Climate Action Plan 2022

FEBRUARY 21, 2022

City of Moscow Environmental Services Department
Primary Author: Kelli Cooper

Acknowledgements

Sustainable Environment Commission

Steve McGeehan | Tina Hilding | Victoria Seever | Jassen Bluto | Jamal Lyksett | Asaph Cousins
Al Poplawsky | Gordon Wilson | Marley Pankratz | Amber Ziegler | Nicole Xiao

Climate Action Working Group

Tina Hilding | Nancy Chaney | Al Poplawski | Mary Dupree | Alycia Bean | Tom Lamar | Ben Aiman
Elizabeth Stevens | Amber Ziegler | Judy Meuth | Robby Cooper | Daniel Cronan | Kristin Haltiner
Jeff Hicke | Tyler Barron | Kinsey Freeman | Olivia Wiebe | Brandi Sullivan

Front Cover: Stock photo- City Hall from the East

"Unless someone like you cares a whole awful lot, nothing is going to get better, it's not" – The Lorax by Dr. Suess

Executive Summary

Climate change is a pressing global concern. Atmospheric concentrations of Carbon Dioxide ($CO_{2)}$ are at the highest level that they have been in at least the last 2 million years. Concentrations of methane and nitrous oxide, two other major greenhouse gasses, are at the highest they have been in at least the last 800,000 years. Concentrations of all three continue to climb. According to the latest Intergovernmental Panel on Climate Change Report, human activities are responsible for 1.1°C of warming since the beginning of the industrial era and are on track to reach 1.5°C in the next 20 years unless significant action is taken. Keeping warming below the 1.5°C threshold is critical to avoid the worst of climate change impacts.

Many of the impacts of climate change are already being observed across the globe and the City of Moscow is no exception. In 2017, the City's various commissions conducted the first comprehensive Commission Survey. In that survey, City residents were presented with the following statement:

"There are concerns that adverse climate patterns are having an effect on precipitation, temperatures, aquifer recharge, snowpack, air quality, and pest incursion on the Palouse."

To gauge the level of resident concerns, the City asked respondents to indicate their feelings on the matter. The Likert Scale used ranges from "Very Concerned" to "Not Concerned." **68 percent** of respondents noted they are either "Concerned" or "Very Concerned," whereas 10 percent said they are "Not Concerned."

In February of 2020, the Moscow City Council identified climate change as a major challenge area in their Strategic Plan that needs to be addressed and began working to develop a climate action plan.

A Climate Action Plan (CAP) provides a science-based strategy (targets) to reduce greenhouse gas emissions and address ways the climate is already changing. Many states, cities, and counties are creating Climate Action Plans in order to better understand their own baseline emissions and develop a path toward decarbonization**.** In 2019, Community emissions in Moscow were equal to 150,734 metric tons of Carbon Dioxide Equivalent (CO_2e). Of that, 3,655 metric tons CO_2e is attributable to Moscow City Operations.

The City of Moscow has committed to carbon neutrality by 2050, with an interim goal to reduce emissions by 56.6% by 2035. In order to lead by example, the City is also pledging to achieve carbon neutrality for City Operations by 2035.

This CAP sets forth an ambitious set of climate goals/targets for the Community and Moscow Governmental Operations and lays out programs, policies, and projects that will enable the City to meet those goals. Our CAP is a path toward sustainability, not just for City government, but also the business community and homeowners. This CAP will be updated periodically to reflect changes and incorporate lessons learned.

Table of Contents

Acknowledgements....2
Executive Summary....3
Table of Contents....5
Introduction....7
- Background....7
- History of Climate Action in Moscow....7
- Goals....8
  - Emissions Reduction and Sequestration....8
  - The Human Element....9

Current Conditions: Greenhouse Gas Emissions and Sequestration....10
- Inventory Methodology....10
- Community Emissions....11
- City Operations Emissions....14

Action....17
- Community....17
  - Commercial, Residential, Industrial Sectors....17
  - Transportation Sector....19
  - Solid Waste....20
  - Water & Wastewater Treatment Facilities....21
  - Sequestration....21
- City Operations....21
  - General....21
  - Buildings & Facilities....22
  - Street lights & Traffic Signals....22

Vehicle Fleet.....23
Employee Commute.....23
Solid Waste Facilities.....24
Water & Wastewater Treatment Facilities.....24
Appendix.....25
Climate Change Resolutions.....25
Impacts Assessment.....25
ICLEI Race to Zero Commitment Form.....25
iTree Canopy Reports.....25

Introduction

Background

Climate change is a pressing global concern. Atmospheric concentrations of Carbon Dioxide ($CO_{2)}$ are at the highest level that they have been in at least the last 2 million years. Concentrations of methane and nitrous oxide, two other major greenhouse gasses, are at the highest they have been in at least the last 800,000 years. Concentrations of all three continue to climb. According to the latest Intergovernmental Panel on Climate Change Report, human activities are responsible for 1.1°C of warming since the beginning of the industrial era and are on track to reach 1.5°C in the next 20 years unless significant action is taken. Keeping warming below the 1.5°C threshold is critical to avoid the worst of climate change impacts.

