



2026



CITY OF
THORNTON

ENVIRONMENTAL SUSTAINABILITY MASTER PLAN





THORNTON

EXECUTIVE SUMMARY



Thornton’s Environmental Sustainability Master Plan (ESMP) is a long-term roadmap for protecting community health, conserving resources, and maintaining a high quality of life as the City grows and adapts to a changing climate. This plan outlines practical, achievable steps Thornton can take to reduce environmental impacts, strengthen resilience to extreme heat and weather, and ensure that sustainability benefits reach all neighborhoods.

Thornton is already experiencing climate-related challenges, including hotter summers, increasing pressure on water supplies, and rising energy and transportation costs. At the same time, the City continues to evolve and expand. The ESMP provides a framework for responding to these realities by integrating sustainability into how Thornton plans, builds, moves, and manages resources, while remaining flexible as conditions, technologies, and funding opportunities change.



WHAT THIS PLAN DOES

The ESMP translates long-term sustainability goals into clear, implementable actions. Rather than addressing issues in isolation, this plan takes a systems-based approach that recognizes how energy use, transportation, land use, natural systems, and resource management are interconnected.

The plan identifies:

- **Goals** that define desired long-term outcomes
- **Strategies and actions** that are realistic and actionable
- **Roles and responsibilities** to support accountability
- **Progress metrics** to track results over time
- **Relative cost estimates** to help guide prioritization

This plan is intended to be a living framework. It will be reviewed and updated regularly to reflect new data, community input, and evolving priorities.

FIVE FOCUS AREAS

The ESMP is organized around five focus areas that reflect key aspects of daily life in Thornton:

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MAINTAINING THE ESMP

This focus area establishes the foundation for success. It includes regular plan review, performance tracking, coordination across City functions, and transparent communication with City Council, the Environmental Sustainability Task Force, and the community.



BUILDINGS AND ENERGY SYSTEMS

Homes, businesses, and City facilities account for a significant share of energy use and emissions. This section focuses on improving energy efficiency, supporting electrification, expanding access to renewable energy, and leveraging utility and state programs to reduce costs for residents and businesses.



NATURAL SYSTEMS, COMMUNITY, AND ENVIRONMENTAL PROTECTIONS

Parks, trees, water resources, and open spaces are central to Thornton’s health and livability. This section addresses urban heat, water-wise landscaping, habitat protection, environmental risks, and equitable access to green spaces, while supporting education and stewardship.



SUSTAINABLE TRANSPORTATION, LAND USE, AND INFRASTRUCTURE RESILIENCY

Transportation and land use decisions shape emissions, safety, and access to opportunity. This section prioritizes walking, biking, transit, and cleaner vehicles, while aligning growth and infrastructure investments to create connected and resilient neighborhoods.



MATERIALS, WASTE, AND WATER MANAGEMENT

This section focuses on conserving water, reducing waste, expanding recycling and composting, and planning for long-term resource reliability. Actions emphasize efficiency, prevention, and partnerships with schools, businesses, and regional programs.



EQUITY AND COMMUNITY BENEFITS

Equity and accessibility are core principles of this plan. Many actions are designed to reduce cost burdens, improve access to programs and information, and address environmental conditions that disproportionately affect certain neighborhoods and communities. Clear communication, trusted partnerships, and inclusive program design are emphasized throughout the ESMP.

Beyond environmental benefits, implementation of this plan supports:

- Lower long-term energy and water costs
- Improved public health and safety
- Greater resilience to extreme heat and weather
- Economic competitiveness and workforce opportunities
- A healthier environment for future generations



MOVING FORWARD

The ESMP provides direction, but its success depends on collaboration and follow-through. Implementation will involve City leadership, City staff, the Environmental Sustainability Task Force, regional partners, utilities, businesses, nonprofits, and residents. Progress will be tracked using defined metrics, and priorities will be adjusted over time to reflect what is working and where additional effort is needed.

By advancing this plan, Thornton is taking a proactive and practical approach to sustainability, one that supports responsible growth, protects vital resources, and helps ensure a resilient, healthy future for the entire community.

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ACKNOWLEDGMENTS

ESMP PROJECT TEAM

Emily Hunt, Interim Infrastructure and Utilities Director

Martin Postma, Principal Planner

Robb Kolstad, Deputy City Manager

Patti Ellis, Administrative Specialist

Brett Henry, Assistant City Manager

Tami Yellico, City Attorney

ENVIRONMENTAL SUSTAINABILITY TASK FORCE

Tracy Crespin, Ward 1

Aracely Navarro, Ward 1

Todd Battistelli, Ward 2

Vivian McVey, Ward 2

Barbara Wilson, Ward 3

Erick Flores, Ward 3

Stacy Lambright, Ward 4

Miranda Swanstrom, at-large

CONSULTING TEAM

Rich Swanson, Blue Strike Environmental

Andrea Green, Blue Strike Environmental

Brittany Mahoney, Blue Strike Environmental

Grace Squires, Blue Strike Environmental

Jeffrey Range, CDR Associates

Casey Bries, CDR Associates

OUR SINCERE APPRECIATION

goes to the City of Thornton staff and community members who shared their time, insights, and expertise throughout the development of this Environmental Sustainability Master Plan. We are grateful to the City team, partner organizations, and contributors whose data, perspectives, and collaboration helped guide and strengthen this plan.



RESOLUTION

A RESOLUTION ADOPTING THE ENVIRONMENTAL SUSTAINABILITY PLAN FOR THE CITY OF THORNTON.

WHEREAS, the City has a long-standing commitment to environmental protection and resource stewardship, as demonstrated by existing City plans, programs, and operations; and

WHEREAS, the Thornton community is experiencing environmental pressures and climate-related challenges, including air and water pollution, warmer year-round temperatures, increasing pressure on water supplies, and rising energy and transportation costs; and

WHEREAS, City Council established the Environmental Sustainability Task Force (Task Force) in 2024 to guide the drafting of Thornton’s first Environmental Sustainability Master Plan and to review and recommend updates to other plans and policies for the purpose of advancing environmental sustainability throughout the City; and

WHEREAS, the Environmental Sustainability Master Plan (Plan) was developed with extensive input and guidance from the Task Force as well as robust community and stakeholder feedback; and

WHEREAS, the Plan provides a roadmap for action, identifies long-term sustainability goals for the City, and translates the goals into achievable actions to reduce adverse environmental impacts, strengthen resilience to climate change, and ensure that sustainability benefits reach all neighborhoods in the City; and

WHEREAS, the Plan aligns with and complements existing City plans, programs, and operations, including the City’s Comprehensive Plan and Strategic Plan; and

WHEREAS, residents are essential partners in creating a sustainability ethic within the community; and

WHEREAS, to supplement the strategies outlined in the Plan, City Council directs staff to develop and promote everyday actions that residents can take to advance the community’s sustainability goals and foster a community-wide sustainability ethic; and

WHEREAS, the Task Force recommends the adoption of the Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF THORNTON, COLORADO, AS FOLLOWS:

The Environmental Sustainability Master Plan for the City of Thornton, attached as Exhibit A, is hereby adopted and City staff is directed to continue public engagement and to develop and promote actions that residents can take to advance the goals of the plan as adopted.

PASSED AND ADOPTED at a regular meeting of the City Council of the City of Thornton, Colorado, on March 31, 2026.

CITY OF THORNTON, COLORADO

DocuSigned by:
Jan Kulmann
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Jan Kulmann, Mayor

ATTEST:

Signed by:

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Kristen N. Long, City Clerk





LETTER

FROM THE ENVIRONMENTAL SUSTAINABILITY TASK FORCE

The Thornton Environmental Sustainability Task Force is honored to present the 2026 Thornton Environmental Sustainability Master Plan. Approval of this Plan marks a defining moment in Thornton’s 70-year history and reflects the community’s growing commitment to building a resilient, forward-thinking, and sustainable future.

Thornton, like communities across Colorado, is already experiencing noticeable effects of climate change through declining snowpack, record-breaking heat, and increasingly intense rainfall events, underscoring the urgency of coordinated and sustained action. While these and other environmental pressures are felt city-wide, their impacts are not felt uniformly across all communities and neighborhoods in the city. Consequently, the following recommendations are grounded in principles of environmental justice and are intended to advance equitable outcomes for residents who have historically borne disproportionate environmental and economic burdens.

While the Plan builds upon the 2020 Thornton Sustainability Action Agenda as well as other meaningful environmental efforts implemented throughout the City’s operations, it is also transformative. It establishes a clear, coordinated course for long-term, measurable progress toward a more resilient Thornton.

Despite its broad reach, the Plan remains grounded in action. Its detailed action items clearly outline what must be done to reduce emissions and manage energy demand effectively, ensuring that all Thornton residents—including those most vulnerable to climate and cost impacts—benefit from a healthier, more resilient community. Furthermore, each action item is aligned with the Thornton Strategic Plan as well as a lead department, assuring accountability and a clear path from vision to implementation.



LETTER

FROM THE ENVIRONMENTAL SUSTAINABILITY TASK FORCE

As is true for all planning documents, the ability to evolve over the course of time is vital. This Plan is to be reviewed, assessed, and modified over time, adapting to new technologies, processes, concerns, research, and best practices. Adaptability is the key to ongoing efficacy, and this Plan will flex to meet the needs of a rapidly evolving world.

The Environmental Sustainability Master Plan is much more than a vision for a cleaner and greener community—it is a call to action. It invites City leadership, staff, residents, and partners to work together in shaping a healthier, more vibrant, and more resilient Thornton. As members of the Environmental Sustainability Task Force and residents of the community, we are honored to present this Plan and recommend its adoption. We look forward with optimism to the positive impact it will have for generations to come.

Sincerely,

Tracy Crespin
Ward 1

Aracely Navarro
Ward 1

Todd Battistelli
Ward 2

Vivian McVey
Ward 2

Barbara Wilson
Ward 3

Erick Flores
Ward 3

Stacy Lambright
Ward 4

Miranda Swanstrom
at-large



THORNTON

OUR COMMUNITY AND CLIMATE CHANGE



THORNTON TODAY

The City of Thornton is a growing, diverse, and dynamic community in the northern Denver metro area, shaped by its people, landscapes, and long-standing commitment to quality of life. As one of Colorado's fastest growing cities, Thornton has evolved from a post-war suburban community into a vibrant City with more than 150,000 residents who represent a wide range of cultures, ages, and lived experiences. This growth brings new opportunities to strengthen community identity, expand local amenities, and plan for a future that supports all residents.

The City's location along the Front Range provides unique environmental and recreational assets, including mountain views, access to open space, and an extensive system of parks and trails within neighborhoods across the City. These features, combined with excellent schools, community programming, and a growing business community, make Thornton a place where families choose to put down roots. At the same time, rapid growth requires thoughtful planning to steward natural resources, maintain infrastructure, support housing affordability, and ensure that all residents have access to clean air, safe streets, and resilient public services.

Residents are central to the City's identity. Thornton is home to long-time Coloradans, new arrivals, multigenerational families, and communities that speak many languages and contribute to a rich cultural fabric. This diversity strengthens the community and underscores the importance of planning efforts that are inclusive, forward looking, and responsive to community needs. As the City prepares for the decades ahead, understanding its people, places, and shared values provides the foundation for meaningful sustainability and climate action.

CLIMATE CHANGE IN THE FRONT RANGE

Climate change is already reshaping environmental conditions across Colorado, and communities along the Front Range are experiencing some of the most visible and immediate impacts. Rising temperatures, more frequent extreme weather events, and declining air quality are affecting daily life for residents and creating new challenges for local infrastructure, natural systems, and public health. These trends are projected to intensify over the coming decades, which makes proactive local planning essential.

The Front Range is experiencing hotter and longer summers, more extreme heat days, and warmer nights that reduce opportunities for buildings, people, and ecosystems to cool. These temperature increases contribute to higher energy demand, greater strain on the regional electricity grid, and elevated risks for heat related illnesses, especially for children, older adults, outdoor workers, and residents without access to affordable cooling. Thornton has also seen growing impacts from regional wildfires. Even when fires occur far from the City, smoke settles along the Front Range and creates prolonged periods of poor air quality that adversely affect respiratory health and limit outdoor activities.



Drought and water scarcity remain defining climate concerns for Colorado. Although the City has invested in a diverse water portfolio and long-term planning, the entire region faces increasing pressure on water supplies due to hotter temperatures, variable snowpack, and changes in runoff timing. These changes influence regional water availability and can create stress on landscaping, parks, and natural areas. Thornton may also experience more intense rainfall events that can overwhelm local drainage systems and cause localized flooding in low lying streets, parks, and underpasses.

The Thornton community faces direct wildfire risks, and climate change is increasing the likelihood and impacts of related hazards. In addition to the potential for local wildfire, the City can experience wildfire smoke, extreme wind events, drought-driven vegetation stress, and periods of poor air quality that affect public health and daily life. Climate change also interacts with existing community stressors, including health disparities, the cost burden of home energy, and unequal access to cooling, clean air, and reliable mobility options. Recognizing these risks helps the City shape strategies that reduce vulnerability, protect public health, and support a resilient future for all residents.



WHAT IS ENVIRONMENTAL SUSTAINABILITY?

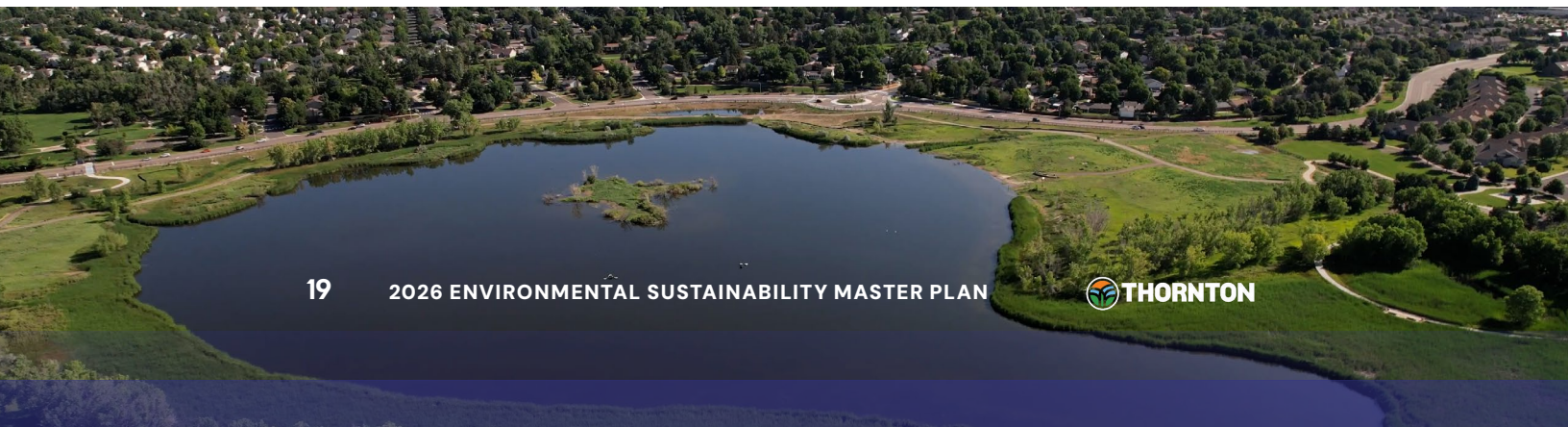
Environmental sustainability means using and managing natural resources in ways that protect the environment, support community wellbeing, and ensure that future generations can thrive in the City of Thornton.

WHY SUSTAINABILITY MATTERS

Sustainability is essential to the long-term health, prosperity, and resilience of the City of Thornton. As the community continues to grow, the City faces rising demand for energy, transportation, housing, water, parks, and municipal services. These needs intersect with changing climate conditions, regional air quality challenges, and the increasing cost of essential resources. A sustainability-focused approach helps the City address these challenges in a coordinated and forward looking way that protects quality of life for current and future residents.

A sustainable future supports daily life for residents by promoting safe, efficient, and comfortable homes, businesses, and public spaces. Improvements in building performance, transportation choices, and energy use help reduce household costs, improve indoor and outdoor air quality, and support healthier living environments. These efforts also strengthen the community's ability to withstand climate-related risks such as extreme heat, poor air quality, drought, and heavy rainfall. Investments in green infrastructure, water conservation, tree canopy, and natural systems provide cooling, improve stormwater management, and support public health.

Sustainability is also an economic priority for the City. Energy efficient buildings, renewable energy systems, modern infrastructure, and resilient municipal operations help reduce long-term operating costs for residents, businesses, and the City itself. Businesses benefit from predictable utility costs, reliable infrastructure, and a community that values environmental stewardship. These conditions help attract new investment and support a skilled workforce. A strong sustainability foundation positions the City to pursue state and federal funding opportunities and to align with regional efforts led by partners such as DRCOG, Xcel Energy, and state agencies.



Equity and accessibility are central to sustainability in Thornton. Many residents face disproportionate impacts from climate change and pollution due to factors such as housing conditions, health vulnerabilities, or limited access to transportation or cooling. A sustainability-focused approach ensures that benefits such as energy cost savings, improved air quality, and safer mobility options are shared across all neighborhoods. This approach also reinforces the City's commitment to community engagement and to programs that are inclusive, language accessible, and responsive to the needs of Thornton's diverse population.

ENVIRONMENTAL JUSTICE AND EQUITY

Environmental conditions and community well-being are closely linked. Factors such as air quality, access to green space, building efficiency, transportation options, and exposure to extreme heat or flooding affect residents differently depending on where they live, work, and spend time. National and regional data consistently show that negative environmental impacts are more often and more intensely experienced by communities of color, reflecting longstanding patterns in land use, infrastructure investment, and development.

This plan is designed to improve environmental conditions citywide while recognizing that these uneven impacts exist and influence public health, infrastructure performance, and the long-term effectiveness of environmental investments. Addressing these realities is not separate from environmental sustainability—it is essential to achieving durable, cost-effective, and widely supported outcomes. Strategies that reduce emissions, improve resilience, and protect natural resources are most successful when they respond to local conditions and ensure that benefits are broadly accessible.



Accordingly, this plan incorporates actions that prioritize efficient use of public funds, reduce exposure to environmental risks, and expand access to the benefits of sustainability initiatives. This includes focusing investments where they can deliver the greatest combined environmental and community benefit, supporting participation by a wide range of residents and partners, and designing programs that are practical, inclusive, and implementable over the long term.

By integrating these considerations throughout, this plan advances environmental goals in a way that strengthens community trust, supports public health, and positions the City to respond effectively to current and future environmental challenges. A detailed list of justice and equity considerations have been provided in the Implementation Plan, found in Appendix E.

BUILDING ON ONGOING WORK

The ESMP builds on the City's existing sustainability efforts, including water conservation programs, energy efficiency upgrades, transportation planning, hazard mitigation, and natural resource protection. These ongoing initiatives provide a strong foundation, and the ESMP brings them together into one coordinated framework that supports long term progress.

PURPOSE OF THE PLAN

The ESMP provides a coordinated and long-term framework for how the City of Thornton will reduce environmental impacts, strengthen community resilience, and support a healthier and more sustainable future. The plan describes the City's intentions to address climate change, conserve natural resources, and improve quality of life for all residents. It also establishes clear goals, strategies, and implementation steps that guide City staff, elected officials, and community partners as they make decisions about programs, investments, and services.

The ESMP serves as a unifying document that brings together sustainability-related policies and actions that already exist across the City's departments and planning efforts. Many of Thornton's current plans include sustainability elements such as water conservation, transportation improvements, energy efficiency, housing, parks and open space, and hazard mitigation. The ESMP integrates these efforts into one comprehensive framework so that the City can coordinate priorities, avoid duplication, and ensure consistent progress toward shared goals. This alignment also positions the City to pursue future state, regional, and federal funding opportunities.

The plan also provides the structure needed to meet the City's greenhouse gas reduction targets and to address the climate related risks facing the community. It outlines strategies that help reduce emissions from buildings, transportation, waste, and municipal operations, and it identifies actions that improve resilience to extreme heat, declining air quality, and other climate related hazards. The ESMP includes an implementation plan that identifies lead departments, key performance indicators, funding pathways, and timelines to support effective and efficient execution.



The ESMP is intended to be a practical tool for City staff and the community, and a decision-making guide for elected officials. For staff, the plan provides guidance for project planning, budgeting, policy development, and interdepartmental coordination. For residents, businesses, and local organizations, the plan offers a clear understanding of the City’s sustainability priorities and provides opportunities to participate in programs, partnerships, and community based actions. As conditions evolve and new opportunities emerge, the ESMP can be updated to reflect progress and to ensure that the City continues to move toward a sustainable and resilient future.

QUICK ESMP USER’S GUIDE

FOR CITY STAFF

- Use the ESMP to guide project planning, budgeting, and long-term decision making.
- Refer to the goals, strategies, and implementation tables when developing programs or capital projects.
- Align departmental work plans with ESMP priorities to ensure coordinated progress.
- Use the plan as a reference for grant applications and regional partnerships.
- Track performance measures and contribute to annual progress updates.

FOR THE COMMUNITY

- Learn about the City’s sustainability goals and the steps planned to reduce emissions and protect natural resources.
- Explore programs, incentives, and opportunities to participate in sustainability and resilience initiatives.
- Understand how local actions in homes, neighborhoods, and businesses support the City’s long-term vision.
- Follow progress over time through updates, reports, and community engagement events.
- Use the plan as a resource for learning, volunteering, or advocating for sustainability in Thornton.

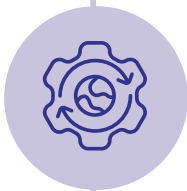
A PATH FORWARD

The ESMP outlines how the City of Thornton will build a healthier, more resilient, and more sustainable future. This vision supports the City's goals for strong neighborhoods, reliable services, and a high quality of life while preparing for environmental changes that affect residents and local infrastructure.

A sustainable future for the City includes buildings that use less energy and water, transportation options that reduce reliance on fossil fuels, and public spaces that are safe, shaded, and well connected. Improvements in energy efficiency, mobility, natural systems, and resource conservation work together to reduce emissions and increase resilience to extreme heat, poor air quality, and heavy rainfall.

Responsible resource management is a core part of the City's path forward. Reducing landfill waste, improving recycling and composting access, and protecting water supplies help maintain essential services and reduce long-term costs. Municipal operations will continue to lead by example through efficient facilities, reduced energy and water use, and thoughtful management of City assets.

Equity and community participation guide this vision. A sustainable future must benefit all residents, including those who face higher energy burdens, health risks, or barriers to transportation or cooling. Progress depends on collaboration among residents, businesses, regional partners, and community organizations. Through coordinated action and ongoing engagement, the City can move confidently toward a more sustainable and resilient future.



ESMP DEVELOPMENT

This Plan was developed through a structured, year-long process that combined technical analysis, community engagement, and guidance from City staff and the Environmental Sustainability Task Force. The process ensured that the final plan reflects both community priorities and the City's long-term sustainability goals.

BASELINE ASSESSMENT.

The process began with a review of existing City plans, policies, and programs that already include sustainability elements. This phase also included the development of a comprehensive greenhouse gas inventory to establish a clear understanding of current emissions. Early Task Force meetings helped identify initial priorities and opportunities that informed subsequent phases.

