouse gas emissions

Municipal emissions account for five percent of total community-wide emissions. Sources of municipal emissions include energy (natural gas and electricity) used for water and wastewater treatment facilities, streetlights and traffic signals, and buildings and facilities. The City's fleet of light- and heavy-duty vehicles also contribute to overall municipal emissions.

Since 2008, the City has decreased emissions from municipal operations by 49.5 percent. This decrease came in large part from efficiency improvements to the water and wastewater treatment facilities, cleaner electricity generation from the electric utility, and efficient streetlights and traffic signals. The City continues to implement its energy plan to further decrease emissions and energy use.

Municipal GHG Emissions: MT CO₂e

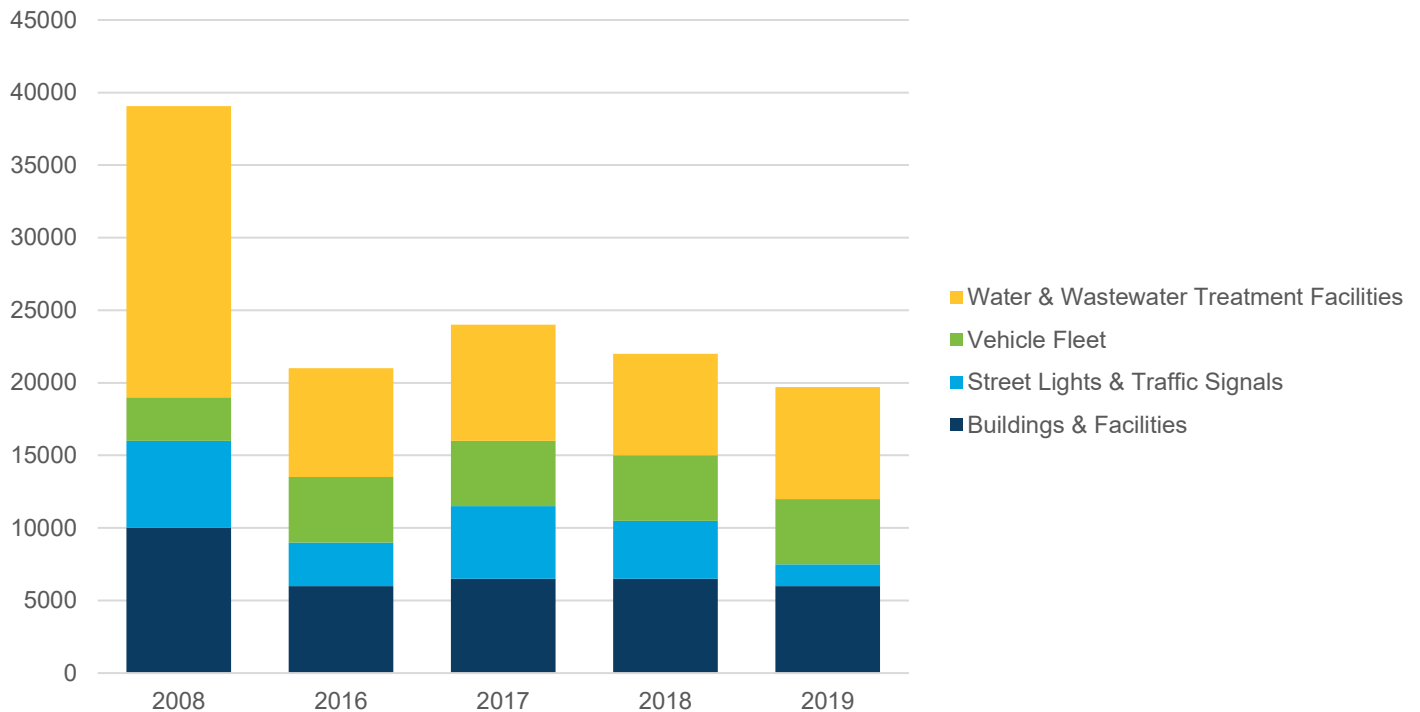


Figure 1 Municipal GHG emissions in metric tons of CO₂ equivalent. Source: City of Duluth.

Community-wide greenhouse gas emissions

Sources of community-wide emissions include consumption of electricity and natural gas use in the commercial/industrial and residential sectors, gas and diesel used in combustion vehicles, and methane that is released from landfilled waste. Buildings make up 78 percent of total community emissions. Emissions from buildings include natural gas used for space and water heating, as well as cooking, and electricity used for appliances and space conditioning. Total emissions have decreased 14 percent between 2013 and 2018, largely due to cleaner electricity generation from the electric utility.

