

D. Thornton Sustainability Program Update

COUNCIL UPDATE COMMUNICATION

Meeting Date: May 28, 2024	Agenda Item: IIID	Agenda Location: BRIEFINGS	_____ 1 st Reading _____ 2 nd Reading
Subject: Thornton Sustainability Program Update			
Department Head Review: Robb Kolstad, Deputy City Manager		Approved by: Brett Henry, Interim City Manager	Ordinance previously introduced by: _____
Presenter(s): Alice Huang, Senior Management Analyst			

SYNOPSIS:

Thornton has pursued a variety of sustainability initiatives led by various departments, including facility energy efficiency improvements, solar installations, fuel efficient vehicle upgrades and electric vehicle charging stations, converting gasoline-powered equipment to electric, water conservation programs, waste reduction efforts, development code efforts, and public outreach. In 2019, Thornton completed a Sustainability Action Agenda which serves as the master plan for the Sustainability Program. Implementation of the master plan and coordination of the various sustainability efforts was consolidated in the City Manager’s Office, though the various departments continue to implement projects and programs within their operations.

RECOMMENDATION:

For informational purposes only.

BUDGET/STAFF IMPLICATIONS:

None.

ALTERNATIVES:

For informational purposes only.

BACKGROUND (ANALYSIS/NEXT STEPS/HISTORY): (includes previous City Council action)

Initiatives

Through Xcel’s Partners in Energy program, the City created and adopted the Sustainability Action Agenda in 2020. The Sustainability Agenda is focused on:

- Climate Action
- Carbon-Free Energy Supply
- Healthy & Efficient Buildings
- Sustainable Transportation & Clean Air
- Waste Reduction & Recycling
- Sustainable Water & Land Management
- Healthy Community
- Resilient Economy

The Energy Action Plan focuses on the first three categories.

The City is currently underway with an Energy Performance Contract, which is an investment grade audit (a program supported by the State) that focuses on facilities, solar, streetlight acquisition, and water utilities.

Staff is heavily involved in tracking and monitoring grants, especially those from IRA, IJJA, etc.

City Facilities

Newer City facilities have a strong sustainability focus:

- The Active Adult Center would have qualified for LEED certification through water efficiency measures that reduced indoor water use by 40%, energy performance improvements that saved over 38% of energy as compared to the old facility, and low-emitting materials (VOCs in paints). It also had whole building life-cycle assessment, and material ingredient reporting.
- The new Police Training Facility and the new Fire Station No. 1 have high efficiency equipment and windows, low-emitting materials (VOCs in paints), daylighting, and EV charging infrastructure. The Police Training Facility also has access to transit and bicycle rack, low-impact design for onsite stormwater detention and a permanent water quality pond, and 30% of the site remaining open space. Its construction activity also factored in pollution prevention.
- Fire Station No. 7 Station design factored in heat island reduction and reduction of light pollution. Its overall imperviousness is far lower than what is typically seen for this zoning and has an extended detention basin, both of which reduces stormwater pollution. The station's irrigation, turf areas, landscaping, interior features, and appliances are all highly water efficient. Like the new Police Training Facility and Fire Station No. 1, it also has high efficiency equipment and windows, low-emitting materials (VOCs in paints), daylighting, and EV charging infrastructure. The station is also solar ready.
- Fire Station No. 8 is currently in the process of design but the plan is to follow similar sustainability priorities as Fire Station No. 7.
- The new Community Center is planned to have sustainability sourced materials that are locally sourced, recycled content, or are made of renewable materials. This includes counter tops, exterior brick, tile, and flooring. The new center will have highly efficient HVAC systems, from energy recovery on the main air handling units to reduced energy consumption and better ventilation. The landscape architecture will be water efficient with native plant species and native grass in specific areas, as well as limiting impervious services. Other water efficiencies include indoor water use reduction. The center will also be a micro-mobility hub to encourage use of alternate modes of transportation (bike, scooter, e-bike) and have EV charging infrastructure.