COMMUNITY ENGAGEMENT.

Engagement activities were carried out throughout the year to understand community needs, concerns, and ideas. These activities included surveys, workshops, pop up events, focus groups, online feedback tools, and ongoing Task Force participation. Engagement findings played a major role in shaping goals, identifying barriers, and ensuring the plan is accessible and relevant to residents across the City.

STRATEGY DEVELOPMENT.

During this phase, the City combined community input, ESTF input, staff expertise, and technical data to refine goals, strategies, and actions. The project team and the Task Force developed a prioritization matrix to help evaluate potential measures based on impact, feasibility, cost, and alignment with other City initiatives. City Council updates ensured transparency and consistency with overall City priorities.

FINAL PLAN.

The final phase included preparation of the draft ESMP, development of the Community Engagement Report, and detailed implementation planning. Feedback from residents, staff, and the Task Force was incorporated into the final version, which was then presented to City Council. The completed ESMP provides the City with a clear and coordinated path toward long-term sustainability and resilience.



THORNTON

GREENHOUSE GAS INVENTORIES

HOW DOES THORNTON COMPARE?

Thornton:
8.5 MTCO₂e per person
(2024)

Federal Heights:
4.3 MTCO₂e per capita
(2015)

Boulder:
11.75 MTCO₂e per capita
(2023)

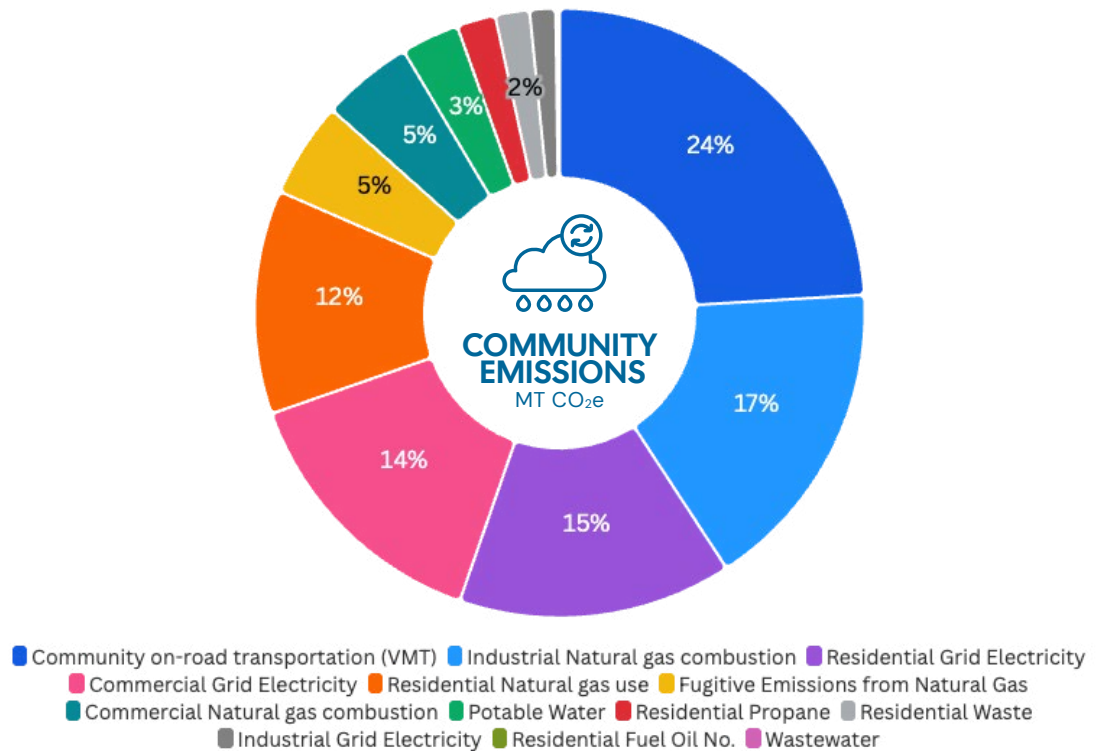
Northglenn:
10.0 MTCO₂e per capita
(2016)

COMMUNITY GREENHOUSE GAS INVENTORY

The community greenhouse gas inventory quantifies emissions generated by activities occurring within the City of Thornton, including energy use in homes and businesses, transportation, waste, water, and other community-wide sources. The 2024 community inventory was completed as part of the ESMP development process and establishes the baseline used to inform emissions projections, reduction targets, and recommended actions through 2050. The full technical inventory report is included as an appendix to this plan.

In 2024, total community-wide greenhouse gas emissions were approximately 1.28 million metric tons of carbon dioxide equivalent (MT CO₂e). When considered alongside population, this equates to roughly 8.5 MT CO₂e per capita. The inventory shows that energy use in buildings and on-road transportation are the dominant sources of emissions in Thornton, together accounting for the majority of community emissions.

Figure 1: Community greenhouse gas emissions by sector (2024)



Buildings, including residential, commercial, and industrial energy use, represent the largest share of community emissions. These emissions are driven primarily by natural gas combustion and grid electricity consumption. Transportation emissions are the next largest contributor and are largely associated with on-road vehicle travel. Waste, wastewater, and potable water-related emissions make up a smaller but still important portion of the community footprint.

Table 1: Thornton Community Inventory 2024

EMISSION SOURCE	SCOPE	EMISSIONS IN MT CO ₂ e
Residential Grid Electricity	Scope 2	186,041
Residential Natural Gas	Scope 1	152,189
Residential Propane	Scope 1	26,346
Residential Fuel Oil No.	Scope 1	1,475
Commercial Grid Electricity	Scope 2	183,478
Commercial Natural Gas Combustion	Scope 1	62,200
Industrial Grid Electricity	Scope 2	17,582
Industrial Natural Gas Combustion	Scope 1	214,389
Community On-Road Transportation (VMT)	Scope 1	307,984
Potable Water	Scope 3	39,437
Residential Waste	Scope 3	23,271
Wastewater	Scope 1	1,239
Fugitive Emissions from Natural Gas	Scope 1	65,027
TOTAL EMISSIONS	-	1,280,638

 **GREENHOUSE
GAS
INVENTORIES**

The community inventory includes emissions across all three greenhouse gas accounting scopes. Scope 1 emissions, which are generated directly within the City boundary, account for the majority of emissions and include natural gas combustion in buildings, on-road transportation, and fugitive emissions from natural gas systems. Scope 2 emissions, associated with purchased grid electricity, represent a significant portion of building-related emissions. Scope 3 emissions, such as solid waste and wastewater treatment, contribute a smaller share but provide important context for the community's overall carbon footprint.

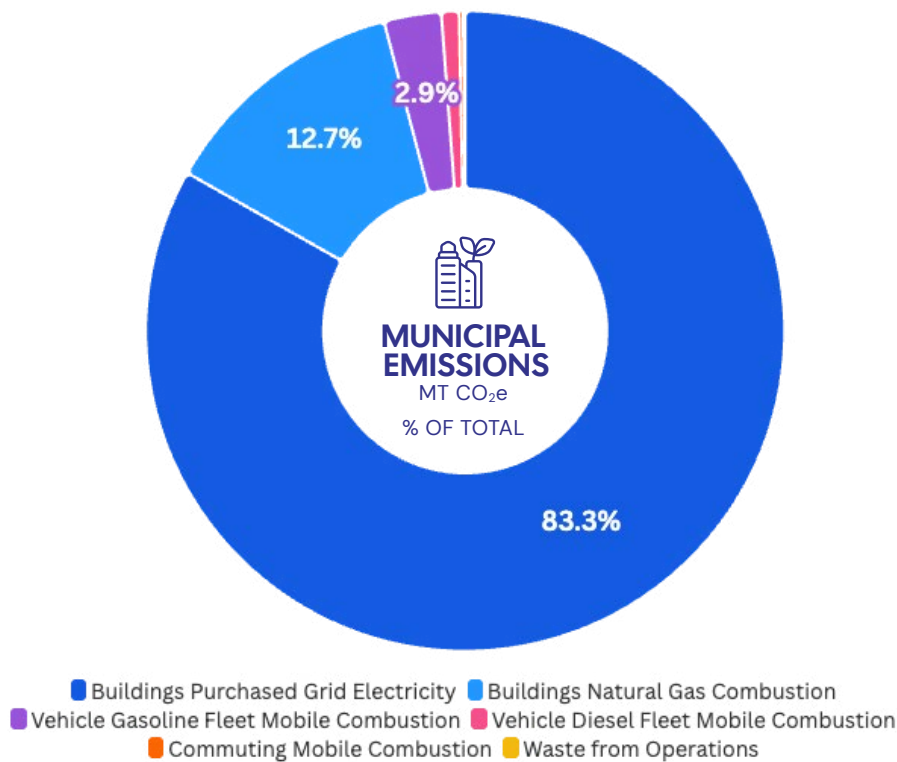
The community greenhouse gas inventory identifies the primary sources of emissions and provides a data-driven foundation for prioritizing actions within the ESMP. By focusing on the sectors that contribute the largest share of emissions, the City can direct resources toward strategies that will deliver the greatest long-term impact and track progress over time.

MUNICIPAL OPERATIONS GREENHOUSE GAS INVENTORY

The municipal operations greenhouse gas inventory quantifies emissions generated by City-owned and City-operated facilities, infrastructure, and activities. This includes energy use in municipal buildings and facilities, streetlights and traffic signals, the City vehicle fleet, employee commuting, and waste from operations. The 2024 municipal inventory was completed as part of the ESMP development process and is fully documented in the inventory report included as an appendix to this plan.

In 2024, greenhouse gas emissions from municipal operations totaled approximately 24,300 MT CO₂e. Municipal emissions represent a relatively small share of overall community emissions but are an important focus area because the City has direct control over these sources and can lead by example through its own operations.

Figure 2: Municipal greenhouse gas emissions by sector (2024)



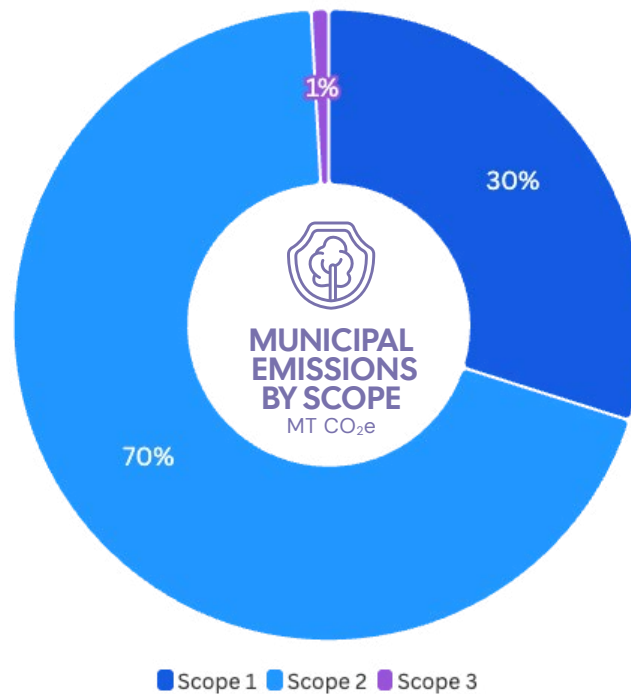
Energy use in municipal buildings and facilities is the largest contributor to municipal emissions. These emissions are driven primarily by purchased grid electricity and natural gas used for heating and building operations. Fuel consumption from the City’s vehicle fleet is the next largest source and includes gasoline and diesel use across a range of municipal services. Emissions from employee commuting and operational waste account for a relatively small portion of the total municipal footprint.

Table 2: Municipal greenhouse gas emissions by scope (2024)

EMISSION SOURCE	SCOPE	EMISSIONS IN MT CO ₂ e
Purchased grid electricity for Buildings and Facilities	Scope 2	16,577
Natural Gas Combustion for Buildings and Facilities	Scope 1	4,083
Grid Electricity for Street Lights and Traffic Signals	Scope 2	331
Fugitive Emissions from natural gas	Scope 1	577
Gasoline Consumed from Vehicle Fleet	Scope 1	2,634
Diesel Consumed from Vehicle Fleet	Scope 1	10
Employee Commute	Scope 3	180
Waste from operations	Scope 3	32
TOTAL EMISSIONS		24,325

Municipal emissions include all three greenhouse gas accounting scopes. Scope 2 emissions from purchased electricity make up the largest share of municipal emissions, reflecting the energy intensity of City buildings and facilities. Scope 1 emissions include natural gas combustion and fleet fuel use, while Scope 3 emissions include employee commuting and waste from operations.

Figure 3: Municipal emissions by scope



The municipal operations inventory provides a clear opportunity for the City to demonstrate leadership through action. Strategies such as improving building energy performance, transitioning municipal facilities away from fossil fuels, electrifying the vehicle fleet, and reducing operational energy use will not only reduce emissions but also inform and support broader community-wide efforts identified in the ESMP.

GREENHOUSE GAS PROJECTIONS

Emissions forecasts were developed for the period 2023 through 2045 to evaluate projected community-wide greenhouse gas emissions relative to recent historical trends. While the 2024 inventory year serves as the primary baseline for this report, the forecast period begins in 2023 to align with available trend data and modeling assumptions.

Business-as-Usual (BAU)

Emissions forecasts were developed for the period 2023 through 2045 to evaluate projected community-wide greenhouse gas emissions relative to recent historical trends. While the 2024 inventory year serves as the primary baseline for this report, the forecast period begins in 2023 to align with available trend data and modeling assumptions.

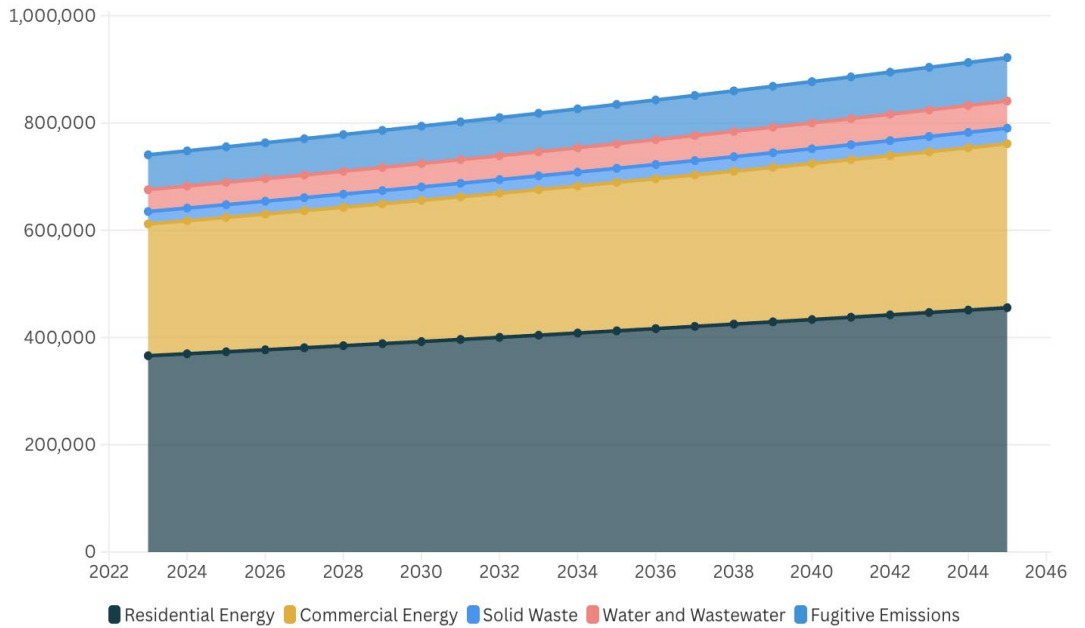
Business-as-Usual (BAU) Scenario

The Business-as-Usual (BAU) scenario projects future greenhouse gas emissions assuming continuation of recent trends and current conditions, without the implementation of new local climate policies, programs, or regulations beyond those already reflected in historical activity levels. Growth in emissions under this scenario is driven primarily by population growth, increasing energy demand in buildings, and continued growth in vehicle miles traveled.

Under the BAU scenario, total community-wide emissions increase steadily through 2045. As shown in Figure 5, emissions from electricity and natural gas remain the dominant sources, with fugitive emissions, water and wastewater, and solid waste contributing smaller but growing shares over time. Figure 5 illustrates that residential and commercial energy use account for the majority of projected emissions, reflecting ongoing reliance on fossil fuels for space heating and electricity consumption.

The BAU forecast serves as a counterfactual reference case, representing expected emissions outcomes in the absence of additional intervention.

Figure 4. BAU Emissions by Sector (2023–2045, MT CO₂e)



Adjusted Business-as-Usual (ABAU)

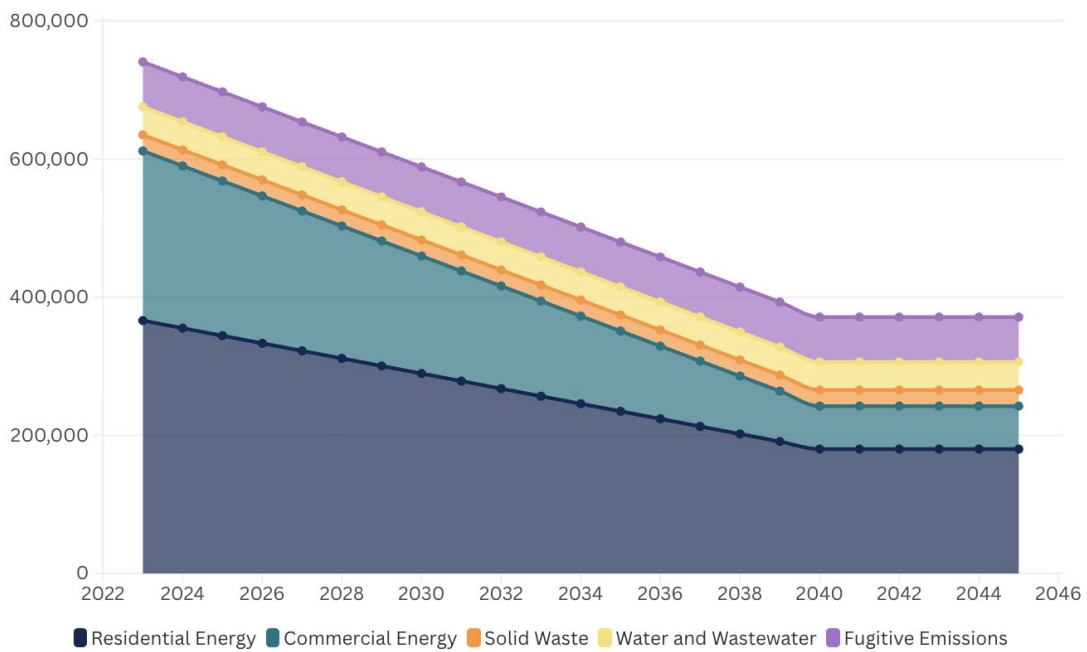
The Adjusted Business-as-Usual (ABAU) scenario builds upon the BAU forecast by incorporating emissions reductions associated with policies, programs, and changes that are already adopted or reasonably certain to occur. These adjustments primarily reflect externally driven factors, such as anticipated changes in electricity emissions intensity and other committed system-level efficiencies, rather than new or aspirational local climate actions.

As shown in Figure 5, the ABAU scenario results in a substantial decline in total emissions over time, with the most significant reductions occurring in electricity-related emissions. By approximately 2040, total emissions stabilize at a lower level, reflecting the combined effect of declining electricity emissions and continued, though reduced, emissions from direct fuel use, waste, and water-related sources.

Sectoral results indicate that residential and commercial energy remain the largest contributors to emissions under ABAU, even as overall totals decline. This highlights the continued importance of direct fuel use and non-electric sources in the community emissions profile.

These forecast scenarios are intended to support long-term planning and context-setting and do not represent emissions reduction targets or a climate action pathway.

Figure 5. ABAU Emissions by Sector (2023–2045, MT CO₂e)



Comparing Year-over-Year

The City of Thornton has completed multiple greenhouse gas inventories over time, including inventories for 2008, 2018, and 2024. The 2024 inventory was completed as part of the ESMP development process, while the 2008 and 2018 inventories were conducted separately and by different consultants. Together, these inventories provide important context for understanding how emissions sources have evolved over time, but they are not directly comparable on a year-over-year basis.

Differences in greenhouse gas accounting protocols, data availability, and emissions coverage limit the ability to draw precise trend conclusions across inventories. Earlier inventories relied on different methodologies and included fewer emissions sources than the 2024 inventory. As a result, changes in reported emissions over time reflect not only real-world changes in energy use and activity, but also improvements in data quality and expanded emissions accounting.

The 2024 inventory uses updated protocols and incorporates additional emissions sources that were not consistently included in prior inventories. These methodological improvements increase the accuracy and completeness of the current inventory, but they also result in higher reported emissions in some sectors when compared to earlier years. For this reason, year-over-year comparisons should be interpreted as directional rather than definitive.

Table 3: Greenhouse Gas Emissions by Inventory Year

	2008	2018	2024
Transportation	317,000	337,034	307,964
Electricity	544,814	404,283	466,214
Natural Gas	188,968	225,793	428,777
Solid Waste	112,234	70,100	23,271
Fugitive emissions	0	6,027	65,027
Water and Wastewater	642	787	1,000
Other Energy			27,821
TOTAL	1,163,658	1,044,024	1,320,074

Despite these limitations, reviewing multiple inventories helps identify broad patterns, such as the relative importance of building energy use and transportation emissions, and highlights the value of maintaining consistent methodologies over time. The 2024 inventory establishes a more robust and comprehensive baseline that will support future inventories and allow for more meaningful comparisons going forward.

**THORNTON HAS
ADOPTED THE
FOLLOWING
COMMUNITY-WIDE
TARGETS:**

50%

reduction in emissions
by 2035, relative to
2024 levels

80%

reduction in emissions
by 2045, relative to
2024 levels

NET ZERO

emissions by 2050

GREENHOUSE GAS REDUCTION TARGET

The City of Thornton has adopted a greenhouse gas reduction target to guide long-term climate action and align local efforts with broader state and national climate goals. This target establishes a clear benchmark for reducing emissions over time and provides a framework for prioritizing actions, measuring progress, and maintaining accountability through 2050.

The greenhouse gas reduction target is grounded in the 2024 community greenhouse gas inventory, which serves as the baseline for tracking future emissions reductions. Using a consistent and comprehensive baseline allows the City to more accurately assess progress and evaluate the effectiveness of strategies identified in the ESMP. Future inventories will be conducted using the same or comparable methodologies to support meaningful comparison over time.

The adopted target reflects both the scale of emissions reductions needed to address climate change and the City's capacity to influence outcomes through policy, programs, partnerships, and investments. Achieving the target will require sustained action across multiple sectors, including buildings, transportation, energy supply, waste, and municipal operations. While no single strategy will achieve the target on its own, the combined impact of coordinated actions outlined in the ESMP is intended to put the City on a clear trajectory toward meeting its long-term goals.