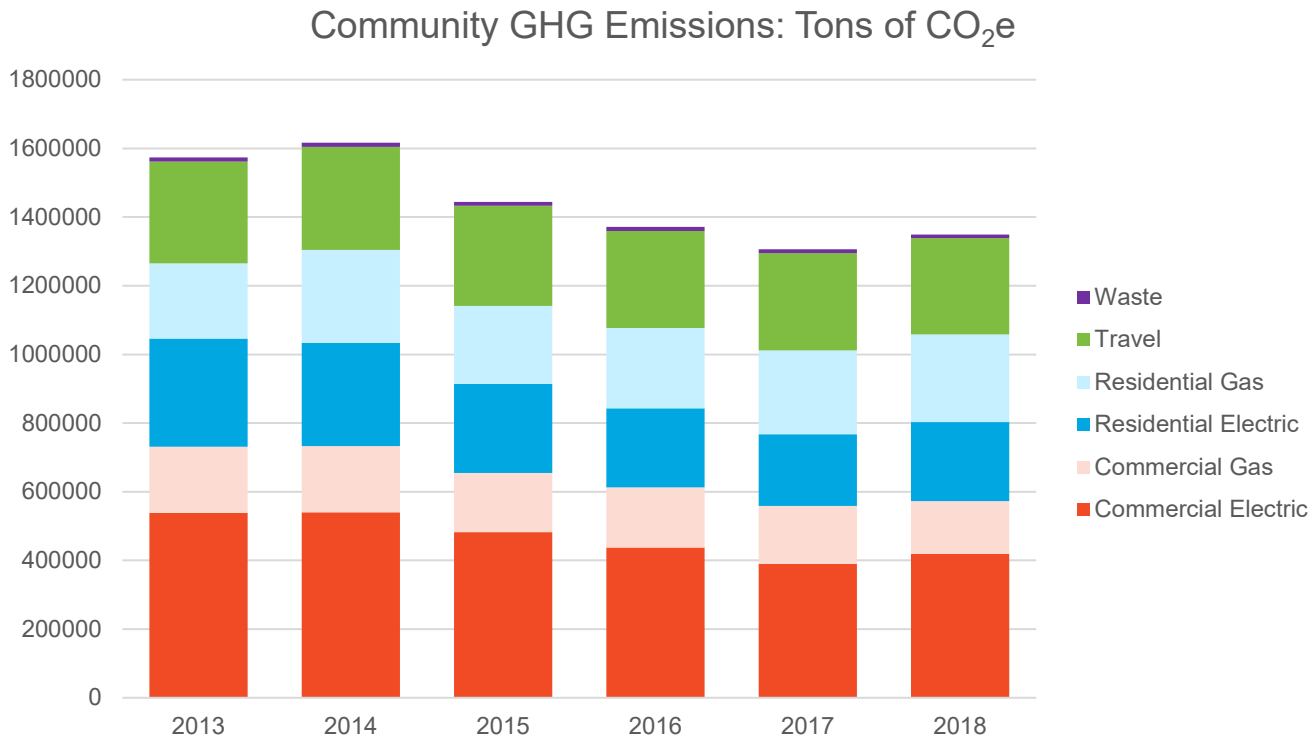


Figure 2 Community GHG emissions in tons of CO₂ equivalent. Source: Regional Indicators Initiative 2013-2018

Climate Hazards and Resilience

Minnesota can expect to see climate change continue to have impacts into the future. Temperatures will continue to rise, heavy precipitation events will increase in frequency, and there will be more extreme weather events. Existing infrastructure was not constructed in consideration of future climate shocks and stresses. Further, residents and businesses will need to be prepared for social and economic disruptions due to unanticipated local and global events.

According to the Population Vulnerability Assessment and Climate Adaptation Framework ([Exhibit B](#)) completed for the City, population groups within Duluth that are of most concern include those who are economically stressed, individuals or families without access to a vehicle, people with disabilities, and adults over 65, especially those who are living alone.

Taking action to reduce emissions and increase resilience in Duluth can lead to many quality-of-life and economic advancements. Implementation of this plan must be inclusive of all voices, ensuring equitable benefits and outcomes are achieved and disproportionately negative impacts are avoided.

Climate Action Work Plan (1-5 Years)

The following pages contain a work plan that will drive climate action for the next one to five years, setting the city on a path to accelerate its efforts over the coming decades. The actions included in the work plan were developed in consideration of the mayor's climate goals, past and on-going community efforts, and existing planning documents and city programs. The work plan was informed by staff who participated in the City Sustainability Advisory Team (C-SAT) and is structured to reflect the city's climate emergency resolution.

The climate emergency resolution calls for the city to address climate change across 9 strategies, prioritizing energy conservation and renewable energy production, stormwater management, and meeting the needs of vulnerable communities. These strategies are incorporated throughout the work plan. The work plan includes two phases. The first phase builds a foundation that prepares the city to accelerate climate action in the second phase. Actions in Phase 1 were developed across each of the strategies and organized into six key objectives, including:

- 1. Drive down emissions from city operations**
- 2. Strengthen community resilience**
- 3. Eliminate institutional barriers and better enable climate actions**
- 4. Create financial and workforce plans to support accelerated climate action**
- 5. Identify shovel-ready projects**
- 6. Plan implementation**

The work plan recognizes that there will be opportunities in the coming years to make substantial investments in local mitigation and resilience projects. The work plan includes several projects that are shovel ready for federal, state, or other funding sources that may become available.

Most importantly, this 5-year work plan is only the beginning. To reduce emissions 80% by 2050 and strengthen the resilience of the city, Duluth will need to accelerate its approach to community-wide action. This includes the equitable decarbonization of buildings and transportation, integration of resilience into built and natural infrastructure, and authentic engagement to support community-driven projects.