The City's other past building improvements include replacing all lights to LED, which saves a substantial amount of electricity and maintenance. The City also only uses white EPDM roofing (where applicable) which reduces solar heat gain in the summer and A/C costs. There are 400 solar panels at City Hall and 234 panels at Carpenter Recreation Center. The City also aims to have new facilities be solar ready, including Fire Station No. 7, Community Center, and Thornton Water Treatment Plant (TWTP). Building maintenance staff also optimizes new equipment by replacing HVAC/other systems with more efficient ones during regular replacement lifecycles. For example, for the 2025 budget, building maintenance is considering adding a preheater to an air handling unit, adding a variable frequency drive (VFD) controlled exhaust fan for the Atrium, and replacing older water heaters with

energy-efficient ones at City Hall. Other facilities include other HVAC upgrades from replacing boilers, rooftop units, A/C units, furnaces, and chillers. The City is also conducting some weatherization and water efficiency improvements at facilities through our energy performance contract. For our water treatment plants, the City optimizes water utility operations by upgrading pumps and other equipment at various plants and pump stations. For example, our water utility operations have focused on energy efficiency, and through optimizing processes and pumping, saved over 2.6 million KWhrs of electricity for the past 3 years (\$172.8k in savings per year).

Other efforts the City has made includes DocuSign implemented in 2020, saving the City 9,000+ lbs of waste, an equivalent to 55,944lbs of wood saved, 164,724 gallons of water conserved, and 131,312lbs of carbon emissions reduced. Also, through CDPHE, Thornton is a part of the Green Business Network, which recognizes organizations that make the move toward the goal of true, operational sustainability.

For future facility projects, the City is in the process of a separation study to acquire Xcel-owned streetlights to convert them to LED. This study should be completed by December. Through the 2025 budget, the City will be considering solar at TWTP and improving energy efficiency at McKay Pump Station through VFDs. The City is also currently exploring a sustainable purchasing policy that allows procurement decisions to be made based on environmental and social impacts, as well as financial considerations.

Fuel Efficiency and Electric Vehicles

The City has five different charging station sites and 18 different ports, including City Hall, Fire Station #1, Infrastructure Maintenance Center (IMC), Trail Winds Recreation Center, and Thorncreek Golf Course. The City has also added fuel efficient vehicles primarily in the Police, Infrastructure, and City Development Departments. These vehicles include Police Department patrol cars and other sedans and small utilities. Staff continues to monitor this evolving market to seek out viable vehicles for other white fleet options frontline operations. Currently, the market does not have viable options for heavy-duty utility trucks and other heavy-duty fleet. Our current inventory is three full EV motorcycles and 82 hybrid EVs for a total of 85 fuel efficient vehicles. Out of these 85 vehicles, 73% are in Police. This equates to 30% of the total Police fleet as a hybrid/electric. As Patrol is a 24/7 operation, this is a high utilization of hybrid/electric vehicles. The City also has 12-ebikes in the Police Department.

Future plans include pursuing more electric white fleet in the 2025 budget and the City is currently in the process of adding more charging stations to the Justice Center and the IMC (three stations, six ports). More charging stations will be added at City facilities based on future electric vehicle purchase. The City has purchased four electric vehicles for 2024 though they have not yet been delivered; these vehicles will allow the City to pilot various electric vehicles to understand the operational capabilities and better understand where they can best be deployed throughout the City. The Police Department will continue to purchase hybrids for Patrol when hybrids are available for purchase and other divisions also utilize hybrids. Through the natural turnover of the fleet, the City is committed to looking at hybrid and electric options, especially for white fleet.

The Parks division is already using some electric handheld equipment and will convert most of Parks smaller handheld equipment to electric through the 2025 Budget. The City won a Regional Air Quality Council (RAQC)'s Mow Down Pollution Grant in 2023 to fund the City's first e-mower, a 60" zero turn e-mower, as well as purchase more electric handheld equipment such as chain saws, hand blowers, string trimmers, edgers, etc. The City applied for RAQC's Mow Down Grant again in 2024 for more handheld electric equipment.

Water Conservation

The City's public-facing water conservation efforts consists of many programs, including rebates for new toilets, smart irrigation controllers, and water-wise landscapes. The City also offers the following services:

- Indoor programs: toilet rebates
- Outdoor programs: smart irrigation controller rebates, water-wise landscape rebates, services such as lawn removal, sprinkler consultations and Garden-in-a-box continue
- Commercial water use assessments offered to businesses interested in reducing their water use. Water demand estimates for new developments.
- WaterSmart portal for water customers to track their water use and learn how to find and fix leaks.

Programs for 2024 include continuing programs for low-income customers, such as toilet replacements and leak repair assistance. The Youth Water Festival returned in 2023 and was a success in 2024. The City is collaborating with Colorado WaterWise on an update to the Water Conservation Best Practices Guidebook. The Advanced Metering Infrastructure project is continuing as well; this project consists of upgrading water meters and installing new meter reading technology that will provide real-time water usage information, rather than monthly. This is critical for water conservation as it results in quicker leak detection and allows customers to better manage their water usage. The City is continuing to improve commercial water efficiency through commercial benchmarking project with the Alliance for Water Efficiency. Consistent with years past, there is a focus on Parks irrigation efficiency through a Water Resources Analyst to focus on Parks irrigation efficiency for Thornton's largest water customer. There are also landscape code changes that received Council feedback and direction on April 16 and will continue to move through the process.