Progress toward the greenhouse gas reduction target will be monitored through periodic updates to the community and municipal greenhouse gas inventories. These updates will allow the City to assess whether emissions are declining at the pace needed, identify areas where additional effort may be required, and adjust strategies in response to new data, technologies, and funding opportunities.

By adopting a greenhouse gas reduction target and linking it directly to implementation and monitoring through the ESMP, the City establishes a long-term commitment to reducing emissions, improving community resilience, and supporting a more sustainable future for current and future residents.

GREENHOUSE GAS REDUCTION ESTIMATES

As part of the Environmental Sustainability Master Plan, the City estimated the potential greenhouse gas emissions that could be mitigated through implementation of select ESMP goals. These estimates provide a high-level understanding of the relative emissions reduction potential across focus areas and support long-term target tracking and prioritization.

All mitigation estimates are calculated relative to the **2024 greenhouse gas inventory**, which serves as the ESMP baseline. Emissions reductions represent avoided emissions compared to 2024 conditions and are expressed in metric tons of carbon dioxide equivalent (MT CO₂e). Estimates focus on major emissions sources where quantification is feasible, including buildings and energy use, transportation, waste, water, and municipal operations.

A conservative, percentage-based approach was used where detailed activity data were unavailable. Reduction targets associated with each goal were applied directly to relevant baseline emissions sources, consistent with standard greenhouse gas accounting practices. To avoid double counting, emissions reductions are conceptually sequenced and goals that overlap with or duplicate quantified pathways are excluded from the totals.

Not all ESMP goals are quantified. Goals related to governance, planning, education, equity, resilience, or policy readiness are essential to implementation success but do not directly translate into measurable emissions reductions from the 2024 baseline. These goals are therefore not included in mitigation totals.

The mitigation estimates presented in this plan are intended to be order-of-magnitude indicators, not precise forecasts. They illustrate how different goal areas contribute to emissions reduction over time and provide a consistent framework for evaluating progress as future inventories are completed.

Table 4: Estimated emissions mitigated by goal

ESMP GOAL	DESCRIPTION	ESTIMATED EMISSIONS MITIGATED (MT CO ₂ e)
BE1. Existing Buildings Energy Efficiency and Electrification	Improve energy efficiency and electrify existing residential, commercial, and industrial buildings	Up to 843,700
BE2. New Buildings Energy Codes and Readiness	Strengthen energy codes and require electric-ready and solar-ready construction for new buildings	Not quantified
BE3. Renewable Energy Adoption in Buildings	Increase adoption of renewable electricity for community buildings	Up to 387,100
BE4. City-Owned Buildings	Improve energy efficiency and transition municipal buildings and facilities away from fossil fuels	Up to 21,200
ST1. Reduce Single-Occupancy Vehicle Trips	Reduce vehicle miles traveled through mode shift and transportation alternatives	Up to 107,800
ST2. Electric Vehicle Adoption	Increase electric vehicle adoption community-wide and electrify the municipal fleet	Up to 79,000 (community) and 2,000 (municipal)
ST3. Land Use and Infrastructure Resiliency	Integrate land use and infrastructure planning to support resilient, low-emissions development	Not quantified
MW1. Community Water Use Reduction	Reduce potable water demand and wastewater-related emissions	Up to 4,100
MW2. Waste Diversion	Increase diversion of residential solid waste from landfills	Up to 20,900

Note:

Emissions reduction estimates represent approximate maximum reductions relative to the 2024 baseline if goals are fully achieved. Values should not be summed across goals due to overlapping pathways and sequencing assumptions.



THORNTON

STAKEHOLDER ENGAGEMENT



OUTREACH METHODOLOGY

The project team designed a comprehensive stakeholder engagement process to ensure that the Environmental Sustainability Master Plan reflects the perspectives, priorities, and needs of residents, businesses, community organizations, staff, and decision makers. Engagement activities were grounded in core principles of equity, accessibility, transparency, and collaboration, as outlined in the project's Engagement Plan (Appendix C). These principles guided the selection of engagement methods and helped ensure participation from historically underrepresented groups.

A variety of outreach methods were used to reach residents with different schedules, abilities, and communication preferences. These methods included a community wide survey, four staff focus groups, three pop up events hosted at community festivals and markets, a community open house, and an asynchronous online workshop that allowed participants to review materials at their convenience. Project updates and input opportunities were shared through the City's website, social media, and multiple City Council meetings. The Environmental Sustainability Task Force met regularly throughout the process to provide guidance and review findings. A full summary of engagement activities and participation can be found in Appendix D.



Engagement activities were intentionally designed to be inclusive and accessible. Materials were provided in multiple languages, events were held at community locations across the City, and digital engagement options supported participation from residents unable to attend in person. This multi-layered approach helped ensure that residents with diverse backgrounds, experiences, and concerns had opportunities to learn about the ESMP and share feedback. The combination of in person and online tools also expanded the reach of the project by supporting both structured and informal conversations.

Figure 6: Community survey question – How concerned are you about climate change?
(1 = not at all important; 5 = extremely important)

ANSWERED: 205 SKIPPED: 0

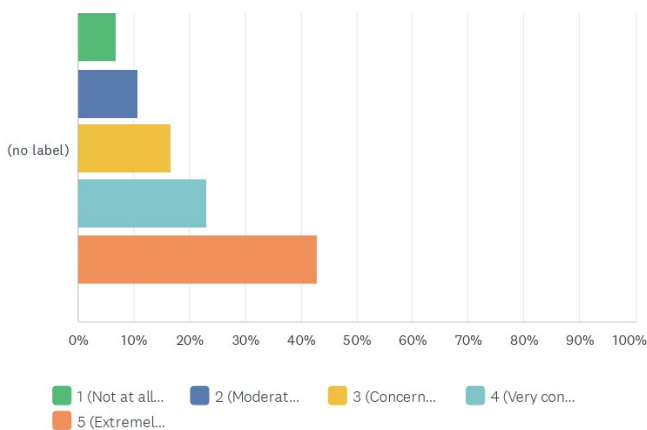


Figure 7: Community survey question – How important is it to you that Thornton does something about climate change?
(1 = not at all important; 5 = extremely important)

ANSWERED: 205 SKIPPED: 0

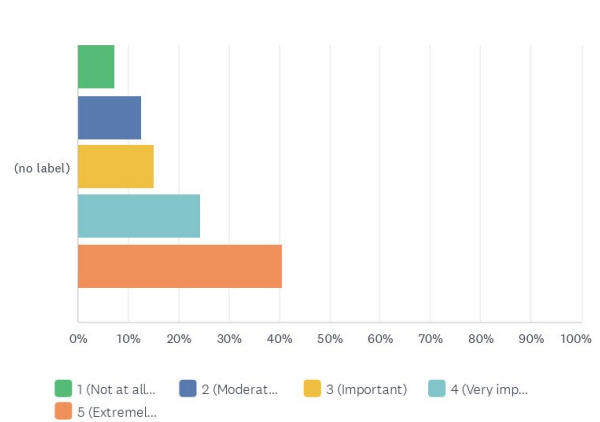




Figure 8: Community survey question –
Which climate risks are you most
concerned about?

(Please rank from 1 to 7, 1 being most concerned
and 7 being least concerned)

ANSWERED: 201 SKIPPED: 4

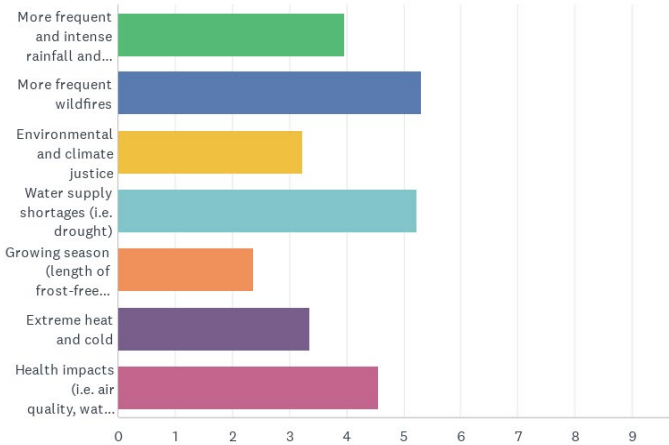
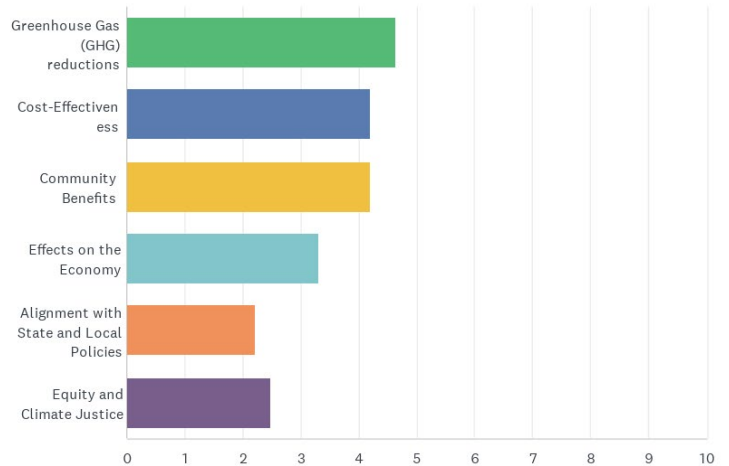


Figure 9: Community survey question –
Climate risk priority ranking

(From 1 to 6, 1 being the highest importance
and 6 being lowest importance)

ANSWERED: 196 SKIPPED: 9





RESULTS AND FINDINGS

The engagement process produced a wide range of insights from residents, City staff, the Environmental Sustainability Task Force, and elected officials. Together, these perspectives helped identify community priorities, barriers to participation, and opportunities for strengthening the City’s long-term sustainability efforts. Detailed findings and documentation are included in Appendix F.

Input from the community survey was collected from May 14 through August 9, 2025 and provided a broad overview of resident perspectives. Respondents expressed strong concern about local climate related risks and emphasized the importance of City action to protect public health, water resources, and air quality. Survey responses highlighted extreme heat, drought, and air quality as top concerns and identified high costs, lack of information, and limited access to programs as barriers to sustainable choices. Respondents also emphasized the importance of energy efficiency, renewable energy access, walkable neighborhoods, improved transit options, and expanded recycling and composting. Many expressed interest in additional education, resources, and incentives to support household level sustainability actions.

In person engagement provided more detailed insights into community priorities. Participants at pop up events and the community open house shared interest in renewable energy access, electric vehicles, safer walking and biking routes, expanded tree canopy, community gardens, and investments in native landscaping and green infrastructure.



Feedback also highlighted the importance of equitable access to sustainability programs, with specific calls for more investment in underserved neighborhoods. Participants frequently connected sustainability to community health, cost savings, and quality of life.

City staff and the Environmental Sustainability Task Force provided technical and operational perspectives that helped shape strategies and clarify feasibility. Staff identified opportunities for improving building efficiency, expanding water conservation, integrating nature based solutions, and strengthening internal coordination. The Task Force emphasized the importance of measurable progress, phased implementation, and clear communication. They encouraged strategies that balance ambition with practical considerations such as funding, staffing, and long-term maintenance. Both groups highlighted the need for improved interdepartmental coordination to support implementation of sustainability initiatives.

Engagement also revealed areas where participation was limited. Some activities, including the asynchronous workshop and the community open house, saw relatively low levels of participation despite high page views and outreach efforts. These findings underscore the need for ongoing improvements to engagement methods, including more targeted outreach, partnerships with local organizations, and additional multilingual and culturally relevant communication.



Collectively, the insights gathered through engagement provided a clear understanding of community values and expectations. Residents and staff consistently expressed a desire for a more connected, resilient, and equitable City with reliable infrastructure, clean air and water, access to nature, and opportunities to adopt cost saving sustainable practices. These priorities guided the development of strategies and actions within the ESMP.

FEEDBACK INTEGRATION

Community and staff input played a central role in shaping the goals, strategies, and actions within the ESMP. Insights from the community survey, pop up events, workshops, Task Force meetings, and staff focus groups informed both the content of the plan and the priorities identified for implementation. A detailed summary of these inputs is included in Appendix F. The ESMP reflects themes that were consistently raised across engagement activities, including interest in cost effective energy solutions, expanded access to renewable energy, safer and more connected transportation options, improvements to air quality, and enhanced access to parks, trees, and natural spaces.

Engagement findings helped refine strategies across all focus areas. For Buildings and Energy Systems, community and staff input supported the plan's emphasis on energy efficiency, affordable access to clean energy, and programs that reduce household utility costs. In the Sustainable Transportation, Land Use, and Infrastructure Resiliency section, community feedback reinforced the importance of walkability, bike connections, transit access, and safer routes throughout the



City. Input from staff and residents informed the Natural Systems, Community, and Environmental Protections strategies by highlighting the need for additional tree canopy, water-wise landscaping, stormwater solutions, and environmental protections in areas more vulnerable to impacts. Engagement findings also influenced the Materials, Waste, and Water Management strategies, with residents expressing strong interest in expanding recycling, composting, water conservation, and community education.

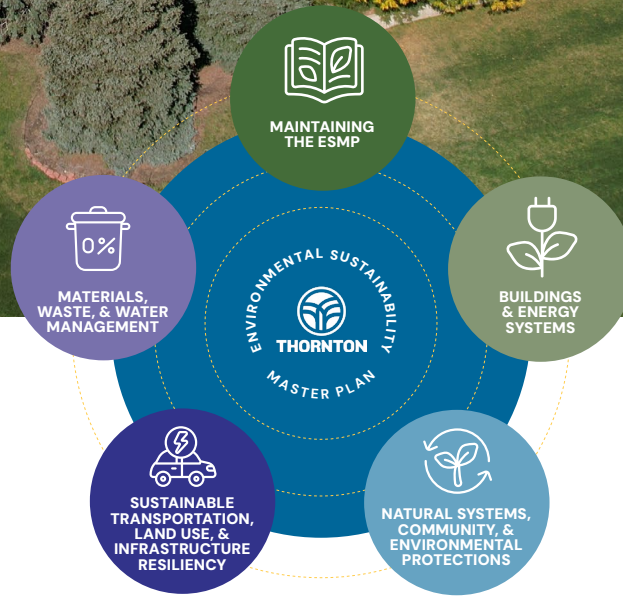
The Task Force and staff provided valuable guidance on strengthening feasibility, aligning strategies with existing City work, and ensuring that actions can be implemented effectively. Their input directly informed the development of the prioritization criteria, performance indicators, and timelines in the Implementation Plan. Engagement findings also shaped how programs and services will be delivered, emphasizing the importance of multilingual materials, targeted outreach, accessible events, and partnerships with schools, HOAs, community organizations, and regional partners.

Through this integration, the ESMP reflects the practical experience of staff, the lived experiences of residents, and the vision expressed by the Environmental Sustainability Task Force. The result is a plan that is community informed, operationally realistic, and grounded in local priorities.



THORNTON

ENVIRONMENTAL SUSTAINABILITY MEASURES



The measures in this Environmental Sustainability Master Plan translate Thornton’s sustainability vision into clear, implementable actions. They define how the City will move from goals to outcomes through coordinated policy, programs, partnerships, and investments. Together, these measures provide a practical roadmap for reducing greenhouse gas emissions, strengthening climate resilience, and improving environmental and public health outcomes across the community.

The measures are organized into five categories that reflect the systems shaping daily life in Thornton: maintaining and advancing the ESMP over time; buildings and energy systems; natural systems, community, and environmental protections; sustainable transportation, land use, and infrastructure resiliency; and materials, waste, and water management. Each category includes goals, strategies, and actions designed to support progress across City operations, private development, regional collaboration, and community engagement.

Rather than functioning as isolated initiatives, the measures are intentionally interconnected. Progress in one area often supports outcomes in others, for example, reducing energy use in buildings while improving affordability, or expanding active transportation while enhancing public health and access. This integrated approach allows the City to advance multiple priorities simultaneously while remaining responsive to changing conditions, funding opportunities, and community needs.



HOW TO USE THE MEASURES

Each category in this section presents a set of measures in a consistent, table-based format to support transparency, accountability, and ease of implementation. For each measure, the tables identify:

GOAL
The long-term outcome the City is working toward within a given category.

STRATEGY
The approach the City will use to advance the goal.

ACTIONS
Specific, actionable steps that make the strategy implementable.

CITY LEAD
The City role responsible for coordinating implementation.



GHG REDUCTION
A relative measure of the potential for emissions mitigation by strategy. (LOW • MEDIUM • HIGH)

RECOMMENDED START YEAR
A range of years that it is recommended implementation begin. A detailed timeline (by action step) can be found in Appendix E.



COST ESTIMATE
A relative measure of the expected cost to implement the strategy, expressed using a simple scale (\$, \$\$, \$\$\$). These symbols provide a general understanding of effort and investment needed, not a detailed budget. Cost estimates are based on accepted industry values as of December 2025.



HOW TO USE THE MEASURES



STRATEGIC FOCUS AREA

Alignment with strategic focus areas provided in the City’s 2025–2029 Strategic Plan.



VIBRANT AND PURPOSEFUL DEVELOPMENT



CONNECTED COMMUNITIES



SAFE, SUPPORTED, AND LIVABLE COMMUNITY



ORGANIZATIONAL EXCELLENCE

RECOMMENDED PARTNERS

External organizations, agencies, or institutions that can support or amplify implementation.



PRIORITY SCORE

Each strategy was scored against criteria selected by the project team. Criteria included: potential for GHG mitigation, cost of implementation, resilience impacts, and equity impacts. Based on these scores, strategies were prioritized into three tiers (**high priority = 1, low priority = 3**).

Taken together, these measures serve as a living implementation framework. They are intended to guide near-term decision-making while remaining flexible enough to adapt as conditions evolve. By regularly tracking progress and working collaboratively with regional partners and the community, Thornton can steadily advance toward a more sustainable, resilient, and equitable future.



MAINTAINING THE ESMP

These measures ensure that Thornton’s sustainability efforts remain coordinated, transparent, and responsive over time. This category focuses on the systems, processes, and partnerships needed to support ongoing implementation, track progress, and adjust priorities as conditions change. Rather than introducing new sector-specific programs, these measures establish the foundation that enables all other actions in the ESMP to succeed.

Measures in this category emphasize accountability, data-driven decision-making, and clear communication. They include regular plan review, greenhouse gas inventory updates, internal coordination across City functions, and consistent reporting to City Council, the Environmental Sustainability Task Force, and the broader community. Together, these actions help ensure that sustainability goals are integrated into everyday operations and long-term planning.

By strengthening governance structures, performance tracking, and engagement, this category positions Thornton to adapt to new technologies, funding opportunities, and community priorities. This approach supports continuous improvement and reinforces the City’s commitment to advancing sustainability in a measurable and durable way.



GOAL ME1.

Ensure the success and longevity of the ESMP and Thornton's long-term environmental sustainability goals.

STRATEGY

ME1.1

Update the ESMP every 4 years, assessing progress to date, adjusting language of measures, and keeping responsible parties accountable.

CITY LEAD:

City Manager's Office

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Environmental Sustainability Task Force; City Council; Denver Regional Council of Governments (DRCOG)

ACTIONS

ME1.1a:

Review ESMP goals, strategies, and actions annually with key staff and the Task Force. Make updates and edits as needed.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



ME1.1b:

Update the communitywide and municipal GHG inventories every four years. Compare year over year date to assess progress toward 2035, 2045, and 2050 targets.

RECOMMENDED START YEAR:

2029

COST ESTIMATE:



ME1.1c:

Hire a full-time Sustainability Coordinator to oversee and lead the implementation of the ESMP.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:





GOAL ME1.

Ensure the success and longevity of the ESMP and Thornton's long-term environmental sustainability goals.

STRATEGY

ME1.2

Maintain the Environmental Sustainability Task Force (ESTF) as community liaisons and a resource for City Council regarding related decision-making.

CITY LEAD:

Sustainability Coordinator

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Environmental Sustainability Task Force; City Council

ACTIONS

ME1.2a:

Establish a long-term cadence and official guidelines for the Environmental Sustainability Task Force.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



ME1.2b:

The ESTF should review ESMP goals annually, prioritize remaining strategies and make annual suggestions to City Council for the top 10 actions to be completed in the following year.

RECOMMENDED START YEAR:

2027

COST ESTIMATE:





GOAL ME1.

Ensure the success and longevity of the ESMP and Thornton's long-term environmental sustainability goals.

STRATEGY

ME1.3

Maintain regular and effective communication with staff, City Council and the public about the ESMP's implementation and sustainability programs and resources.

CITY LEAD:

Sustainability Coordinator

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

City Council;
Environmental Sustainability Task Force;
AnyThink Libraries

ACTIONS

ME1.3a:

Provide City Council with annual updates regarding the ESMP's implementation.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

ME1.3b:

Check in with key staff on a quarterly basis regarding the implementation of their assigned action items.

RECOMMENDED A YEAR:
2026

COST ESTIMATE:
\$

ME1.3c:

Provide staff with quarterly sustainability updates via email.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$

ME1.3d:

Provide the community with quarterly sustainability updates via T Mail, City Voice or other City communication.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$

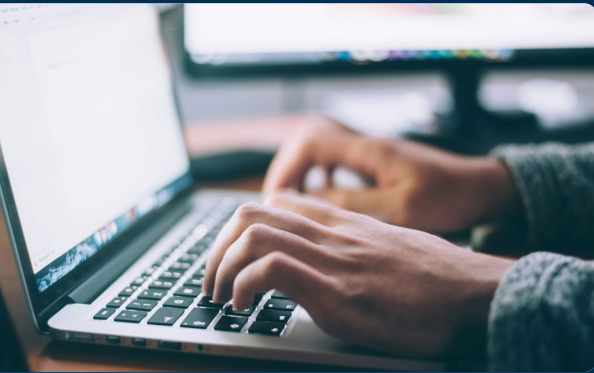
ME1.3e:

Develop a communication strategy, including an enhanced online Sustainability web presence, that will provide information about sustainability programs, resources, and will track ESMP progress.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$





GOAL ME2.

Ensure long-term accountability and support for sustainability programs by 2027.

STRATEGY

ME2.1

Improve tracking and accountability

CITY LEAD:

Sustainability Coordinator

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Environmental Sustainability Task Force; Denver Regional Council of Governments (DRCOG); Colorado Energy Office

ACTIONS

ME2.1a:

Ensure integration of sustainability considerations into all City budgeting and planning processes.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$

ME2.1b:

Procure or build a centralized tracking system for water use, waste diversion, and emissions; train staff on system use and update data quarterly.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$





GOAL ME2.

Ensure long-term accountability and support for sustainability programs by 2027.

STRATEGY

ME2.2

Build community and business partnerships

CITY LEAD:

Sustainability Coordinator;
Economic Development

GHG REDUCTION:

LOW

STRATEGIC FOCUS AREA:



PARTNERS:

Businesses of Thornton
Advisory Commission (BTAC);
Chamber of Commerce

ACTIONS

ME2.2a:

Partner with BTAC to develop campaign content on waste and energy reduction; schedule joint workshops and outreach events for member businesses.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$

ME2.2b:

Offer sustainability recognition awards for businesses reducing waste and adopting green practices.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$





BUILDINGS
& ENERGY
SYSTEMS

BUILDINGS & ENERGY SYSTEMS

Buildings and energy use are a major source of greenhouse gas emissions in Thornton and a key opportunity to improve efficiency, reduce costs, and enhance comfort and health for residents and businesses. This category focuses on how energy is generated, distributed, and used in homes, commercial buildings, industrial facilities, and City operations.