Climate mitigation and adaptation strategies highlighted in the City's climate emergency declaration:

Strategy 1: Reduce energy consumption in buildings

Strategy 2: Increase efficiency and resilience in city utilities

Strategy 3: Support low carbon transportation options

Strategy 4: Support renewable energy

Strategy 5: Improve stormwater management

Strategy 6: Reduce solid waste

Strategy 7: Reduce disparities in public health

Strategy 8: Seek sustainability opportunities that support economic growth

Strategy 9: Identify carbon sequestration opportunities

Phase 1: Build a foundation

1. Drive down emissions from City Operations

Actions		Action Leads	Resources Needed
Strategies	S1 1.1 Achieve energy reduction targets for city buildings and facilities to meet 10% emissions reduction goal, per mayoral term (80% by 2050). <input type="checkbox"/> Complete and implement the City of Duluth Energy Plan and share progress with the Energy Plan Commission <input type="checkbox"/> Institutionalize regular benchmarking for all city buildings and facilities <input type="checkbox"/> Continue energy audits and assessments and prioritize improving the performance of buildings with the greatest savings opportunities <input type="checkbox"/> Track and publicly share energy use and greenhouse gas emissions for City Operations, annually <input type="checkbox"/> Communicate successes and benefits of climate action to further community support for more action	Property and Facilities Management, Sustainability, and Communications	Energy Analyst
	S2 1.2 Continue to improve the fuel emissions factor and efficiency for Duluth Energy System <input type="checkbox"/> Identify clean energy resources to replace fossil fuel inputs; eliminate coal in the next 5 years <input type="checkbox"/> Encourage a transition to more efficient hot-water loop for new and existing customers of Duluth Energy Systems 1.3 Improve the efficiency of the water plant and distribution system <input type="checkbox"/> Set targets and identify opportunities to improve the energy use intensity at the water plant and distribution system	Duluth Energy Systems, Public Works and Utilities	Infrastructure for transition away from coal
	S3 1.4 Reduce emissions from city fleet vehicles and employee commute <input type="checkbox"/> Complete an assessment of city fleet to identify opportunities for electrification or other low-emissions vehicles <input type="checkbox"/> Create a vehicle replacement plan for city fleet to prioritize efficient and clean choices, as technology is available <input type="checkbox"/> Align City operations to reinforce the anti-idling policy of combustion vehicles <input type="checkbox"/> Support flexible employee commute options through facility improvements and incentives. Investigate covered bike parking, transit discounts, and flex-telecommuting options.	Fleet, Property and Facilities Management, Sustainability, Human Resources and IT, Finance	Resources for initial fleet planning are in place Capital funds needed to make up-front investment in greener vehicle purchases
	S4 1.5 Build upon previous successes and increase installation and procurement of clean energy <input type="checkbox"/> Establish a renewable energy target for City operations <input type="checkbox"/> Assess potential to develop large-scale renewable energy projects on City property <input type="checkbox"/> Identify underutilized land (brownfields, landfills, parking lots) that can be used for developing renewable energy generation, work to remove policy or regulatory barriers	Sustainability, Planning and Economic Development, Property and Facilities Management, Finance	Funds for feasibility study of renewable energy locations could be included in future grant/Federal funding requests
	S5 1.6 Reduce solid waste from city operations and public events <input type="checkbox"/> Implement best practices to reduce waste at public buildings, events, and venues	Sustainability, Parks Maintenance, PFM, Community Partners	Additional Parks Maintenance and Facilities capacity needed

2. Strengthen community resilience

Strategies	Actions	Action Leads	Resources Needed	
	S2	<p>2.1 Improve the resiliency of the water plant and distribution system Seek opportunities to improve resiliency of the water plant, including transformer upgrades, burying lines, back-up power, and clean energy procurement options.</p> <p>2.2 Complete a citywide assessment of vulnerable built (sidewalks, roads, pipes, etc.) and natural (trees, soil, water, etc.) infrastructure</p> <ul style="list-style-type: none"> <input type="checkbox"/> Manage Emerald Ash Borer, implement strategic planting plan <input type="checkbox"/> Develop a plan to minimize risk to infrastructure, prioritizing highest risk and infrastructure located in vulnerable communities <p>2.3 Expand current CIP offerings from Comfort Systems for residential and commercial customers</p>	Public Works and Utilities, Stormwater, Property Parks and Libraries, Sustainability	<p>Funding request is pending for water plant</p> <p>Funds required for citywide assessment</p> <p>Staff resources are available for CIP expansion</p>
	S5	<p>2.4 Develop a stormwater management plan that integrates resilience and identifies financing opportunities and includes these elements:</p> <ul style="list-style-type: none"> • Identification of priority parcels for preservation, vegetation quality mapping and repair, inventory natural resource and flood protection opportunities • Prioritization of improvements in high-risk neighborhoods with vulnerable populations • Reduced stormwater runoff flow and volume through green infrastructure and on-site stormwater management • Demonstration of green infrastructure on City property • Recommendations to incorporate green infrastructure into the unified development chapter • Continued collaboration with the Regional Stormwater Protection Team and other key partners to advance stormwater adaptation strategies 	Public Works and Utilities, Engineering, Property Parks and Libraries, Parks Maintenance, Stormwater, Sustainability	Funds needed for stormwater planning and installation of stormwater practices
	S6	<p>2.5 Strengthen inclusive and culturally specific community relationships through neighborhood volunteer events</p> <ul style="list-style-type: none"> <input type="checkbox"/> Seek community partnerships and volunteer opportunities for blight clean-up, green infrastructure installations, community gardens, and tree planting 	Life Safety, Community Relations, Community Partners, Human Rights, Stormwater	Love Your Block funding secured to develop community input process
	S7	<p>2.6 Reduce population vulnerabilities and ensure basic needs are met</p> <ul style="list-style-type: none"> <input type="checkbox"/> In collaboration with key partners, engage vulnerable populations in conversations around disaster preparation, planning, and response <p>2.7 Reduce environmental hazards and climate risks in vulnerable communities</p> <ul style="list-style-type: none"> <input type="checkbox"/> Prioritize tree planting and green infrastructure in neighborhoods with vulnerable populations <input type="checkbox"/> Seek opportunities to reduce harmful air pollutants in priority zones with highest particulate pollution 	Life Safety, Property, Parks and Libraries, Sustainability, Fleet, Human Rights, Community Relations, Community Partners,	<p>Resiliency planning and implementation funds required</p> <p>Funding needed to bolster tree canopy enhancements</p>
	S9	<p>2.8 Fully establish the Natural Resource Management Program to sustain the ecological, cultural, and recreational values of our open space lands, and increase resiliency to climate change</p>	Property, Parks and Libraries	Funding to support program