Future plans consist of watershed protection efforts and the Water Efficiency Plan Update in 2024 will provide the roadmap for future water conservation efforts.

Waste Reduction & Recycling

The Environmental Services division made trash and recycling routes more efficient, which resulted in reduced labor costs and route miles. In 2022, this resulted in reducing fuel usage by 7.6% and route miles by 20%. Our current waste diversion rate is 14.79%, an increase from 14% in 2022.

The City has special events such as fall leaf drop-off days and disposal of special materials days. The City partners with Adams County to offer residents annual Electronic Recycling Drop-off events. Over the past 5 years alone, these events brought in over 493 tons of televisions, laptops, computer monitors, DVD players and other electronic items which are banned from Colorado landfills. The City also has the mattress diversion program, which is in its 7th year of operation. Since its inception, the City has been able to divert approximately 270 tons of mattresses from the landfill, which is an average of roughly 1,200 mattresses per year. The City regularly hosts household hazardous waste disposal events, and the City will have three in 2024. The city also partners with Adams 12 schools to conduct outreach and educate students about recycling and composting.

The City piloted curbside composting three years ago but due to a lack of participation, the program now focuses on operating a compost drop-off site at the Infrastructure Maintenance Center. Drop off composting tonnage increased 150% from 2020 to 2022 through improved communications with residents, using a marketing grant, and then increased again 30% in 2023. The City also hosts extra Saturday events for compost drop-off and increased outreach to let residents know about the program.

Using bag fee funding (revenue from the fee on plastic bags in 2023 and paper bags moving forward), we are providing free reusable bags for the community and a mattress recycling event. We are continuing program development for a City-wide Compost (Organics) Collection program and applied for a technical assistance grant through the Front Range Waste Diversion program.

Development Code

The City is in the midst of a Development Code Update, which aims to make the code more user-friendly, remove or update antiquated requirements and standards, increase efficiency in the development review process, incorporate newer development concepts, improve aesthetics, align with Thornton's 2020 Comprehensive Plan, and consider elements of sustainability. To date, the Development Code Update has received public outreach feedback on consideration of EV charging stations, bicycle and ped infrastructure, reduced off-street parking, permeable surfaces with limits on impervious surfaces, renewable energy options such as energy efficient design, green roofs, bird-friendly design, dark skies friendly lighting, tree planting, native plant species, and rain gardens/bioswales. Future sustainability considerations for the project include:

- Consideration of a points system and incentives including expedited review
- Density - increased density, mixed use, accessory dwelling units (ADUs), infill and redevelopment
- Transit, sidewalks, bikeways, etc. such as multimodal projects
- Reducing off-street parking requirements for development near transit
- Open space and parks requirements for development

Community Engagement

Excel has a Home Energy Squad program to evaluate residential homes and propose energy saving measures; there were 129 Home Energy Audits and Squad visits in 2023, 141 in 2022, and 100 in 2021. The City subsidizes a portion of the costs for residents. The City is now adding a sustainability table at ward events and will include information from Xcel and United Power about rebates. In addition, the City partnered with Xcel to share their rebates and energy conservation measures with the business community through one of the annual networking events. Economic Development is promoting more green initiatives by encouraging businesses to convert to LED.

The City is expanding their tree sale program to have a second tree sale event, and Parks also provides free mulch to residents.

The City partnered again with Solar United Neighbors (SUN) this year. SUN, a regional solar co-op branded as Solar Switch, offers discounted pricing for solar installation (savings between 8% and 25%) and last year 37 City residents took advantage of the program. Letters to residents to solicit interest went out in March, and currently, the winning solar package offers a price of \$2.85/W, which is 21% lower than current average market prices. This translates to a \$4,810 discount on an average system.

Grants

Staff continues to monitor pending Federal and State grants to assist in funding these projects. Staff monitors and track all the various Federal grants related to sustainability, including working with our lobbyist, EPC, CML, DOLA, Beneficial Electrification League Colorado (BELCO), and many other organizations. While the timing of many grants are uncertain, staff are working to be proactive in developing projects and ideas.