The measures in this category prioritize reducing energy demand, transitioning to cleaner energy sources, and supporting electrification where feasible. Actions range from policy and code updates to technical assistance, partnerships with utilities and regional programs, and strategic investments in municipal facilities. Together, these efforts aim to lower emissions while supporting economic competitiveness, workforce development, and energy affordability.

By emphasizing coordination with utilities, regional partners, and the development community, the Buildings and Energy Systems measures are designed to leverage external resources and incentives while minimizing City costs. This approach allows Thornton to make steady, measurable progress toward its emissions reduction goals while supporting resilient, high-performing buildings across the community.



GOAL BE1.

Improve energy efficiency and advance electrification by 50% by 2035, 80% by 2045, and 100% by 2050 (2024 baseline) in existing residential, commercial, and institutional buildings.

STRATEGY

BE1.1

Support energy efficiency and electrification upgrades in residential buildings

CITY LEAD:

Sustainability Coordinator;
Building Division;
Community Connections

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Xcel Energy;
Colorado Energy Office;
Weatherization Assistance Program administrators

ACTIONS

BE1.1a:

Expand access to weatherization and energy efficiency services for low-income and disadvantaged households by partnering with the Colorado Energy Office, Xcel Energy, and the federal Weatherization Assistance Program. Support all residents in accessing existing rebates and incentives through outreach, education, and application assistance rather than providing City-funded subsidies.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



BE1.1b:

Connect residents to available financing and rebate programs for high-efficiency appliances, heat pumps, and water heaters through partnerships with the Colorado Energy Office, Xcel Energy, and federal Inflation Reduction Act programs. Provide outreach, education, and application assistance to help residents access upfront cost support without requiring direct City funding.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



BE1.1c:

Evaluate the development of a City-supported outreach and assistance program modeled after Boulder's EnergySmart, focused on helping residents access federal, state, and utility rebates and incentives. Provide navigation support, workshops, and one-on-one advising, as financial support similar to the Boulder program may be difficult.

RECOMMENDED START YEAR:

2029

COST ESTIMATE:



BE1.1d:

Partner with public health organizations to expand outreach and education on energy efficiency benefits.

RECOMMENDED START YEAR:

2029

COST ESTIMATE:





GOAL BE1.

Improve energy efficiency and advance electrification by 50% by 2035, 80% by 2045, and 100% by 2050 (2024 baseline) in existing residential, commercial, and institutional buildings.

STRATEGY

BE1.2

Advance energy efficiency and electrification in commercial and industrial buildings

CITY LEAD:

Sustainability Coordinator;
City Development;
Building Inspection

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Xcel Energy;
Colorado Energy Office;
CSU Industrial Assessment Center

ACTIONS

BE1.2a:

Launch a benchmarking program to track and compare energy performance of commercial and industrial properties.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

BE1.2b:

Evaluate fast-track permitting for retro-commissioning and efficiency upgrades (HVAC, lighting, building envelope).

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

BE1.2c:

Collaborate with CSU's Industrial Assessment Center (or similar) to offer no-cost energy audits and technical assistance to industrial businesses in Thornton.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

BE1.2d:

Support electrification of large multifamily and commercial buildings by connecting property owners and tenants to state, federal, utility, and private financing programs that reduce upfront costs. Evaluate providing technical assistance, education, and navigation support. Provide a "Thornton Energy Advisor" service modeled on northern Colorado's Efficiency Works to help building owners access electrification and efficiency upgrades.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

BE1.2e:

Facilitate industrial emissions reduction and renewable energy integration by connecting businesses to federal, state, utility, and private funding opportunities. Support industry partners with a special permitting window, technical assistance, and coordination.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$





GOAL BE1.

Improve energy efficiency and advance electrification by 50% by 2035, 80% by 2045, and 100% by 2050 (2024 baseline) in existing residential, commercial, and institutional buildings.

STRATEGY

BE1.3

Optimize City facilities and operations

CITY LEAD:

Sustainability Coordinator; Building Maintenance

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Xcel Energy; Colorado Energy Office; U.S. Department of Energy (DOE)

ACTIONS

BE1.3a:

Continue lifecycle replacements with high-efficiency, electric-ready equipment (HVAC, pumps, lighting).

RECOMMENDED START YEAR: 2026

COST ESTIMATE: \$ \$

BE1.3b:

Implement retrofits identified in facility audits.

RECOMMENDED START YEAR: 2029

COST ESTIMATE: \$ \$ \$

BE1.3c:

Ensure that facility staff are operating building automation systems in a manner that maximizes savings (e.g., light sweeps, night HVAC shutdowns). Also communicate/educate best practices to City staff regarding energy usage in their work spaces.

RECOMMENDED START YEAR: 2026

COST ESTIMATE: \$

B.E1.3.d:

Pursue planned projects such as the solar installation at the Thornton Water Treatment Plant.

RECOMMENDED START YEAR: 2028

COST ESTIMATE: \$ \$ \$

BE1.3.e:

Investigate the acquisition of technology/software to track City solar installation data.

RECOMMENDED START YEAR: 2027

COST ESTIMATE: \$

BE1.3.f:

Complete targeted energy audits of select City facilities.

RECOMMENDED START YEAR: 2027

COST ESTIMATE: \$ \$

BE1.3g:

Perform benchmarking on City buildings to comply with the Building Performance Colorado program.

RECOMMENDED START YEAR: 2027

COST ESTIMATE: \$





GOAL BE2.

Ensure all new buildings meet advanced energy codes and are solar- and electric-ready.

STRATEGY

BE2.1

Adopt advanced building energy codes

CITY LEAD:

City Development

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

State of Colorado building code authorities; International Code Council (ICC); City Development peer jurisdictions

ACTIONS

BE2.1a:

Adopt model Electric Ready and Solar Ready Building Codes by July 1, 2026.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



BE2.1b:

Adopt model Low Energy and Carbon Code Electrification by July 1, 2026.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



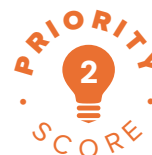
BE2.1c:

Continue updating building codes every three years to align with state standards.

RECOMMENDED START YEAR:

2027

COST ESTIMATE:





GOAL BE2.

Ensure all new buildings meet advanced energy codes and are solar- and electric-ready.

STRATEGY

BE2.2

Develop healthy and sustainable building design guidelines

CITY LEAD:

Sustainability Coordinator;
City Development;
Building Maintenance

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

U.S. Green Building Council (USGBC); LEED; construction industry associations

ACTIONS

BE2.2a:

Review Thornton Development and Building Codes to enhance and prioritize low-carbon building materials and low-impact development policies.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:

BE2.2b:

Establish sustainable design guidelines for all new City facilities that meet LEED Gold or equivalent standards, require lifecycle cost analysis, and integrate electrification, renewable energy readiness, and EV charging infrastructure.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:

BE2.2.c:

Evaluate implementing construction waste management plans with a goal of diverting at least 50–75% of materials from landfill, modeled on Boulder County and Aspen programs. Guidelines would prioritize the use of low-carbon concrete, recycled steel, sustainably harvested wood, high-efficiency mechanical systems, and modular or prefabricated construction methods to minimize waste and embodied carbon.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:

BE2.2d:

Partner with builders to pilot smart technologies (e.g., sensors, water-efficient systems, automated controls).

RECOMMENDED START YEAR:
2028

COST ESTIMATE:





GOAL BE3.

Increase renewable energy adoption across municipal, residential, commercial, and industrial sectors to supply 50% of total building energy use by 2035, 80% by 2045, and 100% by 2050.

STRATEGY

BE3.1

Expand renewable energy in municipal operations

CITY LEAD:

Sustainability Coordinator;
Building Maintenance

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Colorado Energy Office;
Xcel Energy
Renewable*Connect;
U.S. Department of
Energy (DOE)

ACTIONS

BE3.1a:

Conduct feasibility studies for solar and other renewable installations at City facilities (e.g., Consolidated Services Center).

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$

BE3.1b:

Evaluate subscribing to appropriate renewable utility programs such as Renewable*Connect.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

BE3.1c:

Evaluate alternative renewable technologies such as geothermal, sewer heat recovery, and wind for City facilities.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$





GOAL BE3.

Increase renewable energy adoption across municipal, residential, commercial, and industrial sectors to supply 50% of total building energy use by 2035, 80% by 2045, and 100% by 2050.

STRATEGY

ACTIONS

BE3.2

Expand community access to renewable energy

CITY LEAD:
Sustainability Coordinator;
City Development

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:
Xcel Energy; Colorado Energy Office; Adams County

BE3.2a:

Support development of community solar gardens, neighborhood wind co-ops, and shared geothermal projects by updating Development Code as necessary, streamlining permitting, and identifying City-owned sites for potential use.

RECOMMENDED START YEAR: 2029

COST ESTIMATE: \$ \$

BE3.2.b:

Partner with Xcel Energy, state and federal agencies, and community-based organizations to connect residents and businesses with funding opportunities and co-op models.

RECOMMENDED START YEAR: 2028

COST ESTIMATE: \$

BE3.2.c:

Provide education, technical assistance, and convening support to help neighborhoods and property owners participate in shared renewable energy projects.

RECOMMENDED START YEAR: 2027

COST ESTIMATE: \$ \$

BE3.2d:

Facilitate green power purchase programs for residents, businesses, and industrial facilities by promoting Xcel Energy offerings such as Windsource and RenewableConnect, and by providing sign-up assistance through City communications and workshops. Aggregate demand through neighborhood and business district campaigns, and recognize participants through local awards programs.

RECOMMENDED START YEAR: 2028

COST ESTIMATE: \$

BE3.2e:

Provide technical assistance to large users to navigate utility green power offerings and explore shared purchasing agreements.

RECOMMENDED START YEAR: 2027

COST ESTIMATE: \$

BE3.2f:

Provide targeted support for distributed solar on low-income households and multifamily housing by removing any zoning or permitting barriers.

RECOMMENDED START YEAR: 2028

COST ESTIMATE: \$

BE3.2g:

Create a resource hub for residents to find information related to renewable energy. include a list of partners, contractors, rebates and tax credits. Include information about replacing outdated solar panels (Equitable Solar Solutions is a local organization focused on this).

RECOMMENDED START YEAR: 2027

COST ESTIMATE: \$





GOAL BE3.

Increase renewable energy adoption across municipal, residential, commercial, and industrial sectors to supply 50% of total building energy use by 2035, 80% by 2045, and 100% by 2050.

STRATEGY

BE3.3

Incentivize renewable adoption in commercial and industrial sectors

CITY LEAD:

City Development

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Commercial and industrial property owners; solar developers; builders associations

ACTIONS

BE3.3a:

Recommend or require "solar-ready" rooftops for all major renovations on commercial and industrial properties.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

BE3.3b:

Support integration of solar into commercial parking lots, campuses, and industrial facilities.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$





GOAL BE4.

Reduce greenhouse gas emissions from the City-owned buildings by at least 50% by 2035, 80% by 2045, and achieve net-zero emissions by 2050.

STRATEGY

BE4.1

Establish robust energy management and tracking systems

CITY LEAD:

Sustainability Coordinator;
City Development

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Denver Regional Council of Governments (DRCOG); Xcel Energy; U.S. Environmental Protection Agency (EPA)

ACTIONS

BE4.1a:

Evaluate tools which would track energy performance and emissions across City operations and City-owned buildings.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

BE4.1b:

Request and review regular status updates on Building Code amendments and ESMP implementation.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

BE4.1c:

Establish a public-facing dashboard to share progress with residents and businesses.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$ \$





GOAL BE4.

Reduce greenhouse gas emissions from the City-owned buildings by at least 50% by 2035, 80% by 2045, and achieve net-zero emissions by 2050.

STRATEGY

BE4.2

Strengthen institutional capacity and partnerships

CITY LEAD:

Sustainability Coordinator

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

City Council;
Environmental Sustainability Task Force;
Adams 12 Five Star Schools District

ACTIONS

BE4.2a:

Hire a Sustainability Coordinator to unify energy initiatives across departments.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:



BE4.2b:

Continue to partner with Adams 12 Five Star School District on joint facility upgrades, renewable projects, and energy education.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:



BE4.2c:

Advocate for utility-scale renewable programs at the state level, including Xcel Energy's Renewable*Connect.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:





NATURAL SYSTEMS, COMMUNITY, & ENVIRONMENTAL PROTECTIONS

Natural systems play a critical role in Thornton’s environmental health, climate resilience, and quality of life. This category focuses on protecting and enhancing the City’s parks, open spaces, water resources, and ecosystems while addressing environmental risks and disparities that affect community well-being. These measures recognize that sustainability is not only about reducing emissions, but also about creating healthy, livable environments for all residents.

The measures in this category address urban forestry, water-wise landscaping, heat mitigation, habitat protection, and access to green space, alongside efforts to reduce exposure to environmental hazards and improve preparedness for climate-related risks. Actions emphasize practical interventions such as landscape conversions, pilot projects on City facilities, improved data and monitoring, and partnerships that support education and stewardship.

By integrating environmental protections with community-focused programs, this category advances resilience, equity, and public health together. The Natural Systems measures help ensure that the benefits of sustainability investments, such as cooler neighborhoods, safer environments, and access to nature, are shared across Thornton, particularly in areas most vulnerable to climate impacts.



GOAL NS1.

Expand access to parks, open space, trees, and green infrastructure to improve community resilience and reduce urban heat island impacts.

STRATEGY

NS1.1

Increase tree canopy and green infrastructure

CITY LEAD:

Parks & Recreation;
City Development;
Water Resources

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Colorado State
Forest Service;
Resource Central;
Parks-focused
nonprofits

ACTIONS

NS1.1a:

Expand tree sale and planting programs.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$ \$

NS1.1b

Consider requiring two-for-one replacement when City trees are removed.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

NS1.1c:

Integrate shade trees and cooling features in parks and public spaces to provide heat relief.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

NS1.1d:

Consider adopting incentives (density bonuses, expedited review) to promote green/purple roofs, living walls, and solar-equipped parking structures in new developments.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$

NS1.1.e:

Research the idea of developing pilot demonstrations projects on City facilities.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$ \$





GOAL NS1.

Expand access to parks, open space, trees, and green infrastructure to improve community resilience and reduce urban heat island impacts.

STRATEGY

NS1.2

Transition to water-smart landscapes

CITY LEAD:

Parks & Recreation;
Water Resources

GHG REDUCTION:

Low

STRATEGIC FOCUS AREA:



PARTNERS:

Resource Central; Colorado WaterWise; CSU Extension

ACTIONS

NS1.2a:

Implement the “Naturally Thornton” program across select City facilities and rights-of-way.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

NS1.2b:

Reduce non-functional turf in City landscapes by 20% by 2031 and replace with water-wise landscaping.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$

NS1.2c:

Develop and distribute water use and landscape guides in English, Spanish, and other languages commonly used by Thornton residents.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$

NS1.2d:

Continue to host annual City-led water-wise landscape demonstration events in partnership with Resource Central, Adams County Extension and local nurseries. Expand the video library to include how-to demonstrations which can be viewed on demand.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$

NS1.2e:

Publish and update (every 3 years) a City-approved plants list, make it available online, and require its use in all new City facility landscapes and recommended in HOA guidelines.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$

NS1.1f:

Partner with HOAs to expand Garden In A Box and similar water-wise landscaping programs.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$





GOAL NS1.

Expand access to parks, open space, trees, and green infrastructure to improve community resilience and reduce urban heat island impacts.

STRATEGY

NS1.3

Enhance community connections to natural spaces

CITY LEAD:

Parks & Recreation;
Real Estate;
City Development

GHG REDUCTION:

LOW

STRATEGIC FOCUS AREA:



PARTNERS:

Regional trail and open space partners;
Environmental Sustainability Task Force;
environmental education nonprofits

ACTIONS

NS1.3a:

Identify and inventory at least 5 vacant/underutilized parcels by 2026 for potential conversion to green community spaces.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$

NS1.3b:

Connect trail networks and improve amenities (seating, signage) to promote safe and accessible use.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$ \$ \$

NS1.3c:

Evaluate using Lambertson as an environmental education hub, including activities such as food equity and sustainability classes.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$





GOAL NS2.

Strengthen community health, education, and engagement by increasing participation in sustainability programs.

STRATEGY

NS2.1

Expand community education and outreach

CITY LEAD:

Sustainability Coordinator;
Community Connections;
Water Resources

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

AnyThink Library; schools;
community-based
organizations

ACTIONS

NS2.1a:

Cohost community events with community partners, such as schools, community organizations, faith-based partners.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$

NS2.1b:

Develop multi-lingual and inclusive communication strategy to expand broad community engagement and understanding of sustainability topics and initiatives.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$

NS2.1c:

Celebrate events such as World Water Day, Smart Irrigation Month and other relevant events with public campaigns and workshops.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$

NS2.1d:

Develop an "Sustainability Ambassador Toolkit" (flyers, presentations, social media templates) for schools, chambers of commerce, and neighborhood leaders to share rebate and incentive information.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$





GOAL NS2.
 Strengthen community health, education, and engagement by increasing participation in sustainability programs.

STRATEGY

NS2.2
 Support volunteer- and resident-led sustainability efforts

CITY LEAD:
 Sustainability Coordinator;
 Community Connections;
 Water Resources

GHG REDUCTION:
 Low

STRATEGIC FOCUS AREA:

PARTNERS:
 Resource Central;
 volunteer coordination nonprofits; neighborhood-based organizations

ACTIONS

NS2.2a:
 Create a resource hub for landscaping and household support (e.g., lawn conversion, tree planting) for elderly and disabled residents. This can serve as a platform to connect residents in need of assistance with volunteers or low-cost options.

RECOMMENDED START YEAR: 2028
COST ESTIMATE: \$ \$

NS2.2b:
 Support nonprofit and other non-city led sustainability efforts.

RECOMMENDED START YEAR: 2028
COST ESTIMATE: \$

NS2.2c:
 Use existing community events and resources to build neighborhood engagement around sustainability.

RECOMMENDED START YEAR: 2027
COST ESTIMATE: \$





GOAL NS2.

Strengthen community health, education, and engagement by increasing participation in sustainability programs.

STRATEGY

NS2.3

Improve equitable access to health and wellness resources

CITY LEAD:

Parks & Recreation;
City Development;
Community Connections

GHG REDUCTION:

Low

STRATEGIC FOCUS AREA:



PARTNERS:

Aging and housing nonprofits;
local food organizations;
health and recreation nonprofits

ACTIONS

NS2.3a:

Promote aging-in place and multi-generational living through housing design allowances and rehabilitation programs.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$ \$

NS2.3b:

Expand access to farmers' markets, community gardens, and local food partnerships.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

NS2.3c:

Remove barriers to recreation facility use by addressing childcare, transportation, and cost.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$ \$

NS2.3d:

Continue to promote Rec Centers and other identified City facilities as designated cooling/warming centers during climate extremes.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$ \$





GOAL NS3.

Protect environmental quality and advance environmental justice.

STRATEGY

NS3.1
Advocate for the reduction of harmful chemical and pollution exposure


CITY LEAD:
Sustainability Coordinator;
Parks & Recreation;
Water Treatment and Quality;
Legal Department


GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:
Colorado Oil and Gas Conservation Commission; environmental advocacy organizations; Colorado Department of Agriculture

ACTIONS

NS3.1a:
Evaluate transition to environmentally friendly pest management in select parks, lakes, and water treatment facilities.
RECOMMENDED START YEAR: 2028
COST ESTIMATE: 

NS3.1b:
Continue to limit irrigation schedules as appropriate and enforce landscaping regulations to conserve water and reduce runoff.
RECOMMENDED START YEAR: 2026
COST ESTIMATE: 

NS3.1c:
Inspect existing well sites to determine compliance with state and local law. Evaluate whether additional regulations or actions are required.
RECOMMENDED START YEAR: 2027
COST ESTIMATE: 

NS3.1d:
Advocate for state and regional policies to reduce emissions from industrial sources such as Suncor.
RECOMMENDED START YEAR: 2027
COST ESTIMATE: 





GOAL NS3.

Protect environmental quality and advance environmental justice.

STRATEGY

NS3.2
Integrate hazard risk reduction and resilience into City planning and implementation activities

CITY LEAD:
Sustainability Coordinator;
Water Resources

GHG REDUCTION:
MED

STRATEGIC FOCUS AREA:

PARTNERS:
Colorado Resiliency Office;
FEMA; National Weather Service

ACTIONS

NS3.2a:
Prioritize hazard risk reduction projects per year (e.g., flood berms, shade tree planting, cooling centers) in identified high-risk neighborhoods.
RECOMMENDED START YEAR: 2027
COST ESTIMATE: \$ \$

NS3.2b:
Consider making updates to city regulations and/or policies that advance heat island mitigation measures and help reduce the urban heat island effect.
RECOMMENDED START YEAR: 2028
COST ESTIMATE: \$

NS3.2c:
Develop systems to track and monitor urban heat island impacts.
RECOMMENDED START YEAR: 2027
COST ESTIMATE: \$ \$

NS3.2d:
Expand local weather data collection (e.g., weather stations) to improve preparedness.
RECOMMENDED START YEAR: 2028
COST ESTIMATE: \$ \$





GOAL NS3.

Protect environmental quality and advance environmental justice.

STRATEGY

NS3.3

Advance environmental justice and equity

CITY LEAD:

Sustainability Coordinator;
Community Connections

GHG REDUCTION:

LOW

STRATEGIC FOCUS AREA:



PARTNERS:

Colorado Department of Public Health and Environment (CDPHE); environmental justice organizations; City Council

ACTIONS

NS3.3a:

Evaluate the feasibility of conducting an Environmental Justice Analysis to guide equitable investment in underserved communities.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$

NS3.3b:

Use available data to identify environmental and health burdens across the City.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

NS3.3c:

Explore the feasibility of expansion of community services and programs in areas impacted by industrial development, poor air quality and other hazards.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$ \$

NS3.3d:

Institute routine City Council and leadership site visits to priority projects and neighborhoods.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$





SUSTAINABLE TRANSPORTATION, LAND USE, & INFRASTRUCTURE RESILIENCY

How people move through Thornton and how infrastructure is planned and maintained have a significant impact on emissions, access, safety, and resilience. This category focuses on creating a transportation and land use system that supports low-carbon mobility, connects people to jobs and services, and withstands the impacts of a changing climate.

The measures in this category prioritize safe and accessible walking, biking, and transit, alongside cleaner vehicles and more efficient use of the transportation network. Actions include updates to development standards, investments in multimodal infrastructure, support for electric vehicle adoption, and coordination with regional transit providers. Together, these efforts aim to reduce transportation-related emissions while improving safety, mobility choice, and affordability.