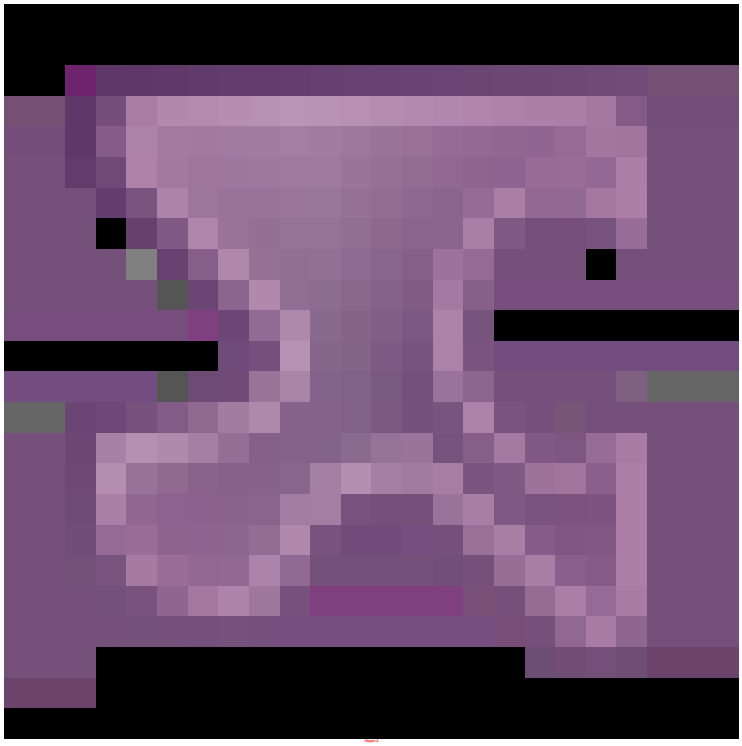
History of Climate Action in Moscow

In 2007, the City joined the International Council for Local Environmental Initiatives (ICLEI), by way of Resolution No. 2007-13, as a fully participating member in the Cities for Climate Protection Campaign and, as a participant, pledged to take a leadership role in promoting public awareness about the causes and impacts of climate change. The resolution noted that the City would undertake the Cities for Climate Protection Campaign's five (5) milestones to reduce both greenhouse gas and air pollution emissions throughout the community, specifically:

- Conduct a greenhouse gas emissions inventory and forecast to determine the source and quantity of greenhouse gas emissions in the jurisdiction.
- Establish a greenhouse gas emissions reduction target.
- Develop an action plan with both existing and future actions which when implemented will meet the local greenhouse gas reduction target.
- Implement the action plan.
- Monitor and report progress.

In 2010, pursuant to Resolution 2010-18, the City adopted a greenhouse gas (GHG) reduction goal of 20% of 2005 levels (from City operations) by the year 2020.In 2013, the City affirmed the adopted GHG reduction goal (see Resolution No. 2013-16). Then in 2014, due to a change in software and lack of available data for 2005, the City Council updated the baseline year from the 2005 level to 2008 and once again affirmed the reduction goal of 20% of 2008 levels by 2020.

Greenhouse gas inventories of City Operations were conducted in order to track progress toward the 20% reduction goal (Figure 1). In 2008, emissions totaled 4,722 metric tons CO_2e. Through the implementation of various energy efficiency improvements, such as the EcoDriver Program, emissions due to City Operations were reduced to 3,655 metric tons CO_2e by the end of 2020, successfully meeting the reduction goal.



The City of Moscow is committed to future actions for addressing climate change. Since the beginning, the Sustainable Environment Commission has been involved in hearing public input on climate change initiatives, recommending goals and actions to City Council, as well as taking reports from City staff about progress. In 2019, with the 2020 goal deadline quickly approaching, a subcommittee, the Climate Action Working Group, was formed to focus on climate change and next steps. On February 25, 2020, the Moscow City Council added Climate Change as a major challenge area in their Strategic Plan. By June of 2020, the Climate Action Working Group had developed a Climate Impacts Assessment (Appendix X), detailing the implications of a changing climate for Moscow. The following April, Council held a workshop to begin the process of setting a new goal for climate action in Moscow, ultimately leading to the creation of this document.

Goals

Emissions Reduction and Sequestration

Building on past efforts, the City of Moscow has pledged to join the Cities Race to Zero campaign through ICLEI-USA, committing to net-zero emissions by 2050 as a community. The Race to Zero framework follows a 4-step process, which is outlined in Figure 2. Setting science-based targets (SBTs) will be critical for success moving forward. SBTs are calculated to reflect the maximum fair share effort to reach 50% global CO2 reductions. For Moscow, this amount was calculated to be a 56.6% reduction of 2019 emissions levels.

Race to Zero does not propose specific goals for City Operations. However, the City believes in leading by example and has set a goal to achieve net-zero emissions by 2035.

Figure 2: Cities Race to Zero Framework

The Human Element

Moscow residents place value on quality of life, stability, and sustainability. Using these as guiding principles, Moscow's climate actions will seek to improve human health, advance equity, and build resiliency within the community. Continued engagement with the community will be vital to creating sustainable change.

Current Conditions: Greenhouse Gas Emissions and Sequestration

Inventory Methodology

For consistency, ICLEI's Clearpath software and associated methodologies were adopted for completing both the City Operations Inventory and the Community Inventory included in this plan. The Local Government Operations (LGO) protocol was used in determining City Operation emissions, while the Community Protocol was used to determine Community emissions. Emissions are categorized by scope and organized by sector.

Emissions across both inventory types are divided into three scopes. Scope 1 includes all emissions from the combustion of fuels, such as gasoline and diesel consumption by vehicles and natural gas consumption. Scope 2 includes all emissions resulting from purchased electricity. Scope 3 emissions include all other emissions not accounted for in Scope 1 or 2. This includes emissions from solid waste, certain wastewater treatment processes, and upstream emissions.

Emissions are further classified by sector. Breaking down emissions in this fashion allows for efficient data compilation as well as to facilitate the development of targetable areas of action. Sectors vary by inventory type to accommodate for scale, spheres of influence, and data availability.