3. Eliminate institutional barriers and better enable climate actions

Actions		Action Leads	Resources Needed
Strategies	S1 3.1 Accelerate sustainable building design for new and substantially renovated buildings <ul style="list-style-type: none"> <input type="checkbox"/> Adopt sustainable building guidelines for all new or substantially renovated public buildings and private development that receives public funding or incentives. <input type="checkbox"/> Require clean energy and energy efficiency improvements for housing projects that receive City funding assistance to reduce emissions and address high energy burden 3.2 Adopt a building benchmarking policy for public buildings with a voluntary phase-in for private-sector commercial buildings 3.3 Support state policy and regulatory changes that enable the city to meet its climate and energy goals 3.4 Incorporate climate mitigation, resilience, and justice considerations into city budget planning process 3.5 Incorporate climate and energy actions into TIF district requirements	Planning and Economic Development, Sustainability, Finance, Community Partners	Part-time Benchmarking or Energy Analyst position would be required Utility partners need to prepare tracking and reporting avenues
	S2 3.6 Integrate resilience in the capital improvement plan and internal policy for all city infrastructure projects	Finance, Sustainability	
	S3 3.7 Reduce per-person, single-occupancy driving citywide <ul style="list-style-type: none"> <input type="checkbox"/> Review city code and policy to remove barriers and enable more opportunities for biking, walking, transit, and low-emissions vehicles <input type="checkbox"/> Enhance and institutionalize complete streets policy to include user experience and green infrastructure, prioritize connectivity for vulnerable communities <input type="checkbox"/> Gather early input on street projects to increase bike, walk, and wheelchair access along highly-used routes <input type="checkbox"/> Collaborate with DTA to expand first-mile and last-mile mobility options for transit <input type="checkbox"/> Eliminate minimum parking requirements for new development <input type="checkbox"/> Revise policies and regulations to promote an increase of EV charging infrastructure 	Planning and Economic Development, Community Partners	Code review requires additional resources
	S4 3.8 Enable increased installation and procurement of clean energy for residents and businesses <ul style="list-style-type: none"> <input type="checkbox"/> Review fee schedules to remove financial barriers for community participation in clean energy 	Planning and Economic Development, Construction Services, & Inspection	In process
	S6 3.9 Reduce residential and commercial solid waste through increased diversion <ul style="list-style-type: none"> <input type="checkbox"/> Collaborate with WLSSD to enhance and promote waste diversion programs <input type="checkbox"/> Participate in the Regional Solid waste planning processes to advocate for better recycling and diversion practices <input type="checkbox"/> Update policies for compost drop-off and pick-up options 3.10 Develop a City sustainable purchasing policy <ul style="list-style-type: none"> <input type="checkbox"/> Prioritize local businesses and products, social equity, environmental stewardship, and fiscal responsibility <input type="checkbox"/> Utilize the State Master Contract for solar installers, EV charging infrastructure, and low-emission fleet vehicles 	Sustainability, Parks Maintenance Finance, Sustainability, PFM, Fleet	Additional capacity in Parks Maintenance and Facilities required Funds secured for sustainable purchasing project

4. Create financial and workforce plans to support accelerated climate action

Actions		Action Leads	
Strategies	S1	4.1 Find a sustainable mechanism to support internal energy funds for continued implementation of the City of Duluth Energy Plan	Property and Facilities Management, Finance, Sustainability
	S2	4.2 Explore funding/financing mechanisms to reduce emissions from Duluth Energy Systems	Public Works and Utilities, Duluth Energy Systems, Sustainability
	S3	4.3 Increase funding for non-motorized transportation and improved connectivity (Duluth-Superior Metropolitan Bikeways Plan)	Planning and Economic Development, Community Partners
	S4	4.4 Seek resources and partnerships to catalyze renewable energy development and energy efficiency, especially in vulnerable communities	Sustainability, Property and Facilities Management, Community Partners, Human Rights, Community Relations
	S5	4.5 Identify funding and financing opportunities to implement stormwater strategies	Engineering, Public Works and Utilities, Property Parks and Libraries, Sustainability
	S7	4.6 Seek funding to engage vulnerable communities in city resilience planning initiatives and implementation	Sustainability, Public Works and Utilities
	S8	4.7 Collaborate with local partners to identify green job opportunities	Workforce Development, Sustainability, Human Rights, Community Relations, Community Partners
		<ul style="list-style-type: none"> <input type="checkbox"/> Increase the number of sustainability-related jobs in the community through workforce and economic development partnerships <input type="checkbox"/> Work with local partners to identify and invest in business opportunities that will support sustainability and create new jobs, including those that can recycle waste streams to create new resource materials <input type="checkbox"/> Support development and expansion of green-focused product and service lines among local businesses <input type="checkbox"/> Create workforce training for new and current City staff to ensure all are aware of their role in implementing this work plan <input type="checkbox"/> Create opportunities to build climate literacy for all students to understand how climate change will impact Duluth, and gain awareness of local jobs that help build climate resilience <input type="checkbox"/> Identify and highlight existing jobs at the City and in Duluth that currently do or could contribute to climate change mitigation and resilience <input type="checkbox"/> Support career pathway training programs that will ensure Duluth has the workforce it needs to mitigate climate change and build resilience <input type="checkbox"/> Ensure funding resources include support for workforce development tied to climate action 	
	4.8 Plan and prepare to grow the city equitably and sustainably in consideration of future climate migration		
	<ul style="list-style-type: none"> <input type="checkbox"/> Lead a collaborative partnership of community and business stakeholders to attract workers interested in Duluth as a climate resilient home 		