By integrating transportation planning with land use decisions and infrastructure resilience, this category supports long-term community outcomes. The measures are designed to align growth with sustainability goals, enhance connectivity across neighborhoods, and ensure that transportation investments contribute to a more resilient and equitable Thornton.



GOAL ST1.

Expand safe, convenient, and connected multimodal transportation options to reduce single-occupancy vehicle trips by 20% by 2035 and 35% by 2050 using a 2024 baseline.

STRATEGY

ST1.1

Develop and implement a connected multimodal network

CITY LEAD:

City Development;
Traffic Engineering;
Parks & Recreation

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Colorado Department of Transportation; Denver Regional Council of Governments (DRCOG); Regional Transportation District (RTD); pedestrian and bicycle advocacy organizations

ACTIONS

ST1.1a:

Continue to implement Complete Streets policies to ensure new and reconstructed roads serve pedestrians, cyclists, transit users, and drivers.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



ST1.1b:

Expand sidewalks, detached walkways, and protected/buffered bike lanes, prioritizing safety and equity.

RECOMMENDED START YEAR:

2027

COST ESTIMATE:



ST1.1c:

Continue to require pedestrian and bicycle connectivity in all new developments and redevelopments.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



ST1.1d:

Improve first- and last-mile transit connections through expanded bike/pedestrian paths and micro-mobility options.

RECOMMENDED START YEAR:

2029

COST ESTIMATE:



ST1.1.e:

Evaluate bench / resting space installations along trails and sidewalks for walkers and cyclists.

RECOMMENDED START YEAR:

2029

COST ESTIMATE:





GOAL ST1.

Expand safe, convenient, and connected multimodal transportation options to reduce single-occupancy vehicle trips by 20% by 2035 and 35% by 2050 using a 2024 baseline.

STRATEGY

ST1.2

Promote alternatives to single-occupancy vehicles

CITY LEAD:

Sustainability Coordinator; City Development; Traffic Engineering; Building Maintenance

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Colorado Department of Transportation and Smart Commute; DRCOG Way to Go; Regional Transportation District (RTD); major employers

ACTIONS

ST1.2a:

Launch, enhance, and/or expand programs for carpooling, vanpooling, and regional rideshare (e.g., DRCOG Way to Go).

RECOMMENDED START YEAR: 2029

COST ESTIMATE: \$



ST1.2b:

Support affordable and accessible transit by partnering with RTD to expand participation in the EcoPass and LiVE programs, and by promoting employer-based transportation demand management strategies through Smart Commute and DRCOG's Way to Go program. Collaborate with local employers to encourage telecommuting, flexible schedules, and reduced single-occupancy vehicle trips.

RECOMMENDED START YEAR: 2029

COST ESTIMATE: \$ \$

ST1.2c:

Develop secure bike and scooter parking at City facilities and in new developments.

RECOMMENDED START YEAR: 2029

COST ESTIMATE: \$ \$

ST1.2d:

Continue to allow bike/scooter share and other micro-mobility programs and update ordinances as necessary.

RECOMMENDED START YEAR: 2029

COST ESTIMATE: \$ \$



GOAL ST1.

Expand safe, convenient, and connected multimodal transportation options to reduce single-occupancy vehicle trips by 20% by 2035 and 35% by 2050 using a 2024 baseline.

STRATEGY

ST1.3

Expand and improve public transit

CITY LEAD:

Sustainability Coordinator;
City Development;
Traffic Engineering

GHG REDUCTION:

HIGH

STRATEGIC FOCUS AREA:



PARTNERS:

Denver Regional Council of Governments;
Regional Transportation District (RTD); Colorado Department of Transportation (CDOT); local nonprofit service providers

ACTIONS

ST1.3a:

Update Transit Studies every five years to identify gaps in service coverage, hours, and routes, and continually work to implement the initiatives identified in the studies.

RECOMMENDED START YEAR:

2027

COST ESTIMATE:



ST1.3b:

Continue to work with RTD, CDOT, and others as appropriate for expanded bus/light rail frequency, improved reliability. Frequency and improved reliability are RTD's responsibility. Thornton is responsible for shelters, trash cans, and amenities at stops. (Thornton has no light rail service - only commuter rail and buses.)

RECOMMENDED START YEAR:

2028

COST ESTIMATE:



ST1.3c:

Partner with RTD, CDOT and private property owners (e.g., Larkridge) to activate hubs with events, farmers markets, and services.

RECOMMENDED START YEAR:

2029

COST ESTIMATE:



ST1.3d:

Implement the initiatives identified in the Transportation and Mobility Master Plan as they pertain to low- and zero-emission microtransit options to expand neighborhood connectivity.

RECOMMENDED START YEAR:

2029

COST ESTIMATE:





GOAL ST2.

Increase adoption of electric vehicles (EVs) community wide to 25% by 2035. Transition the municipal fleet to achieve 75% electrification of eligible light-duty and 25% of medium/heavy-duty vehicles by 2035.

STRATEGY

ST2.1

Implement municipal fleet electrification

CITY LEAD:

Fleet; Parks & Recreation

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Colorado Energy Office;
U.S. Environmental Protection Agency (EPA);
equipment manufacturers

ACTIONS

ST2.1a:

Transition small engines and equipment (e.g., mowers, hand tools) to electric alternatives.

RECOMMENDED START YEAR:

2028

COST ESTIMATE:



ST2.1b:

Apply life cycle costing in all vehicle procurement to prioritize sustainable options.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



ST2.1c:

Retire or repurpose underutilized vehicles and equipment to improve efficiency.

RECOMMENDED START YEAR:

2027

COST ESTIMATE:





GOAL ST2.

Increase adoption of electric vehicles (EVs) community wide to 25% by 2035. Transition the municipal fleet to achieve 75% electrification of eligible light-duty and 25% of medium/heavy-duty vehicles by 2035.

STRATEGY

ST2.2

Expand EV charging infrastructure

CITY LEAD:

Sustainability Coordinator;
City Development;
Building Maintenance

GHG REDUCTION:

HIGH

STRATEGIC FOCUS AREA:



PARTNERS:

Xcel Energy; charging network providers; Colorado Energy Office, the Colorado Department of Transportation, and United Power; builders associations

ACTIONS

ST2.2a:

Expand installation of EV chargers at City facilities and public spaces.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

ST2.2.b:

Encourage (evaluate requiring) EV-ready infrastructure in new development.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

ST2.2c:

Promote and support private investment in charging infrastructure (existing retail, commercial, multifamily areas).

RECOMMENDED START YEAR:
2028

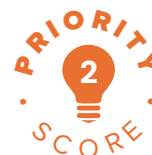
COST ESTIMATE:
\$

ST2.2d:

Support local EV retailers and mechanics by connecting them to state, federal, and utility funding and workforce development programs that expand EV sales and maintenance capacity. Partner with community colleges and trade schools to promote EV technician training, and recognize participating businesses through a local "EV Ready Business" designation.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$





GOAL ST2.

Increase adoption of electric vehicles (EVs) community wide to 25% by 2035. Transition the municipal fleet to achieve 75% electrification of eligible light-duty and 25% of medium/heavy-duty vehicles by 2035.

STRATEGY

ST2.3

Promote community EV adoption

CITY LEAD:

Sustainability Coordinator;
City Development;
Transportation

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Colorado Energy Office;
Denver Regional Council of Governments (DRCOG);
Colorado Department of Transportation; nonprofit mobility organizations

ACTIONS

ST2.3a:

Analyze the feasibility of developing and adopting a communitywide Transportation Electrification Roadmap for the purpose of expanding electrical charging options and availability for all vehicle types throughout the City.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$

ST2.3b:

Promote state and federal EV rebates and incentives to residents and businesses.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$

ST2.3c:

Expand affordable low-carbon transportation options by promoting and facilitating access to the Colorado Energy Office's E-Bike Rebate Program, Smart Commute, and other state and federal incentives. Partner with local bike shops and nonprofits to increase availability of e-bikes for Thornton residents, especially in underserved communities, and provide outreach and application assistance.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$





GOAL ST3.

Enhance land use and infrastructure resiliency to reduce communitywide greenhouse gas emissions 50% by 2035, 80% by 2045, and adapt to climate change impacts through 2050.

STRATEGY

ST3.1

Promote transit-oriented and walkable development

CITY LEAD:

Sustainability Coordinator; City Development

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Denver Regional Council of Governments (DRCOG); development community; parking reform advocacy organizations

ACTIONS

ST3.1a:

Implement Thornton’s development code which prioritizes mixed-use, compact, and pedestrian-friendly growth. Evaluate additional sustainability measures to include in future Development Code amendments.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$

ST3.1b:

Evaluate modifying zoning ordinances to reduce off-street parking requirements and encourage neighborhood-scale retail.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$

ST3.1c:

Leverage redevelopment projects to integrate sustainability measures (e.g., permeable surfaces, tree canopy, renewable energy-ready design).

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

ST3.1d:

Require developers to provide safe pedestrian and bicycle connections to transit stops and key destinations near developments. Evaluate the existing Development Code to determine if further measures can be adopted.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$





GOAL ST3.

Enhance land use and infrastructure resiliency to reduce communitywide greenhouse gas emissions 50% by 2035, 80% by 2045, and adapt to climate change impacts through 2050.

STRATEGY

ST3.2
Integrate climate resilience into infrastructure planning

CITY LEAD:
Sustainability Coordinator;
City Development

GHG REDUCTION:

STRATEGIC FOCUS AREA:

PARTNERS:
National Weather Service; Colorado State Forest Service; Colorado Department of Agriculture; climate resilience nonprofits; urban heat research organizations

ACTIONS

ST3.2a:
Incorporate tree canopy expansion, shade structures, and heat mitigation strategies into transportation and related infrastructure design, consistent with park and public space cooling efforts.

RECOMMENDED START YEAR: 2028
COST ESTIMATE: \$ \$

ST3.2b:
Explore green and purple roofs, living walls, and solar-equipped parking structures in City and private developments.

RECOMMENDED START YEAR: 2029
COST ESTIMATE: \$ \$

ST3.2c:
Invest in weather stations and local air quality data collection to inform resilient design and emergency planning.

RECOMMENDED START YEAR: 2028
COST ESTIMATE: \$ \$

ST3.2d:
Advance climate-smart land management practices, including integrated pest management and urban tree reuse, by incorporating them into City operations and pursuing state, federal, and nonprofit funding opportunities. Partner with the Colorado State Forest Service, Colorado Department of Agriculture, and local nonprofits to expand communitywide implementation rather than relying solely on City-funded programs.

RECOMMENDED START YEAR: 2028
COST ESTIMATE: \$ \$





GOAL ST3.

Enhance land use and infrastructure resiliency to reduce communitywide greenhouse gas emissions 50% by 2035, 80% by 2045, and adapt to climate change impacts through 2050.

STRATEGY

ST3.3

Advance equitable access to resilient infrastructure

CITY LEAD:

Sustainability Coordinator

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Colorado Department of Public Health and Environment (CDPHE); environmental justice organizations; Adams County; Denver Regional Council of Governments

ACTIONS

ST3.3a:

Conduct Environmental Justice Analyses to ensure low-income communities have access to affordable, reliable transportation.

RECOMMENDED START YEAR:

2028

COST ESTIMATE:



ST3.3b:

Prioritize infrastructure investments in underserved areas to address inequities.

RECOMMENDED START YEAR:

2029

COST ESTIMATE:



ST3.3c:

Collaborate with Adams County and nonprofits to bundle sustainability resources (housing aid, retrofits, mobility access).

RECOMMENDED START YEAR:

2028

COST ESTIMATE:





MATERIALS,
WASTE, & WATER
MANAGEMENT

MATERIALS, WASTE, & WATER MANAGEMENT

The way materials are selected, used, discarded, and recycled, along with how water is managed, both play a critical role in Thornton’s sustainability and resilience. This category focuses on reducing waste, conserving water, and supporting efficient use of resources across households, businesses, and City operations, while maintaining essential services and infrastructure.

Measures in this category emphasize waste prevention, recycling and composting, water efficiency, and long-term planning for water systems. Actions include program expansion, policy updates, partnerships with schools and businesses, and investments in infrastructure and data systems that support conservation and service reliability. Together, these measures aim to reduce environmental impacts, lower long-term costs, and protect finite resources.

By prioritizing practical, scalable solutions, the Materials, Waste, and Water Management measures support both environmental stewardship and community needs. This category helps ensure that Thornton’s resource systems remain reliable, efficient, and adaptable as the City grows and faces increasing climate and resource pressures.



GOAL MW1.

Reduce community water use by 10% by 2035 (measured as all billed customers' gallons per capita per day (GPCD) from 2024 baseline year), while improving efficiency, reuse, and watershed protection.

STRATEGY

MW1.1

Expand water efficiency programs

CITY LEAD:

Water Resources

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Colorado Water Conservation Board;
Resource Central;
Colorado WaterWise

ACTIONS

MW1.1a:

Maintain existing rebate programs (toilets, faucets, irrigation, appliances) and update program materials annually; promote them through City utility bills, social media, and contractor partnerships.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



MW1.1b:

New non-residential landscapes will be designed to have an annual average of 12 gallons/sq. ft. water demand or less (approx. 50% demand reduction from pre-2025 landscape code) and incentivize native and water-wise landscaping.

RECOMMENDED START YEAR:

2026

COST ESTIMATE:



MW1.1c:

Increase the number of residential, HOA, and business water audits offered each year; train staff to provide follow-up consultations and develop multilingual outreach materials.

RECOMMENDED START YEAR:

2027

COST ESTIMATE:





GOAL MW1.

Reduce community water use by 10% by 2035 (measured as all billed customers' gallons per capita per day (GPCD) from 2024 baseline year), while improving efficiency, reuse, and watershed protection.

STRATEGY

MW1.2

Strengthen water supply resilience

CITY LEAD:

Water Resources

GHG REDUCTION:

LOW

STRATEGIC FOCUS AREA:



PARTNERS:

Colorado Water Conservation Board;
U.S. Bureau of Reclamation;
watershed coalitions

ACTIONS

MW1.2a:

Evaluate the use of non-potable water in new City parks, medians, and large commercial landscapes.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$ \$

MW1.2b:

Install advanced metering infrastructure (AMI) Citywide; train operations staff on leak detection protocols; update maintenance schedules to prioritize leak repairs.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:
\$ \$ \$

MW1.2c:

Enforce existing permanent Water Use Rules and water waste ordinances.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$

MW1.2d:

Assign City staff to represent Thornton in regional watershed groups; identify and co-fund at least two restoration or protection projects with partners.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$





GOAL MW1.

Reduce community water use by 10% by 2035 (measured as all billed customers' gallons per capita per day (GPCD) from 2024 baseline year), while improving efficiency, reuse, and watershed protection.

STRATEGY

MW1.3
Promote water-smart development and planning

CITY LEAD:
Water Resources;
Engineering Department;
City Development

GHG REDUCTION:
LOW

STRATEGIC FOCUS AREA:

PARTNERS:
Water efficiency nonprofits;
green infrastructure nonprofits; schools

ACTIONS

MW1.3a:
Continue to implement the City's development review checklist to require water budgets, efficiency plans, and landscaping standards for all new subdivisions and commercial projects.

RECOMMENDED START YEAR: 2026
COST ESTIMATE: \$

MW1.3b:
Update the Water Efficiency Plan in 2032 with new targets for water efficiency.

RECOMMENDED START YEAR: 2031
COST ESTIMATE: \$ \$

MW1.3c:
Evaluate green infrastructure design standards (rain gardens, curb cuts, bioswales) for inclusion into all new capital improvement project scopes.

RECOMMENDED START YEAR: 2028
COST ESTIMATE: \$ \$

MW1.3d:
Increase the number of school and community participants in the Youth Water Festival; schedule annual City-led landscaping classes and demonstration garden tours.

RECOMMENDED START YEAR: 2027
COST ESTIMATE: \$





GOAL MW2.

Increase waste diversion by City-served customers to 50% by 2035 and 90% by 2050 through expanded recycling, composting, and waste reduction.

STRATEGY

MW2.1

Expand curbside and event-based recycling and composting

CITY LEAD:
Environmental Services;
Sustainability Coordinator

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Waste haulers; composting service providers; regional waste management organizations

ACTIONS

MW2.1a:

Launch a curbside composting program by 2027, prioritizing food and yard waste diversion.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$ \$ \$

MW2.1b:

Expand electronic waste, mattress recycling, and household hazardous waste events.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$ \$

MW2.1c:

Evaluate ways to expand composting and recycling based on participation, equity considerations, and operational performance.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

MW2.1d:

Evaluate pilot program offering discounted subscriptions for low-income households.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

MW2.1e:

Provide free reusable bags and promote organics diversion through bag fee revenues.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

MW2.1f:

Explore partnerships with schools to promote composting, recycling, and reducing waste with a goal of increasing school waste diversion.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$





GOAL MW2.

Increase waste diversion by City-served customers to 50% by 2035 and 90% by 2050 through expanded recycling, composting, and waste reduction.

STRATEGY

MW2.2

Promote construction and demolition waste reduction

CITY LEAD:

Sustainability Coordinator;
City Development

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Boulder County;
construction industry
associations;
green building nonprofits

ACTIONS

MW2.2a:

Evaluate feasibility of requiring recycling of construction and demolition debris in new development projects.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:

MW2.2b:

Evaluate an incentive program for projects that use recycled-content or sustainably sourced building materials.

RECOMMENDED START YEAR:
2029

COST ESTIMATE:

MW2.2c:

Evaluate a waste audit protocol for developments that meet a specific criteria.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:





GOAL MW2.

Increase waste diversion by City-served customers to 50% by 2035 and 90% by 2050 through expanded recycling, composting, and waste reduction.

STRATEGY

MW2.3

Foster a zero-waste culture

CITY LEAD:

Sustainability Coordinator;
Support Services;
Parks & Recreation;
Building Maintenance

GHG REDUCTION:



STRATEGIC FOCUS AREA:



PARTNERS:

Zero-waste nonprofits;
reuse and donation organizations;
sustainable purchasing networks

ACTIONS

MW2.3a:

Adopt a sustainable purchasing policy for City operations, incorporating social and environmental impacts.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$



MW2.3b:

Evaluate feasibility of zero-waste practices, including water stations, at City events and promote them in community events.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

MW2.3c:

Develop annual campaign themes (e.g., fast fashion, plastics, food waste); create outreach materials; partner with schools, businesses, and neighborhood groups to deliver campaigns.

RECOMMENDED START YEAR:
2027

COST ESTIMATE:
\$

MW2.3d:

Evaluate the possibility of working with nonprofits and secondhand retailers to establish additional donation drop-off sites; promote existing sites through City communications.

RECOMMENDED START YEAR:
2028

COST ESTIMATE:
\$ \$

MW2.3e:

Promote waste reduction within City organization; expand pilot program of removing individual trash cans in office spaces.

RECOMMENDED START YEAR:
2026

COST ESTIMATE:
\$



GOAL MW2.

Increase waste diversion by City-served customers to 50% by 2035 and 90% by 2050 through expanded recycling, composting, and waste reduction.

STRATEGY

MW2.4

Build community and business partnerships

CITY LEAD:

Sustainability Coordinator;
Environmental Services;

GHG REDUCTION:

LOW

STRATEGIC FOCUS AREA:



PARTNERS:

Businesses of Thornton
Advisory Commission (BTAC);
food recovery organizations

ACTIONS

MW2.4a:

Identify food waste diversion programs and provide resources for schools, warehouses, hospitals, and other large waste generators; provide technical support for composting and waste prevention.

RECOMMENDED START YEAR:

2028

COST ESTIMATE:

\$ \$

MW2.4b:

Partner with BTAC to develop campaign content on waste and energy reduction; schedule joint workshops and outreach events for member businesses.

RECOMMENDED START YEAR:

2027

COST ESTIMATE:

\$

MW2.4c:

Offer sustainability recognition awards for businesses reducing waste and adopting green practices.

RECOMMENDED START YEAR:

2028

COST ESTIMATE:

\$

MW2.4d:

Support school-based recycling and compost programs.

RECOMMENDED START YEAR:

2027

COST ESTIMATE:

\$





THORNTON

GETTING INVOLVED



This Master Plan is a shared roadmap. Achieving its goals depends on coordinated action by City staff, residents, community organizations, and local businesses. This section outlines practical ways to participate, from day-to-day actions to formal programs, partnerships, and leadership opportunities. The intent is to serve as a living resource that can be updated over time as new tools, incentives, and initiatives become available.



FOR CITY STAFF

City staff play a critical role in translating the ESMP into daily operations, capital planning, and community services. Participation can occur at all levels and across departments.

✓ INTEGRATE SUSTAINABILITY INTO DAILY WORK

- Apply ESMP goals and metrics when developing policies, programs, budgets, and capital improvement plans.
- Identify opportunities to reduce energy use, water use, waste, and vehicle miles traveled within City facilities and operations.
- Consider climate resilience, equity, and lifecycle costs in procurement and project design.

✓ COLLABORATE ACROSS DEPARTMENTS

- Participate in interdepartmental sustainability or climate working groups.
- Share data, lessons learned, and best practices across teams.
- Coordinate outreach and engagement efforts to reduce duplication and increase community impact.



✓ PROFESSIONAL DEVELOPMENT AND LEADERSHIP

- Participate in sustainability-related trainings, certifications, and peer learning networks.
- Pilot innovative practices within departments and document outcomes.
- Serve as internal champions by identifying ESMP-aligned opportunities and bringing them forward.

✓ KEY INTERNAL RESOURCES

- City sustainability policies, procedures, and design standards
- Internal energy, water, fleet, and waste dashboards (if applicable)
- State and federal funding guidance relevant to municipal projects



FOR THE COMMUNITY

Residents, neighborhood groups, and community-based organizations are essential partners in advancing sustainability and climate goals. Small, everyday actions—combined with collective efforts—can deliver meaningful benefits.

✓ EVERYDAY ACTIONS THAT MAKE AN IMPACT

- Improve home energy efficiency (weatherization, efficient appliances, smart thermostats).
- Reduce water use through efficient fixtures and landscaping.
- Reduce waste by recycling correctly, composting, and choosing reusable products.
- Choose low-carbon transportation options when possible, such as walking, biking, carpooling, or transit.



✓ UTILIZE RESOURCES

- Utility rebate and incentive programs for energy efficiency and electrification including state energy office and local utility rebate pages such as [Colorado Energy Office](#) and [Xcel Energy Rebates and Programs](#).
- Community solar, renewable energy, or green power programs such as [Colorado Public Utilities Commission](#) and utility green power program pages.
- Home repair, weatherization, and energy assistance programs, especially for income-qualified households (e.g., Weatherization Assistance Program, Low Income Home Energy Assistance Program).
- Educational workshops, tool libraries, and neighborhood sustainability programs (check City and library event calendars).

✓ HELPFUL STARTING POINTS

- [U.S. Department of Energy Energy Saver](#) and rebate information
- [DSIRE: Database of State Incentives for Renewables and Efficiency](#)
- [ENERGY STAR](#) programs and tools
- State energy office or equivalent agency website
- Home repair, weatherization, and energy assistance programs, especially for income-qualified households.
- Educational workshops, tool libraries, and neighborhood sustainability programs.