There are nine (9) sectors available for evaluation under the LGO Inventory type but only six of those apply to current operations: Buildings & Facilities, Streetlights & Traffic Signals, Vehicle Fleet, Employee Commute, Solid Waste Facilities, and Water & Wastewater Treatment Facilities. Natural gas and electrical consumption data were compiled from the City's energy bills from Avista Utilities. This data would be used for calculations in the Building & Facilities, Water & Wastewater Treatment Facilities, and the Streetlights & Traffic Signals Sectors. Fuel consumption by the City Fleet was obtained from the Fleet Department and would be used to calculate emissions in the Vehicle Fleet Sector. Employee commute data was obtained via survey of current City employees. Solid Waste data for City Operations was calculated based on the size of the waste containers at all City Facilities and the assumption that these were full at the time of pick-up.

There are ten (10) sectors available for a Community Inventory type. Each was evaluated for its applicability to the Moscow community and seven were determined to be relevant: Residential Energy, Commercial Energy, Industrial Energy, Transportation & Mobile Sources, Solid Waste, Water & Wastewater, and Upstream Impacts of Activities. Electrical and natural gas consumption data was obtained, in aggregate, from Avista Utilities and includes all use within the '83843' zip code. As such, it includes some consumption outside of the City of Moscow's jurisdiction. This data was used to calculate emissions in the Residential Energy, Industrial Energy and Commercial Energy Sectors. Traffic count data collected directly by the City were used to calculate emissions in the Transportation & Mobile Sources Sector. Each year traffic counts on a portion of City Roads are completed. Traffic data from counts completed in 2019 was extrapolated out to the City as a whole to approximate total vehicle miles traveled. Fuel use and vehicle miles traveled data was also obtained from SMART Transit in order to calculate emissions from public transit. The airport was excluded from calculated emissions due to being outside jurisdiction and because the attributable emissions from the airport to Moscow are indeterminate at this time. Solid Waste calculations for the Community Inventory are based on data provided by the Sanitation Department and includes the total weight of municipal solid waste that was sent to the landfill in 2019 from the City overall. Recycling and biosolid impacts were not calculated. Water & Wastewater calculations are based on compiled data from the City's Avista bills for all water and wastewater facilities. For the purposes of the community inventory, only electrical consumption for these facilities was determined and then subtracted from the commercial Energy Sector to avoid double-counting. The Upstream Impacts of Activities Sector is made up largely

of emissions from line and distribution losses from energy consumption across previously discussed sectors.

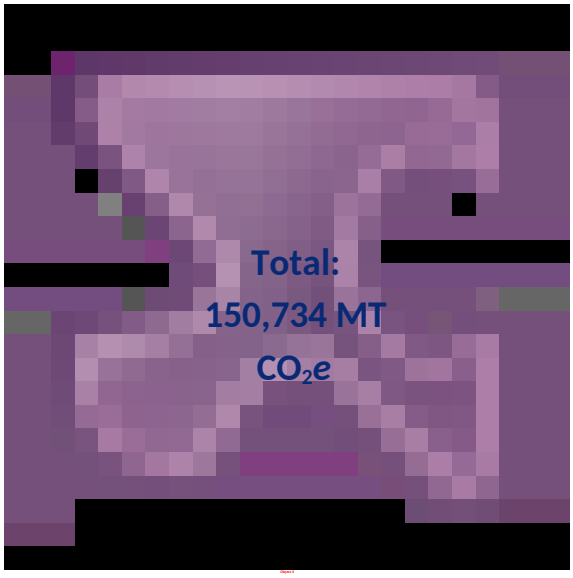
Community Emissions

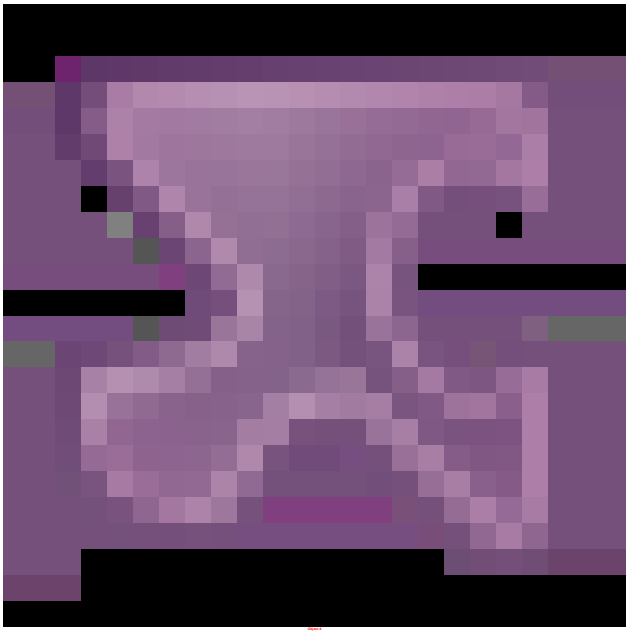
A community emissions inventory was completed for the City of Moscow based on data available for the year 2019. The year 2019 was chosen as the baseline year due to the necessary data being readily available and because it would reflect a more business-as-usual scenario than 2020. Community-wide emissions were determined to be 150,734 metric tons CO_2e *(Figures 3 and 4)*. The Residential Energy and Commercial Energy Sectors make up the bulk of emissions with 55,424 metric tons CO_2e (37%) and 51,577 metric tons CO_2e (34%) respectively. Both of these sectors include electrical energy and natural gas consumption. The Transportation Sector makes up an additional 31,569 metric tons CO_2e (21%) of community emissions. The remaining 8% of community emissions come from the Solid Waste (4,428 metric tons CO_2e, 3%) Upstream Impacts of Activities (3,709 metric tons CO_2e, 2%), Industrial Energy (2,217 metric tons, 1%), and Water & wastewater (1810 metric tons CO_2e, 1%) Sectors.