Grant	Amount and project
EAB Grant through the Colorado Tree Coalition	\$25k grant for \$50k project
Energy Efficiency and Conservation Block Grant (EECBG) through the DOE	\$174,930 towards EVs for 2024
Regional Air Quality Council grant for electric equipment	\$50k for an e-mower and handheld equipment for Parks in 2023; \$50k for handheld equipment for 2024.
Charge Ahead Colorado through the Colorado Energy Office	Awarded \$50k for several EV charging stations in various locations; IMC and PD stations for 2024.
Colorado Water Conservation Board Turf Replacement Program	\$25k to replace nonessential turf and reduce outdoor watering
Bureau of Reclamation, Colorado Water Conservation Board	Awarded \$475k for our Northern Stewardship Properties Plan (land use plan)
WaterSmart Grant through the Bureau of Reclamation	Awarded \$1.5M for our Advanced Metering Infrastructure project
Advancing Organic Waste and Composting on the Front Range through CDPHE	Awarded \$58k for marketing of our drop-off compost program

There have been other grant the City has applied for and did not win (Recycling Grant through the EPA, Local Government EV Readiness Grant through the Colorado Energy Office (CEO), and CFI (Charging & Fueling Infrastructure) Discretionary Grant through DOT). This list also does not include grants that focus on multimodal transportation and open space/trail projects.

ATTACHMENTS:



CITY OF
THORNTON

Thornton Sustainability Update

May 28, 2024

Purpose

To update Council on the efforts that Thornton has taken to date and will be undertaking in the future.

Agenda

- Overview
- City Facilities
- Fleet & Equipment
- Water Conservation
- Waste Reduction
- Development Code
- Community Outreach
- Grants
- Questions

Sustainability Action Agenda

- Through Xcel's Partners in Energy program, the City created and adopted the Sustainability Action Agenda in 2020.
- The Sustainability Agenda is focused on:
 - Climate Action
 - Carbon-Free Energy Supply
 - Healthy & Efficient Buildings
 - Sustainable Transportation & Clean Air
 - Waste Reduction & Recycling
 - Sustainable Water & Land Management
 - Healthy Community
 - Resilient Economy
- The Energy Action Plan focuses on the first three categories

City Facilities: What We've Done

New Buildings

- Fire Station No. 7
 - Station design factored in heat island reduction and reduction of light pollution
 - The overall imperviousness far lower than what is typically seen for this zoning and leads to reducing stormwater pollution.
 - Irrigation, turf areas, landscaping, interior features, and appliances are all highly water efficient
- Police Department Training Facility + Fire Station No. 1
 - Higher efficiency equipment, windows
 - Low-emitting materials (VOCs in paints)
 - EV charging infrastructure
- Active Adult Center – qualified for LEED certification
 - Water efficiency measures that reduced indoor water use by 40%
 - Energy performance improvements that saved over 38% of energy as compared to the old facility.
 - Low-emitting materials (VOCs in paints)

City Facilities: What We've Done

Building Improvements

- Replacing all lights with LED
- Use white EPDM roofing (where applicable)
- Replacing old equipment with new, energy efficient equipment
- Solar at City Hall (400 panels) and Carpenter (234 panels)



City Facilities: What We've Done

- DocuSign implemented in 2020, saving the city 12,000+ lbs of waste.
- Water utility operations: our operations have always focused on energy efficiency, and through optimizing processes and pumping, we saved 2M+ KWhrs of electricity for the past 3 years (\$172.8k in savings per year)
- Through the Colorado Department of Public Health and Environment (CDPHE), Thornton is a part of the Green Business Network, which recognizes organizations that make the move toward the goal of true, operational sustainability.

City Facilities: What We're Doing

New buildings

Community Center

- Materials have sustainability considerations (locally sourced, recycled content, renewable materials, etc. from countertops to the exterior brick, to the tile and flooring) where practical
- Highly efficient HVAC systems (energy recovery on main air handling units and reduced energy consumption and better ventilation)
- Landscape architecture is water efficient and limiting impervious services
- Micro-mobility hub to encourage use of alternate modes of transportation
- EV charging infrastructure

Fire Station No. 8

- Station design factored in heat island reduction and reduction of light pollution
- Irrigation, turf areas, landscaping, interior features, and appliances are all highly water efficient

City Facilities: What We're Doing

Building Improvements

- Optimization of new equipment by replacing HVAC/other systems with more efficient ones during regular replacement lifecycles
- Weatherization and water efficiency improvements at facilities via our energy performance contract
- Optimizing water utility operations by upgrading pumps and other equipment at various plants and pump stations

Streetlight Acquisition

- In the process of the separation study which should be completed by December

City Facilities: What We're Doing

- Exploring a sustainable purchasing policy that allows procurement decisions to be made based on environmental and social impacts, as well as financial considerations.
- Exploring solar at TWTP and improving energy efficiency through a variable frequency drive (VFD) at McKay Pump Station through the 2025 Budget Process