✓ GET INVOLVED LOCALLY

- Participate in public meetings, workshops, and surveys related to ESMP implementation.
- Join or form neighborhood sustainability, resilience, or climate action groups.
- Volunteer for tree planting, clean-ups, community gardens, or habitat restoration projects.
- Look for opportunities with local schools, faith organizations, or nonprofits to help with sustainability initiatives.

✓ VOLUNTEER AND ENGAGEMENT RESOURCES

- City volunteer programs and boards and commissions pages
- [VolunteerMatch](#) national volunteer database
- [United Way 211](#) community resource directory
- [Parks and Wildlife Volunteer Programs](#)



FOR BUSINESSES

Local businesses—large and small—are key drivers of innovation, employment, and emissions reductions. Sustainable business practices can reduce costs, attract customers, and strengthen the local economy.

✓ OPERATIONAL IMPROVEMENTS

- Improve energy and water efficiency in buildings and operations.
- Electrify equipment and vehicle fleets where feasible.
- Reduce waste through recycling, composting, and sustainable purchasing.

✓ WORKFORCE AND CUSTOMER ENGAGEMENT

- Encourage sustainable commuting options for employees.
- Educate customers about sustainable products, services, and practices.
- Support employee training related to energy management and sustainability.



✓ PROGRAMS, INCENTIVES, AND PARTNERSHIPS

- Utility and state incentive programs for efficiency upgrades and electrification (see DSIRE and local utility sites).
- Financing options for small and medium-sized businesses, including green banks and community development financial institutions.
- Technical assistance programs for energy audits, benchmarking, and retrofits through utility programs and [U.S. Small Business Administration](#)
- Partnerships with the City, chambers of commerce, and industry groups on pilot projects or recognition programs.

✓ LEADERSHIP OPPORTUNITIES

- Participate in voluntary benchmarking or climate commitments.
- Serve as demonstration sites for innovative technologies or practices.
- Mentor or collaborate with other local businesses to scale impact.



STAYING CONNECTED

The City will regularly share updates on ESMP implementation, upcoming engagement opportunities, and available resources. Community members, staff, and businesses are encouraged to:

- Sign up for sustainability newsletters or alerts.
- Follow City sustainability initiatives online and on social media.
- Contact the City with ideas, questions, or partnership proposals.

This section will be updated periodically to reflect new programs, funding opportunities, and community-driven initiatives.



THORNTON

LOOKING TO 2050



MEETING THE EMISSION REDUCTION TARGETS

Reaching the City’s long-term greenhouse gas emission reduction targets will require sustained action, coordination across sectors, and ongoing investment through 2050. The actions outlined in this ESMP are designed to deliver measurable emissions reductions while also supporting community priorities such as affordability, public health, resilience, and economic opportunity.

Progress toward the City’s emission reduction targets will be achieved by:

- Implementing near-term actions that deliver immediate emissions reductions while laying the groundwork for larger system changes over time
- Aligning municipal operations, community programs, and private sector activity with shared climate and sustainability goals
- Leveraging state, regional, and federal funding opportunities to accelerate implementation and reduce costs for residents and businesses
- Tracking progress using available data and updating strategies as technologies, policies, and community needs evolve



Because emissions sources and reduction opportunities will change over time, the City will prioritize flexibility and adaptive management. Early actions focus on proven strategies such as energy efficiency, electrification, waste reduction, and transportation options, while later phases will increasingly rely on emerging technologies, grid decarbonization, and regional collaboration.

Meeting the City's emission reduction targets will also depend on sustained community participation. Residents, businesses, and institutions play a critical role in reducing emissions through everyday choices, capital investments, and support for community-wide initiatives. The City will continue to provide information, incentives, and technical assistance to help community members participate in and benefit from the transition to a low-carbon future.

Regular evaluation of progress will help ensure the City remains on track to meet its 2050 goals and can adjust strategies as needed to reflect changing conditions, new data, and community feedback.



UPDATING THE ESMP

The Environmental Sustainability Master Plan is intended to be a living document that evolves over time. As conditions change, technologies advance, and new data become available, **the City will update the ESMP every 4 years** to ensure it remains relevant, effective, and aligned with community priorities and emission reduction targets.

Updates to the ESMP will be informed by progress toward emission reduction targets and implementation milestones, new greenhouse gas inventory data and improved analytical methods, changes in state, regional, and federal policies and funding opportunities, community feedback, and lessons learned from program implementation. Together, these inputs will help the City assess what is working, where adjustments are needed, and how best to prioritize future actions.

The City anticipates conducting regular check-ins on ESMP progress as well as more comprehensive updates at defined intervals. These updates may include refining actions, adjusting timelines, adding new strategies, or retiring actions that are no longer effective or relevant.

Public communication will be an important part of the update process. The City will share progress reports and plan updates in accessible formats and languages, and will provide opportunities for community members to learn about progress and provide input on future priorities.

By regularly updating the ESMP, the City can respond to emerging challenges and opportunities while maintaining a clear, long-term path toward its 2050 sustainability and climate goals.



ENVIRONMENTAL SUSTAINABILITY TASK FORCE

The Environmental Sustainability Task Force is recommended to continue as a standing advisory body to support implementation, accountability, and long-term success of the Environmental Sustainability Master Plan. As the City moves from plan development into implementation, the Task Force should shift from a planning-focused role to one centered on oversight, guidance, and continuous improvement through 2050.

RECOMMENDED ROLE OF THE ENVIRONMENTAL SUSTAINABILITY TASK FORCE:

- Advise City staff and decision-makers on implementation of the ESMP, including sequencing, refinement, and long-term alignment with emission reduction targets
- Support prioritization of actions by providing input on criteria such as equity, accessibility, public health benefits, cost effectiveness, and alignment with existing City plans
- Review progress toward ESMP goals and targets and provide recommendations based on available data, performance metrics, and emerging conditions
- Apply an equity and accessibility lens to ESMP actions, including identifying barriers to participation and advising on strategies to ensure community-wide benefit



- Support adaptive management by identifying data gaps, emerging issues, and opportunities to update or strengthen ESMP strategies over time
- Assist with transparency and communication by helping anticipate community questions and strengthening the justification and messaging for ESMP actions
- Serve as a facilitator between the community and the City, sharing information with and receiving feedback from Thornton residents.

RECOMMENDED STRUCTURE AND FUNCTION:

The Task Force should have a clearly defined scope, roles, and expectations to support effective long-term engagement. This includes a regular meeting schedule, defined membership terms, and clear processes for how Task Force input informs staff recommendations and policy decisions. The City should also create opportunities for youth representation on the Task Force to help incorporate intergenerational perspectives and support long-term climate and sustainability leadership. The Task Force should be engaged at key milestones, including periodic ESMP progress reviews and formal plan updates. Clear coordination between the Task Force and City staff will help ensure continuity, accountability, and productive collaboration as the ESMP is implemented and updated through 2050.

By maintaining a clearly defined and active Environmental Sustainability Task Force, the City can strengthen accountability, improve decision-making, and ensure that the ESMP remains responsive to changing conditions while staying focused on its long-term sustainability and climate goals.



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ACRONYMS

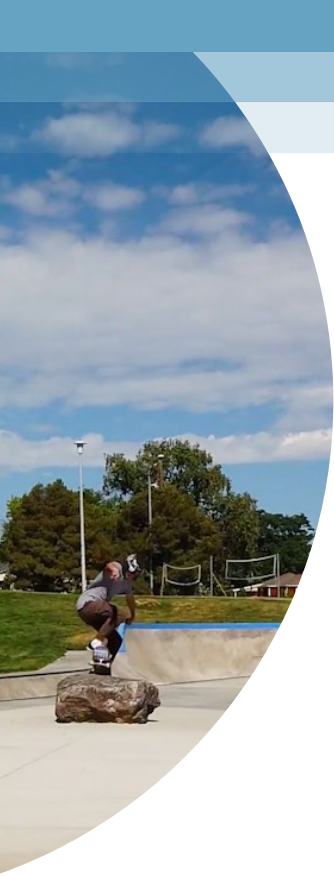
ACRONYM	DEFINITION
AMI	Advanced Metering Infrastructure
BTAC	Businesses of Thornton Advisory Commission
CDPHE	Colorado Department of Public Health and Environment
CSU	Colorado State University
DRCOG	Denver Regional Council of Governments
DSIRE	Database of State Incentives for Renewables and Efficiency
ENERGY STAR	U.S. Environmental Protection Agency energy efficiency program
ESMP	Environmental Sustainability Master Plan
ESTF	Environmental Sustainability Task Force
EV	Electric Vehicle
GPCD	Gallons Per Capita Per Day
GHG	Greenhouse Gas
HOA	Homeowners Association
ICC	International Code Council
IRA	Inflation Reduction Act
LEED	Leadership in Energy and Environmental Design
MT CO₂e	Metric Tons of Carbon Dioxide Equivalent
RTD	Regional Transportation District
VMT	Vehicle Miles Traveled



GLOSSARY

TERM	DEFINITION
Advanced Metering Infrastructure (AMI)	A system of digital water or energy meters that automatically collect and transmit usage data, allowing for more accurate billing, leak detection, and efficiency tracking.
Climate Resilience	The ability of a community, system, or infrastructure to prepare for, withstand, and recover from climate-related impacts such as extreme heat, drought, flooding, or severe storms.
Complete Streets	A planning and design approach that ensures streets are safe and accessible for all users, including people walking, biking, driving, and using transit, regardless of age or ability.
Decarbonization	The process of reducing or eliminating greenhouse gas emissions, particularly those associated with energy use, transportation, buildings, and industrial activities.
Distributed Renewable Energy	Small-scale renewable energy systems, such as rooftop solar or community solar gardens, that generate electricity close to where it is used rather than at a centralized power plant.
Electric Ready	A building design approach that prepares homes or buildings for future electrification by including electrical capacity, wiring, and space for electric equipment.
Electric Vehicle (EV)	A vehicle that is powered fully or partially by electricity rather than gasoline or diesel.
Electrification	The replacement of fossil fuel-powered equipment or systems with electric alternatives, such as electric heat pumps, water heaters, or vehicles.
Energy Benchmarking	The process of measuring and tracking a building's energy use over time to compare performance and identify opportunities for improvement.
Environmental Justice	The principle that all people should have equal protection from environmental harms and equal access to environmental benefits, regardless of income, race, or location.
Environmental Sustainability Master Plan (ESMP)	Thornton's long-term plan that outlines goals, strategies, and actions to reduce environmental impacts, improve resilience, and support a healthy community.

GLOSSARY



TERM	DEFINITION
Fugitive Emissions	A class of unintended greenhouse gas releases into the atmosphere, primarily from industrial activities and equipment.
Greenhouse Gas (GHG)	Gases that trap heat in the atmosphere and contribute to climate change, including carbon dioxide, methane, and nitrous oxide.
Green Infrastructure	Natural or nature-based systems, such as trees, wetlands, and permeable surfaces, that manage stormwater, reduce heat, and improve environmental quality.
Heat Island Effect	A phenomenon in which urban areas experience higher temperatures than surrounding areas due to buildings, pavement, and limited vegetation.
Lifecycle Cost Analysis	An evaluation method that considers the total cost of an asset over its lifetime, including purchase, operation, maintenance, and disposal costs.
Metric Tons of Carbon Dioxide Equivalent (MT CO₂e)	A standardized unit used to measure greenhouse gas emissions based on their impact on climate relative to carbon dioxide.
Multimodal Transportation	A transportation system that supports multiple ways of getting around, including walking, biking, transit, and driving.
Renewable Energy	Energy generated from naturally replenishing sources such as solar, wind, or geothermal power.
Solar Ready	A building design approach that ensures roofs and electrical systems can accommodate future solar installations.
Vehicle Miles Traveled (VMT)	The total number of miles driven by vehicles within a defined area over a given period of time.
Water Efficiency	Practices or technologies that reduce water use while maintaining performance, such as efficient fixtures, landscaping, or irrigation systems.
Zero-Waste	An approach that prioritizes reducing waste at the source and maximizing reuse, recycling, and composting to minimize disposal in landfills.



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APPENDIX B:

THORNTON 2024 GREENHOUSE GAS INVENTORY REPORT



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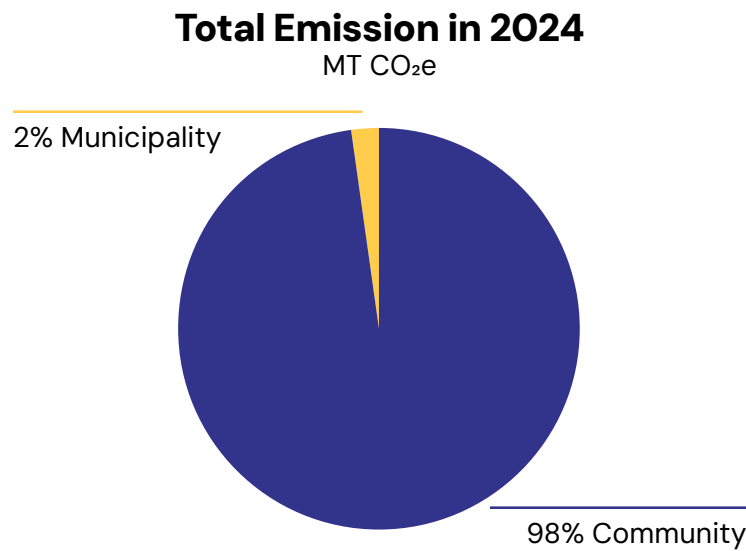
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INTRODUCTION

Blue Strike Environmental prepared this greenhouse gas (GHG) inventory on behalf of the City of Thornton to assess emissions from both the community and municipal operations for the year 2024. Community-wide emissions totaled **1,304,963 metric tons of CO₂e**, and with a current population of **153,992**, this equates to approximately **8.47 metric tons of CO₂e per person**. This analysis establishes a baseline to guide the City’s future emission reduction strategies and support ongoing climate and sustainability efforts.

Figure 1: Total Emissions (2024), presented as a donut chart.



COMMUNITY GHG INVENTORY

In 2024, community-wide emissions in the City of Thornton totaled approximately **1,280,638 metric tons of carbon dioxide equivalent (MT CO₂e)**. The primary contributors are summarized below and illustrated in Figure 2.

Figure 2: Community emissions breakdown (2024), presented as a donut chart.

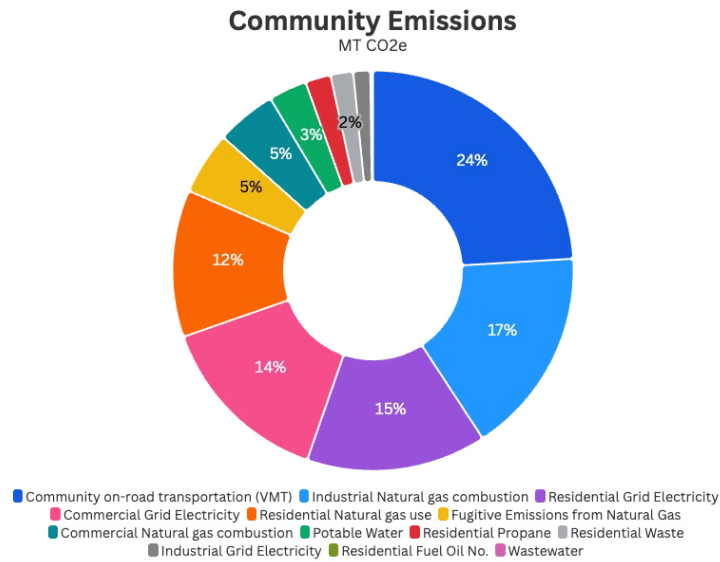


Table 1: Thornton Community Inventory 2024

Emission Source	Scope	MT CO2e
Residential Grid Electricity	Scope 2	186,041
Residential Natural gas use	Scope 1	152,189
Residential Propane	Scope 1	26,346
Residential Fuel Oil No.	Scope 1	1,475
Residential Solid Waste		23,271
Commercial Grid Electricity	Scope 2	183,478
Commercial Natural gas combustion	Scope 1	62,200
Industrial Grid Electricity	Scope 2	17,582
Industrial Natural gas combustion	Scope 1	214,389
Community on-road transportation (VMT)	Scope 1	307,984
Potable Water	Scope 3	39,437
Residential Waste	Scope 3	23,271
Wastewater	Scope 1	1,239
Fugitive Emissions from Natural Gas	Scope 1	65,027
Total Emissions		1,280,638

Energy use in buildings (residential, commercial, and industrial combined) is the dominant source of community emissions, followed by transportation, with solid waste and water-related emissions contributing smaller shares. Potable water is included within commercial electricity use, as the city’s water treatment plant operates within municipal boundaries.

Community emissions in 2024 consisted primarily of Scope 1 sources, which accounted for approximately 65% of total emissions. These include natural gas combustion in buildings, on-road transportation, propane and fuel oil use, and fugitive natural gas emissions. Scope 2 emissions, those associated with purchased grid electricity, made up about 30% of the total. Scope 3 emissions represented roughly 5% and were driven by potable water, solid waste, and wastewater processes. These proportions illustrate the community’s reliance on direct fuel use and highlight the importance of building electrification and transportation strategies to reduce emissions

Table 2: Thornton Community Inventory 2024 by scope

Scope	MT CO ₂ e
Scope 1	830,849
Scope 2	387,101
Scope 3	62,708

MUNICIPALITY GHG INVENTORY

In 2024, emissions from City of Thornton municipal operations totaled approximately **24,325 MT CO₂e**, as shown in Figure 2 (emissions from municipal operations are included in the community emissions total above).

Figure 3: Municipal operations emissions breakdown (2024), presented as a donut chart.

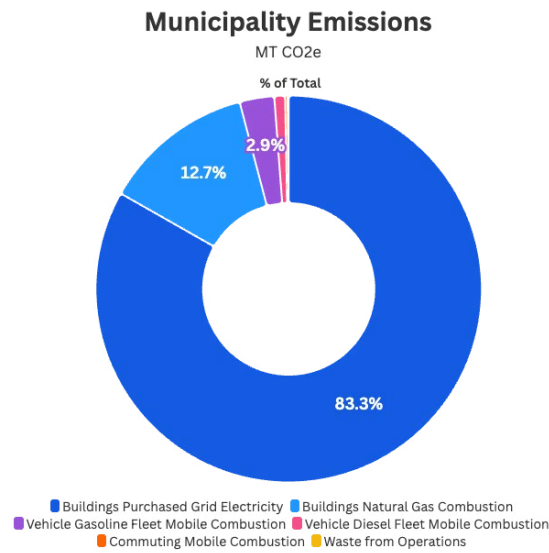


Table 3: Thornton Municipal Inventory 2024

Emission Source	Scope	MT CO ₂ e
Purchased grid electricity for Buildings and Facilities	Scope 2	16,577
Natural Gas Combustion for Buildings and Facilities	Scope 1	4,083
Grid Electricity for Street Lights and Traffic Signals	Scope 2	331
Fugitive Emissions from natural gas	Scope 1	577
Gasoline Consumed from Vehicle Fleet	Scope 1	2,634
Diesel Consumed from Vehicle Fleet	Scope 1	10
Employee Commute	Scope 3	180
Waste from operations	Scope 3	32
Total Emissions		24,325

The results emphasize the significant role of fuel combustion in municipal operations, particularly from building heating and fleet vehicles. Reducing municipal emissions will require focusing on building retrofits, electrifying the fleet, and addressing natural gas leakage.

Municipal operations are dominated by Scope 2 emissions from purchased electricity, which made up roughly 70% of total municipal emissions in 2024. Scope 1 emissions, mainly natural gas use in buildings and fuel consumption from the City fleet, represented about 30%. Scope 3 emissions from employee commuting and operational waste contributed less than 1% of the total. This distribution underscores the importance of improving building energy performance and transitioning municipal vehicles toward low-carbon and electric options

Figure 4: Community emissions breakdown (2024) by scope, presented as a donut chart.

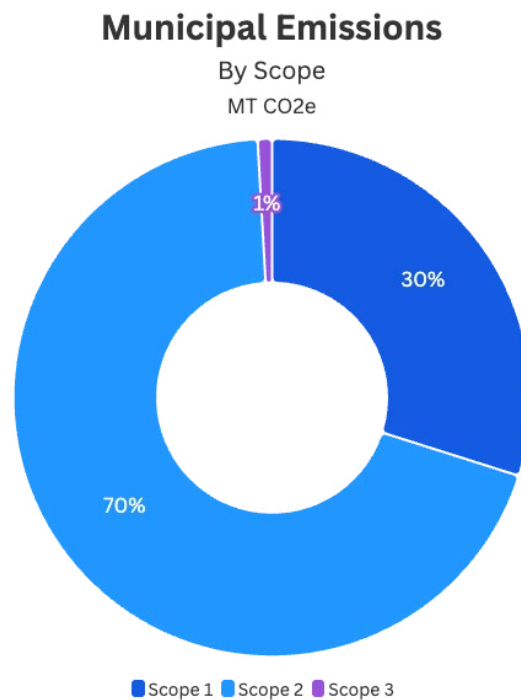


Figure 5: Emissions from Inventories in 2008, 2018 and 2024

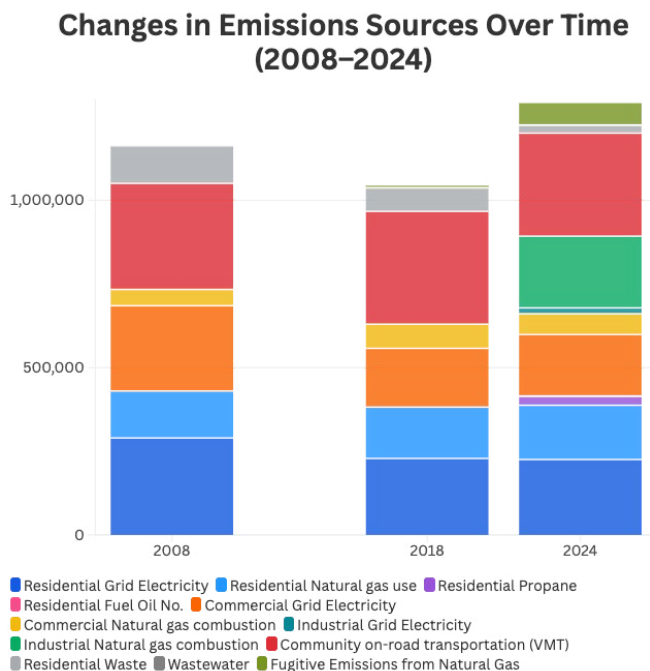


Table 4: Thornton Municipal Inventory 2024 by scope

Scope	MT CO ₂ e
Scope 1	7,304
Scope 2	16,908
Scope 3	212

ADDITIONAL CONSIDERATIONS

Emissions Associated with the Northern Properties

The City-owned Northern Properties were highlighted in the 2020 Inventory as a notable potential source of greenhouse gas emissions. While these emissions fall outside the operational control boundary applied in this inventory, they are relevant from a broader climate planning perspective.

The 2020 GHG Inventory estimated 12,000 MT CO₂e of fugitive emissions from 55 active oil and gas wells located on the Northern Properties. Although not included in the municipal total, these emissions represented a significant share compared to the City’s 2018 operational emissions (51,700 MT CO₂e).