Figure 3: Community Emissions by Sector

Sector	Emissions (Metric tons CO_2e)
Transportation & Mobile Sources	31,569
Solid Waste	4,428
Water & Wastewater Treatment Facilities	1,810
Commercial Energy	51,577
Industrial Energy	2,217
Residential Energy	55,424
Upstream Impacts of Activities	3,709
Total	150,734

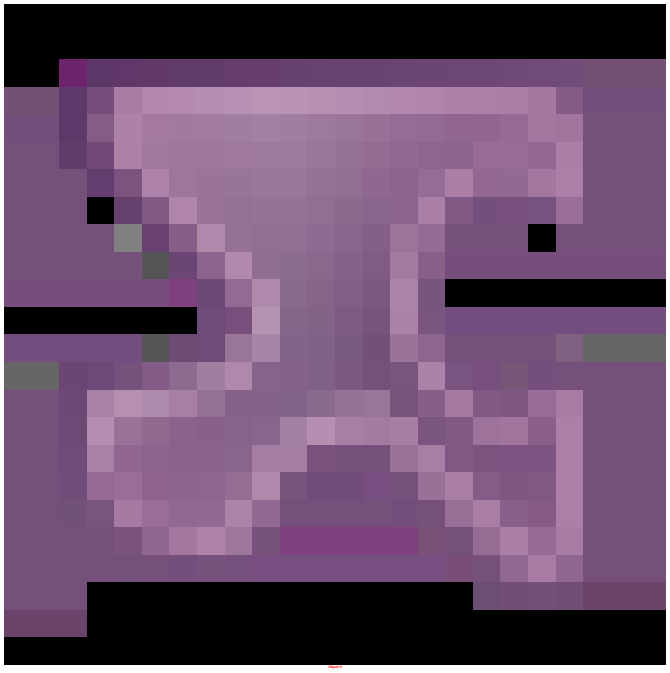
Figure 4: Proportion of Community Emissions by Sector





The consumption of purchased electricity within the City of Moscow makes up the slight majority (48%) of all emissions with the direct combustion of fuels a close second (46%). The remaining 6% of emissions come from solid waste management, certain wastewater treatment processes and upstream impacts of local activities (Figure 5).

Figure 5: Proportion of Community Emissions by Scope



An evaluation of the tree canopy and open green spaces within the city limits using iTree Canopy was used to determine current carbon sequestration rates for the community (see appendix for full report). Roughly 3,100 metric tons CO_2e per year are sequestered within city limits (Figures 6 and 7).

Figure 6: Groundcover Analysis of Area Within City Limits

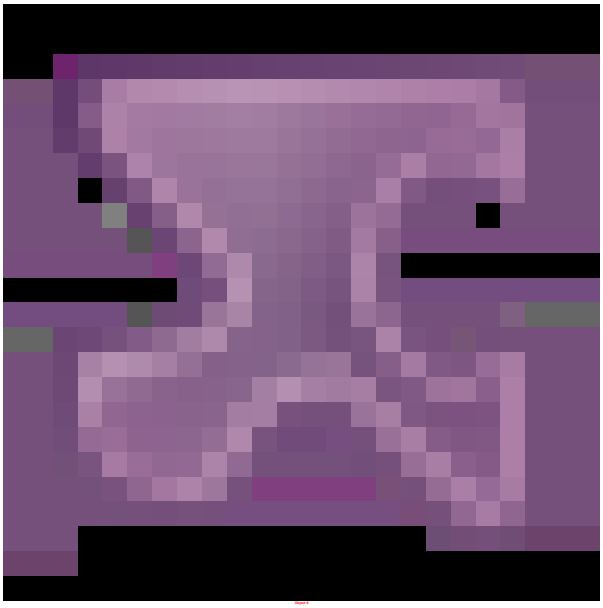


Figure 7: iTree Canopy Groundcover analysis

Cover Class	Points	% Cover ± SE	Area (square miles) ± SE
Water	5	0.22 ± 0.10	0.02 ± 0.01
Tree/Shrub	441	19.20 ± 0.82	1.38 ± 0.06

Soil/Bare Ground	51	2.22 ± 0.31	0.16 ± 0.02
Impervious Roads	211	9.19 ± 0.60	0.66 ± 0.02
Impervious Other	258	11.23 ± 0.66	0.81 ± 0.05
Impervious Building	233	10.14 ± 0.63	0.73 ± 0.05
Grass	1098	47.80 ± 1.04	3.43 ± 0.07
Total	2297	100.00	7.18

According to data obtained from Avista Utilities, 56 households participated in the My Clean Energy Program for the year 2019. The My Clean Energy program allows Avista customers to purchase renewable energy credits to offset the emissions from their electrical use. In order to account for the offset achieved through this program, a set average of 8,525 kilowatt-hours per household per year was used to determine the approximate total electrical consumption. The resulting emissions calculations conclude that another 156 metric tons CO_2e were offset by the purchase of renewable energy credits.

Approximately 2% of 2019 community emissions were offset through either sequestration or renewable energy credits (Figure 8 8