5. Shovel-ready projects

Over the next several years, federal and state funding for infrastructure and climate projects is expected to increase significantly, bringing much needed relief to cities across the country. Duluth is in a good position to receive funding to several critical projects. To prepare for and make the best use of this funding, these key projects should be made “shovel-ready” to the extent feasible. The following projects have been identified as priorities for addressing climate mitigation and community resilience.

- ❑ Renewable energy projects:
 - Partner with Minnesota Power on the 1.6 MW solar array on Riley Road
 - Identify additional City-owned and brownfield sites that are suitable for solar
- ❑ Complete efficiency upgrades at Duluth Energy System and work to eliminate coal as a fuel source
- ❑ Complete resilience improvements to the city’s water treatment plant
- ❑ Pursue funding for un-awarded Federal funding energy bundle of \$5.8 million for 33 electric vehicle charging stations, 2.4 MW of solar installations, and city lighting efficiency upgrades
- ❑ Find financial pathways to support the *Love your Block* project beyond the pilot stage
- ❑ Complete a Strategic Facilities Plan to prioritize Capital Improvements on City-owned buildings and assets
 - Develop a consolidated public works and maintenance facility for the City. A shared facility would consolidate seven maintenance and facility sites across the City, provide better service, save operating costs, and demonstrate fiscal responsibility.
 - Plan and prioritize energy and sustainability improvement for City-owned buildings (ex: City Hall HVAC renewal, Main Library)
- ❑ Identify project sites and estimate impact and cost of priority stormwater resiliency projects to reduce runoff volume and improve water quality in priority watersheds and neighborhoods.
- ❑ Support Community Partners to take climate action:
 - Support Duluth Public School System to pursue solar on schools
 - Encourage further electric bus adoption within the Duluth Transit Authority
 - Partner with organizations on projects related to the [Duluth Citizens Climate Action Plan](#)



6. Execute the Work Plan

Successful implementation of this work plan will require a coordinated effort and leadership from internal staff and elected officials, robust external collaboration and engagement, and a process to define clear pathways to accelerate climate efforts over the next 25 years.

A critical element of success is to obtain the necessary funding and financing mechanisms for climate action. The City will need to determine how it can most effectively re-orient and future-proof existing investments to reduce emissions and increase resilience. Additional financing mechanisms will need to be explored to fill in funding gaps, allowing the City to meet basic capital investments and move the needle on climate. A complete review of funding options is included in the Appendix.

The following outlines elements needed to implement this 5-year plan and prepare for the next phase.

Internal coordination and leadership

1. Determine an appropriate internal team structure that will most effectively advance the work plan (e.g., maintain C-SAT, form work groups, executive team, etc.)
2. Identify key staff from various departments to lead key sections of the work plan
3. Track and share progress with elected officials and public, annually

Prepare for Phase II:

1. Establish a sustainable Duluth task force to engage community members on plan implementation and the development of Phase II mitigation and resilience programs
2. Begin a process to design a program/s to decarbonize buildings and transportation
 - Identify scope and targets
 - Determine a program budget
 - Develop a finance plan
 - Collaborate with service providers to develop and deliver program



Phase II: Accelerate climate action

Phase I of this plan is intended to prepare the city for accelerated climate action in the coming decades. City staff will work to reduce emissions from operations and strengthen the resilience of city assets and vulnerable populations. Policies and regulations will be reviewed to eliminate any unintentional barriers to climate action, while also identifying opportunities to improve or expand policies to enable and encourage climate action. Phase II recognizes the need for accelerated action to curb emissions and continue to strengthen built and natural infrastructure, as well as social cohesion.

1. Climate-integrated infrastructure

- Implement a plan to address natural and built infrastructure vulnerabilities and strengthen community resilience
- Design and implement transportation and land use policies to enhance transit resiliency and prepare for disruptions
- Implement the stormwater management plan developed in Phase I

2. Community decarbonization (Strategy 9)

- Assess economically-feasible, clean energy alternatives to natural gas through partnerships with the electric utility and Comfort Systems
- Collaborate with local, county, and state partners to develop an integrated approach to decarbonizing residential and commercial buildings, and transportation through efficiency and electrification:
 - Prioritize households with high or severe energy burden
 - Promote existing and future incentives and low-cost financing to bring down costs
- Develop a roadmap to offset or capture and store greenhouse gas emissions
 - Determine an internal cost of carbon that would be applied to future city projects
 - Assess carbon sequestration opportunities that provide co-benefits to the city and community (e.g., tree planting, forest health, food gardens, and the use of biochar in soil)

3. Support community-centered projects

- Enhance culturally-specific community engagement efforts to support resilient neighborhoods
 - Support communities with funding or technical assistance to implement locally-designed sustainability and resilience actions
 - Collaborate with local partners and community-based organizations to promote and expand existing climate and energy programs

Appendix

Funding climate action strategies memo attached.