Comparison with Previous Community Inventories

Three inventories have been conducted by the City, one in 2008, another in 2018 and this one using 2024 data. In previous inventories, some data were not available, which has resulted in a higher GHG emissions count for this inventory.

Table 5: Emissions from Inventories in 2008, 2018 and 2024

Emission Source	2008	2018	2024
Residential Grid Electricity	289,810	228,578	225,478
Residential Natural gas use	140,400	153,524	162,189
Residential Propane	NA	NA	26,346
Residential Fuel Oil No.	NA	NA	1,475
Commercial Grid Electricity	255,004	175,705	183,478
Commercial Natural gas combustion	48,568	72,269	62,200
Industrial Grid Electricity	NA	NA	17,582
Industrial Natural gas combustion	NA	NA	214,389
Community on-road transportation (VMT)	317,000	337,034	307,984
Residential Waste	112,234	70,100	23,271
Wastewater	642	787	1,239
Fugitive Emissions from Natural Gas	NA	6,027	65,027
Total Emissions	1,165,665	1,046,042	1,280,638

Table 6: Municipal Emissions Comparison

Municipal Emission Categories	2018	2024
Purchased grid electricity for Buildings and Facilities	18,869	16,577
Natural Gas Combustion for Buildings and Facilities	25,646	4,083
Grid Electricity for Street Lights and Traffic Signals	4,162	331
Fugitive Emissions from natural gas	0	577
Gasoline Consumed from Vehicle Fleet	5,054	2,634
Diesel Consumed from Vehicle Fleet	0	10
Employee Commute	0	180
Waste from operations	2,098	32
Total Emissions	55,830	24,325

EMISSIONS FORECASTS

Emissions forecasts were developed for the period 2023 through 2045 to evaluate projected community-wide greenhouse gas emissions relative to recent historical trends. While the 2024 inventory year serves as the primary baseline for this report, the forecast period begins in 2023 to align with available trend data and modeling assumptions.

Business-as-Usual (BAU)

Emissions forecasts were developed for the period 2023 through 2045 to evaluate projected community-wide greenhouse gas emissions relative to recent historical trends. While the 2024 inventory year serves as the primary baseline for this report, the forecast period begins in 2023 to align with available trend data and modeling assumptions.

Business-as-Usual (BAU) Scenario

The Business-as-Usual (BAU) scenario projects future greenhouse gas emissions assuming continuation of recent trends and current conditions, without the implementation of new local climate policies, programs, or regulations beyond those already reflected in historical activity levels. Growth in emissions under this scenario is driven primarily by population growth, increasing energy demand in buildings, and continued growth in vehicle miles traveled.

Under the BAU scenario, total community-wide emissions increase steadily through 2045. As shown in Figure 6, emissions from electricity and natural gas remain the dominant sources, with fugitive emissions, water and wastewater, and solid waste contributing smaller but growing shares over time. Figure X illustrates that residential and commercial energy use account for the majority of projected emissions, reflecting ongoing reliance on fossil fuels for space heating and electricity consumption.

The BAU forecast serves as a counterfactual reference case, representing expected emissions outcomes in the absence of additional intervention.

Figure 6. BAU Emissions by Source (2023–2045, MT CO₂e)

Projected community-wide greenhouse gas emissions under the Business-as-Usual scenario, disaggregated by emissions source.

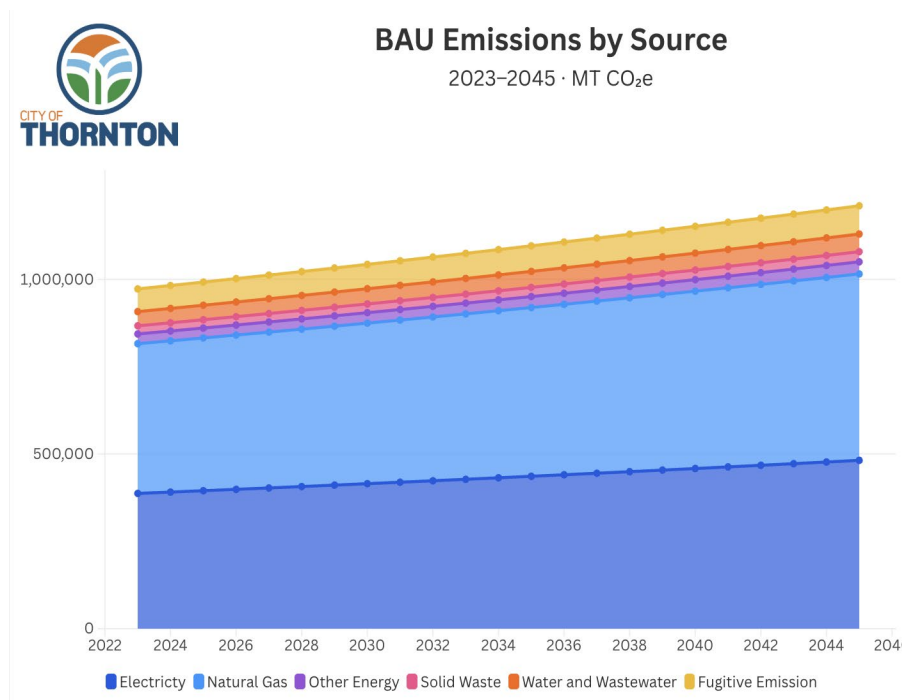
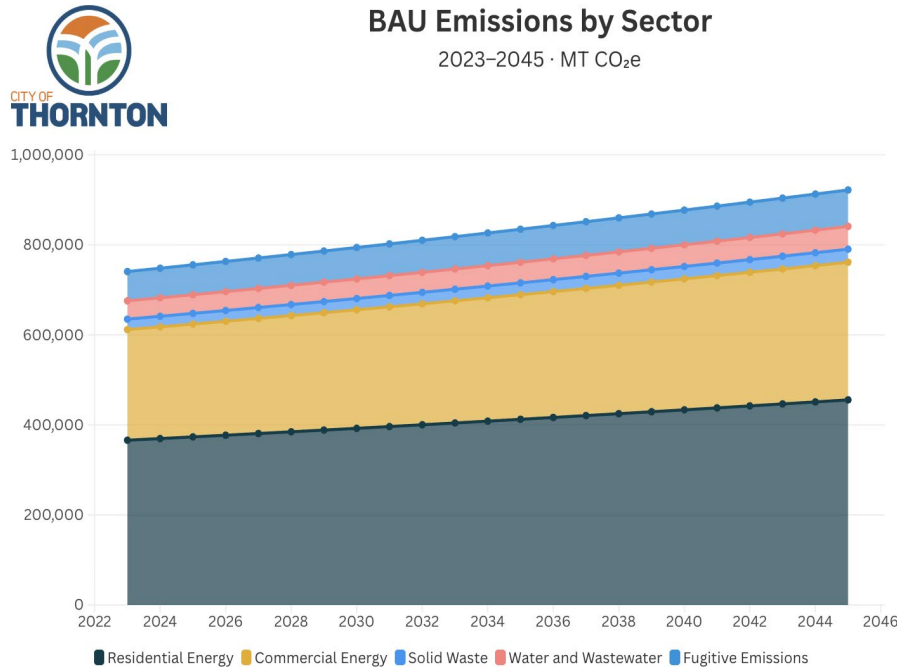


Figure 7. BAU Emissions by Sector (2023–2045, MT CO₂e)

Projected community-wide greenhouse gas emissions under the Business-as-Usual scenario, disaggregated by end-use sector.



Adjusted Business-as-Usual (ABAU)

The Adjusted Business-as-Usual (ABAU) scenario builds upon the BAU forecast by incorporating emissions reductions associated with policies, programs, and changes that are already adopted or reasonably certain to occur. These adjustments primarily reflect externally driven factors, such as anticipated changes in electricity emissions intensity and other committed system-level efficiencies, rather than new or aspirational local climate actions.

As shown in Figures 8 and 9, the ABAU scenario results in a substantial decline in total emissions over time, with the most significant reductions occurring in electricity-related emissions. By approximately 2040, total emissions stabilize at a lower level, reflecting the combined effect of declining electricity emissions and continued, though reduced, emissions from direct fuel use, waste, and water-related sources.

Sectoral results indicate that residential and commercial energy remain the largest contributors to emissions under ABAU, even as overall totals decline. This highlights the continued importance of direct fuel use and non-electric sources in the community emissions profile.

These forecast scenarios are intended to support long-term planning and context-setting and do not represent emissions reduction targets or a climate action pathway.

Figure 8. ABAU Emissions by Source (2023–2045, MT CO₂e)

Projected community-wide greenhouse gas emissions under the Adjusted Business-as-Usual scenario, disaggregated by emissions source.

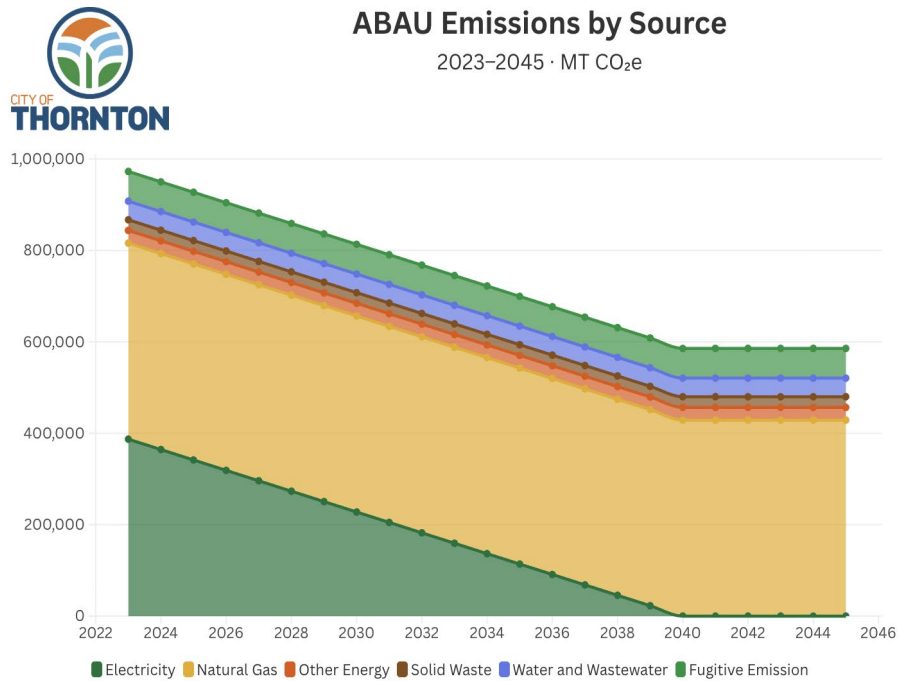
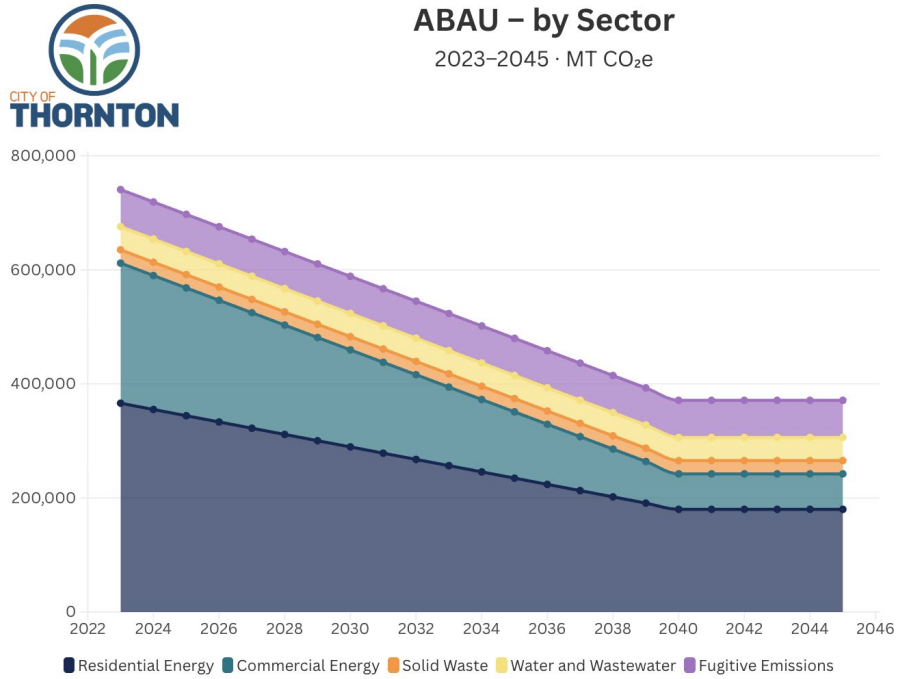


Figure 9. ABAU Emissions by Sector (2023–2045, MT CO₂e)

Projected community-wide greenhouse gas emissions under the Adjusted Business-as-Usual scenario, disaggregated by end-use sector.



METHODOLOGY

This greenhouse gas (GHG) inventory for the City of Thornton was prepared according to standard protocols, including the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI USA) for community-wide emissions and the Local Government Operations Protocol for municipal operations.

Rationale for Using the ICLEI U.S. Community Protocol

For the 2024 greenhouse gas inventory, the City of Thornton elected to use the ICLEI U.S. Community Protocol (USCP) as the primary accounting framework. The 2018 inventory was prepared under the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC BASIC). While the GPC remains a globally recognized standard, the USCP provides several advantages that make it more appropriate for U.S. local governments, particularly for ongoing inventory updates.

- **Alignment with U.S. Data Sources:** The USCP is designed specifically for U.S. jurisdictions and integrates directly with datasets from the U.S. Census Bureau, Energy Information Administration (EIA), Environmental Protection Agency (EPA), and utility reporting formats. This alignment reduces the need for proxies or conversions and increases the accuracy of locally relevant data.
- **Integration with ClearPath:** ICLEI's ClearPath software, the most widely used platform for local government GHG accounting in the U.S., is built around the USCP. Using ClearPath allows Thornton to apply consistent, peer-reviewed methods while also benefiting from technical support, updates, and peer benchmarking.
- **Consistency with National Practice:** Most U.S. cities and counties now report using the USCP, which enhances comparability across peer communities. By adopting the same protocol, Thornton can better align its results with regional and national best practices, while still maintaining the ability to crosswalk to the GPC framework for international reporting if needed.
- **Flexibility for Municipal Operations:** The USCP provides clear modules for both community-wide and local government operations inventories, simplifying the integration of municipal data alongside community totals.

The transition from the GPC BASIC framework to the ICLEI U.S. Community Protocol reflects a shift toward improved data accuracy, consistency with U.S. practices, and better integration with tools and methods that support long-term climate action planning. Thornton retains the ability to map its results to the GPC BASIC or BASIC+ framework if international benchmarking or disclosure is desired.

Transparency of Methods and Emissions Accounting

To improve clarity and facilitate comparison with previous inventories, this report includes a summary matrix of which emission sources have been included or excluded in the 2024 inventory. The table below identifies key emissions sectors, indicates their inclusion status, and notes whether they are required under standard protocols. This provides stakeholders with a clear view of the boundaries applied and highlights potential areas for future expansion.

Table 7: Inclusions and Rationale for 2024 Inventory

EMISSIONS SOURCE	SCOPE	INCLUDED IN 2024 INVENTORY	NOTES / RATIONALE
Stationary Energy – Residential, Commercial, Industrial	Scope 1 & 2	✓ Included	Utility data (electricity, natural gas) and Census/EIA data for non-utility fuels
Stationary Energy – Municipal Buildings and Facilities	Scope 1 & 2	✓ Included	Utility billing records and operational data
Fugitive Emissions – Oil and Gas Wells on Northern Properties	Scope 1	✗ Excluded (contextual only)	Outside operational control; emissions estimated in 2018 (~12,000 MT CO ₂ e) for reference
Fugitive Emissions – Natural Gas Distribution Leaks	Scope 1	✓ Included	Estimated using ClearPath methodology
On-Road Transportation (Community)	Scope 1	✓ Included	Vehicle miles traveled (VMT) data and EPA factors
On-Road Transportation (Municipal Fleet)	Scope 1	✓ Included	Fuel consumption records
Other Transportation (rail, aviation, off-road)	Scope 3	✗ Excluded	Not required under ICLEI protocol; potential future addition if GPC BASIC+ reporting adopted
Solid Waste (Community and Municipal)	Scope 3	✓ Included	Based on waste generation and disposal records; private hauler data gaps noted
Wastewater	Scope 3	✓ Included	City-provided volumes; emission factors from ICLEI protocol
Industrial Processes & Product Use	Scope 1 & 2	✗ Excluded	No major industrial sources identified within city boundaries
Agriculture, Forestry, and Land Use	Scope 1	✗ Excluded	Not significant in Thornton’s land use profile

Understanding the Three Scopes of Emissions

Greenhouse gas emissions are categorized into three “Scopes,” which help clarify where emissions originate and how they are attributed to a community or organization.

- **Scope 1 – Direct Emissions**
Emissions from sources that are owned or directly controlled within the city boundary. Examples include combustion of natural gas in buildings, fuel use in municipal fleet vehicles, and fugitive emissions from natural gas systems.
- **Scope 2 – Indirect Energy Emissions**
Emissions from the generation of purchased electricity, steam, heating, or cooling that is consumed within the city. These emissions occur at the utility level but are attributed to the community because of local energy use.
- **Scope 3 – Other Indirect Emissions**
Emissions that occur outside the city boundary but are a consequence of community activities. Examples include solid waste disposed of in landfills outside Thornton, wastewater treatment, employee commuting, and upstream energy losses. Scope 3 provides a broader picture of the community’s overall carbon footprint, though not all categories are required under current reporting protocols.

DESCRIPTION OF APPROACH

Population and Demographics

Population data came from both the City of Thornton and the U.S. Census Bureau’s QuickFacts for Thornton, Colorado.¹ Population estimates and housing data informed per capita and per household emission estimates.

Table 8: Thornton population metrics

Metric	Value
City population estimates, July 1, 2024	153,992
City population estimates base, April 1, 2020	141,865
Population % change	3.40%
US Census population April 1, 2020	141,867
US Census population April 1, 2010	118,772

¹ <https://www.census.gov/quickfacts/fact/table/thorntoncitycolorado/PST045224>

Stationary Energy Emissions

Emissions from stationary energy sources include grid electricity, utility-supplied natural gas, and non-utility fuels used for residential heating (such as propane and fuel oil).

- **Grid electricity and natural gas** data were collected directly from local utility providers and city operational records.
- **Non-utility stationary fuels** (e.g., propane, distillate fuel oil) were estimated using U.S. Census data (Table B25040: House Heating Fuel) and U.S. Energy Information Administration (EIA) state-level consumption data.

Specifically, the number of households in Thornton using "bottled, tank, or LP gas" (6,078) and "fuel oil, kerosene, etc." (445) were divided by the total number of such households in Colorado (256,257 and 91,569, respectively) to determine the city's share of statewide usage (2.37% for LPG and 0.49% for fuel oil).

State-level residential fuel consumption data were then obtained from EIA, with 17.6 trillion Btu for LPG and 4.1 trillion Btu for distillate fuel oil. Applying Thornton's household fractions yielded approximate community usage of 417,443 MMBtu for LPG and 19,925 MMBtu for distillate fuel oil. These values were entered into ClearPath's "Emission from Stationary Fuel Combustion" module to calculate emissions.

CONCLUSION

The 2024 GHG inventory prepared by Blue Strike Environmental provides critical data to support the City of Thornton's climate planning and sustainability initiatives. By focusing on the largest sources of emissions, transportation and energy use. The City can prioritize impactful strategies that reduce emissions and help achieve long-term climate goals.

Community Emissions

In 2024, community-wide emissions totaled approximately 1,320,073 metric tons of CO₂e. With a population of 153,992, this equates to about 8.47 metric tons per person, an increase from 7.5 MT per person in 2018. Energy use in buildings remains the dominant source of emissions, followed by transportation and waste-related sources. These findings underscore the importance of strategies that improve building efficiency, accelerate renewable energy adoption, and reduce reliance on fossil fuels.

Municipal Emissions

Municipal operations generated approximately 24,325 metric tons of CO₂e, representing about two percent of total community emissions. The largest sources are stationary energy use in municipal buildings and facilities, followed by fuel consumption from the vehicle fleet. This distribution highlights the opportunity to reduce municipal emissions through building retrofits, fleet electrification, and addressing natural gas use.

Northern Properties

The City-owned Northern Properties remain a notable source of potential emissions from oil and gas wells, estimated at approximately 12,000 MT CO₂e in 2018. While these emissions fall outside the operational boundary of this inventory, they represent a significant climate planning consideration for Thornton. Improved well-level data and updated emissions factors could strengthen future assessments of these properties.

Key Takeaways

- Thornton's total community emissions have grown since 2018, alongside population growth, resulting in a higher per capita emissions rate.
- Stationary energy use in homes, businesses, and municipal facilities is the largest contributor to emissions at both the community and municipal scales.
- Municipal emissions have decreased significantly since the 2018 inventory when boundaries are applied consistently, though further action is needed to continue this downward trend.

Next Steps

The results of this inventory provide a foundation for Thornton's climate and sustainability initiatives. Priority strategies include:

- Expanding building energy efficiency programs and accelerating renewable energy adoption.
- Advancing municipal building retrofits and electrifying the vehicle fleet.
- Improving waste data collection and increasing diversion and composting programs.
- Providing transportation alternatives for City residents and employees.

By focusing on these areas, Thornton can reduce emissions from its most significant sources while positioning itself as a leader in sustainability and climate action.

APPENDIX C: ESMP ENGAGEMENT PLAN



THORNTON

Project Title: Environmental Sustainability Master Plan

Collaborators: City of Thornton
Blue Strike Environmental
CDR Associates

INTRODUCTION

The City of Thornton's Environmental Sustainability Master Plan (ESMP) requires a robust engagement strategy to ensure meaningful participation from key stakeholders and community members. This plan outlines the approach, methods, and timeline for engagement activities, aligning with the City's objectives and the scope defined in the RFP.

ENGAGEMENT OBJECTIVES

- The engagement process aims to:
- Foster inclusive participation across diverse community groups.
- Gather input to shape the ESMP's priorities and implementation strategies.
- Ensure transparency and trust throughout the planning process.
- Promote awareness and buy-in from stakeholders and decision-makers.
- Build capacity within the community for long-term sustainability efforts.

KEY STAKEHOLDER GROUPS

Stakeholders have been identified in three broad categories:

- **Disproportionately Impacted / Historically Excluded Communities:** Including youth, women, older adults, non-English speakers, low-income communities, LGBTQIA+, people with disabilities, and racial or ethnic minorities.
- **City Governance and Sectoral Stakeholders:** City departments, county partners, businesses, and organizations with influence over sustainability initiatives.
- **Influencers and Decision-Makers:** City Council, Environmental Sustainability Task Force, commissions, and prominent community groups that can drive policy and resource allocation.

ENGAGEMENT METHODS

The following methods will be used to ensure comprehensive participation:

COMMUNITY WORKSHOPS

Community workshops will be interactive sessions designed to facilitate open discussions, gather input, and educate residents on sustainability planning efforts.