Difference:
147,436 MT CO_2e

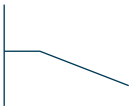
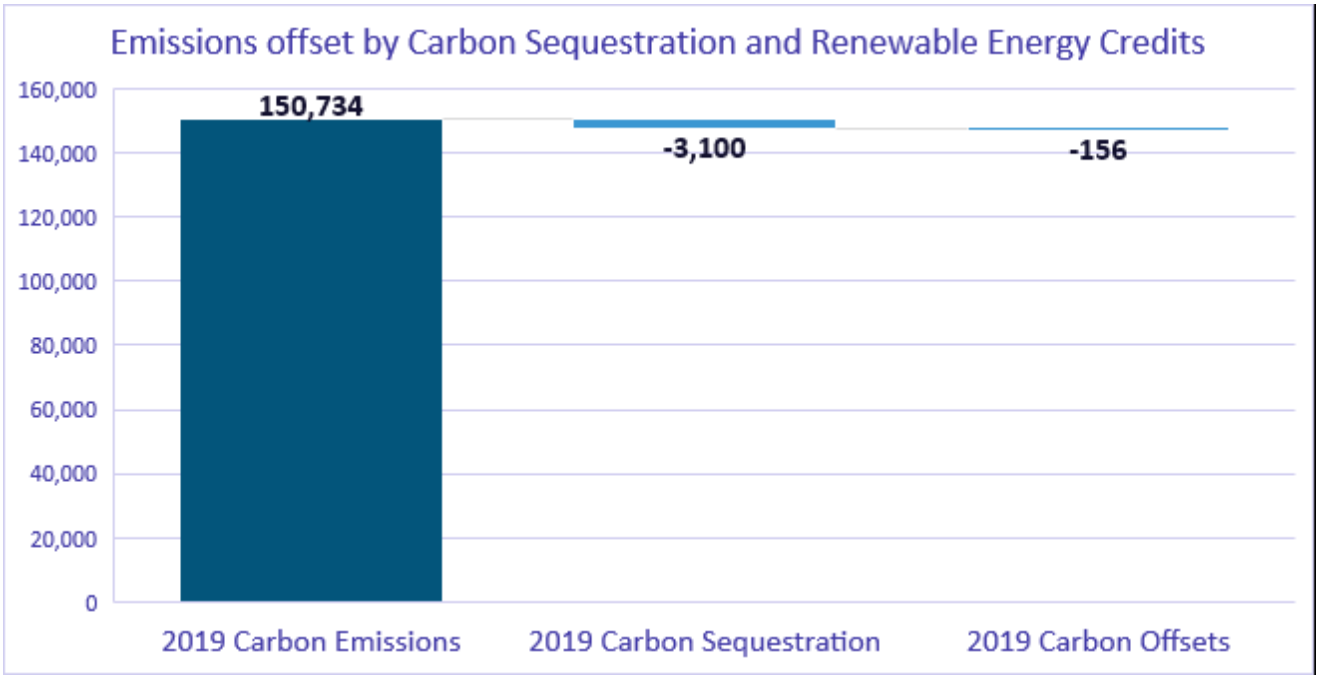


Figure 8: Community Emissions Offset by Carbon Sequestration and Renewable Energy Credits



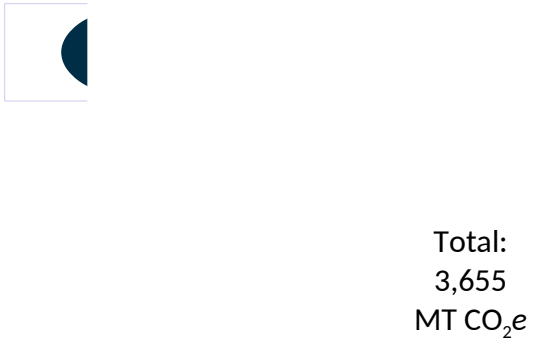
City Operations Emissions

Emissions due to City Operations were calculated to be 3,655 metric tons CO_2e in the most recent inventory (2020), making up approximately 2.5% of all emissions within the City of Moscow. Emissions are tracked across six sectors: Buildings & Facilities, Streetlights & Traffic Signals, Vehicle Fleet, Employee Commute, Solid Waste Facilities, and Water & Wastewater Treatment Facilities (Figure 9).

Figure 9: City Operations Emissions by Sector

Sector	Emissions (Metric Tons CO_2e)
Buildings & Facilities	638
Streetlights & Traffic Signals	338
Vehicle Fleet	473
Employee Commute	187
Solid Waste	153
Water & Wastewater Treatment Facilities	1,866
Total	3,655

Figure 10: Proportion of City Operations Emissions by Sector



The Water and Wastewater Treatment Facilities Sector is responsible for the largest portion of City Operations emissions (1,866 metric tons CO_2e, 51%), followed by the Buildings & Facilities Sector (638 metric tons CO_2e, 18%). Emissions in these two sectors are primarily driven by electrical energy consumption and natural gas consumption. The Vehicle Fleet Sector is responsible for approximately 13% (473 metric tons CO_2e) of City Operations emissions and is exclusively driven by the consumption of gasoline and diesel. It should be noted that, at this time, electrical consumption by electric and plug-in hybrid vehicles within the fleet is not tracked separately. Charging stations for these vehicles are located at City facilities and are tied into the electrical consumption at those facilities. Therefore, all electrical consumption by the City Fleet is accounted for under the Buildings & Facilities Sector. The Streetlights & Traffic Signals Sector is responsible for an additional 338 metric tons CO_2e (9%). City operations emissions are rounded out by the Employee Commute (187 metric tons CO_2e, 5%) and Solid Waste Facilities (153 metric tons CO_2e, 4%) respectively.

An analysis of groundcover of city-owned and operated properties using iTree Canopy revealed that approximately 438 metric tons CO_2e are absorbed through sequestration processes annually (Figures 11 and 12). Figure 13 provides a comparison of sequestration with 2020 emissions.