Funding Climate Action Strategies

A Memo of options by Common Spark Consulting

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Introduction

The following memo is intended to provide a starting point for the City of Duluth to find funding solutions for its climate actions. Below outlines financing and funding options that are suited for different types of climate action strategies.

The ultimate suite of optimal solutions will depend on specifics of the climate strategies, political opportunities and limitations, and resources to implement and manage any solutions.

Public Capital

Future-Proof and Re-Orient Existing Investments

The City of Duluth currently has a capital improvements budget of \$55.68 million (total).¹ The intent of these funds is in part determined by bond obligations or other specifications in its authorization. To the extent possible, starting with the largest capital expenditures, all investments should be evaluated and re-oriented to ensure they serve the City's climate policy goals. Some projects, under this evaluation, may require larger budgets, for say, more efficient equipment or a retrofit away from fossil fuels.

Supplemental budget or an adjustment to the scope of a project (e.g., deferring one part to allocate additional funding to a highly cost-effective retrofit when replacement equipment is required) may be necessary. Policy should support any new capital budgets to align with and advance climate initiatives.

Seed a Revolving Loan Fund

To support additional capital project needs, a revolving loan fund could be seeded by the City, providing an on-going source of capital if funded properly. Such a fund would support projects with projected cost savings, such as energy efficiency projects or where other fuel costs can be reduced. Ideally, under an energy performance contract (working with a third party to manage energy use for savings), the fund will be replenished, and funds can be used for additional projects. Aggressive loan funds will count future reduced operations and maintenance, energy savings, insurance savings, and even certain non-energy benefits in the cost-savings analysis to determine project eligibility, however tangible financial savings are required to replenish the fund.

In 2018, the City of Montpelier, VT created a revolving loan fund to finance municipal energy efficiency and renewable energy investments. The city provided \$20,000 from its Reserve Fund as the initial seed money for their Net Zero Revolving Loan Fund, with a \$10,000 match from their partners with Efficiency Vermont.² Through the Net Zero Revolving Loan Fund, the city tracks savings from sustainability projects and reinvests part of those savings for subsequent projects and pay marginal costs of energy improvements within larger capital projects.

¹ <https://duluthmn.gov/media/10830/2021-capital-book.pdf>

² <https://www.vtenergydashboard.org/stories/montpelier-launches-revolving-loan-fund-for-energy-saving-projects>

Expand City Borrowing with Green Bonds, Climate Bonds, or Resiliency Bonds

Though green bonds are sometimes referred to as climate bonds or climate resilience bonds, these terms are not always synonymous. A Green Bond³ is a type of fixed-income instrument that is specifically earmarked to raise money for climate and environmental projects such as energy efficiency, pollution prevention, or sustainable water management. DC Water, with institutional investors Goldman Sachs Urban Investment Group and Calvert Foundation, issued a tax-exempt Environmental Impact Bond in 2015. This EIB utilizes a “Pay for Success” model, a performance-based contract between a public entity and the private sector where payment is based on performance of Green Infrastructure projects funded.⁴⁵ The success of this program then led to an expansion of their green bonds program in 2015 and 2016.

Climate bonds⁶, though often conflated with green bonds, are use-of-proceeds bonds, where the issuer promise to the investors that all the raised funds will only go to specified climate-related adaptation or mitigation programs and assets.⁷ In December 2020, Quantified Ventures⁸, in partnership with the Chesapeake Bay Foundation, provided the City of Hampton, VA with a \$12 million bond to mitigate chronic flooding in the city.⁹ The bond is attached to three projects that will, in theory, add storage capacity to alleviate volume of stormwater in low- to moderate income communities.

Resiliency bonds (also referred to as resilience bonds) represent the integration of catastrophe bonds and social impact bonds that link insurance premiums to resilience projects, thereby creating a rebate structure that funds risk reduction.¹⁰ These bonds create incentives for cities to invest in resilience, reducing human and financial costs of catastrophes as a result. The RE.invest initiative has partnered with a number of cities, such as the City of Norfolk, VA¹¹ on a range of infrastructure projects to provide flood protection, using catastrophe modeling to estimate risk reduction for bond issuance.¹²

³ <https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Green-Bond-Principles-June-2021-140621.pdf>

⁴ https://www.epa.gov/sites/default/files/2017-04/documents/dc_waters_environmental_impact_bond_a_first_of_its_kind_final2.pdf

⁵ <https://www.climatebonds.net/files/files/Green%20City%20Playbook.pdf>

⁶ There are several inconsistencies from entities on whether there is a distinct difference between green bonds and climate bonds, or whether these terms are synonymous. The Climate Bonds Initiative, however, states that green bonds tend to be specifically issued as a “green” project, while climate bonds apply a broader context to “climate-themed” projects, such as and may not be officially labelled as “green” (though they have green impacts). To complicate matters, UNEP defines the difference based on green bonds raising finance for an environmental project, while climate bonds specifically raise finance for investments in climate change adaptation.