These workshops will:

- Be held at accessible locations and times to maximize participation.
- Utilize a mix of presentations, facilitated discussions, and breakout sessions to engage diverse perspectives.
- Be tailored to different stakeholder groups, such as local businesses, community organizations, and residents, ensuring relevance to their concerns and interests.
- Incorporate participatory tools like mapping exercises, visioning activities, and real-time polling to collect meaningful insights.

COMMUNITY SURVEY

Surveys will be used to gather input from a broad audience, including those unable to attend in-person events. The methodology includes:

- Developing a mix of qualitative and quantitative questions to capture community priorities and concerns.
- Distributing the survey through multiple channels, including online platforms, paper copies at public facilities, and mobile-friendly formats.
- Ensuring accessibility by offering translations, large print versions, and alternative formats for individuals with disabilities.
- Analyzing survey responses to identify key trends and integrate findings into the ESMP.

POP-UP EVENTS

Pop-up events will be informal engagement opportunities at high-traffic community locations such as farmers' markets, festivals, and City-sponsored events. The approach includes:

- Setting up mobile engagement stations with interactive displays and quick surveys.
- Using giveaways, informational materials, and incentive-based participation to attract interest.
- Engaging attendees through brief conversations and encouraging them to share their perspectives on sustainability priorities.
- Collecting qualitative feedback through short interviews and comment cards.

TASK FORCE MEETINGS

Role: The Environmental Sustainability Task Force serves as an advisory group providing expertise, guidance, and community perspectives to support the development of the Environmental Sustainability Master Plan.

Purpose: The Task Force ensures that the Master Plan reflects best practices in sustainability, aligns with community needs, and integrates environmental, social, and economic considerations to create a comprehensive and actionable strategy.

Objectives:

- Offer subject matter expertise and stakeholder insights to inform plan development.
- Identify key sustainability priorities, challenges, and opportunities for the community.
- Review and provide feedback on proposed strategies, policies, and initiatives.
- Promote public engagement and collaboration among government, businesses, and residents.
- Support the creation of a roadmap for implementing sustainability actions and tracking progress.

The Environmental Sustainability Task Force will meet at strategic points in the planning process to provide guidance and review progress. These meetings will:

- Facilitate in-depth discussions on draft recommendations and proposed actions.
- Ensure diverse perspectives are considered in decision-making.
- Utilize consensus-building techniques to align different stakeholder interests.
- Provide feedback loops to refine strategies before public release.
- Strategically integrate community feedback into project outcomes.

The consulting team will develop a Task Force Charter and Work Plan to guide for the purposes of the Environmental Sustainability Master Plan development process.

DIGITAL ENGAGEMENT

Online engagement will expand outreach beyond in-person methods, ensuring continuous and transparent communication. Digital tools will include:

- A dedicated project webpage with updates, resources, and opportunities to provide input
- Social media posts
- An asynchronous community meeting allowing for flexible interactive engagement
- A press release announcing the final ESMP

TIMELINE AND IMPLEMENTATION SCHEDULE

Engagement activities will follow the project schedule to align with key decision points. The tentative timeline is:

STAKEHOLDER GROUP	ACTIVITY	DESCRIPTION	WEEK OF...
ESTF	Task Force 1 (kick off)	Introductory: focus on project rational, method	3/13/2025
Community	Community Engagement Plan	Written Plan	4/1/2025
Community	Press Release	Announce the plan	4/14/2025
Community	Social Media content	Announce the plan	4/28/2025
Community	Webpage content	Hosted on City site	4/28/2025
Elected Officials	Council Meeting 1	Presentation: Objectives and methodology	4/29/2025
Community	Community Survey	Input: Rank concerns and solutions	5/5/2025
Community	Community Workshop 1	Introductory: focus on project rational, method	5/12/2025
Stakeholders	Focus Group 1	City staff	5/12/2025
ESTF	Task Force Meeting 2	Update on baseline findings	5/12/2025
Stakeholders	Focus Group 2	Influencers and decision makers	5/19/2025
Stakeholders	Focus Group 3	City Governance & Sectoral Stakeholders	5/26/2025
Community	Pop Up Event 1	Thornton Fest	6/7/2025
Community	Community Workshop 2	Baseline review, framework, criteria	6/16/2025
Elected Officials	Council Meeting 2	Baseline review, framework, criteria	6/23/2025
Community	Asynchronous Workshop	Interactive online platform	7/1/2025
Community	Pop Up Event 2	Farmer's Market	7/7/2025
ESTF	Task Force Meeting 3	Input: vet goals, criteria and solutions	7/14/2025

STAKEHOLDER GROUP	ACTIVITY	DESCRIPTION	WEEK OF...
Community	Community Workshop 3	Solutions	8/18/2025
ESTF	Task Force Meeting 4	Update on Engagement findings	9/15/2025
Elected Officials	Council Meeting 3	Engagement summary & initial strategy list	9/29/2025
ESTF	Task Force Meeting 5	Input: final vetting of solutions	11/17/2025
Elected Officials	Council Meeting 4	Presentation of final plan	12/15/2025
ESTF	Task Force Meeting 6	Input: final vetting of draft	1/12/2026

REPORTING AND INTEGRATION

- After each engagement activity, notes and results will be made available to the project team.
- The final Community Engagement Report will consolidate findings and demonstrate how community input has been integrated into the ESMP.
- Regular updates will be provided to the City and stakeholders through biweekly meetings and quarterly memos.

EQUITY CONSIDERATIONS

- The project team will identify stakeholder groups who may be disproportionately impacted by the project's process and/or outcomes.
- Engagement activities will be planned and coordinated in alignment with the needs of these communities to ensure their priorities are reflected in project planning and implementation. This includes scheduling activities for various accessible times and locations and leveraging existing partnerships and cultural events.
- Leverage both traditional and digital media to reach and engage diverse community members and ensure that communication methods are linguistically and culturally appropriate, accessible, and transparent.

CONCLUSION

This engagement plan is designed to create a participatory process that informs and empowers the community while ensuring that the ESMP is grounded in stakeholder-driven priorities. Through a combination of workshops, surveys, pop-up events, and advisory meetings, Blue Strike will work closely with the City of Thornton to develop an inclusive and actionable plan.

APPENDIX D:

STAKEHOLDER ENGAGEMENT REPORT



THORNTON

BACKGROUND

As part of developing the City of Thornton's Environmental Sustainability Master Plan (ESMP), the project team implemented a comprehensive stakeholder engagement strategy. This approach was designed to assess current environmental initiatives, identify opportunities for improvement, and capture community priorities for advancing environmental sustainability. Engagement activities sought to reach a broad cross-section of residents, staff, and decision-makers through a variety of formats to ensure accessibility and inclusivity.

Over the course of the planning process, the project team conducted a community-wide survey, four staff focus groups, three pop-up events, one community meeting, and an asynchronous workshop. In addition, project information and opportunities for input were shared through dedicated website content, social media posts, and presentations to City Council. Task force meetings provided a forum for ongoing discussion and guidance from key stakeholders.

This report summarizes the methodology and key insights gathered through these activities, which collectively informed the development of the ESMP and the City's long-term environmental sustainability goals.

GOALS AND OBJECTIVES

The stakeholder engagement process for the City of Thornton's ESMP was designed to ensure meaningful participation from a broad spectrum of residents, stakeholders, and decision-makers. The goals of this process were to:

- **Foster inclusive participation** across diverse community groups, with special attention to communities historically underrepresented in civic processes.
- **Gather input to shape ESMP priorities and strategies** so they reflect community needs and aspirations.
- **Ensure transparency and build trust** through open communication and clear documentation of how feedback informed the plan.
- **Promote awareness and buy-in** among stakeholders and decision-makers to support implementation of long-term sustainability initiatives.
- **Build community capacity** for ongoing sustainability efforts by engaging residents, businesses, and organizations in the planning process.

CORE PRINCIPLES FOR ENGAGEMENT

The engagement process was guided by core principles that ensured participation was equitable, accessible, and impactful:

- **Equity and Inclusion:** Activities were planned to reach disproportionately impacted and historically excluded communities, including youth, older adults, non-English speakers, low-income residents, people with disabilities, LGBTQIA+ community members, and racial and ethnic minorities. Efforts included multilingual materials, culturally relevant outreach, and accessible event formats.
- **Accessibility:** Engagement methods were designed to accommodate varying schedules, abilities, and technology access, offering both in-person and digital opportunities for participation.
- **Transparency:** The process emphasized clear communication of goals, decision-making timelines, and ways in which public input shaped plan development.
- **Collaboration:** The project team worked alongside City staff, the Environmental Sustainability Task Force, and community partners to ensure that engagement activities built on existing relationships and networks.
- **Continuous Communication:** Regular updates were provided through the City's website, social media, council presentations, and community events to maintain momentum and awareness.

SUMMARY OF ENGAGEMENT ACTIVITIES

Activity	Date	Audience
Project Team Meetings	Biweekly from February 2025 to January 2026	Internal project team consisting of City staff
Task Force Meetings	March 13, 2025	Environmental Sustainability Task Force; Open to the public
	May 20, 2025	
	July 31, 2025	
	September 15, 2025	
	December 2, 2025	
	TBD	
Online Outreach	Ongoing throughout project	All Thornton residents
Presentations to City Council	April 22, 2025	City Council; Open to the public
	July 21, 2025	
	December 16, 2025	
	TBD	
Staff Focus Groups	June 27, 2025	City staff related to Natural Systems, Community, & Environmental Protections
	July 2, 2025	City staff related to Sustainable Transportation, Land Use & Infrastructure Resiliency
	July 2, 2025	City staff related to Materials, Waste, & Water Management
	July 10, 2025	City staff related to Buildings & Energy Systems
Community Survey	May - August	All Thornton residents
Pop-up Event	May 29, 2025	Thornton May Community Meeting
	June 7, 2025	ThorntonFest attendees
	July 29, 2025	Farmer's Market attendees
	August 9, 2025	DinoFest attendees
Community Open House	June 25, 2025	All Thornton residents
Asynchronous Workshop	October 7 - October 31, 2025	All Thornton residents

SUMMARY OF ENGAGEMENT ACTIVITIES

PROJECT TEAM MEETINGS

Audience: Internal project team consisting of City staff

Objective: Ensure alignment among staff, consultants, and leadership on project goals, timelines, and deliverables.

Methodology: Biweekly virtual meetings were convened throughout the planning process to coordinate tasks, share updates, and address emerging challenges.

Findings:

- Regular biweekly meetings helped maintain coordination across City staff, consultants, and partners, ensuring steady progress on the Environmental Sustainability Master Plan.
- The team tracked and reviewed key deliverables, including the greenhouse gas inventory, community survey, engagement activities, and draft strategies.
- Meetings served as a space to set task force agendas and integrate lessons learned from workshops, focus groups, and pop-up events into the evolving plan.
- Engagement logistics, such as translation of materials, online tools, and event planning, were coordinated through these meetings to ensure broad community participation.
- Early discussions highlighted the importance of building on existing City and regional plans, while addressing identified gaps such as materials management and environmental protections.

TASK FORCE MEETINGS

Audience: Environmental Sustainability Task Force; Open to the public

Objective: Gather input from task force members on sustainability priorities, provide guidance on technical analyses, and review draft strategies.

Methodology: Meetings were held bimonthly to review progress and solicit feedback. Materials were shared in advance, and discussions were documented to capture task force perspectives.

Findings:

- The Environmental Sustainability Task Force provided critical guidance throughout the planning process, helping to refine goals, strategies, and measures for the Environmental Sustainability Master Plan.
- Members emphasized the importance of accountability and measurable progress, recommending clear performance indicators and annual reporting.
- Discussions highlighted the need to balance environmental ambition with fiscal and operational feasibility, ensuring recommendations are practical for implementation.
- The group consistently elevated equity as a key value, encouraging strategies that address barriers for lower-income residents and promote benefits citywide.
- Members stressed the importance of interdepartmental coordination within the City to align sustainability initiatives across planning, utilities, parks, and transportation.
- The Task Force advocated for expanded public education and outreach, suggesting partnerships with schools, community organizations, and local businesses.
- The group expressed interest in maintaining an active role after plan adoption, particularly in monitoring implementation and evaluating outcomes.

ONLINE OUTREACH

Audience: All Thornton residents

Objective: Provide accessible information about the planning process and advertise opportunities for the community to provide input.

Methodology: Project information, updates, and input opportunities were hosted on the City's website and promoted through social media channels and newsletters.

Findings:

- The City's website provided a central hub for information about the Environmental Sustainability Master Plan, including project background, engagement opportunities, and updates.
- Social media campaigns were used to promote the survey, workshop, and community events, helping raise awareness across a broad audience.
- Online content emphasized accessibility by offering materials in multiple formats and languages.
- Digital outreach supported participation from residents who may not have been able to attend in-person events, expanding overall reach.
- Posts and web content reinforced key messages about sustainability, climate action, and the City's long-term goals.

PRESENTATIONS TO CITY COUNCIL

Audience: City Council; Open to the public

Objective: Keep elected officials informed, gather direction, and ensure alignment with broader City policy goals.

Methodology: Presentations were delivered during regular Council meetings, with opportunities for questions and discussion.

Findings:

- Council members received regular updates on the planning process, ensuring alignment with City policy goals.
- Presentations provided transparency and accountability for progress on the Environmental Sustainability Master Plan.
- Council members expressed interest in maintaining consistency between the ESMP and other adopted City plans.
- Feedback emphasized the importance of fiscal responsibility and feasibility when implementing sustainability strategies.
- Council demonstrated support for continued community engagement and clear communication of plan outcomes.
- Ongoing **discussions about oil and gas operations in Thornton** informed the Council's perspective, underscoring the need for the ESMP to address environmental protections alongside economic and community considerations.

STAFF FOCUS GROUPS

Audience: City staff related to each of the ESMP's focus areas

Objective: Collect insights from staff on current practices, challenges, and opportunities for sustainability within their departments.

Methodology: Four focus groups were conducted, each aligned with an ESMP focus area. Structured questions guided the discussions, and notes were compiled to capture recurring themes.

Findings:

- Staff emphasized the importance of **expanding tree canopy, green roofs, and living walls** to address heat islands, while noting conflicts with transportation safety standards and other city priorities.
- **Water management and watershed protection** are ongoing strengths, though challenges remain with oil and gas impacts, policy enforcement, and the need for better community engagement around creeks and ditches.
- There is strong interest in **equitable access to nature**, including shaded seating, trail amenities, and urban agriculture programs, though barriers include water quality, staffing, and maintenance.
- **Transportation planning** is advancing through grants, sidewalk code updates, and zoning changes, but staff identified heavy reliance on auto-oriented development, limited funding, and inconsistent political support as major obstacles.
- Coordination with **RTD and regional transit providers** is a persistent challenge, with gaps in service to northern Thornton, limited bus frequency, and a lack of bus shelters or amenities.
- **Conflicting departmental priorities** (e.g., Vision Zero vs. tree planting, development codes vs. utilities) hinder progress; alignment on common sustainability goals was cited as a need.
- Staff highlighted **opportunities in building efficiency**, including automation systems, LED retrofits, and window upgrades, but noted persistent issues with comfort, HVAC controls, and lack of real-time energy data.
- The City's **fleet electrification efforts** are progressing through an EV-first policy, though infrastructure costs and charging capacity remain barriers, particularly at older facilities.
- **Waste reduction and materials management** efforts are underway (composting program, recycling events, equipment lending, asphalt reuse), but changing consumption behavior upstream is still a challenge.
- **Water conservation programs** have achieved measurable reductions in residential use, yet barriers such as resident preferences for turf, limited native plant supply, and high costs of landscape transformation remain.

COMMUNITY SURVEY

Audience: All Thornton residents (207 responses)

Objective: Gather broad community perspectives on environmental priorities, challenges, and opportunities.

Methodology: A community-wide survey was distributed online and promoted through multiple channels, including the City website, email lists, and social media.

Findings:

- Nearly half of respondents (43%) are extremely concerned about climate change, rating it 3.84/5 in importance.
- 40% believe it is extremely important for Thornton to act, emphasizing **future generations** and **urgent action**.
- Top climate risks: **public health impacts, water supply shortages, extreme heat/cold**, and **air quality** issues.
- Main barriers: **high costs, lack of clear information**, and limited local control, with some **skepticism** about climate science.
- Highest priorities: **reducing greenhouse gas emissions, cost-effectiveness**, and **community health benefits**.
- Energy focus: strong support for **energy efficiency upgrades, community solar**, and **renewable energy incentives**.
- Transportation priorities: **walkable neighborhoods, bike/walk infrastructure, public transit**, and **light rail expansion**.
- Waste/water initiatives: **xeriscaping, water conservation, expanded recycling/composting**, and **corporate accountability**.
- Natural systems: **calls for tree planting, wetland restoration, native plants**, and **river protection**.
- Desire for **education, outreach**, and **equitable access** to programs, especially for **low-income communities**.

POP-UP EVENTS (X4)

Audience: All Thornton residents

Objective: Engage residents in casual, accessible settings to raise awareness and collect input from a diverse cross-section of the community.

Methodology: Staff and project team members hosted informational tables at three community locations. Participants were encouraged to take the survey and provide feedback on sustainability topics.

Findings:

- **Renewable Energy & Electrification:** Residents expressed strong interest in expanding access to solar, wind, and other renewables, while raising concerns about the lifecycle and disposal of solar panels. Suggestions included legislation to make solar more affordable and installation of wind turbines and small-scale water power.
- **Electric Vehicles & Mobility:** Input emphasized incentives for EV adoption, support for EV retailers and mechanics, expanded charging infrastructure, and promotion of rebates for EVs and e-bikes. Calls were also made for more bike lanes, safer cycling routes, and stronger connections in the city's trail network.
- **Transit & Connectivity:** Participants recommended expanding bus and light rail service, working with RTD for more frequent service, and increasing community services that prioritize residents over retail development.
- **Waste Reduction & Recycling:** Residents supported expansion of curbside composting, recycling programs, and zero-waste initiatives, with an emphasis on ongoing education around waste diversion and recycling practices.
- **Community Education & Engagement:** Feedback included calls for school-based recycling education, broader sustainability campaigns, and increased public awareness about fast fashion and chemicals in food.
- **Urban Forestry:** Some residents suggested policies requiring replacement of trees (e.g., planting two trees for every one removed) to support canopy growth and resilience.

COMMUNITY OPEN HOUSE

Audience: All Thornton residents (6 attendees)

Objective: Provide residents with an overview of the planning process and invite feedback on sample sustainability strategies.

Methodology: A public meeting was held in person, featuring background information on the ESMP and interactive exercises. Three task force members served as representatives.

Findings:

- **Green Infrastructure & Water Management:** Participants recommended rain gardens, rain barrel workshops, diverting stormwater for reuse, and expanded native landscaping to improve water retention. Calls were also made to celebrate World Water Day and expand Resource Central offerings.
- **Parks, Greenspace & Recreation:** Residents emphasized converting underutilized fields into community green spaces, developing butterfly gardens, and expanding access to community gardens and splash pads for children.
- **Waste Reduction & Composting:** Suggestions included citywide curbside composting and stronger partnerships with local businesses to divert food waste.
- **Energy & Buildings:** Community members supported expanding EV charging infrastructure, increasing renewable energy in public facilities and parking lots, and training City maintenance staff to prioritize energy efficiency.
- **Equity & Funding:** Participants urged the City to prioritize investment in Ward 1 and other underserved areas, model a climate funding mechanism similar to Denver’s Climate Tax Fund, and provide incentives for households, **HOAs, and businesses to adopt sustainable practices.**
- **Economic Development & Workforce:** Residents highlighted opportunities for workforce development programs to create green jobs and expand sustainability-focused partnerships with HOAs, local businesses, and institutions like CSU SPUR.
- **Community Engagement & Education:** Feedback included expanding public events (e.g., at RTD hubs or farmers markets), supporting volunteer-led sustainability projects, and introducing school and neighborhood-level sustainability campaigns.
- **Policy & Health:** Ideas ranged from introducing a sugar tax to support healthy food access and farmers markets to exploring de-industrialization in certain areas to improve greenspace and air quality.

ASYNCHRONOUS WORKSHOP

Audience: All Thornton residents

Objective: Offer flexible engagement opportunities for residents unable to attend in-person meetings.

Methodology: An online, self-paced workshop via ArcGIS StoryMaps was created, allowing participants to review materials and provide input on their own schedule.

Findings:

- The StoryMap pages received **277** views, indicating strong interest in reading the materials even though formal participation remained low.
- Only a small number of respondents (2 total) submitted feedback across both StoryMaps. Their comments focused exclusively on support for clothesline programs, encouraging the City and Xcel to promote the installation of outdoor clotheslines and remove HOA restrictions.
- Respondents expressed willingness to engage through individual sustainable behaviors and collective action, such as conserving energy, supporting local food systems, or volunteering.
- When asked what resources would help them participate, responses highlighted the need for outreach and education, discounted materials, and rebates or tax incentives, each selected once.
- One participant indicated that the draft strategy prioritization “mostly” reflected community priorities, with no additional comments on criteria.

INTEGRATION OF FINDINGS

Community input gathered through surveys, workshops, focus groups, pop-up events, and advisory meetings has been essential in shaping the Environmental Sustainability Master Plan. These conversations ensured the plan reflects the lived experiences, priorities, and perspectives of Thornton residents and staff—not just technical assessments or regional benchmarks. Feedback provided actionable guidance on topics such as renewable energy access, electric vehicle infrastructure, waste diversion, water conservation, and equitable investment in parks and green spaces, while also elevating broader themes of education, affordability, and community resilience.

The final plan integrates this input in several ways. Strategies and actions that received broad community and staff support are prioritized, and concerns raised through engagement, such as funding mechanisms, coordination between departments, and the balance between environmental and economic goals, are addressed through phased implementation and supportive policies. Community feedback also informed how outreach and programs will be delivered, emphasizing the need for multilingual materials, accessible engagement opportunities, and partnerships with schools, HOAs, and community organizations.

Through this integration, the ESMP not only advances the City's climate and sustainability goals but also embodies the values and creativity expressed by the Thornton community, ensuring that future implementation is both equitable and grounded in local realities.

CONCLUSION

The Environmental Sustainability Master Plan engagement process demonstrated the City of Thornton's commitment to collaboration, transparency, and community-driven planning. Through a combination of staff input, public outreach, and advisory discussions, the City gathered valuable perspectives that reflect both the technical expertise of staff and the lived experiences of residents.

Across all engagement activities, participants expressed a shared desire for a more resilient, connected, and equitable Thornton, one that prioritizes clean energy, efficient buildings, access to nature, sustainable transportation, and responsible water and waste management. Feedback also underscored the importance of accountability, cross-departmental coordination, and sustained community education to ensure long-term success.

The insights collected through this process will continue to inform implementation of the ESMP, guiding near-term actions and shaping future policies. By integrating community values with technical strategies, the City is positioning the ESMP not only as a roadmap for sustainability, but as a living framework that reflects the evolving goals and aspirations of Thornton's residents and workforce.