Figure 11: iTree Canopy Groundcover Analysis of City owned and Operated Properties

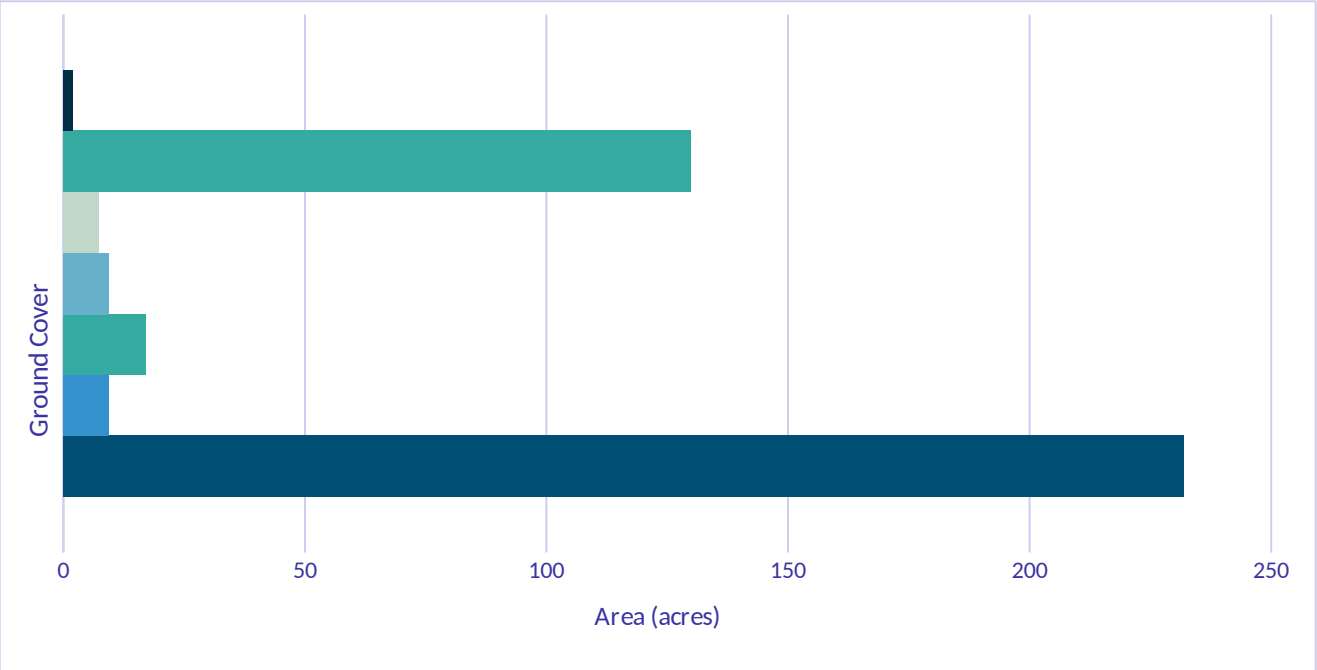
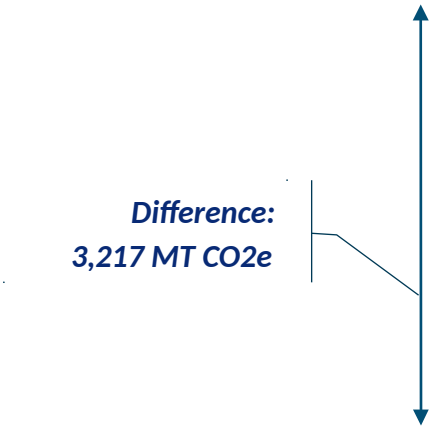


Figure 12: iTree Canopy Groundcover Analysis

Cover Class	Points	% Cover ± SE	Area (acres) ± SE
Water	5	0.50 ± 0.22	2.03 ± 0.91
Tree/Shrub	320	31.94 ± 1.47	129.95 ± 5.99
Soil/Bare Ground	18	1.80 ± 0.42	7.31 ± 1.71
Impervious Road	23	2.30 ± 0.47	9.34 ± 1.93
Impervious Other	42	4.19 ± 0.63	17.06 ± 2.58
Impervious Buildings	23	2.30 ± 0.47	9.34 ± 1.93
Grass/Herbaceous	571	56.99 ± 1.56	231.88 ± 6.36
Total	1002	100.00	406.90

Figure 13: City Operations Offset by Sequestration



Action

Community

As shown in Figure 4 (page 11) and based on current emissions trends, the energy sectors (Commercial, Residential, and Industrial) along with the Transportation sector, should be the main focus of climate action by the Community. These four sectors make up 93% of the emissions within the City of Moscow, making reductions in these sectors essential for success.

Commercial, Residential, Industrial Sectors

STRATEGY: Grid Decarbonization

Grid decarbonization refers to the elimination of carbon-based fuels used for electrical generation. The process involves the retirement of fossil fuel energy generation plants such as those that use coal or natural gas, and replacing them with renewable energy sources such as hydropower, wind or solar energy production.

ACTION: Support Avista's efforts to decarbonize.

Moscow is fortunate to receive a majority of its electricity from renewable non-carbon sources already. As of 2019, Avista Utilities, the energy provider for Moscow, only generates 43% of provided electricity through natural gas and coal. Another 2% is generated using renewable biomass. Avista has set aggressive targets to have a carbon-neutral electricity supply by 2027, and provide 100% clean electricity by 2045.

ACTION: Participate in and Promote My Clean Energy program

The My Clean Energy program is an Avista Utilities program designed to provide customers the opportunity to offset some or all of the carbon emissions associated with their energy use by adding a premium to their monthly bills. Customers can also choose for the fee premiums they contribute to go to either regional or national clean energy generation projects. Monies that are slated to regional projects are used by Avista to fund new renewable energy production as well as grants for local solar installations. According to Avista, the average customer uses 900 kWhr a month. This is equivalent to offsetting roughly four (4) metric tons CO_2e for those who participate in the program.

STRATEGY: Building Efficiency

Reducing electrical and natural gas consumption starts with increasing energy efficiency. Building inefficiencies lead to wasted energy, which adds unnecessarily to emissions and increases costs for the occupants.

ACTION: Increase participation in energy efficiency programs

Avista Utilities offers many energy efficiency programs. Efforts should be made to promote these programs as well as to identify and tear down any barriers to participation entry that may exist. Partnering with local non-profits to support energy efficiency improvements in low-income housing.