⁷ [https://www.climatebonds.net/resources/understanding#:~:text=Climate%20bonds%20are%20fixed%2Dincome,mitigation%20or%20adaptation%20related%20projects](https://www.climatebonds.net/resources/understanding#:~:text=Climate%20bonds%20are%20fixed%2Dincome,mitigation%20or%20adaptation%20related%20projects;); <https://climatetrust.org/climate-bonds-overview/>

⁸ Quantified Ventures also has engaged in projects with DC Water and Baltimore Public Works on Infrastructure Projects.

⁹ <https://www.quantifiedventures.com/hampton-eib>

¹⁰ <https://journals.openedition.org/factsreports/4910>

¹¹ <https://www.norfolk.gov/DocumentCenter/View/3977/FUGRO-City-WideFloodStudy?bidId=>

¹² <https://www.refocuspartners.com/wp-content/uploads/2017/02/RE.bound-Program-Report-December-2015.pdf>

Taxes

Use General Taxing and Fee Powers to Grow Budget

The City has existing taxation powers: annually, the City's sales and use tax brings in \$14 million.¹³ Ideally, a tax could be adjusted to levy additional costs on undesired activities or consumption and funds raised can be reinvested in policy objectives. The City of Portland, for example, has a specific retail tax on larger retailers without headquarters in Portland.¹⁴

Enhance Stormwater Fees and Expand Program

Depending on tax powers of the City, a separate tax or fee could be levied on specific uses. Duluth already does this to some extent with its stormwater fees. The level of fees could be adjusted, or a temporary fee added, to fund additional climate actions. This may involve a more aggressive application for state stormwater permits and fee collection capability.

Exercise an Excise Tax on Fuel

Similarly, while a carbon tax may not be politically feasible, with the right support, a fuel tax can also help raise funds for climate actions. Montgomery County has used its excise taxing power to raise a fuel tax on any person or entity transmitting or distributing energy into the County, including delivered fuels and electricity.¹⁵ This tax is levied on energy providers and is passed onto consumers, providing additional incentive to reduce energy use and enhance energy savings potential of projects. While the County currently uses this funding for the General Fund (accounts for over 4% of revenue annually), a pending bill would use a small but significant portion of it towards climate actions.

Utilities and Rates

Convert the utility to a Distributed Energy Services Utility

This would expand the purview of the utility beyond providing energy via gas and allow the utility to consider investment in alternatives using the rate base to help raise funds. For example, if the City were to set a sunset date for certain gas delivery or purchasing, it could begin planning for, say, a geothermal or heat pump hybrid solution (applicable for district heating).¹⁶ Over time, rates could be designed such to reduce gas purchases and investments in infrastructure (avoid unrecoverable/stranded costs and asset building), diverting those funds to a future alternative energy resources, and also, rates could be increased for such future investments.

¹³ <https://duluthmn.gov/media/9899/2020-budget-book-online-version.pdf>

¹⁴ <https://www.portlandoregon.gov/citycode/article/765070>

¹⁵ <https://www.montgomerycountymd.gov/finance/taxes/excise.html>

¹⁶ See MA HEET GeoGrid/Eversource Gas's pilot. <https://heet.org/2020/01/03/eversource-plans-three-geothermal-pilots/> (public statement from HEET); <https://www.eversource.com/content/ema-c/business/save-money-energy/explore-alternatives/geothermal-pilot-program> (Eversource link)

Create a carbon market to leverage natural gas investments for alternative energy (divestment/investment)

A carbon market made functional by leveraging essentially a carbon tax (or see fuel tax above), when applied to the City's own utility would add a cost to the gas delivery/consumption and allocate those costs to a fund for climate action. Such a tax could also be applicable across other City energy consumption (buildings and transportation) for similar purposes, or extended to a subset of private consumers, say industry or other high uses. British Columbia is launching such a tax that also provides for dedicated taxes for certain uses; a municipality could foreseeably add its own dedicated tax.¹⁷

Private Capital for Community Action

Guide Private Investment in the Community

Every year, residents and business owners in the City invest in buildings, transportation, and other projects that can improve city resiliency. Policy that applies pressure via rebates or fees, or outright requirements, can help ensure all those investments are oriented to meet climate objectives and not produce stranded assets and costs.

- Some municipalities have instituted point-of-sale requirements requiring energy assessments, water conserving devices, or other infrastructure upgrades. Requiring the seller or buyer to make such changes and using a transfer tax as a pool for funds to rebate or return upon completion of requirements, can both mandate and support such upgrades in the private sector. Austin, Texas has an Energy Conservation and Audit Disclosure ordinance requiring an assessment be completed and reported for all homes and buildings within Austin Energy territory.¹⁸
- Others provide non-financial incentives such as additional density or lowered development fees for new construction. Arlington, VA's "Green Building Density Incentive Program" allows development project teams to request additional density and/or height in exchange for green building certification and ENERGY STAR certification.¹⁹
- Energy and water benchmarking policies can help provide a foundation for a performance requirement. Development and management of such programs should be supported through required participation fees, if possible.