Fleet & Equipment: What We've Done

Charging stations

- 5 charging sites (City Hall, Fire Station No. 1, Infrastructure Maintenance Center (IMC), Trail Winds Recreation Center, and Thorncreek Golf Course) and 18 ports

Vehicles

- In the process of acquiring the City's first electric vehicles (4)
- 3 electric motorcycles and 82 hybrids currently
- Out of those, 73% are in Police. This equates to 30% of the total Police fleet as a hybrid. Patrol is a 24/7 operation, and as a result, this is a high utilization of hybrid/electric vehicles.
- 14 e-bikes; 12 in Police

Equipment

- Already using electric handheld equipment in parks
- Acquired first electric mower last year

Fleet & Equipment: What We're Doing

Charging stations

- Adding more charging stations: Justice Center / IMC

Vehicles

- 2025 Budget: at least five EV candidates
- Through the natural turnover of the fleet, the city is committed to hybrid options when available. Electric pickups have good ROI and when operationally possible, the city is committed to electric pickups.

Equipment

- Through the 2025 budget, converting most of Parks smaller handheld equipment (10HP or less) to electric
- Still evaluating electric mower

Water Conservation: What We've Done

- Continuing to focus on water at city parks
- Residential and Commercial water efficiency programs:
 - Indoor programs: toilet rebates
 - Outdoor programs: smart irrigation controller rebates, water-wise landscape rebates, services such as lawn removal, sprinkler consultations, and Garden-in-a-box continue
 - Commercial water use assessments offered to businesses interested in reducing their water use. Water demand estimates for new developments.
 - WaterSmart portal for water customers to track their water use and learn how to find and fix leaks.

Water Conservation: What We're Doing

2024 Programs

- Continuing programs for low-income customers, such as toilet replacements and leak repair assistance.
- Youth Water Festival
- Advanced Metering Infrastructure – upgrading water meters and installing new meter reading technology that will provide real-time water usage information, rather than monthly. This is critical for water conservation as it results in quicker leak detection and allows customers to better manage their water usage.
- Commercial water efficiency through commercial benchmarking project with the Alliance for Water Efficiency
- Parks irrigation efficiency through a Water Resources Analyst to focus on Parks irrigation efficiency for Thornton's largest water customer.
- Water Efficiency Plan Update in 2024 will provide the roadmap for future water conservation efforts
- Landscape Code

Waste Reduction: What We've Done

- Made trash and recycling routes more efficient, which resulted in reduced labor costs and route miles.
- Recycling
 - Diversion rate in 2023: 14.79% (increased from 13% in 2022)
 - Mattress diversion program (270 tons of mattresses since inception)
 - Partner with AdCo to offer Electronic Recycling Drop-off events (493 tons over 5 years)
 - Household hazardous waste disposal (3 events in 2023)
- Composting (Organics)
 - Drop off composting tonnage increased 150% from 2020 to 2022 through improved communications with residents, using a marketing grant, and then increased again 30% in 2023.
 - Free mulch is provided to residents through Parks

Waste Reduction: What We're Doing

- Using bag fee funding, we are providing free reusable bags for the community and a mattress recycling event. We are continuing program development for a citywide Compost (Organics) Collection program and applied for a technical assistance grant through the Front Range Waste Diversion program.
- We will continue electronic recycling drop off events, household hazardous waste disposal, and drop off Organics

Development Code: What We've Done

- Received public outreach feedback on consideration of EV charging stations, bicycle and ped infrastructure, reduced off-street parking, permeable surfaces with limits on impervious surfaces, renewable energy options such as energy efficient design, green roofs, bird-friendly design, dark skies friendly lighting, tree planting, native plant species, rain gardens/bioswales

Development Code: What We're Doing

- Consideration of a points system, incentives including expedited review
- Density - increased density, mixed use, accessory dwelling units (ADUs), infill and redevelopment
- Transit, sidewalks, bikeways, etc. - multimodal projects
- Reducing off-street parking requirements for development near transit
- Open space and parks requirements for development

Community Engagement: What We're Doing

- Sustainability table at ward events and will include information from Xcel and United Power about rebates
- Share about rebates + energy conservation measures with business community via networking events
- Promote more green initiatives by encouraging businesses to convert to LED
- Expanding tree sale program to have a second tree sale event
- Operating Solar United Neighbors/solar co-op

Sustainability Grants We've Applied for and won

Grant	Amount and project
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Questions?