ACTION: Engage consumers in energy efficiency best practices

Develop and provide Moscow specific information about reducing energy use. In order to meet the 2030 science-based target of all new buildings, 1% of existing square footage need to meet IECC 2018 standards. In addition, 5% of existing square footage needs to need to meet IECC 2018 standards.

STRATEGY: Building Electrification

The use of natural gas as a heating fuel is a significant source of carbon emissions. One quarter of community emissions in Moscow come from natural gas used in homes and businesses for heating, cooking, and water heating. Transitioning to electricity for these uses would have an immediate effect because Avista already produces the majority of its electricity from renewable sources. In addition, as Avista achieves its clean energy target, emissions from these sources would be eliminated.

ACTION: Educate developers and consumers on the benefits of building all-electric

The most cost-effective way to electrify is to do it when a structure is being built. This is partially because the up-front costs associated with installing natural gas lines is avoided as are the costs of retrofitting existing structures. Demonstrating the value, in both the short and long term, of all electric buildings will be necessary to inspire change.

STRATEGY: Distributed Renewable Energy

ACTION: Educate consumers of the benefits of renewable energy

Providing Moscow specific information to consumers about available renewable energy types, pros and cons, rebates, tax benefits, etc.

ACTION: Develop a community solar bulk buy program

One of the largest road blocks to the installation of solar panels for homeowners is the upfront cost. Taking advantage of bulk pricing allows homeowners to reduce upfront costs.

Transportation Sector

STRATEGY: High Level Vehicle Miles Traveled Reduction

According to the EPA, the typical passenger vehicle emits roughly 4.6 metric tons of CO2 per year assuming a fuel economy of 22 mpg and driven 11,500 miles per year. In 2019, an estimated 62 million miles were driven within City Limits.

ACTION: Reduce vehicle trips

Greenhouse gas emissions in the Transportation Sector are tied directly to vehicle miles traveled within the city. Reducing vehicles traveling on our streets will decrease emissions. Increased access to public transit, transportation incentives, smart urban planning and zoning, and citizen outreach are all potential actions to be taken.

ACTION: Develop and expand alternative transportation options

In 2014, the City adopted the Moscow Multi-modal Transportation Plan to support active transportation methods and to increase access and safety for those choosing these methods. Expansion upon work that is already underway will help to further reduce greenhouse gas emissions. Implementation of a bike-sharing or scooter-sharing program would increase use of the City's extensive, and ever-growing, pathway network and reduce vehicle traffic. These options are also ideal for the student population who may or may not have a vehicle at their disposal. However, it is important to note that these options have limitations. For example, scooters or bikes might not be suitable for a trip to the grocery store due to lack of storage capacity. In this case, an electric car sharing program may also be beneficial.

STRATEGY: On-Road Electric Vehicle Adoption

ACTION: Grow electric vehicle infrastructure

A major road-block to electric vehicle adoption in Moscow is the lack of charging infrastructure. Consumers are naturally hesitant to convert electric options, especially in small rural city. Increasing charging options that are accessible to the public are integral to expanded adoption of EVs.

Solid Waste

STRATEGY: Waste Reduction

The average American generates 4.4 pounds of municipal solid waste per person per day, more than any other nation in the world. Unfortunately, that waste is collected and deposited into a landfill where it breaks down anaerobically and releases landfill gas. Landfill gas is primarily comprised of methane and carbon dioxide. The landfill currently used by Moscow includes a landfill gas collection system that is able to recover some of that gas and convert it to energy. From a climate change standpoint, methane is a more potent greenhouse gas than carbon, so anything that can be done to reduce production of this gas is beneficial.

ACTION: Compost program

According to the EPA, over one third of all food produced in the United States is wasted. A composting program would have multiple environmental and financial benefits. First, when food waste is composted rather than landfilled, it breaks down in an aerobic environment, which does not lead to the production of methane. Additional environmental benefits include reduced surface water run-off where applied, increased moisture retention, reduced erosion,

reduced use of artificial fertilizers, reduced landfill needs, and supporting healthy plant growth. Financial benefits include reduced landfill costs, reduced hauling fees, and a marketable product.

ACTION: Enhance and expand recycling programs

Recycling programs in the United States have suffered greatly since China implemented new regulations that restrict the import of low grade and contaminated recyclables in 2017. Continuous improvement of current recycling programs and adoption of emerging opportunities will be important moving forward.

ACTION: Evaluate and update construction and demolition standards to improve waste diversion

According to the EPA. 600 million tons of construction and demolition debris was generated in the United States in 2018. Many of these materials, if properly handled, can be reused or repurposed. Diversion of these materials conserves landfill space, offsets environmental impacts from extraction and production from virgin materials, and can create employment and economic activities.

ACTION: Consumer education

Empowering consumers with Moscow specific information regarding types of waste and how to prevent it can motivate change.

Water & Wastewater Treatment Facilities

The City of Moscow owns and operates its own water and wastewater treatment facilities. Therefore, most actions in this sector will be discussed below under City Operations.

STRATEGY: Water Conservation

ACTION: Continued implementation and expansion of Water Conservation Plan

Water Conservation is critically important for reducing emissions through reduced energy consumption. Moving water takes an incredible amount of energy. Until the grid is clean, this energy will continue to be a source of emissions. Conserving water also makes our community more resistant to water challenges.

Sequestration

STRATEGY: Augmentation of urban tree canopy

ACTION: Develop a tree program

Trees play a vital role in sequestering carbon in Moscow. Many older neighborhoods have extensive tree canopies. However, some of the larger trees may be approaching the end of life and may be more susceptible to disease. Newer neighborhoods lack good shade trees because the trees have not had a chance to grow. Current standards require developers to

plant street trees in new developments. Developing a tree program that helps homeowners keep their trees healthy, helps homeowners replace any trees that need to be removed, and adds a tree requirement to new development standards are some potential options to include in such a program.