Facilitate Private Investment for Community Projects

Property Assessed Clean Energy (PACE) programs allow a municipality to lend its tax collection enforcement power to a public funder, giving them additional assurance when lending for a specified purpose or investment. PACE has been used for energy upgrades in buildings, but also transportation upgrades, and resiliency investments. PACE for Commercial entities is a more straightforward program; residential programs come with additional challenges due to lien priority and secondary mortgage market. Minnesota PACE Financing (MinnPACE) partners with commercial building owners to establish projects to reduce energy costs. MinnPACE covers 100 percent of upfront project costs, instituting a

¹⁷ <https://www2.gov.bc.ca/gov/content/taxes/sales-taxes/motor-fuel-carbon-tax>

¹⁸ An ACEEE report outlines these policies and case studies: <https://www.aceee.org/sites/default/files/pdf/topic-home-energy-assessment.pdf>

¹⁹ <https://www.arlingtonva.us/Government/Programs/Sustainability-and-Environment/Energy/Green-Building/Green-Building-Density-Incentive-Program>

structure of repayments through special property tax assessments.²⁰ Further, the latest draft of the City of Columbus Climate Action Plan also proclaims the city will receive \$250 million in average annual PACE investments to support its plan's goals, and to establish a green bank by 2025.²¹

Additional non-financial public-private partnerships may also support community-based projects. In the case of the City of Ithaca, a partnership with BlocPower, a Brooklyn-based climate tech startup, will support the installation of air source heat pumps, and energy efficiency upgrades. These upgrades, in turn will potentially reduce Ithaca's carbon emissions by 40%, create 400 new green economy jobs, and provide low-cost loans to building owners.²²

Create an Energy Improvement District

The City of Bridgeport, Connecticut established an Energy Improvement District (EID) to promote the planning, development, and funding of energy-related development.²³ The EID is operated under a Board with bonding authority, providing a revenue option for specified public purpose projects. Such a district and bonding authority could be created for specific climate action activities, particularly those projects that align with bonded capital, i.e., infrastructure or revenue-generating projects.

Establish or Support Establishment of a Green Bank (or similar entity)

If a substantial set of funding is available, either through a new revenue source or a one-time windfall, the City could establish or support the State in establishing a green bank to facilitate greater private investment in its policy goals. A green bank refers to an entity or operation that uses limited public funding to partner with and leverage private investment. Using an initial seed allocation of funding to start the green bank's operations and investment, the green bank can use financing strategies such as co-lending, loan loss guarantees, rate buydowns, and its own marketing and technical assistance to accelerate investment in clean energy for both public and private facilities. Green banks help fund improvements in buildings and transportation, as well as other resiliency measures such as flood prevention, essentially anything that could be categorized as a public benefit in the legislation. Green banks can come in various forms from a department within the state or municipality, or a separate nonprofit.²⁴

In 2021, the City of Ann Arbor²⁵ passed their Climate Action Plan which intends to create a \$1 million loan loss reserve fund to provide credit enhancements for residents with lower credit scores and expand capacities to undertake energy efficiency and renewable energy improvements to low-income residents.

²⁰ <https://www.minnpace.com/>

²¹ <https://www.columbus.gov/sustainable/cap/>

²² <https://www.blocpower.io/press-release/ithaca-ny-selects-blocpower-to-green-entire-city-first-large-scale-city-electrification-initiative-in-the-u-s>

²³

https://library.municode.com/ct/bridgeport/codes/code_of_ordinances?nodeId=TIT13PUSE_CH13.10THBRENIMDIE_NIMDIBO

²⁴ For more information on starting a green bank, visit <https://coalitionforgreencapital.com>.

²⁵

<https://www.a2gov.org/departments/sustainability/Documents/A2Zero%20Climate%20Action%20Plan%203.0.pdf>

Federal Funding

Pursue funding from the Bipartisan Infrastructure Deal

The recent approval of The Bipartisan Infrastructure Deal aims to invest in funding several highly effective state and local programs that will support energy efficiency and clean energy projects. Specifically, the State Energy Program has a budget of \$500 million to provide grants to communities, cities, states, U.S. territories, and Indian tribes that are implementing clean energy programs and projects. The Minnesota Department of Commerce serves as the state's recipient energy office and will likely administer the funds. The City should look at this funding as possibly the most flexible funding available to supplement any gaps in funding or seed funding needs in this memo.

Leverage Building Back Better Funding

Pending U.S. Senate passage (as of 12/9/2021), the Build Back Better bill includes significant investment in climate change mitigation and adaptation. Included in the bill are incentives for renewable energy installations and manufacturing, electric vehicle infrastructure, and home energy efficiency. The bill also includes funding to support green banks across the nation. To the extent possible, the city should begin identifying how it may access these resources, either via the State Energy Office (Department of Commerce), or other recipient agencies. For example, to take advantage of the green bank funding, it may be advantageous to begin that work in earnest, as resources will initially go to those poised and ready to use funds. The city may also want to consider strategic partnerships for any direct funding applications, which can be particularly onerous to apply for and administer.

About Common Spark Consulting

Common Spark Consulting is a mission-based, woman- and minority-owned, independent firm that recognizes that **everyone has a stake in and something to contribute to a healthier and cleaner future.** We believe successful progress requires us to find the Common Spark that ignites our best work and brings diverse interests together to meet a common objective. We combine technical and policy expertise, deep experience in stakeholder engagement, and a knack for developing strategic partnerships. Common Spark responds to policy and organizational needs with inclusive planning, thoughtful execution, and uncommon quality. Visit us at <http://www.common-spark.com>

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