STRATEGY: Wisescape® Program

ACTION: Educate citizens on the benefits of planting native species

It is unrealistic to rely solely on trees to provide sequestration services because the Palouse Region has not been historically tree-rich. Restoring native prairie where feasible and planting native plants will help not only sequester carbon at least as effectively as grass, but will also pull the carbon deeper into the soil.

City Operations

General

STRATEGY: Renewable energy credits

ACTION: Participate in Avista Utilities' My Clean Energy Program

Emissions in the Buildings & Facilities, Street lights & Traffic Signals, and Water & Wastewater Treatment Facilities Sectors are tied to electrical consumption. Therefore, participating in this program has the potential to offset electrical consumption by these sectors.

Buildings & Facilities

STRATEGY: Increase energy efficiency

ACTION: Energy Efficiency upgrades

Many City Facilities underwent LED lighting and HVAC system upgrades in pursuit of the 2020 reduction goal. Building on that work will reduce emissions as well as save money on energy costs.

ACTION: Building Envelope Assessments and Repairs

A building's envelope, the structural part of a building designed to repel the elements, is critically important in keeping energy use low. Damaged or inefficient envelopes lead to energy waste since they may not properly retain air that has been heated or cooled by artificial means. Comprehensive assessments of all City Facilities should be completed to identify any issues and repairs should be made accordingly. Doing so provides the dual benefits of reducing emissions while also saving money on heating and cooling costs.

ACTION: Building Electrification

Over half the emission attributed to the Buildings and Facilities Sector are produced through the consumption on of natural gas. Currently, electrical generation produces fewer fossil fuels than natural gas. In the long term, as the grid becomes cleaner, even fewer emissions would result.

Street lights & Traffic Signals

STRATEGY: LED lighting upgrades

ACTION: Ballfield lights

Switching to LED lights at the various ballpark facilities in Moscow, will cut energy consumption by at least half, while still maintaining quality lighting. Costs to operate these facilities would also be reduced as a result. LED lighting should also be adopted as the standard for any new or updated facilities. Any reduced energy consumption reduces emissions from the grid.

ACTION: Street lights

LED street light and security lighting provide higher quality light at a lower operational cost than traditional options. Currently, all residential street lights are slated to be changed out by Avista Utilities. The City will be responsible for changing out the downtown corridor, highway lighting, and security lighting in multiple parking lots. LED lighting should be adopted as the standard for any new or updated facilities. Solar street lights may also be considered for further emissions savings.

Vehicle Fleet

STRATEGY: Alternate Fuel Transition Plan

ACTION: Mower electrification

City of Moscow currently maintains 339.87 acres of parkland. In 2020, the City used over 1000 gallons each of gasoline and diesel on mowing alone. Agricultural equipment also burns fuel less efficiently than on-road vehicles. Replacing the current mowers with suitable electric models will eliminate the need for fuel for this purpose, reducing emissions and fuel costs.

ACTION: Electric vehicle adoption

Continued adoption of electric vehicles is necessary to further reduce fuel consumption. Replacement of larger equipment should also be considered as technologies develop.

Employee Commute

STRATEGY: Telecommuting

ACTION: Develop a permanent telecommuting policy

Telecommuting, as a response to the COVID-19 pandemic, played a significant roll in reducing emissions from the Employee Commute Sector. Telecommuting is becoming increasingly prevalent in the job market and provides multiple benefits to both the employer and the employee.

STRATEGY: Alternative transportation incentive

ACTION: Develop an alternative transportation incentive for employees

Money was the number one answer when employees were asked via survey what would persuade them to consider an alternative form of transportation. Financial incentives to encourage the use of, or to help purchase, alternative modes of transportation could help lower emissions tied to employee travel.

STRATEGY: Electric vehicle infrastructure

ACTION: Install electric vehicle charging stations at City Facilities that are open to employees

Many City employees live outside of City limits. Without proper charging infrastructure in place at their work location, or even in town, employees may be hesitant to adopt electric vehicles as their daily commuter.

Solid Waste Facilities

STRATEGY: Sustainable purchasing

ACTION: Update sustainable purchasing policy

Originally developed and adopted in 2008, the current policy is outdated. An evaluation of the current policy as well as the City's current purchasing needs should be considered in order to develop an updated policy.

STRATEGY: Improved waste tracking

ACTION: Develop and implement a method for tracking waste generated at City facilities

The current method of determining the waste produced at each City facility is determined based on the size of the container, how often it is picked up, and an average weight per yard. Developing a method to track actual weight would improve accuracy of the calculated emissions as well as provide a tool to gauge effectiveness of any waste diversion initiatives.

Water & Wastewater Treatment Facilities

STRATEGY: Energy efficiency

ACTION: Participate in Department of Energy SWIFt program

The Department of Energy Sustainable Wastewater Infrastructure of the Future (SWIFt) initiative is designed to help wastewater treatment facilities identify and implement changes to reduce energy consumption.

ACTION: Energy efficiency

Each water and wastewater facility should undergo an energy audit to determine what energy efficiency upgrades could be made in order to reduce consumption. This could include lighting, heating/cooling, variable frequency drives, pump efficiencies, etc.

ACTION: Building electrification

Some of the facilities included in this sector use natural gas as a heating source. Eliminating the need for natural gas will greatly reduce emissions in this sector.

STRATEGY: Renewable Energy integration

ACTION: Alternative energy feasibility assessment

Conduct an assessment to determine feasibility of integration of renewable energy at all water and wastewater sites. Grid-tied renewable energy production by the City would supplement power received from the Grid. In addition, any renewable energy produced would help create a cleaner grid, thereby indirectly reducing emissions elsewhere.

Appendix

Climate Change Resolutions

Impacts Assessment

ICLEI Race to Zero Commitment Form

iTree Canopy Reports

Resolution 2022-XXX: Resolution adopting the CAP